

ECCOMAS Congress 2016

VII European Congress
on Computational Methods in Applied Sciences
and Engineering

June 5-10, Crete, Greece

PROGRAMME



ECCOMAS Congress 2016



Conference Center

Level 1	Level 0
Zeus East	Minos East
Zeus West	Minos South
Zeus North	Minos North
Room 18	Danae
	Europa
	Leda
	Athena
	Artemis
	Aphrodite
	Exhibition Hall

Terra Building

Pool Level	Level 0	Lobby Level
Room 7	Room 1	Registration
Room 8	Room 2	Secretariat
Room 9	Room 3	Room 17
Room 10	Room 4	Room 23
Room 11	Room 5	
Room 12		
Room 14		
Room 15		
Room 20		
Room 21		
Room 22		
Antigoni		

Maris Building

Level 1
Apollo East
Apollo West



Restaurants

- 1 Estia
- 2 Pithos
- 3 Cochlias
- ★ Snack Bar
Self-service Buffet



ECCOMAS Congress 2016

**7th European Congress on Computational Methods
in Applied Sciences and Engineering**

5-10 June 2016, Crete Island, Greece

Programme



**Institute of Structural Analysis and Antiseismic Research
School of Civil Engineering
National Technical University of Athens**

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Sponsors and Exhibitors



Supporting Organizations

- Greek Association for Computational Mechanics (GRACM)
- Institute of Structural Analysis and Antiseismic Research, National Technical University of Athens
- John Argyris Foundation
- Institute of Research and Development for Computational Methods in Engineering Sciences (ICMES)
- Computer Applications and Education in Engineering Sciences (CAEES)
- Region of Crete
- Municipality of Hersonissos

Greetings from the President of ECCOMAS

The choice of Greece as the host country for the Congress 2016 of the European Community on Computational Methods in Applied Sciences (ECCOMAS) reminds us that this is the region where the foundation stone for European culture, its philosophy and sciences were laid 500 to 300 years B.C., long before it spread out to other parts of Europe. A magnificent symbol for this situation is the famous painting of the Italian Renaissance artist Raphael "The school of Athens", also called "Plato's Academy", a fresco in the Stanza della Segnatura in the Vatican, painted in 1510/11. Almost every great Greek philosopher or scientist can be found in the painting, among them Plato, his teacher Socrates, Aristotle, Euclid or Archimedes and Pythagoras. The composition could also be looked upon as a symbol for the convention of seemingly different disciplines, demonstrating the interdisciplinary character of the sciences.



Raphael's "School of Athens" (1 Plato, 2 Aristotle, 3 Socrates, 4 Euclid or Archimedes, 5 Pythagoras, 6 Diogenes) *

At that time the place of our venue, the Island of Crete, was at the periphery of the ancient Greece. We owe the choice of this wonderful place to the chairman of this congress, Professor Manolis Papadrakakis, a native of Crete, and his colleagues of the Greek Association for Computational Mechanics (GRACM). The ECCOMAS Congress takes place every four years, alternating with the Conferences on Computational Mechanics in Solids, Structures and Coupled Problems (ECCM) and Computational Fluid Dynamics (ECFD). It turns out that these meetings become major scientific events; we realize that also for

the present congress over 2,200 participants registered coming from all regions in Europe and a considerable number also from other continents. The spectrum of the 162 Minisymposia is impressive, clearly demonstrating that modeling and simulation in the applied sciences became a third pillar besides theory and experiment; we cannot imagine our daily life in academia and practice without these accomplishments. Thanks to all participants, in particular the Minisymposium organizers, plenary and semi-plenary lecturers and the chairpersons.

On behalf of ECCOMAS and its 23 regional and national associations in 31 European countries it is a great pleasure for me to welcome all delegates to the 7th European Congress on Computational Methods in Applied Sciences and Engineering.

Such a large conference is a tremendous challenge for the organizers. I would like to take this opportunity to particularly thank the Congress Chairman Manolis Papadrakakis and his colleagues in the Local Organizing Committee from the National Technical University of Athens, the Technical University of Crete and the University of Thessaly for the excellent organization and the permanent support during the preparation of this meeting. We are also very grateful for the continuous assistance by the Conference Secretary Eva Konti and her efficient team. My best wishes to all participants for a successful conference and an enjoyable stay in Crete.

**The painting was also reproduced on the front cover of the first book on Isogeometric Analysis referring to a phrase "ἀγεωμέτρητος μηδεις εἰσάτω" - "Let no one ignorant of geometry enter" allegedly engraved at the door of Plato's Academy.*



Ekkehard Ramm
Honorary Congress Chairman
President of ECCOMAS

Greetings from the Congress Chairman

Dear Participants,

On behalf of the European Community on Computational Methods in Applied Sciences and Engineering (ECCOMAS), it is our great pleasure to welcome you to Hersonissos, Crete at the 7th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS Congress 2016). The Congress is organized by the Institute of Structural Analysis and Antiseismic Research of the National Technical University of Athens under the support of the Institute of Research and Development for Computational Methods in Engineering Sciences (ICMES) and the Computer Applications and Education in Engineering Sciences (CAEES).

The main objective of ECCOMAS Congress series is to provide a forum for presentation and discussion of state-of-the-art advances in computational methods in applied sciences and engineering, including basic methodologies, scientific developments and industrial applications and to serve as a platform for establishing links between research groups of academia and industry with common as well as complementary activities. About 2,200 participants are attending the ECCOMAS Congress 2016 in Crete. More than 2,600 abstracts related to all areas of computational methods in applied sciences and engineering have been submitted, out of which 2,200 have been accepted for presentation by authors of 53 countries around the world. Furthermore, 715 full length papers have been submitted and reviewed by members of the scientific committee and will be indexed by SCOPUS database. The scientific programme of the ECCOMAS 2016 Congress consists of 8 plenary lectures, 27 semi-plenary lectures, 162 minisymposia, 8 special technological sessions, one minisymposium dedicated to the Young Investigators Committee of ECCOMAS. Furthermore, the 6th ECCOMAS Olympiad will be hosted by the Congress where the best PhD theses approved by a university or research organization in Europe during the year 2015 will be presented.

ECCOMAS Congresses have, apart from their advanced scientific perspective, a strong cultural and social dimension. In this context, a number of events will take place during the course of the Congress which will complement the scientific programme. The Opening Speech by Theodosios Tasios, will illustrate the achievements of the four great engineers of the Hellenistic era: Ctesibius, Archimides, Philon and Heron which among other engineering achievements include various fully operational automata and the first prerequisite for the analog computer, i.e. the Antikythera Mechanism. During the Welcome Reception, Antonis Martsakis and his group will entertain the participants with traditional Cretan music played by violin, Cretan lyra and lagotto. At the Appreciation Event, honoring the invited speakers and those who contributed to the organization of the minisymposia, Thanasis Polykandriotis' music group "OI EPOMENOI", which performed at the Opening Ceremony of the XXVIII Olympic Games "Athens 2004", will provide an anthology of Greek folk music based on the Bouzouki instrument. At the Congress Banquet, Cretan dancers will show their artistry in performing traditional folk dances of Crete which depict the brave heroism, dynamism and rebellious character of the Cretan people.



Welcome to Crete, the largest Greek island and the fifth largest in the Mediterranean. Crete has a very long and rich history during several thousand years to the past, and it is nowadays characterized by its high touristic appeal owed to the island's diverse landscape as well as its unique and colorful culture. Birthplace of Zeus according to mythology, and home of the Minoan civilization, Europe's first advanced civilization. Crete presents continuous and uninterrupted habitation since the Paleolithic era, as far back as 130,000 years ago.

The organizers of the ECCOMAS 2016 Congress would like to thank the authors for submitting their scientific contributions, the minisymposia organizers and the reviewers who with their diligent work contributed to the high scientific quality of the Congress. The technical support of the Erasmus Conferences Tours & Travel Agency in dealing with the travel arrangements of the participants and the contact with the Creta Maris Conference Centre, is greatly acknowledged.

We invite you to enjoy both the scientific as well as the social programme of the ECCOMAS Congress 2016 and the island of Crete and to experience an unforgettable event.



Manolis Papadrakakis
Congress Chairman
President of GRACM

Greetings from the President of IACM

On behalf of the International Association for Computational Mechanics (IACM), we congratulate the Congress Chairperson Professor Manolis Papadrakakis, Past President of ECCOMAS, and the Congress Honorary Chairperson Professor Ekkehard Ramm, President of ECCOMAS, for their leadership in making this Congress a marvelous success! May this successful Congress to be held in Crete, Greece in June 5-10, 2016 set a standard that will lead also to many future successful ECCOMAS events.



Wing Kam Liu
President of IACM

PROGRAMME OVERVIEW

SUNDAY, JUNE 5

16:00-20:00	Registration
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DAY 1 – MONDAY, JUNE 6

	7:30-8:30	8:30-10:00	10:00-10:30	10:30-12:00	12:00-14:00	14:00-16:00	16:00-16:30	16:30-18:30	19:00-21:00
Zeus East	Registration	Opening & Awards Ceremony	Coffee Break	PL 2, 3	Lunch Break	CS 990 – 1 PARTICLE-BASED METHODS	Coffee Break	CS 990 – 2 PARTICLE-BASED METHODS	Reception
Zeus West						MS 609 – 1 ADVANCED COMPUTATIONAL MODELING OF BATTERIES AND FUEL CELLS		MS 609 – 2 ADVANCED COMPUTATIONAL MODELING OF BATTERIES AND FUEL CELLS	
Zeus North						MS 906 – 1 MATHEMATICAL ADVANCES IN ISOGEOMETRIC ANALYSIS		MS 906 – 2 MATHEMATICAL ADVANCES IN ISOGEOMETRIC ANALYSIS	
Minos East				MS 501 – 1 ALGORITHMIC ASPECTS OF HIGH-PERFORMANCE COMPUTING FOR MECHANICS AND PHYSICS		MS 501 – 2 ALGORITHMIC ASPECTS OF HIGH-PERFORMANCE COMPUTING FOR MECHANICS AND PHYSICS			
Minos North				MS 1101 – 1 REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES		MS 1101 – 2 REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES			
Minos South				MS 503 – 1 HPC-BASED SIMULATIONS FOR THE ENGINEERING REALM AND INDUSTRIAL APPLICATIONS		MS 503 – 2 HPC-BASED SIMULATIONS FOR THE ENGINEERING REALM AND INDUSTRIAL APPLICATIONS			
Danae				MS 304 COMPUTATIONAL MODELLING OF ADDITIVE PRODUCTION PROCESSES		MS 1001 – 1 STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION			
Europa				MS 914 – 1 INNOVATIVE NON-BOUNDARY-FITTED DISCRETIZATION METHODS		MS 914 – 2 INNOVATIVE NON-BOUNDARY-FITTED DISCRETIZATION METHODS			
Leda				MS 1005 MONITORING AND CONTROL OF STRUCTURES		MS 706 MODELING OF FIBER-BASED STRUCTURES - TEXTILES AND TEXTILE REINFORCED COMPOSITES			
Athena				MS 302 – 1 MESH GENERATION AND ADAPTION		MS 302 – 2 MESH GENERATION AND ADAPTION			
Artemis				MS 903 – 1 ADVANCES IN FICTITIOUS DOMAIN METHODS FOR SOLID MECHANICS		MS 903 – 2 ADVANCES IN FICTITIOUS DOMAIN METHODS FOR SOLID MECHANICS			
Aphrodite				MS 921 – 1 RECENT ADVANCES IN BOUNDARY ELEMENT METHODS		MS 921 – 2 RECENT ADVANCES IN BOUNDARY ELEMENT METHODS			
Antigoni				MS 1306 – 1 ERCOFTAC SIG-45: UNCERTAINTY QUANTIFICATION IN CFD AND FLUID STRUCTURE INTERACTION		MS 1306 – 2 ERCOFTAC SIG-45: UNCERTAINTY QUANTIFICATION IN CFD AND FLUID STRUCTURE INTERACTION			
Apollo East				MS 303 – 1 CURVED MESH GENERATION FOR HIGH-ORDER METHODS		MS 303 - 2 CURVED MESH GENERATION FOR HIGH-ORDER METHODS			
Apollo West				MS 1104 – 1 REDUCED-ORDER MODELS FOR PDE-CONSTRAINED OPTIMIZATION AND INVERSE PROBLEMS		MS 1104 – 2 REDUCED-ORDER MODELS FOR PDE-CONSTRAINED OPTIMIZATION AND INVERSE PROBLEMS			

DAY 1 – MONDAY, JUNE 6

	7:30-8:30	8:30-10:00	10:00-10:30	10:30-12:00	12:00-14:00	14:00-16:00	16:00-16:30	16:30-18:30	19:00-21:00
Room 1	Registration	Opening & Awards Ceremony	Coffee Break	Plenary Lectures	Lunch Break	MS 1307 – 1 NON-INTRUSIVE SURROGATE MODELS FOR UNCERTAINTY QUANTIFICATION IN HIGH DIMENSIONS	Coffee Break	MS 1307 – 2 NON-INTRUSIVE SURROGATE MODELS FOR UNCERTAINTY QUANTIFICATION IN HIGH DIMENSIONS MS 1309 – 1 SCALABLE MULTI-FIDELITY MODELING FOR DESIGN, UNCERTAINTY QUANTIFICATION, AND INVERSE PROBLEMS	Reception
Room 2						CS 420 – 1 MULTI-PHASE AND CHEMICALLY REACTING FLOWS		CS 420 – 2 MULTI-PHASE AND CHEMICALLY REACTING FLOWS	
Room 3						MS 308 ADVANCES IN RAPID CAX			
Room 4						CS 210 NUMERICAL SIMULATION OF COMPOSITE MATERIALS		CS 211 CRACK PROPAGATION	
Room 5						CS 840 – 1 MULTI-SCALE COMPUTATIONAL METHODS FOR SOLIDS AND FLUIDS		CS 840 – 2 MULTI-SCALE COMPUTATIONAL METHODS FOR SOLIDS AND FLUIDS	
Room 7						CS 110 – 1 NUMERICAL MODELS IN BIOMECHANICS		CS 110 – 2 NUMERICAL MODELS IN BIOMECHANICS	
Room 8						MS 1218 STABILITY AND CONTROL OF FLEXIBLE STRUCTURES			
Room 9						CS 750 – 1 COMPUTATIONAL MODELING OF COMPOSITES		CS 750 – 2 COMPUTATIONAL MODELING OF COMPOSITES	
Room 10						MS 505 – 1 INTERACTIVE SIMULATIONS IN COMPUTATIONAL ENGINEERING		MS 505 – 2 INTERACTIVE SIMULATIONS IN COMPUTATIONAL ENGINEERING	
Room 11						MS 916 – 1 DIRECT METHODS FOR LIMIT STATES OF MATERIALS AND STRUCTURES		MS 916 – 2 DIRECT METHODS FOR LIMIT STATES OF MATERIALS AND STRUCTURES	
Room 12						MS 917 – 1 MESOSCOPIC METHODS FOR COMPLEX FLUIDS AND SOFT MATTER		MS 917 – 2 MESOSCOPIC METHODS FOR COMPLEX FLUIDS AND SOFT MATTER	
Room 15						CS 930 – 1 HIGH-ORDER DISCRETIZATION METHODS		CS 930 – 2 HIGH-ORDER DISCRETIZATION METHODS	
Room 17						CS 1020 – 1 EVOLUTIONARY AND DETERMINISTIC METHODS FOR DESIGN, OPTIMIZATION AND CONTROL		CS 1020 – 2 EVOLUTIONARY AND DETERMINISTIC METHODS FOR DESIGN, OPTIMIZATION AND CONTROL	
Room 18						CS 751 – 1 SMART MATERIALS AND STRUCTURES		CS 751 – 2 SMART MATERIALS AND STRUCTURES	
Room 20						CS 230 DYNAMIC FAILURE AND FRACTURE			
Room 21						CS 1010 – 1 COMPUTATIONAL INVERSE PROBLEMS AND OPTIMIZATION		CS 1010 – 2 COMPUTATIONAL INVERSE PROBLEMS AND OPTIMIZATION	
Room 22						MS 902 – 1 INNOVATIVE NUMERICAL APPROACHES FOR MULTI-PHYSICS PROBLEMS		MS 902 – 2 INNOVATIVE NUMERICAL APPROACHES FOR MULTI-PHYSICS PROBLEMS	
Room 23						MS 913 – 1 HIGH-ORDER METHODS FOR POLYGONAL AND POLYHEDRAL MESHES		MS 913 – 2 HIGH-ORDER METHODS FOR POLYGONAL AND POLYHEDRAL MESHES	

DAY 2 – TUESDAY, JUNE 7

	8:30-10:30	10:30-11:00	11:00-13:00	13:00-14:30	14:30-16:30	16:30-17:00	17:00-19:00
Zeus East	MS 913 – 3 HIGH-ORDER METHODS FOR POLYGONAL AND POLYHEDRAL MESHES	Coffee Break	SPL 1, 2, 3	Lunch Break	MS 105 – 1 SIMULATION OF CARDIOVASCULAR PROCEDURES AND DEVICES	Coffee Break	MS 105 – 2 SIMULATION OF CARDIOVASCULAR PROCEDURES AND DEVICES
Zeus West	MS 609 – 3 ADVANCED COMPUTATIONAL MODELING OF BATTERIES AND FUEL CELLS		SPL 4, 5 , 6		MS 112 – 1 ANEURYSMS: SOLID MECHANICS, FLUID MECHANICS, AND MECHANOBIOLOGY		MS 112 – 2 ANEURYSMS: SOLID MECHANICS, FLUID MECHANICS, AND MECHANOBIOLOGY
Zeus North	MS 906 – 3 MATHEMATICAL ADVANCES IN ISOGEOMETRIC ANALYSIS		SPL 7, 8, 9		MS 901 – 1 ISOGEOMETRIC METHODS		MS 901 – 2 ISOGEOMETRIC METHODS
Minos East	MS 501 – 3 ALGORITHMIC ASPECTS OF HIGH-PERFORMANCE COMPUTING FOR MECHANICS AND PHYSICS		SPL 10, 11, 12		MS 501 – 4 ALGORITHMIC ASPECTS OF HIGH-PERFORMANCE COMPUTING FOR MECHANICS AND PHYSICS		MS 501 – 5 ALGORITHMIC ASPECTS OF HIGH-PERFORMANCE COMPUTING FOR MECHANICS AND PHYSICS
Minos North	MS 301 – 1 METHODS FOR CUT AND COMPOSITE MESHES: THEORY, ALGORITHMS AND APPLICATIONS				MS 301 – 2 METHODS FOR CUT AND COMPOSITE MESHES: THEORY, ALGORITHMS AND APPLICATIONS		MS 301 – 3 METHODS FOR CUT AND COMPOSITE MESHES: THEORY, ALGORITHMS AND APPLICATIONS
Minos South	MS 503 – 3 HPC-BASED SIMULATIONS FOR THE ENGINEERING REALM AND INDUSTRIAL APPLICATIONS				MS 503 – 4 HPC-BASED SIMULATIONS FOR THE ENGINEERING REALM AND INDUSTRIAL APPLICATIONS		CS 500 – 1 HIGH PERFORMANCE COMPUTING
Danae	MS 1001 – 2 STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION				MS 1001 – 3 STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION		MS 1001 – 4 STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION
Europa	CS 410 – 1 COMPUTATIONAL FLUID MECHANICS				CS 410 – 2 COMPUTATIONAL FLUID MECHANICS		CS 410 – 3 COMPUTATIONAL FLUID MECHANICS
Leda	MS 1101 – 3 REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES				MS 1101 – 4 REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES		MS 1101 – 5 REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES
Athena	MS 703 – 1 COMPUTATIONAL MECHANICS OF WOOD MATERIALS AND TIMBER STRUCTURES				MS 703 – 2 COMPUTATIONAL MECHANICS OF WOOD MATERIALS AND TIMBER STRUCTURES		MS 703 – 3 COMPUTATIONAL MECHANICS OF WOOD MATERIALS AND TIMBER STRUCTURES
Artemis	MS 903 – 3 ADVANCES IN FICTITIOUS DOMAIN METHODS FOR SOLID MECHANICS				MS 113 – 1 MATHEMATICAL AND NUMERICAL MODELING OF THE HEART		MS 113 – 2 MATHEMATICAL AND NUMERICAL MODELING OF THE HEART
Aphrodite	MS 921 – 3 RECENT ADVANCES IN BOUNDARY ELEMENT METHODS				MS 104 - 1 GROWTH AND REMODELLING OF LIVING TISSUES IN EXPERIMENT AND SIMULATION		MS 104 – 2 GROWTH AND REMODELLING OF LIVING TISSUES IN EXPERIMENT AND SIMULATION
Antigoni	MS 806 – 1 MULTISCALE MODELLING OF MATERIALS AND STRUCTURES				MS 806 – 2 MULTISCALE MODELLING OF MATERIALS AND STRUCTURES		MS 806 – 3 MULTISCALE MODELLING OF MATERIALS AND STRUCTURES
Apollo East	MS 106 – 1 DIRECT AND INVERSE METHODS FOR CARDIOVASCULAR AND PULMONARY BIOMECHANICS				MS 801 – 1 MULTISCALE COMPUTATIONAL HOMOGENIZATION FOR BRIDGING SCALES IN THE MECHANICS AND PHYSICS OF COMPLEX MATERIALS		MS 801 – 2 MULTISCALE COMPUTATIONAL HOMOGENIZATION FOR BRIDGING SCALES IN THE MECHANICS AND PHYSICS OF COMPLEX MATERIALS
Apollo West	MS 919 – 1 RECENT ADVANCES IN NUMERICAL SIMULATION AND ANALYSIS OF KINETIC MODELS				MS 919 – 2 RECENT ADVANCES IN NUMERICAL SIMULATION AND ANALYSIS OF KINETIC MODELS		MS 919 – 3 RECENT ADVANCES IN NUMERICAL SIMULATION AND ANALYSIS OF KINETIC MODELS
Room 1	MS 1202 – 1 ADVANCED BEAM MODELS				MS 1202 – 2 ADVANCED BEAM MODELS		MS 1202 – 3 ADVANCED BEAM MODELS
Room 2	CS 420 – 3 MULTI-PHASE AND CHEMICALLY REACTING FLOWS				MS 305 – 1 ADVANCED MESHING METHODS FOR INDUSTRIAL APPLICATIONS		MS 305 – 2 ADVANCED MESHING METHODS FOR INDUSTRIAL APPLICATIONS

DAY 2 – TUESDAY, JUNE 7

	8:30-10:30	10:30-11:00	11:00-13:00	13:00-14:30	14:30-16:30	16:30-17:00	17:00-19:00
Room 3	MS 306 LATTICE SPRING METHODS FOR LINEAR AND NONLINEAR CONTINUA	Coffee Break	Semi-Plenary Lectures	Lunch Break	MS 1301 THE STOCHASTIC COMPUTER METHODS IN MECHANICS	Coffee Break	STS 1 THE CAERO2 PLATFORM: DISSEMINATION OF COMPUTATIONAL CASE STUDIES IN AERONAUTICS
Room 4	CS 212 – 1 NUMERICAL MODELING OF DAMAGE, FAILURE AND FRACTURE				CS 212 – 2 NUMERICAL MODELING OF DAMAGE, FAILURE AND FRACTURE		CS 212 – 3 NUMERICAL MODELING OF DAMAGE, FAILURE AND FRACTURE
Room 5	CS 460 – 1 UNSTEADY FLOW COMPUTATION				CS 460 – 2 UNSTEADY FLOW COMPUTATION		CS 460 – 3 UNSTEADY FLOW COMPUTATION
Room 7	MS 1214 – 1 HISTORIC MASONRY STRUCTURES: MODELLING, ASSESSMENT & RETROFIT				MS 1214 – 2 HISTORIC MASONRY STRUCTURES: MODELLING, ASSESSMENT & RETROFIT		MS 1214 – 3 HISTORIC MASONRY STRUCTURES: MODELLING, ASSESSMENT & RETROFIT
Room 8	CS 110 – 3 NUMERICAL MODELS IN BIOMECHANICS				CS 110 – 4 NUMERICAL MODELS IN BIOMECHANICS		CS 110 – 5 NUMERICAL MODELS IN BIOMECHANICS
Room 9	CS 750 – 3 COMPUTATIONAL MODELING OF COMPOSITES				MS 415 COMPUTATIONAL NON-NEWTONIAN FLUID MECHANICS		MS 1217 – 1 COMPUTATIONAL METHODS IN EARTHQUAKE ENGINEERING AND STRUCTURAL DYNAMICS
Room 10	CS 1200 – 1 STRUCTURAL DYNAMICS				MS 1212 – 1 DYNAMICS AND SEISMIC RESPONSE OF ROCKING AND SELF-CENTERING STRUCTURES		MS 1212 – 2 DYNAMICS AND SEISMIC RESPONSE OF ROCKING AND SELF-CENTERING STRUCTURES
Room 11	MS 1309 – 2 SCALABLE MULTI-FIDELITY MODELING FOR DESIGN, UNCERTAINTY QUANTIFICATION, AND INVERSE PROBLEMS				CS 1200 – 2 STRUCTURAL DYNAMICS		CS 1201 COMPUTATIONAL SOIL MECHANICS
Room 12	MS 1206 – 1 ADVANCES IN NUMERICAL METHODS FOR LINEAR AND NON-LINEAR DYNAMICS AND WAVE PROPAGATION				MS 1206 – 2 ADVANCES IN NUMERICAL METHODS FOR LINEAR AND NON-LINEAR DYNAMICS AND WAVE PROPAGATION		MS 1206 – 3 ADVANCES IN NUMERICAL METHODS FOR LINEAR AND NON-LINEAR DYNAMICS AND WAVE PROPAGATION
Room 15	CS 930 – 3 HIGH-ORDER DISCRETIZATION METHODS						CS 930 – 4 HIGH-ORDER DISCRETIZATION METHODS
Room 17	CS 1020 – 3 EVOLUTIONARY AND DETERMINISTIC METHODS FOR DESIGN, OPTIMIZATION AND CONTROL				CS 1010 – 4 COMPUTATIONAL INVERSE PROBLEMS AND OPTIMIZATION		CS 1300 – 1 UNCERTAINTY QUANTIFICATION AND ERROR ESTIMATION
Room 18	STS 2 – 1 GREEN AND SMART INTELLIGENT TRANSPORT SYSTEMS (IST): TOWARDS MORE INTEGRATED COMPUTATIONAL AND IT TOOLS FOR THE DEPLOYMENT OF NOVEL TRAVEL SERVICES				STS 2 – 2 GREEN AND SMART INTELLIGENT TRANSPORT SYSTEMS (IST): TOWARDS MORE INTEGRATED COMPUTATIONAL AND IT TOOLS FOR THE DEPLOYMENT OF NOVEL TRAVEL SERVICES		MS 1007 – 1 ADDITIVE MANUFACTURING AND OPTIMIZATION
Room 20	MS 115 – 1 TUMOR GROWTH MODELING AND THE MECHANICAL ASPECTS OF CANCER				MS 115 – 2 TUMOR GROWTH MODELING AND THE MECHANICAL ASPECTS OF CANCER		MS 116 MULTISCALE & MULTILEVEL MODELING IN DETOXIFYING ORGANS AND ORGANS OF THE DIGESTIVE TRACT
					MS 111 POPULATION BALANCE MODELING: CURRENT STATUS, FUTURE PROSPECTS AND NOVEL APPLICATIONS FROM NANOPARTICLES' SYNTHESIS TO (LUNG) CANCER		
Room 21	CS 1010 – 3 COMPUTATIONAL INVERSE PROBLEMS AND OPTIMIZATION				MS 404 – 1 SIMULATION OF ENVIRONMENTAL FLOWS		MS 404 – 2 SIMULATION OF ENVIRONMENTAL FLOWS
Room 22	CS 940 – 1 EXTENDED DISCRETIZATION METHODS				CS 940 – 2 EXTENDED DISCRETIZATION METHODS		CS 960 – 2 MESHLESS METHODS
Room 23	MS 1305 STOCHASTIC MODELS OF FAILURE IN RANDOM HETEROGENEOUS MATERIALS AND COMPLEX NETWORKS				MS 1009 – 1 ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION		

DAY 3 – WEDNESDAY, JUNE 8

	8:30-10:30	10:30-11:00	11:00-13:00	13:00-14:30	14:30-16:45	16:45-17:15	17:15-19:15
Zeus East	MS 106 – 2 DIRECT AND INVERSE METHODS FOR CARDIOVASCULAR AND PULMONARY BIOMECHANICS	Coffee Break	MS 106 – 3 DIRECT AND INVERSE METHODS FOR CARDIOVASCULAR AND PULMONARY BIOMECHANICS	Lunch Break	PL 4, 5, 6	Coffee Break	MS 113 – 4 MATHEMATICAL AND NUMERICAL MODELING OF THE HEART
Zeus West	MS 112 – 3 ANEURYSMS: SOLID MECHANICS, FLUID MECHANICS, AND MECHANOBIOLOGY		MS 112 – 4 ANEURYSMS: SOLID MECHANICS, FLUID MECHANICS, AND MECHANOBIOLOGY				
Zeus North	MS 901 – 3 ISOGEOMETRIC METHODS		MS 901 – 4 ISOGEOMETRIC METHODS				MS 901 – 5 ISOGEOMETRIC METHODS
Minos East	MS 1101 – 6 REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES		MS 1101 – 7 REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES				MS 602 – 1 INNOVATIVE METHODS FOR FLUID-STRUCTURE-INTERACTION
Minos North	MS 301 – 4 METHODS FOR CUT AND COMPOSITE MESHES: THEORY, ALGORITHMS AND APPLICATIONS		MS 403 – 1 PARTICLE-BASED METHODS IN FLUID MECHANICS				STS 5 TRANSITION LOCATION EFFECT ON SHOCK WAVE BOUNDARY LAYER INTERACTION
Minos South	CS 500 – 2 HIGH PERFORMANCE COMPUTING		MS 408 – 1 MANIPULATION AND CONTROL OF TURBULENT FLOW CS 310 CAD, CAM AND CAE				MS 112 – 5 ANEURYSMS: SOLID MECHANICS, FLUID MECHANICS, AND MECHANOBIOLOGY
Danae	MS 923 – 1 NOVEL DISCRETIZATION METHODS – MATHEMATICAL AND MECHANICAL ASPECTS		MS 923 – 2 NOVEL DISCRETIZATION METHODS – MATHEMATICAL AND MECHANICAL ASPECTS				MS 923 – 3 NOVEL DISCRETIZATION METHODS – MATHEMATICAL AND MECHANICAL ASPECTS
Europa	MS 714 – 1 STRENGTH, FATIGUE AND STABILITY OF COMPOSITE STRUCTURES		MS 714 – 2 STRENGTH, FATIGUE AND STABILITY OF COMPOSITE STRUCTURES				CS 630 – 1 SIMULATION OF FLUID-STRUCTURE INTERACTION
Leda	MS 1001 – 5 STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION		MS 1001 – 6 STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION				MS 1001 – 7 STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION
Athena	MS 504 – 1 NUMERICAL METHODS AND TOOLS FOR KEY EXASCALE COMPUTING CHALLENGES IN ENGINEERING AND APPLIED SCIENCES		MS 504 – 2 NUMERICAL METHODS AND TOOLS FOR KEY EXASCALE COMPUTING CHALLENGES IN ENGINEERING AND APPLIED SCIENCES				MS 1102 VERIFICATION OF REDUCED MODELS IN COMPUTATIONAL MECHANICS
			MS 810 CONSIDERING THE VERY SMALL SCALES IN COMPUTATIONAL MECHANICS: ATOMISTIC AND QUANTUM MECHANICS-BASED METHODS				
Artemis	MS 113 – 3 MATHEMATICAL AND NUMERICAL MODELING OF THE HEART		CS 830 COMPUTATIONAL NANOTECHNOLOGY				MS 405 COMPUTATIONAL MODELING OF MULTIPHASE FLOWS: ADVANCED METHODS, INTERFACE PHENOMENA AND ENVIRONMENTAL APPLICATIONS
Aphrodite	MS 103 – 1 MECHANICS OF BIOLOGICAL TISSUES		MS 103 – 2 MECHANICS OF BIOLOGICAL TISSUES				MS 103 – 3 MECHANICS OF BIOLOGICAL TISSUES
Antigoni	MS 806 – 4 MULTISCALE MODELLING OF MATERIALS AND STRUCTURES		MS 806 – 5 MULTISCALE MODELLING OF MATERIALS AND STRUCTURES				
Apollo East	MS 801 – 3 MULTISCALE COMPUTATIONAL HOMOGENIZATION FOR BRIDGING SCALES IN THE MECHANICS AND PHYSICS OF COMPLEX MATERIALS		MS 801 – 4 MULTISCALE COMPUTATIONAL HOMOGENIZATION FOR BRIDGING SCALES IN THE MECHANICS AND PHYSICS OF COMPLEX MATERIALS				MS 801 – 5 MULTISCALE COMPUTATIONAL HOMOGENIZATION FOR BRIDGING SCALES IN THE MECHANICS AND PHYSICS OF COMPLEX MATERIALS
Apollo West	MS 1308 MODELLING AND INVERSE METHODS IN NONLINEAR DYNAMICAL SYSTEMS		CS 450 – 1 NUMERICAL METHODS AND CONVERGENCE ACCELERATION IN CFD				CS 450 – 2 NUMERICAL METHODS AND CONVERGENCE ACCELERATION IN CFD
Room 1	MS 409 – 1 CURRENT TRENDS IN MODELLING AND SIMULATION OF TURBULENT FLOWS		MS 409 – 2 CURRENT TRENDS IN MODELLING AND SIMULATION OF TURBULENT FLOWS				MS 1002 EVOLUTIONARY ALGORITHMS AND METAHEURISTICS IN CIVIL ENGINEERING AND CONSTRUCTION MANAGEMENT

DAY 3 – WEDNESDAY, JUNE 8

	8:30-10:30	10:30-11:00	11:00-13:00	13:00-14:30	14:30-16:45	16:45-17:15	17:15-19:15
Room 2	STS 3 – 1 INNOVATIVE DESIGN OPTIMIZATION TOOLS LINKED TO INDUSTRIAL AERONAUTICAL APPLICATIONS: TARGETING GREENER PERFORMANCES	Coffee Break	STS 3 – 2 INNOVATIVE DESIGN OPTIMIZATION TOOLS LINKED TO INDUSTRIAL AERONAUTICAL APPLICATIONS: TARGETING GREENER PERFORMANCES	Lunch Break	Plenary Lectures	Coffee Break	MS 406 ADVANCES IN COMPUTATIONAL METHODS FOR GAS-LIQUID TWO-PHASE FLOW
Room 3	MS 1207 COMPUTATIONAL SIMULATION OF SMART STRUCTURES AND MATERIALS		MS 1203 THE MODELS AND INVESTIGATIONS METHODS OF DYNAMICS OF THE SOLIDS SYSTEMS WITH DRY FRICTION				MS 1006 PARAMETER IDENTIFICATION IN SOLID MECHANICS
Room 4	CS 110 – 6 NUMERICAL MODELS IN BIOMECHANICS		CS 1200 - 3 STRUCTURAL DYNAMICS				MS 408 – 2 MANIPULATION AND CONTROL OF TURBULENT FLOW
Room 5	CS 410 – 4 COMPUTATIONAL FLUID MECHANICS		CS 410 – 5 COMPUTATIONAL FLUID MECHANICS				CS 410 – 6 COMPUTATIONAL FLUID MECHANICS
Room 7	MS 114 COMPUTER MODELING OF BALANCE AND HEARING DISORDERS		CS 720 – 1 COMPUTATIONAL MATERIALS SCIENCE				CS 720 – 2 COMPUTATIONAL MATERIALS SCIENCE
Room 8	MS 613 COMPUTATIONAL STRATEGIES FOR THE SIMULATION OF TURBULENT TRANSPORT AND MIXING IN THE NATURAL ENVIRONMENT		MS 1201 – 1 COMPUTATIONAL STRUCTURAL DYNAMICS				MS 1201 – 2 COMPUTATIONAL STRUCTURAL DYNAMICS
Room 9	MS 1217 – 2 COMPUTATIONAL METHODS IN EARTHQUAKE ENGINEERING AND STRUCTURAL DYNAMICS		MS 1217 – 3 COMPUTATIONAL METHODS IN EARTHQUAKE ENGINEERING AND STRUCTURAL DYNAMICS				MS 203 COMPUTATIONAL METHODS FOR MODELLING INSTABILITIES IN SOLIDS & STRUCTURES
Room 10	MS 1220 DYNAMICS OF STRUCTURES SUBJECT TO SEISMIC EXCITATIONS		MS 414 – 1 NEW TRENDS IN NUMERICAL METHODS FOR MULTI-MATERIAL COMPRESSIBLE FLUID FLOWS				MS 414 – 2 NEW TRENDS IN NUMERICAL METHODS FOR MULTI-MATERIAL COMPRESSIBLE FLUID FLOWS
Room 11	MS 410 – 1 COMPLEX FLUID FLOWS IN ENGINEERING: MODELLING, SIMULATION AND OPTIMIZATION		MS 410 – 2 COMPLEX FLUID FLOWS IN ENGINEERING: MODELLING, SIMULATION AND OPTIMIZATION				MS 410 – 3 COMPLEX FLUID FLOWS IN ENGINEERING: MODELLING, SIMULATION AND OPTIMIZATION
Room 12	MS 601 SHOCK WAVE-BOUNDARY LAYER INTERACTION AND ITS CONTROL		MS 1003 – 1 ADVANCES IN DESIGN OPTIMIZATION OF STRUCTURES AND MATERIALS				MS 1003 – 2 ADVANCES IN DESIGN OPTIMIZATION OF STRUCTURES AND MATERIALS
Room 15	MS 307 ADVANCES IN FINITE ELEMENT METHODS FOR TETRAHEDRAL MESH COMPUTATIONS		MS 905 – 1 DISCONTINUOUS GALERKIN METHODS: NEW TRENDS AND APPLICATIONS				MS 804 – 1 MULTISCALE AND COMPUTATIONAL APPROACHES TO FRACTURE AND FAILURE
Room 17	CS 1300 – 2 UNCERTAINTY QUANTIFICATION AND ERROR ESTIMATION		CS 1300 – 3 UNCERTAINTY QUANTIFICATION AND ERROR ESTIMATION				
Room 18	MS 1007 – 2 ADDITIVE MANUFACTURING AND OPTIMIZATION		MS 1222 INFLUENCE OF LIQUEFIABLE SOIL ON SINGLE AND CLOSELY CLUSTERED STRUCTURES				
Room 20	MS 907 – 1 REGULARIZED ENRICHED APPROXIMATIONS AND QUADRATURE FOR DISCONTINUITIES, SINGULARITIES AND CONTINUOUS-DISCONTINUOUS TRANSITION		MS 1007 – 3 ADDITIVE MANUFACTURING AND OPTIMIZATION				MS 1007 – 4 ADDITIVE MANUFACTURING AND OPTIMIZATION
Room 21	MS 404 – 3 SIMULATION OF ENVIRONMENTAL FLOWS		MS 907 – 2 REGULARIZED ENRICHED APPROXIMATIONS AND QUADRATURE FOR DISCONTINUITIES, SINGULARITIES AND CONTINUOUS-DISCONTINUOUS TRANSITION				MS 907 – 3 REGULARIZED ENRICHED APPROXIMATIONS AND QUADRATURE FOR DISCONTINUITIES, SINGULARITIES AND CONTINUOUS-DISCONTINUOUS TRANSITION
Room 22	Olympiad - 1		MS 404 – 4 SIMULATION OF ENVIRONMENTAL FLOWS				MS 110 COMPUTATIONAL BONE MECHANICS
Room 23	MS 1009 – 2 ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION		Olympiad - 2				
			MS 1009 – 3 ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION				MS 1009 – 4 ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION

DAY 4 – THURSDAY, JUNE 9

	8:30-10:30	10:30-11:00	11:00-13:00	13:00-14:30	14:30-16:30	16:30-17:00	17:00-19:00	20:30-23:30
Zeus East	MS 403 – 2 PARTICLE-BASED METHODS IN FLUID MECHANICS	Coffee Break	SPL 13, 14, 15	Lunch Break	MS 403 – 3 PARTICLE-BASED METHODS IN FLUID MECHANICS	Coffee Break		Banquet Dinner
Zeus West	MS 1007 – 5 ADDITIVE MANUFACTURING AND OPTIMIZATION		SPL 16, 17, 18		MS 708 INNOVATIVE SOLUTIONS FOR THE SEISMIC PROTECTION OF INDUSTRIAL BUILDINGS			
Zeus North	MS 901 – 6 ISOGEOMETRIC METHODS		SPL 19, 20		MS 807 ADVANCED COMPUTATIONAL STRATEGIES FOR MODELLING, SIMULATION AND CHARACTERISATION OF MULTI-SCALE HETEROGENEOUS MATERIALS			
Minos East	MS 602 – 2 INNOVATIVE METHODS FOR FLUID-STRUCTURE-INTERACTION		SPL 21, 22, 23		MS 901 – 7 ISOGEOMETRIC METHODS			
Minos North	STS 6 DRAG REDUCTION AND FLOW CONTROL TECHNOLOGIES		SPL 24, 25, 26		MS 602 – 3 INNOVATIVE METHODS FOR FLUID-STRUCTURE-INTERACTION		STS 9 ADVANCED WING HIGH-LIFT SYSTEMS	
Minos South	MS 112 – 6 ANEURYSMS: SOLID MECHANICS, FLUID MECHANICS, AND MECHANOBIOLOGY				MS 614 – 1 YOUNG INVESTIGATORS MINISYMPOSIUM		MS 614 – 2 YOUNG INVESTIGATORS MINISYMPOSIUM	
Danae					MS 1204 – 1 NONLINEAR DYNAMICS OF ROTATING STRUCTURES		MS 1204 – 2 NONLINEAR DYNAMICS OF ROTATING STRUCTURES	
Europa	CS 630 – 2 SIMULATION OF FLUID-STRUCTURE INTERACTION				MS 1209 DYNAMIC ANALYSIS OF BEAMS UNDER MOVING VEHICLES: APPLICATION TO RAILWAY TRACK MODELLING, DESIGN AND REHABILITATION		MS 1209 DYNAMIC ANALYSIS OF BEAMS UNDER MOVING VEHICLES: APPLICATION TO RAILWAY TRACK MODELLING, DESIGN AND REHABILITATION	
Leda	MS 904 – 1 ADVANCED MINIMAL RESIDUAL DISCRETIZATION				MS 108 – 1 NUMERICAL METHODS FOR COUPLED PROBLEMS IN BIOMEDICAL APPLICATIONS		MS 108 – 2 NUMERICAL METHODS FOR COUPLED PROBLEMS IN BIOMEDICAL APPLICATIONS	
Athena	MS 1401 – 1 TOICA: THERMAL OVERALL INTEGRATED CONCEPT AIRCRAFT				CS 630 – 3 SIMULATION OF FLUID-STRUCTURE INTERACTION		CS 630 – 4 SIMULATION OF FLUID-STRUCTURE INTERACTION	
Artemis	MS 1210 ADVANCES IN MODELING AND ANALYSIS OF FGM STRUCTURES				MS 904 – 2 ADVANCED MINIMAL RESIDUAL DISCRETIZATION		MS 202 – 1 CIVIL ENGINEERING MATERIALS AND STRUCTURES UNDER EXTREME LOADINGS	
Aphrodite	MS 103 – 4 MECHANICS OF BIOLOGICAL TISSUES				MS 1401 – 2 TOICA: THERMAL OVERALL INTEGRATED CONCEPT AIRCRAFT		MS 606 – 1 COMPUTATIONAL MODELING OF HYDRAULIC FRACTURING	
Antigoni	MS 201 – 1 MICROSTRUCTURE-DRIVEN DEFORMATION AND FAILURE IN CRYSTALLINE MATERIALS				STS 7 MORPHING TECHNOLOGIES FOR AIRCRAFT WINGS		MS 403 – 4 PARTICLE-BASED METHODS IN FLUID MECHANICS	
Apollo East	MS 711 – 1 FOURIER-BASED METHODS FOR COMPUTING THE BEHAVIOR OF HETEROGENEOUS MATERIALS DEVELOPMENTS, EXTENSIONS AND APPLICATIONS				STS 8 SIMULATION AND VALIDATION OF COMPOSITE STRUCTURES IN AERONAUTICS		MS 102 – 2 COMPUTATIONAL MODELS IN BIOMECHANICS AND MECHANOBIOLOGY	
Apollo West	MS 204 – 1 IMPACT AND CRASH MECHANICS				MS 102 – 1 COMPUTATIONAL MODELS IN BIOMECHANICS AND MECHANOBIOLOGY		MS 201 – 3 MICROSTRUCTURE-DRIVEN DEFORMATION AND FAILURE IN CRYSTALLINE MATERIALS	
Room 1	MS 702 MODELING OF NANOFILLED COMPOSITES				MS 201 – 2 MICROSTRUCTURE-DRIVEN DEFORMATION AND FAILURE IN CRYSTALLINE MATERIALS		MS 711 – 3 FOURIER-BASED METHODS FOR COMPUTING THE BEHAVIOR OF HETEROGENEOUS MATERIALS DEVELOPMENTS, EXTENSIONS AND APPLICATIONS	
					MS 711 – 2 FOURIER-BASED METHODS FOR COMPUTING THE BEHAVIOR OF HETEROGENEOUS MATERIALS DEVELOPMENTS, EXTENSIONS AND APPLICATIONS		MS 204 – 3 IMPACT AND CRASH MECHANICS	
					MS 204 – 2 IMPACT AND CRASH MECHANICS		MS 1401 – 3 TOICA: THERMAL OVERALL INTEGRATED CONCEPT AIRCRAFT	
					MS 412 NUMERICAL METHODS FOR WAVES AND FLOWS IN COASTAL AND DEEP WATER HYDRODYNAMICS	MS 615 COMPUTATIONAL MODELS IN MAGNETOHYDRODYNAMICS		

DAY 4 – THURSDAY, JUNE 9

	8:30-10:30	10:30-11:00	11:00-13:00	13:00-14:30	14:30-16:30	16:30-17:00	17:00-19:00	20:30-23:30
Room 2	MS 1208 BIFURCATIONS AND STABILITY	Coffee Break	Semi-Plenary Lectures	Lunch Break	MS 413 – 1 COMPUTATIONAL METHODS IN ENVIRONMENTAL FLUID MECHANICS	Coffee Break	MS 413 – 2 COMPUTATIONAL METHODS IN ENVIRONMENTAL FLUID MECHANICS	Banquet Dinner
Room 3	MS 409 – 3 CURRENT TRENDS IN MODELLING AND SIMULATION OF TURBULENT FLOWS				MS 603 – 1 COMPUTATIONAL METHODS IN FLUID-STRUCTURE INTERACTION WITH IMPACT ON INDUSTRIAL APPLICATIONS		MS 603 – 2 COMPUTATIONAL METHODS IN FLUID-STRUCTURE INTERACTION WITH IMPACT ON INDUSTRIAL APPLICATIONS	
Room 4	MS 701 – 1 ADVANCED MATERIALS: COMPUTATIONAL ANALYSIS OF PROPERTIES AND PERFORMANCE				MS 701 – 2 ADVANCED MATERIALS: COMPUTATIONAL ANALYSIS OF PROPERTIES AND PERFORMANCE		CS 320 GRID GENERATION AND ADAPTIVE TECHNIQUES	
Room 5	MS 911 – 1 NUMERICAL METHODS IN THE MECHANICS OF GENERALIZED CONTINUA				MS 911 – 2 NUMERICAL METHODS IN THE MECHANICS OF GENERALIZED CONTINUA		MS 912 – 2 HIGH-ORDER METHODS, SENSITIVITY ANALYSIS AND ADAPTATION FOR THE NAVIER STOKES EQUATIONS	
Room 7	MS 608 ADVANCES IN TIME INTEGRATION FOR SOLID, FLUID AND COUPLED SYSTEMS				MS 912 – 1 HIGH-ORDER METHODS, SENSITIVITY ANALYSIS AND ADAPTATION FOR THE NAVIER STOKES EQUATIONS		MS 1225 – 2 SEISMIC PERFORMANCE ASSESSMENT OF STRUCTURES AND SEISMIC RISK MITIGATION STRATEGIES	
Room 8	MS 109 – 1 ADVANCED ANALYSIS OF MATERIALS & STRUCTURAL SOLUTIONS IN SAFETY & BIOMECHANICS				MS 1225 – 1 SEISMIC PERFORMANCE ASSESSMENT OF STRUCTURES AND SEISMIC RISK MITIGATION STRATEGIES		MS 1213 INNOVATIVE STRUCTURAL SYSTEMS FOR SEISMIC RESISTANT BUILDINGS	
Room 9	MS 709 INTEGRATED COMPUTATIONAL MATERIALS ENGINEERING - ICME				MS 109 – 2 ADVANCED ANALYSIS OF MATERIALS & STRUCTURAL SOLUTIONS IN SAFETY & BIOMECHANICS		MS 1304 – 1 STOCHASTIC MODELING AND IDENTIFICATION OF UNCERTAINTIES IN COMPUTATIONAL MECHANICS	
Room 10	MS 710 MODELING OF INTERFACE BEHAVIOR IN COMPOSITES				MS 705 IDENTIFICATION OF MATERIAL MODELS		MS 605 FRICTIONAL CONTACTS WITH LUBRICATION – BASICS AND APPLICATIONS	
Room 11	MS 918 COMPUTER ALGEBRA SYSTEMS IN MODELLING STATIC AND DYNAMIC PROBLEMS IN MECHANICS OF SOLIDS				MS 715 – 1 COMPUTATIONAL ANALYSIS OF COMPOSITE STRUCTURES		MS 715 – 2 COMPUTATIONAL ANALYSIS OF COMPOSITE STRUCTURES	
Room 12	MS 1003 - 3 ADVANCES IN DESIGN OPTIMIZATION OF STRUCTURES AND MATERIALS				MS 712 – 1 SMART MATERIAL SYSTEMS AND STRUCTURES		MS 712 – 2 SMART MATERIAL SYSTEMS AND STRUCTURES	
Room 15	CS 620 – 1 COMPUTATIONAL CONTACT MECHANICS				MS 612 NUMERICAL SIMULATIONS FOR SMART-CITY APPLICATIONS		MS 611 ADVANCES IN IMMERSED METHODS IN FSI PROBLEMS	
Room 17	CS 1100 REDUCTION ORDER METHODS				CS 620 – 2 COMPUTATIONAL CONTACT MECHANICS		MS 1004 AERODYNAMIC STRATEGIES FOR THE GLOBAL OPTIMIZATION OF FLYING CONFIGURATIONS IN SUPERSONIC FLOW	
Room 18	MS 607 – 1 ADVANCES IN COMPUTATIONAL METHODS FOR LIQUID-VAPOR FLOWS WITH PHASE TRANSFER PROCESSES				MS 811 MULTISCALE MODELING OF CONCRETE AND CONCRETE STRUCTURES		MS 1221 COMPUTATIONAL STRUCTURAL STABILITY	
Room 20	MS 905 – 2 DISCONTINUOUS GALERKIN METHODS: NEW TRENDS AND APPLICATIONS				MS 607 – 2 ADVANCES IN COMPUTATIONAL METHODS FOR LIQUID-VAPOR FLOWS WITH PHASE TRANSFER PROCESSES		MS 809 MULTISCALE STOCHASTIC FINITE ELEMENT METHODS	
Room 21	MS 1215 – 1 NONLINEAR VIBRATIONS OF CONSERVATIVE AND NONCONSERVATIVE SYSTEMS: PHENOMENA AND ADVANCED NUMERICAL METHODS				MS 905 – 3 DISCONTINUOUS GALERKIN METHODS: NEW TRENDS AND APPLICATIONS		MS 905 – 4 DISCONTINUOUS GALERKIN METHODS: NEW TRENDS AND APPLICATIONS	
Room 22	MS 1224 INNOVATIVE SOLUTIONS FOR THE SEISMIC PROTECTION OF INDUSTRIAL BUILDINGS				MS 1215 – 2 NONLINEAR VIBRATIONS OF CONSERVATIVE AND NONCONSERVATIVE SYSTEMS: PHENOMENA AND ADVANCED NUMERICAL METHODS		MS 910 – 1 HIGH ORDER CFD METHODS: CONCLUSIONS AND OUTLOOK	
Room 23	MS 1009 – 5 ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION				MS 1103 – 1 MATHEMATICAL SURROGATE MODELLING IN ELECTROMAGNETICS		MS 1103 – 2 MATHEMATICAL SURROGATE MODELLING IN ELECTROMAGNETICS	
					MS 1009 – 6 ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION		MS 1009 – 7 ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION	

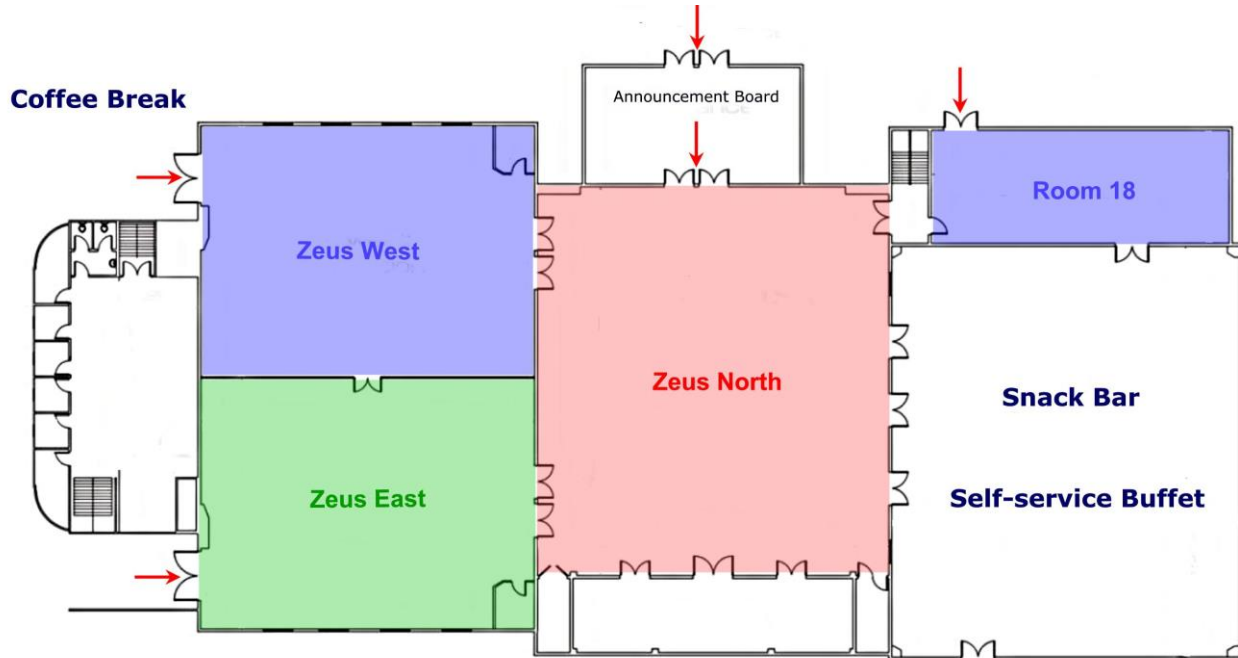
DAY 5 – FRIDAY, JUNE 10

	9:00-11:00	11:00-11:30	11:30-13:30	13:30-14:30	14:30-16:30
Zeus East	MS 403 – 5 PARTICLE-BASED METHODS IN FLUID MECHANICS	Coffee Break		Lunch Break	PL 7 PL 8 Closing Ceremony
Zeus West					
Zeus North					
Minos East	MS 602 – 4 INNOVATIVE METHODS FOR FLUID-STRUCTURE-INTERACTION		MS 602 – 5 INNOVATIVE METHODS FOR FLUID-STRUCTURE-INTERACTION		
Minos North	MS 922 – 1 HIGH-ORDER METHODS FOR ELASTIC WAVES AND THEIR APPLICATION		MS 922 – 2 HIGH-ORDER METHODS FOR ELASTIC WAVES AND THEIR APPLICATION MS 1008 ULTRASONIC GUIDED WAVES TESTING AND MONITORING		
Minos South					
Danae					
Europa	CS 630 – 5 SIMULATION OF FLUID-STRUCTURE INTERACTION MS 411 NON-NEWTONIAN HEAT AND FLUID FLOW SUBJECTED TO MAGNETIC FORCES				
Leda	MS 202 – 2 CIVIL ENGINEERING MATERIALS AND STRUCTURES UNDER EXTREME LOADINGS				
Athena	MS 606 – 2 COMPUTATIONAL MODELING OF HYDRAULIC FRACTURING		MS 606 – 3 COMPUTATIONAL MODELING OF HYDRAULIC FRACTURING		
Artemis					
Aphrodite	MS 805 – 1 ADVANCED MULTI-PHYSICS AND MULTI-SCALE TECHNIQUES FOR MODELING INELASTIC PROCESSES IN SOLIDS: DAMAGE, FRACTURE AND CONTACT MECHANICS		MS 805 – 2 ADVANCED MULTI-PHYSICS AND MULTI-SCALE TECHNIQUES FOR MODELING INELASTIC PROCESSES IN SOLIDS: DAMAGE, FRACTURE AND CONTACT MECHANICS		
Antigoni	MS 201 – 4 MICROSTRUCTURE-DRIVEN DEFORMATION AND FAILURE IN CRYSTALLINE MATERIALS				
Apollo East	MS 713 – 1 MICROSTRUCTURE-BASED MODELLING OF HETEROGENEOUS MATERIALS		MS 713 – 2 MICROSTRUCTURE-BASED MODELLING OF HETEROGENEOUS MATERIALS		
Apollo West	MS 205 PROBABILISTIC APPROACH TO NUMERICAL SIMULATION OF FRACTURE		MS 610 AERO-ACOUSTICS		

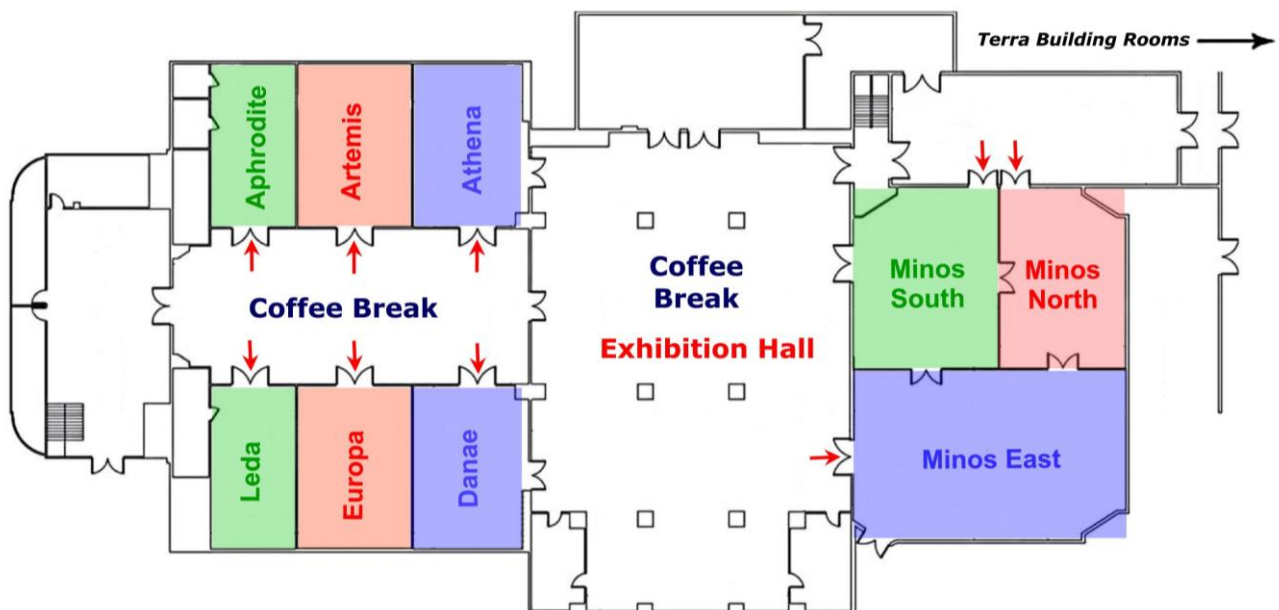
DAY 5 – FRIDAY, JUNE 10

	9:00-11:00	11:00-11:30	11:30-13:30	13:30-14:30	14:30-16:30
Room 1	MS 707 – 1 MICROMECHANICAL MODELLING: COMPETITION BETWEEN ANALYTICAL AND NUMERICAL METHODS	Coffee Break	MS 707 – 2 MICROMECHANICAL MODELLING: COMPETITION BETWEEN ANALYTICAL AND NUMERICAL METHODS	Lunch Break	Plenary Lectures & Closing Ceremony
Room 2	MS 1304 – 2 STOCHASTIC MODELING AND IDENTIFICATION OF UNCERTAINTIES IN COMPUTATIONAL MECHANICS		MS 1303 ANALYSIS AND DESIGN OF SAFETY CRITICAL SYSTEMS UNDER UNCERTAINTY		
Room 3	MS 506 ACCURACY AND EFFICIENCY OF APPROXIMATE COMPUTATIONS IN SCIENCE AND ENGINEERING				
Room 4	MS 1216 STRUCTURAL ANALYSIS AND VIBRATIONS CS 1202 – 1 STRUCTURAL ANALYSIS AND MULTI BODY DYNAMICS		CS 1202 – 2 STRUCTURAL ANALYSIS AND MULTI BODY DYNAMICS CS 1301 MODECULAR DYNAMICS		
Room 5	MS 1010 INVERSE PROBLEMS, DESIGN AND OPTIMIZATION		MS 1014 DESIGN OPTIMIZATION AND INVERSE PROBLEMS FOR WAVE PROPAGATION PROBLEMS		
Room 7	MS 808 – 1 MULTISCALE AND MULTIPHYSICS MODELING OF CEMENTITIOUS MATERIALS		MS 808 – 2 MULTISCALE AND MULTIPHYSICS MODELING OF CEMENTITIOUS MATERIALS		
Room 8	MS 802 – 1 MULTISCALE AND MULTIPHYSICS MODELING OF CEMENTITIOUS MATERIALS		MS 802 – 2 MULTISCALE AND MULTIPHYSICS MODELING OF CEMENTITIOUS MATERIALS		
Room 9	MS 908 – 1 VERIFICATION AND VALIDATION OF STRUCTURAL MECHANICS SIMULATION MODELS		MS 908 – 2 VERIFICATION AND VALIDATION OF STRUCTURAL MECHANICS SIMULATION MODELS		
Room 10			MS 107 MULTI-SCALE MODELS IN BIOMECHANICS AND MECHANOTRANSDUCTION		
Room 11	MS 1013 SOLUTION OF LARGE-SCALE INVERSE PROBLEMS				
Room 12	MS 1211 COMPUTATIONAL STRATEGIES FOR STRUCTURAL ROBUSTNESS ASSESSMENT				
Room 15	CS 980 NUMERICAL AND SYMBOLIC COMPUTATION		CS 610 AERO-ACOUSTICS		
Room 17	MS 1311 ADAPTIVE METHODS FOR FORWARD AND INVERSE PROPAGATION OF UNCERTAINTY IN COMPUTATIONAL MODELS				
Room 18	MS 804 – 2 MULTISCALE AND COMPUTATIONAL APPROACHES TO FRACTURE AND FAILURE		MS 804 – 3 MULTISCALE AND COMPUTATIONAL APPROACHES TO FRACTURE AND FAILURE		
Room 20	MS 905 – 5 DISCONTINUOUS GALERKIN METHODS: NEW TRENDS AND APPLICATIONS				
Room 21	MS 910 – 2 HIGH ORDER CFD METHODS: CONCLUSIONS AND OUTLOOK		MS 910 – 3 HIGH ORDER CFD METHODS: CONCLUSIONS AND OUTLOOK		
Room 22					
Room 23	MS 1011 – 1 SURROGATE-ASSISTED EVOLUTIONARY ALGORITHMS IN AERODYNAMIC DESIGN/OPTIMIZATION		MS 1011 – 2 SURROGATE-ASSISTED EVOLUTIONARY ALGORITHMS IN AERODYNAMIC DESIGN/OPTIMIZATION		

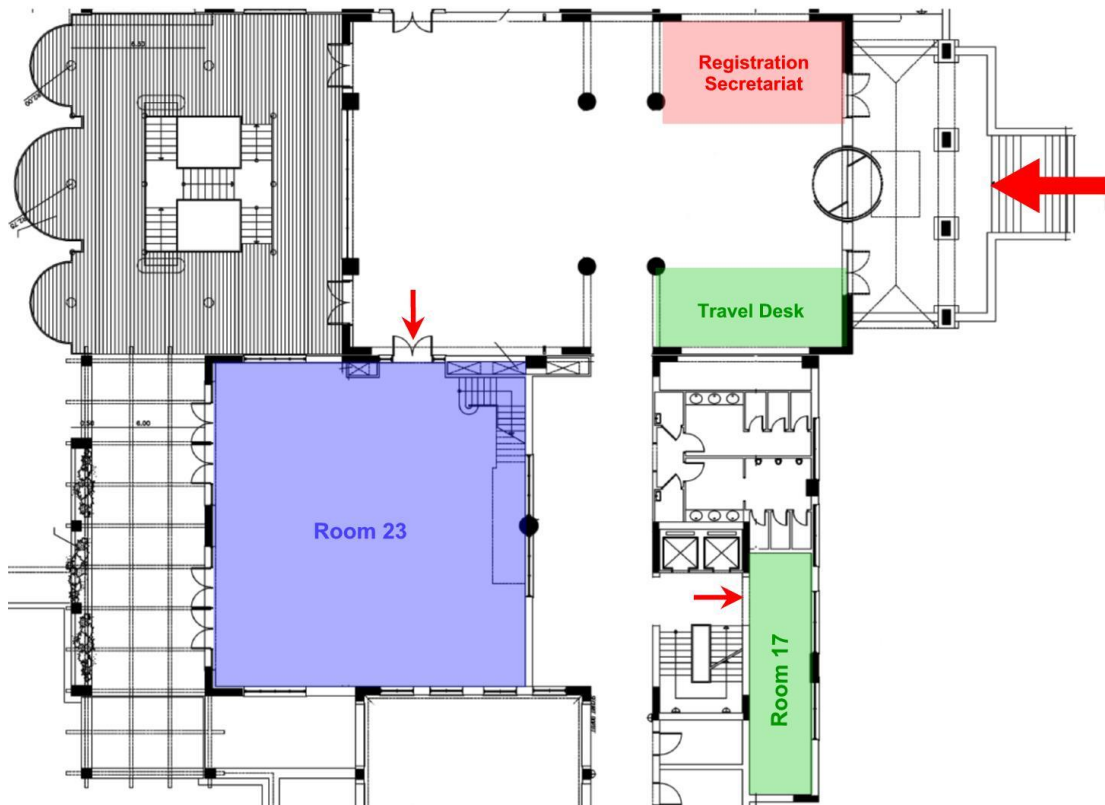
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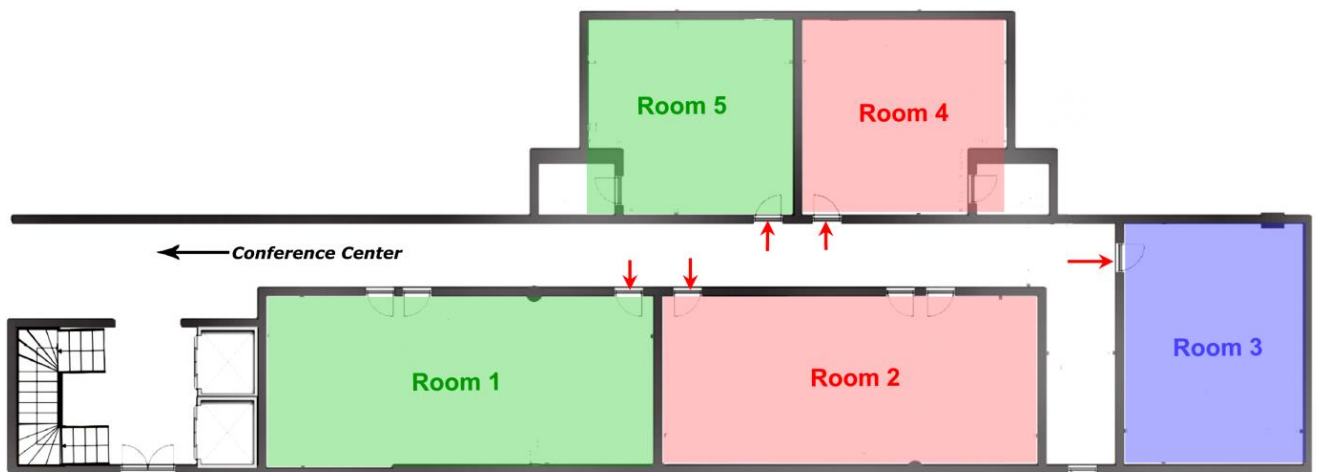
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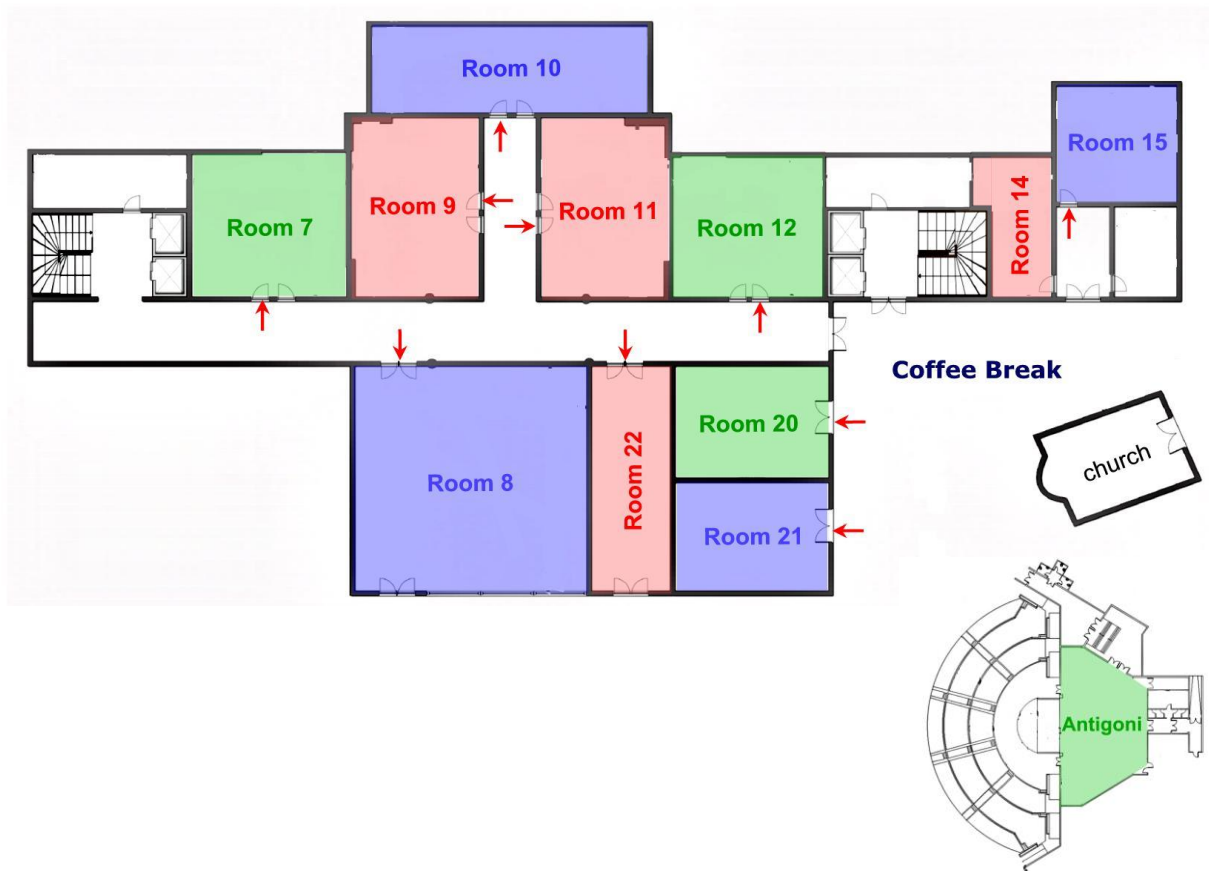
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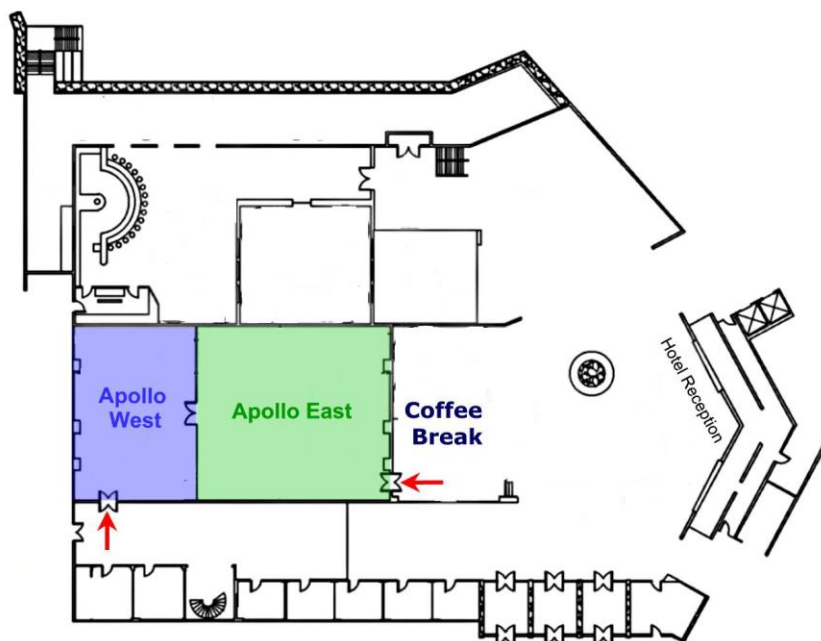
Level 0



Terra Building Pool Level



Maris Building Level 1



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C. Sansour, UK
R. Spigler, Italy
G. Stavroulakis, Greece
H. van Brummelen, Netherlands
C. Wieters, Germany

Scientific Computing

G. Anciaux, Switzerland
P. Ariza, Spain
P. Bar-Yoseph, Israel
R. Biswas, USA
C. Carstensen, Germany
M. Castro, Spain
E. Cueto, Spain
G. Fotia, Italy
O. Ghattas, USA
K. Giannakoglou, Greece
U. Gulcat, Turkey
J. Korelc, Slovenia
R. Schaefer, Poland
M. Vazquez, Spain

Computational Multiphysics

I. Arias, Spain
S. Badia, Spain
Y. Bazilevs, USA
H-J. Bungartz, Germany
I. Doltsinis, Germany
M. Geers, Netherlands
G.R. Liu, USA
A. Masud, USA
P. Nithiarasu, UK
A. Reali, Italy
A. Sameh, USA
K. Takizawa, Japan
R. Wüchner, Germany
S. Yoshimura, Japan

Computational Fluid Dynamics

R. Abgrall, Switzerland
M. Behr, Germany
M. Ben-Artzi, Israel
J.M. Blanco, Spain
A. Boudouvis, Greece
T. Chacon, Spain
F. Chinesta, France
H. Deconinck, Belgium
H. Guillard, France
G. Hauke, Spain
C. Hirsch, Belgium
A. Huerta, Spain
A. Iafrafi, Italy
S. Idelsohn, Spain
M. Kojic, Serbia
B. Koren, Netherlands
P. Koumoutsakos, Switzerland
C. Lacor, Belgium
R. Löhner, USA
C-D. Munz, Germany
M. O'Rourke, Ireland
M. Oshima, Japan
J. Peraire, USA
J. Periaux, France
J. Reese, UK
R. Rossi, Spain
I. Tuncer, Turkey
R. Verzicco, Italy
W. Wall, Germany
J.H. Walther, Denmark

Computational Solids and Structural Mechanics

O. Allix, France
J. Bonet, UK
J.C. Cante, Spain
M. Cervera, Spain
J-S. Chen, USA
A. Combescure, France
R. Das, New Zealand
R. de Borst, UK
J. Eberhardsteiner, Austria
C. Farhat, USA
J. Fish, USA
S. Ghosh, USA
D. Givoli, Israel
J.M. Goicolea, Spain
M. Kleiber, Poland
P. Ladevèze, France
C. Lovadina, Italy
H. Mang, Austria
J-F. Molinari, Switzerland

R. Ohayon, France
E. Oñate, Spain
R. Owen, UK
U. Perego, Italy
P. Quintela, Spain
E. Ramm, Germany
E. Stein, Germany
K. Terada, Japan
F. Ubertini, Italy
N-E. Wiberg, Sweden
P. Wriggers, Germany

Industrial Interest Group

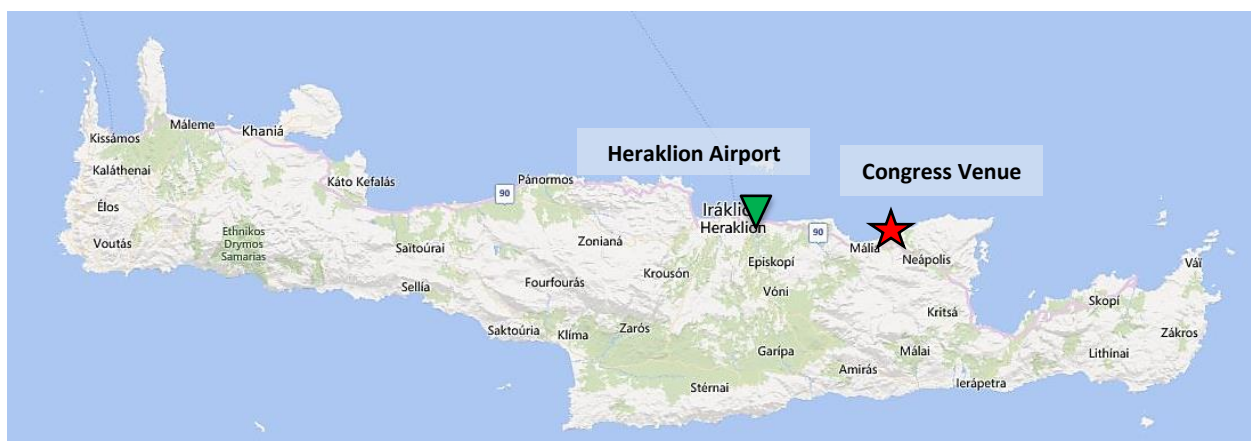
B. Chetverushkin, Russia
M. Chiumenti, Spain
C. Hirsch, Belgium
G. Schrauf, France
V. Selmin, Belgium

Congress Venue

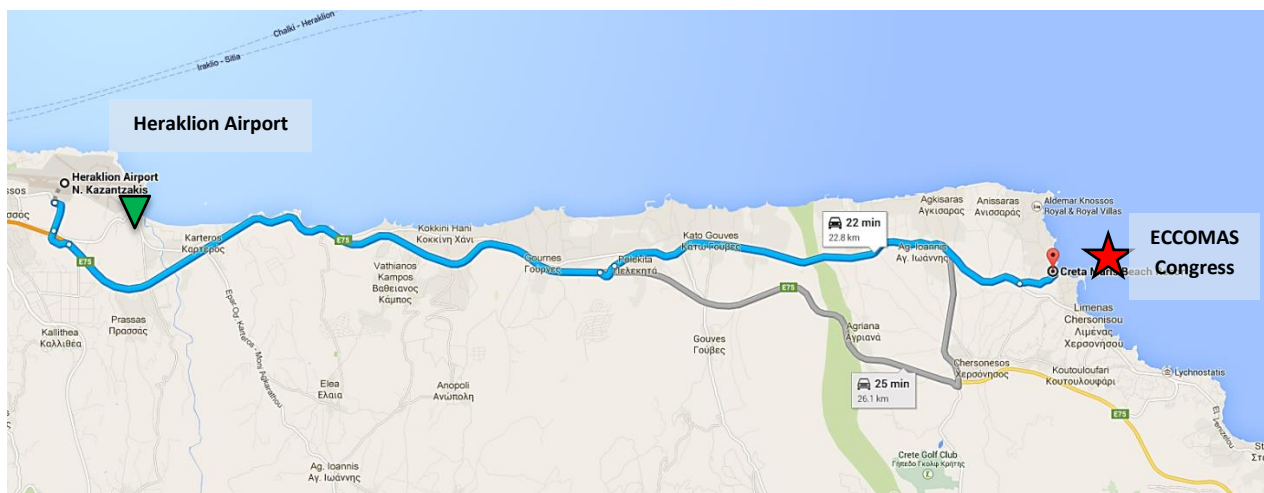
The Congress will take place at the Creta Maris Bach Resort, which is located in the city of Hersonissos situated 24 km east of the Heraklion International Airport “Nikos Kazantzakis”.

The Congress facilities are located in the premises of the complex made up of the Conference Center, the Terra Building and the Maris Building of the Creta Maris Beach Resort.

Crete Island



Congress Venue



Transportation

Transfer from and to the “Nikos Kazantzakis” International Airport

A shuttle service connecting the Airport to the Congress venue and the official Congress hotels and vice versa will be provided by the Congress Organizers at a cost of 15 € per person, per way. Travel time is approximately 20 minutes by deluxe, fully air conditioned coaches. Designated representatives of Erasmus Conferences Tours and Travel agency, holding a distinctive sign of the Congress will be waiting for the guests upon their arrival at the airport. Pre-booking of shuttle service is necessary.

The taxi stand at the airport is at the exit of the arrival halls. It takes about 20 minutes ride to the Hersonissos area.

Hotel transfer from and to the Conference Center

Shuttle services connecting the designated Congress hotels and the Conference Center will be provided free of charge by the Organizers, one in the morning to the Conference Center and one in the evening from the Conference Center, at specific times which will be available to the participants who have made their hotel booking through the official travel and accommodation agent Erasmus Conferences Tours & Travel S.A. For those participants that have made their hotel reservations independently, they can use the most convenient shuttle service provided by the Congress Organizers.



Congress Information

Registration and Check in

All attendees are required to check in at the registration desks at the lobby of the Terra Building (Lobby Level).

Identification Badge

Participants are required to wear badges at all times while in the Conference area or at a Congress sponsored events.

Secretariat Timetable

Sunday June 5,	16:00 to 20:00
Monday June 6,	7:30 to 18:30
Tuesday June 7,	8:30 to 19:00
Wednesday June 8,	8:30 to 19:00
Thursday June 9,	8:30 to 19:00
Friday June 10,	9:00 to 16:30

Papers Presentation – Time and Equipment

Most technical sessions will last 2 hours. Typical formats consist of six presentations of 20 minutes each or four presentations including a keynote lecture (KL) of 40 minutes duration. The allocated time for each presentation includes Q & A.

The Congress will not provide computers for presentation. All presentations will need to be made with the presenter's laptop computer using LCD projector. You are kindly requested to test your laptop with the projector in your session room during the break preceeding your presentation.

No overhead projectors will be provided; therefore no presentations using transparencies will be possible. We strongly encourage you to have a backup of your presentation in a USB storage device in the event of your laptop has a technical problem or is incompatible with the LCD projector.

Make sure that you have the necessary cords /converters/adapters so that your laptop will work with Greek power outlets CEE 7/4, also called "Schuko" socket and the LCD projector.

Internet Access

Wireless Internet access will be available in the premises of the Congress venue.

Congress App

An official ECCOMAS Congress 2016 mobile application has been developed for IOS and Android Smartphone. Information for the mobile application will be available on site.

Lunch Option

Participants may have lunch at the Congress Restaurant **Estia** (Terra Building , Lobby Level) at the special price of 25 € per day, provided that the reservation is made online or via email at s.lianos@erasmus.gr, or at the hotel restaurants and cafeterias that operate for the hotel tenants at lunch time, or at the snack bar which will operate during lunch breaks of the Scientific Programme at the Veranda of the Level 1 of the Conference Centre. Alternatively, participants may have lunch in restaurants located in the area of Hersonissos, close to the Congress Venue.

Hersonissos from A to Z

Currency

The official currency in Greece is EURO. 1 Euro= 100 Cents

Coins: 1, 2, 5, 10, 20, 50 Cents; 1, 2 Euros

Bank Notes: 5, 10, 20, 50, 100, 200 Euros

The term Euro is usually abbreviated as EUR. The symbol for the Euro is €.

Foreign Exchange, banks & Credit Cards

Money can be changed at the airport, banks and exchange bureaus.

The banks that are located closest to the Conference Center are at Limenas Hersonissos, about 1 km from the Congress Venue:

- NATIONAL BANK OF GREECE, 106 Venizelou Eleftheriou Str.
- PIRAEUS BANK, 145 Venizelou Eleftheriou Str.
- ALPHA BANK, 2 Agiou Vasiliou Street & 110 Venizelou Eleftheriou Str.

Important telephone numbers

Emergency Number: 112

Fire Brigade: 199

Police: 100

Ambulance: 166

District Hospital Service Limenas Hersonissos: +30 2897021262

Pharmacies: 14944

Shopping & Traditional Products

There are shopping center offering a wide range of shops and goods. Visit the traditional shops of popular art; buy your souvenirs, such as hand-made textiles or embroidery, impressive ceramics representing archeological finds, and all kinds of decorative objects.

You could equally purchase traditional Cretan products sold as souvenirs. Olive oil, wine, raki, products of biological culture, olives, and therapeutic herbs.

Getting around Hersonissos

Public Bus

Regular Bus Services: <http://www.ktelherlas.gr/index.php>,

telephone number: +30 2810221765

Departures from Heraklion Port Station to Chersonisos, Mallia, Agios Nikolaos, Ierapetra, Sitia:

<http://www.ktelherlas.gr/userfiles/file/maymallia.pdf>

Taxi

The main taxi companies in Hersonissos can be reached at +30 28970 23723, +30 28970 21153.

Social Events

Welcome Reception:

Monday **June 6**, (19:00 to 21:00), Pool level in the Terra Building

Appreciation Event (by invitation only):

Wednesday **June 8**, (20:00 to 21:30), at the Antigoni Amphitheatre, Pool level in the Terra Building

Congress Banquet:

Thursday **June 9** (20:30 to 11:30), outside the Main Entrance of the Conference Center

Accompanying Persons' Programme

Reservations for the below excursions are made online or via email at s.lianos@erasmus.gr.

Excursion to Knossos Archaeological site and Heraklion museum

Duration: 7 hours approximately (08:30-15:30)

*The tour is available on **June 6th**, on **June 7th**, **June 9th** and **June 10th***

The imposing palace of Knossos is built on a hill, next to the river Kairatos. This area has been inhabited since Neolithic times (6000 B.C.). Excavations have revealed that the Neolithic levels at Knossos are among the deepest in Europe. Neolithic ruins sometime after 2000 BC and was destroyed in 1700 BC The second palace was erected on the same spot, even more magnificent and larger than the proceeding one. Around 1600 BC other large structures were built around the Palace, such as the "Little Palace", the "Royal Villa", the "South House" etc., while Knossos developed into a large town with many thousands of inhabitants. A new catastrophe occurred around 1450 B.C., but as the finds demonstrate, the Palace was repaired and used again until at least 1380 BC Knossos continued its history as a great city state till the first Byzantine Period. To Heraklion for the visit of the Archaeological Museum, second only to Athens in importance throughout Greece. Here someone can find treasures from Knossos, Phaestos, Zakros and other sites in Crete, a most remarkable collection from Neolithic to Roman times. The tour includes visit to a local winery.



Excursion to Lassithi Plateau including visit to Dictaion Cave & to Kera Monastery

Duration: 7 hours approximately (08:15-15:30)

*The tour is available on **June 7th** and **June 8th***

The ascent begins at the village of Mochos and among walnut and plane trees, the renovated and well-cared convent of Kera Kardiotissa, is reached. After the village of Ano Keras the road continues to climb up to the defile of Ambelou, where right and left the road, rise up half-ruined stone-built windmills which ground wheat till the beginning of the century. At this point it is worth taking a break from the driving to admire the panoramic view. From here can be seen the Cretan Sea and the north coast of Crete. South, to the rear, rises up the mountain mass of Dikte, while before you spreads out the acclaimed Lassithi Plateau. Lassithi is a plateau surrounded by mountains with eight natural entrances. It has always



been a refuge for the persecuted and a place where revolutions started. During the Venetian occupation, the inhabitants were forced to leave Lassithi for nearly two centuries. Archaeological finds reveal that the region was inhabited during Neolithic and Minoan Times.

Tour to Aghios Nikolaos and Spinalonga

Duration: 10 hours approximately (08:15-18:15)

*The tour is available on **June 8th**, and on **June 9th***

Aghios Nikolaos, capital of the Prefecture of Lassithi, is without doubt the most picturesque harbour in Crete. Built on the west recess of Mirabello bay, it is considered to be one of the most highly developed tourist towns in Greece. During the Venetian occupation a fortress was built called Mirabello because of the beautiful view. Nevertheless, the importance of the harbour lessened as the Venetians built another one more protected "The Port of San Nicolo". The Name Aghios Nikolaos is that of the small Byzantine church located on the peninsula of the Port. Spinalonga, since antiquity, was the Fortress which protected the harbour of ancient Olous. The name Spinalonga is Venetian (Spina = Thorn, Longa = Long)



The Venetians built a fortress here in 1579 to protect the harbour of Elounda, one of the most important and finest fortresses built on Crete. In 1903 the Cretan Republic made Spinalonga into a colony for the lepers of Crete who they were housed on the island for nearly half century.

Full Day Tour to Samaria Gorge

Duration: 16 hours approximately (06:15-22:00)

*The tour is available on **June 6th**, on **June 10th***

Its length is 18 km, with its width to vary from 300 to 4 meters, Samaria gorge is passing through the bulky limestone masses that tower up from 200 to 2.000 m. Leisurely walking, it normally takes 5 hours to reach the south coast. By the time you arrive at the plateau of Omalos (1.000 m altitude) on the White Mountains, the adventure begins by walking over rocks and through a forest with cool springs at shady resting sites. If you are lucky you might spot a "Kri-Kri", the wild mountain goat. The hiking ends by reaching the small fisher village of Agia Roumeli right at the Libyan Sea, where you have the opportunity of a refreshing swim and a good meal in one of the local taverns. From there you will take the boat for Chora Sfakion or Sougia and then the bus to return back to the hotel.



