

25th International Congress of Theoretical and Applied Mechanics

*Milano, August 23-28, 2020
MiCo Congress Centre*

**ABSTRACT
SUBMISSION
OPENING
October 1, 2019**

Preliminary Program

under the auspices of



**POLITECNICO
MILANO 1863**



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SCIENTIFIC PROGRAMME

PLENARY LECTURERS

Opening Lecture:

BIO-INSPIRED NANOMECHANICS

Nicola Pugno

University of Trento

Closing Lecture:

RHEOLOGY OF DENSE GRANULAR SUSPENSIONS

Elisabeth Guazzelli

Senior scientist CNRS

Laboratoire Matière et Systèmes Complexes, Université de Paris, CNRS

SECTIONAL LECTURERS

Balakumar Balachandran

Department of Mechanical Engineering
University of Maryland, College Park, USA

Alessandro Bottaro

DICCA
Università di Genova, Italy

Antonio De Simone

The BioRobotics Institute
Scuola Superiore Sant'Anna, Pisa, Italy

Vikram Deshpande

Department of Engineering
University of Cambridge, United Kingdom

Frederic Dias

School of Mathematics and Statistics
University College, Dublin, Ireland

Xi-Qiao Feng

Department of Engineering Mechanics
Tsinghua University, Beijing, People's Republic of China

Genta Kawahara

Department of Mechanical Science and Bioengineering
Osaka University, Japan

Ellen Kuhl

Department of Mechanical Engineering
Stanford University, USA

Eric Lauga

Department of Applied Mathematics and Theoretical
Physics
University of Cambridge, United Kingdom

Jean-Baptiste Leblond

Institut Jean le Rond d'Alembert
Université Pierre et Marie Curie, France

Christian Njordson

Department of Mechanical Engineering
Technical University of Denmark, Denmark

Clarence Rowley

Department of Mechanical and Aerospace
Engineering
Princeton University, USA

Miles Rubin

Faculty of Mechanical Engineering
The Technion, Israel

Cameron Tropea

Fachgebiet Strömungslehre und Aerodynamik
TU Darmstadt, Germany

Roberto Verzicco

Department of Industrial Engineering
Università di Roma "Tor Vergata", Italy

Emmanuel Villermaux

IRPHE
Aix-Marseille Université, France

SCIENTIFIC PROGRAMME

MINI SYMPOSIA

1 • Modeling and controlling turbulent shear flows

Co-Chairs

Ivan Marusic

Department of Mechanical Engineering
University of Melbourne, Australia

Beverley McKeon

GALCIT
California Institute of Technology
Pasadena CA, USA

2 • Local mechanics of climate processes

Co-Chairs

Eberhard Bodenschatz

Max Planck Institute for Dynamics and Self
Organization

Goettingen, Germany

John Wettlaufer

Department of Physics
Yale University, New Haven CT, USA

3 • Biological fluid-structure interaction at the microscale

Co-Chairs

Prosenjit Bagchi

Department of Mechanical and Aerospace
Engineering
Rutgers University, New Brunswick NJ, USA

Anne-Virginie Salsac

Bioengineering Department
CNRS – Université de Technologie de Compiègne,
France

4 • Nonlinear dynamics for design

Co-Chairs

Remco Leine

Institute for Nonlinear Mechanics
University of Stuttgart, Germany

Stefano Lenci

Department of Civil and Building Engineering,
and Architecture
Polytechnic University of Marche, Ancona, Italy

5 • Mechanics of additive manufacturing

Co-Chairs

Ferdinando Auricchio

Department of Civil Engineering and Architecture
University of Pavia, Italy

Matthew Begley

Department of Mechanical Engineering
University of California
Santa Barbara CA, USA

6 • Mechanics of C-allotropic materials and structures

Co-Chairs

Julia Greer

Division of Engineering and Applied Science
California Institute of Technology
Pasadena CA, USA

Roberto Paroni

Department of Civil and Industrial Engineering
University of Pisa, Italy

SCIENTIFIC PROGRAMME

THEMATIC SESSIONS

Fluid Mechanics

FM01 • Biological Fluid Mechanics

Co-Chairs

Sunny Jung, Cornell University, USA
Sylvie Lorthois, IMFT, Toulouse, France

FM02 • Boundary Layers

Co-Chairs

Nikolay Nikitin, Lomonosov Moscow State University, Russia
Maurizio Quadrio, Politecnico di Milano, Italy

FM03 • Combustion and Flames

Co-Chairs

Bruno Denet, Aix-Marseille Université, France
Daniel Haworth, Pennsylvania State University, USA

FM04 • Compressible Flows

Co-Chairs

Sanjiva K. Lele, Stanford University, USA
XiYun Lu, University of Science and Technology of China, Hefei, China

FM05 • Convection

Co-Chairs

Lutz Lesshafft, Ecole Polytechnique, France
Detlef Lohse, University of Twente, Netherlands

