

ICTAM 2012 Technical Program

Monday, 20 August 2012

Session

9:00

Opening Ceremony
Room: Plenary Hall B

Session

10:00

Opening Lecture
Chair: Zheming Zheng, China
Room: Plenary Hall B

Multiscale fluid mechanics and modeling
Shiyi Chen, China

Coffee Break: 11:00 – 11:20, Main Lobby, 1st floor

Session

11:20

11:50

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| <p>MS01 Mechanical challenges in energy (Introductory Lectures) Chairs: Kenneth Reifsnider, USA Anil Virkar, USA Room: Ballroom A</p> | <p>The role of solid mechanics in electrochemical energy systems such as lithium-ion batteries and fuel cells (MS01-009) <u>Robert M. McMeeking</u>, USA</p> | <p>Mechanisms for geological carbon sequestration (MS01-022) <u>Dongxiao Zhang</u>, China</p> |
| <p>MS02 Mechanics of natural disasters (Introductory Lectures) Chairs: Frederic Dias, Ireland Pavel Tkalich, Singapore Room: Ballroom B</p> | <p>Fukushima and Chernobyl nuclear accidents' environmental assessments and U.S. hanford nuclear site's waste management (MS02-010) <u>Yasuo Onishi</u>, USA</p> | <p>Fluid mechanics approaches to modeling the environmental consequences of nuclear accidents and mud volcano eruption (MS02-013) <u>Mark Zheleznyak</u>, Ukraine</p> |
| <p>MS03 Fluid-structure interactions in biological systems (Introductory Lecture) Chair: Gerhard A. Holzapfel, UK Room: Ballroom C</p> | <p>Modelling the evolution of cerebral aneurysms: biomechanics, mechanobiology and multiscale modelling (MS03-017) <u>Paul N. Watton</u>, Alisa Selimovic, Haoyu Chen, Gerhard A Holzapfel, Yiannis Ventikos, UK</p> | |
| <p>MS04 Mechanics of transport in microfluidic devices (Introductory Lectures) Chairs: Matthew Begley, USA Thomas Laurell, Sweden Room: Function Hall A</p> | <p>Rapid and precise particle manipulation in microfluidic devices (MS04-018) Masumi Yamada, Sari Sugaya, <u>Minoru Seki</u>, Japan</p> | <p>Theoretical aspects of microchannel acoustophoresis: thermoviscous corrections to the radiation force (MS04-014) <u>Henrik Bruus</u>, Denmark</p> |
| <p>MS05 Dynamics and control of morphing structures (Introductory Lecture) Chair: Haiyan Hu, China Room: Function Hall B</p> | <p>Morphing structures for improved aircraft performance (MS05-027) <u>Jonathan E. Cooper</u>, UK</p> | |
| <p>MS06 Effects of small size scales in materials modeling (Introductory Lecture) Chairs: Huajian Gao, USA Julia Greer, USA Room: Function Hall C</p> | <p>Atomistic mechanical testing of nanostructures – seeing the invisible and bridging theory and experiments (MS06-049) <u>Horacio D. Espinosa</u>, Rodrigo A. Bernal, Ravi Agrawal, USA</p> | |

Lunch: 12:20 -13:20, Exhibition Hall 5, underground floor

| Session | 13:20 | 13:40 | 14:00 |
|---|--|---|---|
| FM06: Drops, bubbles and multiphase flows Chairs: Howard H. Hu, USA Roberto Zenit, Mexico Room: Ballroom A | Dynamics and rheology of elastic particles in an extensional flow (FM06-008, invited lecture) Tong Gao, <u>Howard H. Hu</u> , Pedro Ponte Castaneda, USA | Droplet impact near a millimeter-size hole (FM06-066) <u>Rianne de Jong</u> , Oscar R. Enriquez, Devaraj van der Meer, The Netherlands | Slender body theory for the generation of microemulsions and microbubbles with medical applications (FM06-012) <u>José Manuel Gordillo</u> , E. Castro-Hernández, F. Campo-Cortés, Spain |
| SM16: Vibrations and control of structures Chairs: Felix L. Chernousko, Russia Zaihua Wang, China Room: Ballroom B | Global dynamics and complexity: a modern perspective for the analysis, design and control of mechanical/structural systems (SM16-032, invited lecture) <u>Stefano Lenci</u> , <u>Rega Giuseppe</u> , Italy | Nonlinear vibrations of axially moving viscoelastic beams with supercritical transport speed (SM16-022) <u>Hu Ding</u> , Guoce Zhang, Liqun Chen, China | Nonlinear vibrations of hyperelastic membranes resting on a nonlinear elastic foundation (SM16-004) <u>Paulo B. Gonçalves</u> , Renata M. Soares, Brazil |
| FM07: Flow instability and transition Chairs: Nadine Aubry, USA Patrick Huerre, France Room: Ballroom C | A mechanism for generating a packet of hairpins –comparison between model and experimental results (FM07-045) <u>Jacob Cohen</u> , Michael Karp, Vyomesh Mehta, Israel | Double diffusivity on miscible fluid flow in a channel (FM07-009) <u>Manoranjani Mishra</u> , Anne De Wit, Kirti Chandra Sahu, India | Weakly nonlinear theory for Rayleigh-Taylor instability of rotating fluids (FM07-013) <u>Jianjun Tao</u> , China |
| SM05: Fracture mechanics Chairs: Andrei Abramian, UK Yuri Antipov, USA Room: Function Hall A | Stress corrosion cracking investigation in Zircaloy-4 using digital image correlation (SM05-023, invited lecture) <u>Emilien Durif</u> , Julien Réthoré, Marion Fregonese, Alain Combescure, France | On damage-tolerant properties test and predictions of titanium alloys used in the pressure hull of manned submersibles (SM05-022) <u>Fang Wang</u> , Weicheng Cui, Xiaoping Huang, Binbin Pan, Yunsheng Shen, China | Kinetics of interfacial adhesion strength and fracture (SM05-025) <u>Mikhail Perelmuter</u> , Russia |
| SM15: Structural optimization Chairs: Erik Lund, Denmark Ole Sigmund, Denmark Room: Function Hall B | Multi-material topology design of laminates with strength criteria (SM15-038) <u>Erik Lund</u> , Denmark | Composite optimization - ply drop-rate constraints for concept and detailed design (SM15-033) <u>Ming Zhou</u> , Raphael Fleury, USA | Isogeometric shape design sensitivity analysis of elasticity problems using multi-resolution and h-refinement approach (SM15-041) <u>Seonho Cho</u> , Taeho Lee, Bonyong Koo, Korea |
| MS06: Effects of small size scales in materials modeling Chairs: Erik van der Giessen, The Netherlands Bob Svendsen, Germany Room: Function Hall C | Twinning-mediated plastic deformation in Au nanowhiskers (MS06-058, invited lecture) Andreas Sedlmayr, Reiner Mönig, Erik Bitzek, Gunther Richter, <u>Oliver Kraft</u> , Germany | Multiscale atomistics for defects in electronic materials (MS06-002) <u>Kaushik Dayal</u> , Jason Marshall, USA | Mechanism of dislocation jam and starvation on crystal plasticity in submicron pillars (MS06-004) <u>Zhuo Zhuang</u> , Yuan Gao, Zhanli Liu, China |
| SM13: Plasticity, viscoplasticity and creep Chairs: Frédéric Barlat, Republic of Korea George Z. Voyiadjis, USA Room: 202A+B | On constitutive equations for processes of severe plastic deformation (SM13-040, invited lecture) <u>Sergei Alexandrov</u> , Robert Goldstein, Russia | Micromechanical modelling of the softening of metallic materials during cyclic and creep loading (SM13-033) <u>Maxime Sauzay</u> , Pierre-François Giroux, Anne-Françoise Gourgues-Lorenzon, France | Steady granular flow: local and nonlocal approaches (SM13-037) <u>Ken Kamrin</u> , Georg Koval, USA |
| FS01: Acoustics Chairs: Max Kandula, USA Yuesheng Wang, China Room: 203A+B | Correlation model for noise generation by large vortex oscillations in turbulent jet (FS01-020, invited lecture) <u>Victor F. Kopiev</u> , Sergey A. Chernyshev, Russia | FMBEM acoustic shape sensitivity analysis and its application to shape optimization of noise barriers (FS01-015) Changjun Zheng, <u>Haibo Chen</u> , China | Noise radiation of periodical sandwich structures (FS01-003) <u>Fengxian Xin</u> , Han Meng, Cheng Shen, Tianjian Lu, China |
| FM01: Biological fluid dynamics Chairs: Han Chen, China Tianyou Fan, China Room: 205A+B | Topology optimization of the three-dimensional fish tail (FM01-012) <u>Chuijie Wu</u> , Zhiqiang Xin, China | Pairwise interactions between squirming micro-organisms (FM01-006) <u>Richard J. Clarke</u> , Matthew D. Finn, New Zealand | Segregation phenomena in flowing suspensions of deformable particles: toward an understanding of cell and particle dynamics in blood flow (FM01-008) Amit Kumar, Kushal Sinha, Rafael G. Henriquez Rivera, <u>Michael D. Graham</u> , USA |

| Session | 14:20 | 14:40 | 15:00 |
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| FM06: Drops, bubbles and multiphase flows Chairs: Howard H. Hu, USA Roberto Zenit, Mexico Room: Ballroom A | Formation of bubbles in planar co-flowing air-water sheets (FM06-016) Carlos Martínez-Bazán, Cándido Gutiérrez-Montes, Rocío Bolanos-Jiménez, Alejandro Sevilla, Spain | Gas influence in drop impact on a dry solid surface (FM06-017) Zhen Jian, Christophe Josserand, Stephane Popinet, Pascal Ray, Stephane Zaleski, France | Drop impact on (superheated) surfaces: high-speed color interferometry allows to quantify the role of air and vapor layer (FM06-019) Chao Sun, Tuan Tran, Roeland C. A van der Veen, H. J. J. Staat, Andrea Prosperetti, Detlef Lohse, The Netherlands |
| SM16: Vibrations and control of structures Chairs: Felix L. Chernousko, Russia Zaihua Wang, China Room: Ballroom B | A new variational method for free vibration analysis of conical shells with discontinuity in thickness (SM16-008) Yegao Qu, Hongxing Hua, Yong Chen, Guang Meng, China | Analysis of non-linear vibrations of a viscoelastic cylindrical shell under the conditions of internal resonance (SM16-059) Yury A. Rossikhin, Marina V. Shitikova, Russia | Nonlinear vibrations of laminated circular cylindrical shells: comparison of different shell theories (SM16-091) Marco Amabili, Canada |
| FM07: Flow instability and transition Chairs: Nadine Aubry, USA Patrick Huerre, France Room: Ballroom C | Linear mechanisms of the sensitivity of jets to external forcing (FM07-010) Xavier Garnaud, Lutz Lesshafft, Peter J. Schmid, Patrick Huerre, France | Mixed cross spirals as interim solutions in the Taylor Couette system (FM07-011) Sebastian A. Altmeyer, Christian Hoffmann, Korea | Vortex-wave interaction theory and self-sustained processes in shear flows (FM07-012) Philip Hall, UK |
| SM05: Fracture mechanics Chairs: Andrei Abramian, UK Yuri Antipov, USA Room: Function Hall A | A variational approach to thermal fracture (SM05-027) Blaise Bourdin, Corrado Maurini, USA | Interfacial cracks in bi-material solids: stroh formalism and skew-symmetric weight functions (SM05-031) Lorenzo Morini, Enrico Radi, Natalia V. Movchan, Alexander B. Movchan, Italy | Multifissuration and debonding of thin films— analytic and numeric 1D solutions via a variational approach (SM05-039) Andrés A. León Baldelli, Blaise B. Bourdin, Jean-Jacques Marigo, Corrado Maurini, France |
| SM15: Structural optimization Chairs: Erik Lund, Denmark Ole Sigmund, Denmark Room: Function Hall B | Free material design with multiple load cases (SM15-015) Pauli Pedersen, Niels Leergaard Pedersen, Denmark | Particle swarm optimization in identification of stochastic multiscale models (SM15-045) Waclaw Kus, Tadeusz Burczynski, Poland | Thickness optimization of fiber reinforced laminated composites using the discrete material optimization method (SM15-010) Soeren N. Soerensen, Erik Lund, Denmark |
| MS06: Effects of small size scales in materials modeling Chairs: Erik van der Giessen, The Netherlands Bob Svendsen, Germany Room: Function Hall C | Self-healing of GaAs nanowires: an atomistic study (MS06-005) Jun Wang, Chunsheng Lu, Qi Wang, Pan Xiao, Fujii Ke, Yilong Bai, Yaogen Shen, Yanbo Wang, Bin Chen, Xiaozhou Liao, Huajian Gao, China | Multiscale modeling of multi-physics (MS06-006) Xiangqiao Wang, James D. Lee, Jiaoyan Li, USA | Intrinsic lengths govern failure mode transition in metallic glasses (MS06-031) Lanhong Dai, Yan Chen, China |
| SM13: Plasticity, viscoplasticity and creep Chairs: Frédéric Barlat, Republic of Korea George Z. Voyiadjis, USA Room: 202A+B | Dislocation-mechanics-based constitutive descriptions of crystal plasticity of metals: an overview (SM13-035) Chongyang Gao, Liangchi Zhang, China | Strain hardening for steel under non-proportional loading (SM13-009) Frédéric Barlat, Jin Jin Ha, Myoung-Gyu Lee, Republic of Korea | A new elastic-plastic model for describing the nanoindentation size effects of surface-nanocrystalline materials (SM13-050) Shaoming Yu, Yueguang Wei, China |
| FS01: Acoustics Chairs: Max Kandula, USA Yuesheng Wang, China Room: 203A+B | Trailing-edge noise reduction via spanwise oscillation (FS01-008) Wolfgang Schröder, Seong Ryong Koh, Matthias Meinke, Germany | Wave propagation in one-dimensional nanoscale phononic crystals (FS01-007) Ali Chen, Yuesheng Wang, China | Variation of acoustic streaming flow field due to a bounding wall (FM06-049) Xiaolong Wang, Hong Wei, Tongbeum Kim, Tianjian Lu, China |
| FM01: Biological fluid dynamics Chairs: Han Chen, China Tianyou Fan, China Room: 205A+B | Chemobioconvection in a suspension of luminescent bacteria (FM01-009) Simon F. Park, Jocelyn Dunstan, Timothy J. Pedley, Raymond E. Goldstein, UK | Unsteady boundary layers on flapping wings (FM01-010) Dmitry Kolomenskiy, Keith Moffatt, Marie Farge, Kai Schneider, France | Effect of spatial confinement on helical swimming in Stokes flow (FM01-037) Bin Liu, Kenneth S. Breuer, Thomas R. Powers, USA |

Session

15:20

15:40 – 16:00

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| <p>FM06: Drops, bubbles and multiphase flows Chairs: Howard H. Hu, USA Roberto Zenit, Mexico Room: Ballroom A</p> | <p>Simulation of aerosol evolution in a turbulent flow (FM06-024) Kun Zhou, Antonio Attili, Fabrizio Bisetti, Kingdom of Saudi Arabia</p> | <p>Coffee Break Main Lobby, 1st floor</p> |
| <p>SM16: Vibrations and control of structures Chairs: Felix L. Chernousko, Russia Zaihua Wang, China Room: Ballroom B</p> | <p>Two parameter codimension-three bifurcations of a novel nonlinear oscillator with strong irrational nonlinearities (SM16-011) Qingjie Cao, Yanwei Han, Yushu Chen, Marian Wiercigroch, Sergey Piskarev, China</p> | |
| <p>FM07: Flow instability and transition Chairs: Nadine Aubry, USA Patrick Huerre, France Room: Ballroom C</p> | <p>Angular momentum transport and turbulence in laboratory models of Keplerian flows (FM07-008) Matthew S. Paoletti, Dennis P. M. van Gils, Berengere Dubrulle, Chao Sun, Detlef Lohse, Daniel P. Lathrop, USA</p> | |
| <p>SM05: Fracture mechanics Chairs: Andrei Abramian, UK Yuri Antipov, USA Room: Function Hall A</p> | <p>Static and dynamic fatigue of cracked piezoelectric ceramics in three-point bending under AC electric fields (SM05-014) Yasuhide Shindo, Fumio Narita, Japan</p> | |
| <p>SM15: Structural optimization Chairs: Erik Lund, Denmark Ole Sigmund, Denmark Room: Function Hall B</p> | <p>Topology optimization of a composite cathode in a solid oxide fuel cell (SM15-051) Xiankai Song, Alejandro R Diaz, Andre Benard, Jason Nicholas, USA</p> | |
| <p>MS06: Effects of small size scales in materials modeling Chairs: Erik van der Giessen, The Netherlands Bob Svendsen, Germany Room: Function Hall C</p> | <p>Nanostructured networks: materials and applications (MS06-012) Zhiping Xu, China</p> | |
| <p>SM13: Plasticity, viscoplasticity and creep Chairs: Frédéric Barlat, Republic of Korea George Z. Voyiadjis, USA Room: 202A+B</p> | <p>Effect of stress-state and spacing on voids in a shear-field (SM13-004) Viggo Tvergaard, Denmark</p> | |
| <p>FS01: Acoustics Chairs: Max Kandula, USA Yuesheng Wang, China Room: 203A+B</p> | <p>Ultrasound as a probe of dislocation density in aluminum (FS01-011) Felipe Barra, Maria Teresa Cerda, Rodrigo Espinoza, Fernando Lund, Agnes Maurel, Nicolas Mujica, Vincent Pagneux, Chile</p> | |
| <p>FM01: Biological fluid dynamics Chairs: Han Chen, China Tianyou Fan, China Room: 205A+B</p> | <p>Aerodynamic forces and power of a hovering hawkmoth in different wing motion (FM01-015) Zhen Wei, China</p> | |

| Session | 13:20 | 13:40 | 14:00 |
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| FM04: Compressible flow Chairs: Song Fu, China Olaf Marxen, Belgium Room: 206A+B | Analysis of an aero-acoustic flow field using dynamic modes (FM04-016, invited lecture) <u>Peter J. Schmid</u> , Xavier Garnaud, Lutz Lesshafft, Patrick Huerre, France | Compressible fluid-structure interaction simulations of an inflatable tension cone decelerator for planetary re-entry (FM04-005) <u>Carlos Pantano</u> , Richard Kramer, Fehmi Cirak, USA | On the linearity of the quieting of high speed jets by heating (FM04-007) <u>Daniel J. Bodony</u> , USA |
| FM02: Boundary layers Chairs: Xuesong Wu, UK Chunxiao Xu, China Room: 207 | A new receptivity mechanism of supersonic boundary layers to free-stream disturbances (FM02-024) <u>Jisheng Luo</u> , Min Yu, Xuesong Wu, China | Flat-plate boundary layer with continuous freestream turbulence: a preliminary direct numerical simulation study (FM02-001) <u>Xiaohua Wu</u> , Parviz Moin, Canada | An interferential streak instability of hypersonic boundary layer over a circular cone (FM02-019) <u>Qing Shen</u> , <u>Feng Ji</u> , Xiangjiang Yuan, Qiang Wang, China |
| FM03: Combustion and flames Chairs: Ann Karagozian, USA Jianping Wang, China Room: 210A | Direct numerical simulation of wet-CO combustion (FM03-003) <u>Zacharias M. Nikolaou</u> , Nedunchezhian Swaminathan, UK | A multi-regime flamelet method for premixed and non-premixed combustion in spray flames (FM03-014) <u>Benedetta G. Franzelli</u> , Benoit Fiorina, Nasser Darabiha, France | Modeling of a piloted premixed jet burner using large-eddy simulation (FM03-019) Yuntao Chen, <u>Matthias Ihme</u> , USA |
| FM17: General fluid mechanics Chairs: Jacques Magnaudet, France Timothy Pedley, UK Room: 210B | Unstable behavior of subsonic round and plane jets in a transverse acoustic field (FM10-006) <u>Viktor V. Kozlov</u> , Genrih R. Grek, Yuriy A. Litvinenko, Russia | Lattice Boltzmann simulation of induced flow by means of low-temperature plasma (FM10-016) <u>Gang Wan</u> , Baoming Li, <u>Daniel Kwok</u> , Canada | Analysis of the effect of ground proximity on the unsteady flows past oscillating airfoils at low Reynolds numbers (FM10-027) <u>Dan Mateescu</u> , Olivier Scholz, Chao Wang, Canada |
| FM10: Low Reynolds number flow Chairs: Maria L. Ekiel-Jezewska, Poland Osamu Sano, Japan Room: 211 | The effects of membrane laws on the capsule flow in microfluidic channel with square cross-section (FM10-012, invited lecture) <u>Xu-Qu Hu</u> , Anne-Virginie Salsac, Dominique Barthès-Biesel, France | Three-dimensional flow reversal in droplets in Hele-Shaw cells (FM10-025) <u>Francois. Gallaire</u> , S. Lee, C. N. Baroud, Switzerland | The super-thermohydrophobic effect (FM10-005) <u>Jerzy M. Floryan</u> , Mohammad Z. Hossain, Daniel C. Floryan, Canada |
| FS03: Experimental methods in mechanics Chairs: Qingyuan Wang, China Yunche Wang, Taiwan, China Room: 212A | Distortion measurement of large crane arms in loading test based on series-parallel cameras net videometrics (FS03-014) <u>Yang Shang</u> , Hongliang Zhang, Pengyu Guo, Qifeng Yu, China | Multi-planar stereoscopic PIV measurements in a combustion engine (FS03-001) <u>Isabella Buecker</u> , Daniel Karhoff, Michael Klaas, Wolfgang Schroeder, Germany | Metal magnetic memory NDT method: experimental, theory and numerical simulation (FS03-003) <u>Zhengdao Wang</u> , Kai Yao, Bo Deng, China |
| FS08: Granular materials and flows Chairs: Joe Goddard, USA Pierre Jop, France Room: 212B | Measurement and simulation of the streamwise solid fraction of a granular hydraulic jump in a rectangular chute (FS08-002) <u>L. T. Sheng</u> , S. Y. Chiu, <u>C. Y. Kuo</u> , Y. C. Tai, S. S. Hsiau, Taiwan, China | Experimental study on the modulated aeolian barchan dune (FS08-003) <u>Yang Zhang</u> , Yuan Wang, Willem van de Water, China | Edelen's dissipation potentials and the viscoplasticity of granular media (FS08-005) <u>Joe D. Goddard</u> , USA |
| MS01: Mechanical challenges in energy Chairs: Gunner Larsen, Denmark Kenneth Reifsnider, USA Room: 213A | Aspects on the use of wind lidar measurements up to 600 meters for wind energy studies: wind profile, Weibull distribution and boundary layer height (MS01-007, invited lecture) <u>Sven-Erik Gryning</u> , Rogier Floors, Jesper G. Pedersen, Ekaterina Batchvarova, Torben Mikkelsen, Denmark | Wind turbine wakes, power deficit in clusters and wind farms (MS01-017, invited lecture) <u>Kurt S. Hansen</u> , Rebecca J. Barthelme, Denmark | Theories of optimal rotor (MS01-012) <u>Valery L. Okulov</u> , Jens N. Sørensen, Denmark |
| MS02: Mechanics of natural disasters Chairs: Bernhard Schrefler, Italy Rajesh Mishra, India Room: 213B | Multi-scale simulations and analysis on windblown sand movements (MS02-011, invited lecture) <u>Xiaojing Zheng</u> , China | Instantaneous coal outbursts: mechanism and prediction (MS02-007) <u>Kang Ping Chen</u> , USA | 2011 Tohoku (Japan) earthquake and its impact on design of super high-rise buildings (MS02-008) <u>Izuru Takewaki</u> , Kohei Fujita, Japan |

| Session | 14:20 | 14:40 | 15:00 |
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| FM04: Compressible flow Chairs: Song Fu, China Olaf Marxen, Belgium Room: 206A+B | Supersonic flow structure on compression surfaces of model inlet under plasma impact (FM04-009) Sergey Leonov, Alexander Firsov, Dmitry Yarantsev, Marat Goldfeld, Konstantin Timofeev, Francois Falempin, Russia | Numerical simulation shock wave buffet on an OAT15 airfoil by IDDES hybrid methods (FM04-012) Jingbo Huang, Zhixiang Xiao, Jian Liu, Song Fu, China | On the evolution of a heavy-gas cylinder accelerated by a cylindrical converging shock wave: effect of initial conditions (FM04-015) Ting Si, Zhigang Zhai, Xisheng Luo, Jiming Yang, China |
| FM02: Boundary layers Chairs: Xuesong Wu, UK Chunxiao Xu, China Room: 207 | Low-dimensional modelling for optimal streaks in the Blasius boundary layer (FM02-003) Maria Higuera, Jose M. Vega, Spain | Experimental study of localized disturbances at straight wing boundary layer (FM02-004) Mikhail M. Katasonov, Viktor V. Kozlov, Pavel A. Motyrev, Dmitriy S. Sboev, Russia | Turbulent separation from a bluff body: the trailing-edge case (FM02-005) Bernhard F. Scheichl, Alfred Klumpp, Austria |
| FM03: Combustion and flames Chairs: Ann Karagozian, USA Jianping Wang, China Room: 210A | A flame describing function analysis of combustion instability limit cycles sustained by multiple modes (FM03-011) Frédéric Boudy, Daniel Durox, Thierry Schuller, Sébastien Candel, France | The effect of obstacles on propagation mechanism of 3D detonation wave (FM03-024) Cheng Wang, Wenhui Han, Jianguo Ning, Xiangxiang Zhang, China | Numerical simulation of cellular detonation in space (FM03-017) Vladimir A. Levin, Ivan S. Manuylovich, Vladimir V. Markov, Russia |
| FM17: General fluid mechanics Chairs: Jacques Magnaudet, France Timothy Pedley, UK Room: 210B | Wind turbine load performance using iterative learning control (FM17-001) Owen R. Tutty, Mark Blackwell, Eric Rogers, Richard Sandberg, UK | A new solution of Euler's equation of motion with helicity (FM17-002) Tsutomu Kambe, Japan | A generalized reciprocal theorem for predicting the force and torque on bodies moving in an inhomogeneous flow at arbitrary Reynolds number (FM17-003) Jacques Magnaudet, France |
| FM10: Low Reynolds number flow Chairs: Maria L. Ekiel-Jezewska, Poland Osamu Sano, Japan Room: 211 | Analysis of wall effect on the process of diffusion of nanoparticles in a microchannel (FM10-007) Krzysztof Zembrzycki, Sławomir Błoński, Tomasz A. Kowalewski, Poland | Many-body hydrodynamic interactions in a microchannel (FM10-010) Eliquisz Wajnyrb, Marcin Kedzierski, Poland | Towards understanding of geometrical structure in microstructured optical fibres (FM10-013) Yvonne M. Stokes, Darren G. Crowdy, Hayden Tronnolone, Heike Ebendorff-Heidepriem, Tanya M. Monro, Australia |
| FS03: Experimental methods in mechanics Chairs: Qingyuan Wang, China Yunche Wang, Taiwan, China Room: 212A | Experimental determination of time-dependent mechanical properties of soft materials (FS03-005) Yun-Che Wang, Chih-Chin Ko, Yu-Ti Wu, Gen Nakamura, Taiwan, China | Mechanical and thermal performances of CNT micro-pin-fin cooler with air jet impingement (FS03-011) Yan Zhang, Jingyu Fan, China | Linear digital image correlation with SOBEL or SCHARR operators (FS03-017) Wei Tong, Hang Yao, Yue Xuan, USA |
| FS08: Granular materials and flows Chairs: Joe Goddard, USA Pierre Jop, France Room: 212B | Three dimensional simulation of granular jet scattering (FS08-007) Tomohiko Sano, Hisao Hayakawa, Japan | Partially-cohesive granular flows: rheology and segregation (FS08-008) Charles Voivret, Emmanuelle Gouillart, Pierre Jop, France | High-speed X-ray imaging of a ball impacting on sand (FS08-010) Devaraj R. M. van der Meer, Tess Homan, Evert Wagner, Rob F. Mudde, Detlef Lohse, The Netherlands |
| MS01: Mechanical challenges in energy Chairs: Gunner Larsen, Denmark Kenneth Reifsnider, USA Room: 213A | LES modeling of wind turbines: interaction with turbulent flow (MS01-023) Paolo Schito, Alberto Zasso, Italy | On the potential load reduction on wind turbines by flap control using measurements of local inflow to the blades (MS01-019) Helge Aagaard Madsen, Andreas Fischer, Torben Juul Larsen, Christian Bak, Denmark | Full scale verification of wind farm production predictions (MS01-020) Gunner C. Larsen, Torben J. Larsen, Søren Ott, Kurt S. Hansen, Helge Aa. Madsen, Denmark |
| MS02: Mechanics of natural disasters Chairs: Bernhard Schrefler, Italy Rajesh Mishra, India Room: 213B | Mesh generation of geological body with crack extension (MS02-014) Shuli Sun, Jie Sui, Mingwu Yuan, China | Tsunami run-up problems treated by modern software Geoclaw: the Tohoku-Oki event as an example (MS02-016) Huimin Jing, David A. Yuen, David L. George, Huai Zhang, Yaolin Shi, China | Lessons from Sichuan earthquake: failure and structural integrity (MS02-018) Qingyuan Wang, China |

| Session | 15:20 | 15:40 – 16:00 |
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| FM04: Compressible flow Chairs: Song Fu, China Olaf Marxen, Belgium Room: 206A+B | A multi-layer model for mean velocity and density profile in compressible channel flow (FM04-013) Yanzhi Wang, Zhensu She, Fazle Hussain, China | <p>Coffee Break</p> <p>Main Lobby, 1st floor</p> |
| FM02: Boundary layers Chairs: Xuesong Wu, UK Chunxiao Xu, China Room: 207 | Is the wall "necessary" for generating turbulence in wall-bounded flows? (FM02-007) Min S. Chong, Jason P. Monty, Ivan Marusic, Cheng Chin, Australia | |
| FM03: Combustion and flames Chairs: Ann Karagozian, USA Jianping Wang, China Room: 210A | Experimental investigation of flame characteristics in a lean-direct-injection spray combustor (FM03-023) Qinghua Zeng, Yuhua Ai, Chunjie Sui, Wenjun Kong, China | |
| FM17: General fluid mechanics Chairs: Jacques Magnaudet, France Timothy Pedley, UK Room: 210B | Snapshot-based flow analysis with arbitrary sampling (FM17-008) Florimond Guéniat, Lionel Mathelin, Luc Pastur, France | |
| FM10: Low Reynolds number flow Chairs: Maria L. Ekiel-Jezewska, Poland Osamu Sano, Japan Room: 211 | Electro-viscous interactions between sedimenting particles (FM10-017) Ehud Yariv, Itzhak Frankel, Ory Schnitzer, Israel | |
| FS03: Experimental methods in mechanics Chairs: Qingyuan Wang, China Yunche Wang, Taiwan, China Room: 212A | Dynamic stress experimental study on asymmetric beam to column connection structure (FS03-018) Songgang Li, Guobiao Yang, Weiming Zeng, China | |
| FS08: Granular materials and flows Chairs: Joe Goddard, USA Pierre Jop, France Room: 212B | Hopper flow prediction using a constitutive model with microstructure evolution (FS08-012) Jin Sun, Sankaran Sundaresan, UK | |
| MS01: Mechanical challenges in energy Chairs: Gunner Larsen, Denmark Kenneth Reifsnider, USA Room: 213A | Molecular dynamics simulation of deformation behavior of gadolinia doped ceria under tensile loading (MS01-014) Yi Sun, Chen Wang, Yunjun Chen, China | |

| Session | 16:00 | 16:20 | 16:40 |
|---|--|---|--|
| FM06: Drops, bubbles and multiphase flows Chairs: Peter Spelt, France Chao Sun, The Netherlands Room: Ballroom A | Three-dimensional internal flow structures of a moving droplet actuated by wettability gradient (FM06-032) Zhen Li, Guohui Hu, Zhiliang Wang, <u>Zhewei Zhou</u> , China | An efficient computational model for large-scale simulations of moving contact lines (FM06-031) <u>Peter D. M. Spelt</u> , Yi Sui, France | Similarity solutions for coalesce of two sessile drops (FM06-035) <u>José. Federico Hernández Sánchez</u> , Antonin Eddi, Luuk Lubbers, Jacco H. Snoeijer, The Netherlands |
| SM16: Vibrations and control of structures Chairs: Viktor Berbyuk, Sweden Dengqing Cao, China Room: Ballroom B | Minimum-time damping of a physical pendulum (SM16-081, invited lecture) <u>Alexander Ovseevich</u> , Russia | Damage detection using proper orthogonal decomposition (SM16-010) <u>Ugo Galvanetto</u> , Marco Thiene, Mirco Zaccariotto, Marco Gherlone, Italy | Vortex-induced vibrations of pipes conveying fluid in subcritical and supercritical regimes (SM16-018) Huliang Dai, <u>Lin Wang</u> , China |
| FM07: Flow instability and transition Chairs: Sebastian Altmeyer, South Korea Jean-Christophe Robinet, France Room: Ballroom C | Direct numerical simulations of high-speed boundary layer transition including adverse pressure gradients (FM07-027) Kenneth Franko, <u>Sanjiva K. Lele</u> , USA | Boundary layer transition in hypersonic boundary layer (FM07-015) Chuanhong Zhang, <u>Qing Tang</u> , Cunbiao Lee, Yanji Hong, Jifei Ye, China | DNS of turbulent transition in channel flow induced by boundary layers interaction (FM07-016) <u>Marc Buffat</u> , Lionel Le Penven, Julien Montagnier, Anne Cadiou, France |
| SM05: Fracture mechanics Chairs: Leslie Banks-Sills, Israel Alberto Carpinteri, Italy Room: Function Hall A | Hardening cohesive zone model for size effects in the necking and ductile fracture of metals (SM05-012) Alberto Carpinteri, <u>Baoming Gong</u> , Mauro Corrado, Italy | Analysis of complex crack problems by the polygonal numerical manifold method (SM05-005) <u>Huihua Zhang</u> , Jingjing Zhu, China | An interaction energy integral method for an interface crack between two nonhomogeneous materials under thermal loading (SM05-006) <u>Licheng Guo</u> , Fengnan Guo, Hongjun Yu, China |
| SM15: Structural optimization Chairs: Xu Guo, China Pauli Pedersen, Denmark Room: Function Hall B | A review of topology optimization approaches (SM15-007) <u>Ole Sigmund</u> , Kurt Maute, Denmark | Topology optimization procedures for reinforced concrete design (SM15-008) <u>Oded Amir</u> , Denmark | Application of GJ-integral to shape optimization problems for partial differential equations/system with mixed boundary conditions (SM15-009) <u>Kohji Ohtsuka</u> , Japan |
| MS06: Effects of small size scales in materials modeling Chairs: William A. Curtin, Switzerland Baohua Ji, China Room: Function Hall C | Twin boundary: strengthening or softening? (MS06-009, invited lecture) <u>Lei Lu</u> , China | A quasicontinuum approach to modeling discrete microstructures (MS06-014) Lars A.A. Beex, <u>Ron H.J. Peerlings</u> , Marc G.D. Geers, The Netherlands | Some observations on the size effects in nanotwined metals and their theoretical explanation (MS06-015) <u>Yujie Wei</u> , China |
| FS01: Acoustics Chairs: Camille Perrot, France Xiaodong Wang, China Room: 203A+B | Measurements of thermal effects on acoustic screech in a choked circular jet emanating from a sharp-edged orifice (FS01-023, invited lecture) <u>Max Kandula</u> , USA | Complete bandgaps in three-dimensional holey phononic crystals with resonators (FS01-012) <u>Yanfeng Wang</u> , Yuesheng Wang, China | Acoustic metamaterials for imaging beyond the diffraction limit (SM07-038) <u>Xiaoming Zhou</u> , Gengkai Hu, China |
| FM01: Biological fluid dynamics Chairs: Kamran Mohseni, USA Jane Wang, USA Room: 205A+B | Aerodynamics of chestnut tiger butterfly in forward flight (FM01-038) Naoto Yokoyama, Kei Senda, Makoto Iima, Norio Hirai, Japan | Three-dimensional simulation of a red blood cell in shear flow (FM01-020) <u>Weixi Huang</u> , Cheong Bong Chang, Hyung Jin Sung, China | Effect of wing deformation on the flapping flight of butterflies (FM01-021) Lingxiao Zheng, <u>Rajat Mittal</u> , USA |
| FM04: Compressible flow Chairs: Daniel Bodony, USA Carlos Pantano, USA Room: 206A+B | A new method for measuring specific heat ratio of combustion gases in hypersonic flow (FM04-019) Tiejin Wang, <u>Jun Chen</u> , China | Visualization experimental and numerical investigation on the muzzle flow (FM04-020) <u>Zeqing Guo</u> , Xiaohai Jiang, Yang Wang, Zhihua Chen, Hongzhi Li, China | Experimental study on vortex / bow shock interaction at Mach number of 6 (FM04-022) <u>Andrey Shmakov</u> , Andrey Shevchenko, Anatoly Kharitonov, Russia |
| FS05: Electro- and magnetomechanical systems Chairs: Wanlin Guo, China Zhenbang Kuang, China Room: 208A+B | Surface and size effects of low-dimensional ferroelectrics via multiscale electromechanically coupled computational methods (FS05-004, invited lecture) <u>Daining Fang</u> , Yihui Zhang, China | Waves in pyroelectric materials (FS05-006) <u>Zhenbang Kuang</u> , Zhidong Zhou, China | Mechanics of epidermal electronics (FS05-002) Shuodao Wang, Jian Wu, <u>Yonggang Huang</u> , John A. Rogers, USA |

| Session | 17:00 | 17:20 | 17:40 |
|---|---|---|--|
| FM06: Drops, bubbles and multiphase flows Chairs: Peter Spelt, France Chao Sun, The Netherlands Room: Ballroom A | Evolution and breakup of viscous rotating drops (FM06-036) Marco A. Fontelos, Victor J. Garcia-Garrido, Ultano Kindelan, Spain | From passive tracer to bubbles dispersion in Taylor-Couette flows (FM06-039) Eric Climent, Marouan Nemri, Agathe Chouippe, Celine Gabillet, Sophie Charton, Dominique Legendre, France | Bubble dynamics in a compressible viscoelastic medium (FM06-040) Eric Johnsen, Chengyun Hua, Lauren Mancia, USA |
| SM16: Vibrations and control of structures Chairs: Viktor Berbyuk, Sweden Dengqing Cao, China Room: Ballroom B | Rectilinear motions of multi-module vibration-driven systems: effects of the phase shifts among internal motions (SM16-019) Hongbin Fang, Jian Xu, China | Synchronization of pendula rotating in different directions (SM16-020) Krzysztof Czolczynski, Przemyslaw Perlikowski, Andrzej Stefanski, Tomasz Kapitaniak, Poland | Modal interaction in the inextensible beams on the elastic foundations (SM16-015) Jianjun Ma, Jian Peng, Lianhua Wang, Yueyu Zhao, China |
| FM07: Flow instability and transition Chairs: Sebastian Altmeyer, South Korea Jean-christophe Robinet, France Room: Ballroom C | Shear layer instabilities in variable density transverse jets (FM07-017) Daniel Getsinger, Levon Gevorkyan, Cory Hendrickson, Owen I. Smith, Ann R. Karagozian, USA | Stability of axisymmetric convection in cylinders heated from below (FM07-018) Bofu Wang, Dongjun Ma, Dejun Sun, China | Transition delay of a two-dimensional channel flow due to longitudinal wall oscillation (FM07-020) Takashi Atoke, Japan |
| SM05: Fracture mechanics Chairs: Leslie Banks-Sills, Israel Alberto Carpinteri, Italy Room: Function Hall A | Delamination between a unidirectional and woven composite (SM05-004) Leslie Banks-Sills, Maya Gohfeld, Rami Eliasi, Israel | Molecular simulations of the uniaxial tension on PVDF: from a single molecular chain to an amorphous cell (SM05-013) Fanlin Zeng, Yi Sun, Yizhi Liu, China | Molecular dynamics simulation of crazing in amorphous glassy polymers (SM05-028) Sudarkodi Venkatesan, Sumit Basu, India |
| SM15: Structural optimization Chairs: Xu Guo, China Pauli Pedersen, Denmark Room: Function Hall B | Piecewise constant level set approach to structural optimization of contact problems (SM15-032) Andrzej Myslinski, Poland | Topology optimization of hyperelastic bodies by maximizing the equilibrium potential energy (SM15-017) Anders Klarbring, Niclas Strömberg, Sweden | Surrogate-based optimum design for non-uniform grid-stiffened shells with adaptive sampling (SM15-047) Bo Wang, Peng Hao, Gang Li, China |
| MS06: Effects of small size scales in materials modeling Chairs: William A. Curtin, Switzerland Baohua Ji, China Room: Function Hall C | Atomistic investigation of enhanced tensile ductility of metallic glass matrix composite with crystalline second phase (MS06-016) Shaoxing Qu, Haofei Zhou, China | Microstructure-dependent mechanical behaviors of SiC nanowires (MS06-017) Jun Wang, Chunsheng Lu, Qi Wang, Pan Xiao, Fujio Ke, Yilong Bai, Yaogen Shen, Xiaozhou Liao, Huajian Gao, Australia | An experimental and theoretical study of size effects in the torsion of micro-sized metallic wires (MS06-018) Dabiao Liu, Yuming He, Peng Hu, Zhipeng Gan, China |
| FS01: Acoustics Chairs: Camille Perrot, France Xiaodong Wang, China Room: 203A+B | Acoustoelastic theory for a fluid-saturated porous media (FS01-006) Jiayong Tian, Huaqing Wang, China | The analytic study of elastic metamaterials with negative mass and modulus (FS01-017) Xiaodong Wang, Canada | Band gaps of phononic crystals with smooth contact interfaces (SM07-052) Fenglian Li, Yuesheng Wang, Chuanzeng Zhang, Guilan Yu, China |
| FM01: Biological fluid dynamics Chairs: Kamran Mohseni, USA Jane Wang, USA Room: 205A+B | A numerical study of swimming micro-organisms inside a capillary tube (FM01-023) Lailai Zhu, Eric Lauga, Luca Brandt, Sweden | Boundary element analysis of propulsive force and torque of a dinoflagellate symbiodinium (FM01-025) Tonau Nakai, Ikuko Shihira-Ishikawa, Atsushi Miyawaki, Tomonobu Goto, Japan | Osmotically driven flows in plants (FM01-026) Tomas Bohr, Kaare Hartvig Jensen, Denmark |
| FM04: Compressible flow Chairs: Daniel Bodony, USA Carlos Pantano, USA Room: 206A+B | Inviscid quasistatic modelling for unsteady shock reflections with separation (FM04-025) Lionel Agostini, Lionel Larchevêque, Pierre Dupont, France | Disturbance evolution in a Mach 4.8 boundary layer with separation (FM04-026) Olaf Marxen, Thierry Magin, Gianluca Iaccarino, Belgium | |
| FS05: Electro- and magnetomechanical systems Chairs: Wanlin Guo, China Zhenbang Kuang, China Room: 208A+B | Theoretical model and finite element simulation of the effective electromechanical properties of cellular piezoelectret film (FS05-003) Yongping Wan, Longtao Xie, Liangliang Fan, Zheng Zhong, China | The effect of electrostatic tractions on the fracture behavior (FS05-007) Tong-Yi Zhang, Tao Xie, Hong Kong, China | Nonuniform ferroelectric domain switching criterion and related toughening driven by two-parameter crack-tip stress field (FS05-008) Yuanqing Cui, China |