Associations Meetings

ECCOMAS Executive Council Meeting

Sunday June 5, 10:00 to 12:00, Apollo West

ECCOMAS Managing Board Meeting

Sunday June 5, 13:00 to 19:00, Apollo West

ECCOMAS Industrial Interest Group

Monday, June 6, 12:00 to 14:00, Room 14

IACM Executive Council Meeting

Monday June 6, 12:00 to 14:00, Estia Restaurant

ECCOMAS General Assembly Meeting

Tuesday June 7, 13:00 to 14:30, Room 15

GACM 25th Anniversary Meeting

Tuesday June 7, 16:30 to 19:00, Room 23

ECCM Technical Committee of ECCOMAS

Wednesday, June 8, 13:00 to 14:30, Room 14

Young Investigators Committee of ECCOMAS

Wednesday June 8, 13:00 to 14:30, Room 15

CFD Technical Committee of ECCOMAS

Thursday June 9, 13:00 to 14:30, Room 15

Scientific Programme

Plenary Lecturers



Theodosios P. Tasios (*Opening Plenary Lecture*)
National Technical University of Athens, Greece

12327 HELLENISTIC TECHNOLOGY AND THE STEAM-POWERED FORCE-PUMP
Monday, 9:15-10:00, Zeus



Alexandre Ern
Université Paris-Est, CERMICS, ENPC, France

12459 DISCONTINUOUS SKELETAL METHODS IN COMPUTATIONAL MECHANICS
Wednesday, 15:15-16:00, Zeus



Charbel Farhat
Stanford University, USA

10414 RECENT ADVANCES IN PARAMETRIC NONLINEAR MODEL ORDER REDUCTION:
TREATMENT OF SHOCKS, CONTACT AND INTERFACES, STRUCTURE-PRESERVING
HYPER REDUCTION, ACCELERATION OF MULTISCALE FORMULATIONS, AND
APPLICATION TO DESIGN OPTIMIZATION
Friday, 15:15-16:00, Zeus



Gerhard A. Holzapfel
Graz University of Technology, Austria

12726 MODELING OF FIBER-REINFORCED SOLIDS WITH APPLICATION TO SOFT TISSUES
Monday, 10:30-11:15, Zeus



Antonio Huerta
Universitat Politècnica de Catalunya, Spain

11438 GENERALIZED PARAMETRIC SOLUTIONS : A COMMODITY IN SIMULATION - BASED
ENGINEERING
Wednesday, 14:30-15:15, Zeus



Thomas J.R. Hughes
ICES, University of Texas at Austin, USA

11433 ISOGEOMETRIC ANALYSIS: PAST, PRESENT, FUTURE
Wednesday, 16:00-16:45, Zeus



Alfio Quarteroni

École Polytechnique Fédérale de Lausanne (EPFL), Switzerland and Politecnico di Milano, Italy

12169 REDUCED ORDER MODELS FOR ANALYSIS AND SYNTHESIS OF COMPLEX SYSTEMS
Monday, 11:15-12:00, Zeus



Ole Sigmund

Technical University of Denmark, Denmark

12630 RECENT ADVANCES IN TOPOLOGY OPTIMIZATION
Friday, 14:30-15:15, Zeus

Semi-Plenary Lecturers



Assyr Abdulle

École polytechnique fédérale de Lausanne, Switzerland

12276 MODEL ORDER REDUCTION FOR MULTISCALE MODELING AND SIMULATION
Thursday, 11:00-11:40, Zeus East



Olivier Allix

ENS Cachan, France

12176 ON WEAKLY-INTRUSIVE MULTI-SCALE SUBSTITUTION METHOD IN DYNAMICS: PRINCIPLE AND FIRST APPLICATIONS
Thursday, 11:40-12:20, Zeus East



Lourenco Beirao da Veiga

Department of Mathematics, University of Milano-Bicocca

16774 INTRODUCTION AND SOME RECENT ADVANCES ON THE VIRTUAL ELEMENT METHOD
Thursday, 11:40-12:20, Minos North



Andreas G. Boudouvis

National Technical University of Athens, Greece

12288 GETTING THE MOST OUT OF COMMERCIAL CFD CODES IN PROCESS ENGINEERING ANALYSIS
Thursday, 11:00-11:40, Zeus West



Annalisa Buffa

CNR-IMATI, Italy

15672 ISOGEOMETRIC TECHNIQUES FOR MORTARING AND CONTACT MECHANICS
Moved to Tuesday, 11:40-12:20, Zeus North



Ramon Codina
Universitat Politècnica de Catalunya

- 13777** ON THE IMPOSITION OF ESSENTIAL BOUNDARY CONDITIONS ON NON-MATCHING FINITE ELEMENT MESHES
Thursday, 11:00-11:40, Minos East



Laura De Lorenzis
Technische Universität Braunschweig, Germany

- 12905** THE PHASE-FIELD APPROACH TO FRACTURE: MODELING AND COMPUTATIONAL ASPECTS
Thursday, 11:00-12:00, Zeus North



Bernard Geurts
University of Twente, The Netherlands

- 12264** HEAT AND MASS TRANSFER IN TURBULENT FLOW
Tuesday, 12:20-13:00, Zeus East



Kyriakos Giannakoglou
National Technical University of Athens, Greece

- 15978** CONTINUOUS ADJOINT-BASED OPTIMIZATION IN FLUID MECHANICS & AERODYNAMICS: RECENT PROGRESS AND APPLICATIONS
Thursday, 12:20-13:00, Zeus West



Antonio J. Gil
College of Engineering, Swansea University

- 16779** A NEW FRAMEWORK FOR LARGE STRAIN ELECTROMECHANICS BASED ON CONVEX MULTI-VARIABLE STRAIN ENERGIES
Thursday, 11:00-11:40, Minos North



Dan Givoli
Israel Institute of Technology, Israel

- 5426** COMPUTATIONAL TIME REVERSAL AND DAMAGE IDENTIFICATION
Thursday, 11:40-12:20, Minos East



Anthony Gravouil
INSA de Lyon – CNRS, France

- 12145** HETEROGENEOUS ASYNCHRONOUS TIME INTEGRATORS FOR COMPUTATIONAL STRUCTURAL DYNAMICS
Tuesday, 11:00-11:40, Minos East



George Karniadakis
Brown University, USA

- 13266** THE DAWNING OF THE AGE OF FRACTIONAL MODELING IN COMPUTATIONAL SCIENCE AND ENGINEERING
Tuesday, 11:00-11:40, Zeus East



Mats G. Larson
Umea University, Sweden

- 16549** CUTFEM AND CUTIGA: DISCRETIZING GEOMETRY AND PARTIAL DIFFERENTIAL EQUATIONS
Tuesday, 11:00-11:40, Zeus West



Kim Meow Liew
City University of Hong Kong, Hong Kong

- 12460** MODELING OF CARBON NANO MATERIALS
Replaced by Annalisa Buffa, 15672 ISOGEOMETRIC TECHNIQUES FOR MORTARING AND CONTACT MECHANICS



Wing Kam Liu
Northwestern University, USA

- 12149** MODELING AND SIMULATION CHALLENGES IN MATERIALS DESIGN FOR ADDITIVE MANUFACTURING APPLICATIONS
Tuesday, 11:00-11:40, Zeus North



Federico Negri
École Polytechnique Fédérale de Lausanne, Switzerland

- 16497** EFFICIENT TECHNIQUES FOR THE MODEL ORDER REDUCTION OF PARAMETRIZED PROBLEMS IN COMPUTATIONAL FLUID AND SOLID MECHANICS
Thursday, 12:20-13:00, Minos East



Shinji Nishiwaki
Kyoto University, Japan

- 12410** A NEW TOPOLOGY OPTIMIZATION METHOD AND ITS APPLICATION TO INNOVATIVE STRUCTURE AND MATERIAL DESIGNS
Tuesday, 12:20-13:00, Minos East



Ursula Rasthofer
TU München, Germany

- 16509** COMPUTATIONAL MULTISCALE METHODS FOR TURBULENT SINGLE- AND TWO-PHASE FLOWS
Thursday, 12:20-13:00, Minos North



Ernst Rank
TU München, Germany

- 12302** HIGH ORDER FICTITIOUS DOMAIN METHODS – HIGH FIDELITY SIMULATION FOR COMPLEX SOLID MODELS
Tuesday, 11:40-12:20, Zeus West



Cord-Christian Rossow
German Aerospace Center, Germany

- 12300** PERSPECTIVES AND REQUIREMENTS OF NUMERICAL SIMULATION FOR FUTURE AIRCRAFT DESIGN
Tuesday, 12:20-13:00, Zeus North



Giancarlo Sangalli
Università di Pavia, Italy

12267 COMPUTATIONALLY-EFFICIENT ISOGEOMETRIC k-METHOD
Thursday, 12:00-13:00, Zeus North



Jörg Schröder
University Duisburg-Essen, Germany

12401 PROS AND CONS OF SELECTED MIXED GALERKIN AND LEAST-SQUARES FINITE
ELEMENT FORMULATIONS
Tuesday, 11:40-12:20, Zeus East



Bert Sluys
Delft University of Technology, The Netherlands

12484 MULTI-SCALE MODELLING OF LOCALISED FAILURE PROCESSES
Thursday, 12:20-13:00, Zeus East



Christian Soize
Université Paris-Est, France

5795 NONPARAMETRIC PROBABILISTIC APPROACH OF MODEL UNCERTAINTIES
INTRODUCED BY A PROJECTION-BASED NONLINEAR REDUCED-ORDER MODEL
Tuesday, 11:40-12:20, Minos East



Roberto Verzicco
Università di Roma "Tor Vergata", Italy

12202 HEMODYNAMICS OF BIOLOGIC AND MECHANICAL PROSTHETIC HEART VALVES
Thursday, 11:40-12:20, Zeus West



Barbara Wohlmuth
TU München, Germany

15508 HYBRID HIERARCHICAL CONCEPTS FOR LARGE SCALE SIMULATIONS
Tuesday, 12:20-13:00, Zeus West

Keynote Lecturers

Maarten Arnst

- 8833** SENSITIVITY ANALYSIS OF PARAMETRIC UNCERTAINTIES AND MODELING ERRORS IN
GENERALIZED PROBABILISTIC MODELING
Thursday, 17:00-19:00, Room 8

Stephane Avril, Chiara Bellini, Matthew R. Bersi, Paolo Di Achille, Katia Genovese, Jay D. Humphrey

- 7150** INVERSE CHARACTERIZATION OF REGIONAL, NONLINEAR AND ANISOTROPIC PROPERTIES OF
ARTERIES
Wednesday, 11:00-13:00, Zeus East

Santiago Badia, Marc Olm

- 4974** TOWARDS SPACE-TIME ITERATIVE SOLVERS BASED ON BALANCING DOMAIN DECOMPOSITION
Tuesday, 14:30-16:30, Minos East

Gernot Beer

- 4408** ADVANCES IN THE BOUNDARY ELEMENT METHOD IN GEOMECHANICS
Monday, 14:00-16:00, Aphrodite

Silvia Bertoluzza, Vincent Chabannes, Mourad Ismail, Christophe Prud'homme

- 6486** THE EFFECT OF QUADRATURE ON HIGH ORDER FICTITIOUS DOMAIN METHODS
Wednesday, 17:15-19:15, Room 20

Anne-Kathrin Schäuble, Anton Tkachuk, Manfred Bischoff

- 11031** RECIPROCAL MASS MATRICES IN EXPLICIT DYNAMICS
Tuesday, 14:30-16:30, Room 12

Lourenco Beirao da Veiga, Franco Brezzi, Donatella Marini, Alessandro Russo

- 9048** SERENDIPITY $H(\text{DIV})$ AND $H(\text{CURL})$ CONFORMING VEMS
Tuesday, 8:30-10:30, Zeus East

Matteo Bruggi

- 5930** ANALYSIS AND DESIGN OF REINFORCED CONCRETE STRUCTURES AS A TOPOLOGY
OPTIMIZATION PROBLEM
Wednesday, 11:00-13:00, Leda

Tadeusz Burczyński, Adam Mrozek, Wacław Kuś

- 9447** GENERATION OF GRAPHENE-LIKE ATOMS STRUCTURES BY MEANS OF MEMETIC ALGORITHMS
Wednesday, 11:00-13:00, Antigoni

Xiao-Chuan Cai

- 5488** PARALLEL MULTILEVEL ALGORITHMS FOR FLUID-STRUCTURE INTERACTION PROBLEMS
Tuesday, 14:30-16:30, Artemis

Carsten Carstensen, Hella Rabus

- 11849** AXIOMS OF ADAPTIVITY: RATE OPTIMALITY OF ADAPTIVE ALGORITHMS WITH SEPARATE
MARKING
Wednesday, 8:30-10:30, Danae

Juan Cebal, Xinjie Duan, Bongjae Chung, Fernando Mut, Khaled Aziz, Anne Robertson

- 5993** CONNECTING THE LOCAL HEMODYNAMIC CONDITIONS TO THE WALL STRUCTURE IN HUMAN
CEREBRAL ANEURYSMS
Wednesday, 8:30-10:30, Zeus West

Francisco Chinesta, Jose Vicente Aguado, Domenico Borzacchiello, Chady Ghnatios, Elias Cueto, David Gonzalez

4784 COMPUTATIONAL VADEMECUMS FOR LARGE INDUSTRIAL APPLICATIONS
Tuesday, 14:30-16:30, Leda

Tijana Djukic, Nenad Filipovic

10709 REAL TIME OTOCONIA PARTICLE TRACKING IN THE SIMPLIFIED SEMI-CIRCULAR CANAL
Wednesday, 8:30-10:30, Room 7

Tor Dokken

5907 COMPUTER AIDED TECHNOLOGIES FOR ADDITIVE MANUFACTURING
Wednesday, 11:00-13:00, Room 18

Ioannis Doltsinis

16560 ARGYRI'S NATURAL APPROACH RELATED TO DEFORMABLE CONTINUA AND SPRING LATTICE MODELS
Tuesday, 8:30-10:30, Room 3

Zdenek Dostal, Tomas Kozubek, David Horak, Vaclav Hapla, Alex Markopoulos, Tomas Brzobohaty, Lubos Riha, Oldrich Vlach

11611 SCALABLE MASSIVELY PARALLEL ALGORITHMS FOR CONTACT PROBLEMS
Thursday, 14:30-16:30, Room 15

Fabian Duddeck

8778 OPTIMAL TOPOLOGIES OF EXTRUSION BEAMS UNDER AXIAL AND TRANSVERSAL IMPACT LOADS
Thursday, 8:30-10:30, Apollo West

Alexander Düster, Meysam Joulaian, Stephan Heinze, Simeon Hubrich, Aliakbar Taghipour, Jamshid Parvizian

8116 THE FINITE CELL METHOD: SOME RECENT ADVANCES AND APPLICATIONS TO SOLID MECHANICS
Monday, 14:00-16:00, Artemis

Herbert Egger

9398 A FICTITIOUS DOMAIN LEVELSET METHOD FOR INCLUSION DETECTION
Monday, 16:30-18:30, Artemis

Hassan Al Akhras, **Thomas Elguedj**, Anthony Gravouil, Michel Rochette

4533 ISOGEOMETRIC ANALYSIS SUITABLE TRIVARIATE MODELS FROM CUBOID DECOMPOSITION QUADRANGULATION
Thursday, 14:30-16:30, Zeus North

John Evans, Joseph Benzaken, Christopher Coley

11276 MULTIGRID METHODS FOR ISOGEOMETRIC STRUCTURE-PRESERVING DISCRETIZATIONS
Monday, 16:30-18:30, Zeus North

Carlos Felippa, Eugenio Onate, Sergio Idelsohn

8341 A VARIATIONAL, FIC-BASED FORMULATION FOR PARTICLE FINITE ELEMENT METHODS STABILIZED WITH HIGH ORDER SPATIAL DERIVATIVES
Wednesday, 11:00-13:00, Minos North

Oliver Fringer, Robert Arthur

8967 TRANSPORT AND MIXING DUE TO BREAKING INTERNAL GRAVITY WAVES ON SLOPES
Wednesday, 8:30-10:30, Room 8

Pilar Garcia-Navarro, Javier Murillo, Mario Morales-Hernandez, Carmelo Juez, Asier Lacasta

7665 EFFICIENT TWO-DIMENSIONAL SIMULATION MODELS FOR HYDRAULIC AND MORPHODYNAMIC TRANSIENTS
Wednesday, 11:00-13:00, Room 21

Gregor Gassner, Andrew Winters

- 7229** SPLITFORM DISCONTINUOUS GALERKIN SCHEMES FOR THE COMPRESSIBLE NAVIER-STOKES EQUATIONS
Thursday, 8:30-10:30, Room 20

Anil Nemili, Emre Özkaya, Nicolas R. Gauger, Felix Kramer, Frank Thiele

- 8169** A TWO-LEVEL HYBRID APPROACH FOR OPTIMAL ACTIVE FLOW CONTROL ON A THREE-ELEMENT AIRFOIL
Wednesday, 11:00-13:00, Room 23

Sambit Das, Mrinal Iyer, Vikram Gavini

- 5739** LARGE-SCALE ELECTRONIC STRUCTURE CALCULATIONS AND STUDIES ON DISLOCATIONS IN ALUMINUM
Friday, 9:00-11:00, Antigoni

Clinton Groth, Chris Lam, Boone Tensuda

- 8926** ACCURATE AND EFFICIENT NUMERICAL SOLUTION OF MOMENT CLOSURES DESCRIBING THREE-DIMENSIONAL VISCOUS AND HEAT-CONDUCTING GASEOUS FLOWS
Tuesday, 17:00-19:00, Apollo West

Friedrich Gruttmann, Werner Wagner, Gregor Knust

- 5298** A SHELL ELEMENT FOR LAMINATED STRUCTURES WITH CONTINUOUS INTERLAMINAR SHEAR STRESSES
Wednesday, 11:00-13:00, Danae

Thomas Hagstrom, John Lagrone, Daniel Appelo

- 5484** OPTIMAL RADIATION BOUNDARY CONDITIONS AND ABSORBING LAYERS FOR ELASTIC WAVES
Friday, 9:00-11:00, Minos North

Isaac Harari

- 5105** EMBEDDED BOUNDARY METHODS FOR PLATE BENDING PROBLEMS
Monday, 14:00-16:00, Europa

Leong Hien Poh

- 9921** A TRANSIENT GRADIENT DAMAGE MODEL FOR LOCALIZED BRITTLE FAILURE
Thursday, 8:30-10:30, Room 5

Koen Hillewaert, Tobias Leicht

- 11177** SUMMARY AND CONCLUSIONS OF THE COMPUTATIONAL CHALLENGE TEST CASES
Friday, 11:30-13:30, Room 21

Paolo Di Achille, John Wilson, Lana Virag, Igor Karsaj, Jay Humphrey

- 7548** A BIOCHEMOMECHANICAL ROLE OF THROMBUS IN ABDOMINAL AORTIC ANEURYSMS
Tuesday, 14:30-16:30, Zeus West

Eugenio Oñate, Sergio Idelsohn

- 16535** ADVANCES IN THE PARTICLE FINITE ELEMENT METHOD FOR MULTIDISCIPLINARY PROBLEMS
Thursday, 14:30-16:30, Zeus East

Alexander Idesman

- 4926** REDUCTION OF NUMERICAL DISPERSION FOR WAVE PROPAGATION PROBLEMS. APPLICATION TO ISOGEOMETRIC ELEMENTS AND FINITE ELEMENTS.
Tuesday, 8:30-10:30, Room 12

Marcin Kaminski, Michał Strakowski

- 9229** ON FULLY COUPLED THERMO-ELASTO-PLASTIC STOCHASTIC FINITE ELEMENT ANALYSIS OF STEEL STRUCTURES
Tuesday, 14:30-16:30, Room 3

Spyros A. Karamanos, Patricia Pappa

- 11295** NON-ASSOCIATIVE J2 PLASTICITY MODEL FOR FINITE ELEMENT BUCKLING ANALYSIS OF THICK-WALLED METAL SHELLS
Wednesday, 17:15-19:15, Room 9

Milos Kojic, Miljan Milosevic, Vladimir Simic, Mauro Ferrari, Eugene J. Koay, Arturas Ziemys

- 11735** A MODEL FOR DRUG TRANSPORT IN TUMOR
Thursday, 14:30-16:30, Danae

Trond Kvamsdal, Mukesh Kumar, Yared Bekele, Eivind Fonn, Arne Morten Kvarving, Lars Hov Odsaeter, Knut Morten Okstad

- 11109** GOAL ORIENTED ADAPTIVE ISOGEOMETRIC METHODS WITH APPLICATIONS TO POROUS MEDIA
Wednesday, 17:15-19:15, Zeus North

Pierre Ladeveze, David Neron, Charles Paillet

- 9495** AN EXTENDED PGD-REDUCED MODEL APPROACH IN SOLID MECHANICS FOR LARGE NUMBER OF PARAMETERS
Monday, 14:00-16:00, Minos North

Nikolaos Perogamvros, George Lampeas

- 5900** DEVELOPMENT AND VALIDATION OF A COMPOSITE FASTENED JOINT MODEL USING ADVANCED MEASUREMENT TECHNIQUES
Friday, 11:30-13:30, Room 9

Patrick Le Tallec

- 11749** MULTISCALE MODELLING OF SOFT MATERIALS
Wednesday, 11:00-13:00, Apollo East

Michael Leschziner, Lionel Agostini

- 9720** ON THE UNIVERSALITY OF NEAR-WALL TURBULENCE IN THE PRESENCE OF ENERGETIC OUTER STRUCTURES
Wednesday, 8:30-10:30, Room 1

Christian Linder, Xiaoxuan Zhang

- 9290** MODELING DIFFUSION INDUCED FRACTURE IN SILICON ELECTRODES THROUGH A PHASE FIELD APPROACH
Monday, 14:00-16:00, Zeus West

Erik Lund

- 10127** MASS MINIMIZATION OF MULTI-MATERIAL LAMINATED COMPOSITES WITH FAILURE CONSTRAINTS
Tuesday, 14:30-16:30, Danae

Rolf Mahnken, Christian Dammann

- 7214** EFFECTIVE MESO AND MACRO PROPERTIES FOR FIBRE-REINFORCED-POLYMER CURING COUPLED TO VISCO-ELASTICITY
Tuesday, 8:30-10:30, Antigoni

Stefan Pavlicek, Xin Jia, Herbert A. Mang

- 10115** ON THE CORRELATION OF THE PERCENTAGE BENDING ENERGY AND THE NONLINEARITY OF PREBUCKLING PATHS
Thursday, 17:00-19:00, Room 17

Lourenco Beirao da Veiga, Franco Brezzi, Donatella Marini, Alessandro Russo

- 6317** SERENDIPITY NODAL VEM SPACES
Monday, 14:00-16:00, Room 23

Huw Woodward, Sergei Utyuzhnikov, Patrick Massin

- 9492** APPLICATION OF THE DIFFERENCE POTENTIAL METHOD TO LINEAR ELASTIC FRACTURE MECHANICS PROBLEMS
Wednesday, 8:30-10:30, Room 20

Hermann G. Matthies

- 6540** THE RÔLE OF STOCHASTIC IDENTIFICATION IN MULTI-SCALE MODELLING OF HETEROGENEOUS MATERIALS
Thursday, 14:30-16:30, Zeus West

Günther Meschke, Dirk Leonhart, Ildar Khisamitov, Seyed Mohseni, Sven Beckhuis, Jithender J. Timothy

- 8716** XFEM AND PHASEFIELD MODELING OF HYDRAULIC FRACTURING PROCESSES
Friday, 11:30-13:30, Athena

John Michopoulos, Athanasios Iliopoulos, John Hermanson, John Steuben

- 5675** CONSTITUTIVE CHARACTERIZATION OF COMPOSITES VIA INVERSE METHODS ENABLED BY ROBOTIC MULTIAXIAL TESTING AND HIGH-PERFORMANCE FULL-FIELD METHODS
Thursday, 14:30-16:30, Room 10

Christian Miehe, Stephan Teichtmeister, Steffen Mauthe

- 11918** MINIMIZATION PRINCIPLES IN MULTI-PHYSICS OF SOLIDS AT FRACTURE
Thursday, 17:00-19:00, Athena

Hayder Hasan, Perumal Nithiarasu

- 9194** A LOCALLY CONSERVATIVE GALERKIN (LCG) METHOD IN ITS SEMI- AND FULLY- IMPLICIT FORMS FOR SOLVING BLOOD FLOW IN SYSTEMIC CIRCULATIONS
Thursday, 14:30-16:30, Aphrodite

Javier Oliver, Alfredo E. Huespe, Manuel Caicedo

- 5743** A CONTINUUM APPROACH FOR MULTISCALE PROPAGATING MATERIAL FRACTURE MODELING
Tuesday, 14:30-16:30, Antigoni

Eugenio Oñate, Sergio Idelsohn

- 16535** ADVANCES IN THE PARTICLE FINITE ELEMENT METHOD FOR MULTIDISCIPLINARY PROBLEMS
Thursday, 14:30-16:30, Zeus East

Michael Bogdanor, Caglar Oskay, Stephen Clay

- 7732** INTERACTIONS OF DAMAGE MECHANISMS IN COMPOSITES SUBJECTED TO FATIGUE – LESSONS LEARNED FROM A BLIND PREDICTION STUDY
Wednesday, 17:15-19:15, Room 18

Anna Pandolfi, Gabriele Della Vecchia, Maria Laura De Bellis, Michael Ortiz

- 8442** A POROUS BRITTLE DAMAGE MATERIAL MODEL
Monday, 16:30-18:30, Room 22

M. Reza Hirmand, Katerina D. Papoulia

- 12093** DISCONTINUOUS GALERKIN FORMULATION WITH NITSCHKE FLUX FOR COHESIVE FRACTURE SIMULATIONS
Friday, 11:30-13:30, Room 18

Claus B.W. Pedersen, James Fort, Peter M. Clausen, Subham Sett

- 7545** INDUSTRIAL ADDITIVE MANUFACTURING AND DESIGNING
Tuesday, 17:00-19:00, Room 18

Maria Vlachomitrou, Nikos Pelekasis

- 8086** A NUMERICAL STUDY OF THE DYNAMIC BEHAVIOR OF AN ENCAPSULATED MICROBUBBLE IN A WALL-RESTRICTED FLOW
Thursday, 17:00-19:00, Danae

Massimiliano Cremonesi, Francesco Ferri, Umberto Perego

- 7927** A LAGRANGIAN PFEM APPROACH TO THE NUMERICAL SIMULATION OF 3D LARGE SCALE LANDSLIDES IMPINGING IN WATER RESERVOIRS
Thursday, 8:30-10:30, Zeus East

Per-Olof Persson, Matthew Zahr

- 9074** A FULLY DISCRETE ADJOINT DISCONTINUOUS GALERKIN METHOD FOR PDE-CONSTRAINED TIME-PERIODIC OPTIMIZATION
Friday, 11:30-13:30, Room 20

Alexander Popp, Marie Oshima

- 6413** BOTTOM-UP MODELING OF AAA STENT GRAFTS AND STENT PLACEMENT PROCEDURES
Tuesday, 14:30-16:30, Zeus East

Bastian Oesterle, Ekkehard Ramm, Manfred Bischoff

- 9994** HIERARCHIC ISOGEOMETRIC GEOMETRICALLY LINEAR AND NONLINEAR SHELL ELEMENTS
Tuesday, 14:30-16:30, Zeus North

Rene Hiemstra, Thomas JR Hughes, Alessandro Reali

- 11253** HIGH ORDER EXPLICIT STRUCTURAL DYNAMICS WITH ISOGEOMETRIC COLLOCATION
Tuesday, 8:30-10:30, Zeus North

Ignacio Romero, David Portillo, Daniel del Pozo, Daniel Rodríguez, Javier Segurado

- 9207** MUESLI: A MATERIAL UNIVERSAL LIBRARY
Thursday, 8:30-10:30, Room 9

Thomas Rung, Jörn Kröger

- 7708** CAD-FREE ADJOINT SHAPE OPTIMISATION IN MARITIME TWO-PHASE FLOWS
Tuesday, 14:30-16:30, Room 23

Andreas Kampitsis, Evangelos Sapountzakis

- 4747** A FIBRE PLASTICITY MODEL FOR THE DYNAMIC ANALYSIS OF WIND TURBINE TOWERS
Wednesday, 11:00-13:00, Room 8

Siavash Soltani-bajestani, Maryam Gholamirad, Panthea Sepehrband

- 10965** MULTI-SCALE MODELING OF DIFFUSION-CONTROLLED PROCESSES DURING ULTRASONIC BONDING
Thursday, 8:30-10:30, Room 9

Vladimir Sladek, Bruno Musil, Jan Sladek

- 7510** EFFECTIVE ELASTICITY COEFFICIENTS IN DRY POROUS MATERIALS. NUMERICAL AND SEMI-ANALYTICAL APPROACHES
Friday, 11:30-13:30, Room 1

Filip Putar, Jurica Soric, Tomislav Lesicar, Zdenko Tonkovic

- 7030** DAMAGE MODELING USING STRAIN GRADIENT BASED FINITE ELEMENT FORMULATION
Tuesday, 14:30-16:30, Room 4

Aram Soroushian

- 11392** ON THE EFFECT OF VISCOUS DAMPING ON THE STABILITY OF TIME INTEGRATION METHODS
Friday, 9:00-11:00, Room 3

Konstantinos Spiliopoulos, Konstantinos Panagiotou, Ioannis Kapogiannis

- 10324** ADVANCES OF THE RSDM TO THE SHAKEDOWN ANALYSIS OF STRUCTURES
Monday, 14:00-16:00, Room 11

Constantine Spyarakos, Charilaos Maniatakis

- 15540** SEISMIC PROTECTION OF MONUMENTS AND HISTORIC STRUCTURES – THE SEISMO RESEARCH PROJECT
Tuesday, 8:30-10:30, Room 7

Panos Koutsianitis, Amalia Moutsopoulou, Georgios Drosopoulos, Georgios Tairidis, Georgia Foutsitzi, Georgios Stavroulakis

- 11049** OPTIMAL CONTROL TUNNING IN SMART STRUCTURES WITH DELAMINATIONS
Thursday, 14:30-16:30, Room 11

Dimitrios Savvas, George Stefanou

- 10001** DETERMINATION OF MESOSCALE RANDOM FIELDS FOR THE APPARENT PROPERTIES OF SPATIALLY RANDOM COMPOSITES
Friday, 11:30-13:30, Leda

Kenjiro Terada, Seishiro Matsubara

- 9437** INVESTIGATION OF SELF-HEATING EFFECT IN FIBER-REINFORCED THERMOPLASTIC RESIN BY NUMERICAL MATERIAL TESTING
Tuesday, 17:00-19:00, Apollo East

Efstathios E. Theotokoglou, George A. Balokas, Evgenia K. Savvaki

- 7001** A NUMERICAL STUDY FOR THE BUCKLING CAPACITY OF WIND TURBINE BLADES: GEOMETRY, LOADING AND MATERIAL INFLUENCE
Thursday, 17:00-19:00, Room 10

Olfa Trabelsi, Ambroise Duprey, Stéphane Avril

- 8063** ON-GOING RESEARCHES FOR NEW PERSONALIZED RISK OF RUPTURE FOR ASCENDING THORACIC ANEURYSMS
Thursday, 8:30-10:30, Minos South

Harald van Brummelen, Mahnaz Shokrpour Roudbari, Gertjan van Zwieten, Herman Wijshoff

- 11007** COMPLEX-FLUID-SOLID INTERACTION BASED ON THE NAVIER-STOKES-CAHN-HILLIARD PHASE-FIELD EQUATIONS
Wednesday, 17:15-19:15, Minos East

Yuri Vassilevski, Timur Gamilov, Philip Kopylov

- 8793** PERSONALIZED COMPUTATION OF FRACTIONAL FLOW RESERVE IN CASE OF TWO CONSECUTIVE STENOSES
Tuesday, 17:00-19:00, Zeus East

Clemens Verhoosel, Gertjan van Zwieten

- 7720** AN INTERFACE-BASED TESSELLATION PROCEDURE FOR THE NUMERICAL INTEGRATION OF TRIMMED ELEMENTS IN THE ISOGOMETRIC FINITE CELL METHOD
Thursday, 8:30-10:30, Zeus North

Irene Vignon-Clementel

- 8593** STRATEGIES FOR CARDIOVASCULAR AND RESPIRATORY MULTISCALE MODELING PARAMETRIZATION
Tuesday, 8:30-10:30, Apollo East

Peter Vincent

- 9345** TOWARDS THE INDUSTRIAL ADOPTION OF GPU-ACCELERATED HIGH-ORDER COMPUTATIONAL FLUID DYNAMICS
Friday, 9:00-11:00, Room 21

Miguel Arriaga, Haim Waisman

9300 STABILITY ANALYSIS OF THE PHASE FIELD METHOD FOR FRACTURE MECHANICS
Friday, 11:30-13:30, Room 18

Wolfgang A. Wall, Christian J. Roth, Anna Birzle, Lena Yoshihara

11236 COMPREHENSIVE AND PATIENT-SPECIFIC COMPUTATIONAL LUNG MODELING AND A NOVEL
VALIDATION APPROACH
Wednesday, 11:00-13:00, Zeus East

Nils Wedi

5857 THE EVOLVING STATE-OF-THE-ART IN GLOBAL NUMERICAL WEATHER PREDICTION
Tuesday, 14:30-16:30, Room 21

Mary Wheeler

10863 COMPUTATIONAL SCREENING TOOLS FOR MODELING ENERGY PROBLEMS IN POROUS MEDIA
Monday, 14:00-16:00, Minos East

Reza Mousavi, Masoud D. Champiri, Kaspar J Willam

12018 EFFICIENCY OF DAMAGE-PLASTICITY MODELS IN CAPTURING COMPACTION-EXPANSION
TRANSITION OF CONCRETE UNDER DIFFERENT COMPRESSION LOADING CONDITIONS
Wednesday, 17:15-19:15, Room 9

P. Wriggers, J. Schroeder, F. Auricchio

16533 FINITE ELEMENT FORMULATIONS FOR LARGE STRAINS IN ANISOTROPIC MATERIALS
Tuesday, 14:30-16:30, Apollo East

Julien Yvonnet, Thanh Tung Nguyen, Michel Bornert, Camille Chateau, Qizhi Zhu

4676 PHASE FIELD MODELING OF COMPLEX MATRIX/INTERFACIAL CRACK PROPAGATION IN
COMPLEX MICROSTRUCTURES OBTAINED FROM MICROTOMOGRAPHY IMAGES
Wednesday, 17:15-19:15, Room 18

Jarle Sogn, Walter Zulehner

8500 ROBUST PRECONDITIONERS FOR OPTIMALITY SYSTEMS USING ISOGEOMETRIC ANALYSIS
Monday, 14:00-16:00, Zeus North

Minisymposia

100 BIOLOGICAL SYSTEMS

MS 102: COMPUTATIONAL MODELS IN BIOMECHANICS AND MECHANOBIOLOGY

MS Organizers: Estefania Peña, Renato Natal Jorge, Miguel A. Martínez, Pedro S. Martins

MS 102 – 1	Thursday,	14:30-16:30,	Aphrodite
MS 102 – 2	Thursday,	17:00-19:00,	Aphrodite

MS 103: MECHANICS OF BIOLOGICAL TISSUES

MS Organizers: Markus Böl, Gerhard A. Holzapfel

MS 103 – 1	Wednesday,	8:30-10:30,	Aphrodite
MS 103 – 2	Wednesday,	11:00-13:00,	Aphrodite
MS 103 – 3	Wednesday,	17:15-19:15,	Aphrodite
MS 103 – 4	Thursday,	8:30-10:30,	Aphrodite

MS 104: GROWTH AND REMODELLING OF LIVING TISSUES IN EXPERIMENT AND SIMULATION

MS Organizers: Antonio Bolea - Albero, Markus Böl

MS 104 – 1	Tuesday,	14:30-16:30,	Aphrodite
MS 104 – 2	Tuesday,	17:00-19:00,	Aphrodite

MS 105: SIMULATION OF CARDIOVASCULAR PROCEDURES AND DEVICES

MS Organizers: Ferdinando Auricchio, Michele Conti, Simone Morganti, Alessandro Realì, Alessandro Veneziani

MS 105 – 1	Tuesday,	14:30-16:30,	Zeus East
MS 105 – 2	Tuesday,	17:00-19:00,	Zeus East

MS 106: DIRECT AND INVERSE METHODS FOR CARDIOVASCULAR AND PULMONARY BIOMECHANICS

MS Organizers: Wolfgang A. Wall, C. Alberto Figueroa, Marek Behr

MS 106 – 1	Tuesday,	8:30-10:50,	Apollo East
MS 106 – 2	Wednesday,	8:30-10:30,	Zeus East
MS 106 – 3	Wednesday,	11:00-13:00,	Zeus East

MS 107: MULTI-SCALE MODELS IN BIOMECHANICS AND MECHANOTRANSDUCTION

MS Organizers: Suvranu De, Michael Sacks, Abdul Barakat

MS 107	Friday,	11:30-13:30,	Room 10
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MS 108: NUMERICAL METHODS FOR COUPLED PROBLEMS IN BIOMEDICAL APPLICATIONS

MS Organizers: Martina Bukac, Annalisa Quaini

MS 108 – 1	Thursday,	14:30-16:30,	Danae
MS 108 – 2	Thursday,	17:00-19:00,	Danae

MS 109: ADVANCED ANALYSIS OF MATERIALS & STRUCTURAL SOLUTIONS IN SAFETY & BIOMECHANICS

MS Organizers: Jerzy Malachowski, Piotr W. Sielicki

MS 109 – 1	Thursday,	8:30-10:30,	Room 8
MS 109 – 2	Thursday,	14:30-16:30,	Room 8

MS 110: COMPUTATIONAL BONE MECHANICS

MS Organizers: Bernd Markert, Udo Nackenhorst, Martin Rues

MS 110	Wednesday,	17:15-19:15,	Room 21
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MS 111: POPULATION BALANCE MODELING: CURRENT STATUS, FUTURE PROSPECTS AND NOVEL APPLICATIONS FROM NANOPARTICLES' SYNTHESIS TO (LUNG) CANCER

MS Organizers: Georgios Lolas, Georgios Bourantas, Panagiotis Gavriliadis, Konstantinos Syrigos

MS 111	Tuesday,	14:30-16:30,	Room 20
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MS 112: ANEURYSMS: SOLID MECHANICS, FLUID MECHANICS, AND MECHANOBIOLOGY

MS Organizers: Christian J. Cyron, Sven Hirsch, Philippe Bijlenga, Roland C. Aydin, Anne M. Robertson, Gerhard A. Holzapfel

MS 112 – 1	Tuesday,	14:30-16:50,	Zeus West
MS 112 – 2	Tuesday,	17:00-19:00,	Zeus West
MS 112 – 3	Wednesday,	8:30-10:30,	Zeus West
MS 112 – 4	Wednesday,	11:00-13:00,	Zeus West
MS 112 – 5	Wednesday,	17:15-19:15,	Minos South
MS 112 – 6	Thursday,	8:30-10:30,	Minos South

MS 113: MATHEMATICAL AND NUMERICAL MODELING OF THE HEART

MS Organizers: Luca Dede', Luca Pavarino, Alfio Quarteroni

MS 113 – 1	Tuesday,	14:30-16:30,	Artemis
MS 113 – 2	Tuesday,	17:00-19:00,	Artemis
MS 113 – 3	Wednesday,	8:30-10:30,	Artemis
MS 113 – 4	Wednesday,	17:15-19:15,	Zeus East-West

MS 114: COMPUTER MODELING OF BALANCE AND HEARING DISORDERS

MS Organizers: Nenad Filipovic, Thanos Bibas

MS 114	Wednesday,	8:30-10:30,	Room 7
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MS 115: TUMOR GROWTH MODELING AND THE MECHANICAL ASPECTS OF CANCER

MS Organizers: Hector Gomez, Assad Oberai, Krishna Garikipati, Kristen Mills, Thomas J.R. Hughes

MS 115 – 1	Tuesday,	8:30-10:30,	Room 20
MS 115 – 2	Tuesday,	14:30-16:30,	Room 20

MS 116: MULTISCALE & MULTILEVEL MODELING IN DETOXIFYING ORGANS AND ORGANS OF THE DIGESTIVE TRACT

MS Organizers: Dirk Drasdo, Irene Vignon-Clementel

MS 116	Tuesday,	17:00-19:20,	Room 20
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200 DAMAGE, FRACTURE AND FAILURE

MS 201: MICROSTRUCTURE-DRIVEN DEFORMATION AND FAILURE IN CRYSTALLINE MATERIALS

MS Organizers: Pilar Ariza, Lucia Nicola, Angelo Simone

MS 201 – 1	Thursday,	8:30-10:30,	Antigoni
MS 201 – 2	Thursday,	14:30-16:30,	Antigoni
MS 201 – 3	Thursday,	17:00-19:00,	Antigoni
MS 201 – 4	Friday,	9:00-11:00,	Antigoni

MS 202: CIVIL ENGINEERING MATERIALS AND STRUCTURES UNDER EXTREME LOADINGS

MS Organizers: Fabrice Gatuingt, Frédéric Dufour, Panagiotis Kotronis

MS 202 – 1	Thursday,	17:00-19:00,	Leda
MS 202 – 2	Friday,	9:00-11:00,	Leda

MS 203: COMPUTATIONAL METHODS FOR MODELLING INSTABILITIES IN SOLIDS & STRUCTURES

MS Organizers: Spyros A. Karamanos

MS 203	Wednesday,	17:15-19:15,	Room 9
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MS 204: IMPACT AND CRASH MECHANICS

MS Organizers: Manfred Bischoff, Fabian Duddeck

MS 204 – 1	Thursday,	8:30-10:30,	Apollo West
MS 204 – 2	Thursday,	14:30-16:30,	Apollo West
MS 204 – 3	Thursday,	17:00-19:00,	Apollo West

MS 205: PROBABILISTIC APPROACH TO NUMERICAL SIMULATION OF FRACTURE

MS Organizers: Alexander V. Gerasimov

MS 205	Friday,	9:00-11:00,	Apollo West
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300 DISCRETIZATION METHODS, GRID, MESH AND SOLID GENERATION

MS 301: METHODS FOR CUT AND COMPOSITE MESHES: THEORY, ALGORITHMS AND APPLICATIONS

MS Organizers: Mats G. Larson, André Massing

MS 301 – 1	Tuesday,	8:30-10:30,	Minos North
MS 301 – 2	Tuesday,	14:30-16:30,	Minos North
MS 301 – 3	Tuesday,	17:00-19:00,	Minos North
MS 301 – 4	Wednesday,	8:30-10:30,	Minos North

MS 302: MESH GENERATION AND ADAPTION

MS Organizers: Josep Sarrate, Xevi Roca, Rafael Montenegro, Eloi Ruiz

MS 302 – 1	Monday,	14:00-16:00,	Athena
MS 302 – 2	Monday,	16:30-18:30,	Athena

MS 303: CURVED MESH GENERATION FOR HIGH-ORDER METHODS

MS Organizers: Xevi Roca, Josep Sarrate

MS 303 – 1	Monday,	14:00-16:00,	Apollo East
MS 303 – 2	Monday,	16:30-18:30,	Apollo East

MS 304: COMPUTATIONAL MODELLING OF ADDITIVE PRODUCTION PROCESSES

MS Organizers: Dirk Hartmann, Stefan Kollmannsberger, Ernst Rank, Utz Wever

MS 304	Monday,	14:00-16:00,	Danae
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MS 305: ADVANCED MESHING METHODS FOR INDUSTRIAL APPLICATIONS

MS Organizers: Frederic Alauzet, Thierry Coupez, Alain Dervieux, Adrien Loseille

MS 305 – 1	Tuesday,	14:30-16:30,	Room 2
MS 305 – 2	Tuesday,	17:00-19:00,	Room 2

MS 306: LATTICE SPRING METHODS FOR LINEAR AND NONLINEAR CONTINUA

MS Organizers: Ioannis Doltsinis

MS 306	Tuesday,	8:30-10:30,	Room 3
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MS 307: ADVANCES IN FINITE ELEMENT METHODS FOR TETRAHEDRAL MESH COMPUTATIONS

MS Organizers: Guglielmo Scovazzi, Antonio J. Gil, Micheal W. Gee

MS 307	Wednesday,	8:30-10:30,	Room 15
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MS 308: ADVANCES IN RAPID CAX

MS Organizers: Michael Breitenberger

MS 308	Monday,	14:00-16:00,	Room 3
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400 FLOW PROBLEMS

MS 403: PARTICLE-BASED METHODS IN FLUID MECHANICS

MS Organizers: Sergio Idelsohn, Eugenio Oñate

MS 403 – 1	Wednesday,	11:00-13:00,	Minos North
MS 403 – 2	Thursday,	8:30-10:30,	Zeus East
MS 403 – 3	Thursday,	14:30-16:30,	Zeus East
MS 403 – 4	Thursday,	17:00-19:00,	Artemis
MS 403 – 5	Friday,	9:00-11:00,	Zeus East

MS 404: SIMULATION OF ENVIRONMENTAL FLOWS

MS Organizers: Pablo Ortiz, Piotr K. Smolarkiewicz, Joanna Szmelter

MS 404 – 1	Tuesday,	14:30-16:30,	Room 21
MS 404 – 2	Tuesday,	17:00-19:00,	Room 21
MS 404 – 3	Wednesday,	8:30-10:30,	Room 21
MS 404 – 4	Wednesday,	11:00-13:00,	Room 21

MS 405: COMPUTATIONAL MODELING OF MULTIPHASE FLOWS: ADVANCED METHODS, INTERFACE PHENOMENA AND ENVIRONMENTAL APPLICATIONS

MS Organizers: Adeline Montlaur, Santiago Arias Calderón, Martin Kronbichler

MS 405	Wednesday,	17:15-19:15,	Artemis
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MS 406: ADVANCES IN COMPUTATIONAL METHODS FOR GAS-LIQUID TWO-PHASE FLOW			
<i>MS Organizers:</i> Byeong Rog Shin, Takeo Kajishima			
MS 406	Wednesday,	17:15-19:15,	Room 2

MS 408: MANIPULATION AND CONTROL OF TURBULENT FLOW			
<i>MS Organizers:</i> Markus Rütten, Christina Voß			
MS 408 – 1	Wednesday,	11:00-13:20,	Minos South
MS 408 – 2	Wednesday,	17:15-19:15	Minos South

MS 409: CURRENT TRENDS IN MODELLING AND SIMULATION OF TURBULENT FLOWS			
<i>MS Organizers:</i> Suad Jakirlić			
MS 409 – 1	Wednesday,	8:30-10:30,	Room 1
MS 409 – 2	Wednesday,	11:00-13:00	Room 1
MS 409 – 3	Thursday	8:30-10:30,	Room 3

MS 410: COMPLEX FLUID FLOWS IN ENGINEERING: MODELLING, SIMULATION AND OPTIMIZATION			
<i>MS Organizers:</i> Stefanie Elgeti, Philipp Knechtges			
MS 410 – 1	Wednesday,	8:30-10:30,	Room 11
MS 410 – 2	Wednesday,	11:00-13:00,	Room 11
MS 410 – 3	Wednesday,	17:15-19:35,	Room 11

MS 411: NON-NEWTONIAN HEAT AND FLUID FLOW SUBJECTED TO MAGNETIC FORCES			
<i>MS Organizers:</i> Laszlo Konozy, Dimitris Drikakis			
MS 411	Friday,	9:00-11:00,	Europa

MS 412: NUMERICAL METHODS FOR WAVES AND FLOWS IN COASTAL AND DEEP WATER HYDRODYNAMICS			
<i>MS Organizers:</i> Nina Shokina, Yuri Shokin, Leonid Chubarov, Gayaz Khakimzyanov, Vadym Aizinger, Denys Dutykh			
MS 412	Thursday,	14:30-16:30,	Room 1

MS 413: COMPUTATIONAL METHODS IN ENVIRONMENTAL FLUID MECHANICS			
<i>MS Organizers:</i> Kazuo Kashiya, Eahn Kubatko, Joannes Westerink			
MS 413 – 1	Thursday,	14:30-16:30,	Room 2
MS 413 – 2	Thursday,	17:00-19:00,	Room 2

MS 414: NEW TRENDS IN NUMERICAL METHODS FOR MULTI-MATERIAL COMPRESSIBLE FLUID FLOWS			
<i>MS Organizers:</i> Andy Barlow, Michael Dumbser, Raphaël Loubère, Pierre-Henri Maire, Rob Rieben, Mikhail Shashkov, François Vilar			
MS 414 – 1	Wednesday,	11:00-13:20,	Room 10
MS 414 – 2	Wednesday,	17:15-19:15,	Room 10

MS 415: COMPUTATIONAL NON-NEWTONIAN FLUID MECHANICS			
<i>MS Organizers:</i> Georgios Georgiou, John Tsamopoulos			
MS 415	Tuesday,	14:30-16:30,	Room 9

500 HIGH PERFORMANCE COMPUTING

MS 501: ALGORITHMIC ASPECTS OF HIGH-PERFORMANCE COMPUTING FOR MECHANICS AND PHYSICS			
<i>MS Organizers:</i> Santiago Badia, Victor Calo, Javier Principe			
MS 501 – 1	Monday,	14:00-16:00,	Minos East
MS 501 – 2	Monday,	16:30-18:30,	Minos East
MS 501 – 3	Tuesday,	8:30-10:30,	Minos East
MS 501 – 4	Tuesday,	14:30-16:30,	Minos East
MS 501 – 5	Tuesday,	17:00-19:00,	Minos East

MS 503: HPC-BASED SIMULATIONS FOR THE ENGINEERING REALM AND INDUSTRIAL APPLICATIONS			
<i>MS Organizers:</i> Makoto Tsubokura, Mariano Vázquez, Takayuki Aoki			
MS 503 – 1	Monday,	14:00-16:00,	Minos South
MS 503 – 2	Monday,	16:30-18:30,	Minos South
MS 503 – 3	Tuesday,	8:30-10:30,	Minos South
MS 503 – 4	Tuesday,	14:30-16:30,	Minos South

MS 504: NUMERICAL METHODS AND TOOLS FOR KEY EXASCALE COMPUTING CHALLENGES IN ENGINEERING AND APPLIED SCIENCES			
<i>MS Organizers:</i> Eugenio Oñate, Manolis Papadrakakis, Peter Wriggers			
MS 504 – 1	Wednesday,	8:30-10:30,	Athena
MS 504 – 2	Wednesday,	11:00-13:00,	Athena

MS 505: INTERACTIVE SIMULATIONS IN COMPUTATIONAL ENGINEERING			
<i>MS Organizers:</i> Adrian Harwood, Petra Wensch			
MS 505 – 1	Monday,	14:00-16:00,	Room 10
MS 505 – 2	Monday,	16:30-18:30,	Room 10

MS 506: ACCURACY AND EFFICIENCY OF APPROXIMATE COMPUTATIONS IN SCIENCE AND ENGINEERING			
<i>MS Organizers:</i> Aram Soroushian			
MS 506	Friday,	9:00-11:00,	Room 3

600 INTERDISCIPLINARY COUPLED AND CONTACT PROBLEMS

MS 601: SHOCK WAVE-BOUNDARY LAYER INTERACTION AND ITS CONTROL			
<i>MS Organizers:</i> Piotr Doerffer, George Barakos			
MS 601	Wednesday,	8:30-10:30,	Room 12

MS 602: INNOVATIVE METHODS FOR FLUID-STRUCTURE-INTERACTION			
<i>MS Organizers:</i> E. Harald van Brummelen, Roger Ohayon, Trond Kvamsdal			
MS 602 – 1	Wednesday,	17:15-19:35,	Minos East
MS 602 – 2	Thursday,	8:30-10:30,	Minos East
MS 602 – 3	Thursday,	14:30-16:30,	Minos East
MS 602 – 4	Friday,	9:00-11:00,	Minos East
MS 602 – 5	Friday,	11:30-13:30,	Minos East

MS 603: COMPUTATIONAL METHODS IN FLUID-STRUCTURE INTERACTION WITH IMPACT ON INDUSTRIAL APPLICATIONS

MS Organizers: Elisabeth Longatte, Yannick Hoarau, Marianna Braza

MS 603 – 1	Thursday,	14:30-16:30,	Room 3
MS 603 – 2	Thursday,	17:00-19:00,	Room 3

MS 605: FRICTIONAL CONTACTS WITH LUBRICATION – BASICS AND APPLICATIONS

MS Organizers: Michael Müller, Thomas Hagemann

MS 605	Thursday,	17:00-19:20,	Room 9
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MS 606: COMPUTATIONAL MODELING OF HYDRAULIC FRACTURING

MS Organizers: Gianluca Cusatis, Gilles Pijaudier-Cabot, Günther Meschke

MS 606 – 1	Thursday,	17:00-19:00,	Athena
MS 606 – 2	Friday,	9:00-11:00,	Athena
MS 606 – 3	Friday,	11:30-13:30,	Athena

MS 607: ADVANCES IN COMPUTATIONAL METHODS FOR LIQUID-VAPOR FLOWS WITH PHASE TRANSFER PROCESSES

MS Organizers: Rémi Abgrall, Pietro M. Congedo, Tore Flåtten, Bernhard Müller, Marica Pelanti, Maria Giovanna Rodio

MS 607 – 1	Thursday,	8:30-10:30,	Room 18
MS 607 – 2	Thursday,	14:30-16:30,	Room 18

MS 608: ADVANCES IN TIME INTEGRATION FOR SOLID, FLUID AND COUPLED SYSTEMS

MS Organizers: Ilinca Stanciulescu, Peter Betsch

MS 608	Thursday,	8:30-10:30,	Room 7
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MS 609: ADVANCED COMPUTATIONAL MODELING OF BATTERIES AND FUEL CELLS

MS Organizers: Edwin Knobbe, Wolfgang A. Wall

MS 609 – 1	Monday,	14:00-16:00,	Zeus West
MS 609 – 2	Monday,	16:30-18:30,	Zeus West
MS 609 – 3	Tuesday,	8:30-10:30,	Zeus West

MS 610: NUMERICAL METHODS TO STUDY THE CONTACT MECHANICS OF DRY, ADHESIVE AND LUBRICATED ROUGH SURFACES

MS Organizers: Carmine Putignano, Daniele Dini

MS 610	Friday,	11:30-13:30,	Apollo West
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MS 611: ADVANCES IN IMMERSED METHODS IN FSI PROBLEMS

MS Organizers: Elie Hachem, Ramon Codina

MS 611	Thursday,	17:00-19:20,	Room 12
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MS 612: NUMERICAL SIMULATIONS FOR SMART-CITY APPLICATIONS

MS Organizers: Julien Waeytens, Rachida Chakir

MS 612	Thursday,	14:30-16:30,	Room 12
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MS 613: COMPUTATIONAL STRATEGIES FOR THE SIMULATION OF TURBULENT TRANSPORT AND MIXING IN THE NATURAL ENVIRONMENT

MS Organizers: Fotis Sotiropoulos, Peter J. Diamessis

MS 613	Wednesday,	8:30-10:30,	Room 8
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MS 615: COMPUTATIONAL MODELS IN MAGNETOHYDRODYNAMICS

MS Organizers: Oleg Zikanov

MS 615	Thursday,	14:30-16:30,	Room 1
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700 MATERIALS

MS 701: ADVANCED MATERIALS: COMPUTATIONAL ANALYSIS OF PROPERTIES AND PERFORMANCE

MS Organizers: Vadim V. Silberschmidt, Valery P. Matveenko

MS 701 – 1	Thursday,	8:30-10:50,	Room 4
MS 701 – 2	Thursday,	14:30-16:30,	Room 4

MS 702: MODELING OF NANOFILLED COMPOSITES

MS Organizers: Konstantinos I. Tserpes

MS 702	Thursday,	8:30-10:30,	Room 1
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MS 703: COMPUTATIONAL MECHANICS OF WOOD MATERIALS AND TIMBER STRUCTURES

MS Organizers: Josef Füssl, Josef Eberhardsteiner, Erik Serrano, Michael Kaliske

MS 703 – 1	Tuesday,	8:30-10:30,	Athena
MS 703 – 2	Tuesday,	14:30-16:30,	Athena
MS 703 – 3	Tuesday,	17:00-19:00,	Athena

MS 705: IDENTIFICATION OF MATERIAL MODELS

MS Organizers: Danuta Szeliga, Wacław Kuś, Tadeusz Burczyński, Jan Kusiak

MS 705	Thursday,	14:30-16:30,	Room 9
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MS 706: MODELING OF FIBER-BASED STRUCTURES - TEXTILES AND TEXTILE REINFORCED COMPOSITES

MS Organizers: Yordan Kyosev, Philippe Boisse, Nahiene Hamila, Damien Durville

MS 706	Monday,	16:30-18:50,	Leda
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MS 707: MICROMECHANICAL MODELLING: COMPETITION BETWEEN ANALYTICAL AND NUMERICAL METHODS

MS Organizers: Siegfried Schmauder, Vera Petrova

MS 707 – 1	Friday,	9:00-11:00,	Room 1
MS 707 – 2	Friday,	11:30-13:30,	Room 1

MS 708: INELASTIC PROCESSES IN HETEROGENEOUS MATERIALS

MS Organizers: Hermann G. Matthies, Adnan Ibrahimbegović

MS 708	Thursday,	14:30-16:30,	Zeus West
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MS 709:	INTEGRATED COMPUTATIONAL MATERIALS ENGINEERING - ICME		
<i>MS Organizers:</i>	Gottfried Laschet, Javier Llorca, Michele Chiumenti		
MS 709	Thursday,	8:30-10:50,	Room 9

MS 710:	MODELING OF INTERFACE BEHAVIOR IN COMPOSITES		
<i>MS Organizers:</i>	Swantje Bargmann, Ingo Scheider, Andrew McBride		
MS 710	Thursday,	8:30-10:30,	Room 10

MS 711:	FOURIER-BASED METHODS FOR COMPUTING THE BEHAVIOR OF HETEROGENEOUS MATERIALS DEVELOPMENTS, EXTENSIONS AND APPLICATIONS		
<i>MS Organizers:</i>	Lionel Gélébart, Hervé Moulinec, Franz Roters, François Willot		
MS 711 – 1	Thursday,	8:30-10:30,	Apollo East
MS 711 – 2	Thursday,	14:30-16:30,	Apollo East
MS 711 – 3	Thursday,	17:00-19:00,	Apollo East

MS 712:	SMART MATERIAL SYSTEMS AND STRUCTURES		
<i>MS Organizers:</i>	Mieczysław Kuczma, Pavel Krejčí, Jörg Schröder, Georgios E. Stavroulakis, Gwidon Szefer		
MS 712 – 1	Thursday	14:30-16:30,	Room 11
MS 712 – 2	Thursday	17:00-19:00,	Room 11

MS 713:	MICROSTRUCTURE-BASED MODELLING OF HETEROGENEOUS MATERIALS		
<i>MS Organizers:</i>	Jan Zeman, Jan Novak, Guillermo Díaz		
MS 713 – 1	Friday,	9:00-11:00,	Apollo East
MS 713 – 2	Friday,	11:30-13:30,	Apollo East

MS 714:	STRENGTH, FATIGUE AND STABILITY OF COMPOSITE STRUCTURES		
<i>MS Organizers:</i>	Raimund Rolfes, Martin Ruess, Kai-Uwe Schröder		
MS 714 – 1	Wednesday,	8:30-10:30,	Europa
MS 714 – 2	Wednesday,	11:00-13:00,	Europa

MS 715:	COMPUTATIONAL ANALYSIS OF COMPOSITE STRUCTURES		
<i>MS Organizers:</i>	Efsthathios E. Theotokoglou		
MS 715 – 1	Thursday,	14:30-16:30,	Room 10
MS 715 – 2	Thursday,	17:00-19:00,	Room 10

800 MULTISCALE PROBLEMS

MS 801:	MULTISCALE COMPUTATIONAL HOMOGENIZATION FOR BRIDGING SCALES IN THE MECHANICS AND PHYSICS OF COMPLEX MATERIALS		
<i>MS Organizers:</i>	Julien Yvonnet, Kenjiro Terada, Peter Wriggers, Marc Geers		
MS 801 – 1	Tuesday,	14:30-16:30,	Apollo East
MS 801 – 2	Tuesday,	17:00-19:00,	Apollo East
MS 801 – 3	Wednesday,	8:30-10:30,	Apollo East
MS 801 – 4	Wednesday,	11:00-13:00,	Apollo East
MS 801 – 5	Wednesday,	17:15-19:15,	Apollo East

MS 802:	ADVANCES IN THE MODELLING OF MULTI-SCALE, MULTI-PHYSICS AND MULTI-UNCERTAINTY PROBLEMS		
<i>MS Organizers:</i>	Francisco M. Andrade Pires, Chengfeng Li		
MS 802 – 1	Friday,	9:00-11:00,	Room 8
MS 802 – 2	Friday,	11:30-13:30,	Room 8

MS 804:	MULTISCALE AND COMPUTATIONAL APPROACHES TO FRACTURE AND FAILURE		
<i>MS Organizers:</i>	Haim Waisman, Caglar Oskay		
MS 804 – 1	Wednesday,	17:15-19:15,	Room 15
MS 804 – 2	Friday,	9:00-11:00,	Room 18
MS 804 – 3	Friday,	11:30-13:30,	Room 18

MS 805:	ADVANCED MULTI-PHYSICS AND MULTI-SCALE TECHNIQUES FOR MODELING INELASTIC PROCESSES IN SOLIDS: DAMAGE, FRACTURE AND CONTACT MECHANICS		
<i>MS Organizers:</i>	Mauro Corrado, Marco Paggi, José Reinoso		
MS 805 – 1	Friday,	9:00-11:00,	Aphrodite
MS 805 – 2	Friday,	11:30-13:30,	Aphrodite

MS 806:	MULTISCALE MODELLING OF MATERIALS AND STRUCTURES		
<i>MS Organizers:</i>	Tadeusz Burczyński, Xavier Oliver, Maciej Pietrzyk, Alfredo Huespe		
MS 806 – 1	Tuesday,	8:30-10:30,	Antigoni
MS 806 – 2	Tuesday,	14:30-16:30,	Antigoni
MS 806 – 3	Tuesday,	17:00-19:00,	Antigoni
MS 806 – 4	Wednesday,	8:30-10:30,	Antigoni
MS 806 – 5	Wednesday,	11:00-13:00,	Antigoni

MS 807:	ADVANCED COMPUTATIONAL STRATEGIES FOR MODELLING, SIMULATION AND CHARACTERISATION OF MULTI-SCALE HETEROGENEOUS MATERIALS		
<i>MS Organizers:</i>	Stéphane Bordas, Daniel Dias-da-Costa, Fabrice Pierron, Timon Rabczuk, Pierre Kerfriden, Pascal Lava		
MS 807	Thursday,	14:30-16:30,	Zeus West

MS 808:	MULTISCALE AND MULTIPHYSICS MODELING OF CEMENTITIOUS MATERIALS		
<i>MS Organizers:</i>	Jörg F. Unger, Thomas Titscher		
MS 808 – 1	Friday,	9:00-11:00,	Room 7
MS 808 – 2	Friday,	11:30-13:30,	Room 7

MS 809:	MULTISCALE STOCHASTIC FINITE ELEMENT METHODS		
<i>MS Organizers:</i>	George Stefanou, Xi Frank Xu, Yu Ching Wu		
MS 809	Thursday,	17:00-19:00,	Room 18

MS 810:	CONSIDERING THE VERY SMALL SCALES IN COMPUTATIONAL MECHANICS: ATOMISTIC AND QUANTUM MECHANICS-BASED METHODS		
<i>MS Organizers:</i>	Amelie Fau, Roger Sauer		
MS 810	Wednesday,	11:00-13:00,	Athena

MS 811: MULTISCALE MODELING OF CONCRETE AND CONCRETE STRUCTURES

MS Organizers: Herbert Mang, Yong YUAN

MS 811 Thursday, 14:30-16:30, Room 17

900 NUMERICAL SIMULATION METHODS

MS 901: ISOGOMETRIC METHODS

MS Organizers: Yuri Bazilevs, David J. Benson, Rene De Borst, Thomas J.R. Hughes, Trond Kvamsdal, Alessandro Reali, Giancarlo Sangalli, Clemens V. Verhoosel

MS 901 – 1 Tuesday, 14:30-16:30, Zeus North
MS 901 – 2 Tuesday, 17:00-19:00, Zeus North
MS 901 – 3 Wednesday, 8:30-10:30, Zeus North
MS 901 – 4 Wednesday, 11:00-13:00, Zeus North
MS 901 – 5 Wednesday, 17:15-19:15, Zeus North
MS 901 – 6 Thursday, 8:30-10:30, Zeus North
MS 901 – 7 Thursday, 14:30-16:30, Zeus North

MS 902: INNOVATIVE NUMERICAL APPROACHES FOR MULTI-PHYSICS PROBLEMS

MS Organizers: Anna Pandolfi, Laurent Stainier, Kerstin Weinberg

MS 902 – 1 Monday, 14:00-16:00, Room 22
MS 902 – 2 Monday, 16:30-18:30, Room 22

MS 903: ADVANCES IN FICTITIOUS DOMAIN METHODS FOR SOLID MECHANICS

MS Organizers: Alexander Düster, Ernst Rank, Stefan Kollmannsberger, Andreas Schröder

MS 903 – 1 Monday, 14:00-16:00, Artemis
MS 903 – 2 Monday, 16:30-18:30, Artemis
MS 903 – 3 Tuesday, 8:30-10:30, Artemis

MS 904: ADVANCED MINIMAL RESIDUAL DISCRETIZATION

MS Organizers: Carsten Carstensen, Dietmar Gallistl

MS 904 – 1 Thursday, 8:30-10:30, Leda
MS 904 – 2 Thursday, 14:30-16:30, Leda

MS 905: DISCONTINUOUS GALERKIN METHODS: NEW TRENDS AND APPLICATIONS

MS Organizers: Sonia Fernández-Méndez, Nicoletta Franchina

MS 905 – 1 Wednesday, 11:00-13:00, Room 15
MS 905 – 2 Thursday, 8:30-10:30, Room 20
MS 905 – 3 Thursday, 14:30-16:30, Room 20
MS 905 – 4 Thursday, 17:00-19:00, Room 20
MS 905 – 5 Friday, 9:00-11:00, Room 20

MS 906: MATHEMATICAL ADVANCES IN ISOGOMETRIC ANALYSIS

MS Organizers: Annalisa Buffa, John A. Evans, Thomas J.R. Hughes, Giancarlo Sangalli

MS 906 – 1 Monday, 14:00-16:00, Zeus North
MS 906 – 2 Monday, 16:30-18:30, Zeus North
MS 906 – 3 Tuesday, 8:30-10:30, Zeus North

MS 907: REGULARIZED ENRICHED APPROXIMATIONS AND QUADRATURE FOR DISCONTINUITIES, SINGULARITIES AND CONTINUOUS-DISCONTINUOUS TRANSITION

MS Organizers: Elena Benvenuti, Giulio Ventura, José M.A. César de Sá

MS 907 – 1 Wednesday, 8:30-10:30, Room 20
MS 907 – 2 Wednesday, 11:00-13:00, Room 20
MS 907 – 3 Wednesday, 17:15-19:15, Room 20

MS 908: VERIFICATION AND VALIDATION OF STRUCTURAL MECHANICS SIMULATION MODELS

MS Organizers: George Lampeas

MS 908 – 1 Friday, 9:00-11:00, Room 9
MS 908 – 2 Friday, 11:30-13:30, Room 9

MS 910: HIGH ORDER CFD METHODS: CONCLUSIONS AND OUTLOOK

MS Organizers: Koen Hillewaert, John Ekaterinaris, Peter Vincent, Norbert Kroll, Norbert Huynh, Z.J. Wang

MS 910 – 1 Thursday, 17:00-19:00, Room 21
MS 910 – 2 Friday, 9:00-11:00, Room 21
MS 910 – 3 Friday, 11:30-13:30, Room 21

MS 911: NUMERICAL METHODS IN THE MECHANICS OF GENERALIZED CONTINUA

MS Organizers: Elena Atroshchenko, Jack S. Hale, George Bourantas, Stéphane P.A Bordas

MS 911 – 1 Thursday, 8:30-10:30, Room 5
MS 911 – 2 Thursday, 14:30-16:30, Room 5

MS 912: HIGH-ORDER METHODS, SENSITIVITY ANALYSIS AND ADAPTATION FOR THE NAVIER STOKES EQUATIONS

MS Organizers: Vincent Couaillier, Rémi Abgrall, Eusebio Valero

MS 912 – 1 Thursday, 14:30-16:30, Room 5
MS 912 – 2 Thursday, 17:00-19:00, Room 5

MS 913: HIGH-ORDER METHODS FOR POLYGONAL AND POLYHEDRAL MESHES

MS Organizers: Lourenço Beirão da Veiga, Franco Brezzi, Donatella Marini, Alessandro Russo

MS 913 – 1 Monday, 14:00-16:20, Room 23
MS 913 – 2 Monday, 16:30-18:50, Room 23
MS 913 – 3 Tuesday, 8:30-10:30, Zeus East

MS 914: INNOVATIVE NON-BOUNDARY-FITTED DISCRETIZATION METHODS

MS Organizers: Fehmi Cirak, John E. Dolbow, Isaac Harari, Ming-Chen Hsu, Thomas J.R. Hughes, Dominik Schillinger

MS 914 – 1 Monday, 14:00-16:00, Europa
MS 914 – 2 Monday, 16:30-18:30, Europa

MS 916: DIRECT METHODS FOR LIMIT STATES OF MATERIALS AND STRUCTURES

MS Organizers: Konstantinos V. Spiliopoulos, Dieter Weichert

MS 916 – 1 Monday, 14:00-16:00, Room 11
MS 916 – 2 Monday, 16:30-18:30, Room 11

MS 917: MESOSCOPIC METHODS FOR COMPLEX FLUIDS AND SOFT MATTER			
<i>MS Organizers:</i> Zhen Li, Wenxiao Pan, Igor V. Pivkin			
MS 917 – 1	Monday,	14:00-16:00,	Room 12
MS 917 – 2	Monday,	16:30-18:30,	Room 12

MS 918: COMPUTER ALGEBRA SYSTEMS IN MODELLING STATIC AND DYNAMIC PROBLEMS IN MECHANICS OF SOLIDS			
<i>MS Organizers:</i> Alexander V. Matrosov, Dmitriy P. Goloskokov			
MS 918	Thursday,	8:30-10:30,	Room 11

MS 919: RECENT ADVANCES IN NUMERICAL SIMULATION AND ANALYSIS OF KINETIC MODELS			
<i>MS Organizers:</i> E. Harald van Brummelen, Manuel Torrilhon			
MS 919 – 1	Tuesday,	8:30-10:30,	Apollo West
MS 919 – 2	Tuesday,	14:30-16:30,	Apollo West
MS 919 – 3	Tuesday,	17:00-19:00,	Apollo West

MS 921: RECENT ADVANCES IN BOUNDARY ELEMENT METHODS			
<i>MS Organizers:</i> Gernot Beer, Luiz Wrobel, Martin Schan			
MS 921 – 1	Monday,	14:00-16:00,	Aphrodite
MS 921 – 2	Monday,	16:30-18:30,	Aphrodite
MS 921 – 3	Tuesday,	8:30-10:30,	Aphrodite

MS 922: HIGH-ORDER METHODS FOR ELASTIC WAVES AND THEIR APPLICATION			
<i>MS Organizers:</i> Thomas Hagstrom, Daniel Appelo			
MS 922 – 1	Friday,	9:00-11:00,	Minos North
MS 922 – 2	Friday,	11:30-13:30,	Minos North

MS 923: NOVEL DISCRETIZATION METHODS – MATHEMATICAL AND MECHANICAL ASPECTS			
<i>MS Organizers:</i> Jörg Schröder, Peter Wriggers, Ferdinando Auricchio, Carsten Carstensen			
MS 923 – 1	Wednesday,	8:30-10:30,	Danae
MS 923 – 2	Wednesday,	11:00-13:00,	Danae
MS 923 – 3	Wednesday,	17:15-19:15,	Danae

1000 OPTIMIZATION, INVERSE PROBLEMS AND CONTROL

MS 1001: STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION			
<i>MS Organizers:</i> J.F. Aguilar Madeira, Helder C. Rodrigues			
MS 1001 – 1	Monday,	16:30-18:30,	Danae
MS 1001 – 2	Tuesday,	8:30-10:30,	Danae
MS 1001 – 3	Tuesday,	14:30-16:30,	Danae
MS 1001 – 4	Tuesday,	17:00-19:00,	Danae
MS 1001 – 5	Wednesday,	8:30-10:30,	Leda
MS 1001 – 6	Wednesday,	11:00-13:00,	Leda
MS 1001 – 7	Wednesday,	17:15-19:15,	Leda

MS 1002: EVOLUTIONARY ALGORITHMS AND METAHEURISTICS IN CIVIL ENGINEERING AND CONSTRUCTION MANAGEMENT			
<i>MS Organizers:</i> Jorge Magalhaes-Mendes, David Greiner			
MS 1002	Wednesday,	17:15-19:15,	Room 1

MS 1003: ADVANCES IN DESIGN OPTIMIZATION OF STRUCTURES AND MATERIALS			
<i>MS Organizers:</i> Zhen Luo, Zhan Kang			
MS 1003 – 1	Wednesday,	11:00-13:00,	Room 12
MS 1003 – 2	Wednesday,	17:15-19:15,	Room 12
MS 1003 – 3	Thursday,	8:30-10:30,	Room 12

MS 1004: AERODYNAMIC STRATEGIES FOR THE GLOBAL OPTIMIZATION OF FLYING CONFIGURATIONS IN SUPERSONIC FLOW			
<i>MS Organizers:</i> Adriana Nastase, Catalin Nae			
MS 1004	Thursday,	17:00-19:00,	Room 15

MS 1005: MONITORING AND CONTROL OF STRUCTURES			
<i>MS Organizers:</i> Resat Oyguc			
MS 1005	Monday,	14:00-16:00,	Leda

MS 1006: PARAMETER IDENTIFICATION IN SOLID MECHANICS			
<i>MS Organizers:</i> A. Gil Andrade-Campos, Marco Rossi, Sandrine Thuillier, Franck Toussaint, Marta C. Oliveira			
MS 1006	Wednesday,	17:15-19:35,	Room 3

MS 1007: ADDITIVE MANUFACTURING AND OPTIMIZATION			
<i>MS Organizers:</i> Ekkehard Ramm, Ole Sigmund, Pierre Duysinx, Wing Kam Liu			
MS 1007 – 1	Tuesday,	17:00-19:00,	Room 18
MS 1007 – 2	Wednesday,	8:30-10:30,	Room 18
MS 1007 – 3	Wednesday,	11:00-13:00,	Room 18
MS 1007 – 4	Wednesday,	17:15-19:15,	Room 18
MS 1007 – 5	Thursday,	8:30-10:30,	Zeus West

MS 1008: ULTRASONIC GUIDED WAVES TESTING AND MONITORING			
<i>MS Organizers:</i> Yaacoubi Slah, Nico Declercq			
MS 1008	Friday,	11:30-13:30,	Minos North

MS 1009: ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION			
<i>MS Organizers:</i> Kyriakos C. Giannakoglou, Jens Dominik Mueller			
MS 1009 – 1	Tuesday,	14:30-16:30,	Room 23
MS 1009 – 2	Wednesday,	8:30-10:30,	Room 23
MS 1009 – 3	Wednesday,	11:00-13:00,	Room 23
MS 1009 – 4	Wednesday,	17:15-19:15,	Room 23
MS 1009 – 5	Thursday,	8:30-10:30,	Room 23
MS 1009 – 6	Thursday,	14:30-16:30,	Room 23
MS 1009 – 7	Thursday,	17:00-19:00,	Room 23

MS 1010: INVERSE PROBLEMS, DESIGN AND OPTIMIZATION			
<i>MS Organizers:</i> Marcelo J. Colaço, Helcio R. B. Orlando, George S. Dulikravich			
MS 1010	Friday,	9:00-11:00,	Room 5

MS 1011: SURROGATE-ASSISTED EVOLUTIONARY ALGORITHMS IN AERODYNAMIC DESIGN/OPTIMIZATION

MS Organizers: Varvara Asouti, Esther Andrés, Emiliano Iuliano

MS 1011 – 1	Friday,	9:00-11:00,	Room 23
MS 1011 – 2	Friday,	11:30-13:30,	Room 23

MS 1013: SOLUTION OF LARGE-SCALE INVERSE PROBLEMS

MS Organizers: Clint Dawson, Steve Mattis, Troy Butler, Lindley Graham

MS 1013	Friday,	9:00-11:20,	Room 11
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MS 1014: DESIGN OPTIMIZATION AND INVERSE PROBLEMS FOR WAVE PROPAGATION PROBLEMS

MS Organizers: Martin Berggren

MS 1014	Friday,	11:30-13:30,	Room 5
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1100 REDUCTION METHODS

MS 1101: REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES

MS Organizers: Francisco Chinesta, Elias Cueto, Antonio Huerta, Pierre Ladeveze, Gianluigi Rozza

MS 1101 – 1	Monday,	14:00-16:00,	Minos North
MS 1101 – 2	Monday,	16:30-18:30,	Minos North
MS 1101 – 3	Tuesday,	8:30-10:30,	Leda
MS 1101 – 4	Tuesday,	14:30-16:30,	Leda
MS 1101 – 5	Tuesday,	17:00-19:00,	Leda
MS 1101 – 6	Wednesday,	8:30-10:30,	Minos East
MS 1101 – 7	Wednesday,	11:00-13:00,	Minos East

MS 1102: VERIFICATION OF REDUCED MODELS IN COMPUTATIONAL MECHANICS

MS Organizers: Ludovic Chamoin, Pedro Diez, Fredrik Larsson, Kris Van der Zee

MS 1102	Wednesday,	17:15-19:35,	Athena
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MS 1103: MATHEMATICAL SURROGATE MODELLING IN ELECTROMAGNETICS

MS Organizers: Petrie Meyer, Tom Dhaene, Dirk Deschrijver

MS 1103 – 1	Thursday,	14:30-16:30,	Room 22
MS 1103 – 2	Thursday,	17:00-19:00,	Room 22

MS 1104: REDUCED-ORDER MODELS FOR PDE-CONSTRAINED OPTIMIZATION AND INVERSE PROBLEMS

MS Organizers: Alfio Quarteroni, Andrea Manzoni

MS 1104 – 1	Monday,	14:00-16:00,	Apollo West
MS 1104 – 2	Monday,	16:30-18:30,	Apollo West

1200 STRUCTURAL STABILITY AND DYNAMICS

MS 1201: COMPUTATIONAL STRUCTURAL DYNAMICS

MS Organizers: Evangelos J. Sapountzakis, Andreas E. Karpitsis

MS 1201 – 1	Wednesday,	11:00-13:00,	Room 8
MS 1201 – 2	Wednesday,	17:15-19:15,	Room 8

MS 1202: ADVANCED BEAM MODELS

MS Organizers: Dinar Camotim, Zuzana Dimitrovová, Rodrigo Gonçalves

MS 1202 – 1	Tuesday,	8:30-10:30,	Room 1
MS 1202 – 2	Tuesday,	14:30-16:30,	Room 1
MS 1202 – 3	Tuesday,	17:00-19:00,	Room 1

MS 1203: THE MODELS AND INVESTIGATIONS METHODS OF DYNAMICS OF THE SOLIDS SYSTEMS WITH DRY FRICTION

MS Organizers: Alexey A. Kireenkov, Alexander V. Karapetyan

MS 1203	Wednesday,	11:00-13:00,	Room 3
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MS 1204: NONLINEAR DYNAMICS OF ROTATING STRUCTURES

MS Organizers: Evangeline Capiez-Lernout, Marc P. Mignolet, Christian Soize

MS 1204 – 1	Thursday,	14:30-16:30,	Minos South
MS 1204 – 2	Thursday,	17:00-19:00,	Minos South

MS 1206: ADVANCES IN NUMERICAL METHODS FOR LINEAR AND NON-LINEAR DYNAMICS AND WAVE PROPAGATION

MS Organizers: Alexander Idesman

MS 1206 – 1	Tuesday,	8:30-10:30,	Room 12
MS 1206 – 2	Tuesday,	14:30-16:30,	Room 12
MS 1206 – 3	Tuesday,	17:00-19:00,	Room 12

MS 1207: COMPUTATIONAL SIMULATION OF SMART STRUCTURES AND MATERIALS

MS Organizers: Ruediger Schmidt, Kai-Uwe Schröder

MS 1207	Wednesday,	8:30-10:30,	Room 3
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MS 1208: BIFURCATIONS AND STABILITY

MS Organizers: Pekka Neittaanmäki, Nikolay Banichuk, Juha Jeronen, Tero Tuovinen

MS 1208	Thursday,	8:30-10:50,	Room 2
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MS 1209: DYNAMIC ANALYSIS OF BEAMS UNDER MOVING VEHICLES: APPLICATION TO RAILWAY TRACK MODELLING, DESIGN AND REHABILITATION

MS Organizers: Fernando Simões, Antonio Pinto da Costa

MS 1209	Thursday,	17:00-19:00,	Minos South
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MS 1210: ADVANCES IN MODELING AND ANALYSIS OF FGM STRUCTURES

MS Organizers: Justin Murin, Stephan Kugler, Mehdi Aminbaghai

MS 1210	Thursday	8:30-10:30,	Artemis
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MS 1211: COMPUTATIONAL STRATEGIES FOR STRUCTURAL ROBUSTNESS ASSESSMENT

MS Organizers: Domenic Asprone, Fulvio Parisi

MS 1211	Friday,	9:00-11:00,	Room 12
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MS 1212: DYNAMICS AND SEISMIC RESPONSE OF ROCKING AND SELF-CENTERING STRUCTURES			
<i>MS Organizers:</i> Matthew DeJong, Elias Dimitrakopoulos, Michalis Fragiadakis			
MS 1212 – 1	Tuesday,	14:30-16:50,	Room 10
MS 1212 – 2	Tuesday,	17:00-19:20,	Room 10
MS 1213: INNOVATIVE STRUCTURAL SYSTEMS FOR SEISMIC RESISTANT BUILDINGS			
<i>MS Organizers:</i> Carlo Castiglioni			
MS 1213	Thursday,	17:00-19:00,	Room 7
MS 1214: HISTORIC MASONRY STRUCTURES: MODELLING, ASSESSMENT & RETROFIT			
<i>MS Organizers:</i> Panagiotis Asteris, Charilaos Maniatakis, Constantine Spyarakos			
MS 1214 – 1	Tuesday,	8:30-10:30,	Room 7
MS 1214 – 2	Tuesday,	14:30-16:30,	Room 7
MS 1214 – 3	Tuesday,	17:00-19:20,	Room 7
MS 1215: NONLINEAR VIBRATIONS OF CONSERVATIVE AND NONCONSERVATIVE SYSTEMS: PHENOMENA AND ADVANCED NUMERICAL METHODS			
<i>MS Organizers:</i> Malte Krack, Ludovic Renson, Gaëtan Kerschen			
MS 1215 – 1	Thursday,	8:30-10:30,	Room 21
MS 1215 – 2	Thursday,	14:30-16:30,	Room 21
MS 1216: STRUCTURAL ANALYSIS AND VIBRATIONS			
<i>MS Organizers:</i> Diana V. Bambill, Carlos A. Rossit			
MS 1216	Friday,	9:00-11:00,	Room 4
MS 1217: COMPUTATIONAL METHODS IN EARTHQUAKE ENGINEERING AND STRUCTURAL DYNAMICS			
<i>MS Organizers:</i> Vagelis Plevris, Georgia Kremmyda, Yasin Fahjan			
MS 1217 – 1	Tuesday,	17:00-19:00,	Room 9
MS 1217 – 2	Wednesday,	8:30-10:30,	Room 9
MS 1217 – 3	Wednesday,	11:00-13:00,	Room 9
MS 1218: STABILITY AND CONTROL OF FLEXIBLE STRUCTURES			
<i>MS Organizers:</i> Ilaria Venanzi, Marco Lepidi			
MS 1218	Monday,	14:00-16:00,	Room 8
MS 1220: DYNAMICS OF STRUCTURES SUBJECT TO SEISMIC EXCITATIONS			
<i>MS Organizers:</i> Michel Gérardin, Evtim Zahariev, Evangelos J. Sapountzakis			
MS 1220	Wednesday,	8:30-10:30,	Room 10
MS 1221: COMPUTATIONAL STRUCTURAL STABILITY			
<i>MS Organizers:</i> Herbert A. Mang, Yeon-Bin Yang			
MS 1221	Thursday,	17:00-19:00,	Room 17
MS 1222: INFLUENCE OF LIQUEFIABLE SOIL ON SINGLE AND CLOSELY CLUSTERED STRUCTURES			
<i>MS Organizers:</i> Nawawi Chouw, Rolly Orense, Tam Larkin			
MS 1222	Wednesday,	11:00-13:00,	Room 17

MS 1224: INNOVATIVE SOLUTIONS FOR THE SEISMIC PROTECTION OF INDUSTRIAL BUILDINGS			
<i>MS Organizers:</i> Walter Salvatore, Carlo Castiglioni, Francesco Morelli, Nikolaos Bakas			
MS 1224	Thursday,	8:30-10:50,	Room 22
MS 1225: SEISMIC PERFORMANCE ASSESSMENT OF STRUCTURES AND SEISMIC RISK MITIGATION STRATEGIES			
<i>MS Organizers:</i> Marco Vona			
MS 1225 – 1	Thursday,	14:30-16:30,	Room 7
MS 1225 – 2	Thursday,	17:00-19:00,	Room 7
1300 UNCERTAINTY QUANTIFICATION AND ERROR ESTIMATION			
MS 1301: THE STOCHASTIC COMPUTER METHODS IN MECHANICS			
<i>MS Organizers:</i> Marcin Kamiński, Takahiko Kurahashi			
MS 1301	Tuesday,	14:30-16:50,	Room 3
MS 1303: ANALYSIS AND DESIGN OF SAFETY CRITICAL SYSTEMS UNDER UNCERTAINTY			
<i>MS Organizers:</i> Edoardo Patelli, Michael Beer, Matteo Broggi, Francisco Alejandro Díaz De la O			
MS 1303	Friday,	11:30-13:30,	Room 2
MS 1304: STOCHASTIC MODELING AND IDENTIFICATION OF UNCERTAINTIES IN COMPUTATIONAL MECHANICS			
<i>MS Organizers:</i> Johann Guilleminot, Maarten Arnst, Christian Soize			
MS 1304 – 1	Thursday,	17:00-19:00,	Room 8
MS 1304 – 2	Friday,	9:00-11:20,	Room 2
MS 1305: STOCHASTIC MODELS OF FAILURE IN RANDOM HETEROGENEOUS MATERIALS AND COMPLEX NETWORKS			
<i>MS Organizers:</i> Dionissios T. Hristopulos, Tetsu Uesaka			
MS 1305	Tuesday,	8:30-10:30,	Room 23
MS 1306: ERCOFTAC SIG-45: UNCERTAINTY QUANTIFICATION IN CFD AND FLUID STRUCTURE INTERACTION			
<i>MS Organizers:</i> Didier Lucor, Sunetra Sarkar			
MS 1306 – 1	Monday,	14:00-16:00,	Antigoni
MS 1306 – 2	Monday,	16:30-18:30,	Antigoni
MS 1307: NON-INTRUSIVE SURROGATE MODELS FOR UNCERTAINTY QUANTIFICATION IN HIGH DIMENSIONS			
<i>MS Organizers:</i> Bruno Sudret, Eleni Chatzi, Jean-Marc Bourinet, Nicolas Gayton			
MS 1307 – 1	Monday,	14:00-16:00,	Room 1
MS 1307 – 2	Monday,	16:30-18:30,	Room 1

MS 1308: MODELLING AND INVERSE METHODS IN NONLINEAR DYNAMICAL SYSTEMS

MS Organizers: Sotirios Natsiavas, Costas Papadimitriou, Eleni Chatzi, Dimitrios Giagopoulos

MS 1308 Wednesday, 8:30-10:30, Apollo West

MS 1309: SCALABLE MULTI-FIDELITY MODELING FOR DESIGN, UNCERTAINTY QUANTIFICATION, AND INVERSE PROBLEMS

MS Organizers: Paris Perdikaris, George Em. Karniadakis

MS 1309 – 1 Monday, 16:30-18:30, Room 1
MS 1309 – 2 Tuesday, 8:30-10:50, Room 11

MS 1310: COMPUTATIONAL METHODS FOR THE SOLUTION OF STOCHASTIC DIFFERENTIAL EQUATIONS

MS Organizers: Jianbing Chen, Ioannis Kougiumtzoglou, Vissarion Papadopoulos

MS 1310 Tuesday, 8:30-10:50, Room 11

MS 1311: ADAPTIVE METHODS FOR FORWARD AND INVERSE PROPAGATION OF UNCERTAINTY IN COMPUTATIONAL MODELS

MS Organizers: Timothy M. Wildey, Anca C. Belme

MS 1311 Friday, 9:00-11:00, Room 17

1400 SPECIAL TECHNOLOGICAL SESSIONS

MS 1401: TOICA: THERMAL OVERALL INTEGRATED CONCEPT AIRCRAFT

MS Organizers: Pierre Arbez, Jean-Claude Dunyach

MS 1401 – 1 Thursday, 8:30-10:30, Athena
MS 1401 – 2 Thursday, 14:30-16:30, Athena
MS 1401 – 3 Thursday, 17:00-19:00, Room 1

STS 1: THE CAERO2 PLATFORM: DISSEMINATION OF COMPUTATIONAL CASE STUDIES IN AERONAUTICS

MS Organizers: Pedro Diez, Jacques Periaux, Sara Guttilla

STS 1 Tuesday, 17:00-19:00, Room 3

STS 2: GREEN AND SMART INTELLIGENT TRANSPORT SYSTEMS (IST): TOWARDS MORE INTEGRATED COMPUTATIONAL AND IT TOOLS FOR THE DEPLOYMENT OF NOVEL TRAVEL SERVICES

MS Organizers: Pedro Diez, P. Neittaanmaki, T. Tuovinen, Jacques Periaux

STS 2 – 1 Tuesday, 8:30-10:30, Room 18
STS 2 – 2 Tuesday, 14:30-16:30, Room 18

STS 3: INNOVATIVE DESIGN OPTIMIZATION TOOLS LINKED TO INDUSTRIAL AERONAUTICAL APPLICATIONS: TARGETING GREENER PERFORMANCES

MS Organizers: Jacques Periaux, Gabriel Bugeda

STS 3 – 1 Wednesday, 8:30-10:30, Room 2
STS 3 – 2 Wednesday, 11:00-13:00, Room 2

STS 5: TRANSITION LOCATION EFFECT ON SHOCK WAVE BOUNDARY LAYER INTERACTION

MS Organizers: Piotr Doerffer, Pawel Flaszynski

STS 5 Wednesday, 17:15-19:15, Minos North

STS 6: DRAG REDUCTION AND FLOW CONTROL TECHNOLOGIES

MS Organizers: Dietrich Knoerzer, Geza Schrauf

STS 6 Thursday, 8:30-10:30, Minos North

STS 7: MORPHING TECHNOLOGIES FOR AIRCRAFT WINGS

MS Organizers: Hans Peter Monner

STS 7 Thursday, 14:30-16:50, Artemis

STS 8: SIMULATION AND VALIDATION OF COMPOSITE STRUCTURES IN AERONAUTICS

MS Organizers: Piet Woelkens

STS 8 Thursday, 14:30-16:50, Artemis

STS 9: ADVANCED WING HIGH-LIFT SYSTEMS

MS Organizers: Jochen Wild

STS 9 Thursday, 17:00-19:00, Minos East

YOUNG INVESTIGATORS MINISYMPOSIUM

MS Organizers: Jaan-Willem Simon, Alexander Popp, Joan Baiges

MS 614 – 1	Thursday, 14:30-16:30,	Minos North
MS 614 – 2	Thursday, 17:00-19:00,	Minos North

This Minisymposium is organized by young investigators (all of which are members of the ECCOMAS Young Investigators Committee) for young investigators. The format is different from the typical MS to attract the interest of young researchers.

There are two types of presentations:

Presentation in pairs: Two presenters prepare and submit their abstract together. They should know each other but should not work at the same institution. The idea is to view a topic from two different perspectives, thus leading to intense discussions on pros and cons of the presented approaches. Presentations in pairs are allowed 1.5 times the time of regular talks.



Presentation of things that did not work (as expected): The presentations are dedicated to those works which did not work or lead to different outcomes than expected. This gives the chance to present “negative” results. Authors should discuss why things went “wrong” with the aim to prevent others from falling into the same traps.

ECCOMAS OLYMPIAD MINISYMPOSIUM



OLYMPIAD – 1	Wednesday, 8:30-10:50,	Room 22
OLYMPIAD – 2	Wednesday, 11:00-13:00,	Room 22

The ECCOMAS Olympiads are organized annually in different places in Europe, aiming at providing a forum for disseminating recent developments and sharing common research interest among young researchers, whose PhD theses was approved by a University or a Research Organization in Europe during the previous year. Awards will be given to the two best oral presentations at the Closing Ceremony of the Congress.

Contributed Sessions

CS 110: NUMERICAL MODELS IN BIOMECHANICS

CS 110 – 1	Monday,	14:00-16:00,	Room 7
CS 110 – 2	Monday,	16:30-18:30,	Room 7
CS 110 – 3	Tuesday,	8:30-10:30,	Room 8
CS 110 – 4	Tuesday,	14:30-16:30,	Room 8
CS 110 – 5	Tuesday,	17:00-19:00,	Room 8
CS 110 – 6	Wednesday,	8:30-10:30,	Room 4

CS 210: NUMERICAL SIMULATION OF COMPOSITE MATERIALS

CS 210	Monday,	14:00-16:20,	Room 4
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CS 211: CRACK PROPAGATION

CS 211	Monday,	16:30-18:30,	Room 4
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CS 212: NUMERICAL MODELING OF DAMAGE, FAILURE AND FRACTURE

CS 212 – 1	Tuesday,	8:30-10:30,	Room 4
CS 212 – 2	Tuesday,	14:30-16:30,	Room 4
CS 212 – 3	Tuesday,	17:00-19:00,	Room 4

CS 230: MODELLING OF CONCRETE AND MEASURING

CS 230	Monday,	14:00-16:00,	Room 20
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CS 310: CAD, CAM AND CAE

CS 310	Wednesday,	11:00-13:20,	Minos South
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CS 320: GRID GENERATION AND ADAPTIVE TECHNIQUES

CS 320	Thursday,	17:00-19:00,	Room 4
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CS 410: COMPUTATIONAL FLUID MECHANICS

CS 410 – 1	Tuesday,	8:30-10:30,	Europa
CS 410 – 2	Tuesday,	14:30-16:30,	Europa
CS 410 – 3	Tuesday,	17:00-19:00,	Europa
CS 410 – 4	Wednesday,	8:30-10:30,	Room 5
CS 410 – 5	Wednesday,	11:00-13:00,	Room 5
CS 410 – 6	Wednesday,	17:15-19:15,	Room 5

CS 420: MULTI-PHASE AND CHEMICALLY REACTING FLOWS

CS 420 – 1	Monday,	14:00-16:00,	Room 2
CS 420 – 2	Monday,	16:30-18:30,	Room 2
CS 420 – 3	Tuesday,	8:30-10:30,	Room 2

CS 450: NUMERICAL METHODS AND CONVERGENCE ACCELERATION IN CFD

CS 450 – 1	Wednesday,	11:00-13:00,	Apollo West
CS 450 – 2	Wednesday,	17:15-19:15,	Apollo West

CS 460: UNSTEADY FLOW COMPUTATION

CS 460 – 1	Tuesday,	8:30-10:30,	Room 5
CS 460 – 2	Tuesday,	14:30-16:30,	Room 5
CS 460 – 3	Tuesday,	17:00-19:00,	Room 5

CS 500: HIGH PERFORMANCE COMPUTING

CS 500 – 1	Tuesday,	17:00-19:00,	Minos South
CS 500 – 2	Wednesday,	8:30-10:30,	Minos South

CS 610: AERO-ACOUSTICS

CS 610	Friday,	11:30-13:30,	Room 15
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CS 620: COMPUTATIONAL CONTACT MECHANICS

CS 620 – 1	Thursday,	8:30-10:30,	Room 15
CS 620 – 2	Thursday,	14:30-16:30,	Room 15

CS 630: SIMULATION OF FLUID-STRUCTURE INTERACTION

CS 630 – 1	Wednesday,	17:15-19:15,	Europa
CS 630 – 2	Thursday,	8:30-10:30,	Europa
CS 630 – 3	Thursday,	14:30-16:30,	Europa
CS 630 – 4	Thursday,	17:00-19:00,	Europa
CS 630 – 5	Friday,	9:00-11:00,	Europa

CS 720: COMPUTATIONAL MATERIALS SCIENCE

CS 720 – 1	Wednesday,	11:00-13:00,	Room 7
CS 720 – 2	Wednesday,	17:15-19:35,	Room 7

CS 750: COMPUTATIONAL MODELING OF COMPOSITES

CS 750 – 1	Monday,	14:00-16:00,	Room 9
CS 750 – 2	Monday,	16:30-18:30,	Room 9
CS 750 – 3	Tuesday,	8:30-10:30,	Room 9

CS 751: SMART MATERIALS AND STRUCTURES

CS 751 – 1	Monday,	14:00-16:00,	Room 18
CS 751 – 2	Monday,	16:30-18:30,	Room 18

CS 830: COMPUTATIONAL NANOTECHNOLOGY

MS Organizers:

CS 830	Wednesday,	11:00-13:00,	Artemis
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CS 840: MULTI-SCALE COMPUTATIONAL METHODS FOR SOLIDS AND FLUIDS

CS 840 – 1	Monday,	14:00-16:00,	Room 5
CS 840 – 2	Monday,	16:30-18:30,	Room 5

CS 930: HIGH-ORDER DISCRETIZATION METHODS

CS 930 – 1	Monday,	14:00-16:00,	Room 15
CS 930 – 2	Monday,	16:30-18:30,	Room 15
CS 930 – 3	Tuesday,	8:30-10:30,	Room 15
CS 930 – 4	Tuesday,	17:00-19:00,	Room 15

CS 940: EXTENDED DISCRETIZATION METHODS

CS 940 – 1	Tuesday,	8:30-10:30,	Room 22
CS 940 – 2	Tuesday,	14:30-16:30,	Room 22

CS 960: MESHLESS METHODS			
CS 960 – 1	Tuesday,	14:30-16:30,	Room 22
CS 960 – 2	Tuesday,	17:00-19:00,	Room 22
CS 980: NUMERICAL AND SYMBOLIC COMPUTATION			
CS 980	Friday,	9:00-11:00,	Room 15
CS 990: PARTICLE-BASED METHODS			
CS 990 – 1	Monday,	14:00-16:00,	Zeus East
CS 990 – 2	Monday,	16:30-18:30,	Zeus East
CS 1010: COMPUTATIONAL INVERSE PROBLEMS AND OPTIMIZATION			
CS 1010 – 1	Monday,	14:00-16:00,	Room 21
CS 1010 – 2	Monday,	16:30-18:30,	Room 21
CS 1010 – 3	Tuesday,	8:30-10:30,	Room 21
CS 1010 – 4	Tuesday,	14:30-16:30,	Room 17
CS 1020: EVOLUTIONARY AND DETERMINISTIC METHODS FOR DESIGN, OPTIMIZATION AND CONTROL			
CS 1020 – 1	Monday,	14:00-16:00,	Room 17
CS 1020 – 2	Monday,	16:30-18:30,	Room 17
CS 1020 – 3	Tuesday,	8:30-10:30,	Room 17
CS 1100: REDUCTION ORDER METHODS			
CS 1100	Thursday,	8:30-10:30,	Room 17

CS 1200: STRUCTURAL DYNAMICS			
CS 1200 – 1	Tuesday,	8:30-10:30,	Room 10
CS 1200 – 2	Tuesday,	14:30-16:30,	Room 11
CS 1200 – 3	Wednesday,	11:00-13:00,	Room 4
CS 1201: COMPUTATIONAL SOIL MECHANICS			
CS 1201	Tuesday,	17:00-19:00,	Room 11
CS 1202: STRUCTURAL ANALYSIS AND MULTI BODY DYNAMICS			
CS 1202 – 1	Friday,	9:00-11:00,	Room 4
CS 1202 – 2	Friday,	11:30-13:30,	Room 4
CS 1300: UNCERTAINTY QUANTIFICATION AND ERROR ESTIMATION			
CS 1300 – 1	Tuesday,	17:00-19:00,	Room 17
CS 1300 – 2	Wednesday,	8:30-10:30,	Room 17
CS 1300 – 3	Wednesday,	11:00-13:00,	Room 17
CS 1301: MODECULAR DYNAMICS			
CS 1301	Friday,	11:30-13:30,	Room 4

DAY 1 – MONDAY, JUNE 6

7:30-8:30

Registration

OPENING & AWARDS CEREMONY

Monday, June 6 8:30-8:50	Zeus
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Welcome Addresses

Manolis Papadrakakis
Ekkehard Ramm
Wing Kam Liu

Monday, June 6 8:50-9:15	Zeus
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Presentation of ECCOMAS Awards

ECCOMAS PhD Awards
Jacques Louis Lions Award
Olgierd Cecil Zienkiewicz Award
Ludwig Prandtl Medal
Leonhard Euler Medal
Ritz-Galerkin Medal

OPENING PLENARY LECTURE

Monday, June 6 9:15-10:00	Zeus
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Chair: Ekkehard Ramm

12327 HELLENISTIC TECHNOLOGY AND THE STEAM-POWERED FORCE-
PUMP
Theodosios P. Tasios

10:00-10:30

Coffee Break

PLENARY LECTURES

Monday, June 6 10:30-12:00	Zeus
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Chair: Antonio Huerta

12726 MODELING OF FIBER-REINFORCED SOLIDS WITH APPLICATION
TO SOFT TISSUES
Gerhard A. Holzapfel

12169 REDUCED ORDER MODELS FOR ANALYSIS AND SYNTHESIS OF
COMPLEX SYSTEMS
Alfio Quarteroni

12:00-14:00

Lunch Break

TECHNICAL SESSIONS

Monday, June 6 **Zeus East**
14:00-16:00

CS 990 - 1: PARTICLE-BASED METHODS

Chair: Miquel Santasusana

- 5352** AN ALE PARTICLE METHOD USING UPWIND INTERPOLATION FOR SOLVING FLOWS WITH MOVING BOUNDARY AND FREE SURFACE
Fangyuan Hu, Seiichi Koshizuka
- 8518** DNS SIMULATION AS A TOOL FOR STUDYING LIQUID BRIDGES
Nikoletta Patsaki, Johannes Khinast, Robert Scharler
- 8868** SIMULATION OF BLUFF-BODY FLOWS USING ITERATIVE PENALIZATION IN A MULTIREOLUTION PARTICLE-MESH VORTEX METHOD
Henrik Juul Spietz, Mads Møhlholm Hejlesen, Jens Honoré Walther
- 7080** STUDY OF PARTICLES BACKFLOW IN PARTIALLY FILLED SCREW CONVEYORS
Luca Orefice, Johannes Khinast
- 10124** A STABILISED TOTAL LAGRANGIAN CORRECTED SMOOTH PARTICLE HYDRODYNAMICS TECHNIQUE IN LARGE STRAIN EXPLICIT FAST SOLID DYNAMICS
Giorgio Greto, Sivakumar Kulasegaram, Chun H. Lee, Antonio J. Gil, Javier Bonet
- 8928** GRADIENT ELASTICITY WITH THE MATERIAL POINT METHOD
T.J. Charlton, W.M. Coombs, C.E. Augarde

Monday, June 6 **Zeus West**
14:00-16:00

MS 609 - 1: ADVANCED COMPUTATIONAL MODELING OF BATTERIES AND FUEL CELLS

MS Organizers: Edwin Knobbe, Wolfgang A. Wall

Chair: Edwin Knobbe

- 9290** KEYNOTE: MODELING DIFFUSION INDUCED FRACTURE IN SILICON ELECTRODES THROUGH A PHASE FIELD APPROACH
Christian Linder, Xiaoxuan Zhang
- 9915** PHASE-FIELD STUDY OF ELECTROCHEMICAL REACTIONS AT EXTERIOR SURFACE, CRACK SURFACES AND PHASE INTERFACES IN LI-ION BATTERY ELECTRODE PARTICLES
Bai-Xiang Xu, Ying Zhao, Peter Stein
- 8172** STOCHASTIC 3D MODELING OF AMORPHOUS MICROSTRUCTURES - A POWERFUL TOOL FOR VIRTUAL MATERIALS TESTING
Matthias Neumann, Volker Schmidt
- 7302** CONSISTENT MODELING AND NUMERICAL SIMULATION OF SPACE-CHARGE LAYER FORMATION IN ALL-SOLID-STATE THIN-FILM CELLS
Katharina Becker-Steinberger, Stefanie Braun, Simon Schardt, Arnulf Latz
- 6857** ELECTROCHEMICAL POTENTIAL ANALYSIS OF SOLID OXIDE FUEL CELL BASED ON REACTION-DIFFUSION EQUATIONS CONSIDERING PHASE TRANSFORMATION OF ZIRCONIUM OXIDE
Mayu Muramatsu, Haruo Kishimoto, Katsuhiko Yamaji, Keiji Yashiro, Tatsuya Kawada, Kenjiro Terada, Harumi Yokokawa

Monday, June 6 **Zeus North**
14:00-16:00

MS 906 - 1: MATHEMATICAL ADVANCES IN ISOGEOMETRIC ANALYSIS

MS Organizers: Annalisa Buffa, John A. Evans, Thomas J.R. Hughes, Giancarlo Sangalli

Chair: Giancarlo Sangalli

- 8500** KEYNOTE: ROBUST PRECONDITIONERS FOR OPTIMALITY SYSTEMS USING ISOGEOMETRIC ANALYSIS
Jarle Sogn, Walter Zulehner
- 5647** MULTIGRID METHODS FOR ISOGEOMETRIC ANALYSIS
Clemens Hofreither, Stefan Takacs, Walter Zulehner
- 10319** THE GLT CLASS AS A GENERALIZED FOURIER ANALYSIS AND APPLICATIONS
Stefano Serra Capizzano
- 9226** PRECONDITIONERS FOR ISOGEOMETRIC ANALYSIS BASED ON SOLVERS FOR SYLVESTER EQUATION
Giancarlo Sangalli, Mattia Tani
- 9991** SCALABLE ISOGEOMETRIC DOMAIN DECOMPOSITION PRECONDITIONERS FOR MIXED ELASTICITY AND STOKES SYSTEMS
Lourenco Beirao da Veiga, Luca F. Pavarino, Simone Scacchi, Stefano Zampini

Monday, June 6 **Minos East**
14:00-16:00

MS 501 - 1: ALGORITHMIC ASPECTS OF HIGH-PERFORMANCE COMPUTING FOR MECHANICS AND PHYSICS

MS Organizers: Santiago Badia, Victor Calo, Javier Principe

Chair: Santiago Badia

- 10863** KEYNOTE: COMPUTATIONAL SCREENING TOOLS FOR MODELING ENERGY PROBLEMS IN POROUS MEDIA
Mary Wheeler
- 6715** COMPUTATIONAL COMPLEXITY OF ISOGEOMETRIC FEM WITH T-SPLINES AND B-SPLINES OVER 2D H-REFINED GRIDS
Pawel Lipski, Bartosz Janota, Maciej Paszynski, Victor Calo
- 8168** EFFICIENT SOLUTION OF LARGE SCALE MULTI-STAGE OPTIMAL POWER FLOW PROBLEMS USING INTERIOR POINT METHODS
Drosos Kourounis, Alexander Fuchs, Olaf Schenk
- 8294** EFFICIENT SOLUTION METHODS FOR ELECTROMAGNETICS AND MULTIFLUID PLASMA MODELS
Edward Phillips, John Shadid, Eric Cyr
- 5028** ON THE USE OF LOW RANK APPROXIMATIONS FOR THE CONSTRUCTION OF EFFICIENT PRECONDITIONERS
Paolo Gatto, Jan Hesthaven

