WCCM XI - ECCM V - ECFD VI
BARCELONA 2014

11th. World Congress on Computational Mechanics (WCCM XI)

5th. European Conference on Computational Mechanics (ECCM V)

6th. European Conference on Computational Fluid Dynamics (ECFD VI)

20 – 25 July 2014 - Barcelona, Spain

All Sessions and Papers

Subject to changes. This version is updated according to the last-minute information.

Monday, July 21st

21/07/2014 08:30 - 10:30
Opening Ceremony

OS
Room: Auditorium
Chair: Eugenio Oñate

The emergence of predictive computational mechanics
J. Tinsley Oden

10:30 - 11:00
Coffee Break

11:00 - 13:00
TECHNICAL SESSIONS

21/07/2014 11:00 - 13:00
Meshless and Related Methods, a Minisymposium Dedicated to Celebrate the 80th Birthday of Professor Janusz Orkisz I
Minisymposium organized by Sergio Idelsohn, Pierre Villon, G.R. Liu, Paulo M. Pimenta and Suvranu De

MS114A
Room: Mare Nostrum A
Chair: Sergio R. Idelsohn
CoChair: Pierre Villon

Meshless Finite Difference method - State of the art (Keynote Lecture)
Janusz Orkisz, Irena Jaworska, Jacek Magiera, Sławomir Milewski and Michał Pazdanowski

On some aspects of a posteriori error estimation in the multipoint meshless FDM
Irena Jaworska and Janusz Orkisz

A face-based smoothed finite element method for hyperelastic models and tissue growth
Tuan M. Duong and Manfred Staat

Meshfree volume-averaged nodal projection methods for incompressible media problems
Alejandro Ortiz-Bernardin, Jack S. Hale and Christian J. Cyron

Meshless method for 3D models with free form surfaces

Ming-Hsaio Lee, Shou-I Chen and Wen_Hwa Chen

Mixed meshless local Petrov Galerkin (MLPG) collocation method for modeling of heterogeneous materials
Boris Jalušic, Jurica Sorić and Tomislav Jarak

21/07/2014 11:00 - 13:00
HPC-Based CFD Simulations for Industrial Applications I
Minisymposium organized by Mariano Vázquez, Makoto Tsubokura , Takayuki Aoki and Mike Nicolai

MS208A
Room: Mare Nostrum B
Chair: Takayuki Aoki

Bit-representation of boundary conditions for high performance incompressible thermal flow simulation
Kenji Ono

Efficient parallel algorithms for embedded fluid structure interaction with unstructured mesh
Pooyan Dadvand, Abel Coll, Riccardo Rossi, Roland Wüchner and Eugenio Oñate

Parallel Data Transfer Across Sliding Plane for Unsteady Simulations of Multistage Turbomachinery Flows
Vlad Ganine, Dario Amirante and Nick Hills

Preconditioned VMS for compressible flow I: steady problems
Margarida Moragues Ginard, Mariano Vázquez and Guillaume Houzeaux

Preconditioned VMS for compressible flow II: transient problems
Margarida Moragues Ginard, Mariano Vázquez and Guillaume Houzeaux

Feel++ : A High Performance Finite Element Embedded Library in C++
Alexandre Ancel, Vincent Chabannes, Cécile Daversin, Guillaume Dollé, Vincent Doyeux, Jean-Marc Gratien, Vincent Huber, Mourad Ismail, Pierre Jolivet, Stéphane Priem, Christophe Prud'homme, Abdoulaye Samake, Marcela Szopos and Ranine Tara

21/07/2014 11:00 - 13:00
Innovative Methods for Fluid-Structure Interaction I
Minisymposium organized by Harald van Brummelen, Trond Kvamsdal and Roger Ohayon

MS077A
Room: Mare Nostrum C
Chair: Trond Kvamsdal
CoChair: Harald van Brummelen

An ALE-Eulerian embedded boundary method for tracking boundary layers in turbulent fluid-structure interaction problems (Keynote Lecture)
Charbel Farhat and Vinod Lakshminarayan

An immersed boundary method for fluid-rigid body interaction
Wulf G. Dettmer, Chennakesava Kadapa, Djordje Peric and Jochen Broz

Conservative coupling method between an inviscid compressible fluid flow and a fracturing structure
Maria Adela Puscas, Virginie Daru, Alexandre Ern, Christian Mariotti, Laurent Monasse and Christian Tenaud

Numerical investigation of an airfoil with self-adaptive camber
Sebastian Türk, Henning Spiegelberg, Michael Schäfer, Cameron Tropea and Dörte C. Sternel

New theoretical and numerical developments for added-mass effects and flapping dynamics
Rajeev Jaiman, Pardha Gurugubelli and Jie Liu

Unified continuum finite element simulation of turbulent flow fluid-structure interaction
Johan Hoffman, Johan Jansson, Niyazi C. Degirmenci, Jeannette H. Spühler and Bärbel Janssen

21/07/2014 11:00 - 13:00
Computational Damage and Fracture Mechanics I

MS008A
Room: Mare Nostrum D

Minisymposium organized by Michael Brünig and Larissa Driemeier

Chair: Michael Brünig

Numerical simulation of damage and failure behavior of biaxially loaded specimen

Daniel Brenner, Steffen Gerke and Michael Brünig

Robust modelling and simulation of ductile damage
Yi Zhang, Eric Lorentz and Jacques Besson

Competition between ASB and void growth assisted shear failure mechanisms: Unified modelling and applications
Patrice Longère and André Dragon

Capturing polycrystal plasticity and intergranular cracks with a novel DIC method

Li Li, Félix Latourte, Jean-Michel Muracciole, Laurent Waltz, Laurent Sabatier and Bertrand Wattrisse

Elasto-plastic model based on the third invariant of the deviatoric stress tensor: Monotonic and cyclic loading application
Edgar Mamiya, Lucival Malcher, Fabio Reis, Filipe Andrade and João Cavalheiro

Finite Fracture approach for the prediction of damage and failure of laminated composites
Nicolas Carrere, Alexandre Uguen, Eric Martin and Dominique Leguillon

21/07/2014 11:00 - 13:00
Applications of Error Estimation and Model Adaptation in Computational Mechanics I
Minisymposium organized by Ludovic Chamoin, Pedro Díez, Fredrik Larsson and Kris Van der Zee

MS010A
Room: Mare Nostrum E
Chair: Ludovic Chamoin

Recovery-based guaranteed upper error bounds in energy norm of the Finite Element solution for the linear elasticity problem (Keynote Lecture)
Enrique Nadal, Pedro Díez, Juan J. Ródenas, Manuel Tur and Francisco J. Fuenmayor

New simple, cheap and efficient explicit residual error estimator for adaptive finite element analysis in elasticity and fracture
Timofiy Gerasimov, Erwin Stein and Peter Wriggers

An error estimator for recovered fields in linear elasticity: towards high performance h-adaptive finite element analysis
Juan J. Ródenas, Enrique Nadal, Manuel Tur and Francisco J. Fuenmayor

Finite element error estimation for boundary value and eigenvalue problems associated with a Schrödinger operator
Jeffrey S. Ovall and Hengguang Li

An updated Lagrangian method with error estimation and adaptive remeshing for very large deformation elasticity problems
Sophie Léger, André Fortin, Cristian Tibirna and Michel Fortin

R-adaptivity for fluid-structure interaction, deforming domains and internal boundaries
Kaspar Müller, Jeannette H. Spühler, Cem Degirmenci, Johan Jansson and Johan Hoffman

21/07/2014 11:00 - 13:00
Advances in Computational Methods for Inverse Problems I
Minisymposium organized by Paul E. Barbone, Dan Givoli and Assad Oberai

MS075A
Room: Mare Nostrum F
Chair: Dan Givoli
CoChair: Assad Oberai

An inverse source problem for focusing wave energy to subterranean formations (Keynote Lecture)
Pranav M. Karve, Chanseok Jeong and Loukas F. Kallivokas

Reconstruction of elastic moduli from noisy full-field measurements
Guillaume Bal, Cédric Bellis, Sébastien Imperiale and François Monard

Advanced computational formulations for boundary-condition free elastic modulus reconstructions from partial interior data
Olalekan A. Babaniyi, Assad A. Oberai, Michael S. Richards and Paul E. Barbone

Optimization of torsion transducer sensitivity on layered tissue
Juan Melchor, Guillermo Rus, Laura Peralta, Nicolas Bochud, Juan Chiachío, Manuel Chiachío, J. Suárez and Antonio Gómez

Mechanical characterization of abdominal muscle using stereo imaging
Raquel Simón-Allué, Antonio Agudo, José María M. Montiel, Juan M. Bellón and Begoña Calvo

Method of data completion for a cauchy problem of elastoplasticity based on minimizing an energy error functional
Thi Bach Tuyet Dang, Thouraya Nouri Baranger and Stéphane Andrieux

21/07/2014 11:00 - 13:00
Smart Materials and Structures I
Minisymposium organized by Joachim Bluhm, Mieczyslaw Kuczma, Wieslaw Ostachowicz and Surjya Maiti

MS161A
Room: Llevant
Chair: Mieczyslaw Kuczma
CoChair: Wieslaw Ostachowicz

Modeling of self-healing phenomena in a polymer matrix based on a microcapsule system (Keynote Lecture)
Steffen Specht, Joachim Bluhm and Jörg Schröder

Simulation of mechanical behavior of NiTi shape memory alloys and their applications
Alena Kruisova, Miroslav Frost, Barbora Benesova, Petr Sedlak and Petr Sittner

Dissipation-based approach and robust integration algorithm for 3D phenomenological SMA constitutive models
Edoardo Artioli and Paolo Bisegna

Numerical computation of fractional operators for SMA modeling
Jon A. Arakama, Modesto Mateos and Jon Aurrekoetxea

Modeling of smart concrete beams with shape memory alloy actuators
Sara Malagisi, Sonia Marfia, Elio Sacco and Jessica Toti

A coupled problem for porous shape memory alloy fluid-filled beams
Joachim Bluhm, Mieczyslaw Kuczma and Joerg Schroeder

21/07/2014 11:00 - 13:00
Advanced Computational Failure Analysis of Fiber Composite Structures I
Minisymposium organized by Raimund Rolfes, Eelco Jansen and José Reinoso

MS043A
Room: Mestral
Chair: Raimund Rolfes
CoChair: Eelco Jansen

A nonlinear domain decomposition method for the simulation of delamination, buckling and contact in laminated composites: Some improvements and examples

Karin Saavedra, Olivier Allix and Pierre Gosselet

Failure mechanics analysis of composite laminate
Weiling Zheng and Christos Kassapoglou

Multiscale modeling of the compressive behaviour of CFRP structures
Nicolas Feld, Olivier Allix, Emmanuel Baranger, Jean-Mathieu Guimard and Cuong Ha Minh

Simulation of crack patterns in CMC combining GFEM & Finite Fracture Mechanics
Orestis Friderikos, Emmanuel Baranger and Pierre Ladevèze

Modal interaction characteristics of an axially loaded composite cylindrical shell using Koiter's imperfection sensitivity analysis
Eelco Jansen and Raimund Rolfes

Application of a two-way loose coupling procedure to a stiffened composite panel
Sina Hühne, José Reinoso, Eelco Jansen and Raimund Rolfes

21/07/2014 11:00 - 13:00
Industrial Applications of Computational Fluid Dynamics and Related Techniques I

CS658A
Room: Ponent 1
Chair: Irene Arias

Evaluation of a passive control strategy for the decrease of acoustic loads behind backward-facing steps
Johan Nilsson, Robert-Zoltán Szász, Per-Erik Austrell and Ephraim J. Gutmark

Automated CAE process for thermo-mechanical lifing prediction of a parameterized turbine blade with internal cooling
Behnam Nouri and Arnold Kühhorn

The generation of higher levels of turbulence in a low-speed cascade wind tunnel by pressurized tubes
Thorben Aufderheide, Christoph Bode, Jens Friedrichs and Dragan Kozulovic

Dynamic Stability Analysis of Reentry Capsule with Detached-Eddy Simulation
Atsushi Hashimoto, Kenji Hayashi, Keiichi Ishiko, Keiichi Murakami, Takashi Aoyama, Rie Tagai, Seigo Koga and Shinji Nagai

Solution-adaptive space-time refinement for multispecies aerosol formation
Bernard J. Geurts, Edo M.A. Frederix, Milos Stanic, Arkadiusz K. Kuczaj and Markus Nordlund

Application of computational fluid mechanics for protection cloth design
Irina Cherunova, Nikolai Kornev, Gunnar Jacobi, Ievgeniia Treshchun, Andreas Gross, Johann Turnow, Sebasitian Schreier and Mathias Paschen

21/07/2014 11:00 - 13:00
Advanced Methods in Computational Fluid Dynamics I

CS655A
Room: Ponent 2
Chair: Xesús Nogueira
CoChair: José París

A new method for zonal LES – URANS computations with exchange of information between different codes
Stefano Vagnoli and Tom Verstraete

Development of CFD-DEM model for prediction of pyrolysis and combustion of biomass in a packed bed
Amir Houshang Mahmoudi, Florian Hoffmann and Bernhard Peters

Spectrally-consistent regularization of turbulent Rayleigh-Bénard convection
Firas Dabbagh, F. Xavier Trias, Andrey Gorobets and Assensi Oliva

Towards a multi-fidelity approach for CFD simulations of vortex generator arrays 

Liesbeth Florentie, Alexander H. van Zuijlen and Hester Bijl

A generalised convergence accelerated pressure-based segregated algorithm 

Vlado Przulj

21/07/2014 11:00 - 13:00
Multiscale Methods and Applications in Computational Mechanics I
Minisymposium organized by Weiqing Ren and Yang Xiang

MS116A
Room: Terral
Chair: Weiqing Ren

A one-domain approach for modeling and simulation of free fluid over a porous medium
Huangxin Chen and Xiaoping Wang

A continuum framework for dislocation structure, energy and dynamics of dislocation arrays and low angle grain boundaries
Yang Xiang and Xiaohong Zhu

Computing transition rates of rare events in dislocation dynamics
Congming Jin, Yang Xiang, Weiqing Ren and Gang Lu

Discrete dislocation dynamics simulation of polycrystalline materials: Grain boundary sliding and grain size effects
Siu Sin Quek, Zhanxuan Wu, Yong-Wei Zhang and David J. Srolovitz

Nanomorphology of organic solar cells from multiscale molecular simulations
Cheng-Kuang Lee and Chun-Wei Pao

21/07/2014 11:00 - 13:00
Gas Particles Modeling and Simulation I
Minisymposium organized by Jesús M. Blanco, Lakhdar Remaki and Abdelkader Baggag

MS050A
Room: Tramuntana 1
Chair: Jesús María Blanco
CoChair: Lakhdar Remaki

Gas-particle model for objects rigid motion in fluids (Keynote Lecture)
Lakhdar Remaki, Imanol G. de Beristain and Jesús M. Blanco

Influence of mixing and cooling on aerosol formation and evolution in backward-facing step flow
Arkadiusz K. Kuczaj, Markus Nordlund, Edo M.A. Frederix and Bernard J. Geurts

Large Eddy Simulation of evaporating spray using unstructured meshing
Jordi Muela, Jordi Ventosa-Molina, Oriol Lehmkuhl, Carles D. Pérez-Segarra and Assensi Oliva

Modelling laminar multiphase dispersed flows using population balances in an adaptive mesh finite element framework
Gaurav Bhutani, Pablo R. Brito-Parada, Kathryn Hadler and Jan J. Cilliers

A numerical comparison of a hydraulic cavitation bubble and a laser-induced bubble
Juan S. Cardona and Manuel J. Garcia

Identification of defects originated during the filling of cast pieces through particles modeling 

Jesús M. Blanco, Primitivo Carranza, Rafael Pintos, Pedro Arriaga and Remaki Lakhdar

21/07/2014 11:00 - 13:00

Potential-flow and Viscous-flow Simulations of Interfacial Flows, Waves and Free-surface Turbulence I
Minisymposium organized by Lian Shen, Yuming Liu and Dick K.P. Yue

MS189A
Room: Tramuntana 2
Chair: Lian Shen

Pulse ejector parameters optimization on the base of mathematical modeling
Francheska A. Slobodkina and Alexey V. Obukhov

Solutal Marangoni instability in finite and infinite binary alloy systems with a miscibility gap
Fei Wang and Britta Nestler

Study of nonlinear free-surface spike induced by bubble
A-man Zhang, Shuai Li and Xiong-liang Yao

On the dynamics of interfacial instability in vertical counter-current gas/liquid flows
Patrick Schmidt, Lennon Ó Náraigh, Prashant Valluri and Mathieu Lucquiaud

Numerical simulation of a shock accelerated heavy gas cylinder
Bing Wang, Tao Wang and Jin-song Bai

Numerical study of the spatial flow of abnormally viscous fluid in the extrusion mixer screw channel
Sergey V. Ershov, Natalia M. Trufanova and Aleksey G. Shcherbinin

21/07/2014 11:00 - 13:00
Solid-solid Phase Transformations at Various Length-scales I
Minisymposium organized by Thomas Antretter and Rolf Mahnken

MS080A
Room: Xaloc
Chair: Thomas Antretter

Enhancement or suppression of structural phase transitions in $Ti_{1-x}Al_xN$ by pressure and stress
Igor A. Abrikosov, Fei Wang, Ferenc Tasnadi and Björn Alling

Macroscopic and mesoscopic modeling based on the concept of generalized stresses for cutting simulations
Rolf Mahnken, Chun Cheng, Martin Düsing, Ivan Mitkov Ivanov and Eckart Uhlmann

Phase field approach to phase transformations, dislocations and their interaction
Valery I. Levitas and Mahdi Javanbakht

Numerical modelling of the thermo-mechanical material response of heavy plates during accelerated cooling in the steel industry
Werner Essl, Thomas Antretter and Erik Parteder

21/07/2014 11:00 - 13:00
Frontiers of Verification, Validation (V&V) and Uncertainty Quantification I
Minisymposium organized by Luís Eça, François Hemez, James Kamm, Marisol Koslowski and William J. Rider

MS210A
Room: Salon Club
Chair: James Kamm
CoChair: James Glimm

Predictive simulations for problems with solution non-uniqueness (Keynote Lecture)
Pooja Rao, Jeremy Melvin, Wenlin Hu, Ryan Kaufman, Hyunkyung Lim, David H. Sharp and James Glimm

Building adaptive stochastic models using low-cost output error estimates
Isaac Asher and Krzysztof J. Fidkowski

Probabilistic finite element analysis of non linear systems: Application to tunnel excavation

Paul Hauseux, Jean-Baptiste Colliat, Jian-Fu Shao and Darius Seyedi

Kriging-based dynamic adaptive sampling for effective uncertainty quantification
Koji Shimoyama and Soshi Kawai

Effective representation and propagation of uncertainty through tabular multiphase equation-of-state models
Allen C. Robinson, John H. Carpenter, Bert J. Debusschere, Richard R. Drake, Ann E. Mattsson and William J. Rider

Statistical Calibration in a Human Middle Ear FE Model
Dooho Lee and Tae-Soo Ahn

21/07/2014 11:00 - 13:00
Computational Methods in Fluid-structure Interactions, Dynamics and Vibration, Vibroacoustics - A Minisymposium in Honor of Prof. Roger Ohayon I
Minisymposium organized by Christian Soize

MS009A
Room: Yasmin A
Chair: Christian Soize
CoChair: Carlos Felippa

Fluid-Structure Interaction: The many years of our collaborations with Roger Ohayon (Keynote Lecture)
K. C. Park and Carlos A. Felippa

On the PGD-based model order reduction in structural and fluid mechanics: A step forward parametric FSI
Francisco Chinesta, Jose V. Aguado, Elías Cueto, David Gonzalez and Amine Ammar

Structural-acoustic coupled systems with active-passive damping interface
Jean-François Deü

Slamming
Frederic Dias, Thomas Abadie and Yanji Wei

Implicit interfaces and anisotropic mesh adaptation for fluid structure interactions
Thierry Coupez, Ghina Jannoun, Jeremy Veysset and Elie Hachem

Pseudo-local absorbing boundary condition for the simulation of water gravity waves in open domains
José A. González and K. C. Park

21/07/2014 11:00 - 13:00
Advanced Beam Models I
Minisymposium organized by Dinar Camotim, Zuzana Dimitrovova and Rodrigo Gonçalves

MS047A
Room: Yasmin B
Chair: Zuzana Dimitrovová
CoChair: Rodrigo Gonçalves

GBT linear buckling analysis of channel columns with multiple perforations
Miquel Casafont, Jordi Bonada, Maria M. Pastor and Francesc Roure

Influence of the GBT deformation modes for a rack section in linear and linear buckling analysis
Jordi Bonada, Miquel Casafont, Francesc Roure and Maria M. Pastor

A general model for the nonlinear analysis of beams including the effects of section distortions
Alessandra Genoese, Andrea Genoese, Antonio Bilotta and Giovanni Garcea

Direct procedure for the determination of conventional modes within the GBT approach
Giuseppe Piccardo, Gianluca Ranzi and Angelo Luongo

Non-linear analysis of steel-concrete beams using Generalized Beam Theory
David Henriques, Rodrigo Gonçalves and Dinar Camotim

A mixed finite element for generalized beam theory
Stefano de Miranda, Antonio Madeo, Domenico Melchionda and Francesco Ubertini

21/07/2014 11:00 - 13:00
Structural and Multidisciplinary Optimization I
Minisymposium organized by Jose Madeira and Helder Rodrigues

MS026A
Room: Yasmin C
Chair: Silvana Maria Afonso
CoChair: Jose Madeira

GLODS: Global and Local Optimization using Direct Search
Ana Custódio and Jose Madeira

Combined stacking sequence table and thickness optimization for laminate composite structures
François-Xavier Irisarri, Cédric Julien and François-Henri Leroy

Exploring frame structures with negative Poisson's ratio via mixed integer programming
Rui Kureta and Yoshihiro Kanno

Sensitivity analysis and shape optimization using isogeometric boundary element methods
Haojie Lian, Robert N. Simpson and Stéphane P.A. Bordas

Adaptive mesh decomposition strategies for topology optimization for multi-functional additive manufacture
David Brackett, Ajit Panesar, Adeji Aremu, Ian Ashcroft, Ricky Wildman and Richard Hague

A Semidefinite Programming algorithm for structural optimization with eigenvalues
José Herskovits, Jean R. Roche, Elmer G. Bazán and Miguel Aroztegui

21/07/2014 11:00 - 13:00
STS 08: Higher-Order Methods for Aerospace Applications I

STS08A
Room: Auditorium
Chair: Koen Hillewaert
CoChair: Peter Vincent

A consistent finite element approach to Large Eddy Simulation revisited with higher-order elements II
Frédéric Chalot, Pierre Yser, Sébastien Barré, Franck Dagrau, Michel Mallet and Pierre-Elie Normand

Preliminary developments towards a high-order and efficient LES code for propulsion applications
Francesco Capuano, Andrea Mastellone, Sara Di Benedetto, Luigi Cutrone and Antonio Schettino

Application of an explicit Discontinuous Galerkin scheme to turbulent flows at intermediate to high Reynolds numbers
Thomas Bolemann, Andrea Beck and Claus-Dieter Munz

Utilising high-order direct numerical simulation for transient aeronautics problems
David Moxey, Joaquim Peiro and Spencer J. Sherwin

PyFR: An open source framework for high-order computational fluid dynamics on streaming architectures
Peter E. Vincent, Freddie D. Witherden and Antony M. Farrington

Numerical experiment of the flow past a T106C turbine blade using a Discontinuous Galerkin Method
Koen Hillewaert and Corentin Carton de Wiart

21/07/2014 11:00 - 13:00
Advances in Accurate and Robust Numerical Methods for Computational Fluid Dynamics I
Minisymposium organized by Remi Abgrall, Feng Xiao and Koen

MS051A
Room: Sala A
Chair: Rémi Abgrall
CoChair: Jean-Marie LE GOUEZ

Hillewaert

AUSM like expression of HLLC scheme and its extension to all speed scheme
Eiji Shima and Keiichi KItamura

Reduced dissipation SLAU and AUSM+-up towards high resolution unstructured Grid simulations
Keiichi Kitamura and Atsushi Hashimoto

An unsteady Shock-fitting technique for unstructured grids 
Aldo Bonfiglioli, Renato Paciorri and L. Campoli

High order shock detecting methods and applications
Yiqing Shen, Bei Chen and Shengping Liu

Residual distribution schemes for the computation of hypersonic flows with strong bow shock waves: enforcing total enthalpy conservation 
Jesus Garicano Mena, Andrea Lani, Herman Deconinck and Gérard Degrez

A higher order flux for magnetohydrodynamics
Nishant Narechania and Keiichi Kitamura

21/07/2014 11:00 - 13:00
Multiscale Computational Mechanics of Materials I
Minisymposium organized by Wing Kam Liu, Shaofan Li and Franck Vernerey

MS260A
Room: Sala B1
Chair: Shaofan Li
CoChair: Wing Kam Liu

Coupling the finite element method and molecular dynamics in the framework of the heterogeneous multiscale method
Manfred H. Ulz

A continuum mechanical surrogate model for rod-like atomic structures based on geometrically exact beams
Marcus Schmidt, Ahmed E. Ismail and Roger A. Sauer

A bayesian framework for calibration and uncertainty quantification of coarse-grained atomistic models
Eric Wright, Peter Rossky and J. Tinsley Oden

A concurrent parallel multiscale algorithm for large 3D continuum/atomic simulations at finite temperature using LAMMPS
Fabio Pavia and William A. Curtin

A Coarse-grid Model of Graphene Based on Molecular Structural Mechanics Approach
Jun J. Shang and Qing-Sheng Yang

Mesoscale Simulation of Thin Polymer Films and the Connection to Nanocomposites
Brendan Abberton, Wing Kam Liu and Sinan Keten

21/07/2014 11:00 - 13:00
Particle Methods for Micro- and Nano-flows I
Minisymposium organized by Marco Ellero and Dmitry A. Fedosov

MS045A
Room: Sala B2
Chair: Dmitry Fedosov

Reframing Dissipative Particle Dynamics (Keynote Lecture)
Pep Espanol

Simulation of particle suspension in simple and complex fluid media using Smoothed Particle Hydrodynamics
Xin Bian, Sergey Litvinov, Adolfo Vazquez-Quesada and Marco Ellero

Towards a new algorithm for multiphase lattice Boltzmann simulations
Jasna Zelko and Burkhard Duenweg

Colloidal particles at liquid interfaces
Jens Harting, Stefan Frijters, Florian Günther, Gary B. Davies and Timm Krüger

Interplay of inertia and deformability on rheological properties of a suspension of capsules
Timm Krueger, Badr Kaoui and Jens Harting

21/07/2014 11:00 - 13:00
Direct and Inverse Methods for Cardiovascular and Pulmonary Biomechanics I
Minisymposium organized by C. Alberto Figueroa, Marek Behr and Wolfgang Wall

MS158A
Room: Sala B3
Chair: C. Alberto Figueroa

A model of the exercise response of coronary blood flow with an application to the coronary steal phenomenon
Christopher J. Arthurs, Kevin Lau and C. Alberto Figueroa

In-vivo assessment of valvular function: An inverse modeling approach
Ankush Aggarwal and Michael S. Sacks

A sequential filtering-based framework for patient-specific parameter estimation and subsequent multiscale CFD simulations
Sanjay Pant, Benoit Fabrèges, Jean-Frédéric Gerbeau and Irène E. Vignon-Clementel

A novel approach for uncertainty quantification in patient-specific cardiovascular mechanics
Jonas Biehler, Michael W. Gee and Wolfgang A. Wall

Determining permeability and diffusivity properties of the rat aortic media
Andrew Comerford, Yean Chooi, Peter Weinberg and Spencer Sherwin

Aspects of inverse problems in mechanical circulatory device design
Marek Behr, Markus Probst and Lutz Pauli

21/07/2014 11:00 - 13:00
CFD in Wind Energy – From Wind Turbine Aerodynamics to Atmospheric Boundary Layer Flows I
Minisymposium organized by Jari Hämäläinen, Gabor Janiga and Dominique Thévenin

MS215A
Room: Sala C1
Chair: Dominique Thévenin
CoChair: Gábor Janiga

Numerical modeling and validation of the wind flow over the lake wannsee
Oliver Krüger, Christina Schrödinger, Antonio Lengwinat and Christian Oliver Paschereit

Large-eddy simulations for atmospheric boundary layer flows over complex terrains with applications in wind energy
Ashvinkumar Chaudhari, Ville Vuorinen, Oxana Agafonova, Antti Hellsten and Jari Hämäläinen

Large-Eddy Simulation of canopy flow under thermal stratification
Bastian Nebenführ and Lars Davidson

Computational Fluid Dynamics (CFD) simulations of an H-Darrieus rotor with different turbulence models
László Daróczy, Gábor Janiga and Dominique Thévenin

Coupled wind LES and ocean wave simulation with actuator disk or line models for offshore wind farm study
Di Yang, Lin Liu and Lian Shen

A finite element K − ε Model for onshore wind farm modelling
Matias Avila, Arnau Folch and Guillaume Houzeaux

21/07/2014 11:00 - 13:00
Simulation of Cardiovascular Procedures and Devices I
Minisymposium organized by Ferdinando Auricchio, Michele Conti, Simone Morganti and Alessandro Veneziani

MS193A
Room: Sala C2
Chair: Michele Conti
CoChair: Simone Morganti

A virtual test bench for hemodynamic evaluation of aortic cannulation in cardiopulmonary bypass (Keynote Lecture)
Diego Gallo, Marco E. Biancolini, Raffaele Ponzini, Luca Antiga, Giovanna Rizzo, Alberto Audenino and Umberto Morbiducci

Finite element modeling of endovascular treatments
Haithem Babiker, Brian Chong, Fernando Gonzalez, Justin Ryan and David Frakes

Simulation and optimization of a pulsatile ventricular assist device using isogeometric analysis and fluid-structure interaction
Christopher C. Long, Yuri Bazilevs and Alison L. Marsden

Computational prediction of abdominal aortic endografting
David Perrin, Pierre Badel, Stéphane Avril, Jean-Noël Albertini, Laurent Orgéas, Christian Geindreau, Aurélien Dumenil, Cemil Goksu and Atul Gupta

Finite element analysis of bioresorbable coronary stents
Nic Debusschere, Matthieu De Beule, Patrick Segers, Peter Dubruel and Benedict Verhegghe

21/07/2014 11:00 - 13:00
Advanced Methods for the Analysis and Design of Tensile Structures I
Minisymposium organized by Falko Dieringer, Roland Wüchner and Kai-Uwe Bletzinger

MS083A
Room: Sala C3
Chair: Michael Roland
CoChair: Roland Wüchner

Design of architectural membranes with isogeometric elements
Benedikt Philipp, Michael Breitenberger, Roland Wüchner and Kai-Uwe Bletzinger

3D continuum models of tensegrity modules with the effect of self-stress
Wojciech Gilewski and Andrzej Kasprzak

A simulation of cat's cradle by geometrically nonlinear analysis with sliding nodes
Hiroyuki Obiya, Midori Murayama, Katsushi Ijima, Koji Ishibashi and Muhammad N. Bin Zakaria

3D Membrane theory
Carsten Corte

Intelligent façade deployable multilayer adaptive membrane for sun-shading and insulation control and optimisation
Ana Cocho Bermejo

21/07/2014 11:00 - 13:00
Mechanics of Nanostructured Materials I
Minisymposium organized by I-Ling Chang, Takayuki Kitamura, Takahiro Shimada and Chuin-Shan D. Chen

MS223A
Room: Sala D1
Chair: Takahiro Shimada
CoChair: Nien-Ti Tsou

Breakdown of fracture mechanics in nanoscale components (Keynote Lecture)

Takahiro Shimada, Kenji Ouchi and Takayuki Kitamura

Fracture of two-dimensional structures of silicon – molecular dynamics simulation
Sanghyuk Yoo, Soon-Ho Song and Keonwook Kang

Mechanical instability of cubic materials under uniaxial loading
Soon-Dong Park, Duc Tam Ho and Sung Youb Kim

Atomistically informed creep constitutive equation of nanocrystalline metal
Yun-Jiang Wang and Shigenobu Ogata

Modeling of steric hindrance of nanoparticles
Nien-Ti Tsou, Tien-Jung Huang and Chuin-Shan Chen

Surface stress calculations of bio-molecular adsorption on gold-coated micro-cantilever biosensor using molecular dynamics simulation
Crystal Liou, Tzu-Hsuan Huang and Chuin-Shan Chen

21/07/2014 11:00 - 13:00
Advances in Computational Cardiovascular Modeling and Simulation I
Minisymposium organized by Daniel E. Hurtado, Ellen Kuhl and Michael Ortiz

MS160A
Room: Sala D2
Chair: Daniel Hurtado

An In-silico framework for cardiac drug testing: Hypertrophic Cardiomyopathy tissue model and the effects of ranolazine on the electro-mechanic response of the ventricular septum
Jazmin Aguado-Sierra, Hector Barajas-Martinez and Mariano Vázquez

Electric propagation patterns in 3D acute ischemic heart using graphic processing units
Andres Mena, Jose M. Ferrero and Jose F. Rodriguez

Differential growth-induced residual stress in arteries and the heart
Martin Genet, Manuel Rausch, Lik Chuan Lee , Julius Guccione and Ellen Kuhl

Blood flow modeling and application to non-invasive determination of arterial stiffness
Tamara El Bouti, Laurent Dumas and Didier Lucor

Towards indirect in vivo measurement of material properties of aortic aneurysms: Determining the displacement field

Róbert Nagy, Péter Sótonyi, Csaba Csobay-Novák, Attila Lovas and Imre Bojtár

21/07/2014 11:00 - 13:00
Advanced Numerical Methods for Cavitating Flows I
Minisymposium organized by Nikolaus Adams, Steffen Schmidt and Eric Johnsen

MS095A
Room: Sala D3
Chair: Eric Johnsen

Numerical simulation of cavitating flows by a mixture-energy-consistent two-phase flow model with thermodynamic relaxation
Marica Pelanti and Keh-Ming Shyue

Potentials and limitations of equilibrium single-fluid models for prediction of cavitating flows
Steffen J. Schmidt, Michael S. Mihatsch, Christian P. Egerer and Nikolaus A. Adams

Towards an efficient simulation of cavitating flows with real gas effects and uncertainty quantification

Rémi Abgrall, Maria G. Rodio and Pietro M. Congedo

High-resolution numerical method for compressible large-eddy simulation of cavitating liquid flows

Christian P. Egerer, Steffen J. Schmidt, Stefan Hickel and Nikolaus A. Adams

Shock-induced bubble collapse in a vessel: Implications for vascular injury in shockwave lithotripsy
Vedran Coralic and Tim Colonius

Direct simulations of the compressible Navier-Stokes equations for multiphase flows
Shahaboddin Alahyari Beig and Eric Johnsen

21/07/2014 11:00 - 13:00
Advanced Gridding and Discretization Techniques for Petroleum Reservoir Simulation I
Minisymposium organized by Paulo R.M. Lyra, Darlan K.E. Carvalho, Michael G. Edwards, Clovis R. Maliska and Régis K. Romeu

MS035A
Room: Sala D4
Chair: Paulo Lyra
CoChair: Michael Edwards

Coupling flow and geomechanics with fractures in porous media (Keynote Lecture)
Mary F. Wheeler

A comparison of three discretization methods for the simulation of highly anisotropic reservoirs with tetrahedral grids
Fernando S. V. Hurtado, Clovis R. Maliska and Gustavo G. Ribeiro

A very higher order cell centered finite volume scheme for the simulation of oil-water displacements in petroleum reservoirs
Márcio R. A. Souza, Alessandro R. E. Antunes, Paulo R. M. Lyra and Darlan K. E. Carvalho

A Higher-Order Multidimensional Upstream Scheme for the Simulation of Two-Phase Flows in Porous Media
Paulo R. M. Lyra, Márcio R. A. Souza, Fernando R. L. Contreras and Darlan K. E. Carvalho

Discontinuous finite element formulations for miscible viscous fingering problems
Yoisell R. Nunez, Cristiane O. Faria, Abimael F.D. Loula and Sandra M.C. Malta

Black oil reservoir simulation using monotone non-linear finite volume method on polyhedral meshes
Serguei Maliassov and Bret Beckner

21/07/2014 11:00 - 13:00
Computational Bone Biomechanics I
Minisymposium organized by Zohar Yosibash and Ernst Rank

MS028A
Room: Sala D5
Chair: Zohar Yosibash
CoChair: Ara Nazarian

Lack of universal bone material laws limits accuracy in subject specific FE models (Keynote Lecture)
Peter Augat, Michael Göttlinger, Julia Henschel and Sebastian Eberle

Elastostatic, acoustic and time-reversed simulation of bones by non-standard fictitious domain methods
Ernst Rank, Stefan Kollmannsberger, Robert Seidl, Hagen Wille and Zhengxiong Yang

Are finite element estimates of femur strength associated with fracture? Three clinical studies
Enrico Schileo, Cristina Falcinelli, Luca Balistreri, Fabio Baruffaldi, Sigurdur Sigurdsson, Vilmundur Gudnason, Stephanie Boutroy and Fulvia Taddei

A crushable foam material model for strength predictions of human bones
Dieter Pahr, Uwe Wolfram and Michael Kinzl

Prediction of spine and hip strength with BMD and FE models: Influence of gender
Enrico Dall'Ara, Philippe Zysset and Dieter Pahr

Investigation of a Finite Element solution for a mechanically stimulated biochemical fracture healing model
Alexander Sapotnick and Udo Nackenhorst

21/07/2014 11:00 - 13:00
Numerical Methods for Wave Propagation Problems and Design Applications I
Minisymposium organized by Kazuhiko Abe and Toshiro Matsumoto

MS177A
Room: Sala D6
Chair: Kazuhisa Abe
CoChair: Alessandra Aimi

Calculations of eigenfrequencies of 2D elastic finite periodic structures using boundary element method
Haifeng Gao, Toshiro Matsumoto, Hiroshi Isakari and Toru Takahashi

Simulation of guided waves in solids using the Scaled Boundary Finite Element Method
Hauke Gravenkamp, Carolin Birk and Chongmin Song

Numerical analysis of the damped wave equation by ”energetic“ weak formulations
Alessandra Aimi, Mauro Diligenti, Chiara Guardasoni and Stefano Panizzi

Bloch theorem with revised boundary conditions applied to glide plane and screw axis symmetric, quasi-one-dimensional structures
Florian P. R. Maurin and Alessandro Spadoni

SH wave scattering problems for multiple layered anisotropic inclusions
Jung-ki Lee

Shear wave propagation modeling in magnetic resonance elastography using the local interaction simulation approach
Zahra Hashemiyan, Pawel Packo, Wieslaw J. Staszewski and Tadeusz Uhl

21/07/2014 11:00 - 13:00
Stability Issues of Finite Elements in Non-linear Solid Mechanics I
Minisymposium organized by Stefanie Reese, Ferdinando Auricchio, Manfred Bischoff and Peter Wriggers

MS218A
Room: Sala E1
Chair: Stefanie Reese

On the computation of stability points with least-squares mixed Finite Element Methods
Alexander Schwarz, Jörg Schröder, Karl Steeger, Gerhard Starke and Benjamin Müller

Reduced integration with hourglass stabilization - issues of stability and robustness
Stefanie Reese and Jan Frischkorn

A generalized three-dimensional cosserat point element for nonlinear orthotropic elastic materials
Eli Mtanes and Mahmood Jabareen

An isogeometric locking-free NURBS-based solid-shell element for geometric nonlinear analysis
Robin Bouclier, Thomas Elguedj and Alain Combescure

Enhanced low order solid finite elements using incompatible inertia in explicit time integration for instability reduction
Christoph Schmied, Steffen Mattern and Karl Schweizerhof

NP-hard problems in computational large deformation mechanics and canonical dual finite element method
Ning Ruan and David Y. Gao

21/07/2014 11:00 - 13:00
Multiphysics Simulations with Time Resolved Turbulent Flow Fields I
Minisymposium organized by Dörte C. Sternel and Miriam Mehl

MS125A
Room: Sala E2
Chair: Dörte C. Sternel
CoChair: Miriam Mehl

Numerical simulation of turbulent FSI benchmark cases
Thorsten Reimann, Awais Ali, Dörte C. Sternel and Michael Schäfer

Large-Eddy simulation and evaluation of the turbulent fluid-structure interaction benchmark FSI-PfS-2a
Guillaume De Nayer , Andreas Kalmbach and Michael Breuer

3D numerical simulations of human phonation
Manfred Kaltenbacher, Stefan Zörner, Andreas Hüppe and Petr Sidlof

Adaptive FEM for time resolved multiphysics in turbulent flow
Bärbel Janssen, Jeannette H. Spühler, Niyazi C. Degirmenci, Kaspar Müller, Rodrigo Vilela de Abreu and Johan Hoffman

Parallel simulation of fluid-structure interactions with acoustic fluids
Miriam Mehl, Bernhard Gatzhammer and Benjamin Uekermann

Coupling of turbulent flows with acoustic wave propagation
Verena Krupp, Harald Klimach, Jens Zudrop and Sabine Roller

21/07/2014 11:00 - 13:00
Multi-scale and Multi-physics Computations in Fluids and Solids I
Minisymposium organized by Yozo Mikata and Glaucio Paulino

MS194A
Room: Sala E3
Chair: Yozo Mikata
CoChair: Seiichi Nomura

Peridynamic Modeling on Wave Propagation and Dispersion Curves - Analytical Study
Yozo Mikata

Micromechanics for multiple inclusion problems
Seiichi Nomura

Coupling of fuel perfomance and neutronic codes for PWR
Katherine Mer-Nkonga, Nicolas Crouzet, Jean-Charles Le Pallec, Bruno Michel, Didier Schneider and Alexandre Targa

A multiscale mass scaling approach for accelerating explicit dynamics computations using proper orthogonal decomposition
Gabriel de Frias, Wilkins Aquino, Kendall Pierson and Martin Heinstein

Numerical Simulation of Hydrogene Ignition in Channels at Supersonic Speeds
Igor A. Bedarev, Natalya N. Fedorova, Aleksandr A. Fedorov and Yulia V. Zhakharova

21/07/2014 11:00 - 13:00
Nanomechanics I
Minisymposium organized by Nuno Silvestre and Konstantinos Tserpes

MS016A
Room: Sala E4
Chair: Nuno Silvestre
CoChair: Konstantinos Tserpes

Thermal boundary resistance effects in nanocomposites (Keynote Lecture)
Dimitrios Papavassiliou, Khoa Bui and Huong Nguyen

Computational modelling of the compressive behaviour of CNT-reinforced aluminium composites
Bruno Faria, Nuno Silvestre and José N. Canongia Lopes

Multiscale modeling of a nanoparticle reinforced epoxy resin

Andreas Kempe, Lutz Nasdala and Raimund Rolfes

Numerical modeling of nanoparticle-reinforced adhesively bonded joints
Konstantinos I. Tserpes, Liberata Guadagno, Ioannis Floros, Marialuigia Raimondo, Umberto Vietri and Spiros Pantelakis

21/07/2014 11:00 - 13:00
Multiscale Modelling of Landslides and Debris Flows I
Minisymposium organized by Wei Wu and Ronaldo I. Borja

MS365A
Room: Sala E5
Chair: Wei Wu

PFEM for multi-fluids and solid interaction with fixed mesh and large time-steps
Pablo A. Becker, Sergio R. Idelsohn and Eugenio Oñate

From discrete particles to continuum fields in the bulk, at boundaries, and in mixtures
Thomas Weinhart, Deepak Tunuguntla, Stefan Luding and Anthony R. Thornton

Multi-scale modelling of segregation induced fingering instabilities in granular avalanches
Anthony R. Thornton

Numerical modelling of hydrologically-driven slope instability by means of porous media mechanics
Evanthia Kakogiannou, Lorenzo Sanavia and Bernhard A. Schrefler

Collapse analysis of buildings subjected under seismic excitation, tsunami, and debris collision
Daigoro Isobe and Yuan Qi Dong

21/07/2014 11:00 - 13:00
Optimization of Fluid Solid Coupling Solvers I
Minisymposium organized by Elisabeth Longatte, Elie Hachem and Thierry Coupez

MS197A
Room: Sala E6
Chair: Elisabeth Longatte

Theoretical model for the fluidelastic instability of tube bundles
Mustapha Benaouicha, Elisabeth Longatte and Franck Baj

On the sensitivity of the POD technique for fluid flows and Fluid-Structure Interaction problems
Nissrine Akkari, Aziz Hamdouni and Erwan Liberge

Multi-scale fluid-structure interaction models for integrated packaging systems
Nicola Parolini, Chiara Riccobene and Marco Pischedda

New immersed CAD method for the simulation of turbulent flows problems
Jeremy Veysset, Elie Hachem, Ghina Jannoun and Thierry Coupez

A computation chain in fluid-structure interaction for marine applications
Camille Yvin, Alban Leroyer and Michel Visonneau

21/07/2014 11:00 - 13:00
Computational Contact Mechanics I
Minisymposium organized by Tod Laursen, Peter Wriggers and Giorgio Zavarise

MS044A
Room: Sala F
Chair: Giorgio Zavarise

Thermo-mechanical rough surface contact of rubber-like solids
Robert Beyer and Udo Nackenhorst

Transient thermomechanical contact problems
Christian Hesch and Maik Dittmann

Thermal and contact FE analysis of a railway wheel in sliding-rolling motion
Péter T. Zwierczyk and Károly Váradi

3-D micro-analysis of electrical contact resistance for spot welding
Hiroyuki Kuramae, Tomoya Niho and Tomoyoshi Horie

Identification of a finite element connector for the simulation of bolted joints
Pierre-Alain Guidault, Marie-France Soulé de Lafont and Pierre-Alain Boucard

Multiscale modeling of chain-guide contact by using tests and FEM
Mihai T. Lates, Radu G. Velicu and Radu Papuc

21/07/2014 11:00 - 13:00
Computational Modeling of Fracture and Failure of Materials and Structures I
Minisymposium organized by Olivier Allix, Milan Jirásek, Nicolas Moës and Xavier Oliver

MS226A
Room: Sala H 1
Chair: Olivier Allix

Simulations of accelerated corrosion tests in concrete prisms with a steel tube
Beatriz Sanz, Jaime Planas and José M. Sancho

A study of friction in dynamic fracture along bimaterial interfaces
Fabian Barras, David S. Kammer, Philippe H. Geubelle and Jean-François Molinari

Interfacial delayed-damage model for dynamic fracture and fragmentation
Reza Abedi, Kartik Marwah, Ian McNamara and Robert B. Haber

Study on homogenization methods for hardening and failure of ultra high strength steel with tailored material properties
Stefan Golling and Mats Oldenburg

Ductile fracture simulations by finite cover method with damage model
Hirofumi Sugiyama, Kazumi Matsui, Takuya Endo and Takahiro Yamada

Discrete crack analysis of RC structure using hybrid-type penalty method with Delaunay triangulation
Atsushi Kambayashi, Yoshihiro Fujiwara, Norio Takeuchi and Tadahiko Shiomi

21/07/2014 11:00 - 13:00
Isogeometric Methods I
Minisymposium organized by Yuri Bazilevs, David J. Benson, Rene De Borst, Thomas J.R. Hughes, Trond Kvamsdal, Alessandro Reali, Michael A. Scott and Clemens V. Verhoosel

MS049A
Room: Sala H 2
Chair: Thomas J.R. Hughes

Isogeometric analyses of beams and shells (Keynote Lecture)
Bastian Oesterle, Ralph Echter, Manfred Bischoff and Ekkehard Ramm

Isogeometric Reissner - Mindlin shell analysis - geometries with kinks and non-conforming meshes
Wolfgang Dornisch and Sven Klinkel

An isogeometric Reissner-Mindlin shell with Lagrange basis
Zhen Lei, Frederic Gillot and Louis Jezequel

Efficient and accurate numerical integration for high order immersed boundary methods
László Kudela, Nils Zander, Tino Bog, Stefan Kollmannsberger and Ernst Rank

Projection methods for constrained problems in isogeometric analysis
Rui Cardoso and Jose Cesar de Sa

Shape and displacement measurements using isogeometric stereo-correlation
John-Eric Dufour, François Hild, Stéphane Roux and Sylvain Leclercq

21/07/2014 11:00 - 13:00
Multiscale Computational Homogenization for Bridging Scales in the Mechanics and Physics of Complex Materials I
Minisymposium organized by Julien Yvonnet, Kenjiro Terada, Peter Wriggers and Marc Geers

MS012A
Room: Sala H 3
Chair: Julien Yvonnet
CoChair: Marc Geers

Computational homogenization for transient phenomena in heterogeneous materials
Varvara Kouznetsova, Kim Pham, Anastasiia Krushynska and Marc G.D. Geers

Accelerated multiple temporal scale computation for fatigue loadings in composite materials
Caglar Oskay and Robert D. Crouch

Numerical homogenization of random microstructures for structural mechanics
Régis Cottereau

Filtering properties to improve FFT-based methods
Lionel Gelebart

Computational homogenization using high-performance, reduced-order modeling
Joaquín A. Hernández, Javier Oliver, Alfredo E. Huespe and Manuel A. Caicedo

Implementation of material modeling approaches at finite strains using a highly accurate numerical derivative scheme
Masato Tanaka, Takashi Sasagawa, Ryuji Omote, Masaki Fujikawa, Daniel Balzani and Joerg Schroeder

21/07/2014 11:00 - 13:00
Computational Biomechanics I
Minisymposium organized by T.Christian Gasser, Miguel Cerrolaza, Ellen Kuhl, Michael Gee, Yomar Gonzalez, Simone Deparis and Thomas Franz

MS007A
Room: Sala J
Chair: to be confirmed

A computational model of the cervical spine: Application to anterior cervical fusion analysis
Paula C. Fernandes, João Folgado and Paulo R. Fernandes

Biomechanical Evaluation of Optimal Orthodontic Forces on Human Maxillary Teeth
Zhipeng Liao, Junning Chen, Ali M Darendeliler, Michael Swain and Qing Li

The effect of implant position on the stress behavior of mandibular implant retained overdentures
Tolga Topkaya and Murat Solmaz

Strain measurement of shoulder capsule using Finite Element Method
Soo-Won Chae, Haea Lee, Soung-Yon Kim, Sung Bin Im and Minho Chang

Modelling of heterogeneous material properties distribution on example of femur after THA
Antoni John and Mateusz Duda

Optimized patient-specific implants
Michael Roland, Tim Dahmen, Thorsten Tjardes, Robin Otchwemah, Philipp Slusalleck and Stefan Diebels

21/07/2014 11:00 - 13:00
Evaluation, Reliable Estimation, and Control of

MS262A

Computational Errors in Solid and Structural Mechanics I
Minisymposium organized by Aram Soroushian, Peter Wriggers, Mazdak Tootkaboni and Ali Yahyapour

Room: Business Centre I
Chair: Aram Soroushian
CoChair: Ali Yahyapour

Dual error bounds for Kirchhoff plates (Keynote Lecture)
José Moitinho de Almeida, Carlos Tiago and Edward Maunder

Error free evaluation of tensor functions and their application in finite-strain models
Blaž Hudobivnik and Jože Korelc

Verification of shell finite elements in the Girkmann benchmark problem
Antti H. Niemi and Julien Petit

Purification of convergence an approach towards reliable error evaluation
Aram Soroushian

Why do engineers make ill-conditioned FE models and what can we do about them?
Ramaseshan Kannan, Stephen Hendry, Nicholas J. Higham and Francoise Tisseur

Performance of a computational cost reduction technique in lengthy time interval analyses
Aram Soroushian, Alireza Garakaninezhad, Ali Yahyapour and Alireza Asgarihadad

21/07/2014 11:00 - 13:00
Developing Scientific Research Codes for Effective Utilization of Leading HPC Platforms I
Minisymposium organized by Elias Balaras and Anshu Dubay

MS188A
Room: Business Centre II
Chair: Elias Balaras

HPC numerical libraries: Successes and next-generation challenges (Keynote Lecture)
Satish Balay, Jed Brown, Matthew Knepley, Lois C. McInnes and Barry F. Smith

The impact of community software in astrophysics
Anshu Dubey , Matthew Turk and Brian O'Shea

Toward exascale Simulations with the CFD code Nek5000
Dan Henningson, Philipp Schlatter, Adam Peplinski, Stefano Markidis, Michael Schliephake, Erwin Laure, Jing Gong, Alistair Hart, David Henty, Paul Fischer and Katherine Heisey

Developin software frameworks for petascale computations and beyond using dynamic graph approaches - lessons and achievements
Martin Berzins, Alan Humphrey, Qingyu Meng and John Schmidt

Software development and management processes in the NOAA environmental software infrastructure and interoperability (NESII) group
Ryan O'Kuinghttons and Cecelia DeLuca

Developing a software framework for fluid-structre interaction incompressible flow problems
Marcos Vanella, Elias Balaras and Anshu Dudey

21/07/2014 11:00 - 13:00
Multibody System Dynamics and Modal Reduction I
Minisymposium organized by Pascal Ziegler and Johannes Gerstmayr

MS239A
Room: Sala de prensa I
Chair: Pascal Ziegler
CoChair: Alexander Humer

Rigid-body simulation of a friction-locked chain drive mechanism
Ulrike Zwiers and Bernhardt Weyh

Calculation of crankshaft twist angle using multibody simulation and finite element method
Yannick Louvigny and Pierre Duysinx

Dynamic stress calculation in gear simulations using reduced elastic multibody systems
Pascal Ziegler, Dennis Schurr and Peter Eberhard

Heuristic method of dynamic stress analysis in multibody simulation using HPC
Victor V. Getmanskiy, Alexander S. Gorobtsov, Timur D. Ismailov and Andrey E. Andreev

Development of industrial software for the simulation of bearing dynamics CABA3D
Dmitry Vlasenko and Milen Dintchev

21/07/2014 11:00 - 13:00
Multiphysics Modelling of Porous Media: Geomaterials, Biomaterials and Others I
Minisymposium organized by Younane N. Abousleiman, Stefan Diebels and Lorenzo Sanavia

MS027A
Room: Sala de prensa II
Chair: Younane Abousleiman

Two-way coupling in Reservoir-Geomechanical models: vertex-centered Galerkin Geomechanical model cell-centered and vertex-centered finite volume Reservoir models (Keynote Lecture)
Jean H. Prevost, Jorge E. Monteagudo and Adolfo A. Rodriguez

A partition of unity based cohesive zone model for hydraulic fracturing
Ernst W. Remij, Joris J.C. Remmers, Jacques M. Huyghe and David M.J. Smeulders

A computational model for CO2 leakage in heterogeneous formation
Mehdi Musivand Arzanfudi, Rafid Al-Khoury and Lambertus J. Sluys

Comprehending the mechanism of vein formation - Insights from three-dimensional phase-field modeling and innovative post-processing techniques
Kumar Ankit, Michael Selzer and Britta Nestler

A coupled FE-multiphasic approach for bacterial methane oxidation in landfill cover layers
Andrea Sindern, Tim Ricken, Joachim Bluhm, Martin Denecke and Tobias Gehrke

Numerical modeling of sorption-desorption for porous media
Mahban Sadat Hosseini, Jean-Baptiste Colliat and Nicolas Burlion

21/07/2014 11:00 - 13:00
Multiscale Liver Simulation: A Holistic Model for Hepatic Function and Perfusion I
Minisymposium organized by Tim Ricken and Daniel Werner

MS155A
Room: Sala de Reservas
Chair: Tim Ricken
CoChair: Daniel Werner

Functional anatomy of the liver – hunting down the “white territories”
Uta Dahmen, Jan Hengstler and Olaf Dirsch

Spatially resolved simulation of glucose metabolization in the human liver
Lars Ole Schwen, Matthias König and Tobias Preusser

On a multiphasic continuum mechanical multiscale model for liver perfusion and metabolism
Tim Ricken, Daniel Werner, Uta Dahmen, Olaf Dirsch, Hermann-Georg Holzhütter and Matthias König

Multi-level modelling of the hepatic perfusion
Charlotte Debbaut, Diethard Monbaliu, Pieter Cornillie, Christophe Casteleyn, Manuel Dierick, Jan

Vierendeels and Patrick Segers

13:00 - 14:00
Lunch Time

14:00 - 16:00
TECHNICAL SESSIONS

21/07/2014 14:00 - 16:00
Meshless and Related Methods, a Minisymposium Dedicated to Celebrate the 80th Birthday of Professor Janusz Orkisz II
Minisymposium organized by Sergio Idelsohn, Pierre Villon, G.R. Liu, Paulo M. Pimenta and Suvranu De

MS114B
Room: Mare Nostrum A
Chair: Guirong Liu
CoChair: Paulo Pimenta

Material point method in three-dimensional problems of granular flow
Zdzislaw Wieckowski and Michal Pawlak

Radial basis function based meshless pdeudospectral method for higher order equations
Artur Krowiak

RBF-based meshless approaches for frequency-domain analysis of heat conduction problems
Luís Godinho and Daniel Dias-da-Costa

Study of radial basis collocation method for wave propagation
Lihua Wang, Zheng Zhong and Fuyun Chu

An explicit dynamic method for a discrete element model using the principle of hybrid-type virtual work
Tadao Yagi, Norio Takeuchi, Kazuto Yamamura and Morito Kusabuka

A comparison of parallelization strategies for the material point method
Kevin P. Ruggirello and Shane Schumacher

21/07/2014 14:00 - 16:00
HPC-Based CFD Simulations for Industrial Applications II
Minisymposium organized by Mariano Vázquez, Makoto Tsubokura , Takayuki Aoki and Mike Nicolai

MS208B
Room: Mare Nostrum B
Chair: Mariano Vázquez

Large-eddy simulation of turbulent flow around a car body using lattice-Boltzmann method on the TSUBAME supercomputer
Naoyuki Onodera and Takayuki Aoki

Practical applications for the computational vehicle aerodynamics on the massively parallel supercomputer: Part 1, framework for the fully unstructured finite volume cells
Andrew H. Kerr, Keiji Onishi and Makoto Tsubokura

Practical applications for the computational vehicle aerodynamics on the massively parallel supercomputer: Part 2, hierarchical cartesian grid approach utilizing dirty CAD data

Keiji Onishi, Makoto Tsubokura, Shigeru Obayashi and Kazuhiro Nakahashi

Hybrid MPI/OpenMP parallel strategies for a high order Discontinuous Galerkin solver in aerodynamics
Emeric Martin and Florent Renac

HPC-based LES for wind forces on building in Tokyo
Tetsuro Tamura, Tsuyoshi Nozu, Makoto Tsubokura and Keiji Onishi

Comparative study of parallelization methods using Open-MP and MPI with an unstructured RANS solver for practical applications

Kunihide Ohashi, Yohei Sato and Takanori Hino

21/07/2014 14:00 - 16:00
Innovative Methods for Fluid-Structure Interaction II
Minisymposium organized by Harald van Brummelen, Trond Kvamsdal and Roger Ohayon

MS077B
Room: Mare Nostrum C
Chair: Harald van Brummelen
CoChair: Trond Kvamsdal

FSI modeling of ringsail parachutes with disreefing and modified geometric porosity (Keynote Lecture)
Kenji Takizawa, Tayfun E. Tezduyar, Matthew Fritze and Darren Montes

Large displacement simulations with an efficient mesh-connectivity-change moving mesh strategy
Nicolas Barral and Frédéric Alauzet

Robust and Efficient Methods for Wind Turbines
Timo M. van Opstal, Runar Holdahl and Trond Kvamsdal

An adaptive time stepping procedure for monolithic fluid-structure interaction solvers
Matthias Mayr, Wolfgang A. Wall and Michael W. Gee

Towards partitioned fluid-structure interaction on massively parallel systems

Benjamin Uekermann, Juan C. Cajas, Bernhard Gatzhammer, Guillaume Houzeaux, Miriam Mehl and Mariano Vázquez

Transonic nonlinear aeroelastic simulations using an harmonic balance method
Weigang Yao and Simão Marques

21/07/2014 14:00 - 16:00
Computational Damage and Fracture Mechanics II
Minisymposium organized by Michael Brünig and Larissa Driemeier

MS008B
Room: Mare Nostrum D
Chair: Michael Brünig

Micro-mechanical modeling of ductile damage and failure taking into account various stress-states

Vanessa Hagenbrock, Steffen Gerke and Michael Brünig

Micro-mechanical numerical analysis of ductile damage under dynamic loading conditions

Steffen Gerke, Kevin Kuhnt and Michael Brünig

A FEM model for prediction of fatigue crack initiation in forged M3:2 tool steel in high cycle fatigue

Ngoc Anh Giang, Utku Ahmet Özden, Alexander Bezold and Christoph Broeckmann

Damage mechanics approach for the analysis of casting materials under thermo-mechanical fatigue
Frank Läangler, Konstantin Naumenko, Holm Altenbach and Mykola Ievdokymov

Boundary element formulations applied to analysis of fracture problems in viscoelastic materials

Hugo L. Oliveira and Edson D. Leonel

Fatigue evaluation based on modified Green's function approach considering temperature-dependent material properties
Hanok Ko, Myung-Jo Myung-Jo Jhung and Jae-Boong Choi

21/07/2014 14:00 - 16:00
Applications of Error Estimation and Model Adaptation in Computational Mechanics II
Minisymposium organized by Ludovic Chamoin, Pedro Díez, Fredrik Larsson and Kris Van der Zee

MS010B
Room: Mare Nostrum E
Chair: Ludovic Chamoin

Driving iterative domain decomposition solver by objective of accuracy on quantity of interest (Keynote Lecture)
Valentine Rey, Pierre Gosselet and Christian Rey

Contraction and convergence of goal-oriented adaptive Finite Element Methods
Ricardo H. Nochetto, Abner J. Salgado and Kristoffer G. van der Zee

Goal-oriented error estimation and mesh adaptivity in three-dimensional elasticity problems

Seyed Shahram Ghorashi, Jafar Amani, Amir Saboor Bagherzadeh and Timon Rabczuk

A discontinuous Petrov-Galerkin methodology for incompressible flow: Navier-Stokes
Nathan V. Roberts, Leszek Demkowicz, Robert Moser and Ramesh Balakrishnan

Temporal error estimation and adaptive time step control in unsteady flow simulations

Kathrin Kozulovic and Graham Ashcroft

Sharp estimates for some problems with fading memory
Simon Shaw

21/07/2014 14:00 - 16:00
Advances in Computational Methods for Inverse Problems II
Minisymposium organized by Paul E. Barbone, Dan Givoli and Assad Oberai

MS075B
Room: Mare Nostrum F
Chair: Assad Oberai
CoChair: Paul Barbone

Constructing optimal transport maps for Bayesian inverse problems (Keynote Lecture)
Youssef M. Marzouk, Alessio Spantini and Tarek Moselhy

Accurate data assimilation for chaotic dynamical systems
Kody J.H. Law, Andrew M. Stuart and Abhishek Shukla

Controlling Uncertainty in PDE-Constrained Optimization
Drew Kouri

Well-posed Bayesian geometric inverse problems arising in subsurface flow
Marco Iglesias, Kui Lin and Andrew M. Stuart

Optimization of a random Cauchy problem in linear elasticity
Beatrice Faverjon, Benedicte Puig and Thouraya N. Baranger

Probabilistic model of dynamic boundary impedance matrices in high dimensions and for wide frequency bands of analysis
Pierre Ropars and Christophe Desceliers

21/07/2014 14:00 - 16:00
Smart Materials and Structures II
Minisymposium organized by Joachim Bluhm, Mieczyslaw Kuczma, Wieslaw Ostachowicz and Surjya Maiti

MS161B
Room: Llevant
Chair: Joachim Bluhm
CoChair: Surjya Kumar Maiti

Parallel Spectral Element Method for simulation of elastic waves in Smart Structures (Keynote Lecture)
Pawel Kudela and Wieslaw Ostachowicz

FEM calculations of crack growth patterns in ferroelectric multilayer actuators based on a continuum damage model
Roman Gellmann and Andreas Ricoeur

Model-based analysis and design of piezoelectric variable-friction tactile displays
Kwon Joong Son and Keehoon Kim

Static behaviour of flextensional actuators with constricted hinges
Jacek Przybylski

A condensed approach to modeling and analysis of ferroelectric PZT at the morphotropic phase boundary
Stephan Lange, Andreas Ricoeur and Rebecca Merkel

Parametric optimization of lightweight structures
Christian Heidenreich and Jürgen Ruth

21/07/2014 14:00 - 16:00
Advanced Computational Failure Analysis of Fiber Composite Structures II
Minisymposium organized by Raimund Rolfes, Eelco Jansen and José Reinoso

MS043B
Room: Mestral
Chair: Raimund Rolfes
CoChair: Jose Reinoso

Hybrid micro meso modeling approach to predict compressive failure of composites
Majeed Bishara and Raimund Rolfes

Three dimensional damage-mode based constitutive model for fibre-reinforced composites
Madhukar Chatiri and Matzenmiller Anton

New Design Approach for Axially Compressed Fiber Composite Cylindrical Shells using a Multistep Sensitivity Method
Alexander D. Meurer, Julia A. Thomy and Raimund Rolfes

Delamination characteristics of splices and doublers in glare laminates during buckling
Ahmad Al-Azzawi, John McCrory, Luiz F. Kawashita, Carol A. Featherston, Rhys Pullin and Karen M. Holford

Modeling the creasing process of paperboard
Jaan-Willem Simon, Yujun Li and Stefanie Reese

Effect of Delamination on the Strength of Laminated Curved Glass Beam
Ebru Dural and Mehmet Z. Asik

21/07/2014 14:00 - 16:00
Industrial Applications of Computational Fluid Dynamics and Related Techniques II

CS658B
Room: Ponent 1
Chair: Gabriel Bugeda

Aerodynamic shape optimization of a 3D wing via volumetric B-Splines

Mario J. Martin-Burgos, Esther Andrés-Pérez and Mariola Gómez

Thermal design of power transformers via CFD

Ralf Wittmaack

CFD simulation of LNG spillage

Richard Marcer, Benoît Yerly, Laurent Pomié, Bruno Lequime, Mathieu Rivot, Eric de Carvalho and Françoise Baillou

Problems of industrial air exhausting

Karel Adamek

Simulation of oxy-fuel combustion processes in industrial furnaces

Jörg Leicher, A. Giese and K. Görner

Research on cavity flow around underwater 3D vehicle based on Potential Flow theory

Jiaolong Zhao, Longquan Sun, Yang Zhang and Hailong Chen

21/07/2014 14:00 - 16:00
Advanced Methods in Computational Fluid Dynamics II

CS655B
Room: Ponent 2
Chair: Lakhdar Remaki
CoChair: Goran Stipcich

Algorithms for the Stochastic Simulation of Steady Nonequilibrium Flow
Matthew Dobson, Frederic Legoll, Tony Lelievre and Gabriel Stoltz

Towards a modular approach for unstructured shock-fitting

Raffaele Pepe, Aldo Bonfiglioli, Renato Paciorri, Andrea Lani, Jesus G. Mena and Carl F. Olliver-Gooch

A 3-D Mach-uniform preconditioner for incompressible and subsonic flows

Onur Bas and Ismail H. Tuncer

Comparing Kinetic energy preserving and Godunov schemes on the flow around a NACA0012
Aleix Baez Vidal, Juan B. Pedro, Oriol Lehmkuhl, Ivette Rodríguez and Carles D. Pérez-Segarra

Aerodynamic fluctuating forces on a rotating cylinder
David E. Aljure, Ivette Rodríguez, Oriol Lehmkuhl, Carles D. Pérez-Segarra and Assensi Oliva

2D Incompressible viscous flows at moderate and high Reynolds numbers: A direct primitive variables approach

Alfredo Nicolás and Elsa Báez

21/07/2014 14:00 - 16:00
Multiscale Methods and Applications in Computational Mechanics II
Minisymposium organized by Weiqing Ren and Yang Xiang

MS116B
Room: Terral
Chair: Weiqing Ren

A numerical study of slippery Jeffery orbits and reciprocal relations
Tiezheng Qian

A micro/macro parareal algorithm for multiscale-in-time systems
Frederic Legoll, Tony Lelievre and Giovanni Samaey

A cell based particle method for modeling dynamic interfaces

Yu Sing Hon, Shingyu Leung and Hongkai Zhao

Sharp interface model for solid-state dewetting problem with weak anisotropic surface energy
Yan Wang, Wei Jiang and Weizhu Bao

Application of our multiscale diffusion model to determination of drug distribution within tumor
Miljan Milosevic, Milos Kojic, Dejan Petrovic, Nikola Kojic, Mauro Ferrari and Arturas Ziemys

Computational modeling of multiscale flows
Temistocle Grenga and Samuel Paolucci

21/07/2014 14:00 - 16:00
Instabilities in Solids Across Length Scales I
Minisymposium organized by Dennis M. Kochmann and Oscar Lopez-Pamies

MS099A
Room: Tramuntana 1
Chair: Dennis Kochmann

Folding of neo-Hookean bilayer systems under biaxial compression
Takuya Morimoto and Fumihiro Ashida

Pattern formation finite element modeling for thin films on soft substrates
Fan Xu, Salim Belouettar and Michel Potier-Ferry

Crease-type solutions in a coated elastic half-space
Yibin Fu

Cavitation in rubber: An elastic instability or a fracture phenomenon?
Victor Lefevre and Oscar Lopez-Pamies

Engineering the surface buckling of mono-layer supported graphene
Kuan Zhang and Marino Arroyo

21/07/2014 14:00 - 16:00
Water-Structure Impact I
Minisymposium organized by James C. Campbell and Alessandro Iafrati

MS238A
Room: Tramuntana 2
Chair: James Campbell

Numerical simulation and experimental validation of guided ditching tests
Martin H. Siemann, Dieter Kohlgrüber, Luis Benítez Montañés and Alessandro Iafrati

Finite element analysis of tensor skin under water impact
Ren YanTing, Qiu XinMing and Yu TongXi

Prediction of aircraft structural response during ditching: An overview of the SMAES project
James Campbell

Advancement of semi-analytical Methods for Simulation of Aircraft Ditching
Willem Gropengießer, Alan Tassin, Alexander Korobkin, Mark Cooker , Ludovic Martin and Thomas Rung

Innovative SPH methods for aircraft ditching
Paul H.L. Groenenboom, James Campbell, Luis Benítez Montañés and Martin H. Siemann

Large scale simulation of fluid-structure interaction using an Incompressible Smoothed Particle Hydrodynamics
Abdelraheem Mahmoud Aly and Mitsuteru Asai

21/07/2014 14:00 - 16:00
Evolutionary Algorithms and Metaheuristics in Civil Engineering and Construction Management I
Minisymposium organized by Jorge Magalhaes-Mendes and David Greiner

MS022A
Room: Xaloc
Chair: Jorge Magalhães-Mendes
CoChair: David Greiner

On Dedicated Evolutionary Algorithms for Large Non-linear Constrained Optimization Problems in Application to Residual Stresses Analysis
Janusz Orkisz and Maciej Głowacki

Multiobjective optimization of time-cost using a multi-mode genetic algorithm
Jorge Magalhães-Mendes

Optimum design of shallow foundation using finite element analysis
Alex Spetz, Ola Dahlblom and Per Lindh

A comparison of minimum constrained weight and fully stressed design problems in discrete cross-section type bar structures
David Greiner, José M. Emperador, Blas Galván and Gabriel Winter

Hybrid approach to identification of elastic thin plate parameters applying GWM and ANN
Ewa Pabisek and Zenon Waszczyszyn

21/07/2014 14:00 - 16:00
Frontiers of Verification, Validation (V&V) and Uncertainty Quantification II
Minisymposium organized by Luís Eça, François Hemez, James Kamm, Marisol Koslowski and William J. Rider

MS210B
Room: Salon Club
Chair: Marisol Koslowski
CoChair: William Rider

Automatic model selection for verification (Keynote Lecture)
William J. Rider

The nonlinear error transport method for arbitrary Lagrangian-Eulerian computations
Jeffrey M. Connors, Jeffrey W. Banks and Jeffrey A. Hittinger

Info-gap analysis for numerical uncertainty associated with truncation error
James R. Kamm, Yakov Ben-Haim, William J. Rider, Walter Witkowski and Timothy Trucano

Automatic error estimation and verification using an adaptive wavelet method
Steven Brill, Temistocle Grenga, Joseph Powers and Samuel Paolucci

Identifying and treating numerical uncertainties in the code verification process
Scott W. Doebling, Diane E. Vaughan and James R. Kamm

Smooth estimate of the truncation error for unstructured mesh finite volume methods
Mahkame Sharbatdar and Carl Ollivier-Gooch

21/07/2014 14:00 - 16:00
Computational Methods in Fluid-structure Interactions, Dynamics and Vibration, Vibroacoustics - A Minisymposium in Honor of Prof. Roger Ohayon II
Minisymposium organized by Christian Soize

MS009B
Room: Yasmin A
Chair: K. C. Park
CoChair: Christian Soize

Isochronous Integrators [iIntgerators] and a New Generation Computational Methods Framework for Multiphysics/Multiscale Applications (Keynote Lecture)
Kumar Tamma and Masao Shimada

On a Discontinuous Galerkin method and its extension to numerical model coupling

Pierre Ladevèze and Herve Riou

Tip advancement an pressure distribution in hydraulic fracturing
Stefano Secchi and Bernhard A. Schrefler

Crack identification in elastic structures using time reversal
Dan Givoli, Eli Turkel, Izhak Lavi and Eyal Amit

Design and performance of a stiff wave barrier in the soil using 2.5D and 3D FE-BE models
Pieter Coulier, Stijn François, Vicente Cuéllar, Geert Degrande and Geert Lombaert

A temporal integrator based on series resommation. Applications to fluid-structure interaction
Aziz Hamdouni, Dina Razafindralandy and Ahmad Deeb

21/07/2014 14:00 - 16:00
Advanced Beam Models II
Minisymposium organized by Dinar Camotim, Zuzana Dimitrovova and Rodrigo Gonçalves

MS047B
Room: Yasmin B
Chair: Rodrigo Gonçalves
CoChair: Zuzana Dimitrovová

A 1D model for the nonlinear analysis of TWBs
Stefano Gabriele, Nicola L. Rizzi and Valerio Varano

A force-based formulation for the analysis of frames with non-holonomic hardening plastic hinges
Theodoros N. Patsios and Konstantinos V. Spiliopoulos

A nonlinear 1D model of layered tubular beam
Angelo Luongo and Daniele Zulli

Buckling and post-buckling analysis of sandwich beam-columns
Kahina Sad Saoud and Philippe Le Grognec

Cross-sectional analysis of pre-twisted thick beams using variational asymptotic method
Maqsood Mohammed Ameen and Dineshkumar Harursampath

Mixed formulation for modelling self-centring post-tensioned rocking beams and columns
Chin-Long Lee

21/07/2014 14:00 - 16:00
Structural and Multidisciplinary Optimization II
Minisymposium organized by Jose Madeira and Helder Rodrigues

MS026B
Room: Yasmin C
Chair: Jose Herskovits
CoChair: Jose Madeira

Using topology optimization in lightweight design of fatigue resistant structures
Miroslaw Mrzyglod

Computational optimization of flexible adhesives
Janine C. Mergel, Roger A. Sauer and Anupam Saxena

Multidisciplinary analysis of the DLR SpaceLiner design concept by different optimization techniques
Anke Tröltzsch, Martin Siggel, Alexander Kopp and Tobias Schwanekamp

Form-finding of interlaced space structures
Seyed Sina Nabaei, Olivier Baverel and Yves Weinand

New methodologies in reliability-based design optimization for aerospace structures
Marco N. Coccon, Marco Menegozzo and Ugo Galvanetto

The development and application of tailored test problems for meta-simulation of multidisciplinary optimization of vehicle structures
Ramses Sala, Marco Pierini and Niccolò Baldanzini

21/07/2014 14:00 - 16:00
STS 08: Higher-Order Methods for Aerospace Applications II

STS08B
Room: Auditorium
Chair: Norbert Kroll
CoChair: Francesco Bassi

Higher order and adaptive Discontinuous Galerkin methods for 3D aerodynamic flows
Ralf Hartmann and Tobias Leicht

Implementation of a hybrid RANS-LES approach in an implicit very high-order Discontinuous Galerkin solver
Francesco Bassi, Lorenzo Botti, Alessandro Colombo, Antonio Ghidoni and Stefano Rebay

Higher-order least-squares reconstruction for turbulent aerodynamic flows 
Alireza Jalali and Carl Ollivier-Gooch

Transitional flow simulation in turbomachinery with a high-order accurate method 
Marco Lorini, Antonio Ghidoni, Francesco Bassi, Alessandro Colombo and Stefano Rebay

Flow computations of industrial cases with high-order Discontinuous Galerkin scheme
Antonio Garcia-Uceda Juarez, Igor Bosnyakov, Alexei Troshin, Vladimir Vlasenko, Charles Hirsch and Andrey W. Wolkov

Application of a Discontinuous Galerkin method for the simulation of turbulent flow configurations on hybrid meshes
Marta de la Llave Plata, Florent Renac, Emeric Martin, Jean-Baptiste Chapelier and Vincent Couaillier

21/07/2014 14:00 - 16:00
Advances in Accurate and Robust Numerical Methods for Computational Fluid Dynamics II
Minisymposium organized by Remi Abgrall, Feng Xiao and Koen Hillewaert

MS051B
Room: Sala A
Chair: Eiji SHIMA
CoChair: Matteo Parsani

A cell-centered pressure correction scheme for the compressible Euler equations
Chady Zaza, Raphaèle Herbin and Jean-Claude Latché

An explicit staggered scheme for the compressible Euler equations
Laura Gastaldo, Raphaèle Herbin, Jean-Claude Latché and Nicolas Therme

Low-Mach preconditioned boundary conditions for compressible solvers 
Jens Fiedler and Francesca di Mare

Numerical treatment of turbulent Low-Mach-Flow for turbine cooling applications 
Stefan Rochhausen, Florian Krueppel and Jens Fiedler

Momentum interpolation for quasi one-dimensional unsteady low Mach number flows with acoustics 
Yann Moguen, Stéphane Dellacherie, Pascal Bruel and Erik Dick

A stable and accurate compressible low mach scheme for unsteady flow calculation
Simon Delmas, Vincent Perrier and Pascal Bruel

21/07/2014 14:00 - 16:00
Multiscale Computational Mechanics of Materials II
Minisymposium organized by Wing Kam Liu, Shaofan Li and Franck Vernerey

MS260B
Room: Sala B1
Chair: Wing Kam Liu
CoChair: Shaofan Li

Heterogeneous continuum theory
Miguel A. Bessa, John A. Moore, Ted Belytschko and Wing Kam Liu

Archetype-blending continuum theory for multiscale fatigue predictions
John A. Moore and Wing Kam Liu

A fully micromechanical motivated material law for filled elastomer
Ole Stegen and Udo Nackenhorst

Using GPU accelerators for crystal plasticity simulations
Ylva Mellbin, Håkan Hallberg and Matti Ristinmaa

Improving the convergence of bounds for effective elastic parameters of heterogeneous materials
Claire Heaney, Stéphane P.A. Bordas and Pierre Kerfriden

Elastic fields and stress intensity factors of cracks interacting with inclusions
Kun Zhou and Rongbing Wei

21/07/2014 14:00 - 16:00
Particle Methods for Micro- and Nano-flows II
Minisymposium organized by Marco Ellero and Dmitry A. Fedosov

MS045B
Room: Sala B2
Chair: Marco Ellero

Dissipative Particle Dynamics (DPD) Methods for Biological Flows (Keynote Lecture)
George E. Karniadakis

The response of semi-flexible dens polymer brushes to shear flow
Frank Römer and Dmitry A. Fedosov

New inflow/outflow boundary conditions for particle-based modeling of suspension flows in networks
Kirill Lykov, Xuejin Li, Huan Lei, Igor V. Pivkin and George E. Karniadakis

Mesoscopic simulations of polymeric systems by Responsive Particle Dynamics
Wouter den Otter, Igor Santos de Oliveira and Wim Briels

Simulation of semidilute supensions by dissipative particle dynamics

Abouzar Moshfegh and Ahmad Jabbarzadeh

21/07/2014 14:00 - 16:00
Direct and Inverse Methods for Cardiovascular and Pulmonary Biomechanics II
Minisymposium organized by C. Alberto Figueroa, Marek Behr and Wolfgang Wall

MS158B
Room: Sala B3
Chair: C. Alberto Figueroa

Estimation of mechanical properties of arterial wall from dynamic volume CT images
Masaharu Kobayashi, Motoharu Hayakawa, Yoichi Sato and Marie Oshima

A Computational Framework for Multiscale Modeling of the Mitral Valve
Chung-Hao Lee and Michael S. Sacks

Stabilized reduced basis method for parametrized scalar advection-diffusion problems at higher Peclet number: roles of the boundary layers and inner fronts

Paolo Pacciarini and Gianluigi Rozza

An improved coronary model for one-dimensional pressure-flow analysis
Etienne Boileau, Igor Sazonov, Xianghua Xie and Perumal Nithiarasu

Blood flow in the thoracic aorta and its relation to geometrical characteristics
Hiroshi Suito, Viet H.Q. Huynh, Kenji Takizawa, Takuya Ueda and Tayfun E. Tezduyar

Stress-based and strain-based hemolysis estimation for medical devices
Lutz Pauli, Jaewook Nam, Matteo Pasquali and Marek Behr

21/07/2014 14:00 - 16:00
CFD in Wind Energy – From Wind Turbine Aerodynamics to Atmospheric Boundary Layer Flows II
Minisymposium organized by Jari Hämäläinen, Gabor Janiga and Dominique Thévenin

MS215B
Room: Sala C1
Chair: Jari Hämäläinen

Flow control using a DBD plasma actuator for horizontal-axis wind turbine blades of simple experimental model
Hikaru Aono, Yoshiaki Abe, Makoto Sato, Aiko Yakeno, Koichi Okada, Taku Nonomura and Kozo Fujii

Coupled CFD/CSD method for wind turbines
Marina Carrion, Rene Steijl, George N. Barakos, Sugoi Gomez-Iradi and Xabier Munduate

Aerodynamic loads on a fixed wind turbine blade with Gurney flap
Federico Bacchi and Ana Scarabino

Experimental and CFD analysis of the flow in the wake of a vertical axis wind turbine
Valentin Sanchez, Jordi Pallares, Anton Vernet, Juan J. Eguizabal and Enrique Lopez

21/07/2014 14:00 - 16:00
Simulation of Cardiovascular Procedures and Devices II
Minisymposium organized by Ferdinando Auricchio, Michele Conti, Simone Morganti and Alessandro Veneziani

MS193B
Room: Sala C2
Chair: Michele Conti

Patient-specific finite element analysis of coronary stenting: a focus on long lesions
Michele Conti, Ferdinando Auricchio, Carolina Ferrazzano and Gregory Sgueglia

Minimally invasive endovascular procedures simulations using 1d haemodynamics
Sergey S. Simakov, Yuri Vassilevski, Yuri A. Ivanov and Timur M. Gamilov

Numerical simulations of an anti-thrombus inferior vena cava filter with CFD and FSI
Marina Nicolás, Mauro Malvè, Maria Pilar Arroyo and Miguel A. Martínez

Flow diverter stent performance at different flow rate conditions
Hernán G. Morales and Odile Bonnefous

21/07/2014 14:00 - 16:00
Advanced Methods for the Analysis and Design of Tensile Structures II
Minisymposium organized by Falko Dieringer, Roland Wüchner and Kai-Uwe Bletzinger

MS083B
Room: Sala C3
Chair: Benedikt Philipp

Numerical simulation of structural behaviour of membrane restrained elastic gridshells

Elisa Lafuente Hernández and Christoph Gengnagel

Different determination procedures for stiffness parameters of woven fabrics and their impact in the membrane structure analysis

Jörg Uhlemann, Natalie Stranghöner and Klaus Saxe

Simulation and Experiment Research on 2D Open Membrane Structure
Xiaoying Sun, Tianyang Wang, Yue Wu, Roland Wüchner and Kai-Uwe Bletzinger

Aleatoric & espistemic uncertainty in the analysis of tensile structures
Peter Gosling, Nicola Bartle and Ben Bridgens

Testing and isogeometric structural analysis of membranes subject to large deflections
Maitane Narezo Docampo, Steven Zalek and Dale Karr

21/07/2014 14:00 - 16:00
Mechanics of Nanostructured Materials II
Minisymposium organized by I-Ling Chang, Takayuki Kitamura, Takahiro Shimada and Chuin-Shan D. Chen

MS223B
Room: Sala D1
Chair: Yunche Wang
CoChair: I-Ling Chang

Molecular dynamics study of calcium silicate hydrate on porous silica (Keynote Lecture)
Yunche Wang, Chunyi Wu and Chi Chen

High strain compression behaviour of nano-structured hierarchical irregular honeycombs
Hanxing Zhu, Junfeng You and Hongchao Zhang

The study on shape memory properties of Ni-Al alloys by molecular dynamics simulation
I-Ling Chang, Chin-Chen Hsu and Ta-Hsiung Chao

Modelling of single-wall carbon nanotubes mechanical behaviour

Nataliya A. Sakharova, Jorge M. Antunes, Marta C. Oliveira, Bruno M. Chaparro, C.M.A. Brett and Jose V. Fernandes