Welcome reception: 19:00 – 21:00, Terrace outside, 4th floor

| Session | 16:00 | 16:20 | 16:40 |
|--|--|--|--|
| FS06: Fluid structure interactions Chairs: Hyung Jin Sung, South Korea Moubin Liu, China Room: 209A+B | Flutter instability of cantilever beams in viscous flow (FS06-025, invited lecture) Deniz T. Akcabay, <u>Yin L. Young</u> , USA | Efficient methods to take into account the fluid lag in hydraulic fracturing simulations through a variational inequality formulation (FS06-003) <u>Yongxing Shen</u> , Spain | Influence of mean flow on transmission loss of sandwich structure with porous material core (FS06-007) <u>Han Meng</u> , Fengxian Xin, Tianjian Lu, China |
| FM02: Boundary layers Chairs: Alfred Klulwick, Austria Anatoly Ruban, UK Room: 207 | Effects of streaks on second-instability in boundary-layer transition (FM02-027) <u>Hui Guo</u> , Yulong Feng, Haiwen Wang, Ziteng Liu, China | On the definition of logarithmic region in zero pressure gradient turbulent boundary layers (FM02-010) <u>Yuki Wada</u> , Katsuki Goto, Jun Yoshida, Yoshiyuki Tsuji, Japan | Mean topological evolution in compressible turbulent boundary layer (FM02-009) <u>Youbiao Chu</u> , Xiyun Lu, China |
| MS03: Fluid-structure interactions in biological systems Chairs: Paulo Arratia, USA Andrejs Cebers, Latvia Room: 210A | Beating of artificial microcilia (MS03-021, invited lecture) Nais Coq, Antoine Bricard, Francois-Damien Delapierre, Laurent Malaquin, Olivia Du Roure, Marc Fermigier, <u>Denis Bartolo</u> , France | Multiscale modeling of pseudomonas aeruginosa swarming (MS03-007) <u>Huijing Du</u> , Zhiliang Xu, Joshua D. ShROUT, Mark Alber, USA | Modeling the beating of ATP-powered natural flagella (MS03-020) <u>S. Namdeo</u> , P. R. Onck, The Netherlands |
| MS04: Mechanics of transport in microfluidic devices Chairs: Dino Di Carlo, USA Henrik Bruus, Denmark Room: 210B | Nature-inspired microfluidic propulsion using magnetically-driven artificial cilia (MS04-007) Syed N. Khaderi, <u>Patrick R. Onck</u> , The Netherlands | Cell membrane dynamics during sonoporation investigated by microfluidic single-cell analysis (MS04-009) Nilanjana Bose, Dario Carugo, Tapas K. Maiti, Suman Chakraborty, <u>Xunli Zhang</u> , UK | Electro-elasto-capillarity: electric field driven unwrapping of water drop with elastic film (MS04-011) <u>Yapu Zhao</u> , Ziqian Wang, Fengchao Wang, China |
| FM09: Geophysical and environmental fluid dynamics Chairs: Remi Tailleux, UK Grae Worster, UK Room: 211 | On the dynamics of turbulence near a stress-free surface (FM09-021, invited lecture) <u>James J. Riley</u> , Oscar Flores, Alexander R. Horner-Devine, USA | Weakly nonlinear bores in laminar high Reynolds number two layer fluids (FM02-002) <u>Alfred Klulwick</u> , Rene Szeywerth, Stefan Braun, Edward E. Cox, Austria | An exact 3D tornado-like vortex solution (FM09-001) <u>Liang Sun</u> , China |
| FS03: Experimental methods in mechanics Chairs: Xue-Feng Yao, China Zhengdao Wang, China Room: 212A | Experimental investigation of stress concentration for FGMs using CGS (FS03-021) <u>Xuefeng Yao</u> , Yinji Ma, Wenfeng Hao, Jinjun Zhang, China | Nano sensors for strain measurement by micro-Raman spectroscopy (FS03-025) <u>Wei Qiu</u> , Qiu Li, Zhenkun Lei, Yilan Kang, China | Deformation observation of closed-cell aluminum foams in the split Hopkinson pressure bar test (FS03-027) <u>Yiping Liu</u> , Liqun Tang, Zejia Liu, Daining Fang, China |
| SM11: Multibody and vehicle dynamics Chairs: Jorge Ambrosio, Portugal Dieter Bestle, Germany Room: 212B | Cases of integrability in dynamics of a rigid body interacting with a resistant medium (SM11-024) <u>Maxim V. Shamolin</u> , Russia | Study on the pantograph characteristics affecting the overhead contact system for high speed trains (SM11-023) <u>João C. Pombo</u> , Jorge A. Ambrosio, Portugal | Influence of liquid sloshing on road tanker dynamics and loading (SM11-027) Alexandr O. Shimanovsky, <u>Maryna G. Kuzniatsova</u> , Artur V. Putsiata, Yuri M. Pleskachevskii, Belarus |
| MS05: Dynamics and control of morphing structures Chairs: Zhichun Yang, China Michael Sinapius, Germany Room: 213A | Realization and aeroelastic characteristics of a variable planform morphing wing (MS05-014, invited lecture) <u>Zhichun Yang</u> , Jiang Xie, China | Active flutter suppression for high-dimensional aeroelastic system via delayed control (MS05-005) <u>Haiyan Hu</u> , Rui Huang, Yonghui Zhao, China | Design of piezoelectric hydraulic pump based on MEMS valve (MS05-016) <u>Jian Sun</u> , Yanju Liu, Jinsong Leng, China |

Monday, 20 August 2012

| Session | 17:00 | 17:20 | 17:40 |
|--|---|--|--|
| FS06: Fluid structure interactions Chairs: Hyung Jin Sung, South Korea Moubin Liu, China Room: 209A+B | Wingtip trajectory of a flapping micro-air-vehicle in its forward flight (FS06-010) <u>Lung-Jieh Yang</u> , Taiwan, China | Orbital motion of a long flexible cylinder subject to vortex-induced vibrations (FS06-013) <u>Rémi Bourquet</u> , George E. Karniadakis, Michael S. Triantafyllou, France | Micro-blowing effect on two coupled wakes behind two square cylinders (FS06-015) <u>Shengjin Xu</u> , Pengchuan Zhang, Weiguo Zhang, China |
| FM02: Boundary layers Chairs: Alfred Klumpp, Austria Anatoly Ruban, UK Room: 207 | Comparison of turbulent pipe and boundary layer flows (FM02-011) <u>Jae Hwa Lee</u> , Hyung Jin Sung, South Korea | Prediction of skin-friction reduction by opposition control in turbulent channel flow (FM02-023) <u>Bingqing Deng</u> , Chunxiao Xu, Weixi Huang, Guixiang Cui, China | Experimental investigation of the flow around a circular cylinder in the turbulent boundary layer (FM02-021) <u>Zhanqi Tang</u> , Nan Jiang, China |
| MS03: Fluid-structure interactions in biological systems Chairs: Paulo Arratia, USA Andrejs Cebers, Latvia Room: 210A | Structure-based modelling of human left ventricle using an extended FE-IB method (MS03-031) <u>Hao Gao</u> , <u>Xiaoyu Luo</u> , Boyce Griffith, Christie McComb, Colin Berry, UK | Magnetic field driven microdevices (MS03-009) <u>Rūdolfs Livanovičs</u> , <u>Andrejs Cēbers</u> , Latvia | Self-propulsion & swimming in viscoelastic fluids (MS03-008) <u>Xiao Nin Shen</u> , <u>Paulo E. Arratia</u> , USA |
| MS04: Mechanics of transport in microfluidic devices Chairs: Dino Di Carlo, USA Henrik Bruus, Denmark Room: 210B | Rotation of non-spherical particles in square chambers using ultrasonic standing waves (MS04-012) <u>Thomas Schwarz</u> , Guillaume Petit-Pierre, Jurg Dual, Switzerland | Ultrasonic collection of particles at an air/liquid interface (MS04-021) <u>Priscilla Rogers</u> , Ian Gralinski, <u>Adrian Neild</u> , Australia | |
| FM09: Geophysical and environmental fluid dynamics Chairs: Remi Tailleux, UK Grae Worster, UK Room: 211 | Analytical and numerical bedrock reconstruction in glacier flows from free surface elevation data (FM09-009) <u>Mathieu Sellier</u> , A. Gessese, C. Heining, New Zealand | Measurements and computational simulations of the effects of sand-fixing forest on the wind flow over two underlying surfaces (FM09-010) <u>Kejie Zhan</u> , Ning Huang, China | Entrainment and intermittency in the response of a quasi-geostrophic oceanic double gyre to seasonal external forcing (FM09-012) <u>Shinya Shimokawa</u> , Tomonori Matsuura, Japan |
| FS03: Experimental methods in mechanics Chairs: Xuefeng Yao, China Zhengdao Wang, China Room: 212A | Experimental fringe analysis by compressive sensing (FS03-031) <u>Howard Yuanhao Huang</u> , George Barbastathis, Singapore | | |
| SM11: Multibody and vehicle dynamics Chairs: Jorge Ambrosio, Portugal Dieter Bestle, Germany Room: 212B | Impulse-based simulation of particle flow during subsurface block-cave mining (SM11-028) <u>Xuhai Tang</u> , Adriana R. Paluszny, Robert W. Zimmerman, UK | Dynamic analysis of multi-body vehicle fitted with controlled limited-slip differential using MSC.ADAMS/Car (SM11-030) <u>Mohit Goel</u> , Nalinaksh S. Vyas, India | Experimental and numerical study on load sharing behavior of gear system actuated by multiple pinions simultaneously (SM11-031) <u>Haidong Yu</u> , Chunzhang Zhao, Yong zhao, Xinmin Lai, China |
| MS05: Dynamics and control of morphing structures Chairs: Zhichun Yang, China Michael Sinapius, Germany Room: 213A | Vibration isolation and control of an impact oscillator (MS05-018) <u>James Ing</u> , Elena Sitnikova, Ekaterina Pavlovskaja, Yang Liu, Marian Wiercigroch, UK | Variable stiffness behavior investigation of filament wound tubes (MS05-022) <u>Yijin Chen</u> , Jian Sun, Yanju Liu, Jinsong Leng, China | |

Welcome reception: 19:00 – 21:00, Terrace outside, 4th floor

Tuesday, 21 August 2012

| Session | 8:30 | 9:15 |
|---|--|-------------|
| 9Sectional Lecture Chairs: Michael Graham, USA Osamu Sano, Japan Room: Ballroom C | Synchronization of eukaryotic flagella (SL07) <u>Raymond Goldstein</u> , UK | |
| Sectional Lecture Chairs: Bhushan Karihaloo, UK Shouwen Yu, China Room: Ballroom B | Scale interaction and ordering effects at fracture (SL08) <u>Robert Goldstein</u> , Russia | |
| Sectional Lecture Chairs: Youshi Hong, China Henryk Petryk, Poland Room: Ballroom A | Nanomechanics of graphenes and nano-crystals (SL16) <u>Wei Yang</u> , China | |
| Sectional Lecture Chairs: Peter Schmid, France Gertjan van Heijst, The Netherlands Room: Function Hall A | Direct numerical simulation of multiphase flows with volume of fluid methods (SL17) <u>Stéphane Zaleski</u> , France | |

| Session | 9:20 | 9:40 | 10:00 |
|--|---|---|--|
| FM06: Drops, bubbles and multiphase flows Chairs: Eric Climent, France Xiaolong Deng, USA Room: Ballroom A | Curvature singularity and film-skating during drop impact (FM06-041) <u>Laurent Duchemin</u> , Christophe Josserand, France | Large bubble rupture sparks fast liquid jet (FM06-043) <u>Thomas Seon</u> , Arnaud Antkowiak, France | Transient break-up, saturated pulsations and static/dynamic buckling of insonated contrast agents - effect of the constitutive law and characterization (FM06-045) <u>Nikos Pelekasis</u> , Kostas Tsiglifis, Greece |
| FS02: Computational methods in mechanics Chairs: Elias Cueto, Spain Michael Ortiz, USA Room: Ballroom B | Drops and bubbles simulations using volume of fluid and octree adaptative refinement (FS02-048, invited lecture) Stephane Zaleski, <u>Stephane Popinet</u> , New Zealand | Approximations of incompressible large deformation elastic problems: Some unresolved issues! (FS02-054) <u>Ferdinando Auricchio</u> , Lourenco Beirao da Veiga, Carlo Lovadina, Alessandro Reali, Robert L. Taylor, Peter Wriggers, Italy | A new front tracking method for simulation of high-velocity impact problems (FS02-018) <u>Shiyu Wu</u> , Kaixin Liu, China |
| FM05: Convection Chairs: Mitsuaki Funakoshi, Japan Ronald du Puits, Germany Room: Ballroom C | Onset of asymmetry and three-dimensionality in transitional round fountains in a homogeneous fluid (FM05-003, invited lecture) Tao Liu, <u>Wenxian Lin</u> , Wenfeng Gao, Steven W. Armfield, China | Boundary layer structure in turbulent Rayleigh-Bénard convection (FM05-001) Nan Shi, Mohammad S. Emran, Joerg Schumacher, Germany | Influences of modest rotation on the large-scale circulation in turbulent Rayleigh-Benard convection (FM05-002) <u>Jinqiang Zhong</u> , China |
| SM15: Structural optimization Chairs: Tadeusz Burczynski, Poland George Rozvany, Hungary Room: Function Hall A | Bolt thread stress optimization (SM15-014) <u>Niels Leergaard Pedersen</u> , Denmark | Structural optimization by using different level models (SM15-030) <u>Vasily Chedrik</u> , Russia | Generation of set of vanishing elements in topology optimization (SM15-031) <u>Vladimir Uskov</u> , Russia |
| FS04: Chaos and pattern formation Chairs: Jay Fineberg, Italy Dwight Barkley, UK Room: Function Hall B | Continuous and discrete material modelling and the onset of criticality (FS04-013, invited lecture) Andrei Constantinescu, <u>Lev Truskinovsky</u> , France | Fast fracture in slow motion: Dynamic fracture in brittle gels (FS04-001) Jay Fineberg, Tami Goldman, Eran Bouchbinder, Israel | Characterization of chaos in polycrystal/foam microstructures and related issues (FS04-002) <u>Victor L. Berdichevsky</u> , USA |
| FM16: Waves in fluids Chairs: Sergei Badulin, Russia W. Kendall Melville, USA Room: Function Hall C | On the generalized phillips' spectra for wind waves (FM16-014, invited lecture) <u>Sergei I. Badulin</u> , Vladimir E. Zakharov, Russia | Attenuation of sea waves by a vegetation canopy (FM16-028) Chiang C. Mei, Benlong Wang, <u>Xiaoyu Guo</u> , China | Propagation of interfacial solitary water waves in presence of surfactants (FM16-003) <u>Paul W. Hamerton</u> , Andrew P. Bassom, UK |
| FS08: Granular materials and flows Chairs: Detlef Lohse, The Netherlands Thorsten Poeschel, Germany Room: 202A+B | Basal friction of a dry and a saturated granular mass in unsteady avalanche via high-speed imaging and control volume analysis (FS08-014) <u>Yun-ta Huang</u> , F.-L. Yang, Taiwan, China | In-situ and image-based force measurement of a dry granular flow down an incline (FS08-015) <u>Fuling Yang</u> , Minghe Jiang, Taiwan, China | Classical and Cosserat elasto-plastic constitutive equations for pressure-dependent yield (FS08-016) <u>David Harris</u> , UK |
| FM10: Low Reynolds number flow Chairs: Dominique Barthes-Biesel, France John Brady, USA Room: 203A+B | Reaction-induced motion: Chemical swimming, sailing and surfing (FM10-023) Sergey Shklyaev, Ubaldo M. Cordova-Figueroa, <u>John F. Brady</u> , USA | Passage of a DDS nano-particle through the cleft of capillary wall with glyco-chains (FM10-019) <u>Keiko Asayama</u> , Masato Makino, Satoshi Itoh, Osamu Sano, Japan | Slipping Stokes flow about a solid particle (FM10-021) <u>Antoine Sellier</u> , France |
| FS06: Fluid structure interactions Chairs: Liqun Chen, China Yinlu Young, USA Room: 205A+B | Superlyophilic spreading of a droplet on the forest of pillar arrays (MS06-043) <u>Quanzi Yuan</u> , Yapu Zhao, China | Numerical simulation of fluid-structure interactions with a direct-forcing fictitious domain method (FS06-016) <u>Zhaosheng Yu</u> , Xueming Shao, China | Oblique waves lift the flapping flag (FS06-018) <u>Jérôme Hoepffner</u> , Yoshitsugu Naka, France |
| FS05: Electro- and magnetomechanical systems Chairs: Yonggang Huang, USA Zheng Zhong, China Room: 206A+B | Models for actuation, failure and tearing of electroactive materials (FS05-015, invited lecture) <u>Robert M. McMeeking</u> , USA | Mechanical-electric-magnetic coupling effects in functional nanomaterials (FS05-014) <u>Wanlin Guo</u> , Zhuhua Zhang, China | |

Session

10:20

10:40 – 11:00

| | | |
|---|---|---|
| <p>FM06: Drops, bubbles and multiphase flows Chairs: Eric Climent, France Xiaolong Deng, USA Room: Ballroom A</p> | <p>Gas solubility effects on slug flow (FM06-046) <u>Juliana B. R. Loureiro</u>, Atila P. Silva Freire, Brazil</p> | <p>Coffee Break Main Lobby, 1st floor</p> |
| <p>FS02: Computational methods in mechanics Chairs: Elias Cueto, Spain Michael Ortiz, USA Room: Ballroom B</p> | <p>A fast subspace iteration procedure for improving automated multi-level substructuring (SM16-040) Jiacong Yin, Heinrich Voss, <u>Pu Chen</u>, China</p> | |
| <p>FM05: Convection Chairs: Mitsuki Funakoshi, Japan Ronald du Puits, Germany Room: Ballroom C</p> | <p>Boundary layer visualization in turbulent Rayleigh-Bénard convection in air (FM05-004) <u>Ronald du Puits</u>, Johannes Rilck, Christian Resagk, André Thess, Germany</p> | |
| <p>SM15: Structural optimization Chairs: Tadeusz Burczynski, Poland George Rozvany, Hungary Room: Function Hall A</p> | <p>A topology optimization procedure based on a phase field approach and an active set strategy (SM15-027) <u>Mathias Wallin</u>, Matti Ristinmaa, Sweden</p> | |
| <p>FS04: Chaos and pattern formation Chairs: Jay Fineberg, Italy Dwight Barkley, UK Room: Function Hall B</p> | <p>Disentangling multi-level systems: Averaging, correlations, memory (FS04-005) <u>Valerio Lucarini</u>, Jeroen Wouters, Germany</p> | |
| <p>FM16: Waves in fluids Chairs: Sergei Badulin, Russia W. Kendall Melville, USA Room: Function Hall C</p> | <p>Nonlinear long waves over a muddy beach (FM16-007) <u>Chiang C. Mei</u>, Erell-Isis Garnier, Zhenhua Huang, USA</p> | |
| <p>FS08: Granular materials and flows Chairs: Detlef Lohse, The Netherlands Thorsten Poeschel, Germany Room: 202A+B</p> | <p>Spreading of a cohesive granular matter on a smooth inclined plane submitted to vibration (FS08-019) <u>Arnaud Benedetti</u>, Philippe Sornay, Blanche Dalloz, Maxime Nicolas, France</p> | |
| <p>FM10: Low Reynolds number flow Chairs: Dominique Barthes-Biesel, France John Brady, USA Room: 203A+B</p> | <p>Motion of a microswimmer in Poiseuille flow (FM10-022) <u>Andreas Zöttl</u>, Holger Stark, Germany</p> | |

| Session | 9:20 | 9:40 | 10:00 |
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| SM10: Mechatronics Chairs: Viktor Berbyuk, Sweden David Limebeer, UK Room: 208A+B | Aerodynamic control of long-span suspension bridges (SM10-006, invited lecture) David J. N. Limebeer, J. Michael R. Graham, Xiaowei Zhao, UK | Unique and stable parameters of human motion used for the identification of individuals (SM10-004) Mircea Mihalca, Sorin Vlase, Romania | Mechanical force modulation with permanent magnets at small scale (SM10-002) Lionel Flaction, Bandar Hakim, Jan Sandtner, Vitali Verin, Hannes Bleuler, Switzerland |
| FM03: Combustion and flames Chairs: Peter Lindstedt, UK Chunde Yao, China Room: 209A+B | Fuel droplet combustion in the presence of acoustic excitation (FM03-004) Jeffrey Wegener, Sophonias Teshome, Cristhian Sevilla, Owen I. Smith, Ann R. Karagozian, USA | Diesel/methanol dual fuels combustion - a mode controlled by both chemical kinetic and physical process (FM03-021) Chunde Yao, Hanjun Xu, Guanglan Xu, China | Combustion initiation by palladium catalysts (FM03-015) M. Bonanni, R. P. Lindstedt, UK |
| FM02: Boundary layers Chairs: Viktor Kozlov, Russia Xiyun Lu, China Room: 207 | Receptivity of the boundary layer on a wing surface to elastic vibrations of the wing surface (FM02-026) Anatoly I. Ruban, David Pryce, UK | Several measurement results on the wall-bounded turbulent boundary layer utilizing tomographic TR-PIV technology (FM02-015) Shaoqiong Yang, Nan Jiang, China | Transition route of Klebanoff type in hypersonic boundary layers (FM02-025) Min Yu, Jisheng Luo, Xuesong Wu, China |
| FM04: Compressible flow Chairs: Sergey Leonov, Russia Peter Schmid, France Room: 210A | Physical analysis of compressibility effects in the transonic flow around a supercritical airfoil at high Reynolds number by numerical simulation (FM04-029) Damien Szubert, Fernando Grossi, Marianna Braza, Yannick Hoarau, Gilles Harran, Alain Sevrain, France | Mach number similarity of large-scale structures in compressible channel flows (FM14-028) Jun Chen, Jie Pei, Fazle Hussain, Zhensu She, China | Effect of thermal actuators on drag reduction in a Mach 8 bow shock (FM04-030) Hong Yan, Xiaojing Yu, Jijun Yu, China |
| FM17: General fluid mechanics Chairs: Jinjun Wang, China Tsutomu Kambe, Japan Room: 210B | Heat transfer and boiling of liquid helium oscillation in narrow rectangular duct (FM17-009) Yasuhide Eikoku, Kazuma Ishida, Kazuki Wada, Akihumi Iwamoto, Yoshiyuki Tsuji, Japan | Stability of pressure-driven flow in open fluidic channels (FM17-016) Jue Nee Tan, Adrian Neild, Australia | Space-time characteristics of compliant wall in turbulent channel flow (FM17-019) Euiyoung Kim, Haecheon Choi, South Korea |
| FM13: Stirring and mixing Chairs: Mark Andrew Stremmer, USA Juan-Pedro Mellado, Germany Room: 211 | Mean shear effects at the cloud-top boundary (FM13-005, invited lecture) Juan Pedro Mellado, Bjorn Stevens, Heiko Schmidt, Germany | Large-scale flow structures and their role in mass transfer rate enhancement behind an orifice (FM13-013, invited lecture) Feng Shan, Atsushi Fujishiro, Masashi Tatematsu, Retsu Kojo, Masaya Kondo, Yoshiyuki Tsuji, Japan | Intermittent flow in stirred yield stress fluids slows down chaotic mixing (FM13-004) Dawn M. Wendell, Ianis Lallemand, Pierre Jop, Emmanuelle Guillard, France |
| MS01: Mechanical challenges in energy Chairs: Jens Nørkær Sørensen, Denmark Fernando Porte-Agel, Switzerland Room: 212A | Control of flow separation on a swept wing at low Reynolds numbers (MS01-010, invited lecture) Ilya D. Zverkov, Viktor V. Kozlov, Aleksey V. Kryukov, Aleksandr M. Pavlenko, Russia | Lithium-assisted plastic deformation of silicon electrodes in lithium-ion batteries (MS01-003) Kejie Zhao, Weili Wang, Joost Vlassak, Zhigang Suo, Efthimios Kaxiras, USA | Instability of high-energy-density insulating polymers (MS01-005) Xuanhe Zhao, USA |
| MS02: Mechanics of natural disasters Chairs: Huimin Jing, China Hans Von Storch, Germany Room: 212B | Scenarios of local tsunamis in China seas (MS02-021) Hua Liu, Xi Zhao, Yousheng He, China | Verification and validation of SEC-HY21 model for tsunami inundation (MS02-022) Chiang-An Hsu, Chin-Pin Ko, Min-Ching Chiou, Taiwan, China | Simulation of non-breaking and breaking solitary wave run-up and impact by SPH method (MS02-023) Haihua Xu, My Ha Dao, Pavel Tkach, Eng Soon Chan, Singapore |
| MS03: Fluid-structure interactions in biological systems Chairs: C. Alberto Figueroa, UK Moshe Rosenfeld, Israel Room: 213A | A fluid structure interaction model of porcine aortic valve with physiologic tissues properties and flow boundary conditions (MS03-006) Gil Marom, Hee-Sun Kim, Rami Haj-Ali, Ehud Raanani, Hans-Joachim Schäfers, Moshe Rosenfeld, Israel | Low-order modeling of biologically-inspired flight mechanics (MS03-011) Jeff D. Eldredge, Chengjie Wang, USA | Wetting and deformation of arrays of elastic fibers (MS03-013) Camille Duprat, Suzie Protiere, Howard A. Stone, USA |
| MS05: Dynamics and control of morphing structures Chairs: Jinhao Qiu, China James Ing, UK Room: 213B | Novel morphing skin structures based on smart materials and structures (MS05-017, invited lecture) Jinsong Leng, China | Design of morphing sma aerostructures by computational modeling (MS05-029, invited lecture) Stephen Oehler, Darren Hartl, Richard Malak, Dimitris Lagoudas, USA | Experimental investigation on unsteady aerodynamic behaviors of a variable camber airfoil (MS05-026) Wenchao Yang, Jianting Yang, Jin Wang, Jiming Yang, Shumin Xu, Peng Ling, China |

| Session | 10:20 | 10:40 – 11:00 |
|---|---|--|
| <p>SM10: Mechatronics Chairs: Viktor Berbyuk, Sweden David Limebeer, UK Room: 208A+B</p> | <p>On the control of friction induced vibrations through an additional sequential friction-spring (SM10-001) Alexander Fidlin, Hartmut Hetzler, Germany</p> | <p>Coffee Break Main Lobby, 1st floor</p> |
| <p>FM03: Combustion and flames Chairs: Peter Lindstedt, UK Chunde Yao, China Room: 209A+B</p> | <p>DNS of turbulent swirling premixed flame and pressure oscillations in a micro combustor (FM03-025) Kotaro Kuchiki, Masayasu Shimura, Naoya Fukushima, Mamoru Tanahashi, Toshio Miyauchi, Japan</p> | |
| <p>FM13: Stirring and mixing Chairs: Mark Andrew Stremmer, USA Juan-Pedro Mellado, Germany Room: 211</p> | <p>Topological chaos and mixing in fluids stirred by almost-cyclic sets (FM13-012) Mark A. Stremmer, Pradeep Rao, Shane D Ross, USA</p> | |
| <p>MS01: Mechanical challenges in energy Chairs: Jens Nørkær Sørensen, Denmark Fernando Porte-Agel, Switzerland Room: 212A</p> | <p>In situ strain measurement in anodes for lithium-ion batteries (MS01-013) Elizabeth M. C. Jones, Nancy R. Sottos, Scott R. White, USA</p> | |
| <p>MS02: Mechanics of natural disasters Chairs: Huimin Jing, China Hans Von Storch, Germany Room: 212B</p> | <p>Multiphysics modelling of flowslides initiation (MS02-024) Lorenzo Sanavia, Ronel Ngaradoumbe Nanhorguè, Bernhard A. Schrefler, Italy</p> | |
| <p>MS03: Fluid-structure interactions in biological systems Chairs: C. Alberto Figueroa, UK Moshe Rosenfeld, Israel Room: 213A</p> | <p>Mathematical modelling of aortic dissection (MS03-032) Steven M. Roper, N. A. Hill, Beibei Li, Lei Wang, Xiaoyu Luo, UK</p> | |
| <p>MS05: Dynamics and control of morphing structures Chairs: Jinhao Qiu, China James Ing, UK Room: 213B</p> | <p>Study on dynamic hysteresis and linear modeling of the sliding-skin variable-sweep morphing wing aerodynamics (MS05-013) Peng Bai, Qian Chen, Xinyu Liu, Feng Li, China</p> | |

Tuesday, 21 August 2012

| Session | 11:00 | 11:40 | 12:20 |
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| <p>MS01 Mechanical challenges in energy (Introductory Lectures) Chairs: Dongxiao Zhang, China Jens Nørkær Sørensen, Denmark Room: Ballroom A</p> | <p>Interaction between large wind farms and the atmospheric boundary layer (MS01-016) Fernando Porté-Agel, Yu-Ting Wu, Hao Lu, Switzerland</p> | <p>Failure of solid oxide fuel cells by electrochemically generated internal pressure (MS01-024) Anil Virkar, USA</p> | <p>Nano-mechanics foundations and experimental methodologies for multiphysics prognosis of functional behavior in heterogenous functional materials (heterofoams) (MS01-001) Kenneth Reifsnider, Qianlong Liu, Prasun Majumdar, Fazle Rabbi, Rassel Raihan, Yanhai Du, Jon Michael Adkins, USA</p> |
| <p>MS02 Mechanics of natural disasters (Introductory Lectures) Chairs: Yasuo Onishi, Japan Bernhard Schrefler, Italy Room: Ballroom B</p> | <p>Initiation, transport and deposition of granular avalanches: current progress and future challenges (MS02-004) Roger P. Denlinger, USA</p> | <p>Storm surges (MS02-002) Hans von Storch, Germany</p> | <p>On the modelling of tsunami generation and tsunami inundation (MS02-001) Frederic Dias, Ireland</p> |
| <p>MS03 Fluid-structure interactions in biological systems (Introductory Lectures) Chairs: Howard A. Stone, USA Xiaoyu Luo, UK Denis Bartolo, France Room: Ballroom C</p> | <p>Flow-plant interactions, ecology and biomimetics (MS03-002) Emmanuel de Langre, France</p> | <p>Pressure wave propagation in full-body arterial models: a gateway to exploring aging and hypertension (MS03-010) C. Alberto Figueroa, Jay D. Humphrey, UK</p> | <p>Active biological fluids (MS03-025) Michael Shelley, USA</p> |
| <p>MS04: Mechanics of transport in microfluidic devices (Introductory Lectures) Chairs: Henrik Bruus, Denmark Minoru Seki, Japan Room: Function Hall A</p> | <p>Inertial microfluidics: high-throughput cell and particle manipulation (MS04-016) Dino Di Carlo, USA</p> | <p>Acoustophoresis in life science applications (MS04-019) Thomas Laurell, Sweden</p> | |
| <p>MS05 Dynamics and control of morphing structures (Introductory Lectures) Chairs: Jinsong Leng, China Jonathan Cooper, UK Room: Function Hall B</p> | <p>DLR's morphing activities within the european network (MS05-021) Michael Sinapius, Monner Hans Peter, Kintscher Markus, Riemenschneider Johannes, Germany</p> | <p>Smart skins and actuators for morphing structures (MS05-025) Jinhao Qiu, Hongli Ji, China</p> | |
| <p>MS06 Effects of small size scales in materials modeling (Introductory Lectures) Chairs: Marc Geers, The Netherlands Lallit Anand, USA Room: Function Hall C</p> | <p>Multiscale plasticity: reductionism or emergence? (MS06-021) Erik Van der Giessen, The Netherlands</p> | <p>Stress-gradient plasticity: concept and application (MS06-055) Srinath S. Chakrvarthy, William A. Curtin, Benjamin Szajewski, Switzerland</p> | <p>Size effects of materials surface roughness for wetting and transportation: from nature to experiments and models (MS06-057) Quanshui Zheng, Cunjing Lü, China</p> |