Monday, June 6 14:00-16:00	Minos North	Monday, June 6 14:00-16:00	Danae
MS 1101 - 1: REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES <i>MS Organizers:</i> Francisco Chinesta, Elias Cueto, Antonio Huerta, Pierre Ladeveze, Gianluigi Rozza <i>Chair:</i> Pierre Ladeveze		MS 304: COMPUTATIONAL MODELLING OF ADDITIVE PRODUCTION PROCESSES <i>MS Organizers:</i> Dirk Hartmann, Stefan Kollmannsberger, Ernst Rank, Utz Wever <i>Chair:</i> Dirk Hartmann	
9495	KEYNOTE: AN EXTENDED PGD-REDUCED MODEL APPROACH IN SOLID MECHANICS FOR LARGE NUMBER OF PARAMETERS <i>Pierre Ladeveze, David Neron, Charles Paillet</i>	9881	INTERACTIVE TOPOLOGY OPTIMIZATION <i>Hans-Joachim Bungartz, Stefan Gavranovic, Dirk Hartmann, Utz Wever</i>
6258	REDUCED BASIS METHOD FOR FAST PARETO SOLUTIONS IN MULTIOBJECTIVE OPTIMIZATION <i>Laura Iapichino, Stefan Volkwein, Stefan Trenz</i>	8226	A HIGH-ORDER ACCURATE COMPUTATIONAL FRAMEWORK FOR THE SIMULATION OF SLM PROCESSES <i>Stefan Kollmannsberger, Ali Özcan, Massimo Carraturo, Nils Zander, Ernst Rank</i>
5895	WAVELETS WITHIN THE REDUCED BASIS METHODS? <i>Karsten Urban</i>	12047	NUMERICAL MODEL FOR THERMAL ANALYSIS OF LASER BASED ADDITIVE MANUFACTURING PROCESSES <i>Arnaud Francois, Eric Wyart</i>
8234	THE PROPER GENERALIZED DECOMPOSITION APPLIED TO THE NUMERICAL SIMULATION OF ELASTOPLASTIC PROBLEMS <i>Jean-Christophe Roux, Sylvain Zuchiatti, Eric Feulvarch, Samuel Tissot, Gilles Perrin, Jean-Michel Bergheau</i>	4477	SIMULATION OF TEMPERATURE DISTRIBUTION AND MECHANICAL MATERIAL BEHAVIOUR IN SELECTIVE BEAM MELTING PROCESSES <i>Daniel Riedlbauer, Paul Steinmann, Julia Mergheim</i>
8193	EIGENVALUE REDUCED BASIS APPROXIMATION FOR COMPLEX SOLID STRUCTURES <i>Thomas Horger, Barbara Wohlmuth</i>	8641	A MULTI-SCALE APPROACH FOR EFFICIENT SIMULATION OF SELECTIVE LASER MELTING <i>Luke Parry, Ian Ashcroft, Ricky Wildman</i>
Monday, June 6 14:00-16:00	Minos South	10184	VALIDATION OF MODELLING ASSUMPTIONS FOR THE BUILDUP SIMULATION OF LASER BEAM MELTING ON THE BASIS OF THE RESIDUAL STRESS DISTRIBUTION <i>Fabian Bayerlein, Christian Zeller, Martin Wunderer, Johannes Weirather, Michael F. Zöh, Markus Schmid, Georg Schlick, Roland Hessert, Michael Hofmann, Thomas Uihlein</i>
MS 503 - 1: HPC-BASED SIMULATIONS FOR THE ENGINEERING REALM AND INDUSTRIAL APPLICATIONS <i>MS Organizers:</i> Makoto Tsubokura, Mariano Vázquez, Takayuki Aoki <i>Chair:</i> Makoto Tsubokura		Monday, June 6 14:00-16:00	Europa
6885	LARGE-EDDY SIMULATION OF COAL GASIFICATION ON A TWO-STAGE ENTRAINED FLOW COAL GASIFIER <i>Hiroaki Watanabe, Kenji Tanno, Ryoichi Kurose</i>	MS 914 -1: INNOVATIVE NON-BOUNDARY-FITTED DISCRETIZATION METHODS <i>MS Organizers:</i> Fehmi Cirak, John E. Dolbow, Isaac Harari, Ming-Chen Hsu, Thomas J.R. Hughes, Dominik Schillinger <i>Chair:</i> Dominik Schillinger	
10082	TOWARDS HIGHLY SCALABLE UNCERTAINTY QUANTIFICATION FOR CHALLENGING BIOMEDICAL APPLICATIONS ON GPU CLUSTERS <i>Peter Zaspel</i>	5105	KEYNOTE: EMBEDDED BOUNDARY METHODS FOR PLATE BENDING PROBLEMS <i>Isaac Harari</i>
8231	SIMULATION OF COMPRESSIBLE FLOW OVER RECTANGULAR CAVITIES USING THE FLUX RECONSTRUCTION APPROACH <i>Arvind Iyer, Peter Vincent</i>	7504	EMBEDDED SOLIDS OF ANY DIMENSION IN THE X-FEM DEFINED ON HIGHER-ORDER APPROXIMATIONS <i>Frédéric Duboeuf, Eric Béchet</i>
5067	EFFICIENT PARALLEL GEOMETRY DISTRIBUTION FOR THE SIMULATION OF COMPLEX FLOWS <i>Andreas Lintermann</i>	7203	TOWARDS MASSIVELY PARALLEL HIGHER-ORDER IMMERSED DOMAIN FINITE ELEMENT ANALYSIS <i>Vasco Varduhn, Dominik Schillinger</i>
8019	A LARGE-SCALE FREE-SURFACE FLOW SIMULATION USING LATTICE BOLTZMANN METHOD ON MULTI-GPU CLUSTERS. <i>Naoyuki Onodera, Kunihide Ohashi</i>	7127	ON IMMERSED AND PHASE-FIELD TECHNIQUES <i>Christian Hesch</i>
9402	CONTROL OF AERODYNAMIC NOISE BY USING IMPINGING JETS PLACED AT UPSTREAM OF THE CAVITY <i>Ryo Adachi, Taiki Minato, Hiroshi Yokoyama, Akiyoshi Iida</i>	7709	A POSITION- AND ORIENTATION-INDEPENDENT EMBEDDED BOUNDARY METHOD WITH A WALL FUNCTION FOR COMPRESSIBLE VISCOUS FLOWS <i>Dante De Santis, Charbel Farhat</i>

Monday, June 6 14:00-16:00	Leda
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MS 1005: MONITORING AND CONTROL OF STRUCTURES

MS Organizers: Resat Oyguc

Chair: Marcello Vanali

- 9244** DESIGN AND INSTALLATION OF A PERMANENT MONITORING SYSTEM FOR PALAZZO LOMBARDIA IN MILANO, ITALY
*Marta Berardengo, Alfredo Cigada, Stefano Manzoni, **Marcello Vanali***
- 8822** UNIFIED PROGNOSTICS AND REAL-TIME CONTROL IN STRUCTURAL DYNAMICS UNDER UNCERTAINTY
Abhishek Kundu, Pierre Kerfriden
- 11882** CHARACTERISING THE DYNAMIC RESPONSE OF A DEFORMED MASONRY ARCH RAIL BRIDGE USING MONITORING AND REMOTE SENSING
Sinan Acikgoz, Hesham Aldaikh, Matthew DeJong, Cedric Kechavarzi, Kenichi Soga
- 4439** SHAPE IDENTIFICATION ANALYSIS OF CAVITY IN RESIN STRUCTURE BASED ON THERMAL NONDESTRUCTIVE TESTING METHOD
Kotaro Maruoka, Takahiko Kurahashi, Tetsuro Iyama
- 5880** SELECTED PROBLEMS OF DAMAGE DETECTION IN INTERNALLY SUPPORTED PLATES USING DISCRETE WAVELET TRANSFORM
*Michal Guminiak, **Anna Knitter-Piatkowska***

Monday, June 6 14:00-16:00	Artemis
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MS 903 - 1: ADVANCES IN FICTITIOUS DOMAIN METHODS FOR SOLID MECHANICS

MS Organizers: Alexander Düster, Ernst Rank, Stefan Kollmannsberger, Andreas Schröder

Chair: Ernst Rank

- 8116** **KEYNOTE:** THE FINITE CELL METHOD: SOME RECENT ADVANCES AND APPLICATIONS TO SOLID MECHANICS
***Alexander Düster**, Meysam Joulaian, Stephan Heinze, Simeon Hubrich, Aliakbar Taghipour, Jamshid Parvizian*
- 9068** SIMULATION OF LAMB WAVE PROPAGATION USING THE B-SPLINE VERSION OF THE FINITE CELL METHOD
*Yaser Mirbagheri, **Jamshid Parvizian**, Hassan Nahvi, Alexander Düster*
- 7904** AN EXTENSION OF THE FINITE CELL METHOD USING BOOLEAN OPERATIONS
***Alireza Abedian**, Alexander Düster*
- 7595** SMART OCTREES: NUMERICAL QUADRATURE FOR IMMERSED BOUNDARY METHODS IN THREE DIMENSIONS
***László Kudela**, Nils Zander, Stefan Kollmannsberger, Ernst Rank*
- 4572** HIGH ORDER UNFITTED FEM ON LEVEL SET DOMAINS USING ISOPARAMETRIC MAPPINGS
Christoph Lehrenfeld

Monday, June 6 14:00-16:00	Athena
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MS 302 - 1: MESH GENERATION AND ADAPTION

MS Organizers: Josep Sarrate, Xevi Roca, Rafael Montenegro, Eloi Ruiz

Chair: Josep Sarrate

- 11948** A MESH GENERATION METHOD FOR HISTORICAL MONUMENTAL BUILDINGS: AN INNOVATIVE APPROACH
***Giovanni Castellazzi**, Antonio Maria D'Altri, Stefano de Miranda, Francesco Ubertini, Gabriele Bitelli, Alessandro Lambertini, Ilenia Selvaggi, Antonio Michele Tralli*
- 7554** A SEMI-UNSTRUCTURED TURBOMACHINERY MESHING LIBRARY WITH FOCUS ON MODELING OF SPECIFIC GEOMETRICAL FEATURES
***Marco Stelldinger**, Thomas Giersch, Felix Figaschewsky, Arnold Kühhorn*
- 7705** MESH GENERATION FOR WIND FARM DESIGN
***Abel Gargallo-Peiró**, Matias Avila, Herbert Owen, Luis Prieto, Arnau Folch*
- 7417** A SIMPLE CHECK FOR DETERMINING THE MINIMUM NUMBER OF SINGULARITIES REQUIRED IN A QUAD MESH ON A SURFACE
*Harold J Fogg, **Liang Sun**, Cecil G Armstrong, Christopher M Tierney, Trevor T Robinson*
- 7536** INSERTION OF ANTHROPOGENIC CONSTRUCTIONS IN A TETRAHEDRAL MESH OF THE TERRAIN USING THE MECCANO METHOD
***Guillermo Valentín Socorro-Marrero**, Albert Oliver, Eduardo Rodríguez, José M. Escobar, Gustavo Montero, Rafael Montenegro*

Monday, June 6 14:00-16:00	Aphrodite
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MS 921 - 1: RECENT ADVANCES IN BOUNDARY ELEMENT METHODS

MS Organizers: Gernot Beer, Luiz Wrobel, Martin Schan

Chair: Gernot Beer

- 4408** **KEYNOTE:** ADVANCES IN THE BOUNDARY ELEMENT METHOD IN GEOMECHANICS
Gernot Beer
- 6120** MODELLING THE PROCESS OF SEQUENTIAL EXCAVATION WITH THE BOUNDARY ELEMENT METHOD
***Christian Duenser**, Gernot Beer*
- 7809** QUADTREE SCHEME FOR THREE DIMENSIONAL BOUNDARY ELEMENT MESH GENERATION
John Watson
- 9199** 3D SOUND PROPAGATION AROUND BARRIERS WITH SPECIFIED ABSORPTION IN THE VICINITY OF REFLECTING PLANES
***Julieta Antonio**, Antonio Tadeu*
- 8000** A SCALED BOUNDARY FINITE ELEMENT METHOD FOR VISCOELASTIC PROBLEMS WITH CYCLICALLY SYMMETRIC STRUCTURES
***Yiqian He**, Chongshuai Wang, Haitian Yang*

Monday, June 6 14:00-16:00	Antigoni	Monday, June 6 14:00-16:00	Apollo West
MS 1306 -1: ERCOFTAC SIG-45: UNCERTAINTY QUANTIFICATION IN CFD AND FLUID STRUCTURE INTERACTION <i>MS Organizers:</i> Didier Lucor, Sunetra Sarkar <i>Chair:</i> Sunetra Sarkar		MS 1104 - 1: REDUCED-ORDER MODELS FOR PDE-CONSTRAINED OPTIMIZATION AND INVERSE PROBLEMS <i>MS Organizers:</i> Alfio Quarteroni, Andrea Manzoni <i>Chair:</i> Andrea Manzoni	
9850	A STOCHASTIC RECONSTRUCTION TECHNIQUE FOR THE OUTPUT VELOCITY FIELD OF A 'DEBYE TYPE' POROUS MEDIA <i>Santhosh Jude Illango, A Sameen, Sunetra Sarkar</i>	5892	REDUCED BASIS METHODS FOR CATALYST CONVERTERS <i>Karsten Urban</i>
7741	A MULTI-FIDELITY ADAPTIVE SAMPLING METHOD FOR METAMODEL-BASED UNCERTAINTY QUANTIFICATION OF COMPUTER SIMULATIONS <i>Riccardo Pellegrini, Cecilia Leotardi, Umberto Iemma, Emilio Campana, Matteo Diez</i>	10587	MONGE-KANTOROVICH INTERPOLATION FOR PDE CONSTRAINED OPTIMIZATION <i>Michel Bergmann, Angelo Iollo, Haysam Telib</i>
9160	A LEAST-SQUARES, ADAPTIVE UNCERTAINTY PROPAGATION APPROACH FOR A PLASMA-COUPLED COMBUSTION SYSTEM <i>Kunkun Tang, Luca Massa, Jonathan Wang, Jonathan Freund</i>	8839	MODEL ORDER REDUCTION STRATEGIES FOR THE SIMULATION AND OPTIMIZATION OF PHYSIOLOGICAL FLOWS <i>Federico Negri, Andrea Manzoni, Alfio Quarteroni</i>
8576	UNCERTAINTY QUANTIFICATION IN PATIENT-SPECIFIC FINITE ELEMENT SIMULATION OF BLOOD FLOW IN THE LEFT VENTRICLE OF THE HUMAN HEART <i>Jeannette Spühler, David Larsson, Massimiliano Colarieti-Tosti, Matilda Larsson, Johan Hoffman</i>	8242	A REDUCED-ORDER STRATEGY FOR EFFICIENT STATE/PARAMETER IDENTIFICATION IN CARDIAC ELECTROPHYSIOLOGY <i>Stefano Pagani, Andrea Manzoni, Alfio Quarteroni</i>
7769	AN EFFICIENT APPROACH FOR MULTI-OBJECTIVE ROBUST DESIGN <i>Lisa Kusch, Nicolas R. Gauger</i>	Monday, June 6 14:00-16:00 Room 1	
Monday, June 6 14:00-16:00 Apollo East		MS 1307 - 1: NON-INTRUSIVE SURROGATE MODELS FOR UNCERTAINTY QUANTIFICATION IN HIGH DIMENSIONS <i>MS Organizers:</i> Bruno Sudret, Eleni Chatzi, Jean-Marc Bourinet, Nicolas Gayton <i>Chair:</i> Vasilis Dertimanis	
MS 303 - 1 : CURVED MESH GENERATION FOR HIGH-ORDER METHODS <i>MS Organizers:</i> Xevi Roca, Josep Sarrate <i>Chair:</i> Xevi Roca		5428	EFFICIENT GLOBAL SENSITIVITY ANALYSIS OF HIGH-DIMENSIONAL MODELS USING LOW-RANK TENSOR APPROXIMATIONS <i>Katerina Konakli, Bruno Sudret</i>
10925	A CONSISTENTLY LINEARISED SOLID MECHANICS BASED MESH DEFORMATION TECHNIQUE FOR HIGH ORDER CURVED ELEMENTS <i>Roman Poya, Ruben Sevilla, Antonio Gil</i>	4576	ASSESSMENT OF THE QUALITY OF SENSITIVITY INDICES BASED ON METAMODELS <i>Maria Steiner, Reza Khosravian, Tom Lahmer</i>
6539	EFFICIENT COMPUTATION OF THE EXTREMA OF ALGEBRAIC QUALITY MEASURES FOR CURVILINEAR FINITE ELEMENTS <i>Amaury Johnen, Christophe Geuzaine, Jean-François Remacle</i>	6802	POLYNOMIAL CHAOS EXPANSIONS FOR MODELING THE FREQUENCY RESPONSE FUNCTIONS OF STOCHASTIC DYNAMICAL SYSTEM <i>Vahid Yaghoubi, Stefano Marelli, Bruno Sudret, Thomas Abrahamsson</i>
8410	AUTOMATIC GENERATION OF 3D UNSTRUCTURED HIGH-ORDER CURVILINEAR MESHE <i>Michael Turner, David Moxey, Spencer J. Sherwin, Joaquim Peiro</i>	7412	A STATISTICAL APPROACH FOR BUILDING SPARSE POLYNOMIAL CHAOS EXPANSIONS <i>Simon Abraham, Ghader Ghorbaniasl, Chris Lacor</i>
7163	CHECKING AND IMPROVING THE GEOMETRIC ACCURACY OF NON-INTERPOLATING CURVED HIGH-ORDER MESHES <i>Eloi Ruiz-Gironés, Jose Sarrate, Xevi Roca</i>	5821	OPTIMIZATION OF A PHOTOACOUSTIC GAS SENSOR USING MULTIFIDELITY RBF METAMODELING <i>Cedric Durantin, Justin Rouxel, Jean-Antoine Desideri, Alain Gliere</i>
10030	MESH GENERATION FOR THE 2D NURBS-ENHANCED FINITE ELEMENT METHOD <i>Ruben Sevilla, Luke Rees, Oubay Hassan</i>		

Monday, June 6 **Room 2**
14:00-16:00

CS 420 - 1: MULTI-PHASE AND CHEMICALLY REACTING FLOWS

Chair: Roozbeh Mousavi

- 9241** LEVEL SET METHOD FOR SIMULATING THE INTERFACE KINEMATICS: APPLICATION OF A DISCONTINUOUS GALERKIN METHOD
Roozbeh Mousavi, Florian Kummer, Martin Oberlack, Peter F. Pelz
- 5482** MODELLING OF COMBUSTION AND POLLUTANT FORMATION IN A LARGE, TWO-STROKE MARINE DIESEL ENGINE USING INTEGRATED CFD-SKELETAL CHEMICAL MECHANISM
Kar Mun Pang, Nikolas Karvounis, Jesper Schramm, Jens Walther
- 9960** MOMENT-OF-FLUID ANALYTIC RECONSTRUCTION ON CARTESIAN GRIDS
Antoine Lemoine
- 11006** NUMERICAL SIMULATION OF HYDROGEN JET INJECTION AND IGNITION IN SUPERSONIC FLOW
Yulia Zakharova, Natalya Fedorova, Svetlana Valger, Marat Goldfeld, Olga Vankova
- 8733** NUMERICAL INVESTIGATION OF METASTABLE CONDENSING FLOWS WITH AN IMPLICIT UPWIND METHOD
Lucia Azzini, Teus Van der Stelt, Matteo Pini
- 6184** CFD-XDEM FOR PREDICTING MULTIPHASE FLOW BEHAVIOR THROUGH POROUS MEDIA
Maryam Baniasadi, Bernhard Peters

Monday, June 6 **Room 3**
14:00-16:00

MS 308: ADVANCES IN RAPID CAX

MS Organizers: Michael Breitenberger

Chair: Michael Breitenberger

- 10696** ADVANCES IN EMBEDDED SOLVERS - TOWARDS THE INTEGRATION WITH CADS
Riccardo Rossi, Abel Coll, Pooyan Dadvand, Roland Wuechner, Andreas Apostolatos, Dimitrios Iliopoulos
- 10419** COUPLING NON-CONFORMING NURBS PATCHES IN ISOGEOMETRIC ANALYSIS USING VIRTUAL REFINEMENT AND A MASTER-SLAVE FORMULATION
Laurens Coox, Francesco Greco, Onur Atak, Dirk Vandepitte, Wim Desmet
- 10090** ROBUST MESHING OF LARGE SCALE NON-WATERTIGHT GEOMETRIES
Abel Coll, Pooyan Dadvand
- 10616** NON-MATCHING GRID TREATMENT FOR CAD-BASED SHELL AND MEMBRANE ANALYSIS IN COMPUTATIONAL FSI
Roland Wüchner, Andreas Apostolatos, Michael Breitenberger, Riccardo Rossi, Kai-Uwe Bletzinger
- 7581** MAIN CHALLENGES FOR PERFORMING STRUCTURAL SHELL ANALYSIS DIRECTLY ON CAD MODELS
Michael Breitenberger, Roland Wüchner, Kai-Uwe Bletzinger

Monday, June 6 **Room 4**
14:00-16:20

CS 210: NUMERICAL SIMULATION OF COMPOSITE MATERIALS

Chair: Sami Holopainen

- 11047** EVOLUTION EQUATIONS BASED APPROACH FOR MODELING FATIGUE IN AMORPHOUS GLASSY POLYMERS. ON THE INVESTIGATION OF DAMAGE MECHANISMS IN POLYCARBONATE.
Sami Holopainen
- 7468** A LEVEL SET MODEL FOR THE NUMERICAL MODELING OF COMPOSITES DELAMINATION: APPLICATION TO MULTI-FRONT PROBLEMS
Elia Picault, Patrick Rozycki
- 7796** A FAILURE CRITERIA FOR UNIDIRECTIONAL FIBER REINFORCED COMPOSITES BASED ON MICROMECHANICS BY ASYMPTOTIC HOMOGENIZATION
Rafael Quelho de Macedo, José Miranda Guedes, Rafael Thiago Luiz Ferreira, Maurício Vicente Donadon
- 7509** INVESTIGATIONS ON AN INNOVATIVE METAL-THERMOPLASTIC COMPOSITE ASSEMBLY
Simon Paroissien, Patrick Rozycki, Thierry Renault
- 7489** MICROSTRUCTURAL ANALYSIS USING X-RAY COMPUTED TOMOGRAPHY (CT)
Malika Kersani, Stepan Lomov, Aartwillem Van Vuure, Ahcène Bouabdallah, Ignass Verpoest
- 11190** SMOOTH CRACK PROPAGATION FOR STATIC AND DYNAMIC CRACK PROPAGATION
Chris Pearce, Lukasz Kaczmarczyk
- 10881** MULTIPLE FRACTURE GROWTH USING STRESS INTENSITY FACTOR CRITERIA EVALUATED ON UNSTRUCTURED TETRAHEDRAL MESHES IN THREE DIMENSIONS
Adriana Paluszny, Robert W Zimmerman

Monday, June 6 **Room 5**
14:00-16:00

CS 840 - 1: MULTI-SCALE COMPUTATIONAL METHODS FOR SOLIDS AND FLUIDS

Chair: Anna Kucaba-Pietal

- 12141** SCALE EFFECT IN MICROFLOWS MODELLING WITH MICROPOLAR FLUID THEORY
Anna Kucaba-Pietal
- 7984** SPATIAL CLUSTERING STRATEGIES FOR HIERARCHICAL MULTI-SCALE MODELLING OF METAL PLASTICITY
Md Khairullah, Jerzy Gawad, Dirk Roose, Albert van Bael
- 5898** ON THE INFLUENCE OF DIFFERENT MAPPING TECHNIQUES FOR A MULTISCALE APPROACH TO TURBULENT THREE-PHASE FLOWS
Gabriele Pozzetti, Bernhard Peters
- 10906** BLACK-BOX SOLVER FOR QUASI ONE-DIMENSIONAL MULTISCALE MODELLING USING THE QTT FORMAT
Ivan Oseledets, Maxim Rakhuba, Andrei Chertkov
- 11785** MULTISCALE SIMULATION OF ACOUSTIC WAVES IN POROUS MEDIA WITH LOW AND HIGH PERMEABILITY CONTRASTS
Vu-Hieu Nguyen, Eduard Rohan, Salah Naili
- 6694** MODELLING THE THERMOPLASTIC MATERIAL BEHAVIOUR OF DUAL-PHASE STEELS ON A MICROSCOPIC AND MACROSCOPIC LENGTH SCALE
Sebastian Zeller, Stefan Loehnert, Peter Wriggers

DAY 1 – MONDAY, JUNE 6

Monday, June 6 14:00-16:00 Room 7

CS 110 - 1: NUMERICAL MODELS IN BIOMECHANICS

Chair: Amar Oukara

- 10832** AN INTEGRATED NUMERICAL SIMULATION OF A WING-BODY COMBINATION FOR \TEXTIT{DROSOPHILA} FLIGHT
Mehmet Sahin, Ezgi Dilek, Belkis Erzincanli
- 9621** TIME INTEGRATION SCHEMES COMPARATION FOR PARTICLES TRANSPORT
Edgar Olivares Mañas
- 7136** ON THE INJURY RISK ASSESSMENT OF NON-LETHAL PROJECTILE HEAD IMPACTS
Amar Oukara, Nestor Nsiampa, Cyril Robbe, Alexandre Papy
- 11729** FINITE-ELEMENT MODEL OF INTRAOCULAR PRESSURE MEASUREMENT BY MAKRAKOV APPLANATION TONOMETER
Dmitry V. Franus
- 6047** PRELIMINARY STUDY TO INVESTIGATE THE EFFECT OF PISTON-LIKE AND ROCKING MOTIONS OF THE STAPES FOOTPLATE ON THE BASILAR MEMBRANE VIBRATION
Philipp Wahl, Sebastian Ihle, Pascal Ziegler, Peter Eberhard
- 7355** EXPERIMENTAL STUDY ON THE FUZZY-PID HYBRID CONTROL ALGORITHM FOR UNLOADING SYSTEM IN MECHATRONIC DEVICE FOR GAIT RE-EDUCATION
Slawomir Duda, Grzegorz Gembalczuk

Monday, June 6 14:00-16:00 Room 8

MS 1218: STABILITY AND CONTROL OF FLEXIBLE STRUCTURES

MS Organizers: Ilaria Venanzi, Marco Lepidi

Chair: Ilaria Venanzi, Marco Lepidi

- 7079** EXPLOITING MULTIPLE REFERENCE MODELS FOR ADAPTIVE CONTROL OF FLEXIBLE STRUCTURES
Ilaria Venanzi, Laura Ierimonti
- 7460** PASSIVE CONTROL OF WAVE PROPAGATION IN PERIODIC ANTITETRACHIRAL META-MATERIALS
Marco Lepidi, Andrea Bacigalupo
- 8686** FLEXIBLE COMPLEX SYSTEM OF A DOUBLE-STRING UNDER EXTREME MOVING LOADS
Jaroslav Rusin
- 11538** COMPUTATIONAL EFFECTIVENESS OF LMI DESIGN STRATEGIES FOR VIBRATION CONTROL OF LARGE STRUCTURES
Francisco Palacios-Quiñonero, Josep Rubió-Massegú, Josep M. Rossell, Hamid Reza Karimi
- 11938** A SMART BASE RESTRAINT FOR WIND TURBINES TO MITIGATE UNDESIRE EFFECTS DUE TO STRUCTURAL VIBRATIONS
Nicola Caterino, Christos T. Georgakis, Mariacristina Spizzuoco, Antonio Occhiuzzi
- 8996** ON THE MODELING OF SELF-DAMPING IN STRANDED CABLES
Francesco Foti, Luca Martinelli, Federico Perotti

Monday, June 6 Room 9

14:00-16:00

CS 750 - 1: COMPUTATIONAL MODELING OF COMPOSITES

Chair: Mikhail Itskov

- 6784** IMPROVING THE ACCURACY OF NUMERICAL INTEGRATION OVER THE UNIT SPHERE FOR LARGE STRAIN MICROSPHERE (MICROPLANE) MODELS
Mikhail Itskov
- 14028** STRUCTURAL ANALYSIS OF ADHESIVE BONDING FOR THICK-WALLED TUBULAR COMPOSITE PROFILES
Geminiano Mancusi, Agostina Orefice, Luciano Feo, Fernando Fraternali
- 9771** A 3D FINITE ELEMENTS ANALYSIS OF THERMOPLASTIC LAMINATES RVE
Romain Hamonou, Laurent Gornet, Frédéric Jacquemin, Stéphane Auger
- 9780** TIMOSHENKO BEAM ELEMENT WITH ANISOTROPIC CROSS-SECTIONAL PROPERTIES
Alexander R. Stäblein, Morten H. Hansen
- 11293** CONSTITUTIVE MODELLING FOR THE CURING PROCESS IN PARTICLE-FILLED ELECTRO-ACTIVE POLYMERS
Mokarram Hossain

Monday, June 6 14:00-16:00 Room 10

MS 505 - 1: INTERACTIVE SIMULATIONS IN COMPUTATIONAL ENGINEERING

MS Organizers: Adrian Harwood, Petra Wenisch

Chair: Adrian Harwood

- 8200** INTERACTIVE SIMULATION OF INDOOR FLUID USING THE LATTICE BOLTZMANN METHOD
Petra Wenisch, Dirk Fleckenstein
- 12026** INTERACTIVE SIMULATION OF CFD PROBLEMS ON BOARDS
Florian De Vuyst
- 11789** GPU COMPUTING – A CHANCE FOR COMPUTATIONAL STEERING IN THE CFD DOMAIN
Jan Linxweiler, Manfred Krafczyk
- 11193** GPUS AND LBM: A PERFECT MATCH FOR REAL-TIME SIMULATIONS AND INTERACTIVE MONITORING OF THREE-DIMENSIONAL CFD
Christian Janßen, Thomas Rung
- 10295** INTERACTIVE FLOW SIMULATIONS BASED ON A MASSIVE PARALLEL I/O KERNEL USING HDF5
Christoph Ertl, Ralf-Peter Mundani, Ernst Rank

Monday, June 6 **Room 11**
14:00-16:00

MS 916 - 1: DIRECT METHODS FOR LIMIT STATES OF MATERIALS AND STRUCTURES

MS Organizers: Konstantinos V. Spiliopoulos, Dieter Weichert
Chair: Eric Charkaluk

- 10324** KEYNOTE: ADVANCES OF THE RSDM TO THE SHAKEDOWN ANALYSIS OF STRUCTURES
Konstantinos Spiliopoulos, Konstantinos Panagiotou, Ioannis Kapogiannis
- 7530** COMPOSITE FEM MODELS FOR LIMIT AND SHAKEDOWN ANALYSIS
Leonardo Leonetti, Giovanni Garcea, Hung Nguyen-Xuan
- 8109** ELASTOPLASTIC DESIGN OF AEROTHERMALLY HEATED AIRCRAFT SURFACES
Natasha Vermaak, Ismail S. Cinoglu, Jerard V. Gordon
- 9528** SHAKEDOWN STATE IN POLYCRYSTALS: A DIRECT NUMERICAL ASSESSMENT
Eric Charkaluk, Domenico Magisano, Pierre Baudoin, Géry de Saxcé, Andrei Constantinescu

Monday, June 6 **Room 12**
14:00-16:00

MS 917 - 1: MESOSCOPIC METHODS FOR COMPLEX FLUIDS AND SOFT MATTER

MS Organizers: Zhen Li, Wenxiao Pan, Igor V. Pivkin
Chair: Zhen Li

- 8887** COARSE-GRAINED PROTEIN MODEL FOR DISSIPATIVE PARTICLE DYNAMICS
Emanuel Peter, Kirill Lykov, Igor Pivkin
- 8113** ON THE NUMERICAL TREATMENT OF DISSIPATIVE PARTICLE DYNAMICS AND RELATED SYSTEMS: AN ADAPTIVE FORMULATION
Xiaocheng Shang, Benedict Leimkuhler
- 5060** MULTISCALE SIMULATION OF MOLECULAR DYNAMICS AND DISSIPATIVE PARTICLE DYNAMICS VIA THE ADAPTIVE RESOLUTION SCHEME
Xin Bian, Zhen Li, Yu-Hang Tang, George Em Karniadakis
- 4932** BOTTOM-UP CONSTRUCTION OF NON-MARKOVIAN COARSE-GRAINED MODEL FOR POLYMERIC FLUIDS
Zhen Li, Xin Bian, Xiantao Li, George Karniadakis
- 8495** PARTICLE BASED SIMULATION OF FLUID FLOW IN PERIODICALLY GROOVED CHANNELS
Dorothea Kasiteropoulou, Theodoros Karakasidis, Antonios Liakopoulos

Monday, June 6 **Room 15**
14:00-16:00

CS 930 - 1: HIGH-ORDER DISCRETIZATION METHODS

Chair: Clinton Groth

- 9049** A PARALLEL HIGH-ORDER CENO FINITE-VOLUME METHOD FOR LARGE-EDDY SIMULATION OF TURBULENT REACTIVE FLOWS
Clinton Groth, Luiz Tobaldini Neto
- 6203** A COMPARISON OF VARIOUS NODAL DISCONTINUOUS GALERKIN METHODS FOR THE 3D EULER EQUATIONS
Michael Bergmann, Svetlana Drapkina, Graham Ashcroft, Christian Frey
- 8183** MESH ADAPTATION FOR VERY HIGH ORDER FINITE ELEMENTS

Olivier Coulaud, Frédéric Alauzet, Adrien Loseille

- 7557** PERFORMANCE OF A DOMAIN DECOMPOSITION METHOD FOR HIGH-ORDER FEM
Alice Lieu, Hadrien Bériot, Gwénaél Gabard, François-Xavier Roux
- 7830** REQUIREMENTS OF GRID RESOLUTION IN WALL-RESOLVED LES USING HIGH-ORDER DG-CRI SCHEME
Hirofumi Asada, Soshi Kawai, Keisuke Sawada
- 11734** ASSESSMENT OF DISCONTINUOUS GALERKIN SCHEME FOR HIGH-FIDELITY SIMULATIONS OF TURBULENT FLOWS
Eric Ching, Yu Lv, Peter Ma, Matthias Ihme

Monday, June 6 **Room 17**
14:00-16:00

CS 1020 - 1: EVOLUTIONARY AND DETERMINISTIC METHODS FOR DESIGN, OPTIMIZATION AND CONTROL

Chair: Paolo Castaldo

- 7588** SEISMIC RETROFIT OF EXISTING BUILDINGS THROUGH THE DISSIPATIVE COLUMNS
Paolo Castaldo, Bruno Palazzo, Francesco Perri, Ivana Marino, Marco Faraco
- 7577** SEISMIC RELIABILITY-BASED DESIGN OF STRUCTURES ISOLATED BY FPS
Paolo Castaldo, Guglielmo Amendola, Bruno Palazzo
- 13458** RELIABILITY TEST DEMONSTRATION METHOD FOR EXPONENTIAL LIFE SYSTEM WITH RELIABILITY GROWTH UNDER THE CONDITION OF IN-TIME CORRECTIVE STRATEGY
Yunyan Xing, Ping Jiang, Feng Yao, Zhiwei Yang, Michael Emmerich, Thomas Bäck
- 7610** AN EXAMPLE OF ENERGY DISSIPATION OPTIMIZATION FOR STEEL MRFs WITH PIN-JOINT COLUMN BASES
Elide Nistri, Annabella Paciello
- 7614** ECCENTRICALLY BRACED FRAMES DESIGNED FOR THE ENERGY DISSIPATION OPTIMIZATION
Elide Nistri

Monday, June 6 **Room 18**
14:00-16:00

CS 751 - 1: SMART MATERIALS AND STRUCTURES

Chair: Ryan Orszulik

- 7571** FULL SYSTEM MODELING OF A THREE DEGREE OF FREEDOM PIEZOELECTRICALLY DRIVEN NANOPositioning PLATFORM INCLUDING POSITION FEEDBACK CONTROL
Ryan Orszulik, Ulrich Gabbert
- 9224** SIMULATION OF AN EXTRINSIC AND AUTONOMOUS SELF-HEALING MATERIAL USING THE THEORY OF POROUS MEDIA
Steffen Specht, Joachim Bluhm, Jörg Schröder
- 10578** A THERMOMECHANICAL MODEL OF SHAPE MEMORY ALLOYS IN FINITE DEFORMATION
Jun Wang, Ziad Moumni, Weihong Zhang
- 10919** SHAKEDOWN BASED MODEL FOR HIGH CYCLE FATIGUE OF SHAPE MEMORY ALLOYS
Xiaojuan Gu, Ziad Moumni, Wael Zaki, Weihong Zhang
- 11624** FREQUENCY EFFECT ON CYCLIC BEHAVIOR AND LOW-CYCLE FATIGUE OF PSEUDOELASTIC SHAPE MEMORY ALLOYS
Yahui Zhang, Ziad Moumni, Yajun You, Weihong Zhang

Monday, June 6 **Room 20**

DAY 1 – MONDAY, JUNE 6

14:00-16:00

CS 230: MODELLING OF CONCRETE AND MEASURING

Chair: Etienne Malachanne

- 5387** A COHESIVE ZONE MODEL FOR THE CHARACTERISATION OF THE INTERFACIAL TRANSITION ZONE (ITZ) BETWEEN CEMENT PASTE AND AGGREGATE
Etienne Malachanne, Marie Salgues, Mouad Jebli, Frederic Jamin
- 11714** ACCURATE AND EFFICIENT MODELING OF THE CYCLIC BEHAVIOR OF RC STRUCTURAL MEMBERS
Christos Mourlas, Manolis Papadrakakis, George Markou
- 7856** AN EXACT SHEAR STRAIN APPROACH FOR RC FRAME ELEMENTS WITH AXIAL-SHEAR INTERACTION.
Alexander Kagermanov, Paola Ceresa
- 11947** CROSS-SECTIONAL FAILURE CRITERION COMBINED WITH STRAIN-HARDENING DAMAGE MODEL FOR SIMULATION OF THIN-WALLED TEXTILE-REINFORCED CONCRETE SHELLS
Ehsan Sharei, Rostislav Chudoba, Alexander Scholzen
- 5328** A MESOSCALE FINITE ELEMENT MODEL FOR FIBRE REINFORCED CONCRETE
Philip Huschke, Jörg F. Unger
- 16740** SEISMIC ASSESSMENT OF A 5-STOREY RETROFITTED RC BUILDING
Hussein Bark, George Markou, Christos Mourlas, Manolis Papadrakakis

Monday, June 6

14:00-16:00

Room 22

MS 902 - 1: INNOVATIVE NUMERICAL APPROACHES FOR MULTI-PHYSICS PROBLEMS

MS Organizers: Anna Pandolfi, Laurent Stainier, Kerstin Weinberg

Chair: Anna Pandolfi

- 6991** NUMERICAL PROPERTIES OF A DISCONTINUOUS GALERKIN FORMULATION FOR ELECTRO-THERMAL COUPLED PROBLEMS
Lina Homsí, Christophe Geuzaine, Ludovic Noels
- 6329** THE SCHWARZ ALTERNATING METHOD FOR CONCURRENT MULTISCALE IN FINITE DEFORMATION SOLID MECHANICS
Alejandro Mota, Irina Tezaur, Coleman Alleman
- 5327** MATHEMATICAL MODELS OF IN VIVO LARGE MICROCIRCULATORY NETWORKS
Francesca Malgaroli, Paola Causin
- 10474** PHASE-FIELD MODELING OF FRACTURE IN HYDROGELS UNDERGOING LARGE DEFORMATION COUPLED TO DIFFUSION
Lukas Böger, Christian Miehe
- 10018** PHASE-FIELD APPROACH FOR PRESSURE DRIVEN CRACK PROPAGATION
Carola Bilgen, Christian Hesch, Kerstin Weinberg
- 7782** A REDUCED-ORDER HETEROGENEOUS MULTI-SCALE METHOD FOR SIMULATION OF COMPLEX FLUID FLOWS
Nehzat Emamy, Maria Lukacova, Thorsten Raasch, Leonid Yelash, Peter Virnau, Florian Kummer

Monday, June 6

14:00-16:00

Room 21

CS 1010 - 1: COMPUTATIONAL INVERSE PROBLEMS AND OPTIMIZATION

Chair: Tamara Nestorović

- 12084** INVERSION METHODS BASED ON KALMAN FILTERING FOR IDENTIFICATION IN TUNNELING PROBLEMS
Tamara Nestorović, Luan T. Nguyen
- 6841** METEOROLOGICAL DATA ASSIMILATION USING AN ADJOINT PROGRAM GENERATED BY AUTOMATIC DIFFERENTIATION
Yasuyoshi Horibata
- 8388** A FRAMEWORK FOR THE DESIGN BY OPTIMIZATION OF HYDROFOILS UNDER CAVITATING CONDITIONS
Paolo Olivucci, Stefano Gaggero
- 11693** APPLICATION OF THE DECONVOLUTION METHODS FOR PROCESSING OF MEASUREMENT SIGNALS IN THE FAST PROCESSES
Marat Goldfeld, Valery Pickalov
- 7315** EVOLUTIONARY TOPOLOGY OPTIMIZATION USING PARAMETERIZED B-SPLINE SURFACE
Igor Pehnec, Damir Vucina, Frane Vlak

Monday, June 6

14:00-16:20

Room 23

MS 913 - 1: HIGH-ORDER METHODS FOR POLYGONAL AND POLYHEDRAL MESHES

MS Organizers: Lourenço Beirão da Veiga, Franco Brezzi, Donatella Marini, Alessandro Russo

Chair: Alessandro Russo

- 6317** **KEYNOTE:** SERENDIPITY NODAL VEM SPACES
Lourenço Beirão da Veiga, Franco Brezzi, Donatella Marini, Alessandro Russo
- 6247** VEM AND TOPOLOGY OPTIMIZATION ON POLYGONAL MESHES
Paola F. Antonietti, Matteo Bruggi, Simone Scacchi, Marco Verani
- 6682** VIRTUAL ELEMENT METHOD FOR THE LAPLACE-BELTRAMI EQUATION ON SURFACES
Massimo Frittelli, Ivonne Sgura
- 6410** HYBRID HIGH-ORDER DISCRETIZATIONS OF DIFFUSION PROBLEMS WITH VARIABLE COEFFICIENTS
Daniele A. Di Pietro, Alexandre Ern, Simon Lemaire
- 4894** A HYBRID HIGH-ORDER METHOD FOR THE CAHN-HILLIARD EQUATION
Florent Chave, Daniele A. Di Pietro, Fabien Marche
- 6815** A VIRTUAL ELEMENT METHOD FOR STRUCTURAL MECHANICS PROBLEMS
Lourenço Beirão da Veiga, Carlo Lovadina, David Mora

16:00-16:30

Coffee Break

TECHNICAL SESSIONS

Monday, June 6 **Zeus East**
16:30-18:30

CS 990 - 2: PARTICLE-BASED METHODS

Chair: Valeri Saveliev

- 9323** STATISTICAL DISTRIBUTION FUNCTION FOR THE CHARGED PARTICLES IN MAGNETIC FIELD
B.Chetverushkin, Nicola D'Ascenzo, Valeri Saveliev
- 7091** CONTACT METHODS FOR THE INTERACTION OF PARTICLES WITH RIGID AND DEFORMABLE STRUCTURES USING A COUPLED DEM-FEM PROCEDURE
Miquel Santasusana, Eugenio Oñate, Joaquín Irazábal, Josep M. Carbonell
- 10329** BLOOD FLOW SIMULATION USING SMOOTHED PARTICLE HYDRODYNAMICS
Mohammed Al-Saad, Sivakumar Kulasegaram, Stephane P.A. Bordas
- 5888** TOWARDS MULTIPHYSICS SIMULATION OF DEEP PENETRATION LASER WELDING USING SMOOTHED PARTICLE HYDRODYNAMICS
Haoyue Hu, Peter Eberhard, Florian Fetzer, Peter Berger
- 9045** MULTIPLE TIMESCALE MODELLING OF PARTICLES DE-AGGLOMERATION IN METAL MELTS SUBJECTED TO EXTERNAL FORCES
Anton Manoylov, Georgi Djambazov, Valdis Bojarevics, Koulis Pericleous
- 9715** A DISCRETE ELEMENT APPROACH FOR SIMULATING THE PROCESSING OF FIBROUS BIOMASS
Tom Leblcq, Simon Vanmaercke, Herman Ramon, Wouter Saeys

Monday, June 6 **Zeus West**
16:30-18:30

MS 609 - 2: ADVANCED COMPUTATIONAL MODELING OF BATTERIES AND FUEL CELLS

MS Organizers: Edwin Knobbe, Wolfgang A. Wall

Chair: Wolfgang A. Wall

- 11876** CHALLENGES FOR ELECTRO-CHEMICAL SIMULATIONS OF LITHIUM-ION CELLS FOR AUTOMOTIVE APPLICATIONS
Edwin Knobbe, Georg Bauer, Peter Lamp
- 11828** PERFORMANCE MODELING OF ALL-SOLID-STATE LITHIUM-ION BATTERIES
André Weber, Philipp Braun, Ellen Ivers-Tiffée
- 10241** TEMPERATURE DEPENDENT THERMODYNAMIC FACTORS AND TRANSFERENCE NUMBERS OF LITHIUM ION BATTERY ELECTROLYTES
Johannes Landesfeind, Martin Frankenberger, Andreas Ehrl, Wolfgang A. Wall, Hubert A. Gasteiger
- 10199** LOCAL POTENTIAL MEASUREMENTS WITHIN MODIFIED COMMERCIAL LI-ION BATTERIES FOR VALIDATION OF MULTI-DIMENSIONAL MODELS
Simon Vincent Erhard, Patrick Jürgen Osswald, Alexander Rheinfeld, Jörn Wilhelm, Stephan Kosch, Andreas Jossen

- 10179** LOCALISED THERMAL AND ELECTRICAL EFFECTS DURING HIGH CURRENT SCENARIOS FOR IDENTIFYING LIMITING PERFORMANCE AND SAFETY CHARACTERISTICS OF LITHIUM-ION CELLS
Alexander Rheinfeld, Simon Vincent Erhard, Stephan Kosch, Andreas Jossen

Monday, June 6 **Zeus North**
16:30-18:30

MS 906 - 2: MATHEMATICAL ADVANCES IN ISOGEOMETRIC ANALYSIS

MS Organizers: Annalisa Buffa, John A. Evans, Thomas J.R. Hughes, Giancarlo Sangalli

Chair: Mattia Tani

- 11276** **KEYNOTE:** MULTIGRID METHODS FOR ISOGEOMETRIC STRUCTURE-PRESERVING DISCRETIZATIONS
John Evans, Joseph Benzaken, Christopher Coley
- 11557** SPACE-TIME ISOGEOMETRIC ANALYSIS OF PARABOLIC EVOLUTION PROBLEMS
Ulrich Langer, Stephen E. Moore, Martin Neumüller
- 11721** ADAPTIVE METHODS FOR STOKES
Andrea Bressan, Bert Jüttler
- 5250** SEMI ANALYSIS-SUITABLE T-SPLINES
Xin Li
- 8932** MULTIPATCH CUT ISOGEOMETRIC ANALYSIS OF PDES ON SURFACES
Tobias Jonsson, Mats G. Larson, Karl Larsson

Monday, June 6 **Minos East**
16:30-18:30

MS 501 - 2: ALGORITHMIC ASPECTS OF HIGH-PERFORMANCE COMPUTING FOR MECHANICS AND PHYSICS

MS Organizers: Santiago Badia, Victor Calo, Javier Principe

Chair: Javier Principe

- 6297** PARALLEL NUMERICAL LINEAR ALGEBRA: SOME RECENT STEPS TOWARDS EXTREME SCALE
Louis Poiré, Emmanuel Agullo, Mathieu Faverge, Luc Giraud
- 9277** DOMAIN DECOMPOSITION WITH OPTIMIZED SCHWARZ METHODS IN HPDDM LIBRARY
Ryadh Haferssas, Pierre Jolivet, Frédéric Nataf
- 7245** ENHANCING THE EFFICIENCY AND ROBUSTNESS OF MONOLITHIC FLUID-STRUCTURE INTERACTION SOLVERS
Matthias Mayr, Michael W. Gee
- 11812** FAST COMPUTATIONS ON GPUS FOR WETTING PHENOMENA
Grigoris Kasapidis, George Pashos, George Kokkoris, Andreas G. Boudouvis
- 12127** ENHANCING THE PERFORMANCE OF PRIMAL AND DUAL DOMAIN DECOMPOSITION SOLVERS IN THE CONTEXT OF STRUCTURAL DYNAMICS
George Stavroulakis, Manolis Papadrakakis
- 10903** EXTREME SCALE STABILIZED FINITE ELEMENT FLOW SIMULATIONS
Kenneth Jansen, Michel Rasquin, Cameron Smith, Benjamin Matthews

Monday, June 6 16:30-18:30	Minos North
MS 1101 - 2: REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES	
<i>MS Organizers:</i> Francisco Chinesta, Elias Cueto, Antonio Huerta, Pierre Ladeveze, Gianluigi Rozza	
<i>Chair:</i> Gianluigi Rozza	
6407	ON THE MODEL ORDER REDUCTION OF SHAPE-DEPENDENT PARAMETRIC PROBLEMS <i>David González, Elias Cueto, Francisco Chinesta</i>
9013	RECENT ADVANCES AND PERSPECTIVES ON REDUCED ORDER MODELLING IN COMPUTATIONAL FLUID DYNAMICS AND BEYOND <i>Francesco Ballarin, Gianluigi Rozza</i>
7700	DIMENSIONAL HYPERREDUCTION OF HIERARCHICAL MULTISCALE MODELS <i>Joaquín A. Hernández, Javier Oliver</i>
9280	MODEL ORDER REDUCTION IN STRUCTURAL DYNAMICS <i>Raul Rodriguez Sanchez, Martin Buchschmid, Gerhard Müller</i>
6520	PARAMETRIC SIMULATION OF THE RAILWAY CATENARY INCLUDING DROPPER SLACKENING AND APPLYING THE PGD TECHNIQUE <i>Santiago Gregori, Manuel Tur, Enrique Nadal, F. Javier Fuenmayor, Francisco Chinesta</i>
8748	REDUCING OFFLINE COST FOR ECSW HYPER-REDUCED MODELS FOR FINITE ELEMENT DISCRETIZED NONLINEAR STRUCTURAL DYNAMICS <i>Paolo Tiso, Shobhit Jain</i>
Monday, June 6 16:30-18:30	Minos South
MS 503 - 2: HPC-BASED SIMULATIONS FOR THE ENGINEERING REALM AND INDUSTRIAL APPLICATIONS	
<i>MS Organizers:</i> Makoto Tsubokura, Mariano Vázquez, Takayuki Aoki	
<i>Chair:</i> Takayuki Aoki	
8547	DIRECT AEROACOUSTIC SIMULATION RELATED WITH MODE CHANGE IN A RECORDER <i>Hiroshi Yokoyama, Ryoma Hamasuna, Akira Miki, Hirofumi Onitsuka, Akiyoshi Iida</i>
8335	MULTI-PHYSICS AERODYNAMICS SIMULATION OF FULL-SCALE ROAD VEHICLE FOR ENGINEERING DESIGN PROCESS BASED ON LARGE-SCALE PARALLEL CFD FRAMEWORK <i>Keiji Onishi, Makoto Tsubokura, Takashi Kamioka</i>
7041	EFFECT OF FUEL RATIO OF BITUMINOUS COALS ON PULVERIZED COAL COMBUSTION IN MULTI-BURNER SYSTEM USING LARGE-EDDY SIMULATION <i>Masaya Muto, Hiroaki Watanabe, Ryoichi Kurose</i>
8074	LARGE-SCALE LES ANALYSIS OF AUTOMOTIVE ENGINE COOLING FAN <i>Yuji Kobayashi, Kenji Yoshida, Itsuhei Kohri, Masaharu Sakai, Hideo Asano</i>
7553	NON-INTRUSIVE DOMAIN DECOMPOSITION ALGORITHM FOR SOLVING NONLINEAR PROBLEMS <i>Mickaël Duval, Stéphane Guinard, Jean-Charles Passieux, Michel Salaün</i>

Monday, June 6 16:30-18:30	Danae
MS 1001 - 1: STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION	
<i>MS Organizers:</i> J.F. Aguilar Madeira, Helder C. Rodrigues	
<i>Chair:</i> José Guedes	
9436	COMPUTING GLOBAL AND LOCAL PARETO FRONTS WITH DIRECT SEARCH <i>A. L. Custodio, J. F. A. Madeira</i>
5081	AN ARCHITECTURE-ORIENTED APPROACH IN SHAPE AND TOPOLOGY OPTIMIZATION <i>Georgios Michailidis, François Jouve</i>
6074	STRUCTURAL SHAPE OPTIMIZATION USING A FICTITIOUS DOMAIN DISCRETIZATION TECHNIQUE <i>Stefan Riehl, Paul Steinmann</i>
5544	SHAPE-TOPOLOGY OPTIMIZATION FOR DESIGNING SHELL STRUCTURES <i>Hirotsuka Nakayama, Masatoshi Shimoda</i>
9949	SHAPE OPTIMIZATION FOR CONTACT PROBLEMS IN LINEAR ELASTICITY <i>Aymeric Maury</i>
16640	FORM FINDING ON PARAMETRIC SURFACES. OPTIMIZATION AND CORRELATIONS OF ARCHITECTURAL FLUIDITY AND STRUCTURAL RESPONSE <i>Dimitrios Antoniou, Katerina Liapi, Nikolaos Bakas, Ioakeim Liassides, Ioannis Georgiou, Nikolaos Varlagkas</i>

Monday, June 6 16:30-18:30	Europa
MS 914 -2: INNOVATIVE NON-BOUNDARY-FITTED DISCRETIZATION METHODS	
<i>MS Organizers:</i> Fehmi Cirak, John E. Dolbow, Isaac Harari, Ming-Chen Hsu, Thomas J.R. Hughes, Dominik Schillinger	
<i>Chair:</i> Fehmi Cirak	
11315	SHARP AND DIFFUSE INTERFACE METHODS: TWO FUNDAMENTAL PARADIGMS FOR NON-BOUNDARY-FITTED MODELING AND DISCRETIZATION <i>Dominik Schillinger, Lam Nguyen, Stein Stoter, Atanas Stavrev, Ying Zhao</i>
11122	MODELING OF LI-ION BATTERY COMPOSITE ELECTRODES WITH THE FINITE CELL METHOD <i>Ying Zhao, Dominik Schillinger, Bai-Xiang Xu</i>
11328	HIGHER-ORDER IMMERSED B-SPLINE FINITE ELEMENTS <i>Musabbir Majeed, Fehmi Cirak</i>
7519	CUTFEM ON HIERARCHICAL B-SPLINE CARTESIAN GRIDS WITH APPLICATIONS TO FLUID-STRUCTURE INTERACTION <i>Chennakesava Kadapa, Wulf Dettmer, Djordje Peric</i>
8362	IMMERSOGEOMETRIC FLUID FLOW ANALYSIS AND DESIGN OPTIMIZATION USING B-REP CAD MODELS <i>Ming-Chen Hsu, Chenglong Wang, Fei Xu, Michael C.H. Wu, Adarsh Krishnamurthy</i>
8982	A DISCONTINUOUS CUT FINITE ELEMENT FRAMEWORK FOR MULTIDIMENSIONAL MULTIPHYSICS PROBLEMS <i>Erik Burman, Peter Hansbo, Mats G. Larson, Andre Massing</i>

Monday, June 6
16:30-18:50

Leda

MS 706: MODELING OF FIBER-BASED STRUCTURES - TEXTILES AND TEXTILE REINFORCED COMPOSITES

MS Organizers: Yordan Kyosev, Philippe Boisse, Nahiene Hamila, Damien Durville

Chair: Joris Remmers

10596 MULTI-SCALE FRAMEWORK FOR MODELLING CARBON FIBRE WEAVES BASED ON STOCHASTIC REINFORCEMENT GEOMETRY
Andy Vanaerschot, Karen Soete, Stepan Lomov, Dirk Vandepitte

7909 LEVEL SET-BASED TOOLS FOR THE GENERATION AND DISCRETIZATION OF TEXTILE-REINFORCED COMPOSITE RVES
Badadjida Wintiba, Bernard Sonon, Thierry J. Massart

11703 FROM IMAGES OR VOXELS TO FEM MODELS. APPLICATION TO THE MESHING OF 3D INTERLOCK COMPOSITE STRUCTURES
Alain Rassineux, Gaëtan Hello, Zoheir Aboura, Julien Schneider

11254 AN ISOGEOMETRIC ANALYSIS BASED FINITE CELL METHOD FOR THE ANALYSIS OF FAILURE IN 3D WOVEN COMPOSITES
Joris Remmers, Sebastiaan Brandhof, Clemens Verhoosel

9824 INVERSE IDENTIFICATION OF THE BENDING STIFFNESS OF A BRAIDED POLYETHYLENE TWINE SUBJECT TO LARGE DEFORMATION: APPLICATION TO THE IDENTIFICATION OF THE MESH OPENING RIGIDITY OF FISHING NETS
Barthélémy Morvan, Guilhem Bles, Nicolas Dumergue, Daniel Priour

9020 AN OPTIMIZED MODEL OF DUAL-SCALE GEOMETRY OF TEXTILE REINFORCEMENT BASED ON X-RAY MICROTOMOGRAPHY FOR MODELING OF RTM PROCESSES
Anna Madra, François Trochu, Piotr Breitung

5239 NUMERICAL STUDY OF DAMAGE AT THE MESOSCOPIC SCALE OF WOVEN POLYMER MATRIX COMPOSITES.
Christian Fagiano, Aurélien Doitrand, Vincent Chiaruttini, François-Henri Leroy, Martin Hirsekorn

Monday, June 6
16:30-18:30

Athena

MS 302 - 2: MESH GENERATION AND ADAPTION

MS Organizers: Josep Sarrate, Xevi Roca, Rafael Montenegro, Eloi Ruiz
Chair: Josep Sarrate

6836 AN ERROR-ESTIMATE-FREE MESH REFINEMENT AND COARSENING METHOD FOR THE PHASE FIELD APPROACH TO FRACTURE
Yihuan Li, Yongxing Shen

8097 R-ADAPTATION STRATEGIES FOR WAVE RUNUP ON COMPLEX BATHYMETRIES
Luca Arpaia, Mario Ricchiuto

8380 UNIVERSAL MESHES FOR BRANCHED CRACK PROPAGATION
Can Wu, Yongxing Shen

8424 CARTESIAN MESHES WITH DYNAMIC LOCAL WAVELET-BASED REFINEMENT FOR FLOW AROUND BODY PROBLEMS.
Kirill Merkulov, Igor Menshov, Andrew Plenkin

7307 ANALYSIS OF SEVERAL OBJECTIVE FUNCTIONS FOR OPTIMIZATION OF HEXAHEDRAL MESHES
José Iván López González, Marina Brovka, José María Escobar Sánchez, Rafael Montenegro Armas, Guillermo Valentín Socorro Marrero

Monday, June 6
16:30-18:30

Artemis

MS 903 - 2: ADVANCES IN FICTITIOUS DOMAIN METHODS FOR SOLID MECHANICS

MS Organizers: Alexander Düster, Ernst Rank, Stefan Kollmannsberger, Andreas Schröder

Chair: Alexander Düster

9398 **KEYNOTE:** A FICTITIOUS DOMAIN LEVELSET METHOD FOR INCLUSION DETECTION
Herbert Egger

8229 PRECONDITIONING THE FINITE CELL METHOD WITH APPLICATION TO FLUID-STRUCTURE INTERACTIONS
Frits de Prenter, Clemens Verhoosel, Harald van Brummelen

8999 WEAK IMPOSITION OF CONTACT CONSTRAINTS ON AUTOMATICALLY RECOVERED HIGH ORDER EMBEDDED INTERFACES
Tino Bog, Nils Zander, Stefan Kollmannsberger, Ernst Rank

8878 CUTFEM FOR LINEAR ELASTICITY
Peter Hansbo, Mats G Larson, Karl Larsson

8933 AUTOMATIC ELASTIC CHARACTERIZATION OF ALUMINIUM FOAMS FROM IMAGES BY USING H-ADAPTED MESHES WITH THE CARTESIAN GRID FINITE ELEMENT METHOD
L. Giovannelli, A.C. Cárcel, B. Cárcel, Juan José Ródenas

Monday, June 6
16:30-18:30

Aphrodite

MS 921 - 2: RECENT ADVANCES IN BOUNDARY ELEMENT METHODS

MS Organizers: Gernot Beer, Luiz Wrobel, Martin Schanz

Chair: Gernot Beer

9429 A NEW A POSTERIORI ERROR ESTIMATE FOR THE BEM IN 3D-ACOUSTICS
Marc Bakry, Sébastien Pernet, Francis Collino

5899 ENERGETIC BEM FOR THE NUMERICAL SOLUTION OF DAMPED WAVE PROPAGATION EXTERIOR PROBLEMS
Alessandra Aimi, Mauro Diligenti, Chiara Guardasoni

10422 TREFFTZ-BASED DUAL RECIPROCITY METHOD FOR NON-HOMOGENEOUS HYPERBOLIC BOUNDARY VALUE PROBLEMS
Ionut Dragos Moldovan, Lucian Radu

7197 A CHEBYSHEV INTERPOLATION-BASED FAST MULTIPOLE METHOD FOR POROELASTICITY
Barbara Knöbl, Martin Schanz

10279 ANISOTROPIC MESH ADAPTATION FOR THE BOUNDARY ELEMENT METHOD
Samuel Groth, Stephanié Chaillat, Francis Collino, Adrien Loeille

11838 A FEM-BEM NON CONFORMING COUPLING FOR WAVE PROPAGATION PROBLEMS IN UNBOUNDED DOMAINS
Silvia Bertoluzza, Silvia Falletta, Giovanni Monegato

DAY 1 – MONDAY, JUNE 6

Monday, June 6 16:30-18:30 Antigoni

MS 1306 - 2: ERCOFTAC SIG-45: UNCERTAINTY QUANTIFICATION IN CFD AND FLUID STRUCTURE INTERACTION

MS Organizers: Didier Lucor, Sunetra Sarkar

Chair: Sunetra Sarkar

9082 TEST CASE BL3 - HEAVING AND PITCHING AIRFOIL, 4TH INTERNATIONAL WORKSHOP ON HIGH-ORDER CFD METHODS
Per-Olof Persson, Krzysztof Fidkowski

10891 LOW RANK APPROXIMATION AND SAMPLING BASED METHOD FOR RANDOM VIBRO-ACOUSTIC ANALYSIS
Mathilde Chevreuil, Cédric Leblond, Yendoubouam Tampango, Anthony Nouy, Jean-François Sigrist

10670 A KRIGING-PDD SURROGATE MODEL FOR UNCERTAINTY QUANTIFICATION
Andrea Francesco Cortesi, Pietro Marco Congedo

10164 UNCERTAINTY QUANTIFICATION IN NUMERICAL SIMULATIONS OF THE FLOW IN THORACIC AORTIC ANEURYSMS
Alessandro Boccadifuoco, Alessandro Mariotti, Simona Celi, Nicola Martini, Maria Vittoria Salvetti

10640 REVIEW OF MULTI-FIDELITY SURROGATE MODELS
M. Giselle Fernandez-Godino, Chanyoung Park, Nam Ho Kim, Raphael T. Haftka

Monday, June 6 16:30-18:30 Apollo East

MS 303 - 2 : CURVED MESH GENERATION FOR HIGH-ORDER METHODS

MS Organizers: Xevi Roca, Josep Sarrate

Chair: Xevi Roca

7234 HIGH-ORDER CURVED MESH GENERATION BY USING A FINE TARGET MESH
Verena Schmid, Hadrien Beriot, Onur Atak, Gwenael Gabard

7117 VALIDATING AND GENERATING CURVED UNSTRUCTURED HEXAHEDRAL MESHES
Abel Gargallo-Peiró, Eloi Ruiz-Gironés, Josep Sarrate, Xevi Roca

9380 HIGH-ORDER GEOMETRIC PDE-DRIVEN SMOOTHING ON SURFACE MESHES
Tristan Delaney, Xiangmin Jiao

10770 IMAGE SEGMENTATION TECHNIQUES FOR BIOMEDICAL MODELING: ELECTROPHYSIOLOGY AND HEMODYNAMICS
Alexander Danilov, Roman Pryamonosov, Alexandra Yurova

Monday, June 6 16:30-18:30 Apollo West

MS 1104 - 2: REDUCED-ORDER MODELS FOR PDE-CONSTRAINED OPTIMIZATION AND INVERSE PROBLEMS

MS Organizers: Alfio Quarteroni, Andrea Manzoni

Chair: Karsten Urban

9223 CALIBRATION WITH REDUCED ORDER MODELS
Ekkehard Sachs, Marina Schneider

5877 GENERALIZED SPACE-TIME-INPUT SPACE POD FOR OPTIMAL CONTROL OF THE UNSTEADY BURGERS EQUATION
Peter Benner, Jan Heiland

5401 REDUCED BASIS LANDWEBER METHOD FOR NONLINEAR ILL-POSED INVERSE PROBLEMS
Dominik Garmatter, Bastian Harrach, Bernard Haasdonk

8720 ROBUST PDE-CONSTRAINED OPTIMIZATION USING A SECOND ORDER APPROXIMATION TECHNIQUE AND MODEL ORDER REDUCTION
Oliver Lass, Stefan Ulbrich

Monday, June 6 16:30-18:30 Room 1

MS 1307 - 2: NON-INTRUSIVE SURROGATE MODELS FOR UNCERTAINTY QUANTIFICATION IN HIGH DIMENSIONS

MS Organizers: Bruno Sudret, Eleni Chatzi, Jean-Marc Bourinet, Nicolas Gayton

Chair: Katerina Konakli

7382 CALIBRATION OF NESTED COMPUTER MODELS
Sophie Marque-Pucheu, Guillaume Perrin, Josselin Garnier

6762 AN OPTIMAL SENSOR PLACEMENT METHOD FOR SHM BASED ON BAYESIAN EXPERIMENTAL DESIGN AND POLYNOMIAL CHAOS EXPANSION
Giovanni Capellari, Eleni Chatzi, Stefano Mariani

12362 OPTIMAL AND RELIABLE DESIGN OF THE BONDING WIRE FOR A POWER MODULE BY USING RELIABILITY-BASED DESIGN OPTIMIZATION AND A KRIGING METAMODEL
Younes Aoues, Abderahman Makhoulfi, Philippe Pougnet, Abdelkhalak El-Hami

5946 BEARING CAPACITY OF STRIP FOOTINGS ON SPATIALLY RANDOM SOILS USING KRIGING AND MONTE CARLO SIMULATION
Jawad Thajeel, Tamara Al-Bittar, Nour Issa, Abdul Hamid Soubra

MS 1309 - 1: SCALABLE MULTI-FIDELITY MODELING FOR DESIGN, UNCERTAINTY QUANTIFICATION, AND INVERSE PROBLEMS

MS Organizers: Paris Perdikaris, George Em. Karniadakis

Chair: Paris Perdikaris

8901 DATA-INFORMED COARSE-GRAINING FOR TURBULENT FLOW SIMULATIONS
Karthik Duraisamy, Eric Parish

8951 DESIGN OPTIMIZATION WITH QUANTIFIED UNCERTAINTIES UNDER A COMPUTATIONAL BUDGET
Ilias Bilionis, Piyush Pandita, Jitesh Panchal

Monday, June 6 16:30-18:30 Room 2

CS 420 - 2: MULTI-PHASE AND CHEMICALLY REACTING FLOWS

Chair: Taku Nonomura

10945 ON THE THICKNESS OF DISCONTINUITIES COMPUTED BY THINC AND RK SCHEMES
Taku Nonomura, Keh-Ming Shyue

11575 RESEARCH OF UNSTEADY FLOW REGIMES IN CHANNEL OF HYPERSONIC INLET
Natalya Fedorova, Marat Goldfeld

10224 CHARACTERISING DROPLET IMPACT ON A FLAT SURFACE USING THE VOLUME OF FLUID METHOD
Marco Macchi, Jennifer Wen, Konstantin Volkov, Ali Heidari, Yongmann Chung

DAY 1 – MONDAY, JUNE 6

11485 A 3D UNSTEADY NUMERICAL SIMULATION OF THE REFRIGERANT FLOW EVAPORATION IN A PLATE HEAT EXCHANGER
Mirza Popovac, Gerwin Schmid, Michael Laueremann

11834 EXPLICIT DARCY'S LAW BOUNDARY CONDITION WITH COMBINED CONTINUUM AND DISCRETE MODEL FOR PRESSURE DRIVEN MEMBRANE APPLICATIONS
Tomi Naukkarinen, Teemu Turunen-Saaresti

Monday, June 6 **Room 4**
16:30-18:30

CS 211: CRACK PROPAGATION

Chair: Sylvia Feld-Payet

9741 A MARCHING RIDGES ALGORITHM FOR CRACK PATH TRACKING IN REGULARIZED MEDIA
Sylvia Feld-Payet

12182 CRACK PATH FIELD AND STRAIN INJECTION TECHNIQUES IN 3D FRACTURE MODELING OF QUASI-BRITTLE MATERIALS
Ivo F. Dias, Xavier Oliver, Oriol Lloberas-Valls

11625 3D ADAPTIVE PROCESS OF CRACKS INITIATION AND PROPAGATION IN DUCTILE MATERIALS
Fangtao Yang, Alain Rassineux, Carl Labergere, Khemais Saanouni

6145 2D CRACK MODELLING USING A NEW CRACKING PARTICLE METHOD COMBINED WITH AN ADAPTIVITY STRATEGY
Weilong Ai, Charles Augarde

11939 ULTRASONIC GUIDED WAVES INSPECTION OF PIPES FROM ONE END TO THE FIRST BENT
Mihai Valentin Predoi, Marian Soare, Ovidiu Vasile, Mihail Boiangiu

8270 DISCRETE CRACK DYNAMICS: A NEW TOOL TO STUDY THE CRACK PROPAGATION PATH
Mahdieh T. Ebrahimi, Daniele Dini, Daniel Balint, Adrian Sutton

Monday, June 6 **Room 5**
16:30-18:30

CS 840 - 2: MULTI-SCALE COMPUTATIONAL METHODS FOR SOLIDS AND FLUIDS

Chair: Antoine Brunet

6947 NONLINEAR PATCH METHOD AND APPLICATION
Antoine Brunet, Pierre Sarrailh, François Rogier, Jean-François Roussel, Denis Payan

6771 THE GEMA FRAMEWORK – AN INNOVATIVE FRAMEWORK FOR THE DEVELOPMENT OF MULTIPHYSICS AND MULTISCALE SIMULATIONS
Carlos Augusto Teixeira Mendes, Marcelo Gattass, Deane Roehl

7617 ASSESSMENT OF A CONTINUUM MICROMECHANICS-BASED MULTISCALE MODEL FOR CONCRETE BY MEANS OF SENSITIVITY ANALYSIS AND UNCERTAINTY PROPAGATION
Luise Göbel, Andrea Osburg, Tom Lahmer

8137 COUPLED ATOMISTIC/DISCRETE-DISLOCATION METHOD IN 3D
Max Hodapp, William Curtin, Jean-François Molinari, Guillaume Anciaux

8263 SOLUTION TECHNIQUES FOR ANISOTROPIC DIFFUSION OPERATORS ARISING IN MAGNETIZED EDGE PLASMA PHYSICS
Giorgio Giorgiani, Eric Serre, Frederic Schwander, Patrick Tamain

8775 INFLUENCE OF LODE ANGLE ON MODELLING OF MICRO VOIDS CLOSURE IN HOT METAL FORMING PROCESSES INFLUENCE
Abdelouahed Chbihi, Pierre-Olivier Bouchard, Marc Bernacki, Daniel Pino Muñoz

Monday, June 6 **Room 7**
16:30-18:30

CS 110 - 2: NUMERICAL MODELS IN BIOMECHANICS

Chair: Ángel Giménez

8437 IMPROVED GEOMETRICAL DESIGNS OF VENTRICULAR CATHETERS FOR HYDROCEPHALUS
Ángel Giménez, Marcelo Galarza, Olga Pellicer, José Valero, José M. Amigó

8331 A STUDY OF FUZZY CONTROL SYSTEM FOR PROPER ANASTOMOSIS CONDITION OF STAPLER
Soonmoon Jung, Hunhee Kim, Taekyeong Lee, Youngho Lee, Jaemin Kim, Heesuk Roh, Dongwook Yang, Junghwa Hong

6459 IN-HOUSE MULTIBODY HUMAN MODEL BASED ON EULER PARAMETERS FOR THE FAST IMPACT SCENARIO CALCULATION
Jan Spicka, Michal Hajzman, Tomasz Bonkowski

7094 MASS TRANSFER STUDY OF RHEOLOGICAL FLUIDS IN CAPILLARY MEMBRANE CONTACTORS USING A LBM-FD HYBRID MODEL
Jonathan Florez Giraldo, Clara Salueña, Salvatore Cito, Anton Vernet

8642 DEVELOPMENT OF A CENTRIFUGAL BLOOD PUMP FOR ECMO AND VAD OPERATIONS
Shinhwa Choi, Nahmkeon Hur, Mohammad Moshfeghi, Seongwon Kang, Wonjung Kim

8925 FINITE ELEMENT MODELING OF VISCOUS MEMBRANES WITH STOCHASTIC EFFECTS
Roberto F. Ausas, Fernando Mut, Gustavo C. Buscaglia

Monday, June 6 **Room 9**
16:30-18:30

CS 750 - 2: COMPUTATIONAL MODELING OF COMPOSITES

Chair: Thomas Bower

5844 MODELLING SOIL-FIBRE COMPOSITE BEHAVIOUR IN FINITE ELEMENT MODELS
Thomas Bower, Anthony Jefferson, Peter Cleall

9724 NUMERICAL SIMULATION OF MECHANICAL BEHAVIOUR OF COMPOSITE SANDWICH PANELS WITH DEFECTS
Aleksandr Anoshkin, Valerii Zuiko, Mikhail Alikin, Anna Tchugaynova

5785 BOND OF REINFORCEMENT IN REACTIVE POWDER CONCRETE: EXPERIMENTAL STUDY
Mingde Sun, Ri Gao, Aili Li, Yongjing Wang

10915 A DUAL NUMERICAL HOMOGENIZATION TECHNIQUE FOR 2-D WOVEN FABRIC COMPOSITES
Juan Jose Espadas Escalante, Per Isaksson, Nico Van Dijk

6812 NONLINEAR VISCOELASTIC CHARACTERIZATION OF POLYMERIC FOAMS
Szabolcs Berezhvai, Attila Kossa

11102 A CHEMO-THERMO-MECHANICAL PHASE-FIELD MODEL FOR THE SOLIDIFICATION AND CURING OF FRPS
Felix Schwab, Daniel Schneider, Oleg Tschukin, Michael Selzer, Britta Nestler

DAY 1 – MONDAY, JUNE 6

Monday, June 6 16:30-18:30 Room 10

MS 505 - 2: INTERACTIVE SIMULATIONS IN COMPUTATIONAL ENGINEERING

MS Organizers: Adrian Harwood, Petra Wenisch

Chair: Petra Wenisch

- 8065** 3D OBJECT CAPTURE PIPELINE BASED ON MICROSOFT KINECT FOR INTERACTIVE FLOW SIMULATION
Adrian Harwood, Alistair Revell
- 7269** AUTOMATIC VISUALIZATION AND CONTROL OF ARBITRARY NUMERICAL SIMULATIONS
Jan P. Springer, Helen Wright
- 8053** PARALLELISATION OF ANDROID-BASED MOBILE PLATFORMS FOR REAL-TIME ENGINEERING SIMULATION
Adrian Harwood, Alistair Revell
- 8685** GPU-BASED INTERACTIVE TOPOLOGY OPTIMIZATION
Stefan Gavranovic, Hans-Joachim Bungartz, Utz Wever, Dirk Hartmann

Monday, June 6 16:30-18:30 Room 11

MS 916 - 2: DIRECT METHODS FOR LIMIT STATES OF MATERIALS AND STRUCTURES

MS Organizers: Konstantinos V. Spiliopoulos, Dieter Weichert

Chair: Konstantinos V. Spiliopoulos

- 9835** A NUMERICAL STUDY ON THE ENDURANCE LIMIT OF PARTICULATE REINFORCED METAL MATRIX COMPOSITES (PRMMCS) USING THE DIRECT METHOD AND THE STATISTICAL LEARNING
Geng Chen, Bezold Alexander, Christoph Broeckmann, Dieter Weichert
- 11106** SHAKEDOWN ANALYSIS OF PLATE BENDING UNDER STOCHASTIC UNCERTAINTY BY CHANCE CONSTRAINED PROGRAMMING
Ngoc Trinh Tran, Thanh Ngoc Tran, H.G. Matthies, G.E. Stavroulakis, M. Staat
- 11930** LIMIT ANALYSIS LOCUS OF HIGH STRENGTH STEEL PLATES UNDER NON-QUADRATIC YIELD CRITERIA
Konstantinos Nikolaou, Christos Bisbos
- 7988** ON SHAKEDOWN OF ELASTIC-PLASTIC BODIES WITH TEMPERATURE-DEPENDENT PROPERTIES
Michael Peigney
- 5621** LIMIT ANALYSIS OF STRUCTURES MADE OF NONLOCAL MATERIALS
Aurora Angela Pisano, Paolo Fuschi

Monday, June 6 16:30-18:30 Room 12

MS 917 - 2: MESOSCOPIC METHODS FOR COMPLEX FLUIDS AND SOFT MATTER

MS Organizers: Zhen Li, Wenxiao Pan, Igor V. Pivkin

Chair: Igor V. Pivkin

- 6854** MOVEMENT OF LIQUID DROPLETS CONTAINING POLYMERS ON SUBSTRATE
Heng Wang, Guohui Hu
- 8812** MODELING MECHANICS OF STIMULI-SENSITIVE HYDROGELS USING DISSIPATIVE PARTICLE DYNAMICS
Svetoslav Nikolov, Alexander Alexeev

- 8241** SMOOTHED DISSIPATIVE PARTICLE DYNAMICS WITH ANGULAR MOMENTUM CONSERVATION
Kathrin Mueller, Davod Alizadehrad, Gerhard Gompper, Dmitry Fedosov

- 9642** MULTI-SCALE COARSE-GRAINING FOR CONDENSED PHASE MATERIALS
Zhen Cao

Monday, June 6 16:30-18:30 Room 15

CS 930 - 2: HIGH-ORDER DISCRETIZATION METHODS

Chair: Antonio Pascau

- 5955** DISCONTINUOUS GALERKIN SPECTRAL ELEMENT METHOD AND ENATE APPROACH COMPARISON IN 2D TRANSPORT EQUATIONS.
Antonio Pascau, Muslum Arici, Victor Llorente
- 8771** ON THE STABILITY AND ACCURACY OF FLUX RECONSTRUCTION SCHEMES FOR IMPLICIT LARGE EDDY SIMULATION OF TURBULENT FLOWS
Brian Vermeire, Peter Vincent
- 8146** A HIGH-ORDER DISCONTINUOUS GALERKIN METHOD FOR UNSTEADY ADVECTION-DIFFUSION PROBLEMS
Raunak Borker, Charbel Farhat, Radek Tezaur
- 10081** SPATIALLY WEIGHTED PROJECTIONS FOR DISCONTINUITIES TREATMENT ADAPTED TO COMPACT HIGH-ORDER SCHEMES
Raphaël Lamouroux, Jérémie Gressier, Gilles Grondin
- 10822** ON THE VERIFICATION OF HIGH-ORDER CFD SOLVERS
Farshad Navah, Siva Nadarajah

Monday, June 6 16:30-18:30 Room 17

CS 1020 - 2: EVOLUTIONARY AND DETERMINISTIC METHODS FOR DESIGN, OPTIMIZATION AND CONTROL

Chair: Alexander Zuyev

- 8264** OPTIMAL CONTROL OF A CHEMICAL REACTOR BY USING PERIODIC BANG-BANG INPUTS: ISOPERIMETRIC PROBLEM
Peter Benner, Andreas Seidel-Morgenstern, Alexander Zuyev
- 11676** ON STRUCTURAL OPTIMIZATION WITH CATEGORICAL VARIABLES USING EVOLUTIONARY ALGORITHMS
Huanhuan Gao, Piotr Breitkopf, Rajan F. Coelho, Manyu Xiao
- 4845** EVALUATION OF DIFFERENT APPROACHES FOR THE OPTIMIZATION OF LAYOUT AND CONTROL OF BOOSTER STATIONS
Philipp Pöttgen, Peter F. Pelz
- 6920** COMPUTING AN OPERATING STRATEGY FOR AN ACTIVE BODY CONTROL WITH DYNAMIC PROGRAMMING IN THE AUTOMOTIVE AREA
Marlene Utz, Phillipp Hedrich, Peter F. Pelz
- 8717** A COMPARISON OF MILP AND MINLP SOLVER PERFORMANCE ON THE EXAMPLE OF A DRINKING WATER SUPPLY SYSTEM DESIGN PROBLEM
Lea Rausch, Philipp Leise, Thorsten Ederer, Lena C. Altherr, Peter F. Pelz

DAY 1 – MONDAY, JUNE 6

Monday, June 6 16:30-18:30 Room 18

CS 751 - 2: SMART MATERIALS AND STRUCTURES

Chair: Javier Pereiro Barceló

- 8115** VERY HIGH PERFORMANCE CONCRETE TO DELAY STEEL REINFORCEMENTS BUCKLING
Javier Pereiro Barceló, José Luis Bonet Senach
- 8119** CONSTITUTIVE MODEL OF SMA REINFORCEMENTS UNDER BUCKLING
Javier Pereiro Barceló, José Luis Bonet Senach, José Ramón Albiol Ibañez
- 8613** TOWARDS REAL-TIME STRUCTURAL HEALTH MONITORING DAMAGE DETECTION WITHOUT USER INPUT
Mohammad Salmanpour, Zahra Sharif Khodaei, Ferri Aliabadi
- 9382** FIBROUS TECTONICS: A RETHINKING OF COMPOSITE PRODUCTION THROUGH INNOVATION AND EXPLORATION OF MOLDING TECHNIQUES AND METHODOLOGIES
David Costanza

Monday, June 6 16:30-18:30 Room 21

CS 1010 - 2: COMPUTATIONAL INVERSE PROBLEMS AND OPTIMIZATION

Chair: Christian T. Jacobs

- 4610** ON THE VALIDITY OF TIDAL TURBINE ARRAY CONFIGURATIONS OBTAINED FROM STEADY-STATE ADJOINT OPTIMISATION
Christian T. Jacobs, Matthew D. Piggott, Stephan C. Kramer, Simon W. Funke
- 5279** DEVELOPMENT OF ACCURATE PNEUMATIC TYRE FINITE ELEMENT MODELS BASED ON AN OPTIMISATION PROCEDURE
Chrysostomos-Alexandros Bekakos, George Papazafeiropoulos, Dan J. O'Boy, Jan Prins
- 8138** GRADIENT-BASED OPTIMIZATION OF PARAMETERIZED CAD GEOMETRIES
Timothée Leblond, Pierre Froment, Paul de Nazelle, Philippe Serré, Reda Sellakh, Gaël Chevallier
- 8764** A COMPUTATIONAL STRATEGY FOR TRAJECTORY OPTIMIZATION OF UNDERACTUATED MULTIBODY SYSTEMS WITH CONTACTS
Silvia Manara, Alessio Artoni, Marco Gabiccini
- 7293** OPTIMAL CONTROL OF PLANAR GEOMETRICALLY EXACT BEAM NETWORKS
Christoph Strohmeier

Monday, June 6 16:30-18:30 Room 22

MS 902 - 2: INNOVATIVE NUMERICAL APPROACHES FOR MULTI-PHYSICS PROBLEMS

MS Organizers: Anna Pandolfi, Laurent Stainier, Kerstin Weinberg

Chair: Kerstin Weinberg

- 8442** A POROUS BRITTLE DAMAGE MATERIAL MODEL
Anna Pandolfi, Gabriele Della Vecchia, Maria Laura De Bellis, Michael Ortiz
- 10956** ON THE STABILITY OF THE ELECTRODE INTERFACE DURING CHARGING IN LITHIUM BATTERIES
Kerstin Weinberg, Panagiotis Natsiavas, Michael Ortiz

- 9784** VARIATIONAL MESH ADAPTION FOR THERMO-MECHANICAL PROBLEMS
Rohit Pethe, Thomas Heuze, Laurent Stainier
- 6834** AN XFEM METHOD FOR CRACK PROPAGATION IN BRITTLE ELASTIC MATERIALS
Luca Formaggia, Bianca Giovanardi, Anna Scotti
- 12303** REACTION FRONT PROPAGATION MODELING IN HETEROGENEOUS CONDENSED SYSTEMS
Alberto Cuitino, Yuriy Gulak
- 9266** A NOVEL STABILITY CONDITION FOR THE FE DISCRETISATION OF POROELASTICITY MODEL
Marco Favino, Rolf Krause

Monday, June 6 16:30-18:50 Room 23

MS 913 - 2: HIGH-ORDER METHODS FOR POLYGONAL AND POLYHEDRAL MESHES

MS Organizers: Lourenço Beirão da Veiga, Franco Brezzi, Donatella Marini, Alessandro Russo

Chair: Donatella Marini

- 6277** VIRTUAL ELEMENTS FOR THE STOKES PROBLEM
Lourenço Beirão da Veiga, Carlo Lovadina, Giuseppe Vacca
- 4624** ADAPTIVE BEM-BASED FEM ON POLYGONAL MESHES FROM VIRTUAL ELEMENT METHODS
Steffen Weißer
- 7316** THE VIRTUAL ELEMENT METHOD FOR LARGE DEFORMATION CONTACT
P. Wriggers, W. T. Rust, B. D. Reddy
- 7979** DISCONTINUOUS GALERKIN METHODS FOR THE ELASTODYNAMICS EQUATION ON POLYGONAL AND POLYHEDRAL MESHES
Paola F. Antonietti, Ilario Mazzieri, Antonio Nicolo'
- 8592** A STABLE VIRTUAL ELEMENT METHOD FOR THE DARCY EQUATIONS AND THE BRINKMAN EQUATIONS
Lourenço Beirão da Veiga, Carlo Lovadina, Giuseppe Vacca
- 8706** BASIC PRINCIPLES OF HP VIRTUAL ELEMENT METHODS
Lourenço Beirão da Veiga, Alexey Chernov, Lorenzo Mascotto, Alessandro Russo
- 6797** A NON-CONFORMING VIRTUAL ELEMENT METHOD FOR STOKES EQUATIONS
Andrea Cangiani, Vitaliy Gyrya, Gianmarco Manzini

TECHNICAL SESSIONS

Tuesday, June 7 8:30-10:30	Zeus East	Tuesday, June 7 8:30-10:30	Zeus North
MS 913 - 3: HIGH-ORDER METHODS FOR POLYGONAL AND POLYHEDRAL MESHES <i>MS Organizers:</i> Lourenço Beirao da Veiga, Franco Brezzi, Donatella Marini, Alessandro Russo <i>Chair:</i> Lourenço Beirao da Veiga 9048 KEYNOTE: SERENDIPITY $H(\text{DIV})$ AND $H(\text{CURL})$ CONFORMING VEMS <i>Lourenço Beirao da Veiga, Franco Brezzi, Donatella Marini, Alessandro Russo</i> 6334 THE VIRTUAL ELEMENT METHOD FOR DISCRETE FRACTURE NETWORK FLOW AND TRANSPORT SIMULATIONS <i>Matias Fernando Benedetto, Stefano Berrone, Andrea Borio, Sandra Pieraccini, Stefano Scialo, Fabio Vicini</i> 9319 A VIRTUAL ELEMENT METHOD FOR THE ACOUSTIC VIBRATION PROBLEM <i>Lourenço Beirao da Veiga, David Mora, Gonzalo Rivera, Rodolfo Rodríguez</i> 9535 A NEW VIRTUAL ELEMENT METHOD FOR 2D NONLINEAR INELASTIC APPLICATIONS <i>Edoardo Artioli, Lourenço Beirao da Veiga, Carlo Lovadina, Elio Sacco</i>		MS 906 - 3: MATHEMATICAL ADVANCES IN ISOGEOMETRIC ANALYSIS <i>MS Organizers:</i> Annalisa Buffa, John A. Evans, Thomas J.R. Hughes, Giancarlo Sangalli <i>Chair:</i> John A. Evans 11253 KEYNOTE: HIGH ORDER EXPLICIT STRUCTURAL DYNAMICS WITH ISOGEOMETRIC COLLOCATION <i>Rene Hiemstra, Thomas JR Hughes, Alessandro Reali</i> 6751 COMPUTATIONAL COMPARISON OF ADAPTIVE MESH REFINEMENT STRATEGIES IN ISOGEOMETRIC ANALYSIS <i>Paul Hennig, Markus Kästner, Philipp Morgenstern, Daniel Peterseim</i> 11330 MANIFOLD-BASED THIN-SHELLS FINITE ELEMENTS OF ARBITRARY ORDER AND SMOOTHNESS <i>Musabbir Majeed, Fehmi Cirak</i> 4488 ADAPTIVE INTEGRATION FOR ISOGEOMETRIC BOUNDARY ELEMENT ANALYSIS THROUGH NESTED CLENSHAW CURTIS QUADRATURE <i>Robert Simpson, Zhaowei Liu</i>	
Tuesday, June 7 8:30-10:30	Zeus West	Tuesday, June 7 8:30-10:30	Minos East
MS 609 - 3: ADVANCED COMPUTATIONAL MODELING OF BATTERIES AND FUEL CELLS <i>MS Organizers:</i> Edwin Knobbe, Wolfgang A. Wall <i>Chair:</i> Edwin Knobbe 5448 PPGDA/LIPF6 SOLID ELECTROLYTE ELECTROCHEMICAL AND MECHANICAL PROPERTIES AT GRAPHITIC INTERFACE <i>Oswalds Verners, Barend Thijsse, Angelo Simone</i> 9900 A THREE-DIMENSIONAL, THERMODYNAMIC, COUPLED MODEL FOR FULLY RESOLVED FINITE ELEMENT SIMULATIONS OF LITHIUM-ION BATTERIES <i>Rui Fang, Wolfgang A. Wall</i> 7160 MODELING OF NIXMNYCO_{1-X}Y (NMC) CATHODES OF HIGH-ENERGY AND HIGH-POWER CELLS WITH A TRANSMISSION LINE MODEL <i>Janina Costard, Moses Ender, Michael Weiss, Ellen Ivers-Tiffée</i> 8389 EFFECT OF MICROSTRUCTURE ON THERMAL CONDUCTIVITY OF LITHIUM-ION ELECTRODES VIA DEM SIMULATIONS <i>Clara Sangrós Giménez, Arno Kwade</i> 9100 MODELING OF LIFEPO₄-ELECTRODES <i>Wolfgang Dreyer, Clemens Gohlke, Manuel Landstorfer, Mario Maurelli, Rüdiger Müller, Paul Gajewski</i>		MS 501 - 3: ALGORITHMIC ASPECTS OF HIGH-PERFORMANCE COMPUTING FOR MECHANICS AND PHYSICS <i>MS Organizers:</i> Santiago Badia, Victor Calo, Javier Principe <i>Chair:</i> Javier Principe 7789 INITIALIZATION OF PHASE-FIELD FRACTURE PROPAGATION IN POROUS MEDIA USING A PROBABILITY MAP OF FRACTURE NETWORK <i>Mary Wheeler</i> 6770 EVALUATION OF THE PERFORMANCE OF SMOOTHERS FOR FULLY-COUPLED ALGEBRAIC MULTIGRID PRECONDITIONERS FOR IMPLICIT VARIATIONAL MULTISCALE FINITE ELEMENT RESISTIVE MAGNETOHYDRODYNAMICS <i>Paul Lin, John Shadid</i> 9123 STRONGLY PARALLEL METHODS FOR NUMERICAL SIMULATION IN NONLINEAR STRUCTURAL MECHANICS <i>Camille Negrello, Pierre Gosselet, Christian Rey</i> 9285 A NON-INTRUSIVE MULTI-SCALE STRATEGY FOR A MIXED DOMAIN DECOMPOSITION METHOD FOR CONTACT PROBLEMS <i>Paul Oumaziz, Pierre Gosselet, Pierre-Alain Boucard</i> 4478 PSEUDOMULTIGRID GAUSS–SEIDEL METHOD FOR LARGE SCALE AND HIGH PERFORMANCE COMPUTING <i>Sergey Martynenko, Vadim Volokhov, Pavel Toktaliev</i> 6541 PARALLELIZABLE EXPLICIT LOCAL TIME STEPPING FOR DISCONTINUOUS GALERKIN APPROXIMATIONS ON MOVING MESHES <i>Andrew Winters</i>	

DAY 2 – TUESDAY, JUNE 7

Tuesday, June 7 8:30-10:30

MS 301 - 1: METHODS FOR CUT AND COMPOSITE MESHES: THEORY, ALGORITHMS AND APPLICATIONS

MS Organizers: Mats G. Larson, André Massing

Chair: André Massing

- 5714** AN OPTIMIZATION-BASED APPROACH TO MESH TYING AND TRANSMISSION PROBLEMS
Paul Kuberry, Pavel Bochev
- 7469** CONFORMAL HIGH-ORDER DISCRETIZATIONS FOR MULTIPHASE FLOW: CHOICE OF BASIS, PRECONDITIONING AND TEMPORAL DISCRETIZATION
Florian Kummer
- 8261** A SPACE-TIME CUT FINITE ELEMENT METHOD FOR CONVECTION-DIFFUSION PROBLEMS ON TIME DEPENDENT DOMAINS
Peter Hansbo, Mats G. Larson, Sara Zahedi
- 4573** REMOVING THE STABILIZATION PARAMETER IN FITTED AND UNFITTED SYMMETRIC NITSCHÉ FORMULATIONS
Christoph Lehrenfeld, Arnold Reusken
- 6043** INTERNODES (INTERPOLATION FOR NON-CONFORMING DECOMPOSITIONS): AN ACCURATE APPROACH FOR THE NUMERICAL SOLUTION OF PDES ON NONCONFORMING DISCRETIZATIONS
Simone Deparis, Davide Forti, Paola Gervasio, Alfio Quarteroni

Tuesday, June 7 8:30-10:30

MS 503 - 3: HPC-BASED SIMULATIONS FOR THE ENGINEERING REALM AND INDUSTRIAL APPLICATIONS

MS Organizers: Makoto Tsubokura, Mariano Vázquez, Takayuki Aoki

Chair: Cristóbal Samaniego

- 10235** NUMERICAL ANALYSIS OF RADIO FREQUENCY BLACKOUT FOR ATMOSPHERIC REENTRY VEHICLE USING CFD-CEM COMBINED METHOD
Yusuke Takahashi, Reo Nakasato, Nobuyuki Oshima
- 10763** SCALE DOWN OF A PRODUCTION (INDUSTRIAL) SCALE TABLET COATING PROCESS USING THE DISCRETE ELEMENT METHOD
Peter Böhlring, Matthew Metzger, Brendon Ricart, Pavol Rajniak, Johannes Khinast
- 10923** VALIDATION OF WALL-MODELED LES FOR HIGH REYNOLDS NUMBER FLOW
Ken Uzawa, Kenji Ono
- 11146** DIRECT FEM LARGE SCALE COMPUTATION OF TURBULENT MULTIPHASE FLOW IN URBAN WATER SYSTEMS AND MARINE ENERGY
Ezhilmathi Krishnasamy, Johan Hoffman, Johan Jansson
- 7928** LARGE-SCALE SIMULATIONS FOR FLUIDIZATION USING COUPLED LATTICE BOLTZMANN METHOD AND DISCRETE ELEMENT METHOD ON A GPU SUPERCOMPUTER
Seiya Watanabe, Takayuki Aoki, Yuta Hasegawa

Tuesday, June 7 8:30-10:30

MS 1001 - 2: STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION

MS Organizers: J.F. Aguilar Madeira, Helder C. Rodrigues

Chair: Erik Lund

- 8892** TOPOLOGY OPTIMIZATION OF CONTACT PROBLEMS BASED ON ALLEN CAHN APPROACH
Andrzej Myslinski
- 11024** TOPOLOGY OPTIMIZATION OF WAVE BARRIERS FOR RAILWAY INDUCED VIBRATIONS IN BUILDINGS
Cédric Van hoorickx, Mattias Schevenels, Geert Lombaert
- 11861** TOPOLOGY OPTIMIZATION ON TRANSIENT HEAT TRANSFER PROBLEMS
Said Zeidan
- 8471** TOPOLOGY OPTIMIZATION USING A KRIGING-ASSISTED GENETIC ALGORITHM WITH A NOVEL LEVEL SET REPRESENTATION APPROACH
Mitsuo Yoshimura, Koji Shimoyama, Takashi Misaka, Shigeru Obayashi
- 9574** ON THE OPTIMAL DESIGN OF CABLE-STAYED BRIDGES
Gerardo Carpentieri, Mariano Modano, Francesco Fabbrocino, Luciano Feo, Fernando Fraternali

Tuesday, June 7 8:30-10:30

CS 410 - 1: COMPUTATIONAL FLUID MECHANICS

Chair: Marcela Cruchaga

- 8221** NUMERICAL SIMULATION OF FLOWS INCLUDING RIGID BODIES WITH IMPOSED MOTION
Felipe González, Marcela Cruchaga, Diego Celentano
- 8621** NUMERICAL OPTIMISATION OF THE SUPERSONIC FLOW ACTING ON A CYLINDER IN A NOZZLE
Akil Osman, Joris Degroote, Jan Vierendeels
- 10249** AN EXPERIMENTAL AND NUMERICAL STUDY ON THE PERFORMANCE OF AN INNOVATIVE VERTICAL-AXIS WIND TURBINE
Katarzyna Kludzinska, Krzysztof Tesch, Piotr Doerffer
- 8825** VALIDATION OF A CFD MODEL WITH LIDAR-BASED WIND SCANNERS UPSTREAM OF A WIND TURBINE IN COMPLEX TERRAIN
Alexander R. Meyer Forsting, Niels Troidborg, Andreas Bechmann, Nikolas Angelou, Nikola Vasiljevic
- 5207** HEAT RECOVERY BY CROSS FLOW
Karel Adamek, Jan Kolar, Pavel Peukert
- 12025** APPLICATION OF BAY MODEL OF AIR-JET VORTEX GENERATOR IN TRANSONIC FLOW OVER V2C WING
Tomasz Kwiatkowski, Paweł Flaszynski

Tuesday, June 7 **Leda**
8:30-10:30

MS 1101 - 3: REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES

MS Organizers: Francisco Chinesta, Elias Cueto, Antonio Huerta, Pierre Ladeveze, Gianluigi Rozza

Chair: Francisco Chinesta

5948 ADAPTIVE SIMULTANEOUS ADJUSTMENT OF POD AND DEIM BASIS
Fabian Fritz, Lihong Feng, Michael Mangold, Peter Benner

10431 AN APPROACH TO PREDICT GUST EFFECTS BY MEANS OF HYBRID ROM/CFD SIMULATIONS
Michel Bergmann, Andrea Ferrero, Angelo Iollo, Haysam Telib