Plane problems of magneto-electro-elastic fibrous composites
Hsin-Yi Kuo

Electro-Elastic Coupling Behavior of CNT-based Nanostructures
Qing-Sheng Yang and Xiao-Hui Yan

21/07/2014 14:00 - 16:00
Advances in Computational Cardiovascular Modeling and Simulation II
Minisymposium organized by Daniel E. Hurtado, Ellen Kuhl and Michael Ortiz

MS160B
Room: Sala D2
Chair: Daniel Hurtado

A lightweight approach to parallel adaptivity in electrophysiology
Rolf Krause, Dorian Krause and Sonia Pozzi

Computational modeling of cardiac dysfunctions
Serdar Göktepe and Ezgi Berberoglu

Material modeling of cardiac valve tissue
Stefanie Heyden, Bertoglio Cristobal, Nagler Andreas, Wall Wolfgang and Ortiz Michael

Electromechanical cardiac arrhythmias: experiments, theory and simulations
Alessio Gizzi, Christian Cherubini, Anna Pandolfi and Simonetta Filippi

Estimation of patient-specific parameters in mechanical modelling of dilated cardiomyopathy
Liya Asner, Myrianthi Hadjicharalambous, Radomir Chabiniok, Eva Sammut, James K. Wong and David A. Nordsletten

21/07/2014 14:00 - 16:00
Advanced Numerical Methods for Cavitating Flows II
Minisymposium organized by Nikolaus Adams, Steffen Schmidt and Eric Johnsen

MS095B
Room: Sala D3
Chair: Nikolaus Adams

Account of compressibility effects within pressure-based Euler-eEuler approaches to cavitating flow simulations
Sergey Yakubov, Thierry Maquil and Thomas Rung

A new methodology for estimating cavitation erosion: Application on a high speed cavitation test rig
Phoevos K. Koukouvinis, George Bergeles and Manolis Gavaises

Estimation of incubation times through numerical simulation of 3-D unsteady cavitating flows
Michael S. Mihatsch, Steffen J. Schmidt and Nikolaus A. Adams

Modelling of tip vortex cavitation for engineering applications in OpenFOAM
Joost J.A. Schot, Pepijn C. Pennings, Mathieu J.B.M. Pourquie and Tom J.C. van Terwisga

Some modifications of bubble model for cavitating flow simulations
Yoshiaki Tamura, Nobuo Tsurumi and Yoichiro Matsumoto

21/07/2014 14:00 - 16:00
Advanced Gridding and Discretization Techniques for Petroleum Reservoir Simulation II
Minisymposium organized by Paulo R.M. Lyra, Darlan K.E. Carvalho, Michael G. Edwards, Clovis R. Maliska and Régis K. Romeu

MS035B
Room: Sala D4
Chair: Clovis Maliska
CoChair: Darlan Karlo Elisiário de Carvalho

Multiscale methods as spatiotemporal grid-refinement techniques (Keynote Lecture)
Ivan Lunati, Pavel Tomin and Rouven Künze

Multiscale CVD-MPFA finite-volume formulations on general grids
Elliot Parramore and Michael G. Edwards

Development of data models and velocity interpolation methods for streamline trajectories on unstructured grids
Mike J. King

Representing dependent variable discontinuities in hybrid finite-element finite-volume models of hdrocarbon reservoirs: comparisons between element-centered with multiplicated node method for unstructured grids
Stephan K. Matthaei and Roman Manasipov

Hexahedral mixed finite elements for flow calculations
Ibtihel Ben Gharbia, Nabil Birgle, Houman Borouchaki, Jérôme Jaffré, Dominique Moreau and Jean Roberts

Mixed finite element model implementation for a petroleum reservoir simulation
Carlos M. Osorio and Omar D. López

21/07/2014 14:00 - 16:00
Computational Bone Biomechanics II
Minisymposium organized by Zohar Yosibash and Ernst Rank

MS028B
Room: Sala D5
Chair: Ernst Rank
CoChair: Dieter Pahr

Intra-voxel micro-elasto-plasticity for CT-based patient-specific fracture risk assessment of vertebrae (Keynote Lecture)
Romane Blanchard, Claire Morin, Alain Vella, Zdenka Sant and Christian Hellmich

Modeling mechanochemical couplings in trabecular and osteonal bone remodeling
Taiji Adachi, Kentaro Takenaka and Yasuhiro Inoue

Patient-specific finite element analysis of long bones- Applications in clinical practice
Nir Trabelsi, Charles Milgrom and Zohar Yosibash

P-FEA of pathological human femurs
Zohar Yosibash

Improvements in treatment planning and fracture prediction in patients with skeletal metastasis with CT-based rigidity analysis
Ara Nazarian, Vahid Entezari , David Zurakowski, Nathan Calderon, John A. Hipp, Timothy A. Damron and Brian D. Snyder

21/07/2014 14:00 - 16:00
Numerical Methods for Wave Propagation Problems and Design Applications II
Minisymposium organized by Kazuhiko Abe and Toshiro Matsumoto

MS177B
Room: Sala D6
Chair: Toshiro Matsumoto
CoChair: Hauke Gravenkamp

Mode analysis for an elastic waveguide in a periodic composite
Kazuhisa Abe, Kazuhiro Koro and Pher E.B. Quinay

Comparison of higuer order methods in time and space for the numerical simulation of ultrasonic wave propagation
Jörg F. Unger

An improved wave / finite element formulation for studying high-order wave propagation in large-scaled waveguides
Christophe Droz, Mohamed Ichchou and Jean-Pierre Lainé

Thermal stress oscillation behavior in a functionally graded material thin film
Fumihiro Ashida and Takuya Morimoto

Locally resonant acoustic metamaterials with different inclusions
Anastasiia Krushynska, Varvara G. Kouznetsova and Marc G.D. Geers

Solutions for distributed harmonic loadings on axially symmetric area in layered half-space
Gin-Show Liou

21/07/2014 14:00 - 16:00
Stability Issues of Finite Elements in Non-linear Solid Mechanics II
Minisymposium organized by Stefanie Reese, Ferdinando Auricchio, Manfred Bischoff and Peter Wriggers

MS218B
Room: Sala E1
Chair: Stefanie Reese

Stability aspects of pressurized membranes
Anders Eriksson

A reduced basis technique with the co-rotational kinematics for nonlinear buckling analysis of structures
Ke Liang, Martin Ruess, Mostafa Abdalla and Zafer Gürdal

Thermal post-buckling analysis of imperfect thin and thick plates resting on two-parameter elastic foundation
Michal Kleiber, Maciej Taczala and Ryszard Buczkowski

Buckling strength assessment of cylindrical metal silo containing granular solids
Michal Wójcik and Jacek Tejchman

Research on the stability behaviors of single-layer shells based on the whole-course response analysis method
Cao Zhenggang and Fan Feng

Blast buckling of thin-walled metal tanks
Blanc Ludovic, Magnain Benoit and Jean-Luc Hanus

21/07/2014 14:00 - 16:00
Multiphysics Simulations with Time Resolved Turbulent Flow Fields II
Minisymposium organized by Dörte C. Sternel and Miriam Mehl

MS125B
Room: Sala E2
Chair: Dörte C. Sternel

Solution-adaptive grid resolution for fluid structure interaction
Stefan Kneissl, Dörte C. Sternel and Michael Schäfer

Towards multi-scale transport simulation in complex geometries with advanced Lattice Boltzmann methods on CPUs and GPGPUs
Ying Wang, Manfred Krafczyk, Martin Geier and Martin Schönherr

Efficiency and robustness of implicit multigrid methods for turbulent combustion
Mark Wasserman, Yair Mor-Yossef and J. Barry Greenberg

Study on turbulent mixing induced by Rayleigh-Taylor instability using the RANS model
Min Yang, Lili Wang and Shudao Zhang

Numerical investigation of High Reynolds number von Karman flow
Mahmoodzadeh M. Entezari and Meysam Mohammadi-Amin

Simulation of turbulent flows past 3D complex geometries using anisotropic adaptation technique
Jerzy Majewski and Piotr Szałtys

21/07/2014 14:00 - 16:00
Multi-scale and Multi-physics Computations in Fluids and Solids II
Minisymposium organized by Yozo Mikata and Glaucio Paulino

MS194B
Room: Sala E3
Chair: Yozo Mikata
CoChair: Seiichi Nomura

Multiscale and multiphase approach for solidification processes
Lukas Moj, Tim Ricken and Ingo Steinbach

Coupling lattice Boltzmann and atomistic models for fluids
Oleg Khromov, Wenzhe Shan and Udo Nackenhorst

Modelling of fluid, particle and structure interactions in a tumbling ball mill for grinding of minerals
Pär Jonsén, Hans-Åke Häggblad and Bertil I. Pålsson

A homogenization approach to fresch concrete flow through reinforcing bars
Filip Kolařík, Jan Zeman and Bořek Patzák

Numerical simulation of transpiration cooling with a mixture of thermally perfect gases

Wolfgang Dahmen, Valentina Gerber, Thomas Gotzen, Siegfried Müller, Michael Rom and Christian Windisch

Numerical study of temperature and streamfuction patterns before full convection in geothermal cells of Bénard type

Manuel Cánovas Vidal, Ivan Alhama, Emilio Trigueros and Francisco Alhama

21/07/2014 14:00 - 16:00
Nanomechanics II
Minisymposium organized by Nuno Silvestre and Konstantinos Tserpes

MS016B
Room: Sala E4
Chair: Konstantinos Tserpes
CoChair: Nuno Silvestre

Nanofluids for enhanced oil recovery: Molecular simulations and mechanism
Heng-An Wu and Feng-Chao Wang

Curved folds on supported graphene under compression
Aditya Vangal Vasudevan, Kuan Zhang and Marino Arroyo

Objectivity in molecular dynamics simulation
Zidong Yang, James Lee and Azim Eskandarian

Surface effects on mechanical properties and instability of FCC nanowires and nanofilms
Duc Tam Ho, Soon-Dong Park and Sung Youb Kim

21/07/2014 14:00 - 16:00
Multiscale Modelling of Landslides and Debris Flows II
Minisymposium organized by Wei Wu and Ronaldo I. Borja

MS365B
Room: Sala E5
Chair: Wei Wu

Implementation of a constitutive model for the finite element analysis of landslide triggered by rainfall

Roberto Tamagnini, Barbara M. Switala, Wei Wu and Lorenzo Sanavia

Viscoplastic regularization of strain localization in fluid-saturated porous media

Maria Lazari, Lorenzo Sanavia and Bernhard A. Schrefler

A model for non-isothermal variably saturated porous media in dynamics

Lorenzo Sanavia, Duc Toan Cao, Mareva Passarotto and Bernhard A. Schrefler

Modeling and numerical simulation of two-layer debris flows
Xiannan Meng and Yongqi Wang

21/07/2014 14:00 - 16:00
Scale-dependent plasticity: Experiments, Theory and Numerical Modeling I
Minisymposium organized by Thomas Böhlke, Stefan Sandfeld and Stephan Wulfinghoff

MS201A
Room: Sala E6
Chair: Eric Bayerschen
CoChair: Thomas Böhlke

Experimental characterization of micro plasticity and dislocation microstructures
Patric A. Gruber, Mark Wobrock, Michael Ziemann, Mario Walter and Oliver Kraft

Dislocation density distribution around an indent in single-crystalline Nickel: Comparing nonlocal crystal plasticity finite element predictions with experiments
Franz Roters, Christoph Kords, Philip Eisenlohr and Dierk Raabe

A computational study of plastic flow by dislocation transport in a two-phase microstructure
Michael M.W. Dogge, Ron H.J. Peerlings and Marc G.D. Geers

Continuum dislocation microplasticity modeling of single crystals
Thomas Böhlke, Stephan Wulfinghoff, Eric Bayerschen and Samuel Forest

On the plastic spin in an isotropic small deformation gradient plasticity theory
Leong Hien Poh and Ron H.J. Peerlings

21/07/2014 14:00 - 16:00
Computational Contact Mechanics II
Minisymposium organized by Tod Laursen, Peter Wriggers and Giorgio Zavarise

MS044B
Room: Sala F
Chair: Vladislav A. Yastrebov

Contact constitutive laws for fiber-reinforced composite materials
Luis Rodríguez-Tembleque

A comparative evaluation of coupled mixed-mode cohesive zone laws for interfacial debonding
Rossana Dimitri, Marco Trullo, Laura De Lorenzis and Giorgio Zavarise

A non-symmetric integral approximation of large sliding frictional contact problems of deformable bodies based on ray-tracing
Konstantinos Poulios and Yves Renard

On a new method to solve contact problems with an evolving level-set
Matthieu Graveleau, Nicolas Chevaugeon and Nicolas Moës

Contact analysis in the presence of an ellipsoidal inhomogeneity within a viscoelastic half space
Daniel Nelias, Koffi Espoir Koumi and Thibaut Chaise

A local optimal contact condition in 2D and 3D
Guillaume Droued and Patrick Hild

21/07/2014 14:00 - 16:00
Computational Modeling of Fracture and Failure of Materials and Structures II
Minisymposium organized by Olivier Allix, Milan Jirásek, Nicolas Moës and Xavier Oliver

MS226B
Room: Sala H 1
Chair: Robert Haber

Modeling failure using the convective particle domain interpolation method in a shock physics hydrocode
Shane C. Schumacher and Kevin P. Ruggirello

Fluid flow and heat transfer effects on crack growth in solid oxide fuel cell electrodes
Qian Shao, Lyazid Bouhala, Anis Younes, Pedro Núñez and Ahmed Makradi

Numerical study on the dynamic fracture propagation in fibre-reinforced concrete
Ignacio Rivero, Rena C. Yu and Gonzalo Ruiz

Higher order methods for the simulation of curvilinear fracture propagation in multi-physics problems
Maurizio Chiaramonte and Adrian J. Lew

A parallel, explicit, high-order discontinuous Galerkin method for dynamic crack propagation in brittle fracture
Adrian Rosolen, Martin Hautefeuille, Aurelie Jean, Gauthier Becker and Raul Radovitzky

Modeling and simulation fracture in brittle materials with anisotropic surface energy
Bin Li, Daniel Millán, Christian Peco, Irene Arias and Marino Arroyo

21/07/2014 14:00 - 16:00
Isogeometric Methods II
Minisymposium organized by Yuri Bazilevs, David J. Benson, Rene De Borst, Thomas J.R. Hughes, Trond Kvamsdal, Alessandro Reali, Michael A. Scott and Clemens V. Verhoosel

MS049B
Room: Sala H 2
Chair: Alessandro Reali

Isogeometric one-parameter formulations for shear deformable structures (Keynote Lecture)
Josef Kiendl, Ferdinando Auricchio, Thomas J.R. Hughes and Alessandro Reali

Isogeometric analysis of gradient elastic Kirchhoff plates
Jarkko Niiranen and Antti H. Niemi

Isogeometric large deformation 3D Timoshenko beam
Siv B. Raknes, Bjørn Haugen, Kjell M. Mathisen, Trond Kvamsdal and Knut M. Okstad

Enhancing isogeometric analysis by the scaled boundary technique
Junchao Wang, Sundararajan Natarajan, Hou Man and Chongmin Song

An object oriented design for an isogeometric software library, introducing igatools
Miguel S. Pauletti, Massimiliano Martinelli, Nicola Cavallini, Pablo Antolin, Annalisa Buffa and Giancarlo Sangalli

Using IGATOOLS in industrial environments: integration with existing CAD systems and Finite Element solvers
Massimiliano Martinelli, Pablo Antolin , Annalisa Buffa and Giancarlo Sangalli

21/07/2014 14:00 - 16:00
Multiscale Computational Homogenization for Bridging Scales in the Mechanics and Physics of Complex Materials II
Minisymposium organized by Julien Yvonnet, Kenjiro Terada, Peter Wriggers and Marc Geers

MS012B
Room: Sala H 3
Chair: Kenjiro Terada
CoChair: Varvara Kouznetsova

On the convergence of three iterative FFT-based methods for computing the mechanical response of composite materials
Hervé Moulinec and Fabrice Silva

Multiscale modeling of soft matter friction: Computational framework and elastic boundary layers
İlker Temizer

Multi-scale modelling of delamination through fibrillation
Bart G. Vossen, Piet J.G. Schreurs, Olaf van der Sluis and Marc G.D. Geers

Computational homogenisation of fibre reinforced composites
Chris J. Pearce, Zahur Ullah and Lukasz Kaczmarczyk

Statistical multiscale homogenization modelling of polymeric nanocomposites
Maenghyo Cho, Hyunseong Shin, Seongmin Chang, Seunghwa Yang, Suyoung Yu and Byeng D. Youn

Computational modeling of heterogeneous structures without scale separation: an approach based on nonlocal filter-based homogenization
Amen Tognevi, Mohamed Guerich and Julien Yvonnet

21/07/2014 14:00 - 16:00
Computational Biomechanics II
Minisymposium organized by T.Christian Gasser, Miguel

MS007B
Room: Sala J

Cerrolaza, Ellen Kuhl, Michael Gee, Yomar Gonzalez, Simone Deparis and Thomas Franz

Chair: Johan Hoffman
CoChair: Matthias Mayr

Preliminary study of the impact of spinal cord nerve roots and denticulate ligaments on drug movement in the cervical spinal subarachnoid space (Keynote Lecture)
Mikael Mortensen, Kent-Andre Mardal, Soroush H. Pahlavian and Bryn A. Martin

Finite element simulation of blood flow in the left ventricle
Jeannette H. Spühler, Johan Hoffman, Johan Jansson, Ulf Gustafsson, Michael Broomé and Niclas Jansson

Coupling of finite element and finite volume methods for fluid-structure-interaction in a monolithic scheme
Johannes Steiner and Rolf Krause

Effect of intraocular pressure and cerebrospinal fluid pressure on retinal hemodynamics
Lucia Carichino, Giovanna Guidoboni, Brent A. Siesky and Alon Harris

Influence of blood flow change by the deformation of stented parent artery in an intracranial aneurysm
Futoshi Mori, Sho Hanida, Makoto Ohta and Teruo Matsuzawa

3D fluid-structure interaction simulations of a commercial bioprosthetic valve
Alessandra M. Bavo, Francesco Iannaccone, Joris Degroote, Koen Cathenis, Jan Vierendeels and Patrick Segers

21/07/2014 14:00 - 16:00
Flow Dynamics and Magnetic Resonance: Validation and Prediction I
Minisymposium organized by Jan Korvink and Andreas Greiner

MS053A
Room: Business Centre I
Chair: Jan Korvink

Tracer transport in human arteries affects MRI-based perfusion quantification
Karsten Sommer, Regine Schmidt and Laura M. Schreiber

A particle based platform for flow simulation with magnetic and other degrees of freedom
David Kauzlaric

Yelling out for theory - spatially selective NMR at the length scale of diffusion 
Nikolaus Nestle and Achim Gädke

From jet turbines to human hearts: Fluid dynamics mapping with MRI
Bernd Jung, Christoph Benk and Sven Grundmann

21/07/2014 14:00 - 16:00
Computational Challenges in Granular Flows I
Minisymposium organized by Thomas Weinhart, Anthony R. Thornton and Itai Einav

MS187A
Room: Business Centre II
Chair: Thomas Weinhart

The material point method for the collapse simulation of the granular accumulated structure
Peng Huang, Hu Guo, Heng Xu and Zhi-Ming Hao

Effect of particle surface friction on constitutive relation for steady granular flow 
Ken Kamrin and Georg Koval

NEOShield Study on Asteroid Mitigation: simulation of impacts into hazardous bodies modeled as collections of grains
Stephen R. Schwartz and Patrick Michel

Hybrid FE/FV methods for evaluating wall effects in structured porous media

Sridhar Palle and Shahrouz Aliabadi

Well-posed and ill-posed behaviour of the mu(I)-rheology for granular flows
Thomas P. Barker

On boundary approximation for voxel-based simulation of granular flow
David Neusius, Sebastian Schmidt and Axel Klar

21/07/2014 14:00 - 16:00
Multibody System Dynamics and Modal Reduction II
Minisymposium organized by Pascal Ziegler and Johannes Gerstmayr

MS239B
Room: Sala de prensa I
Chair: Johannes Gerstmayr
CoChair: Thomas Leitz

Multibody dynamics method for immersed tunnel subjected to longitudinal seismic loading
Zhongyuan Shen, Yong Yuan, Haitao Yu and Rui Chai

A modal analysis method for structural models with non-modal damping
Evgueni Stanoev

Modal derivatives based reduction method for finite deflections in floating frame
Long Wu and Paolo Tiso

Nonlinear manifold for model order reduction of geometrically nonlinear structural dynamics
Paolo Tiso, Johannes Rutzmoser and Daniel J. Rixen

Interpolation strategies for non-linear parametric model order reduction in gear contact simulation
Tommaso Tamarozzi, Bart Blockman, Frank Naets and Wim Desmet

21/07/2014 14:00 - 16:00
Multiphysics Modelling of Porous Media: Geomaterials, Biomaterials and Others II
Minisymposium organized by Younane N. Abousleiman, Stefan Diebels and Lorenzo Sanavia

MS027B
Room: Sala de prensa II
Chair: Jean H. Prevost

Simulating leak-off in shale hydraulic fracturing using dual- and triple- poro-thermo-elastic anisotropic solutions
Younane N. Abousleiman, Chao Liu and Son K. Hoang

Constitutive formulation, localization and failure analysis of porous materials like concrete subjected to high temperature
Guillermo Etse, Marianela Ripani, Sonia Vrech and Javier Mroginski

Multi-physics modelling of the consolidation processes in variably saturated elasto-plastic soils due to high temperature
Lorenzo Sanavia, Alberto Bonetto and Lyesse Laloui

Salt diffusion and crystallization in masonry walls: A comparison between chlorides and sulphates
Giovanni Castellazzi, Stefano de Miranda, Lisa Grementieri, Luisa Molari and Francesco Ubertini

Quasi-static response for a multilayered half space using a thermal non-equilibrium model
Yang Yang and Tom Schanz

Developing a coupled thermal-mechanical-porous model for electrolyte flow in a molten salt battery
Jonathan R. Clausen, Scott A. Roberts, Mario J. Martinez and Kevin N. Long

21/07/2014 14:00 - 16:00
Multiscale Liver Simulation: A Holistic Model for Hepatic Function and Perfusion II
Minisymposium organized by Tim Ricken and Daniel Werner

MS155B
Room: Sala de Reservas
Chair: Charlotte Debbaut
CoChair: Jennifer Siggers

Complex hierarchical modeling of the dynamic perfusion test: application to liver
Eduard Rohan, Alena Jonasova, Vladimir Lukes and Ondrej Bublik

Double porous medium model of blood and interstitial flow in the liver
Jennifer H. Siggers and Rodolfo Repetto

Liver hemodynamics modeling during partial hepatectomy
Chloe Audebert, Jean-Frédéric Gerbeau and Irène E. Vignon-Clementel

LISA - Liver Surgery Analyzer software development
Miroslav Jiřík, Tomáš Ryba, Miroslava Svobodová, Hynek Mírka and Václav Liška

16:00 - 16:30
Coffee Break & Poster Sessions

16:30 - 18:30
TECHNICAL SESSIONS

21/07/2014 16:30 - 18:30
Meshless and Related Methods, a Minisymposium Dedicated to Celebrate the 80th Birthday of Professor Janusz Orkisz III
Minisymposium organized by Sergio Idelsohn, Pierre Villon, G.R. Liu, Paulo M. Pimenta and Suvranu De

MS114C
Room: Mare Nostrum A
Chair: Suvranu De
CoChair: Janusz Orkisz

Hierarchical derivation of shape functions and stiffness matrix calculation of EFG meshless methods
Panagiotis Metsis, Nikos Lantzounis and Manolis Papadrakakis

Analysis of cracks in bi-materials/composites with variable order singularity using meshless method
Nelson Madalai Muthu, Surjya Kumar Maiti and Wenyi Yan

Compared computational performances of Galerkin approximations for perturbed variable-coefficient differential equations, one-dimensional analysis
Diego Garijo, Francisco J. Gómez-Escalonilla and Óscar F. Valencia

Efficient and highly accurate high order meshless methods based on the Hu-Washizu variational principle
Qinglin Duan, Xin Gao, Bingbing Wang and Xikui Li

Meshless analysis of shear deformable shells: Kinks and multi-region problems
Jorge C. Costa and Paulo M. Pimenta

Application of different models for modeling abrasive wear
Florian Beck and Peter Eberhard

Weakened weak (W2) form methods: Theory, formulation and applications
Guirong Liu

21/07/2014 16:30 - 18:30
HPC-Based CFD Simulations for Industrial Applications III
Minisymposium organized by Mariano Vázquez, Makoto Tsubokura , Takayuki Aoki and Mike Nicolai

MS208C
Room: Mare Nostrum B
Chair: Mike Nicolai

A novel CAA approach in OpenFOAM for computation of sound fields
Jan Schmalz and Wojciech Kowalczyk

Direct simulations of acoustic radiation around a trailing edge with an upstream kink shape
Hiroshi Yokoyama, Taishi Shinohara, Takahiro Nakajima, Masashi Miyazawa and Akiyoshi Iida

Direct numerical simulation of flashback in turbulent channel flow
Tomoaki Kitano, Takafumi Tsuji, Ryoichi Kurose and Satoru Komori

Numerical simulation of the reacting flow field in a rotary kiln
Daniel Mira Martinez, Matias Avila, Herbert Owen, Fernando Cucchietti, Mariano Vázquez and Guillaume Houzeaux

Large-eddy simulation of a pulverized coal combustion in a multi-burner system
Masaya Muto, Hiroaki Watanabe, Ryoichi Kurose and Satoru Komori

Large Eddy Simulation of flow inside the low pressure vessel of an Advanced Gas-cooled reactor
Charles Moulinec, Juan Uribe and David R. Emerson

21/07/2014 16:30 - 18:30
Innovative Methods for Fluid-Structure Interaction III
Minisymposium organized by Harald van Brummelen, Trond Kvamsdal and Roger Ohayon

MS077C
Room: Mare Nostrum C
Chair: Trond Kvamsdal
CoChair: Harald van Brummelen

Estimation of element-based zero-stress state for arterial FSI computations (Keynote Lecture)
Kenji Takizawa, Hirokazu Takagi, Tayfun E. Tezduyar and Ryo Torii

Multiscale tecniques for the coupling of 3D-1D FSI equations system in compliant vessels
Daniele Cerroni, Filippo Menghini and Sandro Manservisi

Unified Lagrangian formulation for fluid-structure interaction problems with thermal coupling using PFEM
Alessandro Franci, Eugenio Oñate and Josep Maria Carbonell

Robin-Robin partitioned procedures for fluid-structure interaction problems in haemodynamics
Christian Vergara, Giacomo Gigante and Fabio Nobile

Second-order time-accurate explicit schemes for the interaction of a thin-walled structure with an incompressible fluid
Miguel A. Fernández and Mikel Landajuela

On the modelling of turbulent fluid-structure interaction. Application to a channel flow around a cantilever plate attached behind a circular cylinder
Olga Estruch, Oriol Lehmkuhl, Joaquim Rigola, Carles D. Pérez-Segarra and Assensi Oliva

A Hybrid Mesh Linear Harmonic Solver for the Aeroelastic Analysis of Turbomachinery
Christian Frey and Hans-Peter Kersken

21/07/2014 16:30 - 18:30
Computational Damage and Fracture Mechanics III
Minisymposium organized by Michael Brünig and Larissa Driemeier

MS008C
Room: Mare Nostrum D
Chair: Michael Brünig

Effects of defects distribution on fragment size of dynamic fragmentation
Wentao Liu, Jun Xiong and Shudao Zhang

On the application of the method of difference potentials to linear elastic fracture mechanics
W. Huw Woodward, Sergei V. Utyuzhnikov and Patrick Massin

Simulation of wave propagation and impact damage in brittle materials using the peridynamics technique
Patrick Diehl and Marc A. Schweitzer

Thermoelastodynamic crack analysis in functionally graded materials under impact loading 
Alexander V. Ekhlakov, Oksana M. Khay, Chuanzeng Zhang, Jan Sladek and Vladimir Sladek

Multisurface damage-plasticity constitutive model for concrete
Vitaliy M. Kindrachuk, Jörg F. Unger and Thomas Titscher

Numerical study on fracture patterns and crack growth on concrete under impact loading
Mohammad Kashfi, Arash Ghazi and Ata Ghavamian

Numerical modelling of reinforced concrete structures under impact with a mixed discrete element / finite element approach
Aurélien Masurel, Laurent Daudeville, Serguei Potapov, Philippe Marin and Vincent Faucher

21/07/2014 16:30 - 18:30
Applications of Error Estimation and Model Adaptation in Computational Mechanics III
Minisymposium organized by Ludovic Chamoin, Pedro Díez, Fredrik Larsson and Kris Van der Zee

MS010C
Room: Mare Nostrum E
Chair: Ludovic Chamoin

On adaptive control of fine-scale errors in two-scale finite element analysis (Keynote Lecture)
Kenneth Runesson and Fredrik Larsson

A discontinuous Galerkin local orthogonal decomposition method for elliptic multiscale problems
Daniel Elfverson, Emmanuil Georgoulis, Axel Målqvist and Daniel Peterseim

Adaptive discretization, regularization, linearization, and algebraic solution in unsteady nonlinear problems
Daniele A. Di Pietro, Eric Flauraud, Martin Vohralik and Soleiman Yousef

An adaptive multiscale method for the Stokes problem in porous media
Assyr Abdulle and Ondrej Budac

Efficient modeling of random heterogeneous materials with an uniform probability density function
Daniel A. Paladim, Pierre Kerfriden and Stéphane P.A. Bordas

Modal-based goal-oriented error assessment and adaptivity for structural dynamics
Francesc Verdugo, Núria Parés and Pedro Díez

Phase-field driven goal-oriented model adaptivity for blending schemes toward optimized multiscale modeling
Timo M. van Opstal, Pablo Seleson, Kristoffer G. van der Zee, Serge Prudhomme and Qiang Du

21/07/2014 16:30 - 18:30
Advances in Computational Methods for Inverse Problems III
Minisymposium organized by Paul E. Barbone, Dan Givoli and Assad Oberai

MS075C
Room: Mare Nostrum F
Chair: Paul Barbone
CoChair: Dan Givoli

Why the obstacle reconstruction by topological sensitivity may work (Keynote Lecture)
Bojan Guzina and Fatemeh Pourahmadian

Goal-oriented strategy for the updating of mechanical models
Ludovic Chamoin, Pierre Ladevèze and Julien Waeytens

A regularized Newton method for the solution of an inverse obstacle scattering problem in a fluid-solid interaction
Helene Barucq, Rabia Djellouli and Elodie Estecahandy

An adjoint approach for inverse analysis in photoacoustic imaging using the hybridizable Discontinuous Galerkin method
Svenja Schoeder, Martin Kronbichler and Wolfgang A. Wall

Curvature rate approach to the estimation of the stiffness distribution in structures
Yiska Goldfeld

Imaging extended reflectors in two-dimensional waveguides
Chrysoula Tsogka, Dimitrios A. Mitsoudis and Symeon Papadimitropoulos

21/07/2014 16:30 - 18:30
New Trends in Numerical Methods for Multi-material Compressible Fluid Flows I
Minisymposium organized by Raphael Loubère, Pierre-Henri Maire and Andrew Barlow

MS179A
Room: Llevant
Chair: Raphael Loubere
CoChair: Andrew Barlow

A cell centered finite volume scheme for solving a vectorial diffusion equation on unstructured grids. Application to the compressible Navier-Stokes equations
Pascal Jacq, Pierre-Henri Maire and Rémi Abgrall

Positivity preservation property of cell-centered Lagrangian schemes and extension to high-orders of accuracy
François Vilar, Pierre-Henri Maire and Chi-Wang Shu

A 3D Symmetric cell-centered Lagrangian scheme based on a multi-dimensional Minmod limiter 
Gabriel Georges, Jérôme Breil and Pierre-Henri Maire

A high-order finite element approach for treating multi-material zones in ALE hydrodynamics
Robert W. Anderson, Veselin A. Dobrev, Tzanio V. Kolev and Robert N. Rieben

Further exploration of the Lagrangian CSTS (Conservative Space- and Time-Staggered) hydrodynamic scheme
Alexandra Claisse, Christophe Fochesato and Antoine Llor

Combination of intersection- and swept-based methods for single-material remap 
Matej Klima, Milan Kucharik and Mikhail Shashkov

21/07/2014 16:30 - 18:30
Advances in Finite Element Methods for Tetrahedral Mesh Computations I
Minisymposium organized by Guglielmo Scovazzi, Micheal Gee and Elie Hachem

MS209A
Room: Mestral
Chair: Michael Gee
CoChair: Guglielmo Scovazzi

Transient fluid and solid dynamics on linear tetrahedral finite elements: An accurate and stable variational multi-scale approach
Guglielmo Scovazzi, Brian Carnes and Xianyi Zeng

Advances in the use of simplicial finite elements for flow problems

Riccardo Rossi, Pooyan Dadvand, Antonia Larese, Nelson Maireni, Masoud Davari and Roland Wüchner

A stabilised Petrov-Galerkin formulation for linear tetrahedral elements in compressible, nearly incompressible and truly incompressible fast dynamics
Chun Hean Lee, Antonio J. Gil, Javier Bonet and Miquel Aguirre

An edge based vertex centred upwind finite volume method for Lagrangian solid dynamics
Miquel Aguirre, Antonio J. Gil, Javier Bonet and Chun Hean Lee

A corotational tetrahedral element for large-displacement analysis of SMA structures
Paolo Bisegna, Federica Caselli, Edoardo Artioli and Nicola A. Nodargi

A Locking-free smoothed finite element formulation (modified selective FS/NS-FEM-T4) with tetrahedral mesh rezoning for large deformation problems
Yuki Onishi and Kenji Amaya

21/07/2014 16:30 - 18:30
Industrial Applications of Computational Fluid Dynamics and Related Techniques III

CS658C
Room: Ponent 1
Chair: Fermin Navarrina

Direct numerical simulation of flows over a cavity with flow control using a moving bottom wall
Takashi Yoshida and Takashi Watanabe

CFD studies for prediction of flow separation from aircraft tail surfaces
Andrea Masi

3D CFD analysis of a twin screw expander for small scale ORC systems
Iva Papes, Joris Degroote and Jan Vierendeels

Aerodynamic Effect of a Seam of Baseball
Hajime Terao and Katsumi Hiraoka

The study of flow regimes around an oscillating circular cylinder
Artem Nuriev and Olga Zaitseva

A CFD based investigation of the influence of medium parameters on the transcritical R774 ejector
Zbigniew Bulinski, Michal Palacz, Jacek Smolka, Krzysztof Banasiak, Andrzej J. Nowak, Adam Fic and Armin Hafner

A numerical investigation to suppress distortions of large deployable reflector in space during earth eclipse
Kaori Shoji, Motofumi Usui and Daigoro Isobe

21/07/2014 16:30 - 18:30
Advanced Methods in Computational Fluid Dynamics III

CS655C
Room: Ponent 2
Chair: José París
CoChair: Ramon Codina

Limiting strategies based on time evolution
Philip L. Roe, Jungyeoul Maeng, Tyler B. Lung and Timothy A. Eymann

Time-dependent instabilities in flows of viscous and viscoelastic fluids in curved ducts of square cross-section
Joana M. Malheiro, Paulo J. Oliveira and Fernando T. Pinho

Dynamic fluid-structure interaction analysis of water-pipe systems
Peter Persson, Kent Persson and Göran Sandberg

Using of the entropy index in the inlet boundary condition

Petr Straka and Jaroslav Pelant

Numerical investigation on unsteady aerodynamics of 2d airfoil under unsteady condition
Hikaru Takano, Tatsuki Ito and Kota Fukuda

Finite element method for a slit model with damping of air viscosity 
Manabu Sasajima, Takao Yamaguchi, Mitsuharu Watanabe and Yoshio Koike

21/07/2014 16:30 - 18:30
Multiscale Methods and Applications in Computational Mechanics III
Minisymposium organized by Weiqing Ren and Yang Xiang

MS116C
Room: Terral
Chair: Yang Xiang

Quantized vortex stability and dynamics in superfluidity and superconductivity
Weizhu Bao

Computation of saddle point and its application on nucleation
Lei Zhang, Qiang Du and Zhenzhen Zheng

The string method for the study of complex energy landscapes and rare events
Weiqing Ren

Weakly nonlinear analysis of shallow mixing layers with variable friction
Irina Eglite, Andrei Kolyshkin and Mohamed Ghidaoui

Capturing aerosol droplet nucleation and condensation bursts using PISO and TVD schemes 
Edo M.A. Frederix, Arkadiusz K. Kuczaj, Markus Nordlund and Bernard J. Geurts

Bridging multi-scale method to consider the effects of local deformations in the analysis of composite thin-walled members 
R. Emre Erkmen and Ashkan Afnani

Full C^1 continuity multiscale second-order computational homogenization approach
Tomislav Lesičar, Zdenko Tonković and Jurica Sorić

21/07/2014 16:30 - 18:30
Modelling of Medium to Dense Fluid-particle Flows I
Minisymposium organized by Christoph Kloss, Stefan Pirker, Christoph Goniva, Stefan Radl and Simon Schneiderbauer

MS072A
Room: Tramuntana 1
Chair: Christoph Kloss

Analysis of drag models for Euler-Lagrange simulations of bi-disperse suspension flow
Begona Capa González, Christoph Goniva, Stefan Pirker and Stefan Radl

Finite element model of grains/fluid flows
Jonathan Lambrechts, Jean-François Remacle and Frédéric Dubois

Unified approach of hydrodynamic modeling and numerical simulation of dilute and dense granular flows for industrial applications
Dariusz Niedziela, Sebastian Schmidt, Konrad Steiner and Clément Zemerli

Modelling hotmix asphalt pollutant formation and collection using coupled CFD and DEM methods
Andrew Hobbs

3D CFD simulation of circulating fluidized bed boiler
Wojciech Adamczyk, Gabriel Wecel, Marcin Klajny, Pawel Kozolub, Adam, Klimanek, Ryszard Bialecki and Tomasz Czakiert

21/07/2014 16:30 - 18:30
Higher Order (Generalized) Finite Element Methods for Problems with Singularities I
Minisymposium organized by Christopher B. Davis, Hengguang Li and Victor Nistor

MS038A
Room: Tramuntana 2
Chair: Christopher Davis

Convergence analysis of configurational forces for brittle cracks modeled through C^k-generalized FEM
Diego Amadeu Torres, Clovis Sperb de Barcellos and Paulo de Tarso Mendonça

On Global-Local Enrichments for Evolution Equations
Sa Wu and Marc A. Schweitzer

Finite element error estimates on the boundary for elliptic boundary value problems with Neumann boundary data
Johannes Pfefferer

A nonconforming Finite Element Method for an acoustic fluid-structure interaction problem
Susanne C. Brenner, Aycil Cesmelioglu, Jintao Cui and Li-yeng Sung

Collocated Enrichment for Isogeometric Analysis of Elliptic Boundary Value Problems with Singularities
Hae-Soo Oh, Jae Woo Jeong and Hyunju Kim

Bridging singularities across scales
Julia Plews and C. Armando Duarte

21/07/2014 16:30 - 18:30
Supercomputing in Biological and Medical Physics I
Minisymposium organized by Shigeho Noda, Ryutaro Himeno, Shu Takagi, Hideo Yokota and Kazuyasu Sugiyama

MS174A
Room: Xaloc
Chair: Kazuyasu Sugiyama

Biochemical simulations connecting the tissue from the cell
Yasuhiro Sunaga, Shigeho Noda, Ryutaro Himeno and Hideo Yokota

Development and applications of the parallel computing middleware for the life science simulations
Shigeho Noda, Kazuyasu Sugiyama, Yasuhiro Kawashima, Kenji Ono, Shu Takagi and Ryutaro Himeno

Development of integrated analysis of spinal cord and skeletal muscles for joint movement
Kazuya Shimizu, Naoto Yamamura and Shu Takagi

Numerical analysis of pressure drop in steady stenotic flows by using Lorentz's reciprocal theorem
ChangJin Ji, Kazuyasu Sugiyama, Shigeho Noda, Ying He and Ryutaro Himeno

Numerical simulation of high-intensity focused ultrasound treatment for breast cancer
Kohei Okita, Ryuta Narumi, Takashi Azuma, Shu Takagi and Yoichiro Matsumoto

Numerical simulation of the interaction between blood flow and arterial wall with the peripheral network
Marie Oshima and Yuta Ishigami

Multiscale simulations of the primary stage of thrombus formation
Kazuyasu Sugiyama, Satoshi Ii, Shu Takagi and Yoichiro Matsumoto

21/07/2014 16:30 - 18:30
Frontiers of Verification, Validation (V&V) and Uncertainty Quantification III
Minisymposium organized by Luís Eça, François Hemez, James Kamm, Marisol Koslowski and William J. Rider

MS210C
Room: Salon Club
Chair: Scott Doebling
CoChair: Luís Eça

Numerical uncertainty estimation in maritime CFD applications (Keynote Lecture)

Christiaan M. Klaij, Guilherme Vaz and Luís Eça

Quantifying the effect of deformation mechanisms in nanocrystalline metals
Marisol Koslowski

Evaluation of the effect on solution of using modularized constitutive models in computational frameworks
Eric N. Harstad

A descriptor-based design methodology and materials informatics for developing heterogeneous microstructural materials system
Hongyi Xu, Xiaolin Li, Catherine Brinson and Wei Chen

On the influence of near-wall grid line spacing on the prediction of the friction resistance coefficient
Luís Eça, Filipe Pereira, Guilherme Vaz and Martin Hoekstra

Code verification of a partitioned FSI environment for wind engineering applications using the Method of Manufactured Solutions

Rupert Fisch, Roland Wüchner, Jörg Franke and Kai-Uwe Bletzinger

21/07/2014 16:30 - 18:30
Computational Methods in Fluid-structure Interactions, Dynamics and Vibration, Vibroacoustics - A Minisymposium in Honor of Prof. Roger Ohayon III
Minisymposium organized by Christian Soize

MS009C
Room: Yasmin A
Chair: Alvaro Coutinho
CoChair: Christian Soize

Space-time Computational FSI techniques (Keynote Lecture)
Kenji Takizawa and Tayfun E. Tezduyar

Wind-Turbine FSI 2.0: simulation of rotor yawing, turbine start-up, and stability in rough seas
Yuri Bazilevs

Added mass and partitioned iterative solution methods for fluid-structure interaction
Harald van Brummelen

Isogeometric FSI simulations
Trond Kvamsdal, Runar Holdahl, Arne Morten Kvarving, Knut Nordanger, Knut M. Okstad and Timo M. van Opstal

Space–Time interface-tracking with topology change (ST-TC)
Kenji Takizawa, Tayfun E. Tezduyar, Austin Buscher and Shohei Asada

Assessment of complex wave-structure interaction using a stabilized edge-based finite element approach
José L.D. Alves, Carlos E. Silva, Bruno Correa, Renato N. Elias, Alvaro L.G.A. Coutinho, Milton A. Gonçalves Jr., Adriano M.A. Cortes, Fernando Rochinha, Gabriel M.G. Bernadá and Daniel F.C. Silva

Elasto-dynamic behavior of a 2D square lattice with entrained fluid

Vladimir Dorodnitsyn and Alessandro Spadoni

21/07/2014 16:30 - 18:30
Advanced Beam Models III
Minisymposium organized by Dinar Camotim, Zuzana Dimitrovova and Rodrigo Gonçalves

MS047C
Room: Yasmin B
Chair: Rodrigo Gonçalves
CoChair: Zuzana Dimitrovová

A rod model with flexible cross-sections for the folding and dynamic deployment of tape-springs

Pernelle Marone-Hitz, Elia Picault, Stéphane Bourgeois, Bruno Cochelin and François Guinot

A critical review of the beam models used in the analysis of the wind turbine blades
Anthoula N. Panteli and Konstantinos V. Spiliopoulos

Enhanced formula for a critical velocity of a uniformly moving load including shear contribution
Zuzana Dimitrovová

Nonlinear bending of piezoelectric fiber-reinforced laminated composite beams
Xiaoqiao He, S. Mareishi, M. Rafiee and K. M. Liew

Spectral element method modeling of beams subjected to dynamic loads
Nivaldo Campos

Uncomplicated torsion and bending theories for micropolar elastic beams
Soroosh Hassanpour and Glenn R. Heppler

21/07/2014 16:30 - 18:30
Structural and Multidisciplinary Optimization III
Minisymposium organized by Jose Madeira and Helder Rodrigues

MS026C
Room: Yasmin C
Chair: François-Xavier Irisarri
CoChair: Jose Madeira

Ramified optimal transportation and its multidisciplinary applications
Qinglan Xia

Optimization and analysis for compression shape of waveriders with sharp/blunt leading edges
Kai Cui, Guang-li Li and Yao Xiao

Surrogate based hybrid optimization applied to reservoir management
Silvana M.B. Afonso, Leonardo C. de Oliveira and Bernardo Horowitz

Mixed structural optimization of latticed steel transmission towers in a user-friendly interface
Iván Couceiro, Santiago Martínez, José París, Ignasi Colominas, Fermín Navarrina and Manuel Casteleiro

Estimation of the global optimality for multiple tuned mass damper systems using order statistics
Makoto Yamakawa, Susumu Yoshinaka, Yoshikazu Araki, Koji Uetani and Ken'ichi Kawaguchi

Numerical modelling of geometrical effects in the performance of a cycloidal rotor
Carlos M. Xisto, José C. Páscoa, Jakson A. Leger, Pierangelo Masarati, Giuseppe Quaranta, Marco Morandini, Louis Gagnon, David Wills and Meinhard Schwaiger

21/07/2014 16:30 - 18:30
STS 08: Higher-Order Methods for Aerospace Applications III

STS08C
Room: Auditorium
Chair: Thomas Toulorge
CoChair: Joaquim Peiro

High-order mesh generation for CFD with aeronautical applications
Thomas Toulorge, Christophe Geuzaine, Amaury Johnen, Jonathan Lambrechts and Jean-François Remacle

Hybrid high order grid generation applied for 3D geometries
Stanisław Gepner, Jerzy Majewski and Piotr Szałtys

A chimera method with a Discontinuous Galerkin discretisation for the Navier-Stokes equations
Michael Wurst, Manuel Keßler and Ewald Krämer

A high-order unstructured mixed mesh method for rotor aerodynamic prediction

Min Kyu Jung, Je Young Hwang and Oh Joon Kwon

Applications of efficient parallel k-exact finite volume reconstruction on unstructured grids
Florian Haider, Pierre Brenner, Bernard Courbet and Jean-Pierre Croisille

Challenges for time and frequency domain aeroacoustic solvers 
Aleksandar Angeloski, Marco Discacciati, César Legendre, Gregory Lielens and Antonio Huerta

21/07/2014 16:30 - 18:30
Advances in Accurate and Robust Numerical Methods for Computational Fluid Dynamics III
Minisymposium organized by Remi Abgrall, Feng Xiao and Koen Hillewaert

MS051C
Room: Sala A
Chair: Feng Xiao
CoChair: Evgeny Timofeev

Numerical perturbation schemes for convective-diffusion equation and their applications in NS equations
Zhi Gao, Yiqing Shen and Minguo Dai

Implementation and validation of high-accuracy aeroacoustic schemes for the description of viscous gasflows 
Anatol V. Alexandrov and Ludwig W. Dorodnicyn

Analysis of the accuracy and stability of a higher-order cell-centered Finite Volume method for RANS on hybrid grids
Jean-Marie Le Gouez

Implicit LES of turbulent flows using a Discontinuous Galerkin method
Corentin Carton de Wiart, Koen Hillewaert, Laurent Bricteux and Grégoire Winckelmans

Performance of projection methods for low-Reynolds-number flows 
Fabricio S. Sousa, Cassio M. Oishi and Gustavo C. Buscaglia

Improvements on the numerical analysis of viscoplastic-type non-Newtonian fluid flows 
Angel Carmona, Oriol Lehmkuhl, Carles D. Pérez-Segarra and Assensi Oliva

Spontaneous thermoacoustic oscillation in a closed cylindrical tube with various temperature gradient positions
Katsuya Ishii, Syun Kitagawa and Shizuko Adachi

21/07/2014 16:30 - 18:30
Multiscale Computational Mechanics of Materials III
Minisymposium organized by Wing Kam Liu, Shaofan Li and Franck Vernerey

MS260C
Room: Sala B1
Chair: Shaofan Li

A numerical investigation on the heterogeneous and anisotropic mechanical behaviour of AISI H11 steel using various stress-strain formulations: A multi-scale approach 
Ahmed Zouaghi, Vincent Velay, Adriana Soveja and Farhad Rézaï-Aria

Boundary effect on the elastic field and effective elasticity of a semi-infinite solid containing particles
Yingjie Liu and Huiming Yin

Prediction of Material Behavior for LENS Manufactured Products
Jacob Smith, Zeliang Liu, Nirmal Muralidharam, Jian Cao and Wing Kam Liu

Phase transformation and fracture during lithiation in LiFePO4 electrodes
Devin T. O'Connor, Peter W. Voorhees and Wing Kam Liu

A comparison of approaches to model anisotropy evolution in pearlitic steel
Magnus Ekh, Nasim Larijani and Erik Lindfeldt

Finite Element Analysis on hot deformation behavior of TiC-Particle-Reinforced Titanium Matrix Composite
Weidong Song, Huiping Tang and Xiaonan Mao

Active soft matter model for simulations of cellular mechanotransduction and cell motility
Shaofan Li and Houfu Fan

21/07/2014 16:30 - 18:30
Particle Methods for Micro- and Nano-flows III
Minisymposium organized by Marco Ellero and Dmitry A. Fedosov

MS045C
Room: Sala B2
Chair: Dmitry Fedosov

Particle dynamics and structure of simple complex matter (Keynote Lecture)
Ying Li, Martin Kröger and Wing Kam Liu

Adaptive resolution simulation of atomistic protein in multiscale water
Matej Praprotnik

Brownian Dynamics without Green's Functions
Aleksandar Donev

Molecular dynamics pre-simulation methodology for nano-scale computational fluid dynamics
David Holland, Duncan Lockerby, Matthew Borg and Jason Reese

Simulation of conformational and hydrodynamic properties of dendrimer-like polymers under flow
Jose G. Hernandez Cifre, Ricardo Rodriguez Schmidt and Jose Garcia de la Torre

Numerical model of droplet dynamics on the GDL surface of a PEM fuel cell cathode
Alex Jarauta, Pavel Ryzhakov, Jordi Pons-Prats, Marc Secanell, Sergio R. Idelsohn and Eugenio Oñate

21/07/2014 16:30 - 18:30
Modeling of Plasticity and Damage under Cyclic Loading I
Minisymposium organized by Renato Natal, Abílio Jesus and Francisco Pires

MS039A
Room: Sala B3
Chair: Renato Natal
CoChair: Abilio de Jesus

Coupled plastic damage model for low and ultra-low cycle seismic fatigue 
Lucia G. Barbu, Sergio Oller, Xavier Martinez and Alex H. Barbat

ULCF and cyclic elastoplastic behaviour of linepipe steel grades
João Carlos Rego Pereira, Abílio M.P. de Jesus, António A. Fernandes and José M. Cardoso Xavier

Numerical modelling of steel pipelines subjected to severe monotonic and cyclic straining
Giannoula Chatzopoulou, Tommaso Coppola, Flavia Campanelli, George E. Varelis and Spyros A. Karamanos

Monotonic and ULCF behaviour of pipeline steels and components. models identification and applications
João C.R. Pereira , Abílio M.P. de Jesus , Tommaso Coppola , António A. Fernandes , F. Iob , Flavia Campanelli and José Xavier

Characterisation and simulation of X60 elbow pipes in case of ULCF loading
Simon Schaffrath, Denis Novokshanov, Björn Eichler and Sebastian Münstermann

Analysis of buried steel pipeline material damage under seismic loading conditions
Gersena Banushi, Francesco Morelli and Walter Salvatore

21/07/2014 16:30 - 18:30
Methods for Cut and Composite Meshes: Theory, Algorithms and Applications I
Minisymposium organized by Erik Burman, Mats G. Larson, Anders Logg, André Massing and Wolfgang Wall

MS192A
Room: Sala C1
Chair: Andre Massing

Fracture growth in a poroelastic medium
Katja Hanowski and Oliver Sander

A space-time cut finite element method for convection-diffusion problems on time dependent surfaces
Peter Hansbo, Mats G. Larson and Sara Zahedi

Robust NXFEM method for a nonconforming approximation of an elliptic problem
Daniela Capatina, Stéphanie Delage Santacreu, Hammou El Otmany and Didier Graebling

A Nitsche-XFEM fictitious domain method for an immersed thin-walled structure in an incompressible fluid
Frédéric Alauzet, Erik Burman, Benoit Fabrèges and Miguel A. Fernández

Approximation of flows in fractured porous media by enriched mixed finite elements
Luca Formaggia, Guido Iori and Anna Scotti

A face-oriented stabilized XFEM approach for convection dominated flow problems using cut elements
Benedikt Schott, Andre Massing and Wolfgang A. Wall

21/07/2014 16:30 - 18:30
Growth and Remodeling of Living Tissues I
Minisymposium organized by Rafael Grytz, Seungik Baek and Ellen Kuhl

MS097A
Room: Sala C2
Chair: Rafael Grytz
CoChair: Seungik Baek

Mechanobiological wrinkling instabilities in skin. An isogeometric analysis approach.
Georges Limbert and Jakub Lengiewicz

Elasticity and the shape of growing prevascular tumors
Kristen L. Mills, Shiva Rudraraju, Ralf Kemkemer and Krishna Garikipati

Growth and development of the human brain
Silvia Lettau and Ellen Kuhl

Insights into regional adaptations in the growing pulmonary artery using a meso-scale structural model: Effects of ascending aorta impingement
Michael S. Sacks, Bahar Fata, Will Zhang and Rouzbeh Amini

Tomography-based in vivo quantification of bone turnover
Annette I. Birkhold, Hajar Razi, Richard Weinkamer, Georg N. Duda, Sara Checa and Bettina Willie

21/07/2014 16:30 - 18:30
Modeling and Analysis of FGM Structures I
Minisymposium organized by Justin Murin, Stephan Kugler and Mehdi Aminbaghai

MS088A
Room: Sala C3
Chair: Justin Murin
CoChair: Stephan Kugler

A new 3D FGM Beam finite element for modal analysis (Keynote Lecture)
Justin Murin, Mehdi Aminbaghai, Juraj Hrabovsky, Vladimir Kutis, Juraj Paulech and Stephan Kugler

Thermal conduction in FGM and MLC shell structures
Stephan Kugler, Peter A. Fotiu and Justin Murin

Homogenization of material properties of the FGM beam and shell finite elements 

Justin Murin, Stephan Kugler, Mehdi Aminbaghai, Juraj Hrabovsky, Vladimir Kutis and Juraj Paulech

Finite beam element with piezoelectric layers and functionally graded material of core 

Vladimir Kutis, Justin Murin, Juraj Paulech and Juraj Hrabovsky

Creep buckling of viscoelastic functionally graded members under eccentric axial compression
Ehab Hamed

21/07/2014 16:30 - 18:30
Mechanics of Nanostructured Materials III
Minisymposium organized by I-Ling Chang, Takayuki Kitamura, Takahiro Shimada and Chuin-Shan D. Chen

MS223C
Room: Sala D1
Chair: JUNG-SAN CHEN

Nanomechanical properties of polymorphic amyloid nanowire using molecular dynamics simulation
Myeongsang Lee, Inchul Baek, Gwonchan Yoon and Sungsoo Na

Shape design sensitivity analysis of nanoscale lattice structures
Hong-Lae Jang, Song-Hyun Cha, Youmie Park and Seonho Cho

Reducing resonances of beams using antiresonance technique
Jung-San Chen, Yung-Kung Hung, Yu-Tsung Chiu and Ting-Chu Lu

Buckling behavior of single-walled carbon nanotubes subjected to combined loading in nanotube-polymer composites
S.Ahmad Fazelzadeh and Esmaeal Ghavanloo

Singular stress analysis near edge of a bump on substrate using molecular dynamics
Hideo Koguchi and Yuki Hirasawa

21/07/2014 16:30 - 18:30
Advances in Computational Cardiovascular Modeling and Simulation III
Minisymposium organized by Daniel E. Hurtado, Ellen Kuhl and Michael Ortiz

MS160C
Room: Sala D2
Chair: Daniel Hurtado

Impact of robust image processing to reduce error in computational hemodynamics
Ana J. Joao, Alberto M. Gambaruto and Adelia Sequeira

Modeling of plaque progression in the coronary arteries
Nenad Filipovic, Dalibor Nikolic, Zarko Milosevic, Milos Radovic, Igor Saveljic, Milos Kojic, Themis Exarcous, Dimitris Fotiadis and Oberdan Parodi

An automated left ventrical computational flow model: towards patient-specific analysis and diagnosis
Vinh-Tan Nguyen, Stella Nathania Wibowo, Hwa Liang Leo, Liang Zhong and Hoang Huy Nguyen

Variational principles for cardiac electrophysiology
Daniel Hurtado and Duvan Henao

Simulation of short-term adaptation processes in the infarcted heart
Pablo Saez, Jose F. Rodriguez and Ellen Kuhl

21/07/2014 16:30 - 18:30
Advanced Numerical Methods for Cavitating Flows III
Minisymposium organized by Nikolaus Adams, Steffen Schmidt and Eric Johnsen

MS095C
Room: Sala D3
Chair: Steffen J. Schmidt

Eddy vorticity in cavitating tip vortices modelled by different turbulence models using the RANS approach

Tuomas Sipilä, Antonio Sánchez-Caja and Timo Siikonen

Numerical investigations of flows around turbopump inducer in cryogenic cavitating conditions

Daeho Min, Hyeongjun Kim and Chongam Kim

Numerical issues in higher-order accurate simulations of flows with vortex cavitation

Faraz Khatami, Edwin van der Weide and Harry Hoeijmakers

Cavitation and evaporation in metals under the action of ultra-short intensive irradiation

Polina N. Mayer and Alexander E. Mayer

An investigation of the performance of a positive displacement reciprocating pump at low pressure NPSH incorporating a three phase cavitation model

Aldo Iannetti, Matthew T. Stickland and William M. Dempster

21/07/2014 16:30 - 18:30

Advanced Gridding and Discretization Techniques for Petroleum Reservoir Simulation III

Minisymposium organized by Paulo R.M. Lyra, Darlan K.E. Carvalho, Michael G. Edwards, Clovis R. Maliska and Régis K. Romeu

MS035C
Room: Sala D4
Chair: Paulo Lyra
CoChair: Michael Edwards

Interface control volume finite element method.

Ahmad S. Abushaikha, Martin J. Blunt, Olivier R. Gosselin, Christopher C. Pain and Matthew D. Jackson

Therm-mechanical coupling for salt domes formation

Marcello G. Teixeira, I-Shih Liu, Rolci A. Cipolatti, Mauro A. Rincon and Luiz A. C. Palermo

Simulation of the two phase flow in a wellbore using two-fluid model

Manuel F. Jerez-Carrizales, Julian E. Jaramillo and David A. Fuentes

Modeling of multiphase flows in finite-deformed porous media

Yury V. Perepechko, Evgeniy I. Romenski and Galina V. Reshetova

21/07/2014 16:30 - 18:30

Computational Bone Biomechanics III

Minisymposium organized by Zohar Yosibash and Ernst Rank

MS028C
Room: Sala D5
Chair: Taiji Adachi
CoChair: Nir Trabelsi

Bone remodeling based on cell culture

Miguel T. Bahia, Mildred B. Hecke and André L. Daniel

Homogenization of trabecular bone microstructure based on Finite Element Method and Micro Computed Tomography

Krzysztof Janc, Jakub Kamiński, Jacek Tarasiuk, Anne-Sophie Bonnet and Paul Lipinski

Digital image correlation, nanoindentation and numerical simulations in the evaluation of bone tissues mechanical properties

Grzegorz Kokot, Marcin Binkowski, Waclaw Kus and Przemyslaw Makowski

Study on pathogenic mechanism of idiopathic scoliosis 

Han Sun and Hideyuki Azegami

A detailed infant finite element model for measureable cranial deformation
Hoechan Kim, Youngho Lee and Junghwa Hong

21/07/2014 16:30 - 18:30
Multiscale Computational Approaches for Geomechanics I
Minisymposium organized by Thierry Massart, Bertrand François and Patrick Selvadurai

MS180A
Room: Sala D6
Chair: Thierry Massart

A XFEM/Level set-based poroelastic framework for heterogeneous geomaterials
Bernard Sonon, Sofiane Amalou, Benoît C.N. Mercatoris, Bertrand François and Thierry J. Massart

Dynamic damage law for rock blasting
Bertrand François, Oumar Keita and Cristian Dascalu

Multiscale modeling of hydromechanical behavior and fracturing of shale gas
Alexis Vallade, Jean-Baptiste Colliat and Jian-Fu Shao

Discrete modeling of strain accumulation in granular soils under cyclic loading 

Ngoc-Son Nguyen, Stijn François and Geert Degrande

A two-scale computational framework for hydro-mechanical couplings in quasi-brittle heterogeneous porous media including transient and damaging effects
Benoît C.N. Mercatoris, Lambertus J. Sluys and Thierry J. Massart

A discrete-continuum multiscale method for geomechanics
Mingguang Li, Haitao Yu, Yong Yuan and Jianhua Wang

21/07/2014 16:30 - 18:30
Model-Based Simulation of Structural Responses to Extreme Loading Conditions I
Minisymposium organized by Xiong Zhang, Zhen Chen and Cheng Wang

MS070A
Room: Sala E1
Chair: Arunachalam Rajendran
CoChair: Yufeng Xing

A representative volume element based modeling of cementitious materials with various additives (Keynote Lecture)
Mehdi M. Shahzamanian and Arunachalam M. Rajendran

An improved differential quadrature time element method
Yufeng Xing and Mingbo Qin

Thickness-shear vibration analysis of rectangular quartz plates by an improved numerical extended Kantorovich method
Bo Liu and Yufeng Xing

Analysis of high-velocity impact of honeycomb sandwich structure with material point method
Ping Liu, Yan Liu and Xiong Zhang

Numerical simulation on impact response of plain-woven C/SiC composite 

Yang Yang, Fei Xu, Yueqing Zhang and Jianfeng Kou

The simulation of the damage of concrete road caused by the buried pipe explosion
Zhihong Xu and Nan Zhang

21/07/2014 16:30 - 18:30
Numerical Methods in Safety of Structures I
Minisymposium organized by Jerzy Malachowski, Jose A. Rodriguez Martinez and Tomasz Lodygowski

MS091A
Room: Sala E2
Chair: Wojciech Sumelka
CoChair: Jerzy Malachowski

On the application of SPH in the numerical analyses of short-duration dynamic phenomena
Lukasz Mazurkiewicz, Jerzy Malachowski, Pawel Baranowski and Krzysztof Damaziak

Robustness of structures in natural fire
Michal Malendowski, Adam Glema and Wojciech Szymkuc

A rapid prediction of blast wave properties: Empirical vs. numerical approach
Piotr W. Sielicki

Foam/composite panels for protective aims – crashworthiness studies
Lukasz Mazurkiewicz, Jerzy Malachowski, Pawel Baranowski and Krzysztof Damaziak

Fire performance of a reinforced concrete column partially embedded in firewall.
Wojciech Szymkuc, Adam Glema and Michal Malendowski

From tests to real scale simulation: A systematic approach for impact limiter materials
Eva M. Kasparek, Robert Scheidemann and Holger Völzke

A 16-node Hybrid-Trefftz perforated element featuring 8 nodes on the hole boundary
Claire Hennuyer, Nicolas Leconte, Bertrand Langrand and Eric Markiewicz

21/07/2014 16:30 - 18:30
Computational Mechanics of Wood Materials and Timber Structures I
Minisymposium organized by Josef Eberhardsteiner, Michael Kaliske, Erik Serrano and Josef Füssl

MS081A
Room: Sala E3
Chair: Josef Eberhardsteiner
CoChair: Jouni Freund

Structural analysis of timber by means of FEM
Michael Kaliske and Christian Jenkel

Proposal for a failure surface for orthotropic composite materials
Michael Dorn

Numerical simulation tool for wooden boards with knots
Markus Lukacevic, Josef Füssl and Josef Eberhardsteiner

Effective constitutive equation of plywood beam model
Jouni Freund

Analysis of wooden framed structures with semi-rigid connections
Cláudia L. Santana and Nilson T. Mascia

21/07/2014 16:30 - 18:30
CFD Methods in Combustion and Exhaust Aftertreatment of Internal Combustion Engines I
Minisymposium organized by Thomas Lauer and Jose Garcia-Oliver

MS063A
Room: Sala E4
Chair: Thomas Lauer

Application of a novel approach for calculating the premixed combustion in engines
Peter Priesching and Andrej Poredos

Comparative study of subfilter scalar dissipation rate and mixture fraction variance models
Jordi Ventosa-Molina, Oriol Lehmkuhl, Carles D. Pérez-Segarra, Jordi Muela and Assensi Oliva

Analysis of particle separation with respect to pre-ignitons in an SI-Engine
Michael Heiss and Thomas Lauer

Implementation and validation of the mathematical model of surface tension into CFD wall film module
Jakov Baleta, Milan Vujanović, Klaus Pachler and Neven Duić

Transonic combustion: steady and unsteady potential models
William E. Tavernetti and Mohamed M. Hafez

Numerical investigation of a lean premixed burner fired with pure H2 and CH4
Alessandro Cappelletti, Stefano Sigali and Alessandro Marini

Simulation of an oxyfuel pilot-scale pulverized coal flame to quantify the effect of boudouard-reaction
Dominik Christ and Reinhold Kneer

21/07/2014 16:30 - 18:30
Practical Aspects of Advanced CFD Simulations on Emerging Multi- and Manycore Systems I
Minisymposium organized by Dominik Göddeke and Matthias Möller

MS119A
Room: Sala E5
Chair: Matthias Möller

Load balancing for multiphysics
Rainald Löhner and Joseph D. Baum

Next-generation Trilinos for very large scale low Mach CFD simulations: A case study
Paul T. Lin, Matthew Bettencourt, Stefan Domino, Travis Fisher, Mark Hoemmen, Jonathan Hu, Eric Phipps, Andrey Prokopenko, Sivasankaran Rajamanickam and Christopher Siefert

Parallelizing the Fast Multipole Method using a task-based runtime for heterogeneous architectures
Emmanuel Agullo, Berenger Bramas, Olivier Coulaud, Eric Darve, Matthias Messner and Toru Takahashi

Optimizing the memory access performance of Fastest's Sipsol routine
Michael Burger and Christian Bischof

On time stepping for meterological applications using the Discontinuous Galerkin method
Andreas Dedner

Explicit method solver based on alternating direction isogeometric L2 projection
Maciej Paszynski, Maciej Wozniak, Lisandro D. Dalcin and Victor M. Calo

21/07/2014 16:30 - 18:30
Scale-dependent plasticity: Experiments, Theory and Numerical Modeling II
Minisymposium organized by Thomas Böhlke, Stefan Sandfeld and Stephan Wulfinghoff

MS201B
Room: Sala E6
Chair: Thomas Böhlke

Numerical implementation of continuum dislocation dynamics and comparison with discrete dislocation simulations
Alireza Ebrahimi and Thomas Hochrainer

Using continuum dislocation dynamics in a continuous field description to modell dislocation based plasticity

Severin Schmitt, Katrin Schulz and Peter Gumbsch

The higher-dimensional Continuum Dislocation Dynamics based plasticity approach with application to a thin film tension test
Ekkachai Thawinan, Christian Wieners and Stefan Sandfeld

Surface layer effect in polycrystalline aggregates
Oleksandr Prygorniev, Konstantin Naumenko and Holm Altenbach

Analysis of the stochastics of interacting dislocation densities by discrete dislocation dynamics
Markus Stricker and Daniel Weygand

21/07/2014 16:30 - 18:30
Computational Contact Mechanics III
Minisymposium organized by Tod Laursen, Peter Wriggers and Giorgio Zavarise

MS044C
Room: Sala F
Chair: Karl Schweizerhof

A dual Lagrange Method with regularized frictional contact conditions: Modelling micro slip
Saskia Sitzmann, Kai Willner and Barbara Wohlmuth

Use of Uzawa algorithm for simulating frictional contact between crack faces in a body containing randomly oriented cracks
Morteza Nejati, Adriana Paluszny and Robert W. Zimmerman

Model and mesh adaptivity for frictional contact problems
Andreas Rademacher

Smoothed nonlinear complementarity functions for elasto-plastic frictional contact at finite strains
Alexander Seitz, Alexander Popp and Wolfgang A. Wall

An unbiased computational contact formulation for 3D friction
Roger A. Sauer and Laura De Lorenzis

Friction contact of a smooth slider and viscoelastic half-space
Irina G. Goryacheva, Fedor I. Stepanov and Elena V. Torskaya

On the nitsche and the shifted penalty method
Giorgio Zavarise

21/07/2014 16:30 - 18:30
Computational Modeling of Fracture and Failure of Materials and Structures III
Minisymposium organized by Olivier Allix, Milan Jirásek, Nicolas Moës and Xavier Oliver

MS226C
Room: Sala H 1
Chair: Nicolas Moës

Application of Thick Level-Set Method to study of dynamic fragmentation
Andrew Stershic, John E. Dolbow and Nicolas Moës

Modeling fatigue failure using a variational multiscale method
Shardul Panwar and Veera Sundararaghavan

Effect of viscosity on the robustness of the element deletion method for crack propagation modelling
Cristian Canales and Jean-Philippe Ponthot

Crack growth in incompressible, viscoelastic materials at large deformations
Kaan Özenc and Michael Kaliske

Simulation of edge-on impact experiments in SiC and B4C with “initially rigid” cohesive elements

Martin Sauer, Pascal Seiterich and Markus Büttner

Failure of RC slabs modelled using an embedded discontinuity approach

Gelacio Juárez-Luna and A Gustavo Ayala

A constrained Large Time Increment method for a gradient-enhanced damage model
Bram Vandoren, Angelo Simone and Lambertus J. Sluys

21/07/2014 16:30 - 18:30
Isogeometric Methods III
Minisymposium organized by Yuri Bazilevs, David J. Benson, Rene De Borst, Thomas J.R. Hughes, Trond Kvamsdal, Alessandro Reali, Michael A. Scott and Clemens V. Verhoosel

MS049C
Room: Sala H 2
Chair: Rene de Borst

Recent developments of isogeometric collocation: Neumann boundary conditions, contact and plasticity formulations (Keynote Lecture)
Laura De Lorenzis, John A. Evans, Thomas J.R. Hughes and Alessandro Reali

Isogeometric collocation: incompressible elasticity, locking and possible solutions
Simone Morganti, Ferdinando Auricchio, Laura De Lorenzis, John A. Evans, Thomas J.R. Hughes and Alessandro Reali

A NURBS Based Collocation Approach for SB-FEM

Lin Chen, Wolfgang Dornisch and Sven Klinkel

Adaptive local refinement in isogeometric contact analyses using hierarchical B-splines
Marco Trullo, Rossana Dimitri, Laura De Lorenzis and Dominik Schillinger

Three-dimensional isogeometric surface element enrichment
Callum J. Corbett, Raheel Rasool and Roger A. Sauer

Matrix assembly procedures for isogeometric analysis with tensor product structure
Annalisa Buffa, Francesco Calabrò, Massimiliano Martinelli and Giancarlo Sangalli

Implementation of an isogeometric finite element toolbox in Diffpack
Md Naim Hossain, Frank Vogel, Daniel A. Paladim, Vinh Phu Nguyen and Stéphane P.A. Bordas

21/07/2014 16:30 - 18:30
Multiscale Computational Homogenization for Bridging Scales in the Mechanics and Physics of Complex Materials III
Minisymposium organized by Julien Yvonnet, Kenjiro Terada, Peter Wriggers and Marc Geers

MS012C
Room: Sala H 3
Chair: Caglar Oskay
CoChair: Karam Sab

Macroscopically consistent filtered elasticity tensor fields of heterogeneous media
François Bignonnet , Karam Sab, Luc Dormieux, Sébastien Brisard and Antoine Bisson

Two-scale plate model with in-plane periodic microstructures
Seishiro Matsubara, Kenjiro Terada, Junji Kato, Takashi Kyoya, Shuji Moriguchi, Shinsuke Takase, Fumio Fujii and İlker Temizer

Multiscale modeling of periodic chiral cellular materials
Andrea Bacigalupo and Luigi Gambarotta

On the Cosserat-Cauchy homogenization procedure for heterogeneous periodic media adopting micromechanical approaches

Daniela Addessi, Maria Laura De Bellis and Elio Sacco

Characterization of RVE kinematics using digital image correlation at micro-scale
Jérémy Marty, Julien Réthoré and Alain Combescure

Comparative study for the efficient construction of statistically similar RVES: Lineal-path and minkowski functionals
Lisa Scheunemann, Dominik Brands, Daniel Balzani and Jörg Schröder

Dislocation-based analysis of the plastic material behavior of heterogeneous structures
Katrin Schulz, Severin Schmitt, Doyl Dickel and Peter Gumbsch

21/07/2014 16:30 - 18:30
Computational Biomechanics III
Minisymposium organized by T.Christian Gasser, Miguel Cerrolaza, Ellen Kuhl, Michael Gee, Yomar Gonzalez, Simone Deparis and Thomas Franz

MS007C
Room: Sala J
Chair: Michael Gee
CoChair: T.Christian Gasser

Modeling of large deformation of incompressible solids and implementation to transport of cells and particles in small blood vessels (Keynote Lecture)
Milos Kojic, Miljan Milosevic, Dejan Petrovic, Velibor Isailovic, Nikola Kojic, Nenad Filipovic and Mauro Ferrari

Lateral migration of a spherical particle in channel flow
Naoto Nakagawa, Kazuma Miura, Ryoko Otomo, Masato Makino and Masako Sugihara-Seki

Aspects of arterial wall simulations: Nonlinear anisotropic material models and fluid structure interaction
Daniel Balzani, Simone Deparis, Simon Fausten, Davide Forti, Alexander Heinlein, Axel Klawonn, Alfio Quarteroni, Oliver Rheinbach and Jörg Schröder

End effect on fluid permeability of particulate layers
Ryoko Otomo and Masako Sugihara-Seki

The numerical analyses of the food bolus velocity and pressure during swallowing using 3D swallowing simulator “Swallow Vision○R”
Takashi Osada, Tetsu Kamiya, Yoshio Toyama, Nobuko Jinno, Takahiro Kikuchi and Yukihiro Michiwaki

Post breast conserving surgery finite element simulations of wound healing: A preliminary study towards cosmesis
Vasileios Vavourakis, Bjoern Eiben, John H. Hipwell and David J. Hawkes

21/07/2014 16:30 - 18:30
Numerical Methods for Ocean Coastal and Internal Waves Modeling I
Minisymposium organized by Fraunie Philippe, Bodnar Tomas and Espino Manuel

MS244A
Room: Business Centre I
Chair: Philippe Fraunié

A coupled finite element-boundary element (FEM-BEM) formulation for the Mild Slope Equation: An improvement for open and partial reflecting boundaries
Antonio Cerrato Casado, José A. González Pérez and Luis Rodríguez-Tembleque

Numerical modeling of stratified wake flows
Philippe Fraunié, Hatem Houcine, Adel Gharbi and Yuli D. Chashechkin

On the modeling of an atmospheric free convection in an idealized v-shaped valley

Tomáš Bodnár, Philippe Fraunié and Karel Kozel

Generation and propagation of solitary waves over varying topography
Ching-Sen Wu and Der-Liang Young

Fractal methods in coastal diffusion models
José M. Redondo, Margarita Diez and Philippe Fraunié

LES of wind and wave forced oceanic turbulent boundary layers using the residual-based variational multiscale method and near-wall modeling

Andrés E. Tejada-Martinez, Roozbeh Golshan, Ido Akkerman and Yuri Bazilevs

Numerical simulation of stably stratified flow around an obstacle
Hatem Houcine, Philippe Fraunié, Adel Gharbi and Yuli D. Chashechkin

21/07/2014 16:30 - 18:30
Aerodynamical Global Optimized Shapes of Flying Configurations, Compared and Inspired from Gliding Birds I
Minisymposium organized by Adriana Nastase

MS230A
Room: Business Centre II
Chair: Catalin Nae
CoChair: Adriana Nastase

Aerodynamic analysis and optimization of 2D airfoil shapes represented by NURBS formulation
Wanghyun Kim, Jong-Soo Choi and Byougnsoo Kim

Evaluation of Dynamic Characteristics of an Optimized Conceptual Active Smart Wing
Catalin Nae

Multi-point aerodynamic optimization of a flexible transport aircraft wing using an aeroelastic adjoint method
Antoine Dumont and Gérald Carrier

Winglets – Multiobjective optimization of aerodynamic shapes

Sohail R. Reddy, Helmut Sobieczky, Abas Abdoli and George S. Dulikravich

Design and aerodynamic characteristics of solar UAV
Juki Kawai, Wail Harasani, Nobuyuki Arai, Kota Fukuda and Katsumi Hiraoka

Comparison of Global Optimized Shapes of Flying Configurations with those of Gliding Birds

Adriana Nastase

21/07/2014 16:30 - 18:30
Multibody System Dynamics and Modal Reduction III
Minisymposium organized by Pascal Ziegler and Johannes Gerstmayr

MS239C
Room: Sala de prensa I
Chair: Ulrike Zwiers
CoChair: Pascal Bestle

Reduced order modelling of vibrations in wooden multi-storey buildings
Ola Flodén, Kent Persson and Göran Sandberg

Efficient modeling of continuum blades using ANCF curved shell element

Ayman A. Nada

Efficient fluid-structure interaction based on modally reduced multibody systems and smoothed particle hydrodynamics

Markus Schörgenhumer, Alexander Humer and Johannes Gerstmayr

Variational integrators for dynamical systems with rotational degrees of freedom

Thomas Leitz, Sina Ober-Blöbaum and Sigrid Leyendecker

Solutions to the muscle redundancy problem: From an undeterminate to a deterministic problem
Guillaume Gaudet, Maxime Raison, Sofiane Achiche, Fabien Dal Maso, Grégory Musy and Mickael Begon

21/07/2014 16:30 - 18:30
Multiphysics Modelling of Porous Media: Geomaterials, Biomaterials and Others III
Minisymposium organized by Younane N. Abousleiman, Stefan Diebels and Lorenzo Sanavia

MS027C
Room: Sala de prensa II
Chair: Lorenzo Sanavia

Constitutive model for expansive clays under chemical changes (Keynote Lecture)
Leonardo do N. Guimarães, Antonio Gens, Marcelo Sánchez and Sebastià Olivella

Advances in modelling mechanics of flow and stress in unsaturated soil
S. Majid Hassanizadeh, Bruno Chareyre and Ehsan Nikooee

On modeling three-component porous media incorporating hysteresis
Bettina Albers

Recent progress on a suction dependent cap model for soils
Peter Gamnitzer and Günter Hofstetter

Mechanized tunneling operations: Modeling infiltration processes with consideration of an inverse damage formulation
Alexander Schaufler, Christian Becker and Holger Steeb

21/07/2014 16:30 - 18:30
Thermomechanical Coupling in Fluids, Structures and Fluid-Structure-Interaction I
Minisymposium organized by Philipp Birken, Wagner C. Fleming Petri, Detlef Kuhl and Andreas Meister

MS156A
Room: Sala de Reservas
Chair: Philipp Birken
CoChair: Detlef Kuhl

Fast solvers for time dependent thermal fluid-structure interaction
Philipp Birken, Tobias Gleim, Detlef Kuhl and Andreas Meister

A parametric-CFD study for heat transfer and fluid flow in a rotor-stator system
Alireza Rasekh, Peter Sergeant and Jan Vierendeels

Thermal-Mechanical Coupled FSI-Analysis of Rocket Thrust Chambers with Multiple Load Cycles
Matthias Haupt, Daniel Kowollik and Klemens Lindhorst

Acceleration of strongly coupled fluid-structure interaction with manifold mapping
David S. Blom, Alexander H. van Zuijlen and Hester Bijl

A monolithic approach applied to thermo-mechanically and electro-thermo-mechanically coupled problems
Stefan Hartmann, Steffen Rothe and Jan Henrik Schmidt

Higher order accurate discontinuous *p*-Galerkin methods for linear electro-thermal analysis
Tobias Gleim, Bettina Schröder and Detlef Kuhl

Thermodynamically consistent time integrators for thermo-elastic systems with heat conduction
Pablo Mata A. and Adrian J. Lew

19:00 - 20:00
Welcome Cocktail

POSTER SESSIONS

21/07/2014 16:00 - 18:30
Poster Session ECCM

PSECCM
Room: Hall
Chair: to be confirmed

Life prediction of large bearings using accelerated life test coupled with analysis
Na Ra Lee, Yongbin Lim and Naksoo Kim

A couple stress theory for the analysis of plates with a RBF-FD meshless method
Carla M.C. Roque and António J.M. Ferreira

A FEM-DEM coupled and evolved formulation for analysis of multifracture in solids
Chun Feng, Eugenio Oñate and Shihai Li

B-Spline and reproducing polynomial particle shape functions for linear and nonlinear elasticity problems
Yanan Liu, Yinghua Liu and Liang Sun

A motion planning scheme for robotic in-hand object manipulation
Hyunhwan Jeong, Joono Cheong and Wheekuk Kim

A model of the tongue movement during swallowing
Yukihiro Michiwaki, Takahiro Kikuchi, Seiichi Koshizuka, Tetsu Kamiya, Yoshio Toyama, Takashi Osada, Nobuko Jinno and Keigo Hanyu

A new fem homogenization of periodic material based on an extended Rosette gage theory
Luis Pérez Pozo, Marek Kolendo , Sergio Oller , Sheila Lascano and Claudio Aguilar

A Numerical Approach to Evaluate the Seismic Performance of Water Supply Systems Based on Demand and Capacity in the Damaged Network
Mahmood Hosseini, Aram Soroushian and Abdolreza Astaraki

A numerical framework to model the mechanical behavior of bioresorbable polymeric braided wire stents
Mathias P. Peirlinck, Nic Debusschere, Matthieu De Beule, Peter Dubruel, Patrick Segers and Benedict Verhegghe

A relation between calculation error and modelling resolution of DEM
Shuji Moriguchi, Ikko Tachibana, Kenjiro Terada, Shinsuke Takase, Takashi Kyoya and Jyunji Kato

A water state study in the wood structure of four hardwoods below fiber saturation point by NMR technique
Leandro Passarini, Cedric Malveau and Roger Hernandez

Adaptive surrogate-based multi-criteria optimization
Alexis I. Pospelov, Fedor V. Gubarev and Alexey M. Nazarenko

An explicit algorithm for the nonlinear dynamics of spatial beam
Chu Chang Huang, Tsung Chi Lin, Kuo Mo Hsiao and Fumio Fujii

Analysis of offshore structures for wind turbines and oil&gas using xsea software
Ki-Du Kim, Pasin Plodpradit, Anaphat Manovachirasan, Chana Sinsabvarodom and Bum-Joon Kim

Analysis of thick-walled pipeline elements operating in creep conditions
Przemysław Osocha and Bohdan Węglowski

Analysis on a 2T2R type asymmetric parallel mechanism
Sungmok Kim, Joono Cheong, Kyoosik Shin, Byung-Ju Yi and Wheekuk Kim

Anisotropic growth of thin shells with subdivision elements
Roman Vetter, Norbert Stoop, Falk K. Wittel, Hans J. Herrmann and Gautam Munglani

Application of fracture mechanics to assess the concrete damage due to cyclic freezing and thawing
Marta Kosior-Kazberuk

Comparison of muscular movement following blood alcohol concentrations using low speed rear impact tests and dynamic simulation
Dong Hyun Kim, Young Jin Jung, Dohyung Lim and Han Sung Kim

Computational and experimental investigation of the all fracture mode specimens on mixed mode I/III and II/III fracture
Shi-fan Zhu, Yang Cao, Qing-fen Li and Li Zhu

Computational design of a pressure container manufactured by fiberglass sheets to industrial applications
Gustavo Suárez , Luis Javier Cruz and Sergio Oller

Computational study of the effect of hydrostatic pressure on plastic deformation of metallic glass
Jacob Carlsson, Masato Wakeda and Shigenobu Ogata

Continuum-discontinuum particle method
Dong Zhou and Shihai Li

CUFESAP: A CUDA based finite element code for elastic structural analysis on GPUs
Jianfei Zhang and Defei Shen

Description model of cross-section of fibre bundle shape in prepreg composite
Pavla Tesinova

Design of smart structures with shape-reserved actuators
Yiqiang Wang and Zhan Kang

Determination of forming limit diagram using finite element method
Katarzyna Dyja and Janina Adamus

Development of an automated framework for high intensity focused ultrasound simulations
Mun-Bo Shim, Mun-Sung Kim and Sung-Jin Kim

Development of cosmetic orthodontic bracket and bracket cover
Yasukazu Nishi, Yoshiki Ishiwata, Akira Nakajima, Kazuyoshi Hoshino, Mamoru Murata and Noriyoshi Shimizu

Effective thermal conductivity in anisotropic materials using boundary element methods
Miélle Silva Pestana, Carla Tatiana Mota Anflor and Jhon N.V. Goulart