Lunch: 12:40 – 13:40, Exhibition Hall 5, underground floor

| Session | 14:00 | 14:03 | 14:06 |
|---|---|--|--|
| FM06: Drops, bubbles and multiphase flows Chairs: Guohui Hu, China Jean-Philippe Matas, France Room: Ballroom A | | Numerical investigation of the effects of large particles on turbulent channel flow (FM06-023) <u>Xueming Shao</u> , Tenghu Wu, Zhaosheng Yu, China | Modeling of gravitational convection in disperse systems: Instabilities, vortex generation, and boycott effect (FM06-003) <u>Alexander Osipstov</u> , Yurii Nevskii, Russia |
| FM07: Flow instability and transition Chairs: Gianluca Iaccarino, USA Laurette Tuckerman, France Room: Ballroom B | On the dual roles of viscosity to the flow instability (FM07-005) <u>Huashu Dou</u> , Boo Cheong Khoo, China | Hydrodynamic instability of the spiral flow (FM07-007) <u>Evgeny G. Bord</u> , Valery Ya. Rudyak, Russia | Comparison between experimental and numerical analysis of stability of liquid columns in an axial gravitational field rotating around an eccentric axis (FM07-014) Jacobo Rodriguez, <u>Victoria Lapuerta</u> , Ana Laverón-Simavilla, Spain |
| SM16: Vibrations and control of structures Chairs: Carlos Mazzilli, Brazil Oded Gottlieb, Israel Room: Ballroom C | | A non-smooth model of gear vibration (SM16-050) <u>Jianming Wen</u> , Xiangrong Zhou, Yiqiang Sun, China | Thickness-shear vibrations of rectangular plates with free edges by the extended kantarovich method (FS07-019) <u>Ji Wang</u> , Bo Liu, Jianke Du, China |
| FS06: Fluid structure interactions Chairs: Jerome Hoepffner, France Stelios Kyriakides, USA Room: Function Hall A | Generation of Leaky Lamb waves by a piezoelectric wafer active sensor in a fluid-loaded anisotropic plate (FS06-017) <u>Ying Luo</u> , Baiqiang Xu, Chenguang Xu, Guidong Xu, China | Simulation for gas-structure interaction in inflatable membrane beams (FS06-023) <u>Jianzheng Wei</u> , Huifeng Tan, <u>Jianxin Yu</u> , Xingwen Du, China | Optical-force-induced migration of an elastic capsule in a uniform flow (FS06-024) <u>Cheong Bong Chang</u> , Wei-Xi Huang, Hyung Jin Sung, Korea |
| FS02: Computational methods in mechanics Chairs: Naoshi Nishimura, Japan Stephane Zaleski, France Room: Function Hall B | A discrete vortex strip method for vortex induced vibration analysis (FS02-056) <u>Li Zhou</u> , Zhi Zong, China | Flow around an obstacle between parallel walls (FM06-074) <u>Wenchao Yu</u> , Lionel Le Penven, Ivana Vinkovic, Marc Buffat, France | A skew-symmetric formulation for the simulation of multiphase turbulent flows (FM14-026) <u>Daniel Fuster</u> , France |
| FM15: Vortex dynamics Chairs: Stephane Le Dizes, France GertJan van Heijst, The Netherlands Room: Function Hall C | Numerical simulation of three-dimensional separated flow over bodies with some vortex method (FM15-025) <u>Alexey Setukha</u> , Russia | Application of mosaic-skeleton approximations method to accelerate calculations in the problems of modeling flows past bodies with discrete vortices method (FM15-031) <u>Andrey Aparinov</u> , Russia | Application of discrete vortex singularities method to the aeroelastic problems in parachute constructing (FM15-033) <u>Vladimir Aparinov</u> , Alexey Setukha, Russia |
| MS06: Effects of small size scales in materials modeling Chairs: Christian Niordson, Denmark Ron Peerlings, The Netherlands Room: 202A+B | Strain gradient solutions for half-space contact problems (MS06-011) <u>Xinlin Gao</u> , Songsheng Zhou, USA | Size-dependent behavior in nano-dielectric Bernoulli-Euler beam (MS06-013) <u>Xu Liang</u> , Shengping Shen, China | Atomistic simulation of compression deformation behavior in magnesium single crystal (MS06-030) <u>Xiaozhi Tang</u> , Yafang Guo, Honggang Qi, Yuesheng Wang, China |
| FM12: Non-Newtonian and complex fluids Chairs: James Lee, USA Wenchang Tan, China Room: 203A+B | A numerical study of the MPS method for simulating non-Newtonian free surface flows (FM12-005) <u>Hao Xiang</u> , Bin Chen, China | Micropolar theory and its application to nematic liquid crystal (FM12-001) <u>James D. Lee</u> , Jiaoyan Li, USA | A new microfluidic drive and control method based on the liquid crystalline backflow (FM12-002) <u>Chunbo Liu</u> , Yanfang Guan, China |
| FM05: Convection Chairs: Emily SC Ching, Hong Kong, China Yongxiang Huang, China Room: 205A+B | Borehole heat exchanger modelling: Validation and system parameters evaluation (FM05-006) <u>Georgios Florides</u> , Paul Christodoulides, Panayiotis Pouloupatis, Vassilios Messaritis, Cyprus | Dynamics of sheet plumes in turbulent convection (FM05-007) <u>G.S.Gunasegarane</u> , Baburaj A. Puthenveetil, India | Equations for convection in binary mixture: Symmetry analysis and exact solutions (FM05-009) Viktor K. Andreev, <u>Irina V. Stepanova</u> , Russia |

| Session | 14:09 | 14:12 | 14:15 |
|---|---|---|---|
| FM06: Drops, bubbles and multiphase flows Chairs: Guohui Hu, China Jean-Philippe Matas, France Room: Ballroom A | Capillary transport of cryogenic liquids in porous media (FM06-004) Ming Zhang, Michael Dreyer, Germany | Investigation on particle-fluid energy transfer in turbulent channel flow (FM06-006) Lihao Zhao, Helge I. Andersson, Jurriaan J. J. Gillissen, Norway | A moving mesh method for three-phase flows with triple junction points (FM06-009) Jie Li, UK |
| FM07: Flow instability and transition Chairs: Gianluca Iaccarino, USA Laurette Tuckerman, France Room: Ballroom B | Effects of surface corrugation on boundary layer instability (FM07-022) Mochamad Dady Mamun, Masahito Asai, Ayumu Inasawa, Masahiro Shigeta, Japan | Investigation of correlation-based transition model coupled with Spalart-Allmaras turbulence model (FM07-031) Ke Zhao, Zhenghong Gao, Jiangtao Huang, China | The reliability of the improved e-N method for boundary layer transition prediction on a flat plate (FM07-035) Caihong Su, China |
| SM16: Vibrations and control of structures Chairs: Carlos Mazzilli, Brazil Oded Gottlieb, Israel Room: Ballroom C | Noise sensitivity of balance with delayed on-off control (FS09-004) Jiaxing Wang, Rachel Kuske, David Simpson, China | Nonlinear forced vibrations of in-plane translating viscoelastic plates with 3:1 internal resonance (MS05-001) Youqi Tang, Liqun Chen, China | Optimal bounded control of the randomly excited nonlinear oscillators containing fractional derivative damping (SM16-005) Lincong Chen, Weiqiu Zhu, China |
| FS06: Fluid structure interactions Chairs: Jerome Hoepffner, France Stelios Kyriakides, USA Room: Function Hall A | FENSAP-ICE: numerical simulation of rotor blade icing (FM06-093) Isik A. Ozcer, Guido S. Baruzzi, Thomas Reid, Habib Fouladi, Wagdi G. Habashi, Canada | Dynamics of resonance of a floating body in a channel with application to wave power extraction (FS06-004) Emiliano Renzi, Frederic Dias, Ireland | Forced nonlinear vibration of pipes conveying supercritical fluid (FS06-006) Liqun Chen, Yanlei Zhang, Guoce Zhang, Hu Ding, China |
| FS02: Computational methods in mechanics Chairs: Naoshi Nishimura, Japan Stephane Zaleski, France Room: Function Hall B | An improved lattice Boltzmann model for incompressible flow (FS02-001) Liangqi Zhang, Zhong Zeng, Haiqiong Xie, Gongyou Liang, Hiroshi Mizuseki, Yoshiyuki Kawazoe, China | A separation variable quadrature element method for thickness-shear vibrations of rectangular crystal plates (FS02-003) Bo Liu, Yufeng Xing, China | An enriched finite element for bimaterial interfacial cracks (FS02-005) Weian Yao, Xiaofei Hu, China |
| FM15: Vortex dynamics Chairs: Stephane Le Dizes, France GertJan van Heijst, The Netherlands Room: Function Hall C | An experimental study on the stability of the tip vortices behind a small-scale model turbine (FM15-014) Ylva Odemark, Jens H.M. Farnsson, Sweden | Separated vortical flow control by idealized partial-slip boundary (FM15-015) Jiezhi Wu, Fanglin Zhu, Yantao Yang, China | Nonlinear motion of current-vortex sheets in magnetohydrodynamic flows with density stratification (FM15-016) Chihiro Matsuoka, Japan |
| MS06: Effects of small size scales in materials modeling Chairs: Christian Niordson, Denmark Ron Peerlings, The Netherlands Room: 202A+B | A computational study on overall mechanical behavior of nanocrystalline and ultra-fine polycrystalline metals (MS06-033) Li Chen, Yueguang Wei, China | Molecular mechanics study on size-dependent electro-mechanical properties of boron nitride nanotubes (MS06-039) Lai Jiang, Wanlin Guo, China | Mechanics of damping and energy dissipation in low-dimensional graphitic nanostructures (MS06-047) Dong Qian, Zhong Zhou, USA |
| FM12: Non-Newtonian and complex fluids Chairs: James Lee, USA Wenchang Tan, China Room: 203A+B | Onset of thermal convection in a viscoelastic fluid-saturated porous medium between coaxial rotating cylinders (FM12-004) Jianhong Kang, Ceji Fu, Wenchang Tan, China | The linear stability of plane creeping Poiseuille and Couette flow of Burgers fluid (FM12-006) Kaixin Hu, Jie Peng, Keqin Zhu, China | Shear strengthening viscosity and shear-rate-dependent modulus model for a waxy crude oil (FM12-008) Shuxin Huang, Wenxiang Wu, Ying Zou, Xin Chen, Chuanjing Lu, China |
| FM05: Convection Chairs: Emily SC Ching, Hong Kong, China Yongxiang Huang, China Room: 205A+B | Onset of three-dimensional thermal convection in an inclined rectangular or cubic cavity (FM05-012) Yoshinari Fukazawa, Mitsuaki Funakoshi, Japan | Laboratory simulation of the influence of geothermal heating on the global oceanic circulation (FM05-014) Shengqi Zhou, Xiaozheng Zhao, China | Unsteady coupled thermal boundary layers (FM05-021) Feng Xu, John Patterson, Chengwang Lei, China |

| Session | 14:18 | 14:21 | 14:24 |
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| FM06: Drops, bubbles and multiphase flows Chairs: Guohui Hu, China Jean-Philippe Matas, France Room: Ballroom A | Evaporating-freezing phenomena of water droplets during quick depressurization (FM06-010) <u>Wangfang Du</u> , Jianfu Zhao, Kai Li, China | Turbulent particulate pipe flow at constant Reynolds number (FM06-015) <u>Alexander Kartushinsky</u> , Efstathios Michaelides, Ylo Rudi, Sergei Tisler, Estonia | Visualization study on transient liquid film behavior and inner gas flow after rupture of a soap bubble (FM06-026) <u>Dong Kim</u> , Chung Hyun Lee, Seung Jai Yi, Hyun Dong Kim, Kyung Chun Kim, Korea |
| FM07: Flow instability and transition Chairs: Gianluca Laccarino, USA Laurette Tuckerman, France Room: Ballroom B | An experimental study on the Richtmyer-Meshkov instability of a minimum-surface interface with sinusoidal boundaries (FM07-036) <u>Xiansheng Wang</u> , Ting Si, Xisheng Luo, Jiming Yang, China | Variational formulation of continuum mechanics based on the Lagrangian with the friction force (FM07-040) <u>Frantisek Marsik</u> , Pavel Novotny, Czech Republic | Magnetic field effects on three dimensional stability of natural convection flows in differentially heated cavities (FM07-044) <u>Dimitrios Dimopoulos</u> , Nikos Pelekasis, Greece |
| SM16: Vibrations and control of structures Chairs: Carlos Mazzilli, Brazil Oded Gottlieb, Israel Room: Ballroom C | Free vibration of the water-filled double-walled carbon nanotubes based on a three shell-potential flow model (SM16-006) <u>Yan Yan</u> , Wenquan Wang, China | Elastic vibrations of nanoparticles with the effects of surface stress and surface inertia (SM16-007) <u>Ganyun Huang</u> , Jipeng Liu, China | The periodic solution analysis of a smooth and discontinuous (SD) oscillator (SM16-012) <u>Zhixin Li</u> , Qingjie Cao, Alain Pierre Leger, China |
| FS06: Fluid structure interactions Chairs: Jerome Hoepffner, France Stelios Kyriakides, USA Room: Function Hall A | An unique nonlinear vibration phenomenon of a liquid - elastic shell coupled system (FS06-008) <u>Chunyan Zhou</u> , Dajun Wang, China | Numerical investigation of interactions between two particles with different sizes (FS06-012) <u>Liang Wang</u> , Zhaoli Guo, Jianchun Mi, Chuguang Zheng, China | Simulation of the interaction between compressible fluid and thin elastic plate by the modified ghost fluid method (FS06-019) <u>Liang Xu</u> , Tiegang Liu, Zhaoyong Ni, China |
| FS02: Computational methods in mechanics Chairs: Naoshi Nishimura, Japan Stephane Zaleski, France Room: Function Hall B | Effect of charge on mechanical properties of elastomeric proteins (FS02-006) <u>Ravi Kappiyoor</u> , Ganesh Balasubramanian, Daniel M. Dudek, Ishwar K. Puri, USA | Simulation of anisotropic Savage-Hutter model using gas kinetic scheme (FS02-008) <u>W. C. Chen</u> , C. Y. Kuo, K. M. Shyue, Y. C. Tai, Taiwan, China | The mathematica package BVPh 1.0 for nonlinear problems (FS02-017) <u>Shijun Liao</u> , China |
| FM15: Vortex dynamics Chairs: Stephane Le Dizes, France GertJan van Heijst, The Netherlands Room: Function Hall C | The origin of flow asymmetry formation over slender body of revolution at high angle of attack (FM15-017) <u>Yiding Zhu</u> , Cunbiao Le, China | Sound generation in the interaction of two isentropic vortices (FM15-018) <u>Shuhai Zhang</u> , China | Influence of geometric layout and blockage on the performance of vortex shedding flowmeter (FM15-027) <u>Abdelkader Zaaraoui</u> , Sofiane Khelladi, Farid Bakir, Florent Margnat, Florent Ravelet, Algeria |
| MS06: Effects of small size scales in materials modeling Chairs: Christian Niordson, Denmark Ron Peerlings, The Netherlands Room: 202A+B | Molecular dynamics based study on ductility enhancement effect and temperature dependence of nanocrystalline metals with nanoscale void (MS06-054) <u>Shin Taniguchi</u> , Toshihiro Kameda, <u>Toshiyuki Fujita</u> , Japan | The effect of surface elasticity on morphological instability of a stressed solid (MS06-056) <u>Mikhail A. Grekov</u> , <u>Sergey A. Kostyrko</u> , Russia | |
| FM12: Non-Newtonian and complex fluids Chairs: James Lee, USA Wenchang Tan, China Room: 203A+B | Time periodic EOF of power-law fluid in a cylindrical microcapillary (FM12-011) <u>Shuyan Deng</u> , <u>Qingyong Zhu</u> , China | An experimental study of non Newtonian fluids in pipe flow (FM12-021) <u>Abdelhakim Benslimane</u> , Pierre François, Fabrice Lawniczak, Karim Bekkour, France | The surface deformation effect in the process of anomalous thermo-viscous liquid flow (FM12-025) <u>Victor Kireev</u> , <u>Said Urmancheev</u> , Iskander Akhatov, Russia |
| FM05: Convection Chairs: Emily SC Ching, Hong Kong, China Yongxiang Huang, China Room: 205A+B | Effects of material properties on liquid flow and heat transfer in rectangular microchannels (FM05-024) <u>Yan Pang</u> , Zhaomiao Liu, China | Model for effect of plumes in turbulent free convection boundary layers (FM05-025) <u>Jaywant H. Arakeri</u> , Ramesh D.S. Chandra, Navneet Kumar, India | Generalized autocorrelation function in Rayleigh-Benard convection (FM05-026) <u>Yongxiang Huang</u> , China |

| Session | 14:27 | 14:30 | 14:33 |
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| FM06: Drops, bubbles and multiphase flows Chairs: Guohui Hu, China Jean-Philippe Matas, France Room: Ballroom A | Visualization study on the impingement of liquid droplets on a hot surface (FM06-027) <u>Dongyeon Kim</u> , Seung Jai Yi, Hyun Dong Kim, Kyung Chun Kim, Korea | Capillary penetration via a mean-field lattice Boltzmann model for multiphase flow (FM06-028) Gang Wan, <u>Baoming Li</u> , Junfeng Zhang, Daniel Kwok, Canada | Impacting on breakup process of free round jet by man-made pulsation (FM06-030) <u>Zhenyan Xia</u> , Li Ping He, China |
| FM07: Flow instability and transition Chairs: Gianluca Iaccarino, USA Laurette Tuckerman, France Room: Ballroom B | Contribution to the Taylor-Couette flow control using the inner cylinder cross-section variation (FM07-047) <u>Hamid Oualli</u> , Mohamed Lebbi, Samir Hanchi, Ahcene Bouabdallah, Algeria | Linear stability analysis of lid-driven cavity flow using a spectral element method (FM07-049) <u>Huan Mei</u> , Zhong Zeng, Zhouhua Qiu, Liangqi Zhang, Zu'an Tian, Linmao Yin, China | The key role played by the swift change of the stability characteristic of mean flow in bypass transition (FM07-050) <u>Ming Dong</u> , China |
| SM16: Vibrations and control of structures Chairs: Carlos Mazzilli, Brazil Oded Gottlieb, Israel Room: Ballroom C | Optimised progression rates by means of vibro-impact motion (SM16-016) Si Chung Jong, Vincent C. C. Lee, <u>Ko Choong Woo</u> , Malaysia | Parametric instability of slender beams with unilateral winkler support: an application to riser dynamics (SM16-017) Carlos E. N. Mazzilli, Andre L. Mansur, Guilherme C. Monticelli, Fernando Y. Sakamoto, Brazil | Dodekapod as universal intelligent structure for adaptive parallel spatial self-moving modular robots (SM16-021) <u>Sergey N. Sayapin</u> , Alexander V. Sinirov, Russia |
| FS06: Fluid structure interactions Chairs: Jerome Hoepffner, France Stelios Kyriakides, USA Room: Function Hall A | Computations of drag force on cylinder in oscillatory viscous flow, and comparison to experiments (FS06-021) <u>John Grue</u> , Magnus Vartdal, Norway | An adaptive immersed boundary method for fluid structure interaction with boundary mass (FS06-022) <u>Wenquan Wang</u> , Dongwei Hao, Yan Yan, China | Investigation of traveling wave in vortex-induced vibrations of long flexible cylinders (FS06-026) Xiaodong Wu, <u>Fei Ge</u> , Youshi Hong, China |
| FS02: Computational methods in mechanics Chairs: Naoshi Nishimura, Japan Stephane Zaleski, France Room: Function Hall B | Development of convolution quadrature boundary element method for 2D poroelastic wave propagation (FS02-022) <u>Takahiro Saitoh</u> , Fumika Chikazawa, Sohichi Hirose, Japan | Stress analysis of multilayered coating systems using a new meshless boundary collocation method (FS02-024) <u>Yan Gu</u> , Wen Chen, China | Nonconforming isogeometric analysis using TC++ splines (FS02-027) <u>Xuefeng Zhu</u> , Zhengdong Ma, Ping Hu, China |
| FM15: Vortex dynamics Chairs: Stephane Le Dizès, France GertJan van Heijst, The Netherlands Room: Function Hall C | Applications of vortex dynamics in multiply connected domains (FM15-028) Takashi Sakajo, <u>Rhodri Nelson</u> , Japan | Interaction of a wall jet with a wake flow-vortex statistics (FM15-029) Arindam Singha, <u>Md Abdullah Al Faruque</u> , Ram Balachandar, USA | Numerical study of a vortex ring impacting on a circular cylinder (FM15-030) <u>Heng Ren</u> , Xiyun Lu, China |
| MS03: Fluid-structure interactions in biological systems Chairs: Emmanuel de Langre, France Xiaoyu Luo, UK Room: 202A+B | | Reorientation of a non-spherical micro-capsule in shear flow (MS03-001) <u>Takuji Ishikawa</u> , Toshihiro Omori, Yohsuke Imai, Takami Yamaguchi, Japan | Multiscale modelling of avascular tumour growth under hypoxic microenvironment (MS03-003) <u>Yan Cai</u> , Shixiong Xu, Quan Long, China |
| FM14: Turbulence Chairs: Guowei He, China Keith Moffatt, UK Room: 203A+B | | | Moving particle semi-implicit method based on large eddy simulation (FM14-006) <u>Guangtao Duan</u> , Bin Chen, China |
| FM05: Convection Chairs: Emily SC Ching, Hong Kong, China Yongxiang Huang, China Room: 205A+B | Unsteady natural convection in a reservoir induced by ramped isothermal surface heating (FM05-029) <u>Yadan Mao</u> , Chengwang Lei, John Patterson, China | Complexity of direct numerical simulations of turbulent natural convection (FM05-030) <u>Olga Shishkina</u> , Germany | Conjugated convective-conductive heat transfer in micro channels on polymeric nanocomposite substrate (FM05-040) Diego C. Knupp, <u>Carolina P. Naveira-Cotta</u> , Renato M. Cotta, Brazil |

| Session | 14:36 | 14:39 | 14:42 |
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| FM06: Drops, bubbles and multiphase flows Chairs: Guohui Hu, China Jean-Philippe Matas, France Room: Ballroom A | Directed motion of carbon nanotube in water driven by non-uniform electric field (FM06-033) Zhen Xu, Guohui Hu, Zhiliang Wang, Zhewei Zhou, China | The concept of self-consistent field applied to the inviscid suspensions (FM06-034) Oleg B. Gus'kov, Russia | Rotation of ellipsoids in canonical flows: effects of particle and fluid inertia (FM06-042) Fredrik Lundell, Tomas Rosen, Sweden |
| FM07: Flow instability and transition Chairs: Gianluca Iaccarino, USA Laurette Tuckerman, France Room: Ballroom B | Stability analysis of compressible swirling jets (FM07-052) Zhenhua Wan, Lin Zhou, Dejun Sun, China | Transient growth of perturbation in rotating Poiseuille flow (FM07-055) Zhiwei Guo, Bofu Wang, Dejun Sun, China | Spectral broadening and flow randomization in free shear layers (FM07-056) Xuesong Wu, Feng Tian, China |
| SM16: Vibrations and control of structures Chairs: Carlos Mazzilli, Brazil Oded Gottlieb, Israel Room: Ballroom C | Research advances of exact solutions for free vibrations of plates and shells (SM16-026) Yufeng Xing, Bo Liu, China | Rectilinear motion of a two-mass point system in a resistive medium (SM16-030) Klaus Zimmermann, Igor Zeidis, Mikhail Pivovarov, Germany | Existence of periodic orbits for the CR3BP under a new frame (SM16-033) Fabao Gao, Wei Zhang, Jianen Chen, China |
| FS06: Fluid structure interactions Chairs: Jerome Hoepffner, France Stelios Kyriakides, USA Room: Function Hall A | Wave interaction with two elastically mounted vertical cylinders (FS06-028) Wei Su, Jie-min Zhan, Yok-sheung Li, China | A theoretical solution of a water- spherical shell-damping layer interaction system for underwater noise reductions (FS06-035) Jingtang Xing, Weikang Jiang, Mingyi Tan, UK | SPH simulation of free surface flows with moving objects (FS06-036) Moubin Liu, China |
| FS02: Computational methods in mechanics Chairs: Naoshi Nishimura, Japan Stephane Zaleski, France Room: Function Hall B | Symplectic time-subdomain iterative method for nonlinear dynamic equation (FS02-028) Weihua Li, Yu Wang, En Luo, China | An advantage of spectral element method for solving incompressible Navier-Stokes equations (FS02-031) Zhouhua Qiu, Zhong Zeng, Huan Mei, Hiroshi Mizuseki, Yoshiyuki Kawazoe, China | Convolution quadrature boundary element method for 3D elastodynamic analysis of general anisotropic elastic solids (FS02-032) Akira Furukawa, Yukumo Tanaka, Takahiro Saitoh, Sohichi Hirose, Chuanzeng Zhang, Japan |
| FM15: Vortex dynamics Chairs: Stephane Le Dizes, France GertJan van Heijst, The Netherlands Room: Function Hall C | Interaction of two coaxial Dyson's vortex rings inside a circular cylinder (FM15-032) Vyacheslav V. Meleshko, Alexandre A. Gourjii, Stanislav A. Dovgij, Alexander N. Trofimchyk, Ukraine | The circulation model of vortex flow of a viscid wall layer (FM15-034) Vyacheslav V. Meleshko, Dmytro I. Cherniy, Stanislav A. Dovgij, Ukraine | The studies of flow mechanism and suppression of wing rock motion (FM15-036) Xueying Deng, Jun Zhu, Yankiu Wang, Baofeng Ma, China |
| MS03: Fluid-structure interactions in biological systems Chairs: Emmanuel de Langre, France Xiaoyu Luo, UK Room: 202A+B | Comparison between fluid-structure interaction and fluid dynamic simulations of stented coronary arteries (MS03-004) Mauro Malvè, Claudio Chiastra, Stefano Morlacchi, Miguel A. Martinez, Francesco Migliavacca, Spain | Probability of contact of a self-propelled marine larva with a protruding collector (MS03-012) Gregory Zilman, Julia Novak, Alex Liberzon, Shimrit Perkol-Finkel, Yehuda Benayahu, Israel | Mechanical aspects of cell division (MS03-015) Noah Langowitz, Chehang Yu, Manqi Deng, Daniel Needleman, USA |
| FM14: Turbulence Chairs: Guowei He, China Keith Moffatt, UK Room: 203A+B | Numerical investigation and analysis of RAE2822 airfoil in ground effect (FM14-003) Shaowei Li, Peiqing Liu, Qiulin Qu, Baodong Guo, China | Turbulent modeling of wall-bounded flow with memory effects (FM14-014) Xiang Qiu, Gilmar Mompean, Francois G. Schmitt, Roney L. Thompson, China | A multi-layer description of subgrid-scale effects (FM14-024) Ning Hu, Huan Liu, Zhensu She, China |
| FM05: Convection Chairs: Emily SC Ching, Hong Kong, China Yongxiang Huang, China Room: 205A+B | Stability of a natural convection flow inside a cylindrical cavity partially heated on the side (FM05-042) José Núñez, Eduardo Ramos, Juan M. Lopez, Mexico | Heat transfer in developed compressible convection (FM05-046) Krzysztof A. Mizerski, Chris A. Jones, Poland | Measurement of the temperature field in a Rayleigh-Bénard turbulent convection cell by light induced fluorescence (FM05-047) Denis Funfschilling, Guillaume Castanet, Nicolas Rimbart, Huai-Zhi Li, France |

| Session | 14:45 | 14:48 | 14:51 |
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| FM06: Drops, bubbles and multiphase flows Chairs: Guohui Hu, China Jean-Philippe Matas, France Room: Ballroom A | Breath figure of water and oil and the structure pattern formation (FM06-044) José Guadarrama-Cetina, Wenceslao González-Viñas, Spain | Surface stability of an encapsulated bubble in an ultrasound field (FM06-051) Yunqiao Liu, Kazuyasu Sugiyama, Shu Takagi, Yoichiro Matsumoto, China | An investigation of droplet impingement on liquid film considering the effect of evaporation of liquid (FM06-053) Jiahong Guo, Xiaoyong Wang, China |
| FM07: Flow instability and transition Chairs: Gianluca Iaccarino, USA Laurette Tuckerman, France Room: Ballroom B | Stabilization and universality in Hele-Shaw flows with many interfaces (FM07-057) Prabir Daripa, USA | Wave patterns on fluid interface subjected to the horizontal vibrations (FM07-060) Tatyana Lyubimova, Dmitriy Lyubimov, Grigoriy Khilko, Andrey Ivantsov, Russia | Experimental investigation on later transition stage of laminar streak (FM07-061) Chong Pan, Jinjun Wang, China |
| SM16: Vibrations and control of structures Chairs: Carlos Mazzilli, Brazil Oded Gottlieb, Israel Room: Ballroom C | Theory and experiment on nonlinear trends of composite laminated plate (SM16-034) J. E. Chen, W. Zhang, F. B. Gao, China | Examinations of nonlinear isolators using power flow approach (SM16-037) Jian Yang, Ye P. Xiong, Jing T. Xing, UK | Response amplitude of nonlinear self-excited microcantilever probe (SM16-044) Masataka Kasagawa, Masaharu Kuroda, Hiroshi Yabuno, Japan |
| FS06: Fluid structure interactions Chairs: Jerome Hoepffner, France Stelios Kyriakides, USA Room: Function Hall A | The simulation of fluid-structure interaction on two flexible cylinders subjected to an annular flow (FS06-040) Zhengang Liu, Yang Liu, Jian Lu, Hong Kong, China | Dynamic characteristics of rigid cylindrical container with multiple elastic annular baffles and partially filled with liquid (FS06-041) Ding Zhou, Jiadong Wang, Weiqing Liu, China | Hamiltonian dynamics of a particle subject to time-varying gyroscopic and potential forces (FS06-042) Scott David Kelly, USA |
| FS02: Computational methods in mechanics Chairs: Naoshi Nishimura, Japan Stephane Zaleski, France Room: Function Hall B | Overset grid based simulation of moving body in viscous flows with free surface (FS02-036) Decheng Wan, Zhirong Shen, China | Geometric interpretation of discretized symmetric-conservative metric for higher-order finite-difference scheme (FS02-038) Yoshiaki Abe, Nobuyuki Iizuka, Taku Nonomura, Kozo Fujii, Japan | Accurate boundary conditions for one-dimensional atomic chains (FS02-041) Gang Pang, Shaoqiang Tang, China |
| FM15: Vortex dynamics Chairs: Stephane Le Dizès, France Gert-Jan van Heijst, The Netherlands Room: Function Hall C | Wall effect on the critical spacing for flow past two tandem cylinders (FM15-038) Renjie Jiang, Jianzhong Lin, China | Stability, resonances and instability of the steady rotation of a system of three equidistant vortices outside a circle (FM15-040) Leonid Kurakin, Russia | Theoretical relations between quantities at a water surface and the instantaneous subsurface flowfield (FM15-046) John C. Wells, USA |
| MS03: Fluid-structure interactions in biological systems Chairs: Emmanuel de Langre, France Xiaoyu Luo, UK Room: 202A+B | Thrust production of a flexible low-aspect-ratio foil (MS03-027) Haoxiang Luo, Hu Dai, Paulo Ferreira de Sousa, USA | Effect of chemical signaling on the swimming behavior of <i>Vibrio fischeri</i> (MS03-029) Sandeep S. Suravajhala, Prabhu R. Nott, India | |
| FM14: Turbulence Chairs: Guowei He, China Keith Moffatt, UK Room: 203A+B | Selective reduction of triad interaction in hall magnetohydrodynamic turbulence (FM14-027) Keisuke Araki, Hideaki Miura, Japan | The flow around Bypass Crossover Sub in fracturing process of horizontal wells Ida experiment (FM14-030) Yan Xu, Zunce Wang, Sen Li, Fengxia Lü, Yuejuan Yan, Houzhen Wen, China | Experimental investigation of hypersonic boundary layer instability and transition by wavelet transform (FM14-036) Nan Jiang, Jian Han, China |

| Session | 14:54 | 14:57 | 15:00 |
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| FM06: Drops, bubbles and multiphase flows Chairs: Guohui Hu, China Jean-Philippe Matas, France Room: Ballroom A | Interaction of rising bubble and particle in oscillating liquid (FM06-054) Dmitriy Lyubimov, <u>Lyudmila Klimentko</u> , Tatyana Lyubimova, Lev Filippov, Russia | Effect of liquid precursors on powder vaporization in an RF plasma spray (FM06-058) <u>Lijuan Qian</u> , Jianzhong Lin, China | Experimental study on nonlinear phenomenon of liquid sloshing in a circular cylindrical tank with spherical bottom (FM06-061) X. F. <u>Yan</u> , L. Lei, X. X Lu, X. B. Ren, C. Han, W. Wang, China |
| SM16: Vibrations and control of structures Chairs: Carlos Mazzilli, Brazil Oded Gottlieb, Israel Room: Ballroom C | Stationary response of Bouc-Wen hysteretic system under poisson white noise excitation (SM16-046) <u>Yan Zeng</u> , Gang Li, China | Responses of axially moving viscoelastic beam under narrow-band random excitation (SM16-051) <u>Di Liu</u> , Wei Xu, Yong Xu, China | Approximations of nonlinear differential equation solutions (SM16-053) <u>Hedrih R. (Stevanović) Katica</u> , Serbia and Montenegro |
| FS06: Fluid structure interactions Chairs: Jerome Hoepffner, France Stelios Kyriakides, USA Room: Function Hall A | Stability and stabilization of motion of the rigid body with elastic compartments containing an ideal fluid (SM16-036) Volodymyr P. Shevchenko, <u>Yuriy N. Kononov</u> , Nikolay K. Didok, Alina Yu. Karnaukh, Ukraine | 3D modeling of in-flight ice break-up (FS02-050) Shiping Zhang, <u>Rooh A. Khurram</u> , Wagdi G. Habashi, Canada | |
| FS02: Computational methods in mechanics Chairs: Naoshi Nishimura, Japan Stephane Zaleski, France Room: Function Hall B | The flow past a lattice of airfoils and the determination of separation points in a viscous fluid (FS02-044) <u>Alexander G. Petrov</u> , Russia | | |
| FM14: Turbulence Chairs: Guowei He, China Keith Moffatt, UK Room: 203A+B | Time correlations in compressible isotropic turbulence (FM14-041) <u>Dong Li</u> , Guowei He, Xing Zhang, China | Representative flow structure behind an ahmed vehicle model (FM14-042) Xiao Wen Wang, Yat Fan Pin, <u>Yu Zhou</u> , Hong Kong, China | An improved surface tension model for numerical simulation of interfacial flow by smoothed particle hydrodynamics method (FS02-053) <u>Mingyu Zhang</u> , Shudao Zhang, China |

| Session | 15:03 | 15:06 |
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| FM06: Drops, bubbles and multiphase flows Chairs: Guohui Hu, China Jean-Philippe Matas, France Room: Ballroom A | Droplet impact on a hydrophobic substrate with circular grooves (FM06-063) <u>Hang Ding</u> , Kai Mu, China | Numerical simulation of fragmentation of liquid jet in vacuum based on lattice Boltzmann method (FM06-072) <u>Lei Li</u> , Xiaobing Ren, Xiaoxia Lu, China |
| SM16: Vibrations and control of structures Chairs: Carlos Mazzilli, Brazil Oded Gottlieb, Israel Room: Ballroom C | Thermoelastic damping of the axisymmetric vibration of bilayered circular plate resonators (SM16-057) <u>Yuxin Sun</u> , Jialing Yang, Hua Liu, Yan Jiang, China | Novel method for three-dimensional velocity and acceleration detection FBG arrays (SM16-068) <u>Lunwei Zhang</u> , Haifeng Wei, Guobiao Yang, China |
| FS02: Computational methods in mechanics Chairs: Naoshi Nishimura, Japan Stephane Zaleski, France Room: Function Hall B | Improved adams linear multi-step method based on extended precise integration method (MS05-007) <u>Shujun Tan</u> , Zhigang Wu, Wanxie Zhong, China | Multi-material eulerian method and its large-scale computation for 3D explosion and shock problems (FS02-059) Jian G. Ning, <u>Tian B. Ma</u> , Guang L. Fei, China |

Poster display and discussion: 15:10 – 16:10, South Lobby, 1st floor
Coffee Break: 15:50 – 16:10, Main Lobby, 1st floor

| Session | 14:00 | 14:03 | 14:06 |
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| FS07: Smart materials Chairs: Gal de Botton, Israel Santosh Kapuria, India Room: 206A+B | A mathematical model of an MR fluid in operational conditions of a damper's work (FS07-040) <u>Pawel Skalski</u> , Poland | Large displacement SMA electro-morphing plate for wind tunnel experiments (FS06-044) <u>Maxime Chinaud</u> , Amar Boussaid, Jean Francois Rouchon, Eric Duhayon, Enrico Deri, Thomas de Faramond, Marianna Braza, Thibault Deloze, France | In situ observation of electric field induced crack propagation in BaTiO₃ crystals along loading direction (FS07-002) <u>Yingwei Li</u> , Faxin Li, China |
| SM05: Fracture mechanics Chairs: Fumio Narita, Japan Xuanhe Zhao, USA Room: 208A+B | Fatigue crack growth analysis of short cracks in concrete (SM05-060) <u>Sonalisa Ray</u> , Kishen J. M. Chandra, India | Saturated dislocations transient propagation-evolution in olivine structure under ultra high-coupled thermal-force fields (FS10-003) <u>Boijing Zhu</u> , Yaolin Shi, Chang Liu, China | Physical mechanisms of magnetostrictive or electrostrictive interfacial fracture in a bi-layered multiferroic composite (SM05-003) Hao Zhao, Feixiang Feng, <u>Yongdong Li</u> , China |
| SM08: Mechanics of multi-component materials and composites Chairs: Shaker A. Meguid, Canada Qingsheng Yang, China Room: 209A+B | The route to simultaneous high strength and high ductility metals through engineered nanocrystalline interlayers (SM08-003) <u>X. Guo</u> , G. J. Weng, A. K. Soh, Hong Kong, China | Local buckling of sandwich materials with non-orthogonal plain woven composite facesheets (SM08-010) <u>Long Du</u> , Xiaojun Huang, Bin Ye, China | Investigation on transient heat transfer of 3D braided composites (SM08-011) <u>Suyang Zhong</u> , Licheng Guo, China |
| SM01: Biomechanics and biomaterials Chairs: Mian Long, China Gang Bao, USA Room: 207 | Growth and mechanical responses of the arterial wall (SM01-003) <u>Jiusheng Ren</u> , China | Modeling calcium wave based on anomalous subdiffusion of calcium sparks in cardiac myocytes (SM01-015) <u>Xi Chen</u> , Ceji Fu, Wenchang Tan, China | Axial fatigue of MP35N coils used as conductors in implantable medical devices (SM01-022) <u>Haitao Zhang</u> , Bernard Q. Li, Peter Zhang, Bruce Behymer, Nu Zosel, Chris Canton, USA |
| FS11: Foams and cellular materials Chairs: Dora Karagiozova, Bulgaria Stelios Kyriakides, USA Room: 210A | Image based stochastic multiscale analysis of metal foam (FS11-014) <u>Carsten Proppe</u> , Germany | | |
| MS04: Mechanics of transport in microfluidic devices Chairs: Henrik Bruus, Denmark Dino Di Carlo, USA Room: 210B | Improving the wetting stability on submersed superhydrophobic surfaces for drag reduction applications using hierarchical structures (MS04-002) Yahui Xue, Shigan Chu, <u>Pengyu Lv</u> , Huiling Duan, China | Time-averaged acoustic forces acting on a circular cylinder in a viscous fluid (MS04-003) <u>Jingtao Wang</u> , Jurg Dual, Switzerland | Nanoscale vortices in transport of salty solution through a graphene nanopore (MS04-004) <u>Guohui Hu</u> , Mao Mao, Sandip Ghosal, China |
| SM12: Nanostructures and MEMS Chairs: Ole Sigmund, Denmark Changhong Ke, USA Room: 211 | Modeling carbon nanotube as a real-time mass sensor in viscous fluid (SM12-003) <u>Ivo Stachiv</u> , Kevin Sheng, Yeng-Long Chen, Taiwan, China | Wetting phenomenon in cavitations of electronic packaging materials (SM12-012) <u>Yue Mei</u> , Xiaohu Yao, China | Small-size and surface effects on the axially buckling of carbon nanotubes (SM12-013) <u>Yugang Sun</u> , Xiaohu Yao, China |
| SM02: Contact and friction mechanics Chairs: Zhao Zhang, China Xin Wang, USA Room: 212A | A new algorithm for collision force between two cable-connected ships (SM02-002) <u>Feng Jiang</u> , Qi Feng, China | Plane nonstationary contact problems of the impact of rigid and deformable strikers on an elastic half-space (SM02-011) <u>Grigory V. Fedotenkov</u> , Olga A. Afanasieva, Russia | Some analytical models of frictional heating during braking (SM02-014) Aleksander Yevtushenko, <u>Michal Kuciej</u> , Poland |

| Session | 14:09 | 14:12 | 14:15 |
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| <p>FS07: Smart materials Chairs: Gal de Botton, Israel Santosh Kapuria, India Room: 206A+B</p> | <p>Designing microstructures for desired functional materials and local fields (FS07-005) <u>Liping Liu</u>, USA</p> | <p>Size and temperature effect on BaTiO₃ nanocrystallines and potential applications in energy storage (FS07-007) <u>Jackie Li</u>, USA</p> | <p>Effects of surface maxwell stresses on piezoelectric fracture (FS07-014) <u>Cunfa Gao</u>, Haopeng Song, China</p> |
| <p>SM05: Fracture mechanics Chairs: Fumio Narita, Japan Xuanhe Zhao, USA Room: 208A+B</p> | <p>The weight function for cracks in three-dimensional quasicrystals (SM05-017) <u>Yang Gao</u>, Andreas Ricoeur, China</p> | <p>The relation between spatial and temporal effects of deformation and fracture of quasi-brittle materials (SM05-018) <u>Chengzhi Qi</u>, Mingyang Wang, Qihu Qian, Jianjie Chen, China</p> | <p>Analysis of the influence of stress gradient on the non-propagating fatigue crack (SM05-019) <u>Hao Wu</u>, China</p> |
| <p>SM08: Mechanics of multi-component materials and composites Chairs: Shaker A. Meguid, Canada Qingsheng Yang, China Room: 209A+B</p> | <p>Three-dimensional piezoelectricity solution for hybrid piezoelectric laminated plates featuring viscoelastic interfaces (SM08-021) <u>Amit Kumar</u>, Santosh Kapuria, N. K. Gupta, India</p> | <p>Synthesis and formation mechanism of carbon-encapsulated copper nanoparticles in detonation process (SM08-022) <u>Ning Luo</u>, Kaixin Liu, Xiaojie Li, China</p> | <p>Electromechanical transition in a dielectric elastomer: giant linear deformation and failure modes (SM08-031) <u>Jian Zhu</u>, Zhigang Suo, Matthias Kollosche, Guggi Kofod, USA</p> |
| <p>SM01: Biomechanics and biomaterials Chairs: Mian Long, China Gang Bao, USA Room: 207</p> | <p>Embryogenesis of intestinal tissues: anisotropic growth and secondary bifurcations (SM01-025) <u>Fei Jia</u>, Pasquale Ciarletta, Martine Ben Amar, China</p> | <p>Anomalous flexural behaviors of microtubules (SM01-027) <u>Jizeng Wang</u>, China</p> | <p>Experimental investigation on mechanical properties of meshed titanium plate structures for reinforcement tricalcium phosphate bone implants (SM01-028) <u>Ryoichi Abiko</u>, Kyoshiro Zama, Jianmei He, Shigeki Suzuki, Japan</p> |
| <p>SM04: Elasticity Chairs: Zaoyang Guo, China Davide Bigoni, Italy Room: 210A</p> | <p>Three-dimensional thermal-stress analysis of non-homogeneous elastic composites (SM04-009) <u>Yuriy V. Tokovyy</u>, Chien-Ching Ma, UKraine</p> | <p>Determination of the engineer constants of piezoelectric thin film based on the piezoelectric constitution (SM04-011) <u>Shutao Song</u>, Xuejun Zheng, <u>Wei Liu</u>, China</p> | <p>Comparision of non-Euclidean continuum model with strain gradient theory (SM04-012) <u>Mikhail Guzev</u>, Russia</p> |
| <p>MS04: Mechanics of transport in microfluidic devices Chairs: Henrik Bruus, Denmark Dino Di Carlo, USA A Room: 210B</p> | <p>Dynamic properties of confined water molecules in nano-scale systems (MS04-010) <u>Guangchao Zuo</u>, Rong Shen, Wanlin Guo, China</p> | <p>Particle transport with continuous frequency sweeping and acoustic radiation forces (MS04-013) <u>Dirk Möller</u>, Emian Furger, Jurg Dual, Switzerland</p> | <p>Migration of flexible fibers entrained by Poiseuille flow in a microchannel (MS04-015) <u>Agnieszka M. Slowicka</u>, Eligiusz Wajnryb, Maria L. Ekiel-Jezewska, Poland</p> |
| <p>SM12: Nanostructures and MEMS Chairs: Ole Sigmund, Denmark Changhong Ke, USA Room: 211</p> | <p>Nonlocal vibration of nanoplate on viscoelastic foundation (SM12-015) <u>S. Ahmad Fazelzadeh</u>, Saleh Poursmaeeli, Iran</p> | <p>Frictional characteristics of graphene and its derivatives (SM12-026) <u>Qunyang Li</u>, Robert W. Carpick, Xin-Z. Liu, Changgu Lee, James Hone, Jeremy T. Robinson, Paul E. Sheehan, China</p> | <p>Piezoelectric and electrostrictive displacements of (1-x)Na_{0.5}Bi_{0.5}TiO₃-xK_{0.5}Bi_{0.5}TiO₃ thin films under the bipolar driving filed (SM12-027) <u>Jiaoyun Liu</u>, Xuejun Zheng, China</p> |
| <p>SM02: Contact and friction mechanics Chairs: Zhao Zhang, China Xin Wang, USA Room: 212A</p> | <p>The approximated analytical solutions of axisymmetric contact problems for the coatings of complicated structure (SM02-017) <u>Sergey Aizikovich</u>, Igor Sevostianov, Andrey Vasiliev, Sergey Volkov, Russia</p> | <p>Contact stiffness of bodies with fractal roughness: comparison of 3D bem results and reduction method (SM02-030) <u>Roman Pohrt</u>, Valentin L. Popov, Alexander E. Filippov, Germany</p> | <p>Extended JKR theory on adhesive contact between layered elastic spheres (SM02-032) <u>Choi Seung Tae</u>, Republic of Korea</p> |