11860 A PGD-BASED TIME SPACE DECOMPOSITION FOR THE UNSTEADY NAVIER-STOKES EQUATIONS APPLIED TO INCOMPRESSIBLE FLOWS
Michel Visonneau

7753 OPTIMAL LOCAL APPROXIMATION SPACES FOR COMPONENT-BASED STATIC CONDENSATION PROCEDURES
Kathrin Smetana, Anthony T Patera

10145 SEISMIC STRUCTURAL PROBLEMS: DAMAGE PREDICTION AND ITS VARIABILITY THROUGH PGD MODELS
Matthieu Vitse, David Néron, Pierre-Alain Boucard

Tuesday, June 7 **Athena**
8:30-10:30

MS 703 - 1: COMPUTATIONAL MECHANICS OF WOOD MATERIALS AND TIMBER STRUCTURES

MS Organizers: Josef Füssl, Josef Eberhardsteiner, Erik Serrano, Michael Kaliske

Chair: Josef Füssl

10674 FRACTURE NUCLEATION AND CONTINUED CRACK GROWTH ON THE CELL SCALE IN WOOD ANALYZED BY A HIGH-RESOLUTION FINITE ELEMENT MODEL
Jenny Carlsson, Per Isaksson

9072 A COMBINED COMPUTATIONAL AND EXPERIMENTAL X-RAY CT MULTISCALE STUDY OF STABLE, SLOWLY GROWING CRACKS IN WOOD-FIBRE BASED COMPOSITE MATERIALS
Thomas Joffe, Kristoffer Segerholm, Cecilia Persson, Stig L. Bardage, Cris L. Luengo Hendriks, Per Isaksson

10600 A NUMERICAL LIMIT ANALYSIS APPROACH FOR STRENGTH PREDICTIONS OF CLEAR WOOD TAKING MICROSTRUCTURAL CHARACTERISTICS INTO ACCOUNT
Mingjing Li, Josef Füssl, Markus Lukacevic, Josef Eberhardsteiner, Chris Martin

5303 A CONTINUUM MICROMECHANICS APPROACH TO THE ELASTICITY OF PLANAR FIBER NETWORKS AND ITS APPLICATIONS TO PAPER MATERIALS
Pedro Miguel J. S. Godinho, Leopold Wagner, Viktoria Vass, Josef Eberhardsteiner, Christian Hellmich

5480 APPLICATION OF A NOVEL FINITE ELEMENT METHOD-BASED MODEL TO EVALUATE FLEXURAL PROPERTIES OF ORIENTED STRAND BOARDS
Hsien-Tsung Hu, Feng-Cheng Chang

Tuesday, June 7 **Artemis**
8:30-10:30

MS 903 - 3: ADVANCES IN FICTITIOUS DOMAIN METHODS FOR SOLID MECHANICS

MS Organizers: Alexander Düster, Ernst Rank, Stefan Kollmannsberger, Andreas Schröder

Chair: Stefan Kollmannsberger

11518 HIGHER-ORDER MULTI-RESOLUTION TOPOLOGY OPTIMIZATION USING THE FINITE CELL METHOD
Jeroen Groen, Martin Ruess, Matthijs Langelaar, Ole Sigmund

6108 AUTOMATIC CONFORMAL DECOMPOSITION OF ELEMENTS CUT BY NURBS
Jakob W. Steidl, Thomas-Peter Fries

4659 TOWARDS LATTICE-BOLTZMANN ON DYNAMICALLY ADAPTIVE GRIDS — MINIMALLY-INVASIVE GRID EXCHANGE IN ESPRESSO
Michael Lahnert, Carsten Burstedde, Christian Holm, Miriam Mehl, Georg Rempfer, Florian Weik

8920 A DESIGN-THROUGH-ANALYSIS APPROACH USING THE FINITE CELL METHOD
Benjamin Wassermann, Tino Bog, Stefan Kollmannsberger, Ernst Rank

Tuesday, June 7 **Aphrodite**
8:30-10:30

MS 921 - 3: RECENT ADVANCES IN BOUNDARY ELEMENT METHODS

MS Organizers: Gernot Beer, Luiz Wrobel, Martin Schan

Chair: Gernot Beer

6472 GREEN'S FUNCTION FOR THE EVALUATION OF ANCHOR LOSSES IN MEMS
Attilio Frangi, Massimiliano Cremonesi

9175 NUMERICAL SIMULATION OF 3D HEAT CONDUCTION IN LAYERED MEDIA CONTAINING EMBEDDED CRACKS
António Tadeu, Catarina Serra, Nuno Simões

7181 NUMERICAL SIMULATION OF GROUNDING GRIDS FOR UNDERGROUND ELECTRICAL SUBSTATIONS
Raquel Guizán, José París, Ignasi Colominas, Fermín Navarrina, Manuel Casteleiro

7178 EFFICIENT BOUNDARY ELEMENT FORMULATION OF THERMOELASTICITY
Relindis Rott, Martin Schanz

10989 BOUNDARY ELEMENT SIMULATION OF STRESS-STRAIN STATE AND VOLUMETRIC DAMAGEABILITY OF MULTIBODY TRIBO-FATIGUE SYSTEM
Michael Zhuravkov, Sergei Sherbakov, Leonid Sosnovskiy

9004 A MICROSTRUCTURAL ANALYSIS OF A DUCTILE CAST IRON GGG40 USING BEM
Adrián Betancur, Carla Anflor

Tuesday, June 7
8:30-10:30

Antigoni

MS 806 - 1: MULTISCALE MODELLING OF MATERIALS AND STRUCTURES

MS Organizers: Tadeusz Burczyński, Xavier Oliver, Maciej Pietrzyk, Alfredo Huespe

Chair: Tadeusz Burczyński

7214 KEYNOTE: EFFECTIVE MESO AND MACRO PROPERTIES FOR FIBRE-REINFORCED-POLYMER CURING COUPLED TO VISCO-ELASTICITY

Rolf Mahnken, Christian Dammann

6696 CRACK PATH FIELD AND STRAIN INJECTION TECHNIQUES IN DYNAMIC FRACTURE SIMULATIONS

Oriol Lloberas-Valls, Alfredo E. Huespe, Javier Oliver, Ivo F. Dias

4728 THE KIRKENDALL SHIFT AND FRENKEL EFFECT DURING MULTI-COMPONENT DIFFUSION PROCESS

Bartek Wierzb

11260 COMPUTATIONAL MATERIAL DESIGN FOR ACOUSTIC CLOAKING

Carlos Méndez, Alfredo Huespe, Juan Manuel Podestá, Xavier Oliver

10707 MODELING OF PHASE CHANGES IN MICRO-DOMAIN INDUCED BY AN ULTRASHORT LASER PULSE

Ewa Majchrzak, Lukasz Turchan, Jolanta Dziatkiewicz

Tuesday, June 7
8:30-10:50

Apollo East

MS 106 - 1: DIRECT AND INVERSE METHODS FOR CARDIOVASCULAR AND PULMONARY BIOMECHANICS

MS Organizers: Wolfgang A. Wall, C. Alberto Figueroa, Marek Behr

Chair: Wolfgang A. Wall

8593 KEYNOTE: STRATEGIES FOR CARDIOVASCULAR AND RESPIRATORY MULTISCALE MODELING PARAMETRIZATION

Irene Vignon-Clementel

10895 HIGHER ORDER STABILIZED FINITE ELEMENT METHODS FOR CARDIOVASCULAR FLOW

Kenneth Jansen, Hyun Jin Kim

5374 NUMERICAL SIMULATION OF STENT-GRAFT DEPLOYMENT IN PATIENT-SPECIFIC ABDOMINAL AORTIC ANEURYSM

André Hemmler, Michael W. Gee

6961 3D COMPUTATIONS OF MUCOCILIARY CLEARANCE

Robin Chatelin, Dominique Anne-Archard, Philippe Poncet

8179 ESTIMATION OF DIASTOLIC AND SYSTOLIC MYOCARDIAL PROPERTIES USING PATIENT-SPECIFIC MODELS OF THE HUMAN HEART

Myrianthi Hadjicharalambous, Liya Asner, Radomir Chabiniok, Jack Lee, David Nordsletten

9043 BLOOD FLOW IN THE COMMON CAROTID ARTERY WITH STENOSIS

Helena Henriques, Luísa Sousa, Catarina Castro, Carlos António, Rosa Santos, Pedro Castro, Elsa Azevedo

Tuesday, June 7
8:30-10:30

Apollo West

MS 919 - 1: RECENT ADVANCES IN NUMERICAL SIMULATION AND ANALYSIS OF KINETIC MODELS

MS Organizers: E. Harald van Brummelen, Manuel Torrilhon

Chair: E. Harald van Brummelen

11336 NUMERICAL METHODS FOR MOMENT EQUATIONS ON COMPLEX GEOMETRIES

Manuel Torrilhon

5052 DETERMINISTIC AND STOCHASTIC MICRO-MACRO METHODS FOR KINETIC EQUATIONS

Giovanni Samaey

8305 AN IMPROVED FOURTEEN-MOMENT MODEL FOR RAREFIED-GAS AND MULTIPHASE-FLOW PREDICTION

James McDonald, Zakaria Ben Dhia

9530 DISCRETE VELOCITY MODELS: A STUDY OF THE HYDRODYNAMIC LIMIT

Hans Babovsky

8397 MOMENT CLOSURE APPROXIMATIONS OF THE BOLTZMANN EQUATION BASED ON PHI-DIVERGENCES

Michael Abdelmalik, Harald van Brummelen

Tuesday, June 7
8:30-10:30

Room 1

MS 1202 - 1: ADVANCED BEAM MODELS

MS Organizers: Dinar Camotim, Zuzana Dimitrovová, Rodrigo Gonçalves

Chair: Dinar Camotim, Zuzana Dimitrovová

11449 FIRST-ORDER DISPLACEMENT-BASED ZIGZAG THEORIES FOR COMPOSITE LAMINATES AND SANDWICH STRUCTURES: A REVIEW

Marco Di Sciuva

5439 A COMPUTATIONALLY EFFECTIVE APPROACH TO FINITE ROTATIONS - SMALL STRAINS DESCRIPTION OF BEAM ELEMENTS

Salvatore Lopez

9395 STATIC SOLUTION FOR THE VIBRATION FREQUENCIES OF AXIALLY LOADED BEAMS

Moshe Eisenberger

9035 3D BEAM-COLUMN FINITE ELEMENT UNDER NON-UNIFORM SHEAR STRESS DISTRIBUTION DUE TO SHEAR AND TORSION

Paolo Di Re, Daniela Addressi, Filip C. Filippou

9396 PHASE FIELD MODELING OF BRITTLE FRACTURE IN AN EULER-BERNOULLI BEAM

Jian Gao, Yihuan Li, Marino Arroyo, Yongxing Shen

Tuesday, June 7
8:30-10:30

Room 2

CS 420 - 3: MULTI-PHASE AND CHEMICALLY REACTING FLOWS

Chair: Aromal Vasavan

12015 HIGHER ORDER CORRECTION OF PROGRESS VARIABLE SOURCE TERM IN FLAMELET GENERATED MANIFOLDS (FGM) APPROACH FOR MODELING STRAINED 1D COUNTERFLOW FLAMES

Aromal Vasavan, Philip de Goey, Jeroen van Oijen

- 6101** NUMERICAL SIMULATION OF HEAT AND MASS TRANSFER PROCESSES IN LARGE-SCALE FLUIDIZED BED COMPLEX STRUCTURE APPARATUS AS AN EXAMPLE OF THE REACTOR OF ISOPARAFFINS DEHYDROGENATION
Sergei Solovev, Svetlana Egorova, Alexander Lamberov, Olga Soloveva
- 7549** SHOCK CAPTURING COMPUTATIONS WITH STABILIZED POWELL-SABIN ELEMENTS
Giorgio Giorgiani, Herve Guillard, Boniface Nkonga
- 9056** MULTIPHASE FLOW IN POROUS MEDIA USING CFD
Casper Schytte Hemmingsen, Jens Honore Walther
- 9387** LARGE EDDY SIMULATION OF TURBULENT COMPRESSIBLE FLOWS USING THE CHARACTERISTIC-BASED SPLIT SCHEME AND MESH ADAPTATION
Renato Linn, Armando Awruch

Tuesday, June 7 **Room 3**
8:30-10:30

MS 306: LATTICE SPRING METHODS FOR LINEAR AND NONLINEAR CONTINUA

MS Organizers: Ioannis Doltsinis

Chair: Ioannis Doltsinis, Vitor Dias da Silva

- 7740** GENERATING TRIANGULAR LATTICES FOR SURFACES WITH IRREGULAR BOUNDARY
Tatiana Sá Marques, Vitor Dias da Silva

- 6268** PROPERTIES OF NONLINEAR NORMAL SPRING LATTICES REGARDING STABILITY AND MECHANICAL BEHAVIOUR
Rafael D. Jarzabek

- 6447** LATTICE SPRING MODELS IN TWO AND THREE DIMENSIONS FOR ARBITRARY MESHES
Michael Reck

- 10948** WAVE TRANSMISSION THROUGH NONLINEAR IMPACTING METAMATERIAL UNIT
Arnab Banerjee, Raj Das, Emilio Calius

- 16560** **KEYNOTE:** ARGYRI'S NATURAL APPROACH RELATED TO DEFORMABLE CONTINUA AND SPRING LATTICE MODELS
Ioannis Doltsinis

Tuesday, June 7 **Room 4**
8:30-10:30

CS 212 - 1: NUMERICAL MODELING OF DAMAGE, FAILURE AND FRACTURE

Chair: Yulia Pronina

- 9674** NEW BENCHMARK FOR THE LIFE ASSESSMENT OF A THIN-WALLED PIPE SUBJECTED TO STRESS ASSISTED CORROSION
Yulia Pronina, Elena Sedova
- 8157** RELIABILITY ANALYSIS IN FRACTURE MECHANICS ACCORDING TO COMBINED FAILURE CRITERIA
Rudy Chocat, Paul Beaucaire, Loïc Debeugny, Jean-Pierre Lefebvre, Caroline Sainvitu, Piotr Breitung, Eric Wyart
- 9555** FORMULATION AND IMPLEMENTATION OF AN ORTHOTROPIC CONSTITUTIVE MODEL FOR COUPLED ELASTOPLASTIC-DAMAGE
Swaroop Gaddikere Nagaraja, Clara Schuecker
- 5807** MODELING CREEP BEHAVIOR OF SEMICRYSTALLINE THERMOPLASTICS CONSIDERING CYCLIC UNLOADING
Patrick Zerbe, Benjamin Schneider, Michael Kaliske
- 9961** MODELLING THERMAL BARRIER COATINGS AND THEIR

INFLUENCE ON THE LIFETIME OF ROCKET ENGINE NOZZLE STRUCTURES
Marek Fassin, Stephan Wulfinhoff, Stefanie Reese

- 11188** STRAIN SOFTENING INSTABILITIES AND NONLOCAL REGULARISATION METHODS IN FEM AND SPH
Rade Vignjevic, Nenad Djordjevic, Tom De Vuyst, Simone Gemkow, George Dulikrawich

Tuesday, June 7 **Room 5**
8:30-10:30

CS 460 - 1: UNSTEADY FLOW COMPUTATION

Chair: Arthur Veldman

- 8136** FREE-SURFACE FLOW SIMULATIONS FOR MOORED AND FLOATING OFFSHORE PLATFORMS
Arthur Veldman, Roel Luppens, Peter van der Plas, Henri van der Heiden, Bulent Duz, Wybe Rozema, Henk Seubers, Joop Helder, Tim Bunnik, Rene Huijsmans
- 5441** REDUCED ORDER MODELLING OF GUST ANALYSIS USING COMPUTATIONAL FLUID DYNAMICS
Reik Thormann, Philipp Bekemeyer, Sebastian Timme
- 7604** PERFORMANCE AND WAKE DEVELOPMENT OF VERTICAL AXIS WIND TURBINES: A LES STUDY USING A VORTEX PARTICLE-MESH METHOD
Matthieu Duponcheel, Gregoire Winckelmans, Philippe Chatelain
- 7541** INVESTIGATION OF A MODERN & HYBRID TURBULENCE MODELLING APPROACH FOR TRANSIENT AUTOMOTIVE AERODYNAMICS SIMULATIONS
Rene Devaradja, Petr Simanek, Jacques Papper, Pavla Policka
- 9777** MODELLING OF UNSTEADY SECONDARY VORTICES GENERATED BEHIND THE RADIAL GAP OF THE AXIAL TURBINE BLADE WHEEL
Petr Straka

Tuesday, June 7 **Room 7**
8:30-10:30

MS 1214 - 1: HISTORIC MASONRY STRUCTURES: MODELLING, ASSESSMENT & RETROFIT

MS Organizers: Panagiotis Asteris, Charilaos Maniatakis, Constantine Spyarakos

Chair: Constantine Spyarakos

- 15540** **KEYNOTE:** SEISMIC PROTECTION OF MONUMENTS AND HISTORIC STRUCTURES – THE SEISMO RESEARCH PROJECT
Constantine Spyarakos, Charilaos Maniatakis
- 11138** NATIVITY CHURCH IN BETHLEHEM: FULL 3D NON-LINEAR FE APPROACH FOR STRUCTURAL DAMAGE PREDICTION
Gabriele Milani, Marco Valente, Claudio Alessandri
- 11134** SEISMIC ASSESSMENT OF HISTORICAL MASONRY TOWERS IN THE NORTH-EAST REGION OF ITALY
Marco Valente, Gabriele Milani
- 11242** DYNAMIC BEHAVIOUR AND EARTHQUAKE PERFORMANCE OF GREEK BASILICA CHURCHES WITH FOUNDATION DEFORMABILITY
George Manos, Evangelos Kozikopoulos, Lambros Kotoulas
- 11342** PROBLEMS RELATED TO THE USE OF FIBER REINFORCED CEMENTITIOUS MATERIALS AS STRENGTHENING OF MASONRY MEMBERS
Daniela Sinicropi, Antonio Borri, Marco Corradi, Michele Paradiso

Tuesday, June 7 **Room 8**
8:30-10:30

CS 110 - 3: NUMERICAL MODELS IN BIOMECHANICS

Chair: Julia Mikhali

- 11174** RELIABILITY OF FLOW PREDICTIONS IN CEREBRAL ANEURYSMS
Julia Mikhali, Meindert de Groot, Bernard Geurts
- 10867** CRIMSON: TOWARDS A SOFTWARE ENVIRONMENT FOR PATIENT-SPECIFIC BLOOD FLOW SIMULATION FOR DIAGNOSIS AND TREATMENT
Rostislav Khlebnikov, C. Alberto Figueroa
- 10012** PASSIVE-ACTIVE MECHANICAL RESPONSE OF ARTERIAL WALLS UTILIZING ANISOTROPIC HIGH-ORDER FINITE ELEMENTS
Omid Sepahi, Lars Radtke, Sebastian Eike Debus, Alexander Düster
- 11537** INFLUENCE OF ANESTHESIA, LOCOMOTOR ACTIVITY AND COMPUTATIONAL METHOD ON CALCULATED SHEAR STRESS PATTERNS IN THE CAROTID BIFURCATION OF MICE
David De Wilde, Bram Trachet, Guido De Meyer, Patrick Segers
- 8651** A PRECONDITIONER FOR THE FINITE ELEMENT APPROXIMATION TO THE LINEAR VISCOELASTIC WAVE EQUATION
Maximilian Balms, Ralph Sinkus, David Kay, David A. Nordsletten
- 7920** SOLVING THE INVERSE PROBLEM OF ESTIMATING FUZZY VISCOELASTIC CONSTITUTIVE PARAMETERS
Ruifei Peng, Haitian Yang

Tuesday, June 7 **Room 9**
8:30-10:30

CS 750 - 3: COMPUTATIONAL MODELING OF COMPOSITES

Chair: Christine Espinosa

- 4523** THERMAL BUCKLING BEHAVIOR OF FUNCTIONALLY GRADED MATERIALS
Seok-in Bae, Ji-Hwan Kim
- 4621** NUMERICAL ANALYSIS OF SANDWICH PANELS SUBJECTED TO POINT LOADS
Zbigniew Pozorski, Jolanta Pozorska
- 11552** STABILIZATION OF THE NUMERICAL PRIMING TO STABILIZATION PHENOMENON IN THE CRUSHING OF A COMPOSITE PANEL USING LOCAL AND DIFFUSE DAMAGE LAWS
Floran Tostain, Christine Espinosa, Samuel Rivallant
- 4634** THE INFLUENCE OF OPENINGS ON THE STRUCTURAL BEHAVIOR OF SANDWICH PANELS WITH NON-ISOTROPIC CORES
Monika Chuda-Kowalska, Michal Malendowski, Zbigniew Pozorski
- 9643** NUMERICAL SIMULATION OF MECHANICAL BEHAVIOR OF WOVEN COMPOSITE AT DIFFERENT STRAIN RATE BY A COLLABORATIVE ELASTO-PLASTO-DAMAGE MODEL WITH FRACTIONAL DERIVATIVES
Alina Krasnobrizha, Patrick Rozycki, Laurent Gornet, Pascal Cosson

Tuesday, June 7 **Room 10**
8:30-10:30

CS 1200 - 1: STRUCTURAL DYNAMICS

Chair: Ali Abbas

- 8455** FE MODELLING OF SFRC BEAMS UNDER IMPACT LOADS
Pegah Behinaein, Ali Abbas, Demetris Cotsovos
- 6969** NONLINEAR FORCED RESPONSE OF A STATOR VANE WITH MULTIPLE FRICTION CONTACTS USING A COUPLED STATIC/DYNAMIC APPROACH
Marco Lassalle, Christian Maria Firrone
- 10452** AN APPROXIMATE ANALYTICAL SOLUTION FOR NONLINEAR FGM SHELL STRUCTURE WITH VARIABLE IN TIME PARAMETERS
Victor Gristchak, Yuliia Fatieieva
- 11458** MAGNETIC-STRUNG NES WITH ENERGY HARVESTING: THEORETICAL AND EXPERIMENTAL STUDY OF A NEW CONCEPT OF NONLINEAR VIBRATIONS ABSORBER.
Giuseppe Pennisi, Brian Mann, Cyrille Stephan, Guilhem Michon
- 6753** STRUCTURAL DYNAMIC ANALYSIS OF OFFSHORE WIND TURBINES WITH JACKET FOUNDATIONS.
Iván Couceiro, José París, Fermín Navarrina, Ignasi Colominas, Manuel Casteleiro

Tuesday, June 7 **Room 11**
8:30-10:50

MS 1309 - 2: SCALABLE MULTI-FIDELITY MODELING FOR DESIGN, UNCERTAINTY QUANTIFICATION, AND INVERSE PROBLEMS

MS Organizers: Paris Perdikaris, George Em. Karniadakis

Chair: Paris Perdikaris

- 9308** MULTI-FIDELITY INFORMATION FUSION ALGORITHMS FOR QUANTIFYING UNCERTAINTY IN HIGH-DIMENSIONAL SYSTEMS
Paris Perdikaris, George Em Karniadakis
- 7145** MULTI-FIDELITY, MODEL-BASED STOCHASTIC OPTIMIZATION: APPLICATIONS IN RANDOM MEDIA.
Constantin Grigo
- 6117** VARIABLE FIDELITY MODELLING IN MODERN AIRCRAFT DESIGN
Marian Zastawny

MS 1310: COMPUTATIONAL METHODS FOR THE SOLUTION OF STOCHASTIC DIFFERENTIAL EQUATIONS

MS Organizers: Jianbing Chen, Ioannis Kougiumtzoglou, Vissarion Papadopoulos

Chair: Vissarion Papadopoulos

- 7244** FOUR-DIMENSIONAL PATH INTEGRATION METHOD FOR ESTIMATING THE STOCHASTIC ROLL RESPONSE
Wei Chai, Arvid Naess, Bernt Leira
- 11344** SEISMIC RELIABILITY ASSESSMENT OF FRAME STRUCTURES WITH FLEXIBILITY-BASED STOCHASTIC BEAM-COLUMN ELEMENTS
Georgios Balokas, Michalis Fragiadakis
- 11561** MULTISCALE OPTIMIZATION OF A CARBON NANOTUBE/POLYMER STRUCTURE
Vissarion Papadopoulos, Maria Tavlaki, Odysseas Kokkinos
- 12039** PROBABILITY DENSITY EVOLUTION METHOD FOR BUCKLING ANALYSIS OF STOCHASTIC SYSTEMS
Vissarion Papadopoulos, Ioannis Kalogeris

Tuesday, June 7 **Room 12**
8:30-10:30

MS 1206 - 1: ADVANCES IN NUMERICAL METHODS FOR LINEAR AND NON-LINEAR DYNAMICS AND WAVE PROPAGATION

MS Organizer: Alexander Idesman

Chair: Alexander Idesman

- 4926** **KEYNOTE:** REDUCTION OF NUMERICAL DISPERSION FOR WAVE PROPAGATION PROBLEMS. APPLICATION TO ISOGEOMETRIC ELEMENTS AND FINITE ELEMENTS.
Alexander Idesman
- 5134** NONLINEAR FREQUENCY ANALYSIS FOR FEM
Oliver Weeger, Utz Wever, Bernd Simeon
- 6813** LAGRANGIAN AND SEMI-LAGRANGIAN GALERKIN METHODS FOR FREE SURFACE PROBLEMS
Marta Benítez, Alfredo Bermúdez
- 7711** SCALABLE SOLUTION OF THE LINEAR DYNAMICS PROBLEMS IN THE FREQUENCY DOMAIN
Mikhail Belyi, Vladimir Belsky, Andrey Larionov, Mintae Kim
- 10298** A VOLUME-AGGLOMERATION MULTIRATE TIME ADVANCING APPROACH
Emmanuelle Itam, Stephen Wornom, Bruno Koobus, Alain Dervieux

**Tuesday, June 7
8:30-10:30**

Room 15

CS 930 - 3: HIGH-ORDER DISCRETIZATION METHODS

Chair: Andrea Crivellini

- 8104** HYBRID OPENMP/MPI PARALLELIZATION OF A HIGH-ORDER DISCONTINUOUS GALERKIN CFD SOLVER
Francesco Bassi, Alessandro Colombo, Andrea Crivellini, Matteo Franciolini
- 11312** MIMETIC SPECTRAL ELEMENT METHOD FOR GENERALIZED WAVES
Sanna Mönkkölä, Sami Kähkönen
- 6755** ADAPTIVE POST-PROCESSING METHOD TO REPRESENT HIGH-ORDER NUMERICAL SOLUTIONS
Pol-André Haas, Vincent Mouysset, Sébastien Pernet
- 7537** ON THE INDUSTRIALIZATION OF HIGH-ORDER FEM FOR COMPUTATIONAL ACOUSTICS
Hadrien Beriot, Gwénaél Gabard
- 9251** COMPARISON OF FINITE VOLUME HIGH-ORDER SCHEMES FOR THE 2D EULER EQUATIONS
Jens Wellner
- 9281** NURBS-BASED ISOGEOMETRIC ANALYSIS FOR BALLISTIC EVALUATION OF TITANIUM PLATES
Mattia Montanari, Petros Siegkas, Antonio Pellegrino, Nik Petrinic

**Tuesday, June 7
8:30-10:30**

Room 17

CS 1020 - 3: EVOLUTIONARY AND DETERMINISTIC METHODS FOR DESIGN, OPTIMIZATION AND CONTROL

Chair: Kazuhisa Chiba

- 6360** MANIFESTATION OF ASCENDANCY OF EXTINCTION-REIGNITION ON SOUNDING HYBRID ROCKET USING DESIGN INFORMATICS
Kazuhisa Chiba, Masahiro Kanazaki, Toru Shimada
- 8395** OPTIMIZATION AND KNOWLEDGE DISCOVERY OF AIRCRAFT'S TRAJECTORY DURING LANDING APPROACH BASED ON TIME-SERIES FLIGHT EVALUATION
Masahiro Kanazaki, Norazila Othman
- 10045** COUPLING FLOW SIMULATION AND TOPOLOGY OPTIMIZATION FOR FIBER-REINFORCED PLASTICS
Markus Spadinger, Albert Albers
- 8123** GRADIENT-BASED OPTIMAL SHAPE DESIGN REGARDING VIBRATION CRITERIA
Sarah Julisson, Christian Fourcade, Paul de Nazelle, Laurent Dumas
- 6548** TOWARDS THE OPTIMIZATION OF WINGLETS FOR H-DARRIEUS ROTORS: PARAMETERIZATION AND AUTOMATIZATION FOR PERFORMANCE EVALUATION BASED ON 3D-URANS
László Daróczy, Gábor Janiga, Dominique Thévenin
- 8228** AN EXAMPLE OF COLUMN DESIGN OPTIMIZATION FOR FAILURE MODE CONTROL OF REINFORCED CONCRETE FRAMES
Roberta Muscati

**Tuesday, June 7
8:30-10:30**

Room 18

STS 2 - 1: GREEN AND SMART INTELLIGENT TRANSPORT SYSTEMS (IST): TOWARDS MORE INTEGRATED COMPUTATIONAL AND IT TOOLS FOR THE DEPLOYMENT OF NOVEL TRAVEL SERVICES

STS Organizers: Pedro Diez, P. Neittaanmaki, T. Tuovinen, Jacques Periaux

Chair: Jacques Periaux, Pedro Diez

- 14302** EUROPEAN COMPUTATIONAL TRANSPORT RESEARCH ACTIVITIES
Michael Kyriakopoulos
- 14305** DRAG REDUCTION VIA TURBULENT BOUNDARY LAYER FLOW CONTROL AN INTERNATIONAL COOPERATION IN AERONAUTICS WITH CHINA
Adel Abbas, Eusebio Valero
- 14309** THE KEY SUCCESS FACTORS IN FUTURE LOGISTICS
Olli Bräysy
- 14311** NUMERICAL MODELING OF BALLASTED RAILWAY TRACKS: STOCHASTIC CONTINUUM MODEL OF A GRANULAR MEDIUM, LOCALIZATION AND VIBRATIONS IN THE ENVIRONMENT
Regis Cottureau
- 14319** MODELING RESISTANCE SPOT WELD FAILURE IN MARTENSITIC BORON STEELS USING A CRITICAL J-INTEGRAL FRACTURE CRITERION
Daniel Dorribo, Pedro Díez, Lars Greve, Irene Arias, Xabier Larráyoiz Izcarra

**Tuesday, June 7
8:30-10:30**

Room 20

MS 115 - 1: TUMOR GROWTH MODELING AND THE MECHANICAL ASPECTS OF CANCER

MS Organizers: Hector Gomez, Assad Oberai, Krishna Garikipati, Kristen Mills, Thomas J.R. Hughes

Chair: Kristen Mills

8872 PHASE-FIELD MODELING OF COUPLED TUMOR GROWTH AND ANGIOGENESIS
Jiangping Xu, Guillermo Vilanova, Héctor Gómez

11819 MATHEMATICAL MODELING OF INTRAPERITONEAL DRUG DELIVERY
Margo Steuperaert, Giuseppe Falvo D'Urso Labate, Charlotte Debbaut, Wim Ceelen, Patrick Segers

8012 A REDUCED ORDER MODEL FOR NONLINEAR BIOLOGICAL TISSUES: AN APPLICATION TO SIMULATION OF BRAIN TUMOR GROWTHS
Domenico Borzacchiello, Siamak Niroomandi, Cyril Petibois, Elias Cueto, Francisco Chinesta

10583 CONTRIBUTION OF CELL-COLLAGEN FIBRE MECHANICAL INTERPLAY TO INTRATUMORAL SOLID STRESS BUILD-UP AND IMPLICATIONS FOR TUMOUR GROWTH
Athanassios Pirentis, Sandra Loerakker, Triantafyllos Stylianopoulos

11755 EXPERIMENTAL AND MODELING STUDIES ON THE EFFECTS OF PHYSICAL FORCES AND CELL SHAPE ON TUMOR GROWTH
Kristen Mills, Padmini Rangamani, Krishna Garikipati

12118 A PARAMETRIC STUDY OF A MULTIPHASE POROUS MEDIA MODEL FOR TUMOR SPHEROIDS AND ENVIRONMENT INTERACTIONS
P. Mascheroni, Daniela P. Boso, C. Stigliano, M. Carfagna, L. Preziosi, P. Decuzzi, B.A. Schrefler

Tuesday, June 7 **Room 21**
8:30-10:30

CS 1010 - 3: COMPUTATIONAL INVERSE PROBLEMS AND OPTIMIZATION

Chair: Jan Liedmann

9911 OPTIMISATION OF STRUCTURES WITH INELASTIC DEFORMATIONS
Jan Liedmann, Franz-Joseph Barthold

7325 MATERIAL OPTIMIZATION OF NANOPARTICLES WITH REPECT TO THEIR OPTICAL PROPERTIES
Lukas Pflug, Johannes Semmler, Michael Stingl, Günter Leugering

7391 NUMERICAL SHAPE OPTIMIZATION OF NANOSCALE STRUCTURES IN ELECTROMAGNETIC APPLICATIONS
Johannes Semmler, Lukas Pflug, Michael Stingl, Günter Leugering

7601 GEARBOX DESIGN VIA MIXED-INTEGER PROGRAMMING
Bastian Dörig, Thorsten Ederer, Peter F. Pelz, Marc E. Pfetsch, Jan Wolf

9831 EFFICIENT VARIATIONAL SENSITIVITY ANALYSIS FOR STRUCTURAL OPTIMISATION OF MULTISCALE PROBLEMS
Wojciech Kijanski, Franz-Joseph Barthold

9416 ANALYSIS OF NON-LINEAR ENVIRONMENTAL LOAD COMBINATIONS BY EXTENDED CONTOUR-LINE ALGORITHMS
Bernt Leira

Tuesday, June 7 **Room 22**
8:30-10:30

CS 940 - 1: EXTENDED DISCRETIZATION METHODS

Chair: Wilhelm J.H. Rust

10132 XFEM ANALYSIS – INCLUDING BUCKLING – OF COMPOSITE SHELLS CONTAINING DELAMINATION
Wilhelm J.H. Rust, Saleh Yazdani, Peter Wriggers

11798 EFFICIENT SIMULATION OF ACOUSTIC WAVE PROPAGATION BY DISCRETE EXTERIOR CALCULUS
Tytti Saksa

8841 BEYOND RITZ-GALERKIN: FINITE ELEMENT APPROXIMATIONS ON A MANIFOLD IN THE CONFIGURATION SPACE
Christian Schröppel, Jens Wackerfuß

6483 METHODOLOGY OF COMBINED APPLICATION OF DIRECTIONAL DERIVATIVES AND THE EXTENDED FINITE ELEMENT METHOD (X-FEM) FOR SOLVING VIBRATION EIGENVALUE PROBLEMS
Daria Serbichenko, Pascal Cosson, Patrick Rozycki

5324 THE USE OF ENRICHED BASE FUNCTIONS IN THE THREE-DIMENSIONAL SCALED BOUNDARY FINITE ELEMENT METHOD
Sascha Hell, Wilfried Becker

Tuesday, June 7 **Room 23**
8:30-10:30

MS 1305: STOCHASTIC MODELS OF FAILURE IN RANDOM HETEROGENEOUS MATERIALS AND COMPLEX NETWORKS

MS Organizers: Dionissios T. Hristopulos, Tetsu Uesaka

Chair: Dionissios T. Hristopulos

10261 EXTREME VALUE DISTRIBUTIONS WITH HEAVY TAILS FOR FINITE-SIZE SYSTEMS
Dionissios Hristopulos

4816 STATISTICAL PROPERTIES OF STRENGTH FROM STATISTICAL MECHANICS
Mikko Alava

8671 STATISTICAL FAILURE OF FIBRE NETWORK UNDER CREEP CONDITION
Amanda Mattsson, Tetsu Uesaka

12124 CONSOLIDATION OF SOIL WITH STOCHASTIC PROPERTIES
Theofilos-Ioannis Maniataras, Manolis Papadarakakis

5533 HYDROFRACTURE OF ANISOTROPIC AND HETEROGENEOUS SHALE LAYERS
Michael Marder

10:30-11:00
Coffee Break

SEMI-PLenary LECTURES

Tuesday, June 7 11:00-13:00		Zeus East	Tuesday, June 7 11:00-13:00		Zeus North
Chair:		Kyriakos C. Giannakoglou	Chair:		Carlos Felippa
13266	THE DAWNING OF THE AGE OF FRACTIONAL MODELING IN COMPUTATIONAL SCIENCE AND ENGINEERING <i>George Karniadakis</i>		12149	MODELING AND SIMULATION CHALLENGES IN MATERIALS DESIGN FOR ADDITIVE MANUFACTURING APPLICATIONS <i>Wing Kam Liu</i>	
12401	PROS AND CONS OF SELECTED MIXED GALERKIN AND LEAST-SQUARES FINITE ELEMENT FORMULATIONS <i>Jörg Schröder, Karl Steeger, Nils Viebahn</i>		12460	<i>Replaced by 15672</i> MODELING OF CARBON NANO MATERIALS <i>Kim Meow Liew, Lu-Wen Zhang</i>	
12264	HEAT AND MASS TRANSFER IN TURBULENT FLOW <i>Bernard Geurts</i>		15672	ISOGEOMETRIC TECHNIQUES FOR MORTARING AND CONTACT MECHANICS <i>Annalisa Buffa</i>	
Tuesday, June 7 11:00-13:00		Zeus West	Tuesday, June 7 11:00-13:00		Minos East
Chair:		Olivier Allix	Chair:		Isaac Harari
16549	CUTFEM AND CUTIGA: DISCRETIZING GEOMETRY AND PARTIAL DIFFERENTIAL EQUATIONS <i>Mats G. Larson</i>		12145	HETEROGENEOUS ASYNCHRONOUS TIME INTEGRATORS FOR COMPUTATIONAL STRUCTURAL DYNAMICS <i>Anthony Gravouil</i>	
12302	HIGH ORDER FICTITIOUS DOMAIN METHODS – HIGH FIDELITY SIMULATION FOR COMPLEX SOLID MODELS <i>Ernst Rank</i>		5795	NONPARAMETRIC PROBABILISTIC APPROACH OF MODEL UNCERTAINTIES INTRODUCED BY A PROJECTION-BASED NONLINEAR REDUCED-ORDER MODEL <i>Christian Soize, Charbel Farhat</i>	
15508	HYBRID HIERARCHICAL CONCEPTS FOR LARGE SCALE SIMULATIONS <i>Barbara Wohlmuth</i>		12410	A NEW TOPOLOGY OPTIMIZATION METHOD AND ITS APPLICATION TO INNOVATIVE STRUCTURE AND MATERIAL DESIGNS <i>Shinji Nishiwaki, Takayuki Yamada, Kazuhiro Izui</i>	
13:00-14:30 Lunch Break					

TECHNICAL SESSIONS

Tuesday, June 7 14:30-16:30	Zeus East
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MS 105 - 1: SIMULATION OF CARDIOVASCULAR PROCEDURES AND DEVICES

MS Organizers: Ferdinando Auricchio, Michele Conti, Simone Morganti, Alessandro Reali, Alessandro Veneziani

Chair: Alexander Popp

6413 KEYNOTE: BOTTOM-UP MODELING OF AAA STENT GRAFTS AND STENT PLACEMENT PROCEDURES
Alexander Popp, Marie Oshima

11945 SUTURE-TYPE AFFECTS THE HAEMODYNAMIC PERFORMANCE OF AORTIC VALVE SUBSTITUTES
Claudio Capelli, E. Sauvage, C. Corsini, S. Schievano, M. Andreas, G. Burriesci, C. Rath

7812 FLUID-STRUCTURE INTERACTION ANALYSIS OF PATIENT-SPECIFIC HEART VALVES
Fei Xu, Michael Cheng-Hao Wu, Ming-Chen Hsu, Simone Morganti, Alessandro Reali, Ferdinando Auricchio, Josef Kiendl, David Kamensky

8702 SIMULATING ASCENDING AORTA ENDOGRAFTING IN A DYNAMIC HEART MODEL
Jakub Kwiecinski, Zhong You, Raman Uberoi

Tuesday, June 7 14:30-16:30	Zeus North
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MS 901 - 1: ISOGOMETRIC METHODS

MS Organizers: Yuri Bazilevs, David J. Benson, Rene De Borst, Thomas J.R. Hughes, Trond Kvamsdal, Alessandro Reali, Giancarlo Sangalli, Clemens V. Verhoosel

Chair: Thomas J.R. Hughes

9994 KEYNOTE: HIERARCHIC ISOGOMETRIC GEOMETRICALLY LINEAR AND NONLINEAR SHELL ELEMENTS
Bastian Oesterle, Ekkehard Ramm, Manfred Bischoff

6345 COMPUTATIONAL ASPECTS OF MORPHOLOGICAL INSTABILITIES USING ISOGOMETRIC ANALYSIS
Berkin Dortdivanlioglu, Ali Javili, Christian Linder

7488 ON DUAL BASIS FUNCTIONS FOR THE ISOGOMETRIC MORTAR METHOD
Wolfgang Dornisch, Ralf Müller

9877 LOCKING FREE ISOGOMETRIC STRUCTURAL ELEMENTS PRESERVING SPARSITY OF STIFFNESS MATRICES
Bastian Oesterle, Ekkehard Ramm, Manfred Bischoff

10902 G¹ POLAR SPLINE PATCHES
Deepesh Toshniwal, Hendrik Speleers, Thomas J R Hughes

Tuesday, June 7 14:30-16:30	Zeus West
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MS 112 - 1: ANEURYSMS: SOLID MECHANICS, FLUID MECHANICS, AND MECHANOBIOLOGY

MS Organizers: Christian J. Cyron, Sven Hirsch, Philippe Bijlenga, Roland C. Aydin, Anne M. Robertson, Gerhard A. Holzapfel

Chair: Christian J. Cyron, Gerhard A. Holzapfel

7548 KEYNOTE: A BIOCHEMOMECHANICAL ROLE OF THROMBUS IN ABDOMINAL AORTIC ANEURYSMS
Paolo Di Achille, John Wilson, Lana Virag, Igor Karsaj, Jay Humphrey

9021 RELATIVE ROLES OF MECHANICS AND BIOCHEMISTRY IN THE INITIATION AND PROGRESSION OF CEREBRAL ANEURYSM THROMBOSIS
Malebogo Ngoepe, Yiannis Ventikos

9034 MULTISCALE NUMERICAL METHODS FOR AORTIC DISSECTION AND THORACIC ANEURYSM
Alireza Yazdani, He Li, Jay Humphrey, George Karniadakis

7921 EARLY EVENTS OF DISSECTING ABDOMINAL AORTIC ANEURYSM IN ANGIOTENSIN II-INFUSED APOE ^{-/-} MICE
Lydia Aslanidou, Bram Trachet, Alessandra Piersigilli, Alexis Dorier, Arnaud Leclerc, Rodrigo Fraga-Silva, Alberto Astolfo, Marco Stampanoni, Patrick Segers, Nikolaos Stergiopoulos

7149 SYNCHROTRON IMAGING OF DISSECTING ABDOMINAL AORTIC ANEURYSM IN ANGIOTENSIN II-INFUSED APOE ^{-/-} MICE
Bram Trachet, Rodrigo Fraga-Silva, Alessandra Piersigilli, Lydia Aslanidou, Alberto Astolfo, Marco Stampanoni, Nikolaos Stergiopoulos, Patrick Segers

Tuesday, June 7 14:30-16:30	Minos East
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MS 501 - 4: ALGORITHMIC ASPECTS OF HIGH-PERFORMANCE COMPUTING FOR MECHANICS AND PHYSICS

MS Organizers: Santiago Badia, Victor Calo, Javier Principe

Chair: Joan Baiges

4974 KEYNOTE: TOWARDS SPACE-TIME ITERATIVE SOLVERS BASED ON BALANCING DOMAIN DECOMPOSITION
Santiago Badia, Marc Olm

8377 EFFECT OF ADAPTIVE MESH REFINEMENT ON A PARALLEL NON-OVERLAPPING DOMAIN DECOMPOSITION SOLVER
Pavel Kus, Jakub Šístek

10290 HYBRID PARALLELISATION OF AN ALGORITHMICALLY DIFFERENTIATED ADJOINT SOLVER
Pavanakumar Mohanamurthy, Jan Christian Huckelheim, Jens-Dominik Mueller

10933 PERFORMANCE TUNING OF SUBDOMAIN LOCAL FE SOLVER IN DOMAIN DECOMPOSITION METHOD
Hiroshi Kawai, Masao Ogino, Ryuji Shioya, Tomonori Yamada, Shinobu Yoshimura

4625 BLOCK ITERATIVE METHODS AND RECYCLING FOR IMPROVED SCALABILITY OF LINEAR SOLVERS
Pierre Jolivet, Pierre-Henri Tournier

DAY 2 – TUESDAY, JUNE 7

Tuesday, June 7 14:30-16:30	Minos North	Tuesday, June 7 14:30-16:30	Danae
MS 301 - 2: METHODS FOR CUT AND COMPOSITE MESHES: THEORY, ALGORITHMS AND APPLICATIONS <i>MS Organizers:</i> Mats G. Larson, André Massing <i>Chair:</i> André Massing 6701 ACCURATE INTEGRATION IN CUT ELEMENTS BASED ON CONFORMAL DECOMPOSITION INTO ISOPARAMETRIC ELEMENTS <i>Thomas-Peter Fries</i> 5997 CAN EMBEDDED BOUNDARY GRIDS COMPUTE HIGH REYNOLDS NUMBER FLOW? <i>Marsha Berger</i> 6531 CUT FINITE ELEMENT MODELING OF EMBEDDED LOWER-DIMENSIONAL ELASTICITY MODELS <i>Mirza Cenanovic, Peter Hansbo, Mats G. Larson</i> 7082 DIRECT NUMERICAL SIMULATION OF PARTICULATE FLOWS USING A DISCONTINUOUS GALERKIN IMMERSED BOUNDARY METHOD <i>Dennis Krause, Florian Kummer</i> 6235 HIGHER ORDER CUT-ELEMENTS FOR WAVE PROPAGATION <i>Simon Sticko, Gunilla Kreiss</i>		MS 1001 - 3: STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION <i>MS Organizers:</i> J.F. Aguilar Madeira, Helder C. Rodrigues <i>Chair:</i> Matteo Bruggi 10127 KEYNOTE: MASS MINIMIZATION OF MULTI-MATERIAL LAMINATED COMPOSITES WITH FAILURE CONSTRAINTS <i>Erik Lund</i> 10084 GRADIENT BASED STRUCTURAL OPTIMIZATION OF JACKET STRUCTURES WITH FATIGUE AND ULTIMATE LIMIT STATE CONSTRAINTS FOR OFFSHORE WIND TURBINES <i>Jacob Oest, René Sørensen, Lars Chr. T. Overgaard, Erik Lund</i> 11364 OPTIMIZATION OF A STIFFNESS MEASURE OF HYBRID FIBER COMPOSITE MATERIALS. <i>Filipe J.S. Leal, Jose M. Guedes, Helder C. Rodrigues</i> 11437 QUASI-NEWTON AND BFGS-LIKE METHOD FOR PDE-CONSTRAINED SHAPE OPTIMIZATION. <i>Jean-Léopold Vié, Eric Cancès, Grégoire Allaire</i> 10606 EFFICIENT SIZING OF STRUCTURES UNDER STRESS CONSTRAINTS <i>Zhi Hong, Mostafa Abdalla</i>	
Tuesday, June 7 14:30-16:30	Minos South	Tuesday, June 7 14:30-16:30	Europa
MS 503 - 4: HPC-BASED SIMULATIONS FOR THE ENGINEERING REALM AND INDUSTRIAL APPLICATIONS <i>MS Organizers:</i> Makoto Tsubokura, Mariano Vázquez, Takayuki Aoki <i>Chair:</i> Andreas Lintermann 7982 AERODYNAMICS STUDY USING LOCALLY MESH-REFINED LATTICE BOLTZMANN METHOD FOR A GPU COMPUTATION <i>Yuta Hasegawa, Takayuki Aoki, Hiromichi Kobayashi</i> 8316 HPC-BASED LES OF WIND FLOW OVER LARGE URBAN AREA WITH SLIGHT UNDULATION <i>Hidenori Kawai, Tetsuro Tamura, Keiji Onishi, Rahul Bale, Makoto Tsubokura, Koji Kondo, Tsuyoshi Nozu, Kazuaki Uchibori</i> 8375 SCALABLE IMMERSED BOUNDARY METHOD FOR LARGE SCALE SIMULATIONS WITH MOVING IMMERSED STRUCTURES. <i>Rahul Bale, Niclas Jansson, Keiji Onishi, Makoto Tsubokura</i> 8436 HPC ADAPTIVE FINITE ELEMENT SIMULATION OF FLUID DYNAMICS AND FLUID-STRUCTURE INTERACTION IN INDUSTRIAL APPLICATIONS <i>Johan Hoffman, Johan Jansson, Niclas Jansson, Rodrigo Vilela De Abreu</i>		CS 410 - 2: COMPUTATIONAL FLUID MECHANICS <i>Chair:</i> Horia Dumitrescu 4822 THE VORTICITY CREATION PROCESS AT PHYSICAL SURFACES <i>Horia Dumitrescu, Vladimir Cardos</i> 11128 INVESTIGATION OF END-WALL EFFECTS ON LOW PRESSURE TURBINES BY USING LARGE-EDDY SIMULATION <i>Dogukan Tugberk Karahan, Seyfullah Cay, Ayse Gul Gungor</i> 11098 THE OPTIMAL CONTROL OF A MULTI-MASS VIBRATION PROPULSION SYSTEM IN A VISCOUS INCOMPRESSIBLE FLUID <i>Artem Nuriev, Zakharova Olga</i> 11224 HIGH-RESOLUTION SIMULATION OF INTERNAL WAVES ATTRACTORS AND IMPACT OF INTERACTION OF HIGH AMPLITUDE INTERNAL WAVES WITH WALLS ON DYNAMICS OF WAVES ATTRACTORS <i>Ilias Sibgatullin, Michael Kalugin</i> 11990 INDUCED SHOCK WAVE / LAMINAR BOUNDARY LAYER INTERACTION <i>Hasan Avsar, Bayram Celik</i>	

Tuesday, June 7
14:30-16:30

Leda

MS 1101 - 4: REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES

MS Organizers: Francisco Chinesta, Elias Cueto, Antonio Huerta, Pierre Ladeveze, Gianluigi Rozza

Chair: Pierre Ladeveze

4784 KEYNOTE: COMPUTATIONAL VADEMECUMS FOR LARGE INDUSTRIAL APPLICATIONS

Francisco Chinesta, Jose Vicente Aguado, Domenico Borzacchiello, Chady Ghnatios, Elias Cueto, David Gonzalez

8645 ON THE USE OF MODEL ORDER REDUCTION IN SHAPE AND TOPOLOGY OPTIMIZATION

Enrique Nadal, Juan José Ródenas, José Albelda, Francisco Chinesta

8679 LARGE EDDY SIMULATION REDUCED ORDER MODELS

Traian Iliescu

8318 EFFICIENT THERMO-MECHANICAL ANALYSIS OF WELDING PROCESSES USING SMART-GFEM

Diego Canales, José Vicente Aguado, Francisco Chinesta, Elías Cueto, Jean-Michel Bergheau, Frederic Boitout

8013 COMPUTING PGD SEPARATED REPRESENTATIONS ON MANIFOLDS

Jose V. Aguado, Elena Lopez, Emmanuelle Abisset-Chavanne, Francisco Chinesta, David Gonzalez, Elias Cueto

Tuesday, June 7
14:30-16:30

Athena

MS 703 - 2: COMPUTATIONAL MECHANICS OF WOOD MATERIALS AND TIMBER STRUCTURES

MS Organizers: Josef Füssl, Josef Eberhardsteiner, Erik Serrano, Michael Kaliske

Chair: Sigurdur Ormarsson

9129 WARPING DISPLACEMENT OF PLYWOOD PLATE MODEL

Jouni Freund

10027 A NUMERICAL APPROACH TO DESCRIBE FAILURE OF WOOD - FROM THE WOOD CELL LEVEL UP TO WOOD-BASED PRODUCTS

Markus Lukacevic, Josef Füssl, Josef Eberhardsteiner

10532 AUTOMATIC GEOMETRIC RECONSTRUCTION OF KNOTS WITHIN WOODEN BOARDS BASED ON FIBRE ANGLE MEASUREMENTS

Georg Kandler, Markus Lukacevic, Josef Füssl

10730 A MECHANICAL MODELING APPROACH FOR WOOD-BASED PRODUCTS TAKING THE WOODEN MICROSTRUCTURE INTO ACCOUNT

Josef Füssl, Markus Lukacevic, Mingjing Li, Josef Eberhardsteiner, Chris Martin

11300 STRUCTURAL AND MECHANICAL CHARACTERISATION OF ENGLISH WILLOW: A MICRO-CT STUDY

Mohammad Saadatfar, Jin Tao, Michael Turner, Phil Evans

Tuesday, June 7
14:30-16:30

Artemis

MS 113 - 1: MATHEMATICAL AND NUMERICAL MODELING OF THE HEART

MS Organizers: Luca Dede', Luca Pavarino, Alfio Quarteroni

Chair: Luca Dede', Luca Pavarino

5488 KEYNOTE: PARALLEL MULTILEVEL ALGORITHMS FOR FLUID-STRUCTURE INTERACTION PROBLEMS

Xiao-Chuan Cai

8450 SCALABLE PRECONDITIONERS FOR FLUID-STRUCTURE INTERACTION PROBLEMS ARISING IN CARDIAC APPLICATIONS

Davide Forti, Luca Dede', Simone Deparis, Antonello Gerbi, Alfio Quarteroni

5958 DYNAMICS OF ARTIFICIAL AORTIC VALVES: A COMBINED EXPERIMENTAL AND NUMERICAL STUDY

Julien Sigüenza, Desiree Pott, Simon Mendez, Simon Sonntag, Franck Nicoud

9038 NUMERICAL MODELLING OF BLOOD FLOW IN IDEALISED LEFT VENTRICLES

Anna Tagliabue, Luca Dede', Alfio Quarteroni

Tuesday, June 7
14:30-16:30

Aphrodite

MS 104 - 1: GROWTH AND REMODELLING OF LIVING TISSUES IN EXPERIMENT AND SIMULATION

MS Organizers: Antonio Bolea - Albero, Markus Böl

Chair: Markus Böl

7697 ON THE INFLUENCE OF INHOMOGENEOUS MATERIAL PROPERTIES ON BRAIN MORPHOGENESIS

Silvia Budday, Paul Steinmann, Ellen Kuhl

9551 IMAGE-BASED MODELING OF ORGANOGENESIS

Odyssé Michos, Lada Georgieva, Christine Lang, Dagmar Iber

7341 GROWTH CONTROL DURING DEVELOPMENT

Dagmar Iber, Jannik Vollmer

9454 MODELLING SKELETAL MUSCLE GROWTH

Ekin Altan, Alex Zöllner, Oliver Röhrle

6799 ON THE MODELLING OF FINITE GROWTH FROM THE CELLULAR LEVEL

Antonio Bolea Albero, Markus Böl

Tuesday, June 7
14:30-16:30

Antigoni

MS 806 - 2: MULTISCALE MODELLING OF MATERIALS AND STRUCTURES

MS Organizers: Tadeusz Burczyński, Xavier Oliver, Maciej Pietrzyk, Alfredo Huespe

Chair: Maciej Pietrzyk

5743 KEYNOTE: A CONTINUUM APPROACH FOR MULTISCALE PROPAGATING MATERIAL FRACTURE MODELING

Javier Oliver, Alfredo E. Huespe, Manuel Caicedo

7338 COUPLED 3D DISLOCATION DYNAMICS AT NANO- AND MICRO-SCALES

Jaehyun Cho, Guillaume Anciaux, Jean-François Molinari

10105 SINTERING OF SILVER NANOPARTICLES: A FINITE-ELEMENT PHASE FIELD APPROACH

K. Chockalingam, V.G. Kouznetsova, O. van der Sluis, M.G.D. Geers

- 10168** A MESOSCALE STUDY OF DEFORMATION AND FAILURE OF ANGLE-PLY LAMINATES UNDER TENSILE LOADING BY MEANS OF NUMERICAL HOMOGENIZATION.
Marek Romanowicz
- 11237** PRISM SOLID-SHELL WITH HETEROGENEOUS AND HIERARCHICAL APPROXIMATION BASIS
Lukasz Kaczmarczyk, Chris Pearce

Tuesday, June 7 **Apollo East**
14:30-16:30

MS 801 - 1: MULTISCALE COMPUTATIONAL HOMOGENIZATION FOR BRIDGING SCALES IN THE MECHANICS AND PHYSICS OF COMPLEX MATERIALS

MS Organizers: Julien Yvonnet, Kenjiro Terada, Peter Wriggers, Marc Geers

Chair: Julien Yvonnet

- 16533** **KEYNOTE:** FINITE ELEMENT FORMULATIONS FOR LARGE STRAINS IN ANISOTROPIC MATERIALS
P. Wriggers, J. Schroeder, F. Auricchio
- 10415** GENERALIZED ELASTODYNAMICS OF LOCALLY RESONANT ACOUSTIC METAMATERIALS: A REDUCED ORDER HOMOGENIZATION APPROACH
Ashwin Sridhar, Varvara Kouznetsova, Marc Geers
- 10262** ANALYSIS OF VARIOUS MICROSCOPIC BOUNDARY CONDITIONS IN COMPUTATIONAL HOMOGENIZATION IN MAGNETO-MECHANICS
Reza Zabihyan, Julia Mergheim, Paul Steinmann, Ali Javili
- 5434** MULTISCALE TOPOLOGY OPTIMIZATION USING THE FE2R METHOD
Felix Fritzen, Liang Xia, Matthias Leuschner
- 5149** VIRTUAL MATERIALS TESTING
Karel Matous

Tuesday, June 7 **Apollo West**
14:30-16:30

MS 919 - 2: RECENT ADVANCES IN NUMERICAL SIMULATION AND ANALYSIS OF KINETIC MODELS

MS Organizers: E. Harald van Brummelen, Manuel Torrilhon

Chair: E. Harald van Brummelen

- 6097** THE SEMI-LAGRANGIAN METHOD FOR VLASOV TYPE EQUATIONS IN DIFFERENT MESH CONTEXTS
Michel Mehrenberger, Eric Sonnendrücker
- 6703** REALIZABILITY LIMITING IN HIGH-ORDER WENO SOLUTIONS FOR ENTROPY-BASED MOMENT CLOSURES
Graham Alldredge, Cory Hauck
- 10052** POLYATOMIC MODEL FOR RAREFIED FLOWS
Florian Bernard, Angelo Iollo, Gabriella Puppo
- 4712** ASYMPTOTIC-PRESERVING STOCHASTIC GALERKIN SCHEMES FOR THE BOLTZMANN EQUATION WITH UNCERTAINTY
Jingwei Hu, Shi Jin, Ruiwen Shu
- 10386** MESO - MACRO MODELS FOR A HARD SPHERE GAS
Sergey Bogomolov, Natalya Esikova, Artem Kuvshinnikov

Tuesday, June 7 **Room 1**
14:30-16:30

MS 1202 - 2: ADVANCED BEAM MODELS

MS Organizers: Dinar Camotim, Zuzana Dimitrovová, Rodrigo Gonçalves

Chair: Zuzana Dimitrovová

- 9648** SINGULARLY PERTURBED PROBLEMS IN MECHANICS (SOME FUNDAMENTAL ASPECTS OF DESIGNING AND COMPUTING)
Lyudmila K. Kuzmina
- 9132** GBT-BASED ASSESSMENT OF THE MECHANICS OF LOCAL-DISTORTIONAL INTERACTION IN THIN-WALLED LIPPED CHANNEL COLUMNS
André Martins, Dinar Camotim, Pedro Dinis
- 8061** BUCKLING ANALYSIS OF THIN-WALLED BOX BEAM-COLUMNS BY HIGHER-ORDER BEAM THEORY (HOBT)
Do-Min Kim, Soomin Choi, Gang-Won Jang, Yoon Young Kim
- 7862** HIGHER-ORDER BEAM ANALYSIS OF MULTIPLY-CONNECTED BOX BEAMS UNDER OUT-OF-PLANE BENDING AND TORSION USING EXACT JOINT MATCHING CONDITIONS
Soomin Choi, Yoon Young Kim
- 6178** ANALYSIS OF THIN-WALLED BOX BEAMS WITH VARIABLE CROSS SECTIONS BY THE HIGHER-ORDER BEAM THEORY
Dongil Shin, Soomin Choi, Gang-Won Jang, Yoon Young Kim
- 10457** FLEXIBLE WAVES IN INFINITE BEAM ON INHOMOGENEOUS ELASTIC FOUNDATION: STABILITY AND UNSTABILITY, PARAMETRIC RESONANCES
Dmitry Indeitsev, Yulia Mochalova

Tuesday, June 7 **Room 2**
14:30-16:30

MS 305 - 1: ADVANCED MESHING METHODS FOR INDUSTRIAL APPLICATIONS

MS Organizers: Frederic Alauzet, Thierry Coupez, Alain Dervieux, Adrien Loseille

Chair: Thierry Coupez

- 7758** PARALLEL CAVITY-BASED ADAPTIVE LOCAL REMESHING FOR LARGE SCALE APPLICATIONS
Adrien Loseille, Frederic Alauzet
- 10417** SINGULAR MESH GENERATION FROM MULTIPLE OVERSET MESHES: A TOOL FOR INDUSTRIAL APPLICATIONS
Gennaro Abbruzzese, Marta Cordero Gracia, Mariola Gómez López, Nuno Vinha
- 10571** PARALLEL MESH ADAPTATION FOR UNSTEADY COMPUTATIONS USING MULTIGRID METHODS
Hugues Digonnet, Thierry Coupez, Luisa Silva
- 7258** GENERATION OF ANISOTROPIC HIGH-ORDER HYBRID GRIDS FOR SIMULATION OF HIGH-REYNOLDS NUMBER FLOWS
Piotr Szaltys, Jerzy Majewski, Stanislaw Gepner
- 10728** FINE GRAIN MULTI THREADED MESH GENERATION
Jean-François Remacle

Tuesday, June 7 **Room 3**
14:30-16:50

MS 1301: THE STOCHASTIC COMPUTER METHODS IN MECHANICS

MS Organizers: Marcin Kamiński, Takahiko Kurahashi

Chair: Marcin Kamiński, Takahiko Kurahashi

9229 KEYNOTE: ON FULLY COUPLED THERMO-ELASTO-PLASTIC STOCHASTIC FINITE ELEMENT ANALYSIS OF STEEL STRUCTURES
Marcin Kamiński, Michał Strakowski

9206 THE BOOTSTRAP APPROACH TO THE STATISTICAL SIGNIFICANCE OF PARAMETERS IN THE FIXED EFFECTS MODEL
Jacek Pietraszek, Renata Dwornicka, Agnieszka Szczotok

10416 AN INTRODUCTION TO STOCHASTIC FINITE ELEMENT METHOD ANALYSIS OF HYPERELASTIC STRUCTURES
Marcin Kamiński, Damian Sokółowski

5337 STOCHASTIC TECHNIQUES FOR THE NUMERICAL SOLUTION OF ENGINEERING BOUNDARY VALUE PROBLEMS
Victor Maceiras, Manuel Casteleiro

5810 H-MATRIX BASED SECOND MOMENT ANALYSIS FOR ROUGH RANDOM FIELDS
Jürgen Dölz, Helmut Harbrecht, Michael Peters, Christoph Schwab

4440 FLOW FIELD ESTIMATION IN OPEN CHANNEL BASED ON KALMAN FILTER FINITE ELEMENT METHOD
Taichi Yoshiara, Takahiko Kurahashi, Yasuhide Kobayashi, Toshihiko Eto

Tuesday, June 7 **Room 4**
14:30-16:30

CS 212 - 2: NUMERICAL MODELING OF DAMAGE, FAILURE AND FRACTURE

Chair: Jurica Soric

7030 KEYNOTE: DAMAGE MODELING USING STRAIN GRADIENT BASED FINITE ELEMENT FORMULATION
Filip Putar, Jurica Soric, Tomislav Lesicar, Zdenko Tonkovic

8689 STUDY ON THE DAMAGE EVOLUTION EQUATION AND SPALLATION OF METALS
Jiedong Cao

5668 DUCTILE FRACTURE CRITERIA IN PREDICTION OF SLANT FRACTURE
Petr Kubik, Frantisek Sebek, Jindrich Petruska

6276 PHASE-FIELD MODELING OF FRACTURE IN PARTIALLY SATURATED POROUS MEDIA
Tuanny R.M. Cajuhi, Laura De Lorenzis, Lorenzo Sanavia

12083 DAMAGE DETECTION OF A BRIDGE BY PARAMETRIC STATISTICAL MOMENT METHOD
Isabella Failla, Nicola Impollonia, Giuseppe Ricciardi

Tuesday, June 7 **Room 5**
14:30-16:30

CS 460 - 2: UNSTEADY FLOW COMPUTATION

Chair: Natalya Fedorova

10980 SIMULATIONS OF BLAST WAVE PROPAGATION IN OPEN AND CLOSED SPACE
Natalya Fedorova, Svetlana Valger, Yulia Zakharova

10634 PATHWAYS TO IMPROVED AERODYNAMIC DESIGN
James Page, Paul Hield, Callum Mantell, Paul Tucker

5348 NUMERICAL STUDY OF THE NASA COMMON RESEARCH MODEL IN SUBSONIC STALL CONDITION
Juan S. Velandia, Omar D. Lopez, Rodrigo A. Jimenez

6536 ON THE REGULARISATION OF NON-REFLECTING BOUNDARY CONDITIONS NEAR ACOUSTIC RESONANCE
Christian Frey, Hans-Peter Kersken

7105 ON GRID RESOLUTION REQUIREMENTS FOR LES OF WALL-BOUNDED FLOWS
Saleh Rezaeiiravesh, Mattias Liefvendahl, Christer Fureby

5316 LINEARISED FREQUENCY DOMAIN GUST ANALYSIS OF LARGE CIVIL AIRCRAFT
Philipp Bekemeyer, Reik Thormann, Sebastian Timme

Tuesday, June 7 **Room 7**
14:30-16:30

MS 1214 - 2: HISTORIC MASONRY STRUCTURES: MODELLING, ASSESSMENT & RETROFIT

MS Organizers: Panagiotis Asteris, Charilaos Maniatakis, Constantine Spyarakos

Chair: Aikaterini Marinelli

8066 A COMBINED EXPERIMENTAL AND NUMERICAL STUDY OF THE PULL-OUT MECHANISM OF THREADED TITANIUM BARS EMBEDDED IN MARBLE BLOCKS
Stavros K. Kourkoulis, Aikaterini Marinelli, Ioanna Dakanali

5718 CONSTRUCTION PHASES ANALYSIS OF UNREINFORCED MASONRY BUILDINGS THROUGH EQUIVALENT FRAME MODEL
Francesco Pugi, Alessio Francioso, Giacomo Sevieri

8239 AN EXTENSION OF TRACKING ALGORITHMS FOR THE SIMULATION OF MULTIPLE AND INTERSECTING CRACKING
Savvas Saloustros, Luca Pelà, Miguel Cervera, Pere Roca

10185 THREE-DIMENSIONAL NONLINEAR BEHAVIOUR OF MASONRY WALLS MODELLED WITH DISCRETE ELEMENTS
Daniele Baraldi, Antonella Cecchi

11724 FAST KINEMATIC LIMIT ANALYSIS OF FRP REINFORCED MASONRY VAULTS THROUGH A NEW GENETIC ALGORITHM NURBS-BASED APPROACH
Andrea Chiozzi, Gabriele Milani, Antonio Tralli

8509 HISTORICAL MASONRY BUILDINGS IN THE TUSCANY REGION: STATIC ASSESSMENT AND SEISMIC VULNERABILITY OF FOUR ANCIENT PALACES
Silvia Caprili, Federico Mangini, Walter Salvatore

Tuesday, June 7
14:30-16:30

Room 8

CS 110 - 4: NUMERICAL MODELS IN BIOMECHANICS

Chair: Konstantinos Tzirakis

10847 FINITE ELEMENT BASED NUMERICAL SIMULATION OF TUMOR BRAIN
Konstantinos Tzirakis, John W. Peterson, Yannis Papaharilaou

10440 ROLE OF VASCULAR NORMALIZATION AND MECHANICAL STRESS ALLEVIATION IN METRONOMIC CHEMOTHERAPY: A COMPUTATIONAL STUDY FOR SOLID TUMOR TREATMENT
Fotios Mpekris, James W. Baish, Triantafyllos Stylianopoulos, Rakesh K. Jain

10486 SWELLING BEHAVIOR OF SOLID TUMORS AND IMPLICATIONS FOR CANCER THERAPY
Chrysovalantis Voutouri, Christiana Polydorou, Panagiotis Papageorgis, Triantafyllos Stylianopoulos

4597 BIOMECHANICS OF THE NEOBLADDER DURING THE FILLING STAGE
Aisha Tariq Nusef, Roustem Miftahof, Ziad Al-Naieb

8837 MULTISCALE BIPHASIC MODELLING OF TUMOUR GROWTH: THE EFFECT OF COLLAGEN MICROMECHANICS ON DRUG DELIVERY
Peter A. Wijeratne, Vasileios Vavourakis, John H. Hipwell, Rebecca Shipley, Triantafyllos Stylianopoulos, Andrew Evans, Sarah Pinder, David J. Hawkes

9243 SIMULATING TISSUE MECHANICS WITH AGENT-BASED MODELS: CONCEPTS, PERSPECTIVES AND SOME NOVEL RESULTS
Paul van Liedekerke, Margriet Palm, Nick Jagiella, Dirk Drasdo

Tuesday, June 7
14:30-16:30

Room 9

MS 415: COMPUTATIONAL NON-NEWTONIAN FLUID MECHANICS

MS Organizers: Georgios Georgiou, John Tsamopoulos

Chair: Georgios Georgiou

4629 DEVELOPMENT OF CONFINED VISCOPLASTIC FLOWS WITH HETEROGENEOUS WALL SLIP
Pandelitsa Panaseti, Maria Philippou, Zacharias Kountouriotis, Georgios Georgiou

10359 IMPROVING THE EFFICIENCY OF FINITE VOLUME METHODS FOR THE SIMULATION OF VISCOELASTIC FLOWS
Alexandros Syrakos, Yannis Dimakopoulos, John Tsamopoulos

8280 A PATH FOLLOWING ALGORITHM TO COMPUTE BIFURCATION DIAGRAMS IN NATURAL CONVECTION PROBLEMS INVOLVING BINGHAM FLUIDS
Marc Medale, Bruno Cochelin

6722 SIMULATING VISCOELASTIC FREE-SURFACE FLOWS USING AN INTERFACE-TRACKING APPROACH
Philipp Knechtges, Maximilian von Danwitz, Marek Behr, Stefanie Elgeti

9217 VISCOPLASTIC POISEUILLE FLOW IN THE DUCTS WITH WALL SLIP
Ekaterina Muravleva, Larisa Muravleva

9114 OSCILLATORY FLOW PAST A CIRCULAR CYLINDER
Andreas Alexandrou, Stavros Kassinos

Tuesday, June 7
14:30-16:50

Room 10

MS 1212 - 1: DYNAMICS AND SEISMIC RESPONSE OF ROCKING AND SELF-CENTERING STRUCTURES

MS Organizers: Matthew DeJong, Elias Dimitrakopoulos, Michalis Fragiadakis

Chair: Elias Dimitrakopoulos, Matthew DeJong

7122 ROCKING RESPONSE OF MASONRY BLOCK STRUCTURES USING MATHEMATICAL PROGRAMMING
Francesco Portioli, Lucrezia Cascini, Raffaele Landolfo

10190 EXPERIMENTAL AND ANALYTICAL INVESTIGATION OF THE SEISMIC RESPONSE OF A COLUMN ROCKING AND ROLLING ON A CONCAVE BASE
Jonas A. Bachmann, Patrick Blöchliger, Matthias Wellauer, Michalis F. Vassiliou, Bozidar Stojadinovic

10621 SEISMIC ASSESSMENT OF MASONRY ROCKING COLUMNS AND FRAMES UNDER GROUND MOTION EXCITATIONS
Ioannis Kavvadias, Lazaros Vasiliadis

10169 SMOOTH-ROCKING OSCILLATOR UNDER NATURAL ACCELEROGRAMS
Blerta Lipo, Gianmarco de Felice

11696 A MACRO-ELEMENT FORMULATION FOR ROCKING FLEXIBLE BODIES WITH A DEFORMABLE BASE
Evangelos Avgenakis, Ioannis N. Psycharis

8334 CONTROLLED ROCKING, DISSIPATIVE CONTROLLED ROCKING AND MULTI-HIERARCHICAL ACTIVATION: NUMERICAL ANALYSIS AND EXPERIMENTAL TESTING
Royce Liu, Alessandro Palermo

11903 AN INVESTIGATION OF THE DYNAMICS OF ROCKING ISOLATION FOR EARTHQUAKE-RESILIENT DESIGN
Sinan Acikgoz, Matthew DeJong

Tuesday, June 7
14:30-16:30

Room 11

CS 1200 - 2: STRUCTURAL DYNAMICS

Chair: Cheol Kim

6156 ANALYSIS OF NOISE AND VIBRATION TRANSMISSIBILITY TO VEHICLE INTERIOR FROM A TRANSMISSION HOUSING USING FEM AND BEM
Cheol Kim, Ji-Hun Yu

7050 COMPUTATIONAL METHOD OF DETERMINATION OF INTERNAL EFFORTS IN LINKS OF MECHANISMS AND ROBOT MANIPULATORS WITH STATICALLY DEFINABLE STRUCTURES CONSIDERING THE DISTRIBUTED DYNAMICALLY LOADINGS
Zhumadil Baigunchekov, Muratulla Utenov, Nurzhan Utenov, Saltanat Zhilkibayeva

7918 STATIC AND DYNAMIC ANALYSIS OF A TETHERED AEROSTAT
Jean-Sébastien Schotté, Charles Bussy

9685 EQUIVALENT DAMPING OF TALL BUILDINGS WITH DAMPED OUTRIGGER SYSTEMS FOR SEISMIC AND WIND DESIGN
M. Emre Erdemli, Barış Erkuş

6566 FINITE ELEMENT ANALYSIS OF TIMBER BEAMS WITH FLAWS
Janka Kovacikova, Mats Ekevad, Olga Ivankova, Sven Berg

8809 PREDICTING STRENGTH PROPERTIES OF SAWN SCOTS PINE WOOD MATERIAL USING THERMAL IMAGING
Jukka Antikainen, Veikko Möttönen

Tuesday, June 7 **Room 12**
14:30-16:30

MS 1206 - 2: ADVANCES IN NUMERICAL METHODS FOR LINEAR AND NON-LINEAR DYNAMICS AND WAVE PROPAGATION

MS Organizer: Alexander Idesman

Chair: Alexander Idesman

11031 KEYNOTE: RECIPROCAL MASS MATRICES IN EXPLICIT DYNAMICS

Anne-Kathrin Schäuble, Anton Tkachuk, Manfred Bischoff

8337 FULL INVERSION OF REFLECTED WAVES WITHOUT LOW TIME FREQUENCIES

Vladimir Tcheverda, Guy Chevent, Kirill Gadyshin

8412 HYBRID ASYNCHRONOUS PML FOR ELASTIC WAVE PROPAGATION

Michael Brun, Eliass Zafati, Irini Djeann-Maigre, Prunier Florent

8675 A LAGRANGE EXPLICIT IMPACT ALGORITHM: APPLICATION TO BRIDGE CRANES SUBJECTED TO MULTIPLE IMPACTS DURING AN EARTHQUAKE

Fatima-Ezzahra Fekak, Anthony Gravouil, Michael Brun, Bruno Depale

10804 LOCALIZED SPACE-TIME ADAPTATIVE REFINEMENT BASED ON MULTIGRID FOR TRANSIENT DYNAMIC PROBLEMS.

Alexandre Chemin, Thomas Elguedj, Anthony Gravouil

Tuesday, June 7 **Room 17**
14:30-16:30

CS 1010 - 4: COMPUTATIONAL INVERSE PROBLEMS AND OPTIMIZATION

Chair: Stefan Werner

6480 MODEL-BASED CONTROL OF DYNAMIC FRICTIONAL CONTACT PROBLEMS

Stefan Werner

11183 ON THE USE OF GRADIENT-ENHANCED METAMODELS FOR GLOBAL APPROXIMATION AND GLOBAL OPTIMIZATION

Luc Laurent, Bruno Soulier, Rodolphe Le Riche, Pierre-Alain Boucard

11035 MECHANICAL CHARACTERIZATION OF PAVEMENT STRUCTURE BY INVERSE ANALYSIS AND SPECTRAL ELEMENT MODELING

Tomasz Garbowski

10873 ADJOINT-BASED ROBUST OPTIMIZATION USING POLYNOMIAL CHAOS EXPANSIONS

João Miranda, Dinesh Kumar, Chris Lacor

Tuesday, June 7 **Room 18**
14:30-16:30

STS 2 - 2: GREEN AND SMART INTELLIGENT TRANSPORT SYSTEMS (IST): TOWARDS MORE INTEGRATED COMPUTATIONAL AND IT TOOLS FOR THE DEPLOYMENT OF NOVEL TRAVEL SERVICES

STS Organizers: Pedro Diez, P. Neittaanmaki, T. Tuovinen, Jacques Periaux

Chair: Pedro Diez, Jacques Periaux

14322 ECOLOGICAL AND PUBLIC HEALTH CONCERNS REGARDING MODERN TRANSPORTATION

William E. Fitzgibbon

14324 LAND-USE (SPATIAL) OPTIMAL PLANNING FOR PORT AREAS

Blas Galvan, A. Cacereño, D. Greiner, B. González, G. Winter

14329 THREE-DIMENSIONAL BIN PACKING PROBLEM WITH A STABILITY REJECTION CRITERION

Teemu Linkosaari, Tero Urponen, Henrik Juvonen, Marko Makela, Yury Nikulin

14331 ROBUST DESIGN OPTIMIZATION OF ENGINE SYSTEM AND COMPONENTS

Carlo Poloni

Tuesday, June 7 **Room 20**
14:30-16:30

MS 115 - 2: TUMOR GROWTH MODELING AND THE MECHANICAL ASPECTS OF CANCER

MS Organizers: Hector Gomez, Assad Oberai, Krishna Garikipati, Kristen Mills, Thomas J.R. Hughes

Chair: Hector Gomez

8298 MECHANICS OF SPROUTING ANGIOGENESIS IN TUMORS

Rui Travasso, Patrícia Santos-Oliveira, António Correia, Tiago Rodrigues, Paulo Matafome, Teresa Ribeiro-Rodrigues, Henrique Girão, Juan Carlos Rodríguez-Manzaneque, Raquel Seica

MS 111: POPULATION BALANCE MODELING: CURRENT STATUS, FUTURE PROSPECTS AND NOVEL APPLICATIONS FROM NANOPARTICLES' SYNTHESIS TO (LUNG) CANCER

MS Organizers: Georgios Lolas, Georgios Bourantas, Panagiotis Gavriladis, Konstantinos Syrigos

Chair: Georgios Lolas

10608 STATISTICAL THERMODYNAMICS OF POPULATIONS

Themis Matsoukas

8879 MOMENT METHODS FOR THE ACCURATE DESCRIPTION OF SOOT DYNAMICS: MATHEMATICAL MODELING AND REALIZABLE NUMERICAL SCHEMES

Frédérique Laurent, Tan-Trung Nguyen, Benedetta Franzelli, Rodney O. Fox, Marc Massot

5511 TAYLOR-SERIES EXPANSION METHOD OF MOMENTS FOR SOLVING POPULATION BALANCE EQUATION

Mingzhou Yu, Yueyan Liu

10547 MULTISCALE COMPUTATIONAL MODELLING OF CANCER GROWTH AND SPREAD: A NOVEL THREE-SCALE MATHEMATICAL APPROACH

Dumitru Trucu

11987 MATHEMATICAL MODELING OF PARTICLE DYNAMICS IN SPRAY FLAMES

Vasiliki Tsikourkitoudi, George Lolas, George Bourantas, Panagiotis Gavriladis, Tao Zhang

DAY 2 – TUESDAY, JUNE 7

Tuesday, June 7 **Room 21**
14:30-16:30

MS 404 - 1: SIMULATION OF ENVIRONMENTAL FLOWS

MS Organizers: Pablo Ortiz, Piotr K. Smolarkiewicz, Joanna Szmelter

Chair: Joanna Szmelter

5857 **KEYNOTE:** THE EVOLVING STATE-OF-THE-ART IN GLOBAL NUMERICAL WEATHER PREDICTION

Nils Wedi

5712 FINITE ELEMENT MODELING OF SHALLOW FLOWS OVER EVOLUTIONARY BEDFORMS

Pablo Ortiz, Jorge Molina

10225 APPLICATION OF THE SHALLOW WATER EQUATIONS TO REAL FLOODING CASE

Hani Ali, Pierre-Yves Lagrée, Jose-Maria Fullana

9262 COMPATIBLE FINITE ELEMENT METHODS FOR NUMERICAL WEATHER PREDICTION.

Jemma Shipton, Colin Cotter

9087 MODELLING OF LONG WAVES (SEICHES) IN CASCAIS BAY.

Vera Bras, Antonio Trigo-Teixeira

Tuesday, June 7 **Room 22**
14:30-16:30

CS 940 - 2: EXTENDED DISCRETIZATION METHODS

Chair: Artsem Boris Kunin

7975 THERMO-MECHANICAL CONTACT BETWEEN CRACK SURFACES IN THE EXTENDED FINITE ELEMENT METHOD

Artsem Boris Kunin, Stefan Loehnert, Peter Wriggers

10303 SHELL ELEMENT WITH THICKNESS STRETCH AND TRANSVERSE NORMAL STRESS

Takeki Yamamoto, Takahiro Yamada, Kazumi Matsui

11590 A X-FEM APPROACH FOR THE THERMOMECHANICAL MODELING OF THIN LAYERS

Issam Bencheikh, François Bilteyst, Mohammed Nouari

CS 960 - 1: MESHLESS METHODS

Chair: Panos Metsis

7042 MODELING OF DEFORMATION RESPONSES USING MESHLESS LOCAL PETROV-GALERKIN (MLPG) APPROACH BASED ON STRAIN GRADIENT ELASTICITY

Boris Jalusic, Tomislav Jarak, Jurica Soric

11770 MESHLESS METHODS VS. FEM: A COMPUTATIONAL EFFICIENCY STUDY

Alexander Karatarakis, Panos Metsis, Manolis Papadrakakis

Tuesday, June 7 **Room 23**
14:30-16:30

MS 1009 - 1: ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION

MS Organizers: Kyriakos C. Giannakoglou, Jens Dominik Mueller

Chair: Jens Dominik Mueller

7708 **KEYNOTE:** CAD-FREE ADJOINT SHAPE OPTIMISATION IN MARITIME TWO-PHASE FLOWS

Thomas Rung, Jörn Kröger

4881 TWO-STEPS SHAPE OPTIMIZATION ALGORITHM IMPROVING HYDRODYNAMICS STABILITY

Takashi Nakazawa

9306 AERODYNAMIC OPTIMISATION USING ADJOINT METHODS AND PARAMETRIC CAD MODELS

Philip Hewitt, Simão Marques, Trevor Robinson, Dheeraj Agarwal

10552 A CONTINUOUS ADJOINT APPROACH FOR VEHICLE INTERIOR NOISE REDUCTION

Christos Kappelos, Michael Hartmann

10065 OPTIMISATION OF A U-BEND USING A CAD-BASED ADJOINT METHOD WITH DIFFERENTIATED CAD KERNEL

Salvatore Auriemma, Mladen Banovic, Orest Mykhaskiv, Herve Legrand, Jens-Dominik Mueller, TomVerstraete, Andrea Walther

16:30-17:00

Coffee Break

TECHNICAL SESSIONS

Tuesday, June 7
17:00-19:00
Zeus East

MS 105 - 2: SIMULATION OF CARDIOVASCULAR PROCEDURES AND DEVICES

MS Organizers: Ferdinando Auricchio, Michele Conti, Simone Morganti
Alessandro Reali Alessandro Veneziani

Chair: Yuri Vassilevski

- 8793** **KEYNOTE:** PERSONALIZED COMPUTATION OF FRACTIONAL FLOW RESERVE IN CASE OF TWO CONSECUTIVE STENOSES
Yuri Vassilevski, Timur Gamilov, Philip Kopylov
- 8099** MODEL REDUCTION METHODOLOGY FOR ENDOVASCULAR REPAIR SIMULATIONS
Victor A. Acosta Santamaria, Guillaume Daniel, David Perrin, Stephane Avril
- 8690** MODELLING OF PATIENT-SPECIFIC CASES OF ATHEROSCLEROSIS IN CAROTID ARTERIES
Timur Gamilov, Roman Pryamonosov, Sergey Simakov
- 8817** INVESTIGATION OF COMPLEX BLOOD FLOW REGIMES IN MEMBRANE OXYGENATORS USING ENHANCED BLOOD VISCOSITY AND STATISTICAL BLOOD COAGULATION MODELS
Lars Krenkel, Franz Suess, Markus Ruetten

Tuesday, June 7
17:00-19:20
Zeus West

MS 112 - 2: ANEURYSMS: SOLID MECHANICS, FLUID MECHANICS, AND MECHANOBIOLOGY

MS Organizers: Christian J. Cyron Sven Hirsch, Philippe Bijlenga, Roland C. Aydin, Anne M. Robertson, Gerhard A. Holzapfel

Chair: Gerhard A. Holzapfel, Christian J. Cyron

- 5516** MODELLING THE MECHANOBIOLOGICAL EVOLUTION OF INTRACRANIAL ANEURYSMS: AN INTEGRATIVE IN VIVO, IN VITRO AND IN SILICO APPROACH
Aikaterini Mandaltsi, Wing Ki Wong, Yuqian Mei, Anne M. Robertson, Namrata Gundiah, Paul N. Watton
- 7078** IMPLEMENTATION OF GROWTH AND REMODELING MODEL IN 3D FINITE ELEMENT CODE: APPLICATION TO ABDOMINAL AORTIC ANEURYSM
Igor Karšaj, Nino Horvat, Lana Virag
- 6202** INFLUENCE OF AXIAL FEATURES OF ABDOMINAL AORTIC ANEURYSMS ON THE EXPANSION RATE: A COMPUTATIONAL CASE STUDY USING 3D FINITE ELEMENTS
Lana Virag, Igor Karšaj, Nino Horvat, Simon Ferlin
- 5236** A HOMOGENIZED CONSTRAINED MIXTURE MODEL FOR VOLUMETRIC GROWTH AND REMODELING IN BLOOD VESSELS
Fabian A. Braeu, Roland C. Aydin, Christian J. Cyron
- 5194** MECHANOBIOLOGICAL STABILITY: A NEW PARADIGM TO UNDERSTAND THE ENLARGEMENT OF ANEURYSMS?
Christian J. Cyron, Roland C. Aydin
- 11350** INITIATION AND ENLARGEMENT OF INTRACRANIAL SACULAR ANEURYSMS USING A RATE-SENSITIVE INELASTIC THEORY OF GROWTH SIMULATED WITH ISOGEOMETRIC ANALYSIS FROM PATIENT-SPECIFIC GEOMETRY WITH COMPARISON TO ALTERNATIVE THEORIES
Fred Nugen, Luca Dede, Michael Borden, Thomas JR Hughes

- 7415** FLOW CONDITIONS IN THE INTRACRANIAL ANEURYSM LUMEN ASSOCIATE WITH INFLAMMATION AND DEGENERATIVE CHANGES OF THE ANEURYSM WALL – IMPLICATIONS FOR THE DIAGNOSTICS OF RUPTURE-PRONE ANEURYSMS
Juan Cebal, Riikka Tulamo, Anne Robertson, Juhana Frösen

Tuesday, June 7
17:00-19:00
Zeus North

MS 901 - 2: ISOGEOMETRIC METHODS

MS Organizers: Yuri Bazilevs, David J. Benson, Rene De Borst, Thomas J.R. Hughes, Trond Kvamsdal, Alessandro Reali, Giancarlo Sangalli, Clemens V. Verhoosel

Chair: Giancarlo Sangalli

- 7125** DIVERGENCE CONFORMING TURBULENCE WITH THE VARIATIONAL MULTISCALE METHOD
Timo van Opstal, Yuri Bazilevs, Trond Kvamsdal, Jinhui Yan
- 8285** MIXED ISOGEOMETRIC FINITE CELL METHOD: A COMPARATIVE STUDY OF DIFFERENT ELEMENT FAMILIES
Tuong Hoang, Clemens V. Verhoosel, Ferdinando Auricchio, E. Harald van Brummelen, Alessandro Reali
- 4535** SPLINE-BASED FLUID-STRUCTURE-INTERACTION FOR SLOSHING TANKS
Stefanie Elgeti, Norbert Hosters, Atanas Stavrev, Jan Helmig, Marek Behr
- 10186** WEAKENING THE TIGHT COUPLING BETWEEN GEOMETRY AND SIMULATION IN ISOGEOMETRIC ANALYSIS
Satyendra Tomar, Elena Atroshchenko, Gang Xu, Stephane Bordas
- 7654** APPLICATION OF ADAPTIVE ISOGEOMETRIC ANALYSIS USING HIERARCHICAL B-SPLINES TO HYDRO-MECHANICALLY COUPLED TUNNEL SIMULATIONS
Hoang-Giang Bui, Günther Meschke
- 10793** OPTIMAL AND REDUCED QUADRATURE RULES FOR TENSOR PRODUCT AND HIERARCHICALLY REFINED SPLINES IN ISOGEOMETRIC ANALYSIS
Rene Hiemstra, Francesco Calabro, Dominik Schillinger, Thomas Hughes

Tuesday, June 7
17:00-19:00
Minos East

MS 501 - 5: ALGORITHMIC ASPECTS OF HIGH-PERFORMANCE COMPUTING FOR MECHANICS AND PHYSICS

MS Organizers: Santiago Badia, Victor Calo, Javier Principe

Chair: Santiago Badia

- 4831** ALGORITHM FOR FAST SIMULATIONS OF SPACE-TIME FINITE ELEMENT METHOD
Marcin Skotniczny, Anna Paszynska, Maciej Paszynski
- 8124** FEMPAR: A MULTISCALE, MULTILEVEL AND MULTIPHYSICS FINITE ELEMENT SCALABLE SOFTWARE
Santiago Badia, Alberto F. Martín, Javier Principe
- 8317** EVALUATION OF A PARALLEL TASK-BASED APPROACH TO ACCELERATE HIGH-ORDER CFD CALCULATIONS ON HETEROGENEOUS ARCHITECTURES.
Raphael Blanchard, Emeric Martin, Florent Renac, Olivier Aumage, Samuel Thibault, François Pellegrini

DAY 2 – TUESDAY, JUNE 7

- 8321** IMPROVING PARALLEL PERFORMANCE OF FENICS BY HYBRID MPI/PGAS
Niclas Jansson, Johan Hoffman
- 9103** ADAPTIVE SIMULTANEOUS-FETI: SCALABILITY RESULTS, ROBUSTNESS ASSESSMENTS AND APPLICATION TO FINITE DISPLACEMENT PROBLEMS
Christophe Bovet, Augustin Parret-Fréaud, Nicole Spillane, Pierre Gosselet
- 8890** PERFORMANCE PORTABILITY FOR MULTI-FLUID PLASMA ASSEMBLY
Eric C. Cyr, Matthew Bettencourt, Richard Kramer, Roger P. Pawlowski, Edward Phillips, Allen Robinson, John N. Shadid

Tuesday, June 7 17:00-19:00 Minos North

MS 301 - 3: METHODS FOR CUT AND COMPOSITE MESHES: THEORY, ALGORITHMS AND APPLICATIONS

MS Organizers: Mats G. Larson, André Massing

Chair: Mats G. Larson

- 9826** A STABILIZED NITSCHKE TYPE XFEM FOR NAVIER SLIP BOUNDARY CONDITIONS
Magnus E. Winter, Benedikt Schott, Wolfgang A. Wall
- 11080** A CUT FINITE ELEMENT METHOD FOR MULTI-PHASE FLOWS
Susanne Claus
- 5986** OCTREE FINITE ELEMENT METHOD FOR PDES POSED ON SURFACES
Maxim Olshanskii
- 7198** LEVEL-SET ALGORITHMS SPECIALIZED FOR AN EXTENDED DISCONTINUOUS GALERKIN DISCRETIZATION IN CONTEXT OF TWO-PHASE FLOWS
Martin Smuda, Florian Kummer, Thomas Utz
- 9028** PARALLEL VARIATIONAL TRANSFER BETWEEN ARBITRARILY DISTRIBUTED NON-MATCHING MESHES AND ITS APPLICATION IN CONTACT MECHANICS AND FLUID STRUCTURE INTERACTION
Rolf Krause, Patrick Zulian, Erich Foster, Maria Nestola

Tuesday, June 7 17:00-19:00 Minos South

CS 500 - 1: HIGH PERFORMANCE COMPUTING

Chair: Vincent Legat

- 7798** AN EFFICIENT PARALLEL IMPLEMENTATION OF EXPLICIT MULTIRATE RUNGE-KUTTA SCHEMES
Vincent Legat, Bruno Seny, Jonathan Lambrechts, Jean-François Remacle
- 11181** A FAIR PERFORMANCE COMPARISON BETWEEN HIGH ORDER AND CLASSICAL FINITE VOLUME SCHEMES FOR UNSTRUCTURED GRIDS AND COMPLEX TURBULENT FLOWS
Julien Bodart, Jeremie Gressier, Raphael Lamouroux, Gilles Grondin, Friedrich Grabner
- 10289** LIMITED MEMORY PRECONDITIONERS FOR NONSYMMETRIC PROBLEMS WITH APPLICATION TO STRUCTURAL MECHANICS
Sylvain Mercier, Xavier Vasseur, Nicolas Tardieu, Serge Gratton
- 7506** ON A DYNAMIC SCHEDULING ALGORITHM FOR MASSIVELY PARALLEL COMPUTATIONS OF ATOMIC ISOTOPE
Elizaveta Dorofeeva, Jatin Arora, Stefan Typel, Gevorg Poghosyan, Peter Sanders, Achim Streit

- 6218** TOWARDS EXASCALE BEM SIMULATIONS: HYBRID PARALLELISATION STRATEGIES FOR BOUNDARY ELEMENT METHODS
Nicola Giuliani, Luca Heltai, Andrea Mola

Tuesday, June 7 17:00-19:00 Danae

MS 1001 - 4: STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION

MS Organizers: J.F. Aguilar Madeira, Helder C. Rodrigues

Chair: Dirk Roos

- 6528** ADJOINT OPTIMAL CONTROL PROBLEMS FOR THE FLUID-STRUCTURE INTERACTION SYSTEM
Filippo Menghini, Daniele Cerroni, Roberto Da Vià, Sandro Manservigi, Luca Zaniboni
- 11579** EFFICIENT PARALLELIZATION OF EVOLUTIONARY ALGORITHMS FOR AEROSPACE STRUCTURAL OPTIMIZATION PROBLEMS
Andreas Hauffe, Klaus Wolf
- 7083** OPTIMIZATION OF THE STALL CHARACTERISTICS OF AN UNMANNED AERIAL VEHICLE USING WING FENCES
Jolan Wauters, Jan Vierendeels, Joris Degroote
- 6754** APPLICATION OF WHIRL FLUTTER OPTIMIZATION-BASED SOLUTION TO FULL-SPAN MODEL OF TWIN TURBOPROP AIRCRAFT
Jiri Cecrdle
- 10142** BENDING STIFFNESS OF A MULTILAYERED PLATE
Petr Tovstik, Tatiana M. Tovstik

Tuesday, June 7 17:00-19:00 Europa

CS 410 - 3: COMPUTATIONAL FLUID MECHANICS

Chair: Iurii Polandov

- 9796** INFLUENCE OF ADJACENT ROOMS ON THE DEVELOPMENT OF GAS EXPLOSION
Iurii Polandov, Sergei Dobrikov
- 8561** A SHALLOW WATER EQUATION BASED ON DISPLACEMENT AND PRESSURE AND THE ZU-CLASS SYMPLECTIC METHOD
Feng Wu, Wan-Xie Zhong
- 8820** IMPACT OF EXTERNAL SURROUNDINGS ON NATURAL CONVECTION IN A VERTICAL CHANNEL ASYMMETRICALLY HEATED
Delphine Ramalingom, Alain Bastide
- 9698** THE EFFECT OF FREE CONVECTION FLOWS IN DIFFUSION EXPERIMENTS OF TERNARY MIXTURES
Jordi Pallares, Xavier Ruiz, Josefina Gavalda
- 9914** LARGE EDDY SIMULATION OF SALTATION OVER GAUSSIAN HILLS
Gang Huang, Catherine Le Ribault, Serge Simoëns, Ivana Vinkovic, J.M. Vignon

Tuesday, June 7
17:00-19:00

Leda

MS 1101 - 5: REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES

MS Organizers: Francisco Chinesta, Elias Cueto, Antonio Huerta, Pierre Ladeveze, Gianluigi Rozza

Chair: Francisco Chinesta

4668 A MINIMAL SUBSPACE ROTATION APPROACH FOR OBTAINING STABLE AND ACCURATE LOW-ORDER PROJECTION-BASED REDUCED ORDER MODELS FOR NONLINEAR COMPRESSIBLE FLOW

Irina Tezaur, Maciej Balajewicz

6349 HYPER REDUCTION OF NONLINEAR FINITE ELEMENT STRUCTURAL MODELS WITH CONTACT AND FAILURE

Todd Chapman, Philip Avery, Charbel Farhat

7608 NEW LATIN-PGD TECHNIQUE FOR FATIGUE LOADING

Mainak Bhattacharyya, David Néron, Pierre Ladevèze, Amélie Fau, Udo Nackenhorst

11241 AN INVESTIGATION OF INTERPOLATION TECHNIQUES FOR HIGH-PERFORMANCE REDUCED ORDER MODELS IN COMPUTATIONAL HOMOGENIZATION