Emulating drilling degrees of freedom in the rotation-free Bézier-Enhanced Shell Triangle (BEST) finite element
Pere-Andreu Ubach, Eugenio Oñate and Julio García-Espinosa

Fatigue life analysis of an upgraded diesel engine crankshaft
Jalal Fathi Sola and Farhad Alinejad

FE modelling of frictional heating in a disc brake at temperature-dependent coefficient of friction
Piotr Grzes

Finite element analysis of AZ31B magnesium alloy double butted tube forming process
Soo Sik Han

Finite element analysis of the quasi-static thermal stresses in a pad-disc brake system
Adam Adamowicz

Finite element study of healthy, pathological and surgical lumbar spine biomechanics.
Andrea Calvo-Echenique, Jose Cegoñino, Luciano Bances and Amaya Pérez del Palomar

Finite element supporting thermoelectric effects in FGM materials
Juraj Paulech, Juraj Hrabovsky, Vladimir Kutis and Justin Murin

Formability of ZK60A magnesium alloy
Ki Ho Jung, Yong Bae Kim, Yu Hyun Kim, Sangmok Lee, Eung Zu Kim, Du Soon Choi and Geun-An Lee

GPU high performance explicit solution for kinematics and dynamics simulation of crank-connecting rod-piston mechanism
Zhaosong Ma, Dong Zhou and Zhigang Li

High order finite element method on the IBM power systems high performance computing applied on structural mechanics
Gilberto L. Valente, Marco L. Bittencourt and Edson Borin

Influece of material atomistic model on MD simulation
Anna Kucaba-Pietal and Janusz Bytnar

Influence of shape of particle size distribution on mechanics of uniaxially compressed granular packings
Joanna Wiącek and Marek Molenda

Mainshock – aftershock interaction diagram for a 3D plan-asymmetric structure
Andre F. Belejo and Andre R. Barbosa

Mechanical behavior of carbon nanotubes encapsulating copper atoms
Lei Wang, Zhongqiang Zhang and Yonggang Zheng

Mechanical properties of realistic materials: From quantum calculations to plastic flow
Svetlana A. Barannikova, Albina M. Zharmukhambetova, Anton Yu. Nikonov, Andrey I. Dmitriev, Alena V. Ponomareva and Igor A. Abrikosov

Micromechanism-based elasto-viscoplasticity constitutive modeling for engineering intermetallics
Yoon Suk Choi, Kyung-Mox Cho, Dae-Geun Nam and Dennis Dimiduk

Modelling dynamic behaviour of orthotropic metals
Nenad Djordjevic, Rade Vignjevic, Lewis Kiely, James Campbell and Simon Case

Natural frequencies of a simply supported horizontal rectangular tank partially filled with a liquid
Kyeong–Hoon Jeong, Jong–Wook Kim and Jong-In Kim

Nonlinear isogeometrical approach to stress recovery
Pejman Azarsa, Behrooz Hassani and Ahmad Ganjali

Numerical and experimental study by BEM and thermal Images for predicting the effective thermal conductivity
Matheus B. A. M. Oberg, Carla T. M. Anflor and Jhon N.V. Goulart

Numerical simulation for temperature and stress distribution in laser forming process of AHSS
Jung Han Song, Geun-An Lee, Sangmok Lee and Sung Jun Park

Numerical simulation of rock fragmentation process induced by indenter
Shouju Li, Lijuan Cao and Zichang Shangguan

Numerical simulation of the energy storage rate in metals under quasistatic loading

Oleg A. Plekhov and Anastasiia A. Kostina

Numerical study of a thermo-acoustically encapsulation

Fabian Duvigneau and Ulrich Gabbert

Numerical study of actuatot performance of piezoelectric ink-jet print head
Pham Van So, Hyeonwoo Jeon and Jaichan Lee

Quantitative estimation of exercise effect using numerical simulation and multi-sensory system on human leg
Yoshiki Nagatani and Takashi Saeki

Reducing the number of runs in experimental research using smart designs of experiment
Andrzej Skowronek

Scattering of semi-cylindrical gap and multiple shallow-buried cavities and inclusions by SH-wave
Hongliang Li

Seismic performance analysis of the hall-column system of a temple structure

Zhi Zhou and Jiang Qian

Simulating soil-building interaction with a FEM/BEM approach

Dimas B. Ribeiro and João B. Paiva

Simulation of implanted aortic stents
Raoul Hopf, Michael Gessat, Volkmar Falk and Edoardo Mazza

Soil-foundation-structure interaction by an explicit time integration method
Jin-Sun Lee, Dong-Soo Kim, Jeon-Gon Ha and Seong-Bae Jo

Stiffener Layout Optimization of Thin-Walled Stiffened Plates
Lianchun Long and Yang Li

Stress concentration near sharp and rounded V-shaped notches in two-dimensional bodies
Andrzej Kazberuk and Mykhaylo P. Savruk

Application of the strong discontinuity method to ductile failure with damage
Jérémie Bude Bude, Delphine Brancherie and Jean-Marc Roelandt

Structural design of metallic waveguide device in the microwave range using topological design process
Hyundo Shin and Junghoon Yoo

Structural health monitoring of stay cables by the Scruton number

Joseph Lardiès

Studies of bimaterial interface fracture with peridynamics

Fang Wang, Lisheng Liu, Qiwen Liu, Dongfeng Cao and Shuyong Yang

Surgical treatment of shoulder injuries by the Weaver Dunn technique

Gabriela L. Menegaz, Sonia A.G. Oliveira, Cleudmar A. Araújo and Leandro C. Gomide

The correlation between complicated lateral resisting system of the Shanghai tower

Wei Huang and Jiang Qian

The effect of damage on the biomechanical behavior of the pelvic floor

Dulce A. Oliveira, Marco Parente and Renato M. Natal Jorge

The Poynting type effect and non-homogeneous radial deformation in the problem of torsion of hyperelastic circular cylinder

Igor A. Brigadnov

The relationship between the fast wave and the fabric tensor
Young June Yoon

Thermomechanical modelling of PCM in heat storage applications
Francisco Montero-Chacón and Michele Chiumenti

Toward a polycrystal modeling of martensitic phase transformation based on the mechanism of Magee
Abdeladhim Tahimi, Fabrice Barbe, Lakhdar Taleb and Tatiana B. Fraga

Two level FETI method for transient problems

Marta Jarosova, Tomas Brzobohaty and Alexandros Markopoulos

21/07/2014 16:00 - 18:30
Poster Session ECFD

PSECFD
Room: Hall
Chair: to be confirmed

A CFD solver on graphical processing unites for turbulence simulations

Wenbin Cao, Hua Li, Zhengyu Tian and Sha Pan

A comparison between Monte Carlo and polynomial chaos expansion techniques in reservoirs simulations
Karen Guevara, João Zanni and Marco Aurélio Pacheco

A high order compact scheme for hypersonic internal flow with turbulence models
Hua Li, Wen-Long Wang, Wen-Jia Xie and Jian-Qi Lai

A multi-level computational model to characterize the hepatic circulation in human cirrhosis
Geert Peeters, Charlotte Debbaut, Pieter Cornillie, Elin Pauwels, Diethard Monbaliu, Wim Laleman and Patrick Segers

A Numerical investigation of scramjet engine air intakes for the 14-X hypersonic vehicle

Augusto F. Moura and Maurício A. P. Rosa

A Shape Analysis of Ultrasonically Levitated Droplet with Moving Particle Semi-implicit and Distributed Point Source Method

Yuji Wada, Kohei Yuge, Ryohei Nakamura, Hiroki Tanaka and Kentaro Nakamura

Adaptive Galerkin Method with relevant basis functions for PDES with boundary conditions

Bing Li, Luofeng Han and Shuanglu Quan

Advances of continuous-discontinuous numerical method based on Lagrange equation
Shihai Li, Chun Feng, Dong Zhou and Wenjie Duan

An Immersed Smoothed Finite Element Method for analyzing fluid-structure interaction systems consisting of dielectric elastomers
Zhi-Qian Zhang, Choon Chiang Foo and Gui Rong Liu

Application of EARSM turbulence model to simulation of reacting flow field in jets engines combustion chamber

Vojtech Betak, Jan Kubata and Jan Tuma

Comparison of implicit LU-SGS schemes for hypersonic flows
Zhengyu Tian, Wenbin Cao, Jinzhi Fan and Ran Zhang

Development of explicit unstructured mesh-based CFD solver for low-mach number flows using graphics processor units
Anton Karpenko, Vladislav Emelyanov and Konstantin Volkov

Effect of Reynolds number on pressure losses in axisymmetric sudden expansions with chamfer
Youngmin Bae, Young I. Kim, Keung K. Kim and Juhyeon Yoon

Evaluation of an immersed boundary method for solving the fluid structure interaction problem in refrigeration compressor valves
José L. Gasche and Franco Barbi

Flow recirculation in VHC designs
Ricardo F. Oliveira, Senhorinha F. Teixeira, Helena Cabral-Marques and José C. Teixeira

Investigation of Hydrodynamic Processes in Geothermal Plant
Marijonas Bogdevičius, Jolanta Janutėnienė, Saulius Razmas, Mindaugas Drakšas, Rimantas Didžiokas and Vadim Nikitin

Mechanism of modulation of the chemical activity of metal nanoparticles through organic charge-transfer molecules
Eunae Kim and Min Sun Yeom

Mixing of two-phase flow in rotating microchannels with a circular chamber
Jerry M. Chen and Huan-Choa Chiu

Modelling of interaction between suspension and structure in a tumbling mill
Simon Larsson, Samuel Hammarberg and Pär Jonsén

Modified dynamic observers based on green functions method to solve a 3D transient IHCP
Priscila F.B. Souza, Fernando Malheiros, Márcio B. da Silva and Gilmar Guimarães

Multiphase flow modelling of explosive volcanic eruptions using an adaptive unstructured mesh-based approach
Christian T. Jacobs, Gareth S. Collins, Matthew D. Piggott and Stephan C. Kramer

Multiscale modeling of solid-liquid interface ordering and its effect on the growth kinetics of metallic alloys
Mohammed Guerdane

Non-conforming mimetic and virtual element discretization for polyhedral meshes
Gianmarco Manzini, Blanca Ayuso de Dios and Konstantin Lipnikov

Numerical predictions of viscoelastic flows with an algebraic extra-stress model
Daiane Iglesia Dolci, Gilcilene Sanchez de Paulo and Gilmar Mompean

Numerical Simulation of Incompressible Flow around Aerofoil Vibrating with Two Degrees of Freedom
Petr Furmanek and Karel Kozel

Numerical study of the cooling air flow in a hydro generator with various ventilation schemes
Stephan Klomberg, Ernst Farnleitner, Gebhard Kastner and Oszkár Bíró

Porous medium modeling for air flow through forest-comparison with wind tunnel data
Zeinab Ahmadi Zeleti, Sandrine Aubrun and Jari Hämäläinen

Simulation of separation processes incorporating magnetic nanoparticle recovery in continuous microfluidic systems
Jenifer Gómez-Pastora, Eugenio Bringas, Gustavo A. Esteban, Jesús M. Blanco and Inmaculada Ortiz

Simulations of a single turbulent vortex ring using a regularized particle-mesh based vortex method
Mads M. Hejlesen and Jens H. Walther

Sphere in Poiseuille: Static, free rotation and free fall
Anthony Ponce , Yannick Hoarau and Yan Dušek

Submesoescale processes in upper ocean fronts: a numerical study using a Reynolds Stress Turbulence Model
Pablo Cornejo and Andrés Sepúlveda

The free-stream turbulence effect on the laminar-turbulent transition in the swept wing boundary layer
Sergey L. Chernyshev, Alexander I. Ivanov, Andrey Ph. Kiselev, Vladimir A. Kuzminsky and Dmitry S. Sboev

The initial-boundary Riemann problem for the solution of the compressible gas flow
Martin Kyncl and Jaroslav Pelant

System for reconsting images of internal defects by inverse problem solving
Yoshihiro Nishimura, Katsumi Fukuda, Takayuki Suzuki and Masatoshi Fukuta

Prediction of pulsatile 3D flow in elastic tubes using star CCM+ Code
Didier P. de Andrade, José M.C. Pereira and José C.F. Pereira

Ultrasonic image reconstruction of internal defects derived by EMAT using truncated singular value decomposition
Yoshihiro Nishimura, Takayuki Suzuki, Katsumi Fukuda, Masatoshi Fukuta and Eiki Ikeda

Wake equilibrium parameters on a symmetric airfoil simulations
Gorka Zamorano , Unai Fernández and Ekaitz Zulueta

An XFEM based sharp interface approach for two-phase and free-surface flows
Henning Sauerland

Tuesday, July 22nd

22/07/2014 09:00 - 10:30
Plenary Lectures I

PL1
Room: Auditorium
Chair: Xavier Oliver
CoChair: Anthony Jefferson

Modelling and simulation of fracture and fragmentation
Michael Ortiz

A review of residual distribution schemes for steady and unsteady compressible fluid dynamics
Rémi Abgrall

10:30 - 11:00
Coffee Break & Poster Sessions

11:00 - 13:00
TECHNICAL SESSIONS

22/07/2014 11:00 - 13:00
Meshless and Related Methods, a Minisymposium Dedicated to Celebrate the 80th Birthday of Professor Janusz Orkisz IV
Minisymposium organized by Sergio Idelsohn, Pierre Villon, G.R. Liu, Paulo M. Pimenta and Suvranu De

MS114D
Room: Mare Nostrum A
Chair: Paulo Pimenta
CoChair: Sergio R. Idelsohn

A new version of the PFEM for the free surface and multi-fluid problems
Julio M. Marti, Sergio R. Idelsohn and Eugenio Oñate

Numerical simulation of unsteady wind-induced conductor oscillations
Olga Ivanova

Solving interface problems by the regularized method of fundamental solutions
Csaba Gaspar

Laminate element method for elastic guided wave diffraction simulation
Evgeny Glushkov, Natalia Glushkova and Artem Eremin

Numerical simulation of a droplet impact onto a thin liquid film using SPH method
Yuta Kikuchi and Haruo Terasaka

Numerical investigation on particle resuspension in turbulent duct flow via DNS-DEM: Effect of collisions
Hao Zhang, F. Xavier Trias, Andrey Gorobets, Dongmin Yang, Assensi Oliva and Yuanqiang Tan

22/07/2014 11:00 - 13:00
HPC-Based CFD Simulations for Industrial Applications IV
Minisymposium organized by Mariano Vázquez, Makoto Tsubokura , Takayuki Aoki and Mike Nicolai

MS208D
Room: Mare Nostrum B
Chair: Makoto Tsubokura

Challenges in efficient parallel simulations of spatially resolved packed-bed chromatography
Mike Nicolai, Andreas Püttmann, Eric von Lieres and Marek Behr

Validation of local SGS models for high Reynolds number flow
Ken Uzawa, Kenji Ono and Takanori Uchida

Testing Eddy viscosity based and numerically based Les Turbulence Models in the HPC code alya
Herbert Owen, Matias Avila, Daniel Mira, Ruslan Gabbasov, Guillaume Houzeaux and Mariano Vázquez

Adressing top supercomputers with anisotropic mesh adaptation and multigrid solvers
Hugues Digonnet, Luisa Silva and Thierry Coupez

Multi-GPU uncertainty quantification for large-scale flow problems
Peter Zaspel, Christian Rieger and Michael Griebel

Detail-preserving mesh simplification for scientific visualization
Miguel A. Pasenau and Carlos Andújar

22/07/2014 11:00 - 13:00
Innovative Methods for Fluid-Structure Interaction IV
Minisymposium organized by Harald van Brummelen, Trond Kvamsdal and Roger Ohayon

MS077D
Room: Mare Nostrum C
Chair: Harald van Brummelen
CoChair: Trond Kvamsdal

FSI modeling and isogeometric techniques for ocean and marine engineering and science applications (Keynote Lecture)
Yuri Bazilevs

An isogeometric fluid-structure interaction model for implosion
Jesus Bueno, Yuri Bazilevs, Carles Bona-Casas and Hector Gomez

Immersed Isogeometric Analysis of Fluid-Structure Interation Problems
Hugo Casquero, Carles Bona-Casas and Hector Gomez

Incompressible Fluid Flow Computations based on NURBS-Enriched Finite Elements
Raheel Rasool, Callum J. Corbett and Roger A. Sauer

Space-time finite element analysis of free-surface flows with regard to water wheels
Hans-Henning Schippke, Christian Seidel and Dieter Dinkler

Numerical modeling of piezoelectric energy harvesting devices driven by flow induced vibrations
Srivathsan Ravi and Andreas Zilian

22/07/2014 11:00 - 13:00
Computational Damage and Fracture Mechanics IV
Minisymposium organized by Michael Brünig and Larissa Driemeier

MS008D
Room: Mare Nostrum D
Chair: Michael Brünig

3d numerical model of hydraulic fracture propagation
Denis V. Esipov, Vasily N. Lapin and Sergey G. Cherny

Polycrystal Viscoelastic Finite Element Analysis of Creep Defromation Behavior of a Welded Joint in Modified 9Cr-1Mo Steel
Yuji Nakasone and Jumpei Suzuki

Damage detection in truss structures using wavelet transformation
Anna Knitter-Piatkowska, Michał Guminiak, and Maciej Przychodzki

Modeling of refractory brick furniture in ROTARY-KILN using finite element approach 
Dmitrij Ramanenka, Jesper Stjernberg, Kjell Eriksson and Pär Jonsén

A multiscale continuum modeling of cavitation damage and strain induced crystallization in rubber materials
Elsiddig Elmukashfi and Martin Kroon

Strong discontinuity method applied to soil/structure interaction in earthquake engineering 
Stefano Cherubini, Benjamin Richard and Alberto Frau

22/07/2014 11:00 - 13:00
Applications of Error Estimation and Model Adaptation in Computational Mechanics IV
Minisymposium organized by Ludovic Chamoin, Pedro Díez, Fredrik Larsson and Kris Van der Zee

MS010D
Room: Mare Nostrum E
Chair: Ludovic Chamoin

Hierarchical model (HiMod) reduction for incompressible fluid dynamics in rigid and deformable

pipes (Keynote Lecture)
Matteo Aletti, Alonso Alvarez, Pablo J. Blanco, Simona Perotto and Alessandro Veneziani

Adaptive surrogate modelling in unsteady transport systems
Jens Lang, Debora Clever, Pia Domschke and Oliver Kolb

On the verification of PGD reduced-order models
Florent Pled, Ludovic Chamoin and Pierre Ladevèze

Effective uncertainty quantification using adjoint-based error estimates and surrogate models
Tim Wildey, Troy Butler and John Jakeman

Blockwise adaptivity for diffuse-interface tumor-growth model
Xunxun Wu, Kristoffer G. van der Zee, Gorkem Simsek and Harald van Brummelen

Convergence properties of the hierarchical models in coupled electro-mechanical problems
Grzegorz Zboinski

22/07/2014 11:00 - 13:00
Advances in Computational Methods for Inverse Problems IV
Minisymposium organized by Paul E. Barbone, Dan Givoli and Assad Oberai

MS075D
Room: Mare Nostrum F
Chair: Dan Givoli

Big data meets big models: Large-scale Bayesian inference, with application to inverse modeling of Antarctic ice sheet dynamics (Keynote Lecture)
Omar Ghattas, Tobin Isaac, James Martin, Noemi Petra and Georg Stadler

On the parameter identification of visco-hyperelastic material models for adhesive tapes
Nils Hendrik Kröger and Daniel Juhre

Estimation of temperature distribution on inner surface from outer surface temperature using mathematical analysis-based inverse analysis
Shiro Kubo and Seiji Ioka

An error in constitutive equation approach for frequency-domain viscoelasticity imaging using interior data
Manuel I. Diaz and Wilkins Aquino

Rational selection of experimental data for inverse structural problems
Corrado Chisari, Lorenzo Macorini, Claudio Amadio and Bassam A. Izzuddin

Nonlinear feedback control of tethered satellite systems by symplectic conservative approach
Haijun Peng, Xin Jiang and Biaosong Chen

22/07/2014 11:00 - 13:00
New Trends in Numerical Methods for Multi-material Compressible Fluid Flows II
Minisymposium organized by Raphael Loubère, Pierre-Henri Maire and Andrew Barlow

MS179B
Room: Llevant
Chair: Pierre-Henri Maire
CoChair: Tzanio Kolev

Further developments of an interface-aware subscale dynamics closure model for multimaterial cells
Andrew J. Barlow, Ryan Hill and Mikhail Shashkov

Triangular metric-based mesh adaptation for compressible multi-material flows in semi-Lagrangian coordinates
Stephane Del Pino and Isabelle Marmajou

Symmetry preservation and volume consistency in an R-Z staggered scheme

Pavel Váchal and Burton Wendroff

Modeling non-equilibrium two-phase flow in elastic-plastic porous solids

Igor Menshov and Alexey Serezhkin

Isotropic properties of Lax-Wendroff methods, with application to Lagrangian hydrocodes
Tyler B. Lung and Philip L. Roe

2D high-order remapping using mood paradigms
Raphael Loubère, Milan Kucharik and Steven Diot

22/07/2014 11:00 - 13:00
Advances in Finite Element Methods for Tetrahedral Mesh Computations II
Minisymposium organized by Guglielmo Scovazzi, Micheal Gee and Elie Hachem

MS209B
Room: Mestral
Chair: Guglielmo Scovazzi

Monotonic stabilized FE approximations of transport problems
Santiago Badia and Alba Hierro

Enhancements of numerical schemes for and with tetrahedral-based mesh adaptation
Adrien Loseille

Residual-based variational multiscale turbulence models for unstructured tetrahedral meshes
Arif Masud, Ramon Calderer and Lixing Zhu

Immersed volume method with anisotropic mesh adaptation and time-stepping control for fluid structure interaction and heat transfer applications
Ghina Jannoun, Elie Hachem, Jeremy Veysset and Thierry Coupez

Main issues in anisotropic mesh adaptive FMG
Gautier Brèthes, Olivier Allain and Alain Dervieux

22/07/2014 11:00 - 13:00
Industrial Applications of Computational Fluid Dynamics and Related Techniques IV

CS658D
Room: Ponent 1
Chair: Raquel Taboada-Vázquez

An investigation of the performance of adaptive IIR filters for active noise control in one-dimensional systems
Allahyar Montazeri and Jalal Behrouzfar

Rapidity and maneuverability optimization analysis of submersible vehicle based on particle swarm optimization

Wei Zifan, Yu Qiang and Yang Songlin

Directional fluid-structure interactions and automated database-assisted design for wind
Emil Simiu and DongHun Yeo

The investigation of the rotationally oscillating plate's flow field and its three-dimensional numerical simulation
Ying Sun, Qiu Jin, Zhenggang Cao and Hongyuan Mei

An investigation of cooling characteristics in air-mist cooling by Eulerian-Lagrangian Method with V2F model

Tsuyoshi Yamamoto, Kakeru Yoshino and Takuya Kuwahara

CFD study of a CO2 ejector performance installed in large cooling systems working at different ambient conditions
Jacek Smolka, Michal Palacz, Zbigniew Bulinski, Krzysztof Banasiak, Andrzej J. Nowak, Adam Fic and Armin Hafner

22/07/2014 11:00 - 13:00
Advanced Methods in Computational Fluid Dynamics IV

CS655D
Room: Ponent 2
Chair: Goran Stipcich
CoChair: Jesús María Blanco

A Vertex-Based High-Order Finite-Volume scheme for three-dimensional compressible flows on tetrahedral mesh
Marc Charest, Thomas Canfield, Nathaniel Morgan, Jacob Waltz and John Wohlbier

Flow decomposition analysis of the aeroacoustic wall pressure generated by automobile side mirror
Sarah Julisson, Eric Gaudard, Régis Marchiano and Philippe Druault

Effect of upstream flow conditions on acoustic feedback-loop interactions in transitional airfoils
Vladimir Golubev, Lap Nguyen, Michel Roger, Reda Mankbadi and Sam Salehian

An always accurate and sometimes exact discretization of the convection-diffusion equation in 1D and 2D
Antonio Pascau and Francisco Alcrudo

Numerical simulation of one-dimensional flow in elastic and viscoelastic branching tube
Ivan Korade, Zdravko Virag and Mario Šavar

Investigation of heat and mass transfer processes and phase transformation in motion of water droplets through high-temperature gas area
Roman S. Volkov, Geniy V. Kuznetsov and Pavel A. Strizhak

22/07/2014 11:00 - 13:00
Multiscale Methods and Applications in Computational Mechanics IV
Minisymposium organized by Weiqing Ren and Yang Xiang

MS116D
Room: Terral
Chair: Yang Xiang

Extending the multiscale arlequin framework to coupling of models in dynamic regime
Khalil Abben and Hachmi Ben-Dhia

Multiscale method using static and transient subscales to solve transport flow problems
Lucia Catabriga, Andrea M.P. Valli, Regina C. Almeida and Isaac P. Santos

A multi-scale approach for estimation of real contact area and frictional behaviour of rubber sliding on rough surfaces
Hagen Lind and Matthias Wangenheim

Local stress calculations: Importance of force decomposition
Alejandro Torres Sánchez, Juan M. Vanegas and Marino Arroyo

Lattice Boltzmann method as a fine scale solver in multiscale method modeling surface texture
Michał Dzikowski and Jacek Rokicki

Macro and micro residual stresses in Zirconium oxide layers
Serge Pascal, Clotilde Berdin and Zhao Yue Zao

22/07/2014 11:00 - 13:00
Domain Decomposition Methods, High-Performance Technologies and Applications to Petroleum and Water Resources I
Minisymposium organized by Ismael Herrera, Zhangxin (John) Chen , Graciela Herrera-Z and Martin Díaz

MS085A
Room: Tramuntana 1
Chair: Ismael Herrera

Non-overlapping discretization methods
Ismael Herrera

Algorithms that achieve the DDM-paradigm for symmetric systems of equations
Iván Contreras and Ismael Herrera

Block strategies to speed up convergence in non-overlapping domain decomposition methods
Pierre Gosselet and Daniel Rixen

DDM applied to subsurface flow and transport
Guillermo Hernández–García

A balancing preconditioner of iterative domain decomposition methods for magnetostatic problems
Daisuke Tagami

22/07/2014 11:00 - 13:00
Mechanobiology of Cellular Systems I
Minisymposium organized by Marino Arroyo, Antonio DeSimone and Jose J. Muñoz

MS255A
Room: Tramuntana 2
Chair: Marino Arroyo

Numerical and analytic computation of elastic interactions between membrane proteins
Osman Kahraman, Peter D. Koch, William S. Klug and Christoph A. Haselwandter

Insights into cytoplasmic rheology gained from modeling cellular blebbing
Wanda Strychalski and Robert Guy

Towards patient-specific simulations and validation of a tumor angiogenesis model using isogeometric analysis
Guillermo Vilanova, Ignasi Colominas, Thomas J.R. Hughes and Hector Gomez

Electromechanical response of neuronal cells
Prashant Purohit

Biological and artificial motility at microscopic scales
Antonio DeSimone, Luca Heltai and Giovanni Noselli

22/07/2014 11:00 - 13:00
Differential Reynolds Stress Modeling for Separating Flows in Industrial Aerodynamics I
Minisymposium organized by Bernhard Eisfeld and Rolf Radespiel

MS105A
Room: Xaloc
Chair: Bernhard Eisfeld

Evaluation of a differential Reynolds stress model incorporating near-wall effects in a compressor cascade tip-leakage flow 
Christian Morsbach, Martin Franke and Francesca di Mare

Application of Reynolds stress models to separated aerodynamic flows
Christopher L. Rumsey

Separated flow predicition around a 6:1 prolate spheroid using Reynolds stress models

Yair Mor-Yossef

Influence of pressure-strain closure on the prediction of separated flows
G.A. Gerolymos and I. Vallet

Modeling of Reynolds-stress augmentation in shear layers with strongly curved velocity profiles

René-Daniel Cécora, Rolf Radespiel and Suad Jakirlic

Dynamic wall modelling for large-eddy simulations. Application to high Reynolds number aerodynamics of complex geometries

Joan Calafell, Angel Carmona, Oriol Lehmkuhl, Carles D. Pérez-Segarra and Assensi Oliva

22/07/2014 11:00 - 13:00
Advanced Reduced-order Modeling Strategies for Parametrized PDEs and Applications I
Minisymposium organized by Gianluigi Rozza and Andrea Manzoni

MS069A
Room: Salon Club
Chair: Gianluigi Rozza
CoChair: Benjamin Stamm

Reduced basis approaches for the big data framework
Yvon Maday

ECSW: An energy-conserving sampling and weighting method for the hyper reduction of discrete nonlinear finite element models
Charbel Farhat, Todd Chapman and Philip Avery

Closure modeling for the proper orthogonal decomposition of turbulent flows: Models and analysis
Traian Iliescu

Energy-stable Galerkin reduced order models for nonlinear compressible flow
Irina Kalashnikova, Matthew Barone, Srinivasan Arunajatesan, Bart G. van Bloemen Waanders and Jeffrey Fike

Data-driven reduced-order modeling to support online decision-making for a self-aware aircraft
Laura Mainini and Karen Willcox

Data-driven model order reduction for state and model-bias estimation
Masayuki Yano, James Penn, Tommaso Taddei, Anthony Patera and Yvon Maday

22/07/2014 11:00 - 13:00
Computational Methods in Fluid-structure Interactions, Dynamics and Vibration, Vibroacoustics - A Minisymposium in Honor of Prof. Roger Ohayon IV
Minisymposium organized by Christian Soize

MS009D
Room: Yasmin A
Chair: Roger Ghanem
CoChair: Christian Soize

An adaptive interpolatory model reduction method for vibroacoustic problems (Keynote Lecture)
Charbel Farhat, Ulrich Hetmaniuk and Radek Tezaur

Simulation of vibro-acoustic response by fast BEM and FEM coupling
Lothar Gaul

Exploring multi-functionality in poro-elastic materials with consideration given to some aspects related to the influence of scale, shape and space
Peter Göransson

Vibroacoustic modeling of structures with attached noise control materials using wave-based methods
Noureddine Atalla and Luca Alimonti

Computational strategies for acoustic transmission studies

Jean-Pierre Coyette, Gregory Lielens and Benoit Van den Nieuwenhof

Structural acoustics with interface damping: Various considerations about static terms for efficient dynamic behavior description

Morvan Ouisse and Emeline Sadoulet-Reboul

22/07/2014 11:00 - 13:00
Multiscale and Multiphysics Modelling for Complex Materials (MMCM5) I
Minisymposium organized by Patrizia Trovalusci, Tomasz Sadowski, René de Borst and Bernhard Schrefler

MS120A
Room: Yasmin B
Chair: Bernhard Schrefler
CoChair: Patrizia Trovalusci

Multi-time scaling induced image based crystal plasticity FE models for predicting fatigue in polycrystalline alloys (Keynote Lecture)
Somnath Ghosh

Influence of stiffness variation in timber boards on effective behavior of GLT beams
Georg Kandler, Leopold Wagner, Josef Füssl, Erik Serrano and Josef Eberhardsteiner

A biphase model for concrete subject to sulfate attack

Nicola Cefis and Claudia Comi

A computational study of flexoelectricity in nanostructures
Amir Abdollahi, Christian Peco, Daniel Millán, Marino Arroyo and Irene Arias

Temperature influence on smart structures: A first approach

Francesco Bonaldi, Giuseppe Geymonat, Françoise Krasucki and Michele Serpilli

22/07/2014 11:00 - 13:00
Phase-field Modeling and Simulation in Fluid Mechanics, Solid Mechanics and Life-sciences I
Minisymposium organized by Hector Gomez, Kris van der Zee, Marino Arroyo, Irene Arias, Baskar Ganapathysubramanian, Thomas J.R. Hughes and John T. Oden

MS143A
Room: Yasmin C
Chair: Irene Arias
CoChair: Marino Arroyo

Phase field modeling of brittle and ductile fracture in multi-physics environments (Keynote Lecture)
Christian Miehe, Heike Ulmer and Lisa Schänzel

Three-dimensional phase-field simulation of crack propagation in ferroelectric polycrystals
Amir Abdollahi and Irene Arias

A massively parallel program to solve the phase field formulation for crack propagation
Vahid Ziaei-Rad and Yongxing Shen

Fracture based arc-length control for phase field modeling of the hydraulic fracturing
Nitish Singh, Clemens V. Verhoosel and Harald van Brummelen

Phase-field modelling of stress evolution in heterogen structures
Daniel Schneider, Oleg Tschukin, Abhik Choudhury, Michael Selzer and Britta Nestler

A Self-consistent atomistic-phase field model for the study of ge nanocrystallization
C. Reina, L. Sandoval and Jaime Marian

22/07/2014 11:00 - 13:00
STS 01: Multi-Physics Green Challenges in Aeronautics: The EC Grain2 EU-China Networking Project

STS01A
Room: Auditorium
Chair: Jacques Periaux

High-performance issues for aeronautics design
Toan Nguyen and Benoit Lange

Airframe flight physics key green technologies (KGT2) synthesis and proposal for future work
Adel Abbas and Eusebio Valero

Modelling and simulation of airframe flow and noise genration
Shia-Hui Peng

Combustion Simulation with Particular Reference to Green Aviation
Yao Zheng, Jianfeng Zou and Shuai Zhang

Experimental modeling of low pressure turbine blades at low Reynolds and high mach numbers
Tony Arts

22/07/2014 11:00 - 13:00
Advances in Accurate and Robust Numerical Methods for Computational Fluid Dynamics IV
Minisymposium organized by Remi Abgrall, Feng Xiao and Koen Hillewaert

MS051D
Room: Sala A
Chair: Ioannis Nikolos
CoChair: Yiqing Shen

Natural convection and low mach number flows simulation using a compressible high-order finite volume scheme
Quentin Dubois, Florian Haider, Bernard Courbet and Jean-Pierre Croisille

A higher-order finite volume method based on Moving Least Squares for the resolution of the incompressible Navier Stokes on unstructured grids
Luis Ramírez, Xesús Nogueira, Sofiane Khelladi, Jean-Camille Chassaing and Ignasi Colominas

Accurate and robust multi-moment finite volume solver on unstructured grids for incompressible flows
Feng Xiao and Bin Xie

Highly accurate dispersion relation preserving schemes for incompressible flows
Frédéric Bauer, Sedat Tardu and Olivier Doche

22/07/2014 11:00 - 13:00
Computational Models for Soft Tissues I
Minisymposium organized by Estefania Peña, Renato N. Jorge, Miguel A Martinez and Pedro S. Martins

MS067A
Room: Sala B1
Chair: Renato Natal

Identification of anisotropic directions in soft tissue and their simulation with p-version finite elements
Xuhui Li, Stefan Raith, Mikhail Itskov and Mahmood Jabareen

A rate dependent microstructural constitutive model of inelastic effects in soft fibred tissues
Estefanía Peña, Pablo Saez and Miguel A. Martínez

On simulating skeletal muscle fatigue. A 3D electro-mechanical continuum model
Marta Sierra, Jorge Grasa, María J. Muñoz, Francisco J. Miana-Mena and Begoña Calvo

Annulus fibrosus model identification enriched by transverse strain measurements
Adrien Baldit, Dominique Ambard, Fabien Cherblanc and Pascale Royer

Biomechanical simulation of ligament damage: Its clinical relevance

Sofia Brandão, Marco Parente, Ana Rita Silva, Thuane da Roza, Teresa Mascarenhas, Isabel Ramos and Renato M. Natal Jorge

Disjoint domains interactions framework for hyperelastic simulations
Ulrik Bonde, Marek K. Misztal, Vincent Visseq and Kenny Erleben

22/07/2014 11:00 - 13:00
Fluid-Structure Interaction Algorithms and Applications I
Minisymposium organized by Jonathan Pitt and Scott Miller

MS062A
Room: Sala B2
Chair: Cooper Elsworth

Electro-hydrodynamic effect on DNA dynamics during DNA transport
Sookkyung Lim

A simulation tool for parachute/payload systems
Roberto Flores, Enrique Ortega, Jordi Valles and Eugenio Oñate

Fluid structure interaction with inconsistent software platforms
David Grasselt, Klaus Höschler and Aris Konstantinidis

Fluid-structure interaction analysis of wind turbine blade profiles
Dorothee Pieper, Thomas Grätsch and Michael Breuer

Modelling of waves and wave-structure interactions using non-linear numerical models
Axelle Viré, Johannes Spinneken, Matthew D. Piggott, Christopher C. Pain and Stephan C. Kramer

Numerical investigation of freely falling objects using direct-forcing immersed boundary method
Ming-Jyh Chern, Dedy Z. Noor and Tzyy-Leng Horng

22/07/2014 11:00 - 13:00
Modeling of Plasticity and Damage under Cyclic Loading II
Minisymposium organized by Renato Natal, Abílio Jesus and Francisco Pires

MS039B
Room: Sala B3
Chair: Abilio de Jesus
CoChair: Jorge Belinha

Numerical implementation of a simple model for directional distortional hardening in metal plasticity
René Marek, Jiri Plesek, Zbyněk Hrubý, Slavomír Parma, Heidi P. Feigenbaum and Yannis F. Dafalias

Cyclic material behaviour of welded ultra high-strength steels
Benjamin Möller , Rainer Wagener and Tobias Melz

Harmonic model for nonlinear thermo-mechanical analysis of hot mill rolls
Denis Benasciutti, Francesco De Bona and Mircea Gh. Munteanu

Inelastic Analysis of Modified 9Cr-1Mo Steel in High Temperature
HanBum Surh, Hoomin Le, Jae Boong Choi, Moon Ki Kim, NamSu Huh and Andong Shin

The influence of direction-modulated loading conditions on the lifetime of filled elastomers
Daniel Juhre and Maria Krause

Material modelling for metals considering dynamic plasticity
Bahar Ayhan and Adnan Ibrahimbegovic

22/07/2014 11:00 - 13:00
Methods for Cut and Composite Meshes: Theory, Algorithms and Applications II

MS192B
Room: Sala C1

Minisymposium organized by Erik Burman, Mats G. Larson, Anders Logg, André Massing and Wolfgang Wall

Chair: Andre Massing

Image-based simulations using the unfitted DG method
Christian Engwer

XFEM and stabilization for 3D incompressible two-phase flows
Sven Gross

Unfitted Nitsche Finite Element Methods for multi-physics problems
Susanne Claus, Andre Massing and Erik Burman

Higher degree Immersed Finite Element methods for interface problems
Slimane Adjerid and Tao Lin

Nearly body-fitted meshes for transient flows with embedded geometries
Dieu-Linh Quan, Jean-François Remacle, Emilie Marchandise and Thomas Toulorge

22/07/2014 11:00 - 13:00
Growth and Remodeling of Living Tissues II
Minisymposium organized by Rafael Grytz, Seungik Baek and Ellen Kuhl

MS097B
Room: Sala C2
Chair: Rafael Grytz

Effect of scleral anchorage on the perfusion of the lamina cribrosa
Daniele Prada, Giovanna Guidoboni, Samuele Terragni, Riccardo Sacco, Paola Causin, Brent A. Siesky and Alon Harris

A Tissue Engineering Strategy for Soft Tissue Growth
Ellen Arruda

Changing hyperelastic properties of the tree shrew sclera during visually-guided remodeling
Rafael Grytz, John T. Siegwart and Thomas T. Norton

Growth prediction of abdominal aortic aneurysms and its association of intraluminal thrombus
Seungik Baek, Byron Zambrano, Jongeun Choi and Chae-Young Lim

An integrated remodeling to fracture model of bone
Ibrahim Goda and Jean-François Ganghoffer

22/07/2014 11:00 - 13:00
Modeling and Analysis of FGM Structures II
Minisymposium organized by Justin Murin, Stephan Kugler and Mehdi Aminbaghai

MS088B
Room: Sala C3
Chair: Stephan Kugler
CoChair: Justin Murin

Thermoelasticity in FGM shell structures (Keynote Lecture)
Peter A. Fotiu, Stephan Kugler and Justin Murin

Thermal post-buckling response of sandwich functionally graded materials (FGM) plates resting on the Pasternak foundation
Maciej Taczala, Ryszard Buczkowski and Michal Kleiber

Transient thermoelastic analysis of a functionally graded hollow sphere with piecewise power law
Yoshihiro Ootao and Masayuki Ishihara

Residual stress in RF magnetron sputtered ZnO thin films on GaP substrates and nanowires
Dalibor Buc, Jaroslav Kovac, Vladimir Kutis, Justin Murin, Maria Caplovicova, Jaroslava Skriniarova, Patrik Novak, Jozef Novak, Stanislav Hasenohrl and Edmund Dobrocka

On the finite element implementation of the elastic gradient inherent to FGMs
Emilio Martínez-Pañeda and Rafael Gallego

22/07/2014 11:00 - 13:00
Fast Direct Solvers: Applications to Boundary Element Methods and Other Linear Systems I
Minisymposium organized by Stéphanie Chaillat-loseille, Eric Darve and Martin Schanz

MS200A
Room: Sala D1
Chair: Eric Darve

A new analytic preconditioner for the iterative solution of Dirichlet exterior scattering problems in 3D elasticity
Stéphanie Chaillat, Marion Darbas and Frédérique Le Louër

Fast multipole preconditioners for sparse linear solvers
Huda Ibeid, Rio Yokota, Jennifer Pestana and David Keyes

Fast multipole boundary element method for multizone problems
Quoc Tuan Trinh, Saida Mouhoubi, Cyrille Chazallon and Marc Bonnet

A simple multi-domain BEM with the fast multipole method
Yijun Liu and Shuo Huang

A data efficient, CQM-based BEM approach for elastodynamics
Bernhard Kager and Martin Schanz

22/07/2014 11:00 - 13:00
Advances in Computational Structural Dynamics I
Minisymposium organized by Evangelos J. Sapountzakis and Andreas E. Kampitsis

MS018A
Room: Sala D2
Chair: Roman Lewandowski

Determination of dynamic characteristics and their design sensitivities for structures with viscoelastic dampers (Keynote Lecture)
Roman Lewandowski , Małgorzata Łasecka-Plura and Zdzisław Pawlak

Development of efficient models for the study of complex rotating machines and of the rotors-foundations interaction
Enrico Meli, Alice Innocenti, Lorenzo Marini, Giovanni Pallini, Andrea Rindi and Stefano Rossin

Simulation of the dynamic interaction between pantograph and overhead line using a coupled FEM - Multibody procedure
Angela Bautista and Publio Pintado

Development of a transient structural analysis algorithm by using FETI-local method
JunYoung Kwak, Haeseong Cho, SangJoon Shin and Olivier A. Bauchau

Seismic Evaluation of Braced Steel Structures with and without Viscous Dampers for near Fault Ground motions
Fariman Ranjbaran and Ali Mahdizade

Non-linear dynamic soil structure interaction using Bouc - Wen type hysteretic models
Eleftherios Asiminas and Vlasis K. Koumousis

22/07/2014 11:00 - 13:00
Advances in Computational Models for Vertebrate Structures

MS078A
Room: Sala D3

in Biology and Palaeontology I
Minisymposium organized by Jordi Marcé-Nogué, Josep Fortuny and LLuís Gil

Chair: Jordi Marcé-Nogué
CoChair: Josep Fortuny

Computational mechanics sheds new light on the paleobiology of early tetrapods
Josep Fortuny, Jordi Marcé-Nogué, Lluís Gil, Montserrat Sanchez and Àngel Galobart

The seahorse tail as inspiration for serially articulated systems
Celine Neutens, Tomas Praet, Matthieu De Beule, Manuel Dierick and Dominique Adriaens

New method to validate FEA on palaeobiological modeling
Alejandro Perez-Ramos, Miquel De Renzi and Josep Fortuny

Quantitative interpretation of tracks for determination of body mass using finite element analysis
Tom Schanz, Hanna Viefhaus and Long Nguyen-Tuan

Advances in methodologies and metrics for comparison of biological computational models
Christian Escrig, Soledad de Esteban-Trivigno, Lluís Gil, Daniel DeMiguel, Josep Fortuny and Jordi Marcé-Nogué

Flexible multibody approach in application to the feeding mechanism in vertebrate structures
Jordi Marcé-Nogué and Adam Klodowski

22/07/2014 11:00 - 13:00
Advances with Adjoint CFD Solvers for Unsteady Flow I
Minisymposium organized by Jens-Dominik Mueller, Carsten Othmer, Jacek Rokicki, Kyriakos Giannakoglou, Uwe Naumann, Marcus Meyer, Eugene de Villiers, Mustafa Megahed and Laurent Hascoet

MS214A
Room: Sala D4
Chair: Marcus Meyer

Stabilisation of discrete adjoint solvers through improved primal timestepping (Keynote Lecture)
Shenren Xu and Jens-Dominik Mueller

A Discrete Adjoint version of an Unsteady Incompressible solver for OpenFOAM using Algorithmic Differentiation
Arindam Sen, Markus Towara and Uwe Naumann

Toward a discrete adjoint model of ACE+
Zahrasadat Dastouri, Johannes Lotz and Uwe Naumann

Adjoints of fixed-point iterations
Ala Taftaf, Valerie Pascual and Laurent Hascoët

Towards unsteady adjoint analysis for turbomachinery applications
Georgios Ntanakas and Marcus Meyer

22/07/2014 11:00 - 13:00
Numerical Predictions of Detached Flows I
Minisymposium organized by Esteban Ferrer, Eusebio Valero and Vincent Couaillier

MS126A
Room: Sala D5
Chair: Esteban Ferrer

Assessment of turbulence closures for detached flows control
Jérémie Labroquère, Régis Duvigneau and Emmanuel Guilmineau

Vortex shedding and its suppression for a shear flow past a circular cylinder
Kai-Wen Chang and Jiahn-Horng Chen

A residual-based variational multiscale Discontinuous Galerkin method for turbulent flows
Göktürk Kuru, Marta de la Llave Plata, Vincent Couaillier and Rémi Abgrall

Numerical simulation of high-speed impulsive noise of the PZL W-3A “Sokol” (Falcon) helicopter main rotor in forward flight
Piotr Doerffer, Oskar Szulc, Fernando L. Tejero Embuena, Jerzy Żółtak and Jacek Małecki

Implicit Large Eddy Simulation of high-speed impinging jets
Nagore Álvarez-Saiz, Ander Zarketa, Marta Cordero-Gracia and Eusebio Valero

3D *p*-adaption for compressible flow
Dirk Ekelschot, Joaquim Peiro, Spencer J. Sherwin, David Moxey and Cristian Biotto

22/07/2014 11:00 - 13:00
Innovative Fictitious Domain Approaches for High-order Methods and IGA I
Minisymposium organized by Alexander Düster, Ernst Rank and Dominik Schillinger

MS117A
Room: Sala D6
Chair: Ernst Rank

The spectral cell method for wave propagation analysis of heterogeneous materials (Keynote Lecture)
Alexander Düster, Meysam Joulaian, Sascha Duczek and Ulrich Gabbert

Dynamic analysis of high loaded components, discretized by fictitious domain methods
Vera Nübel, Ali Shadavakhsh, Mohamed Elhaddad, Nils Zander and Stefan Kollmannsberger

The spectral cell method for smart structure applications
Sascha Duczek, Meysam Joulaian, Alexander Düster and Ulrich Gabbert

The finite cell method applied to nonlocal damage mechanics
Maedeh Ranjbar, Mohammad Mashayekhi, Jamshid Parvizian, Alexander Düster and Ernst Rank

A contact formulation based on high order fictitious domain methods
Tino Bog, Nils Zander, Stefan Kollmannsberger and Ernst Rank

Efficient exact integration of NURBS and T-splines within a 3D-Cartesian grid framework
Onofre Marco, Rubén Sevilla, Yongjie Zhang, Manuel Tur and Juan J. Ródenas

22/07/2014 11:00 - 13:00
Model-Based Simulation of Structural Responses to Extreme Loading Conditions II
Minisymposium organized by Xiong Zhang, Zhen Chen and Cheng Wang

MS070B
Room: Sala E1
Chair: Xiong Zhang
CoChair: Shaker Meguid

Energy absorption in axial crushing of foam filled thin walled conical frusta (Keynote Lecture)
Shaker Meguid

A coupled finite difference material point method for high explosive explosion problems
Xiaoxiao Cui and Xiong Zhang

High order discontinuous Galerkin positivity-preserving numerical simulation of condensed explosives detonation
Cheng Wang, Xinqiao Liu, Yong Bi and Jianguo Ning

Numerical modeling and analysis of STF-based liquid armor materials under ballistic impact
Kwon Joong Son, Hee Keun Cho and See Jo Kim

Pseudo arc-Length method with moving mesh for shock wave propagation
Xing Wang, Tianbao Ma and Jianguo Ning

22/07/2014 11:00 - 13:00
Recent Developments in Fluid–structure Interactions of Physiological Systems I
Minisymposium organized by Jeff D. Eldredge and Rajat Mittal

MS229A
Room: Sala E2
Chair: Jeff Eldredge

Fluid dynamics and blood damage in artificial heart valves: Biological vs. mechanical aortic prostheses
Marco D. de Tullio

Image-guided fluid-structure interaction simulations of heart valve prosthesis
Anvar Gilmanov and Fotis Sotiropoulos

Multiscale modeling and optimal treatment planning in pediatric cardiology
Alison L. Marsden, Mahdi Esmaily-Moghadam, Daniele Schiavazzi, Ethan Kung, Jeffrey Feinstein, Francesco Migliavacca and Tain-Yen Hsia

Computational modeling of the effect of mitral-valve leaflet dynamics on intraventricular flow
Jung-Hee Seo, Kourosh Shoele and Rajat Mittal

Mitral valve modelling for left ventricle flow
Gianni Pedrizzetti and Federico Domenichini

22/07/2014 11:00 - 13:00
Computational Mechanics of Wood Materials and Timber Structures II
Minisymposium organized by Josef Eberhardsteiner, Michael Kaliske, Erik Serrano and Josef Füssl

MS081B
Room: Sala E3
Chair: Michael Kaliske
CoChair: Sigurdur Ormarsson

A probabilistic model to account for stiffness variation in glued laminated timber
Georg Kandler, Josef Füssl and Josef Eberhardsteiner

Continuum modelling and simulations of pressboard with temperature/moisture effects
Denny Tjahjanto, Anna Ask, Orlando Girlanda, Sören Östlund and Johan Ekh

Implementation of fully coupled heat and mass transport model to determine temperature and moisture state at elevated temperatures
Robert Pečenko, Tomaž Hozjan and Staffan Svensson

Extended beam model for simulation of hygro-mechanical and visco-elastic deformations in inhomogeneous timber structures
Sigurdur Ormarsson and Ola Dahlblom

22/07/2014 11:00 - 13:00
Advances in Numerical Methods for Flexible Multibody Mechanics I
Minisymposium organized by Olivier Bauchau, Olivier Bruls and Alberto Cardona

MS235A
Room: Sala E4
Chair: Olivier Bruls
CoChair: Juan Carlos García Orden

A simple torsion-free nonlinear beam element for multibody dynamics (Keynote Lecture)
Juan C. García Orden and Javier Cuenca Queipo

Formulation of a non-linear shell finite element on the lie group SE (3)
Valentin Sonneville and Olivier Brüls

Nonlinear analysis of tape springs: Comparison of two geometrically exact finite element formulations
Florence Dewalque, Valentin Sonneville and Olivier Brüls

On a consistent application of Newton's law to mechanical systems with motion constraints
Sotirios Natsiavas and Elias Paraskevopoulos

22/07/2014 11:00 - 13:00
Practical Aspects of Advanced CFD Simulations on Emerging Multi- and Manycore Systems II
Minisymposium organized by Dominik Göddeke and Matthias Möller

MS119B
Room: Sala E5
Chair: Matthias Möller

Flux vector splitting methods for the Euler equations on 3D unstructured meshes for CPU/GPU clusters
Manfred Liebmann and Zoltán Horváth

Edge-based solvers for the compressible Euler equations on multicores and GPUs
Matthias Möller

Direct numerical simulation of turbulent flows with parallel algorithms for various computing architectures
Andrey Gorobets, F. Xavier Trias, Ricard Borrell , Guillermo Oyarzún and Assensi Oliva

Direct numerical simulation of the turbulent mixing in Richtmyer Meshkov instability
Han Liu and Zuoli Xiao

Cut-cell method: Application to water waves generated by a submerged obstacle
Julien Dambrine, Nicolas James and Germain Rousseaux

A parallel second-order cut-cell method: Validation and simulation at moderate Reynolds numbers
Francois Bouchon, Thierry Dubois and Nicolas James

22/07/2014 11:00 - 13:00
Biomechanics and Applied Dynamics I
Minisymposium organized by Josep M. Font-Llagunes and József Kövecses

MS134A
Room: Sala E6
Chair: Josep M. Font-Llagunes
CoChair: Daniel Garcia Vallejo

Optimization of the flight style in ski jumping
Alexander Jung, Manfred Staat and Wolfram Müller

A multi-scale study of the hip joint mechanics using rigid-body inverse dynamics and finite element analysis
Albert Peiret, Ernest Bosch, Gil Serrancolí, Jérôme Noailly and Josep M. Font-Llagunes

A spatial dynamic model to investigate hip squeaking and contact point path in hip implants
Ehsan Askari, Paulo Flores, Danè Dabirrahmani and Richard Appleyard

Designing optimal controls by parameter optimization for a stance-control knee-ankle-foot orthosis
Josep M. Font-Llagunes and Daniel García-Vallejo

The influence of muscle modeling methods and paths on head and neck response
Courtney A. Cox, Alan T. Dibb, Hattie C. Cutcliffe, Roger W. Nightingale, Barry S. Myers, Anita N.

Vasavada, Bethany L. Suderman and Cameron R. Bass

Modelling of car occupant muscle responses in a finite element human body model
Jonas Östh, Jóna Marín Ólafsdóttir and Karin Brolin

22/07/2014 11:00 - 13:00
Computational Contact Mechanics IV
Minisymposium organized by Tod Laursen, Peter Wriggers and Giorgio Zavarise

MS044D
Room: Sala F
Chair: Peter Wriggers

A conjugate gradient based method for frictional contact problems
Jing Zhao, Edwin.A.H. Vollebregt and Cornelis. W. Oosterlee

A modified perturbed Lagrangian formulation for contact problems
Manuel Tur, José Albelda, Juan J. Ródenas and José M. Navarro-Jiménez

An accurate and robust contact resolution algorithm for finite-discrete element modelling
Hu Chen, Y.X. Zhang, Mengyan Zang and Paul J. Hazell

A new direct elimination algorithm for quasi-static and dynamic contact problems
Daniel Di Capua and Carlos Agelet de Saracibar

Interior point method based contact algorithm for structural analysis of electronic device models
Kazuhisa Inagaki, Gaku Hashimoto and Hiroshi Okuda

Surface-to-surface penalty contact for quadratic elements
Guido D. Dhondt, Jaro Hokkanen and Hans-Peter Hackenberg

22/07/2014 11:00 - 13:00
Computational Modeling of Fracture and Failure of Materials and Structures IV
Minisymposium organized by Olivier Allix, Milan Jirásek, Nicolas Moës and Xavier Oliver

MS226D
Room: Sala H 1
Chair: Olivier Allix

Modelling of ductile fracture initiation in sheet metal structures with spatially varying microstructure and properties
Rickard Östlund and Mats Oldenburg

On the subscale enrichment of crack tip element in XFEM and the phantom node method
Salar Mostofizadeh, Lambertus J. Sluys, Martin Fagerström, Frans P. van der Meer and Ragnar Larsson

Tikhonov regularization for the modified mapping-collocation method applied to circumferential crack in a curved beam
Aydin Amireghbali and Demirkan Coker

Crack propagation in a Gurson ductile material using X-FEM
Jean-Philippe Crété, Patrice Longère, Jean-Marc Cadou and Johannes Wolf

Numerical assessment of thick level set models for quasi-brittle materials
Fabien Cazes, Alexis Salzman and Nicolas Moës

A smoothed damage-contact formulation with improved convergence characteristics and numerical robustness
Anthony Jefferson, Iulia C. Mihai and Paul Lyons

22/07/2014 11:00 - 13:00
Isogeometric Methods IV
Minisymposium organized by Yuri Bazilevs, David J. Benson, Rene De Borst, Thomas J.R. Hughes, Trond Kvamsdal, Alessandro Reali, Michael A. Scott and Clemens V. Verhoosel

MS049D
Room: Sala H 2
Chair: Trond Kvamsdal

Adaptive isogeometric failure analysis of trabecular bone structures (Keynote Lecture)
Clemens V. Verhoosel, Gertjan van Zwieten and René de Borst

Isogeometric Analysis for the evaluation of Carotid Artery Stent performance
Ferdinando Auricchio, Michele Conti, Mauro Ferraro, Simone Morganti and Alessandro Reali

An isogeometric model for rupture dynamics
Julien Vignollet, Stefan May and René de Borst

Cohesive zone modelling using T-splines
Stefan May, Julien Vignollet and René de Borst

Isogeometric Design Sensitivity Analysis of Curved Crack Problems
Myung-Jin Choi, Seung-Wook Lee and Seonho Cho

Isogeometric finite element analysis of single-phase Darcy flow in porous media
Yared W. Bekele, Arne M. Kvarving, Steinar Nordal, Trond Kvamsdal and Gustav Grimstad

22/07/2014 11:00 - 13:00
Multiscale Computational Homogenization for Bridging Scales in the Mechanics and Physics of Complex Materials IV
Minisymposium organized by Julien Yvonnet, Kenjiro Terada, Peter Wriggers and Marc Geers

MS012D
Room: Sala H 3
Chair: Gottfried Laschet
CoChair: Luigi Gambarotta

Potential based model order reduction: Theory and GPU implementation
Felix Fritzen, Matthias Leuschner and Max Hodapp

Wang cubes in numerical homogenization methods
Martin Doškář, David Šedlbauer, Jaroslav Kruis and Jan Novák

A dispersive computational homogenization scheme for modeling quasi-brittle materials under impact loading
Amin Karamnejad and Lambertus J. Sluys

A multi-level approach for micro-cracked viscoelastic masonry
Thi Thu Nga Nguyen, Amna Rekik and Alain Gasser

Numerical multiscale solution strategy for fracturing heterogeneous materials
Lukasz Kaczmarczyk and Chris J. Pearce

On the representative volume element size for quasi-isotropic macroscopic behaviour of a Fe-Mn-C steel microstructure simulated by the phase-filed method
Gottfried M. Laschet and Markus Apel

22/07/2014 11:00 - 13:00
Computational Biomechanics IV
Minisymposium organized by T.Christian Gasser, Miguel Cerrolaza, Ellen Kuhl, Michael Gee, Yomar Gonzalez, Simone Deparis and Thomas Franz

MS007D
Room: Sala J
Chair: Ellen Kuhl
CoChair: Alexander Zoellner

Modelling strong fibre alignment in the collagen network of biomembranes
Alexander E. Ehret, Arabella Mauri and Edoardo Mazza

A physically motivated constitutive model for cell-mediated compaction and collagen remodeling in engineered tissues
Sandra Loerakker, Christine Obbink-Huizer and Frank P.T. Baaijens

Isogeometric Kirchhoff-Love shell formulation for biological membranes
Adrian Buganza Tepole, Hardik Kabaria and Ellen Kuhl

A novel fluid-solid-growth framework of abdominal aortic aneurysm evolution
Andrii Grytsan, Paul N. Watton, Thomas Eriksson and T. Christian Gasser

Evaluation of aortic residual stresses: Experimental evidence and constitutive modeling
Elena S. Di Martino, Giampaolo Martufi, Chiara Bellini, Simone Rivolo and T. Christian Gasser

A 3D histomechanical growth and remodeling framework for arteries with application to Abdominal Aortic Aneurysms
T. Christian Gasser

22/07/2014 11:00 - 13:00
Damage and Fracture in Thin Structures I
Minisymposium organized by Timon Rabczuk and Pedro Areias

MS076A
Room: Business Centre I
Chair: Timon Rabczuk

Development and validation of dye-sensitized solar cell finite element model for sealing failure investigation
Changwoon Han

Finite strain fracture with injected anisotropic softening elements
Pedro Areias and Timon Rabczuk

Phase-field modeling of fracture in thin shells with maximum entropy approximants
Daniel Millán, Fatemeh Amiri, Timon Rabczuk and Marino Arroyo

Analysis on the plastic dynamic response on the reinforced concrete rectangular plate under explosive loading
Jian He and Kongming Wu

22/07/2014 11:00 - 13:00
Computational Techniques and Simulation of Damage/Failure in Composite Materials I
Minisymposium organized by Jose L. Curiel Sosa, Pedro M. Baiz and Ettore Baribieri

MS061A
Room: Business Centre II
Chair: Jose Luis Curiel Sosa

Damage and failure in composites
Jose L. Curiel-Sosa, Behrooz Tafazzolimoghaddamadam, Joaquin Navarro-Zafra and Maria del Carmen Serna Moreno

Quasi brittle matrix composite materials: A computational approach based on discontinuous-like FE and fracture mechanics debonding simulation
Roberto Brighenti, Andrea Carpinteri and Daniela Scorza

Experimental validation for a numerical model of transverse damage in composite materials
Daniel J. Mortell, David A. Tanner and Conor T. McCarthy

Design and Analysis of 3D Woven Composites at Failure

David Ehrlich, Harun Bayraktar, Jon Goering, Michael McClain and Chris Redman

Computational modeling of microscopic fracture process in compressive failure of quasi-isotropic laminate of composite materials
Takeaki Nadabe and Nobuo Takeda

Fatigue delamination monitoring in composite structures by guided wave method
Adam Stawiarski

22/07/2014 11:00 - 13:00
Multibody System Dynamics and Modal Reduction IV
Minisymposium organized by Pascal Ziegler and Johannes Gerstmayr

MS239D
Room: Sala de prensa I
Chair: Ulrike Zwiers
CoChair: Pascal Bestle

An enhanced inverse kinematic and dynamic model of a 6-SBU Stewart Platform
Biswajit Halder, Rana Saha and Dipankar Sanyal

Dynamics of an elastic web in roll-to-roll systems using Finite Element Method
Yannick Martz and Dominique Knittel

Modeling and validation of an elastoplastic terrain model for simulation of forestry machines
John Nordberg, Martin Servin and Urban Bergsten

Experimental and numerical analysis of the musical behavior of triangle instruments
Pascal Bestle, Michael Hanss and Peter Eberhard

Dynamics aspect of chatter suppression in milling
Andrzej Weremczuk, Rafal Rusinek and Jerzy Warminski

22/07/2014 11:00 - 13:00
Multiphysics Modelling of Porous Media: Geomaterials, Biomaterials and Others IV
Minisymposium organized by Younane N. Abousleiman, Stefan Diebels and Lorenzo Sanavia

MS027D
Room: Sala de prensa II
Chair: Antonio Gens

A micromechanical model for cement paste with effects of carbonation
Wanqing Shen, Hamid Ghorbanbeigi and Jian-Fu Shao

A multilevel model for ion and moisture transport in intact, micro-cracked and fracturing porous materials: Application to ASR in concrete
Jithender J. Timothy, Minh N. Nguyen and Guenther Meschke

Material viscoelasticity as result of microscale interactions between liquid crystalline interfaces and solid elastic matrix
Mehran Shahidi, Bernhard Pichler and Christian Hellmich

Particle-based modelling and computational homogenisation of granular media
Sami Bidier and Wolfgang Ehlers

Numerical multiscale modelling of hydrophobized sand using minimal kinematic boundary conditions procedure of homogenisation
Marek Lefik, Marek Wojciechowski and Patrycja Baryla

22/07/2014 11:00 - 13:00

Domain Coupling and Domain Boundary Constraints I
Minisymposium organized by Martin Ruess, Stefan Kollmannsberger and Alessandro Reali

MS185A
Room: Sala de Reservas
Chair: Stefan Kollmannsberger

Enforcing domain coupling & boundary constraints in isogeometric methods
Martin Ruess, Alessandro Reali and Stefan Kollmannsberger

Coupling of laminated composite structures in the framework of isogeometric analysis
Yujie Guo, Martin Ruess and Zafer Gürdal

The weak substitution method - a new approach for the connection of NURBS surface patches in isogeometric analysis
Wolfgang Dornisch, Gennaro Vitucci and Sven Klinkel

Weak coupling of trimmed patches in isogeometric analysis and the Finite Cell Method
Ali Özcan, Stefan Kollmannsberger, Joan Baiges, Alessandro Reali and Ernst Rank

Task-based decomposition of a higher-order method on complex geometries
Tobias Weinzierl and Roland Wittmann

Local/global non-intrusive parallel coupling for large scale mechanical analysis

Mickaël Duval, Jean-Charles Passieux, Michel Salaün and Stéphane Guinard

13:00 - 14:00
Lunch Time

22/07/2014 14:00 - 14:45
Industrial Lecture

IL
Room: Auditorium
Chair: Jacques Periaux

Numerical Simulation on Aircraft – Design and Understand Aircraft Aerodynamics and Flight Physics
Klaus Becker

22/07/2014 14:00 - 16:00
Semi-Plenary Lectures I

SPL1
Room: Mare Nostrum A+B+C
Chair: Carlos Felippa

Variational methods for consistent singular and scaled mass matrices
Manfred Bischoff and Anton Tkachuk

Selective mass scaling for solid-shell elements in explicit dynamics analyses
Umberto Perego, Giuseppe Cocchetti and Mara Pagani

Mechanics of confined solid and fluid thin films: Graphene and lipid bilayers
Marino Arroyo, Mohammad Rahimi and Kuan Zhang

22/07/2014 14:00 - 16:00
Semi-Plenary Lectures II

SPL2
Room: Mare Nostrum D+E+F
Chair: Herbert Mang
CoChair: Manolis Papadrakakis

Towards adaptive multiscale techniques for kinetic theories
Harald van Brummelen and M. Abdel Malik

Multiscale analysis applied to material modeling
Peter Wriggers, Stefan Loehnert and Eva Lehmann

Practical multiscaling
Jacob Fish

22/07/2014 14:00 - 16:00
Semi-Plenary Lectures III

SPL3
Room: Sala H 1 + H 2
Chair: Robert Taylor
CoChair: Manuel Casteleiro

Particle Methods: The most efficient way to solve fluid mechanics problems
Sergio R. Idelsohn, Eugenio Oñate, Norberto Nigro, Julio M. Marti, Pablo A. Becker and Juan Gimenez

Multi-disciplinary robust optimization of sports dynamics system
Katsuyuki Suzuki, Hitoshi Kodama and Satoshi Shimono

Intelligent computing in multiscale materials design
Tadeusz Burczynski

22/07/2014 14:00 - 16:00
Semi-Plenary Lectures IV

SPL4
Room: Sala H 3 + J
Chair: Tod Laursen
CoChair: Jacques Periaux

Reduced Order Models with (and for) goal-oriented error assessment
Pedro Díez, Núria Parés, Sergio Zlotnik, Francesc Verdugo and Antonio Huerta

The hybridizable Discontinuous Galerkin Methods
Bernardo Cockburn

Discontinuous Petrov-Galerkin method with optimal test functions. Progress report
Leszek Demkowicz and Jay Gopalakrishnan

16:00 - 16:30
Coffee Break & Poster Sessions

16:30 - 18:30
TECHNICAL SESSIONS

22/07/2014 16:30 - 18:30
Advances in Numerical Methods for Linear and Non-linear Dynamics I
Minisymposium organized by Alexander Idesman and Gregory Hulbert

MS087A
Room: Mare Nostrum A
Chair: Gregory Hulbert
CoChair: Alexander Idesman

Accurate modelling of wave propagation problems in homogeneous, composite and functionally graded materials (Keynote Lecture)
Alexander Idesman

A weakly-intrusive coupling scheme in space and time for localized effects in explicit dynamics
Omar Bettinotti, Olivier Allix, Benoît Malherbe and Victor Oancea

A new high-order spatial Galerkin discretization based on Fourier Continuation methods
Oscar P. Bruno and Andrés Prieto

High-order hybrid methods for elastic waves
Thomas Hagstrom

Applications of smoothness-increasing accuracy-conserving (SIAC) filtering for the Discontinuous Galerkin approximation to nonlinear hyperbolic equations
Jennifer K. Ryan and Xiaozhou Li

22/07/2014 16:30 - 18:30
Advances in Shape and Topology Optimization of Structures and Materials I
Minisymposium organized by Michael Wang, Zhen Luo and Takayuki Yamada

MS494A
Room: Mare Nostrum B
Chair: Zhen Luo

Designing materials for negative or zero compressibility through topology optimization (Keynote Lecture)
Yi Min Xie, Xiaoying Yang, Jianhu Shen, Xiaolei Yan, Arash Ghaedizadeh , Xiaodong Huang and Shiwei Zhou

Design of mechanical metamaterials using a level-set based topology optimization method
Zhen Luo, Yiqiang Wang and Zhan Kang

Computational optimisation by local tailoring of continuous fibre reinforced thermoplastic composite sheets
Thomas Rettenwander, Michael Fischlschweiger, Martín Machado and Georg Steinbichler

Generation of polycrystalline microstructures using 3D-Voronoi tessellation and genetic algorithms
Eric Schmidl, Pierre Schulze and Thomas Lampke

Shape optimization of nanoparticles for optical metamaterials
Scott Townsend, Shiwei Zhou and Qing Li

The topological design of thermoelastic material using a level set method
Yu Wang, Zhen Luo and Nong Zhang

22/07/2014 16:30 - 18:30
Innovative Methods for Fluid-Structure Interaction V
Minisymposium organized by Harald van Brummelen, Trond Kvamsdal and Roger Ohayon

MS077E
Room: Mare Nostrum C
Chair: Trond Kvamsdal
CoChair: Harald van Brummelen

Numerical analysis of gas transport in micro-porous material by DSMC method (Keynote Lecture)
Ikuya Kinefuchi and Yoichiro Matsumoto

2D and 3D thermal dendritic solidification modeling using the phase-field method and automatic adaptive meshing
Luisa Silva, Carole Sarkis and Charles André Gandin

Advanced finite element method for free surface flow with application to self-induced silo discharge
Sven Reinstaedler and Dieter Dinkler

Numerical simulation on multiphase microstructures obtained from 3D imaging
Luisa Silva, Jia-Xin Zhao, Hugues Digonnet and Thierry Coupez

On the development of a harmonic balance method for aeroelastic analysis

Graham Ashcroft, Christian Frey and Hans-Peter Kersken

Vortex element method scheme for numerical simulation in FSI-problem for clamped-clamped cylindrical shell

Andrey V. Ermakov, Ilia K. Marchevsky and Georgy A. Shcheglov

22/07/2014 16:30 - 18:30

Computational Fluid Dynamics for Free and Moving Boundaries I

Minisymposium organized by Rekha R. Rao, David R. Noble, Scott A. Roberts and Elie Hachem

MS256A
Room: Mare Nostrum D
Chair: Rekha Rao
CoChair: David Noble

On the application of enriched two-fluid flow solver for the simulation of casting problems (Keynote Lecture)

Kazem Kamran, Riccardo Rossi, Pooyan Dadvand and Eugenio Oñate

The NURBS-Enhanced finite element method (NEFEM) for free-surface flow simulations

Atanas Stavrev, Stefanie Elgeti, Philipp Knechtges and Marek Behr

Time integration methods for the enriched conformal decomposition Finite Element Method

David R. Noble and Richard M.J. Kramer

Extended Velocity-Pressure enrichments for solving moving interface two-phase flows

Azzeddine Soulaïmani, Adil Fahsi and Mamadou Touré

3D incompressible two-phase flow benchmark computations for rising droplets

Jutta Adelsberger, Patrick Esser, Michael Griebel, Sven Groß, Margrit Klitz and Alexander Rüttgers

A surface tension method for VOF using a marching-cube isosurface construction algorithm

Konstantinos Politis, Patrick Queutey and Michel Visonneau

Some modifications of MPS method for incompressible free surface flows

Zhe Sun, Kamal Djidjeli, Jing Tang Xing, Fai Cheng and Ali Javed

22/07/2014 16:30 - 18:30

Uncertainty Modeling and High Performance Stochastic Methods for Computationally Intensive Calibrations, Predictions and Optimizations I

Minisymposium organized by Tan Bui-Thanh, Thomas Carraro, Marko Laine and Ernesto E. Prudencio

MS184A
Room: Mare Nostrum E
Chair: Ernesto Prudencio

Assessing the numerical efficiency of Monte Carlo and Spectral Stochastic FEM in structural problems

George Stavroulakis, Dimitris G. Giovanis, Manolis Papadrakakis and Vissarion Papadopoulos

Uncertainty quantification and predictive science for high-energy density radiative transfer using neutron experiments

Ryan McClarren, Marvin Adams, Leslie Braby, Thomas Conroy, Derek Bingham, Jim Morel, Delia Perez-Nunez and Jean Ragusa

An Adaptive Sampling Scheme for Radiation Shielding Calculation

Ruihong Wang and Shulin Yang

An optimization of turbulent flows by using data assimilation

Hiroshi Kato

An adaptive polynomial chaos expansion for accelerating the solution of Spectral Stochastic FEM problems
Vissarion Papadopoulos, George Stavroulakis, Dimitris G. Giovanis and Manolis Papadrakakis

Optimal experimental design for uncertainty reduction
Thomas Carraro and Maria Woydich

Statistical reconstruction of multiphase random media
Jianwen Feng, Chenfeng Li, Song Cen and D. R. J. Owen

22/07/2014 16:30 - 18:30
Current Challenges in Cohesive-zone Models I
Minisymposium organized by Albert Turon, Giulio Alfano and Bent F. Sørensen

MS196A
Room: Mare Nostrum F
Chair: Bent F. Sørensen

A rate-dependent cohesive-zone model simulating stick-slip crack propagation
Giulio Alfano and Marco Musto

An efficient approach to study multi-layered structures with cohesive interfaces
Roberta Massabò

Derivation of cohesive-zone models accounting for friction and dilatancy
Roberto Serpieri, Elio Sacco and Giulio Alfano

Cohesive Zone Models for Mixed Mode Fracture
Patrick McGarry and Guillaume Parry

Analytical development and numerical simulation of cohesive crack initiation and propagation coupled with plasticity
Tuan-Hiep Pham, Jérôme Laverne and Jean-Jacques Marigo

Mixed implicit and explicit formulation and domain decomposition method of contact dynamics
Raphaël Monod, Frédéric Dubois and Frédéric Pérales

22/07/2014 16:30 - 18:30
Recent Developments in Optimal Design of Composite Materials and Structures I
Minisymposium organized by Erik Lund, José Pedro Blasques and Mathias Stolpe

MS157A
Room: Llevant
Chair: Erik Lund
CoChair: Mathias Stolpe

Postbuckling optimisation of variable angle tow, variable thickness, composite plates using lamination parameters (Keynote Lecture)
Zhangming Wu, Gangadharan Raju and Paul M. Weaver

Optimal design of composite structures and materials for phononic applications
Gregory M. Hulbert and Sirui Huang

Comparison of discrete material optimization approaches for optimization of laminated composites
Erik Lund, René Soerensen and Bin Niu

Buckling optimization of composite structures using a discrete material parametrization considering worst shape imperfections
Søren Randrup Henrichsen, Esben Lindgaard and Erik Lund

Optimal design of laminated composite structures including local failure criteria and manufacturing constraints by advanced mixed integer nonlinear optimization techniques
Konstantinos Marmaras, Lars Pilgaard Mikkelsen and Mathias Stolpe

Large-scale free material optimization on 3D design domains by an interior point method
Mathias Stolpe and Alemseged G. Weldeyesus

Multidisciplinary free material optimization for plate and shell structures
Alemseged G. Weldeyesus and Mathias Stolpe

22/07/2014 16:30 - 18:30
Current Trends in Modelling and Simulation of Turbulent Flows I
Minisymposium organized by Suad Jakirlic

MS082A
Room: Mestral
Chair: Suad Jakirlic
CoChair: Stavros Kassinos

Variable resolution modeling of turbulence: Paradigms of closure
Sharath Girimaji

An extension and further validation of the pans method in industrially relevant flows
Branislav Basara

Vehicle aerodynamic effects of realistic transient wind conditions
Ales Alajbegovic, Adrian Gaylard, Brad Duncan and Joaquin Gargoloff

Application of elliptic blending EVM & RSM RANS models to automotive relevant test cases
Neil Ashton, Sylvain Lardeau, Alistair Revell and Alastair West

Wake simulation of a marine propeller
Emmanuel Guilmineau, Gan Bo Deng, Alban Leroyer, Patrick Queutey, Michel Visonneau and Jeroen Wackers

Modelling turbulent flow within nuclear heat exchangers
Hector Iacovides, Brian E. Launder and Alastair West

22/07/2014 16:30 - 18:30
Industrial Applications of Computational Fluid Dynamics and Related Techniques V

CS658E
Room: Ponent 1
Chair: Riccardo Rossi

On convective structures in vertical cylinder under radiative heating
Victoria B. Bekezhanova

Investigation of liquefied natural gas (LNG) dispersion using computational fluid dynamics
Izunna D. Udechukwu, Siaka Dembele, Ali Heidari, Konstantin N. Volkov and Jennifer X. Wen

Coupled multi-physics simulation in electrodialysis for sea water desalination
Kannan Masilamani, Jens Zudrop, Harald Klimach and Sabine Roller

Chang-Hsieh-Chen Low-Reynolds k-ε turbulence model– Adaptation to study the flow of concentrated pulp suspensions in pipe
Carla Cotas, Fernando Garcia, Paulo Ferreira, Pedro Faia, Dariusz Asendrych and Maria Rasteiro

The Influence of modified Thom Rotors to the Boundary Layer
Markus Rütten, Robert Ritz and Thomas Schomberg

Reliability analysis of rocket motor case based on response surface method and importance sampling
Dong-Seong Kim, Keun-Hwan Moon, Min-Young Yoo, Joo-Jo Choi, Hong-Gye Sung and Jaye Koo

CS655E
Room: Ponent 2

22/07/2014 16:30 - 18:30
Advanced Methods in Computational Fluid Dynamics V

Chair: Jesús María Blanco
CoChair: Xesús Nogueira

Numerical modelling of laminar flow control on a swept wing by means of plasma actuators
Sergey L. Chernyshev, Aleksandr P. Kuryachii, Sergey V. Manuilovich, Dmitry A. Rusyanov and Marat D. Gamirullin

Extremely high- order multioperators-based schemes for smooth and discontinues fluid dynamics solutions
Andrtei I. Tolstykh, Michael V. Lipavskii and Dmitrii A. Shirobokov

Modelling surface tension dominated multiphase flows using the VOF approach
Johan A. Heyns and Oliver F. Oxtoby

Direct numerical simulation of oceanic flows around blunt bodies
Pavel V. Matyushin and Valentin A. Gushchin

Investigation of a bubble attached and sliding on a cylinder
Baoyu Ni

Specific aspects of numerical simulation of civil engineering structures with cross section shape close to rectangular
Irina N. Afanasyeva, Anton R. Usmanov, Alexandr M. Belostotskiy and Sergey I. Dubinsky

22/07/2014 16:30 - 18:30
Mesh Generation and Adaption I
Minisymposium organized by Josep Sarrate, Franck Ledoux and Rafael Montenegro

MS198A
Room: Terral
Chair: Josep Sarrate

Parallel time-accurate anisotropic mesh adaptation for time-dependent problems
Nicolas Barral and Frédéric Alauzet

Parallel mesh generation with a global change in the marching cubes algorithm
Aruquia Peixoto, Thiago Franco Leal and Carlos A. de Moura

Parallel Unstructured Grid Generation Method Based on the Block-Structured Cartesian Grid Approach Aimed for Large-Scale Computations
Takashi Ishida, Atsushi Hashimoto and Takashi Aoyama

Parallel mesh adaptation using parallel graph partitionning
Cédric Lachat, Cécile Dobrzynski and François Pellegrini

Parallel Chimera Method
Beatriz Eguzkitza and Guillaume Houzeaux

Thread-parallel mesh improvement using face and edge swapping
Reza Zangeneh and Carl Ollivier-Gooch

Parallel adaptive mesh refinement of turbulent flow around simplified car model using an immerse boundary method
Oscar Antepara, Ricard Borrell, Oriol Lehmkuhl, Ivette Rodríguez and Assensi Oliva

22/07/2014 16:30 - 18:30
Surrogate-based Global Optimization Methods in Preliminary Aerodynamic Design I
Minisymposium organized by Esther Andrés and Emiliano Iuliano

MS102A
Room: Tramuntana 1
Chair: Esther Andrés
CoChair: Emiliano Iuliano

Adaptive sampling strategies for surrogate-based aerodynamic optimization
Emiliano Iuliano and Domenico Quagliarella

PCA-enhanced metamodel-assisted evolutionary algorithms for aerodynamic optimization
Varvara G. Asouti, Stylianos A. Kyriacou and Kyriakos C. Giannakoglou

Surrogate-based Optimization of the Nose Shape of a Train subjected to Cross-wind
Jorge Munoz-Paniagua, Javier García and Antonio Crespo

Fast aerodynamic coefficients prediction using SVMS for global shape optimization
Esther Andrés-Pérez, Leopoldo Carro-Calvo and Sancho Salcedo-Sanz

Multi-objective surrogate based optimization of gas cyclones using support vector machines and CFD simulations
Khairy Elsayed and Chris Lacor

An automatic aerodynamic design process in a multi-disciplinary context
Davide Di Pasquale, Carren Holden, Timoleon Kipouros and Mark Savill

22/07/2014 16:30 - 18:30
Mechanobiology of Cellular Systems II
Minisymposium organized by Marino Arroyo, Antonio DeSimone and Jose J. Muñoz

MS255B
Room: Tramuntana 2
Chair: Antonio DeSimone

An approach for the micro-mechanical simulation of biopolymer networks based on geomerically exact beam elements
Dhrubajyoti Mukherjee, Kei W. Müller, Christoph Meier and Wolfgang A. Wall

In silico exploration of early stage atherosclerosis through stochastic modelling
Andy L. Olivares and Jérôme Noailly

Computer-based simulation of multicolour bioprinting
Carles Bona-Casas and Hector Gomez

Cell-centred model for non-linear tissue rheology and active remodelling
Nina Asadipour, Payman Mosaffa and Jose Munoz

Red blood cell mechanics and membrane fluctuations: Passive versus active
Dmitry A. Fedosov, Timo Betz, Herve Turlier, Thorsten Auth, Nir Gov, Cecile Sykes, Jacques Prost, Jean-Francois Joanny and Gerhard Gompper

22/07/2014 16:30 - 18:30
Computer Aided Steering in Engineering I
Minisymposium organized by Guenther Meschke, Janosch Stascheit, Steffen Freitag and Dietrich Hartmann

MS144A
Room: Xaloc
Chair: Janosch Stascheit

Interactive CFD simulation of an operating theatre
Petra Wenisch

Cloud-based computational process controlling in mechanised tunnelling
Ulrich Maidl and Janosch Stascheit

Automatic feature recognition for rotational parts
Oussama Jaider, Abdelilah Elmesbahi and Ahmed Rechia

Simulation and Monitoring-based Steering for Mechanized Tunneling using Project Data of Wehrhahn-Linie
Jelena Ninic, Christian Koch, Steffen Freitag, Guenther Meschke and Markus König

Steering of mechanized tunneling processes with hybrid surrogate models based on numerical and monitoring data
Ba Trung Cao, Steffen Freitag and Guenther Meschke

Recent development in closed-loop visual simulations
Pierre Boulanger

Optimized-automated choice of cutting tool machining manufacturing features in milling process
Abdelilah Elmesbahi, Ahmed Rechia and Oussama Jaider

22/07/2014 16:30 - 18:30
Advanced Reduced-order Modeling Strategies for Parametrized PDEs and Applications II
Minisymposium organized by Gianluigi Rozza and Andrea Manzoni

MS069B
Room: Salon Club
Chair: Andrea Manzoni
CoChair: TRAIAN ILIESCU

Kernel-based surrogate modelling for multiscale problems
Daniel Wirtz, Nils Karajan and Bernard Haasdonk

Reduced collocation methods with parametric preconditioning
Yanlai Chen, Sigal Gottlieb and Yvon Maday

Improvement of cheap approximations by a post-processing/reduced basis rectification method.
Yvon Maday, Olga Mula and Benjamin Stamm

PDE-constrained optimization using progressively-constructed reduced-order models
Matthew J. Zahr and Charbel Farhat

2D and 3D global stability analysis based on the modal decomposition of marginally stable flows
Witold Stankiewicz, Marek Morzyński, Krzysztof Kotecki, Robert Roszak and Michał Nowak

A multilevel Monte Carlo reduced basis method for the HDG approximation of stochastic elliptic partial differential equations
Ferran Vidal-Codina, Ngoc-Cuong Nguyen and Jaime Peraire

Modal response of incompressible flow to external actuation
Marek Morzyński, Bernd R. Noack, Krzysztof Kotecki, Witold Stankiewicz, Wojciech Szeliga and Michał Nowak

22/07/2014 16:30 - 18:30
Computational Methods in Fluid-structure Interactions, Dynamics and Vibration, Vibroacoustics - A Minisymposium in Honor of Prof. Roger Ohayon V
Minisymposium organized by Christian Soize

MS009E
Room: Yasmin A
Chair: Hermann G. Matthies
CoChair: Christian Soize

Cell and nanoparticle transport in tumor microvasculature and its uncertainty quantification (Keynote Lecture)
Wing Kam Liu and Ying Li