| Session | 14:18 | 14:21 | 14:24 |
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| FS07: Smart materials Chairs: Gal de Botton, Israel Santosh Kapuria, India Room: 206A+B | Sliding dynamics in ZnO piezoelectric nanogenerator (FS07-016) Yongsheng Leng, Yajie Lei, USA | Magnetolectric coupling of multiferroic Pb (Zr_{0.52}Ti_{0.48})O₃-CoFe₂O₄ composite thin film with sandwich structure (FS07-022) Shuhong Xie, Yun Ou, Feiyue Ma, Jiangyu Li, China | Temperature oscillation under cyclic phase transition of NiTi shape memory alloy (FS07-026) Hao Yin, Yongjun He, Qingping Sun, Hong Kong, China |
| SM05: Fracture mechanics Chairs: Fumio Narita, Japan Xuanhe Zhao, USA Room: 208A+B | Thermal shock analysis of a functionally graded plate using interaction energy integral method (SM05-020) Yanyan Zhang, Licheng Guo, Fengnan Guo, Yang Jiao, China | Weight functions of a crack in a two-dimensional micropolar solid (SM05-032) Yuri A. Antipov, USA | The scaled boundary finite element method for 2D fracture analysis of piezoelectric materials (SM05-033) Chao Li, Hou Man, Chongmin Song, Wei Gao, Australia |
| SM08: Mechanics of multi-component materials and composites Chairs: Shaker A. Meguid, Canada Qingsheng Yang, China Room: 209A+B | Tuning electromagnetic properties of metamaterials by mechanical deformation (SM08-038) Shengqiang Cai, Nicholas X. Fang, USA | Upper and lower limits in the elastic properties of low-shrink sheet molding compounds (SM08-039) Horatiu Teodorescu-Draghicescu, Sorin Vlase, Romania | Modeling of composites with different physical and geometrical connectivities by effective modules and finite element methods (SM08-045) Andrey V. Nasedkin, Russia |
| SM01: Biomechanics and biomaterials Chairs: Mian Long, China Gang Bao, USA Room: 207 | Elastic and geometrical effects in the evolution of living materials: a configurational analysis of growth and mass transport (SM01-029) Pasquale Ciarletta, Luigi Preziosi, Gérard Maugin, France | Atheroma plaque vulnerability prediction using machine learning techniques (SM01-043) Myriam Cilla, Javier Martínez, Estefanía Peña, Miguel Angel Martinez, Spain | Mobility analysis of human gait as underactuated mechanical system (SM01-057) Ricardo E. Ramirez, Colombia |
| SM04: Elasticity Chairs: Zaoyang Guo, China Davide Bigoni, Italy Room: 210A | A point-force elastic problem for exponential functionally graded coatings (SM04-023) Roberta Sburlati, Italy | An equilibrium problems of a rectangle in the Cosserat elasticity (SM04-025) Grigoriev Yuri, Russia | The resonant phenomena in the elastic oil pipeline, spent to sea water and subjected to impulse stressing (SM04-029) Anatoly Egorov, Murat Baimukhmetov, Kazakhstan |
| MS04: Mechanics of transport in microfluidic devices Chairs: Henrik Bruus, Denmark Dino Di Carlo, USA Room: 210B | Rapid cell separation in double spiral microfluidic channels (MS04-017) Chao Liu, Jiashu Sun, Xingyu Jiang, Guoqing Hu, China | A hybrid computational model to predict separation of cells in hydrodynamic metamaterials (MS04-020) Wentao Wang, Yi-Kuen Lee, Hong Kong, China | |
| SM12: Nanostructures and MEMS Chairs: Ole Sigmund, Denmark Changhong Ke, USA Room: 211 | Molecular simulations of the formation of gold-molecule-gold junctions in moletronics device (SM12-036) Huachuan Wang, Yongsheng Leng, USA | Numerical modeling of laser-induced picosecond ultrasound in micro-nano thin films (SM12-030) Baiqiang Xu, Ying Luo, Chenguang Xu, Guidong Xu, Xiaoping Yang, China | A model for the energy harvesting performance of shear mode piezoelectric cantilever (SM12-014) Liang Zhou, Jing Sun, Xuejun Zheng, Jihe Zhao, Shutao Peng, Yong Zhang, China |
| SM02: Contact and friction mechanics Chairs: Zhao Zhang, China Xin Wang, USA Room: 212A | Influence of structural parameters on abrasion in multiphase matrix-cement materials (SM02-035) Natalya V. Makarova, Russia | A second-order cone complementarity approach for numerical solution of 3D elastoplastic contact problems with orthotropic friction law (SM02-041) J. Y. Li, H. SMW. Zhang, China | Numerical simulation on Painlevé paradox during frictional impact of a flexible bar (SM02-042) Yunian Shen, Jinhong Gu, China |

| Session | 14:27 | 14:30 | 14:33 |
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| <p>FS07: Smart materials Chairs: Gal de Botton, Israel Santosh Kapuria, India Room: 206A+B</p> | <p>Fabrication of complex smart microstructures by capillary forming of nanoscale filaments (FS07-028) <u>Wei Lu</u>, USA</p> | <p>A micro-macro description for magnetorheological (FS07-032) <u>Chunwei Zhao</u>, Xianghe Peng, China</p> | <p>Optimum structure design of a multilayer piezo-composite disk for control of thermal stress (FS07-033) <u>Ahmed M. Elsawaf</u>, Fumihiro Ashida, Sei-ichiro Sakata, Japan</p> |
| <p>SM05: Fracture mechanics Chairs: Fumio Narita, Japan Xuanhe Zhao, USA Room: 208A+B</p> | <p>Microstructure-based evaluation of material fracture toughness (SM05-034) <u>Yan Li</u>, Min Zhou, USA</p> | <p>Experimental investigations on the mixed-mode essential fracture work of PC/ABS alloy (SM05-048) <u>Huimin Li</u>, Qinzhi Fang, Tiejun Wang, China</p> | <p>Critical intensity of singular stress for adhesive joints (SM05-050) <u>Nao-Aki Noda</u>, Kengo Michinaka, Xin Lan, Yu Zhang, Japan</p> |
| <p>SM08: Mechanics of multi-component materials and composites Chairs: Shaker A. Meguid, Canada Qingsheng Yang, China Room: 209A+B</p> | <p>Stress-strain relation of $Bi_2Sr_2CaCu_2O_x$/AgMg superconducting round wires based on fractal characterization of the rough surfaces of individual filaments (SM08-048) <u>Xiaofan Gou</u>, Justin Schwartz, China</p> | <p>Quasi-static indentation tests on closed-cell Al foam (SM08-053) <u>Xinzhu Wang</u>, Xianghe Peng, Zaoyang Guo, China</p> | <p>Numerical study on the effects of equi-biaxial residual stress on mechanical properties of nickel film by means of nanoindentation (SM08-054) <u>Shiguo Long</u>, Lizeng Ling, Zengsheng Ma, Xu Liang, China</p> |
| <p>SM01: Biomechanics and biomaterials Chairs: Mian Long, China Gang Bao, USA Room: 207</p> | <p>A multiple-patch model of microtubules (SM01-061) Shuo Feng, <u>Haiyi Liang</u>, China</p> | <p>Coarse-grained modeling of receptor-mediated endocytosis of nanoparticles (SM01-051) Sulin Zhang, Changjin Huang, <u>Yao Zhang</u>, USA</p> | |
| <p>SM04: Elasticity Chairs: Zaoyang Guo, China Davide Bigoni, Italy Room: 210A</p> | <p>Mechanical properties of cellular structures with rigid square rotations (SM04-043) <u>Hiro Tanaka</u>, Satoshi Izumi, Shinsuke Sakai, Japan</p> | <p>Analytical solution of transverse crack problem under a thin layer (SM04-044) Boris Smetanin, Boris Sobol, <u>Alexander Krasnoschekov</u>, Russia</p> | <p>Material characterization of polycrystals through hyperspace (SM04-049) <u>Shoji Imatani</u>, Japan</p> |
| <p>FS05: Electro- and magnetomechanical systems Chairs: Katie Bertoldi, USA Yongdong Pan, China Room: 210B</p> | | <p>A pathway of hardness enhancement in transition-metal borides (FS05-001) Zhao Fu, <u>Yongcheng Liang</u>, Zheng Zhong, China</p> | <p>Directly resolving particles in an electric field and applications to heterogeneous dielectric materials and biomedical engineering (FS05-005) <u>Qianlong Liu</u>, Kenneth L. Reifsnider, USA</p> |
| <p>SM02: Contact and friction mechanics Chairs: Zhao Zhang, China Xin Wang, USA Room: 212A</p> | <p>Torsion of elastic transversely isotropic half-space with inhomogeneous coating (SM02-029) <u>Andrey Vasiliev</u>, Sergey Aizikovich, Russia</p> | | |

| Session | 14:36 | 14:39 | 14:42 |
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| <p>FS07: Smart materials Chairs: Gal de Botton, Israel Santosh Kapuria, India Room: 206A+B</p> | <p>Structure and rheology of self-assembled micelle-nanoparticle plasmonic nanogels: experiments and molecular dynamics simulations (FS07-037) Tao Cong, Abhinandan Sambasivam, Georo Zhou, Ashish Sangwai, Radhakrishna Sureshkumar, USA</p> | | |
| <p>SM05: Fracture mechanics Chairs: Fumio Narita, Japan Xuanhe Zhao, USA Room: 208A+B</p> | <p>Numerical modeling of fracture in concrete using fractals theory and comparison with AE based b - value (SM05-058) R. Vidya Sagar, B. K. Raghu Prasad, India</p> | <p>Mixed-mode mechanical strength and failure of Ni/Al₂O₃ interface from first-principles (SM05-067) Xiancong Guo, Fulin Shang, China</p> | <p>Study of Griffith crack nucleation in a disclinated nanowire with a continuum model (SM05-074) Jun Luo, Junpeng Zhou, China</p> |
| <p>SM08: Mechanics of multi-component materials and composites Chairs: Shaker A. Meguid, Canada Qingsheng Yang, China Room: 209A+B</p> | <p>A higher order solution for cylindrical bending vibrations of functionally graded plates (SM08-060) S. M. Shiyekar, Tarun Kant, India</p> | <p>A unified constitutive model for interface debonding and friction (SM08-062) Irene Guiamatsia, Giang Nguyen, Australia</p> | <p>The statistical second-order two-scale analysis for thermo-elastic coupled performance of the composite structure with consistent random distribution of grains (SM08-066) Zihao Yang, Junzhi Cui, China</p> |
| <p>SM04: Elasticity Chairs: Zaoyang Guo, China Davide Bigoni, Italy Room: 210A</p> | <p>Calculation of elastic constants of the torsion bars with helical anisotropy using the methods of optimization theory (SM04-050) Anna D. Perechesova, Russia</p> | | |
| <p>FS05: Electro- and magnetomechanical systems Chairs: Katie Bertoldi, USA Yongdong Pan, China Room: 210B</p> | <p>A vibration analysis of quartz crystal resonators with nonlinear Mindlin plate theory (FS05-011) Ji Wang, Rongxing Wu, Yangyang Chen, Jianke Du, Yuantai Hu, Wei Yan, Dejin Huang, Tingfeng Ma, China</p> | <p>SH wave propagation in one piezoelectric laminate (FS05-012) Yongdong Pan, Jinfeng Zhao, Lei Liu, Zheng Zhong, China</p> | <p>A tristable mechanism using combination of magnetic mechanisms and compliant beams (FS05-017) Jian Zhao, Lei Niu, Guoxi Chen, Yu Huang, Renjing Gao, China</p> |
| <p>MS02: Mechanics of natural disasters Chairs: Chiang-An Hsu, Taiwan, China Qingyuan Wang, China Room: 211</p> | <p>Ductility reduction factor for MDOF system with vertical irregularities subjected to strong earthquake action (MS02-003) Huiying Wang, Jing Zhou, Jian Cai, China</p> | <p>On the effect of tsunamis on nearshore wave energy converters (MS02-006) Paul Christodoulides, Laura O'Brien, Emiliano Renzi, Frédéric Dias, Cyprus</p> | <p>Research on the wind damage of wind vulnerable structures considering local wind field (MS02-015) Xiaoqiu Ai, Tong Qin, China</p> |
| <p>SM06: Geophysics and geomechanics Chairs: K. T. Chau, UK Jens Tympel, Germany Room: 212A</p> | <p>A numerical study of structural evolution inside the shear band in quasi-static simple shear tests (SM06-008) Xiaoxing Liu, Aurélie Papon, Hans Muhlhaus, Australia</p> | <p>Thermogradient model of formation of oil and gas traps at salt diapirism (SM06-013) Baimukhmetov Abay, Martynov Nikolay, Tanirbergenov Amanzhol, Kazakhstan</p> | <p>The competition between grain melting and solidification during shear heating in simulated faults (SM06-017) Yixiang Gan, Itai Einav, Australia</p> |

| Session | 14:45 | 14:48 | 14:51 |
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| FS08 Granular materials and flows Chairs: Amy ReChenmacher, USA Jin Sun, UK Room: 206A+B | Description of permeability anisotropy of granular materials with anisotropic porosity distribution (FS08-025) <u>Peijun Guo</u> , Canada | Penetrating process simulation of a ball in granular media (FS08-006) <u>Wenzhen Zhong</u> , Fan Wang, Ze Xiangbo, Wei Xia, China | Vorticity banding and stress localization in a granular fluid (FS08-011) <u>Meheboob Alam</u> , Priyanka Shukla, India |
| SM05: Fracture mechanics Chairs: Fumio Narita, Japan Xuanhe Zhao, USA Room: 208A+B | Analytical and numerical investigations of the character of stresses in the vicinity of singular points in the framework of the classical and asymmetric theory of elasticity (SM05-056) Valeriy Korepanov, Tatiana Korepanova, <u>Valeriy Matveenko</u> , Natalia Sevodina, Igor Shardakov, Russia | | |
| SM08: Mechanics of multi-component materials and composites Chairs: Shaker A. Meguid, Canada Qingsheng Yang, China Room: 209A+B | Influence of friction between the contacting phases of the fiber composite on its stress-strain condition (SM08-068) <u>Halina Kuziomkina</u> , Volha Yakubovich, Belarus | A micromechanical model for the effective viscoelastic response of semi-crystalline polymer-clay nanocomposites (SM08-067) Kokou Anoukou, <u>Fahmi Zaïri</u> , Gregory Stoclet, Moussa Naït-Abdelaziz, Ali Zaoui, Jean-Michel Gloaguen, Jean-Marc Lefebvre, France | |
| FS05: Electro- and magnetomechanical systems Chairs: Katie Bertoldi, USA Yongdong Pan, China Room: 210B | Effects of magnetic lubricant in a rotor-bearing system (FS05-018) <u>Anna Perek</u> , Włodzimierz Kurnik, Piotr M. Przybyłowicz, Poland | Electro-mechanical-magnetic coupling in multiferroic heterostructures: phase-field modeling and device applications (FS05-022) <u>Jiamian Hu</u> , Zheng Li, Longqing Chen, Cewen Nan, China | Electro-acoustic couplings in nematic liquid crystals (FS05-023) <u>Antonio DiCarlo</u> , Italy |
| SM06: Geophysics and geomechanics Chairs: K. T. Chau, UK Jens Tympel, Germany Room: 212A | A nonlinear homogenization model for a clayey rock having a plastic porous matrix (SM06-025) <u>Wangqing Shen</u> , Jianfu Shao, Djimedo Kondo, France | Three dimensional analytical solution for brazilian test (SM06-032) <u>K. T. Chau</u> , X. X. Wei. Hong Kong, China | Experimental and numerical study on rock fall impact on a flexible rock-shed structure (SM07-039) <u>Shaoping Shi</u> , Min Wang, Xiongqi Peng, Youkui Yang, China |

| Session | 14:54 | 14:57 | 15:00 |
|---|--|--|--------------|
| FS08 Granular materials and flows Chairs: Amy ReChenmacher, USA Jin Sun, UK Room: 206A+B | Pattern formation of granular avalanches simulated by particle method with hydrodynamics interaction (FS08-013) <u>Hirofumi Niiva</u> , Akinori Awazu, Hiraku Nishimori, Japan | Diffuse failure in granular media: influence of the loading path (SM06-020) <u>Ali Daouadji</u> , Mohamad Jrad, Salim Belouettar, Beena Sukumaran, Felix Darve, France | |

Poster display and discussion: 15:10 – 16:10, South Lobby, 1st floor

Coffee Break: 15:50 – 16:10, Main Lobby, 1st floor

| Session | 16:10 | 16:30 | 16:50 |
|---|--|--|--|
| FM06: Drops, bubbles and multiphase flows Chairs: Adrian Daerr, France Jianfu Zhao, China Room: Ballroom A | Instabilities and encapsulation in a gas-cored compound liquid jet (FM06-048) <u>Takao Yoshinaga</u> , Japan | Drag of laminar flow over trapped bubbles (FM06-059) <u>Angela Busse</u> , Neil D. Sandham, UK | Effect of wall on the lifetime of nanobubbles (FM06-060) <u>Shunsuke Kohno</u> , Sadayoshi Toh, Japan |
| FS02: Computational methods in mechanics Chairs: Xu Guo, China Stefanie Reese, Germany Room: Ballroom B | Optimal transportation meshfree approximation schemes for fluid and plastic flows (FS02-063, invited lecture) <u>Michael Ortiz</u> , USA | Efficient simulation of multiscale non-continuum transport (FS02-009) Nicolas G. Hadjiconstantinou, Gregg Radtke, <u>Jean-Philippe Peraud</u> , USA | Efficient numerical approaches to challenging problems in the frontier of mechanics and biology (FS02-013) <u>Elias Cueto</u> , Francisco Chinesta, Spain |
| SM16: Vibrations and control of structures Chairs: Tomasz Kapitaniak, Poland Qingjie Cao, China Room: Ballroom C | Control of torsional vibrations in drill-strings via decomposition of traveling waves (SM16-027) <u>Edwin J. Kreuzer</u> , Michael Steidl, Germany | Probabilistic solution of the stochastic oscillators with nonzero mean response (SM16-023) Guo-Kang Er, <u>Siu-Siu Guo</u> , Vai Pan Iu, Macau, China | Probability density evolution analysis of multidimensional nonlinear stochastic dynamical systems (SM16-029) <u>Jianbing Chen</u> , Jun Xu, Jie Li, China |
| FM07: Flow instability and transition Chairs: Bruno Eckhardt, Germany Jianjun Tao, China Room: Function Hall A | A weakly nonlinear mechanism for mode selection in swirling jets (FM07-026) Philippe Meliga, Francois Gallaire, <u>Jean-Marc Chomaz</u> , France | Instabilities of a cylinder wake in a stratified fluid (FM07-025) <u>Mickaël Bosco</u> , Patrice Meunier, France | Transition in rotating annulus with thermal gradient (FM07-094) Raphaël Guillermin, Arnaud Prigent, Clément Savaro, Satish Malik, <u>Innocent Mutabazi</u> , Dong-Hyeog Yoon, Chang-Woo Kang, Kyung-Soo Yang, France |
| SM05: Fracture mechanics Chairs: Yuri Petro, USA Chengzhi Qi, China Room: Function Hall B | The influence of surface effects on strength and stability of Kirsch plates (SM05-036) Mikhail Grekov, <u>Nikita F. Morozov</u> , Stanislava Kashtanova, Anna Yazovskaya, Russia | Structural-temporal approach for multi-scale fracture dynamics (SM05-043) <u>Yuri V. Petrov</u> , Russia | Destruction of thin films with a damaged substrate as a result of waves localization (SM05-044) <u>Andrey K. Abramyan</u> , Sergey A. Vakulenko, Dmitry A. Indeitsev, Russia |
| MS06: Effects of small size scales in materials modeling Chairs: Yong-Wei Zhang, Singapore Quanshui Zheng, China Room: Function Hall C | Discrete dislocation analyses of size effects in plasticity (MS06-050) <u>A. Amine Benzerga</u> , Shyam M. Keralavarma, P.J. Gururupasad, USA | Understanding the size effect in the mechanical properties of (MS06-019) Zhaoxuan Wu, <u>Yong-Wei Zhang</u> , David J. Srolovitz, Singapore | Effect of vacancies on the ultimate tensile strain of zno nanowires (MS06-023) <u>Pan Xiao</u> , Jun Wang, Min Zhou, Fujui Ke, Yilong Bai, China |
| FM01: Biological fluid dynamics Chairs: Tomas Bohr, Denmark Xing Zhang, China Room: 202A+B | The dynamics of insect flight and maple seeds (FM01-028) <u>Jane Wang</u> , USA | Shape and motion optimization of 3d self-propelled swimmers (FM01-029) <u>Wim M. van Rees</u> , Mattia Gazzola, Petros Koumoutsakos, Switzerland | Viscoelastic properties of vascular endothelial cells exposed to stretch (FM01-031) <u>Kathryn Osterday</u> , Thomas Chew, Phillip Loury, Jason Haga, Manuel Gómez-González, Juan Carlos Del Álamo, Shu Chien, USA |
| FS01: Acoustics Chairs: Weiqiu Chen, China Victor Kopiev, Russia Room: 203A+B | Wave motion and resonances in damaged periodically layered composites (FS01-024, invited lecture) <u>Chuanzeng Zhang</u> , Mikhail V. Golub, Yue-Sheng Wang, Germany | Elastic wave propagation in multilayered Bragg cells (FS01-019) <u>Yongqiang Guo</u> , Daining Fang, China | Membranes in the 3D cellular solid model provide the micro-/macro scaling for the long-wavelength acoustics of real foam samples (FS01-029) <u>Camille Perrot</u> , Minh Tan Hoang, Guy Bonnet, Fabien Chevillotte, Arnaud Duval, France |
| FS04: Chaos and pattern formation Chairs: Martine Ben Amar, France John Gibson, USA Room: 205A+B | Critical point for pipe flow, and beyond (FS04-014, invited lecture) <u>Dwight Barkley</u> , Kerstin Avila, David Moxey, Alberto de Lozar, Marc Avila, Bjoern Hof, UK | Fractal cracking pattern characterization in heterogeneous materials under compression (FS04-007) Alberto Carpinteri, <u>Mauro Corrado</u> , Giuseppe Lacidogna, Italy | Transition to sustained turbulence in plane Couette flow (FS04-008) <u>Liang Shi</u> , Marc Avila, Bjoern Hof, Germany |

| Session | 17:10 | 17:30 | 17:50 |
|---|--|---|--|
| FM06: Drops, bubbles and multiphase flows Chairs: Adrian Daerr, France Jianfu Zhao, China Room: Ballroom A | Study of liquid destabilization and stripping in a liquid-gas mixing layer (FM06-062) <u>Jean-Philippe Matas</u> , Sylvain Marty, Alain Cartellier, France | Experiments in diffusive gas-bubble growth (FM06-064) <u>Oscar R. Enriquez</u> , Devaraj van der Meer, Chao Sun, Andrea Prosperetti, Detlef Lohse, The Netherlands | Supersonic controlled microjet (FM06-065) <u>Yoshiyuki Tagawa</u> , Nikolai Oudalov, Claas Willem Visser, Ivo R. Peters, Devaraj van der Meer, Chao Sun, Andrea Prosperetti, Detlef Lohse, The Netherlands |
| FS02: Computational methods in mechanics Chairs: Xu Guo, China Stefanie Reese, Germany Room: Ballroom B | A computational electromechanical model for the myocardium including fiber and sheet disarray (FS02-014) <u>Gerhard A. Holzapfel</u> , Thomas S. E. Eriksson, Gerhard Sommer, Anton J. Prassl, Gernot Plank, Austria | A two-scale approach for the transition from homogenization to localization in multi-phase materials (FS02-016) <u>Marc G. D. Geers</u> , Varvara G. Kouznetsova, Emanuela Bosco, Erica W. C. Coenen, The Netherlands | Second order accurate derivatives and integration schemes for meshfree methods (FS02-034) <u>Qinglin Duan</u> , Ted Belytschko, Xikui Li, China |
| SM16: Vibrations and control of structures Chairs: Tomasz Kapitaniak, Poland Qingjie Cao, China Room: Ballroom C | Dynamics of oscillators with continuous and discontinuous nonlinearities by harmonic balancing and path following (SM16-035) <u>S. Narayanan</u> , B. Santhosh, C. Padmanabhan, India | Noise aided control of rotor-stator system dynamics (SM16-038) <u>Nicholas A. Vlaisic</u> , Xianbo Liu, Xinhua Long, Balakumar Balachandran, USA | Some researches for the delayed feedback control of flexible structures (SM16-041) <u>Longxiang Chen</u> , Guoping Cai, China |
| FM07: Flow instability and transition Chairs: Bruno Eckhardt, Germany Jianjun Tao, China Room: Function Hall A | Instability of films flowing over topography with eddies (FM07-002) <u>Thilo Pollak</u> , Nuri Aksel, Germany | Highly dissipative perturbations in a Couette flow (FM07-030) <u>Stefania Cherubini</u> , <u>Pietro De Palma</u> , Italy | Multiple buckling states of falling viscous threads (FM07-041) <u>N. M. Ribe</u> , M. Habibi, Y. Rahmani, H. Hosseini, M Khatami, D Bonn, France |
| SM05: Fracture mechanics Chairs: Yuri Petro, USA Chengzhi Qi, China Room: Function Hall B | R-curve behavior of ferroelectric materials: A semi-analytical approach (SM05-046) <u>Roman Gellmann</u> , Andreas Ricoeur, Germany | Mechanics of edge cracks due to a phase transformation (SM05-053) <u>Bharat Penmecha</u> , Kaushik Bhattacharya, USA | Determination of stress intensity factor for interface crack under uniform heat flow by crack tip stress method (SM05-054) <u>Kazuhiro Oda</u> , Ryuta Aoki, Nao-Aki Noda, Japan |
| MS06: Effects of small size scales in materials modeling Chairs: Yong-Wei Zhang, Singapore Quanshui Zheng, China Room: Function Hall C | Mechanical properties of irradiated metal nanowires (MS06-026) <u>Weina Li</u> , Lixin Sun, Jianming Xue, Jianxiang Wang, <u>Huiling Duan</u> , China | Atomistic simulations and modeling of plastic deformation and fracture in nanotwinned metals (MS06-027) <u>Xiaoyan Li</u> , Huajian Gao, USA | Mechanics of chirality transfer in bio- and nano-materials (MS06-028) <u>Jianshan Wang</u> , Xiqiao Feng, Jun Xu, Yilan Kang, China |
| FM01: Biological fluid dynamics Chairs: Tomas Bohr, Denmark Xing Zhang, China Room: 202A+B | Vorticity production over an accelerating rotating wing (FM10-015) <u>Yossef Elimelech</u> , Dmitry Kolomenskiy, <u>Keith Moffatt</u> , UK | Aerodynamics of hovering flight in bat (FM01-036) <u>Shizhao Wang</u> , Guowei He, <u>Xing Zhang</u> , China | Unsteady swimming of small organisms (FM01-035) <u>Shiyan Wang</u> , Arezoo Ardekani, USA |
| FS01: Acoustics Chairs: Weiqiu Chen, China Victor Kopiev, Russia Room: 203A+B | Wave propagation in piezoelectric cylinders with surface effect (FS01-018) <u>Weiqiu Chen</u> , China | Attenuation of sound wave radiated by spinning acoustic dipoles in a circular duct with an inserted impedance surface (FS01-036) <u>Lixi Huang</u> , Chen Wang, China | A method for calculating the elastic wave band structure of two-dimensional phononic crystals with interface/surface stress effect (FS01-037) <u>Wei Liu</u> , <u>Xianyue Su</u> , China |
| FS04: Chaos and pattern formation Chairs: Martine Ben Amar, France John Gibson, USA Room: 205A+B | On the growth and morphology of icicles (FS04-010) <u>Antony Szu-Han Chen</u> , <u>Stephen W. Morris</u> , Canada | Attributes of hyperbolic attractors in non-smooth mechanical oscillators (FS04-011) <u>Andrzej Stefanski</u> , Jerzy Wojewoda, Agnieszka Chudzik, Tomasz Kapitaniak, Poland | Revealing the geometry of turbulent pipe flow attractor by symmetry reduction (FS04-012) <u>Predrag Cvitanovic</u> , Ashley P. Willis, Marc Avila, USA |

IUTAM General Assembly: 18:30 – 21:30, Function Hall A, 1st floor

| Session | 16:10 | 16:30 | 16:50 |
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| SM13: Plasticity, viscoplasticity and creep Chairs: Christian F. Niordson, Denmark Farid Abed, USA Room: 206A+B | Finite-temperature simulation of nanovoid growth by dislocation emission (SM13-032) <u>M. P. Ariza</u> , Mauricio Ponga, Michael Ortiz, Spain | Modeling of nanocrystalline metals based on competing grain boundary and grain interior deformation mechanisms (SM13-049) <u>Erçan Gürses</u> , Tamer El Sayed, Turkey | Mechanics of high strain rate behavior of elastomeric random copolymers (SM13-034) <u>Hansohi Cho</u> , Mary C. Boyce, Mock Jr. Willis, USA |
| SM08: Mechanics of multi-component materials and composites Chairs: Yaning Li, USA Shengqiang Cai, USA Room: 208A+B | Collapse mechanisms of a blast-resistant UHMwPE composite beam (SM08-052) <u>Norman A. Fleck</u> , G. Liu, Vikram S. Deshpande, Michael D. Thoules, UK | Stress-strain curve of a fiber network (SM08-027) <u>Svetlana Borodulina</u> , Artem Kulachenko, Mikael Nygård, Sweden | Modelling of anisotropic composites by newly developed HFS-FEM (SM08-016) <u>Changyong Cao</u> , Qinghua Qin, Aibing Yu, Australia |
| FM09: Geophysical and environmental fluid dynamics Chairs: Paul Linden, UK Jin-Song von Storch, Germany Room: 207 | Can energetics really constrain the oceanic stirring by wind and tides? (FM09-034, invited lecture) <u>Remi Tailleux</u> , UK | Gravity-driven flows in stratified fluids (FM09-016) <u>Paul F. Linden</u> , Benjamin D. Maurer, UK | The evolution and stability of axisymmetric intrusions (FM09-017) <u>Bruce R. Sutherland</u> , Colm-cille P. Caulfield, Justine M. McMillan, Canada |
| FM10: Low Reynolds number flow Chairs: Howard Stone, USA Ehud Yariv, Italy Room: 210A | Dispersion of particles on fluid-liquid interfaces (FM10-024, invited lecture) <u>Pushendra Singh</u> , Ian Fischer, Bhavin Dalal, Sathish Gurupatham, Md. Shahadat Hossain, Naga Musunuri, USA | Evolution of suspension drops settling under gravity in a viscous fluid near a vertical wall (FM10-026) <u>Maria L. Ekiel-Jezewska</u> , Anna Mylyk, Poland | Stokeslet induced slip flows in a spherical container (FM10-029) <u>B. Sri Padmavati Bhavaraju</u> , Debarjyoti Choudhuri, D. Palaniappan, India |
| FM16: Waves in fluids Chairs: Tatyana Krasnopolskaya, Ukraine Chiang C. Mei, USA Room: 210B | Equilibrium dynamics and statistics of gravity-capillary waves (FM16-012) <u>W. Kendall Melville</u> , Alexey V. Fedorov, USA | Internal waves and boundary layers in a density-stratified fluid (FM16-013) <u>Bruno Voisin</u> , Sylvain Joubaud, Thierry Dauxois, France | Direct energy transform to cross-waves in a rectangular channel of finite dimensions (FM16-015) <u>Tatyana S. Krasnopolskaya</u> , Viacheslav M. Spektor, Ukraine |
| FS06: Fluid structure interactions Chairs: Scott Kelly, USA Michael Ortiz, USA Room: 211 | Fluid-structure-contact-interaction between liquid droplets and rough surfaces (FS06-020) <u>Roger A. Sauer</u> , Muhammad Osman, Raheel Rasool, Germany | On reducing scouring by controlling junction flow (FS06-037) <u>Tsung-chow Su</u> , Bing Chen, Hua Zhang, Tao Hu, ZhongYu Yang, USA | Simulation of divergence and flutter instabilities of elastic plate in subsonic and supersonic gas flow (FS06-043) <u>Anastasia Shishaeva</u> , Vasily Vedeneev, Konstantin Kuznetsov, Andrey Aksenov, Russia |
| FS08: Granular materials and flows Chairs: David Harris, UK Herbert Huppert, UK Room: 212A | Effect of grain shape on micromechanical behavior of sheared granular layers (FS08-020) <u>Amy L. Rechenmacher</u> , Andrés D. Orlando, USA | Structure of granular packings (FS08-024) <u>Thorsten Pöschel</u> , Jason A. C. Gallas, Nikola Topic, Germany | Steady channels and avalanches of dense granular flow down a slope (FS08-026) <u>Daisuke Takagi</u> , Jim N McElwaine, <u>Herbert E. Huppert</u> , UK |
| SM10: Mechatronics Chairs: Chaofeng Lu, China Heinz Ulbrich, Germany Room: 212B | Vertical angular momentum minimization for biped robots with kinematically redundant joints (SM10-007, invited lecture) <u>Markus Schwienbacher</u> , Thomas Buschmann, Heinz Ulbrich, Germany | Operation mechanism for tunable hemispherical eyeball cameras (SM04-052) <u>Chaofeng Lu</u> , Jianliang Xiao, Yonggang Huang, John A. Rogers, China | Effects of inertance in railway vehicles with active control (SM10-010) <u>Alejandra Z. Matamoros-Sanchez</u> , Jason Z. Jiang, Roger M. Goodall, Malcolm C. Smith, UK |
| SM11: Multibody and vehicle dynamics Chairs: Wei Zhang, China Maxim V. Shamolin, Russia Room: 213A | Modeling sticking, stick-slip and sliding in multi-body systems with many frictional contacts (SM11-009) <u>Markus Filippi</u> , Thorsten Schindler, Heinz Ulbrich, Germany | Multibody model for planetary gearbox of 500 kW wind turbine (SM11-012) <u>Martin F. Jørgensen</u> , Niels L. Pedersen, Jens N. Sørensen, Denmark | Robust design of an all-wheel steering car (SM11-021) <u>Dieter Bestle</u> , Jochen Busch, Germany |

| Session | 17:10 | 17:30 | 17:50 |
|--|--|---|--|
| SM13: Plasticity, viscoplasticity and creep Chairs: Christian F. Niordson, Denmark Farid Abed, USA Room: 206A+B | Debonding analyses in anisotropic materials with strain-gradient effects (SM13-018) <u>Brian Nyvang Legarth</u> , Denmark | Analysis of kink-fold deformation based on disclination theory (SM13-039) <u>Akihiro Nakatani</u> , Japan | Micromechanical modelling of the deformation kinetics of semicrystalline polymers (SM13-043) <u>Johannes A.W. van Dommelen</u> , Amin Sedighiamiri, Leon E. Govaert, The Netherlands |
| SM08: Mechanics of multi-component materials and composites Chairs: Yaning Li, USA Shengqiang Cai, USA Room: 208A+B | Necessary conditions and approximate self-consistent estimates for the overall creep function of viscoelastic heterogeneous materials (SM08-013) <u>Renald Brenner</u> , Pierre Suquet, France | Chiral effect in planar isotropic micropolar elasticity (SM08-017) <u>Xiaoning Liu</u> , Guoliang Huang, Gengkai Hu, China | Bounds on the effective elastic moduli of three-phase composites with coated spherical inclusions (SM08-019) <u>Linzhi Wu</u> , China |
| FM09: Geophysical and environmental fluid dynamics Chairs: Paul Linden, UK Jin-Song von Storch, Germany Room: 207 | Release of pollutants from particles and pore water due to sediment resuspension (FM09-018) <u>Daozeng Wang</u> , <u>Hongwei Zhu</u> , China | Internal wave focussing by horizontal oscillations of a torus (FM09-023) <u>Eugeny Ermanyuk</u> , Natalia Shmakova, Jan-Bert Flor, Russia | Experimental investigation of sand velocity on barchans in windblown sand transport in the wind tunnel (FM09-025) <u>Wenhai Sun</u> , Ning Huang, China |
| FM10: Low Reynolds number flow Chairs: Howard Stone, USA Ehud Yariv, Italy Room: 210A | Lagrangian tori induced by precessing bent rods in viscous dominated flows (FM10-031) <u>Roberto Camassa</u> , James Martindale, <u>Richard M. McLaughlin</u> , Leandra Vicci, Longhua Zhao, USA | | |
| FM16: Waves in fluids Chairs: Tatyana Krasnopolskaya, Ukraine Chiang C. Mei, USA Room: 210B | Long wave generation above a cylindrical sill (FM16-017) <u>Themistoklis S. Stefanakis</u> , Frédéric Dias, Ireland | Airflow separation over surface gravity waves (FM16-018) <u>Marc Buckley</u> , <u>Fabrice Veron</u> , USA | Internal seiches of large amplitude in the elongated lakes and phenomenon of "lochness monster" (FM16-010) <u>Kateryna Terletska</u> , Vladimir Maderich, Igor Brovchenko, Kyung Jung, Ukraine |
| FS06: Fluid structure interactions Chairs: Scott Kelly, USA Michael Ortiz, USA Room: 211 | Flutter suppression via delayed feedback control (SM16-031) <u>Zaihua Wang</u> , Miao Li, China | Modelling of vortex induced vibrations of slender marine structures (SM16-058) <u>Ekaterina Pavlovskaja</u> , Marko Keber, Andrey Postnikov, Marian Wiercigroch, UK | |
| FS08: Granular materials and flows Chairs: David Harris, UK Herbert Huppert, UK Room: 212A | A micromechanical study on the shear strength in granular materials: The role of particle shape (FS10-008) <u>Jidong Zhao</u> , Ning Guo. Hong Kong China | Crossover in dynamics of granular packings under cyclic shear (FS08-023) <u>Wolfgang Losert</u> , <u>Mitch Mailman</u> , USA | |
| SM10: Mechatronics Chairs: Chaofeng Lu, China Heinz Ulbrich, Germany Room: 212B | A nonlinear vibration-based magnetoelectric energy harvester (SM10-009) <u>Yang Zhu</u> , Jean Zu, Canada | | |
| SM11: Multibody and vehicle dynamics Chairs: Wei Zhang, China Maxim V. Shamolin, Russia Room: 213A | Coupled multibody system dynamics and its application on self-propelled artillery system (SM11-018) <u>Xiaoting Rui</u> , China | Rail vehicle response to carbody excitations imitating crosswind (SM11-016) <u>Dirk Thomas</u> , <u>Mats Berg</u> , Diedrichs Ben, Stichel Sebastian, Sweden | Roller chain drives multibody models using a generalized revolute clearance joint formulation (SM11-022) <u>Jorge Ambrosio</u> , Candida Pereira, Amilcar Ramalho, Portugal |

