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

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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

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

Dany S. Dominguez, Esbel T. V. Orellana, Bruno F. Santos and Susana M. Iglesias

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