Homogenization of a fluid structure model for the propagation of sound in the lungs
Paul Cazeaux, Céline Grandmont and Yvon Maday

Partitioned fluid-structure interaction algorithms in haemodynamics
Fabio Nobile and Christian Vergara

Fluid–structure interaction analysis of bioprosthetic heart valves
Ming-Chen Hsu, David Kamensky, Dominik Schillinger, John A. Evans, Yuri Bazilevs, Michael S. Sacks and Thomas J.R. Hughes

A stabilized Arbitrary Lagrangian Eulerian finite element method for the mixed wave equation with application to diphthong production
Oriol Guasch, Ramon Codina, Marc Arnela and Hector Espinoza

Influence of bending resistance on the dynamics of a capsule in shear flow
Claire Dupont, Anne-Virginie Salsac, Dominique Barthès-Biesel, Marina Vidrascu and Patrick Le Tallec

A three-dimensional semi-analytical model for predicting offshore pile driving noise
Qingpeng Deng, Weikang Jiang, Mingyi Tan and Jing Tang Xing

22/07/2014 16:30 - 18:30
Multiscale and Multiphysics Modelling for Complex Materials (MMCM5) II
Minisymposium organized by Patrizia Trovalusci, Tomasz Sadowski, René de Borst and Bernhard Schrefler

MS120B
Room: Yasmin B
Chair: Catalin Picu
CoChair: Patrizia Trovalusci

Anisotropic multiscale models applied to oligogranular components (Keynote Lecture)
Georges Cailletaud, Guillaume Martin, Noemi Ochoa, Kacem Sai and Eveline Hervé-Luanco

Computational homogenization of incompressible microstructures
Mikael Öhman, Kenneth Runesson and Fredrik Larsson

Coarse–graining approaches for particulate composites as micropolar continua
Patrizia Trovalusci, Maria Laura De Bellis, Agnese Murrali and Martin Ostoja-Starzewski

Numerical multiscale modelling of superconducting strand using minimal kinematic boundary conditions (MKBC) procedure of homogenisation.
Agata Zaleska, Marek Wojciechowski, Daniela P. Boso and Marek Lefik

BEM-Based determination of local and global dynamic properties of 3D elastic composites with disc-shaped inclusions
Viktor Mykhas'kiv

Micromechanical analysis of porous shape memory alloys
Valentina Sepe, Ferdinando Auricchio, Sonia Marfia and Elio Sacco

Multi-scale modeling of shockwave interaction with thin layers of strain rate sensitive polymers
Roshdy Barsoum

22/07/2014 16:30 - 18:30
Phase-field Modeling and Simulation in Fluid Mechanics, Solid Mechanics and Life-sciences II
Minisymposium organized by Hector Gomez, Kris van der Zee, Marino Arroyo, Irene Arias, Baskar Ganapathysubramanian, Thomas J.R. Hughes and John T. Oden

MS143B
Room: Yasmin C
Chair: Hector Gomez
CoChair: Kris Van Der Zee

Phase-field modeling of multiphase flow through rough fractures (Keynote Lecture)
Luis Cueto-Felgueroso and Ruben Juanes

Phase-field modeling of thin-film flows with partial wetting

Amir Pahlavan, Luis Cueto-Felgueroso, Gareth McKinley and Ruben Juanes

Diffuse-interface models for wetting and moving contact-line problems
Mahnaz Shokrpour Roudbari, Harald van Brummelen and Herman M.A. Wijshoff

Numerical simulation of two-phase fluid motion in microchannel based on phase-field model 
Naoki Takada, Junichi Matsumoto and Sohei Matsumoto

Towards a mutli-scale approach for multi-phase channel flows: Special boundary conditions for the diffuse interface model
Julien Desmarais and J.G.M. Kuerten

22/07/2014 16:30 - 18:30
STS 02: Turbomachinery Challenge

STS02A
Room: Auditorium
Chair: to be confirmed

Research frontiers for compressors in aero-engines
Jérôme Boudet, Feng Gao, Florence de Crécy, Adrien Cahuzac, Ghislaine Ngo Boum, Xavier Ottavy and Isabelle Trébinjac

Experimental modelling of unstable operation of a centrifugal compressor on a small jet engine in the laboratory
Marian Hocko and Jiri Polansky

Aerothermal investigation of gas turbine components
Riccardo da Soghe, Antonio Andreini and Bruno Facchini

Powering tomorrow engines
Ennio Spano

22/07/2014 16:30 - 18:30
Advances in Accurate and Robust Numerical Methods for Computational Fluid Dynamics V
Minisymposium organized by Remi Abgrall, Feng Xiao and Koen Hillewaert

MS051E
Room: Sala A
Chair: Chieh-Sen Huang
CoChair: Aldo Bonfiglioli

Towards rubust, high order and entropy stable algorithms for the solution of the compressible Navier-Stokes equations on unstructured grids
Matteo Parsani and Mark H. Carpenter

Entropy conservative and entropy stable finite volume/finite element schemes for the Navier-Stokes equations on unstructured meshes
Aziz Madrane, Siddhartha Mishra and Eitan Tadmor

Optimized finite compact schemes applied to aeroacoustic problems
Yan Yang and Yiqing Shen

A high-order scheme by multi-moment constrained flux reconstruction and its application on global modelling
Chungang Chen, Ruixiu Zhai and Feng Xiao

High order discontinuous finite-volume/finite-element method for CFD applications 
Ali Ramezani and Goran Stipcich

Numerical optimization of enhanced hypervelocity launcher 
Jingsong Bai and Yu Wang

22/07/2014 16:30 - 18:30
Computational Models for Soft Tissues II
Minisymposium organized by Estefania Peña, Renato N. Jorge, Miguel A Martinez and Pedro S. Martins

MS067B
Room: Sala B1
Chair: Estefania Peña

Biaxial mechanical properties of utero-sacral and cardinal ligaments
Winston Becker, Ting Tan and Raffaella De Vita

Simulation of proceed® surgical mesh applied to ventral hernia repair
Izabela Lubowiecka, Agnieszka Tomaszewska and Czesław Szymczak

Orientation of surgical meshes in context of variability of human abdominal wall properties
Katarzyna Szepietowska

Mechanical behaviour of soft biological tissues after death
Pedro S. Martins, Renato M. Natal Jorge, Francisca L. Ferreira and Agostinho Santos

Analysis of urethral pressure during increased intra-abdominal pressure: Biomechanical study using a numerical model
Thuane Da Roza, Sofia Brandão, Marco Parente, José Alberto Duarte, Teresa Mascarenhas and Renato M. Natal Jorge

Optimization of Hyperelastic Constitutive Parameters using an Inverse Method
Maria Elisabete T. Silva, Marco Parente, Renato M. Natal Jorge and Teresa Mascarenhas

22/07/2014 16:30 - 18:30
Fluid-Structure Interaction Algorithms and Applications II
Minisymposium organized by Jonathan Pitt and Scott Miller

MS062B
Room: Sala B2
Chair: to be confirmed

Verification of an overset fluid-structure interaction solver
Cooper W. Elsworth, Jonathan Pitt and Scott T. Miller

Over-coming the fluid-structure added-mass instability for incompressible flows
Jeffrey W. Banks, William D. Henshaw and Donald W. Schwendeman

Simulation of a proposed fluid-structure interaction validation case
Jonathan Pitt, Cooper W. Elsworth and Scott T. Miller

The Impact of Emerging Supercomputer Architecture on FSI Algorithms
Rooh Khurram

Large-eddy simulations of turbulence-induced vibration in annular flow
Jeroen De Ridder, Joris Degroote, Katrien Van Tichelen, Paul Schuurmans and Jan Vierendeels

Parallel FSI analysis using monolithic coupling method based on level sets
Gaku Hashimoto and Hiroshi Okuda

22/07/2014 16:30 - 18:30
Modeling of Plasticity and Damage under Cyclic Loading III
Minisymposium organized by Renato Natal, Abílio Jesus and Francisco Pires

MS039C
Room: Sala B3
Chair: Renato Natal
CoChair: Abilio de Jesus

A Hysteretic MITC9 Shell Finite Element
Anargyros N. Moysidis and Vlasis K. Koumousis

The nonlinear numerical analysis of solid mechanics problems using meshless methods
Jorge Belinha, Lucia Simas Dinis, António A. Fernandes and Renato M. Natal Jorge

A new methodological approach for elastoplastic calculations
Diogo Lira Cecílio, Philippe R.B. Devloo, Sônia M. Gomes and Nathan Shauer

Numerical simulation of the dissipated and stored energies in metals under cyclic loading
Anastasiia A. Kostina and Oleg A. Plekhov

Simulation of biaxial fatigue crack growth in various microstructures modelled by using Varonoi-polygons
Yuta Hitotsugi and Toshihiko Hoshide

22/07/2014 16:30 - 18:30
Advanced Models for Large-Eddy Simulation and Regularization of turbulent flows I
Minisymposium organized by Roel Verstappen and Francesc Xavier Trias

MS151A
Room: Sala C1
Chair: Francesc Xavier Trias

A mixed multiscale model accounting for the cross term of the sub-grid scale stress
Olivier Thiry and Grégoire Winckelmans

Discretizations and regularization models for compressible flow that preserve the skew-symmetry of convective transport
Wybe Rozema, Roel W.C.P. Verstappen, Johan C. Kok and Arthur E.P. Veldman

On the blending of regularization and Large-eddy simulation models
David Folch, F. Xavier Trias, Andrey Gorobets and Assensi Oliva

Scale-truncation models for large-eddy simulation
Maurits H. Silvis and Roel W.C.P. Verstappen

22/07/2014 16:30 - 18:30
Frontier in Multi-physics CFD Simulation I
Minisymposium organized by Nobuyuki Oshima, Makoto Yamamoto and Mamoru Tanahashi

MS033A
Room: Sala C2
Chair: Nobuyuki Oshima

SLD Icing Simulation on NACA Airfoil using MPS Method
Koji Yuki and Makoto Yamamoto

Drag-reduction effect of sinusoidal riblets in turbulent channel flow by direct numerical simulation
Oozora Iihama, Hiroya Mamori, Kaoru Iwamoto and Akira Murata

Kinetic models with rotational degrees of freedom for hybrid methods
Simone Colonia, Rene Steijl and George N. Barakos

Icing simulation on jet engine with temperature change of super-cooled droplet
Ryosuke Hayashi and Makoto Yamamoto

Large-eddy simulation of transient behavior in a combustion field for gus-turbine engine
Yusuke Takahashi, Nobuyuki Oshima and Yasunori Iwai

A hierarchical Cartesian immersed boundary method for conjugate heat-transfer involving moving solid bodies
Gonzalo Brito Gadeschi, Matthias Meinke and Wolfgang Schröder

22/07/2014 16:30 - 18:30
Multidisciplinary Design Optimization In Computational Mechanics I
Minisymposium organized by Piotr Breitkopf, Weihong Zhang and Rajan Filomeno Coelho

MS031A
Room: Sala C3
Chair: Piotr Breitkopf
CoChair: Pierre Villon

On-line surrogate-based optimization with multiple kernel regression for continuous and categorical variables (Keynote Lecture)
Herrera Manuel, Rajan Filomeno Coelho, Manyu Xiao and Weihong Zhang

Conceptual design of tires using multi-objective design exploration
Masataka Koishi, Hiroyuki Miyajima and Naoya Kowatari

Multi-Objective Shape Optimization of a car inner hood panel using premeshed parameterized forms
Ferdinand Frabolot, Alain Rassineux, Piotr Breitkopf and Jean-Louis Duval

The Optimization Analysis Method of the best performance of hydrodynamic and structure features for ship in inland river
Yang Songlin and Wu Yan

Surrogate model-based reliability analysis of high performance engine gaskets
Samir Ben Chaabane, Jacques Duysens, Josselyn Touzeau and Paul d'Escodeca de Boisse

Variable speed power turbine preliminary design optimization for rotorcraft applications
Gianluigi Misté, Alvise Pellegrini and Ernesto Benini

22/07/2014 16:30 - 18:30
Fast Direct Solvers: Applications to Boundary Element Methods and Other Linear Systems II
Minisymposium organized by Stéphanie Chaillat-loseille, Eric Darve and Martin Schanz

MS200B
Room: Sala D1
Chair: Stéphanie Chaillat

A fast direct solver for one periodic boundary value problems for Helmholtz' equation in 2D
Yasuhiro Matsumoto and Naoshi Nishimura

Linear computational cost galois based Graph grammar direct solver for H adaptive grids
Damian Goik, Konrad Jopek, Andrew Lenharth, Donald Nguyen, Maciej Paszynski and Keshav Pingali

A dynamic programing algorithm for construction of a class of optimal elimination trees for multi-frontal solver algorithm executed over *h* refined grids
Hassan AbouEisha, Mikhail Moshkov, Maciej Paszynski, Damian Goik, Konrad Jopek and Victor M. Calo

A fast direct solver for the boundary element method with PMCHWT formlation
Hiroshi Isakari, Jaehoon Lee, Toru Takahashi and Toshiro Matsumoto

Fast direct linear solvers for the boundary element method
Clif R. Dudley, Eric Darve, Sivaram Ambikasaran and Amirhossein Aminfar

22/07/2014 16:30 - 18:30
Advances in Computational Structural Dynamics II
Minisymposium organized by Evangelos J. Sapountzakis and Andreas E. Kampitsis

MS018B
Room: Sala D2
Chair: Cristina Medina

Boundary Element Formulation for the Inelastic Dynamic Analysis of Beams (Keynote Lecture)
Andreas E. Kampitsis and Evangelos J. Sapountzakis

A BEM-FEM model for dynamic soil–structure and structure–soil–structure problems in elastic or poroelasctic soils

Ariel Santana, Juan J. Aznárez, Orlando Maeso and Luis A. Padrón

On the effect of geometric nonlinearity on resonance in a machine foundation

Reyolando M. Brasil and José M. Balthazar

Parallel solution of elastoplastic problems with numerical experiments

Martin Cermak, Tomas Karasek and Michal Merta

Seismic response of deep foundations and piled structures considering inclined piles

Cristina Medina, Juan J. Aznárez, Luis A. Padrón and Orlando Maeso

22/07/2014 16:30 - 18:30

Shape and Topology Optimization in Fluids and Structures I

Minisymposium organized by Toshiro Matsumoto, Masato Yoshino and Takayuki Yamada

MS176A
Room: Sala D3
Chair: Toshiro Matsumoto
CoChair: Hannes Lück

Level set-based topology optimization for a coupled thermal-fluid problem using the Lattice Boltzmann Method

Kentaro Yaji, Takayuki Yamada, Masato Yoshino, Toshiro Matsumoto, Kazuhiro Izui and Shinji Nishiwaki

Thermal fluid-structure interaction based optimization of secondary air flows in rotor stator cavities of aircraft turbines

Hannes Lück, Michael Schäfer and Heinz-Peter Schiffer

Design optimization for isothermal microreactors

Floris C. M. van Kempen, Matthijs Langelaar, Michiel T. Kreutzer and Fred van Keulen

Adaptive CFD-enhanced windage modelling for aero engine turbine rotor-stator cavities

Jose Maria Rey Villazón and Arnold Kühhorn

Adjoint optimization of 2D-Airfoils in incompressible flows

Matthias Schramm, Bernhard Stoevesandt and Joachim Peinke

Analysis and optimization of a liquid Pb-Bi target for ISOL facilities

Donald D. Houngbo, Jan Vierendeels and Lucia Popescu

Topology optimization method for three-dimensional flow field using transient information of Lattice Boltzmann method

Kazuo Yonekura and Yoshihiro Kanno

22/07/2014 16:30 - 18:30

Advances with Adjoint CFD Solvers for Unsteady Flow II

Minisymposium organized by Jens-Dominik Mueller, Carsten Othmer, Jacek Rokicki, Kyriakos Giannakoglou, Uwe Naumann, Marcus Meyer, Eugene de Villiers, Mustafa Megahed and Laurent Hascoet

MS214B
Room: Sala D4
Chair: Jens-Dominik Mueller

On the forward in time solution of the unsteady adjoint equations (Keynote Lecture)

Dimitrios I. Papadimitriou

Towards converged adjoint state for large industrial cases by improving the discretization schemes

Mattia Oriani and Guillaume Pierrot

Adjoint-based shape optimization at isoconnectivity through robust mesh deformation
Georgios S. Eleftheriou and Guillaume Pierrot

Flow control sensitivities for unsteady vehicle aerodynamics
Nikolaos Magoulas, Carsten Othmer, Evangelos M. Papoutsis-Kiachagias and Kyriakos C. Giannakoglou

Efficient optimization algorithms for optimal control of turbulent flows 
Cornelia C. Nita, Stefan Vandewalle and Johan Meyers

22/07/2014 16:30 - 18:30
Numerical Predictions of Detached Flows II
Minisymposium organized by Esteban Ferrer, Eusebio Valero and Vincent Couaillier

MS126B
Room: Sala D5
Chair: Vincent Couaillier

Discrete sensitivity analysis of a NACA0015 aerofoil
Oliver Browne, Gonzalo Rubio, Esteban Ferrer and Eusebio Valero

Automatic HP adaptation for discontinous Galerkin by means of *T*-estimation
Moritz Kompenhans, Gonzalo Rubio, Esteban Ferrer and Eusebio Valero

Goal-oriented mesh adaptation with applications to RANS flows
Andrea Resmini, Jacques Peter and Didier Lucor

Compressibility effects on combined gap/step geometries at rarefied hypersonic flow
Paulo H. M. Leite and Wilson F. N. Santos

Numerical Investigation of Rod Vortex Generators on Hovering Helicopter Rotor Blades 
Fernando L. Tejero Embuena, Piotr Doerffer, Pawel Flaszynski and Oskar Szulc

Dynamic decomposition and analysis of a supersonic impinging jet flow
Ander Zarketa, Nagore Álvarez-Saiz, Marta Cordero-Gracia and Esteban Ferrer

Encapsulated formulation of the selective frequency damping method
Bastien E. Jordi, Colin Cotter and Spencer J. Sherwin

22/07/2014 16:30 - 18:30
Innovative Fictitious Domain Approaches for High-order Methods and IGA II
Minisymposium organized by Alexander Düster, Ernst Rank and Dominik Schillinger

MS117B
Room: Sala D6
Chair: Jamshid Parvizian

High-Order X-FEM to handle geometrical details : Improved convergence for quasi-singular solutions (Keynote Lecture)
Grégory Legrain and Nicolas Moës

Multi-level hp-FEM: High-order mesh adaptivity without the difficulties of hanging nodes
Nils Zander, Tino Bog, Stefan Kollmannsberger, Dominik Schillinger and Ernst Rank

Additive production processes modelled with high-order embedded domain methods
Stefan Kollmannsberger, Ali Özcan and Ernst Rank

A higher-order fictitious domain method for the modeling of thermoelastic deformations in NC milling
Andreas Byfut, Raffael Joliet, Andreas Schröder and Andreas Zabel

The finite cell method for fluid and fluid-structure interaction problems

Dominik Schillinger, René R. Hiemstra, Ming-Chen Hsu and Vasco Varduhn

On the control of spurious force oscillations for moving body problems using an immersed boundary method

Michel Belliard, Marion Chandesris, Jonathan Dumas, Yannick Gorsse, Didier Jamet and Christophe Josserand

A non-intrusive global-local approach for the coupling of laminated plates and 3D models.
Guillaume Guguin, Olivier Allix, Pierre Gosselet and Stéphane Guinard

22/07/2014 16:30 - 18:30
Embedded Interface Methods I
Minisymposium organized by John Dolbow, Isaac Harari and Adrian J. Lew

MS066A
Room: Sala E1
Chair: John Dolbow

Implicit representation of boundaries using level-sets for transient machining application
Hossein Asadi Kalameh, Olivier Pierard and Eric Béchet

Residual schemes for penalized Navier-Stokes equations on adapted grids

Léo Nouveau, Rémi Abgrall, Hubert Alcin, Héloïse Beaugendre and Cécile Dobrzynski

Universal meshes for problems with moving boundaries
Evan S. Gawlik and Adrian J. Lew

Universal Meshes: High-order simulation of problems with evolving geometries
Adrian J. Lew

A Nitsche stabilized finite element approach for modeling frictional contact constraints
Chandrasekhar Annavarapu, Martin Hautefeuille, John E. Dolbow and Randolph Settgast

Application of the LS-STAG immersed boundary method for numerical simulation in coupled aeroelastic problems

Valeria V. Puzikova and Ilia K. Marchevsky

22/07/2014 16:30 - 18:30
Recent Developments in Fluid–structure Interactions of Physiological Systems II
Minisymposium organized by Jeff D. Eldredge and Rajat Mittal

MS229B
Room: Sala E2
Chair: Jeff Eldredge

Cardiac electro-fluid-mechanics in health and disease
Boyce E. Griffith, David M. McQueen and Charles S. Peskin

Predilections of cardioaortic embolic transport
Shawn C. Shadden, Ian A. Carr and Robert S. Schwartz

Toward patient-specific simulations of airway collapse in obstructive sleep apnea
Chien-Jung Huang, Susan M. White, Sanjay M. Mallya and Jeff D. Eldredge

From image/video to computations of cardio-vascular flows
H. S. Udaykumar, Seth Dillard, John Mousel and Sarah Vigmostad

Numerical simulation of the blood flow in the aortic root with a non-Newtonian fluid model
Francesco De Vita, Marco D. de Tullio and Roberto Verzicco

22/07/2014 16:30 - 18:30

Advances in Constitutive Modelling of Metal Forming Processes across Different Lengthscales I
Minisymposium organized by Ivaylo N. Vladimirov, Robertt A. F. Valente, Ricardo Alves de Sousa and Myoung-Gyu Lee

MS065A
Room: Sala E3
Chair: Ivaylo Vladimirov

Material characterization of a ferritic stainless steel sheet with different yield criteria at elevated temperature
Hyuk Jong Bong, Frédéric Barlat, Myoung-Gyu Lee, Deok Chan Ahn and Hyon-Young Kim

A reduced-order model of Titanium alloy for the control of microstructure-sensitive material properties
Abhishek Kumar and Veera Sundararaghavan

Effective utilization of experimental data to improve the prediction accuracy of yield coefficients
Hariharan Krishnaswamy, Ngoc-Trung Nguyen, Frédéric Barlat and Myoung-Gyu Lee

Simulation of large inelastic deformations including damage-induced porosity within anisotropic viscoplasticity
Alexey V. Shutov, Chrisitan B. Silbermann and Jörn Ihlemann

Modelling of biaxial deformation behavior in an aluminium alloy sheet using homogenized crystal plasticity finite element method
Akinori Yamanaka and Keisuke Hashimoto

22/07/2014 16:30 - 18:30
Advances in Numerical Methods for Flexible Multibody Mechanics II
Minisymposium organized by Olivier Bauchau, Olivier Bruls and Alberto Cardona

MS235B
Room: Sala E4
Chair: to be confirmed
CoChair: Olivier Bruls

Input-Output based model order reduction for interconnected systems
Philip Holzwarth and Peter Eberhard

Method of model reduction for elastic multibody systems
Valery Makhavikou, Roland Kasper and Dmitry Vlasenko

Efficient computational methods for flexible multibody dynamic systems with aerodynamic interactions
Henrik Hesse and Rafael Palacios

Simulating the remote handling of the blanket segments in demo fusion reactor with thermo-mechanical meshfree multibody dynamics
Daniel Iglesias, Juan C. García Orden and Antony Loving

22/07/2014 16:30 - 18:30
New Trends in Zigzag Theories for Multi-layered and Sandwich beams, Plates, and Shells I
Minisymposium organized by Marco Di Sciuva, Alexander Tessler and Marco Gherlone

MS224A
Room: Sala E5
Chair: Marco Di Sciuva

Recent advances and applications of the Refined Zigzag Theory (Keynote Lecture)
Alexander Tessler

A comparison of Zigzag functions for the bending, vibration and buckling analysis of multilayered composite and sandwich plates
Luigi Iurlaro, Marco Gherlone and Marco Di Sciuva

A mixed cubic zigzag model for multilayered composite and sandwich plates including transverse normal

deformability

Luigi Iuriaro, Marco Gherlone and Marco Di Sciuva

On explicit analytic solutions for the accurate evaluation of the shear stress in sandwich beams with a clamped end
Lorenzo Bardella and Ornella Mattei

Exact formulas for bending of sandwich beams using the Refined Zigzag Theory

Marco Gherlone

Enhanced visco-elastic FEM analysis of laminated composite plates using a first-order shear deformation theory
Jang-Woo Han, Jun-Sik Kim and Maenghyo Cho

22/07/2014 16:30 - 18:30
Biomechanics and Applied Dynamics II
Minisymposium organized by Josep M. Font-Llagunes and József Kövecses

MS134B
Room: Sala E6
Chair: Josep M. Font-Llagunes
CoChair: Daniel Garcia Vallejo

2D ICP-based robust 2D-3D registration for bi-plane fluoroscopic analysis of skeletal kinematics
Seungbum Koo and Young-jun Koo

Experimental identification of inertial parameters of human body segments. Application to the head
Antonio Besa, Miguel Díaz-Rodríguez, Álvaro Page and Vicente Mata

Virtual thermal manikin – mathematical modelling of human thermoregulation
Ziemowit Ostrowski

An efficient algorithm for simulation of forced deformable bodies interacting with incompressible flows: Application to fish swimming

Patrick Bontoux, Stephane Viazzo, Kai Schneider and Seyed Amin Ghaffari

Numerical investigation of fatigue behavior of dental implant applications
Hüsna Topkaya and Mete Onur Kaman

22/07/2014 16:30 - 18:30
Computational Contact Mechanics V
Minisymposium organized by Tod Laursen, Peter Wriggers and Giorgio Zavarise

MS044E
Room: Sala F
Chair: Przemyslaw Litewka

An energy consistent approach for elastodynamic frictional contact problems
Mikaël Barboteu and David Danan

A penetration-free nonsmooth dynamics method for frictionless contact/impact problems
Olivier Brüls, Vincent Acary and Alberto Cardona

Numerical study of convergence of the mass redistribution method for elastodynamic contact problems

Farshid Dabaghi, Adrien Petrov, Jérome Pousin and Yves Renard

Analysis of a dynamic contact problem involving a nonlinear thermoviscoelastic beam with second sound

Alessia Berti, María I.M. Copetti, José R. Fernández and Maria Grazia Naso

Contact-impact treatment based on the bipenalty technique in explicit transient dynamics

Dusan Gabriel, Jan Kopacka, Jiri Plesek and Radek Kolman

A reaction force computation scheme for contact analysis with quadratic tetrahedral elements
Tomonori Yamada and Shinobu Yoshimura

Isogeometric contact analysis using a third medium
Nhon Nguyen-Thanh, Laura De Lorenzis and Peter Wriggers

22/07/2014 16:30 - 18:30
Computational Modeling of Fracture and Failure of Materials and Structures V
Minisymposium organized by Olivier Allix, Milan Jirásek, Nicolas Moës and Xavier Oliver

MS226E
Room: Sala H 1
Chair: Gilles Pijaudier-Cabot

Crack propagation modelling using the scaled boundary finite element method: A finite fracture mechanics approach
Zhicheng Sun, Ean Tat Ooi and Chongmin Song

Coupling local and non-local damage evolutions with the Thick Level Set Model
Nicolas Moës, Claude Stolz and Nicolas Chevaugeon

Joint computational and analytical approach to characterize auto-similar crack propagation with the Thick Level Set damage model
Andrés Parrilla Gómez, Claude Stolz and Nicolas Moës

Fracture process zone evolution in the course of failure in quasi-brittle materials: Numerical investigations and experimental validations at the mesoscale
David Grégoire, Vincent Lefort and Gilles Pijaudier-Cabot

CrachFEM – A comprehensive approach for the prediction of failure in metallic materials
Matthias Reissner, Harry Dell, Helmut Gese and Gernot Oberhofer

Three dimensional fracture growth as a standard dissipative system: some general theorems and numerical simulations
Francesca Fantoni and Alberto Salvadori

On strain localization under bending
Milan Jirásek and Fernando Suárez

22/07/2014 16:30 - 18:30
Isogeometric Methods V
Minisymposium organized by Yuri Bazilevs, David J. Benson, Rene De Borst, Thomas J.R. Hughes, Trond Kvamsdal, Alessandro Reali, Michael A. Scott and Clemens V. Verhoosel

MS049E
Room: Sala H 2
Chair: Michael Scott

Volumetric T-spline construction for complex geometry (Keynote Lecture)
Yongjie Zhang

Advances on T-spline parameterization based on the meccano method
José I. López, Marina Brovka, José M. Escobar, José M. Cascón and Rafael Montenegro

Semi-structured T-splines
Xin Li and Tom W. Sederberg

Geometry-independent field approximation for spline-based Finite Element Methods
Gang Xu, Elena Atroshchenko and Stéphane P.A. Bordas

Local hierarchical p-, hp-, and k-refinement in isogeometric analysis

René R. Hiemstra, Deepesh Toshniwal, Dominik Schillinger and Thomas J.R. Hughes

Localised multigrid isogeometric analysis with controlled accuracy
Alexandre Chemin, Thomas Elguedj and Anthony Gravouil

Injecting the isogeometric paradigm into industrial applications: the terrific project
B. Jüttler, M. Schifko, B. Simeon, S. Boschert, Nicola Cavallini, Carlo Lovadina, L. Morrone, B. Mourrain, D. Laffret and J. Haenisch

22/07/2014 16:30 - 18:30
Multiscale Computational Homogenization for Bridging Scales in the Mechanics and Physics of Complex Materials V
Minisymposium organized by Julien Yvonnet, Kenjiro Terada, Peter Wriggers and Marc Geers

MS012E
Room: Sala H 3
Chair: Régis Cottereau
CoChair: Felix Fritzen

Modeling and designing doubly porous materials: An approach by homogenization
Hai-Bang Ly, Vincent Monchiet and Daniel Grande

Energy Bounds for Homogenization of Stokes' Equations Using Periodic Boundary Conditions
Carl Sandström and Fredrik Larsson

Stochastic modeling of interphase effects for nanoreinforced heterogeneous materials
Thinh Le, Johann Guilleminot and Christian Soize

A study on the hierarchical multiscale modeling on polymer nanocomposites with elastoplastic behavior
Hyunseong Shin, Seongmin Chang, Seunghwa Yang, Suyoung Yu, Junghyun Ryu and Maenghyo Cho

Multiscale modeling and molecular dynamics characterization of surface effects in polymer thin films
Fabrice Detrez, Julien Yvonnet and Qi-Chang He

A decoupled approach for computing the response of structures made of heterogeneous, random elastoplastic composites with hardening
Trung Hieu Hoang, Mohamed Guerich and Julien Yvonnet

Multi-physics modeling and simulations of thermally-assisted compaction of granular materials
Gulsad Kucuk, Marcial Gonzalez and Alberto M. Cuitiño

22/07/2014 16:30 - 18:30
Computational Biomechanics V
Minisymposium organized by T.Christian Gasser, Miguel Cerrolaza, Ellen Kuhl, Michael Gee, Yomar Gonzalez, Simone Deparis and Thomas Franz

MS007E
Room: Sala J
Chair: Alexander Rachev
CoChair: Maria Holland

Identification of material parameters of soft tissue: Towards integrative inverse analysis based on image similarity (Keynote Lecture)
Michael W. Gee and Sebastian Kehl

Simulation of arterial walls under consideration of residual stresses - A numerical approach
Jörg Schröder, Sarah Brinkhues, Dominik Brands and Markus von Hoegen

The coupled passive-active mechanical response of the human artery wall - A high order finite element study
Elad Priel

Applicability of simplified models of abdominal aortic aneurysms
Vojtech Man, Kamil Novak, Stanislav Polzer and Jiri Bursa

A high-order viscoelastic fractional element applied to modeling ovine arterial wall behavior

Jorge Martín Pérez Zerpa, Alfredo Canelas , Berardi Sensale, Daniel Bia Santana and Ricardo Luis Armentano

A viscoplastic theory of saccular aneurysm enlargement and growth
Fred Nugen, Luca Dedè, Michael Borden and Thomas J.R. Hughes

Static and dynamic bending of rectangular sheet of biomaterial
Ivan Breslavskyi, Marco Amabili and Mathias Legrand

22/07/2014 16:30 - 18:30
Coupling Full-Field Measurements and Computations: Material Characterisation and Model Identification I
Minisymposium organized by Roberto Fedele, François Hild and Julien Réthoré

MS056A
Room: Business Centre I
Chair: Roberto Fedele
CoChair: Jean-Charles Passieux

A domain decomposition approach for digital image correlation based identification of local elastic parameters
Gilles Lubineau, Ali Moussawi, Jiangping Xu and Renaud Gras

Multiscale FE digital image correlation and material parameter identification
Jean-Charles Passieux, Florian Bugarin, Jean-Noël Périé, Laurent Robert and Christoph David

3D elliptical crack depth estimation from 2D surface displacement observation
Pierre Pineau, Julien Réthoré, Marie-Christine Baietto and Marion Fregonese

Characterization of CFC/Cu joints by full-field measurements and finite elements
Roberto Fedele, Valentina Casalegno and Monica Ferraris

Identification of crystal plasticity law parameters using kinematic measurements in polycrystals
Adrien Guery, Félix Latourte, François Hild and Stéphane Roux

Elasto-plastic parameter identification through finite element model updating
Pierre Baudoin, Jean-François Witz, Vincent Magnier, Ahmed El Bartali, Philippe Dufrenoy and Eric Charkaluk

Strain reconstruction from stereo DIC measurements based on space-time diffuse approximation
Pierre Feissel, Issyan Tekaya, Nicolas Tableau, Zoheir Aboura and Pierre Villon

22/07/2014 16:30 - 18:30
Computational Modelling of Native and Engineered Cardiovascular Tissue I
Minisymposium organized by Ilinca Stanciulescu and Ellen Huhl

MS090A
Room: Business Centre II
Chair: Ilinca Stanciulescu

A continuum model for active cardiac muscle
Joakim Sundnes and Harish Narayanan

Modeling the role of oscillatory flow and dynamic mechanical conditioning on dense connective tissue formation in mesenchymal stem cell derived heart valve tissue engineering
Joao S. Soares, Trung L. Be, Fotis Sotiropoulos and Michael S. Sacks

Understanding the relationships between heart valve scaffold geometric structure and mechanical behavior using computational modeling
James B. Carleton, Gregory J. Rodin and Michael S. Sacks

Numerical modeling of the mechanical behavior of anisotropic patterned hydrogel
Tao Jin and Ilinca Stanciulescu

Fluid-structure interaction analysis utilising a comprehensive mitral valve model
Milan Toma, Daniel R. Einstein, Ajit P. Yoganathan, Richard P. Cochran and Karyn S. Kunzelman

Material boundary modeling of soft tissue compositions for simulation of transcatheter aortic valve implantation
Christoph Russ, Simon H. Suendermann, Volkmar Falk, Gabor Szekely and Michael Gessat

22/07/2014 16:30 - 18:30
Innovative Numerical Approaches for Multi-physics Problems I
Minisymposium organized by Anna Pandolfi, Laurent Stainier and Kerstin Weinberg

MS129A
Room: Sala de prensa I
Chair: Laurent Stainier

A computational framework for polyconvex large strain electromechanics (Keynote Lecture)
Antonio J. Gil, Rogelio Ortigosa and Javier Bonet

A computational framework for polyconvex large strain electromechanics. Applications
Rogelio Ortigosa, Antonio J. Gil and Javier Bonet

On constitutive relationships and design optimization of electroactive polymers
Kerstin Weinberg, Philipp Gaida and Anna Pandolfi

Modelling of ball bearing loading by DEM for electromechanical coupling
Charles Machado, Mohamed Guessasma and Emmanuel Bellenger

MEMS energy harvesters based on aeroelastic phenomena
Raffaele Ardito and Rocco Musci

Numerical Simulation of Electromagnetic Coupling in the Lithosphere-Atmosphere-Ionosphere (LAI) System Associated with the Seismogenic Process
Lanbo Liu, Qinghua Huang, Yanbin Wang and Qiao Wang

22/07/2014 16:30 - 18:30
Microstructural Based Constitutive Models in Hard and Soft Matter Materials I
Minisymposium organized by Christian Miehe, Samuel Forest and Christian Linder

MS140A
Room: Sala de prensa II
Chair: Christian Miehe
CoChair: Samuel Forest

A computational investigation of hardening relations for gradient single-crystal plasticity (Keynote Lecture)
B. Daya Reddy, Andrew McBride, Swantje Bargmann and Timothy Povall

Direct coupling between molecular dynamics and continua: A thermo-mechanical approach
Srinivasa B. Ramisetti, Guillaume Anciaux and Jean-François Molinari

Modeling of grain boundary resistance in a strain gradient crystal plasticity model
Eric Bayerschen, Stephan Wulfinghoff and Thomas Böhlke

Modeling of single crystal magnetostriction based on numerical energy relaxation techniques
Björn Kiefer, Karsten Buckmann, Thorsten Bartel and Andreas Menzel

Structural defects and dynamic properties of metals
Alexander E. Mayer, Elijah N. Borodin and Polina N. Mayer

Local Eshelby matrix enhanced eigenstrain BIE for 3-D analysis of particles in full space
Hang Ma, Cheng Yan and Qing-hua Qin

22/07/2014 16:30 - 18:30
Multiscale Computational Formulation of Concrete and Other Quasi-Brittle Materials I
Minisymposium organized by Erez Gal and Gianluca Cusatis

MS175A
Room: Sala de Reservas
Chair: Erez Gal

Modelling nanoscale deformations in cement pastes: Implications for strength and durability
Enrico Masoero, Emanuela Del Gado, Roland Pellenq, Franz-Josef Ulm and Sidney Yip

Concrete mesostructure geometry modelling with growing and colliding hard spheres
Thomas Titscher and Jörg F. Unger

The local response in structures using the embedded unit cell approach
Erez Gal and M. Grigorovitch

Multi-axial validation of a simple lattice discrete elements model for heterogeneous quasi-brittle material
Maxime Vassaux, Benjamin Richard, Frédéric Ragueneau and Alain Millard

FE studies on a coupled energetic-statistical size effect in concrete
Ewelina Korol and Jacek Tejchman

Meso-scale FE and morphological modeling of cementitious material
Emmanuel Roubin, Nathan Benkemoun and Jean-Baptiste Colliat

POSTER SESSIONS

21/07/2014 16:00 - 18:30
Poster Session ECCM

PSECCM
Room: Hall
Chair: to be confirmed

Life prediction of large bearings using accelerated life test coupled with analysis
Na Ra Lee, Yongbin Lim and Naksoo Kim

A couple stress theory for the analysis of plates with a RBF-FD meshless method
Carla M.C. Roque and António J.M. Ferreira

A FEM-DEM coupled and evolved formulation for analysis of multifracture in solids
Chun Feng, Eugenio Oñate and Shihai Li

B-Spline and reproducing polynomial particle shape functions for linear and nonlinear elasticity problems
Yanan Liu, Yinghua Liu and Liang Sun

A motion planning scheme for robotic in-hand object manipulation
Hyunhwan Jeong, Joono Cheong and Wheekuk Kim

A model of the tongue movement during swallowing
Yukihiro Michiwaki, Takahiro Kikuchi, Seiichi Koshizuka, Tetsu Kamiya, Yoshio Toyama, Takashi Osada, Nobuko Jinno and Keigo Hanyu

A new fem homogenization of periodic material based on an extended Rosette gage theory
Luis Pérez Pozo, Marek Kolendo , Sergio Oller , Sheila Lascano and Claudio Aguilar

A Numerical Approach to Evaluate the Seismic Performance of Water Supply Systems Based on Demand and Capacity in the Damaged Network

Mahmood Hosseini, Aram Soroushian and Abdolreza Astaraki

A numerical framework to model the mechanical behavior of bioresorbable polymeric braided wire stents
Mathias P. Peirlinck, Nic Debusschere, Matthieu De Beule, Peter Dubruel, Patrick Segers and Benedict Verhegghe

A relation between calculation error and modelling resolution of DEM
Shuji Moriguchi, Ikko Tachibana, Kenjiro Terada, Shinsuke Takase, Takashi Kyoya and Jyunji Kato

A water state study in the wood structure of four hardwoods below fiber saturation point by NMR technique
Leandro Passarini, Cedric Malveau and Roger Hernandez

Adaptive surrogate-based multi-criteria optimization
Alexis I. Pospelov, Fedor V. Gubarev and Alexey M. Nazarenko

An explicit algorithm for the nonlinear dynamics of spatial beam
Chu Chang Huang, Tsung Chi Lin, Kuo Mo Hsiao and Fumio Fujii

Analysis of offshore structures for wind turbines and oil&gas using xsea software
Ki-Du Kim, Pasin Plodpradit, Anaphat Manovachirasan, Chana Sinsabvarodom and Bum-Joon Kim

Analysis of thick-walled pipeline elements operating in creep conditions
Przemysław Osocha and Bohdan Węglowski

Analysis on a 2T2R type asymmetric parallel mechanism
Sungmok Kim, Joono Cheong, Kyoosik Shin, Byung-Ju Yi and Wheekuk Kim

Anisotropic growth of thin shells with subdivision elements
Roman Vetter, Norbert Stoop, Falk K. Wittel, Hans J. Herrmann and Gautam Munglani

Application of fracture mechanics to assess the concrete damage due to cyclic freezing and thawing
Marta Kosior-Kazberuk

Comparison of muscular movement following blood alcohol concentrations using low speed rear impact tests and dynamic simulation
Dong Hyun Kim, Young Jin Jung, Dohyung Lim and Han Sung Kim

Computational and experimental investigation of the all fracture mode specimens on mixed mode I/III and II/III fracture
Shi-fan Zhu, Yang Cao, Qing-fen Li and Li Zhu

Computational design of a pressure container manufactured by fiberglass sheets to industrial applications
Gustavo Suárez , Luis Javier Cruz and Sergio Oller

Computational study of the effect of hydrostatic pressure on plastic deformation of metallic glass
Jacob Carlsson, Masato Wakeda and Shigenobu Ogata

Continuum-discontinuum particle method
Dong Zhou and Shihai Li

CUFESAP: A CUDA based finite element code for elastic structural analysis on GPUs
Jianfei Zhang and Defei Shen

Description model of cross-section of fibre bundle shape in prepreg composite
Pavla Tesinova

Design of smart structures with shape-reserved actuators
Yiqiang Wang and Zhan Kang

Determination of forming limit diagram using finite element method
Katarzyna Dyja and Janina Adamus

Development of an automated framework for high intensity focused ultrasound simulations
Mun-Bo Shim, Mun-Sung Kim and Sung-Jin Kim

Development of cosmetic orthodontic bracket and bracket cover 
Yasukazu Nishi, Yoshiki Ishiwata, Akira Nakajima, Kazuyoshi Hoshino, Mamoru Murata and Noriyoshi Shimizu

Effective thermal conductivity in anisotropic materials using boundary element methods
Miélle Silva Pestana, Carla Tatiana Mota Anflor and Jhon N.V. Goulart

Emulating drilling degrees of freedom in the rotation-free Bézier-Enhanced Shell Triangle (BEST) finite element
Pere-Andreu Ubach, Eugenio Oñate and Julio García-Espinosa

Fatigue life analysis of an upgraded diesel engine crankshaft
Jalal Fathi Sola and Farhad Alinejad

FE modelling of frictional heating in a disc brake at temperature-dependent coefficient of friction
Piotr Grzes

Finite element analysis of AZ31B magnesium alloy double butted tube forming process
Soo Sik Han

Finite element analysis of the quasi-static thermal stresses in a pad-disc brake system
Adam Adamowicz

Finite element study of healthy, pathological and surgical lumbar spine biomechanics.
Andrea Calvo-Echenique, Jose Cegoñino, Luciano Bances and Amaya Pérez del Palomar

Finite element supporting thermoelectric effects in FGM materials 
Juraj Paulech, Juraj Hrabovsky, Vladimir Kutis and Justin Murin

Formability of ZK60A magnesium alloy
Ki Ho Jung, Yong Bae Kim, Yu Hyun Kim, Sangmok Lee, Eung Zu Kim, Du Soon Choi and Geun-An Lee

GPU high performance explicit solution for kinematics and dynamics simulation of crank-connecting rod-piston mechanism
Zhaosong Ma, Dong Zhou and Zhigang Li

High order finite element method on the IBM power systems high performance computing applied on structural mechanics
Gilberto L. Valente, Marco L. Bittencourt and Edson Borin

Influece of material atomistic model on MD simulation
Anna Kucaba-Pietal and Janusz Bytnar

Influence of shape of particle size distribution on mechanics of uniaxially compressed granular packings
Joanna Wiącek and Marek Molenda

Mainshock – aftershock interaction diagram for a 3D plan-asymmetric structure
Andre F. Belejo and Andre R. Barbosa

Mechanical behavior of carbon nanotubes encapsulating copper atoms
Lei Wang, Zhongqiang Zhang and Yonggang Zheng

Mechanical properties of realistic materials: From quantum calculations to plastic flow

Svetlana A. Barannikova, Albina M. Zharmukhambetova, Anton Yu. Nikonov, Andrey I. Dmitriev, Alena V. Ponomareva and Igor A. Abrikosov

Micromechanism-based elasto-viscoplasticity constitutive modeling for engineering intermetallics
Yoon Suk Choi, Kyung-Mox Cho, Dae-Geun Nam and Dennis Dimiduk

Modelling dynamic behaviour of orthotropic metals
Nenad Djordjevic, Rade Vignjevic, Lewis Kiely, James Campbell and Simon Case

Natural frequencies of a simply supported horizontal rectangular tank partially filled with a liquid
Kyeong–Hoon Jeong, Jong–Wook Kim and Jong-In Kim

Nonlinear isogeometrical approach to stress recovery
Pejman Azarsa, Behrooz Hassani and Ahmad Ganjali

Numerical and experimental study by BEM and thermal Images for predicting the effective thermal conductivity
Matheus B. A. M. Oberg, Carla T. M. Anflor and Jhon N.V. Goulart

Numerical simulation for temperature and stress distribution in laser forming process of AHSS
Jung Han Song, Geun-An Lee, Sangmok Lee and Sung Jun Park

Numerical simulation of rock fragmentation process induced by indenter
Shouju Li, Lijuan Cao and Zichang Shangguan

Numerical simulation of the energy storage rate in metals under quasistatic loading 
Oleg A. Plekhov and Anastasiia A. Kostina

Numerical study of a thermo-acoustically encapsulation 
Fabian Duvigneau and Ulrich Gabbert

Numerical study of actuatot performance of piezoelectric ink-jet print head
Pham Van So, Hyeonwoo Jeon and Jaichan Lee

Quantitative estimation of exercise effect using numerical simulation and multi-sensory system on human leg
Yoshiki Nagatani and Takashi Saeki

Reducing the number of runs in experimental research using smart designs of experiment
Andrzej Skowronek

Scattering of semi-cylindrical gap and multiple shallow-buried cavities and inclusions by SH-wave
Hongliang Li

Seismic performance analysis of the hall-column system of a temple structure 
Zhi Zhou and Jiang Qian

Simulating soil-building interaction with a FEM/BEM approach 
Dimas B. Ribeiro and João B. Paiva

Simulation of implanted aortic stents
Raoul Hopf, Michael Gessat, Volkmar Falk and Edoardo Mazza

Soil-foundation-structure interaction by an explicit time integration method
Jin-Sun Lee, Dong-Soo Kim, Jeon-Gon Ha and Seong-Bae Jo

Stiffener Layout Optimization of Thin-Walled Stiffened Plates
Lianchun Long and Yang Li

Stress concentration near sharp and rounded V-shaped notches in two-dimensional bodies
Andrzej Kazberuk and Mykhaylo P. Savruk

Application of the strong discontinuity method to ductile failure with damage
Jérémie Bude Bude, Delphine Brancherie and Jean-Marc Roelandt

Structural design of metallic waveguide device in the microwave range using topological design process
Hyundo Shin and Junghoon Yoo

Structural health monitoring of stay cables by the Scruton number
Joseph Lardiès

Studies of bimaterial interface fracture with peridynamics
Fang Wang, Lisheng Liu, Qiwen Liu, Dongfeng Cao and Shuyong Yang

Surgical treatment of shoulder injuries by the Weaver Dunn technique
Gabriela L. Menegaz, Sonia A.G. Oliveira, Cleudmar A. Araújo and Leandro C. Gomide

The correlation between complicated lateral resisting system of the Shanghai tower
Wei Huang and Jiang Qian

The effect of damage on the biomechanical behavior of the pelvic floor
Dulce A. Oliveira, Marco Parente and Renato M. Natal Jorge

The Poynting type effect and non-homogeneous radial deformation in the problem of torsion of hyperelastic circular cylinder
Igor A. Brigadnov

The relationship between the fast wave and the fabric tensor
Young June Yoon

Thermomechanical modelling of PCM in heat storage applications
Francisco Montero-Chacón and Michele Chiumenti

Toward a polycrystal modeling of martensitic phase transformation based on the mechanism of Magee
Abdeladhim Tahimi, Fabrice Barbe, Lakhdar Taleb and Tatiana B. Fraga

Two level FETI method for transient problems
Marta Jarosova, Tomas Brzobohaty and Alexandros Markopoulos

21/07/2014 16:00 - 18:30
Poster Session ECFD

PSECFD
Room: Hall
Chair: to be confirmed

A CFD solver on graphical processing unites for turbulence simulations
Wenbin Cao, Hua Li, Zhengyu Tian and Sha Pan

A comparison between Monte Carlo and polynomial chaos expansion techniques in reservoirs simulations
Karen Guevara, João Zanni and Marco Aurélio Pacheco

A high order compact scheme for hypersonic internal flow with turbulence models
Hua Li, Wen-Long Wang, Wen-Jia Xie and Jian-Qi Lai

A multi-level computational model to characterize the hepatic circulation in human cirrhosis
Geert Peeters, Charlotte Debbaut, Pieter Cornillie, Elin Pauwels, Diethard Monbaliu, Wim Laleman and Patrick Segers

A Numerical investigation of scramjet engine air intakes for the 14-X hypersonic vehicle

Augusto F. Moura and Maurício A. P. Rosa

A Shape Analysis of Ultrasonically Levitated Droplet with Moving Particle Semi-implicit and Distributed Point Source Method

Yuji Wada, Kohei Yuge, Ryohei Nakamura, Hiroki Tanaka and Kentaro Nakamura

Adaptive Galerkin Method with relevant basis functions for PDES with boundary conditions

Bing Li, Luofeng Han and Shuanglu Quan

Advances of continuous-discontinuous numerical method based on Lagrange equation

Shihai Li, Chun Feng, Dong Zhou and Wenjie Duan

An Immersed Smoothed Finite Element Method for analyzing fluid-structure interaction systems consisting of dielectric elastomers

Zhi-Qian Zhang, Choon Chiang Foo and Gui Rong Liu

Application of EARSM turbulence model to simulation of reacting flow field in jets engines combustion chamber

Vojtech Betak, Jan Kubata and Jan Tuma

Comparison of implicit LU-SGS schemes for hypersonic flows

Zhengyu Tian, Wenbin Cao, Jinzhi Fan and Ran Zhang

Development of explicit unstructured mesh-based CFD solver for low-mach number flows using graphics processor units

Anton Karpenko, Vladislav Emelyanov and Konstantin Volkov

Effect of Reynolds number on pressure losses in axisymmetric sudden expansions with chamfer

Youngmin Bae, Young I. Kim, Keung K. Kim and Juhyeon Yoon

Evaluation of an immersed boundary method for solving the fluid structure interaction problem in refrigeration compressor valves

José L. Gasche and Franco Barbi

Flow recirculation in VHC designs

Ricardo F. Oliveira, Senhorinha F. Teixeira, Helena Cabral-Marques and José C. Teixeira

Investigation of Hydrodynamic Processes in Geothermal Plant

Marijonas Bogdevičius, Jolanta Janutėnienė, Saulius Razmas, Mindaugas Drakšas, Rimantas Didžiokas and Vadim Nikitin

Mechanism of modulation of the chemical activity of metal nanoparticles through organic charge-transfer molecules

Eunae Kim and Min Sun Yeom

Mixing of two-phase flow in rotating microchannels with a circular chamber

Jerry M. Chen and Huan-Choa Chiu

Modelling of interaction between suspension and structure in a tumbling mill

Simon Larsson, Samuel Hammarberg and Pär Jonsén

Modified dynamic observers based on green functions method to solve a 3D transient IHCP

Priscila F.B. Souza, Fernando Malheiros, Márcio B. da Silva and Gilmar Guimarães

Multiphase flow modelling of explosive volcanic eruptions using an adaptive unstructured mesh-based

approach

Christian T. Jacobs, Gareth S. Collins, Matthew D. Piggott and Stephan C. Kramer

Multiscale modeling of solid-liquid interface ordering and its effect on the growth kinetics of metallic alloys
Mohammed Guerdane

Non-conforming mimetic and virtual element discretization for polyhedral meshes
Gianmarco Manzini, Blanca Ayuso de Dios and Konstantin Lipnikov

Numerical predictions of viscoelastic flows with an algebraic extra-stress model

Daiane Iglesia Dolci, Gilcilene Sanchez de Paulo and Gilmar Mompean

Numerical Simulation of Incompressible Flow around Aerofoil Vibrating with Two Degrees of Freedom
Petr Furmanek and Karel Kozel

Numerical study of the cooling air flow in a hydro generator with various ventilation schemes
Stephan Klomberg, Ernst Famleitner, Gebhard Kastner and Oszkár Bíró

Porous medium modeling for air flow through forest-comparison with wind tunnel data
Zeinab Ahmadi Zeleti, Sandrine Aubrun and Jari Hämäläinen

Simulation of separation processes incorporating magnetic nanoparticle recovery in continuous microfluidic systems
Jenifer Gómez-Pastora, Eugenio Bringas, Gustavo A. Esteban, Jesús M. Blanco and Inmaculada Ortiz

Simulations of a single turbulent vortex ring using a regularized particle-mesh based vortex method
Mads M. Hejlesen and Jens H. Walther

Sphere in Poiseuille: Static, free rotation and free fall
Anthony Ponce , Yannick Hoarau and Yan Dušek

Submesoescale processes in upper ocean fronts: a numerical study using a Reynolds Stress Turbulence Model
Pablo Cornejo and Andrés Sepúlveda

The free-stream turbulence effect on the laminar-turbulent transition in the swept wing boundary layer

Sergey L. Chernyshev, Alexander I. Ivanov, Andrey Ph. Kiselev, Vladimir A. Kuzminsky and Dmitry S. Sboev

The initial-boundary Riemann problem for the solution of the compressible gas flow

Martin Kyncl and Jaroslav Pelant

System for reconsting images of internal defects by inverse problem solving

Yoshihiro Nishimura, Katsumi Fukuda, Takayuki Suzuki and Masatoshi Fukuta

Prediction of pulsatile 3D flow in elastic tubes using star CCM+ Code

Didier P. de Andrade, José M.C. Pereira and José C.F. Pereira

Ultrasonic image reconstruction of internal defects derived by EMAT using truncated singular value decomposition

Yoshihiro Nishimura, Takayuki Suzuki, Katsumi Fukuda, Masatoshi Fukuta and Eiki Ikeda

Wake equilibrium parameters on a symmetric airfoil simulations
Gorka Zamorano , Unai Fernández and Ekaitz Zulueta

An XFEM based sharp interface approach for two-phase and free-surface flows
Henning Sauerland

Wednesday, July 23rd

23/07/2014 09:00 - 10:30
Plenary Lectures II

PL2
Room: Auditorium
Chair: Genki Yagawa
CoChair: Charbel Farhat

Multi-scale computations diversified: From material to disaster sciences
Kenjiro Terada, Shinsuke Takase , Junji Kato , Shuji Moriguchi and Takashi Kyoya

Simulation and design in nanophotonics
Jaime Peraire

10:30 - 11:00
Coffee Break & Poster Sessions

11:00 - 13:00
TECHNICAL SESSIONS

23/07/2014 11:00 - 13:00
Advances in Numerical Methods for Linear and Non-linear Dynamics II
Minisymposium organized by Alexander Idesman and Gregory Hulbert

MS087B
Room: Mare Nostrum A
Chair: Alexander Idesman
CoChair: Gregory Hulbert

A family of discontinuous-Galerkin-based variational time integrators
Pablo Mata, Yongxing Shen and Vahid Ziaei Rad

Stability analysis of high order phase fitted variational integrators
Odysseas Kosmas and Sigrid Leyendecker

High-order integration for flexural wave equation and dispersion
José Elias Laier

Evaluation of time integration schemes in elastodynamics using numerical amplification matrices
José M. Benítez and Francisco J. Montáns

Accurate explicit finite element method for wave propagation and dynamic contact problems
Radek Kolman, Sang Soon Cho and K. C. Park

High order theta-schemes for linear wave equations
Juliette Chabassier and Sébastien Imperiale

23/07/2014 11:00 - 13:00

Advances in Shape and Topology Optimization of Structures and Materials II
Minisymposium organized by Michael Wang, Zhen Luo and Takayuki Yamada

MS494B
Room: Mare Nostrum B
Chair: Zhen Luo
CoChair: Gil Ho Yoon

H-DGTP—a heaviside-function based directional growth topology parameterization for design optimization of stiffener's layout and heights of thin-walled structures (Keynote Lecture)
Shutian Liu, Quhao Li, Wenjiong Chen and Liyong Tong

Stress based topology optimization for FSI structure
Gil Ho Yoon

Finite strain phase-field based topology optimization
Mathias Wallin and Matti Ristinmaa

Stress-related topology optimization of continuum structures involving multi-phase materials
Weisheng Zhang, Wenliang Zhong and Xu Guo

Isogeometric Configuration Design sensitivity analysis using boundary integral method
Minho Yoon, Seung-Wook Lee, Seungho Ahn and Seonho Cho

Optimization of structures with hybrid uncertainties
Jinglai Wu, Zhen Luo and Nong Zhang

23/07/2014 11:00 - 13:00
Discontinuous Galerkin Methods: New Trends and Applications I
Minisymposium organized by Bernardo Cockburn, Sonia Fernandez-Mendez, Nicoletta Franchina, Ngoc-Cuong Nguyen, Jaime Peraire and Per-Olof Persson

MS139A
Room: Mare Nostrum C
Chair: Bernardo Cockburn

Hybridizable Discontinuous Galerkin Methods for Continuum Mechanics
Ngoc-Cuong Nguyen, Jaime Peraire and Bernardo Cockburn

On the robustness of a HDG method for elliptic problems in general domains
Manuel Solano and Bernardo Cockburn

Extended hybridizable Discontinuous Galerkin (X-HDG) for bimaterial problems
Ceren Gurkan, Sonia Fernandez-Mendez, Esther Sala-Lardies and Martin Kronbichler

Implicit Large Eddy Simulation of turbulent flows with the Hybridized Discontinuous Galerkin Method
Xevi Roca, Ngoc-Cuong Nguyen and Jaime Peraire

Adjoint-based anisotropic *hp*-adaptive hybridized discontinuous Galerkin methods for turbulent flow
Michael Woopen, Aravind Balan and Georg May

A unified hybridized discontinuous Galerkin framework and its application to PDEs
Tan Bui-Thanh

23/07/2014 11:00 - 13:00
Computational Fluid Dynamics for Free and Moving Boundaries II
Minisymposium organized by Rekha R. Rao, David R. Noble, Scott A. Roberts and Elie Hachem

MS256B
Room: Mare Nostrum D
Chair: Scott Roberts
CoChair: Rekha Rao

Numerical investigation of three dimensional viscoelastic free surface flows: impacting drop problem

Rafael A. Figueiredo, Cassio M. Oishi, José A. Cuminato, José C. Azevedo, Alexandre M. Afonso and

Manuel A. Alves

A new approach for solving the Oldroyd-B model for 3D free surface flows
Murilo F. Tomé, Antonio Castelo and Fernando T. Pinho

Stress-gradient induced migration in thin film flow over topography
Sophia Tsouka, Yannis Dimakopoulos and John Tsamopoulos

Foam property prediction from process modeling
Rekha R. Rao, Lisa Mondy, Kevin N. Long, David R. Noble, Scott A. Roberts and Mathew Celina

Towards a refined model for liquid bridge filling between wet particles
Mingqiu Wu, Johannes G. Khinast and Stefan Radl

Spectral Boundary Element Algorithms for Multi-Length Interfacial Dynamics in Porous Media and Microfluidic Channels
Panagiotis Dimitrakopoulos and N. Boruah

23/07/2014 11:00 - 13:00
Uncertainty Modeling and High Performance Stochastic Methods for Computationally Intensive Calibrations, Predictions and Optimizations II
Minisymposium organized by Tan Bui-Thanh, Thomas Carraro, Marko Laine and Ernesto E. Prudencio

MS184B
Room: Mare Nostrum E
Chair: Ernesto Prudencio

Validation and Uncertainty Quantification in CASL Nuclear Reactor Modelling
Russell Hooper

Solving stochastic FEM problems with high performance domain decomposition in GPUs
George Stavroulakis and Manolis Papadrakakis

Stochastic reduced order models for inverse problems in the presence of uncertainty
Wilkins Aquino and James Warner

Dimension-independent, likelihood informed MCMC samplers for bayesian inverse problems
Tiangang Cui, Kody J.H. Law and Youssef M. Marzouk

Multi model mixture density estimators & information theory for stochastic filtering and prediction
Michal Branicki and A. J. Majda

Integration of surface uplift and injection data for estimation of geomechanical properties and reservoir parameters of a CO2 sequestration field using ensemble-based algorithms
Reza Tavakoli, Ben Ganis, Sanjay Srinivasan and Mary F. Wheeler

23/07/2014 11:00 - 13:00
Current Challenges in Cohesive-zone Models II
Minisymposium organized by Albert Turon, Giulio Alfano and Bent F. Sørensen

MS196B
Room: Mare Nostrum F
Chair: Giulio Alfano

On the path dependence of cohesive zone elements under mixed-mode fracture
Bent F. Sørensen and Stergios Goutianos

A critical review of traction-separation relationships across fracture surfaces for cohesive zone models of fracture
Kyoungsoo Park and Glaucio Paulino

Investigating path dependency in mixed-mode fracture by using cohesive zone models
Erkan Oterkus, Cagan Diyaroglu, Dennj De Meo and Carlos G. Dávila

Delamination under fatigue loads in composite laminates: A review on the computational methods based on the cohesive zone model approach
Albert Turon, Brian L.V. Bak, Carlos Sarrado and Josep Costa

Performance of cohesive zone models for fatigue driven delaminations
Brian L.V. Bak, Esben Lindgaard, Erik Lund and Albert Turon

A cyclic cohesive zone model for transient thermomechanical loading
Grygoriy Kravchenko and Heinz E. Pettermann

23/07/2014 11:00 - 13:00
Multiscale Analysis and Design Under Uncertainty I
Minisymposium organized by George Stefanou, Vissarion Papadopoulos, X. Frank Xu and Manolis Papadrakakis

MS269A
Room: Llevant
Chair: Vissarion Papadopoulos
CoChair: George Stefanou

Multiscale stochastic stress analysis for randomness of fiber arrangement in fiber reinforced composite material (Keynote Lecture)
Sei-ichiro Sakata and Itaru Torigoe

Effective properties of two-phase random media modeled by XFEM
George Stefanou, Dimitris Savvas, Manolis Papadrakakis and George Deodatis

Random tessellation modeling for granular microstructure morphologies
Kirubel Teferra and Lori Graham-Brady

Scale-space based multiscale random field modelling with local pattern matching
Soenke Klostermann, Dietmar Vogt and Otto von Estorff

FE2 multiscale approach of geometrically nonlinear carbon nanotube reinforced composites
George Soimoiris, Vissarion Papadopoulos and Manolis Papadrakakis

Multiscale modelling of carbon nanotube reinforced composites in the framework of a nested solution scheme
Vissarion Papadopoulos and Maria Tavlaki

23/07/2014 11:00 - 13:00
Current Trends in Modelling and Simulation of Turbulent Flows II
Minisymposium organized by Suad Jakirlic

MS082B
Room: Mestral
Chair: Suad Jakirlic
CoChair: Branislav Basara

On the wake transition in the flow past a circular cylinder at critical Reynolds numbers
Ivette Rodríguez, Oriol Lehmkuhl, Jorge Chiva, Ricard Borrell and Assensi Oliva

Computation of the one-point turbulence structure tensors in fully-developed turbulent pipe flow
Fotos Stylianou and Stavros Kassinos

A differential structured-based model based on stochastic evolution equations for the scalar turbulence parameters
Constantinos Panagiotou and Stavros Kassinos

Generalized Navier-Stokes model with viscous strength
Konstantin Volokh

Computations of laminar and turbulent water hammer flows
Simin Dokht Saemi, Mehrdad Raisee, Michel Cervantes and Ahmad Nourbakhsh

Turbulent thermal mixing in a T-junction, advanced RANS versus scale resolving simulation
Abbes Azzi, Fadela Nemdili and Zineddine Ahmed Dellil

23/07/2014 11:00 - 13:00
Industrial Applications of Computational Fluid Dynamics and Related Techniques VI

CS658F
Room: Ponent 1
Chair: Luis Ramirez

Enhanced growth of single- and multi-crystalline semiconductors using pulsed travelling magnetic fields
Natasha Dropka and Christiane Frank-Rotsch

Effect of rotor-rotor interactions in aerodynamic performance of multi-rotor air vehicle
Jae Hyun Yun and Jongsoo Lee

Influence of closure system and volume on auditorium thermal and acoustic performance
Rovadávia A.J. Ribas, Josimar J. Adriano, Henor A. Souza and Luiz Joaquim C. Rocha

Modeling the polymer conversion dependent viscosity change in the production of themoplastic materials
Jozsef Nagy, Michael Fischlschweiger, Lorenz Reith and Georg Steinbichler

Shaping of aircraft and helicopter configurations with CAD
Arno Ronzheimer

Numerical study of the influence of the oil mist particle sizes used in MQL by internal canalizations on a surfacing operation
Arnaud Duchosal, Roger Serra and René Leroy

23/07/2014 11:00 - 13:00
Industrial Applications of Computational Solid Mechanics and Related Techniques I

CS659A
Room: Ponent 2
Chair: Antonio Rodriguez-Ferran

Study on Improvement of Passive Cooling in Distribution Transformers
Krzysztof Kasza and Lukasz Matysiak

Controlling eutrophication in a moving domain
Lino J. Alvarez-Vázquez, Francisco J. Fernández and Aurea Martínez

The prediction of plastic damage degree of stiffened cylindrical shell considering of hydrostatic pressure
Xiongliang Yao, Di Yang, Jun Wang and Wei Wang

Analysis of local property within masonry panels using cellular automata
Yu Zhang, Jingming Zhang, Yanxia Huang and Guangchun Zhou

Coupled thermomechanical computation method for virtual design processes of brake discs
Frank Jungwirth, Arne Domheim and Christoph Friedrich

SAPNOLM – A software package for landslide analysis
Shuli Sun, Pu Chen, Xiangrong Fu, Kefu Huang, Qiguo Rong, Jie Sui, Qi Song, Xianrong Wang, Nelson Lafontaine, Eugenio Oñate and Mingwu Yuan

23/07/2014 11:00 - 13:00
Mesh Generation and Adaption II
Minisymposium organized by Josep Sarrate, Franck Ledoux and

MS198B
Room: Terral
Chair: Josep Sarrate

Rafael Montenegro

Generation of hex dominant meshes based on frame fields skeletons
Nicolas Kowalski, Paul-Emile Bernard, Jean-François Remacle and Tristan Carrier-Baudouin

Hierarchical mesh smoothing and untangling for two and three dimensional meshes
Eloi Ruiz-Gironés, Xevi Roca and Josep Sarrate

Universal Meshes: Computing tetrahedralization conforming to curved surfaces as boundaries and interfaces from background meshes
Hardik Kabaria and Adrian J. Lew

Aligned Metric-Based Anisotropic Solution Adaptive Mesh Generation
David Marcum and Frédéric Alauzet

Anisotropic mesh adaptation for the crack path detection in quasi static brittle materials
Marco Artina, Massimo Fornasier, Stefano Micheletti and Simona Perotto

Tetrahedral mesh optimization combining boundary and inner node relocation and adaptive local refinement
Guillermo Valentín Socorro, Eloi Ruiz-Gironés, Albert Oliver, José M. Cascón, José M. Escobar, Josep Sarrate and Rafael Montenegro

23/07/2014 11:00 - 13:00
Smart Structures - Modelling and Simulation I
Minisymposium organized by Ruediger Schmidt

MS086A
Room: Tramuntana 1
Chair: Shunqi Zhang

Geometrically nonlinear FE modeling for piezoelectric integrated plates and shells (Keynote Lecture)
Shunqi Zhang and Ruediger Schmidt

Computational modeling of a multi-layered piezo-composite beam made up of MFC
Shashank Agrawal and Dineshkumar Harursampath

Nonlinear dynamic deformation of a piezoelastic laminated beam with feedback damping mechanism.
Masayuki Ishihara and Yoshihiro Ootao

Analytical model for sampling-based reliability analysis of output electric power generated by piezoelectric energy harvesting skin under uncertainty
Heonjun Yoon, Byeng D. Youn and Heung S. Kim

XFEM modeling of magnetoactive materials
Christian Spieler, Markus Kästner and Volker Ulbricht

23/07/2014 11:00 - 13:00
Qualitative and Quantitative Comparison of Numerical Methods for Solving Partial Differential Equations I
Minisymposium organized by Scott T. Miller, Reza Abedi and Jonathan Pitt

MS251A
Room: Tramuntana 2
Chair: Reza Abedi

Inductive verification of numerical methods for well-posed problems
Takahiro Yamada

Comparison of various approaches for modelling interaction of dispersive media and electromagnetic waves
Jan Ciganek, Michal Wiktor and Zbynek Raida

Using high-performance computing for accelerating linear dynamic and nonlinear implicit commercial FEA software
Vladimir Belsky

Construction of preconditioners by using high-order minimum energy basis
Caio F. Rodrigues and Marco L. Bittencourt

Hybridized discontinuous Galerkin Methods for Large Eddy Simulation of turbulent flow
Martin Kronbichler and Wolfgang A. Wall

23/07/2014 11:00 - 13:00
Sheet Metal Forming and Mechanical Characterization I
Minisymposium organized by Abel Santos, Marian Gutierrez and Luis Menezes

MS234A
Room: Xaloc
Chair: Abel D. Santos

Modelling non-quadratic anisotropic yield criteria at finite strains with mixed isotropic-nonlinear kinematic hardening: Application to sheet metal forming
Tiago Grilo, Ivaylo Vladimirov, Robertt A.F. Valente and Stefanie Reese

Finite element analysis of wrinkling during cup drawing
Diogo M. Neto, Pedro D. Barros, Marta C. Oliveira, José L. Alves and Luís F. Menezes

Hydraulic bulge test for stress-strain curve determination and damage calibration for Ito-Goya model
Hugo Campos, Abel D. Santos, Bruno Martins, Koichi Ito, Naomichi Mori and Frédéric Barlat

The use of finite element analysis on bending radius and springback prediction with practical application on CNC press brakes programming
Sara Miranda, J. Bessa Pacheco, Abel D. Santos and Rui Amaral

Modelling of air bending using neural networks
M. Romano Barbosa, Abel D. Santos and J.Bessa Pacheco

23/07/2014 11:00 - 13:00
Advanced Reduced-order Modeling Strategies for Parametrized PDEs and Applications III
Minisymposium organized by Gianluigi Rozza and Andrea Manzoni

MS069C
Room: Salon Club
Chair: Irina Kalashnikova
CoChair: Yanlai Chen

Projection-based ROMs for parametrized optimization problems constrained by PDEs: Results and applications
Andrea Manzoni, Federico Negri and Alfio Quarteroni

Progressive construction of reduced tensor spaces for high-dimensional approximation
Loïc Giraldi and Anthony Nouy

Long term forecasting of building systems: CFD, stochastic collocation and Perron Frobenius based model reduction
Anthony Fontanini, Umesh Vaidya and Baskar Ganapathysubramanian

Parallelized multi-level reduction method for large-scale dynamic analysis and design optimization
Seongmin Chang and Maenghyo Cho

Sequential dynamic mode decomposition for a flow past a sphere
Krzysztof Kotecki, Witold Stankiewicz, Michał Nowak and Marek Morzyński

23/07/2014 11:00 - 13:00
Computational Methods in Fluid-structure Interactions,

MS009F

Dynamics and Vibration, Vibroacoustics - A Minisymposium in Honor of Prof. Roger Ohayon VI
Minisymposium organized by Christian Soize

Room: Yasmin A
Chair: Lothar Gaul
CoChair: Christian Soize

Stochastic model reduction and multiscale modeling with uncertainty (Keynote Lecture)
Roger Ghanem and Ramakrishna Tipireddy

Coupled stochastic problems
Hermann G. Matthies, Rainer Niekamp, Martin Krosche and Alireza Doostan

Linear/nonlinear geometric thermoelastic response of structures with uncertain thermal properties
Andrew K. Matney and Marc P. Mignolet

Nonparametric modelling of multi-stage assemblies of mistuned bladed disks
Florence Nyssen, Maarten Arnst and Jean-Claude Golinval

Adaptive ISDE-based algorithm for the generation of non-Gaussian vector-valued random fields
Johann Guilleminot and Christian Soize

Computational dynamics in low- and medium-frequency ranges, reduced-order model and uncertainty quantification
Christian Soize, Adrien Arnoux, Javier Avalos, Anas Batou, Nicolas Brie, Evangeline Capiez-Lernout, Laurent Gagliardini, Moustapha Mbaye, Marc P. Mignolet and Igor Poloskov

23/07/2014 11:00 - 13:00
Multiscale and Multiphysics Modelling for Complex Materials (MMCM5) III
Minisymposium organized by Patrizia Trovalusci, Tomasz Sadowski, René de Borst and Bernhard Schrefler

MS120C
Room: Yasmin B
Chair: Rene de Borst
CoChair: Patrizia Trovalusci

Coupled glide-climb diffusion-enhanced crystal plasticity (Keynote Lecture)
Marc G.D. Geers, Maeva Cottura, Benoît Appolaire, Esteban Busso, Samuel Forest and Aurélien Villani

Computational methods and enhanced properties of composites with fractal multiscale microstructure
Catalin Picu, Monica Soare, Dan Constantinescu and Stefan Sorohan

The use of statistical mechanics to explore the structure of the fully-coupled thermo-mechanical free-energy function
Sanjay Govindjee

Ferroelectric thin film nano-generators
Ingo Münch, Matthias Krauss and Werner Wagner

Application of Kubelka-Munk-Theory for modelling the thermal wave generation in infrared irradiated thermoplastic polymer matrix composites
Luca Murenu, Michael Fischlschweiger and Georg Steinbichler

A complete model for the analysis of thermoelastic behaviour in microbeams
Pierpaolo Belardinelli, Stefano Lenci and Lucio Demeio

23/07/2014 11:00 - 13:00
Phase-field Modeling and Simulation in Fluid Mechanics, Solid Mechanics and Life-sciences III
Minisymposium organized by Hector Gomez, Kris van der Zee, Marino Arroyo, Irene Arias, Baskar Ganapathysubramanian, Thomas J.R. Hughes and John T. Oden

MS143C
Room: Yasmin C
Chair: Kris Van Der Zee
CoChair: Hector Gomez

Diffuse interface models on graphs for classification of high dimensional data (Keynote Lecture)
Andrea Bertozzi

Nonlocal diffuse interface models for two-phase fluids
Maurizio Grasselli

A continuum framework for the treatment of mechano-chemically driven phase transformations with a group/subgroup character
Shiva Rudraraju, Anton van der Ven and Krishna Garikipati

Phase-field modeling of vesicle dynamics: adhesion and confinement effects
Christian Peco, Daniel Millán and Marino Arroyo

Stable time-scheme for quasi-incompressible two-phase diffuse-interface flows
Gorkem Simsek, Kristoffer G. van der Zee and Harald van Brummelen

23/07/2014 11:00 - 13:00
STS 03: Aero-acoustics in Aeronautics: Advanced Methods and Industrial Challenges

STS03A
Room: Auditorium
Chair: Herman Deconinck

Improvements in airframe noise prediction methods
Christophe Schram and Lilla Koloszar

Aerodynamic and aeroacoustic installation effects in environmental control systems
Korcan Kucukcoskun, Joao Aguiar, Christophe Schram, Stefan Sack and Mats Åbom

Lessons learnt from gap-turbulence case in FP7 Valiant project
Alexey P. Duben, Andrey Gorobets, Thilo Knacke, Tatiana Kozubskaya and Frank Thiele

Aeroacoustic modelling in support of low noise design – A manufacturer's view
Cedric Morel, E. Bouty and T. Rougier

Efficient prediction of broadband airframe noise with stochastic sound sources: results of the Valiant airfoil test cases
Roland Ewert

23/07/2014 11:00 - 13:00
Advances in Accurate and Robust Numerical Methods for Computational Fluid Dynamics VI
Minisymposium organized by Remi Abgrall, Feng Xiao and Koen Hillewaert

MS051F
Room: Sala A
Chair: Koen Hillewaert
CoChair: Goran Stipcich

An Eulerian-Lagrangian WENO scheme for nonlinear conservation laws
Todd Arbogast and Chieh-Sen Huang

A hybrid, explicit-implicit, second order in space and time TVD scheme for two-dimensional compressible flows
Farhang Norouzi and Evgeny Timofeev

Accuracy improvement of compact type shock capture scheme with multi-step strategy for supersonic turbulent flow
Jun Peng and Yiqing Shen

A parallel agglomeration multigrid method for the acceleration of compressible flow computations on 3D hybrid unstructured grids
Georgios N. Lygidakis and Ioannis K. Nikolos

Adaptative Time Stepping and Schwarz Waveform Relaxation Method for Compressible Navier-Stokes Equations
Oana Ciobanu, Laurence Halpern, Xavier Juvigny and Juliet Ryan

A novel solver acceleration technique based on dynamic mode decomposition
Niklas Andersson and Lars-Erik Eriksson

23/07/2014 11:00 - 13:00
Computational Models for Soft Tissues III
Minisymposium organized by Estefania Peña, Renato N. Jorge, Miguel A Martinez and Pedro S. Martins

MS067C
Room: Sala B1
Chair: Jorge Grasa

Unstructured grid for soft tissues and bioimpedance models
Alexander A. Danilov, Vasily K. Kramarenko and Alexandra S. Yurova

Prediction of prostate motion and deformation using FE modeling for better biopsy accuracy
Fangsen Cui, Jianfei Liu, Zhuangjian Liu, Yanling Chi, Jimin Liu, Qi Tian, Jiaze Wu and Henry Sun Sien Ho

On the impact of geometry on global mechanical response of an isotropic hyperelastic fingertip model
Jérémy Dallard, Xavier Merlhiot, Sonia Duprey, Xuguang Wang and Alain Micaelli

Vestibular rehabilitation in vertiginous syndrome using smoothed-particle hydrodynamics method for fluid simulation
Carla Santos, Fernanda Gentil, Marco Parente, Carolina Garbe and Renato Natal Jorge

Soft tissue modelling for analysis of errors in breast reduction surgery
Stéphane Clain, Gaspar J. Machado, Rui M.S. Pereira and Georgi Smirnov

23/07/2014 11:00 - 13:00
Fluid-Structure Interaction Algorithms and Applications III
Minisymposium organized by Jonathan Pitt and Scott Miller

MS062C
Room: Sala B2
Chair: Jonathan Pitt

Fluid-structure interaction analysis of vibration phenomena and verification of its classification and prediction accuracy using modular network self-organizing map
Masato Masuda, Yasushi Nakabayashi and Yoshiaki Tamura

Multi-Physics Coupling Method and Applications of Fluid-Structure Interaction on LNG Storage Tanks
Ximei Zhai, Haosong Wang and Feng Fan

Numerical analysis of flow-induced vibration of two circular cylinders in tandem at low Reynolds numbers
Paulo R.F. Teixeira and Eric Didier

Resonance-like phenomena in submerged cylindrical shell systems subjected to multiple shock loads
Serguei Iakovlev, Christoph Buchner, Ben Thompson and Adrien Lefieux

The Comparison of the Experimental Result with the Numerical Analysis using the New Coupled Analysis Method based on the Enriched Free Mesh Method and the SUPG/PSPG Stabilized Finite Element Method
Shinsuke Nagaoka, Yasushi Nakabashi, Yoshiaki Tamura and Genki Yagawa

23/07/2014 11:00 - 13:00
Advanced Computational Techniques in Geophysical Sciences I
Minisymposium organized by Hélène Barucq, Rabia Djellouli and Kersten Schmidt

MS170A
Room: Sala B3
Chair: Helene Barucq

Numerically robust parallel sweeping preconditioners
Jack Poulson and Lexing Ying

Simulation of seismic waves in anisotropic media
Patricia M. Gauzellino, Ricardo M. Ramos and Juan E. Santos

Wave propagation in fractured poroelastic media
Juan E. Santos

Cavity identification with piezoelectric sensors using iterated excitations and a topological sensitivity approach
Cédric Bellis and Sébastien Imperiale

Simulations of acoustic wave propagation with generalized multiscale Finite Element Methods
Richard L. Gibson, Jr., Eric T. Chung, Yalchin Efendiev, Wing Tat Leung and Shubin Fu

Large SVD computations for analysis of inverse problems in geophysics
Sergey Solovyev and Sebastien Tordeux

23/07/2014 11:00 - 13:00
Advanced Models for Large-Eddy Simulation and Regularization of turbulent flows II
Minisymposium organized by Roel Verstappen and Francesc Xavier Trias

MS151B
Room: Sala C1
Chair: Francesc Xavier Trias

Constrained subgrid-scale modeling for large-eddy simulation of wall-bounded flows
Zuoli Xiao, Yipeng Shi, Zhenhua Xia and Shiyi Chen

On the eddy-diffusivity closure for turbulent natural convection
Oriol Lehmkuhl, Ivette Rodríguez, Pedro A. Galione, Ricard Borrell and Assensi Oliva

Towards Large-Eddy Simulation of complex flows in maritime applications
Henry J. Bandringa, Roel W.C.P. Verstappen, Fred W. Wubs, Christiaan M. Klaij and Auke van der Ploeg

Numerical methods for the optimization of nonlinear residual-based subgrid-scale models using the Variational Germano Identity
Gabriel D. Maher and Steven J. Hulshoff

New differential operators and discretization methods for large-eddy simulation and regularization modeling
F. Xavier Trias, Andrey Gorobets, Carles D. Pérez-Segarra and Assensi Oliva

23/07/2014 11:00 - 13:00
Frontier in Multi-physics CFD Simulation II
Minisymposium organized by Nobuyuki Oshima, Makoto Yamamoto and Mamoru Tanahashi

MS033B
Room: Sala C2
Chair: Nobuyuki Oshima

Numerical investigation on freezing process of super-cooled droplet

Koichiro Osawa and Makoto Yamamoto

Numerical modeling of ceramics sintering and melting by microwave heating
Duarte M.S. Albuquerque, José M.C. Pereira and José C.F. Pereira

Numerical investigation on droplet temperature of ice crystal accretion

Koharu Furuta and Makoto Yamamoto

Direct numerical simulation of premixed flame in a circular micro channel with detailed kinetic mechanism
Eriko Miyata, Naoya Fukushima, Yoshitsugu Naka, Masayasu Shimura, Mamoru Tanahashi and Toshio Miyauchi

Free surface flow past a circular cylinder under forced rotary oscillations
Serpil Kocabiyik, Canan Bozkaya and Elizabeth Liverman

23/07/2014 11:00 - 13:00
Multidisciplinary Design Optimization In Computational Mechanics II
Minisymposium organized by Piotr Breitkopf, Weihong Zhang and Rajan Filomeno Coelho

MS031B
Room: Sala C3
Chair: Piotr Breitkopf

Biomimetic structural optimalization – Towards multiple load problems
Michał Nowak, Krzysztof Brudło, Robert Roszak, Hubert Hausa and Marek Morzyński

Bird's-eye visualization of design-knowledge diversity for launch vehicle in view of fuels on hybrid rocket engine

Kazuhisa Chiba, Masahiro Kanazaki, Masaki Nakamiya, Koki Kitagawa and Toru Shimada

Buckling behaviour of compressive plate with negative poisson´s ratio materials
Yongcun Zhang, Xiaobin Li and Shutian Liu

High order orthogonal designs of experiments for metamodeling, identification and optimization of mechanical systems

Janis Auzins

Optimization design process for smart glove electronic product

Tai-Shen Huang, Wen-Chih Chou and Yi-Ting Chen

Optimal tracking control of rotating multi-tethered formations in halo orbits
Zhiqin Cai, Xuefu Li, Haijun Peng and Ying Feng

23/07/2014 11:00 - 13:00
Fast Direct Solvers: Applications to Boundary Element Methods and Other Linear Systems III
Minisymposium organized by Stéphanie Chaillat-loseille, Eric Darve and Martin Schanz

MS200C
Room: Sala D1
Chair: Martin Schanz

Boundary element methods with a H_{DIV} scalar product for electromagnetic wave scattering problems
Kazuki Niino and Naoshi Nishimura

A Posteriori Error Control for BEM in 2D-Acoustics

Marc Bakry and Sebastien Pernet

Optimal preconditioning for the coupling of adaptive finite and boundary elements