IUTAM General Assembly: 18:30 – 21:30, Function Hall A, 1st floor

Wednesday, 22 August 2012

Session

8:30

Rodney Hill Prize Lecture

Chair: Viggo Tvergaard, Denmark
Room: Ballroom C

Probing mechanical principles of cell-nanomaterial interactions

Huajian Gao, USA

Session

9:30

G.K. Batchelor Prize Lecture

Chair: Paul Linden, UK
Room: Ballroom C

Fully developed Rayleigh-Bénard and Taylor-Couette turbulence

Detlef Lohse, The Netherlands

Coffee Break: 10:30 – 10:50, Main Lobby, 1st floor

| Session | 10:50 | 11:10 | 11:30 |
|---|--|--|---|
| <p>FM06: Drops, bubbles and multiphase flows Chairs: Jacques Magnaudet, France Zhewei Zhou, China Room: Ballroom A</p> | <p>General mechanism for the meandering instability of rivulets of Newtonian fluids (FM06-100, invited lecture) Adrian Daerr, Stéphanie Couvreur, Jens Eggers, Laurent Limat, Nadine Valade, France</p> | <p>Efficient coefficient of restitution and Lattice-Boltzmann simulation of gravitational settling and rebound in a viscous fluid (FM06-067) Guodong Jin, Guowei He, Hui Gao, Lianping Wang, Jian Zhang, China</p> | <p>Simulations of aerodynamics and interfacial instabilities of droplets exposed to high-speed gas flows (FM06-070) Chih-Hao Chang, Xiaolong Deng, Theo G. Theofanous, USA</p> |
| <p>FM07: Flow instability and transition Chairs: Stephane Le Dizes, France Sanjiva K. Lele, USA Room: Ballroom C</p> | <p>Influence of parameters in electrohydrodynamic interfacial instabilities for microfluidic applications (FM07-051) Nadine Aubry, A. Kerem Uguz, USA</p> | <p>Localization in transitional shear flows (FM07-053) Tobias M. Schneider, John F. Gibson, John Burke, Evan Brand, John Platt, USA</p> | <p>The Faraday instability in deformable domains (FM06-090) Giuseppe Pucci, Emmanuel Fort, Martine Ben Amar, Yves Couder, France</p> |
| <p>SM05: Fracture mechanics Chairs: Yasuhide Shindo, Japan Fenghua Zhou, China Room: Function Hall A</p> | <p>Composite toughening by layering (SM05-063) Giovanni Noselli, Vikram S. Deshpande, Norman A. Fleck, UK</p> | <p>Weight function for an elliptical crack in piezoelectric media (SM05-061) Tushar K. Saha, Samir Saha, Arabinda Roy, India</p> | <p>Dynamical effects in the problem of film delamination (SM05-062) Dmitry A. Indeitsev, Yulia A. Mochalova, Boris N. Semenov, Russia</p> |
| <p>SM16: Vibrations and control of structures Chairs: Sadagopan Narayanan, India Marian Wiercigroch, UK Room: Function Hall B</p> | <p>Railway vehicle vibration dynamics and optimized bogie damping to enhance safety and comfort (SM16-045) Viktor Berbyuk, Albin Johnsson, Sweden</p> | <p>Effects of variable bearing stiffness on the stability of milling processes (SM16-048) Dehao Meng, Xinhua Long, Guang Meng, China</p> | <p>Synchronization motion of networked harmonic oscillators under local instantaneous interaction (SM16-049) Hua Zhang, Jin Zhou, Zengrong Liu, China</p> |
| <p>MS06: Effects of small size scales in materials modeling Chairs: Horacio Espinosa, USA Zhiping Xu, China Room: Function Hall C</p> | <p>Size matters: size-dependent mechanical properties of metallic systems (MS06-008, invited lecture) Julia R. Greer, Dongchan Jang, Andrew Jennings, USA</p> | <p>Approaches to remove size effect due to indenter roundness in nano-indentation (MS06-035) Rong Yang, Taihua Zhang, Qun Zhang, Yilong Bai, China</p> | <p>Defects interaction conditions in near-field of grain boundaries (MS06-036) Yoji Shibutani, Tomohito Tsuru, Akihiro Nakano, Japan</p> |
| <p>FM05: Convection Chairs: Olga Shishkina, Germany Keqing Xia, China Room: 202A+B</p> | <p>Scaling of the locally averaged thermal dissipation rate in turbulent Rayleigh-Bénard convection (FM05-011, invited lecture) Peng'er Tong, Xiaozhou He, Emily S. C. Ching, Hong Kong, China</p> | <p>Velocity space-time correlations in turbulent thermal convection (FM05-008) Quan Zhou, China</p> | <p>Vortex motions in soft and hard 2-D turbulent Rayleigh-Bénard convection (FM05-016) Yun Bao, Hongyue Zou, Jun Chen, Xi Chen, Zhensu She, China</p> |
| <p>FS07: Smart materials Chairs: Daining Fang, China Zhigang Suo, USA Room: 203A+B</p> | <p>Theory and experiments of dielectric elastomers (FS07-021, invited lecture) Zhigang Suo, USA</p> | <p>Thermomechanical coupling and transformation-induced stress-relaxation effects in TiNi shape memory alloy (FS07-001) Elzbieta A. Pieczyska, Hisaaki Tobushi, Kohei Takeda, Karol Kulasinski, Jerzy Luckner, Poland</p> | <p>Experiments and modeling of magnetorheological elastomers with particle-chain microstructures (FS07-011) Kostas Danas, Sundeep V. Kankanala, Nick Triantafyllidis, France</p> |
| <p>SM04: Elasticity Chairs: Fumihito Ashida, Japan Reinhold Kienzler, Germany Room: 205A+B</p> | <p>On variational dimension-reduction methods to derive shell theories (SM04-020, invited lecture) Paolo Podio-Guidugli, Italy</p> | <p>Mechanics of liquid crystals and quasicrystals (SM04-013) Tianyou Fan, China</p> | <p>Discrete element modelling of elastic modulus of a granular porous mixture (FS10-018) Shunying Ji, Ying Yan, China</p> |

Wednesday, 22 August 2012

| Session | 11:50 | 12:10 | 12:30 |
|---|---|---|---|
| FM06: Drops, bubbles and multiphase flows Chairs: Jacques Magnaudet, France Zhewei Zhou, China Room: Ballroom A | Jet formation from bubble collapse at a free surface (FM06-068) Krishnan Sangeeth, Baburaj A. Puthenveetil, Emil J. Hopfinger, India | The rebound of a bubble with a solid surface: surface waves as an additional dissipation mechanism (FM06-073) <u>Roberto Zenit</u> , Dominique Legendre, Mexico | Dilation stability analysis of evaporating liquid-gas interface and simulation of primary atomization of evaporating spray (FM06-078) <u>Peng Zeng</u> , Heinz Pitsch, Bernd Binninger, Norbert Peters, Germany |
| FM07: Flow instability and transition Chairs: Stephane Le Dizes, France Sanjiva K. Lele, USA Room: Ballroom C | Renewable energy from flow-induced vibration (FM07-048) <u>Justin S. Leontini</u> , Mark C. Thompson, Australia | Vortices stability and inverse cascades in a 3D turbulent von Kármán flow (FM07-042) Miguel Lopez-Caballero, <u>Javier Burguete</u> , Spain | Chemically-driven miscible viscous fingering: how can a reaction destabilize typically stable fluid displacements? (FM07-043) <u>Luis Atilio Riolfo</u> , Yuichiro Nagatsu, Shohei Iwata, Renaud Maes, Philip M. J. Trevelyan, Anne De Wit, Belgium |
| SM05: Fracture mechanics Chairs: Yasuhide Shindo, Japan Fenghua Zhou, China Room: Function Hall A | Effect of microstructure and loading condition on very-high-cycle fatigue life of high-strength steels (SM05-055) <u>Chengqi Sun</u> , Youshi Hong, China | Dynamic analysis of interface cracks in layered piezoelectric materials with non-linear crack-face boundary conditions under impact loading (SM05-066) <u>Michael Wünsche</u> , Chuanzeng Zhang, Germany | Experimental and computational investigation of debonding at the interface of two L-shaped PMMA beams (SM05-076) Denizhan Yavas, Burak Gozluklu, <u>Demirkan Coker</u> , Turkey |
| SM16: Vibrations and control of structures Chairs: Sadagopan Narayanan, India Marian Wiercigroch, UK Room: Function Hall B | Dispersion relation estimation for the guided wave using time-frequency representation based method (SM16-082) <u>Yang Yang</u> , Zhike Peng, Guang Meng, China | Resonance enhanced drilling (SM16-060) <u>Marian Wiercigroch</u> , Ekaterina Pavlovskaja, James Ing, Jerzy Wojewoda, UK | Effect and compensation of time delay on semiactively controlled cable (SM16-061) <u>Jian Peng</u> , Jianjun Ma, Lianhua Wang, Yueyu Zhao, China |
| MS06: Effects of small size scales in materials modeling Chairs: Horacio Espinosa, USA Zhiping Xu, China Room: Function Hall C | Modeling of inelastic microstructure development and inhomogeneous material behaviour via non-convex rate-dependent gradient plasticity (MS06-040) <u>Bob Svendsen</u> , Benjamin Klusemann, Tuncay Yalcinkaya, Marc Geers, Germany | On the size-dependent mechanical properties of five-fold twined fcc Fe nanowires (MS06-041) Jianyang Wu, Shijo Nagao, Jianying He, <u>Zhiliang Zhang</u> , Norway | Modeling size-effects in single crystals at finite strains: indentation of FCC crystals (MS06-044) <u>Christian Niordson</u> , Denmark |
| FM05: Convection Chairs: Olga Shishkina, Germany Keqing Xia, China Room: 202A+B | Lagrangian measurements in turbulent thermal convection (FM05-018) <u>Keqing Xia</u> , Rui Ni, Shidi Huang, Hong Kong, China | Comparison between rough and smooth plates within the same Rayleigh-Bénard cell at high Rayleigh numbers (FM05-019) Jen-Christophe Tisserand, Mathieu Creyssels, Yohan Gasteuil, Mathieu Gibert, Hervé Pabiou, Olivier Liot, <u>Julien Salort</u> , Eleonore Rusaouen, Francesca Chillà, Bernard Castaing, France | |
| FS07: Smart materials Chairs: Daining Fang, China Zhigang Suo, USA Room: 203A+B | High-frequency resonant characteristics of triple-layered piezoceramic bimorphs (FS07-004) <u>Yu-Hsi Huang</u> , Chien-Ching Ma, Ching-Kong Chao, Taipei, China | Extended Kantorovich method for three-dimensional piezoelectricity solution of piezoelectric plates (FS07-006) <u>Santosh Kapuria</u> , Poonam Kumari, India | A theoretical model of a thermal-sensitive gel particle with core-shell structure (FS07-009) Zhen Wu, <u>Zheng Zhong</u> , China |
| SM04: Elasticity Chairs: Fumihiko Ashida, Japan Reinhold Kienzler, Germany Room: 205A+B | Band-gap of eigenfrequency due to nonlocality in elastic string (SM04-016) <u>Zaixing Huang</u> , China | Stable trivial configuration of elastic systems after bifurcation (SM04-015) Francesco Dal Corso, Davide Bigoni, Federico Bosi, Diego Misseroni, Italy | Dislocations and inclusions in prestressed elastic materials (SM04-010) <u>Davide Bigoni</u> , Luca Argani, Gennady Mishuris, Italy |

Lunch: 12:50 – 13:50, Exhibition Hall 5, underground floor

Wednesday Afternoon Excursion to the Great Wall: 14:00 – 18:00, depart from the CNCC

IUTAM General Assembly: 14:00 – 17:00, Function Hall A, 1st floor

| Session | 10:50 | 11:10 | 11:30 |
|---|---|--|---|
| FS02: Computational methods in mechanics Chairs: Ferdinando Auricchio, Italy Petros Koumoutsakos, Switzerland Room: 206A+B | A separate quasi-particle multiscale method (FS02-037) <u>Zhenqing Wang</u> , Zengjie Yang, Qinghua Meng, China | A carving technique with the aid of polyhedral elements and smoothed integration for complex structures (FS02-039) Dongwoo Sohn, Jihoon Han, Young-Sam Cho, <u>Seyoung Im</u> , Republic of Korea | A periodic FMM and Calderon's preconditioning for acoustic-elastodynamic coupled problems (FS02-040) <u>Hiroshi Isakari</u> , Naoshi Nishimura, Japan |
| SM13: Plasticity, viscoplasticity and creep Chairs: Pilar Ariza, Spain Zhuping Huang, China Room: 208A+B | In-situ investigations of small strain plasticity in dual-phase steel (SM13-044) <u>C. Cem Tasan</u> , Stefan Zaefferer, Dierk Raabe, The Netherlands | A new constitutive formulation in finite thermo-viscoelasticity (SM13-053) <u>Zhuping Huang</u> , China | Steady state crack propagation in layered material systems displaying visco-plastic behaviour (SM13-015) <u>Kim Lau Nielsen</u> , Denmark |
| SM15: Structural optimization (Co-sponsored by ISSMO) Chairs: Andrzej Myslinski, Poland Niels Leergaard Pedersen, Denmark Room: 209A+B | Issues related to topology optimization of snap-through problems (SM15-016) <u>Esben Lindgaard</u> , Jonas Dahl, Denmark | Minimization of structure-borne noise in lightweight buildings (SM15-044) <u>Bin Niu</u> , Niels Olhoff, Denmark | Topological design of acoustic microstructure (SM15-020) <u>Jianbin Du</u> , Ruizhen Yang, China |
| FM09: Geophysical and environmental fluid dynamics Chairs: Henk Dijkstra, The Netherlands James Riley, USA Room: 207 | Atmospheric coherent structures and biological invasions (FM09-029) <u>Shane D. Ross</u> , USA | Long-term variations and abrupt changes in a strong eastward jet in a double-gyre ocean forced by seasonally varying wind stress (FM09-014) <u>Tomonori Matsuura</u> , Shinya Shimokawa, Japan | Immersed boundary approach for wind forecasting over complex terrain using GPU clusters (FM09-031) <u>Inanc Senocak</u> , Rey DeLeon, USA |
| FM16: Waves in fluids Chairs: Paul Hammerton, UK Nobumasa Sugimoto, Japan Room: 210A | Diffusive effects on acoustic wave propagation in a gas-filled channel subject to temperature gradient (FM16-021) <u>Sugimoto Nobumasa</u> , Hyodo Hiroaki, Japan | Numerical study of period-tripling state in Faraday waves (FM16-022) <u>Kentarō Takagi</u> , Takeshi Matsumoto, Japan | Simulation-based study of wave-turbulence interaction (FM16-025) <u>Xin Guo</u> , <u>Lian Shen</u> , USA |
| FS04: Chaos and pattern formation Chairs: Victor Berdichevsky, USA Lev Truskinovsky, France Room: 210B | Buckling and cusp formation in gel swelling and tissue growth (FS04-018) <u>Martine Ben Amar</u> , Julien Dervaux, Pasquale Ciarletta, France | Twisted plateau borders and the collapse of a Möbius strip soap film (FS04-015) Raymond E. Goldstein, Keith Moffatt, <u>Adriana I. Pesci</u> , Renzo L. Ricca, UK | Surface wave patterns: Faraday waves and cross-waves (FS04-016) <u>Jeff Porter</u> , Ignacio Tinao, Ana Laveron-Simavilla, Spain |
| MS03: Fluid-structure interactions in biological systems Chairs: Paul Watton, UK Michael Shelley, USA Room: 211 | Mode switching and synchronization in Chlamydomonas flagella (MS03-016) <u>Kirsty Y. Wan</u> , Kyriacos C. Leptos, Raymond E. Goldstein, UK | Spanwise stretching and collapse motions stabilize leading-edge vortex in slow-flying bats (MS03-030) <u>Shizhao Wang</u> , Guowei He, Xing Zhang, China | Fluid transport induced by a flexible oscillating flapper in creeping flow (MS03-023) <u>Roberto Zenit</u> , <u>Roger Arco</u> , Eric Lauga, Mexico |
| FS01: Acoustics Chairs: Wolfgang Schroeder, Germany Chuanzeng Zhang, Germany Room: 212A | Numerical modeling of laser generation of ultrasound by coupled thermoelasticity (SM07-011) <u>István A. Veres</u> , Thomas Berer, Dieter M. Profunser, Peter Burgholzer, Austria | Singular boundary method for radiation and wave scattering: numerical aspects and applications (FS01-014) <u>Zhuojia Fu</u> , Wen Chen, Ching-Shyang Chen, China | Simulation of the seismo-electromagnetic field during an earthquake (FS01-030) <u>Hengshan Hu</u> , Yongxin Gao, Zhi Wang, China |
| SM08: Mechanics of multi-component materials and composites Chairs: Lifeng Wang, USA Anthony Waas, USA Room: 212B | Recent progress in multi-functional soft smart materials and their applications (SM08-070, invited lecture) <u>Jinsong Leng</u> , Liwu Liu, <u>Yanju Liu</u> , China | Damage propagation of composite material reinforced by randomly-dispersed particles (SM08-005) <u>Jiaoyan Li</u> , James D. Lee, Ken P. Chong, USA | Multifunctional nano-tailored composites for in situ self-health monitoring of aircraft structures (SM08-055) <u>Jacob M. Wernik</u> , <u>Shaker A. Meguid</u> , Canada |
| SM12: Nanostructures and MEMS Chairs: Marc Geers, The Netherlands Harley Johnson, USA Room: 213A | Mixed-mode fracture at the molecular level (SM12-008, invited lecture) <u>Kenneth M. Liechti</u> , Seung R. Na, Yves Chabal, Oliver Seitz, USA | The influence of atomic defects on the mechanical properties and breaking behaviors of gold nanowires (SM12-047) <u>Fenyng Wang</u> , Yanfeng Dai, Qianjin Li, Jianwen Zhao, China | Interface fracture energies of individual carbon nanofibers (SM12-046) <u>Ioannis Chasiotis</u> , Tani Ozkan, USA |

Wednesday, 22 August 2012

| Session | 11:50 | 12:10 | 12:30 |
|---|---|---|---|
| FS02: Computational methods in mechanics Chairs: Ferdinando Auricchio, Italy Petros Koumoutsakos, Switzerland Room: 206A+B | Interpretation of a fracture phase field model using discrete configurational forces (FS02-042) Ralf Mueller, Charlotte Kuhn, Germany | Quasi-conforming isogeometric analysis for geometrically complicated domains (FS02-043) Xuefeng Zhu, Ping Hu, Zhengdong Ma, China | Multiresolution simulations using remeshed particles (FS02-046) Petros Koumoutsakos, Switzerland |
| SM13: Plasticity, viscoplasticity and creep Chairs: Pilar Ariza, Spain Zhuping Huang, China Room: 208A+B | Mechanical characterization of foils with compression in their planes (SM13-022) Giuseppe Cocchetti, Mohammad R. Mahini, Giulio Maier, Italy | Hydrogen embrittlement in high strength steels (SM13-006) Can Ayas, Vikram S. Deshpande, Norman A. Fleck, UK | Thermo-mechanical responses of metals on the fast-transient process in small volumes (SM13-008) George Z. Voyiadjis, Danial Faghihi, USA |
| SM15: Structural optimization (Co-sponsored by ISSMO) Chairs: Andrzej Myslinski, Poland Niels Leergaard Pedersen, Denmark Room: 209A+B | Singular phenomenon of integrated size and topology optimization of frame structures with exact frequency constraints (SM15-011) Jun Yan, Changhui Ni, Gengdong Cheng, Xu Guo, China | Topology optimization based method for coil arrangement for homogeneous magnetic field (SM15-040) Shutian Liu, Qi Wang, China | Rectification of classical misconceptions in recent solutions of exact structural topology optimization problems (SM15-004) George Rozvany, Tomasz Sokol, Hungary |
| FM09: Geophysical and environmental fluid dynamics Chairs: Henk Dijkstra, The Netherlands James Riley, USA Room: 207 | Experimental study on particle distribution in lock-exchange gravity currents (FM09-032) Ming Peng, Huijing Yuan, Cunbiao Lee, China | Predicting sudden changes in pollutant plumes using LCS-CORE analysis (FM09-036) Maria J. Olascoaga, George Haller, USA | A new mechanism for deep mixing: internal waves emitted by the eddying circulation in the deep ocean (FM16-002) Jin-Song von Storch, Germany |
| FM16: Waves in fluids Chairs: Paul Hammerton, UK Nobumasa Sugimoto, Japan Room: 210A | The effects of surfactants and light-winds on spilling breakers (FM16-033) Xinan Liu, James H. Duncan, USA | | |
| FS04: Chaos and pattern formation Chairs: Victor Berdichevsky, USA Lev Truskinovsky, France Room: 210B | Coherent structures in turbulence: a dynamical-systems perspective (FS04-017) John F. Gibson, Predrag Cvitanovic, Jonathan Halcrow, Divakar Viswanath, Evan Brand, USA | | |
| MS03: Fluid-structure interactions in biological systems Chairs: Paul Watton, UK Michael Shelley, USA Room: 211 | Settling induced formation of membrane tube on a vesicle (MS03-024) Gwenn Boedec, Marc Jaeger, Marc Leonetti, France | | |
| SM08: Mechanics of multi-component materials and composites Chairs: Lifeng Wang, USA Anthony Waas, USA Room: 212B | Steel short fiber reinforced concrete (SFRC) strength and post cracking behaviour appreciation by fibers motion prediction in fresh concrete during casting (SM08-057) Andrejs Krasnikovs, Olga Kononova, Arturs Machanovskis, Vitalijs Lusis, Latvia | Mesomechanical model of reticulate CNT/polymer composites to bridge atom and continuum scales (SM08-065) Qingsheng Yang, Xia Liu, China | Modeling failure mechanisms of 3D orthogonal interlock hybrid textile composites in flexure (SM08-064) Dianyun Zhang, Anthony Waas, Chian Yen, USA |
| SM12: Nanostructures and MEMS Chairs: Marc Geers, The Netherlands Harley Johnson, USA Room: 213A | Radial deformability of carbon and boron nitride nanotubes (SM12-009) Meng Zheng, Xiaoming Chen, Cheol Park, Changhong Ke, USA | Buckling instability of carbon nanoscrolls and its potential applications (SM12-028) Teng Li, Zhao Zhang, Yinjun Huang, USA | Nonlinear mechanical behaviour in curved graphene sheets (SM12-035) Fabrizio Scarpa, UK |

Lunch: 12:50 – 13:50, Exhibition Hall 5, underground floor

Wednesday Afternoon Excursion to the Great Wall: 14:00 – 18:00, depart from the CNCC

IUTAM General Assembly: 14:00 – 17:00, Function Hall A, 1st floor

Thursday, 23 August 2012

| Session | 8:30 | Session | 9:15 | 10:00 |
|--|--|---|---|--------------|
| Sectional Lecture Chairs: Erik van der Giessen, The Netherlands Michael Ortiz, USA Room: Ballroom A | Defects in crystalline solids: Manifestation of quantum mechanics at continuum scales (SL01) <u>Kaushik Bhattacharya</u> , USA | Sectional Lecture Chairs: Jorge Ambrosio, Portugal Xiaojing Zheng, China Room: Ballroom B | Particles – bridging the gap between solids and fluids (SL05) <u>Peter Eberhard</u> , Germany | |
| Sectional Lecture Chairs: Dick van Campen, The Netherlands Gengdong Cheng, China Room: Ballroom B | Multi-scale mechanics and evolving discontinuities: computational issues (SL02) <u>René de Borst</u> , The Netherlands | Sectional Lecture Chairs: Kenneth Liechti, USA William A. Curtin, Switzerland Room: Ballroom A | Cohesive surface modeling (SL12) <u>Alan Needleman</u> , USA | |
| Sectional Lecture Chairs: James Grotberg, USA Emmanuel de Langre, France Room: Function Hall A | Lessons for bio-inspired engineering: fluid mechanics of embryonic heart (SL06) <u>Morteza Gharib</u> , USA | Sectional Lecture Chairs: Detlef Lohse, The Netherlands Bruno Eckhardt, Germany Room: Ballroom C | Cool stuff at cold temperatures (SL13) <u>Katepalli Sreenivasan</u> , USA | |
| Sectional Lecture Chairs: Herbert Huppert, UK Jiachun Li, China Room: Ballroom C | Dynamics of marine ice sheets (SL15) <u>Grae Worster</u> , UK | Sectional Lecture Chairs: Pierre Ladevèze, France Tianjian Lu, China Room: Function Hall A | Mechanics of polycrystalline and heterogeneous materials at different scales (SL14) <u>Pierre Suquet</u> , France | |

Coffee Break: 10:00 – 10:20, Main Lobby, 1st floor

| Session | 10:20 | 10:40 | 11:00 |
|---|---|---|---|
| FM07: Flow instability and transition Chairs: Javier Burguete, Spain François Gallaire, Switzerland Room: Ballroom A | Turbulence transition in the asymptotic suction boundary layer (FM07-063) Bruno Eckhardt, Tobias Kreilos, Gregor Veble, Tobias M. Schneider, Germany | Turbulent-laminar banded patterns in plane Poiseuille flow (FM07-059) Laurette S. Tuckerman, France | High-fidelity simulations of flow transition on a wind turbine blade (FM07-062) Sungmin Ryu, Gianluca Iaccarino, Dario Buono, USA |
| SM01: Biomechanics and biomaterials Chairs: Wilbur Lam, USA Haiyi Liang, China Room: Ballroom B | Cellular biomechanical systems for studying and diagnosing hematologic diseases (SM01-010, invited lecture) David R. Myers, Wilbur A. Lam, USA | Force-induced internalization of magnetic nanoparticles into living cells (SM01-024) Sheng Tong, Gang Bao, USA | Substrate stiffness dependent cell migration behaviors (SM01-053) Yuan Zhong, Baohua Ji, China |
| SM05: Fracture mechanics Chairs: Ahmed Benallal, France Blaise Bourdin, USA Room: Ballroom C | Recent advances of structural-continual approach in fracture theory (SM05-077) Arseny Kashtanov, Russia | Towards reliable and efficient algebraic coarse-graining of parametric problems in fracture mechanics (SM05-078) Pierre Kerfriden, Stephane Bordas, UK | Circular edge singularities and edge stress intensity functions for the elasticity system in 3-D domains (SM01-033) Zohar Yosibash, Samuel Shannon, Israel |
| SM16: Vibrations and control of structures Chairs: Stefano Lenci, Italy Giuseppe Rega, Italy Room: Function Hall A | The probabilistic solution of nonlinear Euler-Bernoulli beam excited by Poisson white noise (SM16-063) Guokang Er, China | Dynamic modelling for thermoelastic Cosserat rod (SM16-071) Dengqing Cao, Mitao Song, Robin W. Tucker, Weidong Zhu, Dongsheng Liu, Wenhua Huang, China | Singularity analysis on stochastic P-bifurcations (SM16-073) Zhiqiang Wu, China |
| FM15: Vortex dynamics Chairs: Yasuhide Fukumoto, Japan Jens Norkaer Sorensen, Denmark Room: Function Hall B | Analysis of different vortex breakdown states (FM15-035, invited lecture) Jens Norkaer Sorensen, Valery L. Okulov, Denmark | Stability of cyclones and anticyclones in a 5-layer quasi-geostrophic model with application to Mediterranean water eddies (FM15-006) Ana Aguiar, Aude Tychensky, Bach Lien Hua, Claire Menesguen, Mikhail Sokolovskiy, Xavier Carton, France | Stationary vortex states in a two-layer rotating fluid (FM15-007) Mikhail A. Sokolovskiy, Jacques Verron, Xavier Carton, Russia |
| MS06: Effects of small size scales in materials modeling Chairs: Oliver Kraft, USA Lei Lu, China Room: Function Hall C | Models of diamond and graphene based on moment and multibody interactions (MS06-048) Igor E. Berinskii, Feodor M. Borodich, Russia | Matching boundary conditions for lattice dynamics (MS06-046) Xianming Wang, Shaoqiang Tang, China | Molecular model of skeletal muscle contraction (MS06-051) Bin Chen, Huajian Gao, Singapore |
| SM04: Elasticity Chairs: Zaixing Huang, China Paolo Podio-Guidugli, Italy Room: 202A+B | Effects of large specific torsion angles, constrained anticlastic curvature and shear warping in wide beams (SM04-040) Jacob P. Meijaard, The Netherlands | Analysis of shear deformation of polymer encapsulates for laminates (SM04-001) H. Altenbach, K. Naumenko, S.-H. Schulze, M. Pander, Germany | Identification of crack parameters and stress intensity factors using the body force technique (SM04-005) Ramdane Boukellif, Andreas Ricoeur, Germany |
| FS07: Smart materials Chairs: Robert M. McMeeking, USA Greg Carman, USA Room: 203A+B | Electric potential distribution in indentation-pre-cracked BaTiO₃ single crystal (FS07-041, invited lecture) X. Sun, Yanjing Su, Tong-Yi Zhang, Hong Kong, China | A phase field study on the domain patterns and hysteresis loops of free-standing ferroelectric nano-thin films (FS07-023) Yu Su, George J. Weng, USA | Three-dimensional crack analysis in ferroelectrics using configurational forces concept (FS07-012) Benjamin Nassauer, Marco Enderlein, Meinhard Kuna, Germany |
| SM06: Geophysics and geomechanics Chairs: Yves M. Leroy, France Richard Wan, Canada Room: 205A+B | Temporal and spatial organisation of faulting in frictional wedges (SM06-007, invited lecture) Yves M. Leroy, Baptiste C.L. Mary, Bertrand Maillot, France | The role of water on the pressure dip in sand piles (SM06-011) Tong Shan, Jidong Zhao, Hong Kong, China | Micromechanical formulation of force transport in wet granular media and strength issues (SM06-019) Richard Wan, Sarah Khosravani, Mehdi Pouragha, Canada |
| SM07: Impact mechanics and wave propagation Chairs: Odd Sture Hopperstad, Norway Krishnaswamy Ravi-Chandar, USA Room: 206A+B | Strain rate and loading complexity effects on the crushed stainless steel tubes behavior (SM07-045) H. Akrum Abdul-Latif, M. Rachid Baleh, M. Ahmed Ishell, France | Parametric studies of the penetration into multilayer targets (SM07-001) Weifang Xu, Xicheng Huang, Zhiming Hao, Yuze Chen, Shicheng Ren, Yang Wang, Yuanming Xia, China | Experiments and modeling of HMX granular explosives subjected to drop-weight impact (SM07-008) Yanqing Wu, Fenglei Huang, China |
| SM15: Structural optimization (Co-sponsored by ISSMO) Chairs: Niels Olhoff, Denmark Niclas Strömberg, Spain Room: 208A+B | Some investigation on the shape optimization of complex nonlinear structures (SM15-002) Zhenhan Yao, Yingtao Wei, China | Design for maximum band-gaps in beam structures (SM15-018) Niels Olhoff, Bin Niu, Gengdong Cheng, Denmark | Structural topology optimization based on analysis mesh-independent density interpolation (SM15-049) Zhan Kang, Yiqiang Wang, China |

| Session | 11:20 | 11:40 | 12:00 |
|---|---|--|---|
| FM07: Flow instability and transition Chairs: Javier Burguete, Spain François Gallaire, Switzerland Room: Ballroom A | Optimal suppression of unsteadiness in incompressible flow (FM07-054) Xuerui Mao, Hugh M. Blackburn, Spencer J. Sherwin, Australia | Numerical search for the hairpin vortex solution in moderate Reynolds number (FM07-067) Tomoaki Itano, Sotos C. Generalis, John P. Fletcher, Takeshi Akinaga, Masako Sugihara-Seki, Japan | Homotopy of exact coherent structure between planar, cylindrical and circular cross-sectional shear flows: single and double layer structure (FM07-065) Kengo Deguchi, Masato Nagata, Japan |
| SM01: Biomechanics and biomaterials Chairs: Wilbur Lam, USA Haiyi Liang, China Room: Ballroom B | Cell entry of one-dimensional nanomaterials (SM01-016) Xinghua Shi, Annette von dem Bussche, Robert H. Hurt, Agnes B. Kane, Huajian Gao, China | Probing mechanical principles of cell-matrix focal adhesion: A coupled stochastic-elastic framework (SM01-039) Jin Qian, Jizeng Wang, Yuan Lin, Bin Chen, Huajian Gao, USA | Modeling the influence of mechanical factors on longitudinal bone growth (SM01-031) Leah L. Sharipova, Alexander Freidin, Gérard Maugin, Russia |
| SM05: Fracture mechanics Chairs: Ahmed Benallal, France Blaise Bourdin, USA Room: Ballroom C | The rapidest unloading in brittle fragmentation process (SM05-070) Fenghua Zhou, Lina Guo, Lili Wang, China | | |
| SM16: Vibrations and control of structures Chairs: Stefano Lenci, Italy Giuseppe Rega, Italy Room: Function Hall A | Model update of large complex spacecraft with modal data (SM16-074) Zhong Zhang, Dejun Liu, Haibo Li, Yong Lug, China | Rotating eigenmodes on an imperfect circular plate (SM16-075) Johannes Hengstler, Jurg Dual, Switzerland | Periodic oscillations and stability of thin variable stiffness composite laminated plates (SM16-078) Pedro Ribeiro, Hamed Akhavan, Portugal |
| FM15: Vortex dynamics Chairs: Yasuhide Fukumoto, Japan Jens Norkaer Sorensen, Denmark Room: Function Hall B | Passive scalar advection in the vicinity of ellipsoidal vortex in a deformation flow (FM15-008) V. V. Zhrnur, E. A. Ryzhov, K. V. Koshel, Russia | Effects of axial flow on the curvature instability of a helical vortex tube: modal analysis (FM15-009) Yuji Hattori, Yasuhide Fukumoto, Japan | Vorticity force on an impulsively started finite wing at low Reynolds numbers (FM15-012) Chien C. Chang, Jian-Jhih Lee, Cheng-Ta Hsieh, Chin-Chou Chu, Taiwan, China |
| SM04: Elasticity Chairs: Zaixing Huang, China Paolo Podio-Guidugli, Italy Room: 202A+B | On the theory of elasticity with residual surface stresses with applications at the micro- and nanoscale (SM04-006) Victor A. Eremeyev, Holm Altenbach, Germany | Nonlinear resonant ultrasound spectroscopy for one-dimensional hyperelastic solid (SM04-014) Ryuichi Tarumi, Yoji Shibutani, Japan | Theory of ferromagnetic micropolar elastic thin shells, plates and bars (SM04-018) Samvel Sargsyan, Armenia |
| FS07: Smart materials Chairs: Robert M. McMeeking, USA Greg Carman, USA Room: 203A+B | Phase field modeling heterogeneous multiferroics (FS07-017) Yong Ni, Linghui He, Armen G. Khachaturyan, China | Understanding mechanoresponsive polymers via microstructurally-based models (FS07-020) Meredith N. Silberstein, Cassandra M. Kingsbury, Brett A. Beierman, Charlotte B. Kramer, Kyoungmin Min, Lee D. Cremer, Todd J. Martinez, Narayan R. Aluru, Scott R. White, Nancy R. Sottos, USA | On equilibrium domains in superelastic NiTi tubes - helix versus cylinder (FS07-029) Liang Dong, Qingping Sun, Hong Kong, China |
| SM06: Geophysics and geomechanics Chairs: Yves M. Leroy, France Richard Wan, Canada Room: 205A+B | A 2D constitutive model with anisotropy for granular materials (SM06-024) Vanessa Magnanimo, Stefan Luding, The Netherlands | Granular element method for computational particle mechanics (SM06-027) Keng-Wit Lim, Jose E. Andrade, USA | Statically admissible stress fields in loose sand heaps under the closure of polarized principal axes (SM06-029) Thirapong Pipatpongsa, Japan |
| SM07: Impact mechanics and wave propagation Chairs: Odd Sture Hopperstad, Norway Krishnaswamy Ravi-Chandar, USA Room: 206A+B | Response of a semi-infinite elastic beam to a moving pulse (SM07-014) Jilin Yu, Chungqiang Qian, Zhijun Zheng, Songyan Li, China | Anisotropic fracture of quasi-brittle aluminium alloy (SM07-016) Odd Sture Hopperstad, Tore Børvik, Marion Fourmeau, Ketill Olav Pedersen, Ahmed Benalla, Norway | Modelling of plugging failure in structural impact (SM07-017) Tore Børvik, Ahmed Benallal, Odd Sture Hopperstad, Norway |
| SM15: Structural optimization (Co-sponsored by ISSMO) Chairs: Niels Olhoff, Denmark Niclas Strömberg, Spain Room: 208A+B | Structural topology optimization using meshfree methods (SM15-036) Zhen Luo, Yu Wang, Nong Zhang, Australia | Multi-scale design and optimization considering load uncertainties (SM15-019) Xu Guo, Guomin Sun, China | |