Rody A. van Tuijl, Joris J.C. Remmers, Marc G.D. Geers

7972 ELECTRICAL FIELDS SIMULATION IN HETEROGENOUS DOMAINS USING THE PROPER GENERALIZED DECOMPOSITION

Chady Ghnatio, Francisco Chinesta, Anais Barasinski

Tuesday, June 7
17:00-19:00

Athena

MS 703 - 3: COMPUTATIONAL MECHANICS OF WOOD MATERIALS AND TIMBER STRUCTURES

MS Organizers: Josef Füssl, Josef Eberhardsteiner, Erik Serrano, Michael Kaliske

Chair: Josef Eberhardsteiner

5947 MOISTURE DEPENDENT THERMOMECHANICAL MODELING OF WOOD AND ITS APPLICATION TO WOOD FORMING PROCESSES

Robert Fleischhauer, Jad Khodor, Michael Kaliske

6502 THE EFFECT OF INITIAL GREEN STATE MOISTURE GRADIENTS ON STRESSES IN TIMBER BOARDS DURING DRYING

Sara Florisson, Sigurdur Ormarsson

6690 MULTILEVEL COMPUTATIONAL HOMOGENIZATION OF ARCHAEOLOGICAL OAK FOR ELASTIC AND VISCOELASTIC MATERIAL PROPERTIES

Nico van Dijk, Alexey Vorobyev, Gunnar Almkvist, Kristofer Gamstedt

8448 GEOMETRIC NONLINEAR ANALYSIS OF A PITCHED ROOF STRUCTURE OF WOOD

Sigurdur Ormarsson, Johan Vessby

Tuesday, June 7
17:00-19:00

Artemis

MS 113 - 2: MATHEMATICAL AND NUMERICAL MODELING OF THE HEART

MS Organizers: Luca Dede', Luca Pavarino, Alfio Quarteroni

Chair: Luca Dede', Luca Pavarino

5088 ANATOMICALLY ACCURATE HIGH RESOLUTION MODELING OF HUMAN WHOLE HEART ELECTROMECHANICS

Christoph Augustin, Aurel Neic, Gernot Plank

9193 COMPARISON OF TETRAHEDRAL AND HEXAHEDRAL MESHES FOR FINITE ELEMENT SIMULATION OF CARDIAC ELECTRO-MECHANICS

Bernardo Lino de Oliveira, Joakim Sundnes

6449 INFLUENCE OF MECHANO-ELECTRIC FEEDBACKS ON THE CARDIAC BIOELECTRICAL ACTIVITY: A SIMULATION STUDY

Piero Colli Franzone, Luca F. Pavarino, Simone Scacchi, Stefano Zampini

5311 UTILISATION AND VALIDATION OF A COMPUTATIONAL MODEL FOR CARDIAC ELECTROMECHANICS

Baris Cansiz, Michael Kaliske, Krunoslav Sveric, Ruth H. Strasser

6456 PROXIMAL ISOVELOCITY SURFACE FOR DIFFERENT MITRAL VALVE HOLE GEOMETRIES

Alexandre This, Hernán G. Morales, Odile Bonnefous

Tuesday, June 7
17:00-19:00

Aphrodite

MS 104 - 2: GROWTH AND REMODELLING OF LIVING TISSUES IN EXPERIMENT AND SIMULATION

MS Organizers: Antonio Bolea - Albero, Markus Böl

Chair: Antonio Bolea - Albero

7763 MUSCLE GROWTH – AN EXPERIMENTAL STUDY

Kay Leichsenring, Tobias Siebert, Markus Böl

8277 MODELING THE EMERGENCE OF LEAF FORM

Adam Runions, Przemyslaw Prusinkiewicz, Miltos Tsiantis

9955 NUMERICAL MODELING OF BACTERIAL BIOFILM GROWTH BASED ON AN EXPERIMENTAL STUDY

Dianlei Feng, Henryke Rath, Insa Neuweiler, Udo Nackenhorst, Nico Stumpp, Meike Stiesch

Tuesday, June 7
17:00-19:00

Antigoni

MS 806 - 3: MULTISCALE MODELLING OF MATERIALS AND STRUCTURES

MS Organizers: Tadeusz Burczyński, Xavier Oliver, Maciej Pietrzyk, Alfredo Huespe

Chair: Alfredo Huespe

10691 A MULTISCALE APPROACH FOR THERMO-MECHANICAL SIMULATIONS OF LOADING COURSES IN CAST IRON BRAKE DISCS

Christoph Herrmann, Stefan Schmid, Daniel Schneider, Michael Selzer, Britta Nestler

10017 MICRO-MACRO RELATIONSHIPS FROM DISCRETE ELEMENT SIMULATIONS OF SINTERING

Jerzy Rajek, Piotr Kowalczyk, Szymon Nosewicz, Kamila Jurczak, Krzysztof Wawrzyk

10057 LEVEL SET AND X-FEM IN MODELING THE RESPONSE OF FIBROUS NETWORKS UNDER HYGROSCOPIC SWELLING.

Priyam Samantray, Ron Peerlings, Marc Geers, Thierry Massart

- 10511** THE KIRKENDALL AND FRENKEL EFFECTS DURING DIFFUSION PROCESS - MATHEMATICAL DESCRIPTION
Stanisław Wędrychowicz, Bartek Wierzb
- 10896** VIRTUAL METALLIC FOAMS. APPLICATION FOR DYNAMIC CRUSHING ANALYSIS
Ryszard Pęcherski, Marcin Nowak, Zdzisław Nowak

Tuesday, June 7 **Apollo East**
17:00-19:00

- MS 801 - 2: MULTISCALE COMPUTATIONAL HOMOGENIZATION FOR BRIDGING SCALES IN THE MECHANICS AND PHYSICS OF COMPLEX MATERIALS**
MS Organizers: Julien Yvonnet, Kenjiro Terada, Peter Wriggers, Marc Geers
Chair: Karel Matous
- 9437** **KEYNOTE:** INVESTIGATION OF SELF-HEATING EFFECT IN FIBER-REINFORCED THERMOPLASTIC RESIN BY NUMERICAL MATERIAL TESTING
Kenjiro Terada, Seishiro Matsubara
- 7679** UNSATURATED CEMENT-BASED MATERIALS HOMOGENIZATION USING DIRECT NUMERICAL SIMULATIONS
Jean-Luc Delamonte Adia, Julien Yvonnet, Qi-chang He, Nhu-cuong Tran, Julien Sanahuja
- 9708** MULTISCALE NUMERICAL ANALYSIS OF NONLINEAR ELECTRIC PROPERTIES OF GRAPHENE-POLYMER NANOCOMPOSITES
Xiaoxin Lu, Julien Yvonnet, Fabrice Detrez, Jinbo Bai
- 7670** MULTI-SCALE MODELING OF MULTI-PHYSICS PROCESSES IN LITHIUM ION BATTERY CELLS
Marco Magri, Davide Grazioli, Alberto Salvadori
- 8603** TOWARDS A STOCHASTIC TIME HOMOGENIZATION METHOD
Guillaume Puel, Karam Sab

Tuesday, June 7 **Apollo West**
17:00-19:00

- MS 919 - 3: RECENT ADVANCES IN NUMERICAL SIMULATION AND ANALYSIS OF KINETIC MODELS**
MS Organizers: E. Harald van Brummelen, Manuel Torrilhon
Chair: E. Harald van Brummelen
- 8926** **KEYNOTE:** ACCURATE AND EFFICIENT NUMERICAL SOLUTION OF MOMENT CLOSURES DESCRIBING THREE-DIMENSIONAL VISCOUS AND HEAT-CONDUCTING GASEOUS FLOWS
Clinton Groth, Chris Lam, Boone Tensuda
- 11764** MESHFREE "DIRECT SIMULATION MONTE CARLO" WITH RADIAL BASIS FUNCTIONS
Benjamin Seibold
- 11800** LOCAL VELOCITY GRIDS FOR DETERMINISTIC SIMULATIONS OF RAREFIED FLOWS
Luc Mieussens, Stéphane Brull, Louis Forestier-Coste
- 12895** A NEW CONSERVATIVE MULTISPECIES BGK MODEL
Jeff Haack, Michael Murillo, Cory Hauck

Tuesday, June 7 **Room 1**
17:00-19:00

- MS 1202 - 3: ADVANCED BEAM MODELS**
MS Organizers: Dinar Camotim, Zuzana Dimitrovová, Rodrigo Gonçalves
Chair: Dinar Camotim
- 11208** EXTENDED FORMULA FOR A CRITICAL VELOCITY OF A LOAD MOVING ON A BEAM SUPPORTED BY A FINITE DEPTH FOUNDATION
Zuzana Dimitrovová
- 10221** DYNAMICS OF WIND TURBINE BLADES USING A GEOMETRICALLY-EXACT BEAM FORMULATION
Celso Faccio Junior, Alfredo Gay Neto
- 8004** REFINED 1D FINITE ELEMENTS FOR THIN-WALLED CURVED STRUCTURES
Marco Petrolo, Alberto Garcia de Miguel, Alfonso Pagani, Erasmo Carrera
- 7143** A CO-ROTATIONAL NONLINEAR THREE DIMENSIONAL BEAM ELEMENT FOR THE ANALYSIS OF STEEL STRUCTURES SUBJECTED TO FIRE
Andrea Morbioli, Jean-Marc Battini, Nicola Tondini
- 8977** A COROTATIONAL FINITE ELEMENT TO MODEL BENDING VIBRATIONS OF METALLIC STRANDS
Francesco Foti
- 10003** A DEGENERATE-CONTINUUM BASED TIMOSHENKO BEAM APPROACH FOR THE AEROELASTIC ANALYSIS OF THE WIND TURBINE BLADES
Anthoula Panteli, Dimitris Manolas, Konstantinos Spiliopoulos

Tuesday, June 7 **Room 2**
17:00-19:00

- MS 305 - 2: ADVANCED MESHING METHODS FOR INDUSTRIAL APPLICATIONS**
MS Organizers: Frederic Alauzet, Thierry Coupez, Alain Dervieux, Adrien Loseille
Chair: Frederic Alauzet
- 10282** ON A HIGH ORDER ANISOTROPIC ADAPTIVE MESHING FRAMEWORK
Thierry Coupez
- 7712** MESHING OCEAN DOMAINS FOR COASTAL ENGINEERING APPLICATIONS
Alexandros Avdis, Christian Jacobs, Simon Mouradian, Jon Hill, Matthew Piggott
- 7965** HIGH-ORDER TRACKING METHOD FOR THE SIMULATION OF BURNING FRONTS IN 3D
Denis Gueyffier, Bastien Andrieu
- 8416** ANISOTROPIC NORM-ORIENTED MESH ADAPTATION FOR COMPRESSIBLE NAVIER-STOKES EQUATIONS
Loïc Frazza, Adrien Loseille, Frédéric Alauzet

DAY 2 – TUESDAY, JUNE 7

Tuesday, June 7 17:00-19:00

Room 3

STS 1: THE CAERO2 PLATFORM: DISSEMINATION OF COMPUTATIONAL CASE STUDIES IN AERONAUTICS

STS Organizers: Pedro Diez, Jacques Periaux, Sara Guttilla

Chair: Pedro Diez, Jacques Periaux

- 16391** TRANSITION EFFECT ON A SHOCK-WAVE / BOUNDARY LAYER INTERACTION
Reynald Bur
- 16392** HIGH ORDER DISCONTINUOUS GALERKIN METHODS FOR THE SIMULATIONS OF INTERNAL AND EXTERNAL TURBULENT FLOWS
Vincent Couaillier
- 16400** A COMMON PLATFORM FOR VALIDATION OF AIRCRAFT DRAG REDUCTION TECHNOLOGIES
Daniel Redondo
- 16398** DRAG REDUCTION FOR THREE DIMENSIONAL WING AT TRANSONIC SPEED
Ning Qin
- 16396** AERO-THERMAL ANALYSIS OF COMBUSTOR/TURBINE INTERACTION IN AERO-ENGINES: THE CHALLENGE OF TODAY
Francesco Martelli, Paolo Adami, Raul Vazquez
- 16395** THE ROLE OF ERCOFTAC TOWARDS THE EUROPEAN AERONAUTICAL AND ENVIRONMENTAL OBJECTIVES; SUPPORTING ADVANCED SIMULATIONS
Charles Hirsch

Tuesday, June 7 17:00-19:00

Room 4

CS 212 - 3: NUMERICAL MODELING OF DAMAGE, FAILURE AND FRACTURE

Chair: Marco Paluszny

- 10838** B-SPLINE RULED SURFACE REPRESENTATION OF FRACTURES FOR THREE-DIMENSIONAL ISOGEOMETRIC GROWTH MODELING
Adriana Paluszny, Marco Paluszny
- 8703** THEORETICAL STUDY ON EJECTA PRODUCTION FROM METAL SURFACE UNDER SHOCK LOADING
Pei Wang
- 11666** DISCRETE ELEMENT MODELLING OF A RAMMED EARTH WALL UNDER SHEAR LOADING
Fatima Al-Hout, Trung Bui, Ali Limam,
- 10786** ANALYTICAL SOLUTION FOR DYNAMIC FRACTURE OF TWO COPLANAR LIMITED-PERMEABLE CRACKS IN MAGNETO-ELECTRO-ELASTIC MATERIAL
Peiwei Zhang
- 10148** DYNAMIC ENERGY RELEASE RATES IN RUBBER
Martin Kroon
- 9907** A HIGHER ORDER PHASE-FIELD APPROACH TO FRACTURE FOR FINITE-DEFORMATION CONTACT PROBLEMS
Marlon Franke, Christian Hesck, Maik Dittmann

Tuesday, June 7 17:00-19:00

Room 5

CS 460 - 3: UNSTEADY FLOW COMPUTATION

Chair: Hans-Peter Kersken

- 7406** A HYBRID MESH HARMONIC BALANCE SOLVER FOR THE AEROELASTIC ANALYSIS OF TURBOMACHINERY
Hans-Peter Kersken, Graham Ashcroft, Christian Frey
- 7447** NUMERICAL AND EXPERIMENTAL INVESTIGATIONS OF DYNAMIC STALL PROBLEM ON A 2D HELICOPTER ROTOR BLADE SECTION
Antonello Marino, Serena Russo, Giovanni Paolo Reina, Gennaro Esposito, Francesco Capizzano, Carlo De Nicola
- 7637** HIGH-ORDER TIME INTEGRATION NUMERICAL METHOD BY ADOMIAN DECOMPOSITION METHOD AND SIMPLE METHOD COUPLING FOR INCOMPRESSIBLE EULER EQUATIONS
Imanol Garcia-Beristain, Lakhdar Remaki
- 7762** DUAL TIME STEPPING AND NLFD SCHEMES FOR AIRFOIL BUFFET CALCULATIONS
Frédéric Plante, Ali Mosahebi, Antoine Lévesque, Éric Laurendeau
- 8178** IMMERSED BOUNDARY METHOD AND ASYMPTOTIC NUMERICAL METHOD FOR TRANSIENT SIMULATION OF INCOMPRESSIBLE VISCOUS FLOW AROUND MOVING OBSTACLE
Monnier Antoine, Cadou Jean-Marc, Girault Grégory
- 5411** CONSISTENT NON-REFLECTING BOUNDARY CONDITIONS FOR BOTH STEADY AND UNSTEADY FLOW SIMULATIONS IN TURBOMACHINERY APPLICATIONS
Daniel Schlüß, Christian Frey, Graham Ashcroft

Tuesday, June 7 17:00-19:20

Room 7

MS 1214 - 3: HISTORIC MASONRY STRUCTURES: MODELLING, ASSESSMENT & RETROFIT

MS Organizers: Panagiotis Asteris, Charilaos Maniatakis, Constantine Spyarakos

Chair: Panagiotis Asteris

- 8924** FINITE-DISCRETE ELEMENT MODELLING OF MASONRY INFILL WALLS SUBJECTED TO OUT-OF-PLANE LOADS
Laura Liberatore, Marta Bruno, Omar Al Shawa, Monica Pasca, Luigi Sorrentino
- 10714** NUMERICAL VALIDATION OF EQUIVALENT-FRAME MODELS FOR URM WALLS
Rossella Siano, Guido Camata, Vincenzo Sepe, Enrico Spacone, Pere Roca Fabregat, Luca Pelà
- 12273** BEHAVIOR OF SINGLE STORY BEARING WALL MASONRY STRUCTURES IN VARIOUS CONDITIONS
Abdelraouf Kassem
- 11793** THE ROLE OF RESTORATION MORTARS IN THE EARTHQUAKE PROTECTION OF KAISARIANI MONASTERY
Antonia Moropoulou, Maria Apostolopoulou, Petros Moundoulas, Eleni Aggelakopoulou, Louiza Siouta, Asterios Bakolas, Panagiotis G. Asteris, Panagiotis Karakitsios, Maria Douvika
- 11937** FIRST RESULTS OF THE VIBRATION-BASED STRUCTURAL HEALTH MONITORING OF A MASONRY DOME
Nicola Cavalagli, Gabriele Comanducci, Massimiliano Gioffrè, Vittorio Gusella, Filippo Ubertini

- 4938** SIMPLE CLOSED FORM HOMOGENIZATION MODEL FOR THE NON LINEAR STATIC AND DYNAMIC ANALYSIS OF RUNNING BOND MASONRY WALLS IN AND OUT OF PLANE LOADED
Gabriele Milani, Elisa Bertolesi
- 9117** PALAZZO LA SAPIENZA IN PISA: STRUCTURAL ASSESSMENT AND RETROFIT OF AN HISTORICAL MASONRY BUILDING IN ITALY
Silvia Caprili, Federico Mangini, Nicola Mussini, Walter Salvatore

- 11844** MODELING THE MECHANICAL RESPONSE OF A LEAD-CORE BEARING DEVICE: DAMAGE MECHANICS APPROACH
Todor Zhelyazov, Rajesh Rupakhety, Simon Olafsson
- 11965** SEISMIC RESPONSE OF LIQUID-CONTAINING TANKS WITH EMPHASIS ON THE HYDRODYNAMIC DISTRESS AND GROUND MOTION CHARACTERISTICS
Marina E. Kalogerakou, Charilaos A. Maniatakis, Constantine C. Spyarakos, Prodromos N. Psarropoulos

Tuesday, June 7 **Room 8**
17:00-19:00

CS 110 - 5: NUMERICAL MODELS IN BIOMECHANICS

Chair: Mihai Dupac

- 4413** EVALUATION OF ANGULAR KINEMATICS OF LOWER LIMB AMPUTEES USING QUANTITATIVE FLUOROSCOPIC IMAGING
Alexander Breen, Mihai Dupac
- 6069** NUMERICAL INVESTIGATION ON THE OSSEOINTEGRATION OF DENTAL IMPLANT UNDER CONSIDERATION OF ELECTROMECHANICAL STIMULATION IN BONE-IMPLANT INTERFACE
Seyedalireza Shirazibeheshtiha, Udo Nackenhorst
- 7408** FE BONE STRUCTURAL ANALYSIS WITH CT MAPPING OF INHOMOGENEOUS MATERIAL PROPERTIES
Miguel Tobias Bahia, Emilio Graciliano Ferreira Mercuri, Mildred Ballin Hecke
- 8753** SIMULATING FATIGUE IN MUSCULOSKELETAL MODELS USING SURFACE ELECTROMYOGRAPHY
Simon Gross, Franz Suess, Gijsbertus Verkerke, Sebastian Dendorfer
- 8296** DIGITAL IMAGE CORELLATION AND NANOINDENTATION IN EVALUATION OF CONSTITUTIVE RELATIONSHIPS FOR CORTICAL BONE MICROSTRUCTURE
Grzegorz Kokot, Witold Ogierman, Konstanty Skalski, Marek Pawlikowski

Tuesday, June 7 **Room 9**
17:00-19:00

MS 1217 - 1: COMPUTATIONAL METHODS IN EARTHQUAKE ENGINEERING AND STRUCTURAL DYNAMICS

MS Organizers: Vagelis Plevris, Georgia Kremmyda, Yasin Fahjan

Chair: Vagelis Plevris

- 11846** STRUCTURAL DAMAGE IDENTIFICATION USING INCOMPLETE MODAL DATA WITH NATURE-INSPIRED OPTIMIZATION ALGORITHMS
Manolis Georgioudakis, Vagelis Plevris
- 7522** FINITE-DISCRETE NUMERICAL MODELLING OF REINFORCED CONCRETE STRUCTURES
Nikolina Zivaljic, Zeljana Nikolic, Hrvoje Smoljanovic, Ivan Balic
- 10015** A PROBABILISTIC APPROACH TOWARDS AN EVALUATION OF EXISTING CODE PROVISIONS FOR SEISMICALLY ISOLATED STRUCTURES
Anastasios Tsiavos, Bozidar Stojadinovic
- 11240** NUMERICAL NON-LINEAR SIMULATION OF THE IN-PLANE BEHAVIOUR OF R/C FRAMES WITH MASONRY INFILLS UNDER SEISMIC TYPE LOADING
George Manos, Vasilios Soulis

Tuesday, June 7 **Room 10**
17:00-19:20

MS 1212 - 2: DYNAMICS AND SEISMIC RESPONSE OF ROCKING AND SELF-CENTERING STRUCTURES

MS Organizers: Matthew DeJong, Elias Dimitrakopoulos, Michalis Fragiadakis

Chair: Michalis Fragiadakis, Elias Dimitrakopoulos

- 11424** PARAMETRIC INVESTIGATION OF THE DYNAMIC RESPONSE OF RIGID BLOCKS SUBJECTED TO SYNTHETIC NEAR-SOURCE GROUND MOTION RECORDS
Michalis Fragiadakis, Ioannis Psycharis, George P. Mavroeidis
- 9386** A SIMPLE ANALYTICAL MODEL FOR THE ROCKING PREWEC SYSTEM
Dimitrios Kalliontzis, Sri Sritharan
- 10112** AN ANALYTICAL MODEL FOR DYNAMIC RESPONSE OF AN ELASTIC SDOF SYSTEM FIXED ON TOP OF A ROCKING SINGLE-STORY FRAME STRUCTURE: EXPERIMENTAL VALIDATION
Jonas A. Bachmann, Christoph Jost, Quentin Studemann, Michalis F. Vassiliou, Bozidar Stojadinovic
- 8384** MODELLING CONTACT IN ROCKING STRUCTURES WITH A NONSMOOTH DYNAMICS APPROACH
Anastasios I. Giouvanidis, Elias G. Dimitrakopoulos
- 9376** ENERGY DISSIPATION COMPONENTS IN UNBONDED POST-TENSIONED SINGLE ROCKING WALLS
Maryam Nazari, Sri Sritharan
- 9563** QUASI-STATIC TESTING OF A LARGE-SCALE PRE-CAST BRIDGE WITH CONTROLLED ROCKING POST-TENSIONED CONNECTIONS IN THE SUPERSTRUCTURE
Zeinab Chegini, Alessandro Palermo
- 8340** THE ROLE OF THE PRESTRESSED TENDONS ON THE SEISMIC PERFORMANCE OF HYBRID ROCKING BRIDGE BENTS
Anastasios I. Giouvanidis, Elias G. Dimitrakopoulos

Tuesday, June 7 **Room 11**
17:00-19:00

CS 1201: COMPUTATIONAL SOIL MECHANICS

Chair: Stefano Dal Pont

- 11824** FEMXDEM MULTI-SCALE REAL-SCALE MODELLING APPLIED TO GEOMATERIALS
Albert Argilaga, Jacques Desrues, Stefano Dal Pont, Gael Combe, Danis Caillerie
- 10987** INFLUENCES OF PHYSICAL AND STATISTICAL PARAMETERS OF RANDOM HETEROGENEOUS MEDIA ON SPATIAL VARIABILITY OF SEISMIC GROUND MOTIONS
Angkeara Svay, Didier Clouteau, Irmela Zentner, Régis Cottreau
- 8409** NUMERICAL SIMULATION OF FREEZING PROCESS OF SOIL IN BACK FILLED CHAMBER WITH A BURIED PIPE
Hosung Shin

7331 THREE-DIMENSIONAL BE-FE MODEL OF BUCKET FOUNDATIONS IN POROELASTIC SOILS
Jacob D. R. Bordón, Juan J. Aznárez, Orlando F. Maeso

6739 A MORE COMPREHENSIVE MODELING OF CONTACT FORCE DURING SHEAR TESTING USING DEM
Varvara Roubtsova, Mohamed Chekired

Tuesday, June 7 **Room 12**
17:00-19:20

MS 1206 - 3: ADVANCES IN NUMERICAL METHODS FOR LINEAR AND NON-LINEAR DYNAMICS AND WAVE PROPAGATION

MS Organizer: Alexander Idesman

Chair: Alexander Idesman

10435 AN H-MATRIX BASED DIRECT SOLVER FOR BOUNDARY ELEMENT METHOD IN 3D ELASTODYNAMICS
Stéphanie Chaillat, Patrick Ciarlet, Luca Desiderio

9453 INCOMPATIBLE MODES IN EXPLICIT DYNAMICS – EFFICIENCY, POSSIBILITIES AND LIMITS
Christoph Schmied, Steffen Mattern, Karl Schweizerhof

4970 RAYLEIGH METHOD APPLIED TO A 46-M-HIGH CONCRETE MAST
Alexandre de M. Wahrhaftig, Reyolando M. L. R. F. Brasil

4588 ASYMPTOTIC IMPACT BEHAVIOR OF GOUPILLAUD-TYPE LAYERED ELASTIC MEDIA
George Gazonas, Ani Velo, Raymond Wildman

9176 A DISPERSION MINIMIZED MIMETIC METHOD FOR ACOLD PLASMA MODEL
Vrushali A. Bokil, Vitaliy Gyrya, Duncan A. McGregor

10729 THERMOMECHANICAL NUMERICAL SIMULATION OF IMPACTS ON ELASTIC-PLASTIC SOLIDS WITH THE FINITE VOLUME METHOD
Thomas Heuzé

Tuesday, June 7 **Room 15**
17:00-19:00

CS 930 - 4: HIGH-ORDER DISCRETIZATION METHODS

Chair: Alberto Costa Nogueira Junior

8319 ON THE CHOICE OF SHOCK CAPTURING SCHEMES FOR THE SOLUTION OF THE LWR TRAFFIC FLOW EQUATION USING A HIGH ORDER MODAL DISCONTINUOUS GALERKIN DISCRETIZATION
Alberto Costa Nogueira Junior, João Lucas de Sousa Almeida, Cláudio Alessandro de Carvalho Silva

11923 HYBRID RIEMANN SOLVERS FOR LARGE SYSTEMS OF CONSERVATION LAWS
Birte Schmidtman, Mariia Astrakhantceva, Manuel Torrilhon

7193 A 3D ISOGEOMETRICAL BOUNDARY ELEMENT ANALYSIS FOR NON-LINEAR GRAVITY WAVE PROPAGATION
Jorge Maestre, Jordi Pallarés, Ildefonso Cuesta

9211 NONLINEAR RESIDUAL-BASED VISCOSITIES FOR ADAPTIVE STABILIZED FINITE ELEMENT METHODS IN TURBULENT FLOW PROBLEMS
Aurélien Larcher, Murtazo Nazarov

9356 ADAPTIVE TIME STEPPING AND REFINED EXPLICIT INTEGRATION WITH EMBEDDED ERROR CONTROL FOR NUMERICAL MODELLING OF SALT CREEP
Roberto Quispe, Pedro Firme, Deane Roehl

Tuesday, June 7 **Room 17**
17:00-19:00

CS 1300 - 1: UNCERTAINTY QUANTIFICATION AND ERROR ESTIMATION

Chair: Guillermo Hauke

5657 POINTWISE ERROR ESTIMATION FOR LINEAR PARTIAL DIFFERENTIAL EQUATIONS BASED ON THE VARIATIONAL MULTISCALE THEORY
Guillermo Hauke, Diego Irisarri

8838 AN EFFICIENT AERODYNAMIC SHAPE OPTIMIZATION FRAMEWORK FOR ROBUST DESIGN OF AIRFOILS USING SURROGATE MODELS
Daigo Maruyama, Dishi Liu, Stefan Görtz

10644 UNCERTAINTY QUANTIFICATION BY THE POLYNOMIAL CHAOS EXPANSION METHOD WITH ORDER ADJUSTMENT
Koji Shimoyama

10011 COMPARISON BETWEEN A POLYNOMIAL CHAOS SURROGATE MODEL AND MARKOV CHAIN MONTE CARLO FOR INVERSE UNCERTAINTY QUANTIFICATION BASED ON AN ELECTRIC DRIVE TEST BENCH
Philipp Glaser, Michael Schick, Kosmas Petridis, Vincent Heuveline

8533 MIASC: AN ADAPTIVE APPROACH TO UNCERTAINTY QUANTIFICATION IN DISCRETIZED PROBLEMS OF REDUCED REGULARITY - PART 1: ILLUSTRATION OF THE METHOD
Robert L. Gates, Maximilian R. Bittens, Udo Nackenhorst

Tuesday, June 7 **Room 18**
17:00-19:00

MS 1007 - 1: ADDITIVE MANUFACTURING AND OPTIMIZATION

MS Organizers: Ekkehard Ramm, Ole Sigmund, Pierre Duysinx, Wing Kam Liu

Chair: Ole Sigmund, Paolo Venini

7545 KEYNOTE: INDUSTRIAL ADDITIVE MANUFACTURING AND DESIGNING
Claus B.W. Pedersen, James Fort, Peter M. Clausen, Subham Sett

5873 TOPOLOGY OPTIMIZATION FOR ADDITIVE MANUFACTURING WITH CONTROLLABLE SUPPORT STRUCTURE COSTS
Matthijs Langelaar

8988 TOPOLOGY OPTIMIZATION FOR ADDITIVE MANUFACTURING: ACCOUNTING FOR OVERHANG LIMITATIONS USING A VIRTUAL SKELETON
Yoram Mass, Oded Amir

5120 SHAPE AND TOPOLOGY OPTIMIZATION ACCOUNTING FOR ADDITIVE MANUFACTURING CONSTRAINTS: INFLUENCE OF THE BUILD DIRECTION IN POWDER-BINDING TECHNOLOGIES
Grégoire Allaire, Charles Dapogny, Rafael Estevez, Alexis Faure, Georgios Michailidis, Guillaume Parry

5725 TOPOLOGY OPTIMIZATION FOR MANUFACTURING WITH OPTICAL MICROLITHOGRAPHY
Mingdong Zhou, Boyan S. Lazarov, Ole Sigmund

Tuesday, June 7
17:00-19:00

Room 20

**MS 116: MULTISCALE & MULTILEVEL MODELING IN
DETOXIFYING ORGANS AND ORGANS OF THE
DIGESTIVE TRACT**

MS Organizers: Dirk Drasdo, Irene Vignon-Clementel

Chair: Dirk Drasdo, Irene Vignon-Clementel

- 11408** IMAGING AND MODELLING THE BLOOD CIRCULATION THROUGH THE LIVER AND KIDNEY
Charlotte Debbaut, Diethard Monbaliu, Geert Peeters, Patrick Segers
- 5384** A MULTILEVEL FRAMEWORK TO STUDY THE ALTERING HEPATIC CIRCULATION IN CIRRHOTIC RATS.
Geert Peeters, Charlotte Debbaut, Pieter Cornillie, Winnok De Vos, Thomas De Schryver, Diethard Monbaliu, Wim Laleman, Patrick Segers
- 7859** AMMONIA DETOXIFICATION IN THE LIVER AFTER PARTIAL HEPATECTOMY
Noemie Boissier, Geraldine Celliere, Irene Vignon-Clementel, Dirk Drasdo
- 9083** ANALYSING DRUG-INDUCED LIVER INJURY WITHIN A WHOLE-BODY CONTEXT
Lars Kuepfer, Christoph Thiel, Henrik Cordes, Lars M. Blank
- 7436** MODELING TOOLS FOR WHOLE LIVER HEMODYNAMICS AND FUNCTION DURING PARTIAL HEPATECTOMY
Chloe Audebert, Eric Vibert, Jean-Frédéric Gerbeau, Irene Vignon-Clementel
- 10830** ON A MULTISCALE AND MULTIPHASE MODEL OF FUNCTION, PERFUSION AND GROWTH IN HUMAN LIVER
Tim Ricken, Daniel Werner, Hermann-Georg Holzhütter, Matthias König, Uta Dahmen, Olaf Dirsch
- 9192** AGENT-BASED MULTI-LEVEL SIMULATIONS OF DRUG-INDUCED LIVER DAMAGE AND REGENERATION: FROM DATA TO MODELS AND BACK
Dirk Drasdo, Stefan Hoehme, Geraldine Celliere, Ahmed Ghallab, Adrian Friebel, Noemie Bossier, Sebastian Zellmer, Rolf Gebhardt, Jan Hengstler

Tuesday, June 7
17:00-19:00

Room 21

MS 404 - 2: SIMULATION OF ENVIRONMENTAL FLOWS

MS Organizers: Pablo Ortiz, Piotr K. Smolarkiewicz, Joanna Szmelter

Chair: Pablo Ortiz

- 4852** A HYBRID ALL-SCALE FINITE-VOLUME MODULE FOR GLOBAL WEATHER PREDICTION
Piotr Smolarkiewicz, Willem Deconinck, Mats Hamrud, Christian Kuehnlein, George Mozdzyński, Joanna Szmelter, Nils Wedi
- 7716** ATLAS, A PARALLEL FRAMEWORK FOR EARTH SYSTEM MODELLING
Willem Deconinck
- 9292** FINITE ELEMENT METHODS FOR 3D SIMULATION OF WAVE AND CURRENT INTERACTION WITH GRANULAR MEDIA
Chris Kees, Aggelos Dimakopoulos, Matthew Farthing
- 6606** AN UNSTRUCTURED MESH MODEL FOR STRATIFIED OROGRAPHIC FLOWS
Mike Gillard, Joanna Szmelter, Zhao Zhang, Piotr Smolarkiewicz
- 7077** SIMULATION OF SOUNDPROOF FLOWS PAST A SPHERE
Zhi Xin Cao, Joanna Szmelter, Zhao Zhang, Piotr K Smolarkiewicz

Tuesday, June 7
17:00-19:00

Room 22

CS 960 - 2: MESHLESS METHODS

Chair: Christian Weißenfels

- 7025** OPTIMAL TRANSPORTATION MESHFREE APPROXIMATION SCHEME BASED ON MEAN VALUE COORDINATES
Christian Weißenfels, Peter Wriggers
- 7064** THREE-DIMENSIONAL CRACK PROPAGATION ANALYSIS USING MESHLESS POINT COLLOCATION METHOD
Eiji Tanaka
- 10975** ANALYSIS OF NON-NEWTONIAN FLUID FLOW AND HEAT TRANSFER IN AN INTERNALLY FINNED SQUARE CHANNEL
Jakub K. Grabski, Jan A. Kołodziej
- 9519** A CELL-BASED SMOOTHED MESHFREE METHOD FOR AXISYMMETRIC PROBLEMS IN SATURATED MEDIA
Arash Tootoonchi, Arman Khoshghalb, Nasser Khalili
- 11774** EFFICIENT SHAPE FUNCTIONS EVALUATION OF EFG MESHLESS METHOD
Panos Metsis, Manolis Papadrakakis
- 12055** BLOCK-WISE ASSEMBLY OF GAUSS QUADRATURE-BASED MATRICES
Alexander Karatarakis, Manolis Papadrakakis

TECHNICAL SESSIONS

Wednesday, June 8 **Zeus East**
8:30-10:30

MS 106 - 2: DIRECT AND INVERSE METHODS FOR CARDIOVASCULAR AND PULMONARY BIOMECHANICS

MS Organizers: Wolfgang A. Wall, C. Alberto Figueroa, Marek Behr
Chair: Stephane Avril

- 8947** A DECONVOLUTION-BASED LES METHOD FOR INCOMPRESSIBLE FLOWS AT MODERATELY LARGE REYNOLDS NUMBERS
Luca Bertagna, Annalisa Quaini, Alessandro Veneziani
- 10106** NUMERICAL MODELING OF COMPENSATION MECHANISMS FOR PERIPHERAL ARTERIAL STENOSES
Tobias Köppl, Rainer Helmig, Barbara Wohlmuth, Daniel Drzisga, Ulrich Pohl
- 7336** INVESTIGATING FLOW UNSTEADINESS IN REALISTIC AND OPTIMISED ARTERIO-VEIN FISTULAE
Lorenza Grechy, Francesco Iori, Richard W Corbett, Wladyslaw M W Gedroyc, Neill Duncan, Colin G Caro, Peter E Vincent
- 6985** NUMERICAL METHODS FOR THE OCULAR HEMODYNAMICS
Matteo Aletti, Jean-Frédéric Gerbeau, Damiano Lombardi
- 7462** A TREE-PARENCHYMA LUNG MODEL: NUMERICAL SCHEMES AND APPLICATIONS
Nicolas Pozin, Spyridon Montesantos, Georges Caillibotte, Marine Pichelin, Irène Vignon-Clementel, Celine Grandmont
- 9636** ON THE IMPROVEMENT OF A PHYSIOLOGICAL BLOOD DAMAGE MODEL FOR HEMOLYSIS PREDICTIONS IN MEDICAL DEVICES
Stefan Haßler, Lutz Pauli, Marek Behr

Wednesday, June 8 **Zeus West**
8:30-10:30

MS 112 - 3: ANEURYSMS: SOLID MECHANICS, FLUID MECHANICS, AND MECHANOBIOLOGY

MS Organizers: Christian J. Cyron, Sven Hirsch, Philippe Bijlenga, Roland C. Aydin, Anne M. Robertson, Gerhard A. Holzapfel

Chair: Sven Hirsch, Anne M. Robertson

- 5993** KEYNOTE: CONNECTING THE LOCAL HEMODYNAMIC CONDITIONS TO THE WALL STRUCTURE IN HUMAN CEREBRAL ANEURYSMS
Juan Cebal, Xinjie Duan, Bongjae Chung, Fernando Mut, Khaled Aziz, Anne Robertson
- 7889** ROLES OF TGF- β AND DYNAMIC STRETCHING ON FIBROBLASTS
Siddhartha Jaddivada, Merchant Nandan, Shaktidhar Dandapani, Paturu Kondaiah, Paul Watton, Namrata Gundiah
- 8181** MECHANICS AND MICROSTRUCTURE OF HEALTHY HUMAN AORTAS AND AAA TISSUES: EXPERIMENTAL ANALYSIS AND MODELING
Justyna A. Niewstrawska, T.U. Cohnert, G.A. Holzapfel
- 7902** IN VIVO CONSTITUTIVE PARAMETER IDENTIFICATION OF THE INDIVIDUAL AAA WALL BASED ON 4D ULTRASOUND STRAIN IMAGING DATA
Andreas Wittek, Claus-Peter Fritzen, Christopher Blase
- 5492** EFFECT OF CALCIFICATION ON ANEURYSM STRENGTH
Konstantin Volokh, Jacob Aboudi

Wednesday, June 8 **Zeus North**
8:30-10:30

MS 901 - 3: ISOGEOMETRIC METHODS

MS Organizers: Yuri Bazilevs, David J. Benson, Rene De Borst, Thomas J.R. Hughes, Trond Kvamsdal, Alessandro Reali, Giancarlo Sangalli, Clemens V. Verhoosel

Chair: Alessandro Reali

- 11265** AN ISOGEOMETRIC ANALYSIS INVESTIGATION FOR MULTIPHYSICS FORMULATIONS AT LARGE STRAINS
Lei Zhang, Stéphane Lejeune, Dominique Eyheramendy
- 6165** ANALYSIS OF LAMINATED COMPOSITE PLATES USING ISOGEOMETRIC COLLOCATION METHOD
G S Pavan, K S Nanjunda Rao
- 11975** HIERARCHICAL H-REFINEMENT IN ISOGEOMETRIC ANALYSIS WITH NURBS
Manos Trypakis, Manolis Papadrakakis
- 6689** ADAPTIVE ISOGEOMETRIC ANALYSIS OF PHASE-FIELD MODELS
Markus Kästner, Paul Hennig, Philipp Metsch
- 9227** AN IMPLICIT TIME INTEGRATION HIGH-ORDER MATERIAL POINT METHOD FOR SMALL AND LARGE DEFORMATION PROBLEMS: FORMULATION AND ANALYSIS WITHIN THE ISOGEOMETRIC FRAMEWORK
Yousef Ghaffari Motlagh, William M. Coombs
- 7502** MODELLING STIFFENED LIGHTWEIGHT STRUCTURES WITH ISOGEOMETRIC ANALYSIS VIA MORTAR METHODS
Malte Woidt, Kay Sommerwerk, Matthias C. Haupt, Peter Horst

Wednesday, June 8 **Minos East**
8:30-10:30

MS 1101 - 6: REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES

MS Organizers: Francisco Chinesta, Elias Cueto, Antonio Huerta, Pierre Ladeveze, Gianluigi Rozza

Chair: Antonio Huerta

- 11144** A NEW PGD APPROACH FOR PARAMETRIZED PROBLEMS INCLUDING POSITIONAL PARAMETERS
David Néron, Pierre Ladevèze, Amaury Courard
- 7816** HIPOD: A POD-BASED HIERARCHICAL MODEL REDUCTION FOR INVERSE PROBLEMS IN FLUID DYNAMICS
Cristina Cova, Massimiliano Lupo Pasini, Simona Perotto, Lorenzo Sala, Alessandro Veneziani
- 6076** AN ITERATIVE MODEL ORDER REDUCTION SCHEME FOR A SPECIAL CLASS OF BILINEAR DESCRIPTOR SYSTEMS APPEARING IN CONSTRAINT CIRCUIT SIMULATION
Pawan Goyal, Peter Benner
- 6579** POD-BASED "VIRTUAL CHARTS" FOR PARAMETRIC STUDIES OF WELDING PROCESSES
Ye Lu, Nawfal Blal, Anthony Gravouil
- 5891** REDUCED BASIS METHOD FOR POISSON-BOLTZMANN EQUATION
Peter Benner, Lihong Feng, Martin Hess, Cleophas Kweyu, Matthias Stein

Wednesday, June 8 8:30-10:30 Minos North	Wednesday, June 8 8:30-10:30 Danae
MS 301 - 4: METHODS FOR CUT AND COMPOSITE MESHES: THEORY, ALGORITHMS AND APPLICATIONS <i>MS Organizers:</i> Mats G. Larson, André Massing <i>Chair:</i> Mats G. Larson 7955 MULTIMESH: FEM ON ARBITRARILY MANY INTERSECTING MESHES <i>August Johansson, Benjamin Kehlet, Mats G Larson, Anders Logg</i> 8247 HIGH-ORDER FINITE VOLUME METHODS FOR HYPERBOLIC PDES ON CARTESIAN GRIDS WITH EMBEDDED BOUNDARIES <i>Christiane Helzel</i> 9191 MASS CONSERVATION FOR UNFITTED DG CUT-CELL METHODS ON EVOLVING DOMAINS <i>Christian Engwer, Sebastian Westerheide</i> 7609 SIMULATION OF DEFORMATION AND FLOW IN FRACTURED, POROELASTIC MATERIALS <i>Katja Hanowski, Oliver Sander</i>	MS 923 - 1: NOVEL DISCRETIZATION METHODS – MATHEMATICAL AND MECHANICAL ASPECTS <i>MS Organizers:</i> Jörg Schröder, Peter Wriggers, Ferdinando Auricchio, Carsten Carstensen <i>Chair:</i> Jörg Schröder 11849 KEYNOTE: AXIOMS OF ADAPTIVITY: RATE OPTIMALITY OF ADAPTIVE ALGORITHMS WITH SEPARATE MARKING <i>Carsten Carstensen, Hella Rabus</i> 7491 ALTERNATIVE TO RETURN -MAPPING ALGORITHM FOR COMPUTING PLASTIC STRAIN. APPLICATION TO DILATANT MATERIALS. <i>Siegfried Maiolino</i> 9839 MIXED LEAST-SQUARES FINITE ELEMENT FORMULATIONS FOR HYPERELASTICITY <i>Alexander Schwarz, Maximilian Igelbüscher, Jörg Schröder</i> 6490 L2 BEST-APPROXIMATION OF THE ELASTIC STRESS IN THE ARNOLD-WINTHER FEM <i>Carsten Carstensen, Dietmar Gallistl, Mira Schedensack</i>
Wednesday, June 8 8:30-10:30 Minos South	Wednesday, June 8 8:30-10:30 Europa
CS 500 - 2: HIGH PERFORMANCE COMPUTING <i>Chair:</i> Victor Demidovich 11986 APPLICATION THE SPARSE MATRIX METHOD TO CALCULATE THE METAL ELASTIC STRESS-STRAIN STATE, USING THE FINITE ELEMENT METHOD <i>Inna Barankova, Uliana Mikhailova, Victor Demidovich</i> 11267 PARALLEL BOUNDARY ELEMENT FORMULATION FOR 2D MICROFLUIDIC PARTICULATE FLOW FOR MULTI-THREADED ARCHITECTURES <i>Süleyman D. Öner, Ali Karakuş, Barbaros Çetin, Besim Baranoğlu</i> 11627 HIGH ORDER DISCONTINUOUS GALERKIN COMPUTATIONS ON NUMA ARCHITECTURES <i>Vincent Bertrand, Jonathan Lambrechts, Jean-François Remacle, Axel Modave, Koen Hillewaert</i> 6151 PERFORMANCE AND SCALABILITY OF FETI METHODS FOR HETEROGENEOUS DYNAMIC PROBLEMS WITH DIFFERENT COARSE-GRIDS <i>Michael Leistner, Alejandro Cosimo, Daniel Rixen</i> 8496 IRREGULAR SHAPED PARTICLES FOR DEM HIGH PERFORMANCE ALGORITHMS <i>Eva Siegmann, Charles Radeke, Gundolf Haase, Johannes G. Khinast</i> 4638 PARALLEL AND VECTORIZED CODE FOR CSEM SURVEYS IN GEOPHYSICS: AN EDGE-BASED APPROACH <i>Octavio Castillo Reyes, Josep de la Puente, Hélène Barucq, Julien Diaz, José María Cela</i>	MS 714 - 1: STRENGTH, FATIGUE AND STABILITY OF COMPOSITE STRUCTURES <i>MS Organizers:</i> Raimund Rolfes, Martin Ruess, Kai-Uwe Schröder <i>Chair:</i> Martin Ruess, Raimund Rolfes 11175 MICROMECHANICAL AND MEAN-FIELD MODELING OF LONG FIBER REINFORCED POLYMER STRUCTURES WITH LOCAL CONTINUOUS FIBER REINFORCEMENTS <i>Thomas Böhlke, Robert Bertoti, Bartel Brylka, Fabian Buck, Loredana Kehrler, Viktor Müller, Konstantin Priesnitz, Malte Schemmann</i> 4807 UTILIZATION OF LAMINATION PARAMETERS FOR FAST PROBABILISTIC ANALYSIS OF THICK COMPOSITE STRUCTURES <i>Benedikt Kriegesmann</i> 9898 IDENTIFICATION OF ESSENTIAL IMPERFECTION PATTERNS FOR AXIALLY COMPRESSED COMPOSITE CYLINDRICAL SHELLS <i>Alexander Meurer, Christian Gerendt, Raimund Rolfes</i> 8005 ROBUST INTEGRAL COMPOSITE AIRCRAFT STRUCTURES <i>Tamas Havar</i> 8001 REFINED 2D FINITE ELEMENTS FOR COMPOSITE PLATES AND SHELLS ACCOUNTING FOR HYGROTHERMAL EFFECTS <i>Maria Cinefra, Guohong Li, Marco Petrolo, Erasmo Carrera</i>
	Wednesday, June 8 8:30-10:30 Leda MS 1001 - 5: STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION <i>MS Organizers:</i> J.F. Aguilar Madeira, Helder C. Rodrigues <i>Chair:</i> Jacob Oest 7644 LATIN HYPERCUBE SAMPLING BASED ON ADAPTIVE ORTHOGONAL DECOMPOSITION <i>Dirk Roos</i> 7645 A BENCHMARK OF CONTEMPORARY METAMODELING ALGORITHMS <i>Can Bogoclu, Dirk Roos</i>

DAY 3 – WEDNESDAY, JUNE 8

- 7643** A NEW OPTIMIZED ANISOTROPIC MOVING LEAST SQUARES SURROGATE MODEL WITH MAXIMIZED PROGNOSIS
Kevin Cremanns, Dirk Roos
- 7092** ON THE CONSIDERATION OF UNCERTAINTY IN DESIGN: OPTIMIZATION – RELIABILITY – ROBUSTNESS
Nicolas Lelièvre, Pierre Beaurepaire, Cécile Mattrand, Nicolas Gayton, Abdelkader Ostmane
- 10063** A SUPERSTRUCTURE-BASED OPTIMIZATION APPROACH FOR BUILDING SPATIAL TOPOLOGIES
Koen van der Blom, Sjonnie Boonstra, Hèrm Hofmeyer, Michael Emmerich

Wednesday, June 8 8:30-10:30 Athena

MS 504 - 1: NUMERICAL METHODS AND TOOLS FOR KEY EXASCALE COMPUTING CHALLENGES IN ENGINEERING AND APPLIED SCIENCES

MS Organizers: Eugenio Oñate, Manolis Papadrakakis, Peter Wriggers
Chair: Eugenio Oñate

- 14678** EXTREMELY LARGE WIND SIMULATION OVER BARCELONA CITY
Pooyan Dadvand, Abel Coll, Riccardo Rossi, Cecilia Soriano, Eugenio Oñate
- 11500** EVALUATION OF SPARSE LINEAR ALGEBRA OPERATIONS IN TRILINOS
Mohammad Siahatgar, Gabriele von Voigt
- 10177** TOWARDS THE PETABYTE ERA: POST-PROCESSING AND VISUALIZATION FOR COMPUTATIONAL ENGINEERING
Miguel A. Pasenau, Javier Mora, Jorge Suit, Abel Coll
- 14777** THE SIMULATION POWER OF PARTICLE-BASED METHODS FOR THE PARALLEL COMPUTATION OF A WIDE RANGE OF CHALLENGING ENGINEERING PROBLEMS
Bircan Avci, Jan-Philipp Fürstenau, Peter Wriggers
- 5356** KINETIC MODELS AND ALGORITHMS FOR SOLUTION OF THE MAGNETOGASDYNAMIC PROBLEMS ON THE MODERN SUPERCOMPUTING SYSTEMS
Boris Chetverushkin, Nicola D'Ascenzo, A. Saveliev, Valeri Saveliev

Wednesday, June 8 8:30-10:30 Artemis

MS 113 - 3: MATHEMATICAL AND NUMERICAL MODELING OF THE HEART

MS Organizers: Luca Dede', Luca Pavarino, Alfio Quarteroni
Chair: Luca Dede', Marco Paggi

- 8360** MONODOMAIN/MONODOMAIN 3D/1D COUPLING FOR CARDIAC ELECTRIC PROPAGATION WITH DETAILED PURKINJE NETWORK
Christian Vergara, Simone Palamara, Matthias Lange, Alejandro Frangi, Alfio Quarteroni
- 7148** COMPUTATIONAL MODELING OF CONTACT INTERACTIONS BETWEEN ACTIVE DEFORMABLE CELLS
Alessio Gizzi, Marco Paggi
- 6064** THERMO-ELECTRO-MECHANICAL MODELING OF CARDIAC ARRHYTHMIAS
Christian Cherubini, Flavio Fenton, Simonetta Filippi, Alessio Gizzi, Alessandro Loppini

- 10657** INFLUENCE OF FIBER ARCHITECTURE AND PERICARDIAL BOUNDARY CONDITIONS ON CARDIAC MECHANICS SIMULATIONS
Martin R. Pfaller, Andreas Nagler, Julia M. Hörmann, Martina Weigl, Cristóbal Bertoglio, Wolfgang A. Wall
- 7578** PATIENT SPECIFIC STRESS ANALYSIS AND INFARCT ZONE DETECTION IN LBBB PATIENTS
Sareh Behdadfar, Laurent Navarro, Joakim Sundnes, Molly Maleckar, Stéphane Avril

Wednesday, June 8 8:30-10:30 Aphrodite

MS 103 - 1: MECHANICS OF BIOLOGICAL TISSUES

MS Organizers: Markus Böl, Gerhard A. Holzapfel
Chair: Gerhard A. Holzapfel

- 8166** ON THE MECHANICAL TESTING OF OOCYTES
Markus Böl, Johannes Dittmann
- 6955** INFLUENCE OF MUSCLE COMPRESSION ON DYNAMIC MUSCLE PERFORMANCE
Tobias Siebert, Norman Stutzig, Olaf Till, Christian Rode
- 8900** SKELETAL MUSCLE MECHANICS: MODELLING THE INTERACTION BETWEEN THE MICROSTRUCTURE AND THE ENVIRONMENTAL MECHANICAL ENVELOPE
Christobel Gondwe, Paul N Watton, Xinshan Li
- 11720** BIOMECHANICAL PROPERTIES OF CORNEAL EXTRACELLULAR MATRIX USING EXPERIMENTAL AND COMPUTATIONAL METHODS
Hamed Hatami-Marbini
- 5245** COMPUTATIONAL MODELING OF THE ARTERIAL WALL BASED ON LAYER-SPECIFIC HISTOLOGICAL DATA
Tao Jin, Ilinca Stanculescu

Wednesday, June 8 8:30-10:30 Antigoni

MS 806 - 4: MULTISCALE MODELLING OF MATERIALS AND STRUCTURES

MS Organizers: Tadeusz Burczyński, Xavier Oliver, Maciej Pietrzyk, Alfredo Huespe
Chair: Rolf Mahnken

- 8992** ON APPLICATION OF THE MESHLESS FINITE DIFFERENCE METHOD TO NUMERICAL HOMOGENIZATION
Irena Jaworska
- 8750** CONCURRENT MULTISCALE MODELING OF CONCRETE MEMBERS USING FINITE ELEMENTS WITH HIGH ASPECT RATIO AND COUPLING FINITE ELEMENTS
Osvaldo L. Manzoli, Eduardo A. Rodrigues, Luís A.G. Bitencourt Jr, Túlio N. Bittencourt
- 8594** ASYMPTOTIC HOMOGENIZATION OF HYGRO-THERMO-ELASTIC PROPERTIES OF FIBROUS NETWORKS
Emanuela Bosco, Ron H.J. Peerlings, Marc G.D. Geers
- 8363** ANALYSIS OF PREDICTIVE CAPABILITIES OF MULTISCALE PHASE TRANSFORMATION MODELS BASED ON THE NUMERICAL SOLUTION OF HEAT TRANSFER AND DIFFUSION EQUATIONS
Monika Pernach, Krzysztof Bzowski, Lukasz Rauch, Maciej Pietrzyk

6874 HYBRID FE/XFE FINITE ELEMENT MODEL FOR SIMULATION OF BRITTLE-DUCTILE FRACTURES IN DUAL-PHASE STEEL GRADES.
Konrad Perzynski, Lukasz Madej

9063 ISOGEOMETRIC DEFORMATION OF TWO DIMENSIONAL STATISTICALLY SIMILAR REPRESENTATIVE VOLUME ELEMENT BY USING T-SPLINES
Daniel Bachniak, Lukasz Rauch, Maciej Pietrzyk

Wednesday, June 8 **Apollo East**
8:30-10:30

MS 801 - 3: MULTISCALE COMPUTATIONAL HOMOGENIZATION FOR BRIDGING SCALES IN THE MECHANICS AND PHYSICS OF COMPLEX MATERIALS

MS Organizers: Julien Yvonnet, Kenjiro Terada, Peter Wriggers, Marc Geers

Chair: Kenjiro Terada

6901 HOMOGENIZATION-BASED DESIGN AND OPTIMIZATION OF LUBRICATION INTERFACE TEXTURES
Abdullah Waseem, Ilker Temizer, Junji Kato, Kenjiro Terada

9978 A NUMERICAL INCREMENTAL HOMOGENIZATION APPROACH TO CALCULATE ELASTOPLASTIC HETEROGENEOUS STRUCTURES
Trung Hieu Hoang, Mohamed Guerich, Julien Yvonnet

7449 PREDICTION OF INTRA- AND INTER-LAMINAR FAILURE OF LAMINATES USING NON-LOCAL DAMAGE-ENHANCED MEAN-FIELD HOMOGENIZATION SIMULATIONS
Ling Wu, Federico Sket, Laurent Adam, Issam Doghri, Ludovic Noels

8897 MULTIPHYSICS ANALYSIS OF HYGROTHERMAL AGEING OF GLASS/EPOXY COMPOSITES IN AN FE2 FRAMEWORK
I. B. C. M. Rocha, R. P. L. Nijssen, F. P. van der Meer, L. J. Sluys

10089 COMPUTATIONAL HOMOGENIZATION OF HETEROGENEOUS MATERIALS AT LARGE DEFORMATIONS
Saba Saeb, Paul Steinmann, Ali Javili

Wednesday, June 8 **Apollo West**
8:30-10:30

MS 1308: MODELLING AND INVERSE METHODS IN NONLINEAR DYNAMICAL SYSTEMS

MS Organizers: Sotirios Natsiavas, Costas Papadimitriou, Eleni Chatzi, Dimitrios Giagopoulos

Chair: Dimitrios Giagopoulos

9925 MULTISCALE MODELLING OF DYNAMICAL SYSTEMS WITH FRICTION BETWEEN RANDOMLY ROUGH SURFACES
Carsten Proppe

8413 DYNAMICS OF MULTIBODY SYSTEMS SUBJECT TO UNILATERAL MOTION CONSTRAINTS USING A NEW NUMERICAL ALGORITHM FOR CONTACT DETECTION
Antonios Pournaras, Fotios Karaoulanis, Sotirios Natsiavas

4806 ON THE EXISTENCE OF NONLINEAR NORMAL MODES
George Haller

8597 PARAMETER ESTIMATION OF NONLINEAR LARGE SCALE SYSTEMS THROUGH STOCHASTIC METHODS AND MEASUREMENT OF ITS DYNAMIC RESPONSE
Dimitrios Giagopoulos, Alexandros Arailopoulos

8418 EQUATIONS OF MOTION FOR MECHANICAL SYSTEMS SUBJECT TO ACATASTATIC CONSTRAINTS
Sotirios Natsiavas, Elias Paraskevopoulos

8361 FINITE ELEMENT METAMODELING OF UNCERTAIN STRUCTURES
Vasilis Dertimanis, Dimitris Giagopoulos, Eleni Chatzi

Wednesday, June 8 **Room 1**
8:30-10:30

MS 409 - 1: CURRENT TRENDS IN MODELLING AND SIMULATION OF TURBULENT FLOWS

MS Organizers: Suad Jakirlić, ERCOFTAC SIG15

Chair: Suad Jakirlić

9720 KEYNOTE: ON THE UNIVERSALITY OF NEAR-WALL TURBULENCE IN THE PRESENCE OF ENERGETIC OUTER STRUCTURES
Michael Leschziner, Lionel Agostini

7179 WALL MODEL FOR DISCONTINUOUS GALERKIN IMPLICIT LARGE-EDDY SIMULATIONS
Ariane Frère, Koen Hillewaert, Philippe Chatelain, Grégoire Winckelmans

8430 A NEW METHOD OF A PRIORI TEST USING ANALYTICAL SOLUTION OF FLOWS AROUND ELLIPTICAL BURGERS VORTEX
Hiromichi Kobayashi

7465 LARGE-EDDY SIMULATION AND FAR FIELD ACOUSTICS OF A SUBSONIC HOT JET
Odile Labbé

8354 NUMERICAL ANALYSIS OF A STRAIGHT VORTEX TUBE IN A LAMINAR BOUNDARY-LAYER FLOW
Kazuo Matsuura

Wednesday, June 8 **Room 2**
8:30-10:30

STS 3 - 1: INNOVATIVE DESIGN OPTIMIZATION TOOLS LINKED TO INDUSTRIAL AERONAUTICAL APPLICATIONS: TARGETING GREENER PERFORMANCES

STS Organizers: Jacques Periaux, Gabriel Bugada

Chair: Pedro Díez

14227 EFFICIENT METHODOLOGIES FOR ROBUST DESIGN OPTIMIZATION WITH LARGE NUMBER OF UNCERTAINTIES
Alberto Clarich

14228 ACCURACY ASSESSMENT OF GENERALIZED PARAMETRIC SOLUTIONS FOR OPTIMIZATION AND UNCERTAINTY QUANTIFICATION
Pedro Díez, Sergio Zlotnik, Raquel García-Blanco

14239 ADJOINT METHODS FOR EFFICIENT OPTIMIZATION AND CONTROL IN CFD AND CAA
Nicolas Gauger

15521 COMBINING AN RBF-BASED MORPHER WITH CONTINUOUS ADJOINT FOR LOW-SPEED AERONAUTICAL OPTIMIZATION APPLICATIONS
Evangelos Papoutsis-Kiachagias, Matej Andrejasic, Stefano Porziani, Corrado Groth, David Erzen, Marco Evangelos Biancolini, Emiliano Costa, Kyriakos Giannakoglou

14247 A COOPERATIVE APPROACH TO MULTI-LEVEL MULTI-DISCIPLINARY AIRCRAFT OPTIMIZATION
Caslav Ilic, Mohammad bu-Zurayk

Wednesday, June 8 **Room 3**
8:30-10:30

MS 1207: COMPUTATIONAL SIMULATION OF SMART STRUCTURES AND MATERIALS

MS Organizers: Ruediger Schmidt, Kai-Uwe Schröder

Chair: Kai-Uwe Schröder

10061 TRANSVERSE WAVE PROPAGATION IN A ONE-DIMENSIONAL STRUCTURE COUPLED TO ITS ELECTRICAL ANALOGUE: COMPARISON OF TRANSFER MATRIX MODELS
Boris Lossouarn, Mathieu Aucejo, Jean-François Deü

12010 A NEW COMPUTATIONAL FRAMEWORK FOR LARGE STRAIN ELECTROMECHANICS
Antonio J. Gil, Rogelio Ortigosa

10374 MODELING OF A LARGE SPACE STRUCTURE FOR THERMAL DEFORMATION COMPENSATION ANALYSIS
Kaori Shoji, Motofumi Usui, Daigoro Isobe

10109 REDUNDANCY DISTRIBUTION AND ADAPTIVE STRUCTURES
Malte von Scheven, Ekkehard Ramm, Manfred Bischoff

8188 A MULTIPHYSICS FINITE ELEMENT MODEL FOR FUNCTIONALLY GRADED MAGNETO-ELECTRO-ELASTIC STRUCTURES
Narasimha Rao Mekala, Rüdiger Schmidt, Kai-Uwe Schröder

Wednesday, June 8 **Room 4**
8:30-10:30

CS 110 - 6: NUMERICAL MODELS IN BIOMECHANICS

Chair: Suvranu De

9990 MODELING OF THERMOMECHANICAL DAMAGE OF ULTRASONICALLY ACTIVATED SOFT TISSUE
Rahul, Suvranu De

8248 SHEAR WAVES IN DEFORMED ELASTIC MATERIALS
Adela Capilnasiu, Daniel Fovargue, Ondrej Holub, Ralph Sinkus, David Nordsletten

10742 EFFECT OF PERIVASCULAR TISSUE ON INFLATION-EXTENSION BEHAVIOR OF ABDOMINAL AORTA
Tereza Voňavková, Lukáš Horný, Jan Veselý, Tomáš Adámek, Rudolf Žitný

10966 EFFECT OF STERILIZATION ON MECHANICAL PROPERTIES OF BIOLOGICAL COMPOSITE
Jan Vesely, Hynek Chlup, Rudolf Zitny, Tomas Grus

Wednesday, June 8 **Room 5**
8:30-10:30

CS 410 - 4: COMPUTATIONAL FLUID MECHANICS

Chair: Sergey Utyuzhnikov

9832 DOMAIN DECOMPOSITION APPROACH FOR NEAR-WALL TURBULENCE MODELING
Sergey Utyuzhnikov

6041 THE INLET AND OUTLET BOUNDARY PROBLEM WITH THE PREFERENCE OF MASS FLOW
Martin Kyncl, Jaroslav Pelant

6625 POSTPROCESSING OF NON-LOCALLY CONSERVATIVE FLUX
Lars Hov Odsæter, Trond Kvamsdal, Mary Fanett Wheeler, Mats G. Larson

6795 A STAGGERED PRESSURE CORRECTION SCHEME TO COMPUTE A COMPRESSIBLE FLOW WITH A TRAVELLING REACTIVE INTERFACE
Laura Gastaldo, Dionysios Grapsas, Raphaële Herbin, Jean-Claude Latché

4619 AN ADAPTIVE FIXED-MESH ALE METHOD FOR FREE SURFACE FLOWS
Joan Baiges, Ramon Codina, Ernesto Castillo, Arnau Pont

Wednesday, June 8 **Room 7**
8:30-10:30

MS 114: COMPUTER MODELING OF BALANCE AND HEARING DISORDERS

MS Organizers: Nenad Filipovic, Thanos Bibas

Chair: Tijana Djukic

10709 **KEYNOTE:** REAL TIME OTOCONIA PARTICLE TRACKING IN THE SIMPLIFIED SEMI-CIRCULAR CANAL
Tijana Djukic, Nenad Filipovic

10756 MODELING OF FLUID-STRUCTURE INTERACTION OF THREE SEMI-CIRCULAR CANALS
Zarko Milosevic, Igor Saveljic, Dalibor Nikolic, Milos Radovic, Velibor Isailovic, Nenad Filipovic

9007 ELECTRO-MECHANICAL COCHLEA MODEL
Milica Nikolic, Velibor Isailovic, Nenad Filipovic

12102 AN EEG STUDY OF THE EFFECTS OF MUSIC STIMULATION ON EMOTIONAL VALENCE RESPONSE
Bojana Andjelkovic Cirkovic, Mirko Rosic, Aleksandar Peulic, Maja Colic, Nenad Filipovic

8959 THE REALISTIC THREE-DIMENSIONAL MODEL OF THE MIDDLE AND INNER EAR
Velibor Isailovic, Athanasios Bibas, Antonis Sakellarios, Nikolaos Tachos, Milica Nikolic, Dalibor Nikolic, Igor Saveljic, Nenad Filipovic

Wednesday, June 8 **Room 8**
8:30-10:30

MS 613: COMPUTATIONAL STRATEGIES FOR THE SIMULATION OF TURBULENT TRANSPORT AND MIXING IN THE NATURAL ENVIRONMENT

MS Organizers: Fotis Sotiropoulos, Peter J. Diamessis

Chair: Fotis Sotiropoulos

8967 **KEYNOTE:** TRANSPORT AND MIXING DUE TO BREAKING INTERNAL GRAVITY WAVES ON SLOPES
Oliver Fringer, Robert Arthur

10558 A SPECTRAL MULTIDOMAIN PENALTY METHOD MODEL FOR THE SIMULATION OF INTERNAL SOLITARY WAVE SHOALING AND BREAKING OVER GENTLE SLOPES
Sumedh Joshi, Greg Thomsen, Peter Diamessis, Gustavo Rivera-Rosario

4738 FULLY COUPLED HYDRO-MORPHODYNAMICS MODELING OF THE MISSISSIPPI RIVER
Ali Khosronejad, Fotis Sotiropoulos

4733 SIMULATING THE BOUNDARY LAYER BELOW INTERNAL SOLITARY WAVES: NUMERICAL CHALLENGES AND PHYSICAL PROCESSES
Marek Stastna, Sandhya Harnanan, Nancy Soontiens

- 5451 MULTISCALE GEOPHYSICAL SIMULATIONS: NESTING A LARGE EDDY SIMULATION WITHIN A REGIONAL OCEAN MODEL (SOMAR) WITH ADAPTIVE MESH REFINEMENT
Alberto Scotti, Vamsi Chalamalla, Edward Santilli, Sutanu Sarkar

Wednesday, June 8 **Room 9**
8:30-10:30

MS 1217 - 2: COMPUTATIONAL METHODS IN EARTHQUAKE ENGINEERING AND STRUCTURAL DYNAMICS

MS Organizers: Vagelis Plevris, Georgia Kremmyda, Yasin Fahjan
Chair: Vagelis Plevris

- 7958 BEAM DYNAMIC STRESSES INCREMENTS AFTER PARTIAL DECONSTRUCTION OF FOUNDATION
Vladimir Gordon, Olga Pilipenko, Timur Gasimov
- 10373 MODELLING OF HINGES IN SEGMENTED TUNNELS
Gelacio Juárez-Luna, Enrique Tenorio-Montero
- 5973 EFFECT OF SOIL SPATIAL VARIABILITY ON THE DYNAMIC BEHAVIOR OF A SLOPE
Michael Michael, Tamara Al-Bittar, Abdul-Hamid Soubra
- 7922 BULK SOLITARY WAVES AS THE BOX TOOL FOR NON-DESTRUCTIVE EVALUATION
Alexander Samsonov, Irina Semenova, Olga Moskaljuk, Vladimir Yudin
- 7129 THE INFLUENCE OF UNCERTAINTY OF DESIGN PARAMETERS ON DYNAMIC CHARACTERISTICS OF STRUCTURE WITH DAMPERS
Magdalena Lasecka-Plura, Roman Lewandowski
- 7987 RELIABILITY OF SYSTEMS EQUIPPED WITH VISCOUS DAMPERS WITH VARIABLE PROPERTIES
Andrea Dall'Asta, Laura Ragni, Fabrizio Scozzese, Enrico Tubaldi

Wednesday, June 8 **Room 10**
8:30-10:30

MS 1220: DYNAMICS OF STRUCTURES SUBJECT TO SEISMIC EXCITATIONS

MS Organizers: Michel Géradin, Evtim Zahariev, Evangelos J. Sapountzakis

Chair: Evtim Zahariev, Evangelos J. Sapountzakis

- 10352 A FINITE ELEMENT APPROACH TO ANALYZE MOTION BEHAVIORS OF INDOOR NON-STRUCTURAL COMPONENTS OF BUILDINGS
Daigoro Isobe, Masato Katagiri, Takashi Fujiwara, Toshiki Miura
- 8477 NONLINEAR DYNAMIC BEHAVIOUR OF BASE-ISOLATED BUILDINGS WITH THE FRICTION PENDULUM SYSTEM SUBJECTED TO NEAR-FAULT EARTHQUAKES
Fabio Mazza, Sandro Sisino
- 9085 ABSOLUTE FINITE ELEMENT COORDINATES IN THE DYNAMICS OF LARGE FLEXIBLE STRUCTURES
Evtim Zahariev
- 11322 EQUIVALENT UNIAXIAL ACCELEROGRAM FOR CSS-BASED ISOLATION SYSTEMS ASSESSMENT UNDER TWO-COMPONENTS SEISMIC EVENTS
Marco Furinghetti, Alberto Pavese
- 10717 MODAL ANALYSIS OF A FRAME MODEL UNDER UNMEASURED SEISMIC INPUT
Claudio Valente, Vincenzo Sepe, Marco Di Pilla, Fabrizio Iezzi, Rossella Siano, Luigia Zuccarino

Wednesday, June 8 **Room 11**
8:30-10:30

MS 410 - 1: COMPLEX FLUID FLOWS IN ENGINEERING: MODELLING, SIMULATION AND OPTIMIZATION

MS Organizers: Stefanie Elgeti, Philipp Knechtges

Chair: Philipp Knechtges

- 8142 TOPOLOGY OPTIMIZATION FOR UNSTEADY THERMAL FLOW PROBLEMS USING THE LATTICE BOLTZMANN METHOD
Sebastian Nørgaard, Ole Sigmund, Boyan Lazarov
- 9318 A FINITE ELEMENT FLUID-STRUCTURE INTERACTION MODEL FOR PARTICLE SUSPENSIONS IN VISCOELASTIC FLOW
Yongxing Wang, Mark Walkley, Peter Jimack
- 8680 ADVANCES IN GEOMETRICAL PARAMETRIZATION AND REDUCED ORDER MODELS AND METHODS FOR COMPUTATIONAL FLUID DYNAMICS PROBLEMS IN APPLIED SCIENCES AND ENGINEERING: OVERVIEW AND PERSPECTIVES
F. Salmoiraghi, F. Ballarin, G. Corsi, A. Mola, M. Tezzele, G. Rozza
- 4666 SIMULATION OF FLUID PENETRATION IN INKJET PRINTING PROCESSES
Simon Praetorius, Axel Voigt
- 6808 SENSITIVITY STUDY OF THE NUMERICAL SETUP FOR AN AUTOMATIC OPTIMIZATION PROCEDURE FOR A HYDRAULIC MACHINE
Alexander Tismer, Markus Schlipf, Stefan Riedelbauch
- 7786 NUMERICAL PREDICTION OF PRESSURE DROP AND LAMINAR INSTABILITIES IN FULLY-DEVELOPED FLOW IN A CLOSED COMPOUND CHANNEL
Jalusa Ferrari, Jhon Goulart, Sandi Souza

Wednesday, June 8 **Room 12**
8:30-10:30

MS 601: SHOCK WAVE-BOUNDARY LAYER INTERACTION AND ITS CONTROL

MS Organizers: Piotr Doerffer, George Barakos

Chair: Piotr Doerffer, George Barakos

- 11964 SHOCK WAVE BOUNDARY LAYER INTERACTION IN PROFILE CASCADES REPRESENTING ROTOR BLADINGS OF THE LAST STAGE OF LARGE OUTPUT STEAM TURBINES
Martin Luxa, David Simurda, Jaromir Prihoda, Jana Vachova
- 10540 NUMERICAL SIMULATION OF TRANSONIC BUFFET AND ITS CONTROL USING TANGENTIAL JET BLOWING
Ksenia Abramova, Kamil Khairullin, Alexander Ryzhov, Vitaly Soudakov
- 11845 ACTIVE FLOW CONTROL BY JET INJECTION ON SHOCK-BOUNDARY LAYER INTERACTION PHENOMENA
Takahiro Ukai, Hossein Zare-Behtash, Kinling Lo, Konstantinos Kontis
- 11922 EXPERIMENTAL STUDY OF A TRANSITIONAL OBLIQUE SHOCK-WAVE / BOUNDARY LAYER INTERACTION
Reynald Bur, Pascal Molton
- 12038 ANALYSIS OF EFFECTS OF SHAPE AND LOCATION OF MICRO-TURBULATORS ON UNSTEADY SHOCKWAVE - BOUNDARY LAYER INTERACTION IN TRANSONIC FLOW
Janusz Sznajder, Tomasz Kwiatkowski
- 11983 SHOCK WAVE BOUNDARY LAYER INTERACTION INVESTIGATION: CONTROL BY ROD VORTEX GENERATORS AND THEIR APPLICATION ON HELICOPTER ROTOR BLADES
Fernando Tejero Embuena, Piotr Doerffer, Pawel Flaszynski

Wednesday, June 8 **Room 15**
8:30-10:30

MS 307: ADVANCES IN FINITE ELEMENT METHODS FOR TETRAHEDRAL MESH COMPUTATIONS

MS Organizers: Guglielmo Scovazzi, Antonio J. Gil, Micheal W. Gee

Chair: Guglielmo Scovazzi

- 11316** A SIMPLE LINEAR TETRAHEDRAL FINITE ELEMENT FOR INCOMPRESSIBLE SOLID DYNAMICS: A VARIATIONAL MULTISCALE APPROACH
Guglielmo Scovazzi, Xianyi Zeng, Simone Rossi
- 8297** DESIGNING TETRAHEDRAL FINITE ELEMENTS WITH SMOOTH POLYNOMIAL INTERPOLATION
Stefanos-Aldo Papanicolopoulos, Antonis Zervos
- 11730** IMPLICIT FINITE INCOMPRESSIBLE ELASTODYNAMICS WITH LINEAR FINITE ELEMENTS
Simone Rossi, Nabil Abboud, Guglielmo Scovazzi
- 10995** ADAPTIVE MESHING METHOD FOR TURBULENT FLOW SIMULATIONS
Laure Billon, Youssef Mesri, Elie Hachem
- 11309** A FIRST ORDER HYPERBOLIC FRAMEWORK FOR LARGE STRAIN COMPUTATIONAL SOLID DYNAMICS: AN UPWIND FINITE VOLUME METHOD
Chun Hean Lee, Antonio J. Gil, Jibran Haider, Osama Ibrahim, Javier Bonet

Wednesday, June 8 **Room 17**
8:30-10:30

CS 1300 - 2: UNCERTAINTY QUANTIFICATION AND ERROR ESTIMATION

Chair: Paul Hauseux

- 11370** EFFICIENT PROPAGATION OF UNCERTAINTY THROUGH AN INVERSE NON-LINEAR DEFORMATION MODEL OF SOFT TISSUE
Paul Hauseux, Jack S. Hale, Stéphane P. A. Bordas
- 5569** INTRACOECHLEAR POTENTIAL PREDICTION ACCOUNTING FOR BONE CONDUCTIVITY UNCERTAINTY
Nerea Mangado, Jordi Pons-Prats, Mario Ceresa, Gabriel Bugada, Miguel Á. González Ballester
- 7799** FAILURE PROBABILITY OF A SYSTEM WITH COMMON CAUSE FAILURES BY MULTIVARIATE EXPONENTIAL DISTRIBUTION
Megumi Maruyama, Tetsushi Yuge, Shigeru Yanagi
- 7622** THE UPLIFT CAPACITY OF HORIZONTAL PLATE ANCHORS IN SPATIALLY VARIABLE CLAY USING SPARSE POLYNOMIAL CHAOS EXPANSIONS
Tom Charlton, Mohamed Rouainia
- 8559** FATIGUE RELIABILITY OF AGEING RAILWAY BRIDGES: FEASIBILITY OF PROBABILISTIC APPROACH
Nirosha D. Adasooriya

Wednesday, June 8 **Room 18**
8:30-10:30

MS 1007 - 2: ADDITIVE MANUFACTURING AND OPTIMIZATION

MS Organizers: Ekkehard Ramm, Ole Sigmund, Pierre Duysinx, Wing Kam Liu

Chair: Ekkehard Ramm, Claus B.W. Pedersen

- 9250** OPTIMUM LAYOUT OF COMPONENTS INCLUDING CELLULAR MATERIALS USING A GENERALIZED DISCRETE MATERIAL OPTIMIZATION APPROACH
Pierre Duysinx, Maxime Collet, Eduardo Fernandez, Simon Bauduin, Michael Bruyneel
- 10306** MULTI-SCALE TOPOLOGY OPTIMIZATION CONSIDERING MECHANICAL AND THERMAL STRESS FORCES FOR ADDITIVE MANUFACTURING
Junji Kato, Shunsuke Nishizawa, Takashi Kyoya, Kenjiro Terada
- 6404** STUDY OF TOPOLOGY OPTIMIZATION PARAMETERS AND SCAFFOLD STRUCTURES IN ADDITIVE MANUFACTURING
Alain Garaigordobil, Ruben Ansola, Estrella Veguería
- 14751** OBTAINING ULTRA-LIGHT AND HIGH-PERFORMANCE STRUCTURES USING TOPOLOGY OPTIMIZATION AND ADDITIVE MANUFACTURING
Ji-Hong Zhu, Wei-Hong Zhang
- 7389** IMPROVING THE WORKFLOW FROM DESIGN TO PRODUCTION OF TOPOLOGICAL OPTIMIZED PARTS BY USING ADDITIVE MANUFACTURING
Simon Vermeir, Miguel Godino

Wednesday, June 8 **Room 20**
8:30-10:30

MS 907 - 1: REGULARIZED ENRICHED APPROXIMATIONS AND QUADRATURE FOR DISCONTINUITIES, SINGULARITIES AND CONTINUOUS-DISCONTINUOUS TRANSITION

MS Organizers: Elena Benvenuti, Giulio Ventura, José M.A. César de Sá

Chair: Giulio Ventura

- 9492** KEYNOTE: APPLICATION OF THE DIFFERENCE POTENTIAL METHOD TO LINEAR ELASTIC FRACTURE MECHANICS PROBLEMS
Huw Woodward, Sergei Utyuzhnikov, Patrick Massin
- 9460** CONTINUOUS MODEL FOR DUCTILE FRACTURE USING A PHASE-FIELD MODEL
Erfan Azinpour, Abel D. Santos, Jose Cesar de Sa
- 7934** STABILIZING THE XFEM: EXTENSION TO FINITE DEFORMATIONS, INELASTIC MATERIAL BEHAVIOUR, MATERIAL INSTABILITIES AND MULTIFIELD PROBLEMS
Stefan Loehnert
- 7672** G-THETA METHOD AND FAST MARCHING METHOD FOR THREE-DIMENSIONAL CRACK PROPAGATION
Matthieu Le Cren, Patrick Massin, Alexandre Martin, Nicolas Moës
- 7771** ON NEW INTEGRATION METHODS FOR X-FEM IN SOLID MECHANICS PLASTICITY.
Alexandre Martin, Nunziante Valoroso, Patrick Massin

Wednesday, June 8 **Room 21**
8:30-10:30

MS 404 - 3: SIMULATION OF ENVIRONMENTAL FLOWS

MS Organizers: Pablo Ortiz, Piotr K. Smolarkiewicz, Joanna Szmelter

Chair: Piotr K. Smolarkiewicz

- 7463** HIGH ORDER ADAPTIVE METHODS FOR ENVIRONMENTAL FLUID DYNAMICS
Luca Bonaventura, Giovanni Tumolo
- 11635** STABILIZING/OPTIMIZING FLUVIAL-SHALLOW WATER SYSTEMS WITH DISCONTINUOUS GALERKIN METHODS
Craig Michoski, Clint Dawson, Maximilian Bremer, Ali Samii
- 4876** NUMERICAL INVESTIGATION OF 2-D BUOYANCY DRIVE FLOWS: LOCK EXCHANGE VS. OVERFLOWS
Kiran Bhaganagar, Manjure Nayamatullah
- 5981** PROJECTION-BASED MODEL REDUCTION FOR FINITE ELEMENT APPROXIMATION OF SHALLOW WATER FLOWS
Matthew Farthing, Alexander Lozovskiy, Christopher Kees
- 6611** NUMERICAL MODELLING OF INCIPIENT SEDIMENT TRANSPORT OF ELLIPSOIDAL PARTICLES
Rafael Bravo, Pablo Ortiz

Wednesday, June 8 **Room 22**
8:30-10:50

Olympiad - 1

Chair: Emmanuel Tromme

- 16490** ON THE EQUIVALENT STATIC LOAD METHOD FOR THE STRUCTURAL OPTIMIZATION OF MECHANICAL SYSTEMS ACCOUNTING FOR MULTICOMPONENT-BASED CONSTRAINTS
Emmanuel Tromme, Valentin Sonneville, James K. Guest, Olivier Brûls, Pierre Duysinx
- 16373** HIGH-ORDER ARBITRARY LAGRANGIAN EULERIAN ONE-STEP WENO FINITE VOLUME SCHEMES ON TETRAHEDRAL MESHES FOR CONSERVATIVE AND NONCONSERVATIVE HYPERBOLIC BALANCE LAWS
Walter Boscheri, Michael Dumbser
- 5812** INTEGRATION OF DESIGN AND ANALYSIS THROUGH BOUNDARY INTEGRAL EQUATIONS
Benjamin Marussig, Jürgen Zechner, Gernot Beer, Thomas-Peter Fries

- 16384** MODEL ORDER REDUCTION METHODS FOR PARAMETER-DEPENDENT EQUATIONS – APPLICATIONS IN UNCERTAINTY QUANTIFICATION
Olivier Zahm
- 16492** INERTIAL REGIMES OF SUSPENSION OF FINITE-SIZE RIGID PARTICLES
Iman Lashgari
- 16474** LIMIT STATE NUMERICAL PROCEDURES FOR CYCLICALLY LOADED ELASTOPLASTIC STRUCTURES
Konstantinos Panagiotou
- 16455** FULLY RELIABLE A POSTERIORI ERROR CONTROL FOR EVOLUTIONARY PROBLEMS
Svetlana Matculevich, Sergey Repin, Pekka Neittaanmäki

Wednesday, June 8 **Room 23**
8:30-10:30

MS 1009 - 2: ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION

MS Organizers: Kyriakos C. Giannakoglou, Jens Dominik Mueller

Chair: Kyriakos C. Giannakoglou

- 8006** SENSITIVITY ANALYSIS FOR FORCED RESPONSE IN TURBOMACHINERY USING AN ADJOINT HARMONIC BALANCE METHOD
Anna Engels-Putzka, Christian Frey
- 7761** ADJOINT SHAPE OPTIMISATION FOR SOLIDS REMOVAL FROM MULTIPHASE FLOW
Shenan Grossberg, Daniel Jarman, Mark Savill, Hrvoje Jasak, Gavin Tabor
- 9092** UNSTEADY ADJOINT TO THE CUT-CELL METHOD USING MESH ADAPTATION ON GPU'S
Konstantinos Samouchos, Stergios Katsanoulis, Kyriakos Giannakoglou
- 6428** A CODE-COUPPLING APPROACH TO THE IMPLEMENTATION OF DISCRETE ADJOINT SOLVERS BASED ON AUTOMATIC DIFFERENTIATION
Jan Backhaus, Anna Engels-Putzka, Christian Frey
- 5687** ON THE CORRECT APPLICATION OF AD CHECKPOINTING TO ADJOINT MPI-PARALLEL PROGRAMS
Ala Taftaf, Laurent Hascoët

10:30-11:00
Coffee Break

TECHNICAL SESSIONS

Wednesday, June 8 **Zeus East**
11:00-13:00

MS 106 - 3: DIRECT AND INVERSE METHODS FOR CARDIOVASCULAR AND PULMONARY BIOMECHANICS

MS Organizers: Wolfgang A. Wall, C. Alberto Figueroa, Marek Behr
Chair: Kenneth Jansen

- 7150 KEYNOTE:** INVERSE CHARACTERIZATION OF REGIONAL, NONLINEAR AND ANISOTROPIC PROPERTIES OF ARTERIES
Stephane Avril, Chiara Bellini, Matthew R. Bersi, Paolo Di Achille, Katia Genovese, Jay D. Humphrey
- 11236 KEYNOTE:** COMPREHENSIVE AND PATIENT-SPECIFIC COMPUTATIONAL LUNG MODELING AND A NOVEL VALIDATION APPROACH
Wolfgang A. Wall, Christian J. Roth, Anna Birzle, Lena Yoshihara
- 9622** STABILITY OF NUMERICAL SCHEMES FOR THE MULTI-DIMENSIONAL MODELLING OF 3D/0D AIRFLOWS AND BLOOD FLOWS
Celine Grandmont, Sebastien Martin
- 11257** AGILE BOUNDARY CONDITION MODEL DESIGN IN SIMULATED HAEMODYNAMICS
Christopher J Arthurs, Miguel S Vieira, Rostislav Khlebnikov, C Alberto Figueroa
- 10840** IMAGE-BASED MULTISCALE, MULTIDOMAIN COMPUTATIONAL MODELLING OF PULMONARY BIOMECHANICS
Miguel Silva Vieira, Christopher J. Arthurs, Desmond Dillon-Murphy, Rostislav Khlebnikov, C. Alberto Figueroa

Wednesday, June 8 **Zeus West**
11:00-13:00

MS 112 - 4: ANEURYSMS: SOLID MECHANICS, FLUID MECHANICS, AND MECHANOBIOLOGY

MS Organizers: Christian J. Cyron, Sven Hirsch, Philippe Bijlenga, Roland C. Aydin, Anne M. Robertson, Gerhard A. Holzapfel

Chair: Anne M. Robertson, Sven Hirsch

- 9438** THE ROLE OF BIOMECHANICAL FORCES IN INTRACRANIAL ANEURYSM GROWTH AND RUPTURE
Mannekomba Roxane Diagbouga, Sandrine Morel, Vincent Braunersreuther, Esther Sutter, Marie-Luce Bochaton-Piallat, Philippe Bijlenga, Brenda R. Kwak
- 8803** THE POTENTIAL ROLE OF LIPID ACCUMULATION IN INTRACRANIAL ARTERY ANEURYSM WALL DEGENERATION AND ITS RELATION TO THE HEMODYNAMICS
Riikka Tulamo, Eliisa Ollikainen, Juan Cebal, Mika Niemelä, Anne Robertson, Juhana Frösen
- 8935** STAGNANT BLOOD FLOW IN CEREBRAL ANEURYSMS
Shin-ichiro Sugiyama, Makoto Ohta, Teiji Tominaga
- 7568** COMPUTATIONAL FLUID DYNAMICS TO EVALUATE SACULAR AORTIC DISEASE
Rodrigo Romarowski, Simone Morganti, Alessandro Veneziani, Ferdinando Auricchio
- 9305** ANEURYSM MORPHOLOGY AND FLOW VELOCITY CURVES
Hernán G. Morales, Odile Bonnefous, Olivier Brina, Vitor Mendes Pereira, Laurent Spelle, Jacques Moret

- 9338** EFFECTIVE REMODELING IN THE WALLS OF CEREBRAL ANEURYSMS
Anne Robertson, Xinjie Duane, Khaled Aziz, Juan Cebal

Wednesday, June 8 **Zeus North**
11:00-13:00

MS 901 - 4: ISOGEOMETRIC METHODS

MS Organizers: Yuri Bazilevs, David J. Benson, Rene De Borst, Thomas J.R. Hughes, Trond Kvamsdal, Alessandro Reali, Giancarlo Sangalli, Clemens V. Verhoosel

Chair: Trond Kvamsdal

- 7097** ISOGEOMETRIC-BASED TOOLS TO SUPPORT CARDIOVASCULAR BIOMECHANICS RESEARCH
Mauro Ferraro, Ferdinando Auricchio, Michele Conti, Laura De Lorenzis, Simone Morganti, Alessandro Reali, Robert L. Taylor
- 12126** DOMAIN DECOMPOSITION SOLUTION SCHEMES FOR LARGE-SCALE IGA PROBLEMS
George Stavroulakis, Dimitris Tsapetis, Manolis Papadrakakis
- 11132** A NEW ROTATION-FREE ISOGEOMETRIC FINITE SHELL ELEMENT WITH DIFFERENT ROTATION CONDITIONS FOR BOUNDARIES AND PATCH INTERFACES
Thang X. Duong, Farshad Roohbakhshan, Roger A. Sauer
- 5343** AN INTERPOLATION-BASED FAST MULTIPOLE METHOD FOR HIGHER ORDER BOUNDARY ELEMENTS ON PARAMETRIC SURFACES
Jürgen Dölz, Helmut Harbrecht, Michael Peters
- 5814** LOCAL ENRICHMENT OF NURBS PATCHES USING A NON-INTRUSIVE COUPLING STRATEGY.
Robin Bouclier, Jean-Charles Passieux, Michel Salaun
- 11125** ISOGEOMETRIC HYDRODYNAMICS
Ido Akkerman

Wednesday, June 8 **Minos East**
11:00-13:00

MS 1101 - 7: REDUCED BASIS, POD AND PGD MODEL ORDER REDUCTION TECHNIQUES

MS Organizers: Francisco Chinesta, Elias Cueto, Antonio Huerta, Pierre Ladeveze, Gianluigi Rozza

Chair: Elias Cueto

- 10498** THE EFFECT OF SYSTEM LEVEL MODEL ORDER REDUCTION IN (CONTACTING) FLEXIBLE MULTIBODY SIMULATION ON THE SIMULATION TIMESTEP
Frank Naets, Martijn Vermaut, Wim Desmet
- 10699** TOWARDS A NON-INTRUSIVE PROPER GENERALIZED DECOMPOSITION SCHEME FOR MODEL ORDER REDUCTION
Xi Zou, Pedro Diez, Michele Conti, Ferdinando Auricchio
- 12062** A MODEL ORDER REDUCTION TECHNIQUE APPLIED TO MULTI-SCALE THERMO-MECHANIC PROBLEMS
Andrea Barbarulo, Ahmed Sridi, Romain Ruysen, Hachmi Ben-dhia
- 15963** ON A REDUCED BASIS SMAGORINSKY TURBULENCE MODEL
Enrique Delgado Avila
- 7376** NONLINEAR MODEL ORDER REDUCTION WITH ADAPTIVE BASIS
Johannes Rutzmoser, Daniel Rixen

Wednesday, June 8 11:00-13:00 Minos North MS 403 - 1: PARTICLE-BASED METHODS IN FLUID MECHANICS <i>MS Organizers:</i> Sergio Idelsohn, Eugenio Oñate <i>Chair:</i> Sergio Idelsohn, Eugenio Oñate 8341 KEYNOTE: A VARIATIONAL, FIC-BASED FORMULATION FOR PARTICLE FINITE ELEMENT METHODS STABILIZED WITH HIGH ORDER SPATIAL DERIVATIVES <i>Carlos Felippa, Eugenio Onate, Sergio Idelsohn</i> 8420 GENERALIZATION OF MESHFREE COMPACT SCHEMES AND THEIR APPLICATIONS <i>Tasuku Tamai, Seiichi Koshizuka</i> 5457 LARGE-SCALE PARTICLE SIMULATIONS FOR DEBRIS FLOWS USING DYNAMIC LOAD BALANCE WITH SPACE FILLING CURVES ON A GPU-RICH SUPERCOMPUTER <i>Satori Tsuzuki, Takayuki Aoki</i> 6508 TOWARDS CFD BASED PROCESS MONITORING – RECURRENCE CFD <i>Stefan Pirker, Thomas Lichtenegger</i> 7161 DISCRETE GRADIENT THEOREM AND ELEMENT-BASED INTEGRATION IN MESHLESS METHODS <i>Guillaume Pierrot, Gabriel Fougeron</i>	Wednesday, June 8 11:00-13:00 Danae MS 923 - 2: NOVEL DISCRETIZATION METHODS – MATHEMATICAL AND MECHANICAL ASPECTS <i>MS Organizers:</i> Jörg Schröder, Peter Wriggers, Ferdinando Auricchio, Carsten Carstensen <i>Chair:</i> Jörg Schröder 5298 KEYNOTE: A SHELL ELEMENT FOR LAMINATED STRUCTURES WITH CONTINUOUS INTERLAMINAR SHEAR STRESSES <i>Friedrich Gruttmann, Werner Wagner, Gregor Knust</i> 11298 MODELING OF ROBUST MIXED FINITE ELEMENTS FOR ANISOTROPIC INCOMPRESSIBLE MATERIALS <i>Alex Kraus, Peter Wriggers, Ferdinando Auricchio, Jörg Schröder</i> 5842 A NOVEL FINITE ELEMENT FOR ANISOTROPY <i>Nils Viebahn, Jörg Schröder, Peter Wriggers, Daniel Balzani</i> 8016 TWO-DIMENSIONAL DISCONTINUOUS GALERKIN METHOD FOR SMALL AND LARGE DEFORMATIONS <i>Tobias Steiner, Peter Wriggers, Carsten Carstensen</i> 10524 INVESTIGATION OF ELASTO-PLASTIC FRACTURE BY A PHASE FIELD MODEL <i>Timo Noll, Charlotte Kuhn, Ralf Müller</i>
Wednesday, June 8 11:00-13:20 Minos South MS 408 - 1: MANIPULATION AND CONTROL OF TURBULENT FLOW <i>MS Organizers:</i> Markus Rütten, Christina Voß <i>Chair:</i> Markus Rütten, Christina Voß 7435 THE SENSITIVITY OF LAMINAR-TURBULENT TRANSITION TO TOLLMIE-SCHLICHTING WAVE FREQUENCY <i>Amir Banari, Christian Janssen, Thomas Rung, Lars-Uve Schrader, Jochen Marzi</i> 8282 NOVEL ACTUATOR FOR FLOW MANIPULATION BY FOCUSED ACOUSTIC WAVES <i>Christian Kieffer, Dara Feili, Helmut Seidel</i> 9478 AIR OUTLET DESIGN FOR A PASSIVELY DRIVEN HYBRID LAMINAR FLOW CONTROL SYSTEM <i>Udo Krause, Peter Kreuzer, Hubert Stuke</i> CS 310: CAD, CAM AND CAE <i>Chair:</i> Stanislav Makhanov 4368 VECTOR FIELD GUIDED TOOL PATHS FOR FIVE-AXIS MACHINING <i>Stanislav Makhanov</i> 6558 AN 'A PRIORI' MODEL REDUCTION FOR ISOGEOMETRIC BOUNDARY ELEMENT METHOD <i>Shengze Li, Jon Trevelyan, Weihua Zhang, Xuanzhu Meng</i> 8693 RESEARCH OF DEFORMATION QUALITIES OF POROUS MATERIALS ENHANCING COMPUTER DESIGN OF WETSUIT <i>Irina Cherunova, Elena Sirota, Nikolai Kornev, Mathias Paschen, Sebastian Schreier, Tatyana Lesnikova, Pavel Cherunov</i> 10653 MATHEMATICAL MODELLING OF CITY AERODYNAMICS <i>Svetlana Valger, Natalya Fedorova, Alexander Fedorov</i>	Wednesday, June 8 11:00-13:00 Europa MS 714 - 2: STRENGTH, FATIGUE AND STABILITY OF COMPOSITE STRUCTURES <i>MS Organizers:</i> Raimund Rolfes, Martin Ruess, Kai-Uwe Schröder <i>Chair:</i> Kai-Uwe Schröder, Raimund Rolfes 8560 HCF DAMAGE MODEL FOR FATIGUE IN COMPOSITES <i>Lucia Gratiela Barbu, Xavier Martinez, Sergio Oller, Alex H. Barbat</i> 9458 VALIDATION AND CORRELATION OF AIRCRAFT COMPOSITE FUSELAGE STRUCTURE MODELS <i>W.J. Vankan, W.M. van den Brink, R. Maas</i> 4752 MODELING MODE I AND MODE II DELAMINATION IN CFRP LAMINATES <i>Jaan-Willem Simon, Daniel Höwer, Stefanie Reese</i> 5838 ON THE STRUCTURAL DESIGN OF IMPERFECTION SENSITIVE LAMINATED COMPOSITE SHELL STRUCTURES SUBJECTED TO AXIAL COMPRESSION <i>Linus Friedrich, Pawel Lyssakow, Garth Pearce, Martin Ruess, Chiara Bisagni, Kai-Uwe Schröder</i> 6237 STRENGTH AND WEIGHT EQUIVALENT SUBSTITUTION OF LARGE SANDWICH PANELS BY MONOLITHIC CFRP STRUCTURES <i>Martin Meindlhumer, Martin Schagerl</i> 7717 PREDICTION OF STRENGTH AND GLOBAL FAILURE BEHAVIOR OF COMPLEX JOINT CONFIGURATIONS IN COMPOSITES <i>Sven Scheffler, Aamir Dean, Raimund Rolfes</i>

Wednesday, June 8
11:00-13:00

Leda

MS 1001 - 6: STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION

MS Organizers: J.F. Aguilar Madeira, Helder C. Rodrigues

Chair: Koen van der Blom

5930 KEYNOTE: ANALYSIS AND DESIGN OF REINFORCED CONCRETE STRUCTURES AS A TOPOLOGY OPTIMIZATION PROBLEM

Matteo Bruggi

5403 A METHOD FOR BI-DIRECTIONAL COUPLING OF STRUCTURE AND SYSTEM IN THE OPTIMISATION OF MULTI-FUNCTIONAL COMPONENTS

Ajit Panesar, Ian Ashcroft, Ricky Wildman, Richard Hague

8578 OPTIMAL DESIGN OF SKELETAL STRUCTURES WITH BUCKLING CONSIDERATIONS USING NONLINEAR BEAM MODELING

Hazem Madah, Oded Amir

9029 CURVATURE APPROXIMATION ON THREE-DIMENSIONAL FE-MESHES USING THE EMBEDDED WEINGARTEN MAP

Oliver Schmitt, Paul Steinmann

8393 TWO-SCALE TOPOLOGY OPTIMIZATION METHOD FOR COMPOSITE PLATE WITH IN-PLANE UNIT CELLS

Shinnosuke Nishi, Kenjiro Terada, Junji Kato

Wednesday, June 8
11:00-13:00

Athena

MS 504 - 2: NUMERICAL METHODS AND TOOLS FOR KEY EXASCALE COMPUTING CHALLENGES IN ENGINEERING AND APPLIED SCIENCES

MS Organizers: Eugenio Oñate, Manolis Papadrakakis, Peter Wriggers

Chair: Peter Wriggers

10615 ACCELERATING COMMERCIAL FEA SOFTWARE THROUGH ADVANCED COMPUTATIONAL TECHNOLOGIES

Vladimir Belsky

12125 PARALLEL AND SCALABLE SOLUTION SCHEMES FOR METAHEURISTIC OPTIMIZATION ALGORITHMS CONSIDERING UNCERTAINTIES, IN THE CONTEXT OF STRUCTURAL ANALYSIS

George Stavroulakis, Dimitris Giovanis, Vissarion Papadopoulos, Manolis Papadrakakis

7366 ERROR ANALYSIS AND QUANTIFICATION IN NEURON SIMULATIONS

Francesco Casalegno, Francesco Cremonesi, Stuart Yates, Felix Schürmann, Fabien Delalandre