Michael Feischl, Thomas Führer, Dirk Praetorius and Ernst P. Stephan

A study on time domain BIEM with *H*-matrix
Hitoshi Yoshikawa

A directional fast multipole method for the Boundary Element Method and its application to elastodynamics
Thomas Traub, Pierre Blanchard and Martin Schanz

23/07/2014 11:00 - 13:00
Advances in Computational Structural Dynamics III
Minisymposium organized by Evangelos J. Sapountzakis and Andreas E. Kampitsis

MS018C
Room: Sala D2
Chair: Alessandro Cattabiani

Calculations of free vibration frequencies for thin microstructured plate bands by asymptotic-tolerance and tolerance models
Jarosław Jędrysiak

A medium-frequency wide band analysis for shallow shell structures
Alessandro Cattabiani, Herve Riou, Andrea Barbarulo and Pierre Ladevèze

The numerical algorithm and Ill-posedness research of a load identification method in time domain
Hu Jie

Study on cushioning characteristics of hybrid airbag system
Jinpeng Wen, Bin Li and ZhiChun Yang

Dynamic analysis of moderately thick doubly curved shells via efficient 3D elements

Jose M. Martinez Valle

Numerical study and design of extruded integrally stiffened panels (ISP) for aeronautic applications subjected to blast loading
Diogo Cardoso, Rui M.F. Paulo and Robertt A.F. Valente

23/07/2014 11:00 - 13:00
Biomechanics and Mechanobiology I
Minisymposium organized by Guillermo Rus, Quentin Grimal and Elisa Budyn

MS013A
Room: Sala D3
Chair: Elisa Budyn
CoChair: Juan Melchor

In vivo stiffness evaluation of carotid artery by pulse wave analysis (Keynote Lecture)
Mami Matsukawa, Yuka Shibayama, Yuka Komagata, Takuya Odahara, Masashi Saito and Takaaki Asada

Ultrasound-based multi-scale characterization of the elastic properties of ovine femoral cortical bone
Peter Varga, Johannes Schneider, Simon Bernard, Stefan Fröhlich, Markus O. Heller, Kay Raum and Quentin Grimal

Microscopic observations of human vetebral endplate
Elisa Budyn, Akshay Bilagi, Vasanth Subramanian, Alejandro A. Espinoza Orias and Nozomu Inoue

Automated assessment of anisotropic elasticity of hard tissue samples using resonant ultrasound spectroscopy with Bayesian analysis and Monte Carlo methods
Simon Bernard, Guillaume Marrelec, Quentin Grimal and Pascal Laugier

Finite growth on biological tissues

Joan O´Connor Blanco, Lavinia M. Alves Borges, Fernando Pereira Duda and Melchor Rodriguez Madrigal

Numerical modeling of hip implant vibrational behavior for the analysis of stability
Quentin Vallet, Hedi Sariali, Andres Rondon and Quentin Grimal

23/07/2014 11:00 - 13:00
Advances with Adjoint CFD Solvers for Unsteady Flow III
Minisymposium organized by Jens-Dominik Mueller, Carsten Othmer, Jacek Rokicki, Kyriakos Giannakoglou, Uwe Naumann, Marcus Meyer, Eugene de Villiers, Mustafa Megahed and Laurent Hascoet

MS214C
Room: Sala D4
Chair: to be confirmed

Unsteady continuous adjoint method using POD for jet-based flow control
Christos Vezyris, Ioannis Kavvadias, Evangelos M. Papoutsis-Kiachagias and Kyriakos C. Giannakoglou

Performance considerations when using INTEL®XEON PHI™coprocessors for unsteady discrete adjoint calculations
Jan C. Hückelheim and Jens-Diminik Müller

On the usage of finite differences for the development of discrete linearised and adjoint CFD solvers
Anna Engels-Putzka, Jan Backhaus and Christian Frey

Node-based and CAD-based parametrisations for shape optimisation
Mateusz Gugala, Shenren Xu and Jens-Dominik Mueller

Optimal control of turbulent jets using an unsteady adjoint solver
Asim Onder and Johan Meyers

Equational differentiation of incompressible flow solvers
Guillaume Pierrot

23/07/2014 11:00 - 13:00
Computational Damage Mechanics of Composite Materials I
Minisymposium organized by Marco Alfano, Gilles Lubineau and Glaucio Paulino

MS030A
Room: Sala D5
Chair: Marco Alfano

Nanoscale Modeling Of Composites Interface Using Computational Techniques
Yao Li, Jeffrey Hinkley, Kris Weiss and Karl Jacob

Time discretisation method involving fractional operators for hysteretic shear behaviour of fibre-reinforced composites modelling
Modesto Mateos, Jon A. Arakama , Laurent Gornet, Patrick Rozycki and Jon Aurrekoetxea

Low intrusive coupling of implicit and explicit time integration schemes for structural dynamics: Application to low energy impacts on composite structures.
Teddy Chantrait, Johann Rannou and Anthony Gravouil

Thermo-electric simulation of ligthning strike on composite laminates
Johann Rannou and Cédric Huchette

Objective simulation of failure by a synergetic usage of hybrid local/non-local continuum model
Fei Han, Yan Azdoud and Gilles Lubineau

Identification of cohesive models using full field kinematic data: A variance based global sensitivity analysis
Marco Alfano, Gilles Lubineau and Glaucio Paulino

23/07/2014 11:00 - 13:00

Mechanics of Cellular Solids and Sandwich Structures I
Minisymposium organized by Ashkan Vaziri, Dirk Mohr and Alireza Amirkhizi

MS029A
Room: Sala D6
Chair: Ashkan Vaziri

Mechanical response of elastic open-cell foams under punching. Insights from experiments and simulations
Tapan Sabuwala, Xiangyu Dai and Gustavo Gioia

Effect of interfacial strength on the response of sandwich plates with elastomeric cores
Alireza V. Amirkhizi and Zhanzhan Jia

Modelling of closed-cell foams incorporating cell size and cell wall thickness variations 
Youming Chen, Raj Das and Mark Battley

Numerical modelling of Nomex honeycomb cores for local analyses of sandwich panel joints 
Ralf Seemann and Dieter Krause

23/07/2014 11:00 - 13:00
Embedded Interface Methods II
Minisymposium organized by John Dolbow, Isaac Harari and Adrian J. Lew

MS066B
Room: Sala E1
Chair: John Dolbow

A fixed-grid Finite Element Method for moving interfaces applied to the development of biological tissues
Thomas Rüberg and José M. García Aznar

A robust Nitsche's formulation for interface problems with spline-based finite elements
Wen Jiang, Chandrasekhar Annavarapu, John E. Dolbow and Isaac Harari

Immersed Discontinuous Galerkin Methods for Interface Problems
Slimane Adjerid, Kihyo Moon and Tao Lin

Unfitted MHDG method for elliptic interface problems
Jiang Zhu and Héctor A. Vargas

Embedded solids of any dimensions in the extended finite element method
Frédéric Duboeuf and Eric Béchet

23/07/2014 11:00 - 13:00
Coarse grained simulations and turbulent mixing I
Minisymposium organized by Fernando Grinstein

MS248A
Room: Sala E2
Chair: Fernando Grinstein

On implicit Large Eddy Simulations of turbulent mixing
Fernando F. Grinstein

Combustion in afterburning behind explosive blasts
Ekaterina Fedina, Kalyana C. Gottiparthi, Christer Fureby and Suresh Menon

Hybrid Two-Level and Large-Eddy Simulations of High Reynolds Number Turbulent Wall-Bounded and Free Shear Flows
Suresh Menon and R. Ranjan

Improved 2D tO 3D simulation strategy for inertial confinement fusion capsules
Brian M. Haines, Fernando F. Grinstein and James R. Fincke

23/07/2014 11:00 - 13:00

Advances in Constitutive Modelling of Metal Forming Processes across Different Lengthscales II
Minisymposium organized by Ivaylo N. Vladimirov, Robertt A. F. Valente, Ricardo Alves de Sousa and Myoung-Gyu Lee

MS065B
Room: Sala E3
Chair: Ivaylo Vladimirov

Dislocation density based plasticity model applied to metal forming
Andreas Lundbäck, Jun Liu, Jonas Edberg, Ming Jen Tan, Sylvie Castagne and Lars-Erik Lindgren

Evaluation of bake hardening behaviour of new CaO-added Al-Mg-Si alloys
Jongsup Lee, Jung Han Song, Yong-Bae Kim, Chanhu Jeon, Sangmok Lee, Eung-Zu Kim, Ki-Ho Jun and Geun-An Lee

Analytical and numerical prediction on flow stress of fibre metal laminate based on aluminium alloy and self-reinforced polypropylene
Byoungeon Lee, Jeong Kim, Beomsoo Kang and Woojin Song

Numerical and experimental study on cold forging with cyclic symmetrical cross ball grooves using hardness control of high speed tool material
Tae-Wan Ku and Beom-Soo Kang

Prediction of hole-expansion formability of multi-phase steels using 3d microstructure-based modeling
Ji Hoon Kim, Jinjin Ha, Jinwoo Lee, Frédéric Barlat, Myoung-Gyu Lee and Daeyong Kim

23/07/2014 11:00 - 13:00
Recent Advances in Computational Fracture Mechanics I
Minisymposium organized by Hiroshi Okada, Toru Ikeda, Chyanbin Hwu, Xiaosheng Gao and Toshio Nagashima

MS225A
Room: Sala E4
Chair: Toru Ikeda
CoChair: Hiroshi Okada

Crack propagation analysis using elastic-plastic FEM in torsional loading
Yoshitaka Wada

Implementation and experimental validation of the Sendova-Walton theory for Mode-I Fracture
Lauren A. Ferguson and Timothy D. Breitzman

Simulation of 3D internal cracks formed in concrete around deformed tension bars using isotropic damage model
Mao Kurumatani, Yuki Nemoto and Shinichiro Okazaki

Prediction of fatigue crack growth of the contact wire in the railway catenary using XFEM simulation
Si Hai Mai and Mac Lan Nguyen-Tajan

Damage propagation analyses by XFEM using the Cohesive Zone Model
Toshio Nagashima and Masataka Sawada

Singular stress analysis of sharp three-dimensional interfacial corner of jointed dissimilar materials using H-integral
Toru Ikeda, Takashi Tokuda, Yosuke Taguchi and Noriyuki Miyazaki

23/07/2014 11:00 - 13:00
New Trends in Zigzag Theories for Multi-layered and Sandwich beams, Plates, and Shells II
Minisymposium organized by Marco Di Sciuva, Alexander Tessler and Marco Gherlone

MS224B
Room: Sala E5
Chair: Marco Gherlone

Viscoelastic response of higher laminate composite and sandwich plates (Keynote Lecture)
Ngoc Nguyen-Sy, Jaehun Lee and Maenghyo Cho

Coupled high-order layerwise laminate theory for cylindrical sandwich composite shells with piezoelectric

actuators and sensors
Theofanis Plagianakos, Evangelos Papadopoulos and Dimitris Saravanos

An accurate quadrilateral laminated plate element accounting for the continuity conditions of interfacial transverse shear stresses
Xiaodan Wang and Guangyu Shi

A four node doubly-curved shell element based on the Refined Zigzag Theory
Daniele Versino and Marco Gherlone

A solid shell element with rotational degrees of freedom for sandwich analysis
Robert G. Winkler

Vibration modeling of viscoelastic sandwich structures using solid-shell finite elements.
Fessal Kpeky, Hakim Boudaoud, Hocine Chalal, Farid Abed-Meraim and El Mostafa Daya

23/07/2014 11:00 - 13:00
Reduced Order Models in Vibroacoustics I
Minisymposium organized by Gerhard Müller, Jean-Francois Deü, Martin Buchschmid and Antoine Legay

MS141A
Room: Sala E6
Chair: Gerhard Müller
CoChair: Jean-François Deü

Model reduction method for the computation of a low frequency random vibro-acoustic response (Keynote Lecture)
Mathilde Chevreuil, Cédric Leblond, Anthony Nouy and Jean-François Sigrist

Application of the PEDE$_M$ to the evaluation of radiated acoustic power
Sergio De Rosa, Francesco Franco and Elena Ciappi

Sound radiation of light-weight slabs and modeling aspects for suspended ceilings
Mathias Kohrmann, Martin Buchschmid, Gerhard Müller and Ulrich Schanda

Review of reduction methods based on modal projection for highly damped structures
Lucie Rouleau, Jean-François Deü and Antoine Legay

Discontinuous Galerkin Methods with plane waves for the Biot theory
Olivier Dazel and Gwenaël Gabard

Modal based reduction of structural-acoustic problems using XFEM
Antoine Legay

23/07/2014 11:00 - 13:00
Computational Contact Mechanics VI
Minisymposium organized by Tod Laursen, Peter Wriggers and Giorgio Zavarise

MS044F
Room: Sala F
Chair: Tod Laursen

Contact enrichment technique for simulation of wear and complex interfaces
Vladislav A. Yastrebov, Georges Cailletaud and Frédéric Feyel

Modeling of abrasive wear as multiscale cohesive fracture
Ajay B. Harish and Peter Wriggers

Mortar-based contact formulation with alternative cell partition for numerical integration
Christoph Wilking and Manfred Bischoff

Efficient parallel solution methods for mortar finite element discretizations in computational contact mechanics

Alexander Popp, Philipp Farah, Tobias Wiesner and Wolfgang A. Wall

A localized version of mortar method for treatment of nonmatching interfaces: Algorithm description
Sung-Kie Youn, Y. U. Song and K. C. Park

A localized version of mortar method for treatment of nonmatching interfaces: Performance evaluation
Yeo-Ul Song, Sung-Kie Youn and K. C. Park

23/07/2014 11:00 - 13:00
Computational Modeling of Fracture and Failure of Materials and Structures VI
Minisymposium organized by Olivier Allix, Milan Jirásek, Nicolas Moës and Xavier Oliver

MS226F
Room: Sala H 1
Chair: Ragnar Larsson

Multi-scale crack propagation analysis for strengh assessment of polycrstaline materials

Yuichi Shintaku, Kenjiro Terada, Junji Kato, Takashi Kyoya, Shuji Moriguchi, Shinsuke Takase and Seiichiro Tsutsumi

Stress- strain relationship for the confined concrete

Bouafia Y. Youcef, Iddir A. Abdelkader, Kachi M.S. Mohand Said and Dumontet H. Hélène

Gradient Damage Models and Brittle Fracture
Corrado Maurini, Blaise Bourdin and Jean-Jacques Marigo

Micromechanical modeling of delamination with the thick level set model
Frans P. van der Meer and Lambertus J. Sluys

A numerical approach to simulate ductile failure with mesh adaptivity within the finite strain framework
Sylvia Feld-Payet, Vincent Chiaruttini, Frédéric Feyel and Jacques Besson

23/07/2014 11:00 - 13:00
Isogeometric Methods VI
Minisymposium organized by Yuri Bazilevs, David J. Benson, Rene De Borst, Thomas J.R. Hughes, Trond Kvamsdal, Alessandro Reali, Michael A. Scott and Clemens V. Verhoosel

MS049F
Room: Sala H 2
Chair: Clemens Verhoosel

Isogeometric spline forests (Keynote Lecture)
Michael A. Scott, Derek C. Thomas and Emily J. Evans

Edge graph based volume segmentation for isogeometric analysis
Bert Juettler, Dang-Manh Nguyen and Michael Pauley

Volumetric NURBS Parameterization from CAD Boundary Representations for Isogeometric Analysis
Hassan Al Akhras, Thomas Elguedj, Anthony Gravouil and Michel Rochette

Isogeometric analysis and subdivision surfaces
Pieter Barendrecht, Jingjing Shen, Jiří Kosinka, Malcolm Sabin and Neil Dodgson

Isogeometric analysis for domains with corners

Qing Xu, Feng Wang, Kangsheng Lai and Gao Lin

B++ splines and isogeometric analysis
Xue-Feng Zhu, Ping Hu and Zheng-Dong Ma

23/07/2014 11:00 - 13:00
Multiscale Computational Homogenization for Bridging

MS012F

Scales in the Mechanics and Physics of Complex Materials VI
Minisymposium organized by Julien Yvonnet, Kenjiro Terada, Peter Wriggers and Marc Geers

Room: Sala H 3
Chair: Maenghyo Cho
CoChair: Fabrice Detrez

A study on lattice rotation of polycrystalline FCC metals using homogenization-based approach
Yuichi Tadano and Seiya Hagihara

Influence of Inclusion Morphology on Effective Behaviour of Elastoplastic Matrix-Inclusion Materials
Roland Traxl, Roman Lackner and Matthias Rauter

Some numerical aspects of finite element models for polycrystalline homogenization
Daniel Rodriguez, Ignacio Romero and Javier Segurado

An electroneutral computational homogenization formulation for Li-ion battery cells
Alberto Salvadori, Davide Grazioli and Marc G.D. Geers

Grain cluster method for multiscale simulations of multiphase steels
Sergio Turteltaub, Sourena Yadegari and Akke Suiker

Preliminary numerical analysis relevant to an electroneutral computational homogenization formulation for Li-ion battery cells
Davide Grazioli, Alberto Salvadori and Allan Bower

23/07/2014 11:00 - 13:00
Computational Biomechanics VI
Minisymposium organized by T.Christian Gasser, Miguel Cerrolaza, Ellen Kuhl, Michael Gee, Yomar Gonzalez, Simone Deparis and Thomas Franz

MS007F
Room: Sala J
Chair: Jose F Rodriguez
CoChair: Sebastian Skatulla

Finite element modelling of biaxial tension tests of soft tissues with clamps and hooks (Keynote Lecture)
Martin Slazansky, Jiri Bursa and Stanislav Polzer

Computational modeling of muscle contracture
Alexander M. Zöllner and Ellen Kuhl

The role of water in tendon biomechanics.
Marco Franchi

Ogden parameter optimization for finite element modelling of cervical ligaments using hybrid formulation
Ester Comellas, Facundo Bellomo and Sergio Oller

Experimental and numerical study on the elastic-viscoplastic behavior of facial soft tissues
Johannes Weickenmeier, Edoardo Mazza and Mahmood Jabareen

23/07/2014 11:00 - 13:00
Railway and Road Noise and Vibrations - Modeling of Propagation and Mitigation I
Minisymposium organized by Paulo Amado-Mendes, Luís Godinho, Salvador Ivorra and Jaime Ramis

MS258A
Room: Business Centre I
Chair: Paulo Amado-Mendes
CoChair: Luis Godinho

A procedure for the top geometry optimization of thin acoustic barriers
Rayco Toledo, Juan J. Aznárez, Orlando Maeso and David Greiner

An explicit integration finite element method for impact noise generation due to wheel flat
Zhen Yang, Zili Li and Rolf P.B.J. Dollevoet

3D FE Modelling of Wheel-Rail Frictional Rolling Contact in ElastoPlasticity for Investigation on Short Pitch Corrugation
Shaoguang Li, Zili Li and Rolf P.B.J. Dollevoet

2.5d modeling of soil-structure interaction using a coupled MFS-FEM formulation
Paulo Amado-Mendes, Luís Godinho and Pedro Alves-Costa

Prediction of railway induced vibrations in an urban environment
Pieter Coulier, Alice Cicirello, Geert Lombaert, Geert Degrande and Hugh Hunt

Simplified model for structural vibration of a viaduct due to railway traffic
Yifan Chen and Tianxing Wu

23/07/2014 11:00 - 13:00
Automation of Computational Modeling by Advanced Software Tools and Techniques I
Minisymposium organized by Joze Korelc, Garth Nathan Wells, Dominique Eyheramendy , Anders Logg and Hugo Leclerc

MS107A
Room: Business Centre II
Chair: Joze Korelc

A dynamic approach for automating finite element code development
Dominique Eyheramendy and Roy Saad

Interactive debugging of automatically generated numerical codes
Jože Korelc

Freedyn – A Multibody simulation research code
Karin Nachbagauer, Karim Sherif and Wolfgang Witteveen

Firedrake, a toolchain for performance-portable automated finite element simulation
David A. Ham, Gheorghe-Teodor Bercea, Colin Cotter, Paul H. J. Kelly, Michael Lange, Nicholas Loriant, Fabio Luporini, Andrew T.T. McRae, Lawrence Mitchell and Florian Rathgeber

Stela: How a performance dedicated language can help to automate the development of solvers and field manipulators
Hugo Leclerc and Samir Amrouche

23/07/2014 11:00 - 13:00
Innovative Numerical Approaches for Multi-physics Problems II
Minisymposium organized by Anna Pandolfi, Laurent Stainier and Kerstin Weinberg

MS129B
Room: Sala de prensa I
Chair: Kerstin Weinberg

Multi-physics multi-scale models for retinal blood flow and its relation to glaucoma
Giovanna Guidoboni and Alon Harris

Mathematical modeling of retinal circulation: Fundamental mechanisms and impact on retinal diseases
Francesca Malgaroli, Paola Causin, Giovanna Guidoboni, Riccardo Sacco and Alon Harris

On the thermo-visco-hyperelasticity of electro-active biological tissues
Alessio Gizzi, Christian Cherubini, Simonetta Filippi and Anna Pandolfi

A two-fluid computational model to study magnetic reconnection in reactive plasmas under chromospheric conditions
Alejandro Alvarez Laguna, Andrea Lani, Nagi N. Mansour, Alexander Kosovichev and Stefaan Poedts

Phase-field modeling of hydraulic fracture in poro-elastic solids at large strains

Steffen Mauthe, Heike Ulmer and Christian Miehe

A coupled fluid/solid approach for the numerical simulation of welding
Hussein Amin El Sayed, Eric Feulvarch, Jean Baptiste Leblond, Bruno Souloumiac, Frederic Boitout and Jean-Michel Bergheau

23/07/2014 11:00 - 13:00
Microstructural Based Constitutive Models in Hard and Soft Matter Materials II
Minisymposium organized by Christian Miehe, Samuel Forest and Christian Linder

MS140B
Room: Sala de prensa II
Chair: Christian Miehe
CoChair: Christian Linder

The macroscopic response, microstructure evolution and macroscopic stability of short fiber-reinforced elastomers at finite strains (Keynote Lecture)
Reza Avazmohammadi and Pedro Ponte Castaneda

Magnetorheological elastomers: Experiments and modeling
Kostas Danas and Nicolas Triantafyllidis

Two-scale computational homogenization of electroactive polymer composites at finite strains
Marc-Andre Keip, Paul Steinmann and Jörg Schröder

Variational-based computational homogenization of electro-magneto-active polymer composites at large strains
Dominic Zäh and Christian Miehe

23/07/2014 11:00 - 13:00
Chemical Degradation Processes in Concrete Materials
Minisymposium organized by Carmelo E. Majorana and Kaspar J. Willam

MS453A
Room: Sala de Reservas
Chair: Carmelo Majorana

Structural analysis of frost damaged constructions by means of a coupled environmental-mechanical damage model
Luisa Berto, Anna Saetta, Diego A. Talledo and Renato Vitaliani

Mesoscale modelling of concrete material with polypropylene fibres inclusion under high temperature
Gianluca Mazzucco, Valentina A. Salomoni and Carmelo Majorana

Numerical modeling of the corrosion effects on reinforced concrete beams
Irene B.N. Finozzi, Luisa Berto, Anna Saetta and Harald Budelmann

Multiscale Evaluation of Concrete Degradation due to Alkali Silica Reaction
Giovanna Xotta, Kaspar Willam, Masoud Dehghani and Shahriyar Beizaee

Numerical Simulation of Non-Uniform Corrosion States in Rebars under Natural Chloride Environment
S Muthulingam and B.N. Rao

13:00 - 14:00
Lunch Time

14:00 - 16:00
TECHNICAL SESSIONS

23/07/2014 14:00 - 16:00
Advances in Numerical Methods for Linear and Non-linear Dynamics III
Minisymposium organized by Alexander Idesman and Gregory Hulbert

MS087C
Room: Mare Nostrum A
Chair: Gregory Hulbert
CoChair: Alexander Idesman

A new class of exact analytical solutions for elastodynamic impact
George A. Gazonas, Mike J. Scheidler and Ani P. Velo

BEM approach of time-harmonic problem for porouse soil-structure interaction with intermediate layer
Mark Antis, Yuri Karinski and David Yankelevsky

Modifying resonance modes of dissipative structures using magnitude and phase information
Hugo J. Peters, Paolo Tiso, Johannes F.L. Goosen and Fred van Keulen

High performance algorithms for the modal linear dynamic analysis in the frequency domain
Mikhail Belyi

The Caughley Absorbing Layer Method – Implementation and validation in Ansys software
André F.S. Rodrigues and Zuzana Dimitrovová

23/07/2014 14:00 - 16:00
Advances in Shape and Topology Optimization of Structures and Materials III
Minisymposium organized by Michael Wang, Zhen Luo and Takayuki Yamada

MS494C
Room: Mare Nostrum B
Chair: Takayuki Yamada
CoChair: James Guest

New manufacturing constraint capabilities in projection-based topology optimization (Keynote Lecture)
James K. Guest and Mu Zhu

A manufacturability-based method of topological shape optimization for structures under multiple loading cases
Hao Li, Liang Gao, Li Zhang and Tao Wu

A new level set based method for topology optimization
Tao Wu, Yansong Zhao, Ying Peng and Yu Fu

Shape optimization of shear panel damper under cyclic elasto-plastic behavior
Sho Kozono, Masatoshi Shimoda and Yang Liu

Isogeometric shape optimization of trimmed shell structures
Pilseong Kang and Sung-Kie Youn

A non-parametric free-form optimization of shell structures for reducing radiated noise
Masatoshi Shimoda and Kensuke Shimoide

23/07/2014 14:00 - 16:00
Discontinuous Galerkin Methods: New Trends and Applications II
Minisymposium organized by Bernardo Cockburn, Sonia Fernandez-Mendez, Nicoletta Franchina, Ngoc-Cuong Nguyen,

MS139B
Room: Mare Nostrum C
Chair: Jaume Peraire

Jaime Peraire and Per-Olof Persson

A high-order implicit-explicit Discontinuous Galerkin scheme for fluid-structure interaction
Per-Olof Persson and Bradley Froehle

Relaxing the CFL number of the discontinuous Galerkin method
Noel Chalmers and Lilia Krivodonova

Investigation of high-order temporal schemes for the Discontinuous Galerkin solution of the Navier-Stokes equations
Francesco Bassi, Carmine De Bartolo, Nicoletta Franchina, Antonio Ghidoni and Alessandra Nigro

Multigrid algorithms for hp-Discontinuous Galerkin discretizations of elliptic problems
Paola F. Antonietti, Marco Sarti and Marco Verani

Staggered Discontinuous Galerkin method and FETI-DP preconditioners for the Stokes system
Eric Chung and Hyea Hyun Kim

Spectral and high order DGFEM for time-domain electrodynamics in inhomogeneous material
Jens Zudrop and Harald Klimach

23/07/2014 14:00 - 16:00
Computational Fluid Dynamics for Free and Moving Boundaries III
Minisymposium organized by Rekha R. Rao, David R. Noble, Scott A. Roberts and Elie Hachem

MS256C
Room: Mare Nostrum D
Chair: Jonathan Clausen
CoChair: ELIE HACHEM

Unstructured 3D numerical modeling of the melting of a PCM contained in a spherical capsule (Keynote Lecture)
Pedro A. Galione, Oriol Lehmkuhl, Joaquim Rigola, Carles D. Pérez-Segarra and Assensi Oliva

Phase field-lattice Boltzmann simulations of liquid-solid two-phase flows
Roberto Rojas and Tomohiro Takaki

Numerical analysis of liquid film evaporation in micro cavities
Hyoje Ahn and Gihun Son

Computational and analytical solution of non-Local Stefan melting problems
Vaughan Voller

Improving mass conservation in a stabilized level-set approach for high-density-ratio flows
Scott A. Roberts, David R. Noble and Rekha R. Rao

A multiple marker level-set method for simulation of bubbly flows
Néstor Balcázar, Lluís Jofre, Oriol Lehmkuhl, Jesús Castro and Assensi Oliva

23/07/2014 14:00 - 16:00
Uncertainty Modeling and High Performance Stochastic Methods for Computationally Intensive Calibrations, Predictions and Optimizations III
Minisymposium organized by Tan Bui-Thanh, Thomas Carraro, Marko Laine and Ernesto E. Prudencio

MS184C
Room: Mare Nostrum E
Chair: Ernesto Prudencio

Bayesian uncertainty quantification and propagation using adjoint techniques
Costas Papadimitriou and Dimitrios I. Papadimitriou

Optimal control of two age structured malaria model with model parameter uncertainty 

Gasper G. Mwanga and Heikki Haario

Concurrent tolerance allocation in mechanical assemblies by desing under uncertainty methods 

Victor E. Ruiz

Uncertainty quantification and calibration of physical models
Habib Najm, Kenny Chowdhary and Khachik Sargsyan

Multilevel estimation of rare events
Elisabeth Ullmann and Iason Papaioannou

Nested sampling for calibration and prior model selection of subsurface flow models
Ahmed H. Elsheikh

23/07/2014 14:00 - 16:00
Current Challenges in Cohesive-zone Models III
Minisymposium organized by Albert Turon, Giulio Alfano and Bent F. Sørensen

MS196C
Room: Mare Nostrum F
Chair: Albert Turon

Cohesive zone modelling of wrinkle defects in glass-epoxy laminates using user finite element feature
Esben Lindgaard, Brian L.V. Bak, Esben T. Christensen and Jens Glud

Extracting rate dependent traction separation relations for cracks/interfaces in viscoelastic media
Sundeep Palvadi, Nanshu Lu and Kenneth Liechti

Continuum cohesive failure/interface failure interaction in adhesively bonded double-lap joint specimens
Jonathan P.-H. Belnoue and Stephen R. Hallett

Virtual determination of cohesive zone parameters for adhesive joints using a homogenization approach
Monika Gall and Jörg Hohe

Gradient of damage enhancement for a cohesive model
Nunziante Valoroso and Michel Raous

Crack formation and development in reinforced-concrete embedded-discontinuity beam finite elements
Gordan Jelenić, Paulo Šćulac and Leo Škec

23/07/2014 14:00 - 16:00
Multiscale Analysis and Design Under Uncertainty II
Minisymposium organized by George Stefanou, Vissarion Papadopoulos, X. Frank Xu and Manolis Papadrakakis

MS269B
Room: Llevant
Chair: George Stefanou
CoChair: Vissarion Papadopoulos

The effect of random material properties on the probabilistic behavior of functionally graded plates (Keynote Lecture)
Ta Duy Hien and Hyuk Chun Noh

Influence of the spatial correlation structure of an elastic random medium on its scattering properties
Shahram Khazaie, Régis Cottereau and Didier Clouteau

Multi-scale elasticity identification using modified constitutive relation error
Shaojuan Huang, Pierre Feissel and Pierre Villon

A VRF-based sparse SSFEM of non-Gaussian stochastic fields
Dimitris G. Giovanis, Vissarion Papadopoulos and George Stavroulakis

Robust design with variability response functions
Odysseas Kokkinos and Vissarion Papadopoulos

Effect of uncertainty on prediction of tool life for milling ultrahigh strength steel

Peipei Zhang, Zhangchun Tang and Zhiwen Liu

23/07/2014 14:00 - 16:00
Advanced Discretization and Solution Methods for Coupled Multiphysics Transport Phenomena I
Minisymposium organized by John Shadid and Dmitri Kuzmin

MS115A
Room: Mestral
Chair: John Shadid
CoChair: Dmitri Kuzmin

Asymptotic-preserving semi-Lagrangian Discontinuous Galerkin schemes for a class of relaxation systems (Keynote Lecture)
James A. Rossmanith and Anna Lischke

Fast hierarchical solvers for Discontinuous Galerkin methods
Dmitri Kuzmin, Lukas Korous and Vadym Aizinger

Improved accuracy of high-order WENO finite volume methods on Cartesian grids
Pawel Buchmueller and Christiane Helzel

Monotonicity in high-order curvilinear finite element field remap
Robert W. Anderson, Veselin A. Dobrev, Tzanio V. Kolev and Robert N. Rieben

Regularizing nonlinear systems with discontinuous solutions in higher order methods
Craig Michoski, Clint Dawson, Dam Wirasaet, Joannes Westerink and Ethan Kubatko

Algebraic linearity preserving limiters for compressible flow problems
Eric C. Cyr, John N. Shadid and Dmitri Kuzmin

23/07/2014 14:00 - 16:00
Industrial Applications of Computational Fluid Dynamics and Related Techniques VII

CS658G
Room: Ponent 1
Chair: Ignasi Colominas

Numerical Investigation of Electrically Excited RTI Using ISPH Method

Amin Rahmat, Nima Tofighi and Mehmet Yildiz

Steady rise of a deformable bubble in an elasto-viscoplastic fluid
Eleftheria Michalaki, Michalis Pavlidis, Yannis Dimakopoulos and John Tsamopoulos

Parallel computing of icing on three-dimensional airfoils
Dorian Pena, Yannick Hoarau and Eric Laurendeau

Direct Monte Carlo simulation of a rarefied ionized flow about a reentry vehicle
Alexander Shevyrin and Yevgeniy Bondar

Modelling squeeze flow of viscous polymer melts

Tristan J. Shelley, Xiaolin Liu, Martin Veidt, Michael Heitzmann and Rowan Paton

Computer modelling of operation of the conductive MHD centrifugal pump

Savelii Katsnelson and Georgiy A. Pozdnyakov

23/07/2014 14:00 - 16:00
Industrial Applications of Computational Solid Mechanics and Related Techniques II

CS659B
Room: Ponent 2
Chair: Antonio Rodriguez-Ferran

BLC derivation of a stuffed whipple shield based on numerical simulations

Byung Jin Son, Jeonghoon Yoo and Minhyung Lee

Computational modelling of thin film Runoff and evaporation on surfaces
Martin Martin, Thijs Defraeye, Dominique Derome and Jan Carmeliet

Friction model in equal channel angular extrusion subjected to back pressure
Vinícius Aguiar de Souza, Ikumu Watanabe and Akira Yanagida

Shape optimization with Gene algorithm in the design of stretchable electronics
Ming Li, Zhan Kang and Tengfei Zhao

A novel Rotary Magnetorheological Fluid Damper for wearable rehabilitation robot
Gao Yongsheng, Sun Xiaoying, Fan Jizhuang, Zhu Yanhe and Liu Gangfeng

Identification of low-contrast inclusions in poroelastic materials
Joaquín Mura

23/07/2014 14:00 - 16:00
Mesh Generation and Adaption III
Minisymposium organized by Josep Sarrate, Franck Ledoux and Rafael Montenegro

MS198C
Room: Terral
Chair: Rafael Montenegro Armas

A 2D topology-adaptive mesh deformation framework for extremely large boundary deformations
Suzanne M. Shontz, Jibum Kim and David O. McLaurin

Improved Poisson-disk sampling for meshing applications
Mohamed S. Ebeida and Scott A. Mitchell

Surface mesh smoothing and improvement strategies for free-form shapes in industrial and academic applications
Felix Frischmann, Andreas Niggl, Stefan Kollmannsberger and Ernst Rank

Volume conservation of 3D surface triangular mesh smoothing
Daniel Rypl and Jiri Nerad

Graph grammar for construction of elimination trees for fast solution of H adapted meshes
Anna Paszynska and Maciej Paszynski

The analysis of the efficiency of an adaptation method based on the grid generator
Jan Kucwaj

23/07/2014 14:00 - 16:00
Smart Structures - Modelling and Simulation II
Minisymposium organized by Ruediger Schmidt

MS086B
Room: Tramuntana 1
Chair: ZHIGANG LIU

Numerical simulation of large deformation kinetics for polymeric (Keynote Lecture)
Zishun Liu, Jianying Hu and William Toh

The investigation of non-contact active control using photostrictive actuators
Shi-jie Zheng, Xiao-fei Zhang, Hong-tao Wang and Shu-yang Li

Development of a cohesive model for damage simulation in ferroelectric materials subjected to electromechanical loading
Sergii Kozinov, Stephan Roth and Meinhard Kuna

Investigation of the poling process in multiferroic composites via FEM simulation

Artjom Avakian, Roman Gellmann and Andreas Ricoeur

A nonlinear viscoelastic model for electroactive inflated membranes

Stefano Buoso and Rafael Palacios

23/07/2014 14:00 - 16:00
Advanced Numerical Methods I

CS656A
Room: Tramuntana 2
Chair: Manuel Casteleiro

A dissipation-based state update algorithm for isotropic elasto-plastic hardening materials
Nicola A. Nodargi, Edoardo Artioli, Federica Caselli and Paolo Bisegna

Computational assessment of reduction methods IN FE-based frequency-response analysis

Frank Ihlenburg, Robert Möllenhoff and Martin Wandel

Aeroelastic analysis of spherical shells

Aouni Lakis, Mohamed Menna and Mohammad Toorani

Numerical algorithms for plasticity models with nonlinear kinematic hardening

Fabio De Angelis and Robert L. Taylor

Stress formulation of complex variable boundary integral equation for solving torsion problems

Jia-Wei Lee and Jeng-Tzong Chen

Nonlinear Kirchhoff-love shells: Theory and numerical assessment using tuba finite elements
Vladimir Ivannikov, Carlos Tiago and Paulo M. Pimenta

23/07/2014 14:00 - 16:00
Methods of Approximate Static Analyses of Complex Structural Systems I
Minisymposium organized by Janusz Rębielak

MS252A
Room: Xaloc
Chair: Janusz Rębielak

Reinforced concrete shear wall: structural element - finite element

Peter Rosko and Adrian Bekö

The numerical collapse analysis of tensegrity structures
Behzad Shekastehbandd and Karim Abedi

Practical static calculation method for estimating elasto-plastic dynamic responses of space frames

Koichiro Ishikawa

Hybrid design methods for complex systems in architecture & structural engineering

Julia Stratil

New method of approximate calculations of statically indeterminate trusses
Janusz Rębielak

Aspects of the boundary element formulation of isotropic shallow shells using radial integration method
Luís J. M. Jesus, Carlos A. Cimini Jr. and Éder L. Albuquerque

23/07/2014 14:00 - 16:00
Finite Element Methods and High-Performance Computing for Environmental Fluid Mechanics I

MS152A
Room: Salon Club

Minisymposium organized by Ethan Kubatko and Kazuo Kashiyama

Chair: Ethan Kubatko

Efficient spatial and time discretizations for environmental fluid mechanics (Keynote Lecture)
Vincent Legat

A coupling method of free surface flow using FEM for Boussinesq equations and Navier-Stokes equations
Junichi Matsumoto and Kazuo Kashiyama

Advances in discontinuous-Galerkin based spectral wave modeling
Rachel Sebian, Ethan Kubatko, Angela Nappi and Casey Dietrich

Automated solution of partial differential equations on prism cells, within firedrake
Andrew T.T. McRae, Gheorghe-Teodor Bercea, Lawrence Mitchell, David A. Ham and Colin Cotter

A high-order, three-dimensional, Discontinuous Galerkin (DG) coastal ocean circulation and transport model
Colton Conroy and Ethan Kubatko

Modeling and Simulation of Tsunami Waves Using Virtual Reality
Kazuo Kashiyama, Taiki Fumuro, Takeshi Kawabe, Junichi Matsumoto, Seizo Tanaka, Shinsuke Takase and Kenjiro Terada

23/07/2014 14:00 - 16:00
Computational Methods in Fluid-structure Interactions, Dynamics and Vibration, Vibroacoustics - A Minisymposium in Honor of Prof. Roger Ohayon VII
Minisymposium organized by Christian Soize

MS009G
Room: Yasmin A
Chair: Marc Mignolet
CoChair: Christian Soize

Recent advances in mass matrix templates for structural dynamics (Keynote Lecture)
Carlos A. Felippa, Qiong Guo and K. C. Park

A scalable parallel symmetric eigenvalue problem solver: TraceMIN
Ahmed H. Sameh and Alicia Klinvex

Impulse based substructuring as paradigm for coupled analysis of dynamic components
Daniel Rixen and Paul van de Valk

Finite deformation beams for problems of interaction
Igor Sokolov, Slava Krylov and Isaac Harari

Assessment of boundary conditions for dynamic analysis
Guido De Roeck

Selection algorithm for bilinear modes
Mohammad S. Hamzah, Stefano Zucca and Bogdan I. Epureanu

23/07/2014 14:00 - 16:00
Multiscale and Multiphysics Modelling for Complex Materials (MMCM5) IV
Minisymposium organized by Patrizia Trovalusci, Tomasz Sadowski, René de Borst and Bernhard Schrefler

MS120D
Room: Yasmin B
Chair: Patrizia Trovalusci
CoChair: Bernhard Schrefler

Multiscale modelling of fatigue crack initiation and propagation in metal single and polycrystals (Keynote Lecture)
Samuel Forest, Damien Colas, Sylvain Flouriot and Ozgur Aslan

A multifield continuum model for microporous ceramic matrix composites

Annamaria Pau and Patrizia Trovalusci

Discrete and continuous models for the in plane modal analysis of masonry structures 

Daniele Baraldi and Antonella Cecchi

Phase-Field Approach for Description of the Packaging Behavior in Metallic Closed-Cell Foams
Mykola Ievdokymov, Holm Altenbach and Victor Eremeyev

Constitutive framework for modeling incipient spall damage in FCC metals using microstructurally explicit 3D finite elements
Kapil Krishnan, Andrew Brown, Leda Wayne, Eric Loomis and Pedro Peralta

Fractional hereditariness of Lipid Membranes
K. Dayal, Luca Deseri, P. Pollaci and M. Zingales

23/07/2014 14:00 - 16:00
Phase-field Modeling and Simulation in Fluid Mechanics, Solid Mechanics and Life-sciences IV
Minisymposium organized by Hector Gomez, Kris van der Zee, Marino Arroyo, Irene Arias, Baskar Ganapathysubramanian, Thomas J.R. Hughes and John T. Oden

MS143D
Room: Yasmin C
Chair: Marino Arroyo
CoChair: Hector Gomez

Extreme large-scale multi-phase-field simulation of polycrystalline grain growth using TSUBAME2.5 GPU-supercomputer
Masashi Okamoto, Akinori Yamanaka, Takashi Shimokawabe and Takayuki Aoki

A quantitative free energy functional for phase field modeling
San-Qiang Shi, Zhihua Xiao and Mingjun Hao

2D and 3D Phase-Field Simulations of Competitive Dendrite Growth During Directional solidification of Binary Alloy
Tomohiro Takaki

Energy-stable time discretizations for the phase-field crystal equation
Philippe Vignal, Lisandro A. Dalcin, Donald L. Brown, Nathan O. Collier and Victor M. Calo

23/07/2014 14:00 - 16:00
STS 04: Optimization

STS04A
Room: Auditorium
Chair: Jacques Periaux

Adaptive surrogate modelling for global optimization
Richard P. Dwight, Jouke de Baar and Iliass Azijli

Multidisciplinary optimization of turbomachinery components using differential evolution
Tom Verstraete and Herman Deconinck

Hybridized evolutionary optimization with game strategies for multidisciplinary design applied to aeronautics
Jacques Periaux, L. F. Gonzalez and D. S. Lee

Adjoint wall functions - Validation and application to vehicle aerodynamics
Evangelos M. Papoutsis-Kiachagias, Kyriakos C. Giannakoglou and Carsten Othmer

23/07/2014 14:00 - 16:00
Advanced Materials: Computational Analysis of Properties and Performance I
Minisymposium organized by Vadim Silberschmidt and Valery

MS006A
Room: Sala A
Chair: Valery P. Matveenko

Matveenko

CoChair: Vadim V. Silberschmidt

Stochastic virtual tests for fiber composites (Keynote Lecture)
Brian N. Cox, Hrishikesh A. Bale, Matthew Blacklock, B.C. Do, Tony Fast, Robert O. Ritchie, Michael Rossol, Qingda Yang, Frank Zok and David B. Marshall

A novell approach for modelling composites with a variable-axial fibre design
Lars Bittrich, Axel Spickenheuer, Kai Uhlig and Gert Heinrich

Probabilistic description of stochastic processes of structural failure in advanced polydisperse composites
Mikhail Tashkinov

Numerical modelling of plate heat exchanger gasket
Hongyi Zhao, Jensen Aw and James Ren

Optimization of geometry of adhesive joints
Andrey Yu. Fedorov and Natalja V. Sevodina

Integrating Modeling and Silk-Like Protein Design to Mimic Biological Fiber Spinning
Seunghwa Ryu, Shangchao Lin, Greta Gronau, Olena Tokaleva, Michelle Kinahan, Sreevidibya T Krishnaji, Joyce Y. Wong, David L. Kaplan and Markus J. Buehler

23/07/2014 14:00 - 16:00
Transition Modeling and Prediction in CFD Solvers with Focus on Practical Applications I
Minisymposium organized by Andreas Krumbein, Cornelia Grabe, Jean Perraud and Hugues Deniau

MS147A
Room: Sala B1
Chair: Andreas Krumbein
CoChair: Jean Perraud

Overview of transition prediction tools in elsA software
Jean Perraud, Hugues Deniau and Grégoire Casalis

Automatic prediction of laminar/turbulent transition in an unstructured finite element Navier-Stokes solver.
Raphaël Gross, Jean-Claude Courty, Dac Tran, Daniel Arnal and Olivier Vermeersch

Transition prediction and implementation in RANS solvers
Donato de Rosa, Carmine Vassallo, Carlo De Nicola and Raffaele S. Donelli

Assessment of laminar-turbulent transition modelling for rotating wing applications
François Richez, Lionel Castillon, Julien Marty, Michel Costes, Xavier de Saint-Victor and Patrick Gardarein

Flutter prediction in the transonic flight regime with the γ-RE$_\theta$ transition model
Michael Fehrs, Anna C.L.M. van Rooij and Jens Nitzsche

Plate cooling design by means of CFD analysis
Pasquale Natale, Daniele Ricci, Manrico Fragiacomo and Francesco Battista

23/07/2014 14:00 - 16:00
Modeling of Fiber-based Structures - Textiles and Textile Reinforced Composites I
Minisymposium organized by Yordan Kyosev, Philippe Boisse and Damien Durville

MS014A
Room: Sala B2
Chair: Yordan Kyosev

Mechanical model and discretization of thermoplastic composite materials at forming temperatures

Eduardo Guzman Maldonado, Nahiene Hamila, Philippe Boisse and Philippe Chaudet

Woven polymer matrix composites: characterization and modelling of damage at the mesoscale
Christian Fagiano, Aurélien Doitrand, Martin Hirsekorn and Vincent Chiaruttini

Finite element simulation of the mechanical behaviour of wire ropes, comparison with analytical models and experimental tests
Nerea Otaño Aramendi, Damien Durville and Hodei Usabiaga

Quasi-static micro-mechanical representative volume element modeling of dry fiber bundles
Scott E. Stapleton, Lars Appel and Thomas Gries

A new RVE generation procedure for Extended Finite Element simulations of textile-reinforced composites
Bernard Sonon, Badadjida Wintiba and Thierry J. Massart

A meshing technique dedicated to complex woven composite structures
Man Hung Ha, Ludovic Cauvin and Alain Rassineux

23/07/2014 14:00 - 16:00
Advanced Computational Techniques in Geophysical Sciences II
Minisymposium organized by Hélène Barucq, Rabia Djellouli and Kersten Schmidt

MS170B
Room: Sala B3
Chair: Helene Barucq

Full Waveform Inversion in Migration Based Travel Time formulation
Guy Chavent, Kirill Gadylshin and Vladimir Tcheverda

Absorbing boundary conditions for tilted transverse isotropic elastic media
Helene Barucq, Lionel Boillot, Henri Calandra and Julien Diaz

Helmholtz equation in highly heterogeneous media
Helene Barucq, Henri Calandra, Théophile Chaumont-Frelet and Christian Gout

Full waveform inversion in time-domain for geophysical applications
Mirko Lucchese, Stefano Micheletti, Simona Perotto and Marianna Signorini

Imaging of complex media with elastic wave equations
Helene Barucq, Henri Calandra, Julien Diaz and Jerome Luquel

Coupling of Discontinuous Galerkin and Finite Differences methods for simulation seismic waves
Julien Diaz, Vadim Lisitsa, Vladimir Tcheverda and Dmitry Vishnevsky

23/07/2014 14:00 - 16:00
Numerical Analysis and Design for Advanced Engineering Solutions I
Minisymposium organized by Wolfgang Graf, Edoardo Patelli, André T. Beck, Michael Beer and Héctor A. Jensen

MS055A
Room: Sala C1
Chair: Wolfgang Graf
CoChair: Takashi Hara

Analysis of the geometrical parameters of thermal components in a Stirling engine
Ana C. Ferreira, Manuel L. Nunes, Luís B. Martins and Senhorinha F. Teixeira

An integrated analysis of EV electric motor system: Electromagnetic, vibration and thermal analysis
S.H. Cho, S.H. Kim, S.J. Ma and Chang-Wan Kim

Fatigue analysis of structure of gondola car body based on rigid-flexible coupling multi-body systems

Zhong Yu-guang, Zhan Yong and Zhao Ge

Jacket substructure fatigue mitigation through active control

Tomas Hanis and Anand Natarajan

Reliability-based design with using numerical analysis

Takashi Hara, Tomoo Kato and Maiko Nonoyama

Intelligent engineering with uncertain data.
Graf Wolfgang, Marco Götz and Michael Kaliske

23/07/2014 14:00 - 16:00
Inverse Problems, Design and Optimization I
Minisymposium organized by Marcelo Colaço, Helcio Orlande, George Dulikravich and Ireneusz Szczygiel

MS024A
Room: Sala C2
Chair: Marcelo Colaço

State estimation problem for the detection of a shutdown valve closure in gas pipelines with multiple valves
Italo M. Madeira and Helcio R.B. Orlande

A comparison of particle filters applied to the heat transfer coefficient estimation in internal combustion engines
Diego C. Estumano, Fabiana C. Hamilton, Marcelo J. Colaço, Albino J.K. Leiroz, Rogerio N. Carvalho, George S. Dulikravich and Helcio R.B. Orlande

Determining of the neonatal thermal model parameters using inverse thermal analysis

Joanna Laszczyk, Anna Maczko, Wojciech Walas and Andrzej J. Nowak

DNS-Based optimal control of separated flow over a half circular cylinder
Masamichi Nakamura, Taku Nonomura and Yoshifumi Inatani

A two step process for shape optimization in computational fluid dynamics
Esteban Betancur, Charles Dapogny, Pascal Frey and Manuel J. Garcia

Variational Bayesian formulations with sparsity-enforcing priors for model calibration
Isabell Franck and Phaedon-Stelios Koutsourelakis

23/07/2014 14:00 - 16:00
Nonlinear Computational Stability Analysis I
Minisymposium organized by Herbert Mang and Yeong-Bin Yang

MS236A
Room: Sala C3
Chair: Herbert Mang

Numerical solution of linear eigenproblems containing derivatives of the tangent stiffness matrix with respect to the load parameter (Keynote Lecture)
Xin Jia and Herbert A. Mang

Koiter asymptotic analysis in technical applications
Antonio Madeo, Giuseppe Zagari, Giovanni Zucco, Raffaele Zinno and Raffaele Casciaro

Numerical approach for visualization of the buckling sphere by means of resolving the consistently linearized eigenproblem
Stefan Pavlicek, Xin Jia and Herbert A. Mang

Buckling behaviour of friction stir welded stiffened aluminium panels
Rui M.F. Paulo, Pierpaolo Carlone, Robertt A.F. Valente, Filipe Teixeira-Dias and Gaetano S. Palazzo

The buckling sphere - A symbiosis of mechanics of solids and spherical geometry
Herbert A. Mang, Xin Jia and Stefan Pavlicek

Nonlinear analysis of hybrid steel-concrete beam with interlayer slips
Pisey Keo, Mohammed Hjiaj, Quang Huy Nguyen and Hugues Somja

23/07/2014 14:00 - 16:00
Computational Geomechanics I
Minisymposium organized by Kristian Krabbenhoft, Scott Sloan, Dorival Pedroso and Jose Andrade

MS019A
Room: Sala D1
Chair: Jose Andrade

Application of adaptive dynamic relaxation to highly nonlinear geotechnical problems

Omid Kardani, Kristian Krabbenhoft and Andrei V. Lyamin

A hierarchical mutlscale approach for granular media
Jidong Zhao and Ning Guo

Coupled u-w models implemented in meshfree numerical schemes: Application to seepage problems through earth dams
Pedro Navas, Rena C. Yu and Susana López-Querol

Model test and seepage analysis on clayey ground confining sand layers
Hidenori Takahashi and Yoshiyuki Morikawa

Development of THM coupled numerical simulator for methane hydrate bearing sediment
Hosung Shin

Numerical modelling on vibroflotation soil improvement techniques, using several constitutive laws
Jaime Peco and Susana López-Querol

23/07/2014 14:00 - 16:00
Computational Modelling of Material Forming Processes I
Minisymposium organized by Carlos Agelet de Saracibar and Robertt Valente

MS023A
Room: Sala D2
Chair: Carlos Agelet de Saracibar
CoChair: Robertt Valente

Coupled thermo-mechanical finite element technology for stress accurate analysis (Keynote Lecture)
Michele Chiumenti, Miguel Cervera, Ramon Codina and Carlos Agelet de Saracibar

3D Numerical simulation of Friction Stir Welding processes with non-cylindrical pin: comparison of a fluid and a solid approach
Philippe Bussetta, Narges Dialami, Romain Boman, Michele Chiumenti, Carlos Agelet de Saracibar, Miguel Cervera and Jean-Philippe Ponthot

Prediction of residual stresses in FSW process
Narges Dialami, Michele Chiumenti, Miguel Cervera and Carlos Agelet de Saracibar

A meshing and remeshing framework using implicit geometries for the simulation of rotary friction welding
David Schmicker, Per-Olof Persson and Jens Strackeljan

Finite element simulation of the hot forging operation in manufacturing of bearing rings with special emphasis on manufacturing speed
Nezih E. Mumcu, Besim Baranoğlu and Feridun Özhan

An enthalpy based heat equation to solve the phase change
Jean-Luc Dulong, Pierre Despret and Pierre Villon

23/07/2014 14:00 - 16:00

MS013B

Biomechanics and Mechanobiology II
Minisymposium organized by Guillermo Rus, Quentin Grimal and Elisa Budyn

Room: Sala D3
Chair: Quentin Grimal
CoChair: Juan Melchor

A composition-based intervertebral disc model to study the effects of extracellular matrix degenerative changes on nutrition (Keynote Lecture)
Carlos Ruiz Wills, Andrea Malandrino, Damien Lacroix, Keita Ito and Jérôme Noailly

Cartesian grid FEM for direct creation of patient specific models and implant simulation
Luca Giovannelli, José M. Navarro-Jiménez, Onofre Marco, Enrique Nadal, Manuel Tur and Juan J. Ródenas

Characterization and Computational Modeling of Anterior Cruciate Ligament Biomechanics
Kaitlyn Mallett and Ellen Arruda

Failure of silicone gel breast implants – Mechanical tests on a mammary implant in its implantable state to determine the shell integrity
Nilza Ramião, Pedro Martins, António A. Fernandes, Maria da Luz Barroso and Diana Costa

Numerical simulation of the influence on interstitial fluid flow and ion transport of the viscous mechanical behaviour of human skin in vivo
Marie-Angèle Abellan, Jean-Michel Bergheau and Hassan Zahouani

Scaffold geometry influences the mechanical properties of tissue engineered cartilage
Cátia Bandeiras, Antonio Completo and António Ramos

23/07/2014 14:00 - 16:00
Explicit and Implicit Large Eddy Simulation of Turbulent Flows I
Minisymposium organized by Joanna Szmelter and Piotr K Smolarkiewicz

MS084A
Room: Sala D4
Chair: Joanna Szmelter

A consistent ILES framework for all-scale atmospheric dynamics (Keynote Lecture)
Piotr K. Smolarkiewicz , Christian Kühnlein and Nils P. Wedi

Increasing horizontal resolution in global NWP and climate simulations - Illusion or panacea?
Nils P. Wedi

A stochastic closure approach for Large Eddy Simulation
Thomas von Larcher, Rupert Klein, Illia Horenko, Matthias Waidmann, Dimitri Igdalov and Philipp Metzner

Implicit Large Eddy Simulation using Second and Higher-Order Methods on Unstructured Meshes
Panayioyis Tsoutsanis, Antonios F. Antoniadis and Dimitris Drikakis

Large-Eddy simulation of a turbine stage with rim cavity
Dario Amirante, Vlad Ganine and Nicholas Hills

23/07/2014 14:00 - 16:00
Advances in the Modelling and Simulation of Oil Drilling Operations I
Minisymposium organized by Pere-Andreu Ubach and Raju Gandikota

MS272A
Room: Sala D5
Chair: Pere-Andreu Ubach de Fuentes
CoChair: Raju Gandikota

A parallel FEM-DEM approach for analysis of cuttings transport in wellbores
Miguel A. Celigueta, Salvador Latorre, Guillermo Casas, Eugenio Oñate, Varadaraju Gandikota and Kedar M. Deshpande

FEA as a prediction tool for bottomhole assembly design: Mitigating dangerous vibrations
Nader Abedrabbo and Nikolay Lysikov

A parallelized discrete element method for analysis of drill-bit mechanics problems in hard and soft soils
Eugenio Oñate, Miquel Santasusana, Miguel A. Celigueta, Ferran Arrufat, Khaydar Valiullin and Raju Gandikota

About influence of environment on strains of boring columns
Lelya Khajiyeva, Enlic Begimbayeva, Almatbek Kydyrbekuly and Erbol Temirbekov

A nonlinear finite element for simulation of dynamics of beam structures using multibody system approach
Oleg N. Dmitrochenko, Gennady V. Mikheev, Dmitry Pogorelov and Raju Gandikota

Use of multibody system approach for torque and drag analysis of long drill strings
Dmitry Pogorelov, Gennady V. Mikheev, Khaydar Valiullin and Raju Gandikota

23/07/2014 14:00 - 16:00
Mechanics of Cellular Solids and Sandwich Structures II
Minisymposium organized by Ashkan Vaziri, Dirk Mohr and Alireza Amirkhizi

MS029B
Room: Sala D6
Chair: Ashkan Vaziri

Nonlinear elastic and plastic response of chiral, anti-chiral and hierarchical periodic structures
Babak Haghpanah, Davood Mousanezhad and Ashkan Vaziri

Local stress distribution in honeycomb sandwich structure finite element models
Louis-Georges Tom, Jean-Charles Craveur, Frédéric Ravailler and Sohbi Sarhaoui

Modeling high velocity fractures in cellular materials
Johan Persson and Per Isaksson

Finite element technology for steel-elastomer-sandwiches
Daniel Höwer, Achim Geßler, Jaan-Willem Simon, Stefanie Reese and Markus Feldmann

23/07/2014 14:00 - 16:00
Modelling of Damage in Heterogeneous Microstructures I
Minisymposium organized by Ingo Scheider and Siegfried Schmauder

MS168A
Room: Sala E1
Chair: Ingo Scheider

Characterisation of cohesive zone models by micromechanical experiments
Joseph Goldmann and Volker Ulbricht

The role of the microstructural morphology of a multi-phase material on the onset of (ductile) failure identified
Tom W.J. de Geus, Ron H.J. Peerlings and Marc G.D. Geers

Multiscale modelling of damage and failure in a biological hierarchical material.
Ingo Scheider, Swantje Bargmann, Tao Xiao, Ezgi Yilmaz, Gerold Schneider and Norbert Huber

Hierarchical composites with secondary nanoplatelet reinforcement: 3D computational fatigue studies
Gaoming Dai and Leon Mishnaevsky Jr.

Evaluation of ductile fracture in ferrite-pearlite steels by the ellipsoidal void model
Kazutake Komori

Creep deformation and damage in a polycrystalline Copper-Antimony-Alloy
Markus Vöse and Bernard Fedelich

23/07/2014 14:00 - 16:00
Second Generation of Theory of Structures by Unified Formulation I
Minisymposium organized by Erasmo Carrera, Antonio J.M. Ferreira, Maria Cinefra, Marco Petrolo, Alfonso Pagani and Enrico Zappino

MS263A
Room: Sala E2
Chair: Marco Petrolo
CoChair: Alfonso Pagani

Delamination modeling in shells by means CUF finite elements (Keynote Lecture)
Keshava Kumar S. , Maria Cinefra and Erasmo Carrera

Structural analysis of launcher structures by means of Refined Beam Models
Enrico Zappino , Tommaso Cavallo and Erasmo Carrera

Free vibration analysis of rotating structures by Carrera Unified Formulation
Matteo Filippi and Erasmo Carrera

Axiomatic/asymptotic analysis of refined models for thermal stress analysis of plates
Maria Cinefra, Alessandro Lamberti and Erasmo Carrera

Analysis of laminated box beams using 1D Carrera Unified Formulation
Erasmo Carrera, Matteo Filippi, Prashanta Kr Mahato and Alfonso Pagani

23/07/2014 14:00 - 16:00
Advances in Multiscale Flow Modelling: Methods and Applications I
Minisymposium organized by Vasily Goloviznin, Sergey Karabasov, Victor Kopiev, Tatiana Kozubskaya, Maria Lukacova, Jens-Dominik Mueller, Dmitry Nerukh and Yuri Vassilevski

MS207A
Room: Sala E3
Chair: Sergey Karabasov

Mathematical modeling of Newtonian and viscoplastic free surface flows using dynamic octree meshes (Keynote Lecture)
Kirill Nikitin, Maxim A. Olshanskii, Kirill Terekhov and Yuri Vassilevski

Multiresolution analysis of incompressible flows interaction with forced deformable bodies

Seyed Amin Ghaffari, Kai Schneider, Stephane Viazzo and Patrick Bontoux

Effective boundary conditions for compressible flows over a rough surface
Giulia Deolmi, Wolfgang Dahmen and Siegfried Mueller

CABARET method coupled with acoustic modelling for jet-wing-flap interaction problem
Vasily A. Semiletov and Sergey A. Karabasov

A hybrid continuum-particle solver for unsteady locally rarefied gas flows implemented in OpenFOAM
Henrik Rusche, Sarantis Pantazis and Hrvoje Jasak

Further insights into VMS a posteriori error estimation and error pollution
Guillermo Hauke, Diego Irisarri and Fernando Lizarraga

23/07/2014 14:00 - 16:00
Recent Advances in Computational Fracture Mechanics II
Minisymposium organized by Hiroshi Okada, Toru Ikeda, Chyanbin Hwu, Xiaosheng Gao and Toshio Nagashima

MS225B
Room: Sala E4
Chair: Toru Ikeda
CoChair: Hiroshi Okada

Fatigue crack propagation and their interaction modelling with a peridynamics approach
Mirco Zaccariotto, Giulia Sarego, Daniele Dipasquale and Ugo Galvanetto

Peridynamics with adaptive grid refinement

Daniele Dipasquale, Giulia Sarego, Mirco Zaccariotto and Ugo Galvanetto

Analysis of cracked model under finite-strain elastoplasticity using partitioned coupling method

Yasunori Yusa and Shinobu Yoshimura

Stress intensity factor evaluation for three-dimensional crack with minimal meshing effort

Yuki Wakashima, Tetsuya Koshima, Ryutaro Daimon, Hiroshi Okada and Hiroshi Kawai

Vibro-acoustic wave interaction in cracked plate modeled with peridynamics

Adam Martowicz, Wieslaw J. Staszewski, Massimo Ruzzene and Tadeusz Uhl

23/07/2014 14:00 - 16:00

Uncertainty Quantification Techniques for Fluid-flow Problems I

Minisymposium organized by Remi Abgrall, Pietro Marco Congedo and Gianluca Iaccarino

MS203A
Room: Sala E5
Chair: Pietro Marco Congedo

A new framework for stochastic analysis in large scale simulations based on goal-oriented probability density function methods (Keynote Lecture)

Daniele Venturi and George E. Karniadakis

Goal-based adaptive coupling stochastic and deterministic errors in compressible CFD

Anca C. Belme and Didier Lucor

On the use of high-order statistics in robust design optimization

Pietro M. Congedo, Gianluca Geraci and Gianluca Iaccarino

A hybrid uncertainty quantification method for robust optimization

Christoph W.T. Thiem and Michael Schäfer

Modeling with Fuzzy Logic the dynamic of people flow during the evacuation of constructed environments dimensioned according to the brazilian legislation

Henrique Costa Braga and Gray F. Moita

23/07/2014 14:00 - 16:00

Reduced Order Models in Vibroacoustics II

Minisymposium organized by Gerhard Müller, Jean-Francois Deü, Martin Buchschmid and Antoine Legay

MS141B
Room: Sala E6
Chair: Martin Buchschmid
CoChair: Antoine Legay

Numerical and experimental evaluation of mechanical mobility in multi-point-connected structures for power transmission prediction

Raffaella Di Sante, Elisabetta Manconi , Paolo Proli and Marcello Vanali

A new approach for modal synthesis of a vibroacoustic problem

Emeline Sadoulet-Reboul, Youssef Gerges, Morvan Ouisse and Noureddine Bouhaddi

Usage of reduced numerical models in the design process of a shunted piezoelectric isolator

Torsten Bartel, Oliver Heuss, Tobias Melz, Francisco Scinocca, Airton Nabarrete and Luiz C. S. Goes

ROM for elastodynamics including viscoelastic behaviors. From material Identification to part design

Gaël Chevallier, Franck Renaud and Jean-Luc Dion

Energy flow and hybrid methods applied to double walls

Alexander Peiffer

23/07/2014 14:00 - 16:00
Computational Contact Mechanics VII
Minisymposium organized by Tod Laursen, Peter Wriggers and Giorgio Zavarise

MS044G
Room: Sala F
Chair: Yves Renard

A solid beam element for wire rope simulation with a special contact algorithm
Karl Schweizerhof, Alexander Konyukhov, Ridvan Izi and Michael Strobl

Contact formulations considering rotational degrees of freedom of structural elements
Alfredo Gay Neto, Paulo M. Pimenta and Peter Wriggers

Contact with friction between 3-D beams with deformable circular cross section
Olga Kawa and Przemyslaw Litewka

Frictional multiple-point beam-to-beam contact finite element
Przemyslaw Litewka

Beam-to-beam contact with rotational friction/adhesion
Hamid Reza Motamedian and Artem Kulachenko

Various variational formulations for curve and surface interactions
Alexander Konyukhov and Karl Schweizerhof

23/07/2014 14:00 - 16:00
Computational Modeling of Fracture and Failure of Materials and Structures VII
Minisymposium organized by Olivier Allix, Milan Jirásek, Nicolas Moës and Xavier Oliver

MS226G
Room: Sala H 1
Chair: Bert Sluys

Fracture modeling of composite laminates based on phase field damage evolution in shell kinematics
Ragnar Larsson, Jim Brouzoulis and Martin Fagerström

Meshing strategies for the alleviation of mesh-induced effects in cohesive element models
Julian J. Rimoli, Juan J. Rojas and Ryan Quinn

A discontinuity tracking algorithm based on assumed enhanced modes
Abdullah Alsahly, Carlo Callari and Guenther Meschke

Three-dimensional fracture analysis with the scaled boundary finite element method using octree mesh
Albert Artha Saputra, Ean Tat Ooi, Carolin Birk and Chongmin Song

Nonlinear analysis of R/C shear walls subjected to cyclic loadings
Roberto Scotta, Paolo Giorgi, Leopoldo Tesser and Diego A. Talledo

Encompassing incompressibility and strain localization in plasticity with mixed FE
Lorenzo Benedetti, Miguel Cervera, Michele Chiumenti and Ramon Codina

23/07/2014 14:00 - 16:00
Reduced Basis, POD and PGD Model Reduction Techniques I
Minisymposium organized by Francisco Chinesta, Elias Cueto, Pierre Ladevèze and Hermann Matthies

MS015A
Room: Sala H 2
Chair: Pierre Ladevèze
CoChair: Francisco Chinesta

A space-time PGD approach for 3D nonlinear parametrized problems (Keynote Lecture)

Pierre-Alain Boucard and David Neron

A fully-separated PGD algorithm for nonlinear problems
Jose V. Aguado, Antonio Huerta, Francisco Chinesta, Adrien Leygue and Elías Cueto

PGD-Virtual Charts for structural design
Amaury Courard, David Néron, Pierre Ladevèze, Ludovic Chamoin, Alain Bergerot and Ludovic Ballere

A simple adaptive procedure for separated representations in engineering applications
Chady Ghnatios, Adrien Leygue, Marianne Beringhier, Juan J. Ródenas, Javier Fuenmayor and Francisco Chinesta

An approximation framework dedicated to PGD-based nonlinear solver
Matteo Capaldo, David Néron, Pierre-Alain Guidault and Pierre Ladevèze

Goal-oriented low-rank tensor approximation for high dimensional stochastic problems
Olivier Zahm, Marie Billaud-Friess and Anthony Nouy

23/07/2014 14:00 - 16:00
Meshless Methods and Particle Methods Advances in Biomechanics I
Minisymposium organized by Jorge Belinha, Renato M. Natal Jorge and Ken-ichi Tsubota

MS025A
Room: Sala H 3
Chair: Jorge Belinha

Open boundary conditions without buffer zone for incompressible Smoothed Particle Hydrodynamics
Manuel Hirschler, Philip Kunz, Manuel Huber, Winfried Säckel and Ulrich Nieken

Computer simulation of thrombus formation in single ventricle using particle method
Ken-ichi Tsubota, Kazuki Okauchi, Koichi Sughimoto and Hao Liu

Elasto-plastic analysis of the bone tissue using a meshless method
Henrique Duarte, Jorge Belinha, Lúcia Dinis and Renato M. Natal Jorge

The bone tissue remodelling analysis due to the insertion of a femoral stem using a meshless method
Jorge Belinha, Lúcia Dinis and Renato M. Natal Jorge

Human swallowing simulation by the Hamiltonian MPS method
Takahiro Kikuchi, Yukihiro Michiwaki, Seiichi Koshizuka, Tetsu Kamiya, Yoshio Toyama, Takashi Osada and Nobuko Jinno

A meshless approach based on the cell method for bone biomechanics
Martino Pani, Enrico Schileo and Fulvia Taddei

23/07/2014 14:00 - 16:00
Computational Biomechanics VII
Minisymposium organized by T.Christian Gasser, Miguel Cerrolaza, Ellen Kuhl, Michael Gee, Yomar Gonzalez, Simone Deparis and Thomas Franz

MS007G
Room: Sala J
Chair: Jiri Bursa
CoChair: Mikael Mortensen

Myocardial tissue mechanics with fibres modelled as one-dimensional Cosserat continua (Keynote Lecture)
Sebastian Skatulla, Kevin Sack and Carlo Sansour

The effect of white matter anisotropy on cortical folding during development
Maria A. Holland, Silvia Lettau and Ellen Kuhl

Quantitative diagnostics of prostate cancer using dynamic palpation

Javier Palacio-Torralba, Robert L. Reuben and Yunang Chen

A 3D finite element model of the female pelvic floor for the reconstruction of urinary incontinence

Aroj Bhattarai, Ralf Frotscher, Mircea-Constantin Sora and Manfred Staat

Biomechanics of Gastroparesis
Ammar Yasser and Roustem Miftahof

23/07/2014 14:00 - 16:00
Micromechanics of Defects in Solids
Minisymposium organized by Pilar Ariza and Michael Ortiz

MS221A
Room: Business Centre I
Chair: Pilar Ariza
CoChair: Michael Ortiz

Study of structured grain boundaries in graphene using a tight binding based model
Juan Pedro Méndez, Michael Ortiz and M. Pilar Ariza

Effects of carbon interstitials on the Peierls stress in Fe using atomistic-continuum coupling
Karthik Chockalingam, Rebecca Janisch and Alexander Hartmaier

Assessment of phase field crystal concepts using long-time molecular dynamics
Kristopher Baker and William A. Curtin

Atomistic modeling and simulation of long-term transport phenomena in nanomaterials
Kevin W. Wang, M. Pilar Ariza and Michael Ortiz

23/07/2014 14:00 - 16:00
Methods and Models for FSI in Engineering Problems I
Minisymposium organized by Joris Degroote, Riccardo Rossi and Roland Wüchner

MS042A
Room: Business Centre II
Chair: Roland Wüchner

Immersed fluid-structure interaction for isogeometric shell structures, with application to bioprosthetic heart valves
David Kamensky, Ming-Chen Hsu, Dominik Schillinger, John A. Evans, Yuri Bazilevs, Michael S. Sacks and Thomas J.R. Hughes

An embedded approach for the fluid-structure interaction problems involving light-weight structures
Pavel Ryzhakov

FSI analysis of lightweight structures. Towards a virtual wind tunnel
Antonia Larese, Riccardo Rossi, Roland Wüchner, Hosam Al Sofi and Eugenio Oñate

Co-simulation of wind-structure interactions
Roland Wüchner, Hosam AlSofi, Michael Andre, Stefan Sicklinger, Tianyang Wang, Kai-Uwe Bletzinger, Riccardo Rossi, Pooyan Dadvand , Monica de Mier Torrecilla and Alexander Michalski

Analysis of wind-induced vibrations in silo groups
Jeroen Hillewaere, Joris Degroote, Jan Vierendeels, Geert Lombaert and Geert Degrande

Fluid-structure interaction analysis with slippery mucus skin
Masao Yokoyama, Kohei Murotani, Genki Yagawa and Osamu Mochizuki

23/07/2014 14:00 - 16:00
Innovative Numerical Approaches for Multi-physics Problems III
Minisymposium organized by Anna Pandolfi, Laurent Stainier and Kerstin Weinberg

MS129C
Room: Sala de prensa I
Chair: Anna Pandolfi

Stable mesh transfer for parallel multi-physics simulations
Rolf Krause, Thomas Dickop and Patrick Zulian

Fundamental investigation on thermoacoustic phenomena inside narrow tube by CFD
Daichi Terayama, Kota Fukuda, Shun Takahashi and Shinya Hasegawa

Numerical multiphysics simulation for localized galvanic corrosion problems
Koichi Masuya, Yuki Onishi and Kenji Amaya

Optimisation of the position of the material points in the maximum entropy interpolation
Mathieu Foca and Laurent Stainier

Nonlocal regularization for loss of ellipticity in inelastic problems
Alejandro Mota, James W. Foulk III and Jakob T. Ostien

Experimental study for verification computational modeling of operation of the conductive MHD centrifugal pump
Savelii Katsnelson and Georgiy A. Pozdnyakov

23/07/2014 14:00 - 16:00
Microstructural Based Constitutive Models in Hard and Soft Matter Materials III
Minisymposium organized by Christian Miehe, Samuel Forest and Christian Linder

MS140C
Room: Sala de prensa II
Chair: Samuel Forest
CoChair: Christian Miehe

A thermodynamically consistent model for the description of polymeric gels at large deformations (Keynote Lecture)
Christian Linder and Andreas Krischok

Mixed variational potentials for Cahn-Hilliard-type diffusive phase separation in solids undergoing finite strains
Lukas Böger and Christian Miehe

The nonlinear elastic response of suspensions of rigid inclusions in rubber
Oscar Lopez-Pamies and Taha Goudarzi

A microstructurally based constitutive model for shape-memory polymers formulated in the logarithmic strain space
Izzet Ozdemir and Serdar Göktepe

Constitutive modelling and parameter identification of Highly Extensible Polyurea
Thomas Reppel and Kerstin Weinberg

23/07/2014 14:00 - 16:00
Advances in Surgical Simulation I
Minisymposium organized by Stéphane Bordas, Pierre Kerfriden, Elías Cueto, Francisco Chinesta and Stefanie Reese

MS222A
Room: Sala de Reservas
Chair: Stéphane Bordas

Gradient smoothing for nearly incompressible hyperelasticity
Chang-Kye Lee, L. Angela Mihai, Pierre Kerfriden and Stéphane P.A. Bordas

Fracture simulation for visual effects with peridynamics and MPM
Biswajit Banerjee, Bryan Smith and Andreas Soderstrom

Real-time simulation of surgical cutting using PGD
Carlos Quesada, David González, Icíar Alfaro, Elías Cueto and Francisco Chinesta

A modified Hager-Zhang nonlinear conjugate gradient algorithm for efficient solution of finite element models
Sam L. Evans

Parallel simulations of soft-tissue using an adaptive quadtree/octree implicit boundary finite element method
Jack S. Hale, Pierre Kerfriden, Juan J.R. García and Stéphane P.A. Bordas

Efficient planning of liver tumour surgical intervention
Felipe Bordeu, Francisco Chinesta and Adrien Leygue

16:00 - 16:30
Coffee Break & Poster Sessions

16:30 - 18:30
TECHNICAL SESSIONS

23/07/2014 16:30 - 18:30
Advances in Numerical Methods for Linear and Non-linear Dynamics IV
Minisymposium organized by Alexander Idesman and Gregory Hulbert

MS087D
Room: Mare Nostrum A
Chair: Alexander Idesman
CoChair: Gregory Hulbert

A new particular solution strategy for hyperbolic problems using hybrid-Trefftz finite elements
Ionut Dragos Moldovan and João António Teixeira de Freitas

Limitations of an equivalent linearized method on vibration analysis of a flexible cantilever beam
Bin Li, Wen Cai, Xiaobing Wang and Wanyuan Dong

Dynamic chain drive simulation in an elastic environment – Influence of friction on the dynamics
Markus Grinschgl

Group theory based method for the dynamic analysis of periodic structures
Qiang Gao, Xiqiang Liang, Weian Yao and Ying Feng

Mathematical simulation of transient cable line for the loss in the screen
Ekaterina Navalikhina and Natalia M. Trufanova

On linearization of nonlinear dynamic systems described by state-dependent-parameter (SDP) discrete-time model
Essam Shaban and Ayman A. Nada

23/07/2014 16:30 - 18:30
Advances in Shape and Topology Optimization of Structures and Materials IV
Minisymposium organized by Michael Wang, Zhen Luo and Takayuki Yamada

MS494D
Room: Mare Nostrum B
Chair: Takayuki Yamada
CoChair: Seungjae Min

Level set-based topology optimization method for mechanical structures considering structural flexibility (Keynote Lecture)
Takayuki Yamada, Kazuhiro Izui and Shinji Nishiwaki

Vibration reduction design of permanent magnet motor using multi phase level set model
Sunghoon Lim, Seungjae Min and Jung-Pyo Hong

Modeling and FEM analysis of dynamic properties of thermally optimal composite materials
Maria Nienartowicz and Tomasz Strek

Optimization of the shape of pendulum vibration absorbers and curved track patterns to minimize vibration
Cheol Kim, Hyeong-seok Kim and Yeong-geun Song

Shape optimization of rubber bushing
Kohei Shintani and Hideyuki Azegami

23/07/2014 16:30 - 18:30
Discontinuous Galerkin Methods: New Trends and Applications III
Minisymposium organized by Bernardo Cockburn, Sonia Fernandez-Mendez, Nicoletta Franchina, Ngoc-Cuong Nguyen, Jaime Peraire and Per-Olof Persson

MS139C
Room: Mare Nostrum C
Chair: Per-Olof Persson

High Order Discontinuous Galerkin Methods for Large Eddy Simulations
Andrea Beck, Gregor Gassner and Claus-Dieter Munz

Assessing numerical viscosity for Implicit LES using linear instability analysis: examples for a high order incompressible Discontinuous Galerkin – Fourier solver
Esteban Ferrer and Eusebio Valero

The recovery-based Discontinuous Galerkin method for the Navier-Stokes equations
Loc Khieu, Eric Johnsen and Bram van Leer

A Reynolds-Averaged Navier-Stokes solver with transition prediction capability
David Moro, Ngoc-Cuong Nguyen, Mark Drela and Jaime Peraire

Numerical investigation of turbulence drag reduction with streamwise riblets in high-speed channel flow
Zhe Chen, Yang Sun, Xinliang Li and Xiaohui Ai

Efficient and accurate multi-dimensional limiting strategy for higher-order DG and CPR methods
Jin Seok Park, Tae Kyu Chang and Chongam Kim

A Discontinuous Galerkin method for non-Newtonian implicit constitutive models of nonequilibrium gases
Hong Xiao and Rho Shin Myong

23/07/2014 16:30 - 18:30
Computational Fluid Dynamics for Free and Moving Boundaries IV
Minisymposium organized by Rekha R. Rao, David R. Noble, Scott A. Roberts and Elie Hachem

MS256D
Room: Mare Nostrum D
Chair: ELIE HACHEM
CoChair: Scott Roberts

Descent of a solid disk in quiescent fluid simulated using incompressible smoothed particle hydrodynamics
Nima Tofighi, Murat Ozbulut, Amin Rahmat, Mehmet Yildiz and James J. Feng

CFD analysis of flow around fish swimming near or through water surface
Minoru Shirazaki and Kazuma Sasaki

Comparison of the Vortex Method and the Immersed Boundary Method for 2D Simulations of Insect Flight
Poorva Shukla, Kunal Puri and Prabhu Ramachandran

Application of the meshless boundary method to the thermal/flow problems with moving structures
Chien Ting Wu, L.H. Shen and D.L. Young

Further validations of penalization and VIC based methods for aeronautic applications

François Morency and Héloïse Beaugendre

23/07/2014 16:30 - 18:30
Uncertainty Modeling and High Performance Stochastic Methods for Computationally Intensive Calibrations, Predictions and Optimizations IV
Minisymposium organized by Tan Bui-Thanh, Thomas Carraro, Marko Laine and Ernesto E. Prudencio

MS184D
Room: Mare Nostrum E
Chair: Ernesto Prudencio

Selection, Calibration, and Validation of Coarse-Grained Models of Atomistic Systems in the Presence of Uncertainties.
Kathryn Farrell and J. Tinsley Oden

Comparision of alternative approaches for the stochastic finite element analysis of structures with elasto-plastic damage behavior
Philipp-Paul Jablonski and Udo Nackenhorst

Accounting for aeroelasticity model-form uncertainty in a Bayesian framework
Christian T. Nitschke, Jean-Camille Chassaing, Paola Cinnella and Didier Lucor

Reliability analysis of structural dynamic characteristics based on a reduced physical model
Ping Yi, Linlang Feng and Yongke Li

Bayesian updating of numerical models with subset simulation
Iason Papaioannou, Wolfgang Betz and Daniel Straub

Identification of elastoplastic material properties in a Bayesian setting
Bojana V. Rosic and Hermann G. Matthies

Accounting for uncertainties on the modeling of an RCC DAM construction
Ana Gaspar, Fernando Lopez-Caballero, Arézou Modaressi and António Gomes-Correia

23/07/2014 16:30 - 18:30
Innovative Integration Schemes in Solid, Fluid, and Multibody Mechanics I
Minisymposium organized by Ignacio Romero and Peter Betsch

MS124A
Room: Mare Nostrum F
Chair: Ignacio Romero

Energy-consistent time integration for nonlinear viscoelasticity
Sergio Conde Martin, Juan C. García Orden and Ignacio Romero

Structure-preserving integration with mixed finite elements
Peter Betsch and Alexander Janz

Galerkin variational integrators for solid and fluids mechanics
Mattia Penati, Edie Miglio, Nicola Parolini and Roberto Porcù

Time integration in systems with instabilities
Ilinca Stanciulescu and Yenny Chandra

Variational space-time integration methods for the elastic wave equation
Markus Bause and Uwe Köcher

23/07/2014 16:30 - 18:30
Dynamics of Nonlinear Structures with Contact Interfaces I
Minisymposium organized by Bogdan Epureanu, Evgeny Petrov, Kai Willner and Stefano Zucca

MS228A
Room: Llevant
Chair: Evgeny Petrov
CoChair: Kai Willner

An adaptive contact area approximation for bi-linear modal reduction of structures with intermittent contacts
Stefano Zucca and Bogdan I. Epureanu

Non-homogenous localized Kelvin-Voigt model for estimation of dynamical behaviour of structures with bolted joints
Anuj Sharma, Wolfgang Mueller-Hirsch, Sven Herold and Tobias Melz

Multiple solutions in the forced response of turbine blades with wedge friction dampers
Christian M. Firrone and Stefano Zucca

Jiont stiffness identification of a pin with variable fastening forces
Junho Won, Doo-Ho Lee and Joo-Ho Choi

Prediction of rattle occurrence using probabilistic approach
Sung-Hoon Park, Joo-Ho Choi and Jaewook Lee

Solvability for dynamic thermo-elasto-plastic contact problems
Pavel Krejci and Adrien Petrov

Numerical simulation of 3D impact problem
Alex Alves Bandeira and Paulo M. Pimenta

23/07/2014 16:30 - 18:30
Advanced Discretization and Solution Methods for Coupled Multiphysics Transport Phenomena II
Minisymposium organized by John Shadid and Dmitri Kuzmin

MS115B
Room: Mestral
Chair: John Shadid

A space-time FEM for PDES on evolving surfaces
Joerg Grande, Maxim A. Olshanskii and Arnold Reusken

A finite element method for fluid-structure interaction problems with large deformations
Steffen Basting, Annalisa Quaini, Roland Glowinski and Suncica Canic

A highly parallel code for strongly coupled fluid-transport equations
Weiyan Song, Fred W. Wubs and Jonas Thies

Monotone finite volume scheme for multiphase flows
Kirill Nikitin, Kirill Terekhov and Yuri Vassilevski

A new kind of hyperbolic advection-diffusion models
Fermín Navarrina, Hector Gomez, Ignasi Colominas, José París, Xesús Nogueira and Manuel Casteleiro