Thursday, 23 August 2012

| Session | 12:20 | 12:40 | 13:00 – 13:40 |
|---|---|--|--|
| FM07: Flow instability and transition Chairs: Javier Burguete, Spain François Gallaire, Switzerland Room: Ballroom A | Statistics of global flow transition in rotating fluids with free surface (FM07-066) <u>Yuji Tasaka</u> , Makoto Iima, Japan | | <p>Lunch</p> <p>Exhibition Hall 5,</p> <p>underground floor</p> |
| SM01: Biomechanics and biomaterials Chairs: Wilbur Lam, USA Haiyi Liang, China Room: Ballroom B | Computational mechanics of an adaptation model for blood vessels (SM01-014) <u>Pablo Saez</u> , Mauro Malve, Estefania Peña, Miguel Angel Martinez, Ellen Kuhl, Spain | | |
| SM16: Vibrations and control of structures Chairs: Stefano Lenci, Italy Giuseppe Rega, Italy Room: Function Hall A | On controlling of double pendulum by vibration of suspension point (SM16-080) <u>Bulanchuk Pavlo</u> , Petrov Alexander, Russia | | |
| SM04: Elasticity Chairs: Zaixing Huang, China Paolo Podio-Guidugli, Italy Room: 202A+B | A new thermodynamic framework for material surfaces (SM04-019) <u>Xia-Hui Pan</u> , Shou-Wen Yu, R. K. N. D. Rajapakse, Canada | Effects of finite deformation in the deflection of transversely-isotropic semilinear elastic thin plate (SM04-024) <u>Adegbola P. Akinola</u> , <u>Odunayo O. Fadodun</u> , Bolanle A. Olokuntoye, Nigeria | |
| SM06: Geophysics and geomechanics Chairs: Yves M. Leroy, France Richard Wan, Canada Room: 205A+B | Measurement of damage localisation in rocks using ultrasonic velocity measurements/tomography (SM06-031) <u>Stephen A. Hall</u> , Elli-Maria Charalampidou, Tuong-Lam Nguyen, Erika Tudisco, Gioacchino Viggiani, Philippe Roux, Pierre Vacher, Sergei Stanchits, Helen Lewis, Sweden | | |
| SM07: Impact mechanics and wave propagation Chairs: Odd Sture Hopperstad, Norway Krishnaswamy Ravi-Chandar, USA Room: 206A+B | Impact against offshore pipelines (SM07-018) Martin Kristoffersen, Tore Børvik, <u>Magnus Langseth</u> , Håvar Iltstad, Erik Levold, Odd Sture Hopperstad, Norway | | |

| Session | 10:20 | 10:40 | 11:00 |
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| SM03: Damage mechanics Chairs: Yilong Bai, China Romesh C. Batra, USA Room: 209A+B | What happens beyond Drucker's proposition when damage occurs - continuous bifurcation, damage localization and catastrophic rupture (SM03-014, invited lecture) Yilong Bai, Guangwen Ma, Shengwang Hao, Mengfen Xia, Fujiu Ke, China | Void size effects on the macroscopic yield strength of ductile materials with spheroidal nanocavities (SM03-024) Vincent Monchiet, Djimedo Kondo, France | On the modeling of damage and ductile fracture in advanced high strength steel sheets using void cell calculations (SM03-025) Matthieu Dunand, Dirk Mohr, France |
| SM12: Nanostructures and MEMS Chairs: Kenneth Liechti, USA Teng Li, USA Room: 207 | Micromechanical modeling of hybrid SMA composites (SM12-034, invited lecture) Dimitris C. Lagoudas, Brian T. Lester, USA | Mechanics of nanowire/nanotube in-surface buckling on elastomeric substrates (SM12-022) Jianliang Xiao, Seoung Yoon Ryu, Yonggang Huang, Keh-Chih Hwang, Ungyu Paik, John Rogers, USA | Mechanics of ion-bombardment induced instability of semiconductor surfaces (SM12-044) Harley T. Johnson, Md. Zubaer Hossain, Jonathan B. Freund, USA |
| FM11: Magnetohydrodynamics Chairs: Andre Thess, Germany Mintian Xu, China Room: 210A | Flow pattern formation in a liquid metal column by pulsed excitation of a rotating magnetic field (FM11-012, invited lecture) Dirk Rübiger, Tobias Vogt, Sven Franke, Jürgen Czarske, Sven Eckert, Gunter Gerbeth, Germany | A RANS numerical model for calibration of Lorentz force flowmeter applying to metallurgy industry (FM11-002) Xiaodong Wang, Yurii Kolesnikov, Rico Klein, Christian Karcher, Andre Thess, China | Noncontact electromagnetic flow measurement in electrolytes (FM11-005) Andre Thess, Andre Wegfrass, Christian Diethold, Michael Werner, Thomas Froehlich, Bernd Halbedel, Falko Hilbrunner, Christian Resagk, Germany |
| FM12: Non-Newtonian and complex fluids Chairs: Mike Graham, USA David Saintillan, USA Room: 210B | Hydrodynamic interactions in dynamical density functional theory (FM12-007, invited lecture) Benjamin Goddard, Andreas Nold, Petr Yatsyshin, Nikos Savva, Greg Pavliotis, Serafim Kalliadasis, UK | Rheological properties of bubble suspensions in yield stress fluids (FM06-095) Xavier Chateau, Lucie Ducloue, Thi Thuy Linh Nguyen, Guillaume Ovarlez, France | Concentration instability of sedimenting spheres in a second-order fluid (FM12-013) Ramanathan Vishnampet, David Saintillan, USA |
| FS11: Foams and cellular materials Chairs: Michael Ryykin, Israel Hanxing Zhu, UK Room: 211 | Numerical modeling of the crushing response of aluminum open-cell random foams (FS11-004, invited lecture) Stavros Gaitanaros, Stelios Kyriakides, Andrew M. Kraynik, USA | Size-dependent and tunable elastic properties of hierarchical honeycombs and open-celled foams (FS11-002) Hanxing Zhu, UK | Probabilistic homogenization of solid foams with application to sandwich structures (FS11-003) Joerg Hohe, Carla Beckmann, Germany |
| SM02: Contact and friction mechanics Chairs: George Adams, USA Irina Goryacheva, Russia Room: 212A | A model of nanoscale friction between a carbon nanotube and a substrate (SM02-005, invited lecture) George Adams, USA | Geometrically-controlled stimulus responsive surface friction (FS07-025) Lin Han, Lifeng Wang, Jie Yin, Khek-Khiang Chia, Robert E. Cohen, Michael F. Rubner, Christine Ortiz, Mary C. Boyce, USA | Understanding friction and wear at the nanoscale (SM02-003) Z. D. Sha, P. S. Branicio, Q. X. Pei, J. Y. Zhang, V. Sorkin, Y. W. Zhang, Singapore |
| SM08: Mechanics of multi-component materials and composites Chairs: Jinsong Leng, China Fumio Narita, Japan Room: 212B | Damage detection in CFRP bolted joints using embedded optical fiber strain distribution monitoring (SM08-020, invited lecture) Nobuo Takeda, Shu Minakuchi, Takeaki Nadabe, Japan | Optimal design for hybrid composites under flexural loading (SM08-012) Chensong Dong, Ian J. Davies, Australia | Modeling of compressive strength of Z-pinned fiber composites with the distorted fiber architecture (SM08-028) Junqian Zhang, Shunli Xie, China |
| SM09: Mechanics of phase transformations Chairs: Kwang-hua Chu, China Michele Marino, Italy Room: 213A | Pure bending of pseudoelastic NiTi tubes (SM09-005) Nathan Bechle, Stelios Kyriakides, USA | Nearly frictionless transport of amorphous matter in nanopores (SM09-003) Kwang-hua Chu, China | Phase transformation and domain morphology of strain engineered BiFeO₃ by scanning probe microscopy (SM09-010) Yunya Liu, Kai Pan, Jiangyu Li, China |
| SM17: General solid mechanics Chairs: Bob Svendsen, Germany Witold Kosinski, Poland Room: 213B | Forced vibrations analysis and thermal fatigue life prediction for inelastic layered structures (SM17-002) Igor Guz, Yaroslav Zhuk, Maria Kashtalyan, UK | On principle of stationary action for electromagnetic elastic solids (SM17-004) Witold Kosinski, Romuald Kotowski, Poland | Advances in mechanics of growing solids (SM17-006) Alexander V. Manzhairov, Russian Federation |

| Session | 11:20 | 11:40 | 12:00 |
|---|---|---|---|
| SM03: Damage mechanics Chairs: Yilong Bai, China Romesh C. Batra, USA Room: 209A+B | Numerical strategies for prediction of drying cracks in heterogeneous materials: Comparison upon smeared/discrete crack approach and experimental results (SM03-026) <u>Farid Benboudjema</u> , Caroline De Sa, Jean-Baptiste Colliat, France | Damage as a presage to composite failure (SM03-007) <u>Carl T. Herakovich</u> , Nathan D. Flesher, USA | Damage and failure in fiber-reinforced laminates (SM03-023) <u>Romesh C. Batra</u> , Gautam Gopinath, USA |
| SM12: Nanostructures and MEMS Chairs: Kenneth Liechti, USA Teng Li, USA Room: 207 | Deformation and fracture of nanocrystalline platinum micropillars (SM12-031) <u>Xun Gu</u> , Julia R. Greer, Zhaoxuan Wu, Yongwei Zhang, David J. Srolovitz, USA | The effects of residual surface stress on the elastic fields of half-plane problems (SM12-025) Jiazhen Dong, <u>Zhigao Wang</u> , Jianguo Lü, Yapu Zhao, China | Mechanical behavior of graphene using atomic-scale finite element method and molecular dynamics (SM12-033) <u>Dewapriya M. A. N.</u> , Srikantha Phani A. , Rajapakse R. K. N. D. e, Canada |
| FM11: Magnetohydrodynamics Chairs: Andre Thess, Germany Mintian Xu, China Room: 210A | Deflection of laminar liquid metal flow by a magnetic point dipole (FM11-006) <u>Saskia Tjempel</u> , Thomas Boeck, Dmitry Krasnov, Jörg Schumacher, Germany | Experimental study of turbulent spin-down flows of liquid sodium (FM11-010) <u>Peter Frick</u> , Sergey Denisov, Vitaliy Noskov, Rodion Stepanov, Russia | Impact of soft iron impellers in the cadarache dynamo experiment (FM11-013) <u>Andre Giesecke</u> , Frank Stefani, Gunter Gerbeth, Germany |
| FM12: Non-Newtonian and complex fluids Chairs: Mike Graham, USA David Saintillan, USA Room: 210B | A theoretical study of the effect of polymer concentration on turbulent drag reduction (FM12-017) <u>Chung Yin Leung</u> , Emily S. C. Ching, Hong Kong, China | Role of viscoelastic stresses in turbulent boundary layer flow of drag-reducing fluid (FM12-018) <u>Shinji Tamano</u> , Michael D. Graham, Yohei Morinishi, Japan | Finite Reynolds number effects for dense suspensions in shear flow (FM12-019) <u>Francesco Picano</u> , Luca Brandt, Wim-Paul Breugem, Sweden |
| FS11: Foams and cellular materials Chairs: Michael Ryykin, Israel Hanxing Zhu, UK Room: 211 | Dynamic crushing of hexagonal honeycombs with various cell-wall angles (FS11-005) <u>L. L. Hu</u> , T. X. Yu, Hong Kong, China | Impact and blast performance of sandwich panels with cellular honeycomb and lattice cores (FS11-006) <u>Hans Obrecht</u> , Ulf Reinicke, Marcel Walkowiak, Germany | Brittle fracture of open-cell Kelvin foam (FS11-009) <u>Michael Ryykin</u> , Leonid Kucherov, Israel |
| SM02: Contact and friction mechanics Chairs: George Adams, USA Irina Goryacheva, Russia Room: 212A | Multiharmonic balance analysis of a friction oscillator including a bolted joint (SM02-006) <u>Dominik Süß</u> , Kai Willner, Germany | Effects of stress-triaxiality and surface friction on polymer scratch behaviors (SM02-010) <u>Han Jiang</u> , Jianwei Zhang, Qianhua Kan, Guozheng Kang, Yonghua Li, China | Tool forces and deformations in friction stir welding (SM02-033) <u>Zhao Zhang</u> , Zhenyu Wan, Hongwu Zhang, China |
| SM08: Mechanics of multi-component materials and composites Chairs: Jinsong Leng, China Fumio Narita, Japan Room: 212B | Micromechanics of fiber-crack interaction: bridging fiber (SM08-030) <u>Zhenkun Lei</u> , Quan Qang, Wei Qiu, Libo Deng, China | On viscoelastic properties of 3-D braided composites (SM08-034) <u>Huiyu Sun</u> , Yongming Cai, China | Analysis of effective properties of composites by the boundary element method (SM08-040) <u>Piotr Fedelinski</u> , Radoslaw Gorski, Grzegorz Dziatkiewicz, Jacek Ptaszny, Poland |
| SM09: Mechanics of phase transformations Chairs: Kwang-hua Chu, China Michele Marino, Italy Room: 213A | The threshold stress of 90° domain switching in misfit strain-external stress phase diagram (SM09-012) <u>Danshu Zhang</u> , Zhe Zhu, Xuejun Zheng, China | Multi-functional actuation of shape memory composite (SM09-004) <u>Kohei Takeda</u> , Hisaaki Tobushi, Yasuhiko Nishimura, Shunichi Hayashi, Japan | Thermodynamic and micromechanical-based modelling of martensite variants reorientation in FSMAS (SM09-025) <u>Xingzhe Wang</u> , Fang Li, Xuebing Han, China |
| SM17: General solid mechanics Chairs: Bob Svendsen, Germany Witold Kosinski, Poland Room: 213B | To united system of equations of continuum mechanics and some mathematical problems for thin-walled structures (SM17-022) <u>Tamaz S. Vashakmadze</u> , Georgia | Investigation of non-resonant vibration behaviour by a newly developed time-averaged ESPI method (SM17-005) <u>Wei-Chung Wang</u> , Chi-Hung Hwang, I-Ling Chang, Taiwan, China | Spontaneous propagation of self-assembly in a continuum medium (SM17-011) <u>Zhouzhou Zhao</u> , Wei Lu, USA |

Session

12:20

12:40 – 13:40

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|---|---|--|
| <p>SM03: Damage mechanics Chairs: Yilong Bai, China Romesh C. Batra, USA Room: 209A+B</p> | <p>Modeling configuration and its tunability of nonlinear wrinkling-induced delamination (SM09-001) Kui Pan, Yong Ni, Linghui He, Rui Huang, China</p> | <p>Lunch Exhibition Hall 5, underground floor</p> |
| <p>SM12: Nanostructures and MEMS Chairs: Kenneth Liechti, USA Teng Li, USA Room: 207</p> | <p>The flexing of locally isostatic periodic structures (SM17-023) Simon D. Guest, UK</p> | |
| <p>FM12: Non-Newtonian and complex fluids Chairs: Mike Graham, USA David Saintillan, USA Room: 210B</p> | <p>Laboratory experiments on thermal instabilities in a yield-stress fluid (FM12-020) Anna Massmeyer, Anne Davaille, Blandine Gueslin, Erika Di Giuseppe, France</p> | |
| <p>FS11: Foams and cellular materials Chairs: Michael Ryvkin, Israel Hanxing Zhu, UK Room: 211</p> | <p>Inertia effect in the impact behaviour of cellular materials (FS11-011) Bing Hou, Han Zhao, Stéphane Pattofatto, Yulong Li, France</p> | |
| <p>SM02: Contact and friction mechanics Chairs: George Adams, USA Irina Goryacheva, Russia Room: 212A</p> | <p>Three-dimensional FE model of frictional heat generation in a disc brake (SM02-016) Piotr Grzes, Adam Adamowicz, Aleksander Yevtushenko, Poland</p> | |
| <p>SM08: Mechanics of multi-component materials and composites Chairs: Jinsong Leng, China Fumio Narita, Japan Room: 212B</p> | <p>Micromechanics governing the undulation patterns of inter-cellular boundaries of plant epidermis cells (SM08-041) Yaning Li, Narges Kaynia, Mary C. Boyce, USA</p> | |
| <p>SM09: Mechanics of phase transformations Chairs: Kwang-hua Chu, China Michele Marino, Italy Room: 213A</p> | <p>Atomistic potential for martensitic transformations in CuAlNi (SM09-024) Yubao Zhen, Chengbiao Chu, China</p> | |
| <p>SM17: General solid mechanics Chairs: Bob Svendsen, Germany Witold Kosinski, Poland Room: 213B</p> | <p>Existence of traveling wave solutions for an initial value problem of piezo-viscoelasticity (SM17-008) Olawanle Patrick Layeni, Ade Peter Akinola, South Africa</p> | |

| Session | 13:40 | 13:43 | 13:46 |
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| <p>FM06: Drops, bubbles and multiphase flows Chairs: Marco A. Fontelos, Spain Daniel Kwok, Canada Room: Ballroom A</p> | <p>An experimental study on upward air-water flow in a vertical pipe using local measurement techniques: an experimental database (FM06-082) <u>Sergio Chiva</u>, Guillem Monros, Enrique Julia, Leonor Hernandez, Antonio Vela, Salvador Torró, Raul Matinez, Josep Escrig, Spain</p> | <p>Numerical study the thickness of the film that is formed between the free surface of a bubble and the cylindrical walls around the injection orifice (FM06-085) <u>Abel Lopez-Villa</u>, Abraham Medina, <u>Carlos A. Vargas</u>, Mexico</p> | <p>Evolution of rotating charged drops subject to electric fields (FM06-094) <u>Víctor J. García-Garrido</u>, Marco A. Fontelos, Ultano Kindelán, Spain</p> |
| <p>FM07: Flow instability and transition Chairs: José Eduardo Wesfreid, France Andrey Boiko, Russia Room: Ballroom B</p> | <p>Three-dimensional instabilities in flow past a rotating cylinder (FM07-069) <u>Sanjay Mittal</u>, Jagmohan Meena, India</p> | <p>Simulation of multiple wavy and spiral Taylor-Görtler vortices in concentric spherical gaps (FM07-071) <u>Li Yuan</u>, China</p> | <p>Manipulating turbulence in pipe flow (FM07-076) <u>Baofang Song</u>, Marc Avila, Björn Hof, Germany</p> |
| <p>SM16: Vibrations and control of structures Chairs: Edwin Kreuzer, Germany Ko-Choong Woo, Malaysia Room: Ballroom C</p> | <p>Modes of vibration of damaged beams by a new p-version finite element (SM16-077) <u>Vladimir Stojanovic</u>, Pedro Ribeiro, Portugal</p> | <p>Edge resonance at vibration and elastic waves excitation in three-dimentional anisotropic bodies of the hexagonal system (SM16-086) <u>Valeriy Storozhev</u>, Smoktiy Oksana, Ukraine</p> | <p>The nonlinear dynamic characterisitcs analysis and its application on sucker rod strriings in 3D curved wellbores (SM16-087) <u>Wenchang Wang</u>, Qinfeng Di, Yibao Hu, Weiping Zhu, Feng Chen, Mingjie Wang, China</p> |
| <p>SM11: Multibody and vehicle dynamics Chairs: Joao Pombo, Portugal Xiaoting Rui, China Room: Function Hall A</p> | <p>Semi-active control of half car vehicle model traversing rough road with magneto rheological suspension (FS07-013) <u>R. S. Prabakar</u>, C. Sujatha, S. Narayanan, India</p> | <p>Impulsive synchronization motion in networked multibody systems (SM11-013) <u>Xingjie Wu</u>, Jin Zhou, China</p> | <p>About control possibility of a satellite attitude (SM11-014) <u>Zaure B. Rakisheva</u>, Kazakhstan</p> |
| <p>FM03: Combustion and flames Chairs: Sebastien Candel, France Lixing Zhou, China Room: Function Hall B</p> | <p>Numerical studies on combustion enhancement by ablative strut in a scramjet combustor (FM03-002) <u>Yincheng Guo</u>, Haijun Li, C. K. Chan, Hong Kong, China</p> | <p>Self-excited self-selected combustion oscillations in a Rijke-Zhao tube (FM03-001) <u>Dan Zhao</u>, Singapore</p> | <p>Large eddy simulation of a combusting droplet (FM03-005) <u>Ke Li</u>, Lixing Zhou, China</p> |
| <p>FS12: Education in mechanics Chair: Tsung-chow Su, USA Room: Function Hall C</p> | <p>Fluid mechanics education, natural hazards and the caribbean (FS12-001) <u>Gyan S. Shrivastava</u>, Trinidad and Tobago</p> | | |
| <p>SM07: Impact mechanics and wave propagation Chairs: Akrum Abdul-Latif, France Guoxing Lu, China Room: 202A+B</p> | <p>Adaptive finite element material point method and its applications in impact simulation (SM03-002) <u>Yanping Lian</u>, <u>Xiong Zhang</u>, Yan Liu, China</p> | <p>Scattering of SH-wave by multiple cylindrical cavities and a linear crack in elastic semi-space (SM07-002) <u>Hongliang Li</u>, China</p> | <p>Microstructure evolution of adiabatic shear band in ultra-fine-grained iron under dynamic shear loading (SM07-015) <u>Fuping Yuan</u>, Ping Jiang, Xiaolei Wu, China</p> |
| <p>FM08: Flow in thin films Chairs: Eugene Benilov, Ireland Alex Oron, Israel Room: 203A+B</p> | <p>Stability of a condensing liquid film of a binary vapor mixture (FM08-006) <u>Kentaro Kanatani</u>, Japan</p> | <p>Linear stability analysis of thin liquid film containing soluble surfactant heated uniformly (FM08-011) <u>Chunxi Li</u>, Xuemin Ye, Bing Lu, China</p> | <p>Spectral analysis of wavy structure of thin liquid films under strong gas shear (FM08-015) <u>Sergey Alekseenko</u>, <u>Andrey Cherdantsev</u>, <u>Oksana Heinz</u>, <u>Sergey Kharlamov</u>, <u>Dmitriy Markovich</u>, Russia</p> |
| <p>FM09: Geophysical and environmental fluid dynamics Chair: Shane Ross, USA Room: 205A+B</p> | <p>Effect of monthly climatic variability on characteristic of atmospheric surface layer – a study in Qatar (FM09-024) <u>Reza Sadr</u>, <u>Arindam Singha</u>, Qatar</p> | <p>Mathematical modeling of the admixture transport in free-surfaced streams (FM09-020) <u>Konstantin Nadolin</u>, Igor Zhilyaev, Russian Federation</p> | <p>Simulation of shallow water flows in confluence channel using lattice boltzmann method (FM09-033) <u>Qingyuan Yang</u>, Weizhen Lu, Hong Kong, China</p> |
| <p>FM11: Magnetohydrodynamics Chairs: Xiaodong Wang, China Peter Frick, Russia Room: 206A+B</p> | <p>Code development for numerical simulation on magnetohydrodynamic rectangular duct flows (FM11-001) <u>Jie Mao</u>, Huachen Pan, China</p> | <p>Numerical modelling of melts flow and interface deformation in aluminium reduction cells (FM11-003) <u>Jinsong Hua</u>, Magne Rudshaug, Christian Droste, Norway</p> | <p>Instability of unsteady streaks with streamwise magnetic field (FM11-004) <u>Shuai Dong</u>, <u>Dmitry Krasnov</u>, <u>Benwen Li</u>, <u>Thomas Boeck</u>, China</p> |

| Session | 13:49 | 13:52 | 13:55 |
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| FM06: Drops, bubbles and multiphase flows Chairs: Marco A. Fontelos, Spain Daniel Kwok, Canada Room: Ballroom A | Numerical study of nano-particle adsorption method by lattice Boltzmann simulation (FM06-097) Renliang Zhang, Qinfeng Di, Xinliang Wang, Weipeng Ding, Wei Gong, China | Direct numerical simulation of rigid particle-free surface interaction (FM06-098) Tong Qin, Saad Ragab, Pengtao Yue, USA | Primary breakup of round non-Newtonian liquid turbulent jet (FM06-025) Liping He, Mengzheng Zhang, Qing Du, Ning Liu, Zhenyan Xia, China |
| FM07: Flow instability and transition Chairs: José Eduardo Wesfreid, France Andrey Boiko, Russia Room: Ballroom B | Intermittent chaotic motions in penetrative convection (FM07-077) Daria Kuznetsova, Ilias Sibgatullin, Russia | Effects of gravity and magnetic field on the onset of the axial instability in Taylor-Couette flow system (FM07-083) Mahfoud Adnane, Ahcene Bouabdallah, Algeria | A variational framework for flow optimization using semi-norm constraints (FM07-084) Dimitry P. G. Foures, Colm P. Caulfield, Peter J. Schmid, UK |
| SM16: Vibrations and control of structures Chairs: Edwin Kreuzer, Germany Ko-Choong Woo, Malaysia Room: Ballroom C | An ARMA/GARCH based approach for structural damage detection (SM16-092) Ling Yu, Cong Cheng, Liujie Chen, China | | |
| SM11: Multibody and vehicle dynamics Chairs: Joao Pombo, Portugal Xiaoting Rui, China Room: Function Hall A | The dynamic and robust control of space robot during capture operation (SM11-015) Qiu Huang Dong, Li Chen, China | Inertia driven reduced doe mechanism for aeolian pumps (SM11-017) Maria Luminita I. Scutaru, Gheorghe Gh. Deliu, Dana I. Luca Motoc, Romania | Constraints and energy projection method for dynamic equations of multibody (SM11-019) Jieyu Ding, Zhenkuan Pan, China |
| FM03: Combustion and flames Chairs: Sebastien Candel, France Lixing Zhou, China Room: Function Hall B | Influence of the source energy conditions on cylindrical detonation in two-dimensional simulation (FM03-006) Dan Wu, Jiangping Wang, China | Thermal and kinetic effects of ozone addition on the combustion of methane/air mixtures (FM03-008) Peng Guo, Zheng Chen, China | Studies on the ignition of n-decane/toluene binary fuel blends (FM03-009) Peng Dai, Zheng Chen, Shiyi Chen, China |
| FM04: Compressible flow Chairs: Takeshi Sugimoto, Japan Hong Yan, China Room: Function Hall C | Aerothermal optimization of hypersonic vehicle leading edge based on genetic algorithm (FM04-011) K. Cui, S. C. Hu, T.Y. Gao, X. P. Wang, G. W. Yang, China | Development of the γ-Reθ transition model for high speed flows (FM04-018) Yancheng You, Germany | Flowfield prediction of a probe entering the Martian atmosphere (FM04-003) Junming Lü, Qiang Wang, Xiaoli Cheng, China |
| SM07: Impact mechanics and wave propagation Chairs: Akrum Abdul-Latif, France Guoxing Lu, China Room: 202A+B | Flyer-plate impact simulations using smoothed particle hydrodynamics (SPH) (SM07-021) A. V. S. Siva Prasad, Sumit Basu, India | Three-dimensional mechanism-based modeling of the failure of brittle materials under dynamic multiaxial loading (SM07-022) Guangli Hu, Leslie Lamberson, K. T. Ramesh, USA | Shock wave propagation in functionally graded cellular structures under high-velocity impact (SM07-025) Zhijun Zheng, Xiaokai Wang, Jilin Yu, Changfeng Wang, China |
| FM08: Flow in thin films Chairs: Eugene Benilov, Ireland Alex Oron, Israel Room: 203A+B | Capillary rise in an annular conical space (FM08-019) Abraham Medina, Carlos A. Vargas, Abel Lopez-Villa, Mexico | Analysis of flow characteristics of rotationally symmetric seal gap with slip boundary conditions (FM08-014) Zhaomiao Liu, Guobin Wang, China | |
| FM09: Geophysical and environmental fluid dynamics Chair: Shane Ross, USA Room: 205A+B | Stability analysis of flows in open channels partially covered with vegetation (FM09-035) Adriano C. de Lima, Norihiro Izumi, Japan | Theory of waves in the ocean under an ice cover (FM09-011) Sergey V. Muzylev, Russia | |
| FM11: Magnetohydrodynamics Chairs: Xiaodong Wang, China Peter Frick, Russia Room: 206A+B | Centrifugal thermomagnetic convection in an anisotropic porous medium (FM11-008) Saravanan Shanmugam, India | Traveling magnetic field pump (FM11-014) Ruslan Khalilov, Ilya Kolesnichenko, Stanislav Khripchenko, Veniamin Dolgikh, Sergey Denisov, Russia | An integral equation approach to magnetic reconnection (FM11-016) Mingtian Xu, China |

| Session | 13:58 | 14:01 | 14:04 |
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| FM07: Flow instability and transition Chairs: José Eduardo Wesfreid, France Andrey Boiko, Russia Room: Ballroom B | Bifurcations for an incompressible flow passing over an open-cavity (FM07-085) Frederic Alizard, Jean-Christophe Loiseau, Jean-Christophe Robinet, France | Weakly nonlinear modulated Tollmien-Schlichting waves (FM07-086) Marcello A. F. Medeiros, Brazil | First and second centrifugal spanwise instabilities in an open cavity flow (FM07-087) Christelle Douay, Jeremy Basley, Luc R. Pastur, François Lusseyran, Yann Fraigneau, Thierry M. Faure, France |
| SM15: Structural optimization (Co-sponsored by ISSMO) Chairs: Bo Wang, China Seonho Cho, South Korea Room: Ballroom C | Optimization of prager structures by finite element method (SM15-003) Kemin Zhou, Ronglin Chen, China | Gradient based optimization of periodic layered material with specific band-gap characteristics (SM15-043) Shutian Liu, Yu Huang, Jian Zhao, China | Numerical performance of chaos optimization algorithms based on different maps for global optimization (SM15-006) Zhenjun Liu, Dixiong Yang, China |
| SM11: Multibody and vehicle dynamics Chairs: Joao Pombo, Portugal Xiaoting Rui, China Room: Function Hall A | Electro-mechanical dynamic simulation of overhead creans during the operation of lifting mechanism (SM11-020) Congmin Niu, Huajiang Ouyang, Hongwu Zhang, China | Rollover and lateral sliding stability of three wheeled vehicles (SM11-029) Tukesh Soni, Nalinaksh S. Vyas, India | |
| FM03: Combustion and flames Chairs: Sebastien Candel, France Lixing Zhou, China Room: Function Hall B | Effects of burning surface moving back on steady-state combustion of high-metal water ramjet engines (FM03-012) Chao Han, Zhixun Xia, Lei Li, Jianxin Hu, Yan Liu, China | Lifted flames of n-heptane in coflow jets with initial temperature variation (FM03-013) Sang Kyu Choi, Suk Ho Chung, Saudi Arabia | Studies on the laminar flame speed of binary fuel blends (FM03-020) Zheng Chen, China |
| FM04: Compressible flow Chairs: Takeshi Sugimoto, Japan Hong Yan, China Room: Function Hall C | Early-time interface instabilities in high intensity aero-breakup of liquid drop (FM04-004) Xiangyu Hu, Nikolaus A. Adams, Germany | Ring-pattern formation in the rotating stellar structures (FM04-006) Takeshi Sugimoto, Japan | Investigations of supersonic flow past micro ramp and vanes (FM04-010) Dawen Xue, Zhihua Chen, Xiaohui Sun, Yaohui Chen, China |
| SM07: Impact mechanics and wave propagation Chairs: Akrum Abdul-Latif, France Guoxing Lu, China Room: 202A+B | Analysis of wave propagation based on radial basis collocation method (SM07-027) Lihua Wang, Zheng Zhong, China | A novel anti-collision facility of Wanzhou Yangtze River Road Bridge (SM07-029) Changqi Yang, Xiqin Ma, Kui Yu, China | Transient responses of girder bridges with poundings under near-fault vertical earthquakes (SM07-036) Haibo Yang, Xiaochun Yin, China |
| FM16: Waves in fluids Chairs: Lian Shen, USA Fabrice Veron, USA Room: 203A+B | | | Interaction of resonant gravity waves in water of finite depth (FM16-004) Dali Xu, Zhiliang Lin, Shijun Liao, China |
| FM10: Low Reynolds number flow Chairs: Antoine Sellier, France Pushpendra Singh, USA Room: 205A+B | | Drop in an unsteady uniform pure shear flow and rheological properties of emulsions (FM10-004) Alexander N. Tyatyushkin, Russia | Oscillatory electroosmotic flow through a channel with slipping stripes on walls (FM10-009) Henry C. W. Chu, Chiu-On Ng, Hong Kong, China |
| FM17: General Fluid Mechanics Chairs: Viktor Kozlov, Russia Owen Tutty, UK Room: 206A+B | | | Reciprocity among elemental relaxation and driven-flow problems for a rarefied gas (FM10-003) Shigeru Takata, Masashi Oishi, Japan |

| Session | 14:07 | 14:10 | 14:13 |
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| FM01: Biological fluid dynamics Chairs: Yang Liu, Hong Kong, China Qingyong Zhu, China Room: Ballroom A | Floquet stability analysis of hovering model insects (FM01-001) <u>Mao Sun</u> , Jiang Hao Wu, China | Diffusion wave and signal transduction in biological cell (FM01-005) Tianyou Fan, <u>Lei Fan</u> , China | Numerical analysis of alternate Newtonian-Casson blood flow in coronary artery bypass graft anastomosis (FM01-007) Zhaomiao Liu, <u>Lidan Gao</u> , Yi Shi, China |
| FM07: Flow instability and transition Chairs: José Eduardo Wesfreid, France Andrey Boiko, Russia Room: Ballroom B | Ejection and sweep flows in transitional boundary layers (FM07-089) <u>Lin Chen</u> , Xiangjiang Yuan, China | Nonlinear PSE for three-dimensional structures in spatially developing mixing layers (FM07-093) <u>Xin Guo</u> , Qiang Wang, China | |
| SM15: Structural optimization (Co-sponsored by ISSMO) Chairs: Bo Wang, China Seonho Cho, South Korea Room: Ballroom C | Continuum-based sensitivity analysis for atomistic/continuum coupling using two-dimensional bridging scale decomposition (SM15-013) <u>Yunxiang Wang</u> , Kuang-Hua Chang, USA | Parallel simulation and multi-mode evolution genetic algorithm optimization for crashworthiness of thin-walled tube with folding patterns (SM15-021) <u>Hailong Sun</u> , Yunkang Sui, Hongling Ye, China | Fundamental study of light-weight composite honeycomb sandwich panels as applied on radiators for space solar power system application (SM15-028) <u>Hiroki Iwasaki</u> , Jianmei He, Japan |
| FM13: Stirring and mixing Chairs: Jianzhong Lin, China Evgeny A. Ryzhov, Russia Room: Function Hall A | | Development of the full Lagrangian approach to study differential characteristics of passive admixture (FM06-089) <u>Natalia A. Lebedeva</u> , Russia | Passive scalar advection in the vicinity of two point vortices in a deformation flow (FM13-001) <u>Evgeny A. Ryzhov</u> , Konstantin V. Koshel, Russia |
| FM03: Combustion and flames Chairs: Sebastien Candel, France Lixing Zhou, China Room: Function Hall B | Front propagation in compressible flows (FM03-022) <u>Federico Bianco</u> , Sergio Chibbaro, Angelo Vulpiani, France | A coupled heat transfer analysis with effects of thermal/catalytic cracking of kerosene for regenerative cooled supersonic combustor (FM05-038) <u>Xi Wang</u> , Fengquan Zhong, Lihong Chen, Xinyu Zhang, China | On the thickness of the scalar superlayer and its contributions to the mixture fraction PDF in a jet flow (FM13-003) <u>Markus Gampert</u> , Philip Schaefer, Norbert Peters, Germany |
| FM04: Compressible flow Chairs: Takeshi Sugimoto, Japan Hong Yan, Russia Room: Function Hall C | Quantifying Mach number similarity of compressible turbulent boundary (FM04-014) <u>Yousheng Zhang</u> , Weitao Bi, Zhensu She, Fazle Hussain, China | A numerical investigation of injection angle effect on lateral jet interaction for revolution body (FM04-021) <u>Yuwei Liu</u> , Zhaoyong Ni, Yaofeng Liu, China | Nonlinear stability of the supersonic boundary layer under the consideration of receptivity to slow acoustic waves (FM04-023) <u>Yihong Fang</u> , Cuiping Li, Yifang Liu, China |
| SM07: Impact mechanics and wave propagation Chairs: Akrum Abdul-Latif, France Guoxing Lu, China Room: 202A+B | Development of a novel miniature impact test system (SM07-037) Zhanwei Liu, Xintao Lü, <u>Ximin Chen</u> , Huimin Xie, China | Wave propagation in solids capable of phase transitions (SM07-042) Dmitry A. Indeitsev, Dmitry Y. Skubov, <u>Dmitry S. Vavilov</u> , Russia | Study of the uniaxial dynamic behavior of salt rock under static triaxial pre-compression (SM07-049) <u>Xiquan Jiang</u> , Zheng Ruan, China |
| FM16: Waves in fluids Chairs: Lian Shen, USA Fabrice Veron, USA Room: 203A+B | On the damping of acoustic wave propagation in fully developed turbulent pipe flow (FM16-016) <u>Chenyang Weng</u> , Susann Boij, Ardeshir Hanifi, Sweden | Nonlinear sloshing effects on the sway motion of 2D rectangular cylinders in regular waves (FM16-019) Dong Young Lee, Yoon Ho Kim, <u>Hang S. Choi</u> , South Korea | Interface stability analysis of magnetic fluid by using a method for general use and nonlinear response (FM16-026) <u>Yo Mizuta</u> , Japan |
| FM10: Low Reynolds number flow Chairs: Antoine Sellier, France Pushpendra Singh, USA Room: 205A+B | Electro-osmotic flow through a 1D-screen or a 2D-array pump filter (FM10-011) <u>Chun Fei Kung</u> , Chi Yu Kuo, Chang Yi Wang, Chien C. Chang, Taiwan, China | The evaporation-driven flow in a 2D meniscus on a moving substrate (FM10-020) <u>Ching Hsueh</u> , Frédéric Doumenc, Béatrice Guerrier, France | Settling of a porous sphere in stratified Stokes flows (FM10-030) <u>Roberto Camassa</u> , Shilpa Khatri, Richard McLaughlin, Brian White, USA |
| FM17: General Fluid Mechanics Chairs: Viktor Kozlov, Russia Owen Tutty, UK Room: 206A+B | Optimization of feedback control of flowover a circular cylinder (FM17-007) <u>Donggun Son</u> , Euiyoung Kim, Haecheon Choi, South Korea | Effects of winglets on a laminar airfoil wing (FM17-011) <u>Y. D. Cui</u> , K. L. Lai, H. Mitsudharmadi, Singapore | The effect of direction of low speed winds on the performance of a split chimney (FM17-012) <u>Ahmad Sharifian</u> , Australia |

| Session | 14:16 | 14:19 | 14:22 |
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| <p>FM01: Biological fluid dynamics Chairs: Yang Liu, Hong Kong, China Qingyong Zhu, China Room: Ballroom A</p> | <p>Laboratory studies of ocean mixing by microorganisms (FM01-016) <u>Monica Martinez-Ortiz</u>, John O. Dabiri, USA</p> | <p>Radial jet velocity components and vortex strength of a jetting jellyfish (FM01-024) Doug Lipinski, Michael Krieg, <u>Kamran Mohseni</u>, USA</p> | <p>Heat transfer, fluid flow and drug transport in the anterior eye (FM01-032) Feng Zhang, <u>Han Chen</u>, Yukan Huang, China</p> |
| <p>FM02: Boundary layers Chairs: Bernhard Scheichl, Austria Xiaohua Wu, Canada Room: Ballroom B</p> | <p>Design sensitivity analysis of dynamic crack propagation using peridynamics (SM15-034) Youn Doh Ha, Min-Young Moon, Min-Geun Kim, Seonho Cho, South Korea</p> | <p>Response on the corner flow separation to plasma aerodynamic actuation in a highly loaded compressor cascade (FM01-002) Yun Wu, Xiaohu Zhao, Yinghong Li, Jun Li, China</p> | <p>Reconsideration of the turbulent burst in boundary layers (FM02-008) <u>Cunbiao Lee</u>, China</p> |
| <p>SM15: Structural optimization (Co-sponsored by ISSMO) Chairs: Bo Wang, China Seonho Cho, South Korea Room: Ballroom C</p> | <p>A numerical study on the mixing characteristics of opposed jets (FM13-002) <u>Peng Xu</u>, Shuxia Qiu, Arun S. Mujumdar, China</p> | <p>Simulation and optimization of thin corrugated membranes (SM15-035) <u>Mikhail I. Karyakin</u>, Taisiya V. Sigaeva, Russia</p> | <p>Topology optimization of damping layer in shell structures (SM15-046) <u>Xiaopeng Zhang</u>, Zhan Kang, China</p> |
| <p>FM13: Stirring and mixing Chairs: Jianzhong Lin, China Evgeny A. Ryzhov, Russia Room: Function Hall A</p> | <p>Characterization of turbulent transition and shock/boundary-layer interaction in shock tubes (FM04-024) <u>Yong Sun</u>, Matthias Ihme, Ralf Deiterding, USA</p> | <p>Lattice Boltzmann study of flow and mixing characteristics of two dimensional confined impinging streams (FM13-008) <u>Wenhuan Zhang</u>, Zhenhua Chai, Zhaoli Guo, Baochang Shi, China</p> | <p>Molecular dynamics simulation of liquid-vapor binary mixture of Lennard-Jones fluids (FM13-011) <u>Xia Yu</u>, Fubing Bao, Jingxin Wang, Zhihong Mao, China</p> |
| <p>FM04: Compressible flow Chairs: Takeshi Sugimoto, Japan Hong Yan, China Room: Function Hall C</p> | <p>Similarity in structures subjected to impact loads when model is distorted in geometry and material (SM07-051) <u>Roberto E. Oshiro</u>, Marcilio Alves, Brazil</p> | <p>Elementary waves of Riemann problem and interaction with a weak discontinuity (FM04-028) <u>R. Radha</u>, V.D. Sharma, India</p> | <p>Steady state numerical model for critical two-phase flow in nozzle (FM06-001) <u>Sylvain Martel</u>, Yves Mercadier, Michel Dostie, Canada</p> |
| <p>SM07: Impact mechanics and wave propagation Chairs: Akrum Abdul-Latif, France Guoxing Lu, China Room: 202A+B</p> | <p>Evolution of weak shocks in one dimensional planar and non-planar gasdynamic flows (FM16-032) <u>Raghavendra Venkatraman</u>, Vishnu D. Sharma, India</p> | <p>Perturbation method in one-dimensional dynamics of an incompressible elastic medium under impact loading (SM07-063) <u>Yulia E. Ivanova</u>, Victoria E. Ragozina, Russia</p> | <p>A comparative study of dynamic rock tensile strengths obtained from different measurement methods (SM07-065) <u>Kaiwen Xia</u>, Canada</p> |
| <p>FM16: Waves in fluids Chairs: Lian Shen, USA Fabrice Veron, USA Room: 203A+B</p> | <p>The consistency between the gas kinetic unified algorithm and the DSMC method in describing the Boltzmann equation (FM17-004) <u>Ming Fang</u>, Zhihui Li, Shaoqiang Tang, China</p> | | |
| <p>FM17: General Fluid Mechanics Chairs: Viktor Kozlov, Russia Owen Tutty, UK Room: 206A+B</p> | | | |

| Session | 14:25 | 14:28 | 14:31 |
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| FM01: Biological fluid dynamics Chairs: Yang Liu, Hong Kong, China Qingyong Zhu, China Room: Ballroom A | Stochastic resonance in breathing (FM01-034) Yang Liu, Hong Kong, China | | |
| FM02: Boundary layers Chairs: Bernhard Scheichl, Austria Xiaohua Wu, Canada Room: Ballroom B | Nonsimilar MHD Falkner-Skan flow with localized wall heating (cooling) (FM02-012) Poornima Chandrashekar, <u>Eswara Anniganahally Thammaiah Setty</u> , India | Strong viscous-inviscid interaction in the case of nonconstant wall temperature (FM02-022) Georgiy Dudin, <u>Igor Lipatov</u> , Mikhail Lipatov, Russia | Direct numerical simulation of a turbulent channel flow coupled to radiative transfer (FM02-028) <u>Yufang Zhang</u> , Ronan Vicquelin, Olivier Gicquel, Jean Taine, France |
| SM15: Structural optimization (Co-sponsored by ISSMO) Chairs: Bo Wang, China Seonho Cho, South Korea Room: Ballroom C | On robust design optimization of truss structure with bounded uncertainties (SM15-050) Zhan Kang, <u>Song Bai</u> , China | | |
| FM04: Compressible flow Chairs: Takeshi Sugimoto, Japan Hong Yan, China Room: Function Hall C | The study of variable specific heat on the stability of hypersonic boundary layer (FM07-029) <u>Wenli Jia</u> , Wei Cao, China | Gas-kinetic unified algorithm for three-dimensional complex flows on spacecraft re-entry using Boltzmann model equation (FM12-009) <u>Zhihui Li</u> , Junlin Wu, Aoping Peng, Hanxin Zhang, China | The flow structures and mixing characteristics of variable density vortex rings produced by a supersonic jet (FM13-007) <u>Huanhao Zhang</u> , Zhihua Chen, Xiaohai Jiang, Junli Han, China |
| SM07: Impact mechanics and wave propagation Chairs: Akrum Abdul-Latif, France Guoxing Lu, China Room: 202A+B | Dynamic response analysis of plane composite trusses with the method of reverberation ray matrix (SM07-012) <u>Fuxing Miao</u> , Guojun Sun, China | Minimum weight design of close-celled metallic foam protection for low velocity impact (SM07-050) <u>Binchao Li</u> , Guiping Zhao, Tianjian Lu, China | |

| Session | 14:34 | 14:37 | 14:40 |
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| FM04: Compressible flow Chairs: Takeshi Sugimoto, Japan Hong Yan, China Room: Function Hall C | Large scale structures in supersonic mixing layers (FM13-010) <u>Xiaotian Shi</u> , Guiru Zhang, Weimin Zhang, China | Investigations on shock wave attenuation by different barriers (FM16-008) <u>Sha Sha</u> , Zhihua Chen, Xiaohai Jiang, Junli Han, China | |