MS 810: CONSIDERING THE VERY SMALL SCALES IN COMPUTATIONAL MECHANICS: ATOMISTIC AND QUANTUM MECHANICS-BASED METHODS

MS Organizers: Amelie Fau, Roger Sauer

Chair: Amelie Fau

11926 COMPUTATIONAL MULTISCALE MODELING OF ADHESIVE MICROSTRUCTURES

Janine Mergel, Roger Sauer

6337 ON THE ADAPTIVE FINITE ELEMENT APPROACHES APPLIED TO PDES IN QUANTUM MECHANICS

Denis Davydov, Jean-Paul Pelteret, Toby D. Young, Paul Steinmann

10983 FINITE ELEMENT APPROACH FOR QUANTUM COMPUTATIONS OF CRYSTAL STRUCTURES

Amelie Fau

Wednesday, June 8
11:00-13:00

Artemis

CS 830: COMPUTATIONAL NANOTECHNOLOGY

Chair: Oleksandr Voskoboynikov

5357 SIMULATION OF SUPPRESSION AND RESTORATION OF THE AHARONOV-BOHM-TYPE OSCILLATIONS FOR ELECTRONS AND HOLES IN SELF-ASSEMBLED ASYMMETRICAL INAS/GAAS QUANTUM RINGS

Oleksandr Voskoboynikov

5112 NUMERICAL ANALYSIS ON THE MECHANICAL BEHAVIORS OF CARBON NANOTUBE NANOCOMPOSITES

Lu-Wen Zhang, K.M. Liew

7929 EFFECT OF NANOSIZED ASPERITIES AT THE SURFACE OF A NANO HOLE

Mikhail Grekov, Aleksandra Vakaeva

11385 NANODROPLET DEPINNING FROM NANOPARTICLE

Fong Yew Leong, Liu Qi, Utkur Mirsaidov

9273 NANOSCALE PHASE FIELD MODELING OF TEMPERATURE- AND STRESS-INDUCED MARTENSITIC PHASE TRANSFORMATIONS

Valery Levitas

Wednesday, June 8
11:00-13:00

Aphrodite

MS 103 - 2: MECHANICS OF BIOLOGICAL TISSUES

MS Organizers: Markus Böl, Gerhard A. Holzapfel

Chair: Markus Böl

7656 SKIN SURFACE VIBRATIONS INDUCED BY CARDIOVASCULAR DYNAMICS: BIOMECHANICS OF MECHANICAL WAVE PROPAGATION THROUGH SOFT BIOLOGICAL TISSUES

Daniela Tommasin, Viviana Mancini, Annette Caenen, Simon Shaw, Abigail Swillens, Stephen E. Greenwald, Patrick Segers

8939 THE EFFECT OF SMOOTH MUSCLE CONTRACTILITY ON ARTERIAL GROWTH AND REMODELLING

Stefan Lindstrom, Jonas Stålhand, Anders Klarbring

9120 LOADING-RATE DEPENDENT ARTICULAR CARTILAGE DAMAGE; EXPERIMENTAL DATA AND A NON-LOCAL DAMAGE MODEL

Corrinus van Donkelaar, Juan Párraga-Quiroga, Lorenza Henao-Murillo, Wouter Wilson, Keita Ito

11025 LARGE SCALE PHASE FIELD MODEL OF FRACTURE AND CUTTING OF SOFT TISSUES

Vahid Ziaei-Rad, Jack S. Hale, Corrado Maurini, Stéphane P.A. Bordas

11339 CELL NUCLEUS MEMBRANE MODELING THROUGH SHELL TANGENTIAL DIFFERENTIAL CALCULUS

Denis Aubry, Solenne Devereaux, Rachele Allena,

7606 A PHASE-FIELD APPROACH TO MODEL FRACTURE OF ARTERIAL WALLS

Osman Gültekin, Hüsnü Dal, Gerhard A. Holzapfel

Wednesday, June 8 11:00-13:00	Antigoni	Wednesday, June 8 11:00-13:00	Apollo West
MS 806 - 5: MULTISCALE MODELLING OF MATERIALS AND STRUCTURES <i>MS Organizers:</i> Tadeusz Burczyński, Xavier Oliver, Maciej Pietrzyk, Alfredo Huespe <i>Chair:</i> Xavier Oliver		CS 450 - 1: NUMERICAL METHODS AND CONVERGENCE ACCELERATION IN CFD <i>Chair:</i> Jan Nordström	
9447	KEYNOTE: GENERATION OF GRAPHENE-LIKE ATOMS STRUCTURES BY MEANS OF MEMETIC ALGORITHMS <i>Tadeusz Burczyński, Adam Mrozek, Wacław Kuś</i>	5408	IMPROVED DUAL TIME-STEPPING BY USING SECOND DERIVATIVES <i>Jan Nordström, Andrea Ruggiu</i>
11244	NUMERICAL TOOLS FOR MULTI-SCALE MATERIAL DESIGN AND STRUCTURAL TOPOLOGY OPTIMIZATION <i>Juan Cante, Alex Ferrer, Javier Oliver</i>	4675	A POSITIVITY-PRESERVING, DEFECT-CORRECTION MULTIGRID METHOD FOR TURBULENT AND CHEMICALLY REACTING FLOWS <i>Mark Wasserman, Yair Mor-Yossef, J. Barry Greenberg</i>
9937	MOLECULAR DYNAMICS/STATICS SIMULATION OF NI-AL NANOPARTICLES SINTERING <i>Marcin Maździarz, Jerzy Rojek, Szymon Nosewicz</i>	4918	A MULTIGRID FORMULATION FOR FINITE DIFFERENCE METHODS ON SUMMATION-BY-PARTS FORM: AN INITIAL INVESTIGATION <i>Andrea Alessandro Ruggiu, Per Weinerfelt, Tomas Lundquist, Jan Nordström</i>
9027	MULTISCALE MODELS OF METALS BEHAVIOR AT THE HIGH-VELOCITY IMPACT AND UNDER THE HIGH-CURRENT ELECTRON IRRADIATION <i>Alexander Mayer, Vasilij Krasnikov, Polina Mayer</i>	6872	PERFORMANCE IMPROVEMENT OF FLOW COMPUTATIONS WITH AN OVERSET-GRID METHOD INCLUDING BODY MOTIONS USING A FULL MULTIGRID METHOD <i>Kunihide Ohashi, Hiroshi Kobayashi</i>
Wednesday, June 8 11:00-13:00	Apollo East	Wednesday, June 8 11:00-13:00	Room 1
MS 801 - 4: MULTISCALE COMPUTATIONAL HOMOGENIZATION FOR BRIDGING SCALES IN THE MECHANICS AND PHYSICS OF COMPLEX MATERIALS <i>MS Organizers:</i> Julien Yvonnet, Kenjiro Terada, Peter Wriggers, Marc Geers <i>Chair:</i> Julien Yvonnet		MS 409 - 2: CURRENT TRENDS IN MODELLING AND SIMULATION OF TURBULENT FLOWS <i>MS Organizers:</i> Suad Jakirlić, ERCOTAC SIG15 <i>Chair:</i> Suad Jakirlić	
11749	KEYNOTE: MULTISCALE MODELLING OF SOFT MATERIALS <i>Patrick Le Tallec</i>	11019	COMPARATIVE ASSESSMENT OF SOME POPULAR SCALE-RESOLVING MODELS BY RELEVANCE TO SEPARATING FLOW IN A 3D DIFFUSER <i>Suad Jakirlic, Gisa John-Putenvettil, Imdat Maden, Robert Maduta</i>
10778	DISTRIBUTION-ENHANCED HOMOGENIZATION: APPLICATION TO DUCTILE FRACTURE IN DYNAMICALLY LOADED BCC TANTALUM <i>Coleman Alleman, Somnath Ghosh, D. J. Luscher, Curt Bronkhorst</i>	10243	COMPARISON OF TWO APPROACHES TO ACCELERATING SECONDARY TRANSITION TO TURBULENCE IN SEPARATED SHEAR LAYERS IN THE FRAMEWORK OF DELAYED DETACHED EDDY SIMULATION <i>Ekaterina Guseva, Andrey Garbaruk, Mikhail Strelets</i>
10882	HOMOGENIZATION OF STRAIN-CRYSTALLIZING RUBBER-LIKE MATERIALS <i>Reza Rastak, Christian Linder</i>	10023	ASSESSMENT OF RANS AND DES METHODS FOR THE AHMED BODY <i>Emmanuel Guilmineau, Gan Bo Deng, Alban Leroyer, Patrick Queutey, Michel Visonneau, Jeroen Wackers</i>
11352	HOMOGENIZATION METHOD FOR DESIGNING NOVEL ARCHITECTURED CELLULAR MATERIALS <i>Zheng-Dong Ma</i>	12284	AN IMPROVED SYNTHETIC EDDY METHOD APPLIED TO INTERNAL PIPE FLOWS <i>Joshua Holgate, Alex Skillen, Alistair Revell, Tim Craft</i>
5007	A MULTI-SCALE MODELING METHOD FOR HETEROGENEOUS STRUCTURES WITHOUT SCALE SEPARATION USING A FILTER-BASED HOMOGENIZATION SCHEME. <i>Amen Tognevi, Mohamed Guerich, Julien Yvonnet</i>	8792	A STRUCTURED-BASED MODEL FOR THE STUDY OF TURBULENT STATISTICS IN HOMOGENEOUS STABLY STRATIFIED FLOWS <i>Constantinos Panagiotou, Stavros Kassinos</i>
		8973	ON THE APPLICATION OF MODERN TURBULENCE MODELS IN THE FLOW LAMINARIZATION PROBLEMS <i>Sergey Chernyshev, Aleksander Ivanov, Andrey Kiselev, Dmitriy Sboev, Leonid Teperin, Petr Vorotnikov, Valeriy Vozhdaev</i>

Wednesday, June 8 **Room 2**
11:00-13:00

STS 3 - 2: INNOVATIVE DESIGN OPTIMIZATION TOOLS LINKED TO INDUSTRIAL AERONAUTICAL APPLICATIONS: TARGETING GREENER PERFORMANCES

STS Organizers: Jacques Periaux, Gabriel Bugea

Chair: Gabriel Bugea

- 14253** ACTIVE FLOW CONTROL TO DELAY HIGH-SPEED STALL: 2D FLUIDIC GURNEY OPTIMIZATION
Mauro Minervino, Domenico Quagliarella
- 14269** SHAPE OPTIMIZATION FOR GREENER AIRCRAFT: THE DASSAULT AVIATION VISION AND PERSPECTIVES
Gilbert Roge, S. Kleinveld, X. Loyatho, L. Dumas
- 14286** TWO OBJECTIVE OPTIMISATION OF NATURAL LAMINAR FLOW OF NATURAL LAMINAR AIRFOIL OPERATING WITH ACTIVE SHOCK CONTROL BUMP USING EAS AND GAMES STRATEGIES
Zhili Tang, Yongbin Chen, Jacques Periaux
- 14287** CAD-BASED AERODYNAMIC SHAPE OPTIMIZATION USING GEOMETRY SURROGATE MODEL AND ADJOINT METHODS
Eusebio Valero
- 16599** ACCURACY ASSESSMENT OF GENERALIZED PARAMETRIC SOLUTIONS FOR OPTIMIZATION AND UNCERTAINTY QUANTIFICATION
Gabriel Bugea, Jordi Pons-Prats

Wednesday, June 8 **Room 3**
11:00-13:00

MS 1203: THE MODELS AND INVESTIGATIONS METHODS OF DYNAMICS OF THE SOLIDS SYSTEMS WITH DRY FRICTION

MS Organizers: Alexey A. Kireenkov, Alexander V. Karapetyan

Chair: Alexey A. Kireenkov

- 9248** ABOUT DYNAMICS OF A SYMMETRIC SOLIDS IN THE CASE OF COMBINED KINEMATICS
Alexey Kireenkov
- 11184** TESTING, SIMULATING AND UNDERSTANDING UNDER-PLATFORM DAMPER DYNAMICS
Chiara Gastaldi, Muzio M. Gola
- 8756** THE MODEL AND INVESTIGATION OF DYNAMICS OF THE SOLID SYSTEM WITH TWO MASSIVE ECCENTRICS ON A ROUGH PLANE
Sergey Semendyaev, Alexey Tsyganov
- 7910** VIRTUAL TESTBENCH FOR THE OMNI WHEEL DYNAMICS SIMULATION: NEW CONTACT TRACKING ALGORITHM
Ivan Kosenko, Sergey Stepanov, Kirill Gerasimov, Mikhail Stavrovskiy
- 9025** NON-REGULAR VEHICLE DYNAMICS. APPLICATION TO COLLISION
Ahmed Bouzar Essaidi, Bachir Menkouz, Moussa Haddad, Taha Chettibi

Wednesday, June 8 **Room 4**
11:00-13:00

CS 1200 - 3: STRUCTURAL DYNAMICS

Chair: Luis Mesquita

- 12007** COMPUTATIONAL MODELLING OF COLD-FORMED STEEL SCREWED CONNECTIONS AT AMBIENT AND ELEVATED TEMPERATURES
Luis Mesquita, Rui Dias, Armandino Parente, Paulo Piloto
- 16132** MONITORING AND ANALYSIS OF STRESS FIELD FOR ORTHOTROPIC STEEL DECK OF DASHENGGUAN YANGZTE RIVER BRIDGE
Ying Wang, Y.S. Song
- 8173** MODELING OF DEFORMABLE CRASH BARRIERS FOR LUMPED MASS MODELS USING THE EXAMPLE OF NHTSA MDB
Michael Pabst, Lailong Song, Johannes Fender, Fabian Duddeck
- 5779** RESEARCH ON HYSTERETIC BEHAVIORS OF A NEW SAPARATED SHOCK ABSORBER APPLIED IN RAILWAY BRIDGE
Aili Li, Ri Gao, Mingde Sun, Jilei Zhang
- 12005** UNCERTAINTY OF MODELS IN INTELLIGENT SYSTEMS UNDER STOCHASTIC LOADING
Amalia Moutsopoulou, Georgios Stavroulakis, Tasos Pouliezios

Wednesday, June 8 **Room 5**
11:00-13:00

CS 410 - 5: COMPUTATIONAL FLUID MECHANICS

Chair: Bulent Duz

- 10351** NUMERICAL SIMULATION OF NONLINEAR FREE SURFACE WATER WAVES USING A COUPLED POTENTIAL FLOW-URANS/VOF APPROACH
Bulent Duz, Tim Bunnik, Geert Kapsenberg
- 5578** SURFACE-FORCES ON DEFORMING GEOMETRIES USING VORTEX METHODS AND BRINKMAN PENALIZATION
Siddhartha Verma, Gabriele Abbati, Petros Koumoutsakos
- 7719** BUDGET ANALYSIS OF TURBULENT KINETIC ENERGY IN CORNER SEPARATION : RANS VS LES
Jean-François Monier, Feng Gao, Jérôme Boudet, Liang Shao, Lipeng Lu
- 10393** APPLICATION OF THE BDDC METHOD FOR INCOMPRESSIBLE FLOWS
Martin Hanek, Jakub Šístek, Pavel Burda
- 10753** AN EXPLICIT IMPLICIT SCHEME FOR CARTESIAN EMBEDDED BOUNDARY MESHES
Sandra May, Marsha Berger

Wednesday, June 8 **Room 7**
11:00-13:00

CS 720 - 1: COMPUTATIONAL MATERIALS SCIENCE

Chair: Viwanou Hounkpati

- 5326** ON THE INFLUENCE OF THE INCLUSIONS' MORPHOLOGY ON THE ACCURACY OF THE PREDICTION OF REINFORCED COMPOSITES MECHANICAL BEHAVIOUR
Viwanou Hounkpati, Vladimir Salnikov, Philippe Karamian-Surville, Alexandre Vivet

DAY 3 – WEDNESDAY, JUNE 8

- 11038** SIMULATION OF PRECIPITATION IN V-CONTAINING HSLA STEEL FOR THE STRENGTHENING ENHANCEMENT
Piyada Suwanpinij, Paolo Massaro, Annalisa Pola, Prasonk Srichareonchai
- 6821** NUMERICAL MODELLING OF THE EFFECT OF THERMAL RESIDUAL STRESS ON MECHANICAL PROPERTIES OF METAL-CERAMIC COMPOSITES
Witold Weglewski, Michal Basista, Kamil Bochenek
- 9895** PHASE-FIELD SIMULATION OF EUTECTIC SOLIDIFICATION USING NURBS-BASED ISOGEOMETRIC ANALYSIS
Resam Makvandi, Daniel Juhre, Omid Kazemi, Thorsten Halle
- 5593** MODELING THE DEFORMATION BEHAVIOR OF SMALL-SCALED SINGLE CRYSTALS
Edgar Husser, Swantje Bargmann
- 10861** STOCHASTIC FINITE ELEMENT APPROACH FOR MODELLING OF THE PHASE TRANSFORMATION AND RESIDUAL STRESS IN THE QUENCHING SINCE INTERCRITICAL TEMPERATURES IN MEDIUM CARBON STEELS
Carlos Arturo Bohorquez Avila

Wednesday, June 8 11:00-13:00 Room 8

MS 1201 - 1: COMPUTATIONAL STRUCTURAL DYNAMICS

MS Organizers: Evangelos J. Sapountzakis, Andreas E. Kampitsis

Chair: Evangelos J. Sapountzakis

- 4747** **KEYNOTE:** A FIBRE PLASTICITY MODEL FOR THE DYNAMIC ANALYSIS OF WIND TURBINE TOWERS
Andreas Kampitsis, Evangelos Sapountzakis
- 5811** HARMONICALLY FORCED NON-LINEAR VIBRATIONS OF PLATES MADE FROM ZENER MATERIAL
Roman Lewandowski, Przemyslaw Litewka
- 5117** FLEXURAL VIBRATION ANALYSIS OF GRAPHENE NANOPATELETS REINFORCED NANOCOMPOSITE BEAMS
Jie Yang, Chuang Feng
- 7521** DYNAMIC ANALYSIS OF SPECIAL CARS ON UNEVEN ROADS
Szymon Tengler
- 8083** WAVE PROPAGATION IN THIN PRETWISTED ANISOTROPIC STRIPS
Maloth Thirupathi, Mira Mitra, P J Guruprasad

Wednesday, June 8 11:00-13:00 Room 9

MS 1217 - 3: COMPUTATIONAL METHODS IN EARTHQUAKE ENGINEERING AND STRUCTURAL DYNAMICS

MS Organizers: Vagelis Plevris, Georgia Kremmyda, Yasin Fahjan

Chair: Vagelis Plevris

- 9633** COMPUTATIONAL EFFICIENCY IN NONLINEAR TIME-HISTORY ANALYSIS OF TALL BUILDING STRUCTURES
Ramazan Ayazoglu, Baris Erkus
- 8453** AN INVESTIGATION ON EFFECT OF SUBGRADE REACTION MODULUS OF SOIL ON NATURAL PERIOD OF LOW RISE BUILDINGS
Rafet Sisman, Abdurrahman Sahin
- 4612** SEISMIC BEHAVIOR INDICES OF OLD TYPE REINFORCED CONCRETE MEMBERS
Anthos Ioannou, Stavroula J. Pantazopoulou

- 10389** EFFECT OF THE SEISMIC EXCITATION'S INCIDENCE ANGLE ON THE NONLINEAR BEHAVIOR OF BASE ISOLATED BUILDINGS CONSIDERING POUNDING TO ADJACENT MOAT WALLS
Eftychia A. Mavronicola, Panayiotis C. Polycarpou, Petros Komodromos
- 6045** ENERGY-MOMENTUM METHOD FOR NONLINEAR DYNAMIC OF 2D COROTATIONAL BEAMS
Sophy Chhang, Mohammed Hjiat, Jean-Marc Battini, Carlo Sansour

Wednesday, June 8 11:00-13:20 Room 10

MS 414 - 1: NEW TRENDS IN NUMERICAL METHODS FOR MULTI-MATERIAL COMPRESSIBLE FLUID FLOWS

MS Organizers: Andy Barlow, Michael Dumbser, Raphaël Loubère, Pierre-Henri Maire, Rob Rieben, Mikhail Shashkov, François Vilar

Chair: Renaud Motte

- 10551** AN ENTROPY CONSERVATIVE AND DISSIPATIVE FINITE VOLUME METHOD FOR SOLVING GAS DYNAMICS EQUATIONS WRITTEN UNDER LAGRANGIAN UPDATED FORM
Pierre-Henri Maire, Bernard Rebourecet
- 12210** BUILDING A MORE EFFICIENT LAGRANGE-REMAP SCHEME THANKS TO PERFORMANCE MODELING
Thibault Gasc, Florian De Vuyst, Mathieu Peybernes, Raphaël Poncet, Renaud Motte
- 4725** A HIGH-ACCURATE SPH-RIEMANN-MOOD METHOD
Xesús Nogueira, Luis Ramirez, Stéphane Clain, Raphaël Loubère, Luis Cueto-Felgueroso, Ignasi Colominas
- 7031** 2D AXISYMMETRIC EXTENTION OF THE LAGRANGIAN CSTS (CONSERVATIVE SPACE- AND TIME-STAGGERED) HYDRODYNAMIC SCHEME
Alexis Marboeuf, Alexandra Claisse, Patrick Le Tallec, Antoine Llor
- 7453** SOME ACOUSTIC-TRANSPORT SPLITTING SCHEMES FOR TWO-PHASE COMPRESSIBLE FLOWS
Simon Peluchon, Gérard Gallice, Pierre-Henri Maire
- 11851** SLOPE LIMITING FOR TENSORS: BOUNDING BOX (BB) BASED MONOTONICITY AND SYMMETRY PRESERVING LIMITERS IN MULTI-DIMENSIONAL FLOWS.
Gabi Luttwak
- 5258** A DIRECT ARBITRARY-LAGRANGIAN-EULERIAN TVD FINITE VOLUME SCHEME ON NONCONFORMING MOVING UNSTRUCTURED MESHES: LOGICALLY STRAIGHT SLIP-LINES
Elena Gaburro, Michael Dumbser

Wednesday, June 8 11:00-13:00 Room 11

MS 410 - 2: COMPLEX FLUID FLOWS IN ENGINEERING: MODELLING, SIMULATION AND OPTIMIZATION

MS Organizers: Stefanie Elgeti, Philipp Knechtges

Chair: Stefanie Elgeti

- 9107** NUMERICAL SIMULATION OF HEAT TRANSFER IN AN OPEN ROTOR-STATOR SYSTEM
Alireza Rasekh, Peter Sergeant, Jan Vierendeels
- 8631** COMPARATIVE STUDY OF GRANULAR SOIL MODELS USING PARTICLE AND MESH-BASED SCHEMES
Wibke Ricarda Wriggers, Antonia Larese, Svenja Völkner, Eugenio Oñate, Thomas Rung

DAY 3 – WEDNESDAY, JUNE 8

- 12019** MATHEMATICAL MODELLING OF BIOMASS GASIFICATION IN A SMALL FIXED BED REACTOR
Zbigniew Buliński, Tomasz Krysiński, Sebastian Werle, Łukasz Ziółkowski
- 5911** TOPOLOGY OPTIMIZATION FOR FLUID FLOW EMPLOYING LOCAL OPTIMALITY CRITERIA
Philip Sarstedt, Gerhard Kachel, Jörg Ettrich, Karl Bühler
- 10678** VALIDATION AND VERIFICATION OF A 2D LATTICE BOLTZMANN SOLVER FOR INCOMPRESSIBLE FLUID FLOW
Tamás István Józsa, Máté Szőke, Tom-Robin Teschner, László Könözy, Irene Moulitsas
- 10992** MODELING OF NON-NEWTONIAN MULTIPHASE FLOW USING ADAPTIVE STABILIZED FINITE ELEMENT METHOD
Elie Hachem, Stephanie Riber, Mehdi Khalloufi, Youssef Mesri, Rudy Valette

Wednesday, June 8 Room 12 11:00-13:00

MS 1003 - 1: ADVANCES IN DESIGN OPTIMIZATION OF STRUCTURES AND MATERIALS

MS Organizers: Zhen Luo, Zhan Kang

Chair: Zhan Kang, Zhen Luo

- 7802** AN IMPROVED LEVEL SET METHOD FOR TOPOLOGY OPTIMIZATION BASED ON TOPOLOGICAL SENSITIVITY ANALYSIS
Tao Wu, Yang Zhang, Jirui Lin, Yansong Zhao, Wenjiao Bian
- 5376** SHAPE OPTIMIZATION OF GRAPHENE SHEETS FOR MAXIMUM FUNDAMENTAL FREQUENCY
Jin-Xing Shi, Masatoshi Shimoda
- 6839** A LEVEL SET BASED MULTIPLE-TYPE BOUNDARY METHOD FOR STRUCTURAL TOPOLOGY OPTIMIZATION
Qi Xia, Tielin Shi, Michael Yu Wang
- 6855** CROSS-SECTION TOPOLOGY OPTIMIZATION OF TRUCK CRANE TELESCOPIC BOOM
Yongfeng Zheng, Youmin Hu, Bo Wu, Tielin Shi, Yanlei Li, Jikai Fan, Yingyi Qin
- 6547** TOPOLOGICAL DESIGN OF MECHANICAL METAMATERIALS WITH ADDITIVE MANUFACTURING
Zhen Luo, Hao Li

Wednesday, June 8 Room 15 11:00-13:00

MS 905 - 1: DISCONTINUOUS GALERKIN METHODS: NEW TRENDS AND APPLICATIONS

MS Organizers: Sonia Fernández-Méndez, Nicoletta Franchina

Chair: Sonia Fernández-Méndez, Nicoletta Franchina

- 9074** KEYNOTE: A FULLY DISCRETE ADJOINT DISCONTINUOUS GALERKIN METHOD FOR PDE-CONSTRAINED TIME-PERIODIC OPTIMIZATION
Per-Olof Persson, Matthew Zahar
- 7607** A MULTIPLE REFERENCE-FRAME FORMULATION FOR THE DISCONTINUOUS GALERKIN METHOD
Jean-Sébastien Cagnone, Koen Hillewaert
- 8888** HYBRID PARALLELIZATION OF MODAL-NODAL TRANSFORMATIONS FOR HIGH ORDER DISCONTINUOUS GALERKIN METHOD
Nikhil Anand, Harald Klimach, Sabine Roller

- 8997** ANALYSIS OF THE DISCONTINUOUS GALERKIN METHOD FOR COMPRESSIBLE FLOW IN THE STEADY AND UNSTEADY LOW MACH REGIME
Simon Delmas, Vincent Perrier

Wednesday, June 8 Room 17 11:00-13:00

CS 1300 - 3: UNCERTAINTY QUANTIFICATION AND ERROR ESTIMATION

Chair: Steffen Franke

- 9275** QUANTIFICATION OF SPATIAL VARIABILITY FOR TRANSVERSE ELASTIC MODULUS OF SPRUCE WOOD
Alireza Farajzadeh Moshtaghin, Steffen Franke, Thomas Keller, Anastasios Vassilopoulos
- 8718** MIASC: AN ADAPTIVE APPROACH TO UNCERTAINTY QUANTIFICATION IN DISCRETIZED PROBLEMS OF REDUCED REGULARITY - PART 2: APPLICATIONS IN BONE REMODELING AND ROUGH SURFACE CONTACT
Maximilian R. Bittens, Robert L. Gates, Udo Nackenhorst

MS 1222: INFLUENCE OF LIQUEFIABLE SOIL ON SINGLE AND CLOSELY CLUSTERED STRUCTURES

MS Organizers: Nawawi Chouw, Rolly Orense, Tam Larkin

Chair: Nawawi Chouw

- 4517** NUMERICAL ANALYSES OF THE INFLUENCE OF STRUCTURAL SLENDERNESS ON THE SEISMIC RESPONSE OF SINGLE AND CLUSTERED STRUCTURES
Gonzalo Barrios, Tam Larkin, Nawawi Chouw
- 4575** EFFECT OF HIGHER MODES ON STRUCTURAL RESPONSE WITH NONLINEAR SOIL-FOUNDATION-STRUCTURE INTERACTION
Xiaoyang Qin, Nawawi Chouw, Tam Larkin

Wednesday, June 8 Room 18 11:00-13:00

MS 1007 - 3: ADDITIVE MANUFACTURING AND OPTIMIZATION

MS Organizers: Ekkehard Ramm, Ole Sigmund, Pierre Duysinx, Wing Kam Liu

Chair: Pierre Duysinx, Michael Stingl

- 5907** KEYNOTE: COMPUTER AIDED TECHNOLOGIES FOR ADDITIVE MANUFACTURING
Tor Dokken
- 11420** MICROSTRUCTURE PREDICTION OF ADDITIVE MANUFACTURING PROCESSES THROUGH THERMODYNAMICALLY CONSISTENT ANALYSIS
Wing Kam Liu, Jacob Smith, Wei Xiong, Jian Cao
- 11238** FIRST STEPS IN A PREDICTIVE MODEL FOR SURFACE VOID NUCLEATED FATIGUE
Orion Kafka, Wing Liu
- 9561** A NEW CONCURRENT MULTISCALE MODELING STRATEGY CHARACTERIZING MICROSTRUCTURAL EVOLUTION DURING THE LASER ENGINEERED NET SHAPING PROCESS
Stephen Lin, Jacob Smith, Wing Kam Liu, Gregory Wagner

DAY 3 – WEDNESDAY, JUNE 8

Wednesday, June 8 11:00-13:00		Room 20	
MS 907 - 2: REGULARIZED ENRICHED APPROXIMATIONS AND QUADRATURE FOR DISCONTINUITIES, SINGULARITIES AND CONTINUOUS-DISCONTINUOUS TRANSITION			
MS Organizers: Elena Benvenuti, Giulio Ventura, José M.A. César de Sá			
Chair: Elena Benvenuti			
9126	ENRICHMENT-INDEPENDENT PENALTY STABILIZATION OF X-FEM	Giulio Ventura	
6999	COHESIVE BAND MODEL: A TRIAXIALITY-DEPENDENT COHESIVE MODEL FOR DAMAGE TO CRACK TRANSITION IN A NON-LOCAL IMPLICIT DISCONTINUOUS GALERKIN FRAMEWORK	Julien Leclerc, Ling Wu, Ludovic Noels, Van-Dung Nguyen	
6204	LOCAL ERROR ANALYSIS OF THE FINITE ELEMENT METHOD FOR ELLIPTIC PROBLEM WITH A SINGULAR SOURCE TERM	Astrid Decoene, Loïc Lacouture, Sébastien Martin, Bertrand Maury	
11072	WELL CONDITIONED AND OPTIMALLY CONVERGENT EXTENDED FINITE ELEMENTS AND VECTOR LEVEL SETS FOR THREE-DIMENSIONAL CRACK PROPAGATION	Konstantinos Agathos, Giulio Ventura, Eleni Chatzi, Stéphane P. A. Bordas	

Wednesday, June 8 11:00-13:00		Room 21	
MS 404 - 4: SIMULATION OF ENVIRONMENTAL FLOWS			
MS Organizers: Pablo Ortiz, Piotr K. Smolarkiewicz, Joanna Szmelter			
Chair: Luca Bonaventura			
7665	KEYNOTE: EFFICIENT TWO-DIMENSIONAL SIMULATION MODELS FOR HYDRAULIC AND MORPHODYNAMIC TRANSIENTS	Pilar Garcia-Navarro, Javier Murillo, Mario Morales-Hernandez, Carmelo Juez, Asier Lacasta	
6636	EFFICIENT DISCRETE APPROXIMATIONS OF DISPERSIVE WAVE MODELS FOR NEARSHORE HYDRODYNAMICS	Andrea Filippini, Maria Kazolea, Mario Ricchiuto	
8406	ADDRESSING THE CHALLENGES OF IMPLEMENTATION OF HIGH-ORDER FINITE-VOLUME SCHEMES FOR ATMOSPHERIC DYNAMICS ON UNSTRUCTURED MESHES	Panagiotis Tsoutsanis, Dimitris Drikakis	
6086	SHALLOW WATER AND HYDROSTATIC MODELS FOR SIMULATION OF WETTING-DRYING AREAS	Joanna Szmelter	
9793	A MESHLESS METHOD FOR SIMULATION OF PARTICLE-DRIVEN GRAVITY CURRENTS WITH OBSTACLES	Karel Kovářik, Jozef Mužik, Dana Sitányiová	

Wednesday, June 8 11:00-13:00		Room 22	
Olympiad - 2			
Chair: Georgios Vogiatzis			
16292	MULTISCALE SIMULATIONS OF POLYMER-MATRIX NANOCOMPOSITES	Georgios Vogiatzis	
16436	ROCK MECHANICS, FAILURE PHENOMENA WITH PRE-EXISTING CRACKS AND INTERNAL FLUID FLOW THROUGH CRACKS	Mijo Nikolić	
16358	TOWARDS OPTIMAL DESIGN OF MULTISCALE NONLINEAR STRUCTURES AND REDUCED-ORDER MODELING APPROACHES	Liang Xia	
16410	LOW-DISSIPATION METHODS AND MODELS FOR THE SIMULATION OF TURBULENT SUBSONIC FLOW	Wybe Rozema, Arthur Veldman, Roel Verstappen, Johan Kok	
16293	NUMERICAL METHODS FOR THE YIELD DESIGN OF CIVIL ENGINEERING STRUCTURES	Jeremy Bleyer	
6874	HYBRID RCAF MODEL FOR FRACTURE MODELLING IN MULTI-PHASE MATERIALS	Konrad Perzynski, Lukasz Madej	

Wednesday, June 8 11:00-13:00		Room 23	
MS 1009 - 3: ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION			
MS Organizers: Kyriakos C. Giannakoglou, Jens Dominik Mueller			
Chair: Nicolas R. Gauger			
8169	KEYNOTE: A TWO-LEVEL HYBRID APPROACH FOR OPTIMAL ACTIVE FLOW CONTROL ON A THREE-ELEMENT AIRFOIL	Anil Nemili, Emre Özkaya, Nicolas R. Gauger, Felix Kramer, Frank Thiele	
9064	ASSESSING ADJOINT-DERIVED AERODYNAMIC SENSITIVITIES IN THE PRESENCE OF FLOW SEPARATION	Thomas Economon, Evangelos Papoutsis-Kiachagias, Ioannis Kavvadias, Nikolaos Magoulas, Carsten Othmer, Kyriakos Giannakoglou, Juan Alonso	
11263	A MIXED OPERATOR OVERLOADING AND SOURCE TRANSFORMATION APPROACH FOR ADJOINT CFD COMPUTATION	Zahrasadat Dastouri, Sinan Gezgin, Uwe Naumann	
6123	SPHERICITY: MESH OPTIMIZATION FOR ARBITRARY ELEMENT TOPOLOGY	Pavlos Alexias, Eugene De Villiers	
8801	STEADY & UNSTEADY CONTINUOUS ADJOINT METHOD USING A PSEUDO-COMPRESSIBILITY BLOCK COUPLED SOLVER IN OPENFOAM	Christos Vezyris, Evangelos Papoutsis-Kiachagias, Ioannis Kavvadias, Kyriakos Giannakoglou	

13:00-14:30
Lunch Break

PLENARY LECTURES

Wednesday, June 8 14:30-16:45	Zeus
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Chair: Franco Brezzi

11438 GENERALIZED PARAMETRIC SOLUTIONS : A COMMODITY IN
SIMULATION - BASED ENGINEERING

Antonio Huerta

12459 DISCONTINUOUS SKELETAL METHODS IN COMPUTATIONAL
MECHANICS

Daniele A. Di Pietro, Alexandre Ern

11433 ISOGEOMETRIC ANALYSIS: PAST, PRESENT, FUTURE

Thomas J.R. Hughes

16:45-17:15

Coffee Break

TECHNICAL SESSIONS

Wednesday, June 8 17:15-19:15	Zeus East - West	Wednesday, June 8 17:15-19:35	Minos East
MS 113 - 4: MATHEMATICAL AND NUMERICAL MODELING OF THE HEART <i>MS Organizers:</i> Luca Dede', Luca Pavarino, Alfio Quarteroni <i>Chair:</i> Luca Dede', Luca Pavarino		MS 602 - 1: INNOVATIVE METHODS FOR FLUID-STRUCTURE-INTERACTION <i>MS Organizers:</i> E. Harald van Brummelen, Roger Ohayon, Trond Kvamsdal <i>Chair:</i> E. Harald van Brummelen	
8022	MODELLING CHALLENGES IN PERSONALISED LEFT-VENTRICULAR MECHANICS SIMULATIONS <i>Liya Asner, Myrianthi Hadjicharalambous, Radomir Chabiniok, Jack Lee, David Nordsletten</i>	11007	KEYNOTE: COMPLEX-FLUID-SOLID INTERACTION BASED ON THE NAVIER-STOKES-CAHN-HILLIARD PHASE-FIELD EQUATIONS <i>Harald van Brummelen, Mahnaz Shokrpour Roudbari, Gertjan van Zwieten, Herman Wijshoff</i>
12006	PREDICTING ACUTE CARDIAC RESYNCHRONISATION THERAPY EFFECTS THROUGH PATIENT SPECIFIC MODELLING <i>Lauren Fovargue, Simone Rivolo, Jessica Webb, Sophie Giffard-Roisin, Simon Clairidge, Tiffany Patterson, Liya Asner, Thomas Jackson, Eric Kerfoot, David Nordsletten, Maxime Sermesant, Reza Razavi, Nicolas P. Smith, Jack Lee</i>	9232	GOAL-ORIENTED MESH ADAPTATION FOR MOVING MESH FSI PROBLEMS <i>Eléonore Gauci, Frédéric Alauzet, Alain Dervieux</i>
5304	EXPERIMENT-BASED PARAMETER ESTIMATION FOR 3D-0D COUPLED PATIENT-SPECIFIC CARDIOVASCULAR DYNAMICS MODELS <i>Marc Hirschvogel, Marina Bassilious, Lasse Jagschies, Stephen M. Wildhirt, Michael W. Gee</i>	8663	HIGH RESOLUTION INTERFACE REPRESENTATION IN NUMERICAL FLUID STRUCTURE SIMULATIONS USING FINITE ELEMENT METHODS <i>Bärbel Holm, Johan Hoffman</i>
10892	REDUCED ORDER MODELS FOR THE EFFICIENT SOLUTION OF NONLINEAR PARAMETRIZED MECHANICAL PROBLEMS ARISING IN CARDIAC SIMULATIONS <i>Diana Bonomi, Andrea Manzoni, Alfio Quarteroni</i>	7107	AN AEROELASTIC ACTUATOR SECTOR METHOD FOR WIND TURBINES SIMULATION <i>Athanasios Vitsas, Johan Meyers</i>
Wednesday, June 8 17:15-19:15		11026	ARBITRARY HIGH ORDER TIME INTEGRATION WITH INTEGRAL DEFERRED CORRECTIONS APPLIED TO PARTITIONED FLUID-STRUCTURE INTERACTION <i>David Blom, Alexander van Zuijlen, Hester Bijl</i>
Wednesday, June 8 17:15-19:15		9451	A MONOLITHIC FLUID-STRUCTURE INTERACTION METHOD, APPLICATION TO A PISTON PROBLEM <i>Felix Ischinger, Martijn Anthonissen, Barry Koren</i>
MS 901 - 5: ISOGEOMETRIC METHODS <i>MS Organizers:</i> Yuri Bazilevs, David J. Benson, Rene De Borst, Thomas J.R. Hughes, Trond Kvamsdal, Alessandro Reali, Giancarlo Sangalli, Clemens V. Verhoosel <i>Chair:</i> Ekkehard Ramm		Wednesday, June 8 17:15-19:15	
11109	KEYNOTE: GOAL ORIENTED ADAPTIVE ISOGEOMETRIC METHODS WITH APPLICATIONS TO POROUS MEDIA <i>Trond Kvamsdal, Mukesh Kumar, Yared Bekele, Eivind Fonn, Arne Morten Kvarving, Lars Hov Odsaeter, Knut Morten Okstad</i>	STS 5: TRANSITION LOCATION EFFECT ON SHOCK WAVE BOUNDARY LAYER INTERACTION <i>STS Organizers:</i> Piotr Doerffer, Pawel Flaszynski <i>Chair:</i> Pawel Flaszynski	
10158	IDENTIFICATION OF MECHANICAL PROPERTIES USING IGA AND ISOGEOMETRIC STEREOCORRELATION <i>John-Eric Dufour, François Hild, Stéphane Roux</i>	15080	TRANSITION LOCATION EFFECT ON SHOCK WAVE INDUCED SEPARATION <i>Piotr Doerffer Doerffer</i>
10698	STUDY OF B-SPLINES FINITE ELEMENT DISCRETIZATION OF PHYSICS-BASED PRECONDITIONING FOR FLUID MECHANICS MODELS <i>Emmanuel Franck, Ahmed Ratnani, Eric Sonnendrücker, Stefano Serra-Capizzano, Mariarosa Mazza</i>	15070	AN EXPERIMENTAL AND NUMERICAL STUDY OF SHOCK BOUNDARY LAYER INTERACTION IN EXTERNAL AERODYNAMICS CONFIGURATIONS <i>Marianna Braza, Damien Szubert, Y. Hoarau, Flavien Billard</i>
10811	ISOGEOMETRIC ANALYSIS OF DYNAMIC CRACK PROPAGATION BASED ON PHASE-FIELD MODELS <i>Knut Morten Okstad, Trond Kvamsdal, Arne Morten Kvarving</i>	15073	APPLICATION OF AIR JET VORTEX GENERATORS IN A HIGHLY LOADED TURBINE STATOR <i>Anna Petersen</i>
10890	AN ISOGEOMETRIC SOLID SHELL ELEMENT FOR LARGE STRAIN PROBLEMS <i>Pablo Antolin, Annalisa Buffa, Josef Kiendl, Marco Pingaro, Alessandro Reali, Giancarlo Sangalli</i>	15624	LOAD CONTROL OF NATURAL-LAMINAR-FLOW WING VIA BOUNDARY LAYER CONTROL <i>Wieńczysław Stalewski, Janusz Sznajder</i>
		15078	LAMINAR-TURBULENT TRANSITION EFFECT ON SHOCK WAVE BOUNDARY LAYER INTERACTION ON COMPRESSOR PROFILE <i>Pawel Flaszynski, Piotr Doerffer, R. Szwaba</i>

Wednesday, June 8
17:15-19:15

Minos South

MS 112 - 5: ANEURYSMS: SOLID MECHANICS, FLUID MECHANICS, AND MECHANOBIOLOGY

MS Organizers: Christian J. Cyron, Sven Hirsch, Philippe Bijlenga, Roland C. Aydin, Anne M. Robertson, Gerhard A. Holzapfel

Chair: Philippe Bijlenga, Sven Hirsch

8275 COMPARISON OF CONTRAST AGENT TRANSPORT OBTAINED FROM CFD, 4D PC-MRI, AND DSA IN CEREBRAL ANEURYSMS
Vitaliy Rayz, Alireza Vali, Loic Boussel, Michael Lawton, David Saloner

11949 SIMULATION OF FLOW DIVERSION IN CEREBRAL ANEURYSMS
A. Kazakidi, F. Drakopoulos, C. Sadasivan, N. Chrisochoides, J. Ekaterinaris, B. B. Lieber

9205 TECHNIQUES TO INTEGRATE PATIENT-SPECIFIC SIMULATION OF ANEURYSMAL BLOOD FLOW INTO THE CLINICAL WORKFLOW
Gábor Závodszky, Roland Joó-Kovács, György Paál, István Szikora

8338 OPTIMAL INTERVAL OF TWO STRUT WIRES RELATIVE TO ANEURYSM INFLOW
Hitomi Anzai, Kazuhiro Watanabe, Makoto Ohta

8683 DISTRIBUTION OF ENDOTHELIAL CELLS DOWNSTREAM OF A STENT STRUT: AN IN-VITRO STUDY
Makoto Ohta, Tomohito Watanabe, Xiaobo Han, Hisatoshi Kobayashi, Hitomi Anzai

8694 DEVELOPMENT OF IN-VITRO MODEL FOR EVALUATION OF ENDOLEAK AND MIGRATION ON STENT GRAFT
Taihei Onishi, Yujie Li, Shunsaku Oppata, Tadashi Idei, Makoto Ohta

Wednesday, June 8
17:15-19:15

Danae

MS 923 - 3: NOVEL DISCRETIZATION METHODS – MATHEMATICAL AND MECHANICAL ASPECTS

MS Organizers: Jörg Schröder, Peter Wriggers, Ferdinando Auricchio, Carsten Carstensen

Chair: Jörg Schröder

8092 A NOVEL HIGH-PERFORMANCE MIXED MEMBRANE FINITE ELEMENT FOR THE ANALYSIS OF ELASTOPLASTIC STRUCTURES
Nicola Antonio Nodargi, Paolo Bisegna

7619 DISCONTINUOUS GALERKIN METHOD WITH REDUCED INTEGRATION SCHEME FOR THE BOUNDARY TERMS IN ALMOST INCOMPRESSIBLE LINEAR ELASTICITY
Hamid Reza Bayat, Stephan Wulfinhoff, Stefanie Reese

6876 REMARKS ON THE HELLINGER-REISSNER FINITE ELEMENT FORMULATIONS FOR ELASTO-PLASTICITY AT SMALL STRAINS
Maximilian Igelbüscher, Jörg Schröder, Alexander Schwarz

9079 MULTI-LEVEL HP-FEM: DYNAMIC DISCRETIZATIONS WITH ARBITRARY HANGING NODES FOR SOLID MECHANICS
Nils Zander, Davide D'Angella, Tino Bog, Stefan Kollmannsberger, Martin Ruess, Ernst Rank

9973 ISOGOMETRIC COLLOCATION FOR RATE-INDEPENDENT PLASTICITY
Frederik Fahrenndorf, Laura De Lorenzis, Thomas J.R. Hughes

Wednesday, June 8
17:15-19:15

Europa

CS 630 - 1: SIMULATION OF FLUID-STRUCTURE INTERACTION

Chair: Joris Degroote

8622 QUASI-NEWTON TECHNIQUES FOR THE PARTITIONED SOLUTION OF COUPLED PROBLEMS
Joris Degroote, Robby Haelterman, Jan Vierendeels

8788 NUMERICAL SIMULATION OF FLUID-STRUCTURE INTERACTION PROBLEMS BY A COUPLED SPH-FEM APPROACH
Jessica Stasch, Bircan Avci, Peter Wriggers

8826 MODELING OF SUBMERGED CABLES USING FLEXIBLE MULTIBODY DYNAMICS
Alexander Held, Robert Seifried

10824 EFFECT OF DISC GEOMETRY ON THE DYNAMIC STABILITY OF A DIRECT SPRING OPERATED PRESSURE RELIEF VALVE
István Erdődi, Csaba Hős

5923 INVESTIGATION OF THE FLOW OVER AN OSCILLATING CYLINDER WITH A VERY LARGE EDDY SIMULATION MODEL
Anastasia Kondratyuk, Michael Schäfer, Awais Ali

Wednesday, June 8
17:15-19:15

Leda

MS 1001 - 7: STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION

MS Organizers: J.F. Aguilar Madeira, Helder C. Rodrigues

Chair: Filippo Menghini

5874 OPTIMAL REINFORCEMENT OF MEMBRANE SHELLS
Anders Klarbring, Bo Torstenfelt, Peter Hansbo, Mats G Larson

10062 A MIXED-INTEGGER LINEAR PROGRAMMING APPROACH FOR GLOBAL DISCRETE SIZE OPTIMIZATION OF FRAME STRUCTURES
Roxane Van Mellaert, Kristo Mela, Teemu Tiainen, Markku Heinisuo, Geert Lombaert, Mattias Schevenels

7623 MULTIDISCIPLINARY OPTIMIZATION BY SURROGATE MODELS: HANDLING EPISTEMIC UNCERTAINTIES BY POLYNOMIAL CHAOS EXPANSION
Sylvain Dubreuil, Nathalie Bartoli, Christian Gogu, Thierry Lefebvre

8564 MINIMUM-COST TOPOLOGY AND SIZING OPTIMIZATION OF NONLINEAR VISCOUS DAMPERS FOR SEISMIC RETROFITTING OF 3-D FRAME STRUCTURES
Nicolo Pollini, Oren Lavan, Oded Amir

5835 ON A NASH GAME FOR TOPOLOGY OPTIMIZATION UNDER LOAD-UNCERTAINTY – FINDING THE WORST LOAD
Carl-Johan Thore

Wednesday, June 8
17:15-19:35
Athena

MS 1102: VERIFICATION OF REDUCED MODELS IN COMPUTATIONAL MECHANICS

MS Organizers: Ludovic Chamoin, Pedro Diez, Fredrik Larsson, Kris Van der Zee

Chair: Ludovic Chamoin

6217 CERTIFIED MULTISCALE COMPUTATIONS BASED ON MSFEM AND PGD MODEL REDUCTION
Ludovic Chamoin, Frédéric Legoll

10074 ERROR CONTROLLED REDUCED ORDER MODELING IN COMPUTATIONAL HOMOGENIZATION OF FLUID-SATURATED POROUS MEDIA
Fredrik Larsson, Ralf Jänicke, Kenneth Runesson

8843 A POSTERIORI ERROR ESTIMATION FOR MULTISCALE COMPUTATIONS BASED ON MSFEM
Frederic Legoll

11200 ON THE CONTROL OF PGD REDUCED-ORDER APPROXIMATIONS: ERROR ESTIMATION AND ADAPTIVITY
Florent Pled, Ludovic Chamoin, Pierre-Eric Allier, Pierre Ladevèze

9195 RELIABILITY AND COMPUTATIONAL EFFICIENCY IN REDUCED BASIS METHODS FOR COMPLEX NONAFFINE AND NONLINEAR PDES
Andrea Manzoni, Federico Negri

9904 A PGD SOLVER FOR THE PARAMETRIC POWER FLOW PROBLEM: MODELING ELECTRIC GRIDS WITH ACCURACY ASSESSMENT AND CONTROL
Raquel García-Blanco, Pedro Díez, Domenico Borzacchiello, Francisco Chinesta

11283 RESIDUAL-BASED VERIFICATION OF PGD REDUCED MODELS
Kenan Kergrene, Serge Prudhomme, Igor Mozolevski

Wednesday, June 8
17:15-19:15
Artemis

MS 405: COMPUTATIONAL MODELING OF MULTIPHASE FLOWS: ADVANCED METHODS, INTERFACE PHENOMENA AND ENVIRONMENTAL APPLICATIONS

MS Organizers: Adeline Montlaur, Santiago Arias Calderón, Martin Kronbichler

Chair: Martin Kronbichler

12203 A 3D CFD NUMERICAL STUDY OF THE BUBBLE GENERATION PROCESS INTO A BUBBLE T-JUNCTION GENERATOR AND ITS COMPARISON WITH EXPERIMENTAL DATA: PART I
Santiago Arias, Adeline Montlaur

5966 A 3D CFD NUMERICAL STUDY OF THE BUBBLE GENERATION PROCESS INTO A BUBBLE T-JUNCTION GENERATOR AND ITS COMPARISON WITH EXPERIMENTAL DATA: PART II
Santiago Arias Calderón, Adeline Montlaur

7296 ACCURATE MODELING OF MOVING CONTACT LINE IN TWO-PHASE IMMISCIBLE FLOWS
Hanna Holmgren, Gunilla Kreiss

5704 ON THE SIMULATION OF PHASE TRANSITION FLOWS USING THE NAVIER-STOKES KORTEWEG EQUATIONS ON UNSTRUCTURED GRIDS
Luis Ramirez, Xesus Nogueira, Takfarinas Ait-Ali, Sofiane Khelladi, Pablo Ouro, Ignasi Colominas

8165 A MULTIPHASE MODEL FOR THE NUMERICAL SIMULATION OF ICE-FORMATION IN SEA-WATER
Vanessa Covello, Antonella Abbà, Luca Bonaventura, Alessandro Della Rocca, Lorenzo Valdetaro

8629 MODELLING MULTIPHASE AND COMPOSITIONAL FLOWS IN POROUS MEDIA USING A PARAMETRISED PR-EOS
Konstantinos Christou, Francisco B.S. Oliveira, Jefferson L.M.A. Gomes

Wednesday, June 8
17:15-19:15
Aphrodite

MS 103 - 3: MECHANICS OF BIOLOGICAL TISSUES

MS Organizers: Markus Böl, Gerhard A. Holzapfel

Chair: Jonas Stålhand

8950 IN VIVO DEFORMATION ANALYSIS OF AORTIC WALLS BY TIME RESOLVED 3D ULTRASOUND
Christopher Blase, Andreas Wittek

10869 IMPLEMENTATION OF AN EXPONENTIAL FIBER DISPERSION MODEL FOR EXCLUDING FIBERS UNDER COMPRESSION
Kewei Li, Gerhard Holzapfel

11367 A 3D ELECTROMECHANICAL FEM-BASED MODEL FOR CARDIAC TISSUE
Minh Tuan Duong, Alexander Jung, Ralf Frottscher, Manfred Staat

12407 A QUASI-INEXTENSIBLE ELEMENT FORMULATION FOR ANISOTROPIC CONTINUUM
Hüsnü Dal

15038 CONSTITUTIVE MODELING OF ACTIVE ELECTRO-MECHANICS WITH DISTRIBUTED FIBER FOR ANISOTROPIC CARDIAC TISSUE
Alessio Gizzi, Anna Pandolfi, Marcello Vasta

5742 A MICROSTRUCTURAL CONSTITUTIVE MODEL FOR SKELETAL MUSCLE TISSUE
Leonidas Spyrou, Kostas Danas

Wednesday, June 8
17:15-19:15
Apollo East

MS 801 - 5: MULTISCALE COMPUTATIONAL HOMOGENIZATION FOR BRIDGING SCALES IN THE MECHANICS AND PHYSICS OF COMPLEX MATERIALS

MS Organizers: Julien Yvonnet, Kenjiro Terada, Peter Wriggers, Marc Geers

Chair: Felix Fritzen

11479 A HOMOGENIZATION TECHNIQUE FOR ELASTO-PLASTIC COMPOSITES
Federica Covezzi, Stefano de Miranda, Sonia Marfia, Elio Sacco

5465 A SEMI-IMPLICIT MICROPLAR DISCRETE-TO-CONTINUUM METHOD FOR GRANULAR MATERIALS
Kun Wang, WaiChing Sun

7726 MODELING OF LOW-ALLOYED TRIP-STEELS BASED ON DIRECT MICRO-MACRO SIMULATIONS
Stefan Prüger, Ashutosh Gandhi, Daniel Balzani

8632 DISCRETE AND CONTINUUM MODELING OF THE EFFECTIVE PERMEABILITY OF MICROCRACKED MATERIALS
Jithender J. Timothy, Dirk Leonhart, Günther Meschke

Wednesday, June 8
17:15-19:15

Apollo West

**CS 450 - 2: NUMERICAL METHODS AND CONVERGENCE
ACCELERATION IN CFD**

Chair: Jonathan Bull

- 5822** A DIRECT SOLVER FOR THE ADVECTION-DIFFUSION EQUATION USING GREEN'S FUNCTIONS AND LOW-RANK APPROXIMATION
Jonathan Bull, Stefan Engblom, Sverker Holmgren
- 5839** AN IMPROVED DISCRETIZATION METHOD FOR BOUNDED CONVECTIVE SCHEMES ON UNSTRUCTURED CO-LOCATED GRIDS
Vlado Przulj
- 11423** COMPARISON OF DIFFERENT SPATIAL/ANGULAR AGGLOMERATION MULTIGRID SCHEMES FOR RADIATIVE HEAT TRANSFER COMPUTATIONS
Georgios Lygidakis, Ioannis Nikolos
- 11677** SOLVING THE STEADY RANS EQUATIONS BY SELECTIVE FREQUENCY DAMPING: APPLICATION TO THE TURBULENT FLOW AROUND AN AIRFOIL AT STALL
François Richez, Olivier Marquet
- 6066** A LOW-MACH, LOW-REYNOLDS PRECONDITIONING SCHEME WITH PARTICULAR ATTENTION TO VISCOUS TIME-STEPPING
Jens Fiedler, Graham Ashcroft

Wednesday, June 8
17:15-19:15

Room 1

**MS 1002: EVOLUTIONARY ALGORITHMS AND
METAHEURISTICS IN CIVIL ENGINEERING AND
CONSTRUCTION MANAGEMENT**

MS Organizers: Jorge Magalhaes-Mendes, David Greiner

Chair: Jorge Magalhaes-Mendes, David Greiner

- 4677** MULTIOBJECTIVE OPTIMIZATION USING GENETIC ALGORITHMS IN TIME-COST CONSTRUCTION PROJECT SCHEDULING PROBLEM
Jorge Magalhães-Mendes
- 6785** NASH EVOLUTIONARY ALGORITHMS: TESTING PROBLEM SIZE IN RECONSTRUCTION PROBLEMS IN FRAME STRUCTURES
David Greiner, Jacques Periaux, Jose M. Emperador, Blas Galvan, Gabriel Winter
- 6638** APPLICATION OF GENETIC ALGORITHMS TO STRUTTED SHEET PILE WALL DESIGN OPTIMIZATION
Mohamed Eid, Remon Isaac
- 8233** OPTIMUM SEISMIC DESIGN OF REINFORCED CONCRETE FRAMES ACCORDING TO EC8 AND MC2010 WITH GENETIC ALGORITHMS
Panagiotis Mergos
- 10285** CALIBRATION OF THE NUMERICAL MODEL OF A STAND IN DRAGÃO STADIUM BASED ON GENETIC ALGORITHMS
Jorge Leite, Diogo Ribeiro, Hugo Marques, Rui Calçada

Wednesday, June 8
17:15-19:15

Room 2

**MS 406: ADVANCES IN COMPUTATIONAL METHODS FOR GAS-
LIQUID TWO-PHASE FLOW**

MS Organizers: Byeong Rog Shin, Takeo Kajishima

Chair: Bernard Geurts

- 11055** SECTIONAL EULERIAN MODELING OF AEROSOL DRIFT, DIFFUSION AND DEPOSITION
Edo Frederix, Arkadiusz Kuczaj, Markus Nordlund, Bernard Geurts
- 8964** AN EMBEDDED-BOUNDARY FINITE-VOLUME METHOD FOR EULER FLOW WITH OCEAN APPLICATIONS
Curtis Lee, Hans Johansen, John Dolbow, Dan Graves, Dharshi Devendran
- 10716** A METHOD OF CHAINED ANALYTICAL WAVE STRUCTURES FOR LARGE SCALE STRATIFIED TWO-PHASE PIPE FLOWS
Andreas Holm Akselsen
- 10733** ENHANCEMENT OF EULERIAN-LAGRANGIAN MODEL FOR INVESTIGATION OF INTERACTION PRIMARY JET AND WATER MICROJETS IN A WIDE RANGE OF MACH NUMBERS
Matvei Kraposhin, Mikhail Kalugin, Sergei Strijhak
- 6903** COUPLING OF FLUID STRUCTURE INTERACTION SOLVER WITH A VOF METHOD FOR MULTIPHASE STRUCTURE INTERACTION
Daniele Cerroni, Roberto Da Via, Sandro Manservigi, Filippo Menghini
- 4409** FREE-SURFACE FLOW SIMULATION OF UNLIKE-DOUBLET IMPINGING JET ATOMIZATION
Junya Kouwa, Shinsuke Matsuno, Chihiro Inoue, Takehiro Himeno, Toshinori Watanabe

Wednesday, June 8
17:15-19:35

Room 3

MS 1006: PARAMETER IDENTIFICATION IN SOLID MECHANICS

MS Organizers: A. Gil Andrade-Campos, Marco Rossi, Sandrine Thuillier, Franck Toussaint, Marta C. Oliveira

Chair: A. Gil Andrade-Campos

- 9504** ON THE DESIGN OF MECHANICAL TESTS FOR PARAMETER IDENTIFICATION OF ELASTO-PLASTIC CONSTITUTIVE MODELS
Nelson Souto, António Andrade-Campos, Sandrine Thuillier
- 10447** USING BAYESIAN INFERENCE TO RECOVER THE MATERIAL PARAMETERS OF A HETEROGENEOUS HYPERELASTIC BODY
Jack S. Hale, Patrick E. Farrell, Stéphane P. A. Bordas
- 6015** AN INVERSE PROBLEM STRATEGY BASED ON FORWARD MODEL EVALUATIONS: GRADIENT-BASED OPTIMIZATION WITHOUT ADJOINT SOLVES
Miguel Aguilo
- 6942** STOCHASTIC MATERIAL CALIBRATION OF CERAMIC MATERIALS ON A SMALL SCALE – A COMPARISON BETWEEN DIFFERENT APPROACHES
Vladimir Buljak, Shwetank Pandey, Igor Balac
- 9463** IDENTIFICATION OF MATERIAL PARAMETERS USING INDENTATION TEST AND MANIFOLD LEARNING APPROACH
Liang Meng, Piotr Breittkopf, Balaji Raghavanand, Gérard Mauvoisin, Olivier Bartier, Xavier Hernot

- 4685** IDENTIFICATION OF THE MECHANICAL PROPERTIES OF COMPOSITE MATERIALS REINFORCED WITH FLAX-FIBRES DURING IMPACT TESTING WITH FINITE ELEMENT MODEL UPDATING AND IMAGE ANALYSIS
Amélie Cuynet, Franck Toussaint, Emile Roux, Daniel Scida, Rezak Ayad
- 9066** COHESIVE ZONE MODEL IDENTIFICATION WITH DCB TEST PARAMETER ESTIMATION SENSITIVITY
Racine Ly, Julien Jumel, Martin Shanahan, Florian Lavelle

Wednesday, June 8 **Room 4**
17:15-19:15

MS 408 - 2: MANIPULATION AND CONTROL OF TURBULENT FLOW

MS Organizers: Markus Rütten, Christina Voß
Chair: Markus Rütten, Christina Voß

- 6549** MANIPULATION AND CONTROL OF TURBULENT FLOW
Christina Voß, Markus Rütten
- 7060** A FRAMEWORK FOR SIMULTANEOUS OPTIMIZATION OF CHAOTIC AND TURBULENT FLOWS
Stefanie Günther, Nicolas Gauger, Qiqi Wang
- 4628** MODELING OF EXCITATION OF CONTROLLING DISTURBANCES IN SWEEP WING BOUNDARY LAYER BY MEANS OF PLASMA ACTUATORS
Sergey Chernyshev, Andrey Kiselev, Aleksandr Kuryachii
- 10690** NUMERICAL SIMULATION OF INTERACTION PROCESS BETWEEN DIELECTRIC BARRIER DISCHARGE AND DUCT FLOW
Pavel Semenev, Dmitriy Pudovikov, Pavel Toktaliev
- 10988** IMPLEMENTATION OF POD AND DMD METHODS IN APACHE SPARK FRAMEWORK FOR SIMULATION OF UNSTEADY TURBULENT FLOW IN THE MODEL COMBUSTOR
Mikhail Kalugin, Sergei Strijhak
- 7306** DOLPHIN-INSPIRED DRAG REDUCTION FOR SHIPS
Lars-Uve Schrader, Jochen Marzi, Amir Banari, Christian F. Janßen, Thomas Rung

Wednesday, June 8 **Room 5**
17:15-19:15

CS 410 - 6: COMPUTATIONAL FLUID MECHANICS

Chair: Julien Bruchon

- 5971** A NEW VARIATIONAL FORMULATION OF THE TRIPLE JUNCTION EQUILIBRIUM
Julien Bruchon, Nicolas Moulin, Yujie Liu
- 11856** EXTENSION OF IMMERSED BOUNDARY METHODS TO STRETCHED RECTILINEAR GRIDS.
Joris Picot, Stéphane Glockner, Thomas Milcent, Delphine Lacanette
- 7539** A KRYLOV-BASED EXPONENTIAL TIME INTEGRATOR OF THE INCOMPRESSIBLE NAVIER-STOKES EQUATION
Gijs Kooij, Mike Botchev, Bernard Geurts
- 8780** IMMERSED BOUNDARY METHODS FOR COMPRESSIBLE LAMINAR FLOWS
Rakesh Ramakrishnan, Anant Girdhar, Santanu Ghosh

Wednesday, June 8 **Room 7**
17:15-19:35

CS 720 - 2: COMPUTATIONAL MATERIALS SCIENCE

Chair: Evgeny Barkanov

- 5953** NUMERICAL SIMULATION OF ADVANCED PULTRUSION PROCESSES WITH MICROWAVE HEATING
Evgeny Barkanov, Pavel Akishin, Rudolf Emmerich, Matthias Graf
- 10182** EFFICIENT NUMERICAL SIMULATION OF INDUSTRIAL SHEET METAL BENDING PROCESSES
Christian Zehetner, Paula Reimer, Franz Hammelmüller, Hans Irschik, Wolfgang Kunze
- 9099** CRYSTAL VISCOPLASTICITY AND PLASTIC ANISOTROPY OF AL-RICH TiAl SX AT 1050°C
Helal Chowdhury, Konstantin Naumenko, Holm Altenbach, Manja Krüger
- 10782** A NOVEL TOOL FOR CONVERTING THE VOXEL REPRESENTATION OF MICROSTRUCTURES TO SMOOTH TETRAHEDRAL MESHES
Carl Sandström
- 11094** A PARTICLE-BASED MODEL TO INVESTIGATE THE MECHANICS OF SOFT FIBRE NETWORK
Md Shakhawath Hossain, Per Bergström, Tetsu Uesaka
- 10183** NUMERICAL MODELLING AND SIMULATION OF SHEET METAL CUTTING PROCESSES
Paula Reimer, Christian Zehetner, Franz Hammelmüller, Wolfgang Kunze
- 4708** THE INFLUENCE OF THERMAL BARRIERS IN ANISOTROPIC MEDIA APPLIED TO PCB USING MEC
N.C. Anunciação Jr, T.S.L. Oliveira, C.T.M Anflor

Wednesday, June 8 **Room 8**
17:15-19:15

MS 1201 - 2: COMPUTATIONAL STRUCTURAL DYNAMICS

MS Organizers: Evangelos J. Sapountzakis, Andreas E. Kampitsis
Chair: Evangelos J. Sapountzakis

- 6772** DYNAMIC RESPONSE OF REAL OFFSHORE WIND TURBINES ON MONOPILES IN STRATIFIED SEABED
Guillermo M. Álamo, Juan J. Aznárez, Luis A. Padrón, Alejandro E. Martínez-Castro, Rafael Gallego, Orlando Maeso
- 9090** NONLINEAR DYNAMICS OF A TIME DELAYED COUPLING DUFFING OSCILLATORS
Andrzej Weremczuk, Rafal Rusinek, Jerzy Warminski
- 9910** INVARIANCE OF EIGENFREQUENCIES AND EIGENMODES UNDER GEOMETRIC TRANSFORMATION IN ELONGATED ELASTIC STRUCTURES
Maryam Morvaridi, Michele Brun
- 10008** AN EFFICIENT MODELING TECHNIQUE FOR DYNAMIC ANALYSIS OF BOX GIRDER BRIDGE SUPERSTRUCTURES BASED ON A RIGOROUS CROSS-SECTIONAL ANALYSIS
Kiana Kashefi, Abdul Hamid Sheikh
- 9209** NUMERICAL ROUTINE FOR DYNAMIC ANALYSIS OF TRANSMISSION LINES GUYED TOWERS SUBMITTED TO BROKEN CABLE
Thiago Brazeiro Carlos, João Kaminski Jr.
- 7734** STRUCTURED SPATIAL DISCRETIZATION OF DYNAMICAL SYSTEMS
Marko Jokic, Andrej Jokic, Bruno Dogancic

**Wednesday, June 8
17:15-19:15** **Room 9**

**MS 203: COMPUTATIONAL METHODS FOR MODELLING
INSTABILITIES IN SOLIDS & STRUCTURES**

MS Organizers: Spyros A. Karamanos

Chair: Spyros A. Karamanos

- 12018 KEYNOTE:** EFFICIENCY OF DAMAGE-PLASTICITY MODELS IN CAPTURING COMPACTION-EXPANSION TRANSITION OF CONCRETE UNDER DIFFERENT COMPRESSION LOADING CONDITIONS
Reza Mousavi, Masoud D. Champiri, Kaspar J Willam
- 11295 KEYNOTE:** NON-ASSOCIATIVE J2 PLASTICITY MODEL FOR FINITE ELEMENT BUCKLING ANALYSIS OF THICK-WALLED METAL SHELLS
Spyros A. Karamanos, Patricia Pappa
- 10362** ON STABILITY LOSS OF A THIN-WALLED SPHERICAL SHELL SUBJECTED TO EXTERNAL PRESSURE AND INTERNAL HOMOGENEOUS CORROSION
Emmanuel Gutman, Rudolf Bergman, Semyon Levitski
- 7803** APPLICATION OF THICK LEVEL-SET METHOD TO DYNAMIC FRAGMENTATION OF BRITTLE MEDIA
Andrew Stershic, John Dolbow, Nicolas Moës

**Wednesday, June 8
17:15-19:15** **Room 10**

**MS 414 - 2: NEW TRENDS IN NUMERICAL METHODS FOR
MULTI-MATERIAL COMPRESSIBLE FLUID FLOWS**

MS Organizers: Andy Barlow, Michael Dumbser, Raphaël Loubère, Pierre-Henri Maire, Rob Rieben, Mikhail Shashkov, François Vilar

Chair: Pierre-Henri Maire

- 6435** POROELASTICITY: FLEXIBLE HIGH-ORDER VARIATIONAL SPACE-TIME DISCRETISATIONS
Uwe Köcher, Markus Bause
- 10639** ISOTROPY-PRESERVING SLOPE LIMITERS FOR FINITE VOLUME METHODS ON SQUARE MESHES
Jan Velechovsky, Marianne Francois
- 6287** EULERIAN CALCULATIONS OF MULTIMATERIAL FLOWS WITH SUB-CELL RECONSTRUCTION OF INTERFACES.
Igor Menshov, Pavel Zakharov
- 7567** A CONSERVATIVE SLIDE LINE METHOD FOR CELL-CENTERED SEMI-LAGRANGIAN AND ALE SCHEMES IN 2D
Silvia Bertoluzza, Stéphane Del Pino, Emmanuel Labourasse
- 8851** LAGRANGE-FLUX EULERIAN SCHEMES FOR COMPRESSIBLE MULTIMATERIAL FLOWS
Florian De Vuyst, Thibault Gasc, Renaud Motte, Mathieu Peybernes, Raphael Poncet
- 9959** A CARTESIAN SCHEME FOR COMPRESSIBLE MULTIMATERIAL MODELS WITH PLASTICITY
Thomas Milcent, Angelo Iollo, Alexia de Brauer

**Wednesday, June 8
17:15-19:35** **Room 11**

**MS 410 - 3: COMPLEX FLUID FLOWS IN ENGINEERING:
MODELLING, SIMULATION AND OPTIMIZATION**

MS Organizers: Stefanie Elgeti, Philipp Knechtges

Chair: Philipp Knechtges

- 4504** TALKING DROPS: OSCILLATING MARANGONI CONVECTION ENABLES INFORMATION PROPAGATION BETWEEN NANO-DROPS
Sebastian Aland
- 5044** NUMERICAL ANALYSIS OF RAREFIED GAS FLOWS USING THE ACADEMIC CFD CODE GALATEA
Angelos Kiothakis, Georgios Lygidakis, Ioannis Nikolos
- 6582** NUMERICAL SIMULATION OF THE CONJUGATE HEAT TRANSFER IN THE COOLING SYSTEM OF THE COMBUSTION CHAMBERS OF THE AVIATION RAMJET ON THE ENDOTHERMIC FUELS
Vadim Volokhov, Sergei Martynenko, Pavel Toktaliev
- 6620** COMBINING COMPUTATIONAL FLUID DYNAMICS AND DIMENSIONAL ANALYSIS IN THE DESIGN OF OIL SKIMMER TANKS
Axel Larreteguy, Francisco Barceló, Pablo Caron
- 8700** NEAR WALL BEHAVIOR OF IMPLICIT LARGE EDDY SIMULATIONS
Ioannis Kokkinakis, Dimitris Drikakis
- 9282** MOLD FILLING SIMULATIONS HELP IMPROVE THE MANUFACTURING PROCESS FOR CFRP COMPONENTS
Dino Magagnato
- 8961** A PARALLEL MULTIGRID SOLVER FOR TIME PERIODIC INCOMPRESSIBLE NAVIER-STOKES EQUATIONS
Pietro Benedusi, Rolf Krause, Peter Arbenz, Daniel Hupp

**Wednesday, June 8
17:15-19:15** **Room 12**

**MS 1003 - 2: ADVANCES IN DESIGN OPTIMIZATION OF
STRUCTURES AND MATERIALS**

MS Organizers: Zhen Luo, Zhan Kang

Chair: Qi Xia, Xiaopeng Zhang

- 9472** EOCEMENT: A NOVEL COMPOSITE MATERIAL FOR THE CONSTRUCTION INDUSTRY. IDENTIFICATION OF AN OPTIMAL RECIPE USING NEURAL NETWORKS
Natia Anastasi, Nikolaos Bakas, Piero Tiano, Jay Stuart, Linda Wittig, Javier Royo, Laura Sanchez, Oana Cuzman, Katharina Richter
- 8087** TOPOLOGY OPTIMIZATION OF PERIODIC STRUCTURES FOR COUPLED ACOUSTIC-STRUCTURE SYSTEMS
William Vicente, Renato Picelli, Renato Pavanella, Mike Xie
- 7294** APPROXIMATION OF GRADIENTS IN TOPOLOGY OPTIMIZATION OF FLEXIBLE MULTIBODY SYSTEMS
Ali Moghadasi, Alexander Held, Robert Seifried
- 5372** ROBUST STRUCTURAL DESIGN FOR UNKNOWN LOADINGS WITH FREE-FORM OPTIMIZATION METHOD
Masatoshi Shimoda, Tomohiro Ngano
- 8831** BESO APPROACH TO TOPOLOGY OPTIMIZATION OF GAN PHONONIC CRYSTALS
Luca D'Alessandro, Bichoy Bahr, Luca Daniel, Dana Weinstein, Raffaele Ardito

Wednesday, June 8
17:15-19:15
Room 15

MS 804 - 1: MULTISCALE AND COMPUTATIONAL APPROACHES TO FRACTURE AND FAILURE

MS Organizers: Haim Waisman, Caglar Oskay

Chair: Caglar Oskay

7732 **KEYNOTE:** INTERACTIONS OF DAMAGE MECHANISMS IN COMPOSITES SUBJECTED TO FATIGUE – LESSONS LEARNED FROM A BLIND PREDICTION STUDY
Michael Bogdanor, Caglar Oskay, Stephen Clay

4676 **KEYNOTE:** PHASE FIELD MODELING OF COMPLEX MATRIX/INTERFACIAL CRACK PROPAGATION IN COMPLEX MICROSTRUCTURES OBTAINED FROM MICROTOMOGRAPHY IMAGES
Julien Yvonnet, Thanh Tung Nguyen, Michel Bornert, Camille Chateau, Qizhi Zhu

10119 A SIMPLE LINEAR TETRAHEDRAL FINITE ELEMENT FOR INCOMPRESSIBLE SOLID DYNAMICS: THE ALGORITHM AND ITS BENEFITS IN FAILURE MECHANICS
Guglielmo Scovazzi, Xianyi Zeng, Simone Rossi, Brian Carnes

Wednesday, June 8
17:15-19:15
Room 18

MS 1007 - 4: ADDITIVE MANUFACTURING AND OPTIMIZATION

MS Organizers: Ekkehard Ramm, Ole Sigmund, Pierre Duysinx, Wing Kam Liu

Chair: Oded Amir, Matthijs Langelaar

8473 DESIGNING MANUFACTURABLE VISCOELASTIC DEVICES USING A TOPOLOGY OPTIMIZATION APPROACH WITHIN A TRULY-MIEX FEM FRAMEWORK
Paolo Venini, Marco Pingaro, Carlo Cingini

8257 ON A MULTI-MATERIAL OPTIMIZATION METHOD WITH DIRECT GRAYNESS AND LENGTH-SCALE CONTROL
Michael Stingl

8614 ISO-XFEM FOR TOPOLOGY OPTIMIZATION OF STRUCTURES UNDER MULTIPLE LOAD CASES AND ACCELERATION LOADING
Meisam Abdi, Ian Ashcroft, Ricky Wildman

6338 ANISOTROPIC MATERIAL ORIENTATION OPTIMIZATION METHOD IN COMPOSITE LAMINATES
Mario Petrovic, Tsuyoshi Nomura, Takayuki Yamada, Kazuhiro Izui, Shinji Nishiwaki

7367 OPTIMIZATION OF LATTICE STRUCTURES FOR PHONONIC BAND GAPS
Fabian Wein, Michael Stingl

Wednesday, June 8
17:15-19:15
Room 20

MS 907 - 3: REGULARIZED ENRICHED APPROXIMATIONS AND QUADRATURE FOR DISCONTINUITIES, SINGULARITIES AND CONTINUOUS-DISCONTINUOUS TRANSITION

MS Organizers: Elena Benvenuti, Giulio Ventura, José M.A. César de Sá

Chair: José M.A. César de Sá

6486 **KEYNOTE:** THE EFFECT OF QUADRATURE ON HIGH ORDER FICTITIOUS DOMAIN METHODS
Silvia Bertoluzza, Vincent Chabannes, Mourad Ismail, Christophe Prud'homme

10521 EFFECTIVE 3D REGULARIZED XFEM FOR PULL-OUT OF STEEL BARS IN CONCRETE, BENDING AND SHEAR TESTS ON FRP-REINFORCED CONCRETE BEAMS
Elena Benvenuti, Nicola Orlando

8342 NUMERICAL ISSUES OF ENRICHED FEM WITH QUADRATIC ELEMENTS
Marcel Ndeffo, Patrick Massin

4909 A NONCONFORMING HIGH-ORDER METHOD ON POLYTROPAL MESHES FOR THE BIOT PROBLEM
Daniele Boffi, Michele Botti, Daniele Antonio Di Pietro

Wednesday, June 8
17:15-19:15
Room 21

MS 110: COMPUTATIONAL BONE MECHANICS

MS Organizers: Bernd Markert, Udo Nackenhorst, Martin Ruess

Chair: Martin Ruess

6479 TOWARDS AN INTEGRATED COMPUTATIONAL FRAMEWORK ON BONE IMPLANT SURGERY
Udo Nackenhorst, Gabriela von Lewinski

8215 MICROMECHANICAL STIFFNESS ESTIMATION OF TISSUE ENGINEERING SCAFFOLDS COMPOSED OF HYDROXYAPATITE GRANULES, CONSIDERING BONE REGENERATION
Stefan Scheiner, Vladimir Komlev, Alexey Gurin, Christian Hellmich

11304 COUPLING THE FINITE CELL METHOD WITH FEATURE EXTRACTION AND DIFFUSE INTERFACES FOR FULLY AUTOMATED STRESS ANALYSIS OF CT BASED BONE STRUCTURES
Stein Stoter, Lam H. Nguyen, Martin Ruess, Dominik Schillinger

8814 COMPUTATIONAL MODELING OF A PROXIMAL FEMUR: A BENCHMARK TEST BETWEEN FINITE-ELEMENT ANALYSIS AND FLEXIBLE MULTIBODY SIMULATION
Andreas Geier, Märuan Keibach, Ehsan Soodmand, Daniel Klüß, Evelyn Winter, Anne-Marie Neumann, Andreas Wree, Christoph Woernle, Rainer Bader

9870 BIOMECHANICAL SUBJECT—SPECIFIC SIMULATIONS OF A FRACTURED TIBIA TREATED WITH AN INTRAMEDULLARY NAIL
Michael Roland, Thorsten Tjardes, Bertil Bouillon, Stefan Diebels

16485 MODELING MECHANICAL BEHAVIOR OF TRABECULAR BONE
S. Burhanettin Altan, Aysegül Tepe

Wednesday, June 8
17:15-19:15
Room 23

MS 1009 - 4: ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION

MS Organizers: Kyriakos C. Giannakoglou, Jens Dominik Mueller

Chair: Thomas Rung

10628 SHAPE OPTIMIZATION FOR THE REDUCTION OF FLOW-INDUCED NOISE
Nikolaos Magoulas, Michael Hartmann

10909 DISCRETE ADJOINT OPENFOAM BASED SENSITIVITY ANALYSIS FOR AERODYNAMIC OPTIMIZATION
Arindam Sen, Markus Towara, Uwe Naumann

10976 DEVELOPMENT OF A DISCRETE ADJOINT CFD CODE USING ALGORITHMIC DIFFERENTIATION
Sheikh Razibul Islam, Johannes Lotz, Jacek Szumbariski

- 11245** ON THE DIFFERENTIATION OF SIMPLE ALGORITHM IN ONE-SHOT METHODS FOR OPTIMAL DESIGN
Siamak Akbarzadeh, Jens Dominik Müller
- 11355** REDUCING THE MEMORY FOOTPRINT OF UNSTEADY ADJOINT CFD THROUGH CHECKPOINTING WITH TEMPORAL AND SPATIAL COARSENING
Jan Hueckelheim, Jens-Dominik Mueller
- 11651** CAD-FREE VS CAD-BASED PARAMETRISATION METHOD IN ADJOINT BASED AERODYNAMIC SHAPE OPTIMIZATION
Rejish Jesudasan, Xingchen Zhang, Mateusz Gugala, Jens-Dominik Mueller

TECHNICAL SESSIONS

Thursday, June 9 8:30-10:30	Zeus East	Thursday, June 9 8:30-10:30	Zeus North
MS 403 - 2: PARTICLE-BASED METHODS IN FLUID MECHANICS <i>MS Organizers:</i> Sergio Idelsohn, Eugenio Oñate <i>Chair:</i> Eugenio Oñate, Sergio Idelsohn		MS 901 - 6: ISOGEOMETRIC METHODS <i>MS Organizers:</i> Yuri Bazilevs, David J. Benson, Rene De Borst, Thomas J.R. Hughes, Trond Kvamsdal, Alessandro Reali, Giancarlo Sangalli, Clemens V. Verhoosel <i>Chair:</i> Thomas Elguedj	
7927	KEYNOTE: A LAGRANGIAN PFEM APPROACH TO THE NUMERICAL SIMULATION OF 3D LARGE SCALE LANDSLIDES IMPINGING IN WATER RESERVOIRS <i>Massimiliano Cremonesi, Francesco Ferri, Umberto Perego</i>	7720	KEYNOTE: AN INTERFACE-BASED TESSELLATION PROCEDURE FOR THE NUMERICAL INTEGRATION OF TRIMMED ELEMENTS IN THE ISOGEOMETRIC FINITE CELL METHOD <i>Clemens Verhoosel, Gertjan van Zwieten</i>
7552	A LAGRANGIAN FINITE ELEMENT METHOD FOR THE SIMULATION OF 3D COMPRESSIBLE FLOWS <i>Massimiliano Cremonesi, Attilio Frangi</i>	7615	NURBS BASED GALERKIN APPROACH FOR THE ANALYSIS OF BOUNDARY REPRESENTED SOLIDS <i>Sven Klinkel, Lin Chen</i>
9037	PFEM-2 : THE MOST EFFICIENT WAY TO SOLVE CONVECTION-DOMINATED PROBLEMS <i>Pablo Agustín Becker, Sergio R. Idelsohn, Eugenio Oñate</i>	7872	DIRECT INTERACTIVE VISUALIZATION OF LR- AND T-SPLINE VOLUMES FOR USE IN LARGE-SCALE SCIENTIFIC COMPUTING AND ISOGEOMETRIC ANALYSIS <i>Franz Georg Fuchs, Jon Mikkelsen Hjelmervik</i>
12896	SPH SIMULATION OF MULTIPHASE FLOW <i>Bo Ren, Chenfeng Li, Javier Bonet, Shimin Hu</i>	6946	OPTIMAL QUADRATURE RULES FOR EXACT INTEGRATION IN ISOGEOMETRIC ANALYSIS <i>Kjetil Andre Johannessen</i>
6223	TWO NOVEL WAYS TO IMPOSE FREE-SLIP BOUNDARY CONDITIONS IN FLUID-STRUCTURE INTERACTION PROBLEMS USING THE PARTICLE FINITE ELEMENT METHOD <i>Marco Lucio Cerquaglia, Geoffrey Deliége, Romain Boman, Jean-Philippe Ponthot</i>	9137	ISOGEOMETRIC MODELING OF RED BLOOD CELLS <i>Luca Dede', Andrea Bartezzaghi, Alfio Quarteroni</i>
Thursday, June 9 8:30-10:30	Zeus West	Thursday, June 9 8:30-10:30	Minos East
MS 1007 - 5: ADDITIVE MANUFACTURING AND OPTIMIZATION <i>MS Organizers:</i> Ekkehard Ramm, Ole Sigmund, Pierre Duysinx, Wing Kam Liu <i>Chair:</i> Wing Kam Liu, Paolo Venini		MS 602 - 2: INNOVATIVE METHODS FOR FLUID-STRUCTURE-INTERACTION <i>MS Organizers:</i> E. Harald von Brummelen, Roger Ohayon, Trond Kvamsdal <i>Chair:</i> E. Harald von Brummelen	
5118	SHAPE AND TOPOLOGY OPTIMIZATION ACCOUNTING FOR ADDITIVE MANUFACTURING CONSTRAINTS: INFLUENCE OF INDUCED ANISOTROPY <i>Alexis Faure, Charles Dapogny, Georgios Michailidis, Rafael Estevez, Guillaume Parry, Natasha Vermaak</i>	5325	INFLUENCE OF TURBULENCE MODELING APPROACHES IN THE CONTEXT OF FLUID-STRUCTURE INTERACTION PREDICTIONS <i>Michael Schäfer</i>
15032	METHOD AND APPLICATION OF CONTINUUM TOPOLOGY OPTIMIZATION OF THERMO-ELASTIC STRUCTURES <i>Tong Gao, Lei Tang, Libin Qiu, Lu Zhou, Yingbin He, Weihong Zhang</i>	6595	UNIFIED FORMULATION FOR THERMO-COUPLED FSI PROBLEMS USING THE PFEM. APPLICATION TO PHASE CHANGE PROBLEMS <i>Eugenio Oñate, Alessandro Franci, Josep Maria Carbonell</i>
7766	FINITE ELEMENT APPROXIMATION OF A TIME-DEPENDENT TOPOLOGY OPTIMIZATION PROBLEM <i>Matteo Bruggi, Nicola Parolini, Francesco Regazzoni, Marco Verani</i>	6597	ASSESSMENT OF THE FLUID-STRUCTURE INTERACTION CAPABILITIES FOR AERONAUTICAL APPLICATIONS OF THE OPEN-SOURCE SOLVER SU2. <i>Ruben Sanchez, Heather L. Kline, David Thomas, Anil Variyar, Marcello Righi, Thomas D. Economon, Juan J. Alonso, Rafael Palacios, Grigorios Dimitriadis, Vincent Terrapon</i>
6484	TOPOLOGY OPTIMIZATION FOR ADDITIVE MANUFACTURING USING SELF-SUPPORTING RHOMBIC STRUCTURES <i>Jun Wu, Charlie C. L. Wang, Xiaoting Zhang, Rüdiger Westermann</i>	11836	A NEW FINITE-ELEMENT FRAMEWORK FOR FLUID-STRUCTURE-INTERACTIONS CONSIDERING FLEXIBLE MEMBRANES: THEORY AND APPLICATION <i>Tobias Luginsland, Roger A. Sauer</i>
9130	SUPPORT STRUCTURE CONSTRAINED TOPOLOGY OPTIMIZATION FOR ADDITIVE MANUFACTURING <i>Amir M. Mirzendehtdel, Krishnan Suresh</i>	7384	FLUID-STRUCTURE INTERACTION IN A CLUSTER OF CYLINDERS EXPOSED TO AXIAL FLOW: FROM LOW-ORDER MODELS TO FULLY COUPLED CFD-CSM METHODS <i>Jeroen De Ridder, Katrien Van Tichelen, Joris Degroote, Jan Vierendeels</i>

Thursday, June 9
8:30-10:30

Minos North

STS 6: DRAG REDUCTION AND FLOW CONTROL TECHNOLOGIES

STS Organizers: Dietrich Knoerzer, Geza Schrauf

Chair: Dietrich Knoerzer

15088 THE NATURAL LAMINAR FLOW FLIGHT TEST OF THE BLADE PROJECT OF CLEANSKY

Paul Phillips

14381 STABILITY, TRANSITION AND CONTROL OF THREE-DIMENSIONAL BOUNDARY-LAYER FLOWS

Ardeshir Hanifi

14384 HYBRID LAMINAR FLOW CONTROL TEST CASES FOR TRANSITION AND DRAG PREDICTION

Geza Schrauf

14388 INTEGRATED DESIGN METHOD FOR AIRCRAFT WITH HYBRID LAMINAR FLOW CONTROL WINGS

Kristof Risse, Eike Stumpf

Thursday, June 9
8:30-10:30

Minos South

MS 112 - 6: ANEURYSMS: SOLID MECHANICS, FLUID MECHANICS, AND MECHANOBIOLOGY

MS Organizers: Christian J. Cyron, Sven Hirsch, Philippe Bijlenga, Roland C. Aydin, Anne M. Robertson, Gerhard A. Holzapfel

Chair: Christian J. Cyron, Philippe Bijlenga

8063 **KEYNOTE:** ON-GOING RESEARCHES FOR NEW PERSONALIZED RISK OF RUPTURE FOR ASCENDING THORACIC ANEURYSMS

Olfa Trabelsi, Ambroise Duprey, Stéphane Avril

5944 IDENTIFICATION OF ANEURYSM PROGRESSION BASED ON SURFACE SIMILARITY

Michael Gee, Sebastian Kehl

9112 SHAPE-BASED MODELING OF ANEURYSMAL DISEASE STATUS

Norman Juchler, Sabine Schilling, Isabel Wanke, Daniel Rüfenacht, Philippe Bijlenga, Vartan Kurtcuoglu, Sven Hirsch

7807 BIFURCATION CONFIGURATION AS A CRITERION AFFECTING RISK OF ANEURYSM RUPTURE IN BASILAR ARTERY ANEURYSMS

Sherif Rashad, Shin-ichiro Sugiyama, Kuniyasu Niizuma, Kenichi Sato, Yasushi Matsumoto, Miki Fujimura, Teiji Tominaga

8274 CEREBRAL VESSELS AND ANEURYSMS: WHAT CAN WE LEARN FROM PATIENT-SPECIFIC WALL THICKNESS?

Samuel Voß, Philipp Berg, Sylvia Glaßer, Thomas Hoffmann, Simon Weigand, Gábor Janiga

Thursday, June 9
8:30-10:30

Europa

CS 630 - 2: SIMULATION OF FLUID-STRUCTURE INTERACTION

Chair: Jan A. Kołodziej

9435 APPLICATION OF THE MFS AND THE SPTF FOR DETERMINATION OF SLIP CONSTANT IN THE BEAVERS-JOSEPH BOUNDARY CONDITION

Jan A. Kołodziej, Magdalena Mierzwiczak, Jakub K. Grabski

6656 COUPLED STOKES-DARCY FLOWS IN ORTHOTROPIC POROUS MEDIUM UNDERGOING FINITE STRAIN

Maxime Blais, Nicolas Moulin, Julien Bruchon, Sylvain Dapier

6844 A HYBRID FE PROCEDURE FOR SIMULATION OF COUPLED ELECTRICAL, THERMAL, AND MECHANICAL FIELDS IN ELECTRO-THERMALLY DRIVEN MICRO-ACTUATORS

Walerian Szyszkowski, Daryl Hill

11124 HOMOTOPY ANALYSIS METHOD FOR FLUID FLOW THROUGH FIBROUS POROUS MEDIA

Magdalena Mierzwiczak

Thursday, June 9
8:30-10:30

Leda

MS 904 - 1: ADVANCED MINIMAL RESIDUAL DISCRETIZATION

MS Organizers: Carsten Carstensen, Dietmar Gallistl

Chair: Carsten Carstensen

12123 ADAPTIVE ITERATIVE SOLVERS FOR THE DPG METHOD

Socratis Petrides, Leszek Demkowicz

12134 A DPG APPROACH TO THE NONLINEAR SCHRÖDINGER EQUATION

Sriram Nagaraj, Leszek Demkowicz

7003 DPG FOR TIME-HARMONIC MAXWELL EQUATIONS

Carsten Carstensen, Johannes Storn

8850 AN ADAPTIVE LEAST-SQUARES FEM FOR THE STOKES EQUATIONS WITH OPTIMAL CONVERGENCE RATES

Philipp Bringmann, Carsten Carstensen

Thursday, June 9
8:30-10:30

Athena

MS 1401 - 1: TOICA: THERMAL OVERALL INTEGRATED CONCEPT AIRCRAFT

MS Organizers: Pierre Arbez, Jean-Claude Donyach

Chair: Jean-Claude Donyach

9480 THERMAL OVERALL INTEGRATED CONCEPT AIRCRAFT – THE TOICA PROJECT

Pierre Arbez

16673 THE BEHAVIOURAL DIGITAL AIRCRAFT ENVIRONMENT

Sanjiv Sharma, Jean-Claude Donyach

11179 SUPER INTEGRATION: SEEKING NOVEL VALUED SOLUTIONS

Sanjiv Sharma, Christoffer Levandowski, Arturo Molina-Cristobal, Timoleon Kipouros, Ola Isaksson, Trevor Robinson

9111 VISUAL ANALYTICS FOR EVALUATION OF VALUE IMPACT IN ENGINEERING DESIGN

Timoleon Kipouros, Ola Isaksson

Thursday, June 9
8:30-10:30

Artemis

MS 1210: ADVANCES IN MODELING AND ANALYSIS OF FGM STRUCTURES

MS Organizers: Justin Murin, Stephan Kugler, Mehdi Aminbaghai

Chair: Justin Murin

4649 ELASTOSTATIC AND MODAL AND BUCKLING ANALYSIS OF SPATIAL FGM BEAM STRUCTURES

Justin Murin, Mehdi Aminbaghai, Juraj Hrabovsky, Vladimir Kutis, Juraj Paulech, Stephan Kugler

- 7908** A HIGHER ORDER HYBRID FINITE ELEMENT FOR FGM BEAM STRUCTURES
Peter Fotiu, Stephan Kugler
- 5592** THERMO-ELASTICITY IN SHELL STRUCTURES MADE OF FUNCTIONALLY GRADED MATERIALS
Stephan Kugler, Peter Fotiu, Justin Murin
- 6577** NUMERICAL SOLUTION OF DIFFERENTIAL EQUATIONS WITH NON-CONSTANT COEFFICIENTS
Juraj Hrabovský, Justín Murín, Mehdi Aminbaghai, Vladimír Kutíš, Juraj Paulech
- 6572** FINITE BEAM ELEMENT WITH PIEZOELECTRIC LAYERS AND FUNCTIONALLY GRADED MATERIAL OF CORE
Vladimír Kutíš, Justín Murín, Juraj Paulech, Juraj Hrabovský, Roman Gogola, Jakub Jakubec
- 7175** TWO-WAY COUPLED ELECTRO-THERMAL ANALYSIS OF FGM SYSTEM CALCULATED BY THE NEW LINK FINITE ELEMENT
Juraj Paulech, Vladimír Kutíš, Juraj Hrabovský, Justín Murín, Tibor Sedlár, Roman Gogola, Gabriel Gálík

Thursday, June 9
8:30-10:30
Aphrodite

MS 103 - 4: MECHANICS OF BIOLOGICAL TISSUES

MS Organizers: Markus Böl, Gerhard A. Holzapfel

Chair: Markus Böl

- 5214** DEVELOPING A MECHANOBIOLOGICAL MODEL OF THE MURINE BLADDER: IN VIVO, IN VITRO AND IN SILICO MODELLING
Jack Hornsby, Fangzhou Cheng, Aura Kullman, Hamna Afaq, Megan Duffy, Namrata Gundiah, Lori Birder, Mark Thompson, Paul Watton
- 5444** MODELLING THE CHEMO-MECHANO-BIOLOGY OF ARTERIAL GROWTH AND REMODELLING: A 3-DIMENSIONAL, FLUID-SOLID-GROWTH SIMULATION
Pedro Aparicio, Namrata Gundiah, Mark S Thompson, Paul N Watton
- 6082** SOURCES OF VISCOELASTICITY AND DAMAGE IN SOFT CONNECTIVE TISSUES: MOLECULAR AND INTERMOLECULAR MECHANISMS IN COLLAGEN FIBRILS
Michele Marino, René B. Svensson, Giuseppe Vairo, Peter Wriggers
- 7448** ON THE ROLE OF FATIGUE IN TENDON: A MULTI-SCALE CONSTITUTIVE MODELLING APPROACH
Kevin Linka, Mikhail Itskov
- 8863** ON EXPONENTIAL FUNCTION IN THE SOFT TISSUE CONSTITUTIVE LAWS
Ankush Aggarwal
- 11842** A MICRO-MECHANICALLY BASED MODEL FOR SOFT COLLAGENOUS TISSUES
Mor B. Frank, Gerhard A. Holzapfel, Gal deBotton

Thursday, June 9
8:30-10:30
Antigoni

MS 201 - 1: MICROSTRUCTURE-DRIVEN DEFORMATION AND FAILURE IN CRYSTALLINE MATERIALS

MS Organizers: Pilar Ariza, Lucia Nicola, Angelo Simone

Chair: Pilar Ariza

- 5436** STABILITY OF ASYMMETRIC GRAIN BOUNDARIES IN GRAPHENE
J.P. Mendez, F. Arca, M.P. Ariza
- 10783** A 3D PHASE-FIELD MODEL FOR DISPLACIVE TRANSITIONS WITH FINITE ELASTOPLASTIC DEFORMATIONS: APPLICATION TO POLYMORPHISM OF IRON AT HIGH PRESSURE:
Aurélien Vattré, Christophe Denoual
- 11702** MESH OBJECTIVE DAMAGE MODELING OF DUCTILE FRACTURE AT VISCO-PLASTIC CONTINUUM RESPONSE
Senad Razanica, Ragnar Larsson, B. Lennart Josefson
- 11506** SOURCE DENSITY EFFECT ON INDENTATION PRESSURE RESPONSE OF THIN FILMS: A DISCRETE DISLOCATION PLASTICITY ANALYSIS
Yilun Xu, Daniel Balint, Daniele Dini
- 5801** CRACK TIP MODELING OF HYDROGEN ASSISTED CRACKING: THE ROLE OF STRAIN GRADIENTS
Emilio Martínez-Pañeda
- 9301** MOLECULAR DYNAMICS SIMULATIONS OF PHASE TRANSFORMATIONS IN NITI SHAPE MEMORY ALLOY BICRYSTALS
Prashanth Srinivasan, Lucia Nicola, Angelo Simone

Thursday, June 9
8:30-10:30
Apollo East

MS 711- 1: FOURIER-BASED METHODS FOR COMPUTING THE BEHAVIOR OF HETEROGENEOUS MATERIALS DEVELOPMENTS, EXTENSIONS AND APPLICATIONS