Acceleration by RK/Implicit smoother for coupled Navier-Stokes and heat transfer
Eli Turkel, Oren Peles and Sara Yaniv

23/07/2014 16:30 - 18:30
Modeling and Experimental Characterization of Microstructures and Material Instabilities I
Minisymposium organized by Benjamin Klusemann, Tuncay Yalcinkaya, Swantje Bargmann and Dierk Raabe

MS111A
Room: Ponent 1
Chair: Benjamin Klusemann

Atomistic Simulations of dislocation-grain boundary interactions and nanocrystal plasticity (Keynote Lecture)
Erik Bitzek, Aruna Prakash and Julien Guénolé

Modelling of grain boundries in a strain gradient crystal plasticity framework
Tuncay Yalcinkaya and Izzet Ozdemir

Deformation banding in metal crystals as a material instability: theory, algorithm and modeling
Henryk Petryk and Michal Kursa

An experimental combination of loading path and strain rate change – Microstructure evolution and flow behavior for a BCC and FCC material
Benjamin Zillmann, Shibayan Roy, Thomas Lampke, Martin F.-X. Wagner and Thorsten Halle

An extended continuum crystal plasticity theory with geometrically necessary dislocation densities
Swantje Bargmann, Edgar Husser and Erica Lilleodden

23/07/2014 16:30 - 18:30
Industrial Applications of Computational Solid Mechanics and Related Techniques III

CS659C
Room: Ponent 2
Chair: Miguel Cervera

Simulation of Failure in Single-Lap-Joints Assemblies of Carbon Fibre Tapes
Martín Machado, Michael Fischlschweiger and Zoltan Major

Study on sensitivity of enhanced FWD testing data to pavement model parameters
Tomasz Garbowski and Andrzej Pozarycki

Development of a Fatigue Life Assesment System Based on the Virtual Working Simulation for Wheel Loader
Lee HeeJong, Cha TaeRo, Kim MooSeung and Kim PanYoung

Accuracy assessment of gas damping ratio prediction models in microcantilevers
Juan M. Vásquez, Mauricio Giraldo and Arvind Raman

Experimental and numerical studies of large steel plates for power transformer tank subjected to high pressure loading
Sylvain Belanger, Samuel Brodeur, Jean-Bernard Dastous and Nathalie Soucy

Plasticity in silicon anodes towards the design of lithium ion batteries
S. Mostafa Khosrownejad and William A. Curtin

23/07/2014 16:30 - 18:30
Mesh Generation and Adaption IV
Minisymposium organized by Josep Sarrate, Franck Ledoux and Rafael Montenegro

MS198D
Room: Terral
Chair: Rafael Montenegro Armas

Robust octree based tetrahedra mesher for non-watertight geometries
Abel Coll, Pooyan Dadvand and Eugenio Oñate

A Truss Networked Approach to r-Refinement for Computational Fluid Dynamics
Bevan W.S. Jones, Arnaud G. Malan, Andrew B. Mowat and Jakobus A. van Rooyen

Wind ensemble forecasting using an adaptive mass-consistent model
Albert Oliver, Eduardo Rodríguez, Gustavo Montero and Rafael Montenegro

Adaptive grid refinement for free-surface hydrodynamic flows
Jeroen Wackers, Emmanuel Guilmineau and Patrick Queutey

Adaptive finite element method with a local element parametrization of nested meshes
Jabel Ramírez, Albert Oliver and Rafael Montenegro

Mesh adaptation for viscous simulations
Victorien Menier and Adrien Loseille

Geometric adaptive functionals for structured grid generation
Pablo Barrera, Gustavo García Cano and Guilmer González Flores

23/07/2014 16:30 - 18:30
Optimization in Computational Mechanics I
Minisymposium organized by Gebrail Bekdas and Sinan Melih Nigdeli

MS048A
Room: Tramuntana 1
Chair: Gebrail Bekdas
CoChair: Sinan Melih Nigdeli

Bionic optimisation considering scattering of fixed and free parameters
Simon Gekeler, Tatjana Popova and Rolf Steinbuch

Development of efficient optimization and application to pressure vessel of fuel-cell vehicles
Yoshitaka Ezawa, Shiyou Li, Satoru Takashimizu and Masahiko Shimamura

Optimization of RC frame structures subjected to static loading
Gebrail Bekdaş and Sinan Melih Nigdeli

Genetic algorithm integrated sliding mode control of a vehicle
Hasan Omur Ozer , Alaattin Sayin, Nuray Korkmaz and Nurkan Yagiz

Preventing the displacement of base isolated structures with optimum tuned mass dampers
Sinan Melih Nigdeli and Gebrail Bekdaş

Optimization of pulsed thermomelectric through non-linear finite element analysis
José L. Pérez-Aparicio, Roberto Palma, Pablo Moreno-Navarro and Robert L. Taylor

Operational risk assessment of failure to obtain the properties of thermal treatment of air aluminum alloys
Stanislaw Nowak, Boguslaw Swiatek, Krzysztof Zaba, Adam Sury, Marek Wojtas, Marcin Glodzik, Daniel Pociecha and Sandra Puchlerska

23/07/2014 16:30 - 18:30
Advanced Numerical Methods II

CS656B
Room: Tramuntana 2
Chair: Pilar Ariza

Approximating coupler curves using strip trees
Rubén Vaca and Joan Aranda

An efficient technique based on numerical mode matching for the acoustic characterization of dissipative silencers with thermal gradients
Eva M. Sánchez-Orgaz, Francisco D. Denia, Francisco J. Fuenmayor and Ray Kirby

Quadrilateral axisymmetric 4-node hybrid-stress elements using the Quadrilateral Area Coordinate Method (QACM)
Nanxiang Guan and Song Cen

Configuration-dependent interpolation in higher order 2D beam finite elements
Edita Papa Dukić and Gordan Jelenić

Modeling of DNA damage in G2/M regulatory network with robustness study

Lu-Wen Zhang and Kim Meow Liew

An SGBEM formulation for cohesive delamination model with coulomb friction

Jozef Kšiňan and Roman Vodička

Deviational methods for multiscale kinetic simulation
Nicolas Hadjiconstantinou, Jean-Phillipe Péraud and Colin Landon

23/07/2014 16:30 - 18:30
Reinforced Fiber Composites: Analysis and Design I
Minisymposium organized by Pedro V. Marcal, Jeffrey T. Fong and Nobuki Yamagata

MS186A
Room: Xaloc
Chair: Pedro Marcal
CoChair: Nobuki Yamagata

Modeling and SPH analysis of composite materials
Nobuki Yamagata, Yuzuru Sakai and Pedro V. Marcal

Buckling analysis of grid-stiffened composite shells

Dan Wang and Mostafa Abdalla

Constitutive and computational modelling of the effect of fibre bending resistance in reinforced elastomers
Tomáš Lasota, Svitlana Fedorova and Jiri Bursa

Macro model for 3D fiber reinforced polymer composites
Pedro V. Marcal and Nobuki Yamagata

Three-dimensional image processing applied to the characterization of lightweight mortar reinforced with *piassaba* fibers

Susana M. Iglesias, Helder C. Almeida, Dany S. Dominguez and Jorge F. L. Santos

Towards fiber bundle models for composite pressure vessels

Jörg B. Multhoff

Two step homogenization approach for modeling the macroscopic material behavior of textile reinforced composites
Dominik Branke, Markus Kästner, Martin Pohl and Volker Ulbricht

23/07/2014 16:30 - 18:30
Finite Element Methods and High-Performance Computing for Environmental Fluid Mechanics II
Minisymposium organized by Ethan Kubatko and Kazuo Kashiyama

MS152B
Room: Salon Club
Chair: Kazuo Kashiyama

Pressure forcing and time splitting for Discontinuous Galerkin approximations to layered ocean models (Keynote Lecture)
Robert L. Higdon

Mesh generation techniques for representing complex coastal watersheds and floodplains
Dustin W. West and Ethan Kubatko

Large scale tsunami simulation by a particle method and its 3D visualization
Mitsuteru Asai, Kazuo Kashiyama, Kenjiro Terada, Shuji Moriguchi and Mao Kurumatani

Achieving efficient solutions to the shallow water equations with high-order Discontinuous Galerkin methods
Benjamin A. Yeager and Ethan Kubatko

2D salinity calculations for lower St. Johns River using Discontinuous Galerkin methods
Peter Bacopoulos, Ethan Kubatko and Scott C. Hagen

An LES-like stabilization of the spectral element solution of the Euler equations for atmospheric flows

Simone Marras and Francis X. Giraldo

23/07/2014 16:30 - 18:30
Computational Methods in Fluid-structure Interactions, Dynamics and Vibration, Vibroacoustics - A Minisymposium in Honor of Prof. Roger Ohayon VIII
Minisymposium organized by Christian Soize

MS009H
Room: Yasmin A
Chair: Isaac Harari
CoChair: Christian Soize

Principles of least action and of least constraint - An excursion into the history of mechanics (Keynote Lecture)
Ekkehard Ramm

Efficient numerical method for fluid interacting with a poroelastic structure
Dimitar Iliev, Ralf Kirsch, Oleg Iliev, Andro Mikelić and Victor M. Calo

Scaling and similitudes for vibroacoustic applications
Sergio De Rosa and Francesco Franco

Approximated Lax Pairs for a one-dimensional fluid-structure model
Jean-Frédéric Gerbeau and Damiano Lombardi

Passive, active and active-passive vibration control of plate structures using distributed piezoelectric patches

Marcelo A. Trindade, Tatiane C. Godoy, Carlos C. Pagani Jr. and Heinsten F.L. Santos

Numerical computation of noise radiation from breaking systems for squeal noise prediction

Denis Duhamel

Computation and optimization of fully coupled 2D vibroacoustic wave's dispersion: Application to noise control
Manuel Collet, Mohamed Ichchou and Morvan Ouisse

23/07/2014 16:30 - 18:30
Multiscale and Multiphysics Modelling for Complex Materials (MMCM5) V
Minisymposium organized by Patrizia Trovalusci, Tomasz Sadowski, René de Borst and Bernhard Schrefler

MS120E
Room: Yasmin B
Chair: Josef Eberhardsteiner
CoChair: Patrizia Trovalusci

Enhanced poromechanics for the modeling of swelling in microporous materials: Coupled effects, size effects and upscaling issues (Keynote Lecture)
Gilles Pijaudier-Cabot, Laurent Perrier and David Grégoire

Nonlinear computational homogenization of perfused porous media using the sensitivity analysis

Eduard Rohan and Vladimir Lukes

Size effect in crack pattern of natural and man-made materials

Alessandro P. Fantilli, Barbara Frigo and Bernardino Chiaia

Two-phase material point model in analysis of erosion problems
Zdzislaw Wieckowski

Coupled THM modelling of freezing soil based upon strength upscaling
Meng-Meng Zhou and Guenther Meschke

Characterization of interphase for cross-linked epoxy nanocomposites with a multiscale approach
Byungjo Kim, Joonmyung Choi, Suyoung Yu, Seunghwa Yang and Maenghyo Cho

Hydrogen Embrittlement of Iron Bi-Crystals
Nadia Salman, Malik Wagih, Tarek M. Hatem and Jaafar El-Awady

23/07/2014 16:30 - 18:30
Algorithmic Aspects of High-performance Computing for Mechanics and Physics I
Minisymposium organized by Santiago Badia, Victor Calo and Javier Principe

MS172A
Room: Yasmin C
Chair: Javier Principe

Balancing Neumann-Neumann preconditioner for a diagonal-scaled schur complement equation
Masao Ogino

Scaling seismic imaging algorithms to petascale computing and beyond
Matthieu Lefebvre, Ebru Bozdag, Henri Calandra, Dimitri Komatitsch, Wenjei Lei, Daniel Peter, Herurisa Rusmanugroho, James Smith and Jeroen Tromp

Generalized multiscale finite element method for the wave equation
Eric Chung, Yalchin Efendiev and Wing Tat Leung

Large scale dislocation dynamics simulations
Arnaud Etcheverry and Olivier Coulaud

Emerging challenges for EdgeCFD simulations in massively multicore architectures
Renato N. Elias, José J. Camata and Alvaro L.G.A. Coutinho

Large-scale Full-wave Simulation using Numerical Human Models in HPCI
Amane Takei, Kouhei Murotani, Shin-ichiro Sugimoto, Masao Ogino and Hiroshi Kawai

A rapidly convergent algorithm for the solution of Navier-Stokes equations
Severino Krizmanić, Zdravko Virag and Mario Šavar

23/07/2014 16:30 - 18:30
STS 05: Transition Location Effect on Shock Wave Boundary Layer Interaction

STS05A
Room: Auditorium
Chair: to be confirmed

Computational investigations on correlation between laminar-turbulent-transition location and buffet onset
Katarzyna Surmacz, Wieńczysław Stalewski and Janusz Sznajder

Effect of the transition location on a shock-boundary layer interaction
Lionel Larchevêque

DNS and stability analysis of a transitional shock-wave/boundary-layer interaction at M = 1.5
Andrea Sansica, N. D. Sandham and Z. Hu

Transition location effects on a supercritical airfoil
Damien Szubert, F. Grossi, Yannick Hoarau and Marianna Braza

Application of EARSM turbulence model to shock boundary layer interaction with laminar to turbulent transition
Benoit Tartinville, Guy Garbin and Charles Hirsch

Implicit CFD method for transitional shock wave – Boundary layer interaction
G. Zografakis and George N. Barakos

23/07/2014 16:30 - 18:30
Advanced Materials: Computational Analysis of Properties and Performance II
Minisymposium organized by Vadim Silberschmidt and Valery Matveenko

MS006B
Room: Sala A
Chair: Anil Virkar
CoChair: Kenneth Reifsnider

Validated predictive computational methods for surface charge in heterogeneous functional materials: HeteroFoaM (Keynote Lecture)
Kenneth Reifsnider, Dan G. Cacuci, Jeffrey Baker, Jon Michael Adkins and Fazle Rabbi

Failure of cation and anion-conducting materials in electrochemical devices under internally generated pressure
Anil V. Virkar

An analytical performance assessment tool for complex reticulated 3-D electrochemical electrode microstructures
Wilson Chiu and Fanglin Chen

Conformal computation of oxygen flux in heterogeneous mixed-conductor materials
Fazle Rabbi, Kyle Brinkman and Kenneth Reifsnider

Multiscale analysis of residual stresses during processing of nano-based interconnect materials
Jin Zhang, Varvara G. Kouznetsova, Olaf van der Sluis and Marc G.D. Geers

Finite element phase-field modelling of brittle fracture
Hugo Santos and Vadim V. Silberschmidt

Multilevel modeling of polycrystalline metals mechanical processing
Alexey I. Shveykin, Peter V. Trusov, Elvira R. Sharifullina and Pavel S. Volegov

23/07/2014 16:30 - 18:30
Transition Modeling and Prediction in CFD Solvers with Focus on Practical Applications II
Minisymposium organized by Andreas Krumbein, Cornelia Grabe, Jean Perraud and Hugues Deniau

MS147B
Room: Sala B1
Chair: Jean Perraud
CoChair: Andreas Krumbein

Laminar-turbulent transition modelling based on a new intermittency model formulation
Florian R. Menter and Pavel Smirnov

Transition prediction on fixed wings, rotating blades, and airframes using a correlation-based model
Shivaji Medida and James D. Baeder

Modelling of crossflow-induced transition based on local variables
Christoph Müller and Florian Herbst

Correlation-based transition modeling for three-dimensional aerodynamic configurations
Cornelia Grabe and Andreas Krumbein

Numerical analysis of turbulent flow around energy saving pre-swirl stator for full and model scale ships
Sunho Park, Gwangho Oh, Shin Hyung Rhee, Bong-Yong Koo and Hoseong Lee

Wake-integral method for drag prediction

Alfonso Carre, Marta Cordero-Gracia, Mariola Gómez and Jorge Ponsin

23/07/2014 16:30 - 18:30
Modeling of Fiber-based Structures - Textiles and Textile Reinforced Composites II
Minisymposium organized by Yordan Kyosev, Philippe Boisse and Damien Durville

MS014B
Room: Sala B2
Chair: Nahiene Hamila

Bend-over-sheave of synthetic braided ropes: Approach to internal mechanisms through finite element simulation
Thanh Do Vu, Damien Durville and Peter Davies

Modeling and design optimization of textiles via homogenization
Vladimir D. Shiryaev and Julia Orlik

Computational aspects about the multiscale modelling of textile wound structures
Yordan Kyosev

Modeling of multiaxial non-crimp fabrics
Matthias Hübner, Thomas Gereke and Chokri Cherif

Multiscale quasicontinuum approaches for discrete models of fibrous materials such as electronic textile and paper materials
Lars A.A. Beex, Ron H.J. Peerlings, Marc G.D. Geers, Pierre Kerfriden and Stéphane P.A. Bordas

Multi-scale modelling of the mechanical behavior of textile reinforcements
Houda Attia, Damien Durville and Patrick Letallec

23/07/2014 16:30 - 18:30
Advanced Computational Techniques in Geophysical Sciences III
Minisymposium organized by Hélène Barucq, Rabia Djellouli and Kersten Schmidt

MS170C
Room: Sala B3
Chair: Helene Barucq

Discontinuous Galerkin methods for solving Helmoltz elastic wave equations for seismic imaging
Marie Bonnasse-Gahot, Henri Calandra, Julien Diaz and Stéphane Lanteri

hp-FEM and *hp*-DGFEM for the Helmholtz equation
Markus Melenk, Asieh Parsania and Stefan Sauter

Computational model of seismic wave propagation in prestressed formation
Egor V. Lys, Evgeniy I. Romenski, Vladimir A. Cheverda and Mikhail I. Epov

Multidimensional algorithm for the inversion of magnetotelluric measurements
Julen Alvarez-Aramberri, D. Pardo and Helene Barucq

A 2-D numerical model to analyze stress distribution in a soil mass due to applied loads
Iván Alhama, Jose Luis Morales, Emilio Trigueros and Francisco Alhama

Numerical simulation of grounding systems for compact underground electrical substations by means of a BEM formulation
José París, Ignasi Colominas, Fermín Navarrina and Manuel Casteleiro

23/07/2014 16:30 - 18:30
Numerical Analysis and Design for Advanced Engineering

MS055B

Solutions II
Minisymposium organized by Wolfgang Graf, Edoardo Patelli, André T. Beck, Michael Beer and Héctor A. Jensen

Room: Sala C1
Chair: Takashi Hara
CoChair: Wolfgang Graf

A single-synchronized linear solver for the solution of problems of computational mechanics on parallel computers
Seiji Fujino and Kousuke Iwasato

Flight characteristics analysis of Solar UAV by MATLAB/SIMULINK
Yuichiro Hanamoto, Wail Harasani and Katsumi Hiraoka

HDMR based response surfaces for probabilistic bridge vehicle interaction studies
S. Arun, Devdas Menon and A. Meher Prasad

Another way of solving the Taylor Vortex and the driven Cavity problem in the stream function-vorticity formulation
Blanca Bermúdez and René Posadas

23/07/2014 16:30 - 18:30
Inverse Problems, Design and Optimization II
Minisymposium organized by Marcelo Colaço, Helcio Orlande, George Dulikravich and Ireneusz Szczygiel

MS024B
Room: Sala C2
Chair: Helcio Orlande
CoChair: Marcelo Colaço

Conceptual design of three stage hybrid rocket using genetic algorithm
Fumio Kanamori, Masahiro Kanazaki, Masashi Nakamiya, Koki Kitagawa and Toru Shimada

Wall-based feedback control of an incompressible laminar boundary layer subjected to free-stream vortical disturbances
João da Rocha Pinto, Pierre Ricco and George Papadakis

High temperatures measurement and reconstruction in high-speed flow
Marat A. Goldfeld and Valery V. Pickalov

Simulation/optimization in reactive in-mold coating
Seunhyun Ko, Jose M. Castro and Elliott J. Straus

Further improvements in the convergence of TOUGH2 simulations
John O'Sullivan, Adrian Croucher, Angus Yeh and Mike O'Sullivan

Genetic algorithms operators for improving the optimization performance
Jordi Pons-Prats, Gabriel Bugeda and Eugenio Oñate

23/07/2014 16:30 - 18:30
Nonlinear Computational Stability Analysis II
Minisymposium organized by Herbert Mang and Yeong-Bin Yang

MS236B
Room: Sala C3
Chair: Franz G. Rammerstorfer

Loss of stability of structures under global tension – Modeling and simulation of some typical examples (Keynote Lecture)
Franz G. Rammerstorfer, Florian Toth and F. Dieter Fischer

On stability bahaviour of thin-walled columns accounting for initial geometrical imperfections
Marcin Kujawa and Czesław Szymczak

post-buckling analysis of large structures: primal and mixed non linear domain decomposition methods
Jorge Hinojosa, Olivier Allix, Pierre-Alain Guidault and Philippe Cresta

Shear deformable hybrid finite-element formulation for buckling analysis of thin-walled members

R. Emre Erkmen and Vida Niki

23/07/2014 16:30 - 18:30
Computational Geomechanics II
Minisymposium organized by Kristian Krabbenhoft, Scott Sloan, Dorival Pedroso and Jose Andrade

MS019B
Room: Sala D1
Chair: Jose Andrade

Incipient motion for non–cohesive sediment ellipsoidal particles by the Discrete Element Method (DEM)
Rafael Bravo, Pablo Ortiz and José L. Pérez-Aparicio

A level set-based granular element method
Keng-Wit Lim, Reid Kawamoto and Jose Andrade

FE-analysis of granular materials based on X-ray CT data
Daiki Takano and Yoshihisa Miyata

Sensitivity analysis of stress states induced by salt structure
Fábio Anderson Fonteles Teófilo, Edgard Poiate Junior, Álvaro Maia da Costa, Luiz Fernando Martha and Deane Roehl

Modelling of fluid flow in hydrocarbon reservoirs crossed by sealing faults using finite elements with embedded discontinuities in pressure field
Leila Beserra, Leonardo J.N. Guimarães and Osvaldo Manzoli

A new strategy to simulate particle crushing in DEM analysis
Matteo O. Ciantia, Marcos Arroyo, Antonio Gens and Francesco Calvetti

Investigation of critical factors for Hardin's relative breakage by discrete element method
Zuoguang Fu, Yuanjie Xu and Xihua Chu

23/07/2014 16:30 - 18:30
Computational Modelling of Material Forming Processes II
Minisymposium organized by Carlos Agelet de Saracibar and Robertt Valente

MS023B
Room: Sala D2
Chair: Robertt Valente
CoChair: Carlos Agelet de Saracibar

Numerical simulation of the forming limit curves of a heat treated AA110-H14 aluminium alloy sheet using an efficient implementation of a VPSC based MK model (Keynote Lecture)
Alicia I. Durán, Javier W. Signorelli, Diego J. Celentano, Marcela A. Cruchaga and Manuel Francois

Finite element analysis of incremental sheet metal forming with successive tool paths for use in prototype manufacturing of car body components
M. Emin Tamer, Omer Music, Izzet Ozdemir, Besim Baranoğlu, Ali Sakin and İsmail Durgun

Typology analysis for the optimisation of a stamping process
Morad Lakhssassi and Salim Bouabdallah

Modelling of Thermoplastic PolyOlefin (TPO) sheets for thermoforming applications
Zied Oueslati, Mohamed Rachik and Marie-France Lacrampe

A fully implicit Log-Conformation formulation
Philipp Knechtges, Stefanie Elgeti and Marek Behr

Simulation of forming, welding and heat treatment of an alloy 718 component
Joachim Steffenburg-Nordenström and Mats Larsson

23/07/2014 16:30 - 18:30
Biomechanics and Mechanobiology III
Minisymposium organized by Guillermo Rus, Quentin Grimal and Elisa Budyn

MS013C
Room: Sala D3
Chair: Guillermo Rus

Parameter Relevance in a Three Dimensional Colonic Crypt Model
Isabel N. Figueiredo, Carlos Leal and Giuseppe Romanazzi

Numerical modelling of the dynamics of isolated red blood cells flowing in a cytometer
Etienne Gibaud, Simon Mendez, Damien Isèbe and Franck Nicoud

Real-time Inverse-dynamic FE Modelling of Shoulder Articular Cartilage
Dokwan Lee, Ki Taek Hong, Ye Hyun Lee, Ji Soon Park, Woo Kim, Choongsoo Shin, Jung Ah Choi, Joo Han Oh and Yongnam Song

Systems biology approach in computational biomechanics
Roustem Miftahof and Omara Al Qabandi

Computational modeling of an MRI guided drug delivery system based on magnetic nanoparticle aggregations for the navigation of paramagnetic nanocapsules in the cardiovascular system
Nikolaos K. Lampropoulos, Ioannis Sarris and Evangelos G. Karvelas

23/07/2014 16:30 - 18:30
Explicit and Implicit Large Eddy Simulation of Turbulent Flows II
Minisymposium organized by Joanna Szmelter and Piotr K Smolarkiewicz

MS084B
Room: Sala D4
Chair: Piotr Smolarkiewicz

Implicit Large Eddy Simulation on unstructured meshes (Keynote Lecture)
Joanna Szmelter and Piotr K. Smolarkiewicz

An unstructured mesh nonhydrostatic model for orographic flows
Zhao Zhang, Joanna Szmelter and Piotr K. Smolarkiewicz

Modelling over-expanded jet screech by iles
Alessandro Mancini, Danilo Di Stefano, Edward Hall and Aldo Rona

Large-eddy simulation of turbulent flow over a wall undergoing streamwise traveling-wave motion
Wu-Yang Zhang, Wei-Xi Huang, Chun-Xiao Xu and Gui-Xiang Cui

Aerodynamics and aeroacoustics study of the flow around an automotive fan airfoil
Rabea Matouk, Gérard Degrez and Julien Christophe

A LES study of turbulent flow around twisted and tapered cantilever
Johan Lorentzon and Johan Revstedt

Mathematical modelling of wind action on civil structures using ANSYS Fluent
Svetlana A. Valger and Natalya N. Fedorova

23/07/2014 16:30 - 18:30
Advances in the Modelling and Simulation of Oil Drilling Operations II
Minisymposium organized by Pere-Andreu Ubach and Raju

MS272B
Room: Sala D5
Chair: Raju Gandikota
CoChair: Pere-Andreu Ubach de Fuentes

Gandikota

An extended finite element method for hydraulic fracturing of fully saturated porous media
Matias G. Zielonka, Kevin H. Searles, Jing Ning, Scott R. Buechler, Zhenzhong Du, Lin Xia and Chris Wohlever

Challenges in the simulation of hydraulic fracture networks in three dimensions using massively parallel computing platforms
Randolph Settgast, Scott M. Johnson, Pengcheng Fu, Stuart D.C. Walsh and Joshua White

Simulation of shaped-charge jet penetration into drained and undrained sandstone using the material point method with new approaches for constitutive modelling
Michael A. Homel, Rebecca M. Brannon and James Guilkey

A FEM-DEM formulation for pulsed fracturing in shale reservoirs
Francisco Zárate, José M. González and Eugenio Oñate

Hydraulic fracturing approximation using finite elements and elastoplasticity
Nathan Shauer, Philippe R.B. Devloo, Paulo C.A. Lucci, Sônia M. Gomes and Diogo L. Cecílio

Numerical simulation of casing centralization
Vadim Tikhonov, Olga Bukashkina and Raju Gandikota

Finite element well integrity analysis for open-hole and standard completion systems in a producing reservoir
Gaia Capasso and Guido Musso

23/07/2014 16:30 - 18:30
Computational Mechanics of Dislocations I
Minisymposium organized by Steve Fitzgerald, Edmund Tarleton and Daniel Balint

MS182A
Room: Sala D6
Chair: Daniel Balint

A mesoscale crystal plasticity framework based on the simplified Continuum Dislocation Dynamics (sCDD) theory
Mehran Monavari and Stefan Sandfeld

Continuum dislocation dynamics modeling in two dimensions
Doyl Dickel, Katrin Schulz and Peter Gumbsch

A comparative study of the numerical treatment of dislocation transport equations in crystal plasticity
Hector Hernández, Thierry J. Massart, Ron H.J. Peerlings and Marc G.D. Geers

Analysis of kink deformation using disclination model
Akihiro Nakatani and Xiao-Wen Lei

Three-dimensional phase field modeling of dislocation dissociation, glide and twinning in fcc materials
Jaber Rezaei Mianroodi and Bob Svendsen

Dislocation Mobilities in wurtzite GaN by Molecular Dynamics
C. Y. Park, K. Kang, Y.-H. Cho, M.-B. Shim, S. Hwang, S. Kim, Dhaneshwar Mishra, S.-H Pakr and Y.E. Pak

A simplified 2.5D discrete dislocation dynamics framework for simulating the deformation of single crystal nickel base superalloys
Siqi Ying and Alexander Korsunsky

23/07/2014 16:30 - 18:30
Modelling of Damage in Heterogeneous Microstructures II
Minisymposium organized by Ingo Scheider and Siegfried Schmauder

MS168B
Room: Sala E1
Chair: Ingo Scheider

Application of analysis on graphs to site-bond models for damage evolution in heterogeneous materials

Andrey P. Jivkov, Todor S. Todorov, Craig N. Morrison and Mingzhong Zhang

A model to represent ductile fracture at low stress triaxiality
Trong-Son Cao, Matthieu Mazière and Jacques Besson

Crack-particle interactions in heterogeneous materials
Sathiskumar Anusuya Ponnusami and Sergio Turteltaub

Meso-mechanically informed damage-healing and plasticity of cosserat continuum for granular materials
Xikui Li, Youyao Du and Qinglin Duan

Mechanical response of aluminum/polyimide stretchable units: A cohesive zone model approach
Riccardo Lucchini, Emanuele Cattarinuzzi, Dario Gastaldi and Pasquale Vena

A Micromechanics-Based Damage Diagnostic Model for Composite Materials
Khalid M. Shalan, Mohamed E. Abdel-Meguid, Tarek M. Hatem and Yehia A. Bahei-El-Din

23/07/2014 16:30 - 18:30
Second Generation of Theory of Structures by Unified Formulation II
Minisymposium organized by Erasmo Carrera, Antonio J.M. Ferreira, Maria Cinefra, Marco Petrolo, Alfonso Pagani and Enrico Zappino

MS263B
Room: Sala E2
Chair: Maria Cinefra

On the use of a component-wise approach for the analysis of damaged structures (Keynote Lecture)
Marco Petrolo and Erasmo Carrera

Refined shell elements for the analysis of multifield problems in multilayered structures
Maria Cinefra, Stefano Valvano and Erasmo Carrera

On the effectiveness of component-wise models in analyzing civil engineering framed structures
Alfonso Pagani and Erasmo Carrera

Refined 1D models for the analysis of reinforced-shell aeronautical structures including load factors effect
Alfonso Pagani, Francesco Zangallo and Erasmo Carrera

23/07/2014 16:30 - 18:30
Enabling Technologies and their Application for Advancing Computational Mechanics I
Minisymposium organized by Guillaume Houzeaux, Alvaro Coutinho and William Barth

MS074A
Room: Sala E3
Chair: Guillaume Houzeaux
CoChair: Beatriz Eguzkitza

User interaction in uncertainty quantification analysis workflows (Keynote Lecture)
Jonas Dias, Gabriel M. Guerra, Fernando Rochinha, Alvaro L.G.A. Coutinho, Patrick Valduriez and Marta Mattoso

Matching communication pattern with underlying hardware architecture
Emmanuel Jeannot, Guillaume Mercier and Francois Tessier

MPI/OmpSs programming model and its application in simulation code
Rosa M. Badia, Eduard Ayguadé and Jesus Labarta

Transparent performance monitoring of production computational mechanics jobs
William L. Barth, Abani Patra, James Browne, Tom Furlani, Matthew Jones, Robert DeLeon, Amin Ghadersohi, Todd Evans, Steven Gallo and Robert McLay

Using HPC software frameworks for developing BSIT: A geophysical imaging tool
Mauricio Hanzich, Juan Esteban Rodriguez and Natalia Gutierrez

Toward parallel scalable linear solvers suited for large scale hierarchical parallel platforms
Emmanuel Agullo, Mathieu Faverge, Luc Giraud, Abdou Guermouche, Pierre Ramet and Jean Roman

Performance impact of tetrahedralization on parallel conforming octree mesh generation
Igor T. Ghisi, José J. Camata and Alvaro L.G.A. Coutinho

23/07/2014 16:30 - 18:30
Dynamical Systems Approaches in Fluid Mechanics I
Minisymposium organized by Juan Sánchez Umbría, Marta Net and Dolors Puigjaner

MS103A
Room: Sala E4
Chair: Dolors Puigjaner
CoChair: Juan Sanchez Umbria

A highly parallel bifurcation analysis tool for fluid flow problems
Fred W. Wubs, Jonas Thies and Weiyan Song

A parallel algorithm for pseudo-arclength continuation
Lennaert van Veen and Dhavide Aruliah

Homoclinic orbits and their relevance to the onset of transient turbulence in wall flow
Genta Kawahara, Julius R. Lustro, Lennaert van Veen and Masaki Shimizu

Nonlinear dynamics and bifurcations in equilibrium state of a spheroidal particle suspended in shear flow
Tomas Rosén, Fredrik Lundell, Minh Do-Quang and Cyrus K. Aidun

Multiple modes of bubble propagation in partially occluded tubes
Andrew L. Hazel, Alice B. Thompson and Anne Juel

Stabilization of convection-diffusion problems by Shishkin mesh simulation. Latest developments
Bosco García-Archilla

A parallel algorithm for the computation of invariant tori in large-scale dissipative systems
Juan Sánchez Umbría and Marta Net

23/07/2014 16:30 - 18:30
Uncertainty Quantification Techniques for Fluid-flow Problems II
Minisymposium organized by Remi Abgrall, Pietro Marco Congedo and Gianluca Iaccarino

MS203B
Room: Sala E5
Chair: Pietro Marco Congedo

Uncertainty quantification in fluid dynamics: Kriging model based approach
Soshi Kawai and Koji Shimoyama

Some advances on anchored ANOVA expansion for high order moments computation
Kunkun Tang, Pietro M. Congedo and Rémi Abgrall

Modeling of sub-sea sedimentation processes using a stochastic model of gravity currents

Gabriel M. Guerra, Fernando Rochinha, Paulo Faraizo, Jonas Dias, Felipe Horta, Marta Mattoso, Renato N. Elias and Alvaro L.G.A. Coutinho

High dimensional uncertainty quantification using the derivative approach

Martin Kubicek and Edmondo Minisci

23/07/2014 16:30 - 18:30
Interaction Dynamics of High Speed Railways I
Minisymposium organized by Y. B. Yang and J. D. Yau

MS100A
Room: Sala E6
Chair: Yeong-Bin Yang
CoChair: Jong-Dar Yau

The implementations of the tap-scan damage detection method (Keynote Lecture)
Zhihai Xiang, Qiuhai Lu, Lianyou Li and Zhaopu Shen

A robust time integration for dynamic interaction of high-speed train and railway structure including derailment during an earthquake

Makoto Tanabe, Masamichi Sogabe, Hajime Wakui, Nobuyuki Matsumoto and Yasuko Tanabe

Development and simulation of an hil full-scale test-rig to study high speed train dynamics under degraded adhesion conditions

Benedetto Allotta, Roberto Conti, Enrico Meli, Luca Pugi and Alessandro Ridolfi

Study of train derailment due to suspension damage
Shen-Haw Ju

A novel iterative method for heavy haul railway vehicle/track system with different gap of unsupported sleepers
Ying-Jie Wang and Jong-Dar Yau

23/07/2014 16:30 - 18:30
Computational Contact Mechanics VIII
Minisymposium organized by Tod Laursen, Peter Wriggers and Giorgio Zavarise

MS044H
Room: Sala F
Chair: Alexander Popp

Isogeometric analysis and thermomechanical mortar contact problems
Maik Dittmann and Christian Hesch

NURBS-based IGA of 3D Finite Deformation Elastoplastic Contact Problems
Kjell M. Mathisen, Knut M. Okstad, Trond Kvamsdal and Siv B. Raknes

Comparison and combination of point-based and segment-based isogeometric contact formulations
Martina Matzen and Manfred Bischoff

Conforming contact manifolds for multibody simulations
Vincent Visseq, Ulrik Bonde, Kenny Erleben and Sune Darkner

Fictitious domain and Nitsche's method applied to contact problems in elasticity
Mathieu Fabre, Jérome Pousin and Yves Renard

Remeshing strategies for large deformation problems with contact and incompressible materials
Ziyu Zhang and John E. Dolbow

High Order Mortar Finite Element Applied to Analysis of Computational Contact Mechanics
Allan P. C. Dias, Marco L. Bittencourt and Alberto L. Serpa

23/07/2014 16:30 - 18:30
Advances and Applications in Generalized/Extended Finite Element Methods I
Minisymposium organized by Angelo Simone, C. Armando Duarte, Sergio P. B. Proença and Haim Waisman

MS094A
Room: Sala H 1
Chair: C. Armando Duarte

Simulation of strain localization with an enriched Gradient-Enhanced Damage Model (Keynote Lecture)
Erik C. Simons and Angelo Simone

3D crack propagation with cohesive elements in the extended finite element method
Guilhem Ferté, Patrick Massin and Nicolas Moës

A new method to extract strain energy release rates using XFEM and Irwin's Integral
Mengyu Lan, Haim Waisman and Isaac Harari

XFEM for a crack model with strip-yield crack tip plasticity
Karlheinz Kunter, Thomas Heubrandtner, Bettina Suhr and Reinhard Pippan

Modelling hydraulic fracture propagation with extended finite element method
Tao Wang, ZhanLi Liu and Zhuo Zhuang

A stable X-FEM in cohesive transition from closed to open crack
Sergio Sadaba, Ignacio Romero, Carlos Gonzalez and Javier LLorca

23/07/2014 16:30 - 18:30
Reduced Basis, POD and PGD Model Reduction Techniques II
Minisymposium organized by Francisco Chinesta, Elias Cueto, Pierre Ladevèze and Hermann Matthies

MS015B
Room: Sala H 2
Chair: Elias Cueto
CoChair: Hermann G. Matthies

Real-time direct integration of (Hyper-)Elastodynamics by PGD techniques (Keynote Lecture)
David González, Elías Cueto and Francisco Chinesta

PGD based model reduction of updated-Lagrangian Meshless Discretization
Diego Canales, Jose V. Aguado, Adrien Leygue, Francisco Chinesta, Icíar Alfaro, Elías Cueto, Eric Feulvarch and Jean-Michel Bergheau

PGD method with material non-linearities with enthalpic approach applied foundry
Pierre Despret, Jean-Luc Dulong and Pierre Villon

Parallelisation strategies for the proper generalized decomposition on massively parallel architectures (GPU)
Domenico Borzacchiello, Adrien Leygue, Felipe Bordeu and Francisco Chinesta

Optimal projections for reduced order models
Assad A. Oberai and Jayanth Jagalur-Mohan

A numerically stable a posteriori error estimator for reduced basis approximations of elliptic equations
Andreas Buhr, Christian Engwer, Mario Ohlberger and Stephan Rave

A semi-continuous formulation for goal-oriented reduced-order models
Lei Cheng, Stefano Mattei, Peter W. Fick and Steven J. Hulshoff

23/07/2014 16:30 - 18:30
Multiscale Modelling of Materials and Structures I
Minisymposium organized by Tadeusz S. Burczynski, Xavier Oliver and Maciej Pietrzyk

MS250A
Room: Sala H 3
Chair: Tadeusz Burczynski
CoChair: Maciej Pietrzyk

Identification of the mesoscale model of a microstructure in using experimental measurements with an image field method for one specimen
Manh-Tu Nguyen, Christophe Desceliers, Christian Soize, Jean-Marc Allain and Hakim Gharbi

On macro/microstructure optimization techniques in multiscale computational material design
Alex Ferrer, Javier Oliver, Alfredo E. Huespe, Joaquín A. Hernández and Juan C. Cante

Identification of the thickness of thin metal film subjected to the ultrashort laser pulse
Ewa Majchrzak and Jolanta Dziatkiewicz

Topology multiscale optimization of bone scaffolds
Waclaw Kus and Przemyslaw Makowski

Design of the die shape for indirect extrusion of Mg alloy with Al coating
Toko Tokunaga, Maciej Pietrzyk, Kiyotaka Matsuura and Munekazu Ohno

Toward robust and accurate calculation of fragmentation
Bryan A. Kashiwa, Lawrence M. Hull, Shane C. Schumacher and Kevin P. Ruggirello

23/07/2014 16:30 - 18:30
Computational Biomechanics VIII
Minisymposium organized by T.Christian Gasser, Miguel Cerrolaza, Ellen Kuhl, Michael Gee, Yomar Gonzalez, Simone Deparis and Thomas Franz

MS007H
Room: Sala J
Chair: Yomar González
CoChair: Milos Kojic

Influence of ILT mechanical behavior in abdominal aortic aneurysms passive mechanics (Keynote Lecture)
Fabian Riveros, Giampaolo Martufi, T. Christian Gasser and Jose F. Rodriguez

Evolution of the functional strain lines along characteristic remodeling processes of the human left ventricle
Antonietta Evangelista, Stefano Gabriele, Paola Nardinocchi, Paolo E. Puddu, Luciano Teresi, Concetta Torromeo and Valerio Varano

Comparison of parapatellar and transpatellar approaches in lateral meniscal allograft transplantation using finite element analysis
Kyoung-Tak Kang and Heoung-Jae Chun

A poroelastic model for plantar tissue during gait: Main features and perspectives
Daniela P. Boso, Giuseppe Sciumè, Mattia Pizzocaro and Bernhard A. Schrefler

A finite element model of coil insertion in cerebral aneurysms
Tomohiro Otani, Satoshi Ii, Toshiyuki Fujinaka, Masayuki Hirata, Tomoyoshi Shigematsu, Tomohiko Ozaki and Shigeo Wada

Numerical modeling of bra waer during running
Aline Bel-Brunon, Laura Bouten, Jeremy Cornolo and Fabrice Morestin

23/07/2014 16:30 - 18:30
Nonlinear Modeling and Simulation of Plies and Interfaces in Laminated Composites I
Minisymposium organized by Heinz E. Pettermann and Pedro P.

MS112A
Room: Business Centre I
Chair: Albert Turon

Camanno

Nonlinear predictions in laminated composites and structures
Heinz E. Pettermann, Johannes Broger and Jakob Gager

Assessing material nonlinearities in large composite structures by predicting energy dissipations at the mesoscale
Martin Schwab, Jakob Gager and Heinz E. Pettermann

Micromechanical failure modelling of composite materials using HFGMC
Darko Ivančević and Ivica Smojver

An isogeomtric continuum shell formulation for the simulation of interlaminar failure in composites
Saman Hosseini, Joris J.C. Remmers, Clemens V. Verhoosel and René de Borst

A combined cohesive zone model for delamination and adhesive failure of a composite bonded joint
Johannes Neumayer, Matthias Reil, Hannes Körber and Roland Hinterhölzl

Investigation of intersonic delamination in curved composite laminates under quasi-static loading
Burak Gozluklu, Imren Uyar and Demirkan Coker

Simulation of delamination growth in laminated composites under high cycle fatigue using a level set model
Mohammad Latifi, Frans P. van der Meer and Lambertus J. Sluys

23/07/2014 16:30 - 18:30
High-Performance Computing for Structural Mechanics and Earthquake / Tsunami Engineering I
Minisymposium organized by Shinobu Yoshimura, Muneo Hori and Makoto Ohsaki

MS183A
Room: Business Centre II
Chair: Shinobu Yoshimura

Seismic analysis of fault-urban area system using K computer
Pher E.B. Quinay, Tsuyoshi Ichimura, Muneo Hori, Kazuhisa Abe and Kazuhiro Koro

Improvement of balancing domain decomposition method for problem with multi-point constraints
Tomoshi Miyamura, Shuhei Takaya, Shinobu Yoshimura and Muneo Hori

Matrix and tensor library for solid mechianics
Hiroshi Kawai and Ryuji Shioya

Large-scale MPS-FE analysis of fluid-structure interaction with free surface
Naoto Mitsume, Shinobu Yoshimura, Kohei Murotani and Tomonori Yamada

Finite element analysis of damping mechanism of autoclaved lightweight aerated concrete panels for exterior walls of steel structures
Masayuki Kohiyama, Makoto Ohsaki, Tomoshi Miyamura and Takuzo Yamashita

A new parallel direct sparse solver for implicit finite element analysis of very large thermo-mechanical models
Neeraj Cherukunnath and Steven T Knight

Shape optimization of shear panel damper considering plastic energy dissipation
Makoto Ohsaki and Junki Nozoe

23/07/2014 16:30 - 18:30
Mathematical Foundation of Computational Mechanics I
Minisymposium organized by Susanne C. Brenner and Carsten

MS195A
Room: Sala de prensa I
Chair: Neela Nataraj

Carstensen

Adaptive tree approximation with nonconforming finite elements
Andreas Veeser

Low-Order dPG Method
Carsten Carstensen, Dietmar Gallistl, Friederike Hellwig and Lucy Weggler

Comparison results of Finite Element Methods
Daniel Peterseim

Interior penalty Finite Element Methods for high-order local boundary conditions
Kersten Schmidt, Julien Diaz and Christian Heier

Efficient and reliable error control for the obstacle problem
Carsten Carstensen and Karoline Köhler

Locking-free interior penalty methods for elasticity problems, using quadrilateral elements
Beverley J. Grieshaber, Andrew T. McBride and B. Daya Reddy

Rate optimality of adaptive algorithms, part I: Axioms of adaptivity
Carsten Carstensen, Michael Feischl and Dirk Praetorius

23/07/2014 16:30 - 18:30
Microstructural Based Constitutive Models in Hard and Soft Matter Materials IV
Minisymposium organized by Christian Miehe, Samuel Forest and Christian Linder

MS140D
Room: Sala de prensa II
Chair: Christian Linder
CoChair: Samuel Forest

Coarse-graining homogenization of heterogeneous media with non-separated scales (Keynote Lecture)
Julien Yvonnet and Guy Bonnet

A potential-based constitutive interface model for application in reduced order nonlinear homogenization
Matthias Leuschner and Felix Fritzen

Experimental characterization and modelling of rubberlike materials hyperelastic behavior with damage
Yannick Merckel, Jean-François Witz, Julie Diani, Pauline Lecomte and Mathias Brieu

Modeling of spherulite microstructures in semicrystalline polymers
Hasan E. Oktay and Ercan Gürses

Finite element simulation of inelastic and viscoelastic effects using a microstructure based model for filled elastomers
Rathan Raghunath, Daniel Juhre and Manfred Klüppel

A finite element method for the prediction of compressive strength of lightweight concrete
Etienne Malachanne, Rita Sassine and Eric Garcia-Diaz

23/07/2014 16:30 - 18:30
Analytical and Computational Models for Imperfect Interfaces I
Minisymposium organized by Raffaella Rizzoni, F. Lebon, E. Benvenuti and S. Dumont

MS122A
Room: Sala de Reservas
Chair: Raffaella Rizzoni
CoChair: Frédéric Lebon

On Gurtin-Murdoch model of material surface

Henryk Stolarski and Lidia Nazarenko

Computational modeling of interfacial debonding between FRP and concrete
Huang Lihua, Li Lu and Wang Xianpeng

An interface damage model depending on the in-plane deformation

Francesco Freddi and Elio Sacco

Roughness modeling in the pavement layers interfaces
Rahma Ktari, Chiraz Khelifi, Fazia Fouchal, Anne Millien, Frédéric Lebon and Christophe Petit

On models for interfaces: Theory and computational results
Serge Dumont, Frédéric Lebon, Raffaella Rizzoni and Elio Sacco

POSTER SESSIONS

21/07/2014 16:00 - 18:30
Poster Session ECCM

PSECCM
Room: Hall
Chair: to be confirmed

Life prediction of large bearings using accelerated life test coupled with analysis

Na Ra Lee, Yongbin Lim and Naksoo Kim

A couple stress theory for the analysis of plates with a RBF-FD meshless method
Carla M.C. Roque and António J.M. Ferreira

A FEM-DEM coupled and evolved formulation for analysis of multifracture in solids
Chun Feng, Eugenio Oñate and Shihai Li

B-Spline and reproducing polynomial particle shape functions for linear and nonlinear elasticity problems

Yanan Liu, Yinghua Liu and Liang Sun

A motion planning scheme for robotic in-hand object manipulation
Hyunhwan Jeong, Joono Cheong and Wheekuk Kim

A model of the tongue movement during swallowing
Yukihiro Michiwaki, Takahiro Kikuchi, Seiichi Koshizuka, Tetsu Kamiya, Yoshio Toyama, Takashi Osada, Nobuko Jinno and Keigo Hanyu

A new fem homogenization of periodic material based on an extended Rosette gage theory
Luis Pérez Pozo, Marek Kolendo , Sergio Oller , Sheila Lascano and Claudio Aguilar

A Numerical Approach to Evaluate the Seismic Performance of Water Supply Systems Based on Demand and Capacity in the Damaged Network
Mahmood Hosseini, Aram Soroushian and Abdolreza Astaraki

A numerical framework to model the mechanical behavior of bioresorbable polymeric braided wire stents
Mathias P. Peirlinck, Nic Debusschere, Matthieu De Beule, Peter Dubruel, Patrick Segers and Benedict Verhegghe

A relation between calculation error and modelling resolution of DEM
Shuji Moriguchi, Ikko Tachibana, Kenjiro Terada, Shinsuke Takase, Takashi Kyoya and Jyunji Kato

A water state study in the wood structure of four hardwoods below fiber saturation point by NMR technique
Leandro Passarini, Cedric Malveau and Roger Hernandez

Adaptive surrogate-based multi-criteria optimization
Alexis I. Pospelov, Fedor V. Gubarev and Alexey M. Nazarenko

An explicit algorithm for the nonlinear dynamics of spatial beam
Chu Chang Huang, Tsung Chi Lin, Kuo Mo Hsiao and Fumio Fujii

Analysis of offshore structures for wind turbines and oil&gas using xsea software
Ki-Du Kim, Pasin Plodpradit, Anaphat Manovachirasan, Chana Sinsabvarodom and Bum-Joon Kim

Analysis of thick-walled pipeline elements operating in creep conditions
Przemysław Osocha and Bohdan Węglowski

Analysis on a 2T2R type asymmetric parallel mechanism
Sungmok Kim, Joono Cheong, Kyoosik Shin, Byung-Ju Yi and Wheekuk Kim

Anisotropic growth of thin shells with subdivision elements
Roman Vetter, Norbert Stoop, Falk K. Wittel, Hans J. Herrmann and Gautam Munglani

Application of fracture mechanics to assess the concrete damage due to cyclic freezing and thawing
Marta Kosior-Kazberuk

Comparison of muscular movement following blood alcohol concentrations using low speed rear impact tests and dynamic simulation
Dong Hyun Kim, Young Jin Jung, Dohyung Lim and Han Sung Kim

Computational and experimental investigation of the all fracture mode specimens on mixed mode I/III and II/III fracture
Shi-fan Zhu, Yang Cao, Qing-fen Li and Li Zhu

Computational design of a pressure container manufactured by fiberglass sheets to industrial applications
Gustavo Suárez , Luis Javier Cruz and Sergio Oller

Computational study of the effect of hydrostatic pressure on plastic deformation of metallic glass
Jacob Carlsson, Masato Wakeda and Shigenobu Ogata

Continuum-discontinuum particle method
Dong Zhou and Shihai Li

CUFESAP: A CUDA based finite element code for elastic structural analysis on GPUs
Jianfei Zhang and Defei Shen

Description model of cross-section of fibre bundle shape in prepreg composite
Pavla Tesinova

Design of smart structures with shape-reserved actuators
Yiqiang Wang and Zhan Kang

Determination of forming limit diagram using finite element method
Katarzyna Dyja and Janina Adamus

Development of an automated framework for high intensity focused ultrasound simulations
Mun-Bo Shim, Mun-Sung Kim and Sung-Jin Kim

Development of cosmetic orthodontic bracket and bracket cover
Yasukazu Nishi, Yoshiki Ishiwata, Akira Nakajima, Kazuyoshi Hoshino, Mamoru Murata and Noriyoshi Shimizu

Effective thermal conductivity in anisotropic materials using boundary element methods
Miélle Silva Pestana, Carla Tatiana Mota Anflor and Jhon N.V. Goulart

Emulating drilling degrees of freedom in the rotation-free Bézier-Enhanced Shell Triangle (BEST) finite element
Pere-Andreu Ubach, Eugenio Oñate and Julio García-Espinosa

Fatigue life analysis of an upgraded diesel engine crankshaft
Jalal Fathi Sola and Farhad Alinejad

FE modelling of frictional heating in a disc brake at temperature-dependent coefficient of friction
Piotr Grzes

Finite element analysis of AZ31B magnesium alloy double butted tube forming process
Soo Sik Han

Finite element analysis of the quasi-static thermal stresses in a pad-disc brake system
Adam Adamowicz

Finite element study of healthy, pathological and surgical lumbar spine biomechanics.
Andrea Calvo-Echenique, Jose Cegoñino, Luciano Bances and Amaya Pérez del Palomar

Finite element supporting thermoelectric effects in FGM materials
Juraj Paulech, Juraj Hrabovsky, Vladimir Kutis and Justin Murin

Formability of ZK60A magnesium alloy
Ki Ho Jung, Yong Bae Kim, Yu Hyun Kim, Sangmok Lee, Eung Zu Kim, Du Soon Choi and Geun-An Lee

GPU high performance explicit solution for kinematics and dynamics simulation of crank-connecting rod-piston mechanism
Zhaosong Ma, Dong Zhou and Zhigang Li

High order finite element method on the IBM power systems high performance computing applied on structural mechanics
Gilberto L. Valente, Marco L. Bittencourt and Edson Borin

Influece of material atomistic model on MD simulation
Anna Kucaba-Pietal and Janusz Bytnar

Influence of shape of particle size distribution on mechanics of uniaxially compressed granular packings
Joanna Wiącek and Marek Molenda

Mainshock – aftershock interaction diagram for a 3D plan-asymmetric structure
Andre F. Belejo and Andre R. Barbosa

Mechanical behavior of carbon nanotubes encapsulating copper atoms
Lei Wang, Zhongqiang Zhang and Yonggang Zheng

Mechanical properties of realistic materials: From quantum calculations to plastic flow
Svetlana A. Barannikova, Albina M. Zharmukhambetova, Anton Yu. Nikonov, Andrey I. Dmitriev, Alena V. Ponomareva and Igor A. Abrikosov

Micromechanism-based elasto-viscoplasticity constitutive modeling for engineering intermetallics
Yoon Suk Choi, Kyung-Mox Cho, Dae-Geun Nam and Dennis Dimiduk

Modelling dynamic behaviour of orthotropic metals
Nenad Djordjevic, Rade Vignjevic, Lewis Kiely, James Campbell and Simon Case

Natural frequencies of a simply supported horizontal rectangular tank partially filled with a liquid
Kyeong–Hoon Jeong, Jong–Wook Kim and Jong-In Kim

Nonlinear isogeometrical approacn to stress recovery
Pejman Azarsa, Behrooz Hassani and Ahmad Ganjali

Numerical and experimental study by BEM and thermal Images for predicting the effective thermal conductivity
Matheus B. A. M. Oberg, Carla T. M. Anflor and Jhon N.V. Goulart

Numerical simulation for temperature and stress distribution in laser forming process of AHSS
Jung Han Song, Geun-An Lee, Sangmok Lee and Sung Jun Park

Numerical simulation of rock fragmentation process induced by indenter
Shouju Li, Lijuan Cao and Zichang Shangguan

Numerical simulation of the energy storage rate in metals under quasistatic loading 
Oleg A. Plekhov and Anastasiia A. Kostina

Numerical study of a thermo-acoustically encapsulation 
Fabian Duvigneau and Ulrich Gabbert

Numerical study of actuatot performance of piezoelectric ink-jet print head
Pham Van So, Hyeonwoo Jeon and Jaichan Lee

Quantitative estimation of exercise effect using numerical simulation and multi-sensory system on human leg
Yoshiki Nagatani and Takashi Saeki

Reducing the number of runs in experimental research using smart designs of experiment
Andrzej Skowronek

Scattering of semi-cylindrical gap and multiple shallow-buried cavities and inclusions by SH-wave
Hongliang Li

Seismic performance analysis of the hall-column system of a temple structure 
Zhi Zhou and Jiang Qian

Simulating soil-building interaction with a FEM/BEM approach 
Dimas B. Ribeiro and João B. Paiva

Simulation of implanted aortic stents
Raoul Hopf, Michael Gessat, Volkmar Falk and Edoardo Mazza

Soil-foundation-structure interaction by an explicit time integration method
Jin-Sun Lee, Dong-Soo Kim, Jeon-Gon Ha and Seong-Bae Jo

Stiffener Layout Optimization of Thin-Walled Stiffened Plates
Lianchun Long and Yang Li

Stress concentration near sharp and rounded V-shaped notches in two-dimensional bodies
Andrzej Kazberuk and Mykhaylo P. Savruk

Application of the strong discontinuity method to ductile failure with damage
Jérémie Bude Bude, Delphine Brancherie and Jean-Marc Roelandt

Structural design of metallic waveguide device in the microwave range using topological design process
Hyundo Shin and Junghoon Yoo

Structural health monitoring of stay cables by the Scruton number 
Joseph Lardiès

Studies of bimaterial interface fracture with peridynamics

Fang Wang, Lisheng Liu, Qiwen Liu, Dongfeng Cao and Shuyong Yang

Surgical treatment of shoulder injuries by the Weaver Dunn technique

Gabriela L. Menegaz, Sonia A.G. Oliveira, Cleudmar A. Araújo and Leandro C. Gomide

The correlation between complicated lateral resisting system of the Shanghai tower

Wei Huang and Jiang Qian

The effect of damage on the biomechanical behavior of the pelvic floor

Dulce A. Oliveira, Marco Parente and Renato M. Natal Jorge

The Poynting type effect and non-homogeneous radial deformation in the problem of torsion of hyperelastic circular cylinder

Igor A. Brigadnov

The relationship between the fast wave and the fabric tensor

Young June Yoon

Thermomechanical modelling of PCM in heat storage applications

Francisco Montero-Chacón and Michele Chiumenti

Toward a polycrystal modeling of martensitic phase transformation based on the mechanism of Magee

Abdeladhim Tahimi, Fabrice Barbe, Lakhdar Taleb and Tatiana B. Fraga

Two level FETI method for transient problems

Marta Jarosova, Tomas Brzobohaty and Alexandros Markopoulos

21/07/2014 16:00 - 18:30
Poster Session ECFD

PSECFD
Room: Hall
Chair: to be confirmed

A CFD solver on graphical processing unites for turbulence simulations

Wenbin Cao, Hua Li, Zhengyu Tian and Sha Pan

A comparison between Monte Carlo and polynomial chaos expansion techniques in reservoirs simulations

Karen Guevara, João Zanni and Marco Aurélio Pacheco

A high order compact scheme for hypersonic internal flow with turbulence models

Hua Li, Wen-Long Wang, Wen-Jia Xie and Jian-Qi Lai

A multi-level computational model to characterize the hepatic circulation in human cirrhosis

Geert Peeters, Charlotte Debbaut, Pieter Cornillie, Elin Pauwels, Diethard Monbaliu, Wim Laleman and Patrick Segers

A Numerical investigation of scramjet engine air intakes for the 14-X hypersonic vehicle

Augusto F. Moura and Maurício A. P. Rosa

A Shape Analysis of Ultrasonically Levitated Droplet with Moving Particle Semi-implicit and Distributed Point Source Method

Yuji Wada, Kohei Yuge, Ryohei Nakamura, Hiroki Tanaka and Kentaro Nakamura

Adaptive Galerkin Method with relevant basis functions for PDES with boundary conditions

Bing Li, Luofeng Han and Shuanglu Quan

Advances of continuous-discontinuous numerical method based on Lagrange equation
Shihai Li, Chun Feng, Dong Zhou and Wenjie Duan

An Immersed Smoothed Finite Element Method for analyzing fluid-structure interaction systems consisting of dielectric elastomers
Zhi-Qian Zhang, Choon Chiang Foo and Gui Rong Liu

Application of EARSM turbulence model to simulation of reacting flow field in jets engines combustion chamber

Vojtech Betak, Jan Kubata and Jan Tuma

Comparison of implicit LU-SGS schemes for hypersonic flows
Zhengyu Tian, Wenbin Cao, Jinzhi Fan and Ran Zhang

Development of explicit unstructured mesh-based CFD solver for low-mach number flows using graphics processor units
Anton Karpenko, Vladislav Emelyanov and Konstantin Volkov

Effect of Reynolds number on pressure losses in axisymmetric sudden expansions with chamfer
Youngmin Bae, Young I. Kim, Keung K. Kim and Juhyeon Yoon

Evaluation of an immersed boundary method for solving the fluid structure interaction problem in refrigeration compressor valves

José L. Gasche and Franco Barbi

Flow recirculation in VHC designs

Ricardo F. Oliveira, Senhorinha F. Teixeira, Helena Cabral-Marques and José C. Teixeira

Investigation of Hydrodynamic Processes in Geothermal Plant

Marijonas Bogdevičius, Jolanta Janutėnienė, Saulius Razmas, Mindaugas Drakšas, Rimantas Didžiokas and Vadim Nikitin

Mechanism of modulation of the chemical activity of metal nanoparticles through organic charge-transfer molecules
Eunae Kim and Min Sun Yeom

Mixing of two-phase flow in rotating microchannels with a circular chamber
Jerry M. Chen and Huan-Choa Chiu

Modelling of interaction between suspension and structure in a tumbling mill

Simon Larsson, Samuel Hammarberg and Pär Jonsén

Modified dynamic observers based on green functions method to solve a 3D transient IHCP

Priscila F.B. Souza, Fernando Malheiros, Márcio B. da Silva and Gilmar Guimarães

Multiphase flow modelling of explosive volcanic eruptions using an adaptive unstructured mesh-based approach

Christian T. Jacobs, Gareth S. Collins, Matthew D. Piggott and Stephan C. Kramer

Multiscale modeling of solid-liquid interface ordering and its effect on the growth kinetics of metallic alloys
Mohammed Guerdane

Non-conforming mimetic and virtual element discretization for polyhedral meshes
Gianmarco Manzini, Blanca Ayuso de Dios and Konstantin Lipnikov

Numerical predictions of viscoelastic flows with an algebraic extra-stress model

Daiane Iglesia Dolci, Gilcilene Sanchez de Paulo and Gilmar Mompean

Numerical Simulation of Incompressible Flow around Aerofoil Vibrating with Two Degrees of Freedom
Petr Furmanek and Karel Kozel

Numerical study of the cooling air flow in a hydro generator with various ventilation schemes
Stephan Klomberg, Ernst Famleitner, Gebhard Kastner and Oszkár Bíró

Porous medium modeling for air flow through forest-comparison with wind tunnel data
Zeinab Ahmadi Zeleti, Sandrine Aubrun and Jari Hämäläinen

Simulation of separation processes incorporating magnetic nanoparticle recovery in continuous microfluidic systems
Jenifer Gómez-Pastora, Eugenio Bringas, Gustavo A. Esteban, Jesús M. Blanco and Inmaculada Ortiz

Simulations of a single turbulent vortex ring using a regularized particle-mesh based vortex method
Mads M. Hejlesen and Jens H. Walther

Sphere in Poiseuille: Static, free rotation and free fall
Anthony Ponce , Yannick Hoarau and Yan Dušek

Submesoescale processes in upper ocean fronts: a numerical study using a Reynolds Stress Turbulence Model
Pablo Cornejo and Andrés Sepúlveda

The free-stream turbulence effect on the laminar-turbulent transition in the swept wing boundary layer

Sergey L. Chernyshev, Alexander I. Ivanov, Andrey Ph. Kiselev, Vladimir A. Kuzminsky and Dmitry S. Sboev

The initial-boundary Riemann problem for the solution of the compressible gas flow

Martin Kyncl and Jaroslav Pelant

System for reconsting images of internal defects by inverse problem solving

Yoshihiro Nishimura, Katsumi Fukuda, Takayuki Suzuki and Masatoshi Fukuta

Prediction of pulsatile 3D flow in elastic tubes using star CCM+ Code

Didier P. de Andrade, José M.C. Pereira and José C.F. Pereira

Ultrasonic image reconstruction of internal defects derived by EMAT using truncated singular value decomposition

Yoshihiro Nishimura, Takayuki Suzuki, Katsumi Fukuda, Masatoshi Fukuta and Eiki Ikeda

Wake equilibrium parameters on a symmetric airfoil simulations
Gorka Zamorano , Unai Fernández and Ekaitz Zulueta

An XFEM based sharp interface approach for two-phase and free-surface flows
Henning Sauerland

Thursday, July 24th

24/07/2014 09:00 - 10:30
Plenary Lectures III

PL3
Room: Auditorium
Chair: Carlos Mota Soares
CoChair: Erwin Stein

Polymer modelling: From macroscopic hyperelasticity to strain induced crystallisation
Patrick Le Tallec

Feature extraction from design space
Shigeru Obayashi

10:30 - 11:00
Coffee Break & Poster Sessions

11:00 - 13:00
TECHNICAL SESSIONS

24/07/2014 11:00 - 13:00
Computational Multiscale Methods for Tissue Biomechanics I
Minisymposium organized by Michele Marino, Ginu U. Unnikrishnan and Giuseppe Vairo

MS127A
Room: Mare Nostrum A
Chair: Michele Marino
CoChair: Richard Weinkamer

Development of toughness exhaustion models for vascular tissue rupture (Keynote Lecture)
Rosaire Mongrain, Nastaran Shahmansouri, Jean-Claude Tardif and Raymond Cartier

A computational approach for in situ estimation of aortic valve interstitial cell mechanical state from tissue level measurements
Rachel M. Buchanan, Robert J. Fagan and Michael S. Sacks

Electromechanical model of human atrial tissue using the discrete element method
Paul Brocklehurst, Henggui Zhang, Dongmin Yang and Jianqiao Ye

Including residual stress and initial strain in an asymmetric model of the aortic root
Vittoria Flamini, Abe DeAnda and Boyce E. Griffith

A multi-layered model for the analysis of drug release in eluting stents
Michele d'Errico, Paolo Sammarco and Giuseppe Vairo

Evaluation of biaxial mechanical properties of medial lamellae of aortic wall using multiscale modeling

Hadi Taghizadeh GJ, Mohammad Tafazzoli-Shadpour, Nasser Fatouraee, Mohammad Behgam Shadmehr and Farahnaz Sadegh Beigee

24/07/2014 11:00 - 13:00
Recent Advances in Meshfree and Particle Methods I
Minisymposium organized by Seiichi Koshizuka, Seiya Hagihara and Yuzuru Sakai

MS036A
Room: Mare Nostrum B
Chair: Seiya Hagihara

Zoom up tsunami analysis on urban areas by three analyses stages using hierarchical domain decomposition in explicit MPS method
Kohei Murotani, Seiichi Koshizuka, Hiroshi Kanayama, Kazuya Shibata, Tasuku Tamai, Naoto Mitsume, Shinobu Yoshimura, Satoshi Tanaka, Kyoko Hasegawa and Toshimitsu Fujisawa

Numerical evaluation of Tsunami impact force acted on a bridge girder during Tsunami by using a particle

method

Shoichi Tanabe, Mitsuteru Asai, Kenjiro Terada, Kazuo Kashiyama, Shuji Moriguchi and Mao Kurumatani

Minimal surface partitioning for particle-based models
Carlos Alejandro Roig, Pooyan Dadvand, Miquel Santasusana and Eugenio Oñate

A large-scale particle simulations using dynamic load balance on GPU supercomputer
Satori Tsuzuki and Takayuki Aoki

Fundamental study of Fluid-Soil-Seepage flow coupled analysis by a particle method based on the mixed flow theory
Toshihiro Morimoto, Mitsuteru Asai and Kiyonobu Kasama

Shared memory OpenMP parallelization of SPH program and its application to solid fluid interaction
Xiaoting Li, Fei Xu, Xiangyang Gao and Yang Yang

24/07/2014 11:00 - 13:00
Discontinuous Galerkin Methods: New Trends and Applications IV
Minisymposium organized by Bernardo Cockburn, Sonia Fernandez-Mendez, Nicoletta Franchina, Ngoc-Cuong Nguyen, Jaime Peraire and Per-Olof Persson

MS139D
Room: Mare Nostrum C
Chair: Cuong Nguyen

Local Discontinuous Galerkin method for inkjet drop formation and motion
Tatyana Medvedeva and Jaap van der Vegt

A simple and accurate discontinuous Galerkin scheme for acoustic wave equations with curved geometries
Xiangxiong Zhang

A Discontinuous Galerkin method for multilphysics welding simulations
Jean-Sébastien Cagnone, Koen Hillewaert and Nicolas Poletz

Sharp interface resolution in compressible two-phase flow based on discontinuous Galerkin schemes
Stefan Fechter, Christoph Zeiler , Claus-Dieter Munz and Christian Rohde

A GPU accelerated discontinuous Galerkin approach to conservative level sets
Zechariah J. Jibben and Marcus Herrmann

High-order asymptotic-preserving scheme for solving Boltzmann-BGK model equation
Manuel A. Diaz, Min-Hung Chen and Jaw-Yen Yang

24/07/2014 11:00 - 13:00
Computational Fluid Dynamics for Free and Moving Boundaries V
Minisymposium organized by Rekha R. Rao, David R. Noble, Scott A. Roberts and Elie Hachem

MS256E
Room: Mare Nostrum D
Chair: David Noble
CoChair: Jonathan Clausen

Numerical simulation of free surface flows, with multiple liquid phases (Keynote Lecture)
Alexandre Caboussat, Nicolas James, Sébastien Boyaval and Marco Picasso

A free surface model for the numerical simulation of oscillating water column systems
Eugenio Schillaci, Néstor Balcázar, Oriol Lehmkuhl, Lluís Jofre and Jesús Castro

Turbulence modeling, absorbing boundary conditions and local grid refinement for free-surface flow

simulations in offshore applications
Arthur E.P. Veldman, Roel Luppes, Henri Van der Heiden, Peter Van der Plas, Bulent Duz and Rene Huijsmans

Numerical study of wall friction effects on dam-break flows in the presence of an obstacle
Alexander I. Khrabry, Evgueni M. Smirnov and Dmitry K. Zaytsev

Non-oscillatory FEM for flows over flooding areas and partially erodible beds
Pablo Ortiz, José Gómez and Javier Anguita

Simulation of interfacial flows using a cartesian explicit finite volume solver with Level Set method
Amélie Bardin, Guillaume Oger and David Le Touzé

24/07/2014 11:00 - 13:00
Direct Methods and Constitutive Modeling for Plastic Design by Analysis I
Minisymposium organized by Manfred Staat, Dieter Weichert, Andrei Lyamin and Jose J. Muñoz

MS243A
Room: Mare Nostrum E
Chair: Manfred Staat
CoChair: Jose Munoz

Direct evaluation of the load-carrying capacity of steel-reinforced concrete beams by limit analysis
Dario De Domenico, Aurora A. Pisano and Paolo Fuschi

A two-yield-criteria limit analysis approach for steel-reinforced concrete slabs
Dario De Domenico, Aurora A. Pisano and Paolo Fuschi

Yield design computations on homogenized periodic plates
Jeremy Bleyer and Patrick de Buhan

Yield design of axisymmetric multilayered shells
Jeremy Bleyer and Patrick de Buhan

Mixed method of Limit Analysis and axisymmetric problems: validation and new results for porous Coulomb materials
Joseph Pastor, Franck Pastor and Djimedo Kondo

Uncertain multimode failure and limit analysis of shells
Thanh Ngoc Tran and Manfred Staat

24/07/2014 11:00 - 13:00
Computational Mechanics of Cells, Tissues, and Biomaterials I
Minisymposium organized by Amir A. Zadpoor, Fred Vermolen, Liesbet Geris, Hanna Isaksson and Pasquale Vena

MS104A
Room: Mare Nostrum F
Chair: Amir A. Zadpoor
CoChair: Pasquale Vena

Application of fractional partial differential equations to wound healing modelling
Etelvina Javierre

Influence of the stress state on in vitro tissue growth - Mathematical Modelling and Simulation of Mechano-Physiological Processes
Paola Causin, Chiara Lelli and Riccardo Sacco

Remodeling simulation for prediction of morphological changes in bone cysts in cancellous bone of osteoarthritis of the hip
Daisuke Tawara, Hiroyuki Kogita, Ken Nagura, Tetsuya Tsujikami, Hiroyuki Ike and Yutaka Inaba

Micromechanical modeling of bone marrow: Understanding the in vivo mechanical environment of mesenchymal stem cells
Ted J. Vaughan, Muriel Voisin, Glen L. Niebur and Laoise M. McNamara

Free boundary instabilities in growing bacterial colonies
Chiara Giverso, Marco Verani and Pasquale Ciarletta

3D modeling of shear stress development during neotissue growth in a perfusion bioreactor
Yann Guyot, Ioannis Papantoniou, Jan Schrooten and Liesbet Geris

24/07/2014 11:00 - 13:00
Dynamics of Nonlinear Structures with Contact Interfaces II
Minisymposium organized by Bogdan Epureanu, Evgeny Petrov, Kai Willner and Stefano Zucca

MS228B
Room: Llevant
Chair: Bogdan Epureanu
CoChair: Stefano Zucca

Vibration analysis of structures with contact interfaces using nonlinear modes
Malte Krack, Lars Panning-von Scheidt and Jörg Wallaschek

Sensitivity of limit cycle amplitudes and frequencies of self-excited vibrations for structures with nonlinear contact interfaces
Evgeny Petrov

Harmonic balance analysis of bolted structures in the frequency domain
Kai Willner and Dominik Suess

Computation of the effective lamination stack's behavior considering the contact simulation with a multi-scale homogenization
Vera Luchscheider, Kai Willner and Mischa Maidorn

Assessment of 3D modeling for rotor-stator contact simulations
Mikhael Tannous, Patrice Cartraud, Mohamed Torkhani and David Dureisseix

A hybrid approach to the modelling and simulation of grinding processes
Raphael Holtermann, Sebastian Schumann, Andreas Menzel and Dirk Biermann

24/07/2014 11:00 - 13:00
Advanced Homogenization Approaches for Modeling Damage and Failure in Solids I
Minisymposium organized by Ekkehard Ramm, Marc G.D. Geers and Christian Linder

MS113A
Room: Mestral
Chair: Marc Geers
CoChair: Ekkehard Ramm

Phase-field models for brittle and cohesive fracture (Keynote Lecture)
René de Borst, Stefan May, Clemens V. Verhoosel and Julien Vignollet

Damage modeling of laminated composites: validation of the inter-laminar damage law of SAMCEF at the coupon level for UD plies
Michael Bruyneel, Jean-Pierre Delsemme, Anne-Charlotte Goupil, Philippe Jetteur, Cedric Lequesne, Tadashi Naito and Yuta Urushiyama

Statistical modeling of damage in materials with randomly distributed anisotropic inclusions
Lidiia Nazarenko and Swantje Bargmann

Crack nucleation and propagation in highly heterogeneous materials models obtained from microtomography images using phase field method
Thanh Tung Nguyen, Julien Yvonnet, Qizhi Zhu, Michel Bornert and Camille Chateau

Constitutive models for plain and fibre reinforced concrete based on micromechanical solutions
Iulia C. Mihai, Anthony Jefferson and Paul Lyons

A numerical damage model for initially anisotropic materials
Mei Qi, Albert Giraud, Jian-Fu Shao and Jean-Baptiste Colliat

24/07/2014 11:00 - 13:00
Modeling and Experimental Characterization of Microstructures and Material Instabilities II
Minisymposium organized by Benjamin Klusemann, Tuncay Yalcinkaya, Swantje Bargmann and Dierk Raabe

MS111B
Room: Ponent 1
Chair: Tuncay Yalcinkaya

Polycrystalline modeling of the Portevin-Le Chatelier effect (Keynote Lecture)
Matthieu Mazière

Analysis and modeling of deformation mechanism in sub-micron sized metallic glasses
Benjamin Klusemann and Swantje Bargmann

Modelling mechanical behaviour of aluminium foam under compressive loading using representative volume element method
Chengjun Liu and Y.X. Zhang

Three-dimensional dendritic morphology and branching mechanism in directionally solidified Mg-Zn alloy
Sansan Shuai, Mingyue Wang, Enyu Guo, Tao Jing and Baicheng Liu

Finite element modeling of zirconium-based alloys oxidation
Guillaume Zumpicchiat, Serge Pascal, Marc Tupin and Clotilde Berdin

Evaluation of DEM mixing models using the maximum entropy concept
Stefan Zigan, Andrew Adekunle , Ali Ghaderi and Tom A.H. Simons

24/07/2014 11:00 - 13:00
Industrial Applications of Computational Solid Mechanics and Related Techniques IV

CS659D
Room: Ponent 2
Chair: Narges Dialami

Rules and hints for the design of viscoelastic insulators to prevent brake squeal
Gaël Chevallier, Franck Renaud and Jean-Luc Dion

Using 3D gesture controls for interacting with mechanical models
Daniel Åkesson and Jonas Lindemann

Numerical analysis of RFSSW joints
Anna Derlatka, Krzysztof Kudła and Krzysztof Makles

Vehicle dynamic simulation using robotic techniques
Bachir Menkouz and Moussa Haddad

Identifying relevant keywords in scientific collaboration networks
Thiago M.R. Dias and Gray F. Moita

24/07/2014 11:00 - 13:00
Bio, Nano and Micro Mechanics and Materials I
Minisymposium organized by Zhen Chen, H. Eliot Fang, Luming Shen, Hongwu Zhang and Zhuo Zhuang

MS021A
Room: Terral
Chair: Zhen Chen
CoChair: Teng Li

Investigation on dislocation-based plasticity in submicron scale single crystals (Keynote Lecture)
Zhuo Zhuang, Zhanli Liu, Yinan Cui, Jianqiao Hu and Peng Lin

Atomistic study of plastic deformation in defective nanotwinned copper
Yonggang Zheng, Yifei Fu, Hongwu Zhang and Hongfei Ye

A new superposition model and its application on indentation crystal plasticity
Jianqiao Hu, Zhanli Liu, Yinan Cui and Zhuo Zhuang

Controllable Mechanical Property and Deformation Response of Water-Filled Carbon Nanotubes under Electric Field
Hongfei Ye, Hongwu Zhang, Zhen Chen, Zhi Zong, Zhongqiang Zhang and Yonggang Zheng

A centroidal Voronoi tessellation based approach of creating grain morphology for crystal plasticity finite element simulations
Ling Li, Luming Shen and Gwénaëlle Proust

An analytical mechanics model for the island-bridge structure of stretchable electronics
Rui Li, Ming Li, Yewang Su, Jizhou Song and Xiaoqin Ni

24/07/2014 11:00 - 13:00
ECCOMAS Olympiads I

EC01
Room: Tramuntana 1
Chair: Pedro Díez

One-dimensional models for the space behaviour of tapered thin-walled bars with open cross-sections: Static, dynamic and buckling analyses
Anísio Andrade

From elasto-plastic to damage models: Effect of the third invariant and dependence of the calibration point
Lucival Malcher

Optimal control - Discretization, application and augmentation
Debora Clever

Two-scale modelling of constitutive relations for reactive powder concrete and their experimental validation
Arkadiusz Denisiewicz

Isogeometric treatment of large deformation contact and debonding problems with NURBS and T-Splines
Rossana Dimitri

Meshfree methods for shear-deformable beams and plates based on mixed weak forms
Jack S. Hale

24/07/2014 11:00 - 13:00
Advanced Numerical Methods III

CS656C
Room: Tramuntana 2
Chair: Juan Carlos Cante

Multiple scattering of surface waves by scratches on a surface
Haidang Phan, Younho Cho and Jan D. Achenbach

Localized axial Green's function method for convection-diffusion equations in arbitrary domains
Do Wan Kim

Homogenization of the one-dimensional wave equation with periodic coefficients
Thi Trang Nguyen, Michel Lenczner and Matthieu Brassart

SEBSM-based residual iterative method for solving large systems of linear equations and its applications in

computational mechanics

Xiao-Wei Gao, Yun-Fei Liu, Jin-Xiu Hu and Miao Cui

Multiscale computation based on the dual domain material point method
Duan Z. Zhang and Tilak Dhakal

A New method for scattering problems in unbounded anisotropic elastic media
Anne-Sophie Bonnet-Ben Dhia, Sonia Fliss and Antoine Tonnoir

24/07/2014 11:00 - 13:00
Fracture and Contact Mechanics for Interface Problems I
Minisymposium organized by Marco Paggi, Alberto Carpinteri and Peter Wriggers

MS093A
Room: Xaloc
Chair: Marco Paggi

Inertial and rate effects in the dynamic interfacial fracture of beams strengthened with FRP
Oded Rabinovitch

A compatible solid shell-interface element formulation for debonding of thin-walled structures
Marco Paggi, José Reinoso and Raimund Rolfes

Prediction of thermal shock reliability of thin metal coatings on composites using VCCT techniques
Daesung Son, Gugyong Kim, Junghyun Pak and Wonrak Bae

New insights into viscoelastic contact mechanics between rough solids

Giuseppe Carbone and Carmine Putignano

Dynamic nonlinear debonding at interfaces in thin-walled layered systems
Mauro Corrado and Marco Paggi

Multiscale FEM for rubber friction on rough surfaces
Paul Wagner, Peter Wriggers and Corinna Klapproth

24/07/2014 11:00 - 13:00
Finite Element Methods and High-Performance Computing for Environmental Fluid Mechanics III
Minisymposium organized by Ethan Kubatko and Kazuo Kashiyama

MS152C
Room: Salon Club
Chair: Peter Bacopoulos

A mimetic discretisation of the fully compressible Euler equations over orography with implicit treatment of acoustic and gravity waves (Keynote Lecture)
Hilary Weller and Ava Shahrokhi

A multidimensional modeling approach for coupled shallow water + overland flow
Ethan Kubatko

Multiscale flow simulations of tsunami runup with locally-periodic structural obstacles
Shinsuke Takase, Junji Kato, Shuji Moriguchi, Kenjiro Terada, Takashi Kyoya, Mao Kurumatani, Mitsuteru Asai and Kazuo Kashiyama

The modelling of tidal turbine farms using multi-scale, unstructured mesh models
Stephan C. Kramer and Matthew D. Piggott

Time-averaged shallow water equations by asymptotic analysis

José M. Rodríguez and Raquel Taboada-Vázquez

24/07/2014 11:00 - 13:00

MS009I

Computational Methods in Fluid-structure Interactions, Dynamics and Vibration, Vibroacoustics - A Minisymposium in Honor of Prof. Roger Ohayon IX
Minisymposium organized by Christian Soize

Room: Yasmin A
Chair: Jean-Frederic Gerbeau
CoChair: Christian Soize

Second order pure Lagrange-Galerkin methods for fluid-structure interaction (Keynote Lecture)
Marta Benítez and Alfredo Bermúdez

Sensitivity analysis and optimization of aeroelastic systems using a database of reduced-order models
David Amsallem, Youngsoo Choi and Charbel Farhat

Explicit Robin-Neumann schemes for incompressible fluid-structure interaction
Miguel A. Fernández, Jimmy Mullaert and Marina Vidrascu

Wave relaxation zones in fluid-object interaction problems using EdgeCFD
Adriano M.A. Cortes, Erb F. Lins, Milton A. Gonçalves, Renato N. Elias, Fernando Rochinha and Alvaro L.G.A. Coutinho

Vibrations of plates with spatially-extended random excitation - application to turbulence-induced vibrations
Jacques Cuenca, Marcin Kurowski and Bart Peeters

Non intrusive 3D fluid structure code coupling
Zhe Li, Paul Profizzi, Jorge Ramirez and Alain Combescure

24/07/2014 11:00 - 13:00
Structure-preserving and Polyhedral Discretizations I
VEM & Mimetic Finite Diferences Session
Minisymposium organized by Lourenco Beirao da Veiga, Annalisa Buffa, Alexandre Ern, John A. Evans, Marc Gerritsma, Gianmarco Manzini and Giancarlo Sangalli

MS204A
Room: Yasmin B
Chair: John A. Evans

A general overview on Virtual Element Spaces (Keynote Lecture)
Lourenco Beirão da Veiga, Franco Brezzi, Donatella Marini and Alessandro Russo

A locking free Virtual Element Method for linear elasticity
Lourenco Beirão da Veiga, Franco Brezzi and Donatella Marini

Hourglass control by means of the Virtual Element Method
Andrea Cangiani, Gianmarco Manzini, Alessandro Russo and Natarajan Sukumar

Virtual Element Method for plate bending problems
Franco Brezzi and Donatella Marini

Numerical analysis for mimetic discretization of Reissner-Mindlin plate problems
Lourenco Beirão da Veiga, Carlo Lovadina and David Mora

A two-level method for Mimetic Finite Difference discretizations of elliptic problems
Paola F. Antonietti, Marco Verani and Ludmil Zikatanov

24/07/2014 11:00 - 13:00
Algorithmic Aspects of High-performance Computing for Mechanics and Physics II
Minisymposium organized by Santiago Badia, Victor Calo and Javier Principe

MS172B
Room: Yasmin C
Chair: Javier Principe

Adaptive automated finite element HPC framework with applications in turbulent flow and fluid-structure interaction

Johan Jansson, Barbel Jansen, Niclas Jansson, Rodrigo Vilela de Abreu, Jeannette H. Spühler, Cem Degirmenci, Kaspar Müller, Aurélien Larcher and Johan Hoffman

An embedded strategy for the analysis of fluid structure interaction problems: Numerical implementation on Graphic Processing Units (GPU) hardware and experimental validation
Santiago Costarelli, Luciano Garelli, Mario Storti, Ronald Ausensi and Marcela A. Cruchaga

Deflation based domain decomposition preconditioners
Pierre Jolivet, Frederic Nataf and Christophe Prud'homme

High order parallel WENO-wave-propagation algorithms for hyperbolic PDES in three dimensions
David I. Ketcheson and Damián San Roman

Applications of domain decomposition method to industrial thermal convection problems
Hiroshi Kanayama and Eiji Takamatsu

Parallel incompressible fluid-structure simulations based on a Robin-Neuman explicit coupling paradigm
Miguel Fernàndez and Marina Vidrascu

24/07/2014 11:00 - 13:00
STS 06: Flow Control and Drag Reduction

STS06A
Room: Auditorium
Chair: Geza Schrauf

Simulation and flight re-number testing of high-lift systems
Jochen Wild

Novel air vehicle configurations: From fluttering wings to morphing flight
Afzal Suleman , Jose L. Vale , Frederico Afonso , Fernando P. Lau , Sergio Ricci and et al.