Poster display and discussion: 14:45 – 15:45, South Lobby, 1st floor

Coffee Break: 15:20 – 15:40, Main Lobby, 1st floor

| Session | 13:40 | 13:43 | 13:46 |
|--|---|--|--|
| <p>SM14: Stability of structures Chairs: Jizhou Song, USA Jean Lerbet, France Room: 208A+B</p> | <p>Buckling of flexible electronic structure in asymmetric checkerboard mode (SM14-008) <u>Zhicheng Ou</u>, Xiaoqing Zhang, China</p> | <p>P-positive definite matrices and divergence stability of non conservative constrained systems (SM14-010) <u>Jean Lerbet</u>, Marwa Aldowaji, Noel Challamel, François Nicot, Félix Darve, France</p> | <p>Numerical model for nonlinear stability analysis of spatial frames with semi-rigid connections (SM14-014) <u>Goran Turkalj</u>, Josip Brnic, Edin Merdanovic, Neven Munjas, Croatia (local name: Hrvatska)</p> |
| <p>FS03: Experimental methods in mechanics Chairs: Yiping Liu, China Yang Shang, China Room: 209A+B</p> | <p>Coupling effects of radiation heating and acoustic field of thermal-acoustic test facility for hypersonic vehicle structures (FS03-013) <u>Zhenqiang Wu</u>, Haibo Li, Wei Zhang, Fanjin Kong, Hao Cheng, China</p> | <p>Displacement measurement of inner surface of an object in water using ultrasonic speckle techniques based on genetic algorithm (FS03-006) <u>Zhihua Luo</u>, Hongmao Zhu, Jun Chu, Lei Shen, Bin Song, China</p> | <p>Welding strain/slope measurements using a laser-based technique (FS03-007) Liang Wang, <u>Keyu Li</u>, Salahaddin Sanusei, Brian Munn, Zhili Feng, USA</p> |
| <p>FS09: Mechanics of materials processing Chair: Gabor Csernak, Hungary Room: 207</p> | <p>The effect of substrate on powder concentration distribution in coaxial laser cladding (FS09-011) <u>Hao Liu</u>, Shaowei Jin, Xiuli He, Gang Yu, China</p> | <p>The effect of runout on the stability of milling with variable helix tools (FS09-007) Andreas Otto, <u>Günter Radons</u>, Germany</p> | <p>Advances in nonlinear model reduction & parametric modelling using the proper generalized decomposition (FS09-015) <u>Adrien Leygue</u>, Marianne Beringhier, Francisco Chinesta, France</p> |
| <p>SM10: Mechatronics Chairs: Hannes Bleuler, Switzerland Alexander Fidlin, USA Room: 210A</p> | <p>Experiments on a new conductive structure for electrodynamic bearings (SM10-005) Guoping Ding, Jan Sandtner, <u>Hannes Bleuler</u>, China</p> | <p>An accurate computation model for magnetic-mechanical based penta-stable mechanism (SM10-008) <u>Jian Zhao</u>, Guoxi Chen, Yu Huang, Renjing Gao, China</p> | <p>On the similarity between the electromagnetics of microstrip antenna and the mechanics of composite substrates (SM10-011) <u>Shih-Ming Yang</u>, C.-C. Hung, Taiwan, China</p> |
| <p>SM03: Damage mechanics Chairs: Elisha Rejovitzky, Russia Matthieu Dunand, France Room: 210B</p> | <p>Micro inhomogeneous deformation and fatigue life of a metal under symmetric strain cycle (SM03-013) <u>Keshi Zhang</u>, Yanke Shi, Siyuan Gu, Yongting Lan, Yingsong Ma, China</p> | <p>Effect of crack orientation and connectivity on effective permeability of microcracked solids (FS10-004) <u>Chunsheng Zhou</u>, Wei Wang, China</p> | <p>Damage model for brittle refractory materials under thermal shock conditions (SM03-003) <u>Dimitri Henneberg</u>, Andreas Ricoeur, Germany</p> |
| <p>SM13: Plasticity, viscoplasticity and creep Chairs: Giulio Maier, Italy Brian Nyvang Legarth, Denmark Room: 211</p> | <p>Conservation laws for materials with a nonlinear power law behavior in antiplane deformation (SM05-007) <u>Weichen Shi</u>, China</p> | <p>Analyticity and causality of rheological models (SM13-002) <u>Nicos Makris</u>, Greece</p> | <p>General criteria of material instabilities (SM13-012) <u>Wei Ma</u>, China</p> |

| Session | 13:49 | 13:52 | 13:55 |
|--|--|--|---|
| SM14: Stability of structures Chairs: Jizhou Song, USA Jean Lerbet, France Room: 208A+B | A new approach for solution of buckling of functionally graded material Timoshenko beams (SM14-017) <u>Shirong Li</u> , Zeqing Wan, China | Hill-top bifurcation analysis for a foldable structure with imperfection (SM14-018) <u>I. Ario</u> , M. Nakazawa, Japan | Buckling of porous elastic sandwich plates (SM14-019) <u>Denis Sheyidakov</u> , Russia |
| FS03: Experimental methods in mechanics Chairs: Yiping Liu, China Yang Shang, China Room: 209A+B | Three-dimensional shape reconstruction of micro-varying liquid surface (FS03-008) Zhanwei Liu, <u>Xianfu Huang</u> , Huimin Xie, China | Measurement of residual stress in metallic materials processed by means of smat (FS03-009) <u>Long Liu</u> , Hao Jiang, Kapo Cheung, Jian Lu, Hong Kong, China | A high sensitivity DIC technique for chip-level packaging materials (FS03-016) <u>Yonggang Wang</u> , Wei Tong, China |
| FS10: Porous media Chairs: Kaixin Liu, China Changfu Wei, China Room: 207 | | | Singularity of the energy propagation in anisotropic fluid-filled porous materials (FS10-010) <u>Ying Liu</u> , Kaixin Liu, China |
| SM17: General solid mechanics Chairs: Pauli Pedersen, Denmark David Néron, France Room: 210A | | | Universal deformations of growing solids (SM17-010) <u>Serge Lychev</u> , Russia |
| SM03: Damage mechanics Chairs: Elisha Rejovitzky, Russia Matthieu Dunand, France Room: 210B | A new plasticity criterion for porous single crystals (SM03-006) <u>Xu Han</u> , Jacques Besson, Samuel Forest, Benoît Tanguy, France | Mixed-mode cyclic fatigue delamination growth with large scale bridging in composites (SM03-009) <u>Liu Liu</u> , John W. Holmes, Bent F. Sørensen, China | An extension of Gurson's model to arbitrary ellipsoidal voids (SM03-012) <u>Komlanvi Madou</u> , Jean-Baptiste Leblond, France |
| SM13: Plasticity, viscoplasticity and creep Chairs: Giulio Maier, Italy Brian Nyvang Legarth, Denmark Room: 211 | A proposed indentation scheme for investigating elasto-viscoplastic behaviour of materials at elevated temperatures (SM13-013) <u>Chunyu Zhang</u> , China | Modeling of AISI L6 steel behaviour in the presence of thermo-viscoplastic coupling (SM13-016) <u>Halina Egner</u> , Wladyslaw Egner, Poland | A new approach for analysis the elastoplastic flows (SM13-017) <u>Iskakbayev Alibay</u> , Kazakhstan |

| Session | 13:58 | 14:01 | 14:04 |
|--|---|--|---|
| <p>SM14: Stability of structures Chairs: Jizhou Song, USA Jean Lerbet, France Room: 208A+B</p> | <p>Surface effects on the wrinkles in a stiff thin film bonded to a compliant substrate (SM14-023) Yuhang Li, <u>Jizhou Song</u>, USA</p> | <p>Hysteretic behavior of occurrence of strain nonuniformity in thin-walled cylinders subjected to cyclic torsion, analogous to internal buckling (SM14-031) <u>Masami Kobayashi</u>, Koji Uetani, Japan</p> | |
| <p>FS03: Experimental methods in mechanics Chairs: Yiping Liu, China Yang Shang, China Room: 209A+B</p> | <p>Analysis of dynamic tensile testing of cement-based composites (FS03-019) <u>Deju Zhu</u>, Barzin Mobasher, S. D. Rajan, Canada</p> | <p>Electro-thermal deformation measurement of micro film line on polymer membrane by geometric phase analysis (FS03-022) <u>Qinghua Wang</u>, Satoshi Kishimoto, Huimin Xie, Zhanwei Liu, Xinhao Lou, Japan</p> | <p>Performance of liquid turbine flometer under low flow rate condition (FS03-023) <u>Luhai Wang</u>, Lin Zhou, Ming Xu, Yujian Zhu, Jiming Yang, Jun Li, Song Guan, China</p> |
| <p>FS10: Porous media Chairs: Kaixin Liu, China Changfu Wei, China Room: 207</p> | <p>Phase change in porous media under constant heat flux (FM06-014) <u>Xiaohu Yang</u>, Tianjian Lu, Tongbeum Kim, China</p> | <p>A new triple porosity seepage model in coalbed (FM09-037) <u>Yuewu Liu</u>, Congcong Niu, Cai Qiang, Haisheng Li, Xiangyong Men, China</p> | <p>Modeling pH-sensitive hydrogel for microfluidic control (FS10-011) Tao He, Meie Li, <u>jinxiong Zhou</u>, China</p> |
| <p>SM17: General solid mechanics Chairs: Pauli Pedersen, Denmark David Néron, France Room: 210A</p> | <p>New methodology for lightening parts made from additive manufacturing technologies (SM17-017) <u>Mario D. Monzón</u>, Rubén Paz, Fernando Ortega, Spain</p> | <p>Uniaxial compression experiments of ceramics at quasi-static and dynamic strain (SM17-021) <u>Zhiyong Wang</u>, Peifeng Li, Singapore</p> | <p>Deformation transfer model of spacecraft solar cell and substrate (SM17-024) Wei Song, <u>Lin-an Li</u>, Zhiyong Wang, Shibin Wang, China</p> |
| <p>SM03: Damage mechanics Chairs: Elisha Rejovitzky, Russia Matthieu Dunand, France Room: 210B</p> | <p>Debonding of face/core interface of a circular sandwich plate due to hail-like impact (SM03-019) Styven Guenette, <u>Suresh Shrivastava</u>, Canada</p> | | |
| <p>SM13: Plasticity, viscoplasticity and creep Chairs: Giulio Maier, Italy Brian Nyvang Legarth, Denmark Room: 211</p> | <p>Mechanical behaviour of amorphous polymers through systematic coarse-grained simulations (SM13-019) <u>Sumit Basu</u>, Nisanth Nair, India</p> | <p>Multiscale constitutive model of plastic flow discontinuities at extremely low temperatures (SM13-020) <u>Jan Bielski</u>, Blazej Skoczen, Poland</p> | <p>Thermo-rheological simplicity of carbon black filled rubber (SM13-024) <u>Wenbo Luo</u>, Xiaoling Hu, Xiu Liu, Chuhong Wang, China</p> |

| Session | 14:07 | 14:10 | 14:13 |
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| <p>FS01: Acoustics Chairs: Haibo Chen, China Fernando Lund, Chile Room: 208A+B</p> | | <p>Acoustic radiation from vortex pairing in subsonic mixing layer forced by inflow instability waves with different phases (FM16-034) <u>Feng Feng</u>, Qiang Wang, China</p> | <p>Transmission loss of orthogonally rib-stiffened composite plates (FS01-005) <u>Cheng Shen</u>, Fengxian Xin, Tianjian Lu, China</p> |
| <p>FS03: Experimental methods in mechanics Chairs: Yiping Liu, China Yang Shang, China Room: 209A+B</p> | <p>Model experiments of a novel anti-collision facility for Wanzhou Yangtze River Road Bridge (FS03-028) <u>Xiqin Ma</u>, Changqi Yang, Kui Yu, Yang Liu, Hechuan Zeng, China</p> | <p>An electrical resistance tomography based matrix probe for oil-water two-phase flow (FS03-029) <u>Tao Li</u>, Runhuai Yang, Jiming Yang, China</p> | <p>Visualization of three phase water-assisted flow of heavy crude oil and gas (FS03-030) <u>Antonio Bannwart</u>, Jorge L. Biazussi, William M. Verde, Natache A. Sassim, Brazil</p> |
| <p>FS10: Porous media Chairs: Kaixin Liu, China Changfu Wei, China Room: 207</p> | <p>A theoretical framework for modeling the chemo-mechanical behavior of porous media with multiphases and multispecies (FS10-012) <u>Changfu Wei</u>, Xiating Feng, China</p> | <p>Thermal stresses around a cylindrical hole in a transversely isotropic poroelastic medium considering local thermal non-equilibrium (FS10-014) Zhihe Jin, <u>Luwu He</u>, China</p> | <p>On some features of gas flows through porous objects with heat sources (FS10-015) <u>Nickolay A. Lutsenko</u>, Vladimir A. Levin, Russia</p> |
| <p>SM17: General solid mechanics Chairs: Pauli Pedersen, Denmark David Néron, France Room: 210A</p> | <p>Stochastic model updating based on an efficient novel method (SM17-025) <u>Q. Rui</u>, H. Y. Wang, H. Ouyang, China</p> | <p>Anticipatory systems in mechanics of continua (SM17-013) <u>Peter B. Béda</u>, Hungary</p> | |
| <p>SM09: Mechanics of phase transformations Chairs: Henryk Petryk, Poland Elena Vilchevskaya, Russia Room: 210B</p> | <p>Dependence of the phase transformation state on fabric anisotropy in undrained behaviour of granular soil (FS08-004) <u>Beibing Dai</u>, Jun Yang, Cuiying Zhou, China</p> | <p>Latent heat effect on the microstructures of single crystal shape memory alloys (SM09-008) <u>Chen Xuan</u>, Cheng Peng, Yan Yan, Yongzhong Huo, China</p> | <p>A constitutive model for coupled transformation and plastic behavior of shape memory alloys (SM09-011) <u>Bin Chen</u>, X. Peng, J. Wang, H. Wang, China</p> |
| <p>SM13: Plasticity, viscoplasticity and creep Chairs: Giulio Maier, Italy Brian Nyvang Legarth, Denmark Room: 211</p> | <p>Analysis of indentation size effects under strain gradient viscoplasticity (SM13-027) <u>Suman Guha</u>, Sandeep Sangal, Sumit Basu, India</p> | <p>A modified fractional Zener model for dynamic mechanical properties of cb-filled rubber (SM13-038) <u>Xiaoling Hu</u>, Wenbo Luo, Xiu Liu, Qiang Shen, Zhuangbin Jin, China</p> | <p>Constitutive relationship modeling and prediction of armor steel using an artificial neural network (SM13-041) Zejian Xu, <u>Fenglei Huang</u>, China</p> |

Thursday, 23 August 2012

| Session | 14:16 | 14:19 | 14:22 |
|--|--|--|--|
| FS01: Acoustics Chairs: Haibo Chen, China Fernando Lund, Chile Room: 208A+B | On transformation methods for the design of metamaterials (FS01-016) <u>Zhihai Xiang</u> , China | Natural mode analysis of elliptical cylindrical cavities with multiple elliptical cylinders by using the collocation multipole method (FS01-021) <u>Wei-Ming Lee</u> , Taiwan, China | Acoustic imagine method of flow-induced fan noise from aircraft engine (FS01-028) Xun Huang, <u>Qingkai Wei</u> , Siyang Zhong, China |
| FS04: Chaos and pattern formation Chair: Stephen Morris, Canada Room: 209A+B | | | Study on the chaotic attitude dynamics of the liquid-filled spacecraft by using Hamiltonian-Casimir theory (FS04-006) <u>Baozeng Yue</u> , Wenjun Wu, Salman Ahmad, China |
| FS10: Porous media Chairs: Kaixin Liu, China Changfu Wei, China Room: 207 | The FUPG finite element model of contaminant transportation in soil with nonlinear sorption (FS10-022) <u>Zeijia Liu</u> , Jialiang Zhao, Liqun Tang, Yiping Liu, China | | |
| SM09: Mechanics of phase transformations Chairs: Henryk Petryk, Poland Elena Vilchevskaya, Russia Room: 210B | Nanoscale domain switchings of $Bi_{3.15}Dy_{0.85}Ti_3O_{12}$ thin film at the simultaneous application of polarizing voltage and loading force (SM09-019) <u>Zhe Zhu</u> , Xuejun Zheng, China | On kinetics of chemical reactions fronts in elastic solids (SM09-022) <u>Elena Vilchevskaya</u> , Alexander Freidin, Igor Korolev, Russia | |
| SM13: Plasticity, viscoplasticity and creep Chairs: Giulio Maier, Italy Brian Nyvang Legarth, Denmark Room: 211 | Mechanism of deformation in nanocrystallized materials (SM13-045) Joshua Gale, <u>Ajit Achuthan</u> , USA | A new strain-space microplane plastic-damage model for concrete in compression (SM13-052) <u>Jianying Wu</u> , Shilang Xu, China | Effects of thermal ageing on the large strain viscoelastic response of epdm rubber: experiments and constitutive modeling (SM13-051) <u>Mouna Ben Hassine</u> , Fahmi Zaïri, Moussa Naït-Abdelaziz, Xavier Colin, Christophe Tourcher, Valérie Murin, Grégory Marque, France |

| Session | 14:25 | 14:28 | 14:31 |
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| FS01: Acoustics Chairs: Haibo Chen, China Fernando Lund, Chile Room: 208A+B | Band structures of phononic crystals with weakly bonded interfaces (FS01-031) <u>Ni Zhen</u> , Yuesheng Wang, Ch. Zhang, China | Two-dimensional finite-difference modelling of seismoelectric logs (FS01-035) <u>Wei Guan</u> , Hengshan Hu, China | |
| FS04: Chaos and pattern formation Chair: Stephen Morris, Canada Room: 209A+B | Computing bifurcations of dissipative systems via POD-based ROMs (FS04-019) <u>Filippo Terragni</u> , Jose M. Vega, Spain | Chaotic thresholds for the recently proposed rotating pendulum system (SM16-066) <u>Ning Han</u> , Qingjie Cao, Yushu Chen, China | |

Poster display and discussion: 14:45 – 15:45, South Lobby, 1st floor

Coffee Break: 15:20 – 15:40, Main Lobby, 1st floor

| Session | 15:45 | 16:05 | 16:25 |
|---|---|---|--|
| FM07: Flow instability and transition Chairs: Frantisek Marsik, Czech Republic Tobias M. Schneider, USA Room: Ballroom A | New exact coherent states in plane Poiseuille flow (FM07-064) Masato Nagata, Kengo Deguchi, Japan | Transition delay and drag reduction in particle-laden channel flow (FM07-068) Luca Brandt, Joy Klinkenberg, Gaetano Sardina, Rick De Lange, Sweden | The appearance of homoclinic tangle in plane Couette flow (FM07-073) Genta Kawahara, Lennaert van Veen, Japan |
| SM01: Biomechanics and biomaterials Chairs: Horacio D Espinosa, USA Jizeng Wang, China Room: Ballroom B | Emergence of synchrony in cardiac cells through mechanical communication (SM01-052, invited lecture) Xin Tang, Piyush Bajaj, Rashid Bashir, <u>Taher Saif</u> , USA | A Langevin dynamics approach for analyzing the mechanical response of bio-polymers (SM01-034) Yuan Lin, Vivek B. Shenoy, Hong Kong, China | Biomechanics of abdominal aortic aneurysms: biaxial experiments and related modeling, tissue dissections and microstructural characterization (SM01-018) Jianhua Tong, Tina Cohnert, Peter Regitnig, Gerhard A. Holzapfel, Austria |
| FM06: Drops, bubbles and multiphase flows Chairs: Antonino Ferrante, USA Detlef Lohse, The Netherlands Room: Ballroom C | Orthogonal wavelet analysis of particle fluctuation velocity in a horizontal gas-solid two-phase pipe flow at low gas velocity (FM06-005) Akira Rinoshika, Yan Zheng, Japan | Microscopic structure influencing macroscopic splash at high Weber number (FM06-081) Peichun A. Tsai, Maurice H. W. Hendrix, Remko R. M. Dijkstra, Lingling Shui, Detlef Lohse, The Netherlands | Increase of the mean velocity of a bubble rise in a viscoplastic fluid induced by an oscillating pressure field (FM06-083) Dionysios Photinos, Yiannis Dimakopoulos, John Tsamopoulos, Greece |
| SM16: Vibrations and control of structures Chairs: Alexander Ovseevich, Russia Ekaterina Pavlovskaya, UK Room: Function Hall A | Optimal control of vibrationally excited locomotion systems (SM16-014) Felix L. Chernousko, Nikolay N. Bolotnik, Tatiana Yu. Figurina, Russia | Nonlinear dynamics of a drill bit under percussive activation (SM16-084) Alexandre F. Depouhon, Vincent Denoël, Emmanuel Detournay, Belgium | Nonlinear spatio-temporal dynamics and stability of the scan process in non-contact atomic force microscopy (SM16-088) Oded Gottlieb, Sharon Hornstein, Israel |
| FM15: Vortex dynamics Chairs: Xueying Deng, China Mikhail Sokolovskiy, Russia Room: Function Hall B | The behaviour of vortex structures near solid obstacles (FM15-043, invited lecture) GertJan F. van Heijst, The Netherlands | Fuzzy coating interaction on von Kármán vortex street (FM15-021) Benjamin Levy, Yingzheng Liu, China | The formation of non-axisymmetric vortex rings (FM15-022) Clara O'Farrell, John O. Dabiri, USA |
| SM07: Impact mechanics and wave propagation Chairs: Magnus Langseth, Norway Yulong Li, China Room: Function Hall C | Transient response of hard and brittle armour materials: new insights from scaled experiments (SM07-020) Tobias Uth, Vikram S. Deshpande, UK | Evolution of solitary waves in Mindlin type microstructured materials (SM07-056) Andrus Salupere, Kert Tamme, Estonia | On the impact behavior of tetrahedral truss lattice structures (SM07-013) Han Zhao, Jiagui Liu, Stéphane Patoatto, Daining Fang, France |
| SM04: Elasticity Chairs: Holm Altenbach, Germany Shoji Imatani, Japan Room: 202A+B | Integral identities for a semi-infinite interfacial crack in 2D and 3D elasticity (SM04-026) Andrea Piccolroaz, Gennady Mishuris, Italy | Modeling of thin coated plates with mismatch deformation (SM04-031) Antonio Di Carlo, Roberto Paroni, Raffaella Rizzoni, Italy | Identification of small multiple defects in 3D linear elastic body (SM04-048) Efim I. Shifrin, Pavel S. Shushpannikov, Russia |
| FS07: Smart materials Chairs: Tongyi Zhang, Hong Kong, China Xue Feng, China Room: 203A+B | Thin film nitinol covered stent for brain aneurysms (FS07-018) Greg Carman, Dan Levi, Youngjae Chun, K.P. Mohanchandra, Colin Kealey, Fernando Vinuela, USA | Three-dimensional simulation of domain switching in ferroelectrics based on a phase field model (FS07-030) Bai-Xiang Xu, Ralf Mueller, Dietmar Gross, Germany | Electroactive polymer composites - mechanical response, stability, wave propagation and band-gaps (FS07-038) Gal deBotton, Gal Shmuel, Stephan Rudykh, Israel |
| FM05: Convection Chairs: Denis Funfschilling, France Jinqiang Zhong, China Room: 205A+B | High Rayleigh number convection in a long vertical tube (FM05-022) Shashikant S. Pawar, Jaywant H. Arakeri, India | Optimal Taylor-Couette: numerical results (FM05-023) Rodolfo Ostilla Monico, Richard Stevens, Siegfried Grossman, Roberto Verzicco, Detlef Lohse, India | Sidewall effects in Rayleigh-Benard convection (FM05-027) Richard J. A. M. Stevens, Detlef Lohse, Roberto Verzicco, The Netherlands |

| Session | 16:45 | 17:05 | 17:25 |
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| FM07: Flow instability and transition Chairs: Frantisek Marsik, Czech Republic Tobias M. Schneider, USA Room: Ballroom A | Global stability of an isolated cylindrical rugosity (FM07-074) Jean-Christophe Loiseau, Jean-Christophe Robinet, Emmanuel Leriche, France | Experimental scaling law for the sub-critical transition to turbulence in plane Poiseuille flow (FM07-079) Grégoire Lemoult, Jean-Luc Aider, Jose Eduardo Wesfreid, France | Stability of quasi-Keplerian flow at large Reynolds numbers (FM07-080) Hantao Ji, Michael Burin, Eric Edlund, Christophe Gissinger, Jeremy Goodman, Austin Roach, Ethan Schartman, Erik Spence, USA |
| SM01: Biomechanics and biomaterials Chairs: Horacio D. Espinosa, USA Jizeng Wang, China Room: Ballroom B | Coupled mechanical stimulation reveals non-linear adaptive structural response (SM01-030) Robert Steward Jr., Philip LeDuc, Chao-Min Cheng, USA | Staggering and hierarchy selected by load-bearing biological materials for maximal toughness (SM01-006) Zuogqi Zhang, Bin Liu, Yongwei Zhang, Huajian Gao, Keh-Chih Hwang, Singapore | Self-assembly and mechanics interplay in cyclic peptide nanotubes (SM01-050) Luis Ruiz, Sinan Keten, USA |
| FM06: Drops, bubbles and multiphase flows Chairs: Antonino Ferrante, USA Detlef Lohse, The Netherlands Room: Ballroom C | A transient analysis for the electrodeformation of droplets and vesicles (FM06-084) Jia Zhang, Jeffery D. Zahn, Hao Lin, USA | B3 DNS of fully-resolved droplet-laden isotropic turbulence: a mass-conserving volume of fluid method (FM06-086) Alberto Baraldi, Antonino Ferrante, USA | The role of air in the dynamics of droplet impact (FM06-087) John M. Kolinski, Shmuel M. Rubinstein, Shreyas Mandre, Michael P. Brenner, David A. Weitz, L. Mahadevan, Israel |
| SM16: Vibrations and control of structures Chairs: Alexander Ovseevich, Russia Ekaterina Pavlovskaja, UK Room: Function Hall A | Multiple Hopf bifurcations for a novel smooth and discontinuous oscillator with strong irrational nonlinearities (SM16-009) Yanwei Han, Qingjie Cao, Yushu Chen, Marian Wiercigroch, China | | |
| FM15: Vortex dynamics Chairs: Xueying Deng, China Mikhail Sokolovskiy, Russia Room: Function Hall B | A model for high Reynolds number vortex rings (FM15-024) Feliiks Kaplanski, Yasuhide Fukumoto, Ylo Rudi, Estonia | Erosion of the granular layer due to the collision of the vortex ring (FM15-037) Junya Yoshida, Osamu Sano, Japan | Vortex-induced vibration of a diamond cylinder at different mass ratios (FM15-039) Jisheng Zhao, David Lo Jacono, John Sheridan, Australia |
| SM07: Impact mechanics and wave propagation Chairs: Magnus Langseth, Norway Yulong Li, China Room: Function Hall C | On impact interactions of the damaged medium with the flow of the cavitating liquid (SM07-004) Alexander N. Melsitov, Vladimir A. Petushkov, Russia | Strain rate, temperature and structure effects on the flow stress of metals and alloys under shock-wave loading (SM07-058) Gennady I. Kanel, Sergey V. Razorenov, Eugene B. Zaretsky, Sergey I. Ashitkov, Russia | Waves in microstructured solids: dispersion and thermal effects (SM07-005) Jüri Engelbrecht, Arkadi Berezovski, Estonia |
| SM04: Elasticity Chairs: Holm Altenbach, Germany Shoji Imatani, Japan Room: 202A+B | Complicated stress oscillations induced in functionally graded material films (SM04-035) Fumihiro Ashida, Sei-ichiro Sakata, Tatsuya Ohtsuka, Japan | A constitutive model for a linearly elastic peridynamic body (SM04-042) Adair R. Aguiar, Roger L. Fosdick, Brazil | A hyperelastic model of particle-reinforced Neo-Hookean composite (SM04-030) Zaoyang Guo, Xiaohao Shi, Xiongqi Peng, Philip Harrison, China |
| FS07: Smart materials Chairs: Tongyi Zhang, Hong Kong, China Xue Feng, China Room: 203A+B | Light induced contraction and bending of liquid crystal elastomers (FS07-010) Yongzhong Huo, Lihua Jin, Yin Lin, Chen Xuan, China | Giant voltage-induced deformation in dielectric elastomers (FS07-042) Tiefeng Li, Christoph Keplinger, Jiangshui Huang, Soo Jin Adrian Koh, Jian Zhu, Shaoxing Qu, Siegfried Bauer, Zhigang Suo, Wei Yang, China | Dynamic electromechanical behavior of piezoelectric ceramics (FS07-047) Leslie Lamberson, K. T. Ramesh, USA |
| FM05: Convection Chairs: Denis Funfschilling, France Jinqiang Zhong, China Room: 205A+B | Turbulent convection at high Rayleigh and Taylor numbers (FM05-031) Joseph J. Niemela, Italy | Effect of polymer additives on heat transport in boundary layer flow (FM05-032) Emily S.C. Ching, Roberto Benzi, Vivien W.S. Chu, Hong Kong, China | Thermal boundary layer instabilities in viscous fluids (FM05-034) Anne Davaille, Sophie Androvandi, Angela Limare, France |

| Session | 17:45 | 19:00 – 22:00 |
|--|--|---|
| <p>FM07: Flow instability and transition Chairs: Frantisek Marsik, Czech Republic Tobias M. Schneider, USA Room: Ballroom A</p> | <p>Transients states in the transition to turbulence in channels (FM07-081) José E. Wesfreid, Grégoire Lemoult, Jean-Luc Aider, France</p> | <p>Congress Banquet Plenary Hall A, 4th floor</p> |
| <p>SM01: Biomechanics and biomaterials Chairs: Horacio D Espinosa, USA Jizeng Wang, China Room: Ballroom B</p> | <p>Frequency analysis of knot mass particles in oscillatory spherical net model of mouse zona pellucida (SM01-049) Andjelka Hedrih, Serbia and Montenegro</p> | |
| <p>FM06: Drops, bubbles and multiphase flows Chairs: Antonino Ferrante, USA Detlef Lohse, The Netherlands Room: Ballroom C</p> | <p>A numerical experiment on breakup modes of a laminar compound jet in a co-flowing system (FM06-092) Truong V. Vu, John C. Wells, Hideyuki Takakura, Shunji Homma, Gretar Tryggvason, Japan</p> | |
| <p>FM15: Vortex dynamics Chairs: Xueying Deng, China Mikhail Sokolovskiy, Russia Room: Function Hall B</p> | <p>Nonlinear geostrophic adjustment with gyroscopic waves (FM15-011) Grigory M. Reznik, Russia</p> | |
| <p>SM07: Impact mechanics and wave propagation Chairs: Magnus Langseth, Norway Yulong Li, China Room: Function Hall C</p> | <p>Response of thin aluminum plates to projectile impact (SM07-024) Mohd. A. Iqbal, Narinder K. Gupta, India</p> | |
| <p>SM04: Elasticity Chairs: Holm Altenbach, Germany Shoji Imatani, Japan Room: 202A+B</p> | <p>Polynomial stress functions of anisotropic materials (SM04-038) Yingtao Zhao, Yi Chen, Minzhong Wang, China</p> | |
| <p>FM05: Convection Chairs: Denis Funfschilling, France Jinqiang Zhong, China Room: 205A+B</p> | <p>On the size of convection cells in an internally heated fluid layer at low Rayleigh numbers (FM05-037) Ryuta Abe, Yuji Tasaka, Ichiro Kumagai, Yuichi Murai, Takatoshi Yanagisawa, Anne Davaille, Japan</p> | |

| Session | 15:45 | 16:05 | 16:25 |
|--|--|---|---|
| FS02: Computational methods in mechanics Chairs: Marc Geers, The Netherlands Gerhard Holzzapfel, Austria Room: 206A+B | Mechanics-based verification method - application to computational models (FS02-012) <u>Ludovic Chamoin</u> , Pierre Ladevèze, Florent Pled, France | A new strategy for model reduction in non-linear biomechanics (FS02-047) <u>Stefanie Reese</u> , Annika Radermacher, Germany | Mesoscale hydrodynamics of capillary imbibition under nanoconfinement (FS02-049) Wylie Stroberg, <u>Sinan Ketten</u> , Wing Kam Liu, USA |
| FS12: Education in mechanics Chairs: Haiyan Hu, China Keith Moffatt, UK Room: 208A+B | Tsien education/elite program in mechanics (FS12-008, invited lecture) <u>Quanshui Zheng</u> , Keqin Zhu, Changqing Chen, China | Mechanics need not be boring to engineering students (FS12-002) <u>Bhushan L. Karihaloo</u> , Kai Zhang, Huiling Duan, Jianxiang Wang, UK | Analogy study of engineering mechanics (FS12-003) <u>Jianlin Liu</u> , China |
| SM08: Mechanics of multi-component materials and composites Chairs: Norman A. Fleck, UK Jian Zhu, USA Room: 209A+B | Advances in the comprehension of the mechanical behavior of steel corrosion products (SM08-050) <u>Anita Dehoux</u> , Yves Berthaud, Fatiha Bouchelaghem, France | Micromechanics-based modeling of porous materials for application to elasto-plastic indentation analysis (SM08-051) <u>Roland Traxl</u> , Roman Lackner, Austria | Periodic structural solids and composites: Mechanics and multifunctional applications (SM08-015) <u>Lifeng Wang</u> , USA |
| SM12: Nanostructures and MEMS Chairs: Ioannis Chasiotis, USA Alberto Corigliano, Italy Room: 207 | Thermal conductivity of defective graphene nanoribbons—a molecular dynamics study (SM12-019) <u>Jingjie Ye</u> , Teng Yong Ng, Zishun Liu, Singapore | Mechanically and thermally tunable properties of graphene materials (SM12-040) <u>Yufeng Guo</u> , Wanlin Guo, China | Angular dependence of peeling a carbon nanotube from silicon substrate: Steered molecular dynamics simulation and theoretical analysis (SM12-006) Wugui Jiang, <u>Defeng Peng</u> , China |
| SM06: Geophysics and geomechanics Chairs: Jose Andrade, USA Richard Wan, Canada Room: 210A | Numerical approaches to large-scale geological modeling (SM06-023, invited lecture) <u>Louis Moresi</u> , Australia | Granular rheology: fine tuned for optimal efficiency? (SM06-006) Antoinette Tordesillas, <u>Qun Lin</u> , Australia | Mechanic explanation to variation of fault dips under normal fault regime at shallow levels (SM05-009) <u>Shunshan Xu</u> , Angel Francisco Nieto-Samaniego, Susana Alicia Alaniz-Alvarez, Mexico |
| FM08: Flow in thin films Chairs: Santiago Madruga, Spain Markus Scholle, Germany Room: 210B | Gradient dynamics formulation of evolution equations for thin films of complex fluids (FM08-022, invited lecture) <u>U. Thiele</u> , A. J. Archer, L. Frastia, M. Galvagno, <u>H. Lopez</u> , M. Plapp, D. V. Todorova, UK | Computational and experimental studies on motion of yield stress plugs in channels (FM08-020) <u>Parsa Zamankhan</u> , Yingying Hu, Cheng-Feng Tai, Marcel Filoche, John C. Grotberg, Shiyao Bian, Shuichi Takayama, <u>James B. Grotberg</u> , USA | Large drops of a power-law fluid in a thin film on a vertical fibre (FM08-002) <u>Liyan Yu</u> , John Hinch, UK |
| FS11: Foams and cellular materials Chairs: Patrick R. Onck, The Netherlands Ashkan Vaziri, USA Room: 211 | Buckling-induced chirality in cellular structures (FS11-016, invited lecture) <u>Katia Bertoldi</u> , Sung Kang, Sicong Shan, Jongmin Shim, Wim Noorduyn, Mughees Khan, Joanna Aizenberg, USA | The charge-induced actuation of nanoporous metals (FS11-012) <u>S. S. R. Saane</u> , P. R. Onck, The Netherlands | Velocity attenuation and force transfer in foam-filled layered claddings subjected to blast and impact (FS11-015) <u>Dora Karagiozova</u> , Bulgaria |
| FM14: Turbulence Chairs: Yulu Liu, China Katepalli R. Sreenivasan, USA Room: 212A | Reconnection of very long vortex pairs with a transition to turbulence (FM14-012, invited lecture) <u>Robert M. Kerr</u> , UK | A multi-layer model of roughness effect in turbulent pipes (FM14-018) You Wu, Xi Chen, <u>Zhensu She</u> , Fazle Hussain, China | Normalization of the mean rate of energy dissipation in turbulence (FM14-004) <u>Hideaki Mouri</u> , Akihiro Hori, Yoshihide Kawashima, Kosuke Hashimoto, Japan |
| SM14: Stability of structures Chairs: Dennis M. Kochmann, USA Nicolas Triantafyllidis, France Room: 212B | Microscopic and macroscopic instabilities in fiber-reinforced elastomers (SM14-002, invited lecture) <u>Oscar Lopez-Pamies</u> , Jean-Claude Michel, Pedro Ponte Castaneda, Nicholas Triantafyllidis, USA | Stamping and wrinkling of elastic plates (SM14-015) <u>Jeremy Hure</u> , Benoit Roman, Jose Bico, France | Ultra-high stiffness and damping composites and structures due to constrained mechanical instabilities (SM14-013) <u>Dennis M. Kochmann</u> , Charles S. Wojna, USA |
| SM13: Plasticity, viscoplasticity and creep Chairs: Yueguang Wei, China Peidong Wu, Canada Room: 213A+B | The effect of the matrix tension-compression asymmetry on damage evolution in porous plastic solids (SM13-001) <u>Oana Cazacu</u> , Benoit Revil Baudard, USA | Effect of twinning on the large strain torsion of extruded AZ31 bars (SM13-003) <u>Peidong Wu</u> , Huamiao Wang, Kenneth Neale, Canada | Shakedown of functionally graded structures subjected to plastic strain induced phase transformation (SM13-025) <u>Blazej T. Skoczen</u> , Poland |