MS Organizers: Lionel Gélébart, Hervé Moulinec, Franz Roters, François Willot

Chair: Lionel Gélébart, Hervé Moulinec

- 8762** A MASSIVELY PARALLEL FFT-BASED SOLVER TO EVALUATE STRESS LOCALIZATION IN BCC POLYCRYSTALS
Lionel Gelebart, Franck Ouaki, Julien Derouillat
- 11858** USING ANDERSON ALGORITHM TO ACCELERATE FFT BASED METHODS
Étienne Castelier, Lionel Gélébart, Thomas Helfer
- 11062** FOURIER-GALERKIN METHOD BASED ON EXACT INTEGRATION
Jaroslav Vondřejc
- 5977** NONLINEAR COMPOSITE VOXELS AND FFT-BASED HOMOGENIZATION
Matthias Kabel, Andreas Fink, Felix Ospald, Matti Schneider
- 8875** COMPARISON OF ALGORITHMS AND SOLUTION METHODS FOR CLASSIC AND PHASE-FIELD-BASED PERIODIC INHOMOGENEOUS ELASTOSTATICS
Jaber Rezaei Mianroodi, Pratheek Shanthraj, Bob Svendsen
- 7917** NUMERICALLY ROBUST SPECTRAL METHODS FOR CRYSTAL PLASTICITY SIMULATIONS OF HETEROGENEOUS MATERIALS
Franz Roters, Pratheek Shanthraj, Martin Diehl, Philip Eisenlohr, Dierk Raabe

Thursday, June 9
8:30-10:30
Apollo West

MS 204 - 1: IMPACT AND CRASH MECHANICS

MS Organizers: Manfred Bischoff, Fabian Duddeck

Chair: Manfred Bischoff, Fabian Duddeck

8778 **KEYNOTE:** OPTIMAL TOPOLOGIES OF EXTRUSION BEAMS UNDER AXIAL AND TRANSVERSAL IMPACT LOADS

Fabian Duddeck

8223 A NONLINEAR REGULARIZATION MODEL FOR CONTACT CONDITIONS AND HIGHER ORDER METHODS FOR IMPACT SIMULATION

Peter Otto, Jörg F. Unger, Laura De Lorenzis

9968 COMPUTATIONAL MODELLING OF AIRCRAFT DITCHING WITH TWO-WAY FLUID-STRUCTURE-INTERACTION

Willem Gropengießer, Thomas Rung

8131 ON THE STABILITY AND TRAJECTORIES OF THE DOUBLE PENDULUM WITH LINEAR SPRINGS AND DAMPERS

Juha Jeronen, Reijo Kouhia

11151 STABILITY OF STEEL STRUCTURES WITH CLEARANCES AND IMPERFECTION

Katarzyna Rzeszut, Andrzej Garstecki

6234 ON ASYMPTOTIC PROPERTIES AND BIFURCATION ANALYSIS OF IMPLICITLY GIVEN FUNCTIONALS

Nikolay Banichuk, Alexander Barsuk, Pekka Neittaanmäki, Tero Tuovinen

8365 THE CURL AND FLUTING OF PAPER: THE EFFECT OF ELASTO-PLASTICITY

Anna-Leena Erkkilä, Teemu Leppänen, Tero Tuovinen

9339 LINEAR STABILITY AND POST-BIFURCATION ANALYSIS FOR LOCALISATION OF DEFORMATION OF A ROCK LAYER WITH COSSERAT MICROSTRUCTURE

Hadrien Rattiez, Ioannis Stefanou, Jean Sulem

Thursday, June 9
8:30-10:30
Room 1

MS 702: MODELING OF NANOFILLED COMPOSITES

MS Organizers: Konstantinos I. Tserpes

Chair: Konstantinos I. Tserpes

9526 A MULTI-SCALE NUMERICAL MODEL FOR SIMULATING THE LOW-VELOCITY IMPACT RESPONSE OF CARBON NANOTUBE-REINFORCED POLYMERS

Asimina Manta, Konstantinos Tserpes

7538 SIMULATING ATOMIC FORCE MICROSCOPY FOR THE DETERMINATION OF THE ELASTIC PROPERTIES OF NANO PARTICLE REINFORCED EPOXY RESIN

Johannes Fankhänel, Andreas Kempe, Raimund Rolfes

7586 MULTI-SCALE FINITE ELEMENT ANALYSIS OF GRAPHENE/POLYMER NANOCOMPOSITES ELECTRICAL BEHAVIOR

Asimina Manta, Matthieu Gresil, Constantinos Soutis

7828 THERMOMECHANICAL PREDICTION OF GRAPHENE NANOCOMPOSITES

Androniki Tsiamak, Nikolaos Anifantis

9883 MULTI-SCALE SIMULATION OF TENSILE BEHAVIOR OF MWCNT/PP NANOCOMPOSITE

Aggeliki Chanteli, Konstantinos Tserpes, Spiros Pantelakis

12069 DETERMINATION OF RVE SIZE FOR RANDOM CNT REINFORCED COMPOSITES

Dimitrios Savvas, George Stefanou, Vissarion Papadopoulos, Manolis Papadrakakis

Thursday, June 9
8:30-10:50
Room 2

MS 1208: BIFURCATIONS AND STABILITY

MS Organizers: Pekka Neittaanmäki, Nikolay Banichuk, Juha Jeronen, Tero Tuovinen

Chair: Nikolay Banichuk, Tero Tuovinen

6245 BIFURCATION OF AN AXIALLY MOVING PLATE SUBJECTED TO CROSS-DIRECTIONAL POTENTIAL FLOW

Tero Tuovinen, Nikolay Banichuk, Juha Jeronen

8009 BUCKLING OF ANNULAR PLATE JOINT WITH CIRCULAR BEAM

Sergei Filippov, Maria Boyarskaya

Thursday, June 9
8:30-10:30
Room 3

MS 409 - 3: CURRENT TRENDS IN MODELLING AND SIMULATION OF TURBULENT FLOWS

MS Organizers: Suad Jakirlić, ERCOFTAC SIG15

Chair: Suad Jakirlić

8987 CONTRIBUTION TO THE DEVELOPMENT OF AN R_IJ-EPSILON_IJ TURBULENCE CLOSURE

G.A. Geroiymos, I. Vallet

8346 ON TWO ROADBLOCKS FOR PHYSICS-BASED RANS TURBULENCE MODELING

Svetlana V. Poroseva, Scott M. Murman

11680 A MODIFIED SSG/LLR-OMEGA REYNOLDS STRESS MODEL FOR PREDICTING BLUFF BODY AERODYNAMICS

Csaba Klajbár, László Könözy, Karl W. Jenkins

6906 NUMERICAL VALIDATION OF A FOUR PARAMETER LOGARITHMIC TURBULENCE MODEL

Daniele Cerroni, Roberto Da Vià, Sandro Manservigi, Filippo Menghini

7659 INFLUENCE OF A NON-LINEAR TURBULENCE MODEL EXTENSION ON THE PREDICTION OF A TURBULENT FLOW OVER A BACKWARD-FACING STEP

Tobias Schumm, Franco Magagnato, Bettina Frohnappfel

10979 A WAY TO IMPROVE JET MODELING WITHIN RANS EQUATION SYSTEM

Alexey Troshin

Thursday, June 9
8:30-10:50
Room 4

MS 701 - 1: ADVANCED MATERIALS: COMPUTATIONAL ANALYSIS OF PROPERTIES AND PERFORMANCE

MS Organizers: Vadim V. Silberschmidt, Valery P. Matveenko

Chair: Vadim V. Silberschmidt, Valery P. Matveenko

7715 COMPUTATIONAL MODELLING OF MECHANICAL BEHAVIOR OF BIOLOGICAL TISSUES FOR BIOMEDICAL APPLICATIONS

Simin Li, Yang Liu, Juan Du, Begum Zeybek, Lorenzo Zani, Mark P. Lewis, Vadim V. Silberschmidt

4544 ON THE REINFORCEMENT OF CEMENT MORTARS THROUGH 3D PRINTED POLYMERIC AND METALLIC

Francesco Fabbrocino, Ilenia Farina, Ada Amendola, Luciano Feo, Fernando Fraternali

- 6417** AEROELASTIC STABILITY OF TWO PARALLEL FGM PLATES INTERACTING WITH FLOWING FLUID
*Sergey Bochkarev, **Sergey Lekomtsev**, Valery Matveenko*
- 7427** STRESS-ENHANCED DIFFUSION AND SURFACE EFFECTS IN LI-ION BATTERY ELECTRODE NANOPARTICLES
Peter Stein, Bai-Xiang Xu
- 7039** A TEMPERATURE SENSITIVE CRYSTAL PLASTICITY MODEL FOR THE PREDICTION OF HIGH TEMPERATURE MECHANICAL BEHAVIOUR OF MULTI-PHASE TIAL ALLOY
Muhammad Umer Ilyas, M. Rizviul Kabir
- 7815** THE USE OF EQUIVALENT CIRCUITS FOR OPTIMIZATION OF DISSIPATIVE PROPERTIES OF ELECTROELASTIC BODIES WITH EXTERNAL ELECTRIC CIRCUITS
Dmitrii Oshmarin, Valerii Matveenko, Nataliya Sevodina, Nataliia Iurlova
- 7255** NUMERICAL SIMULATION OF MULTILAYER COMPOSITE MATERIALS WITH DEFECTS UNDER STATIC LOADING
Valeriy Korepanov, Valeriy Matveenko, Grigoriy Serovae

**Thursday, June 9
8:30-10:30** **Room 5**

MS 911 - 1: NUMERICAL METHODS IN THE MECHANICS OF GENERALIZED CONTINUA

MS Organizers: Elena Atroshchenko, Jack S. Hale, George Bourantas, Stéphane P.A Bordas

Chair: Elena Atroshchenko

- 9921** **KEYNOTE:** A TRANSIENT GRADIENT DAMAGE MODEL FOR LOCALIZED BRITTLE FAILURE
Leong Hien Poh
- 5724** THE STRUCTURAL SYMMETRY WITHIN THE CONTEXT OF NONLOCAL ELASTICITY
*Aurora Angela Pisano, **Paolo Fuschi***
- 9577** A KERNEL REDUCTION SCHEME FOR FRACTIONAL DIFFERENTIAL EQUATIONS AND DISCRETIZATION METHODS
Daniel Baffet, Jan Hesthaven
- 11097** A COMPARISON OF COMPUTATIONAL FORMATS OF GRADIENT-EXTENDED CRYSTAL VISCOPLASTICITY IN THE CONTEXT OF SELECTIVE HOMOGENIZATION
Kristoffer Carlsson, Kenneth Runesson, Magnus Ekh, Fredrik Larsson

**Thursday, June 9
8:30-10:30** **Room 7**

MS 608: ADVANCES IN TIME INTEGRATION FOR SOLID, FLUID AND COUPLED SYSTEMS

MS Organizers: Ilinca Stanciulescu, Peter Betsch

Chair: Ilinca Stanciulescu, Peter Betsch

- 8082** STRUCTURE-PRESERVING OPTIMAL CONTROL OF DISCRETE MECHANICAL SYSTEMS
Peter Betsch, Christian Becker
- 10163** VARIATIONAL INTEGRATORS OF MIXED ORDER FOR DYNAMICAL SYSTEMS WITH MULTIPLE TIME SCALES AND SPLIT POTENTIALS
*Theresa Wenger, Sina Ober-Blöbaum, **Sigrid Leyendecker***

- 7883** ENERGY AND MOMENTUM CONSERVING VARIATIONAL BASED TIME INTEGRATION OF ANISOTROPIC HYPERELASTIC CONTINUA
Michael Groß, Rajesh Ramesh, Julian Dietzsch
- 11733** CO-SIMULATION OF LARGE MBD, FEA AND DEM SYSTEMS.
*Jose Ortiz, Neil MacDonald, **Sophie Broad***
- 6676** MIXED INTEGRATORS FOR STRUCTURE-PRESERVING SIMULATIONS IN NONLINEAR STRUCTURAL DYNAMICS
Alexander Janz, Peter Betsch, Christian Hesch
- 4537** ENERGY CONSERVING TIME INTEGRATION BASED ON GALERKIN-VARIATIONAL INTEGRATORS WITH CONSTRAINTS
Matthias Bartelt, Michael Groß

**Thursday, June 9
8:30-10:30** **Room 8**

MS 109 - 1: ADVANCED ANALYSIS OF MATERIALS & STRUCTURAL SOLUTIONS IN SAFETY & BIOMECHANICS

MS Organizers: Jerzy Malachowski, Piotr W. Sielicki

Chair: Piotr W. Sielicki

- 10470** THE BEHAVIOUR OF A LIGHTWEIGHT ELEVATION SYSTEM UNDER IMPROVISED EXPLOSIVE DEVICE ACTION: EXPERIMENT VS. NUMERICAL VERIFICATION
Piotr W. Sielicki, Tomasz Łodygowski, Wojciech Sumelka, Karol Puk
- 11082** ON A TWO-CRITERIA OPTIMISATION IN SURGICAL MESH IMPLANTATION FOR TREATMENT OF VENTRAL HERNIA
*Izabela Lubowiecka, **Katarzyna Szepietowska**, Agnieszka Tomaszewska, Czesław Szymczak*
- 11148** HUMAN IDENTIFICATION BASED ON GAIT PARAMETERS – RECOGNITION OF PERSON AND GENDER
Tomasz Walczak, Jakub Krzysztof Grabski, Magdalena Grajewska, Martyna Michałowska
- 10425** FE MODELLING OF TIRE IN THE ASPECT OF DYNAMIC SAFETY ANALYSIS
Paweł Baranowski, Jerzy Małachowski

**Thursday, June 9
8:30-10:50** **Room 9**

MS 709: INTEGRATED COMPUTATIONAL MATERIALS ENGINEERING - ICME

MS Organizers: Gottfried Laschet, Javier Llorca, Michele Chiumenti

Chair: Gottfried Laschet, Rajiv Shivpuri

- 9207** **KEYNOTE:** MUESLI: A MATERIAL UNIVERSAL LIBRARY
Ignacio Romero, David Portillo, Daniel del Pozo, Daniel Rodríguez, Javier Segurado
- 10965** **KEYNOTE:** MULTI-SCALE MODELING OF DIFFUSION-CONTROLLED PROCESSES DURING ULTRASONIC BONDING
*Siavash Soltani-Bajestani, Maryam Gholamirad, **Panthea Sepehrband***
- 6075** EFFECTIVE FLOW CURVES OF FERRITE/PEARLITE MICROSTRUCTURES AND THEIR USE IN CUTTING SIMULATIONS OF STEEL GEARS
Gottfried Laschet, Viktor Kripak, Andre Texeira, Benjamin Döbbeler, Fritz Klocke, Ulrich Prah

11255 COUPLING THERMODYNAMIC DATABASES WITH LARGE SCALE PHASE-FIELD SIMULATIONS
Michael Selzer, Michael Kellner, Philipp Steinmetz, Johannes Hötzer, Britta Nestler

16672 MULTISCALE FRAMEWORK FOR DEFECT SENSITIVE DESIGN OF PROCESSES FOR REDUCED FAILURE RISK
Rajiv Shivpuri

Thursday, June 9
8:30-10:30

Room 10

MS 710: MODELING OF INTERFACE BEHAVIOR IN COMPOSITES

MS Organizers: Swantje Bargmann, Ingo Scheider, Andrew McBride
Chair: Ingo Scheider

11299 CONTINUUM DAMAGE MODEL SIMULATING THE FAILURE MECHANISMS IN HARD BIOLOGICAL MATERIALS: THE ROLE OF INTERFACE STRENGTH ON DAMAGE EVOLUTION.
Ingo Scheider, Songyun Ma, Swantje Bargmann

7368 A REMEDY FOR TRACTION OSCILLATIONS IN INTERFACE ELEMENTS
Erik Svenning, Martin Fagerström, Fredrik Larsson

6851 SCALAR PARAMETER ANALYSIS OF THREE-DIMENSIONAL INTERFACIAL CORNER OF JOINTED DISSIMILAR ANISOTROPIC MATERIALS
Toru Ikeda, Yuji Koga

10409 AGING OF THE FIBER-MATRIX INTERFACE IN GLASS-FIBER-REINFORCED POLYAMIDE 66 COMPOSITES – EXPERIMENTS AND MODELLING
Camilo Cruz, Matthias De Monte, Liu Yang, James Thomason

11956 A MESOSCALE APPROACH FOR MODELLING PLASTIC DEFORMATION IN INTERFACE DOMINATED MICROSTRUCTURES
Katrin Schulz, Peter Gumbsch

Thursday, June 9
8:30-10:30

Room 11

MS 918: COMPUTER ALGEBRA SYSTEMS IN MODELLING STATIC AND DYNAMIC PROBLEMS IN MECHANICS OF SOLIDS

MS Organizers: Alexander V. Matrosov, Dmitriy P. Goloskokov
Chair: Theodoros Patsios

5100 HIGH COMPUTATIONAL EFFICIENCY THROUGH GENERIC ANALYTICAL FORMULATION FOR LINEAR SOIL PRESSURE DISTRIBUTION OF RIGID SPREAD RECTANGULAR FOOTINGS
John Bellos, Nikolaos P. Bakas

5682 A REAL-SPACE MODAL ANALYSIS METHOD FOR NON-PROPORTIONAL DAMPED STRUCTURES
Evgueni Stanoev

11971 A FORCE-BASED FORMULATION FOR THE ANALYSIS OF 3-DIMENSIONAL INELASTIC STRUCTURAL FRAMES
Theodoros Patsios, Konstantinos Spiliopoulos

13932 THE FEATURES OF ANALYTICAL SOLUTIONS OF BOUNDARY VALUE PROBLEMS OF THE ELASTICITY THEORY FOR FINITE DOMAINS WITH ANGULAR POINTS OF A BOUNDARY
Alexander Kerzhaev, **Mikhail Kovalenko**, Irina Menshova

Thursday, June 9
8:30-10:30

Room 12

MS 1003 - 3: ADVANCES IN DESIGN OPTIMIZATION OF STRUCTURES AND MATERIALS

MS Organizers: Zhen Luo, Zhan Kang

Chair: Peter Dunning, Georgios Michailidis

7461 TOPOLOGY OPTIMIZATION WITH IMPLICIT FUNCTION AND PARAMETERIZED CUTTING SURFACE
Peter Dunning

5095 DESIGN OF ISOTROPIC MICROSTRUCTURES VIA A TWO-SCALE APPROACH
Alexis Faure, Georgios Michailidis, Rafael Estevez, Guillaume Parry, Grégoire Allaire

8286 TOPOLOGICAL SHAPE OPTIMIZATION FOR STRUCTURAL FREQUENCY RESPONSE PROBLEMS USING PARAMETRIC LEVEL SET METHOD
Hao Li, Liang Gao, Zhen Luo, Tao Wu

9589 TOPOLOGY OPTIMIZATION OF MAGNETORHEOLOGICAL (MR) FLUID LAYERS WITH SEMI-ACTIVE VIBRATION CONTROL IN A SANDWICH PLATE
Xiaopeng Zhang, Zhan Kang

Thursday, June 9
8:30-10:30

Room 15

CS 620 - 1: COMPUTATIONAL CONTACT MECHANICS

Chair: Dario Mangoni

10259 SOLVING UNILATERAL CONTACT PROBLEMS IN MULTIBODY DYNAMICS USING A PRIMAL-DUAL INTERIOR POINT METHOD
Dario Mangoni, Alessandro Tasora

10682 A FORMULATION BASED ON DIFFERENTIAL VARIATIONAL INEQUALITIES FOR DYNAMICAL PROBLEMS WITH DEFORMABLE CONTACTS
Alessandro Tasora, Dario Mangoni, Iryna Yasinskaya

5085 ANALYSIS OF IMPACT SIMULATIONS USING REDUCED FLEXIBLE MULTIBODY SYSTEMS AND QUASI-STATIC CONTACT FORCE EVALUATION
Stephan Tschigg, Robert Seifried

7959 ENHANCED ABRASION MODEL FOR TIRE TREAD WEAR
Vinh Hiep Nguyen, Peter Wriggers

10541 MASTER-SURFACE TO MASTER-SURFACE FRICTIONAL CONTACT FOR BEAM-TO-BEAM APPLICATIONS
Alfredo Gay Neto, **Paulo Pimenta**, Peter Wriggers

11829 APPLICATIONS OF B-DIFFERENTIAL EQUATIONS METHOD FOR THE CONTACT PROBLEMS WITH NON-MATCHING MESHES
Zhiqiang Hu

Thursday, June 9 8:30-10:30	Room 17	Thursday, June 9 8:30-10:30	Room 20
CS 1100: REDUCTION ORDER METHODS		MS 905 - 2: DISCONTINUOUS GALERKIN METHODS: NEW TRENDS AND APPLICATIONS	
<i>Chair:</i> Valery Makhavikou		<i>MS Organizers:</i> Sonia Fernández-Méndez, Nicoletta Franchina	
6194 EVALUATION OF LINE-FITTING METHOD OF MODEL ORDER REDUCTION <i>Valery Makhavikou, Roland Kasper, Dmitry Vlasenko</i>		<i>Chair:</i> Sonia Fernández-Méndez, Nicoletta Franchina	
7681 AN EFFICIENT ORDER REDUCTION STRATEGY IN EARTHQUAKE NONLINEAR RESPONSE ANALYSIS OF STRUCTURES <i>Franz Bamer, Abbas Kazemi Amiri, Christian Bucher</i>		7229 KEYNOTE: SPLITFORM DISCONTINUOUS GALERKIN SCHEMES FOR THE COMPRESSIBLE NAVIER-STOKES EQUATIONS <i>Gregor Gassner, Andrew Winters</i>	
11968 EXTENSION AND APPLICATION OF A NONLINEAR REDUCED ORDER MODEL TO GUST LOAD PREDICTION IN TIME DOMAIN <i>Christoph Strobach, Klemens Lindhorst, Matthias Haupt, Peter Horst</i>		7364 COMPARISON OF CONTINUOUS AND DISCONTINUOUS METHODS IN INCOMPRESSIBLE FLUID FLOW PROBLEMS <i>Mahendra Paipuri, Sonia Fernández Méndez, Carlos Tiago</i>	
7806 ACTIVE SUBSPACES FOR THE PRELIMINARY FLUID DYNAMIC DESIGN OF UNCONVENTIONAL TURBOMACHINERY <i>Sebastian Bahamonde, Matteo Pini, Piero Colonna</i>		5391 DISCONTINUOUS GALERKIN COMPUTATION OF GASEOUS MIXTURE COAXIAL JETS <i>Nicoletta Franchina, Marco Savini, Francesco Bassi</i>	
7544 ELEMENT-BASED MODEL REDUCTION FOR PARAMETER DEPENDENT PARABOLIC PDES ON NETWORKS <i>Maximilian Walther, Günter Leugering</i>		10816 MATRIX-FREE MODIFIED EXTENDED BACKWARD DIFFERENTIATION FORMULAE APPLIED TO THE DISCONTINUOUS GALERKIN SOLUTION OF COMPRESSIBLE UNSTEADY VISCOUS FLOWS <i>Alessandra Nigro, Carmine De Bartolo, Andrea Crivellini, Francesco Bassi</i>	
5334 SNAPSHOTS LOCATION IMPROVEMENT USING LOCAL MESH ADAPTIVITY TECHNIQUES FOR THE REDUCED MODEL APPROACH <i>Iñigo Bidaguren Diego, Lakhdar Remaki, Jesús María Blanco Ilzarbe</i>		7694 SPACE-TIME ADAPTIVE ADER DISCONTINUOUS GALERKIN FINITE ELEMENT SCHEMES WITH A POSTERIORI SUB-CELL FINITE VOLUME LIMITING <i>Francesco Fambri, Olindo Zanotti, Michael Dumbser, Arturo Hidalgo</i>	
Thursday, June 9 8:30-10:30	Room 18	Thursday, June 9 8:30-10:30	Room 21
MS 607 - 1: ADVANCES IN COMPUTATIONAL METHODS FOR LIQUID-VAPOR FLOWS WITH PHASE TRANSFER PROCESSES		MS 1215 - 1: NONLINEAR VIBRATIONS OF CONSERVATIVE AND NONCONSERVATIVE SYSTEMS: PHENOMENA AND ADVANCED NUMERICAL METHODS	
<i>MS Organizers:</i> Rémi Abgrall, Pietro M. Congedo, Tore Flåtten, Bernhard Müller, Marica Pelanti, Maria Giovanna Rodio		<i>MS Organizers:</i> Malte Krack, Ludovic Renson, Gaëtan Kerschen	
<i>Chair:</i> Rémi Abgrall		<i>Chair:</i> Malte Krack	
6007 NUMERICAL MODELLING OF THREE-PHASE LIQUID-VAPOR-GAS FLOWS WITH THERMODYNAMIC RELAXATION <i>Marica Pelanti</i>		5453 SELF-ADAPTIVITY OF A BEAM WITH SLIDING MASS UNDER HARMONIC EXCITATION <i>Malte Krack, Lawrence A. Bergman, Alexander F. Vakakis</i>	
7880 DISPERSED PHASES IN MULTIFLUID MODELS <i>Tore Flåtten</i>		9654 REDUCED ORDER MODELS FOR DYNAMIC BEHAVIOR OF PRESTRESSED ELASTOMER DAMPING DEVICES <i>Antoine Legay, Jean-François Deü, Benjamin Morin</i>	
9128 A LARGE TIME STEP ROE SCHEME APPLIED TO TWO-PHASE FLOW <i>Sofia Lindqvist, Halvor Lund</i>		11221 TOWARDS EXPERIMENTAL REPRODUCTION OF BACKBONE CURVES OF CONTINUOUS STRUCTURES USING SINGLE POINT FORCED EXCITATION <i>Alexander Shaw, Tom Hill, Simon Neild, Michael Friswell</i>	
6494 APPLICATION OF THE LARGE TIME STEP METHOD TO THE TWO-FLUID MODEL <i>Marin Prebeg, Tore Flåtten, Bernhard Müller</i>		4914 FORCED RESPONSE OF SHROUDED BLADES WITH VARIABLE OPERATING POINTS <i>Ferhat Kaptan, Lars Panning-von Scheidt, Jörg Wallaschek, Victor Salit</i>	
4854 A "SUBSONIC APPROXIMATION OF THE TWO-PHASE CONTACT" TO COMPUTE THE BAER-NUNZIATO MODEL USING A HLLC-TYPE RIEMANN SOLVER <i>Hippolyte Lochon, Frederic Daude, Pascal Galon, Jean-Marc Herard</i>		10962 IN-PLANE STRESSES IN AXIALLY MOVING NONLINEAR ORTHOTROPIC CONTINUA <i>Matti Kurki, Juha Jeronen, Tero Tuovinen</i>	
12305 MATHEMATICAL ANALYSIS AND NUMERICAL SIMULATION OF BOILING FLOWS IN NUCLEAR POWER PLANTS <i>Michaël Ndjinga, Thi Phuong Kieu Nguyen, Christophe Chalons</i>		9813 LOCALIZATION OF VIBRATORY ENERGY OF A LINEAR SYSTEM IN A CHAIN OF FOUR NONLINEAR OSCILLATORS <i>Simon Charlemagne, Claude-Henri Lamarque, Alireza Ture Savadkoobi</i>	

DAY 4 – THURSDAY, JUNE 9

Thursday, June 9 8:30-10:50	Room 22	Thursday, June 9 8:30-10:30	Room 23
MS 1224: INNOVATIVE SOLUTIONS FOR THE SEISMIC PROTECTION OF INDUSTRIAL BUILDINGS <i>MS Organizers:</i> Walter Salvatore, Carlo Castiglioni, Francesco Morelli, Nikolaos Bakas <i>Chair:</i> Nikolaos Bakas, Francesco Morelli		MS 1009 - 5: ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION <i>MS Organizers:</i> Kyriakos C. Giannakoglou, Jens Dominik Mueller <i>Chair:</i> Evangelos Papoutsis-Kiachagias	
11722	PERFORMANCE-BASED NONLINEAR RESPONSE HISTORY ANALYSIS FRAMEWORK FOR THE PROINDUSTRY PROJECT CASE STUDIES <i>Marco Faggella, Raffaele Laguardia, Rosario Gigliotti, Franco Braga, Francesco Morelli, Walter Salvatore</i>	6434	ADJOINT-BASED OPTIMIZATION FRAMEWORK FOR NON-IDEAL COMPRESSIBLE FLUID FLOWS APPLIED TO ORGANIC RANKINE CYCLE TURBINES <i>Salvatore Vitale, Tim Albring, Nicolas R. Gauger, Piero Colonna, Matteo Pini</i>
9475	REGRESSION ANALYSIS VS GENETIC ALGORITHMS: COMPUTATIONAL EFFICIENCY ASSESMENT ON THE DESIGN OF PROINDUSTRY PROJECT SSDC ISOLATORS UNDER INCREMENTAL DYNAMIC LOADING <i>Nikolaos Bakas, John Bellos, Alper Kanyilmaz, Spyros Makridakis</i>	7153	CAD-FREE SOFT HANDLE PARAMETERIZATION FOR ADJOINT-BASED OPTIMIZATION METHODS <i>Athanasios G. Liatsikouras, George S. Eleftheriou, Guillaume Pierrot, Mustafa Megahed</i>
10247	EFFICIENCY OF SEISMIC ISOLATION ON INDUSTRIAL PLANTS - CASE STUDY OF A GAS TANK <i>José Henriques, Francesco Morelli, Bram Vandoren, Walter Salvatore, Hervé Degée</i>	7279	ON THE MULTIGRID OPTIMIZATION STRATEGY FOR CONTROL OF A TURBULENT FLOW <i>Cornelia Nita, Stefan Vandewalle, Johan Meyers</i>
8781	SEISMIC RETROFIT OF AN INDUSTRIAL STRUCTURE THROUGH AN INNOVATIVE SELF-CENTERING HYSTERETIC DAMPER: MODELLING, ANALYSIS AND OPTIMIZATION. <i>Francesco Morelli, Andrea Piscini, Walter Salvatore</i>	8798	GEOMETRIC IMMERSED BOUNDARIES (GIB): A NEW FRAMEWORK FOR APPLYING BOUNDARY CONDITIONS IN OPENFOAM® <i>Georgios Karpouzas, Eugene de Villiers</i>
11993	PERFORMANCE BASED EARTHQUAKE ASSESSMENT OF AN INDUSTRIAL SILOS STRUCTURE AND RETROFIT WITH SLIDING ISOLATORS <i>Edoardo Rossi, Michelangelo Ventrella, Marco Faggella, Rosario Gigliotti, Franco Braga</i>	6968	DEFROSTER NOZZLE SHAPE OPTIMIZATION USING THE CONTINUOUS ADJOINT METHOD <i>Lefki Germanou, Evangelos Papoutsis-Kiachagias, Antoine Delacroix, Kyriakos Giannakoglou</i>
8876	PERFORMANCE ASSESSMENT OF SEISMIC RETROFITTING MEASURES ON SILO STRUCTURES USING INNOVATIVE SEISMIC PROTECTION SYSTEMS <i>Marius Pinkawa, Hoffmeister Benno, Feldmann Markus</i>	8922	TRANSITION FROM 2D CONTINUOUS ADJOINT LEVEL SET TOPOLOGY TO SHAPE OPTIMIZATION <i>J.R.L. Koch, E.M. Papoutsis-Kiachagias, K.C. Giannakoglou</i>
9498	SEISMIC RETROFIT OF INDUSTRIAL SILOS BY MEANS OF BASE ISOLATION DEVICES <i>Alper Kanyilmaz, Carlo Andrea Castiglioni, Julia Georgi</i>		
10:30-11:00 Coffee Break			

SEMI-PLenary LECTURES

Thursday, June 9 11:00-13:00 Zeus East	Thursday, June 9 11:00-13:00 Zeus North
<i>Chair:</i> Xavier Oliver	<i>Chair:</i> Ernst Rank
2276 MODEL ORDER REDUCTION FOR MULTISCALE MODELING AND SIMULATION <i>Assyr Abdulle</i>	15672 <i>Moved to Tuesday, 11:40-12:20, Zeus North</i> ISOGEOMETRIC TECHNIQUES FOR MORTARING AND CONTACT MECHANICS <i>Annalisa Buffa</i>
12176 ON WEAKLY-INTRUSIVE MULTI-SCALE SUBSTITUTION METHOD IN DYNAMICS: PRINCIPLE AND FIRST APPLICATIONS <i>Olivier Allix, Omar Bettinotti, Umberto Perego, Victor Oncea, Benoit Malherbe</i>	12905 <i>Start at 11:00</i> THE PHASE-FIELD APPROACH TO FRACTURE: MODELING AND COMPUTATIONAL ASPECTS <i>Laura De Lorenzis</i>
12484 MULTI-SCALE MODELLING OF LOCALISED FAILURE PROCESSES <i>Amin Karamnejad, Bert Sluys</i>	12267 <i>Start at 12:00</i> COMPUTATIONALLY-EFFICIENT ISOGEOMETRIC k-METHOD <i>Giancarlo Sangalli</i>
Thursday, June 9 11:00-13:00 Zeus West	Thursday, June 9 11:00-13:00 Minos East
<i>Chair:</i> George Karniadakis	<i>Chair:</i> Wolfgang A. Wall
12288 GETTING THE MOST OUT OF COMMERCIAL CFD CODES IN PROCESS ENGINEERING ANALYSIS <i>Eleni Koronaki, Nikolaos Cheimarios, Andreas Boudouvis</i>	13777 ON THE IMPOSITION OF ESSENTIAL BOUNDARY CONDITIONS ON NON-MATCHING FINITE ELEMENT MESHES <i>Ramon Codina</i>
12202 HEMODYNAMICS OF BIOLOGIC AND MECHANICAL PROSTHETIC HEART VALVES <i>Roberto Verzicco, Marco D. de Tullio</i>	5426 COMPUTATIONAL TIME REVERSAL AND DAMAGE IDENTIFICATION <i>Dan Givoli, Eli Turkel, Eyal Amitt</i>
15978 CONTINUOUS ADJOINT-BASED OPTIMIZATION IN FLUID MECHANICS & AERODYNAMICS: RECENT PROGRESS AND APPLICATIONS <i>Kyriakos C. Giannakoglou, E.M. Papoutsis-Kiachagias, I.S. Kavvadias</i>	16497 EFFICIENT TECHNIQUES FOR THE MODEL ORDER REDUCTION OF PARAMETRIZED PROBLEMS IN COMPUTATIONAL FLUID AND SOLID MECHANICS <i>Federico Negri</i>
	Thursday, June 9 11:00-13:00 Minos North
	<i>Chair:</i> Pedro Diez
	16779 A NEW FRAMEWORK FOR LARGE STRAIN ELECTROMECHANICS BASED ON CONVEX MULTI-VARIABLE STRAIN ENERGIES <i>Antonio J. Gil, R. Ortigosa</i>
	16774 INTRODUCTION AND SOME RECENT ADVANCES ON THE VIRTUAL ELEMENT METHOD <i>Lourenco Beirao da Veiga</i>
	16509 COMPUTATIONAL MULTISCALE METHODS FOR TURBULENT SINGLE- AND TWO-PHASE FLOWS <i>Ursula Rasthofer</i>

13:00-14:30

Lunch Break

TECHNICAL SESSIONS

Thursday, June 9 14:30-16:30	Zeus East
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MS 403 - 3: PARTICLE-BASED METHODS IN FLUID MECHANICS

MS Organizers: Sergio Idelsohn, Eugenio Oñate

Chair: Umberto Perego, Massimiliano Cremonesi

16535 KEYNOTE: ADVANCES IN THE PARTICLE FINITE ELEMENT METHOD FOR MULTIDISCIPLINARY PROBLEMS
Eugenio Oñate, Sergio Idelsohn

10839 A NUMERICAL INVESTIGATION OF FLOW DYNAMICS OVER A TRAPEZOIDAL SMOOTH OPEN CHANNEL
Giacomo Viccione

10842 A NUMERICAL INVESTIGATION OF LIQUID IMPACT ON PLANAR SURFACES.
Giacomo Viccione, Vittorio Bovolín, Eugenio Pugliese Carratelli

11373 AERODYNAMICS OF AN UNSTEADY PARTICLE FLOW IN THE CHUTE
Olga Averkova, Ivan Logachev, Konstantin Logachev

5267 DYNAMICS OF DUST PARTICLES NEAR THE ROUND BELL SUCTION INLET
Olga Averkova, Konstantin Logachev, Artur Logachev, Elena Tolmacheva

Thursday, June 9 14:30-16:30	Zeus North
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MS 901 - 7: ISOGEOMETRIC METHODS

MS Organizers: Yuri Bazilevs, David J. Benson, Rene De Borst, Thomas

J.R. Hughes, Trond Kvamsdal, Alessandro Reali,

Giancarlo Sangalli, Clemens V. Verhoosel

Chair: Clemens V. Verhoosel

4533 KEYNOTE: ISOGEOMETRIC ANALYSIS SUITABLE TRIVARIATE MODELS FROM CUBOID DECOMPOSITION QUADRANGULATION
Hassan Al Akhras, Thomas Elguedj, Anthony Gravouil, Michel Rochette

9818 ISOGEOMETRIC COLLOCATION: TREATMENT OF NEARLY-INCOMPRESSIBILITY IN LARGE DEFORMATION ELASTICITY
Roland Kruse, Frederik Fahrendorf, Laura De Lorenzis

9041 ISOGEOMETRIC ANALYSIS OF ACOUSTIC SCATTERING USING INFINITE ELEMENTS
Jon Vegard Venås, Trond Kvamsdal, Trond Jenserud

8908 A DESIGN-BY-ANALYSIS TOOL FOR FILAMENT-WOUND THICK-WALLED COMPOSITE PRESSURE VESSELS BASED ON ISOGEOMETRIC ANALYSIS
Jörg B. Multhoff

7680 IMPLEMENTATION OF IGA INTO A COMMERCIAL FEA SOFTWARE FOR HIGHER-ORDER CONTINUUM MECHANICS PROBLEMS
Sergei Khakalo, Jarkko Niiranen, Viacheslav Balabanov

Thursday, June 9 14:30-16:30	Zeus West
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MS 708: INELASTIC PROCESSES IN HETEROGENEOUS MATERIALS

MS Organizers: Hermann G. Matthies, Adnan Ibrahimbegović

Chair: Adnan Ibrahimbegović

6540 KEYNOTE: THE RÔLE OF STOCHASTIC IDENTIFICATION IN MULTI-SCALE MODELLING OF HETEROGENEOUS MATERIALS
Hermann G. Matthies

10533 VIRTUAL-POWER-BASED QUASICONTINUUM METHODS FOR DISCRETE DISSIPATIVE MATERIALS
Lars Beex

MS 807: ADVANCED COMPUTATIONAL STRATEGIES FOR MODELLING, SIMULATION AND CHARACTERISATION OF MULTI-SCALE HETEROGENEOUS MATERIALS

MS Organizers: Stéphane Bordas, Daniel Dias-da-Costa, Fabrice Pierron, Timon Rabczuk, Pierre Kerfriden, Pascal Lava

Chair: Daniel Dias-da-Costa

6259 MODELING OF MATRIX PLASTICITY AND FAILURE IN COMPOSITES ACROSS THE SCALES
Frans van der Meer

10908 GUARANTEED ERROR BOUNDS FOR RVE BASED HOMOGENISATION
Daniel Alves Paladim, Pierre Kerfriden, Stephane Bordas

10914 VALIDATION OF A DISCRETE CRACK MODEL FOR LIGHTWEIGHT AGGREGATE CONCRETE BEAMS
Daniel Dias-da-Costa, R. Graça-e-Costa, R.N.F. Carmo

Thursday, June 9 14:30-16:30	Minos East
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MS 602 - 3: INNOVATIVE METHODS FOR FLUID-STRUCTURE-INTERACTION

MS Organizers: E. Harald van Brummelen, Roger Ohayon, Trond Kvamsdal

Chair: E. Harald van Brummelen

8141 PARTITIONED FLUID-STRUCTURE INTERACTION ON DISTRIBUTED DATA
Benjamin Uekermann, Florian Lindner, Miriam Mehl, Klaudius Scheufele

6182 THREE-DIMENSIONAL FLUID STRUCTURE INTERACTION BETWEEN A COMPRESSIBLE FLUID AND A FRAGMENTING STRUCTURE WITH A CONSERVATIVE IMMERSED BOUNDARY METHOD
Maria Adela Puscas, Laurent Monasse, Alexandre Ern, Christian Mariotti, Christian Tenaud

10755 NUMERICAL MODELING OF FLOW-DRIVEN PIEZOELECTRIC ENERGY HARVESTERS
Srivathsan Ravi, Andreas Zilian

10856 SIMULATION OF ELASTO-CAPILLARY INTERACTIONS OF SOFT MATERIALS USING DIFFUSE INTERFACE MODELS
Mahnaz Shokrpour, E. Harald van Brummelen, Gertjan van Zwieten, Herman M.A. Wijshoff

7573 ROBUST QUASI-NEWTON METHODS FOR THE COUPLING OF PARTITIONED FSI SIMULATIONS
Klaudius Scheufele, Miriam Mehl, Benjamin Uekermann

Thursday, June 9
14:30-16:30
Minos North

MS 614 - 1: YOUNG INVESTIGATORS MINISYMPOSIUM

MS Organizers: Jaan-Willem Simon, Alexander Popp, Joan Baiges

Chair: Alexander Popp

9853 A NANO-MACRO BOTTOM-UP APPROACH TOWARDS BRITTLE FRACTURE

Sandeep Patil, Yousef Heider, Carlos Hernandez Padilla, Eduardo Cruz Chu, Bernd Markert

11944 SOME RECENT ADVANCES IN DIRECT METHODS FOR LIMIT STATES OF ENGINEERING MATERIALS

Geng Chen, Konstantinos Nikolaou, Christoph Broeckmann, Dieter Weichert, Christos Bisbos

10280 DESIGN PROCESS OF A BIOMIMETIC FACADE ELEMENT INSPIRED BY THE CARNIVOROUS PLANT ALDROVANDA VESICULOSA

Renate Sachse, Axel Körner, Manfred Bischoff, Jan Knippers

9906 BAYESIAN APPROACH VS. PROBABILITY BOXES FOR MECHANICAL COMPUTATIONS CONSIDERING UNCERTAINTIES

Amélie Fau, Bojana Rosić

Thursday, June 9
14:30-16:30
Minos South

MS 1204 - 1: NONLINEAR DYNAMICS OF ROTATING STRUCTURES

MS Organizers: Evangeline Capiez-Lernout, Marc P. Mignolet, Christian Soize

Chair: Christian Soize

8090 COMPUTATIONAL MODELING STRATEGIES FOR THE NONLINEAR MISTUNING OF AN INDUSTRIAL BLADED DISK.

Evangéline Capiez-Lernout, Christian Soize, Moustapha Mbaye

8946 COMBINING FINITE ELEMENT ANALYSIS AND ANALYTICAL MODELLING FOR EFFICIENT SIMULATIONS OF NON-LINEAR GEAR DYNAMICS

Shadi Sweiki, Jakub Korta, Antonio Palermo, Rocco Adduci, Domenico Mundo

10382 DAMPING INDUCED BY DRY FRICTION: ANALYSES AND EXPERIMENTS FOR MODELING IMPROVEMENT

Marc-André Douville, Béatrice Faverjon, Eric Chatelet, Georges Jacquet-Richardet

7831 MODAL IDENTIFICATION BASED FLOATING FRAME OF REFERENCE FORMULATION OF SMALL-SIZE WIND TURBINE

Ayman A. Nada

6781 DELAYED FEEDBACK CONTROL METHOD FOR CALCULATING SPACE-TIME PERIODIC SOLUTIONS OF VISCOELASTIC PROBLEMS

Ustim Khristenko, Patrick Le Tallec

Thursday, June 9
14:30-16:30
Danae

MS 108 - 1: NUMERICAL METHODS FOR COUPLED PROBLEMS IN BIOMEDICAL APPLICATIONS

MS Organizers: Martina Bukac, Annalisa Quaini

Chair: Annalisa Quaini

11735 KEYNOTE: A MODEL FOR DRUG TRANSPORT IN TUMOR

Milos Kojic, Miljan Milosevic, Vladimir Simic, Mauro Ferrari, Eugene J. Koay, Arturas Ziemys

8117 A PARTITIONED NUMERICAL SCHEME FOR THE INTERACTION BETWEEN BLOOD, ARTERIAL WALL AND THROMBUS
Martina Bukac

9269 PARALLEL ALGORITHMS FOR FLUID AND RIGID BODY INTERACTION APPLIED TO BIOMECHANICS PROBLEMS
Cristóbal Samaniego, Guillaume Houzeaux, Mariano Vázquez

8619 A FENICS-HPC FRAMEWORK FOR MULTI-COMPARTMENT BLOCH-TORREY MODELS
Dang Van Nguyen, Johan Jansson, Johan Hoffman

Thursday, June 9
14:30-16:30
Europa

CS 630 - 3: SIMULATION OF FLUID-STRUCTURE INTERACTION

Chair: Koulis Pericleous

11358 DISPERSION OF NANO PARTICLES IN MELTS USING ELECTROMAGNETIC WAVE ACTION
Valdis Bojarevics, Georgi Djambazov, Bruno Lebon, Anton Manoylov, Koulis Pericleous, David Burnard, William Griffiths, Dmytro Shevchenko

5264 DIRECT EDDY CURRENT METHOD FOR VOLUMETRIC FLAWS OF CYLINDRICAL SHAPE
Valentina Koliskina, Andrei Kolyshkin, Rauno Gordon, Olev Märtens

6498 MATHEMATICAL MODELING AND NUMERICAL SIMULATION OF MAGNETOELASTIC COUPLING
Mané Harutyunyan, Bernd Simeon

5825 MODELLING OF INTERFACE ELASTICITY EFFECTS IN METAL-POLYMER ACTUATORS
Jana Wilmers, Andrew McBride, Swantje Bargmann

4678 3D DRBEM MODELING FOR ROTATING INITIALLY STRESSED ANISOTROPIC FUNCTIONALLY GRADED PIEZOELECTRIC PLATES
Mohamed Abdelsabour Fahmy

Thursday, June 9
14:30-16:30
Leda

MS 904 - 2: ADVANCED MINIMAL RESIDUAL DISCRETIZATION

MS Organizers: Carsten Carstensen, Dietmar Gallistl

Chair: Dietmar Gallistl

7642 LOW-ORDER DPG-FEMS FOR LINEAR ELASTICITY
Friederike Hellwig, Carsten Carstensen

8521 A STABLE DPG METHOD FOR THE TRANSPORT EQUATION
Dirk Broersen, Wolfgang Dahmen, Rob Stevenson

7721 A LOW-ORDER DISCONTINUOUS PETROV GALERKIN FEM FOR STOKES
Carsten Carstensen, Sophie Louise Puttkammer

7970 LEAST-SQUARES MIXED FINITE ELEMENTS IN RELATION TO MIXED FINITE ELEMENTS FOR ELASTICITY
Fleurianne Bertrand, Zhiqiang Cai

Thursday, June 9
14:30-16:30

Athena

MS 1401 - 2: TOICA: THERMAL OVERALL INTEGRATED CONCEPT AIRCRAFT

MS Organizers: Pierre Arbez, Jean-Claude Dunyach

Chair: Pierre Arbez

5273 COLLABORATIVE ENGINEERING TECHNOLOGIES ENABLING MULTI-PARTNER THERMAL ANALYSIS IN EARLY DESIGN STAGES OF AIRCRAFT
Erik Baalbergen, Wim Lammen, Bert de Wit, Robert Maas, Marie Moghadasi, Johan Kos, Fabio Chiacchio

6687 AUTOMATIC GENERATION OF 2D AXISYMMETRIC FINITE ELEMENT MODELS FROM 3D QUASI-AXISYMMETRIC COMPONENTS
Jorge Camacho, Trevor T. Robinson, Cecil C. Armstrong, Pierre Costini

4991 THERMAL TRADE OFF SUSTAINED BY MULTI DISCIPLINARY AND MULTI LEVEL OPTIMIZATION
Olivier Tabaste, Cedric Campguilhem

9483 THE QUALITY GATES CAPABILITIES THE TOICA PROJECT
Jean-Claude Dunyach

Thursday, June 9
14:30-16:50

Artemis

STS 7: MORPHING TECHNOLOGIES FOR AIRCRAFT WINGS

STS Organizers: Hans Peter Monner

Chair: Hans Peter Monner

14433 DEVELOPMENT AND ASSESSMENT OF THE ENHANCED ADAPTIVE DROOP NOSE IN THE SARISTU PROJECT
Markus Kintscher, Johannes Kirn

14447 WINGTIP ACTIVE TRAILING EDGE FOR LOADS ALLEVIATION
Andreas Wildschek, Stefan Storm, Johannes Kirn

14442 AN ADAPTIVE TRAILING EDGE FOR LARGE COMMERCIAL AIRCRAFT
Antonio Concilio, Ignazio Dimino, Rosario Pecora

STS 8: SIMULATION AND VALIDATION OF COMPOSITE STRUCTURES IN AERONAUTICS

STS Organizers: Piet Woelkens

Chair: Martin Bach

14476 VALIDATION & VERIFICATION OF PROBABILITY OF DETECTION USING GUIDED WAVES ON THE EXAMPLE OF A LARGE, COMPLEX CFRP STRUCTURE
Martin Bach, N. Dobmann, B. Eckstein, M. Moix Bonet, B. Newman

14464 STRUCTURAL HEALTH MONITORING FOR THE MAINTENANCE OF AIRCRAFTS
Alessandro Marzani, L. De Marchi, A. Apicella

14461 DAMAGE TOLERANCE AND ELECTRICAL IMPROVEMENT OF COMPOSITE STRUCTURES
Sonia Flórez Fernandez, Idoia Gaztelumendi, J. Gayoso

Thursday, June 9
14:30-16:30

Aphrodite

MS 102 - 1: COMPUTATIONAL MODELS IN BIOMECHANICS AND MECHANOBIOLOGY

MS Organizers: Estefania Peña, Renato Natal Jorge, Miguel A. Martínez, Pedro S. Martins

Chair: Perumal Nithiarasu

9194 **KEYNOTE:** A LOCALLY CONSERVATIVE GALERKIN (LCG) METHOD IN ITS SEMI- AND FULLY- IMPLICIT FORMS FOR SOLVING BLOOD FLOW IN SYSTEMIC CIRCULATIONS
Hayder Hasan, Perumal Nithiarasu

9329 AN INFLUENCE OF TEMPERATURE ON DYNAMICS OF SMART MIDDLE EAR PROSTHESIS
Rafal Rusinek, Jerzy Warminski, Marcin Szymanski, Andrzej Weremczuk, Krzysztof Kecik

11529 PERFORMANCE EVALUATION OF MODULAR 3D PRINTED ANKLE FOOT ORTHOSES
Alessio Ielapi, B. Verheghe, M. Vermandel, J. P. Deckers, E. Vasiliauskaite, F. Plasschaert, M. De Beule

8586 BREAST-CONSERVING SURGERY: A VALIDATED 3D, MULTISCALE, MECHANO-BIOLOGICAL, MODELLING FRAMEWORK FOR SURGICAL PLANNING AND COSMETIC OUTCOME PREDICTION OF BREAST CANCER TREATMENT
Vasileios Vavourakis, B. Eiben, J. H. Hipwell, N. R. Williams, M. Keshgtar, D. J. Hawkes

9423 COMPUTATIONAL SIMULATION OF BIOFILM FORMATION AND EXPERIMENTAL VALIDATION IN A MULTI-PHYSICS FRAMEWORK
Meisam Soleimani, Peter Wriggers, Meike Stiesch

Thursday, June 9
14:30-16:30

Antigoni

MS 201 - 2: MICROSTRUCTURE-DRIVEN DEFORMATION AND FAILURE IN CRYSTALLINE MATERIALS

MS Organizers: Pilar Ariza, Lucia Nicola, Angelo Simone

Chair: Lucia Nicola, Pilar Ariza

9366 LONG-TERM ATOMISTIC SIMULATION OF LITHIATION IN SILICON-BASED LITHIUM BATTERIES
Juan Pedro Mendez Granada, M. Ortiz

7493 NUMERICAL MODEL FOR A DISLOCATION INDUCED INTERFACE DECOHESION USING A PEIERLS-NABARRO APPROACH
Franz Bormann, Ron Peerlings, Marc Geers

7527 INVESTIGATION OF CREEP AND LOAD SHEDDING IN POLYCRYSTALLINE TITANIUM ALLOYS USING DISCRETE DISLOCATION PLASTICITY
Zebang Zheng, Daniel Balint, Fionn Dunne

8723 LONG-TERM ATOMISTIC ANALYSIS OF HYDROGEN DIFFUSION IN NANOMATERIALS
Xingsheng Sun, Pilar Ariza, Kevin Wang

9188 DEVELOPMENT AND RELAXATION OF INTRINSIC STRESS FOR THIN FILMS DEPOSITED ON A SUBSTRATE: A DISCRETE DISLOCATION FRAMEWORK
Can Ayas

8943 GREEN'S FUNCTION MOLECULAR DYNAMICS MEETS DISCRETE DISLOCATION PLASTICITY
Syam Venugopalan, Lucia Nicola

Thursday, June 9
14:30-16:30

Apollo East

MS 711- 2: FOURIER-BASED METHODS FOR COMPUTING THE BEHAVIOR OF HETEROGENEOUS MATERIALS DEVELOPMENTS, EXTENSIONS AND APPLICATIONS

MS Organizers: Lionel Gélébart, Hervé Moulinec, Franz Roters, François Willot

Chair: Franz Roters, François Willot

8909 FFT-SCHEMES FOR SOLVING HEAT CONDUCTIVITY PROBLEMS WITH UNIFORM BOUNDARY CONDITIONS
François Willot, Haisheng Wang

10165 ON THE CONVERGENCE TEST OF FFT-BASED METHODS
Graeme Milton, Hervé Moulinec, Pierre Suquet

8401 CONTINUUM DISLOCATION MECHANICS FIELD EQUATIONS SOLVED BY FFT METHODS
Djaka Komlan Sénam, Taupin Vincent, Berbenni Stéphane, Fressengeas Claude

10781 A GALERKIN VIEW ON FFT-BASED HOMOGENIZATION METHODS
Jan Zeman, Jaroslav Vondřejc, Ivo Marek, Nachiketa Mishra, Tom de Geus, Ron Peerlings, Marc Geers

7442 FFT-BASED SOLUTION: A COMPLEX METHOD MADE SIMPLE (EVEN FOR 3-D FINITE STRAIN)
Tom de Geus, Ron Peerlings, Jaroslav Vondřejc, Jan Zeman, Marc Geers

Thursday, June 9
14:30-16:30

Apollo West

MS 204 - 2: IMPACT AND CRASH MECHANICS

MS Organizers: Manfred Bischoff, Fabian Duddeck

Chair: Manfred Bischoff, Fabian Duddeck

11054 EVOLUTIONARY LEVEL SET METHOD FOR CRASHWORTHINESS TOPOLOGY OPTIMIZATION
Mariusz Bujny, Nikola Aulig, Markus Olhofer, Fabian Duddeck

11243 AN ACCURATE, EFFICIENT, AND ROBUST CONTACT DETECTION PROCEDURE IN ISOGEOMETRIC CONTACT ANALYSIS
Ján Kopačka, Dušan Gabriel, Radek Kolman, Jiří Plešek

6072 A SIMPLIFIED MODEL OF A STEEL COLUMN SUBJECTED TO IMPACT
Piseth Heng, Mohammed Hjiij, Jean-Marc Battini

7007 MATERIAL MODELLING OF CAST ALUMINIUM BY APPLICATION OF THE WILKINS DAMAGE MODEL
Christian Mühlstätter, Matthias Hartmann

Thursday, June 9
14:30-16:30

Room 1

MS 412: NUMERICAL METHODS FOR WAVES AND FLOWS IN COASTAL AND DEEP WATER HYDRODYNAMICS

MS Organizers: Nina Shokina, Yuri Shokin, Leonid Chubarov, Gayaz Khakimzyanov, Vadym Aizinger, Denys Dutykh

Chair: Nina Shokina

6359 NEW ALGORITHM FOR NUMERICAL SIMULATION OF SURFACE WAVES WITHIN THE FRAMEWORK OF THE FULL NONLINEAR DISPERSIVE MODEL
Zinaida Fedotova, Oleg Gusev, Gayaz Khakimzyanov

8456 DISCONTINUOUS GALERKIN METHOD FOR COASTAL OCEAN
Vadym Aizinger

10278 ON NUMERICAL METHODS FOR SOLVING RUN-UP PROBLEMS. COMPARATIVE ANALYSIS OF NUMERICAL ALGORITHMS AND NUMERICAL RESULTS.

Leonid Chubarov, Alexandr Rychkov, Gayaz Khakimzyanov, Yurii Shokin

8432 NUMERICAL MODELLING OF SURFACE WAVES IN THE FRAMEWORK OF THE SHALLOW WATER MODEL
Nina Shokina, Gayaz Khakimzyanov

MS 615: COMPUTATIONAL MODELS IN MAGNETOHYDRODYNAMICS

MS Organizers: Oleg Zikanov

9799 LARGE EDDY SIMULATIONS OF MAGNETIC FIELD EFFECT ON TURBULENT FLOW IN A SQUARE DUCT
Jie Mao, Kunlei Zhang, Zhongquan Tan, Ke Liu

10250 NUMERICAL SIMULATION OF THE FLUID FLOW IN CONTINUOUS CASTING MOLD CONTROLLED BY A COMBINATION OF ELECTROMAGNETIC FIELD
Engang Wang, Fei Li, Zhuang Li, Lin Xu, Anyuan Deng

Thursday, June 9

14:30-16:30

Room 2

MS 413 - 1: COMPUTATIONAL METHODS IN ENVIRONMENTAL FLUID MECHANICS

MS Organizers: Kazuo Kashiya, Etahn Kubatko, Joannes Westerink

Chair: Etahn Kubatko

8240 ACOUSTIC SIMULATION USING VIRTUAL REALITY TECHNOLOGY
Kazuo Kashiya, Toru Yoshimachi, Riichiro Okamura, Kazuhiro Nakamura, Anri Ishida

10208 INTEGRATION OF A STORM SURGE MODEL INTO A COMPUTATIONAL FRAMEWORK FOR CRISIS MAPPING
Molly Moran, Ethan J. Kubatko

11207 A COMPARISON OF MESH MOVEMENT SCHEMES WITH APPLICATION TO ENVIRONMENTAL FLUID DYNAMICS PROBLEMS
Benjamin Yeager, Matthew Piggott, Juan Rattia, Timothy McManus, Paul Holland

10143 MULTI-LEVEL HP-ADAPTIVITY AND THE FINITE CELL METHOD FOR FLUID PROBLEMS
Philipp Kopp, Nils Zander, Stefan Kollmannsberger, Ernst Rank

10066 MODELLING PARTICLE ENTRAINMENT IN MOUNTAIN TORRENTS: LINKING TURBULENCE TO LOCAL BED GEOMETRY AND TO THE GRAIN SURFACE
Albrecht von Boetticher, James Kirchner, Stefan Pirker, Helmut Habersack, Nikolai Kornev

Thursday, June 9

14:30-16:30

Room 3

MS 603 - 1: COMPUTATIONAL METHODS IN FLUID-STRUCTURE INTERACTION WITH IMPACT ON INDUSTRIAL APPLICATIONS

MS Organizers: Elisabeth Longatte, Yannick Hoarau, Marianna Braza

Chair: Elisabeth Longatte, Yannick Hoarau, Marianna Braza

6769 SLAMMING IMPACT SIMULATION OF 2D WATER ENTRY FOR RIGID STRUCTURES
Omar Hashim Al-Dodoe, Mostapha Tarfaoui

- 9425** A PATH-CONSERVATIVE OSHER-TYPE SCHEME FOR AXIALLY SYMMETRIC COMPRESSIBLE FLOWS IN FLEXIBLE TUBES
Julia Leibinger, Michael Dumbser, Uwe Iben
- 8479** TRANSIENT MODELLING OF THE FLUID-STRUCTURE INTERACTION OF WIND TURBINES WITH COMPOSITE BLADES
Gilberto Santo, Mathijs Peeters, Wim Van Paepegem, Joris Degroote
- 10071** FLUID-STRUCTURE INTERACTION WITHIN AN ARRAY OF TUBES WITH OVERSET GRID APPROACH.
Anthony Ponce, Vilas Shinde, Yannick Hoarau, Elisabeth Longatte, Franck Baj, Marianna Braza
- 13692** A NUMERICAL STUDY OF FLUID-STRUCTURE INTERACTION IN A TANDEM OF CYLINDERS CONFIGURATIONS AT HIGH REYNOLDS NUMBER
Damien Szubert, Thibaut Deloze, Yannick Hoarau, Elisabeth Longatte, A. Adilija, Y. Boutrif, Christophe Heudes, Marianna Braza

Thursday, June 9 **Room 4**
14:30-16:30

MS 701 - 2: ADVANCED MATERIALS: COMPUTATIONAL ANALYSIS OF PROPERTIES AND PERFORMANCE

MS Organizers: Vadim V. Silberschmidt, Valery P. Matveenko

Chair: Valery P. Matveenko, Vadim V. Silberschmidt

- 6820** THEORETICAL MODELS AND NUMERICAL SIMULATION OF NONLINEAR BEHAVIOR OF COMPOSITE MATERIALS
Lomakin Evgeny, Fedulov Boris
- 7575** LAYOUT OPTIMIZATION OF PIEZOELECTRIC ELEMENTS WITH EXTERNAL ELECTRIC CIRCUITS IN SMART CONSTRUCTIONS BASED ON SOLUTION OF THE NATURAL VIBRATIONS PROBLEM
Natalia Iurlova, Valerii P. Matveenko, Dmitriy A. Oshmarin, Nataliya V. Sevodina, Maksim A. Yurlov
- 7616** DETERMINATION OF OPTIMAL PARAMETERS FOR A PASSIVE RL-CIRCUIT BY SOLVING THE PROBLEM ON NATURAL VIBRATIONS OF ELECTROELASTIC BODIES
Maksim Yurlov, Valerii P. Matveenko, Dmitriy A. Oshmarin, Nataliya V. Sevodina, Nataliya A. Iurlova
- 11059** SEVEN DIFFERENT WAYS TO MODEL VISCOELASTICITY IN A GEOMETRICALLY EXACT SETTING
Alexey Shutov
- 7871** ANALYSIS OF FIBRE BRAGG GRATINGS SENSORS OPTIMAL PLACEMENT FOR MONITORING OF DAMAGE PROPAGATION IN LAMINATE COMPOSITES
Mikhail Tashkinov
- 9462** NUMERICAL SIMULATION OF MULTILAYER COMPOSITE MATERIALS WITH DEFECTS UNDER STATIC LOADING
Valeriy Korepanov, Valeriy Matveenko, Grigoriy Serovaev

Thursday, June 9 **Room 5**
14:30-16:30

MS 911 - 2: NUMERICAL METHODS IN THE MECHANICS OF GENERALIZED CONTINUA

MS Organizers: Elena Atroshchenko, Jack S. Hale, George Bourantas, Stéphane P.A Bordas

Chair: Leong Hien Poh

- 11076** CRACK-INCLUSION INTERACTION IN PLANE MICROPOLAR ELASTICITY
Elena Atroshchenko, Javier Videla
- 7675** ISOGEOMETRIC ANALYSIS OF GRADIENT-ELASTIC TIMOSHENKO BEAMS
Viacheslav Balobanov, Jarkko Niiranen, Sergei Khakalo
- 9170** ISOGEOMETRIC GALERKIN METHODS FOR GRADIENT-ELASTIC BARS, BEAMS, MEMBRANES AND PLATES
Jarkko Niiranen, Sergei Khakalo, Viacheslav Balobanov, Josef Kiendl, Antti H. Niemi, Bahram Hosseini, Alessandro Reali

MS 912 - 1: HIGH-ORDER METHODS, SENSITIVITY ANALYSIS AND ADAPTATION FOR THE NAVIER STOKES EQUATIONS

MS Organizers: Vincent Couaillier, Rémi Abgrall, Eusebio Valero

Chair: Vincent Couaillier

- 5698** ADAPTATION STRATEGIES FOR HIGH ORDER DISCONTINUOUS GALERKIN METHODS BASED ON TAU-ESTIMATION
Eusebio Valero, Moritz Kompenhans, Gonzalo Rubio, Esteban Ferrer
- 11051** APPROPRIATE COMBINATIONS OF CONTROLLERPARAMETERS FOR UNSTEADY FLOWS IMULATIONS WITH ADAPTIVE TIME STEP CONTROL
Kathrin Kozulovic, Graham Ashcroft

Thursday, June 9 **Room 7**
14:30-16:30

MS 1225 - 1: SEISMIC PERFORMANCE ASSESSMENT OF STRUCTURES AND SEISMIC RISK MITIGATION STRATEGIES

MS Organizers: Marco Vona

Chair: Marco Vona

- 10028** A CRITICAL REVIEW OF FRAGILITY CURVES FOR EXISTING RC BUILDINGS
Monica Mastroberti, Marco Vona
- 10800** DYNAMIC IDENTIFICATION OF A RC HOSPITAL BUILDING
Giorgio Lacanna, Pauline Deguy, Maurizio Ripepe, Massimo Baglione, Mario De Stefano, Marco Tanganelli, Stefania Viti
- 12031** TOWARDS INTEGRATED SEISMIC RISK ASSESSMENT IN PALESTINE - APPLICATION TO THE CITY OF NABLUS
Ricardo Monteiro, Paola Ceresa, Vanja Cerchiello, Jamal Dabeek, Antonella Di Meo, Barbara Borzi
- 11825** COMPUTER-AIDED SEISMIC RISK ASSESSMENT AT URBAN SCALE. MODEL DEFINITION AND VALIDATION ON A CASE STUDY
Alberto Basaglia, Alessandra Aprile, Francesco Pilla, Enrico Spacone
- 11992** PARAMETRIC CHARACTERIZATION OF ITALIAN RC BRIDGES FOR SEISMIC VULNERABILITY ASSESSMENT
Claudia Zelaschi, Ricardo Monteiro, Rui Pinho
- 8224** PROBABILISTIC SEISMIC DAMAGE CONTROL ANALYSIS OF SUB-STANDARD BRIDGE COLUMNS
M. Saiid Saiidi

Thursday, June 9 14:30-16:30 Room 8 MS 109 - 2: ADVANCED ANALYSIS OF MATERIALS & STRUCTURAL SOLUTIONS IN SAFETY & BIOMECHANICS <i>MS Organizers:</i> Jerzy Malachowski, Piotr W. Sielicki <i>Chair:</i> Piotr W. Sielicki 10597 HUMAN BODY MOTION UNDER EXPLOSION: NUMERICAL ANALYSIS OF BLAST AND PERSONAL SAFETY <i>Piotr W. Sielicki, Tomasz Gajewski</i> 10934 INVESTIGATION OF EXTERNAL BLAST WAVE EFFECTS ON HUMAN BODY INSIDE THE VEHICLE <i>Grzegorz Sławiński, Tadeusz Niezgoda, Marcin Wojtkowski</i> 10939 ANALYSIS OF STRUCTURAL ELEMENT WITH AND WITHOUT PROTECTIVE COVER UNDER IMPULSE LOAD <i>Tadeusz Niezgoda, Grzegorz Sławiński</i> 10160 NUMERICAL ANALYSIS OF CRIMPING AND IMPLEMENTATION PROCESS OF CORONARY STENT USING IMPLICIT SCHEME <i>Jakub Bukala, Jerzy Malachowski</i>	Thursday, June 9 14:30-16:30 Room 10 MS 715 - 1: COMPUTATIONAL ANALYSIS OF COMPOSITE STRUCTURES <i>MS Organizers:</i> Efstathios E. Theotokoglou <i>Chair:</i> Efstathios E. Theotokoglou 5675 KEYNOTE: CONSTITUTIVE CHARACTERIZATION OF COMPOSITES VIA INVERSE METHODS ENABLED BY ROBOTIC MULTIAXIAL TESTING AND HIGH-PERFORMANCE FULL-FIELD METHODS <i>John Michopoulos, Athanasios Iliopoulos, John Hermanson, John Steuben</i> 4654 MINIMAL MASS DESIGN OF STRENGTHENING TECHNIQUES FOR PLANAR AND CURVED MASONRY STRUCTURES <i>Gerardo Carpentieri, Francesco Fabbrocino, Mariella De Piano, Valentino Paolo Berardi, Luciano Feo, Fernando Fraternali</i> 6757 CONVERGENCE ANALYSIS OF STRESS FIELDS TO HOMOGENIZATION PREDICTIONS IN OPTIMAL PERIODIC COMPOSITE DESIGN <i>Pedro Coelho, Rui Reis, José Guedes</i> 10437 SIMULATION OF DAMAGE INDUCED BY A LIGHTNING STRIKE ON A CFRP LAMINATE <i>Johann Rannou, Cédric Huchette, Mohamed Boubekeur</i>
Thursday, June 9 14:30-16:30 Room 9 MS 705: IDENTIFICATION OF MATERIAL MODELS <i>MS Organizers:</i> Danuta Szeliga, Wacław Kuś, Tadeusz Burczyński, Jan Kusiak <i>Chair:</i> Tadeusz Burczyński 6471 APPLICATION OF TENSOR DECOMPOSITION TO THE CALIBRATION OF NONLINEAR CONSTITUTIVE MATERIAL LAWS <i>Clément Olivier, David Ryckelynck, Julien Cortial, Christian Rey</i> 9138 THE BOOTSTRAP APPROACH TO THE STATISTICAL SIGNIFICANCE OF PARAMETERS IN RSM MODEL <i>Jacek Pietraszek, Leszek Wojnar</i> 10907 A BAYESIAN APPROACH FOR PARAMETER IDENTIFICATION IN ELASTOPLASTICITY <i>Hussein Rappel, Lars A.A. Beex, Jack S. Hale, Stephane P.A. Bordas</i> 11289 CHARACTERIZATION OF STRAIN-RATE EFFECTS IN LASER SHEET FORMING <i>Diego Celentano, Javier Castillo, Marcela Cruchaga</i> 7243 GEOMETRICAL REPRESENTATION OF RAILWAY BALLAST USING THE DISCRETE ELEMENT METHOD (DEM) <i>Joaquín Irazábal, Fernando Salazar, Eugenio Oñate</i> 10502 IDENTIFICATION OF MULTISCALE MATERIAL MODELS IMPLEMENTED INTO VIRTROLL SYSTEM FOR HOT STRIP ROLLING <i>Lukasz Rauch, Aleksander Nam, Rudolf Kawalla, Jan Kusiak, Maciej Pietrzyk</i>	Thursday, June 9 14:30-16:30 Room 11 MS 712 - 1: SMART MATERIAL SYSTEMS AND STRUCTURES <i>MS Organizers:</i> Mieczysław Kuczman, Pavel Krejčí, Jörg Schröder, Georgios E. Stavroulakis, Gwidon Szefer <i>Chair:</i> Mieczysław Kuczman, Gwidon Szefer 11049 KEYNOTE: OPTIMAL CONTROL TUNNING IN SMART STRUCTURES WITH DELAMINATIONS <i>Panos Koutsianitis, Amalia Moutsopoulou, Georgios Drosopoulos, Georgios Tairidis, Georgia Foutsitzi, Georgios Stavroulakis</i> 11925 MINIMIZATION AND STABILITY OF COUPLED ELECTRO-MECHANICS <i>Daniel Vallicotti, Stephan Teichtmeister, Marc-André Keip, Christian Miehe</i> 11910 THE POTENTIAL OF VISCOELASTICITY FOR JOINING BAND GAPS IN ACOUSTIC METAMATERIALS <i>Mirosława Lewinska, Hans van Dommelen, Varvara Kouznetsova, Anastasiia Krushynska, Marc Geers</i> 9201 METAMATERIAL WITH NEGATIVE STRAIN-RATE SENSITIVITY <i>Ötztan Akif, Simon Konrad Naderer, Stefan Hiermaier</i> 10021 NONLINEAR CHARACTERIZATION AND MULTISCALE HOMOGENIZATION OF TWO-PHASE MAGNETO-ELECTRIC COMPOSITES <i>Matthias Labusch, Jörg Schröder</i>

Thursday, June 9
14:30-16:30
Room 12

MS 612: NUMERICAL SIMULATIONS FOR SMART-CITY APPLICATIONS

MS Organizers: Julien Waeytens, Rachida Chakir

Chair: Julien Waeytens, Rachida Chakir

- 8934** COMPARISON OF NUMERICAL TURBULENT FLOWS AND MEASUREMENTS FROM 3D ANEMOMETER IN A CHALET IN VIEW OF INDOOR AIR QUALITY APPLICATIONS
Julien Waeytens, Erick Merliot, Rachida Chakir, Damien Joseph, Amita Tripathi
- 9249** REDUCED BASIS METHODS FOR CFD PROBLEMS ARISING FROM WATER NETWORK MODELLING
Rachida Chakir, Erick Merliot
- 11135** COUPLING CFD SOLUTIONS WITH NON BAYESIAN INVERSE MODEL IN URBAN LOCAL SCALE ENVIRONMENTS: OPTIMAL SENSORS NETWORK DEPLOYMENT AND SOURCE APPORTIONMENT FOR AIR QUALITY
Claude Souprayen, Damien Joseph, Amita Tripathi
- 10335** OPTIMAL CONTROL METHODS FOR ENERGY AND AIR QUALITY MANAGEMENT OF SUBWAY STATIONS
Tristan Rigaut, Julien Waeytens, Frédéric Bourquin
- 6201** NUMERICAL OPTIMIZATION OF NEAR-ROAD VEGETATION BARRIERS
Ludek Benes, Viktor Sip
- 8079** NON-INTRUSIVE REDUCED BASIS METHODS APPLIED TO OUTDOOR AIR QUALITY MODELS
Janelle Katharine Hammond, Rachida Chakir, Frédéric Bourquin, Yvon Maday

Thursday, June 9
14:30-16:30
Room 15

CS 620 - 2: COMPUTATIONAL CONTACT MECHANICS

Chair: Zdenek Dostal

- 11611** KEYNOTE: SCALABLE MASSIVELY PARALLEL ALGORITHMS FOR CONTACT PROBLEMS
Zdenek Dostal, Tomas Kozubek, David Horak, Vaclav Hapla, Alex Markopoulos, Tomas Brzobohaty, Lubos Riha, Oldrich Vlach
- 9800** COMPARISON OF CONTACT STRESS REPRESENTATIONS USING THE MORTAR METHOD AND DUAL LAGRANGE MULTIPLIERS
Christoph Wilking, Manfred Bischoff
- 7055** LARGE DEFORMATION CONTACT FORMULATION USING CARTESIAN GRIDS AND CAD DEFINITION OF THE BOUNDARY
Jose Manuel Navarro, Manuel Tur, Rubén Sevilla, José Albelda
- 7180** A DUAL MORTAR METHOD FOR FINITE DEFORMATION THERMO-MECHANICAL CONTACT – FINITE ELEMENTS AND ISOGOMETRIC ANALYSIS
Alexander Seitz, Wolfgang A. Wall, Alexander Popp

Thursday, June 9
14:30-16:30
Room 17

MS 811: MULTISCALE MODELING OF CONCRETE AND CONCRETE STRUCTURES

MS Organizers: Herbert Mang, Yong Yuan

Chair: Bernhard Pichler

- 8152** MULTI-SCALE MODELLING OF ASPHALT CONCRETE
Johannes Wimmer, Jaan-Willem Simon, Stefanie Reese
- 10396** CREEP HOMOGENIZATION OF CEMENTITIOUS MATERIALS
Markus Königsberger, Muhammad Irfan-ul-Hassan, Bernhard Pichler, Christian Hellmich
- 11777** NUMERICAL SIMULATION OF THE AUTOGENOUS SHRINKAGE OF HARDENING PORTLAND CEMENT PASTE
Peng Gao, Guang Ye, Jiangxiong Wei, Qijun Yu
- 9388** MULTI FILED ANALYSIS ON CREEP BEHAVIOR OF CONCRETE IN LOWER HIGHER TEMPERATURE
Wei Jiang, Yong Yuan, Zhenghong Yang

Thursday, June 9
14:30-16:30
Room 18

MS 607 - 2: ADVANCES IN COMPUTATIONAL METHODS FOR LIQUID-VAPOR FLOWS WITH PHASE TRANSFER PROCESSES

MS Organizers: Rémi Abgrall, Pietro M. Congedo, Tore Flåtten, Bernhard Müller, Marica Pelanti, Maria Giovanna Rodio

Chair: Marica Pelanti

- 9006** A ROBUST EQUATION OF STATE FOR LIQUID-VAPOR MIXTURE
Pietro Marco Congedo, Maria Giovanna Rodio, Rémi Abgrall
- 7546** AN ALL MACH NUMBER PRESSURE BASED ALGORITHM FOR MULTIPHASE FLOW SIMULATIONS
Ernst A. Meese
- 7624** A LOW DIFFUSIVE APPROACH FOR TWO PHASE FLOWS
Alberto Beccantini
- 8127** LARGE TIME STEP SCHEME FOR THE BAER-NUNZIATO MODEL BY MEANS OF A LAGRANGE-PROJECTION TYPE APPROACH
Christophe Chalons, Samuel Kokh
- 9047** A MIXTURE-ENERGY-CONSISTENT NUMERICAL METHOD FOR COMPRESSIBLE THREE-PHASE FLOW WITH APPLICATION TO LASER-INDUCED CAVITATION BUBBLE
Keh-Ming Shyue
- 7036** SPLITTING METHOD AND IMPLICIT-EXPLICIT SCHEMES FOR A COMPRESSIBLE GAS-LIQUID MODEL
Charles Demay, Jean-Marc Hérard, Christian Bourdarias, Benoit De Laage De Meux, Stéphane Gerbi

Thursday, June 9
14:30-16:30
Room 20

MS 905 - 3: DISCONTINUOUS GALERKIN METHODS: NEW TRENDS AND APPLICATIONS

MS Organizers: Sonia Fernández-Méndez, Nicoletta Franchina

Chair: Sonia Fernández-Méndez, Nicoletta Franchina

- 4875** A DISSIPATIVE FILTER FOR SUB-CELL DISCONTINUITY CAPTURING WITH THE DISCONTINUOUS GALERKIN METHOD
Konstantinos Panourgias, John Ekaterinaris

- 6829** A DISCONTINUOUS GALERKIN SCHEME FOR COMPRESSIBLE MULTI-PHASE FLOW
Claus-Dieter Munz, Stefan Fechter, Timon Hitz
- 7733** DISCONTINUOUS GALERKIN SPECTRAL ELEMENT METHODS FOR ELASTODYNAMICS PROBLEMS: APPLICATION TO 3D WAVE PROPAGATIONS.
Ilario Mazzieri, Alberto Ferroni, Paola Francesca Antonietti, Alfio Quarteroni
- 8180** HIGH-ORDER LINEARLY IMPLICIT TWO-STEP PEER METHODS FOR THE DISCONTINUOUS GALERKIN SOLUTION OF THE INCOMPRESSIBLE RANS EQUATIONS
Francesco Carlo Massa, Gianmaria Noventa, Francesco Bassi, Alessandro Colombo, Antonio Ghidoni, Marco Lorini
- 9753** OUTPUT-BASED SPACE-TIME ADAPTATION WITH NON-VARIATIONAL TIME INTEGRATION
Krzysztof Fidkowski
- 9094** A SPACE-TIME DISCONTINUOUS-GALERKIN APPROACH FOR SEPARATED FLOWS
Scott Murman, Laslo Diosady, Anirban Garai, Marco Ceze, Corentin Carton de Wiart

Thursday, June 9 **Room 21**
14:30-16:30

MS 1215 - 2: NONLINEAR VIBRATIONS OF CONSERVATIVE AND NONCONSERVATIVE SYSTEMS: PHENOMENA AND ADVANCED NUMERICAL METHODS

MS Organizers: Malte Krack, Ludovic Renson, Gaëtan Kerschen
Chair: Malte Krack

- 7157** TOPOLOGY OPTIMIZATION IN NONLINEAR STRUCTURAL DYNAMICS USING DIRECT COMPUTATION OF NONLINEAR COEFFICIENTS
Jakob S. Jensen, Suguang Dou
- 9344** GEOMETRY EFFECTS ON THE NONLINEAR OSCILLATIONS OF VISCOELASTIC CYLINDRICAL SHELLS
Zenon Del Prado, Marco Amabili, Paulo Gonçalves, Frederico Da Silva
- 9834** THEORETICAL AND EXPERIMENTAL STUDIES OF LINEAR AND NONLINEAR BEHAVIORS IN ACOUSTIC RESONATORS
Valentin Alamo Vargas, Emmanuel Gourdon, Alireza Ture Savadkoobi
- 10775** CONTINUATION OF QUASI-PERIODIC SOLUTIONS WITH TWO-FREQUENCY HARMONIC BALANCE METHOD
Louis Guillot, Pierre Vigué, Christophe Vergez, Bruno Cochelin
- 5883** FREE PERIODIC OSCILLATIONS OF CNTS SUBJECTED TO ELECTROSTATIC FORCES
Pedro Ribeiro
- 10580** NUMERICAL COMPUTATION OF NONLINEAR NORMAL MODES WITH MODAL DERIVATIVES BASED REDUCED ORDER MODELS
Cees Sombroek, Paolo Tiso, Ludovic Renson, Gaëtan Kerschen

Thursday, June 9 **Room 22**
14:30-16:30

MS 1103 - 1: MATHEMATICAL SURROGATE MODELLING IN ELECTROMAGNETICS

MS Organizers: Petrie Meyer, Tom Dhaene, Dirk Deschrijver
Chair: Petrie Meyer, Tom Dhaene

- 5887** CERTIFIED REDUCED BASIS METHODS FOR MICROWAVE MODELS GOVERNED BY TIME-HARMONIC MAXWELL'S EQUATIONS
Peter Benner, Martin Hess
- 7676** A SHORT-TIME PRONY METHOD FOR THE DETECTION OF TRANSIENTS
Annie Cuyt, Wen-shin Lee, Min-Nan Tsai
- 9215** NUMERICAL OPTIMIZATION AND CHALLENGES OF SPHERICAL-WAVE BASED MACRO-MODELLING TECHNIQUES
Bart Boesman, Georges Gielen, Guy Vandenbosch, Davy Pissoot
- 11182** DESIGN OF AXIALLY SYMMETRIC POWER COMBINERS USING SURROGATE BASED OPTIMIZATION
Ryno Beyers, Dirk de Villiers
- 4429** RATIONAL MODELING OF MULTIVARIATE MULTI-FIDELITY DATA
Elizabeth Rita Samuel, Dirk Deschrijver, Luc Knockaert, Tom Dhaene, Annie Cuyt
- 8552** COMPARISON STUDY OF PC AND KRIGING BASED SURROGATE MODELING
Arun Kaintura, Domenico Spina, Ivo Couckuyt, Tom Dhaene

Thursday, June 9 **Room 23**
14:30-16:30

MS 1009 - 6: ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION

MS Organizers: Kyriakos C. Giannakoglou, Jens Dominik Mueller
Chair: Kyriakos C. Giannakoglou

- 9051** AERODYNAMIC SHAPE OPTIMIZATION USING THE TRUNCATED NEWTON METHOD AND CONTINUOUS ADJOINT
Mehdi Ghavami Nejad, Evangelos M. Papoutsis-Kiachagias, Kyriakos C. Giannakoglou
- 9204** SHAPE OPTIMIZATION OF TURBOMACHINERY ROWS USING A PARAMETRIC BLADE MODELLER AND THE CONTINUOUS ADJOINT METHOD RUNNING ON GPU
F. Gagliardi, K.T. Tsiakas, X.S. Trompoukis, K.C. Giannakoglou
- 9316** GEOMETRIC CONTINUITY CONSTRAINTS FOR ADJACENT NURBS PATCHES IN SHAPE OPTIMISATION
Xingchen Zhang, Yang Wang, Mateusz Gugala, Jens-Dominik Mueller
- 9992** TOWARDS AN OUTPUT-BASED RE-MESHING METHODOLOGY TO THE TURBOMACHINERY CASE
Mateusz Gugala, Marcus Meyer, Jens-Dominik Mueller
- 6621** CAD KERNEL AND GRID GENERATION ALGORITHMIC DIFFERENTIATION FOR TURBOMACHINERY ADJOINT OPTIMIZATION
Ismael Sanchez Torreguitart, Tom Verstraete, Lasse Mueller

16:30-17:00
Coffee Break

TECHNICAL SESSIONS

Thursday, June 9
17:00-19:00

Minos East

STS 9: ADVANCED WING HIGH-LIFT SYSTEMS

MS Organizers: Jochen Wild

Chair: Jochen Wild

14489 AN OVERVIEW OF CFD-BASED OPTIMIZATION ACTIVITIES FOR HIGH-LIFT SYSTEM DESIGN CARRIED OUT WITHIN THE DESIREH PROJECT
Pierluigi Iannelli

14513 APPLICATION OF SYNTHETIC JETS ACTUATORS IN WING-PYLON JUNCTION AREA TO IMPROVE THE HIGH LIFT PERFORMANCES
Petr Vrchota

15520 DESIGN AND VALIDATION OF ACTIVE FLOW SEPARATION CONTROL AT THE WING/ENGINE JUNCTION
Michael Meyer

14518 NACELLE STRAKE DESIGN FOR A SHORT TAKE-OFF AND LANDING CONFIGURATION WITH TURBOPROPS
Dennis Keller, Yasim Hasan, Ralf Rudnik

14496 A SUMMARY OF 10 YEARS OF EUROPEAN RESEARCH WITH THE DLR-F15 HIGH-LIFT AIRFOIL
Jochen Wild

Thursday, June 9
17:00-19:00

Minos North

MS 614 - 2: YOUNG INVESTIGATORS MINISYMPOSIUM

MS Organizers: Jaan-Willem Simon, Alexander Popp, Joan Baiges

Chair: Joan Baiges

11075 FOURIER-GALERKIN METHODS AS ALTERNATIVE TO FINITE ELEMENT METHOD FOR NUMERICAL HOMOGENIZATION
Tom de Geus, Jaroslav Vondřejc

12097 CHALLENGES IN MULTISCALE MODELING OF COMPOSITE STRUCTURES
Evan Pineda

6233 NODAL INTEGRATION: AN ATTEMPT TO REDUCE SPURIOUS PRESSURE OSCILLATIONS IN THE SIMULATION OF INCOMPRESSIBLE FLOWS USING THE PFEM
Marco Lucio Cerquaglia, Geoffrey Deliége, Romain Boman, Jean-Philippe Ponthot

9825 CAN THE SHEAR RESPONSE OF TEXTILE COMPOSITES BE REALISTICALLY DESCRIBED WHEN THE TOWS ARE MODELLED AS HOMOGENIZED MATERIAL?
Jaan-Willem Simon, Bertram Stier, Stefanie Reese

6742 COMPLEXITIES OF THE IMPLEMENTATION OF WORK STEALING SCHEDULING STRATEGY FOR EXTENSIVE PARALLEL SCIENTIFIC APPLICATIONS ON STATE-OF-THE-ART HIGH-PERFORMANCE SYSTEMS
Elizaveta Dorofeeva, Gevorg Poghosyan

Thursday, June 9
17:00-19:00

Minos South

MS 1204 - 2: NONLINEAR DYNAMICS OF ROTATING STRUCTURES

MS Organizers: Evangeline Capiez-Lernout, Marc P. Mignolet, Christian Soize

Chair: Evangeline Capiez-Lernout

4830 A NEW DYNAMIC SUBSTRUCTURING METHOD FOR NONLINEAR AND DISSIPATIVE SYSTEMS
Colas Joannin, Benjamin Chouvion, Fabrice Thouverez

6780 SOME REMARKS ON TIME INTEGRATION OF 3D ROTOR-STATOR ASSEMBLY
Benoit Prabel

MS 1209: DYNAMIC ANALYSIS OF BEAMS UNDER MOVING VEHICLES: APPLICATION TO RAILWAY TRACK MODELLING, DESIGN AND REHABILITATION

MS Organizers: Fernando Simões, Antonio Pinto da Costa

Chair: Antonio Pinto da Costa

7515 NUMERICAL DYNAMIC ANALYSIS OF BEAMS ON NONLINEAR ELASTIC FOUNDATIONS UNDER HARMONIC MOVING LOAD
Diego Froio, Roberto Maioli, Egidio Rizzi

5568 NUMERICAL ANALYSIS FOR DYNAMIC RESPONSE CHARACTERISTICS OF PRESTRESSED CONCRETE SLEEPER
Tsutomu Watanabe, Kodai Matsuoka, Shintaro Minoura

7443 ANALYSIS OF THE EFFECTS OF A MASS-SPRING-SYSTEM IN A TUNNEL USING A COUPLED INTEGRAL TRANSFORM METHOD – FINITE ELEMENT METHOD APPROACH
Manuela Hackenberg, Gerhard Müller

Thursday, June 9
17:00-19:00

Danae

MS 108 - 2: NUMERICAL METHODS FOR COUPLED PROBLEMS IN BIOMEDICAL APPLICATIONS

MS Organizers: Martina Bukac, Annalisa Quaini

Chair: Martina Bukac

8086 KEYNOTE: A NUMERICAL STUDY OF THE DYNAMIC BEHAVIOR OF AN ENCAPSULATED MICROBUBBLE IN A WALL-RESTRICTED FLOW
Maria Vlachomitrou, Nikos Pelekasis

9202 POROELASTIC MODEL OF A CELL DURING CHIMNEYING MIGRATION THROUGH A MICRO-CHANNEL
Solenne Deveraux, Rachele Allena, Denis Aubry

11671 UNIFIED THEORY OF ONE-DIMENSIONAL STRUCTURES AND FLOWS WITH APPLICATIONS TO BIOMEDICAL ENGINEERING AND COUPLED PROBLEMS
Alfonso Pagani, Daniele Guarnera, Erasmo Carrera

11728 NUMERICAL MODELING OF DIFFUSION IN POLY(LACTIC-CO-GLYCOLIC ACID) CONSISTED OF DRUG-LOADED EMULSION ELECTROSPUN NANOFIBERS
Miljan Milosevic, Milos Kojic, Vladimir Simic, Dusica Stojanovic, Petar Uskokovic

Thursday, June 9 17:00-19:00	Europa	Thursday, June 9 17:00-19:00	Athena
CS 630 - 4: SIMULATION OF FLUID-STRUCTURE INTERACTION <i>Chair: Haifa Sallem</i>		MS 606 - 1: COMPUTATIONAL MODELING OF HYDRAULIC FRACTURING <i>MS Organizers: Gianluca Cusatis, Gilles Pijaudier-Cabot, Günther Meschke</i> <i>Chair: Günther Meschke</i>	
12003	NUMERICAL SIMULATION OF RESIDUAL DISTORTIONS INDUCED BY WELDING PROCESS <i>Haifa Sallem, Syrine Ben Yahia, Jean Michel Bergheau</i>	11918	KEYNOTE: MINIMIZATION PRINCIPLES IN MULTI-PHYSICS OF SOLIDS AT FRACTURE <i>Christian Mieke, Stephan Teichtmeister, Steffen Mauthe</i>
5437	NUMERICAL SIMULATION OF BUOYANT PLUMES USING A FIXED POINT ITERATIVE METHOD <i>Blanca Bermúdez, Alejandro Rangel-Huerta, W. Fermín Guerrero S., José David Alanis Urquieta</i>	9315	PARAMETRIC STUDY ON HYDRAULIC FRACTURING IN ANISOTROPIC MEDIA <i>Valliappan Valliappan, Joris Remmers, Auke Barnhoorn, David Smeulders</i>
5988	ALGORITHMS BASED ON TIME-DISCONTINUOUS GALERKIN SPACE-TIME FINITE ELEMENTS AND OPERATOR-SPLITTING METHODS FOR GENERALIZED THERMOELASTICITY AT FINITE STRAINS <i>Mebratu Wakeni, Daya Reddy, Andrew McBride</i>	7950	SENSITIVITY ANALYSIS OF HYDRAULIC FRACTURING USING AN EXTENDED FINITE ELEMENT METHOD FOR THE PKN MODEL <i>Hasini Garikapati, Clemens V. Verhoosel, Harald van Brummelen, Pedro Diez</i>
6475	NUMERICAL STUDY OF TWO OPTIMIZED COUPLING INTERFACE TREATMENTS FOR STEADY CONJUGATE HEAT TRANSFER PROBLEMS <i>Marc Paul Errera, Roch Roukoz El Khoury</i>	6100	THE XFEM FOR A SIMPLIFIED MODEL IN HYDRAULIC FRACTURING <i>Markus Schätzer, Thomas-Peter Fries</i>
8697	MECHANICAL PROPERTY AND MODELING OF SILICONE FOAM UNDER COMPLEX ENVIRONMENTS INCLUDING GAMMA RADIATION <i>Guangyong Liu</i>	9113	2D MODELLING OF HYDRAULIC FRACTURING IN JOINTED ROCKS WITH A LATTICE APPROACH <i>David Grégoire, Vincent Lefort, Olivier Nouailletas, Gilles Pijaudier-Cabot</i>
Thursday, June 9 17:00-19:00	Leda	Thursday, June 9 17:00-19:00	Artemis
MS 202 - 1: CIVIL ENGINEERING MATERIALS AND STRUCTURES UNDER EXTREME LOADINGS <i>MS Organizers: Fabrice Gatuingt, Frédéric Dufour, Panagiotis Kotronis</i> <i>Chair: Fabrice Gatuingt</i>		MS 403 - 4: PARTICLE-BASED METHODS IN FLUID MECHANICS <i>MS Organizers: Sergio Idelsohn, Eugenio Oñate</i> <i>Chair: Carlos Felippa, Josep Maria Carbonell</i>	
8339	EQUIVALENT SDOF MODEL FOR ESTIMATING BLAST-INDUCED DYNAMIC REACTIONS OF EQUILATERAL TRIANGULAR HARDENED WALL ELEMENTS <i>Sebastian Mendes, Liling Cao, Douglas Heinze, Elisabeth Malsch</i>	4586	A PARTICLE FINITE ELEMENT METHOD FOR MACHINING SIMULATIONS <i>Juan Manuel Rodríguez Prieto, Pär Jonsén, Ales Svoboda</i>
11112	NUMERICAL STUDY OF THE INFLUENCE OF THE AGGREGATES SPATIAL ARRANGEMENT ON CONCRETE DYNAMIC BEHAVIOUR <i>Silvère Pierre, Fabrice Gatuingt</i>	7321	MODELING OF NON-SPHERICAL, ELONGATED PARTICLES FOR INDUSTRIAL SUSPENSION FLOW SIMULATION <i>Jakob Dominik Redlinger-Pohn, Lisa Maria König, Christoph Kloss, Christoph Goniva, Stefan Radl</i>
9862	MODELING AND SIMULATION FOR AN OPTIMIZED DESIGN OF A DYNAMIC BEND TEST. <i>Rana Akiki, Fabrice Gatuingt, Cédric Giry, Nicolas Schmitt, Lavinia Stéfan</i>	8484	AN IMPLICIT MATERIAL POINT METHOD: FORMULATION AND VALIDATION <i>Ilaria Iaconeta, Antonia Larese, Riccardo Rossi, Eugenio Oñate</i>
7300	SIMULATION OF DYNAMIC BEHAVIOR OF QUASI-BRITTLE MATERIALS WITH NEW RATE DEPENDENT DAMAGE MODEL <i>Luis Pereira, J. Weerheijm, L.J. Sluys</i>	9327	SOME INVESTIGATIONS OF A GENERALIZED PARTICLE METHOD FOR CONVECTION-DIFFUSION EQUATIONS <i>Daisuke Tagami, Yusuke Imoto</i>
16727	DERIVATION OF FRAGILITY CURVES FOR RC FRAMES RETROFITTED WITH RC INFILL WALLS BASED ON FULL-SCALE PSEUDODYNAMIC TESTING RESULTS <i>Christis Chrysostomou, Nicholas Kyriakides, Panagiotis Kotronis, Elpida Georgiou</i>	10103	THREE-DIMENSIONAL REMESHED SMOOTHED PARTICLE HYDRODYNAMICS FOR THE SIMULATION OF ISOTROPIC TURBULENCE <i>Anas Obeidat</i>
		7211	RECOVERY OF DIFFERENTIATION/INTEGRATION COMPATIBILITY OF MESHLESS OPERATORS VIA LOCAL ADAPTATION OF THE POINT CLOUD IN THE CONTEXT OF NODAL INTEGRATION <i>Gabriel Fougerson, Guillaume Pierrot</i>

**Thursday, June 9
17:00-19:00** **Aphrodite**

MS 102 - 2: COMPUTATIONAL MODELS IN BIOMECHANICS AND MECHANOBIOLOGY

MS Organizers: Estefania Peña, Renato Natal Jorge, Miguel A. Martínez, Pedro S. Martins

Chair: Pedro S. Martins

- 10661** HYBRID CELL CENTRED/VERTEX MODEL FOR LARGE TISSUE DEFORMATIONS
José J. Muñoz, Payman Mosaffa, Yanlan Mao, Rob Tetley, Nina Asadipour, Antonio Rodríguez-Ferran
- 10702** SENSITIVITY OF TEMPERATURE FIELD IN THE SYSTEM PROTECTIVE CLOTHING - FOREARM WITH RESPECT TO PERTURBATIONS OF EXTERNAL HEATING CONDITIONS
Bohdan Mochnacki, Mariusz Ciesielski
- 10067** IMAGE-BASED CHARACTERIZATION OF LUNG REGIONAL STRAIN: A FINITE-ELEMENT APPROACH TO BIOMECHANICAL IMAGE ANALYSIS
Daniel Hurtado, Nicolás Villarreal, Jaime Retamal, Guillermo Bugedo, Alejandro Bruhn
- 11792** ANALYSIS OF THE BIOMECHANICAL BEHAVIOR OF ARTERIES FROM INTRA-UTERINE GROWTH RESTRICTED FETUSES
Daniel Cañas-Quezada, Emilio Herrera, Claudio García-Herrera, Bernardo Krause, Diego Celentano
- 7851** A COMPUTATIONAL APPROACH TO RED BLOOD CELL ELECTRO-DEFORMATION
Nicola Antonio Nodargi, Paolo Bisegna, Federica Caselli
- 9651** THE INFLUENCE OF MECHANICAL STIMULUS ON NUTRIENT TRANSPORT AND CELL GROWTH IN ENGINEERED CARTILAGE: A FINITE ELEMENT APPROACH
Sara Cortez, A. Completo, J.L. Alves
- 11147** CONSTITUTIVE MODELLING OF HYPERELASTIC MATERIALS USING A HYBRID OPTIMIZATION TECHNIQUE
Pedro Martins, Renato Natal Jorge, Carla Roque

**Thursday, June 9
17:00-19:00** **Antigoni**

MS 201 - 3: MICROSTRUCTURE-DRIVEN DEFORMATION AND FAILURE IN CRYSTALLINE MATERIALS

MS Organizers: Pilar Ariza, Lucia Nicola, Angelo Simone

Chair: Angelo Simone

- 7090** TWO-SCALE MODELS OF DYNAMICAL PLASTICITY AND FRACTURE OF ALUMINUM
Vasily Krasnikov, Alexander Mayer, Dmitriy Voronin
- 7861** NON-LOCALIZED DEFORMATION IN METALLIC GLASSES WITH PRE-EXISTING SHEAR BANDS
Shaoxing Qu
- 8037** ANALYSIS OF SPALL RESPONSE IN ALUMINUM WITH HELIUM BUBBLES UNDER DYNAMIC LOADING
Fengguo Zhang
- 8601** EJECTA SIZE DISTRIBUTION FOR SHOCK LOADED CU WITH A WEDGED SURFACE GROOVE
An-Min He, Pei Wang, Jian-Li Shao
- 7783** THREE-DIMENSIONAL CONTINUUM DISLOCATION DYNAMICS SIMULATION OF DISLOCATION STRUCTURES IN DEFORMATION OF MICRO-BEAMS
Alireza Ebrahimi, Thomas Hochrainer