Receptivity and amplitude-based transition prediction
Ardeshir Hanifi

Designing and testing active flow control systems at the junction of ultra-high bypass ratio engines and the wing
Michael Meyer, Matthias Lengers, Heribert Bieler, Sebastian Fricke, Jochen Wild and David Norman

Validation of simplified hybrid laminas flow for transport aircraft
Geza Schrauf and Heiko Von Geyr

24/07/2014 11:00 - 13:00
Advanced Materials: Computational Analysis of Properties and Performance III
Minisymposium organized by Vadim Silberschmidt and Valery Matveenko

MS006C
Room: Sala A
Chair: Brian Cox
CoChair: Mohammed Zikry

Impact behaviour of FRPS: Effect of low and high loading rates (Keynote Lecture)
Vadim V. Silberschmidt, Vaibhav A. Phadnis, Anish Roy and Himayat Ullah

Microstructural modeling of dynamic fracture modes in crystalline alloys
Qifeng Wu and Mohammed A. Zikry

Determination of optimal dynamic characteristics of smart-structures based on the analysis of natural vibrations
Valerii Matveenko and Nataliia Iurlova

Simulation of cyclic isotropic compression tests with the material point method and the subloading Cam Clay Model
Raydel Lorenzo, Manoel Cordão-Neto and Renato Cunha

Suppression of vibration in bounded structures subjected to action of a distributed load by continuous spatial modulations of their parameters
Vladislav S. Sorokin

Natural vibrations and stability of non-circular FGM shells containing fluid
Sergey A. Bochkarev, Sergey V. Lekomtsev and Valery P. Matveenko

24/07/2014 11:00 - 13:00
Transition Modeling and Prediction in CFD Solvers with Focus on Practical Applications III
Minisymposium organized by Andreas Krumbein, Cornelia Grabe, Jean Perraud and Hugues Deniau

MS147C
Room: Sala B1
Chair: Andreas Krumbein
CoChair: Jean Perraud

Transition modelling for hypersonic air intake flows in scramjet applications
Sarah Frauholz, Birgit U. Reinartz, Siegfried Müller and Marek Behr

Modeling transition for the design of modern axial turbomachines
Vincent Marciniak, Anton Weber and Edmund Kügeler

Numerical transition prediction in a straight turbine cascade
Anna Petersen

Comparison of the laminar-turbulent transition prediction using different methods with the laminar wing test results
Sergey L. Chernyshev, Alexander I. Ivanov, Andrey Ph. Kiselev, Vladimir V. Kuzminsky, Dmitry S. Sboev, Leonid L. Teperin and Valery V. Vozhdaev

Correlation based inlet boundary conditions for improved turbulence and transition prediction in turbomachinery flows
Christoph Bode, Thorben Aufderheide, Dragan Kozulovic and Jens Friedrichs

24/07/2014 11:00 - 13:00
Modeling of Fiber-based Structures - Textiles and Textile Reinforced Composites III
Minisymposium organized by Yordan Kyosev, Philippe Boisse and Damien Durville

MS014C
Room: Sala B2
Chair: Yordan Kyosev

Inelastic deformation of nonwoven textiles due to the frictional sliding of bonded fibers
Mykola Tkachuk, Markus Ganser and Christian Linder

Orthotropic Simo and Pister hyperelasticity theory
David C. Kellermann and Mario M. Attard

Modeling of deformation and damage of fiber-reinforced composite under shock loading
Zhenfei Song, Shicao Zhao and Jianheng Zhao

Numerical simulation of mechanical properties for composite reinforced by knitted fabric
Olga Kononova, Andrejs Krasnikovs, Galina Harjkova and Vitalijs Lusis

A gradient-enhanced continuum damage model with application to fibre-reinforced tissues at finite strains
César Polindara, Tobias Waffenschmidt, Andreas Menzel, Sergio Blanco and José Goicolea

24/07/2014 11:00 - 13:00

Computational Mechanics Issues in Earthquake Engineering I
Minisymposium organized by Aram Soroushian

MS265A
Room: Sala B3
Chair: Aram Soroushian

Free field analysis by FEM and CIP combined method (Keynote Lecture)
Nagayuki Yoshida

Numerical analysis of the dynamic interaction of combined pile-raft foundation on liquefaction prone soil
Nicolae Gluck, Rina Farhat, Rami Eid and Uri Tzadka

Propagation of waves in infinite beams: PML approach
Freydoon Arbabi and Mohammadshafee Farzanian

Evaluation of the impedance functions of rigid and flexible foundations for heterogeneous soils.
Elnaz Esmaeilzadeh Seylabi, Chanseok Jeong and Ertugrul Taciroglu

Chaos for examining the fundamental period of soils
Silvia Garcia

Numerical analysis of gradient-changing slope under earthquakes
Xiao Yan, Juyun Yuan, Lei Fang, Zhenxin Li, Haitao Yu and Yong Yuan

24/07/2014 11:00 - 13:00
CFD for Wind and Tidal Offshore Turbines I
Minisymposium organized by Adeline de Montlaur and Esteban Ferrer

MS138A
Room: Sala C1
Chair: Esteban Ferrer

MLS-based selective limiting for shallow waters equations: application to the dam-break problem
Jesús Cernadas, Xesús Nogueira and Ignasi Colominas

Computational study of the interaction between hydrodynamics and rigid body dynamics of a darrieus type H turbine
Diana P. Meneses, Omar D. López and Santiago Lain

Towards FSI simulation of flexible 2D rotor blade sections
Knut Nordanger, Trond Kvamsdal, Runar Holdahl and Knut M. Okstad

A new MLS-based high-order-preserving sliding-mesh technique
Xesús Nogueira, Luis Ramírez, Charles Foulquie, Sofiane Khelladi, Jean-Camille Chassaing and Ignasi Colominas

Fluid-structure interaction simulation of floating wind turbines interacting with complex, large-scale ocean waves
Antoni Calderer, Xin Guo, Lian Shen and Fotis Sotiropoulos

Mesh deformation tool for offshore wind turbines fluid-structure interaction
Sergio G. Horcas, Francois Debrabandere, Benoit Tartinville, Charles Hirsch and Gregory Coussement

24/07/2014 11:00 - 13:00
Numerical Analysis Aspects of Stabilized Methods I
Minisymposium organized by Tomás Chacón Rebollo, Petr Knobloch, Erik Burman, Lutz Tobiska, Gabriel Barrenechea,

MS109A
Room: Sala C2
Chair: Tomas Chacon Rebollo

Malte Braack, Gunar Matthies, Boudemaa Achchab and Rodolfo Araya

A variational multi-scale method with spectral approximation of the sub-scales
Tomás Chacón Rebollo and Ben Mansour Dia

A VMS three-field stabilized formulation for incompressible viscoelastic fluids
Ernesto Castillo and Ramon Codina

A positivity preserving nonlinear LPS method for convection-diffusion equation
Gabriel R. Barrenechea, Erik Burman and Fotini Karakatsani

Goal-oriented a posteriori error estimation in stabilized discretizations of convection-diffusion-reaction models
Markus Bause and Kristina Schwegler

Analysis of an algebraic flux correction scheme
Gabriel R. Barrenechea, Volker John and Petr Knobloch

Numerical analysis and benchmarking of a Sommerfeld-type non-reflecting boundary condition for the wave equation in mixed form
Hector Espinoza, Ramon Codina and Santiago Badia

24/07/2014 11:00 - 13:00
Advanced Techniques for Numerical Simulation of Fluid Flow and Transport in Porous Media I
Minisymposium organized by Florin A. Radu and Vitoriano Ruas

MS249A
Room: Sala C3
Chair: Florin Adrian Radu

High order approximations of reservoir flows
Jizhou Li and Beatrice Riviere

Simulation of reactive flow in porous media with variable porosity as appears when modelling concrete carbonation
Florin A. Radu, Iuliu S. Pop, Adrian Muntean and Inga Berre

A Multi-Scale Model of Multi-Fluid Flows Transport in Dual Saturated-Unsaturated Heterogeneous Porous Media
William C. Radunz, Francisco B.S. Oliveira and Jefferson L.M.A. Gomes

Galerkin time discretization and mixed finite element methods
Markus Bause

A semi-Lagrangian scheme for fluid mixing in laminar microflows
Takuya Matsunaga, Koichi Nishino and Seiichi Koshizuka

Density-driven flow in porous media modeling using a numerical scheme with low dissipation
Ivan Kapyrin, Sergey Pozdnyakov and Alexandr Rastorguev

24/07/2014 11:00 - 13:00
Computational Geomechanics III
Minisymposium organized by Kristian Krabbenhoft, Scott Sloan, Dorival Pedroso and Jose Andrade

MS019C
Room: Sala D1
Chair: Jose Andrade

The effect of sequential solution schemes in the numerical modeling of shear stimulation in an engineered geothermal system well
Justin Pogacnik, Sharad Kelkar, Rob Podgorney, David Dempsey, Mike O'Sullivan and John O'Sullivan

Finite element modeling of soil-structure interaction and backfill sequencing in buried arch bridges
Harold Walton, William Davids and Melissa Maynard

Building realistic samples for accurate discrete modelling of granular materials
Guilhem Mollon and Jidong Zhao

Effects of small strain stiffness and damping on consequences of soil liquefaction
Majid Manzari

Experimental and numerical studies of the effect of rolling friction for sandpile formation
Patrick Pizette and Sébastien Rémond

Numerical and analytical homogeneization of the permeability of porous media
François Bignonnet and Luc Dormieux

24/07/2014 11:00 - 13:00
Computational Modelling of Material Forming Processes III
Minisymposium organized by Carlos Agelet de Saracibar and Robertt Valente

MS023C
Room: Sala D2
Chair: Robertt Valente

Streamline upwind formulations for calculation of free surface corrections and simulation of steady-state forming problems (Keynote Lecture)
Lionel Fourment, Ugo Ripert and Jean-Loup Chenot

Challenges in accurate warpage simulation of injection molded plastics
Zhiliang Fan, Alex Bakharev, Xiaoshi Jin and David Astbury

Bottom bending process assisted by short current pulses: Characterization via numerical simulation
J. Antonio Travieso-Rodríguez, Jordi Llumà i Fuentes, Antonio J. Sánchez Egea, Hernán A. González Rojas and Diego J. Celentano

Flow prediction in semi-solid forging process by moving particle explicit method
Amit Regmi and Seiichi Koshizuka

Non-smooth and intermittent model of cutting process
Andrzej Mitura and Rafal Rusinek

Modelling and experimental investigation of large-strain cyclic plastic deformation of high strength dual-phase steels
Miklós Tisza and Zsolt Lukács

24/07/2014 11:00 - 13:00
Computational Cell Mechanics I
Minisymposium organized by Antoine Jérusalem and Ming Dao

MS128A
Room: Sala D3
Chair: Antoine Jérusalem

Simulation of stress fibres and focal adhesion formation of cells on grooved substrates (Keynote Lecture)
Andrea Vigliotti, Vikram S. Deshpande and Robert McMeeking

Erythrocyte passage through limiting geometries
Igor V. Pivkin, Zhangli Peng and Ming Dao

Multiscale mechanics of Cytoskeletal structures
Lili Zhang and Antoine Jérusalem

Computing phenotype and structural patterns on bacterial biofilms
David Rodriguez, Ana Carpio and Baldvin Einarsson

Computational model of intracellular structure for simulation of mechanical tests of cells
Yogesh D. Bansod and Jiri Bursa

24/07/2014 11:00 - 13:00
Explicit and Implicit Large Eddy Simulation of Turbulent Flows III
Minisymposium organized by Joanna Szmelter and Piotr K Smolarkiewicz

MS084C
Room: Sala D4
Chair: Dimitris Drikakis

Consequence of sub-grid scale modeling onto the prediction of acoustic noise emission
Bernhard Semlitsch and Mihai Mihaescu

Towards the simulation of turbulent flows via stabilized finite element formulations
Jordi Cotela-Dalmau, Riccardo Rossi and Eugenio Oñate

Subgrid scale model based on resolved pressure gradient for shear flows
Li Li, Zhe Chen and Xinliang Li

On the estimation of spanwise pressure coherence of a turbulent boundary layer over a flat plate
Wouter van der Velden, Alexander H. van Zuijlen, Arjen de Jong and Hester Bijl

Numerical study of richtmyer-meshkov instability induced-turbulent mixing
Tao Wang, Jingsong Bai, Ping Li, Bing Wang, Kun Liu and Gang Tao

Direct and Large Eddy Simulations of non-Oberbeck-Boussinesq effects in a turbulent tall water-filled differentially heated cavity
Deniz Kizildag, Ivette Rodriguez, F. Xavier Trias and Assensi Oliva

24/07/2014 11:00 - 13:00
Integrated Computational Materials Engineering - ICME I
Minisymposium organized by Gottfried M. Laschet, Javier Llorca, Elisabeth A. Holm, Michele Chiumenti and Somnath Ghosh

MS073A
Room: Sala D5
Chair: Javier LLorca
CoChair: Michele Chiumenti

Bayesian hierarchical modeling based micromechanics framework for integrated material and process design of failure critical components (Keynote Lecture)
Rajiv Shivpuri, Kuldeep Agarwal and Rohit Subramanian

Morphology optimization of microstructure for dual-component structural metals
Ikumu Watanabe, Gaku Nakamura and Kohei Yuge

A novel approach to multiscale homogenisation for 3D micro-structures
Philippe G. Young and David R. Raymont

Towards on-line state tracking with data-driven process models
Susanne Fischer and Norbert Link

24/07/2014 11:00 - 13:00
Computational Mechanics of Dislocations II
Minisymposium organized by Steve Fitzgerald, Edmund Tarleton and Daniel Balint

MS182B
Room: Sala D6
Chair: Steve Fitzgerald

Astudy of dynamic yielding under shock loading using dynamic discrete dislocation plasticity simulations
Beñat Gurrutxaga-Lerma, Daniel Balint, Daniele Dini, Daniel Eakins and Adrian Sutton

Simulating the brittle-ductile transition using discrete dislocation plasticity
Edmund Tarleton and Daniel Balint

Numerical Method for Phase Field Simulation of Polycrystalline Dynamics Based on a Dislocations-Introduced Grain Boundary Model
Su Hao

QM/MM analysis of effects of hydrogen and Helium on dislocation motions in BCC iron
Ryo Kobayashi, Tomoyuki Tamura and Shuji Ogata

Role of elastic anisotropy in plastic deformation of polycrystalline metals: A dislocation dynamics study
Akiyuki Takahashi and Akihiko Namiki

Discrete dislocation plasticity analysis of contact between a sinusoidal and a flat metal surface
Kelvin Ng and Lucia Nicola

24/07/2014 11:00 - 13:00
Impact Mechanics and Blast Loads I

CS660A
Room: Sala E1
Chair: José L. Pérez Aparicio
CoChair: José María Goicolea

Damage for single-layer reticulated domes subject to explosive blast loads based on CONWEP
Xudong Zhi and Feng Fan

Dynamic analysis of underground tunnels subjected to internal blast loading
Rohit Tiwari, Tanusree Chakraborty and Vasant Matsagar

Numerical simulation of button head bullet effects on the incident wave of Split Hopkinson Press Bar
Jia Qu, Geng Chen and Guangping Zou

Simulation of composite structures subjected to impact loading induced by bubble collapse
Shi Wei Gong

Shock loading of inhomogeneous materials with SPH
Iason Zisis, Bas van der Linden and Barry Koren

24/07/2014 11:00 - 13:00
Curved Mesh Generation for High-order Methods I
Minisymposium organized by Xevi Roca, Per-Oloff Persson, Josep Sarrate and Jaime Peraire

MS163A
Room: Sala E2
Chair: Xevi Roca
CoChair: Josep Sarrate

Low Order or High Order: this is the Question!
Oubay Hassan, Kenneth Morgan and Rubén Sevilla

Generation and validation of curved meshes for unstructured high-order methods
Abel Gargallo-Peiró, Xevi Roca, Jaime Peraire and Josep Sarrate

Geometrical validity of high-order pyramidal finite elements
Amaury Johnen and Christophe Geuzaine

A semi-structured method for high-order curvilinear meshing
Joaquim Peiro, David Moxey, Menashe Hazan and Spencer J. Sherwin

High order unstructured curved mesh generation using the Winslow Equations
Meire Fortunato and Per-Olof Persson

24/07/2014 11:00 - 13:00

The Models and Investigations Methods of Dynamics of the Solids Systems with Dry Friction I
Minisymposium organized by Alexey A. Kireenkov and Alexander V. Karapetyan

MS253A
Room: Sala E3
Chair: Alexey Kireenkov

Dynamics of ancient masonry buildings by using the Non-smooth Contact Dynamics Method
Giovanni Lancioni, Stefano Lenci and Enrico Quagliarini

Object-oriented implementation of a unilateral point-contact constraint model with friction in frame of the omni vehicle multibody system
Ivan Kosenko and Kirill Gerasimov

Stability theory methods in dynamics of rigid body with dry friction
Alexander A. Karapetyan

The generalized model of viscous friction
Mariya A. Munitsyna

About the movement of a solid body on a plane surface in accordance with elliptic contact area and anisotropic friction
Nikita N. Dmitriev and Olga A. Silantyeva

Regularization of nonholonomic constraints in multibody systems
Jens Deppler, Alexander Fidlin and Björn Braun

24/07/2014 11:00 - 13:00
Dynamical Systems Approaches in Fluid Mechanics II
Minisymposium organized by Juan Sánchez Umbría, Marta Net and Dolors Puigjaner

MS103B
Room: Sala E4
Chair: Juan Sanchez Umbria
CoChair: Marta Net

Homotopy from plane Couette flow to pipe flow
Masato Nagata and Kengo Deguchi

Route to chaos in minimal plane Couette flow
Masaki Shimizu, Genta Kawahara, Julius R. Lustro and Lennaert van Veen

Symmetry and convection in fluids with temperature-dependent viscosity
Jezabel Curbelo and Ana M. Mancho

Time-dependent dynamics of Rayleigh-Bénard convection inside a cubical cavity
Dolors Puigjaner, Joan Herrero and Carles Simó

Hopf bifurcation with 1:2 spatial resonance in an air-filled differentially heated rotating annulus
Gregory M. Lewis

Bifurcation analysis of thermal convection at finite Prandtl number in non-rotating spherical shell
Takahiro Ninomiya, Keito Konno, Masako Sugihara-Seki and Tomoaki Itano

24/07/2014 11:00 - 13:00
Recent Advances in Quasicontinuum and Other Atomistic/Continuum Methods I
Minisymposium organized by Chuin-Shan David Chen, Jamie Marian and Ellad B. Tadmor

MS166A
Room: Sala E5
Chair: Chuin-Shan David Chen

Summation rules for the quasicontinuum method (Keynote Lecture)
Dennis M. Kochmann, Jeffrey S. Amelang and Gabriela N. Venturini

Modeling surface stresses at the nanoscale by adaptive atomistic-continuum coupling
Bernhard Eidel and Nirav Prajapati

A posteriori error estimates for quasicontinuum approximations
Hao Wang, Lei Zhang, Mingjie Liao and Christoph Ortner

Atomistic and continuum modelling of fracture of armchair graphene
Nuwan Dewapriya Mallika Arachchige and Nimal Rajapakse

24/07/2014 11:00 - 13:00
Interaction Dynamics of High Speed Railways II
Minisymposium organized by Y. B. Yang and J. D. Yau

MS100B
Room: Sala E6
Chair: Yeong-Bin Yang

Dynamic response of the damping pad floating slab track caused by vehicle-track interaction
Shi Jin

Filtering techniques for enhancing extraction of bridge frequencies from a moving test vehicle
Yeong-Bin Yang, Kuo-Chun Chang and Y. C. Li

Prediction of wheel and rail profile wear on complex railway nets
Alice Innocenti, Lorenzo Marini, Enrico Meli, Giovanni Pallini and Andrea Rindi

Vehicle/bridge interaction dynamics for high speed rail suspension bridges considering multiple support excitations
Jong-Dar Yau, Ladislav Fryba and Shyh-Rong Kuo

24/07/2014 11:00 - 13:00
New Trends in Topology Optimization I
Minisymposium organized by Glaucio Paulino, Emilio Silva and Kurt Maute

MS211A
Room: Sala F
Chair: Emilio Carlos Nelli Silva
CoChair: Miguel Aguiló

Revisiting approximate reanalysis in topology optimization (Keynote Lecture)
Oded Amir

Topology optimization for microstructure of hyperelastic composites
Daishun Yachi, Junji Kato, Shinsuke Takase, Kenjiro Terada and Takashi Kyoya

Topology optimization of composite structure considering elastoplastic deformation
Junji Kato, Hiroya Hoshiba, Shinsuke Takase, Kenjiro Terada and Takashi Kyoya

Design of piezocomposite energy harvesting devices using topology optimization method considering stress constraints
César Y. Kiyono and Emílio C.N. Silva

Topology optimization with embedded piezoelectric actuators using independent point-wise density interpolation
Zhan Kang, Yiqiang Wang and Jingjie He

Sharp interface approach in topology optimization of contact problems
Andrzej M. Myslinski and Konrad Koniarski

24/07/2014 11:00 - 13:00
Advances and Applications in Generalized/Extended Finite Element Methods II
Minisymposium organized by Angelo Simone, C. Armando Duarte,

MS094B
Room: Sala H 1
Chair: Haim Waisman

Sergio F. B. Proença and Haim Waisman

Transient Thermo-mechanical Analysis of Dislocation Dynamics (Keynote Lecture)
Robert Gracie and Oxana Skiba

Three dimension localized multigrid crack simulation with direct estimation of stress intensity factors
Clément Roux, Anthony Gravouil, Julien Réthoré and Marie-Christine Baietto

Efficient first-order plastic hinge analysis based on the Generalized Finite Element Method
Dae-Jin Kim, Jonghwan Park, C. Armando Duarte and Sung-Gul Hong

Toward cyclic plasticity with X-FEM: A new integration method avoiding field projection in the elements cut by a crack.
Jean-Baptiste Esnault, Alexandre Martin and Patrick Massin

Global energy minimization for multi-crack growth in linear elastic fracture using the extended finite element method
Danas Sutula, Pierre Kerfriden and Stéphane P.A. Bordas

Modeling crack propagation in shells by X-FEM with CB shell elements
Qinglei Zeng, Zhanli Liu, Dandan Xu and Zhuo Zhuang

24/07/2014 11:00 - 13:00
Reduced Basis, POD and PGD Model Reduction Techniques III
Minisymposium organized by Francisco Chinesta, Elias Cueto, Pierre Ladevèze and Hermann Matthies

MS015C
Room: Sala H 2
Chair: Hermann G. Matthies
CoChair: Pierre Ladevèze

Combined domain decomposition and model order reduction methods for the solution of coupled and non-linear problems (Keynote Lecture)
Alberto Corigliano, Martino Dossi and Stefano Mariani

Reduced-order multi modeling for engineering design
David Néron and Hachmi Ben Dhia

Model order reduction using a multilevel scheme for nonlinear transient heat transfer problem
Amar K. Gaonkar and Salil S. Kulkarni

A reduced multiscale model for nonlinear structural topology optimization
Liang Xia and Piotr Breitkopf

A two-scale LATIN-PGD for efficient frictional contact problem solving
Anthony Giacoma, David Dureisseix, Anthony Gravouil and Michel Rochette

A reduced-order modelling approach for bridging computational and analytical homogenisation
Olivier Goury, Pierre Kerfriden, Wing Kam Liu and Stéphane P.A. Bordas

24/07/2014 11:00 - 13:00
Multiscale Modelling of Materials and Structures II
Minisymposium organized by Tadeusz S. Burczynski, Xavier Oliver and Maciej Pietrzyk

MS250B
Room: Sala H 3
Chair: Xavier Oliver
CoChair: Tadeusz Burczynski

Development of cellular automata model for phase transformation during heating of DP steel (Keynote Lecture)
Chandan Halder, Lukasz Madej and Maciej Pietrzyk

3D cellular automata finite element method with explicit microstructure: Modeling quasi-brittle fracture

using mesh-free damage propagation and multi-scale strain energy homogenization
Luis Saucedo-Mora and Thomas J. Marrow

Development of the digital material representation model with twin boundaries
Lukasz Madej, Laurent L. Delannay , Mateusz Kwiecien and Maciej Pietrzyk

Microscale heat transfer. Identification of relaxation and thermalization times using the search method
Bohdan Mochnacki and Mariusz Ciesielski

Modeling of light scattering through thermoplastic composite part during laser welding process
Galyna Goncharova, Benoit Cosson, Mylene Deleglise-Lagardere and Stephane Panier

The modeling of aluminum layer formation on nickel alloys by bi-velocity method
Bartek Wierzba, Krzysztof Kubiak and Jan Sieniawski

24/07/2014 11:00 - 13:00
Non-conventional Methods for Nonlinear Fluid and Solid Mechanics I
Minisymposium organized by Michel Potier-Ferry , Elias Cueto and Heng Hu

MS146A
Room: Sala J
Chair: Michel Potier-Ferry
CoChair: Elias Cueto

Real-time numerical simulation of soft tissues (Keynote Lecture)
Siamak Niroomandi, David González, Icíar Alfaro and Elías Cueto

Coupling asymptotic numerical method and proper generalized decomposition in bifurcation problems
Marianne Beringhier, Adrien Leygue, Francisco Chinesta and Jean-Claude Grandidier

Numerical Solution of High Dimensional Fokker-Planck Equations in Nonlinear Stochastic Dynamics
Friederike Loerke and Udo Nackenhorst

Greedy algorithms for parametric eigenvalue problems
Virginie Ehrlacher

Application of Fractional Continuum Mechanics to Plane Problems of Elasticity
Wojciech Sumelka, Krzysztof Szajek and Tomasz Łodygowski

24/07/2014 11:00 - 13:00
Multiscale Computational Mechanics of Micro- and Nano-Composite Materials I
Minisymposium organized by Ł. Figiel and M. Kamiński

MS268A
Room: Business Centre I
Chair: Lukasz Figiel

Multiscale modelling of composite materials using Lippmann-Schwinger equation and Fourier transforms
Johannes Spahn, Heiko Andrä, Matthias Kabel, Ralf Müller and Christian Linder

Multi scale modeling of Nb-Al microcomposite using a commercial finite element software
Miguel A. Cavaliere, Michael Vogt, Marina Galano and Fernando Audebert

Multiscale modeling of shells with heterogeneous micro and nanostructure
Yu Cong, Saeid Nezamabadi, Hamid Zahrouni and Julien Yvonnet

Multiscale modelling of coiled carbon nanotube/polymer nanocomposites
Seyed Hadi Ghaderi and Ehsan Hajiesmaili

Mechanical properties and scaling laws of interpenetrating phase nanocomposites via multi-scale simulations
Xiao-Yu Sun and Yuan-Jie Xu

Interphase effects on polymer nanocomposite processing: Physically-based multiscale modelling
Lukasz Figiel

24/07/2014 11:00 - 13:00
Probabilistic Approach to Numerical Simulation of Fracture I
Minisymposium organized by Boris A. Ljukshin, Alexander V. Gerasimov and Sergey A. Zelepugin

MS092A
Room: Business Centre II
Chair: Vladimir A. Skripnyak
CoChair: Sergey Zelepugin

Failure mechanisms of light alloys with a bimodal grain size distribution (Keynote Lecture)
Nataliya V. Skripnyak, Evgeniya G. Skripnyak, Vladimir A. Skripnyak, Vladimir V. Skripnyak and Irina K. Vaganova

Computer simulation of fracture quasi-brittle ceramic nanocomposites under pulse loading
Vladimir V. Skripnyak, Evgeniya G. Skripnyak, Vladimir A. Skripnyak and Irina K. Vaganova

Failure of multilayer composites under dynamic loading
Sergey A. Zelepugin and Aleksey S. Zelepugin

Numerical simulation of fracture: Probabilistic approach
Alexander V. Gerasimov

Probabilistic strength analysis of filled polymeric composite materials and of products based on them
Svetlana Bochkareva, Boris Ljukshin, Anatoly Reutov and Yury Reutov

24/07/2014 11:00 - 13:00
Mathematical Foundation of Computational Mechanics II
Minisymposium organized by Susanne C. Brenner and Carsten Carstensen

MS195B
Room: Sala de prensa I
Chair: Carsten Carstensen

Rate optimality of adaptive algorithms: An axiomatic approach
Carsten Carstensen, Michael Feischl and Dirk Praetorius

Discrete reliability for Crouzeix-Raviart FEMs
Carsten Carstensen, Dietmar Gallistl and Mira Schedensack

An optimal adaptive FEM for eigenvalue clusters
Dietmar Gallistl

Adaptive C^0 interior penalty method for biharmonic eigenvalue problems
Susanne C. Brenner, Joscha Gedicke and Li-Yeng Sung

Convergence of adaptive mixed Finite Element Methods for second order elliptic problems
Asha K. Dond, Neela Nataraj and Amiya K. Pani

An optimal adaptive finite element method for elastoplasticity
Carsten Carstensen, Andreas Schroeder and Sebastian Wiedemann

24/07/2014 11:00 - 13:00
Computational Modeling of Turbulent and Complex Flows with Applications I
Minisymposium organized by Victor Calo, Volker Gravemeier, Kenneth Jansen and Javier Principe

MS169A
Room: Sala de prensa II
Chair: Javier Principe

Micropolar nanofluids using B-spline divergence conforming spaces
Adel Sarmiento, Daniel Garcia, Nathan O. Collier, Lisandro A. Dalcin and Victor M. Calo

Dynamic and hybrid variational multiscale models for the simulation of bluff-body flows on unstructured grids
Carine Moussaed, Emmanuelle Itam, Stephen Wornom, Bruno Koobus, Maria-Vittoria Salvetti and Alain Dervieux

Boundary layer adaptivity for incompressible turbulent flows
Kedar Chitale, Michel Rasquin, Onkar Sahni, Mark Shephard and Kenneth Jansen

Prediction of cyclic combustion variability in internal combustion engines via coupled 1D-3D LES method
Benjamin Roux, Julien Bohbot, Quang Huy Tran and Pierre Sagaut

Projection methods for rotating flow
Daniel Arndt and Gert Lube

An extended algebraic variational multiscale-multigrid-multifractal method (XAVM^4) for large-eddy simulation of turbulent two-phase flow
Volker Gravemeier, Ursula Rasthofer and Wolfgang A. Wall

24/07/2014 11:00 - 13:00
Analytical and Computational Models for Imperfect Interfaces II
Minisymposium organized by Raffaella Rizzoni, F. Lebon, E. Benvenuti and S. Dumont

MS122B
Room: Sala de Reservas
Chair: Frédéric Lebon
CoChair: Raffaella Rizzoni

Nonlinear dynamics of a two-layer composite beam with nonlinear interface with different boundary conditions
Stefano Lenci, Francesco Clementi and Jerzy Warminski

Vibration Analysis of Viscoelastic Sandwich Structure with Slippage at the Interface
Guoli Wang, Shengjing Lai, Zhongze Guo and Fayuan Wei

Numerical modelling of imperfect interfaces based on regularized discontinuities
Elena Benvenuti

Asymptotic modeling of a thin piezoelectric interphase
Michele Serpilli

13:00 - 14:00
Lunch Time

24/07/2014 14:00 - 16:00
Semi-Plenary Lectures V

SPL5
Room: Auditorium
Chair: Josef Eberhardsteiner
CoChair: José María Goicolea

Towards predictive cardiovascular modeling: Simulation of short-term arterial adaptations in 3D subject-

specific models
C. Alberto Figueroa

The role of the solid phase in tumor growth modeling
Bernhard A. Schrefler

Modeling the mechanics of cell locomotion
José M. García-Aznar, Carlos Borau, Thomas Rüberg, Jorge Escribano, Mar Cóndor, María T. Sánchez and Roger Kamm

24/07/2014 14:00 - 16:00
Semi-Plenary Lectures VI

SPL6
Room: Sala F
Chair: Alvaro Coutinho
CoChair: Joze Korelc

Computational aspects in underground engineering
Yong Yuan, Haitao Yu and Xian Liu

Model order reduction methods for computational surgery
Elías Cueto, David González, Icíar Alfaro, Carlos Quesada and Francisco Chinesta

Petascale simulation based investigation on structural integrity of nuclear power plant attacked by strong earthquake
Shinobu Yoshimura, Tomonori Yamada, Tomoshi Miyamura, Hiroshi Kawai and Kohei Murotani

24/07/2014 14:00 - 16:00
Semi-Plenary Lectures VII

SPL7
Room: Sala H 1 + H 2
Chair: Kazuo Kashiyama
CoChair: Wolfgang A. Wall

Implicit multiphysics solvers
Santiago Badia

Isogeometric analysis of phase-field models: From complex fluids to tumor growth
Hector Gomez

Isogeometric analysis: Structural vibrations and dynamics
Alessandro Reali, John A. Evans and Thomas J.R. Hughes

24/07/2014 14:00 - 16:00
Semi-Plenary Lectures VIII

SPL8
Room: Sala H 3 + J
Chair: Olivier Allix
CoChair: Wing Kam Liu

A first order conservation law framework for computational solid dynamics
Javier Bonet, Antonio J. Gil, Chun Hean Lee and Miquel Aguirre

An oscillation limiting and flux conserving meshfree formulation for shock modeling
J. S. Chen, Michael J. Roth, Thomas R. Slawson and Kent T. Danielson

Computational Vademecums for real time simulation, optimization and control of structures, materials and processes
Francisco Chinesta, Adrien Leygue, Felipe Bordeu, Jose V. Aguado, Elías Cueto, David Gonzalez, Icíar Alfaro, Amine Ammar and Antonio Huerta

16:00 - 16:30
Coffee Break

16:30 - 18:30
TECHNICAL SESSIONS

24/07/2014 16:30 - 18:30
Computational Multiscale Methods for Tissue Biomechanics II
Minisymposium organized by Michele Marino, Ginu U. Unnikrishnan and Giuseppe Vairo

MS127B
Room: Mare Nostrum A
Chair: Fulvia Taddei
CoChair: Rosaire Mongrain

Stiffness versus prestress relationship at subcellular length scale: Insight into cytoskeletal contributions to cell mechanical properties (Keynote Lecture)
Elizabeth P. Canovic, D. Thomas Seidl, Paul E. Barbone, Michael L. Smith and Dimitrije Stamenovic

Supra-physiological loading of fibrous soft tissues: Multi-scale mechanics and constitutive modeling
Vu Ngoc Khiêm, Kevin Linka and Mikhail Itskov

Damage in collagen-rich biological tissues: A multiscale modeling approach
Michele Marino and Giuseppe Vairo

Multiscale modelling of the activation pattern of NF - KAPPA B in skin after mechanical stretch
Kumar Mithraratne and Vickie B. Shim

Biomechanics of chiasmal compression: sensitivity of the mechanical behaviours of nerve fibres to variations in material property and geometry
Xiaofei Wang, Andrew Neely, Gawn McIlwaine and Christian Lueck

Efficient numerical simulation of periodontal ligament
Marco Favino, Rolf Krause and Christoph Bourauel

Numerical and experimental microshear test for TiN nanocoating deposited on polymer
Magdalena Kopernik and Andrzej Milenin

24/07/2014 16:30 - 18:30
Recent Advances in Meshfree and Particle Methods II
Minisymposium organized by Seiichi Koshizuka, Seiya Hagihara and Yuzuru Sakai

MS036B
Room: Mare Nostrum B
Chair: Seiichi Koshizuka

Development of filling and solidification using Smoothed Particle Hydrodynamics
Masakazu Ichimiya and Yuzuru Sakai

Meshfree method with restricting bubble radius for nodal relocation method
Seiya Hagihara, Yutaka Hayama, Shinya Taketomi and Yuichi Tadano

Numerical analysis of high viscous non-Newtonian fluid flow using the MPS method
Yohei Fukuzawa, Hideki Tomiyama, Kazuya Shibata and Seiichi Koshizuka

Numerical simulation of the semi-solid casting by the particle method
Masaki Kazama and Tamon Suwa

An ALE-PFEM method for computational simulations of two-phase flow problems
Thai Son Dang and Guenther Meschke

A multiphase MPS formulation for bubble flow
Guangtao Duan, Seiichi Koshizuka and Bin Chen

Ghost neighborhood method for handling peridynamic boundary effect
Zhenyu Zhang, Qiwen Liu, Dongfeng Cao, Shuyong Yang and Lisheng Liu

24/07/2014 16:30 - 18:30
Discontinuous Galerkin Methods: New Trends and Applications V
Minisymposium organized by Bernardo Cockburn, Sonia Fernandez-Mendez, Nicoletta Franchina, Ngoc-Cuong Nguyen, Jaime Peraire and Per-Olof Persson

MS139E
Room: Mare Nostrum C
Chair: Nicoletta Franchina

A discontinuous Galerkin method for compressible flows on deformable domains using unstructured space-time meshes
Luming Wang and Per-Olof Persson

Well-balanced r-adaptive and moving mesh space-time Discontinuous Galerkin method for the shallow water equations
Sander Rhebergen

Coupling of DG methods with one integral equation
Francisco-Javier Sayas and Norbert Heuer

Optimal energy conserving Discontinuous Galerkin Methods for the wave propagation problems in heterogeneous media
Ching-Shan Ching-Shan Chou, Chi-Wang Shu and Yulong Xing

Freestream preservation on a high-order conservative FR scheme
Yoshiaki Abe, Takanori Haga, Taku Nonomura and Kozo Fujii

Linear and non-linear high order accurate residual distribution schemes for the discretization of the steady compressible Navier-Stokes equations
Rémi Abgrall and Dante de Santis

A new type of high-order method
Philip L. Roe, Timothy A. Eymann, Jungyeou (Brad) Maeng and Nishant Narechania

24/07/2014 16:30 - 18:30
Computational Fluid Dynamics for Free and Moving Boundaries VI
Minisymposium organized by Rekha R. Rao, David R. Noble, Scott A. Roberts and Elie Hachem

MS256F
Room: Mare Nostrum D
Chair: Rekha Rao
CoChair: Scott Roberts

On the fast transient spoiler deployment in a NACA0012 profile using LES techniques combined with AMR and IMB methods
Federico Favre, Oscar Antepara, Oriol Lehmkuhl, Ricard Borrell and Assensi Oliva

The immersed boundary method for simulating compressible flows using unstructured meshes
Ilya Abalakin, Andrey Gorobets, Tatiana Kozubskaya and Natalia Zhdanova

The numerical study on dynamics of air blasted liquid sheet
Takuya Namegawa and Akiko Matsuo

Design and implementation of immersed boundary method with discrete forcing approach for boundary conditions

Hrvoje Jasak, Darrin Rigler and Zeljko Tukovic

Direct numerical simulation of the flow around a spherical bubble in a turbulent pipe flow

Lluís Jofre, Néstor Balcázar, Oriol Lehmkuhl, Ricard Borrell and Jesús Castro

Interface thickness control for multiphase calculation

Thierry Coupez, Hugues Digonnet, Elie Hachem, Patrice Laure and Luisa Silva

24/07/2014 16:30 - 18:30

Direct Methods and Constitutive Modeling for Plastic Design by Analysis II

Minisymposium organized by Manfred Staat, Dieter Weichert, Andrei Lyamin and Jose J. Muñoz

MS243B
Room: Mare Nostrum E
Chair: Jose Munoz
CoChair: Andrei Lyamin

Upper bound limit analysis of 3D problems using discontinuity layout optimization

Samuel J. Hawksbee, Matthew Gilbert and Colin C. Smith

Non-associative limit analysis using discontinuity layout optimization

Samuel J. Hawksbee, Matthew Gilbert, Colin C. Smith and Ahmed Babiker

Modeling of dense expansive soils subjected to wetting and drying cycles based on shakedown theory

Kai Li, Hossein Nowamooz, Cyrille Chazallon and Bernard Migault

On shakedown of shape memory alloys with permanent inelasticity

Michael Peigney

AAR-based decomposition method for limit analysis

Nima Rabiei and José J. Muñoz

Hourglass control in finite element method for limit analysis

Jun Saito and Shun-ichi Kobayashi

24/07/2014 16:30 - 18:30

Computational Mechanics of Cells, Tissues, and Biomaterials II

Minisymposium organized by Amir A. Zadpoor, Fred Vermolen, Liesbet Geris, Hanna Isaksson and Pasquale Vena

MS104B
Room: Mare Nostrum F
Chair: Amir A. Zadpoor
CoChair: Pasquale Vena

Computational modelling of mechanotransduction during cell adhesion

Jean-Louis Milan, Sandrine Lavenus and Patrick Chabrand

Modeling and simulation of trabecular bone remodeling considering intercellular signaling between bone cells

Yoshitaka Kameo, Yoshihiro Ootao and Masayuki Ishihara

Multiscale analysis of osteochondral scaffold with etherogeneous porosity and material constitution

Paola Ginestra, Gianluca Parisi, Simone Bignozzi, Elizaveta Kon, Dario Gastaldi and Pasquale Vena

Multiscale elastoplasticity of porous polycrystals: fundamentals and applications to osteonal failure in lamellar bone

Claire Morin, Viktoria Vass and Christian Hellmich

Modelling of cross-linked actin networks – Influence of geometrical parameters and cross-link compliance

Björn Fallqvist, Artem Kulachenko and Martin Kroon

24/07/2014 16:30 - 18:30
Computational Biomechanics of Injury and Trauma I
Minisymposium organized by Siddiq M. Qidwai, Ciaran Simms and Svein Kleiven

MS131A
Room: Llevant
Chair: Svein Kleiven
CoChair: Nithyanand Kota

Multiscale modeling of blast induced traumatic brain injury: from whole body responses to brain microdamage (Keynote Lecture)
Raj Gupta and Andrzej J. Przekwas

On the use of mechanical variables for brain injury prediction
Siddiq M. Qidwai, Nithyanand Kota and Amit Bagchi

Numerical models for investigation of blast wave traumatic brain injury and model validations
X.G. Tan, Andrzej J. Przekwas and Andrew C. Merkle

A study on the influence of directionality on blast-induced brain injury
Hesam Sarvghad Moghadam, Asghar Rezaei, Mehdi Salimi Jazi, Ghodrat Karami and Mariusz Ziejewski

Towards a micromechanics-based simulation of calcaneus fracture and fragmentation due to impact loading
Rebecca A. Fielding, Reuben H. Kraft, Timothy M. Ryan and Timothy D. Stecko

Investigation of a local absorption energy criterion for skull impacts through subject specific finite element head modeling
Dries De Kegel, Aida G. Monea, Nele Famaey and Jos Vander Sloten

24/07/2014 16:30 - 18:30
Advanced Homogenization Approaches for Modeling Damage and Failure in Solids II
Minisymposium organized by Ekkehard Ramm, Marc G.D. Geers and Christian Linder

MS113B
Room: Mestral
Chair: Christian Linder
CoChair: Ekkehard Ramm

High-performance image-based modeling of failure in heterogeneous materials with application to thin layers (Keynote Lecture)
Matthew Mosby and Karel Matous

A CONTINUUM MICROMECHANICS-LEFM MODEL FOR FIBRE REINFORCED CEMENTITIOUS MATERIALS
Guenther Meschke and Jithender J. Timothy

Computational homogenization modelling of microscale localization towards macroscale discontinuity
Emanuela Bosco, Varvara G. Kouznetsova, Erica W.C. Coenen and Marc G.D. Geers

Adaptive modeling of evolving discontinuities with smooth transition between discrete and continuous methods
Malte von Scheven, Annika Sorg and Manfred Bischoff

Continuum multi-scale (FE2) modeling of material failure
Manuel A. Caicedo, Javier Oliver, Alfredo E. Huespe, Emmanuel Roubin and Joaquín A. Hernández

Homogenization-based multiscale modeling of crystal plasticity and ductile failure at high strain rates
Coleman Alleman and Somnath Ghosh

24/07/2014 16:30 - 18:30
Multiscale and Adaptive PUM for Fracture and Heterogeneous Media I

MS106A
Room: Ponent 1

Minisymposium organized by Lars Beex, Pierre Kerfriden, Stefan Loehnert and Stéphane Bordas

Chair: Stéphane Bordas

Generalized Finite Element Method for coupled hygro-mechanical analysis of hydraulic fracturing problems
Dirk Leonhart and Guenther Meschke

On the strong form cloud-based flux-free implicit residual error estimators for C^k-GFEM approximations
Diego Amadeu Torres, Clovis Sperb de Barcellos and Felício Bruzzi Barros

3D error controlled adaptive XFEM simulation of ductile fracture on multiple scales
Stefan Loehnert, Matthias Holl and Corinna Prange

Recovery-based error estimation for the polygonal finite element method for smooth and singular linear elasticity
Octavio A. González-Estrada, Sundararajan Natarajan, Juan J. Ródenas, Stéphane P.A. Bordas and Claire Heaney

XFEM-Simulations of hydraulic fracturing in 3D with emphasis on stress intensity factors
Thomas-Peter Fries, Markus Schätzer and Nikolai Weber

24/07/2014 16:30 - 18:30
Industrial Applications of Computational Solid Mechanics and Related Techniques V

CS659E
Room: Ponent 2
Chair: Carlos Agelet de Saracibar

Nonlinear homogenization in masonry structrures
Georgios Drosopoulos, Maria Stavroulaki, Konstantinos Giannis, Leonidas Plymakis, Georgios E. Stavroulakis and Peter Wriggers

Advanced electromagnetic-thermal co-simulation for induction heating
Kingshuk Bose, Krishna M. Gundu and Albert Kurkchubasche

Computational aspects in the large displacement inelastic analysis of frames with plastic unstressing
Konstantinos V. Spiliopoulos and Ioannis A. Kapogiannis

Evaluation of mechanical strain and electrical fields in GaN-based LED devices with V-defects
Dhaneshwar Mishra, Y.-H. Cho, M.-B. Shim, S. Hwang, S. Kim, C. Y. Park, S. Y. Seo, S-H. Yoo, S-H. Park and Y.E. Pak

An efficient process for extraction and identification in scientific collaboration networks
Thiago M.R. Dias and Gray F. Moita

24/07/2014 16:30 - 18:30
Bio, Nano and Micro Mechanics and Materials II
Minisymposium organized by Zhen Chen, H. Eliot Fang, Luming Shen, Hongwu Zhang and Zhuo Zhuang

MS021B
Room: Terral
Chair: Zhuo Zhuang
CoChair: Ram Mohan

Molecular dynamics simulation of the rate-dependent nanostructural transition under high pressure (Keynote Lecture)
Zhen Chen, Shan Jiang, Thomas D. Sewell and Yong Gan

Theoretical model for compression collapse of gold particles at submicron scale
Jianqiao Hu, Zhanli Liu, Yinan Cui and Zhuo Zhuang

3D multiphysics FEM modeling of nanosecond pulsed laser interaction with metallic films
Evaggelos Kaselouris, Ioannis K. Nikolos, Yannis Orphanos, Efthimios Bakarezos, Nikolaos Vainos, Nektarios A. Papadogiannis, Michael Tatarakis and Vasilis Dimitriou

Nanomechanics of high performance anodes for sodium-ion battery
Teng Li

A molecular dynamics study on mechanical properties of *Bombyx mori* silk fibroin
Yuan Cheng and Yong-Wei Zhang

Evaporation of sessile droplets on nanopillared surfaces
Feng-Chao Wang and Heng-An Wu

Homogenized elastic properties of graphene for large deformations
Eduard Marenić, Jurica Sorić and Adnan Ibrahimbegovic

24/07/2014 16:30 - 18:30
ECCOMAS Olympiads II

EC02
Room: Tramuntana 1
Chair: Pedro Díez

Global optimisation on assembly problems using gradient-based surrogate model and multiparametric strategy
Luc Laurent

Adjoint methods for turbulent flows, applied to shape or topology optimization and robust design
Evangelos Papoutsis-Kiachagias

Towards non-intrusive uncertainty quantification for finite precision models
Jérémy Lebon

Discrete-continuum coupling method for simulation of laser-induced damage in silica glass
Mohamed Jebahi

A direct numerical scheme for simulation of particles in fluids
Bircan Avci

A rapid prediction of blast wave properties: Empirical vs. numerical approach
Piotr W. Sielicki

24/07/2014 16:30 - 18:30
Advanced Numerical Methods IV

CS656D
Room: Tramuntana 2
Chair: Juan Carlos Cante

Development of a new calculation software for large deformation problems
Vinzenz Sattinger, Daniel Supanz and Ioan Turcin

Introducing a finite difference element method for thin elastic shell
Daniel Choï

Statistically weighted maximin distance design with kernel density function
Junyong Jang, Su-gil Cho, Minuk Lee and Tae Hee Lee

Inter-belt analysis of nonlocal linear elastic theory
Zheng Yao, Changliang Zheng and Wanxie Zhong

Triangular-fan-based algorithm for computing the closure conditions of planar linkages
Rubén Vaca and Joan Aranda

Rare event anticipation and degradation trending for aircraft predictive maintenance
Stephane Alestra, Christophe Bordry, Christophe Brand, Evgeny Burnaev, Pavel Erofeev, Artem Papanov

and Cassiano Silveira-Felixo

24/07/2014 16:30 - 18:30
Computational Modeling of Surface and Interface Mechanisms I
Minisymposium organized by Laura De Lorenzis and Roger A. Sauer

MS145A
Room: Xaloc
Chair: Roger Sauer

Predicting the length of slip precursors
David S. Kammer, Mathilde Radiguet, Jean-Paul Ampuero and Jean-François Molinari

Tailoring polymer-steel adhesion during deformation-induced steel roughening
Jeroen van Beeck, Piet J.G. Schreurs and Marc G.D. Geers

Load intensity caculations on tipper body using DEM FEM Coupling
Dan Forsström and Pär Jonsén

Friction of Frenkel-Kontorova atomistic model at elevated temperature
Motohisa Hirano and Shin Ito

Molecular dynamics simulation of high-temperature oxidation of 3C-SiC(100): differences between Si-face and C-face
Yu Sun, Yijun Liu and Fei Xu

24/07/2014 16:30 - 18:30
Isogeometric and High-order Boundary Element Methods I
Minisymposium organized by Jon Trevelyan, Robert Simpson, Michael Scott, Tom Hughes and Lucy Weggler

MS137A
Room: Salon Club
Chair: Jon Trevelyan

An isogeometric BEM for exterior potential-flow problems around lifting bodies
Constantinos G. Politis, Alexis Papagiannopoulos, Konstantinos Belibassakis, Panagiotis Kaklis, Konstantinos Kostas, Alexandros Ginnis and Theodoros Gerostathis

Crack growth analysis by a NURBS-based isogeometric boundary element method
Xuan Peng, Elena Atroshchenko, Robert N. Simpson, Sivakumar Kulasegaram and Stéphane P.A. Bordas

Hybrid IGAFEM/IGABEM for two-dimensional magnetic and magneto-mechanical field problems
Markus Kästner, Stefan May, Sebastian Müller and Volker Ulbricht

Implementation of an isogeometric Galerkin boundary element method in 2d
Andreas Bantle and Stefan A. Funken

Nonsingular isogeometric boundary element method for Stokes flows in 3D
Luca Heltai, Marino Arroyo and Antonio DeSimone

Boundary Element Analysis with trimmed NURBS and a generalized IGA approach
Gernot Beer, Benjamin Marussig, Juergen Zechner, Christian Duenser and Thomas-Peter Fries

Isogeometric boundary element method in plane micropolar elasticity
Elena Atroshchenko, Xuan Peng and Stéphane P.A. Bordas

24/07/2014 16:30 - 18:30
Computational Continuum Mechanics with OpenFOAMTM I
Minisymposium organized by Gavin Tabor and Gianluca Montenegro

MS162A
Room: Yasmin A
Chair: Gavin Tabor

Parametric adjoint optimization: Using adjoint sensitivities to quantify the effect of design variables in a parametric CFD model.
Andre Zimmer and Sebastian Weickgenannt

Gas flow around hot porous media
Bartlomiej Matejczyk and Kamil Kwiatkowski

Characterization of flow regimes and heat transfer inside Kelvin-cell type foams by means of OpenFOAM
Augusto Della Torre, Gianluca Montenegro, Federico Brusiani and Gian Marco Bianchi

Prediction of flow assisted corrosion with OpenFOAM
Kazuhiro Suga

The effect of dynamic mesh methods on bridge deck vibrations
Steven J. Daniels, Ian P. Castro and Zheng-Tong Xie

24/07/2014 16:30 - 18:30
Structure-preserving and Polyhedral Discretizations II
Polyhedral, Differential Forms, and Variational Integrators Session
Minisymposium organized by Lourenco Beirao da Veiga, Annalisa Buffa, Alexandre Ern, John A. Evans, Marc Gerritsma, Gianmarco Manzini and Giancarlo Sangalli

MS204B
Room: Yasmin B
Chair: Lourenco Beirão da Veiga

Generalization of Finite Element Methods to polygonal and polyhedral meshes
Vitaliy Gyrya, Konstantin Lipnikov and Gianmarco Manzini

BEM-based finite element method with prospects to time dependent problems
Steffen Weißer

A family of arbitrary order mixed methods for heterogeneous anisotropic diffusion on general meshes
Daniele A. Di Pietro and Alexandre Ern

Compatible discrete operator schemes for stokes problem on polyhedral meshes
Jérôme Bonelle and Alexandre Ern

Mimetic least-squares: A least-squares formulation with exact conservation properties
Pavel Bochev and Marc Gerritsma

Stabilized Galerkin methods for the advection of differential forms with discontinuous velocity fields
Ralf Hiptmair, Siddhartha Mishra and Cecilia Pagliantini

Variational integrators for nonvariational PDEs
Michael Kraus and Omar Maj

24/07/2014 16:30 - 18:30
Algorithmic Aspects of High-performance Computing for Mechanics and Physics III
Minisymposium organized by Santiago Badia, Victor Calo and Javier Principe

MS172C
Room: Yasmin C
Chair: Javier Principe

BDDC and FETI-DP methods in PETSc
Stefano Zampini

On the scalability of BDDC-based fast parallel iterative solvers for the discrete Stokes problem with continuous pressures
Alberto F. Martín and Santiago Badia

PetIGA: high-performance isogeometric analysis of phase-field models
Victor M. Calo, Nathan O. Collier, Lisandro A. Dalcin and Philippe Vignal

Discontinuous Galerkin for high performance computational fluid dynamics
Andrea Beck, Gregor Gassner, Thomas Bolemann and Florian Hindenlang

Parallel implementation of 2-D boundary element formulation for a microfluidic particulate flow
Besim Baranoğlu, Barbaros Çetin and Hakan Gökahmetoğlu

Implement of the Domain Decomposition Method in the Time-Harmonic Eddy Current Analysis with Complex Data Types
Shin-ichiro Sugimoto, Masao Ogino, Amane Takei and Hiroshi Kanayama

24/07/2014 16:30 - 18:30
STS 07: Application of Hybrid RANS/LES Approaches to Attached and Mildly Separated Flows

STS07A
Room: Auditorium
Chair: Dieter Schwamborn

Hybrid RANS/LES simulations of multi-element airfoil stall using different flow solvers
Axel Probst, Andrey V. Garbaruk, Dieter Schwamborn, Mikhail Shur and Mikhail Strelets

Application of a synthetic turbulence generator to solution of aerodynamic and aeroacoustic problems with the use of embedded LES
Andrey V. Garbaruk, Michael L. Shur, Philippe R. Spalart, Michael Kh. Strelets and Andrey K. Travin

Implementation of a physically based synthetic turbulence generator for embedded LES approaches
Daniela Gisele François and Rolf Radespiel

Prediction of wall bounded flows by hybrid RANS-LES methods with wall functions
Mikhail S. Gritskevich, Andrey V. Garbaruk and Florian R. Menter

Detached-eddy simulation of NASA-CRM transonic buffet
Keiichi Ishiko, Atsushi Hashimoto, Takashi Aoyama and Kuniyuki Takekawa

Separating flow in a 3D diffuser: comparative assessment of LES, zonal hybrid LES/RANS and URANS methods
Suad Jakirlic, Gisa John-Puthenveettil, Imdat Maden and Robert Maduta

Simulation of turbulent flow around wedge-shaped body with backward step using iddes approach on unstructured mesh
Boris N. Dankov, Alexey P. Duben and Tatiana K. Kozubskaya

24/07/2014 16:30 - 18:30
Advanced Materials: Computational Analysis of Properties and Performance IV
Minisymposium organized by Vadim Silberschmidt and Valery Matveenko

MS006D
Room: Sala A
Chair: Vadim V. Silberschmidt
CoChair: Valery P. Matveenko

Theoretical, computational and experimental studies of the behavior of structural materials under multiaxial loading conditions (Keynote Lecture)
Evgeny V. Lomakin , Boris N. Fedulov and Andrey M. Melnikov

Modelling of fracture in lamellar TiAl alloy based on a two-scale FE approach
M. Rizviul Kabir, Liudmila Chernova and Marion Bartsch

Investigation of complex and cyclic loading and damage accumulations in multilevel polycrystal models
Pavel S. Volegov, Peter V. Trusov, Alexey I. Shveykin and Anton Yu. Yanz

Field theory evaluation of the stress states of grains in elastically deformed polycrystals
Vyacheslav E. Shavshukov and Anatoly A. Tashkinov

Study of mechanical deformation of Zr-Cu-based bulk metallic glass: Experiment and numerical simulation
Vahid Nekouie, Gayan Abeygunawardane-Arachchige, Anish Roy and Vadim V. Silberschmidt

Finite element simulation of stent deployment inside a stenotic artery
Alessandro Schiavone, Liguo Zhao and Adel Abdel-Wahab

24/07/2014 16:30 - 18:30
Advanced Approaches for Shape Optimization I
Minisymposium organized by Fabian Duddeck, Kai-Uwe Bletzinger and Jens-Dominik Müller

MS020A
Room: Sala B1
Chair: Fabian Duddeck

Isogeometric shape optimization of 3D shell structures
Kai-Uwe Bletzinger, Josef Kiendl and Robert Schmidt

Isogeometric shape optimization for time dependent problems
Zhenpei Wang and Sergio Turteltaub

Optimization of automotive composite structures
Simon Hesse, Dirk Lukaszewicz and Fabian Duddeck

Shape design sensitivity analysis of dynamic crack propagation using peridynamics
Jae-hyun Kim, Hyun-seok Kim and Seonho Cho

Crashworthiness parametric shape optimization with the macro element method
Pablo Lozano-Vallejo and Fabian Duddeck

An optimal strategy for shape optimization of extrusion dies
Roland Siegbert, Hatim Djelassi, Marek Behr and Stefanie Elgeti

24/07/2014 16:30 - 18:30
Impact and Crash Mechanics I
Minisymposium organized by Manfred Bischoff and Fabian Duddeck

MS220A
Room: Sala B2
Chair: Fabian Duddeck

Predicting damage and failure along the process chain of forming to crashworthiness simulation: the effect of full 3D stress states
Andre Haufe, Markus Feucht and Thomas Münz

Drop tests and dynamic finite element analyses of steel sheet containers for final disposal of radioactive waste
Christian Protz, Uwe Zencker and Robert Liebich

Numerical methods for modelling impact on composite structures
Dominik Schueler, Nathalie Toso-Pentecôte and Heinz Voggenreiter

Adaptivity and local impact detection for dynamic contact problems
Rolf Krause and Mirjam Walloth

Optimization of functionally-graded configurations for crashworthiness design of thin walled structures
Guangyong Sun, Fengxiang Xu, Jianguan Fang, Shujuan Hou and Qing Li

Performance Evaluation of 29- and 31-inch W-beam Guardrails behind Curbs under MASH TL-2 Conditions
Howie Fang, Ning Li, Matthew Gutowski, Ryan Baker and Emre Palta

Structural homogenization in energy storage systems
Mehdi Gilaki and Ilya Avdeev

24/07/2014 16:30 - 18:30
Computational Mechanics Issues in Earthquake Engineering II
Minisymposium organized by Aram Soroushian

MS265B
Room: Sala B3
Chair: Aram Soroushian

Bayesian near real-time earthquake source inversion (Keynote Lecture)
Damon McDougall, Olaf Zielke, Ivo Babuska and Christopher S. Simmons

Numerical analysis of mechanical behaviours of immersion joint
Wenhao Xiao, Yong Yuan, Haitao Yu, Lu Jing and Yue Chen

A technique for more efficient time integration applied to seismic analysis of power substation equipments
Morteza Bastami

A comparison between linear and nonlinear time history analyses after implementing a recent computational cost reduction technique
Alireza Garakaninezhad, Ali Yahyapour, Alireza Asgarihadad and Aram Soroushian

Modelling and computational issues in seismic progressive collapse assessment of RC moment resisting buildings with eccentricity in plan
Abdolreza S. Moghadam and Somayyeh Karimiyan

Homogenized global nonlinear constitutive model for RC panels under cyclic loadings
Miquel Huguet, François Voldoire, Panagiotis Kotronis and Silvano Erlicher

24/07/2014 16:30 - 18:30
CFD for Wind and Tidal Offshore Turbines II
Minisymposium organized by Adeline de Montlaur and Esteban Ferrer

MS138B
Room: Sala C1
Chair: Esteban Ferrer

Vertical-axis wind turbine start-up modelled with a high-order numerical solver
John Rainbird, Esteban Ferrer, Joaquim Peiro and Mike Graham

Numerical simulation of wave loading on static offshore structures
Hrvoje Jasak, Inno Gatin and Vuko Vukcevic

Numerical simulation of a vertical axis tidal turbine using immersed boundary method
Pablo Ouro Barba and Thorsten Stoesser

A comparison of panel method and RANS calculations for a horizontal axis marine current turbine
Joao Baltazar and José Falcão de Campos

The physics of starting process for vertical axis wind turbines
Horia Dumitrescu, Vladimir Cardos and Ion Malael

24/07/2014 16:30 - 18:30
Numerical Analysis Aspects of Stabilized Methods II
Minisymposium organized by Tomás Chacón Rebollo, Petr Knobloch, Erik Burman, Lutz Tobiska, Gabriel Barrenechea, Malte Braack, Gunar Matthies, Bouemâa Achchab and Rodolfo

MS109B
Room: Sala C2
Chair: Tomas Chacon Rebollo
CoChair: Petr Knobloch

Araya

Local projection type stabilisation applied to inf-sup stable discretisations of the Oseen problem. Part I
Gunar Matthies and Lutz Tobiska

Local projection type stabilisation applied to inf-sup stable discretisations of the Oseen problem. Part II
Gunar Matthies and Lutz Tobiska

A low-order Local Projection Method for Navier--Stokes equations
Rodolfo Araya, Abner Poza and Frédéric Valentin

Stabilising the $Q_{K+1} \times P_{K-1}$ element in anisotropic quadrilateral meshes
Gabriel R. Barrenechea and Andreas Wachtel

Application of splitting and finite-volume methods for solution of advection-diffusion equation on a sphere
Yuri N. Skiba

Stabilisation parameter determination for the Stokes equations
Linfeng Chen, Gabriel D. Maher and Steven J. Hulshoff

24/07/2014 16:30 - 18:30
Advanced Techniques for Numerical Simulation of Fluid Flow and Transport in Porous Media II
Minisymposium organized by Florin A. Radu and Vitoriano Ruas

MS249B
Room: Sala C3
Chair: Florin Adrian Radu

Domain decomposition preconditioning for non-linear elasticity problems
Eirik Keilegavlen, Jan Ole Skogestad and Jan Nordbotten

Numerical implementation of a new consistent velocity approximation for variable-density flow and transport in porous media
Xavier Albets-Chico and Stavros Kassinos

A mixed hybrid finite element method for the coupling Stokes-Darcy flow
Iury Igreja, Cristiane O. Faria and Abimael F.D. Loula

Hermite finite elements with normal flux continuity
Vitoriano Ruas

Flow under retaining structures: A new application of network method
Pablo Ortiz, Iván Alhama , Emilio Trigueros and Francisco Alhama

Effects of operating conditions on the flow through a porous wall in dead-end capillary membrane during backwash
Hussam Mansour, Anik Keller, Rolf Gimbel and Wojciech Kowalczyk

24/07/2014 16:30 - 18:30
Computational Dynamics of Structures with Large Deformations I
Minisymposium organized by Johannes Gerstmayr and Peter Betsch

MS237A
Room: Sala D1
Chair: Johannes Gerstmayr
CoChair: Peter Betsch

Energy-entropy-consistent time integration for nonlinear thermo-viscoelastic continua
Melanie Krüger, Michael Groß and Peter Betsch

Multifield formulation of plasticity
Bettina Schröder and Detlef Kuhl

Geometrically exact finite elements for Reissner beams: the exact dynamics for helical interpolation
Flavia Desiro, Xavier Merlhiot and Frédéric Boyer

Global format for nonlinear energy-momentum conserving time integration
Steen Krenk

Nonlinear vibrations of Shells: Experiments, Simulations and Applications

Marco Amabili and Rinaldo Garziera

24/07/2014 16:30 - 18:30
Bone and Cartilage Mechanobiology: Experimental and Computational Assessment across the scales I
Minisymposium organized by Peter Pivonka and Justin Fernandez

MS242A
Room: Sala D2
Chair: Peter Pivonka
CoChair: Justin Fernandez

Osteocyte stimulation through pore pressurization induced by physiological macroscopic bone strains: Insights from a microporomechanical model (Keynote Lecture)
Stefan Scheiner, Peter Pivonka and Christian Hellmich

How does the split-line on tibiofemoral cartilage influence stress distribution during gait? – A subject-specific multiscale finite element analysis
Vickie B. Shim, Kumar Mithraratne, Thor F. Besier, David G. Lloyd and Justin Fernandez

Evaluation of computational cortical bone remodelling in an equine model
Dharshini Sreenivasan, Corina Chilibeck, Xiaoming Wang, David Thomas, John Clement, Raj Das, Helen Davies, Jill Cornish and Justin Fernandez

Combined finite element and musculoskeletal predictive structural modelling of the femur: Potential mechanobiology applications
Claire C. Villette, Luca Modenese and Andrew T.M Phillips

Biomechanical roles of soft tissues in bone remodeling
Wei Li, Junning Chen, Zhipeng Liao, Rohana Ahmad, Babak Sarrafpourk, Hans Zoellner, Michael Swain and Qing Li

A Computational model for tissue remodeling in cancelous bone
Brianna L. Martin, Nicola L. Fazzalari, Karen J. Reynolds and Murk J. Bottema

Effect of *in-utero* vitamin D depletion on offspring skeletal health
Tsiloon Li, Tom Jenkins, Stephanie Meakins, Stuart A. Lanham, Philipp J. Thurner and Richard O.C. Oreffo

24/07/2014 16:30 - 18:30
Computational Cell Mechanics II
Minisymposium organized by Antoine Jérusalem and Ming Dao

MS128B
Room: Sala D3
Chair: Lili Zhang

Liquid crystal structure of water as key to the permeability of trabecular bone (Keynote Lecture)
Tamer Abdalrahman, Stefan Scheiner and Christian Hellmich

A computational model coupling mechanics and electrophysiology in spinal cord injury
Antoine Jérusalem, Julian A. García-Grajales, Man Ting Kwong, Angel Merchán-Pérez and Jose María Pena

Optical measurement of biomechanical properties of human red blood cells
Hyunjoo Park and YongKeun Park

Computational investigation of the cytoskeleton response under static and fluid flow loading conditions
Sara Barreto, Hanifeh Khayyeri, Adrien Baldit and Damien Lacroix

Dynamic states of red blood cell in simple shear flow
Wei Chien and Yeng-Long Chen

24/07/2014 16:30 - 18:30
What Meshfree Particle Methods Can Do that Traditional FEA Cannot I
Minisymposium organized by J. S. Chen, Sheng-Wei Chi, Kent Danielson, Wing Kam Liu and M. Jason Roth

MS167A
Room: Sala D4
Chair: J. S. Chen
CoChair: Cheng-Tang Wu

A meshfree unification: reproducing kernel peridynamics (Keynote Lecture)
Miguel A. Bessa, John T. Foster, Ted Belytschko and Wing Kam Liu

Further development of the combined particle-element method for high-velocity impact
Gordon R. Johnson and Stephen R. Beissel

Consistency-based coupling of isogeometric and meshfree approximations
Dongdong Wang and Hanjie Zhang

A nonlocal poroelastic approach to fluid driven fracture
John T. Foster, Jason York, Mukul Sharma, Amit Katiyar and Hisanao Ouchi

Level-Set Enhanced Frictional Kernel Contact Algorithm for Impact and Penetration Modelling
Sheng-Wei Chi, Chung-Hao Lee, Shih-Po Lin and J. S. Chen

Variationally consistent integration for meshfree and isogeometric analysis
J. S. Chen and Michael Hillman

24/07/2014 16:30 - 18:30
Integrated Computational Materials Engineering - ICME II
Minisymposium organized by Gottfried M. Laschet, Javier Llorca, Elisabeth A. Holm, Michele Chiumenti and Somnath Ghosh

MS073B
Room: Sala D5
Chair: Elizabeth Holm
CoChair: Somnath Ghosh

A phase field model for the stabilization of nanocrystalline microstructures with solute segregation
Philip Goins and Elizabeth Holm

Level set modeling of microstructure evolution
Håkan Hallberg

Modeling of microstructure development during hot deformation and subsequent annealing of precipitates containing AA6016
Feng Jiao, Volker Mohles, Alexis Miroux and Christian Bollmann

Grain structure evolution during annealing of AA6xxx: A modeling approach
Panthea Sepehrband, H. Jin, X. Wang and S. Esmaeili

Flow rule based simulation of grain and SZ sizes in friction stir welding
Zhao Zhang, Qi Wu, Zhenyu Wan, Zhiqin Cai and Hongwu Zhang

24/07/2014 16:30 - 18:30
Composite Materials and Structures I

CS657A
Room: Sala D6
Chair: Elias Cueto

2D and 3D numerical simulations of damage during the formation of successive chips when machining the aeronautical CFRP composites
Sofiane Zenia, Lanouar Ben-Ayed, Mohammed Nouari and Arnaud Delamézière

Surface stress in a two-component composite with a slightly curved interface
Mikhail A. Grekov, Sergey A. Kostyrko and Yulia I. Vikulina

Modelling of Braided Fibre Reinforced Concrete
Michael Cortis, Lukasz Kaczmarczyk and Chris J. Pearce

24/07/2014 16:30 - 18:30
Impact Mechanics and Blast Loads II

CS660B
Room: Sala E1
Chair: José María Goicolea
CoChair: José L. Pérez Aparicio

Planar wave propagation in shock tubes for replicating blast injury
Brian R. Bigler, Allen W. Yu and Cameron R. Bass

The study on impact response of diesel engine based on Finite Element Method
Dongyan Shi, Shan Gao and Jingyuan Song

Simulation of blast action on civil structures using ANSYS / LS-DYNA and ANSYS / AUTODYN
Maksim N. Danilov, Swetlana A. Valger, Natalya N. Fedorova and Alexander V. Fedorov

FEA of impact responses for damped frame structures supported by multiple nonlinear springs with hysteresis
Takaoi Yamaguch, Chen Yuan, Hisanori Tomita, Taufiq Ibrahim, Shinichi Maruyama, Mitsuharu Watanabe and Manabu Sasajima

24/07/2014 16:30 - 18:30
Curved Mesh Generation for High-order Methods II
Minisymposium organized by Xevi Roca, Per-Oloff Persson, Josep Sarrate and Jaime Peraire

MS163B
Room: Sala E2
Chair: Xevi Roca
CoChair: Josep Sarrate

Generation of high order curvilinear spectral element meshes for aerodynamic applications
Bartosz Górecki, Piotr Szałtys, Jacek Szumbarski and Jacek Rokicki

On the integration of high-order boundary elements in a 3D Discontinuous Galerkin method for turbomachinery flows
Svetlana Drapkina, Christian Frey and Graham Ashcroft

Generalized finite differences on structured convex grids for irregular planar domains
Francisco J. Domínguez-Mota, Erika Ruíz-Díaz, Gerardo Tinoco-Guerrero and José-G. Tinoco-Ruíz

Adaptation of the computational grid to a moving wing-fusselage intersection via NURBS and radial basis
Mario J. Martin-Burgos, Marta Cordero-Gracia and Mariola Gómez

Curved hexahedral mesh generation by smoothing according to the CAD hierarchy
Eloi Ruiz-Gironés, Xevi Roca and Josep Sarrate

24/07/2014 16:30 - 18:30
The Models and Investigations Methods of Dynamics of the Solids Systems with Dry Friction II
Minisymposium organized by Alexey A. Kireenkov and Alexander V. Karapetyan

MS253B
Room: Sala E3
Chair: Alexey Kireenkov

Stability theory methods in problems of mathematical modelling complex mechanical systems
Lyudmila K. Kuzmina

A new effective approach to dry friction modeling under conditions of combined kinematics
Alexey A. Kireenkov

An embedded crack in a functionally graded orthotropic coating bonded to a homogeneous substrate under a frictional Hertzian contact
Mohamed Ben-Romdhane, Sami El-Borgi and Malek Charfeddine

Tangential displacement in elastic contacts prior to macroscopic slip
Roman Pohrt, Birthe Grzemba, Valentin Popov, Elena Teidelt and Qiang Li

24/07/2014 16:30 - 18:30
Computational Micromechanics of Wood, Engineered Wood Products, and Cellulose-Based Materials I
Minisymposium organized by Karin de Borst, E. Kristofer Gamstedt and Thomas K. Bader

MS046A
Room: Sala E4
Chair: Kristofer Gamstedt

Modelling tracheid cell-wall sorption
Staffan Svensson and Tomaz Hozjan

Structure – proerty relationships – A study on the growth ring scale of Norway spruce
Christian Lanvermann, Sergio Sanabria and Peter Niemz

Multiscale approach from micromechanics up towards creeping wooden structures
Kristofer Gamstedt, Alexey Vorobyev, Nico van Dijk, Ingela Bjurhager and Ivón Hassel

Micromechanics of the internal bond in wood plastic composites: Integrating measurement and modeling
Matthew J. Schwarzkopf and Lech Muszynski

Integrating optical measurement and modeling for quantitative analysis of the micromechanical load transfer in wood-adhesive bond interphase
Matthew J. Schwarzkopf, Lech Muszynski, John Naim, Jesse Paris and Frederick Kamke

A novel way to simulate the behaviour of timber composite connection joined throw dowels
Ait-Aider Hacene, Meghlat El Mehdi and Oudjene Marc

24/07/2014 16:30 - 18:30
Recent Advances in Quasicontinuum and Other Atomistic/Continuum Methods II
Minisymposium organized by Chuin-Shan David Chen, Jamie Marian and Ellad B. Tadmor

MS166B
Room: Sala E5
Chair: Jaime Marian
CoChair: Dennis Kochmann

Bridging-scale modeling of biomechanical behavior of microtubules (Keynote Lecture)
Kim Meow Liew and Lu-Wen Zhang

Construction of coarse grained rigid blob - Small oscillation model
Sheng D. Chao

Comparison of several staggered atomistic-to-continuum concurrent coupling strategies
Denis Davydov, Jean-Pau Pelteret and Paul Steinmann

A real-space absorbing boundary condition for molecular dynamics
Chuin-Shan Chen and Chung-Shuo Lee

24/07/2014 16:30 - 18:30

Quality and Validation of Computational Cardio-vascular Biomechanics I

Minisymposium organized by Franck Nicoud and Dominique Thevenin

MS233A
Room: Sala E6
Chair: Franck Nicoud
CoChair: Gábor Janiga

On uncertainty, verification and validation of cardiovascular CFD models (Keynote Lecture)
David A. Steinman

Large Eddy Simulation in intracranial aneurysms: should transition be considered in numerical modeling?
Philipp Berg, Abouelmagd Abdelsamie, Gábor Janiga and Dominique Thévenin

On numerical methods for transitional flow -- application to blood flow in cerebral aneurysms
Kent-Andre Mardal

Accounting for turbulence in cardiovascular biomechanics
Christophe Chnafa, Simon Mendez and Franck Nicoud

Validation of an open source framework for the simulation of blood flow
Annalisa Quaini, Tiziano Passerini, Umberto Villa, Alessandro Veneziani and Suncica Canic

24/07/2014 16:30 - 18:30

New Trends in Topology Optimization II

Minisymposium organized by Glaucio Paulino, Emilio Silva and Kurt Maute

MS211B
Room: Sala F
Chair: Emilio Carlos Nelli Silva
CoChair: Oded Amir

Application of second-order algorithms to topology optimization problems (Keynote Lecture)
Miguel A. Aguilo

Benchmarking optimization methods for structural topology optimization problems
Susana Rojas-Labanda and Mathias Stolpe

Level set topology optimization based on sequential linear programming
Peter D. Dunning and H. Alicia Kim

Multiobjective topology optimization of cellular materials
Josephine V. Carstensen, Reza Lofti and James K. Guest

Topology optimization for heat transfer problems with multiple materials
Carla T. M. Anflor, Éder L. Albuquerque and Luiz. C. Wrobel

Topology optimization including buoyancy inequality constraints
Renato Picelli, Ronald van Dijk, William M. Vicente, Renato Pavanello, Matthijs Langelaar and Fred van Keulen

On the optimization of adsorption systems
Ricardo C. R. Amigo, Robert W. Hewson and Emílio C.N. Silva

24/07/2014 16:30 - 18:30

Advances and Applications in Generalized/Extended Finite Element Methods III

Minisymposium organized by Angelo Simone, C. Armando Duarte, Sergio P. B. Proença and Haim Waisman

MS094C
Room: Sala H 1
Chair: Sergio Persival Proenca

Explicit dynamics with Partition of Unity Methods (Keynote Lecture)
Marc A. Schweitzer

Vector level set contouring algorithm and associated enrichment functions for the extended Finite Element Method
Nicolas Chevaugeon, Alexis Salzman and Nicolas Moës

XFEM analysis of two-dimensional Laplace equation with inclined slit boundaries
Shogo Nakasumi and Takayuki Suzuki

The extended Finite Element Method applied to porous saturated media
Bertrand Paul, Maxime Faivre, Patrick Massin, Fabrice Golfier, Richard Giot and Daniele Colombo

XFEM/GFEM multiphase flow simulations in porous media for carbon sequestration
Chris Ladubec, Robert Gracie and James Craig

Assessing the subsea acoustic impact of offshore power stations using a partition of unity method
Raúl Hospital-Bravo, Josep Sarrate and Pedro Díez

24/07/2014 16:30 - 18:30
Reduced Basis, POD and PGD Model Reduction Techniques IV
Minisymposium organized by Francisco Chinesta, Elias Cueto, Pierre Ladevèze and Hermann Matthies

MS015D
Room: Sala H 2
Chair: Francisco Chinesta
CoChair: Elias Cueto

Real time solution of parametrized thermal problems (Keynote Lecture)
Sergio Zlotnik, Pedro Díez and Antonio Huerta

Low-frequency shape functions on the logarithmic space
Christian Schröppel and Jens Wackerfuß

Space-time separated representation for solving Navier-Stokes equations
Guangtao Xu, Michel Visonneau, Adrien Leygue and Francisco Chinesta

Eigenelements parametric sensitivity and application to Proper Orthogonal Decomposition
Nissrine Akkari, Marwan Saleh, Abdallah El Hamidi, Aziz Hamdouni and Mustapha Jazar

Efficient structural optimization using equivalent static loads combined with parameterized finite element approach
Jaehun Lee, Euiyoung Kim and Maenghyo Cho

Efficient cross-gramian-based state and parameter reduction
Christian Himpe and Mario Ohlberger

Reduced numerical methods applied to thermoconvective problems
Henar Herrero, Francisco Pla and Yvon Maday

24/07/2014 16:30 - 18:30
Multiscale Modelling of Materials and Structures III
Minisymposium organized by Tadeusz S. Burczynski, Xavier Oliver and Maciej Pietrzyk

MS250C
Room: Sala H 3
Chair: Ewa Majchrzak
CoChair: Lukasz Madej

Numerical simulation of deformation processes in auxetic foams (Keynote Lecture)
Barbara Lipowska, Marcin Nowak, Zdzislaw Nowak, Ryszard B. Pecherski and Anna Strek

Numerical estimation of the compressive strength of ceramic open-cell foams of variable cell sizes
Marcin Nowak, Zdzislaw Nowak, Ryszard B. Pecherski, Marek Potoczek and Romana E. Sliwa

Structural dependency of periodic unit cell models on mechanical properties of alumina foams
Marcin Nowak

Numerical homogenization of reactive powder concrete in the nonlinear range
Arkadiusz Denisiewicz and Mieczyslaw Kuczma

Multiscale modeling of concrete carbonation
Hamid Ghorbanbeigi, Wanqing Shen, Ismail Yurtdas and Jian-Fu Shao

A multiscale methodology for hollow clay-brick masonry
Ahmed Sridi, Jean-François Regrettier, Jérôme Gautron, Vincent Foussard and Hachmi Ben-Dhia

24/07/2014 16:30 - 18:30
Non-conventional Methods for Nonlinear Fluid and Solid Mechanics II
Minisymposium organized by Michel Potier-Ferry , Elias Cueto and Heng Hu

MS146B
Room: Sala J
Chair: Heng Hu
CoChair: Bruno Cochelin

Improved Reduced Order Models for the computation of Hopf bifurcations in fluid mechanics (Keynote Lecture)
Jean-Marc Cadou, Gregory Girault, Yann Guével and Michel Potier-Ferry

High order automatic differentiation of constitutive laws and application to plastic structures
Arnaud Lejeune, Hakim Boudaoud, Norman Mathieu and Michel Potier-Ferry

Continuation of equilibria and stability of naturally curved elastic rods using an asymptotic numerical method
Arnaud Lazarus, Jay Miller and Pedro M. Reis

Prediction of damage evolution in bonded material using cohesive zone model
André Chrysochoos, Loïc Daridon and Bertrand Wattrisse

Least-square collocation and Lagrange multiplier methods for Taylor Meshless Method
Jie Yang, Heng Hu and Michel Potier-Ferry

A Taylor meshless method for hyperelasticity
Koffi Akpama, Yao Koutsawa and Michel Potier-Ferry

24/07/2014 16:30 - 18:30
Moving Materials and Fluid-Structure Interaction with Uncertain Data I
Minisymposium organized by Nikolay Banichuk, Juha Jeronen, Pekka Neittaanmäki, Tytti Saksa and Tero Tuovinen

MS064A
Room: Business Centre I
Chair: Juha Jeronen

Time-dependent stochastic failure of fibre network
Amanda Mattsson and Tetsu Uesaka

Vibrations of a string with one non-material boundary condition
Andreas Franze and Bernd W. Zastrau

Multicriteria optimization in paper making prosesses
Nikolay Banichuk, Tero Tuovinen and Pekka Neittaanmäki

Eigenvalue analysis of an axially moving string with multiple attached oscillators using Green's function method
Yuefang Wang, Lihua Huang and Lefeng Lu

Eigenfrequencies and stability of elastic and viscoelastic accelerating panels with fluid-structure interaction
Juha Jeronen, Tytti Saksa, Tero Tuovinen and Matti Kurki

Unified Continuum Fluid-Structure Interaction (FSI) for voice modelling

Niyazi S. Degirmenci, Johan Jansson, Johan Hoffman, Stefan Becker and Stefan Knecsburges

Stability analysis of axially moving material with elastic supports
Tero Tuovinen, Nikolay Banichuk, Svetlana Ivanova and Juha Jeronen

24/07/2014 16:30 - 18:30
Computational Bioengineering I
Minisymposium organized by Suvranu De, Abdul I. Barakat, Sandra Rungonyi and Yusheng Feng

MS339A
Room: Business Centre II
Chair: Suvranu De

Computational model of the mass transport in a tumor nodule during intraperitoneal chemotherapy
Margo Steuperaert, charlotte Debbaut, Wim Ceelen and Patrick Segers

Mathematical modeling and experimental validation of cancer cell migration in a three-dimensional tumor matrix
Sarah Boukhris, Raul A. Valencia and Yusheng Feng

Cell migration and mass transport simulation through vascular graft (porous media) using a Multi-Scale Approach
Raul A. Valencia, Manuel J. Garcia and John Bustamante