| Session | 16:45 | 17:05 | 17:25 |
|---|--|--|---|
| FS02: Computational methods in mechanics Chairs: Marc Geers, The Netherlands Gerhard Holzapfel, Austria Room: 206A+B | A multiscale approach based on the PGD to solve nonlinear time-dependent problems (SM17-009) <u>David Néron</u> , Pierre Ladevèze, Massimiliano Cremonesi, Pierre-Alain Guidault, France | | |
| FS12: Education in mechanics Chairs: Haiyan Hu, China Keith Moffatt, UK Room: 208A+B | Teaching chaos for freshmen as a liberal education course (FS12-004) <u>Liqun Chen</u> , China | Use of team assignments in engineering mechanics to educate large cohorts of undergraduate students (FS12-005) <u>Michael D. Gilchrist</u> , Ireland | Computer laboratory for natural convection fundamentals (FS12-006) <u>Michael K. Ermakov</u> , Russia |
| SM08: Mechanics of multi-component materials and composites Chairs: Norman A. Fleck, UK Jian Zhu, USA Room: 209A+B | Optimization of magnetoelectric effect in multiferroic composites (SM08-032) <u>Hsin-Yi Kuo</u> , Yongliang Wang, Yumin Kuo, Taiwan, China | Three-dimensional cryomechanics analysis of satin woven carbon/polymer composites with cracks (SM08-007) <u>Fumio Narita</u> , Yasuhide Shindo, Tomo Takeda, Japan | |
| SM12: Nanostructures and MEMS Chairs: Ioannis Chasiotis, USA Alberto Corigliano, Italy Room: 207 | Analysis of free vibrations of carbon nanotubes using continuum mechanics and molecular dynamic simulations (SM12-001) <u>Yangao Hu</u> , Zhengliang Li, K.M. Liew, Q. Wang, Jun Han, China | Twin-spacing dependent yield strength in the materials with hierarchical nanostructures (SM12-011) <u>Linli Zhu</u> , Jian Lu, China | Size-dependent models for electrostatically actuated MEMS (SM12-020) <u>Binglei Wang</u> , Shenjie Zhou, Junfeng Zhao, Xi Chen, China |
| SM06: Geophysics and geomechanics Chairs: Jose Andrade, USA Richard Wan, Canada Room: 210A | The influence of the stresses on the flow rate of wells and their stability (SM06-004) <u>Vladimir Karev</u> , Russia | Numerical investigations of micro-structural phenomena inside shear localization in granular bodies using DEM (SM06-009) Jan Kozicki, Michal Nitka, <u>Jacek Tejchman</u> , Poland | Observation of localized deformation in partially saturated sand by microfocus X-Ray CT and DIC image analysis (SM06-014) <u>Yosuke Higo</u> , Fusao Oka, Tomohiro Sato, Yoshiki Matsushima, Sayuri Kimoto, Japan |
| FM08: Flow in thin films Chairs: Santiago Madruga, Spain Markus Scholle, Germany Room: 210B | On advancing contact lines with a 180° contact angle (FM08-003) <u>Eugene Benilov</u> , Ireland | Self-similar thermally driven rupture of thin liquid sheets (FM08-004) <u>Mark Bowen</u> , Burt Tilley, Japan | Stability analysis of a thin liquid film on an axially oscillating cylindrical surface in the high-frequency limit (FM08-005) <u>Alexander Oron</u> , Selin Duruk, Israel |
| FS11: Foams and cellular materials Chairs: Patrick R. Onck, The Netherlands Ashkan Vaziri, USA Room: 211 | Hierarchical honeycombs with enhanced mechanical properties (FS11-018) Amin Ajdari, Babak Haghpanah Jahromi, Hamid Nayeb-Hashemi, <u>Ashkan Vaziri</u> , USA | Experimentally-based modeling of trabecular bone as a complex cellular material (FS11-021) <u>Iwona Jasiuk</u> , Elham Hamed, Timothy Patterson, Jun Li, Alexander Setters, USA | Mechanical properties and failure modes of carbon fiber composite pyramidal lattice structures (FS11-022) Jian Xiong, Ashkan Vaziri, Linzhi Wu, Li Ma, <u>Zhen Cai</u> , China |
| FM14: Turbulence Chairs: Yulu Liu, China Katepalli R. Sreenivasan, USA Room: 212A | A multi-layer model for turbulent kinetic energy in pipe flows (FM14-009) <u>Xi Chen</u> , Fazole Hussain, Zhensu She, China | Reynolds number effects on the spectra from a turbulent free jet of initial square cross-section and the kolmogorov isotropy "law" (FM14-015) Minyi Xu, <u>Andrew Pollard</u> , Jamie Mi, Frank Secretain, Hamed Sadeghi, Canada | Energy dissipation in fully developed turbulence (FM14-021) <u>Yulu Liu</u> , Yongxiang Huang, China |
| SM14: Stability of structures Chairs: Dennis M. Kochmann, USA Nicolas Triantafyllidis, France Room: 212B | A Fourier-related multi-scale analysis on membrane wrinkling: Theoretical study and numerical applications (SM14-003) <u>Heng Hu</u> , Kun Yu, Nouredine Damil, Michel Potier-Ferry, Salim Belouettar, China | Deterministically ordered surface wrinkling micropatterns of thin polymeric films on soft substrate (SM14-024) <u>Jie Yin</u> , Jose L. Yagüe, Damien Eggenpieler, Karen K. Gleason, Mary C. Boyce, USA | On constructing analytical solutions for the post-bifurcation states of a compressible hyperelastic tube under compression (SM14-009) <u>Huihui Dai</u> , Fanfan Wang, Jiong Wang, Jian Xu, Hong Kong, China |
| SM13: Plasticity, viscoplasticity and creep Chairs: Yueguang Wei, China Peidong Wu, Canada Room: 213A+B | Correction of shear creep compliance determined by conical indentation (SM13-028) <u>Guangjian Peng</u> , Taihua Zhang, Yihui Feng, China | The influence of steel fiber plasticity on kink-band formation (SM13-046) <u>Lars P. Mikkelsen</u> , R.T. Durai Prabhakaran, Denmark | Thermodynamic consistent formulations of viscoplasticity and damage in ferrite steel (SM13-023) <u>Farid Abed</u> , UAE |

| Session | 17:45 | 19:00 – 22:00 |
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| <p>FS12: Education in mechanics Chairs: Haiyan Hu, China Keith Moffatt, UK Room: 208A+B</p> | <p>An educative App for topology optimization (FS12-007) Niels Aage, Morten Nobel-Jørgensen, Casper Schousboe Andreasen, Ole Sigmund, Denmark</p> | <p>Congress Banquet Plenary Hall A, 4th floor</p> |
| <p>SM12: Nanostructures and MEMS Chairs: Ioannis Chasiotis, USA Alberto Corigliano, Italy Room: 207</p> | <p>Mechanism of wrinkle formation in chemical vapor deposited graphene and tuning its morphology by substrates (SM12-021) Mario Lanza, Yan Wang, Haiyi Liang, Huiling Duan, China</p> | |
| <p>SM06: Geophysics and geomechanics Chairs: Jose Andrade, USA Richard Wan, Canada Room: 210A</p> | <p>Secular motions of spin-down tops and planets (SM06-022) Yutaka Shimomura, Japan</p> | |
| <p>FM08: Flow in thin films Chairs: Santiago Madruga, Spain Markus Scholle, Germany Room: 210B</p> | <p>Slip or not slip? A comparison of the interface formation model with conventional theories (FM08-007) David N. Sibley, Nikos Savva, Serafim Kalliadasis, UK</p> | |
| <p>FS11: Foams and cellular materials Chairs: Patrick R. Onck, The Netherlands Ashkan Vaziri, USA Room: 211</p> | <p>Quantifying the dynamic properties of metallic thin-walled hollow sphere foams (FS11-023) Peifeng Li, Nik Petrinic, Clive R. Siviour, Singapore</p> | |
| <p>FM14: Turbulence Chairs: Yulu Liu, China Katepalli R. Sreenivasan, USA Room: 212A</p> | <p>Investigation of relaxation eddy viscosity model for coherent structure dynamics using tomographic PIV (FM14-019) Yongxia Jia, Nan Jiang, China</p> | |
| <p>SM14: Stability of structures Chairs: Dennis M. Kochmann, USA Nicolas Triantafyllidis, France Room: 212B</p> | <p>Failure analysis of concrete gravity dam based on interface element method of discontinuous mechanics (SM14-038) Qing Zhang, Kang Xu, China</p> | |
| <p>SM13: Plasticity, viscoplasticity and creep Chairs: Yueguang Wei, China Peidong Wu, Canada Room: 213A+B</p> | <p>Mullins' effect in polymer/clay nanocomposites: observations and constitutive modeling (SM13-048) Aleksey D. Drozdov, Rasmus Klitkou, Jesper de C. Christiansen, Denmark</p> | |

Friday, 24 August 2012

| Session | 8:30 | 9:15 |
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| Sectional Lecture Chairs: Henrik Bruus, Denmark Jing Fan, China Room: Function Hall B | <i>Droplet splashing (SL03)</i> <u>Michael Brenner</u> , USA | |
| Sectional Lecture Chairs: Bernhard Schrefler, Italy Zhewei Zhou, China Room: Ballroom A | <i>Microsystems and mechanics (SL04)</i> <u>Alberto Corigliano</u> , Raffaele Ardito, Claudia Comi, Attilio Frangi, Aldo Ghisi, Stefano Mariani, Italy | |
| Sectional Lecture Chairs: Yukio Kaneda, Japan Tomasz A. Kowalewski, Poland Room: Ballroom B | <i>Toward the multi-scale simulation for a human body using the next-generation supercomputer (SL09)</i> <u>Yoichiro Matsumoto</u> , Japan | |
| Sectional Lecture Chairs: Nadine Aubry, USA Haecheon Choi, South Korea Room: Ballroom C | <i>The mechanics and prediction of wall-turbulence (SL10)</i> <u>Parviz Moin</u> , USA | |
| Sectional Lecture Chairs: Davide Bigoni, Italy Krishnaswamy Ravi-Chandar, USA Room: Function Hall A | <i>Dynamic damage, strain localization and failure of ductile materials (SL11)</i> <u>Alain Molinari</u> , France | |

| Session | 9:20 | 9:40 | 10:00 |
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| FM06: Drops, bubbles and multiphase flows Chairs: Yoichiro Matsumoto, Japan Stephane Zaleski, France Room: Ballroom A | Dynamics of carbon dioxide bubble shrinkage in microchannel flow determines mass transfer in physical solvents (FM06-101) <u>Milad Abolhasani</u> , Eugenia Kumacheva, Axel Gunther, Canada | Motion of bubble rings in viscous fluid (FM17-020) M. Cheng, <u>J. Lou</u> , T. T. Lim, Singapore | Dynamics of a drop trapped inside a circular hydraulic jump (FM06-047) <u>Luc Lebon</u> , Alexis Duschene, Laurent Limat, France |
| SM01: Biomechanics and biomaterials Chairs: Chao-Min Cheng, USA Taher Saif, USA Room: Ballroom B | Mechanics vs. morphogenesis (SM01-002) <u>Xi Chen</u> , USA | Wrinkling mode evolution in hyperelastic film/substrate bilayers (SM01-036) <u>Yanping Cao</u> , John W. Hutchinson, China | An anisotropic discrete fiber model based on a generalized strain invariant with application to soft biological tissues (SM01-001) Cormac Flynn, <u>M.B. Rubin</u> , Israel |
| FM05: Convection Chairs: Herman Clercx, The Netherlands Penger Tong, Hong Kong, China Room: Ballroom C | Analysis of the Bolgiano length scale the bulk of turbulent Rayleigh-Bénard convection (FM05-039) <u>Matthias Kaczorowski</u> , Keqing Xia, Hong Kong, China | Horizontal rolls in a cylindrical layer with a local heating (FM05-041) <u>Sukhanovsky Andrey</u> , Evgrafova Anna, Russia | Boundary-layer circulation in turbulent rotating convection (FM05-043) Rudie Kunnen, Richard Stevens, Jim Overkamp, Chao Sun, GertJan van Heijst, <u>Herman Clercx</u> , The Netherlands |
| FM15: Vortex dynamics Chairs: Konstantin Koshel, Russia Grigory Reznik, Russia Room: 202A+B | Transport of admixture in a stationary vortex flow (FM15-020) Yuli D. Chashechkin, T. O. Chaplina, E.V. Stepanova, Russia | Construction and evolution of vortex-surface fields (FM15-042) <u>Yue Yang</u> , Dale I. Pullin, USA | Tackling structural complexity by Jones' polynomials (FM15-044) <u>Xin Liu</u> , Renzo L. Ricca, Australia |
| FS12 Education in mechanics Chairs: Katepalli Sreenivasan, USA Bhushan Karihaloo, UK Room: 203A+B | Incorporating research into first year fluid mechanics (FS12-017, invited lecture) <u>Tsung-chow Su</u> , USA | Hands-on research schools on nonlinear dynamics (FS12-010) <u>Katepalli R. Sreenivasan</u> , USA | Game-based interactive software for mechanical laboratory (FS12-012) <u>Mikhail I. Karyakin</u> , Alexander A. Lyapin, Taisiya V. Sigaleva, Russia |
| SM02 Contact and friction mechanics Chairs: Valentin L. Popov, Germany Yonggang Zheng, China Room: 205A+B | Methodology for modeling surface and subsurface damage due to contact loading (SM02-013, invited lecture) <u>Kun Zhou</u> , John H. L. Pang, Bin Song, Fei Su, Leon M. Keer, Q. Jane Wang, Singapore | Effect of the gap conditions in sliding contact of the periodic punch on the viscoelastic foundation (SM02-026) <u>Irina G. Goryacheva</u> , Julia Yu, Makhovskaya, Alexei Shpenev, Russia | Method of reduction of dimensionality in contact mechanics (SM02-008) <u>Valentin L. Popov</u> , Germany |
| SM03: Damage mechanics Chairs: Carl T. Herakovich, USA Pierre Ladevèze, France Room: 206A+B | On the intra/interlaminar coupling of laminated composites: modeling, identification and validation (SM03-001, invited lecture) <u>Pierre Ladevèze</u> , Federica Daghia, Emmanuelle Abisset, France | The damage mechanics approach of bone considering the mechanical-electric-magnetic coupling effects (SM03-008) <u>Shouwen Yu</u> , Chuanyong Qu, Xiqiao Feng, China | Damage development in steels subjected to exploitation processes: attempt to correlate the parameters of different testing techniques (SM03-005) <u>Zbigniew L. Kowalewski</u> , Katarzyna Makowska, Jacek Szelazek, Boleslaw Augustyniak, Poland |
| SM07: Impact mechanics and wave propagation Chairs: Ashkan Vaziri, USA Jilin Yu, China Room: 208A+B | Wave propagation in multilayered structures composed of carbon nanotubes and rigid inter-layers under small velocity impacts (SM07-030) <u>Ramathasan Thevamaran</u> , Namiko Yamamoto, Chiara Daraio, USA | Large scale optimal transportation meshfree (OTM) simulations of hypervelocity impact (SM07-035) <u>Bo Li</u> , Luigi Perotti, Mark Adams, Jonathan Mihaly, Ares J. Rosakis, Michael Ortiz, USA | The star shaped crack patterns of broken windows (SM07-047) <u>Nicolas Vandenberghe</u> , Romain Vermorel, Emmanuel Villermaux, France |
| SM14: Stability of structures Chairs: Timothy Healey, China Michel Jabbour, USA Room: 209A+B | Step instabilities during thin-film epitaxial growth (SM14-037, invited lecture) <u>Michel Jabbour</u> , USA | Stretch-induced wrinkling of hyperelastic thin sheets (SM14-001) <u>Vishal Nayyar</u> , K. Ravi-Chandar, <u>Rui Huang</u> , USA | Reduced stiffness critical pressure of spherical shells having localised imperfections (SM14-007) <u>Seishi Yamada</u> , Japan |
| FM14: Turbulence Chairs: Song Fu, China Parviz Moin, USA Room: 207 | Cross-independence closure for statistical mechanics of homogeneous isotropic turbulence (FM14-005, invited lecture) <u>Tomomasa Tatsumi</u> , Japan | Experimental study of relative velocity statistics and collisions of inertial particles in turbulence (FM14-020) <u>Saw Ewe-Wei</u> , Bewley Gregory P., Bodenschatz Eberhard, Germany | Geometrical features of streamlines and streamline segments in turbulent flows (FM14-031) <u>Philip Schaefer</u> , Markus Gampert, Norbert Peters, Germany |

Session**10:20****10:40 – 11:00**

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| <p>FM06: Drops, bubbles and multiphase flows Chairs: Yoichiro Matsumoto, Japan Stephane Zaleski, France Room: Ballroom A</p> | <p>Electric field induced drop-drop interactions (FM06-050) <u>Gaurav Tomar</u>, India</p> | <p>Coffee Break Main Lobby, 1st floor</p> |
| <p>SM01: Biomechanics and biomaterials Chairs: Chao-Min Cheng, USA Taher Saif, USA Room: Ballroom B</p> | <p>Mechanical regulation of receptor-ligand binding by controllable transport (SM01-040) Jin Qian, Arnold L. Ju, <u>Cheng Zhu</u>, USA</p> | |
| <p>FM05: Convection Chairs: Herman Clercx, The Netherlands Penger Tong, Hong Kong, China Room: Ballroom C</p> | <p>Analysing the spatio-temporal flow behavior in RB-convection using global statistical analysis (FM05-044) Ulrich Hansen, <u>Klaus Petschel</u>, Germany</p> | |
| <p>FM15: Vortex dynamics Chairs: Konstantin Koshel, Russia Grigory Reznik, Russia Room: 202A+B</p> | <p>Lagrangian and Eulerian hybrid method for weakly nonlinear stability of a rotating flow in a cylinder of elliptic cross-section (FM15-047) <u>Yasuhide Fukumoto</u>, Youichi Mie, Japan</p> | |
| <p>FS12 Education in mechanics Chairs: Katepalli Sreenivasan, USA Bhushan Karihaloo, UK Room: 203A+B</p> | <p>Mechanical education for nanoscience and nanotechnology in future (FS12-013) <u>Wanlin Guo</u>, China</p> | |
| <p>SM02 Contact and friction mechanics Chairs: Valentin L. Popov, Germany Yonggang Zheng, China Room: 205A+B</p> | <p>A nano-cheese-cutter to measure interfacial adhesion of freestanding nano-fibers (SM02-019) <u>Xin Wang</u>, Johnny Najem, Shing-Chung Wong, Kai-tak Wan, USA</p> | |
| <p>SM03: Damage mechanics Chairs: Carl T. Herakovich, USA Pierre Ladeveze, France Room: 206A+B</p> | <p>Quantitative damage evaluation of thermal barrier coatings subjected to tensile loading using acoustic emission method (SM03-022) <u>Li Yang</u>, Zhichun Zhong, Yichun Zhou, Chunsheng Lu, China</p> | |
| <p>SM07: Impact mechanics and wave propagation Chairs: Ashkan Vaziri, USA Jilin Yu, China Room: 208A+B</p> | <p>Dynamic failure in metal-polymer bilayers (SM07-062) Santiago A. Morales, Aaron B. Albrecht, Haitao Zhang, Kenneth M Liechti, <u>Krishnaswamy Ravi-Chandar</u>, USA</p> | |
| <p>SM14: Stability of structures Chairs: Timothy Healey, China Michel Jabbour, USA Room: 209A+B</p> | <p>Wrinkling of stretched elastic films via global parametric bifurcation (SM14-020) Qingdu Li, <u>Timothy Healey</u>, USA</p> | |
| <p>FM14: Turbulence Chairs: Song Fu, China Parviz Moin, USA Room: 207</p> | <p>Toward a simplified wall-modeled large eddy simulation at high Reynolds number (FM14-032) <u>Minjeong Cho</u>, Jungil Lee, Haecheon Choi, South Korea</p> | |

Friday, 24 August 2012

| Session | 9:20 | 9:40 | 10:00 |
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| FM12: Non-Newtonian and complex fluids Chairs: Radhakrishna Sureshkumar, USA Keqin Zhu, China Room: 210A | Dynamics and rheology of micellar fluids from molecular dynamics simulations (FM12-023, invited lecture) Ashish V. Sangwai, Radhakrishna Sureshkumar , USA | Filament stretching of pressure sensitive adhesives with gas inclusions: a 3D hyperelastic-viscoelastic model and numerical simulations (FM12-022) Yannis Dimakopoulos , John Papaioannou, John Tsamopoulos, Greece | Quantifying chain reptation in entangled polymer melts: topological and dynamical mapping of atomistic simulation results onto the tube model (FM12-026) Chunggi Baig , Pavlos S. Stephanou, Vlasios G. Mavrantzas, South Korea |
| FM08 Flow in thin films Chairs: James B. Grotberg, USA Serafim Kalliadasis, UK Room: 210B | Film flow over small-amplitude step topography (FM08-008) M. G. Blyth , D. Tseluiko, D. T. Papageorgiou, J.-M. Vanden-Broeck, UK | Rivulet evolution in gravity-driven thin-film flows (FM08-009) David Slade, Sergii Veremieiev, Yeaw C. Lee, Philip H. Gaskell , UK | A model for particle laden flow in a spiral concentrator (FM08-010) Sungyon Lee , Yvonne Stokes, Andrea L. Bertozzi, USA |
| FS09: Mechanics of materials processing Chairs: Timothy J. Burns, USA Francisco Chinesta, Spain Room: 211 | A simple nonlinear cutting model for the quick qualitative description of chip formation (FS09-006, invited lecture) Gábor Csernák , Zoltán Pálmai, Hungary | Three-dimensional transient numerical simulation of Gaussian laser beam drilling process (FS09-010) Zhifu Ge , Gang Yu, Xiuli He, Guoquan Lu, Shaoxia Li, China | Fluid flow and its driving forces in laser dissimilar welding of stainless steel and nickel (FS09-012) Yaowu Hu , Xiuli He, Gang Yu, China |
| FS10: Porous media Chairs: Tomasz A. Kowalewski, Poland Marie-Christine Néel, France Room: 212A | Probing memory effects in porous media using nuclear magnetic resonance (FS10-025, invited lecture) V. Guillon, S. H. Rakotonasy, D. Bauer, M. Fleury, Marie-Christine Néel , France | Experimental study of drug release system based on electrospun nanofibres (FS10-007) Pawel Nakielski , Tomasz Kowalczyk, Tomasz A. Kowalewski, Poland | Thermo-poro-elastic analysis of freezing behavior of porous materials saturated with saline solution (FS10-009) Qiang Zeng , Kefei Li, Teddy Fen-Chong, Patrick Dangla, China |

| Session | 10:20 | 10:40 – 11:00 |
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| FM08 Flow in thin films Chairs: James B. Grotberg, USA Serafim Kalliadasis, UK Room: 210B | A first integral of Navier-Stokes equations: thin film flow applications (FM08-012) Markus Scholle , Philip H. Gaskell , Andre Haas , Germany | <p>Coffee Break</p> <p>Main Lobby, 1st floor</p> |
| FS09: Mechanics of materials processing Chairs: Timothy J. Burns, USA Francisco Chinesta, Spain Room: 211 | Towards an integrated approach of production systems (FS09-002) Francisco Chinesta , Adrien Leygue , Elias Cueto , France | |
| FS10: Porous media Chairs: Tomasz A. Kowalewski, Poland Marie-Christine Néel, France Room: 212A | Reservoir-scale simulation for salt-deposit dissolution with a diffuse interface model (FS10-013) Haishan Luo , Michel Quintard , Gérald Debenest , Farid Laouafa , France | |

| Session | 11:00 | 11:20 | 11:40 |
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| FM06: Drops, bubbles and multiphase flows Chairs: Shmuel Rubinstein, Israel Akira Rinoshika, Japan Room: Ballroom A | Prediction of bubble sound emissions using coupled oscillators (FM06-055) <u>Richard Manasseh</u> , Andrew Ooi, Australia | Vortex shedding for drop creation (FM06-071) <u>J. John Soundar Jerome</u> , Stéphane Zaleski, Jean-Philippe Matas, Jérôme Hoepffner, France | About oscillation effect on the penetration depth of water drop induced vortex ring (FM06-077) <u>An-Bang Wang</u> , Tetuko Kurniawan, Pei-Hsun Tsai, Taiwan, China |
| SM01: Biomechanics and biomaterials Chairs: Pasquale Ciarletta, France Jin Qian, China Room: Ballroom B | Binding biomechanics of recombinant human beta 2 integrin (SM01-044) Ning Li, Debin Mao, Yixin Gong, Shouqin Lü, Yan Zhang, <u>Mian Long</u> , China | Mechanochemical model of dynamic microtubule growth (SM01-054) Xiangying Ji, <u>Xiqiao Feng</u> , China | Biphasic fiber-reinforced modeling of cartilage with sample-specific distributed collagen fiber orientations (SM01-042) David M. Pierce, Tim Ricken, Gerhard A. Holzapfe, Austria |
| FM05: Convection Chairs: Wenxian Lin, China Quan Zhou, China Room: Ballroom C | Rayleigh-Bénard convection in liquids with temperature-dependent material properties (FM05-045) <u>Susanne Horn</u> , Olga Shishkina, Claus Wagner, Germany | PIV study of behavior of interaction of twin fountains in homogeneous fluid (FM05-048) Hasan Mahmud, Blair Hill, Wenfeng Gao, Wenxian Lin, Yinghe He, Steven Armfield, Australia | Periodic and quasiperiodic temperature oscillations in mixed convection (FM05-054) <u>Daniel Schmeling</u> , Johannes Bosbach, Claus Wagner, Germany |
| FM07: Flow instability and transition Chairs: Luca Brandt, Sweden Masato Nagata, Japan Room: Function Hall A | Exact solutions at the edge of turbulence (FM07-091) Alberto de Lozar, Marc Avila, Fernando Mellibovsky, Nicolas Roland, <u>Bjoern Hof</u> , Germany | Three-dimensional flow instabilities on disks of different aspect ratios (FM07-082) Sophie Goujon-Durand, <u>Tomasz Bobinski</u> , José E. Wesfreid, France | Three-dimensional finite-amplitude solutions in rotating Poiseuille flow (FM07-092) <u>Darren P. Wall</u> , Masato Nagata, Japan |
| FM15: Vortex dynamics Chairs: Tatiana Chaplina, Russia Jiezhi Wu, China Room: 202A+B | A point vortex model of singly-periodic four-vortex wake structures (FM15-048) <u>Saikat Basu</u> , Mark A. Stremler, USA | Experiments on vertical motions of rotating flows over variable topography (FM15-051) <u>Luis Zavala Sansón</u> , G. J. F. van Heijst, Mexico | Experimental study of synthetic jet vortex rings impinging on a wall (FM15-052) <u>Yang Xu</u> , Lihao Feng, Jinjun Wang, China |
| FS12 Education in mechanics Chairs: Wanlin Guo, China Ole Sigmund, Denmark Room: 203A+B | Weighting function selection problem in the Galerkin method (FS12-015) <u>Eero-Matti Salonen</u> , Reijo Kouhia, Rauno Holopainen, Finland | Toy models illustrating complex mechanical phenomena (FS12-016) <u>Keith Moffatt</u> , Tadashi Tokieda, UK | Challenges to present a postgraduate finite element course in structural mechanics at the university of Pretoria (FS12-018) Schalk Kok, <u>Daniel Nicolas Wilke</u> , South Africa |
| SM04: Elasticity Chairs: Victor Eremeyev, Germany Mikhail Guzev, Russia Room: 205A+B | Consistent beam theories (SM04-051) <u>Reinhold Kienzler</u> , Patrick Schneider, Germany | Stability of aneurysm solutions for a fluid-filled elastic membrane tube (SM04-054) Andrej T. Il'ichev, <u>Yibin Fu</u> , Russia | On the dispersion relation between nonlocal elasticity and lattice dynamics (SM04-055) <u>C. W. Lim</u> , G. Zhang, Hong Kong, China |
| SM03: Damage mechanics Chairs: Djimedo Kondo, France Keshi Zhang, China Room: 206A+B | Analytical relations for random fatigue of single damage variable models (SM03-031) <u>Elisha Rejovitzky</u> , Eli Altus, Israel | Nonlocal conditions for the transition from damage to a localized failure in granular and fibre-reinforced composites under quasistatic proportional and nonproportional loading (SM03-027) Alexey Vyacheslavovich Zaitsev, Anton Vladimirovich Kislitsyn, Yuriy Viktorovich Sokolkin, Russia | Simulation and validation of a concurrent fatigue crack growth model (SM03-028) <u>Zizi Lu</u> , Jifeng Xu, Yongming Liu, China |
| SM07: Impact mechanics and wave propagation Chairs: Narinder Kumar Gupta, India Tongxi Yu, Hong Kong, China Room: 208A+B | Design of shaped charge as oil well perforator (SM07-068) T. Elshenawy, <u>Q. M. Li</u> , UK | On the wave catching-up phenomenon in a two-layer nonlinearly elastic composite bar (SM07-067) <u>Shoujun Huang</u> , Huihui Dai, Zhen Chen, Dexing Kong, China | Impact deformation of functionally graded cellular solids (SM07-070) Changjian Shen, <u>Guoxing Lu</u> , Tongxi Yu, Singapore |
| SM06: Geophysics and geomechanics Chairs: Jacek Tejchman, Poland Antoinette Tordesillas, Australia Room: 209A+B | Unified peak shear strength behavior of interface shear test and direct shear test — new insights from dem simulations (SM06-035) <u>Jianfeng Wang</u> , Hong Kong, China | Two- and three-dimensional thermo-mechanical modeling of cenozoic lithospheric deformation in the Himalaya-Tibet-Pamir-Tien Shan (SM06-036) <u>Jens Tympel</u> , Stephan Sobolev, Germany | Dynamic effects during alternate infiltration and drainage of unsaturated granular media (hydraulic ratcheting) studied using the Lattice Boltzmann Method (SM06-026) <u>Alexander Scheuermann</u> , A. Sergio Galindo-Torres, M. Dorival Pedroso, Ling Li, J. David Williams, Australia |

| Session | 12:00 | 12:20 | 12:40 |
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| FM06: Drops, bubbles and multiphase flows Chairs: Shmuel Rubinstein, Israel Akira Rinoshika, Japan Room: Ballroom A | Variable topology boundary element method (VTBEM) for simulating underwater explosion (UNDEX) bubble (FM06-091) <u>Zhi Zong</u> , Li Zhou, Zhangrui Li, China | Drop evaporation on an isothermal or a diabatic solid surface (FM06-102) M. Ait Saada, S. Chikh, L. Tadriss, <u>S. Radev</u> , Bulgaria | |
| SM01: Biomechanics and biomaterials Chairs: Pasquale Ciarletta, France Jin Qian, China Room: Ballroom B | The structure and mechanical property of turtle shell (SM01-008) <u>Chengwei Wu</u> , Wei Zhang, Chenzhao Zhang, Zhen Chen, China | Effects of nano-hydroxyapatite and carbon nanotubes hybrid ratio on Ni-Co biological coating's mechanical properties and biocompatibility (SM01-047) <u>Xia Zhou</u> , Guohui Qu, Shangyu Song, China | |
| FM05: Convection Chairs: Wenxian Lin, China Quan Zhou, China Room: Ballroom C | Numerical investigation of local Kolmogorov scales in turbulent Rayleigh-Bénard convection (FM05-055) <u>Sebastian Wagner</u> , Olga Shishkina, Claus Wagner, Germany | A Lagrangian take on convective heat transfer (FM01-011) <u>M. F. M. Speetjens</u> , The Netherlands | Torsional oscillation of the large-scale circulation in turbulent thermal convection with varying Prandtl number (FM05-020) <u>Yichao Xie</u> , Ping Wei, Keqing Xia, Hong Kong, China |
| FM07: Flow instability and transition Chairs: Luca Brandt, Sweden Masato Nagata, Japan Room: Function Hall A | Inviscid instability of a stably stratified boundary layer (FM07-024) <u>Stéphane Le Dizès</u> , Julien Candelier, Christophe Milliet, France | Tracking of spatially localized solutions by a filtering method: application to the Swift-Hohenberg equation (FM14-033) <u>Toshiki Teramura</u> , Sadayoshi Toh, Japan | Excitation of Goertler-instability modes due to surface vibrations: theory and experiment (FM07-037) <u>Andrey Boiko</u> , Yury Nechepurenko, Andrey Ivanov, Yury Kachanov, Dmitry Mischenko, Russia |
| FS12 Education in mechanics Chairs: Wanlin Guo, China Ole Sigmund, Denmark Room: 203A+B | The concept of holding the international engineering mechanics contest (FS12-019) <u>Alexandr Shimanovsky</u> , Belarus | Effective methods of teaching vectors in university introductory mathematics (FS12-009) <u>Akinola P. Adegbola</u> , Layeni Olawanle P., Olagunju Michael A., Nigeria | |
| SM03: Damage mechanics Chairs: Djimedo Kondo, France Keshi Zhang, China Room: 206A+B | On coupling of multi- and transscale damage in hierarchical microstructure of solid (SM03-020) <u>Gang Qi</u> , Ming Fan, Jianyu Li, Shihai Cui, China | | |
| SM07: Impact mechanics and wave propagation Chairs: Narinder Kumar Gupta, India Tongxi Yu, Hong Kong, China Room: 208A+B | Dynamic responses of an elastic ring on viscoelastic foundation to external impact (SM07-066) Liming Yang, Fenghua Zhou, <u>Tongxi Yu</u> , Hong Kong, China | | |

Lunch: 13:00 – 14:00, Exhibition Hall 5, underground floor

| Session | 11:00 | 11:20 | 11:40 |
|---|---|---|--|
| FM14: Turbulence Chairs: Zhensu She, China Tomomasa Tatsumi, Japan Room: 207 | Numerical simulation of wall-bounded turbulent flows with linear effective viscosity model: drag reduction and new mechanistic insight (FM14-034) <u>Changfeng Li</u> , Fujun Guo, Yongchen Pan, Rui Wang, Bamin Khomami, China | Relaminarization of wall turbulence by high-pressure ramps at low Reynolds numbers (FM14-035) Kwonyul Song, Jovan Jovanović, Ahmed Al-Salaymeh, Cornelia Rauh, <u>Antonio Delgado</u> , Germany | Energy and helicity cascades in rotating turbulence (FM14-038) <u>Rodion Stepanov</u> , Russia |
| FS09: Mechanics of materials processing Chairs: Günter Radons, Germany Gabor Stepan, Hungary Room: 210A | Stability of the state-dependent delay model of turning with depth of cut variation (FS09-016, invited lecture) <u>Pankaj Wahi</u> , India | Injection moulding of polymers with micro and nano scale ridge and channel features (FS09-003) Nan Zhang, David J. Browne, <u>Michael D. Gilchrist</u> , Ireland | Transient convection-diffusion modelling of peak temperature in orthogonal cutting (FS09-008) <u>Timothy J. Burns</u> , Steven P. Mates, Richard L. Rhorer, Eric P. Whittenton, Debasis Basak, USA |
| FM08: Flow in thin films Chairs: Pierre Colinet, Belgium Rouslan Krechetnikov, USA Room: 210B | Landau-Levich flow visualization: revealing the flow topology responsible for the film thickening phenomena (FM08-013) Hans C. Mayer, <u>Rouslan Krechetnikov</u> , USA | Morphology and stability of free surface films of polymer blends (FM08-021) <u>Santiago Madruga</u> , Fathi Bribesh, Uwe Thiele, Spain | On two minimalist models for moving/evaporating contact lines without slip on a macroscopically dry homogeneous substrate (FM08-023) <u>Pierre Colinet</u> , Alexey Rednikov, Belgium |
| SM02: Contact and friction mechanics Chairs: Han Jiang, China Kun Zhou, Singapore Room: 211 | On the dynamics of frictional contact layers (SM02-040) Georg Ostermeyer, <u>Nils Perzborn</u> , Germany | A unified analysis of a micro-beam. droplet and cnt ring adhered on a substrate (SM02-004) <u>Jianlin Liu</u> , China | Simulation of dynamic contact behaviors of saturated porous media involving large deformation with the coupling convected particle domain interpolation method (SM02-037) <u>Yonggang Zheng</u> , Hongwu Zhang, Fei Gao, China |
| FS10: Porous media Charis: Xikui Li, China Guzel Bulgakova, Russia Room: 212A | Action micromechanism between gemini surfactant DNGs and core porous wall (FS10-017) <u>Chunyuan Gu</u> , Qinfeng Di, Xinliang Wang, Yichong Cheng, Weipeng Ding, Wei Gong, Renliang Zhang, China | Drained and undrained plane strain compression of porous rock (FS10-020) <u>Roman Makhnenko</u> , Joseph Labuz, USA | Large scale fluid and solid properties in the Taupo Volcanic Zone, New Zealand (FS10-023) <u>Graham J. Weir</u> , New Zealand |
| SM09: Mechanics of phase transformations Chairs: Sergio Turteltaub, The Netherlands Yubao Zhen, China Room: 212B | Shape memory alloys and collisions (SM09-002) Michel Frémond, <u>Michele Marino</u> , Italy | Interfacial energy effects in evolving martensitic microstructures (SM09-009) <u>Henryk Petryk</u> , Stanislaw Stupkiewicz, Poland | Phase transformations limit surfaces construction for elastic solids based on exact energy lower bounds (SM09-015) <u>Alexander B. Freidin</u> , Mikhail A. Antimonov, Andrey V. Cherkaev, Russia |
| SM14: Stability of structures Chairs: Oscar Lopez-Pamies, USA Rui Huang, USA Room: 213A | Snap-buckling instability of beams and shells (SM14-035) <u>Douglas P. Holmes</u> , Dominic Vella, Tarun Sinha, Howard A. Stone, USA | Localization and loss of macroscopic ellipticity in microstructured solids (SM14-016) <u>Nikolaos Triantafyllidis</u> , Maria Paola Santisi d'Avila, France | Buckling and crushing of expanded honeycomb (SM14-011) <u>Wen-Yea Jang</u> , Stelios Kyriakides, Taiwan, China |

| Session | 12:00 | 12:20 | 12:40 |
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| FM14: Turbulence Chairs: Zhensu She, China Tomomasa Tatsumi, Japan Room: 207 | A non-frozen flow model for pressure space-time correlations in turbulent shear flows (FM14-040) <u>Li Guo</u> , Guowei He, Xing Zhang, China | | |
| FS09: Mechanics of materials processing Chairs: Günter Radons, Germany Gabor Stepan, Hungary Room: 210A | Experimental identification of bi-stable parameter zones in milling processes (FS09-013) <u>Gabor Stepan</u> , Zoltan Dombovari, Hungary | | |
| SM02: Contact and friction mechanics Chairs: Han Jiang, China Kun Zhou, Singapore Room: 211 | Numerical solution of non-smooth multibody systems (SM02-001) <u>Friedrich Pfeiffer</u> , Germany | | |
| FS10: Porous media Chairs: Xikui Li, China Guzel Bulgakova, Russia Room: 212A | Coupled multiphase flow transpo RT in deformable rock with consideration of microbiology (FS10-026) <u>Xiaohui Chen</u> , Xikui Li, UK | | |
| SM09: Mechanics of phase transformations Chairs: Sergio Turteltaub, The Netherlands Yubao Zhen, China Room: 212B | Influence of texture on the effective response of multiphase steels (SM09-016) <u>Sergio Turteltaub</u> , Sourena Yadegari, Akke Suiker, The Netherlands | Volumetric phase transitions and cavitation in polymer gels (SM09-023) <u>Fernando P. Duda</u> , Angela C. Souza, Eliot Fried, Brazil | |
| SM14: Stability of structures Chairs: Oscar Lopez-Pamies, USA Rui Huang, USA Room: 213A | An efficient Hermite reproducing kernel meshfree method for buckling analysis of Kirchhoff plates (SM14-039) <u>Dongdong Wang</u> , Huikai Peng, China | | |

Lunch: 13:00 – 14:00, Exhibition Hall 5, underground floor

| Session | 14:00 |
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| Closing Lecture Chair: Norman Fleck, UK Room: Plenary Hall B | Entropic forces in the mechanics of solids <u>Lambert Ben Freund</u> , USA |

Coffee Break: 15:00 – 15:30, South Foyer, 4th floor

| Session | 15:30 | 16:30 |
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| Closing Ceremony Room: Plenary Hall B | | |