- 9325** DECIPHERING THE MORPHOLOGY OF FRACTURE SURFACES: HOW COMPUTATIONAL MECHANICS CAN HELP
Laurent Ponson, Ankit Srivastava, Elisabeth Bouchaud, Erik Van der Giessen, Viggo Tvergaard, Alan Needleman, Angelo Simone

**Thursday, June 9
17:00-19:00** **Apollo East**

MS 711- 3: FOURIER-BASED METHODS FOR COMPUTING THE BEHAVIOR OF HETEROGENEOUS MATERIALS DEVELOPMENTS, EXTENSIONS AND APPLICATIONS

MS Organizers: Lionel Gélébart, Hervé Moulinec, Franz Roters, François Willot

Chair: Hervé Moulinec, Franz Roters, François Willot

- 8684** A COMPARISON BETWEEN DIFFERENT METHODS FOR THE NUMERICAL SIMULATION OF POLYCRYSTALLINE AGGREGATES
Camille Robert, Charles Mareau
- 7287** ARE FFT-BASED METHODS REALLY THAT DIFFERENT FROM FEM-BASED METHODS?
Dennis Merkert, Matthias Kabel, Matti Schneider, Andreas Fink
- 7330** CONSTITUTIVE RELATION ERROR FOR FFT-BASED METHODS
Sébastien Brisard, Ludovic Chamoin
- 8912** A SPECTRAL METHOD TO SOLVE MULTI-PHYSICS COUPLED ELASTO-VISCOPLASTIC BOUNDARY VALUE PROBLEMS
Pratheek Shanthraj, Shaokang Zhang, Franz Roters
- 9005** MODELING INTERFACE DECOHESION IN A SPECTRAL FRAMEWORK
Luv Sharma, Pratheek Shanthraj, Franz Roters, Ron H.J. Peerlings, Marc G.D. Geers

**Thursday, June 9
17:00-19:00** **Apollo West**

MS 204 - 3: IMPACT AND CRASH MECHANICS

MS Organizers: Manfred Bischoff, Fabian Duddeck

Chair: Manfred Bischoff, Fabian Duddeck

- 7266** COMMONALITY OPTIMIZATION FOR COMPONENTS IN VEHICLE FAMILIES WITH RESPECT TO CRASHWORTHINESS DESIGN
Lailong Song, Fabian Duddeck, Johannes Fender
- 7268** HOW TO ACCOUNT FOR THE RELAXATION EFFECT OF HIGH DIMENSIONAL CONSTRAINTS IN THE DIRECT SOLUTION SPACE METHOD
Volker Lange, Johannes Fender, Fabian Duddeck
- 8205** FINITE ELEMENT SIMULATION OF CRACK PROPAGATION AND DELAMINATION IN LAYERED SHELLS DUE TO BLADE CUTTING
Federica Confalonieri, Aldo Ghisi, Umberto Perego
- 7256** DIRECT METHODS TO DERIVE SOLUTION SPACES FOR VEHICLE CRASH DESIGN
Johannes Fender, Fabian Duddeck

**Thursday, June 9
17:00-19:00** **Room 1**

MS 1401 - 3: TOICA: THERMAL OVERALL INTEGRATED CONCEPT AIRCRAFT

MS Organizers: Pierre Arbez, Jean-Claude Dunyach

Chair: Jean-Claude Dunyach, Pierre Arbez

- 16674** APPLICATION AND VALIDATION OF TOICA CAPABILITIES ON AERONAUTICAL USE CASES
Yves Baudier

- 6724** AIRBUS PLATEAU AND THE GLOBAL THERMAL AIRCRAFT USE CASE
Alexandre Massol, Olivier Broca, Sebastien Rouvreau, Julien Giron
- 16676** DASSAULT AVIATION PLATEAU AND BUSINESS JET AIR SYSTEM USE CASE
E. Thomas
- 11136** AIRBUS HELICOPTERS PLATEAU AND THERMAL MANAGEMENT OF AN AVIONIC BAY USE CASE
Bertrand Truffart, Ludovic Allaire, Stéphane Georges, Didier Lefeuvre
- 16678** THERMAL MODELLING AND INTEGRATION METHODS: EQUIPMENT MODEL SPECIFICATION, EXCHANGE PROCESS, INTEGRATION (FMU)
M. Fouquembergh

**Thursday, June 9
17:00-19:00** **Room 2**

MS 413 - 2: COMPUTATIONAL METHODS IN ENVIRONMENTAL FLUID MECHANICS

MS Kazuo Kashiya, Eahn Kubatko, Joannes Westerink
Organizers:

Chair: Kazuo Kashiya

- 9151** A MULTIDIMENSIONAL DISCONTINUOUS GALERKIN MODELING FRAMEWORK FOR COUPLED RAINFALL-RUNOFF/RIVERINE FLOW
Ethan Kubatko, Dustin West, Mariah Yaufman
- 5450** A 2D-3D ONE-WAY COUPLING MODEL BETWEEN PRESSURE POISSON BOUSSINESQ-TYPE METHOD AND PARTICLE METHODS
Naoto Mitsume, Aaron S. Donahue, Joannes J. Westerink, Shinobu Yoshimura
- 7912** A 2D-3D TSUNAMI HYBRID MODEL USING OVERLAPPING METHOD BASED ON THE STABILIZED FEM
Guoming Ling, Junichi Matsumoto, Kazuo Kashiya
- 11071** FINITE ELEMENT PARALLEL COMPUTING FOR A COUPLING METHOD OF 2D SHALLOW WATER FLOW AND 3D GAS-LIQUID TWO-PHASE FLOW
Junichi Matsumoto, Guoming Ling, Hiroki Hanazawa, Kazuo Kashiya

**Thursday, June 9
17:00-19:00** **Room 3**

MS 603 - 2: COMPUTATIONAL METHODS IN FLUID-STRUCTURE INTERACTION WITH IMPACT ON INDUSTRIAL APPLICATIONS

MS Organizers: Elisabeth Longatte, Yannick Hoarau, Marianna Braza
Chair: Elisabeth Longatte, Yannick Hoarau, Marianna Braza

- 11189** AN ELECTRO-MECHANICAL COUPLED MODEL FOR FLUID STRUCTURES INTERACTION SIMULATIONS OF PIEZOELECTRIC ACTUATORS
Vinh-Tan Nguyen, Jason Leong, Pankaj Kumar
- 12287** INVESTIGATING THE POTENTIAL FOR FLOW CONTROL VIA AN ARRAY OF FLEXIBLE FLAPS USING LATTICE BOLTZMANN METHOD
Alistair Revell

- 7206** A MESH MORPHING BASED FSI METHOD USED IN AERONAUTICAL OPTIMIZATION APPLICATIONS
Matej Andrejašič, David Eržen, Emiliano Costa, Stefano Porziani, Marco Evangelos Biancolini, Corrado Groth
- 7333** AN ADAPTIVE, RESIDUAL BASED SPLITTING APPROACH FOR THE TIME DEPENDENT PENALIZED NAVIER STOKES EQUATIONS
Léo Nouveau, Héloïse Beaugendre, Mario Ricchiuto, Cécile Dobrzynski, Rémi Abgrall

**Thursday, June 9
17:00-19:00** **Room 4**

CS 320: GRID GENERATION AND ADAPTIVE TECHNIQUES

Chair: Esther Andrés-Pérez

- 5574** A LAPLACIAN MESH DEFORMATION TECHNIQUE FOR SIMULATION-DRIVEN DESIGN OPTIMIZATION
Mario J. Martin-Burgos, Daniel González-Juárez, Esther Andrés-Pérez
- 6783** ADJOINT BASED AND SPURIOUS DRAG BASED MESH REFINEMENT FOR COMPRESSIBLE FLOW SIMULATION
Jacques Peter, Antoine Dumont
- 8256** AN INTEGRATED FRAMEWORK FOR WRAPPING AND MESH GENERATION OF COMPLEX GEOMETRIES
David Martineau, Jeremy Gould, Jacques Papper
- 4889** A STABLE AND CONSERVATIVE TIME-DEPENDENT INTERFACE FORMULATION ON SUMMATION-BY-PARTS FORM: AN INITIAL INVESTIGATION
Samira Nikkar, Jan Nordström
- 8917** 2-D GRID ADAPTATION FOR COMPRESSIBLE FLOWS USING A COMBINATION OF PRESSURE AND PSEUDO-ENTROPY GRADIENTS
Vijay Ram R, Shashank Subramanian, Santanu Ghosh

**Thursday, June 9
17:00-19:00** **Room 5**

MS 912 - 2: HIGH-ORDER METHODS, SENSITIVITY ANALYSIS AND ADAPTATION FOR THE NAVIER STOKES EQUATIONS

MS Organizers: Vincent Couaillier, Rémi Abgrall, Eusebio Valero
Chair: Eusebio Valero

- 8628** LARGE EDDY SIMULATION OF TURBULENCE WITH LOCAL ADAPTATIVE DISCONTINUOUS GALERKIN METHOD
Göktürk Kuru, Marta de la Llave Plata, Vincent Couaillier, Rémi Abgrall, Frédéric Coquel
- 8545** IMPLEMENTATION OF A LOW-MACH NUMBER MODIFICATION FOR HIGH-ORDER FINITE-VOLUME SCHEMES FOR ARBITRARY HYBRID UNSTRUCTURED MESHES
Nicholas Simmonds, Panagiotis Tsoutsanis, Adrian Gaylard
- 8544** ADAPTIVE MESH REFINEMENT TECHNIQUES FOR HIGH-ORDER FINITE-VOLUME WENO SCHEME
Srinivasan Harshavardhana, Panagiotis Tsoutsanis
- 6681** AN EFFICIENT AVATAR OF THE HIGH-ORDER RBC SCHEMES FOR UNSTEADY COMPRESSIBLE FLOWS
Alain Lerat
- 6299** IMPLICIT LARGE EDDY SIMULATIONS USING AN INCOMPRESSIBLE HIGH ORDER DISCONTINUOUS GALERKIN METHOD WITH SLIDING MESHES
Esteban Ferrer

Thursday, June 9
17:00-19:00

Room 7

MS 1225 - 2: SEISMIC PERFORMANCE ASSESSMENT OF STRUCTURES AND SEISMIC RISK MITIGATION STRATEGIES

MS Organizers: Marco Vona

Chair: Marco Vona

10806 SEISMIC VULNERABILITY OF URBAN AREAS: A CASE-STUDY
Giorgio Lacanna, Pauline Deguy, Maurizio Ripepe, Massimo Coli, Barbara Paoletti, Marco Tanganelli, Stefania Viti, Mario De Stefano

11553 SPO2FRAG V1.0: SOFTWARE FOR PUSH-OVER-BASED DERIVATION OF SEISMIC FRAGILITY CURVES
Iunio Iervolino, Georgios Baltzopoulos, Dimitrios Vamvatsikos, Roberto Baraschino

12116 REASSESS V1.0: A COMPUTATIONALLY-EFFICIENT SOFTWARE FOR PROBABILISTIC SEISMIC HAZARD ANALYSIS
Iunio Iervolino, Eugenio Chioccarelli, Pasquale Cito

16427 SIMPLIFIED PERIOD ESTIMATION OF ITALIAN RC BRIDGES FOR LARGE-SCALE SEISMIC ASSESSMENT
C. Zelaschi, R. Monteiro, R. Pinho

MS 1213: INNOVATIVE STRUCTURAL SYSTEMS FOR SEISMIC RESISTANT BUILDINGS

MS Organizers: Carlo Castiglioni

Chair: Francesco Morelli, Nikolaos Bakas

9178 NONLINEAR ANALYSIS AND EXPERIMENTAL BEHAVIOUR OF AN INNOVATIVE STEEL FRAME WITH REINFORCED CONCRETE INFILL WALLS
Andrea Dall'Asta, Graziano Leoni, Francesco Morelli, Walter Salvatore, Alessandro Zona

10790 MODAL PROPERTIES AND SEISMIC RESPONSE OF EXISTING BUILDING RETROFITTED BY EXTERNAL BRACINGS WITH VISCOUS DAMPERS
Laura Gioiella, Enrico Tubaldi, Fabrizio Gara, Andrea Dall'Asta

Thursday, June 9
17:00-19:00

Room 8

MS 1304 - 1: STOCHASTIC MODELING AND IDENTIFICATION OF UNCERTAINTIES IN COMPUTATIONAL MECHANICS

MS Organizers: Johann Guilleminot, Maarten Arnst, Christian Soize

Chair: Christian Soize

8833 KEYNOTE: SENSITIVITY ANALYSIS OF PARAMETRIC UNCERTAINTIES AND MODELING ERRORS IN GENERALIZED PROBABILISTIC MODELING
Maarten Arnst

8373 BAYESIAN IDENTIFICATION OF IRREVERSIBLE MATERIAL MODELS
Bojana Rosic, Muhammad Sadiq Sarfaraz, Hermann G. Matthies

12207 A MULTISCALE FRAMEWORK FOR THE STOCHASTIC ASSIMILATION AND MODELING OF UNCERTAINTY ASSOCIATED NCF COMPOSITE MATERIALS
Loujaine Mehrez, Roger Ghanem, Colin McAuliffe, William R. Rodgers, Venkat Aitharaju

11073 STOCHASTIC COARSE-GRAINING OF AMORPHOUS SOLIDS – FROM MOLECULAR DYNAMICS TO CONTINUUM MECHANICS
Michael Shields, Adam Hinkle, Dihui Ruan, Michael Falk, Chris Rycroft

4618 STOCHASTIC MODELING OF HYPERELASTIC MATERIALS WITH UNCERTAINTIES

Brian Staber, Johann Guilleminot

Thursday, June 9
17:00-19:20

Room 9

MS 605: FRICTIONAL CONTACTS WITH LUBRICATION – BASICS AND APPLICATIONS

MS Organizers: Michael Müller, Thomas Hagemann

Chair: Michael Müller, Thomas Hagemann

6627 STUDIES TOWARDS PARTIALLY FILLED GAPS IN ELASTO-HYDRODYNAMIC SYSTEMS
Michael Mueller, Georg-Peter Ostermeyer

7559 SIMULATION OF DRAG AND CHURNING LOSSES ON TAPERED ROLLER BEARINGS
Xiaojiang Si, Hubert Schwarze, Jürgen Liebrecht, Bernd Sauer

10341 APPLICATION OF MODEL ORDER REDUCTION TECHNIQUES TO THE IMPACT OF AN ELASTIC BODY ON A LUBRICATED PLATE
Jan Henrik Schmidt, Sergey Solov'yev, Wolfgang Seemann

11349 THE INFLUENCE OF MANUFACTURING TOLERANCES ON THE PERFORMANCE OF FLUID FILM THRUST BEARINGS
Michał Wasilczuk, Christos Papadopoulos, Loukas Zoupas, Vassilis Zouzoulas, Michał Wodtke

7767 A THEORETICAL AND EXPERIMENTAL STUDY ON MODIFIED SURFACE-MICROSTRUCTURES IN A HIGHLY LOADED CAM-TAPPET CONTACT SYSTEM
Jan-Dirk Gerken, Gunther Brenner, Hubert Schwarze

9225 LIMITING SHEAR STRESS FORMULATION FOR TEHL SIMULATION
Thomas Lohner, Klaus Michaelis, Johann-Paul Stempler, Karsten Stahl

7855 MODELING OF TRANSIENT FRICTION IN RUNNING-IN PROCESS UNDER MIXED LUBRICATION CONDITIONS
Yazhao Zhang, Yonggang Meng

Thursday, June 9
17:00-19:00

Room 10

MS 715 - 2: COMPUTATIONAL ANALYSIS OF COMPOSITE STRUCTURES

MS Organizers: Efsthios E. Theotokoglou

Chair: Efsthios E. Theotokoglou

7001 KEYNOTE: A NUMERICAL STUDY FOR THE BUCKLING CAPACITY OF WIND TURBINE BLADES: GEOMETRY, LOADING AND MATERIAL INFLUENCE
Efsthios E. Theotokoglou, George A. Balokas, Evgenia K. Savvakis

5840 MODELING OF FIBER-REINFORCED PLASTICS TAKING INTO ACCOUNT THE MANUFACTURING PROCESS
Cherry Ann Reclusado, Sumito Nagasawa

11074 FEA OF FOAM CORE SANDWICH FOOTBRIDGE BASED IN 6-PARAMETER SHELL THEORY
Bartosz Sobczyk

7677 RANKING SCIENTISTS
J. F. F. Mendes, S. N. Dorogovtsev

Thursday, June 9 17:00-19:00	Room 11	Thursday, June 9 17:00-19:00	Room 15
MS 712 - 2: SMART MATERIAL SYSTEMS AND STRUCTURES <i>MS Organizers:</i> Mieczysław Kuczma, Pavel Krejčí, Jörg Schröder, Georgios E. Stavroulakis, Gwidon Szefer <i>Chair:</i> Jörg Schröder, Georgios E. Stavroulakis		MS 1004: AERODYNAMIC STRATEGIES FOR THE GLOBAL OPTIMIZATION OF FLYING CONFIGURATIONS IN SUPERSONIC FLOW <i>MS Organizers:</i> Adriana Nastase, Catalin Nae <i>Chair:</i> Adriana Nastase, Catalin Nae	
10899	A THERMODYNAMICALLY CONSISTENT FINITE STRAIN MICRO-SPHERE FRAMEWORK FOR PHASE-TRANSFORMATION <i>Richard Ostwald, Thorsten Bartel, Andreas Menzel</i>	9477	GLOBAL OPTIMIZATION OF THE SHAPE OF AN AEROSPACE VEHICLE, VIA ITERATIVE OPTIMUM-OPTIMORUM STRATEGY <i>Adriana Nastase</i>
9869	SIMULATION OF LOW-CYCLE FATIGUE IN FERROELECTRIC MESOSTRUCTURE <i>Sergii Kozinov, Meinhard Kuna</i>	6858	CRITICAL EVALUATION FOR DESIGN DECISION FOR A TAILLESS SUPERSONIC AIRCRAFT CONFIGURATION <i>Catalin Nae</i>
6510	ACCURATE SIMULATION OF ACOUSTO-MAGNETO-MECHANICAL SYSTEMS USING HP FINITE ELEMENTS WITH APPLICATION TO MRI COIL DESIGN <i>Scott Bagwell, P.D. Ledger, A.J. Gil</i>	9081	DEVELOPMENT OF PHYSICAL METHODS OF THE SUPERSONIC AIRPLANE NEAR-FIELD INVESTIGATION AIMED AT THE SONIC BOOM MINIMIZATION <i>Sergey Chernyshev, Alexander Ivanov, Andrey Kiselev, Vladimir Mosharov, Leonid Teperin</i>
9157	MULTISCALE COMPUTATIONAL CHARACTERIZATION OF SOFT SOLIDS WITH MAGNETO-ELECTRO-MECHANICAL COUPLING <i>Marc-Andre Keip, Matthias Rambausek, Christian Mieke</i>	6847	LOW BOOM / LOW DRAG SMALL SIZE SUPERSONIC AIRCRAFT DESIGN <i>Atsushi Ueno, Yasushi Watanabe, Itham Salah El Din, Richard Grenon, Gerald Carrier</i>
11133	COMPOSITE STRUCTURAL ELEMENTS WITH EMBEDDED SHAPE MEMORY ALLOYS <i>Mieczysław Kuczma, Bożena Kuczma</i>		
Thursday, June 9 17:00-19:20	Room 12	Thursday, June 9 17:00-19:00	Room 17
MS 611: ADVANCES IN IMMERSED METHODS IN FSI PROBLEMS <i>MS Organizers:</i> Elie Hachem, Ramon Codina <i>Chair:</i> Elie Hachem		MS 1221: COMPUTATIONAL STRUCTURAL STABILITY <i>MS Organizers:</i> Herbert A. Mang, Yeon-Bin Yang <i>Chair:</i> Herbert A. Mang	
10268	ENERGY CONSERVATION ANALYSIS OF A FAMILY OF EMBEDDED BOUNDARY METHODS FOR MULTI-MATERIAL FLOW AND FLUID-STRUCTURE INTERACTION PROBLEMS <i>Zhengyu Huang, Charbel Farhat</i>	10115	KEYNOTE: ON THE CORRELATION OF THE PERCENTAGE BENDING ENERGY AND THE NONLINEARITY OF PREBUCKLING PATHS <i>Stefan Pavlicek, Xin Jia, Herbert A. Mang</i>
9970	A POROUS FLOW BASED MODEL FOR ROUGH SURFACE CONTACT IN FLUID-STRUCTURE INTERACTION <i>Christoph Ager, Anh-Tu Vuong, Benedikt Schott, Alexander Popp, Wolfgang A. Wall</i>	8485	COMPUTATIONAL ANALYSIS OF THE COLLAPSE BEHAVIOUR OF THIN-WALLED POLYGONAL STEEL BEAMS <i>Raffaele Ardito</i>
7587	A HIGH-PERFORMANCE IMMERSED METHODOLOGY FOR PARTICULATE FLOW PROBLEMS <i>Hugo Casquero, Carles Bona-Casas, Hector Gomez</i>	7511	MIXED SOLID MODELS IN NUMERICAL ANALYSIS OF SLENDER STRUCTURES. <i>Domenico Magisano, Leonardo Leonetti, Giovanni Garcea</i>
10768	A MIXED STRAIN/DISPLACEMENT FINITE ELEMENT FORMULATION FOR COUPLED CFD/CSD BLAST AND IMPACT PROBLEMS <i>Orlando Soto, Joseph Baum, Rainald Lohner</i>	10548	ULTIMATE STRENGTH ANALYSIS OF STIFFENED PANELS OF SHIP STRUCTURES UNDER COMBINED LOAD <i>Li Hong, Meng Linghua, Qin Zhongwen, Zhang Enguo, Li Li</i>
10970	HIGH FIDELITY ADAPTIVE MESHING FOR IMMERSED METHODS <i>Thomas Toulorge, Youssef Mesri, Elie Hachem</i>	9538	INFLUENCE OF STRAIN DEFINITIONS ON TRUSSES CRITICAL LOADS <i>Reyolando Brasil, Jose Balthazar</i>
9260	DIRECT FEM UNIFIED CONTINUUM MODELING OF MULTIPHASE TURBULENT FLUID-STRUCTURE INTERACTION WITH A FIXED MESH <i>Johan Jansson, Johan Hoffman, Margarida Moragues Ginard</i>		
9307	IMMERSED METHODS FOR COMPRESSION MOULDING OF AUTOMOTIVE STRUCTURAL PIECES <i>Patrice Laure, Luis-Fernando Salazar Betancourt, Luisa Silva, Thierry Coupez</i>		

Thursday, June 9 **Room 18**
17:00-19:00

MS 809: MULTISCALE STOCHASTIC FINITE ELEMENT METHODS

MS Organizers: George Stefanou, Xi Frank Xu, Yu Ching Wu

Chair: George Stefanou, Yu Ching Wu

10001 KEYNOTE: DETERMINATION OF MESOSCALE RANDOM FIELDS FOR THE APPARENT PROPERTIES OF SPATIALLY RANDOM COMPOSITES
Dimitrios Savvas, George Stefanou

9348 THE STOCHASTIC FINITE ELEMENT METHOD FOR NUCLEAR APPLICATIONS

José David Arregui Mena, Lee Margetts, Llion Evans, D. V. Griffiths, Anton Shterenlikht, Luis Cebamanos, Paul M Mummery

7467 MULTI-SCALE STOCHASTIC STUDY OF THE GRAIN ORIENTATION AND ROUGHNESS EFFECTS ON POLYCRYSTALLINE THIN STRUCTURES

V. Lucas, L. Wu, Jean-C Golinval, S. Paquay, R. Voicu, A. Baracu, L. Noels

6907 MULTISCALE DATA-DRIVEN STOCHASTIC FINITE ELEMENT MODELING OF CHLORIDE DIFFUSIVITY IN RECYCLED AGGREGATE CONCRETE

Yu Ching Wu

9385 STOCHASTIC MULTISCALE DOMAIN DECOMPOSITION FOR STOKES-DARCY FLOWS

Ivan Yotov, Ilona Ambartsumyan, Eldar Khattatov, ChangQing Wang

Thursday, June 9 **Room 20**
17:00-19:00

MS 905 - 4: DISCONTINUOUS GALERKIN METHODS: NEW TRENDS AND APPLICATIONS

MS Organizers: Sonia Fernández-Méndez, Nicoletta Franchina

Chair: Sonia Fernández-Méndez, Nicoletta Franchina

4658 EXTENDED HYBRIDIZABLE DISCONTINUOUS GALERKIN (X-HDG) FOR VOID PROBLEMS
Ceren Gürkan, Sonia Fernández-Méndez, Esther Sala-Lardies, Martin Kronbichler

7289 A STUDY OF MULTIGRID SMOOTHERS USED IN COMPRESSIBLE CFD BASED ON THE CONVECTION DIFFUSION EQUATION

Philipp Birken, Jonathan Bull, Antony Jameson

6971 DISCONTINUOUS GALERKIN SOLUTION OF THE REYNOLDS-AVERAGED NAVIER-STOKES AND KL-KT-LOG(W) TRANSITION MODEL EQUATIONS

Antonio Ghidoni, Marco Lorini, Gianmaria Noventa, Francesco Bassi, Alessandro Colombo

6227 UNFITTED DISCONTINUOUS GALERKIN METHODS APPLIED TO A PHASE FIELD SIMULATION OF FLUID FILLED FRACTURES

Christian Engwer, Liesel Schumacher

6779 ENTROPY STABLE DISCONTINUOUS GALERKIN SCHEME FOR SYSTEMS OF CONVECTION-DIFFUSION

Mohammad Zakerzadeh, Georg May

9400 CONSERVATION PROPERTIES OF HIGH-ORDER FLUX-RECONSTRUCTION SCHEMES IN SPLIT FORMS

Issei Morinaka, Yoshiaki Abe, Takanori Haga, Taku Nonomura, Koji Miyaji

Thursday, June 9 **Room 21**
17:00-19:00

MS 910 - 1: HIGH ORDER CFD METHODS: CONCLUSIONS AND OUTLOOK

MS Organizers: Koen Hillewaert, John Ekaterinaris, Peter Vincent, Norbert Kroll, Norbert Huynh, Z.J. Wang

Chair: Norbert Kroll

8170 DEVELOPMENT OF A DISCONTINUOUS GALERKIN METHOD SOLVER FOR SCALE-RESOLVING SIMULATIONS

Koen Hillewaert, Jean-Sébastien Cagnone, Ariane Frère, Michel Rasquin, Zafer Zeren

10180 HIGH-FIDELITY SIMULATION OF UNSTEADY FLOW PROBLEMS USING A 3RD ORDER HYBRID MUSCL/CD SCHEME

Alastair West, Doru Caraeni

8755 A DISCONTINUOUS GALERKIN SPECTRAL ELEMENT FRAMEWORK FOR THE SIMULATION OF TURBULENT FLOWS

Andrea Beck, Thomas Bolemann, David Flad, Hannes Frank, Nico Krais, Claus-Dieter Munz

9171 NON-INTRUSIVE STEADY STATE INVISCID, LAMINAR, AND RANS VERIFICATION CASES FOR CFD CODES

Marshall Galbraith, Carl Ollivier-Gooch

Thursday, June 9 **Room 22**
17:00-19:00

MS 1103 - 2: MATHEMATICAL SURROGATE MODELLING IN ELECTROMAGNETICS

MS Organizers: Petrie Meyer, Tom Dhaene, Dirk Deschrijver

Chair: Petrie Meyer, Tom Dhaene

6044 ON THE USE OF S-PARAMETER TRANSFORMATIONS TO IMPROVE SURROGATE MODEL BEHAVIOUR OF MULTI-PORT NETWORKS

Petrie Meyer

11613 ON THE ELECTROMAGNETIC DESIGN OF A HORN AND ORTHOGONAL MODE TRANSDUCER FOR THE SKA BAND 2 FEED WITH HIGH-FIDELITY PERFORMANCE

Robert Lehmensiek

6166 RECENT ADVANCES IN SURROGATE MODELLING OF REFLECTOR ANTENNA SYSTEMS

Dirk De Villiers

8058 ACCELERATION OF MESH-BASED PHYSICAL OPTICS FOR ELECTROMAGNETIC SCATTERING ANALYSIS

Dao P. Xiang, Matthys M. Botha

8246 KRIGING SURROGATE MODELS FOR ZERO-POLE OPTIMIZATION OF MICROWAVE FILTERS

Natalia Leszczynska, Selvakumar Ulaganathan, Adam Lamecki, Tom Dhaene, Michal Mrozowski

7849 SURROGATE MODELING OF ANTENNA RADIATION CHARACTERISTICS BY GAUSSIAN PROCESSES

Jan Jacobs, Dirk de Villiers

Thursday, June 9 17:00-19:00	Room 23
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MS 1009 - 7: ADJOINT METHODS FOR STEADY & UNSTEADY OPTIMIZATION

MS Organizers: Kyriakos C. Giannakoglou, Jens Dominik Mueller

Chair: Jens Dominik Mueller

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- 6478** CAD BASED PARAMETERIZATION AND CONSTRAINTS FOR ADJOINT OPTIMIZATION
Marios Damigos, Eugene de Villiers, Paolo Geremia
- 6744** ALTERNATIVE SOLUTION ALGORITHMS FOR PRIMAL AND ADJOINT INCOMPRESSIBLE NAVIER-STOKES
Mattia Oriani, Guillaume Pierrot
- 6763** FINITE TRANSFORMATION RIGID MOTION MESH MORPHER
George Eleftheriou, Athanasios Liatsikouras, Gabriel Fougeron, Guillaume Pierrot
- 9809** TOWARDS MULTIDISCIPLINARY ADJOINT OPTIMIZATION OF TURBOMACHINERY COMPONENTS
Marc Schwalbach, Tom Verstraete
- 6192** LINKING PARAMETRIC CAD WITH ADJOINT SURFACE SENSITIVITIES
Ilias Vasilopoulos, Dheeraj Agarwal, Marcus Meyer, Trevor T. Robinson, Cecil G. Armstrong

TECHNICAL SESSIONS

Friday, June 10 **Zeus East**
9:00-11:00

MS 403 - 5: PARTICLE-BASED METHODS IN FLUID MECHANICS

MS Organizers: Sergio Idelsohn, Eugenio Oñate

Chair: Pablo Agustín Becker, Chengfeng Li

10397 STUDY OF COMPRESSIBLE FILTER CAKE FORMATION USING DEM-CFD SIMULATION
Ruturaj Deshpande, Sergiy Antonyuk, Iliev Oleg

10787 COUPLED CFD/DEM MULTIPHASE SIMULATION OF A BOTTOM-SPRAY WURSTER COATER USING A HYBRID CPU/GPU APPROACH
Eva Siegmann, Matej Zadavec, Charles Radeke, Johannes Khinast

11618 INVESTIGATING SOLID-FLUID TRANSITION IN GRANULAR MATERIALS BY MEANS OF NUMERICAL SIMULATIONS
Dalila Vescovi, Stefan Luding

5232 SHOCK WAVES CALCULATED USING MATERIAL POINT METHODS
Duan Zhang, Tilak Dhakal

6460 ADVANCES IN MODELLING INDUSTRIAL FORMING PROCESSES USING THE PARTICLE FINITE ELEMENT METHOD (PFEM)
Josep Maria Carbonell, Eugenio Onate, Javier Oliver

7646 A PROPOSAL OF A GRANULAR FLOW CONSTITUTIVE MODEL FOR MODELING THE SOLID/GRANULAR MATERIAL INTERACTION
César Dávalos, Juan Carlos Cante, Abraham Leonel López

Friday, June 10 **Minos East**
9:00-11:00

MS 602 - 4: INNOVATIVE METHODS FOR FLUID-STRUCTURE-INTERACTION

MS Organizers: E. Harald van Brummelen, Roger Ohayon, Trond Kvamsdal

Chair: E. Harald van Brummelen

10911 ON PARTITIONED SOLUTION SCHEMES
Wulf Dettmer, Chennakesava Kadapa, Djordje Peric

11277 IMMERSED VARIATIONAL MULTISCALE FINITE ELEMENT METHOD FOR HIGH REYNOLDS NUMBER FLOWS
Fehmi Cirak, Qiaoling Zhang

11974 THE NONLINEAR BEHAVIOR OF A COUPLED PISTON-FLUID SYSTEM SUBJECTED TO VIBRATIONAL ACCELERATION
Jonathan Clausen, John Torczynski, Tim O'Hern

7479 IMPLICIT BOUNDARIES WITH MESH ADAPTATION FOR LIQUID-SOLID-GAS INTERACTIONS AND APPLICATION TO INDUSTRIAL JET WIPING SIMULATION
Zineb Hassani, Luisa Silva, Simon Santoso, Marc Anderhuber, Pascal Gardin, Thierry Coupez

7495 CONVERGENCE ANALYSIS OF COUPLING ITERATIONS FOR THE UNSTEADY TRANSMISSION PROBLEM WITH MIXED DISCRETIZATIONS
Azahar Monge, Philipp Birken

Friday, June 10 **Minos North**
9:00-11:00

MS 922 - 1: HIGH-ORDER METHODS FOR ELASTIC WAVES AND THEIR APPLICATION

MS Organizers: Thomas Hagstrom, Daniel Appelo

Chair: Daniel Appelo

5484 **KEYNOTE:** OPTIMAL RADIATION BOUNDARY CONDITIONS AND ABSORBING LAYERS FOR ELASTIC WAVES
Thomas Hagstrom, John Lagrone, Daniel Appelo

5429 THE DOUBLE ABSORBING BOUNDARY (DAB) METHOD FOR HETEROGENEOUS AND ANISOTROPIC ELASTIC MEDIA
Dan Givoli, Thomas Hagstrom, Jacobo Bielak, Daniel Rabinovich

6643 ACCELERATING DISCONTINUOUS GALERKIN METHODS FOR ELASTIC WAVE PROPAGATION
Timothy Warburton, Jesse Chan, Axel Modave, Arturo Vargas, Zheng Wang

5110 GALERKIN DIFFERENCE METHODS FOR WAVE PROPAGATION
Jeffrey W. Banks, T. Hagstrom, J. Jacangelo

11578 ENERGY STABLE HIGH ORDER FINITE DIFFERENCE METHODS ON STAGGERED GRIDS: AN INITIAL INVESTIGATION
Ossian O'Reilly, Tomas Lundquist, Jan Nordström

Friday, June 10 **Europa**
9:00-11:00

CS 630 - 5: SIMULATION OF FLUID-STRUCTURE INTERACTION

Chair: Nikolai Kornev

10854 CFD SIMULATION OF THERMO- AERODYNAMIC INTERACTION IN A SYSTEM HUMANCLOTH-ENVIRONMENT UNDER VERY LOW TEMPERATURE AND WIND CONDITIONS
Irina Cherunova, Sina Samarbaksch, Nikolai Kornev

6891 ASSESSING THE EFFECT OF THE TEMPORAL DYNAMICS OF A DBD ACTUATOR ON THE INDUCED IONIC WIND PROFILE: RECONCILING EXPERIMENTAL AND NUMERICAL RESULTS.
Guillaume Dufour, Francois Rogier

10607 COUPLING ATOMISTIC MODELS WITH CONTINUOUS FINITE BEAM ELEMENTS
Florian Niederhöfer, Jens Wackerfuß

8094 A 3D FINITE ELEMENT COUPLING MODEL TO STUDY THE EFFECT OF MECHANICALLY-INDUCED CRACKS ON THE SERVICE LIFE PREDICTION OF RC STRUCTURE
Mohammed Naji Hammood, Nathan Benkemoun, Ouali Amiri

MS 411: NON-NEWTONIAN HEAT AND FLUID FLOW SUBJECTED TO MAGNETIC FORCES

MS Organizers: Laszlo Konozy, Dimitris Drikakis

Chair: Laszlo Konozy

9372 VALIDATION OF A MAGNETO- AND FERRO-HYDRODYNAMIC MODEL FOR NON-ISOTHERMAL FLOWS IN CONJUNCTION WITH NEWTONIAN AND NON-NEWTONIAN FLUIDS
László Könözy, Pietro Scienza, Dimitris Drikakis

9717 NUMERICAL STUDY OF MAGNETIC PARTICLES CONCENTRATION IN BIOFLUID (BLOOD) UNDER THE INFLUENCE OF HIGH GRADIENT MAGNETIC FIELD IN MICROCHANNEL
Vassilios Loukopoulos, George Bourantas, Dimitrios Labropoulos, Vassilios-Martin Nikiforidis, Stéphane Bordas, George Nikiforidis

Friday, June 10 9:00-11:00 Leda	Friday, June 10 9:00-11:00 Aphrodite
MS 202 - 2: CIVIL ENGINEERING MATERIALS AND STRUCTURES UNDER EXTREME LOADINGS <i>MS Organizers:</i> Fabrice Gatuingt, Frédéric Dufour, Panagiotis Kotronis <i>Chair:</i> Panagiotis Kotronis	MS 805 - 1: ADVANCED MULTI-PHYSICS AND MULTI-SCALE TECHNIQUES FOR MODELING INELASTIC PROCESSES IN SOLIDS: DAMAGE, FRACTURE AND CONTACT MECHANICS <i>MS Organizers:</i> Mauro Corrado, Marco Paggi, José Reinoso <i>Chair:</i> Marco Paggi
7381 A NEW METHOD FOR FATIGUE LIFE PREDICTION BASED ON THE THICK LEVEL SET APPROACH L.O. Voormeeren , F.P. van der Meer, J. Maljaars, L.J. Sluys	11982 NON-PERIODIC REPRESENTATION OF MICROSTRUCTURES BY MEANS OF WANG TILES: LEVEL-SET BASED DESIGN Martin Doškář , Jan Novák, Jan Zeman, Bernard Sonon, Thierry Jacques Massart
8463 MODELLING STRATEGIES OF PRESTRESSING TENDONS AND REINFORCEMENT BARS IN CONCRETE STRUCTURES Antoine Llau , Ludovic Jason, Frédéric Dufour, Julien Baroth	7320 PHASEFIELD MODELING OF FRACTURE PROCESSES Friedemann Streich , Christian Hesch
6550 NUMERICAL EFFICIENCY OF NON-DIFFERENTIABLE CONSTITUTIVE LAW: APPLICATION TO MAZARS UNILATERAL DAMAGE MODEL. Johannes Chandra , Frédéric Dufour, Stéphane Grange	7326 MIXED VARIATIONAL PRINCIPLE FOR MULTI-FIELD PROBLEMS Maik Dittmann , Christian Hesch
7074 A MESH-INDEPENDENT DAMAGE-PLASTICITY MODEL FOR THE CHARACTERIZATION OF CERAMICS IN BALLISTIC PROTECTION Erik Cornelis Simons , Jaap Weerheijm, Lambertus Johannes Sluys	9187 A VERSATILE MULTISCALE FRAMEWORK FOR THE MECHANICAL SIMULATION OF NONWOVENS Alvaro Ridruejo , Francisca Martínez-Hergueta, Carlos González, Javier LLorca
9863 EVALUATION OF THE LEAKAGE RATE THROUGH A THICK CONCRETE WALL UNDER HIGH PRESSURE AND SEVERE HYGROTHERMAL CONDITIONS. Marina Bottoni , Sylvie Michel-Ponnelle	9036 MESO-SCALE MODELING OF HYBRID INDUSTRIAL/RECYCLED STEEL FIBER-REINFORCED CONCRETE Antonio Caggiano , Diego Said Schicchi, Guillermo Etse, Enzo Martinelli
Friday, June 10 9:00-11:00 Athena	10520 AN INTERFACE MODEL COMPATIBLE WITH THE PHASE FIELD APPROACH FOR BRITTLE FRACTURE J. Reinoso , M. Paggi
MS 606 - 2: COMPUTATIONAL MODELING OF HYDRAULIC FRACTURING <i>MS Organizers:</i> Gianluca Cusatis, Gilles Pijaudier-Cabot, Günther Meschke <i>Chair:</i> David Grégoire	Friday, June 10 9:00-11:00 Antigoni
7126 HYDRAULIC FRACTURING SIMULATIONS WITH UNIVERSAL MESHES Mostafa Mollaali , Yongxing Shen	MS 201 - 4: MICROSTRUCTURE-DRIVEN DEFORMATION AND FAILURE IN CRYSTALLINE MATERIALS <i>MS Organizers:</i> Pilar Ariza, Lucia Nicola, Angelo Simone <i>Chair:</i> Lucia Nicola
7507 AN X-FEM BASED MODEL FOR HYDRAULIC FRACTURING Ernst Remij , Joris Remmers, Jacques Huyghe, David Smeulders	5739 KEYNOTE: LARGE-SCALE ELECTRONIC STRUCTURE CALCULATIONS AND STUDIES ON DISLOCATIONS IN ALUMINUM Sambit Das , Mrinal Iyer, Vikram Gavini
8721 AN ADAPTIVE PHASE-FIELD METHOD FOR NUMERICAL ANALYSIS OF HYDRAULIC STIMULATION IN INTACT AND FRACTURED ROCKS Ildar Khisamitov , Seyed Mohseni, Günther Meschke	11415 A STABILIZATION TECHNIQUE FOR COUPLED CONVECTION-DIFFUSION-REACTION EQUATIONS Hector Hrnandez , Thierry Massart, Ron Peerlings, Marc Geers
8724 COMPUTATIONAL HOMOGENIZATION AND ORDER REDUCTION IN FRACTURED POROELASTIC MEDIA Ralf Jänicke , Fredrik Larsson, Kenneth Runesson, Holger Steeb	11742 PREDICTIVE MODELING OF PLASTICITY AND INTERFACIAL DAMAGE IN SUBSTRUCTURED STEELS: APPLICATION TO MARTENSITIC MICROSTRUCTURES Francesco Maresca , Varvara Kouznetsova, Marc Geers
9002 IMPACT OF THE PROPAGATION ALGORITHM ON THE CONVERGENCE RATE OF HYDRAULIC FRACTURING SIMULATOR TO REFERENCE SOLUTIONS Brice Lecampion , Fatima-Ezzarha Moukhtari	5761 SIZE EFFECTS AND STOCHASTIC PLASTIC FLOW DURING UNIAXIAL CRYSTAL COMPRESSION: A MINIMAL DISCRETE DISLOCATION MODEL Stefanos Papanikolaou
9089 A FINITE CELL APPROACH TO MODELING PRESSURE-INDUCED PHASE FIELD FRACTURES Nitish Singh , Clemens van Verhoosel, Harald van Brummelen	7022 MODELING OF FRACTURE IN POLY CRYSTALLINE MATERIALS WITH THE XFEM Steffen Beese , Stefan Loehnert, Peter Wriggers

Friday, June 10
9:00-11:00

Apollo East

MS 713 - 1: MICROSTRUCTURE-BASED MODELLING OF HETEROGENEOUS MATERIALS

MS Organizers: Jan Zeman, Jan Novak, Guillermo Díaz

Chair: Guillermo Díaz

- 6004** DEPENDENCE OF THE MECHANICAL PROPERTIES OF PENTAMODE MATERIALS ON THE LATTICE MICROSTRUCTURE
Ada Amendola, Francesco Fabbrocino, Luciano Feo, Ferdinando Auricchio, Fernando Fraternali
- 11137** QUASICONTINUUM METHOD COMBINED WITH ANISOTROPIC MICROPLANE MODEL
Karel Mikeš, Milan Jirásek
- 7683** STREAMABLE GENERALIZED VORONOI TESSELLATION MODEL FOR TOMOGRAPHIC IMAGES
Christophe Leblanc, Van Dung Nguyen, Ludovic Noels, Eric Béchet
- 10791** ELECTROSTRICTIVE MATERIALS: MODELLING AND SIMULATION
Marco Cisternino, Angelo Iollo, Lisl Weynans, Annie Colin, Philippe Poulin
- 10715** STRATEGIES FOR THE OPTIMIZATION OF COMPUTATIONALLY GENERATED MICROSTRUCTURES IN NANOCRYSTALLINE Ni50Ti
Manuel Petersmann, Thomas Antretter, Georges Cailletaud, Thomas Waitz
- 11623** HIERARCHICAL FABRICATION OF ORIENTED MATERIALS BASED ON WANG TILES
Václav Nežerka, Michael Somr, Tomáš Janda, Jan Zeman, Jan Novák

Friday, June 10
9:00-11:00

Apollo West

MS 205: PROBABILISTIC APPROACH TO NUMERICAL SIMULATION OF FRACTURE

MS Organizers: Alexander V. Gerasimov

Chair: Sergey A. Zelepugin

- 5235** NUMERICAL SIMULATION OF HIGH-VELOCITY INTERACTION A GROUP OF ELEMENTS WITH THIN-WALLED STRUCTURES
Alexander Gerasimov, Sergey V. Pashkov
- 8052** NUMERICAL SIMULATION OF MULTILAYER COMPOSITES FAILURE UNDER DYNAMIC LOADING
Sergey A. Zelepugin, Aleksey S. Zelepugin, Vladimir F. Tolkachev
- 11079** SIMULATION OF MECHANICAL PROPERTIES OF CERAMIC PARTS PRODUCED BY ADDITIVE TECHNOLOGIES IN WIDE RANGE OF LOADING RATES
Vladimir A. Skripnyak, Evgeniya Skripnyak, Vladimir V. Skripnyak, Irina K. Vaganova
- 11099** FRACTURE OF THIN METAL SHEETS WITH DISTRIBUTION OF GRAIN SIZES IN THE LAYERS
Natalia V. Skripnyak, Vladimir V. Skripnyak, Vladimir A. Skripnyak
- 11114** BRITTLE OR QUASI-BRITTLE FRACTURE OF CERAMIC NANOCOMPOSITES UNDER DYNAMIC LOADING
Evgeniya G. Skripnyak, Vladimir V. Skripnyak, Vladimir A. Skripnyak, Natalia V. Skripnyak, Irina K. Vaganova
- 7987** RELIABILITY OF SYSTEMS EQUIPPED WITH VISCOUS DAMPERS WITH VARIABLE PROPERTIES
Andrea Dall'Asta, Laura Ragni, Fabrizio Scozzese, Enrico Tubaldi

Friday, June 10
9:00-11:00

Room 1

MS 707 - 1: MICROMECHANICAL MODELLING: COMPETITION BETWEEN ANALYTICAL AND NUMERICAL METHODS

MS Organizers: Siegfried Schmauder, Vera Petrova

Chair: Siegfried Schmauder

- 10631** DEFECT ACCUMULATION IN NANOPOROUS WEAR-RESISTANT COATINGS UNDER COLLECTIVE RECRYSTALLIZATION. SIMULATION BY HYBRID CELLULAR AUTOMATON METHOD
Dmitry Moiseenko, Pavel Maksimov, Sergey Panin, Viktor Panin
- 11376** HYDROGEN ASSISTED CRACKING: ANALYTICAL AND NUMERICAL STUDY
Alla Balueva
- 9203** INFLUENCE OF MICRO CRACKS ON EFFECTIVE MATERIAL PROPERTIES IN FIBER REINFORCED SMART COMPOSITE MATERIALS
Michael Wünsche, Jan Sladek, Vladimir Sladek
- 10692** PHASE-FIELD MODELING OF CRACK PROPAGATION IN MULTI-PHASE SYSTEMS
Daniel Schneider, Ephraim Schoof, Yunfei Huang, Michael Selzer, Britta Nestler
- 5590** MULTISCALE MODELING OF THERMO-ELASTIC PROPERTIES OF MICROCRACKED MATERIAL
Antonino Favata, Patrizia Trovalusci, Renato Masiani

Friday, June 10
9:00-11:20

Room 2

MS 1304 - 2: STOCHASTIC MODELING AND IDENTIFICATION OF UNCERTAINTIES IN COMPUTATIONAL MECHANICS

MS Organizers: Johann Guilleminot, Maarten Arnst, Christian Soize

Chair: Maarten Arnst

- 8024** TO ESTIMATE NON-STATIONARY STOCHASTIC DISTRIBUTED LOAD ON A BEAM STRUCTURE FROM RESPONSE SAMPLES
S.Q. Wu, J. Zhu
- 7152** NONPARAMETRIC POSTERIOR SURROGATES BASED ON SPECTRAL LIKELIHOOD EXPANSIONS AND LEAST ANGLE REGRESSION
Joseph Nagel, Bruno Sudret
- 10618** A LOW-RANK METHOD FOR DIFFUSION EQUATIONS IN RANDOM QUASI-PERIODIC HETEROGENEOUS MEDIA
Quentin Ayoul-Guilard, Anthony Nouy, Christophe Binetruy, Sébastien Comas
- 6736** MULTILEVEL STOCHASTIC REDUCED-ORDER MODEL IN LINEAR STRUCTURAL DYNAMICS FOR COMPLEX STRUCTURES
Olivier Ezvan, Anas Batou, Christian Soize
- 10222** ANALYSIS OF STOCHASTIC DYNAMIC SOIL-STRUCTURE INTERACTION PROBLEMS BY MEANS OF COUPLED FINITE ELEMENTS-PERFECTLY MATCHED LAYERS
Manthos Papadopoulos, Stijn François, Geert Degrande, Geert Lombaert
- 8487** A ROBUST POLYNOMIAL CHAOS KALMAN FILTER FRAMEWORK FOR CORROSION DETECTION IN REINFORCED CONCRETE STRUCTURES
Wael Slika, George Saad
- 10875** A NEW HOMOGENISATION SCHEME WITH CERTIFIED ACCURACY FOR RANDOM MEDIA
Pierre Kerfriden, Daniel Alves Paladim

Friday, June 10 **Room 3**
9:00-11:00

MS 506: ACCURACY AND EFFICIENCY OF APPROXIMATE COMPUTATIONS IN SCIENCE AND ENGINEERING

MS Organizers: Aram Soroushian

Chair: Aram Soroushian

11392 KEYNOTE: ON THE EFFECT OF VISCOUS DAMPING ON THE STABILITY OF TIME INTEGRATION METHODS

Aram Soroushian

11470 ON THE PERFORMANCE OF A COMPUTATIONAL COST REDUCTION TECHNIQUE APPLIED TO COOLING TOWERS
Aram Soroushian, Amin Jahani Mehrnoosh, Yalda Zarabi Manesh, Mohammad Hadi Ghondaghsaz, Ali Bayani, Ali Zaki Zadeh

4902 DIRECT TIME-DOMAIN INTEGRATION APPROACH FOR VISCOELASTIC SYSTEMS INVOLVING VARIOUS DAMPING MODELS
Zhe Ding, Li Li, Yujin Hu

10689 PROPOSING AN APPROXIMATE METHOD FOR ESTIMATING THE DEFORMATION CAPACITY OF RC SECTIONS UNDER BIDIRECTIONAL LOADING BASED ON NUMERICAL COMPUTATIONS
Nahid Attarchian, Afshin Kalantari, Abdoreza Sarvghad Mogoddam

12101 A DIFFERENT LOOK AT THE RICHARDSON EXTRAPOLATION LEADING TO A NEW PROPOSITION
Aram Soroushian

12109 ON THE FREQUENCY CONTENT OF ERRORS ORIGINATED IN A TIME INTEGRATION COMPUTATIONAL COST REDUCTION TECHNIQUE
Aram Soroushian, Mahmood Hosseini, Seyed Mohammad Khalkhali

Friday, June 10 **Room 4**
9:00-11:00

MS 1216: STRUCTURAL ANALYSIS AND VIBRATIONS

MS Organizers: Diana V. Bambill, Carlos A. Rossit

Chair: Marios Filippoupolitis

10293 ASYMPTOTIC ANALYSIS OF DEFORMATIONS OF THE SLIGHTLY ORTHOTROPIC SPHERICAL LAYER UNDER NORMAL PRESSURE
Andrei L. Smirnov, Svetlana M. Bauer, Liudmila A. Venatovskaia, Eva B. Voronkova

7718 DYNAMIC STIFFNESS EQUIVALENT MODELING METHOD OF GIANT OPTO-MECHANICAL STRUCTURE
Hu Jie

11638 EXPERIMENTAL VALIDATION OF FINITE ELEMENT MODELS FOR REINFORCED CONCRETE BEAMS WITH AND WITHOUT DISCONTINUITIES
Marios Filippoupolitis, Carl Hopkins, Siu-Kui Au

CS 1202 - 1: STRUCTURAL ANALYSIS AND MULTI BODY DYNAMICS

7648 A COMPARISON OF NUMERICAL METHODS FOR SOLVING MULTIBODY DYNAMICS PROBLEMS WITH FRICTIONAL CONTACT MODELED VIA DIFFERENTIAL VARIATIONAL INEQUALITIES
Daniel Melanz, Luning Fang, Dan Negrut

6012 TRANSFER MATRIX METHOD OF LINEAR MULTIBODY SYSTEMS FOR FREE VIBRATION ANALYSIS OF BEAM CARRYING ELASTICALLY MOUNTED POINT MASSES
Laith K. Abbas, Dong Yang Chen, Xiaoting Rui

Friday, June 10 **Room 5**
9:00-11:00

MS 1010: INVERSE PROBLEMS, DESIGN AND OPTIMIZATION

MS Organizers: Marcelo J. Colaço, Helcio R. B. Orlande, George S. Dulikravich

Chair: Marcelo J. Colaço

6669 PREDICTION OF GASOLINES PERFORMANCE IN INTERNAL COMBUSTION ENGINES USING RBF- AND KRIGING-BASED METAMODELS
Rogério Carvalho, Guilherme Machado, Marcelo Colaco

8187 APPLICATION OF THE GENERALIZED MINIMAL RESIDUAL METHOD FOR TARGET MAGNETIC FIELD DISTRIBUTION PROCEDURES
Ben Minnaert, Nobby Stevens

6442 HIGH PERFORMANCE INDUSTRIAL FAN OPTIMIZATION
Jacobus van Rooyen, Arnaud Malan, Eddie Raad

6719 OPTIMAL DECOMPOSITION OF HIGH DIMENSIONAL SOLUTION SPACES FOR ROBUST DESIGN.
Stefan Erschen, Fabian Duddeck, Markus Zimmermann

5915 EFFICIENT CALIBRATION OF DISCRETE ELEMENT MATERIAL MODEL PARAMETERS USING LATIN HYPERCUBE SAMPLING AND KRIGING
Michael Rackl, Carolin D. Görnig, Kevin J. Hanley, Willibald A. Günthner

6497 UPDATING PRIOR PARAMETERS BASED ON LIKELIHOOD FUNCTION-BAYESIAN METHOD FOR PARAMETER ESTIMATION AT HIGH MEASUREMENT UNCERTAINTY
Somasundharam Sankaran, K Srinivas Reddy

Friday, June 10 **Room 7**
9:00-11:00

MS 808 - 1: MULTISCALE AND MULTIPHYSICS MODELING OF CEMENTITIOUS MATERIALS

MS Organizers: Jörg F. Unger, Thomas Titscher

Chair: Thomas Titscher

9838 THE BENEFIT OF MESOSCALE MODELS FOR CONCRETE TO UNDERSTAND ITS COMPLEX MACROSCOPIC BEHAVIOR
Jörg F. Unger, Volker Hirthammer, Philip Huschke, Peter Otto, Thomas Titscher

9859 A MESOSCALE, MULTI-PHYSICS, FINITE-ELEMENT-MODEL OF CONCRETE TO PREDICT THE LONG TERM BEHAVIOR
Volker Hirthammer

5933 A MULTI-SCALE TEMPORAL INTEGRATION SCHEME FOR VISCOPLASTIC SOLIDS SUBJECTED TO FATIGUE DETERIORATION
Vitaliy Kindrachuk, Jörg F. Unger

10559 SIMULATION OF LONG-TERM DEFORMATIONS IN FASTENING SYSTEMS: MULTI-PHYSICS FRAMEWORK
Giannis Boumakis, Mehran Shahidi, Marco Marcon, Jan Vorel, Roman Wendner

Friday, June 10 **Room 8**
9:00-11:00

MS 802 - 1: ADVANCES IN THE MODELLING OF MULTI-SCALE, MULTI-PHYSICS AND MULTI-UNCERTAINTY PROBLEMS

MS Organizers: Francisco M. Andrade Pires, Chengfeng Li

Chair: Francisco M. Andrade Pires, Chengfeng Li

10767 HIGHER-ORDER ASYMPTOTIC HOMOGENIZATION OF PERIODIC MATERIALS WITH LOW SCALE SEPARATION
Maqsood Mohammed Ameen, R.H.J. Peerlings, M.G.D. Geers

10301 MULTI-SCALE WEAVE ALGORITHM FOR STATISTICAL RECONSTRUCTION OF HETEROGENEOUS MATERIALS
Shaoqing Cui, Chenfeng Li

5581 ANALYSIS OF YIELD CRITERIA OF POROUS DUCTILE MATERIALS THROUGH COMPUTATIONAL HOMOGENIZATION AT FINITE STRAINS
R. P. Carvalho, I. A. R. Lopes, S. H. Wu, F. M. Andrade Pires

5612 ANALYSIS OF PARALLELIZATION STRATEGIES FOR THE SOLUTION OF HOMOGENIZATION-BASED MULTISCALE MODELS
Igor André Rodrigues Lopes, Francisco Manuel Andrade Pires

5625 THEORETICAL PREDICTION OF PLASTIC INSTABILITY FOR ASYMMETRICAL MATERIALS
Shenghua Wu, Nannan Song, F. M. Andrade Pires

9283 COUPLED VS. STAGGERED SOLUTIONS STRATEGIES FOR ELECTRO-MECHANICS IN THE HEART
Xiaozhou Li, Marco Favino, Rolf Krause, Simone Pezzuto, Sonia Pozzi

Friday, June 10 **Room 9**
9:00-11:00

MS 908 - 1: VERIFICATION AND VALIDATION OF STRUCTURAL MECHANICS SIMULATION MODELS

MS Organizers: George Lampeas

Chair: Athanasios Dafnis

5901 EXPERIMENTAL VALIDATION OF COMPOSITE STRUCTURES IN EXPLICIT DYNAMICS ANALYSIS
Konstantinos Fotopoulos, George Lampeas

7386 EXPERIMENTAL VALIDATION OF A MODEL UPDATE PROCEDURE FOCUSING ON SMALL GEOMETRIC DEVIATIONS
Thomas Maywald, Arnold Kühhorn, Sven Schrape

7362 CODE VERIFICATION IN SHELL ANALYSIS BY THE METHOD OF MANUFACTURED SOLUTIONS
Michael Gfrerer, Martin Schanz

7797 APPLICATION OF METHODS OF MANUFACTURED SOLUTION AND NEARBY PROBLEMS TO NONLINEAR SOLID MECHANICS
Takahiro Yamada

10834 INVESTIGATION IN THE MECHANICAL BEHAVIOUR OF LOW-VELOCITY IMPACTED CFRP PLATES UNDER DIFFERENT BOUNDARY CONDITIONS
Süleyman Arslan, Zamaan Sadeghi, Athanasios Dafnis, Kai-Uwe Schröder

Friday, June 10 **Room 11**
9:00-11:20

MS 1013: SOLUTION OF LARGE-SCALE INVERSE PROBLEMS

MS Organizers: Clint Dawson, Steve Mattis, Troy Butler, Lindley Graham

Chair: Steve Mattis

10817 MEASURE-THEORETIC PARAMETER ESTIMATION FOR HURRICANE STORM SURGE
Lindley Graham, Clint Dawson, Troy Butler

10870 ERROR ESTIMATION AND CONTROL FOR STOCHASTIC INVERSION OF GROUNDWATER CONTAMINATION PROBLEMS
Steven Mattis, Troy Butler, Clint Dawson

9975 DATA ASSIMILATION USING MRI DATA
Geir Nævdal, Ove Sævareid, Rolf J. Lorentzen

11225 D-OPTIMAL EXPERIMENTAL DESIGN FOR INFINITE-DIMENSIONAL BAYESIAN LINEAR INVERSE PROBLEMS
Alen Alexanderian, Arvind K. Saibaba

12107 ENHANCED ENSEMBLE KALMAN FILTERING WITH ONE-STEP-AHEAD-SMOOTHING
Boujemaa Ait-El-Fquih, Naila Raboudi, Omar Knio, Clint Dawson, Ibrahim Hoteit

12108 BAYESIAN INFERENCE OF SOURCE PARAMETERS FOR THE CHILE 2010 TSUNAMI
Loic Giraldi, Olivier Le Maitre, Omar Knio, Clint Dawson, Kyle Mandli, Ibrahim Hoteit

9517 UNIDENTIFIABILITY OF ILL-POSED INVERSE PROBLEMS
Velimir Vesselinov, Dan O'Malley

Friday, June 10 **Room 12**
9:00-11:00

MS 1211: COMPUTATIONAL STRATEGIES FOR STRUCTURAL ROBUSTNESS ASSESSMENT

MS Organizers: Domenic Asprone, Fulvio Parisi

Chair: Fulvio Parisi

6688 IMPLEMENTATION OF PROGRESSIVE DAMAGE IN FINITE ELEMENT CODES FOR THE ASSESSMENT OF ROBUSTNESS
Domenico Asprone, Bernardino Chiaia, Valerio De Biagi, Gaetano Manfredi, Fulvio Parisi

5285 PROGRESSIVE COLLAPSE FRAGILITY MODELS OF RC FRAMED BUILDINGS BASED ON PUSHDOWN ANALYSIS
Emanuele Brunesi, Roberto Nascimbene, Fulvio Parisi

4515 ROBUSTNESS OF STRUCTURES CONSTRUCTED WITH INDUSTRIALIZED REINFORCED CONCRETE WALLS
Rina Farhat, Nicolae Gluck, Rami Eid

5566 MECHANICAL PROPERTIES OF S355 UNDER EXTREME COUPLED EFFECT OF HIGH TEMPERATURES AND HIGH STRAIN RATES
Daniele Forni, Bernardino Chiaia, Ezio Cadoni

12309 FINITE ELEMENT ASSESSMENT OF THE COLLAPSE POTENTIAL OF STEEL BEAMS IN FIRE
Demos Demosthenous, Dimos C. Charnpiss

16749 SEISMIC RESIDUAL CAPACITY ASSESSMENT OF FRAMED STRUCTURES DAMAGED BY EXCEPTIONAL ACTIONS
Antonio Formisano, Giuseppe Iazzetta, Giuseppe Marino, Francesco Fabbrocino, Raffaele Landolfo

Friday, June 10 9:00-11:00	Room 15	Friday, June 10 9:00-11:00	Room 18
CS 980: NUMERICAL AND SYMBOLIC COMPUTATION <i>Chair:</i> Hipólito Sousa		MS 804 - 2: MULTISCALE AND COMPUTATIONAL APPROACHES TO FRACTURE AND FAILURE <i>MS Organizers:</i> Haim Waisman, Caglar Oskay <i>Chair:</i> Haim Waisman	
9264	CONTRIBUTION OF NUMERICAL THERMAL SIMULATION OF MASONRY TO THE GLOBAL OBJECTIVE OF BUILDINGS ENERGY EFFICIENCY <i>Hipólito Sousa, Rui Sousa, Luís Silva, Gonçalo Sousa</i>	6596	A NON-LOCAL APPROACH TO LIFE TIME PREDICTION OF CORD-RUBBER COMPOSITE STRUCTURE <i>Niraj Kumar Jha, Udo Nackenhorst, Tobias Helmich, Claudia Lillie</i>
4906	MODERNIZING SOFTWARE IN SCIENCE AND ENGINEERING: FROM C/C++ APPLICATIONS TO MOBILE PLATFORMS <i>Liliana Favre, Claudia Pereira, Liliana Martinez</i>	8312	PREDICTING DUCTILE FRACTURE IN FERROUS AND NONFERROUS METALS DURING UPSET FORGING USING AN ELLIPSOIDAL VOID MODEL <i>Kazutake Komori</i>
11754	NUMERICAL SIMULATION OF AXISYMMETRIC ELASTICITY PROBLEMS IN SEMI-INFINITE DOMAINS BY A DTN FEM APPROACH <i>Eduardo Godoy, Mario Durán</i>	7973	PHASE-FIELD MODELING OF AUTOGENOUS SHRINKAGE IN RESTRAINED CEMENT PASTE <i>Jafar Amani Dashlekeh, Pietro Lura, Jason Weiss, Angelo Simone</i>
8464	NEW EDUCATIONAL MATLAB TOOL TO EXPLAIN TWO DIMENSIONAL FINITE ELEMENT METHOD TO GRADUATE STUDENTS <i>Rafet Sisman, Abdurrahman Sahin</i>	6109	A NEW INTERFACE DAMAGE MODEL FOR MODELING DELAMINATION USING THICK LEVEL SET METHOD <i>Mohammad Latifi, F.P. van der Meer, L.J. Sluys</i>
11259	KOITER ASYMPTOTIC ANALYSIS OF VARIABLE-ANGLE TOW COMPOSITE PLATES <i>Antonio Madeo, Giuseppe Zagari, Giovanni Zucco, Rainer Groh, Paul Weaver, Raffaele Zinno</i>	7931	ANALYSIS OF A BI-PIEZOELECTRIC CERAMIC LAYER WITH AN INTERFACIAL CRACK SUBJECTED TO IN-PLANE MECHANICAL AND ELECTRICAL LOADING <i>Mojtaba Biglar, Magdalena Gromada, Feliks Stachowicz, Tomasz Trzepieciński</i>
16721	CONNECTING MODELS AND TOOLS FOR DEVELOPING CYBER-PHYSICAL-SYSTEMS – THE INTO-CPS PROJECT <i>Christian Koenig</i>		
Friday, June 10 9:00-11:00	Room 17	Friday, June 10 9:00-11:00	Room 20
MS 1311: ADAPTIVE METHODS FOR FORWARD AND INVERSE PROPAGATION OF UNCERTAINTY IN COMPUTATIONAL MODELS <i>MS Organizers:</i> Timothy M. Wildey, Anca C. Belme <i>Chair:</i> Anca C. Belme		MS 905 - 5: DISCONTINUOUS GALERKIN METHODS: NEW TRENDS AND APPLICATIONS <i>MS Organizers:</i> Sonia Fernández-Méndez, Nicoletta Franchina <i>Chair:</i> Sonia Fernández-Méndez, Nicoletta Franchina	
4739	ADAPTIVE RESPONSE SURFACE APPROXIMATIONS FOR BAYESIAN INFERENCE <i>Timothy Wildey, John Jakeman, Troy Butler</i>	4596	EXTENDED HYBRIDIZABLE DISCONTINUOUS GALERKIN (X-HDG) FOR BIMATERIAL PROBLEMS <i>Ceren Gürkan, Sonia Fernández-Méndez, Esther Sala-Lardies, Martin Kronbichler</i>
6307	ADAPTIVE SAMPLE BASED INTEGRATION TECHNIQUES IN INVERSE AND PREDICTION UQ PROBLEMS <i>Troy Butler, Lindley Graham, Steven Mattis, Scott Walsh</i>	10879	A RECOVERY DISCONTINUOUS GALERKIN METHOD WITH IMPROVED ADVECTION FOR THE COMPRESSIBLE NAVIER-STOKES EQUATIONS <i>Philip Johnson, Eric Johnsen</i>
7995	A POSTERIORI ERROR ESTIMATE FOR THE NAVIER-STOKES EQUATIONS IN RANDOM DOMAINS SOLVED WITH A PERTURBATION TECHNIQUE <i>Diane Guignard, Fabio Nobile, Marco Picasso</i>	7332	A HIGH-PERFORMANCE DISCONTINUOUS GALERKIN SOLVER FOR THE SIMULATION OF INCOMPRESSIBLE TURBULENT FLOW <i>Martin Kronbichler, Benjamin Krank, Niklas Fehn, Wolfgang A. Wall</i>
8454	GOAL-BASED STOCHASTIC AND DETERMINISTIC ERROR ESTIMATES FOR ADAPTIVE CONTROL IN COMPRESSIBLE CFD PROBLEMS <i>Jan Willem Van Langenhove, Didier Lucor, Anca Belme</i>	5962	A SYMMETRIC INTERIOR PENALTY DISCONTINUOUS GALERKIN METHOD WITH LOCAL TIME STEPPING FOR ANISOTROPIC ELASTICITY PROBLEMS <i>Sjoerd Gevers, Jaap van der Vegt, Wim Mulder</i>
7666	ACCELERATION OF BAYESIAN CALIBRATION FOR PREDICTIVE UNCERTAINTY QUANTIFICATION IN AEROELASTIC FLUTTER <i>Christian Thomas Nitschke, Jean-Camille Chassaing</i>	7192	A STAGGERED ARBITRARY HIGH ORDER SEMI-IMPLICIT DISCONTINUOUS GALERKIN METHOD FOR THE INCOMPRESSIBLE NAVIER-STOKES EQUATIONS <i>Maurizio Tavelli, Michael Dumbser</i>
11684	DENSITY ESTIMATION FOR A CLASS OF ELLIPTIC PROBLEMS ON STOCHASTICALLY PERTURBED DOMAINS <i>Jehanzeb Chaudhry, Don Estep, Nathaniel Burch</i>	7439	ACCURATE MODELING OF LIGHT PROPAGATION THROUGH PHOTONIC CRYSTALS <i>Devashish Devashish, Willem L. Vos, Jaap J W van der Vegt</i>

DAY 5 – FRIDAY, JUNE 10

Friday, June 10 9:00-11:00	Room 21	Friday, June 10 9:00-11:00	Room 23
MS 910 - 2: HIGH ORDER CFD METHODS: CONCLUSIONS AND OUTLOOK <i>MS Organizers:</i> Koen Hillewaert, John Ekaterinaris, Peter Vincent, Norbert Kroll, Norbert Huynh, Z.J. Wang <i>Chair:</i> Peter Vincent		MS 1011 - 1: SURROGATE-ASSISTED EVOLUTIONARY ALGORITHMS IN AERODYNAMIC DESIGN/OPTIMIZATION <i>MS Organizers:</i> Varvara Asouti, Esther Andrés, Emiliano Iuliano <i>Chair:</i> Varvara Asouti	
9345	KEYNOTE: TOWARDS THE INDUSTRIAL ADOPTION OF GPU-ACCELERATED HIGH-ORDER COMPUTATIONAL FLUID DYNAMICS Peter Vincent	8857	A NOVEL IMPLEMENTATION OF COMPUTATIONAL AERODYNAMIC SHAPE OPTIMISATION USING MODIFIED CUCKOO SEARCH AND REDUCED ORDER MODELLING David Stefan Naumann, Ben Evans, Oubay Hassan
9697	CURVED GRID GENERATION AND DG COMPUTATION FOR THE DLR-F11 HIGH LIFT CONFIGURATION Ralf Hartmann, Harlan McMorris, Tobias Leicht	6765	MULTIOBJECTIVE OPTIMIZATION WITH GAUSSIAN PROCESS FOR DISTRIBUTED COMPUTING Jonathan Guerra, Patricia Klotz, Fabrice Gamboa, Patrick Cattiaux, Nicolas Dolin
11139	ON THE IMPLEMENTATION OF X-LES IN A HIGH-ORDER IMPLICIT DG SOLVER <i>Francesco Bassi, Lorenzo Botti, Alessandro Colombo, Andrea Crivellini, Antonio Ghidoni, Marco Lorini, Francesco Carlo Massa, Gianmaria Noventa</i>	8407	ON THE INFLUENCE OF A PRIORI SAMPLING METHODS ON SURROGATE MODELS ACCURACY IN AIRCRAFT AERODYNAMIC DESIGN OPTIMIZATION Raul Yondo, Esther Andrés, Eusebio Valero
8042	APPLICATIONS OF HIGH ORDER HYBRID DG/FV SCHEMES ON CURVILINEAR MESHES Li Ming, Liu Wei, Zhang Laiping, He Xin	9174	MULTI-FIDELITY EXTENSION TO NON-INTRUSIVE PROPER ORTHOGONAL DECOMPOSITION BASED SURROGATES Tariq Benamara, Piotr Breitskopf, I. Lepot, Caroline Sainvitu
15373	BS1 : DIRECT NUMERICAL SIMULATION OF THE TAYLOR-GREEN VORTEX AT $Re = 1600$ Andrea Mastellone, Luigi Cutrone, Francesco Capuano	11229	THE RBF4AERO BENCHMARK TECHNOLOGY PLATFORM <i>Massimo Bernaschi, Alessandro Sabellico, Giorgio Urso, Emiliano Costa, Stefano Porziani, Fabrizio Lagasco, Corrado Groth, Ubaldo Cella, Marco Evangelos Biancolini, Dimitrios H.Kapsoulis, Varvara G. Asouti, Kyriakos C. Giannakoglou</i>
11:00-11:30 Coffee Break			

TECHNICAL SESSIONS

Friday, June 10 11:30-13:30		Minos East		MS 1008: ULTRASONIC GUIDED WAVES TESTING AND MONITORING		
MS 602 - 5: INNOVATIVE METHODS FOR FLUID-STRUCTURE-INTERACTION				<i>MS Organizers:</i> Yaacoubi Slah, Nico Declercq <i>Chair:</i> Yaacoubi Slah		
<i>MS Organizers:</i> E. Harald van Brummelen, Roger Ohayon, Trond Kvamsdal <i>Chair:</i> E. Harald van Brummelen				11417 INVESTIGATIONS OF MECHANICAL GUIDED WAVES PROPAGATION IN PIPES REPAIRED LOCALLY BY COMPOSITE PATCHES <i>Slah Yaacoubi, Weina Ke</i>		
10051	A FLEXIBLE FLUID STRUCTURE INTERACTION COUPLING SCHEME FOR TIRE APPLICATIONS – INTERFACE ENERGY CONSIDERATIONS <i>Julien Gillard, Vincent Decouvreux, Wolfgang A. Wall</i>			7651	LAMINATE ELEMENT METHOD AND ITS APPLICATION TO THE STUDY OF GUIDED WAVE RESONANCE PHENOMENA IN LAYERED ELASTIC STRUCTURES WITH DEFECTS <i>Evgeny Glushkov, Natalia Glushkova, Artem Eremin, Rolf Lammering</i>	
9110	USING IMPROVED RADIAL BASIS FUNCTIONS METHODS FOR FLUID-STRUCTURE COUPLING AND MESH DEFORMATION <i>Giorgos Strofylas, Georgios Mazanakis, Sotirios Sarakinos, Georgios Lygidakis, Ioannis Nikolas</i>					
9228	FRAMEWORK FOR FLUID-STRUCTURE INTERACTION WITH CONTACT AND ITS APPLICATIONS IN BIOMECHANICS <i>Johan Jansson, Jeannette Spühler, Niyazi Cem Degirmenci, Van Dang Nguyen, Johan Hoffman,</i>					
5922	ACOUSTIC ANALYSIS OF FLOW-INDUCED VIBRATIONS OF A FLEXIBLE PLATE MODELING THE SOFT PALATE <i>Mohammadtaghi Khalili, Martin Larsson, Bernhard Müller</i>					
8991	SPLINE-BASED METHODS FOR INTERACTION BETWEEN FREE-SURFACE FLOWS AND ELASTIC STRUCTURES <i>Norbert Hosters, Stefanie Elgeti, Marek Behr</i>					
Friday, June 10 11:30-13:30		Minos North		Friday, June 10 11:30-13:30		Athena
MS 922 - 2: HIGH-ORDER METHODS FOR ELASTIC WAVES AND THEIR APPLICATION				MS 606 - 3: COMPUTATIONAL MODELING OF HYDRAULIC FRACTURING		
<i>MS Organizers:</i> Thomas Hagstrom, Daniel Appelo <i>Chair:</i> Thomas Hagstrom				<i>MS Organizers:</i> Gianluca Cusatis, Gilles Pijaudier-Cabot, Günther Meschke <i>Chair:</i> Thomas-Peter Fries		
8752	AN ENERGY-BASED DISCONTINUOUS GALERKIN DISCRETIZATION OF THE ELASTIC WAVE EQUATION IN SECOND ORDER FORM <i>Daniel Appelo, Thomas Hagstrom</i>			8716	KEYNOTE: XFEM AND PHASEFIELD MODELING OF HYDRAULIC FRACTURING PROCESSES <i>Günther Meschke, Dirk Leonhart, Ildar Khisamitov, Seyed Mohseni, Sven Beckhuis, Jithender J. Timothy</i>	
16013	DYNAMIC EARTHQUAKE RUPTURE SIMULATIONS ON NONPLANAR FAULTS EMBEDDED IN 3D, HETEROGENEOUS ELASTIC-PLASTIC SOLIDS <i>Kenneth Duru</i>			8222	GEOMECHANICAL MODELING OF INDUCED MICROSEISMICITY <i>Mirko van der Baan, Drew Chorney, Vincent Roche</i>	
5224	WAVE PROPAGATION IN HIGHLY HETEROGENEOUS MEDIA: SCALABILITY OF THE MESH AND RANDOM PROPERTIES GENERATOR <i>Jose Camata, Lucio Correa, Luciano Paludo, Regis Cottureau, Alvaro Coutinho</i>			9294	NUMERICAL MODELLING OF COUPLED HYDRO-THERMAL PROCESSES OF THE SOULTZ HETEROGENEOUS GEOTHERMAL SYSTEM <i>Musa Dahiru Aliyu, Hua-peng Chen</i>	
8606	THREE-DIMENSIONAL FULL WAVEFORM INVERSION OF SHORT-PERIOD TELESEISMIC WAVEFIELDS BASED UPON A COUPLED SPECTRAL-ELEMENT METHOD <i>Dimitri Komatitsch, Vadim Monteiller, Yi Wang, Sébastien Chevrot</i>			9321	MULTISCALE DISCRETE MODELING OF THE MECHANICAL BEHAVIOR OF BLACK SHALE <i>Weixin Li, Roman Wendner, Gianluca Cusatis</i>	
				9363	HYDRAULIC FRACTURING SIMULATION WITH A PHASE FIELD APPROACH <i>Yongxing Shen, Vahid Ziaei-Rad, Cheng Cheng, Li Shen</i>	
Friday, June 10 11:30-13:30				Friday, June 10 11:30-13:30		Aphrodite
				MS 805 - 2: ADVANCED MULTI-PHYSICS AND MULTI-SCALE TECHNIQUES FOR MODELING INELASTIC PROCESSES IN SOLIDS: DAMAGE, FRACTURE AND CONTACT MECHANICS		
				<i>MS Organizers:</i> Mauro Corrado, Marco Paggi, José Reinoso <i>Chair:</i> José Reinoso		
				9675	MODELING OF FRAGMENTATION IN TEMPERED GLASS WITH THE COHESIVE ELEMENT METHOD <i>Mauro Corrado, Marco Vocialta, Jean-Francois Molinari</i>	
				10150	HOMOGENIZATION OF COMPOSITES SUBJECTED TO DAMAGE, FRACTURE AND UNILATERAL CONTACT <i>Sonia Marfia, Elio Sacco</i>	
				9222	MULTISCALE SOLUTION METHODS FOR CONTACT, FRICTION, AND FRACTURE PROBLEMS <i>Rolf Krause, Roger Müller</i>	

- 10239** A THREE DIMENSIONAL CONCURRENTLY COUPLED ADAPTIVE MULTISCALE METHOD FOR FRACTURE
Pattabhi Budarapu, José Reinoso, Marco Paggi
- 7713** IDENTIFICATION OF PHASE FIELD PARAMETERS FOR A DYNAMIC CRACK PROPAGATION BENCHMARK
Clément Roux-Langlois, Jean-François Molinari

- 6888** NUMERICAL ANALYSIS OF FRICTIONLESS CONTACT BETWEEN 3 – D BEAMS WITH CIRCULAR CROSS-SECTION
Olga Kawa, Przemyslaw Litewka, Robert Studzinski
- 7658** MULTISCALE FEM APPROACH FOR HYSTERESIS FRICTION AND ADHESION OF RUBBER ON ROUGH SURFACES
Paul Wagner, Peter Wriggers, Heiko Clasen, Corinna Prange

Friday, June 10
11:30-13:30

Apollo East

MS 713 - 2: MICROSTRUCTURE-BASED MODELLING OF HETEROGENEOUS MATERIALS

MS Organizers: Jan Zeman, Jan Novak, Guillermo Díaz
Chair: Jan Zeman

- 6102** A COMPARATIVE STUDY OF DIFFERENT CRYSTAL PLASTICITY THEORIES: CLASSICAL VS. STRONG DISCONTINUITIES APPROACH
Guillermo Díaz, Volker Fohrmeister, Jörn Mosler
- 11058** APPLICATION OF POLAR ELASTICITY TO THE PROBLEM OF PURE BENDING OF A THICK PLATE
Svitlana Fedorova, Jiří Burša
- 10666** A MICRO-MACRO DESCRIPTION FOR ELASTICITY OF GRANULAR MATERIALS
Nishant Kumar, Stefan Luding, Vanessa Magnanimo
- 11911** ARTIFICIAL MICROSTRUCTURE GENERATOR FOR DUAL-PHASE STEELS
Yuliang Hou, Alexandre Dumon, Pièrre Culière, Mohamed Rachik
- 7768** HOMOGENIZATION TECHNIQUES FOR ACCURATE AND APPROXIMATE ESTIMATES FOR OVERALL PROPERTIES OF MICROCRACKED VISCOELASTIC MASONRIES
Amna Rekik, Alain Gasser
- 7985** ACCOUNTING FOR TEMPERING OF MARTENSITE IN MULTISCALE MODELLING OF PHASE TRANSFORMATIONS IN DUAL PHASE STEELS BASED ON THE SOLUTION OF CARBON DIFFUSION EQUATION.
Krzysztof Bzowski, Monika Pernach, Maciej Pietrzyk

Friday, June 10
11:30-13:30

Apollo West

MS 610: NUMERICAL METHODS TO STUDY THE CONTACT MECHANICS OF DRY, ADHESIVE AND LUBRICATED ROUGH SURFACES

MS Organizers: Carmine Putignano, Daniele Dini
Chair: Carmine Putignano

- 11227** A PARAMETRICALLY TIME-DEPENDENT METHODOLOGY FOR RECIPROCATING CONTACT MECHANICS BETWEEN VISCOELASTIC SOLIDS
Carmine Putignano, Giuseppe Carbone, Daniele Dini
- 8176** PERCOLATION PROPERTIES OF THE NETWORK OF FREE CHANNELS IN SEALING APPLICATIONS
Cinat Paolo, Paggi Marco, Borri Claudia
- 11261** STATISTICAL AND GEOMETRICAL CHARACTERISTICS OF RANDOMLY ROUGH SURFACES USED FOR CONTACT SIMULATIONS.
Rafael Schouwenaars, Carlos G. Figueroa, Víctor Hugo Jacobo, Armando Ortiz

Friday, June 10
11:30-13:30

Room 1

MS 707 - 2: MICROMECHANICAL MODELLING: COMPETITION BETWEEN ANALYTICAL AND NUMERICAL METHODS

MS Organizers: Siegfried Schmauder, Vera Petrova
Chair: Alla Balueva

- 7510** **KEYNOTE:** EFFECTIVE ELASTICITY COEFFICIENTS IN DRY POROUS MATERIALS. NUMERICAL AND SEMI-ANALYTICAL APPROACHES
Vladimir Sladek, Bruno Musil, Jan Sladek
- 10814** MODELING AND ANALYSIS OF FRACTURE OF FUNCTIONALLY GRADED COATINGS SUBJECT TO THERMO-MECHANICAL LOADING
Vera Petrova, Siegfried Schmauder
- 6124** THE INFLUENCE OF THE NONHOMOGENEOUS DISTRIBUTION OF REINFORCING PARTICLES ON THE STRENGTH OF METAL MATRIX COMPOSITES: MICROMECHANICAL MODELLING AND SIMULATION
Hai Qing
- 7250** ATOMISTIC AND CONTINUUM INVESTIGATION OF THE DYNAMIC TENSILE STRENGTH OF ALUMINUM AND IRON WITH FOREIGN NANOINCLUSIONS
Viktor Pogorelko, Alexander Mayer

Friday, June 10
11:30-13:30

Room 2

MS 1303: ANALYSIS AND DESIGN OF SAFETY CRITICAL SYSTEMS UNDER UNCERTAINTY

MS Organizers: Edoardo Patelli, Michael Beer, Matteo Broggi, Francisco Alejandro Díaz De la O
Chair: Marco de Angelis

- 10737** POWER GRID ROBUSTNESS TO SEVERE FAILURES: TOPOLOGICAL AND FLOW BASED METRICS COMPARISON
Roberto Rocchetta, Edoardo Patelli
- 10693** EFFICIENT COMPUTATION OF FAILURE PROBABILITY BOUNDS BY MEANS OF LINE SAMPLING
Marco de Angelis, Edoardo Patelli
- 4995** IDENTIFICATION OF INTERVAL FIELDS FOR SPATIAL UNCERTAINTY REPRESENTATION IN FINITE ELEMENT MODELS
Matthias Faes, Jasper Cerneels, Dirk Vandepitte, David Moens
- 7012** INTRODUCTION OF BEADINGS INTO A CRASH TUBE USING A ROBUST OPTIMISATION APPROACH
Stefan Scheibelhofer
- 12037** INTERVAL FINITE ELEMENT ANALYSIS OF STRUCTURES WITH UNCERTAIN-BUT-BOUNDED PARAMETERS
Eugenia Romeo, Alba Sofi
- 7165** DYNAMICAL ANALYSIS OF PLATE MODELS WITH UNCERTAIN STRUCTURAL PROPERTIES USING THE INTERVAL FIELD METHOD
Maurice Imholz, Dirk Vandepitte, David Moens

Friday, June 10 **Room 4**
11:30-13:30

CS 1202 - 2: STRUCTURAL ANALYSIS AND MULTI BODY DYNAMICS

Chair: Pavel Polach

9407 APPROACHES TO THE CREATION OF MULTIBODY MODELS OF THE VVER 1000 NUCLEAR REACTOR CONTROL ASSEMBLY
Pavel Polach, Michal Hajžman

7895 ON THE NUMERICAL INFLUENCES OF INERTIA REPRESENTATION FOR RIGID BODY DYNAMICS
Xiaoming Xu, Wanxie Zhong

CS 1301: MOLECULAR DYNAMICS

Chair: Clara Salueña

9571 ENFORCING ENERGY CONSERVATION IN MOLECULAR DYNAMICS SIMULATIONS
Josep Bonet, Clara Salueña

8655 COARSE GRAINING NON-EQUILIBRIUM SYSTEMS AND PATH SPACE INFORMATION THEORY
Evangelia Kalligiannaki, Vagelis Harmandaris, Markos Katsoulakis, Petr Plechac

9122 SIMULATION OF CABIN AIR FILTERS - MOLECULAR DYNAMICS VS. CONTINUUM APPROACH
Carolyn Schober, David Keerl, Martin J. Lehmann, Miriam Mehl

Friday, June 10 **Room 5**
11:30-13:30

MS 1014: DESIGN OPTIMIZATION AND INVERSE PROBLEMS FOR WAVE PROPAGATION PROBLEMS

MS Organizers: Martin Berggren

Chair: Martin Berggren

10963 FULL-WAVEFORM INVERSION FOR THE RECONSTRUCTION OF ELECTROMAGNETIC PROPERTY PROFILES USING PLANE MICROWAVES
Namho Joh, Jun Won Kang

5410 OPTIMIZATION OF JUNCTIONS OF OPEN WAVEGUIDES IN 2D
Julian Ott

11745 TOWARDS A DIMENSIONALLY ADAPTIVE METHOD IN MAGNETOTELLURICS
Julen Alvarez-Aramberri, David Pardo

9033 TOPOLOGY OPTIMIZATION OF WIDEBAND COMPACT WAVEGUIDE TRANSITIONS WITH MINIMAL-SIZE CONTROL
Emadeldeen Hassan, Linus Hägg, Eddie Wadbro, Martin Berggren

Friday, June 10 **Room 7**
11:30-13:30

MS 808 - 2: MULTISCALE AND MULTIPHYSICS MODELING OF CEMENTITIOUS MATERIALS

MS Organizers: Jörg F. Unger, Thomas Titscher

Chair: Jörg F. Unger

7008 IMPLICIT/EXPLICIT (IMPL-EX) INTEGRATION OF THE GRADIENT ENHANCED DAMAGE MODEL
Thomas Titscher, Jörg F. Unger, Javier Oliver

11003 REINFORCEMENT CORROSION IN CONCRETE DUE TO CARBONATION AND CHLORIDE INGRESS UP AND BEYOND INDUCTION PERIOD
Vit Smilauer, Libor Jendele, Jan Cervenka, Karolina Hajkova

9556 CHLORIDE DIFFUSION THROUGH THE INTERFACIAL TRANSITION ZONE BETWEEN AGGREGATES AND CEMENT PASTE IN CONCRETE
Pietro Carrara, Laura De Lorenzis

9527 COMPUTATIONAL MODELING OF THE INTERACTION BETWEEN CRACKING, CHLORIDE DIFFUSION AND BINDING IN HARDENED CEMENT PASTE
Tao Wu, Pietro Carrara, Laura De Lorenzis

Friday, June 10 **Room 8**
11:30-13:30

MS 802 - 2: ADVANCES IN THE MODELLING OF MULTI-SCALE, MULTI-PHYSICS AND MULTI-UNCERTAINTY PROBLEMS

MS Organizers: Francisco M. Andrade Pires, Chengfeng Li

Chair: Francisco M. Andrade Pires, Chengfeng Li

6335 STRUCTURAL RELIABILITY ANALYSIS – A REVIEW AND COMPARISON STUDY
Muhannad Aldosary, Chenfeng Li

8777 APPLICATION OF THE MULTISCALE FEM TO THE DETERMINATION OF MACROSCOPIC DEFORMATIONS CAUSED BY DISSOLUTION-PRECIPITATION CREEP
Sandra Klinge, Jörm Mosler, Klaus Hackl

6768 NUMERICAL MODELLING OF AMORPHOUS POLYMERS: FORMULATION AND IMPLEMENTATION
Fernando Pala Beirão Macedo, Shenghua Wu, Seyed Mohsen Mirkhalaf Valashani, Francisco Manuel Andrade Pires

8869 MULTISCALE SIMULATION OF THREE-DIMENSIONAL UNSTEADY GAS FLOWS IN MICROCHANNELS OF TECHNICAL SYSTEMS
Viktoriia Podryga, Yury Karamzin, Tatiana Kudryashova, Sergey Polyakov

12009 AUGMENTED SURROGATES FOR UNCERTAINTY QUANTIFICATION OF FUSION PLASMAS
Varis Carey, Robert Moser, C.S. Chang, Craig Michoski

Friday, June 10 **Room 9**
11:30-13:30

MS 908 - 2: VERIFICATION AND VALIDATION OF STRUCTURAL MECHANICS SIMULATION MODELS

MS Organizers: George Lampeas

Chair: George Lampeas

5900 KEYNOTE: DEVELOPMENT AND VALIDATION OF A COMPOSITE FASTENED JOINT MODEL USING ADVANCED MEASUREMENT TECHNIQUES
Nikolaos Perogamvros, George Lampeas

8600 OPTIMUM DESIGN, FINITE ELEMENT MODEL UPDATING AND DYNAMIC ANALYSIS OF A FULL LAMINATED GLASS PANORAMIC CAR ELEVATOR
Dimitrios Giagopoulos, Iraklis Chatziparasidis

11192 A NEW SHELL FINITE ELEMENT WITH DRILLING DEGREES OF FREEDOM AND ITS RELATION TO EXISTING FORMULATIONS
Robert Winkler, Dimitrios Plakomytis

- 11185** MODELING BONDED ANCHORS IN A DISCRETE ELEMENT FRAMEWORK
Marco Marcon, Jan Vorel, Roman Wendner

Friday, June 10
11:30-13:30

Room 10

MS 107: MULTI-SCALE MODELS IN BIOMECHANICS AND MECHANOTRANSDUCTION

MS Organizers: Suvranu De, Michael Sacks, Abdul Barakat
Chair: Catherine Pagiatakis

- 7416** 2D FINITE ELEMENT MODEL TO EXPLORE DUROTAXIS DURING SINGLE CELL MIGRATION
Rachele Allena, Mukund Gupta, Benoit Ladoux, Denis Aubry

- 7501** A NUMERICAL GEOMETRIC MULTISCALE EVALUATION OF THE LOCALIZED HAEMODYNAMIC INTERACTIONS WITHIN CORONARY BIFURCATION LESIONS
Catherine Pagiatakis, Jean-Claude Tardif, Philippe L. L'Allier, Rosaire Mongrain

- 9153** EFFECT OF RED BLOOD CELLS ON ENDOTHELIAL SHEAR STRESS IN MICROVESSELS
Brenna Hogan, Zaiyi Shen, Chaouqi Misbah, Abdul Barakat

Friday, June 10
11:30-13:30

Room 15

CS 610: AERO-ACOUSTICS

Chair: Smaïne Kouidri

- 7932** NUMERICAL INVESTIGATION OF THERMOACOUSTIC ENGINE USING IMPLICIT LARGE EDDY SIMULATION
Mustapha Mahdaoui, Rachid Bennacer, Smaïne Kouidri, N. Martaj

- 8111** AN OUTFLOW BUFFER ZONE BASED ON THE JET MEAN FLOW SELF-SIMILARITY
Carlos Moser, Andrea Da Ronch

- 11941** SEMI-DISCRETE COINCIDENCE IN THE MID-FREQUENCY SOUND TRANSMISSION THROUGH RIB-STIFFENED PANELS
Edwin Reynders, Cédric Van hoorickx, Arne Dijkmans

- 7916** USING SPECTRAL-RESOLUTION SCHEMES FOR THE SIMULATION OF RANKINE VORTEX INSTABILITY
Anatol V. Alexandrov, Ludwig W. Dorodnicyn

- 4445** FLUID ANALYSIS USING FICTITIOUS DOMAIN FINITE ELEMENT METHOD
Yukihiro Terakado, Tahahiko Kurahashi

- 7445** ON THE SIMULATION OF AERODYNAMIC NOISE WITH DIFFERENT TURBULENCE MODELS
Xin Huang, Michael Schäfer

Friday, June 10
11:30-13:30

Room 18

MS 804 - 3: MULTISCALE AND COMPUTATIONAL APPROACHES TO FRACTURE AND FAILURE

MS Organizers: Haim Waisman, Caglar Oskay
Chair: Haim Waisman

- 9300** KEYNOTE: STABILITY ANALYSIS OF THE PHASE FIELD METHOD FOR FRACTURE MECHANICS
Miguel Arriaga, Haim Waisman

- 12093** KEYNOTE: DISCONTINUOUS GALERKIN FORMULATION WITH NITSCHÉ FLUX FOR COHESIVE FRACTURE SIMULATIONS
M. Reza Hirmand, Katerina D. Papoulia

- 9284** DYNAMIC HYDRAULICALLY DRIVEN FRACTURE WITH XFEM
Robert Gracie, Matin Esfahani, Mohammad Komijani

- 11443** TEN YEARS OF INDUSTRIAL APPLICATIONS WITH THE EXTENDED FINITE ELEMENT METHOD
Eric Wyart, Benoît Dompierre, Olivier Pierard, Loïc Debeugny, Didier Soria

Friday, June 10
11:30-13:30

Room 21

MS 910 - 3: HIGH ORDER CFD METHODS: CONCLUSIONS AND OUTLOOK

MS Organizers: Koen Hillewaert, John Ekaterinaris, Peter Vincent, Norbert Kroll, Norbert Huynh, Z.J. Wang

Chair: Z.J. Wang

- 11177** KEYNOTE: SUMMARY AND CONCLUSIONS OF THE COMPUTATIONAL CHALLENGE TEST CASES
Koen Hillewaert, Tobias Leicht

- 8584** THE STUDY OF QUASI-ANALYSIS NEWTON/KRYLOV IMPLICIT DISCONTINUOUS GALERKIN METHOD FOR VISCOUS FLOW
Wei Liu, Laiping Zhang, Ming Li

- 8858** PERSPECTIVES AND NEEDS OF HIGH-ORDER METHODS FOR CFD INDUSTRIAL APPLICATIONS
Vincent Brunet, Xavier Garnaud, Michel Dumas, Thomas Féderici, Gilles Leroy, Lorenzo Pons

- 9490** STABILITY AND ALGORITHMIC EFFICIENCY OF A HIGH ORDER FINITE VOLUME METHOD
Jean-Marie Le Gouez

- 12052** THE WING-TIP VORTEX TEST CASE.
Jean-Eloi Lombard, David Moxey, Spencer Sherwin

Friday, June 10
11:30-13:30

Room 23

**MS 1011 - 2: SURROGATE-ASSISTED EVOLUTIONARY
ALGORITHMS IN AERODYNAMIC
DESIGN/OPTIMIZATION**

MS Organizers: Varvara Asouti, Esther Andrés, Emiliano Iuliano

Chair: Varvara Asouti

10088 EVOLUTIONARY AERODYNAMIC SHAPE OPTIMIZATION
THROUGH THE RBF4AERO PLATFORM
*Dimitrios Kapsoulis, **Varvara Asouti**, Kyriakos Giannakoglou,
Stefano Porziani, Emiliano Costa, Corrado Groth, Ubaldo Cella,
Marco Evangelos Biancolini*

5627 PERFORMANCE COMPARISON OF KRIGING AND SVR
SURROGATE MODELS APPLIED TO THE OBJECTIVE FUNCTION
PREDICTION WITHIN AERODYNAMIC SHAPE OPTIMIZATION
*Daniel Viúdez-Moreiras, **Esther Andrés-Pérez**, Daniel González-
Juárez, Mario J. Martin Burgos*

5102 SURROGATE-BASED GLOBAL OPTIMIZATION OF A CYLINDER BY
THE USE OF EVOLUTIONARY ALGORITHMS, SUPPORT VECTOR
MACHINES AND NON UNIFORM B-SPLINES
***Esther Andrés-Pérez**, Daniel González-Juárez, Mario J. Martin-
Burgos, Leopoldo Carro-Calvo, Sancho Salcedo-Sanz*

8308 HEAT TRANSFER OPTIMIZATION OF A RIBBED SURFACE USING
SURROGATE-ASSISTED GENETIC ALGORITHMS
***Panagiotis Tsirikoglou**, Ghader Ghorbaniasl, Simon Abraham,
Chris Lacor*

5101 CONSTRAINED MULTI-POINT AERODYNAMIC SHAPE
OPTIMIZATION OF THE VISCOUS DPW WING THROUGH
EVOLUTIONARY PROGRAMMING AND SUPPORT VECTOR
MACHINES
***Daniel González Juárez**, Esther Andrés Pérez, Mario Jaime
Martin Burgos*

13:30-14:30

Lunch Break

PLENARY LECTURES

Friday, June 10 14:30-16:00	Zeus
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Chair: Thomas J.R. Hughes

12630 RECENT ADVANCES IN TOPOLOGY OPTIMIZATION

Ole Sigmund

10414 RECENT ADVANCES IN PARAMETRIC NONLINEAR MODEL ORDER REDUCTION: TREATMENT OF SHOCKS, CONTACT AND INTERFACES, STRUCTURE-PRESERVING HYPER REDUCTION, ACCELERATION OF MULTISCALE FORMULATIONS, AND APPLICATION TO DESIGN OPTIMIZATION

Charbel Farhat, P. Avery, T. Chapman, P. Collins, K. Washabaugh, M. Zahr

16:00-16:30

Closing Ceremony

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