Modeling blood flow by taking explicitly red blood cells into account
Chaouqi Misbah

Multiscale simultations of transport processes in human organism
Alexander S. Kholodov and Sergey S. Simakov

Modelling realistic inhalation in large-scale lung airway
Bela Soni and Shahrouz Aliabadi

24/07/2014 16:30 - 18:30
Computational Modeling of Multiphysics/Multiscale Coupled processes in Biological and Nanotechnological Systems I
Minisymposium organized by Giovanna Guidoboni, Roderick Melnik and Riccardo Sacco

MS132A
Room: Sala de prensa I
Chair: Riccardo Sacco
CoChair: Giovanna Guidoboni

Deterministic and stochastic multiscale problems arising from nanoscale sensors (Keynote Lecture)
Clemens Heitzinger

Domain decomposition for heterojunction problems in semiconductors
Timothy Costa, David Foster and Malgorzata Peszynska

Linear operators for the analysis of nonlinear systems
Artur Sowa

Modeling photoelectron spectroscopy with time-dependent density-functional theory
Umberto De Giovannini and Angel Rubio

PDE description of electron transport in a superlattice under an external magnetic field
Andrés Segura, Manuel Carretero and Luis L. Bonilla

Using the stochastic Poisson-Boltzmann equation to quantify noise in nanowire bio- and gas sensors
Amirreza Khodadadian and Clemens Heitzinger

24/07/2014 16:30 - 18:30

Computational Modeling of Turbulent and Complex Flows with Applications II
Minisymposium organized by Victor Calo, Volker Gravemeier, Kenneth Jansen and Javier Principe

MS109B
Room: Sala de prensa II
Chair: Javier Principe

On the implications of Germano's condition in the design of finite element models for turbulent flows
Ramon Codina and Oriol Guasch

Variational multiscale large eddy simulation and anisotropic mesh adaptation for transient and turbulent flows
Elie Hachem, Laure Billon and Thierry Coupez

Adaptive finite element methods for turbulent flows
Aurélien Larcher, Bärbel Janssen and Johan Hoffman

Viscous and turbulent modelling in a new Cartesian explicit solver for hydrodynamic applications
Pierre Bigay, Guillaume Oger, Pierre Michel Guilcher and David Le Touzé

Recent progresses on VMS for turbulence: Particle laden flows and eddy viscosities
Gabriel M. Guerra, Souleimane Zio, Erb F. Lins, Renato N. Elias, Fernando Rochinha and Alvaro L.G.A. Coutinho

Wavelet-based computational modeling of wall-bounded turbulent flows with Lagrangian variable thresholding
Giuliano De Stefano, Alireza Nejadmalayeri and Oleg V. Vasilyev

24/07/2014 16:30 - 18:30
Non-deterministic Simulations in CFD I
Minisymposium organized by Chris Lacor, Jeroen Witteveen and Hester Bijl

MS173A
Room: Sala de Reservas
Chair: Jeroen Witteveen
CoChair: Dinesh Kumar

Non-deterministic aerodynamic simulations with random inputs (Keynote Lecture)
Andrea Resmini, Didier Lucor, Eric Savin and Jacques Peter

A fully-nested interpolatory quadrature for uncertainty quantification
Jacques Peter

Parametric and model uncertainty propagation in catalytic partial oxidation
Jorge E. P. Navalho, José M.C. Pereira and José C.F. Pereira

Reliability-based optimization applying Polynomial Chaos Expansion
Alberto Clarich, Mariapia Marchi and Rosario Russo

Bayesian data assimilation for Navier-Stokes with the least-squares finite-element method
Richard P. Dwight and Alexander Schwarz

Towards an efficient non-intrusive polynomial chaos approach for high dimensional stochastic problems using a reduced basis approach
Dinesh Kumar, Mehrdad Raisee and Chris Lacor

Non-deterministic simulations with CFD robustness properties
Jeroen A.S. Witteveen and Gianluca Iaccarino

Congress Banquet

POSTER SESSIONS

21/07/2014 16:00 - 18:30
Poster Session ECCM

PSECCM
Room: Hall
Chair: to be confirmed

Life prediction of large bearings using accelerated life test coupled with analysis
Na Ra Lee, Yongbin Lim and Naksoo Kim

A couple stress theory for the analysis of plates with a RBF-FD meshless method
Carla M.C. Roque and António J.M. Ferreira

A FEM-DEM coupled and evolved formulation for analysis of multifracture in solids
Chun Feng, Eugenio Oñate and Shihai Li

B-Spline and reproducing polynomial particle shape functions for linear and nonlinear elasticity problems
Yanan Liu, Yinghua Liu and Liang Sun

A motion planning scheme for robotic in-hand object manipulation
Hyunhwan Jeong, Joono Cheong and Wheekuk Kim

A model of the tongue movement during swallowing
Yukihiro Michiwaki, Takahiro Kikuchi, Seiichi Koshizuka, Tetsu Kamiya, Yoshio Toyama, Takashi Osada, Nobuko Jinno and Keigo Hanyu

A new fem homogenization of periodic material based on an extended Rosette gage theory
Luis Pérez Pozo, Marek Kolendo , Sergio Oller , Sheila Lascano and Claudio Aguilar

A Numerical Approach to Evaluate the Seismic Performance of Water Supply Systems Based on Demand and Capacity in the Damaged Network
Mahmood Hosseini, Aram Soroushian and Abdolreza Astaraki

A numerical framework to model the mechanical behavior of bioresorbable polymeric braided wire stents
Mathias P. Peirlinck, Nic Debusschere, Matthieu De Beule, Peter Dubruel, Patrick Segers and Benedict Verhegghe

A relation between calculation error and modelling resolution of DEM
Shuji Moriguchi, Ikko Tachibana, Kenjiro Terada, Shinsuke Takase, Takashi Kyoya and Jyunji Kato

A water state study in the wood structure of four hardwoods below fiber saturation point by NMR technique
Leandro Passarini, Cedric Malveau and Roger Hernandez

Adaptive surrogate-based multi-criteria optimization
Alexis I. Pospelov, Fedor V. Gubarev and Alexey M. Nazarenko

An explicit algorithm for the nonlinear dynamics of spatial beam
Chu Chang Huang, Tsung Chi Lin, Kuo Mo Hsiao and Fumio Fujii

Analysis of offshore structures for wind turbines and oil&gas using xsea software
Ki-Du Kim, Pasin Plodpradit, Anaphat Manovachirasan, Chana Sinsabvarodom and Bum-Joon Kim

Analysis of thick-walled pipeline elements operating in creep conditions
Przemysław Osocha and Bohdan Węglowski

Analysis on a 2-DOF type asymmetric parallel mechanism
Sungmok Kim, Joono Cheong, Kyoosik Shin, Byung-Ju Yi and Wheekuk Kim

Anisotropic growth of thin shells with subdivision elements
Roman Vetter, Norbert Stoop, Falk K. Wittel, Hans J. Herrmann and Gautam Munglani

Application of fracture mechanics to assess the concrete damage due to cyclic freezing and thawing
Marta Kosior-Kazberuk

Comparison of muscular movement following blood alcohol concentrations using low speed rear impact tests and dynamic simulation
Dong Hyun Kim, Young Jin Jung, Dohyung Lim and Han Sung Kim

Computational and experimental investigation of the all fracture mode specimens on mixed mode I/III and II/III fracture
Shi-fan Zhu, Yang Cao, Qing-fen Li and Li Zhu

Computational design of a pressure container manufactured by fiberglass sheets to industrial applications
Gustavo Suárez , Luis Javier Cruz and Sergio Oller

Computational study of the effect of hydrostatic pressure on plastic deformation of metallic glass
Jacob Carlsson, Masato Wakeda and Shigenobu Ogata

Continuum-discontinuum particle method
Dong Zhou and Shihai Li

CUFESAP: A CUDA based finite element code for elastic structural analysis on GPUs
Jianfei Zhang and Defei Shen

Description model of cross-section of fibre bundle shape in prepreg composite
Pavla Tesinova

Design of smart structures with shape-reserved actuators
Yiqiang Wang and Zhan Kang

Determination of forming limit diagram using finite element method
Katarzyna Dyja and Janina Adamus

Development of an automated framework for high intensity focused ultrasound simulations
Mun-Bo Shim, Mun-Sung Kim and Sung-Jin Kim

Development of cosmetic orthodontic bracket and bracket cover
Yasukazu Nishi, Yoshiki Ishiwata, Akira Nakajima, Kazuyoshi Hoshino, Mamoru Murata and Noriyoshi Shimizu

Effective thermal conductivity in anisotropic materials using boundary element methods
Miélle Silva Pestana, Carla Tatiana Mota Anflor and Jhon N.V. Goulart

Emulating drilling degrees of freedom in the rotation-free Bézier-Enhanced Shell Triangle (BEST) finite element
Pere-Andreu Ubach, Eugenio Oñate and Julio García-Espinosa

Fatigue life analysis of an upgraded diesel engine crankshaft
Jalal Fathi Sola and Farhad Alinejad

FE modelling of frictional heating in a disc brake at temperature-dependent coefficient of friction
Piotr Grzes

Finite element analysis of AZ31B magnesium alloy double butted tube forming process
Soo Sik Han

Finite element analysis of the quasi-static thermal stresses in a pad-disc brake system
Adam Adamowicz

Finite element study of healthy, pathological and surgical lumbar spine biomechanics.
Andrea Calvo-Echenique, Jose Cegoñino, Luciano Bances and Amaya Pérez del Palomar

Finite element supporting thermoelectric effects in FGM materials
Juraj Paulech, Juraj Hrabovsky, Vladimir Kutis and Justin Murin

Formability of ZK60A magnesium alloy
Ki Ho Jung, Yong Bae Kim, Yu Hyun Kim, Sangmok Lee, Eung Zu Kim, Du Soon Choi and Geun-An Lee

GPU high performance explicit solution for kinematics and dynamics simulation of crank-connecting rod-piston mechanism
Zhaosong Ma, Dong Zhou and Zhigang Li

High order finite element method on the IBM power systems high performance computing applied on structural mechanics
Gilberto L. Valente, Marco L. Bittencourt and Edson Borin

Influece of material atomistic model on MD simulation
Anna Kucaba-Pietal and Janusz Bytnar

Influence of shape of particle size distribution on mechanics of uniaxially compressed granular packings
Joanna Wiącek and Marek Molenda

Mainshock – aftershock interaction diagram for a 3D plan-asymmetric structure
Andre F. Belejo and Andre R. Barbosa

Mechanical behavior of carbon nanotubes encapsulating copper atoms
Lei Wang, Zhongqiang Zhang and Yonggang Zheng

Mechanical properties of realistic materials: From quantum calculations to plastic flow
Svetlana A. Barannikova, Albina M. Zharmukhambetova, Anton Yu. Nikonov, Andrey I. Dmitriev, Alena V. Ponomareva and Igor A. Abrikosov

Micromechanism-based elasto-viscoplasticity constitutive modeling for engineering intermetallics
Yoon Suk Choi, Kyung-Mox Cho, Dae-Geun Nam and Dennis Dimiduk

Modelling dynamic behaviour of orthotropic metals
Nenad Djordjevic, Rade Vignjevic, Lewis Kiely, James Campbell and Simon Case

Natural frequencies of a simply supported horizontal rectangular tank partially filled with a liquid
Kyeong–Hoon Jeong, Jong–Wook Kim and Jong-In Kim

Nonlinear isogeometrical approach to stress recovery
Pejman Azarsa, Behrooz Hassani and Ahmad Ganjali

Numerical and experimental study by BEM and thermal Images for predicting the effective thermal conductivity
Matheus B. A. M. Oberg, Carla T. M. Anflor and Jhon N.V. Goulart

Numerical simulation for temperature and stress distribution in laser forming process of AHSS
Jung Han Song, Geun-An Lee, Sangmok Lee and Sung Jun Park

Numerical simulation of rock fragmentation process induced by indenter
Shouju Li, Lijuan Cao and Zichang Shangguan

Numerical simulation of the energy storage rate in metals under quasistatic loading

Oleg A. Plekhov and Anastasiia A. Kostina

Numerical study of a thermo-acoustically encapsulation

Fabian Duvigneau and Ulrich Gabbert

Numerical study of actuatot performance of piezoelectric ink-jet print head

Pham Van So, Hyeonwoo Jeon and Jaichan Lee

Quantitative estimation of exercise effect using numerical simulation and multi-sensory system on human leg

Yoshiki Nagatani and Takashi Saeki

Reducing the number of runs in experimental research using smart designs of experiment

Andrzej Skowronek

Scattering of semi-cylindrical gap and multiple shallow-buried cavities and inclusions by SH-wave

Hongliang Li

Seismic performance analysis of the hall-column system of a temple structure

Zhi Zhou and Jiang Qian

Simulating soil-building interaction with a FEM/BEM approach

Dimas B. Ribeiro and João B. Paiva

Simulation of implanted aortic stents

Raoul Hopf, Michael Gessat, Volkmar Falk and Edoardo Mazza

Soil-foundation-structure interaction by an explicit time integration method

Jin-Sun Lee, Dong-Soo Kim, Jeon-Gon Ha and Seong-Bae Jo

Stiffener Layout Optimization of Thin-Walled Stiffened Plates

Lianchun Long and Yang Li

Stress concentration near sharp and rounded V-shaped notches in two-dimensional bodies

Andrzej Kazberuk and Mykhaylo P. Savruk

Application of the strong discontinuity method to ductile failure with damage

Jérémie Bude Bude, Delphine Brancherie and Jean-Marc Roelandt

Structural design of metallic waveguide device in the microwave range using topological design process

Hyundo Shin and Junghoon Yoo

Structural health monitoring of stay cables by the Scruton number

Joseph Lardiès

Studies of bimaterial interface fracture with peridynamics

Fang Wang, Lisheng Liu, Qiwen Liu, Dongfeng Cao and Shuyong Yang

Surgical treatment of shoulder injuries by the Weaver Dunn technique

Gabriela L. Menegaz, Sonia A.G. Oliveira, Cleudmar A. Araújo and Leandro C. Gomide

The correlation between complicated lateral resisting system of the Shanghai tower

Wei Huang and Jiang Qian

The effect of damage on the biomechanical behavior of the pelvic floor

Dulce A. Oliveira, Marco Parente and Renato M. Natal Jorge

The Poynting type effect and non-homogeneous radial deformation in the problem of torsion of hyperelastic circular cylinder

Igor A. Brigadnov

The relationship between the fast wave and the fabric tensor
Young June Yoon

Thermomechanical modelling of PCM in heat storage applications
Francisco Montero-Chacón and Michele Chiumenti

Toward a polycrystal modeling of martensitic phase transformation based on the mechanism of Magee
Abdeladhim Tahimi, Fabrice Barbe, Lakhdar Taleb and Tatiana B. Fraga

Two level FETI method for transient problems

Marta Jarosova, Tomas Brzobohaty and Alexandros Markopoulos

21/07/2014 16:00 - 18:30
Poster Session ECFD

PSECFD
Room: Hall
Chair: to be confirmed

A CFD solver on graphical processing unites for turbulence simulations

Wenbin Cao, Hua Li, Zhengyu Tian and Sha Pan

A comparison between Monte Carlo and polynomial chaos expansion techniques in reservoirs simulations
Karen Guevara, João Zanni and Marco Aurélio Pacheco

A high order compact scheme for hypersonic internal flow with turbulence models
Hua Li, Wen-Long Wang, Wen-Jia Xie and Jian-Qi Lai

A multi-level computational model to characterize the hepatic circulation in human cirrhosis
Geert Peeters, Charlotte Debbaut, Pieter Cornillie, Elin Pauwels, Diethard Monbaliu, Wim Laleman and Patrick Segers

A Numerical investigation of scramjet engine air intakes for the 14-X hypersonic vehicle

Augusto F. Moura and Maurício A. P. Rosa

A Shape Analysis of Ultrasonically Levitated Droplet with Moving Particle Semi-implicit and Distributed Point Source Method

Yuji Wada, Kohei Yuge, Ryohei Nakamura, Hiroki Tanaka and Kentaro Nakamura

Adaptive Galerkin Method with relevant basis functions for PDES with boundary conditions

Bing Li, Luofeng Han and Shuanglu Quan

Advances of continuous-discontinuous numerical method based on Lagrange equation
Shihai Li, Chun Feng, Dong Zhou and Wenjie Duan

An Immersed Smoothed Finite Element Method for analyzing fluid-structure interaction systems consisting of dielectric elastomers
Zhi-Qian Zhang, Choon Chiang Foo and Gui Rong Liu

Application of EARSM turbulence model to simulation of reacting flow field in jets engines combustion chamber

Vojtech Betak, Jan Kubata and Jan Tuma

Comparison of implicit LU-SGS schemes for hypersonic flows
Zhengyu Tian, Wenbin Cao, Jinzhi Fan and Ran Zhang

Development of explicit unstructured mesh-based CFD solver for low-mach number flows using graphics processor units
Anton Karpenko, Vladislav Emelyanov and Konstantin Volkov

Effect of Reynolds number on pressure losses in axisymmetric sudden expansions with chamfer
Youngmin Bae, Young I. Kim, Keung K. Kim and Juhyeon Yoon

Evaluation of an immersed boundary method for solving the fluid structure interaction problem in refrigeration compressor valves
José L. Gasche and Franco Barbi

Flow recirculation in VHC designs
Ricardo F. Oliveira, Senhorinha F. Teixeira, Helena Cabral-Marques and José C. Teixeira

Investigation of Hydrodynamic Processes in Geothermal Plant
Marijonas Bogdevičius, Jolanta Janutėnienė, Saulius Razmas, Mindaugas Drakšas, Rimantas Didžiokas and Vadim Nikitin

Mechanism of modulation of the chemical activity of metal nanoparticles through organic charge-transfer molecules
Eunae Kim and Min Sun Yeom

Mixing of two-phase flow in rotating microchannels with a circular chamber
Jerry M. Chen and Huan-Choa Chiu

Modelling of interaction between suspension and structure in a tumbling mill
Simon Larsson, Samuel Hammarberg and Pär Jonsén

Modified dynamic observers based on green functions method to solve a 3D transient IHCP
Priscila F.B. Souza, Fernando Malheiros, Márcio B. da Silva and Gilmar Guimarães

Multiphase flow modelling of explosive volcanic eruptions using an adaptive unstructured mesh-based approach
Christian T. Jacobs, Gareth S. Collins, Matthew D. Piggott and Stephan C. Kramer

Multiscale modeling of solid-liquid interface ordering and its effect on the growth kinetics of metallic alloys
Mohammed Guerdane

Non-conforming mimetic and virtual element discretization for polyhedral meshes
Gianmarco Manzini, Blanca Ayuso de Dios and Konstantin Lipnikov

Numerical predictions of viscoelastic flows with an algebraic extra-stress model
Daiane Iglesia Dolci, Gilcilene Sanchez de Paulo and Gilmar Mompean

Numerical Simulation of Incompressible Flow around Aerofoil Vibrating with Two Degrees of Freedom
Petr Furmanek and Karel Kozel

Numerical study of the cooling air flow in a hydro generator with various ventilation schemes
Stephan Klomberg, Ernst Famleitner, Gebhard Kastner and Oszkár Bíró

Porous medium modeling for air flow through forest-comparison with wind tunnel data
Zeinab Ahmadi Zeleti, Sandrine Aubrun and Jari Hämäläinen

Simulation of separation processes incorporating magnetic nanoparticle recovery in continuous microfluidic

systems
Jenifer Gómez-Pastora, Eugenio Bringas, Gustavo A. Esteban, Jesús M. Blanco and Inmaculada Ortiz

Simulations of a single turbulent vortex ring using a regularized particle-mesh based vortex method
Mads M. Hejlesen and Jens H. Walther

Sphere in Poiseuille: Static, free rotation and free fall
Anthony Ponce , Yannick Hoarau and Yan Dušek

Submesoescale processes in upper ocean fronts: a numerical study using a Reynolds Stress Turbulence Model
Pablo Cornejo and Andrés Sepúlveda

The free-stream turbulence effect on the laminar-turbulent transition in the swept wing boundary layer
Sergey L. Chernyshev, Alexander I. Ivanov, Andrey Ph. Kiselev, Vladimir A. Kuzminsky and Dmitry S. Sboev

The initial-boundary Riemann problem for the solution of the compressible gas flow
Martin Kyncl and Jaroslav Pelant

System for reconsting images of internal defects by inverse problem solving
Yoshihiro Nishimura, Katsumi Fukuda, Takayuki Suzuki and Masatoshi Fukuta

Prediction of pulsatile 3D flow in elastic tubes using star CCM+ Code
Didier P. de Andrade, José M.C. Pereira and José C.F. Pereira

Ultrasonic image reconstruction of internal defects derived by EMAT using truncated singular value decomposition
Yoshihiro Nishimura, Takayuki Suzuki, Katsumi Fukuda, Masatoshi Fukuta and Eiki Ikeda

Wake equilibrium parameters on a symmetric airfoil simulations
Gorka Zamorano , Unai Fernández and Ekaitz Zulueta

An XFEM based sharp interface approach for two-phase and free-surface flows
Henning Sauerland

Friday, July 25th

09:00 - 11:00
TECHNICAL SESSIONS

25/07/2014 09:00 - 11:00
Computational Multiscale Methods for Tissue Biomechanics III
Minisymposium organized by Michele Marino, Ginu U. Unnikrishnan and Giuseppe Vairo

MS127C
Room: Mare Nostrum A
Chair: Giuseppe Vairo
CoChair: Dimitrije Stamenovic

Mechano-regulation of bone remodeling and the topology of osteocyte networks (Keynote Lecture)
Felix Repp, Philip Kollmannsberger, Andreas Roschger, Paul Roschger, Wolfgang Wagermaier, Peter Fratzl and Richard Weinkamer

MicroCT-based fracture risk assessment in ceramic bone tissue engineering constructs: intravoxel

micromechanics for large-scale FE simulations
Alexander Dejaco, Christian Hellmich, Vladimir Komlev, Jakub Jaroszewicz and Wojciech Swieszkowski

Proximal femur biomechanics in daily activities: A two-scale computational study
Fulvia Taddei, Ilaria Palmadori, Markus O. Heller, William R. Taylor and Enrico Schileo

Identification of mechanical properties of tin basing on experimental and numerical nanoindentation test and < i>in situ SEM microtension test
Magdalena Kopernik and Andrzej Milenin

Tissue/material properties of enzymatically-degenerated articular cartilage evaluated by using viscoelastic model considering depth-dependent microstructure
Takako Osawa, Takeshi Matsumoto, Hisashi Naito and Masao Tanaka

25/07/2014 09:00 - 11:00
Recent Advances in Meshfree and Particle Methods III
Minisymposium organized by Seiichi Koshizuka, Seiya Hagihara and Yuzuru Sakai

MS036C
Room: Mare Nostrum B
Chair: Masakazu Ichimiya

Lung deformation simulation based on medical images and motion models of diaphragm and ribs using the MPS method
Takayuki Okura, Kazuya Shibata, Seiichi Koshizuka, Akihiro Nomoto, Akihiro Haga and Keiichi Nakagawa

Increase of vortex resolution in computational fluid mechanics by a combination of grid- and particle- based methods
Nikolai Kornev and Irina Cherunova

Drag resistance over a 2D square using the MPS method
Carlos A. Perez-Gutierrez and Manuel J. Garcia

A new derivation of pressure poisson equation in moving particle semi-implicit method
Motofumi Hattori, Youhei Seta, Kazuya Shibata and Seiichi Koshizuka

Fundamental study on least squares moving Particle Semi-implicit Method
Tasuku Tamai, Kazuya Shibata and Seiichi Koshizuka

25/07/2014 09:00 - 11:00
Discontinuous Galerkin Methods: New Trends and Applications VI
Minisymposium organized by Bernardo Cockburn, Sonia Fernandez-Mendez, Nicoletta Franchina, Ngoc-Cuong Nguyen, Jaime Peraire and Per-Olof Persson

MS139F
Room: Mare Nostrum C
Chair: Per-Olof Persson

Multiscale Galerkin Methods for the efficient numerical simulation of wave propagation in heterogeneous materials with repeated patterns
Joel Saa-Seoane, Ngoc-Cuong Nguyen and Jaime Peraire

Computation of electromagnetic cavity modes using the Discontinuous Galerkin Time-Domain method
Rubén Sevilla, Mark Dawson, Oubay Hassan and Kenneth Morgan

Dispersive properties of DPG methods for acoustics
Jay Gopalakrishnan, Ignacio Muga and Nicole Olivares

Large-scale optimization for non-invasive testing with Discontinuous Galerkin methods
Curtis C. Ober, Thomas M. Smith, Bart G. van Bloemen Waanders and S. Scott Collis

Subsonic slanted cavity combustor simulation with a Discontinuous Spectral Element Method
Zia Ghiasi and Farzad Mashayek

Discontinuous Galerkin Method for inherent coupling of radiation transport and hydrodynamics
Milan Holec, Richard Liska, Jiri Limpouch and Stefan Weber

25/07/2014 09:00 - 11:00
Computational Methods for Artificial Organ Development I
Minisymposium organized by Simon J. Sonntag, Tim A.S. Kaufmann and Ulrich Steinseifer

MS052A
Room: Mare Nostrum D
Chair: Simon Sonntag
CoChair: Tim Kaufmann

A Model approach to understand blood clotting dynamics
Jevgenija Pavlova, Antonio Fasano, Joao Janela and Adelia Sequeira

Two different methods for determination of blood flow stagnation regions in the PAVD - comparative studies
Damian Obidowski, Piotr Reorowicz, Przemyslaw Klosinski and Krzysztof Jozwik

Integrating in vitro experiments, animal studies, and computational simulations to predict thrombus formation in ventricular assist devices
Keefe B. Manning, Stephen R. Topper, Steven Deutsch, Christopher A. Siedlecki, Eric G. Paterson and Gerson Rosenberg

Towards the use of large-eddy simulations for the prediction of the blood flow in artificial organs
Simon Mendez, Christophe Chnafa and Franck Nicoud

Particle image velocimetry for validation of aneurysm blood flow simulations – comparison of planar and stereo technique
Christoph Roloff, Philipp Berg, Gabor Janiga and Dominique Thévenin

Validation of a numerical approach to simulate color Doppler imaging of mitral regurgitation jets
Simon J. Sonntag, Wei Li, Michael Becker, Wiebke Kaestner, Martin R. Büsen, Nikolaus Marx, Dorit Merhof and Ulrich Steinseifer

25/07/2014 09:00 - 11:00
Direct Methods and Constitutive Modeling for Plastic Design by Analysis III
Minisymposium organized by Manfred Staat, Dieter Weichert, Andrei Lyamin and Jose J. Muñoz

MS243C
Room: Mare Nostrum E
Chair: Manfred Staat
CoChair: Andrei Lyamin

Shakedown analysis of offshore structures under impact load
Guo Jun, Wang Jun and Yang Di

A multicriteria method for truss optimization
Tran Ngoc Trinh , Manfred Staat and Georgios E. Stavroulakis

Shakedown analysis of structures under thermomechanical loading based on the RSDM
Konstantinos D. Panagiotou and Konstantinos V. Spiliopoulos

Shakedown analysis of 3D frames with an effective treatment of the load combinations
Antonio Bilotta, Leonardo Leonetti and Giovanni Garcea

Limit analysis of 3D frames with nonlinear hardening behavior and combined interaction
Marina-Myrto S. Manola and Vlasis K. Koumousis

Computational Mechanics of Cells, Tissues, and Biomaterials III
Minisymposium organized by Amir A. Zadpoor, Fred Vermolen, Liesbet Geris, Hanna Isaksson and Pasquale Vena

Room: Mare Nostrum F
Chair: Amir A. Zadpoor
CoChair: Pasquale Vena

Estimation of cartilage properties using indentation tests, finite element models, and artificial neural networks
Vahid Arbabi, Gianni Campoli, Harrie Weinans and Amir A. Zadpoor

Evaluation of a computational model for drug action on cardiac tissue
Ralf Frotscher, Jan-Peter Koch, Hans-Jürgen Raatschen and Manfred Staat

Presentation of results of moving grid finite-element analyses on a plastic mechanochemical continuum model for dermal wound healing
Daniël C. Koppenol and Fred J. Vermolen

Forming of Janus particles by surface adsorption of biomolecules
Donghai Gai, Li Huey Tan, Banglin Liu, Suling Zhang, Yi Lu and K. Jimmy Hsia

Numerical analysis of transient streaming potential in bone
Hunhee Kim and Junghwa Hong

25/07/2014 09:00 - 11:00
Computational Biomechanics of Injury and Trauma II
Minisymposium organized by Siddiq M. Qidwai, Ciaran Simms and Svein Kleiven

MS131B
Room: Llevant
Chair: X.G. Tan
CoChair: Siddiq Qidwai

Computational modelling of human head injuries
Svein Kleiven

Challenges in validating human head model
Nithyanand Kota, Alan Leung, Amit Bagchi and Siddiq M. Qidwai

Influence of brain anisotropy on prediction of traumatic injuries
Chiara Giordano and Svein Kleiven

Finite element simulation of bridging vein rupture
Zhao Ying Cui, Nele Famaey, Bart Depreitere, Jos Vander Sloten and Svein Kleiven

Factors effecting loading at the elbow in tennis
Mark A. King, Behzat B. Kentel and Sean R. Mitchell

Influence of neck muscle tone on brain tissue strain during pedestrian impacts
Victor Alvarez, Peter Halldin and Svein Kleiven

25/07/2014 09:00 - 11:00
Simulation and Experiments of Complex Physiology Flows I
Minisymposium organized by Alberto M. Gambaruto, Rui Lima, Alexandra Moura and Mónica S. N. Oliveira

MS241A
Room: Mestral
Chair: Alberto Gambaruto

Flow dynamics of inspiration
Alister Bates, Raul Cetto, Denis Doorly and Alberto M. Gambaruto

Investigation of micro-circulation for red blood cell deformability
Alberto M. Gambaruto, David Bento, Raquel O. Rodrigues, Diana Pinho, João Miranda and Rui Lima

Rheological analysis of capsule suspensions containing different size capsules
Hiroki Ito, Yohsuke Imai, Daiki Matsunaga, Toshihiro Omori, Takami Yamaguchi and Takuji Ishikawa

Motion of rigid particles flowing in a microfluidic device with a pronounced stenosis: Trajectories and deformation index
Diana Pinho, Raquel O. Rodrigues, Tomoko Yaginuma, Vera Faustino, David Bento, Carla S. Fernandes, Valdemar Garcia, Ana I. Pereira and Rui Lima

A method for the assessment of the multidirectional nature of disturbed flow in realistic computatonal hemodynamics arterial models
Umberto Morbiducci, Diego Gallo, Monica G. Calmet, Raffaele Ponzini, Giovanna Rizzo and David A. Steinman

A numerical method for simulating gastric flow
Taimei Miyagawa, Yohsuke Imai, Takami Yamaguchi and Takuji Ishikawa

25/07/2014 09:00 - 11:00
Bio, Nano and Micro Mechanics and Materials III
Minisymposium organized by Zhen Chen, H. Eliot Fang, Luming Shen, Hongwu Zhang and Zhuo Zhuang

MS021C
Room: Terral
Chair: Teng Li
CoChair: Zhen Chen

Multi-Scale Modeling of Cementitious Materials (Keynote Lecture)
Ram Mohan, Arunachalam Rajendran and Wayne Hodo

Investigation of single arm source controlled plastic flow in FCC micropillar by discrete dislocation dynamic and theoretical analysis
Yinan Cui, Peng Lin, Zhanli Liu and Zhuo Zhuang

Predicting the mechanical properties of DNA-based nanostructures
Youngjoo Kim and Do-Nyun Kim

The role of GNDs in Bauschinger effect of thin films
Peng Lin, Zhanli Liu and Zhuo Zhuang

Rupture mechanism for thin shells based on ultrasound activation for subcutaneous controlled drug delivery systems
Sebastián M. Curi, David Veysset, Roni Cantor Balan, Steven E. Kooi, Keith A. Nelson, Noel M. Elman and Sebastián D'hers

Normal mode based description of HET-s prion fibrils conformational change via pH variation
Jae In Kim, Hyunsung Choi, Hyunjoon Chang, Gwonchan Yoon and Sungsoo Na

25/07/2014 09:00 - 11:00
Godunov Techniques and Slope Limiters in Lagrangian and Ale Hydrodynamics I
Minisymposium organized by Gabi Luttwak

MS068A
Room: Tramuntana 1
Chair: Gabi Luttwak

A shock aligned cell centered Godunov scheme for Eulerian hydrodynamics
Gabi Luttwak and Joseph Falcovitz

Frame invariant and entropic second order cell-centered ALE schemes
Philippe Hoch and Emmanuel Labourasse

A flux corrected remap of vector fields of vector fields for ALE hydrodynamics with nodal elements
Xianyi Zeng and Guglielmo Scovazzi

Jan Velechovsky and Richard Liska

25/07/2014 09:00 - 11:00
Enriched Finite Element Formulations to Capture Cracks, Material Interfaces and Multiscale Phenomena I
Minisymposium organized by Bert Sluys, Jorge Alfaiate and Daniel Dias-da-Costa

MS213A
Room: Xaloc
Chair: Jorge Alfaiate

A numerical study on the behaviour of a glass beam strengthened with GFRP pultruded laminates
Pedro Neto, Jorge Alfaiate, Rui Graça-e-Costa, Daniel Dias-da-Costa , Luís Valarinho, João R. Correia , Fernando A. Branco and João Vinagre

A discrete embedded strong discontinuity approach for the simulation of three-dimensional fracture problems
Carlos Octávio, Daniel Dias-da-Costa, Jorge Alfaiate, C. Armando Duarte and Eduardo Júlio

Study on effect of three dimensional Akin singular element for stress analysis of dissimilar material joints
Takahiko Kurahashi, Yutaro Watanabe, Toshimi Kondo and Hideo Koguchi

Crack modelling by hybrid-Trefftz stress finite elements
Maria J.Q.R. Duarte and João A.T. Freitas

Transition from distributed to localized cracking in quasibrittle materials
Jaime Planas, José M. Sancho, Beatriz Sanz and Alejandro Aranguren

25/07/2014 09:00 - 11:00
Isogeometric and High-order Boundary Element Methods II
Minisymposium organized by Jon Trevelyan, Robert Simpson, Michael Scott, Tom Hughes and Lucy Weggler

MS137B
Room: Salon Club
Chair: Jon Trevelyan

A posteriori error estimation for adaptive IGA Boundary Element Methods
Michael Feischl, Gregor Gantner and Dirk Praetorius

Isogeometric collocation boundary element methods
Matthias Taus, Gregory J. Rodin and Thomas J.R. Hughes

The eXtended Isogeometric Boundary Element Method (XIBEM): an enriched collocation BEM for wave scattering analysis
Michael J. Peake, Jon Trevelyan and Graham Coates

Isogeometric boundary element method with hierarchical matrices
Juergen Zechner, Benjamin Marussig, Gernot Beer, Christian Duenser and Thomas-Peter Fries

Isogeometric analysis and higher order BEM for nonlinear nonsmooth boundary value problems from contact mechanics
Joachim Gwinner

25/07/2014 09:00 - 11:00
Computational Continuum Mechanics with OpenFOAMTM II
Minisymposium organized by Gavin Tabor and Gianluca Montenegro

MS162B
Room: Yasmin A
Chair: Gavin Tabor

CFD modelling of a Beta-type stirling machine

Augusto Della Torre, Andrea Guzzetti, Gianluca Montenegro, Tarcisio Cerri, Angelo Onorati and Fethi Aloui

Open water computations of a marine propeller using OpenFOAM

Tuomas Turunen, Timo Siikonen, Johan Lundberg and Rickard Bensow

Tidal Turbine Modelling with OpenFOAM - Towards a Tidal Array
Gavin Tabor, Matthew Berry, Mulualem Gebreslassie and Michael Belmont

Modelling effects of freestream turbulence on dynamic stall of a pitching airfoil
Zheng-Tong Xie and Yusik Kim

Internal twist drill coolant channel modelling using computational fluid dynamics
Adam Johns, Robert W. Hewson, Eleanor Merson, Jonathan Summers and Harvey Thompson

A conservative level set method for interface capturing in two-phase flows
Vuko Vukcevic and Hrvoje Jasak

25/07/2014 09:00 - 11:00
Structure-preserving and Polyhedral Discretizations III
Structure-Preserving Methods for Fluids Session
Minisymposium organized by Lourenco Beirao da Veiga, Annalisa Buffa, Alexandre Ern, John A. Evans, Marc Gerritsma, Gianmarco Manzini and Giancarlo Sangalli

MS204C
Room: Yasmin B
Chair: Marc Gerritsma

Structure-preserving discretization of continuum theories
Dmitry Pavlov

A compatible discretization approach for the incompressible Euler equations
Andrea Natale and Marc Gerritsma

A vorticity, enstrophy, mass and energy conserving discretization for incompressible Euler equations
Pedro Pinto Rebelo, Artur Palha and Marc Gerritsma

Structure-preserving formulation of a convected Maxwell fluid
Kennet Olesen, Bo Gervang and Marc Gerritsma

Structure-preserving isogeometric discretizations for incompressible magnetohydrodynamics
John A. Evans

A finite element exterior calculus framework for the rotating shallow water equations
Colin Cotter, John Thuburn, Jemma Shipton and Andrew T.T. McRae

25/07/2014 09:00 - 11:00
Algorithmic Aspects of High-performance Computing for Mechanics and Physics IV
Minisymposium organized by Santiago Badia, Victor Calo and Javier Principe

MS172D
Room: Yasmin C
Chair: Javier Principe

Parallel adaptive-multilevel BDDC
Jakub Šístek, Bedřich Sousedík and Jan Mandel

A highly scalable implementation of balancing domain decomposition by constraints
Javier Principe, Santiago Badia and Alberto F. Martín

Comparing parallel technologies based on *GPU* and *CPU* in numerically solving single phase flow problems

Hyperbolic kinetic consistent 3D MHD for high performance parallel computing
Boris Chetverushkin, Nicola D'Ascenzo and Valeri Saveliev

Program complex for low compressible flows simulation on GPU-based computer systems
Alexander A. Davydov and Evgeny V. Shilnikov

25/07/2014 09:00 - 11:00
Nonsmooth Dynamics and Vibrations
Minisymposium organized by Mathias Legrand and Vincent Acary

MS154A
Room: Sala A
Chair: Mathias Legrand

A comparison between different approaches to model multibody systems with contact
Mohammad Jalali Mashayekhi and József Kovecses

A Nitsche finite element method for dynamic contact
Franz Chouly, Patrick Hild and Yves Renard

Nonlinear modes for a discrete mechanical system with rigid contact
Sokly Heng, Stéphane Junca and Mathias Legrand

A discrete variational approach to non-smooth dynamics and optimal control
Sigrid Leyendecker, Michael W. Koch, Maik Ringkamp and Sina Ober-Blöbaum

Periodic motions of coupled impact oscillators
Vincent Acary, Guillaume James and Franck Pérignon

Timestepping schemes based on Discontinuous Galerkin methods
Thorsten Schindler

25/07/2014 09:00 - 11:00
Advanced Approaches for Shape Optimization II
Minisymposium organized by Fabian Duddeck, Kai-Uwe Bletzinger and Jens-Dominik Müller

MS020B
Room: Sala B1
Chair: Fabian Duddeck

Aerofoil inviscid drag minimization by constrained global optimization
Daniel J. Poole, Christian B. Allen and Thomas C. S. Rendall

Implementation and numerical stabilisation of adjoint flow and turbulence model in OpenFOAM
Hrvoje Jasak, Mirza Popovac and Henrik Rusche

Transition-oriented shape optimization for laminar flows
Christophe Hennekinne and Matthew P. Juniper

Implementation of the SI1QP method, and its application to optimization of a cascade airfoil shape
Yasuyoshi Horibata

Adjoint optimization of a coolant pump impeller
Sabine Baumbach

Peculiarities of computer designing of the rotors with variable parameters in dynamics of various purposes
Raul Turmanidze

25/07/2014 09:00 - 11:00
Impact and Crash Mechanics II

MS220B
Room: Sala B2

Minisymposium organized by Manfred Bischoff and Fabian Duddeck

Validation of material models for Alloy 718 at elevated temperatures and high strain-rates
Ted Sjöberg, Karl-Gustaf Sundin and Mats Oldenburg

Application of variationally consistent selective mass scaling to higher order and isogeometric finite elements in explicit dynamics
Anne-Kathrin Schäuble, Anton Tkachuk and Manfred Bischoff

Direct and sparse construction of the inverse of the consistent mass matrix: General variational formulation and application to selective mass scaling
Anton Tkachuk and Manfred Bischoff

Composite impact attenuator with shell and solid modelling
Simonetta Boria and Giovanni Belingardi

Identification of sub-models for crash simulation
Daniel Weigert and Fabian Duddeck

Topology optimization for crashworthiness of thin-walled structures
Stephan Hunkeler and Fabian Duddeck

25/07/2014 09:00 - 11:00
Computational Mechanics Issues in Earthquake Engineering III
Minisymposium organized by Aram Soroushian

MS265C
Room: Sala B3
Chair: Aram Soroushian

Transient analysis of dam-reservoir interaction based on SBFEM and FEM
Shangming Li

Seismic response analysis of long immersed tunnel to longitudinal non-uniform excitation
Chong Li, Juyun Yuan, Haitao Yu, Quanke Su and Yong Yuan

Physics based ground-motion simulations for Tehran:rupture dynamics in a heterogeneous earth crust
Hamid Zafarani, Shahram Vahdani and Ali Majidinejad

Development of a new seismic control technology
Mehrdad Sadeghzadeh Nazari, Muneyoshi Numada and Kimiro Meguro

An investigation on the dynamic response of the shaking table Steel Deck using Finite Element
Hassan Moghaddam, Khashayar Farzanian and Ehsan Taheri

Numerical simulation of ceiling collapse in full-scale gymnasium specimen using ASI-Gauss technique
Hiroyuki Tagawa, Takuya Yamamoto, Takuzo Yamashita, Tomohiro Sasaki and Daigoro Isobe

25/07/2014 09:00 - 11:00
Advances in Moving Boundary Problems in Fluid Dynamics I
Minisymposium organized by Maria L. Garzon, James A. Sethian and Marco A. Fontelos

MS227A
Room: Sala C1
Chair: Maria Garzon
CoChair: August Johansson

Stable FEM discretizations for free film and strong-slip lubrication models
Georgy Kitavtsev, Malte Braack and Andreas Prohl

A narrow band gradient-augmented level set method for incompressible two phase flow
Curtis Lee, John E. Dolbow and Peter Mucha

Coupling of Poisson-Boltzmann equation with stokes system: The formation of Rayleigh jets
Lucia B. Gamboa and Marco A. Fontelos

Demonstration of automated CFD process using meshless technology
Mohamed Yousuf, Munikrishna Nagaram and Balakrishnan Narayanarao

A fully 3D hybrid Nitsche and Level Set methods for electrohydrodynamic potential flows in moving domains
August Johansson, Maria Garzon and James A. Sethian

Break-up and coalescense of electrified droplets using an embeded potential flow model
Maria Garzon, Len J. Gray and James A. Sethian

25/07/2014 09:00 - 11:00
Advances in Smart Materials, Systems and Analyses for Civil Infrastructure I
Minisymposium organized by H.K. Lee, Jung-Wuk Hong and Hyung-Jo Jung

MS281A
Room: Sala C2
Chair: Jung-Wuk Hong

Analysis of laser-generated guided waves in plate structures (Keynote Lecture)
Jae-Wook Jung, Hyeong Uk Lim and Jung-Wuk Hong

Study of energy harvesting from traffic-induced bridge vibrations
Dominique Siegert and Michael Peigney

Prediction of viscoelastic behaviour of nanoparticle-reinforced polymer composites by multiscale analysis
Beom-Joo Yang and Haeng-Ki Lee

An EnKF approach for structural health monitoring of reinforced concrete structures under corrosion
Wael G. Slika and George A. Saad

Dynamic response of railway tracks in tunnel
Tien Hoang, Denis Duhamel, Gilles Foret, Hai-Ping Yin, Patrick Joyez and Raphael Caby

ANOVA of seismic responses for isolated structures
Seung Hyun Eem and Hyung Jo Jung

25/07/2014 09:00 - 11:00
Advances in the Modelling of Forming Operations I
Minisymposium organized by Francisco Andrade Pires and Miguel Vaz Jr

MS054A
Room: Sala C3
Chair: Francisco Andrade Pires

Shell element with thickness stretch
Takeki Yamamoto, Takahiro Yamada and Kazumi Matsui

An algorithm for generate micro mechanical models with circular inclusions
H. D. Miranda, Francisco M. Andrade Pires and A.T. Marques

Simulation of tool wear in press hardening
Liang Deng, Sergej Mozgovoy, Jens Hardell, Braham Prakash and Mats Oldenburg

Study of springback for hexagonal close-packed sheet metal
Shenghua Wu, Nannan Song, F.M. Andrade Pires, Abel D. Santos and A. Barata da Rocha

25/07/2014 09:00 - 11:00
Computational Dynamics of Structures with Large Deformations II
Minisymposium organized by Johannes Gerstmayr and Peter Betsch

MS237B
Room: Sala D1
Chair: Johannes Gerstmayr

Dynamic snap-through bucking of cylindrical panels
Yang Zhou and Ilinca Stanciulescu

Experimental validation of human body models in structural vibration
Qingwen Zhang, Yu Zhang and Tianjian Ji

Nonlinear vibrations of rotating cantilever beams: Finite-elements validations of various reduced-order models
Olivier Thomas, Aurelien Senechal and Jean-François Deü

Geometrically-exact isogeometric formulation for two-dimensional, slender, Euler-Bernoulli beams: Static and dynamic considerations
Florian P. R. Maurin, Luca Dedè and Alessandro Spadoni

25/07/2014 09:00 - 11:00
Bone and Cartilage Mechanobiology: Experimental and Computational Assessment across the scales II
Minisymposium organized by Peter Pivonka and Justin Fernandez

MS242B
Room: Sala D2
Chair: Justin Fernandez
CoChair: Peter Pivonka

A new continuum model of cartilage elasticity and permeability facilitates insights on structure-function relationships
David M. Pierce, Tim Ricken and Gerhard A. Holzapfel

Computational and experimental model of nano-engineered drug delivery system for trabecular bone
Hossein Mokhtarzadeh, Moom S. Aw, Kamarul A. Khalid, Karan Gulati, Gerald J. Atkins, David M. Findlay, Dusan Losic and Peter Pivonka

Micromechanical environment of mesenchymal stem cells in a bioreactor
Magali Cruel, Morad Bensidhoum, Pierre Becquart, Cécile Nouguier-Lehon, Hervé Petite and Thierry Hoc

THE CONTRIBUTION OF ACTIVITY, LOADING AND TOTAL JOINT REPLACEMENT TO REMODELLING IN THE PROXIMAL FEMUR
Alexander S. Dickinson

The cellular control of bone formation: A continuous model of matrix deposition and osteocyte generation
Pascal R. Buenzli

25/07/2014 09:00 - 11:00
Computational Cell Mechanics III
Minisymposium organized by Antoine Jérusalem and Ming Dao

MS128C
Room: Sala D3
Chair: Antoine Jérusalem

Numerical modelling of shock wave interactions with kidney cells
Dongli Li, Robin Cleveland and Antoine Jérusalem

Response of cells to applied dynamic loading
Noel Reynolds, Paul Weafer and Patrick McGarry

What Meshfree Particle Methods Can Do that Traditional FEA Cannot II
Minisymposium organized by J. S. Chen, Sheng-Wei Chi, Kent Danielson, Wing Kam Liu and M. Jason Roth

MS167B
Room: Sala D4
Chair: Michael Hillman
CoChair: Sheng-Wei Chi

SPH method for simulation of transient flow coupled to large strained cracking shells (Keynote Lecture)
Zhe Li, Vincent Faucher, Fabien Caleyron and Alain Combescure

An immersed smoothed particle Galerkin method for composite solid analysis
Cheng-Tang Wu and Masataka Koishi

Numerical analysis of high velocity impact penetration problems
Youcai Wu and John E. Crawford

Image based procedure for bone material modeling
Judy P. Yang and J. S. Chen

A fully Lagrangian, mesh free method for fluid/solid interaction
Miguel Urrecha and Ignacio Romero

Extended particle difference method for solving the stefan problem
Young-Cheol Yoon and Sang-Ho Lee

25/07/2014 09:00 - 11:00
Integrated Computational Materials Engineering - ICME III
Minisymposium organized by Gottfried M. Laschet, Javier Llorca, Elisabeth A. Holm, Michele Chiumenti and Somnath Ghosh

MS073C
Room: Sala D5
Chair: Gottfried Laschet
CoChair: Javier LLorca

Predictive simulations of amorphous composites: their ultimate thermo-mechanical properties (Keynote Lecture)
Alejandro Strachan, Chunyu Li and Yae-ji Kim

Integrative simulation for assessing the mechanical performance of a weld line on injection moulded thermoplastic parts
Camilo Cruz

Multiscale simulation of semi-crystalline thermoplastics in the injection moulding process
Marcel Spekowius, Roberto Spina, Gottfried M. Laschet and Christian Hopmann

Integrated nonlinear multi-scale material modelling of fiber reinforced plastics with Digimat: Application to short and continuous fiber composites
Laurent Adam and Roger Assaker

Microstructure optimization of porous ceramics: A discrete element approach
David Jauffrès, Denis Roussel, Christophe L. Martin, Aaron Z. Lichtner and Rajendra K. Bordia

25/07/2014 09:00 - 11:00
Composite Materials and Structures II

CS657B
Room: Sala D6
Chair: David González

Numerical simulation of fiber pull out of elastic matrix with friction
Andrejs Krasnikovs, Olga Kononova and Angelina Vagele

A discontinuous Layerwise method for the composite laminated beam with multiple delaminations and in-

plane cracks
Dinghe Li, Yan Liu and Xiong Zhang

Computation of the effective magnetostrictive coefficient of magneto-mechanically coupled composites

Matthias Labusch, Marc-Andre Keip, Björn Kiefer and Jörg Schröder

Thermo-visco-elastic model for organic matrix composite materials on a large range of strain rates and temperatures - Application to T700GC/M21
Julien Berthe, Mathias Brieu and Eric Deletombe

25/07/2014 09:00 - 11:00
Parametric and Non-Parametric Methods of Data Analysis at Multiscale Modeling I
Minisymposium organized by Jacek Pietraszek, Agnieszka Szczotok and Norbert Radek

MS202A
Room: Sala E1
Chair: Jacek Pietraszek
CoChair: Agnieszka Szczotok

Surrogate models for spacecraft aerodynamic problems
Mikhail Belyaev, Evgeny Burnaev, Ermek Kapushev , Stephane Alestra, Marc Dormieux, Antoine Cavailles, Davy Chaillot and Eugenio Ferreira

The impact of the thickness of the ceramic layer of wax pattern assembly of turbine blade on the (γ+γ') eutectic in the IN713C superalloy
Agnieszka Szczotok, Jacek Nawrocki and Jacek Pietraszek

The uncertainty and robustness of the procedures for the dimensionality reduction
Jacek Pietraszek and Ewa Skrzypczak-Pietraszek

Mathematical modelling and optimisation of selected service properties of laser-modified electrospark coatings
Norbert Radek and Aneta Gądek-Moszczak

Solving higher order boundary value problem containing unknown parameters
Renata Filipowska

The determination of the stress in the pressurized element after applying optimization method shortening the startup time of a power unit
Renata Dwornicka

25/07/2014 09:00 - 11:00
Numerical Approximation of MHD Flows I
Minisymposium organized by Eric Cyr, Santiago Badia and John Shadid

MS159A
Room: Sala E2
Chair: Eric Cyr

On the development of a scalable implicit FE solver for 3D resistive MHD with integrated adjoint capabilities
John N. Shadid, Eric C. Cyr, Roger P. Pawlowski, Paul T. Lin, Tim Wildey and Luis Chacón

Investigation of MHD turbulence in a pipe flow
Xavier Dechamps and Gérard Degrez

Recursive block preconditioners for multiphysics problems: Application to incompressible MHD
Ramon Planas, Santiago Badia and Alberto F. Martín

Structure-preserving and energy-stable Finite Element Methods for MHD systems
Kaibo Hu, Xiaozhe Hu, Yicong Ma and Jinchao Xu

James H. Adler, Thomas R. Benson, Eric C. Cyr, Scott P. MacLachlan and Ray S. Tuminaro

Scalable fully implicit solvers for extended magnetohydrodynamics
Luis Chacón

25/07/2014 09:00 - 11:00
Catastrophic Destruction Mechanics and Numerical Modelling I
Minisymposium organized by Qingwen Ren, Xiangdong Qian, Wenxiong Huang, Xiaoming Guo, Guojian Shao, Qing Zhang and Yin zhao

MS071A
Room: Sala E3
Chair: Qingwen Ren

Study on the failure behavior of concrete using non-local peridynamic method
Qing Zhang, Feng Shen and Dan Huang

Cracking and Integral Stability Analysis of High Arch Dam
Yin Zhao , Qingweng Ren and Xuan Wu

Numerical study on the progressive failure of gravity dam foundation based on damage theory
Qingwen Ren, Yin Zhao, Shuang Liu and Junpeng Chen

Mechanism of deformation and failure of infilling rock joint and its particle flow simulation
Lei Xu and Qingwen Ren

25/07/2014 09:00 - 11:00
Computational Micromechanics of Wood, Engineered Wood Products, and Cellulose-Based Materials II
Minisymposium organized by Karin de Borst, E. Kristofer Gamstedt and Thomas K. Bader

MS046B
Room: Sala E4
Chair: Kristofer Gamstedt

Micromechanical modelling of degradation processes in wood
Leopold Wagner, Thomas K. Bader and Karin de Borst

Determination of constitutive mechanical behavior of precious samples from large wooden structures of cultural heritage
Alexey Vorobyev, Nico van Dijk , Ingela Bjurhager and Kristofer Gamstedt

Effect of local variations on the tensile stiffness and strength of fiber networks
Artem Kulachenko, Yagiz Azizoglu and Hamid Reza Motamedian

25/07/2014 09:00 - 11:00
Computational Bioimaging and Visualization I
Minisymposium organized by João Manuel R.S. Tavares, Renato M. Natal Jorge, Yongjie Zhang and João P. Papa

MS108A
Room: Sala E5
Chair: João Tavares

A deformable model to segment skin lesions on dermoscopic images
Zhen Ma and João Manuel R.S. Tavares

Automatic evaluation of collagen fibre directions from polarized light microscopy images
Kamil Novak, Stanislav Polzer, Michal Tichy and Jiri Bursa

Features selection for the classification of skin lesions from images
Roberta Barbosa Oliveira, Aledir Silveira Pereira and João Manuel R.S. Tavares

Fractal dimension for characterization of focal breast lesions

Elmilade S. Coes Junior, Francisco D.S. Oliveira and Paulo L. Ambrosio

Streamable Laguerre-Voronoi tessellation model for tomographic images
Christophe Leblanc, Van Dung Nguyen, Fangyi Wan, Ludovic Noels and Eric Béchet

25/07/2014 09:00 - 11:00
Quality and Validation of Computational Cardio-vascular Biomechanics II
Minisymposium organized by Franck Nicoud and Dominique Thevenin

MS233B
Room: Sala E6
Chair: Franck Nicoud

Intracranial aneurismal pulsatility as a new individual criterion for ruptura risk evaluation: Biomechanical and numerical approach (IRRAs project)
Mathieu Sanchez, Dominique Ambard, Franck Jourdan, Simon Mendez, Alain Bonafé and Vincent Costalat

Numerical modelling of bicuspid aortic valve disease
Diana Bonomi, Elena Faggiano, Luca Formaggia and Christian Vergara

Geometric multiscale modelling for the functional characterization of coronary bifurcation lesions
Catherine Pagiatakis and Rosaire Mongrain

Verification of porous loss model for assessment of flow diverters
Takashi Suzuki, Syo Kadokura, Hiroyuki Takao, Satoshi Tateshima, Shunsuke Masuda, Dahmani Chihebeddine, Yi Qian, Fernando Vinuela, Yuichi Murayama and Makoto Yamamoto

25/07/2014 09:00 - 11:00
New Trends in Topology Optimization III
Minisymposium organized by Glaucio Paulino, Emilio Silva and Kurt Maute

MS211C
Room: Sala F
Chair: Oded Amir
CoChair: Peter Dunning

A topology optimization approach applied to flow machine rotor design (Keynote Lecture)
Juan S. Romero and Emilio C. Nelli Silva

Topology optimization by predicting sensitivities based on local state features
Nikola Aulig and Markus Olhofer

Branching strategies for the application of heuristics to the topology optimization of crash loaded structures
Christopher Ortmann and Axel Schumacher

Topology optimization of Thin-walled beam structures
Yoon Young Kim, Do-Min Kim, Suh In Kim, Soomin Choi and Gang-Won Jang

Explicit feature control in structural topology optimization
Xu Guo, Weisheng Zhang and Wenliang Zhong

25/07/2014 09:00 - 11:00
Advances and Applications in Generalized/Extended Finite Element Methods IV
Minisymposium organized by Angelo Simone, C. Armando Duarte, Sergio P. B. Proença and Haim Waisman

MS094D
Room: Sala H 1
Chair: Angelo Simone

Generalized finite element method (GFEM): Accurate and efficient computation of the solution of interface problems (Keynote Lecture)

Extra-dof-free and linearly independent enrichments in GFEM/XFEM
Rong Tian

Extended-Finite Element Method with 3D quadratic elements: Integration and conditioning issues
Marcel Ndeffo, Patrick Massin and Nicolas Moës

A simple recovery-based error estimator for the stable generalized finite element method (SGFEM)
Rafael Marques Lins and Sergio P.B. Proença

Efficient reduction of approximation errors by means of multiple enriched basis functions
Adriaan Sillem, Angelo Simone and Lambertus J. Sluys

A partition of unity method for a class of fourth order elliptic variational inequalities
Susanne C. Brenner, Christopher B. Davis and Li-yeng Sung

25/07/2014 09:00 - 11:00
Reduced Basis, POD and PGD Model Reduction Techniques V
Minisymposium organized by Francisco Chinesta, Elias Cueto, Pierre Ladevèze and Hermann Matthies

MS015E
Room: Sala H 2
Chair: Francisco Chinesta
CoChair: Elias Cueto

Towards a parametrised non linear and transient model of the Automated Fibre Placement
Nicolas Bur, Saeid Aghighi, Pierre Joyot, Francisco Chinesta and Pierre Villon

Structure optimization using PGD-based computational vademecum
Chady Ghnatios, Daniel Boulze, Béatrice Carles, Damien Sireude, Felipe Bordeu, Adrien Leygue and Francisco Chinesta

Study of model order reduction based on POD for nonlinear dynamic response structural optimization
Euiyoung Kim, Seongmin Chang and Maenghyo Cho

Extraction of proper orthogonal decomposition modes for optimal aerodynamic shape design
Valentina Dolci, Gabriele Lucherini, Andrea Iob and Renzo Arina

On a hierarchical model reduction algorithm for elastic multi-structures
Gia A. Avalishvili, Mariam A. Avalishvili and David G. Gordeziani

25/07/2014 09:00 - 11:00
Multiscale Modelling of Materials and Structures IV
Minisymposium organized by Tadeusz S. Burczynski, Xavier Oliver and Maciej Pietrzyk

MS250D
Room: Sala H 3
Chair: Maciej Pietrzyk
CoChair: Tadeusz Burczynski

An inverse optimization strategy to determine single crystal mechanical behavior from polycrystal tests by means of computational homogenization (Keynote Lecture)
Vicente Herrera-Solaz, Javier Segurado and Javier LLorca

A multiscale model derivation and simulation tool for MEMS arrays
Bin Yang, Walid Belkhir, Michel Lenczner and Nicolas Ratier

Finite Element Modelling of a non-crimp 3-D orthogonal woven composite
Serra Topal , Stephen Ogin, Andrew Crocombe and Prasad Potluri

Modeling of heterogeneous materials using a mesoscopic scale finite element analysis
José J. de C. Pituba, Gabriela R. Fernandes and Eduardo A. de Souza Neto

Multiscale analysis of damage using dual and primal domain decomposition techniques

Oriol Lloberas-Valls, Frank P. X. Everdij, Daniel J. Rixen, Angelo Simone and Lambertus J. Sluys

Plate bending analysis by a multi-scale model coupling bem and fem, considering different boundary conditions for the RVE

Gabriela R. Fernandes, José J. de C. Pituba and Eduardo A. de Souza Neto

25/07/2014 09:00 - 11:00
Non-conventional Methods for Nonlinear Fluid and Solid Mechanics III
Minisymposium organized by Michel Potier-Ferry , Elias Cueto and Heng Hu

MS146C
Room: Sala J
Chair: Marianne BERINGHIER
CoChair: Virginie Ehrlacher

Power series analysis to improve the anm continuation near simple bifurcations (Keynote Lecture)
Bruno Cochelin and Marc Medale

ANM supplemented with power series analysis to efficiently compute steady-state bifurcations in 3D incompressible fluid flows
Marc Medale and Bruno Cochelin

A reduction model for forced response of damped viscoelastic sandwich beam
Faiza Boumediene, El Mostafa Daya, Jean-Marc Cadou and Laetitia Duigou

Flatness defects in sheet rolling modelised by Arlequin and Asymtotic Numerical Methods

Kekeli Kpogan, Hamid Zahrouni, Michel Potier-Ferry and Hachmi Ben Dhia

New Fourier-related double scale finite element for membrane instability phenomena
Qun Huang, Heng Hu, Kun Yu, Michel Potier-Ferry, Salim Belouettar and Gaetano Giunta

Detection of bifurcation in a meshless framework
Abdeljalil Tri, Hamid Zahrouni and Michel Potier-Ferry

25/07/2014 09:00 - 11:00
Computational Inelasticity for Highly Compressible Materials I
Minisymposium organized by Stefan Hartmann and Alexander Düster

MS079A
Room: Business Centre I
Chair: Stefan Hartmann

A partitioned coupling environment for multi-physics problems involving compressible materials
Patrick Erbts, Steffen Rothe, Alexander Düster and Stefan Hartmann

An extended continuum model for metal foams
Anne Jung and Stefan Diebels

A finite-strain compressible thermo-viscoplasticity model for the simulation of a field assisted sintering process
Steffen Rothe, Stefan Hartmann and Nachum Frage

Modelling large compression of advanced pore morphology foams with discrete element method
Aljaž Kovačič, Matej Vesenjak, Matej Borovinšek and Zoran Ren

25/07/2014 09:00 - 11:00
Computational Bioengineering II
Minisymposium organized by Suvranu De, Abdul I. Barakat,

MS339B
Room: Business Centre II
Chair: Suvranu De

Sandra Rangonyi and Yucheng Peng

An optimal design of artificial disc FE model for human Lumbar spine discs restoration
TaeKyeong Lee and JungHwa Hong

Development of robust elastic network model for predicting the experiment B-factor precisely
Min Hyeok Kim and Moon Ki Kim

Hemodynamic effects on tumor cell arrest at microvascular intersections
Peng Guo, Min Lei, Yang Liu and Bingmei M. Fu

Numerical analysis on two-phase vortex at microfluidic Y-junctions
Zhaomiao Liu and Likun Liu

Simulation of surgical cutting using a progressive cutting scheme and extended finite element method
Yi Ding, Stéphane P.A. Bordas, Paul Rosin and David Marshall

25/07/2014 09:00 - 11:00 **Computational Modeling of Multiphysics/Multiscale Coupled processes in Biological and Nanotechnological Systems II** *Minisymposium organized by Giovanna Guidoboni, Roderick Melnik and Riccardo Sacco*	**MS132B** **Room: Sala de prensa I** **Chair: Giovanna Guidoboni** **CoChair: Riccardo Sacco**

Hemodynamics simulations in the cerebral venous network: Towards the understanding of blood flow in a complex geometry (Keynote Lecture)
Vincent Chabannes, Mourad Ismail, Christophe Prud'homme and Marcela Szopos

Retinal blood flow changes and vascular parameters and structure
Andrea Dziubek, Edmond Rusjan and William Thistleton

Theoretical analysis of the relationship between changes in retinal perfusion and tissue metabolic demand
Simone Cassani, Julia Arciero, Giovanna Guidoboni, Brent A. Siesky and Alon Harris

Mathematical modeling of bio-hybrid devices: Towards polymeric artificial retina
Matteo Porro, Sebastiano Bellani, Nicola Martino, Maria Rosa Antognazza, Maurizio Verri, Guglielmo Lanzani and Riccardo Sacco

Molecular dynamics studies of RNA nanotubes
Shyam Badu, Roderick Melnik, Maxim V. Paliy, Sanjay Prabhakar, Ali Sebetci and Bruce A. Shapiro

A two-layer model for drug delivery from a transdermal patch
Giuseppe Pontrelli

A mathematical model for an affinity-based drug delivery system
Martin Meere and Tuoi Vo

25/07/2014 09:00 - 11:00 **Computational Modeling of Turbulent and Complex Flows with Applications III** *Minisymposium organized by Victor Calo, Volker Gravemeier, Kenneth Jansen and Javier Principe*	**MS169C** **Room: Sala de prensa II** **Chair: Javier Principe**

Variational Multiscale based dissipation models for the estimation of Atmospheric Seeing
Joan Baiges and Ramon Codina

differentially heated cavity
Laurent Cadet, Anne Sergent, Shihe Xin, Didier Saury and Patrice Joubert

Comparison of Performance of Turbulence Closures in Free-Surface Flow Past Hydraulic Structures
Fabian Bombardelli, Joongcheol Paik and Ken Loh

Variational multiscale Large Eddy Simulation of turbulent incompressible flows
Santiago Badia, Ramon Codina, Oriol Colomés and Javier Principe

Numerical validation of a κ-ω-$\kappa\theta$-$\omega\theta$ heat transfer turbulence model for low Prandtl number fluids
Daniele Cerroni, Sandro Manservisi and Filippo Menghini

25/07/2014 09:00 - 11:00
Special Session: Credibility of Computational Solid Mechanics Models I
Minisymposium organized by George Lampeas, Eann Patterson and Thorsten Siebert

MS275A
Room: Sala de Reservas
Chair: Eann Patterson
CoChair: George Lampeas

An image decomposition approach to validation
Erwin Hack and Eann A. Patterson

Computational model validation of structural components by full-field optical measurements
George Lampeas and Vasilis Pasialis

Correlation and validation of numerical simulation and test in the space industry
Alexander Ihle and Olaf Reichmann

Validation of composite joint coupon models using full-field optical measurement techniques
Nikolaos Perogamvros, Thorsten Siebert and George Lampeas

Validation of a non-linear contact mechanics problem
Luis Felipe-Sese, Wenran Gong, Xiaoshan Lin and Eann A. Patterson

Validation of Mode Shapes of car bonnet by High Speed Digital Image Correlation
Thorsten Siebert, Weizhuo Wang, John Mottershead and Andrea Pipino

11:00 - 11:30
Coffee Break

25/07/2014 11:30 - 12:00
Young Investigator Lecture I

YIL1
Room: Sala F
Chair: Ekkehard Ramm

ECCOMAS J. L. Lions Award for Young Scientists in Computational Mathematics
Recent advances on reduced order modelling for viscous and thermal flows in parametrized settings
Gianluigi Rozza

25/07/2014 11:30 - 12:00
Young Investigator Lecture II

YIL2
Room: Sala H 1
Chair: Marino Arroyo

ECCOMAS award for the best Ph.D Theses of 2013 on Computational Methods in Applied Sciences and Engineering
Error assessment and adaptivity for structural transient dynamics
Francesc Verdugo

25/07/2014 11:30 - 12:00
Young Investigator Lecture III

YIL3
Room: Sala H 2
Chair: Pedro Díez

ECCOMAS O. C. Zienkiewicz Award for Young Scientists in Computational Engineering Sciences
Computational homogenization of micro and nano-structured materials: Contributions to recent challenges
Julien Yvonnet

25/07/2014 12:15 - 13:45
Closing Ceremony

CL
Room: Auditorium
Chair: Antonio Huerta

Isogeometric analysis: Where we are and where we are going
Thomas J.R. Hughes

13:45 - 15:00
Farewell Cocktail

POSTER SESSIONS

21/07/2014 16:00 - 18:30
Poster Session ECCM

PSECCM
Room: Hall
Chair: to be confirmed

Life prediction of large bearings using accelerated life test coupled with analysis
Na Ra Lee, Yongbin Lim and Naksoo Kim

A couple stress theory for the analysis of plates with a RBF-FD meshless method
Carla M.C. Roque and António J.M. Ferreira

A FEM-DEM coupled and evolved formulation for analysis of multifracture in solids
Chun Feng, Eugenio Oñate and Shihai Li

B-Spline and reproducing polynomial particle shape functions for linear and nonlinear elasticity problems
Yanan Liu, Yinghua Liu and Liang Sun

A motion planning scheme for robotic in-hand object manipulation
Hyunhwan Jeong, Joono Cheong and Wheekuk Kim

A model of the tongue movement during swallowing
Yukihiro Michiwaki, Takahiro Kikuchi, Seiichi Koshizuka, Tetsu Kamiya, Yoshio Toyama, Takashi Osada, Nobuko Jinno and Keigo Hanyu

A new fem homogenization of periodic material based on an extended Rosette gage theory
Luis Pérez Pozo, Marek Kolendo , Sergio Oller , Sheila Lascano and Claudio Aguilar

A Numerical Approach to Evaluate the Seismic Performance of Water Supply Systems Based on Demand and Capacity in the Damaged Network
Mahmood Hosseini, Aram Soroushian and Abdolreza Astaraki

A numerical framework to model the mechanical behavior of bioresorbable polymeric braided wire stents
Mathias P. Peirlinck, Nic Debusschere, Matthieu De Beule, Peter Dubruel, Patrick Segers and Benedict Verhegghe

A relation between calculation error and modelling resolution of DEM
Shuji Moriguchi, Ikko Tachibana, Kenjiro Terada, Shinsuke Takase, Takashi Kyoya and Jyunji Kato

A water state study in the wood structure of four hardwoods below fiber saturation point by NMR technique
Leandro Passarini, Cedric Malveau and Roger Hernandez

Adaptive surrogate-based multi-criteria optimization
Alexis I. Pospelov, Fedor V. Gubarev and Alexey M. Nazarenko

An explicit algorithm for the nonlinear dynamics of spatial beam
Chu Chang Huang, Tsung Chi Lin, Kuo Mo Hsiao and Fumio Fujii

Analysis of offshore structures for wind turbines and oil&gas using xsea software
Ki-Du Kim, Pasin Plodpradit, Anaphat Manovachirasan, Chana Sinsabvarodom and Bum-Joon Kim

Analysis of thick-walled pipeline elements operating in creep conditions
Przemysław Osocha and Bohdan Węglowski

Analysis on a 2T2R type asymmetric parallel mechanism
Sungmok Kim, Joono Cheong, Kyoosik Shin, Byung-Ju Yi and Wheekuk Kim

Anisotropic growth of thin shells with subdivision elements
Roman Vetter, Norbert Stoop, Falk K. Wittel, Hans J. Herrmann and Gautam Munglani

Application of fracture mechanics to assess the concrete damage due to cyclic freezing and thawing
Marta Kosior-Kazberuk

Comparison of muscular movement following blood alcohol concentrations using low speed rear impact tests and dynamic simulation
Dong Hyun Kim, Young Jin Jung, Dohyung Lim and Han Sung Kim

Computational and experimental investigation of the all fracture mode specimens on mixed mode I/III and II/III fracture
Shi-fan Zhu, Yang Cao, Qing-fen Li and Li Zhu

Computational design of a pressure container manufactured by fiberglass sheets to industrial applications
Gustavo Suárez , Luis Javier Cruz and Sergio Oller

Computational study of the effect of hydrostatic pressure on plastic deformation of metallic glass
Jacob Carlsson, Masato Wakeda and Shigenobu Ogata

Continuum-discontinuum particle method
Dong Zhou and Shihai Li

CUFESAP: A CUDA based finite element code for elastic structural analysis on GPUs
Jianfei Zhang and Defei Shen

Description model of cross-section of fibre bundle shape in prepreg composite
Pavla Tesinova

Design of smart structures with shape-resolved actuators
Yiqiang Wang and Zhan Kang

Determination of forming limit diagram using finite element method
Katarzyna Dyja and Janina Adamus

Development of an automated framework for high intensity focused ultrasound simulations
Mun-Bo Shim, Mun-Sung Kim and Sung-Jin Kim

Development of cosmetic orthodontic bracket and bracket cover

Yasukazu Nishi, Yoshiki Ishiwata, Akira Nakajima, Kazuyoshi Hoshino, Mamoru Murata and Noriyoshi Shimizu

Effective thermal conductivity in anisotropic materials using boundary element methods
Miélle Silva Pestana, Carla Tatiana Mota Anflor and Jhon N.V. Goulart

Emulating drilling degrees of freedom in the rotation-free Bézier-Enhanced Shell Triangle (BEST) finite element
Pere-Andreu Ubach, Eugenio Oñate and Julio García-Espinosa

Fatigue life analysis of an upgraded diesel engine crankshaft
Jalal Fathi Sola and Farhad Alinejad

FE modelling of frictional heating in a disc brake at temperature-dependent coefficient of friction
Piotr Grzes

Finite element analysis of AZ31B magnesium alloy double butted tube forming process
Soo Sik Han

Finite element analysis of the quasi-static thermal stresses in a pad-disc brake system
Adam Adamowicz

Finite element study of healthy, pathological and surgical lumbar spine biomechanics.
Andrea Calvo-Echenique, Jose Cegoñino, Luciano Bances and Amaya Pérez del Palomar

Finite element supporting thermoelectric effects in FGM materials

Juraj Paulech, Juraj Hrabovsky, Vladimir Kutis and Justin Murin

Formability of ZK60A magnesium alloy
Ki Ho Jung, Yong Bae Kim, Yu Hyun Kim, Sangmok Lee, Eung Zu Kim, Du Soon Choi and Geun-An Lee

GPU high performance explicit solution for kinematics and dynamics simulation of crank-connecting rod-piston mechanism
Zhaosong Ma, Dong Zhou and Zhigang Li

High order finite element method on the IBM power systems high performance computing applied on structural mechanics
Gilberto L. Valente, Marco L. Bittencourt and Edson Borin

Influece of material atomistic model on MD simulation
Anna Kucaba-Pietal and Janusz Bytnar

Influence of shape of particle size distribution on mechanics of uniaxially compressed granular packings
Joanna Wiącek and Marek Molenda

Mainshock – aftershock interaction diagram for a 3D plan-asymmetric structure
Andre F. Belejo and Andre R. Barbosa

Mechanical behavior of carbon nanotubes encapsulating copper atoms
Lei Wang, Zhongqiang Zhang and Yonggang Zheng

Mechanical properties of realistic materials: From quantum calculations to plastic flow
Svetlana A. Barannikova, Albina M. Zharmukhambetova, Anton Yu. Nikonov, Andrey I. Dmitriev, Alena V. Ponomareva and Igor A. Abrikosov

Micromechanism-based elasto-viscoplasticity constitutive modeling for engineering intermetallics
Yoon Suk Choi, Kyung-Mox Cho, Dae-Geun Nam and Dennis Dimiduk

Modelling dynamic behaviour of orthotropic metals
Nenad Djordjevic, Rade Vignjevic, Lewis Kiely, James Campbell and Simon Case

Natural frequencies of a simply supported horizontal rectangular tank partially filled with a liquid
Kyeong–Hoon Jeong, Jong–Wook Kim and Jong-In Kim

Nonlinear isogeometrical approach to stress recovery
Pejman Azarsa, Behrooz Hassani and Ahmad Ganjali

Numerical and experimental study by BEM and thermal Images for predicting the effective thermal conductivity
Matheus B. A. M. Oberg, Carla T. M. Anflor and Jhon N.V. Goulart

Numerical simulation for temperature and stress distribution in laser forming process of AHSS
Jung Han Song, Geun-An Lee, Sangmok Lee and Sung Jun Park

Numerical simulation of rock fragmentation process induced by indenter
Shouju Li, Lijuan Cao and Zichang Shangguan

Numerical simulation of the energy storage rate in metals under quasistatic loading
Oleg A. Plekhov and Anastasiia A. Kostina

Numerical study of a thermo-acoustically encapsulation
Fabian Duvigneau and Ulrich Gabbert

Numerical study of actuatot performance of piezoelectric ink-jet print head
Pham Van So, Hyeonwoo Jeon and Jaichan Lee

Quantitative estimation of exercise effect using numerical simulation and multi-sensory system on human leg
Yoshiki Nagatani and Takashi Saeki

Reducing the number of runs in experimental research using smart designs of experiment
Andrzej Skowronek

Scattering of semi-cylindrical gap and multiple shallow-buried cavities and inclusions by SH-wave
Hongliang Li

Seismic performance analysis of the hall-column system of a temple structure
Zhi Zhou and Jiang Qian

Simulating soil-building interaction with a FEM/BEM approach
Dimas B. Ribeiro and João B. Paiva

Simulation of implanted aortic stents
Raoul Hopf, Michael Gessat, Volkmar Falk and Edoardo Mazza

Soil-foundation-structure interaction by an explicit time integration method
Jin-Sun Lee, Dong-Soo Kim, Jeon-Gon Ha and Seong-Bae Jo

Stiffener Layout Optimization of Thin-Walled Stiffened Plates

Stress concentration near sharp and rounded V-shaped notches in two-dimensional bodies
Andrzej Kazberuk and Mykhaylo P. Savruk

Application of the strong discontinuity method to ductile failure with damage
Jérémie Bude Bude, Delphine Brancherie and Jean-Marc Roelandt

Structural design of metallic waveguide device in the microwave range using topological design process
Hyundo Shin and Junghoon Yoo

Structural health monitoring of stay cables by the Scruton number
Joseph Lardiès

Studies of bimaterial interface fracture with peridynamics
Fang Wang, Lisheng Liu, Qiwen Liu, Dongfeng Cao and Shuyong Yang

Surgical treatment of shoulder injuries by the Weaver Dunn technique
Gabriela L. Menegaz, Sonia A.G. Oliveira, Cleudmar A. Araújo and Leandro C. Gomide

The correlation between complicated lateral resisting system of the Shanghai tower
Wei Huang and Jiang Qian

The effect of damage on the biomechanical behavior of the pelvic floor
Dulce A. Oliveira, Marco Parente and Renato M. Natal Jorge

The Poynting type effect and non-homogeneous radial deformation in the problem of torsion of hyperelastic circular cylinder
Igor A. Brigadnov

The relationship between the fast wave and the fabric tensor
Young June Yoon

Thermomechanical modelling of PCM in heat storage applications
Francisco Montero-Chacón and Michele Chiumenti

Toward a polycrystal modeling of martensitic phase transformation based on the mechanism of Magee
Abdeladhim Tahimi, Fabrice Barbe, Lakhdar Taleb and Tatiana B. Fraga

Two level FETI method for transient problems
Marta Jarosova, Tomas Brzobohaty and Alexandros Markopoulos

21/07/2014 16:00 - 18:30
Poster Session ECFD

PSECFD
Room: Hall
Chair: to be confirmed

A CFD solver on graphical processing unites for turbulence simulations
Wenbin Cao, Hua Li, Zhengyu Tian and Sha Pan

A comparison between Monte Carlo and polynomial chaos expansion techniques in reservoirs simulations
Karen Guevara, João Zanni and Marco Aurélio Pacheco

A high order compact scheme for hypersonic internal flow with turbulence models
Hua Li, Wen-Long Wang, Wen-Jia Xie and Jian-Qi Lai

A multi-level computational model to characterize the hepatic circulation in human cirrhosis
Geert Peeters, Charlotte Debbaut, Pieter Cornillie, Elin Pauwels, Diethard Monbaliu, Wim Laleman and Patrick Segers

A Numerical investigation of scramjet engine air intakes for the 14-X hypersonic vehicle
Augusto F. Moura and Maurício A. P. Rosa

A Shape Analysis of Ultrasonically Levitated Droplet with Moving Particle Semi-implicit and Distributed Point Source Method
Yuji Wada, Kohei Yuge, Ryohei Nakamura, Hiroki Tanaka and Kentaro Nakamura

Adaptive Galerkin Method with relevant basis functions for PDES with boundary conditions
Bing Li, Luofeng Han and Shuanglu Quan

Advances of continuous-discontinuous numerical method based on Lagrange equation
Shihai Li, Chun Feng, Dong Zhou and Wenjie Duan

An Immersed Smoothed Finite Element Method for analyzing fluid-structure interaction systems consisting of dielectric elastomers
Zhi-Qian Zhang, Choon Chiang Foo and Gui Rong Liu

Application of EARSM turbulence model to simulation of reacting flow field in jets engines combustion chamber
Vojtech Betak, Jan Kubata and Jan Tuma

Comparison of implicit LU-SGS schemes for hypersonic flows
Zhengyu Tian, Wenbin Cao, Jinzhi Fan and Ran Zhang

Development of explicit unstructured mesh-based CFD solver for low-mach number flows using graphics processor units
Anton Karpenko, Vladislav Emelyanov and Konstantin Volkov

Effect of Reynolds number on pressure losses in axisymmetric sudden expansions with chamfer
Youngmin Bae, Young I. Kim, Keung K. Kim and Juhyeon Yoon

Evaluation of an immersed boundary method for solving the fluid structure interaction problem in refrigeration compressor valves
José L. Gasche and Franco Barbi

Flow recirculation in VHC designs
Ricardo F. Oliveira, Senhorinha F. Teixeira, Helena Cabral-Marques and José C. Teixeira

Investigation of Hydrodynamic Processes in Geothermal Plant
Marijonas Bogdevičius, Jolanta Janutėnienė, Saulius Razmas, Mindaugas Drakšas, Rimantas Didžiokas and Vadim Nikitin

Mechanism of modulation of the chemical activity of metal nanoparticles through organic charge-transfer molecules
Eunae Kim and Min Sun Yeom

Mixing of two-phase flow in rotating microchannels with a circular chamber
Jerry M. Chen and Huan-Choa Chiu

Modelling of interaction between suspension and structure in a tumbling mill
Simon Larsson, Samuel Hammarberg and Pär Jonsén

Modified dynamic observers based on green functions method to solve a 3D transient IHCP

Priscila F.B. Souza, Fernando Malheiros, Márcio B. da Silva and Gilmar Guimarães

Multiphase flow modelling of explosive volcanic eruptions using an adaptive unstructured mesh-based approach

Christian T. Jacobs, Gareth S. Collins, Matthew D. Piggott and Stephan C. Kramer

Multiscale modeling of solid-liquid interface ordering and its effect on the growth kinetics of metallic alloys

Mohammed Guerdane

Non-conforming mimetic and virtual element discretization for polyhedral meshes

Gianmarco Manzini, Blanca Ayuso de Dios and Konstantin Lipnikov

Numerical predictions of viscoelastic flows with an algebraic extra-stress model

Daiane Iglesia Dolci, Gilcilene Sanchez de Paulo and Gilmar Mompean

Numerical Simulation of Incompressible Flow around Aerofoil Vibrating with Two Degrees of Freedom

Petr Furmanek and Karel Kozel

Numerical study of the cooling air flow in a hydro generator with various ventilation schemes

Stephan Klomberg, Ernst Famleitner, Gebhard Kastner and Oszkár Bíró

Porous medium modeling for air flow through forest-comparison with wind tunnel data

Zeinab Ahmadi Zeleti, Sandrine Aubrun and Jari Hämäläinen

Simulation of separation processes incorporating magnetic nanoparticle recovery in continuous microfluidic systems

Jenifer Gómez-Pastora, Eugenio Bringas, Gustavo A. Esteban, Jesús M. Blanco and Inmaculada Ortiz

Simulations of a single turbulent vortex ring using a regularized particle-mesh based vortex method

Mads M. Hejlesen and Jens H. Walther

Sphere in Poiseuille: Static, free rotation and free fall

Anthony Ponce , Yannick Hoarau and Yan Dušek

Submesoescale processes in upper ocean fronts: a numerical study using a Reynolds Stress Turbulence Model

Pablo Cornejo and Andrés Sepúlveda

The free-stream turbulence effect on the laminar-turbulent transition in the swept wing boundary layer

Sergey L. Chernyshev, Alexander I. Ivanov, Andrey Ph. Kiselev, Vladimir A. Kuzminsky and Dmitry S. Sboev

The initial-boundary Riemann problem for the solution of the compressible gas flow

Martin Kyncl and Jaroslav Pelant

System for reconsting images of internal defects by inverse problem solving

Yoshihiro Nishimura, Katsumi Fukuda, Takayuki Suzuki and Masatoshi Fukuta

Prediction of pulsatile 3D flow in elastic tubes using star CCM+ Code

Didier P. de Andrade, José M.C. Pereira and José C.F. Pereira

Ultrasonic image reconstruction of internal defects derived by EMAT using truncated singular value decomposition

Yoshihiro Nishimura, Takayuki Suzuki, Katsumi Fukuda, Masatoshi Fukuta and Eiki Ikeda

Wake equilibrium parameters on a symmetric airfoil simulations

Gorka Zamorano, Unai Fernandez and Erkaitz Zaldua

An XFEM based sharp interface approach for two-phase and free-surface flows
Henning Sauerland