FM06 • Drops, Bubbles and Interfaces

Co-Chairs

Andreas Prosperetti, University of Houston, USA
Emmanuel Villermaux, Aix-Marseille Université, France

FM07 • Multiphase and Particle-Laden Flows

Co-Chairs

Jose Gilberto Dalgre Filho, University of Campinas, Brazil
Roseanna Zia, Stanford University, USA

FM08 • Flow Instability and Transition

Co-Chairs

Marcello Augusto Faraco de Medeiros, University of Sao Paulo, Brazil
Alex Gelfgat, Tel Aviv University, Israel

FM09 • Thin Film Flows

Co-Chairs

Omar K. Matar, Imperial College, London, UK
Howard Stone, Princeton University, USA

FM10 • Geophysical and Environmental Fluid Dynamics

Co-Chairs

Nathalie Vriend, Cambridge University, UK
Jifu Zhou, Institute of Mechanics, Chinese Acad of Sciences, Beijing, China

FM12 • Micro- and Nano-fluidics

Co-Chairs

Amy Shen, Okinawa Institute of Technology, Japan
Minami Yoda, Georgia Tech, USA

FM13 • Non-Newtonian and Complex Fluids

Co-Chairs

Ole Hassager, Technical University of Denmark
Wenchang Tan, Peking University, China

FM14 • Computational Fluid Dynamics

Co-Chairs

George Karniadakis, Brown University, USA
Alfio Quarteroni, Politecnico di Milano, Italy

FM15 • Turbulence

Co-Chairs

Peter Frick, Perm State University, Russia
Martin Oberlack, Technische Universität Darmstadt, Germany

FM16 • Vortex Dynamics

Co-Chairs

Carlo Barenghi, Newcastle University, UK
Jianjun Tao, Peking University, Beijing, China

FM17 • Waves in Fluids

Co-Chairs

Maurizio Brocchini, Università Politecnica delle Marche, Ancona, Italy
Thierry Dauxois, Ecole Normale Supérieure de Lyon, France

FM18 • Electro- and Magneto-Hydrodynamics (Co-Sponsored by HYDROMAG)

Co-Chairs

Alban Potherat, Coventry University, UK
Laurent Davoust, Institut polytechnique de Grenoble, France

SCIENTIFIC PROGRAMME

THEMATIC SESSIONS

Solid Mechanics

SM01 • Biomechanics and Biomaterials

Co-Chairs

Ellen Arruda, University of Michigan, Ann Arbor, USA

Paolo Bisegna, Università degli Studi di Roma Tor Vergata, Italy

SM02 • Tribology - Contact and Friction

SM03 • Damage Mechanics

Co-Chairs

Claudia Comi, Politecnico di Milano, Italy

Jean-Francois Molinari, EPFL, Switzerland

SM04 • Elasticity

Co-Chairs

Reinhold Kienzler, Universität Bremen, Germany

Tom Pence, Michigan State University, USA

SM05 • Fracture Mechanics

Co-Chairs

Chad Landis, University of Texas at Austin, USA

Veronique Lazarus, ENSA Paris Tech, France

SM06 • Geophysics and Geomechanics

Co-Chairs

Dimitri Komatitsch, Aix-Marseille Université, France

Claudio Di Prisco, Politecnico di Milano, Italy

SM07 • Impact Mechanics and Wave Propagation

Co-Chairs

Kikuo Kishimoto, Tokyo Institute of Technology, Japan

Daniel Rittel, Technion, Haifa, Israel

SM08 • Multi-component, Composites and Hierarchical Materials

Co-Chairs

Pedro Camanho, University of Porto, Portugal

Erasmus Carrera, Politecnico di Torino, Italy

SM09 • Phase Transformations and Thermomechanical Phenomena

Co-Chairs

Paolo Biscari, Politecnico di Milano, Italy

Stanislaw Stupkiewicz, IPPT, Warsaw, Poland

SM10 • Sizescale Effects in Materials

Co-Chairs

Nguyen Xuan Hung, Ho Chi Minh City University of Technology, Vietnam

Pradeep Sharma, University of Houston, USA

SM11 • Multibody and Vehicle Dynamics

Co-Chairs

Sebastian Stichel, KTH, Stockholm, Sweden

Alessandro Tasora, University of Parma, Italy

SM12 • Nanostructures and MEMS

Co-Chairs

Attilio Frangi, Politecnico di Milano, Italy

Slava Krylov, Tel Aviv University, Israel

SM13 • Plasticity, Viscoplasticity and Creep

Co-Chairs

Odd Sture Hopperstad, Norwegian University of Science and Engineering, Trondheim, Norway

Pedro Ponte Castañeda, University of Pennsylvania, USA, Philadelphia

SM14 • Stability and Instability of Materials and Structures

Co-Chairs

Alexander Belyaev, Polytechnical University of St. Petersburg, Russia

Nicolas Triantafyllides, Ecole Polytechnique, France

SM15 • Computational Solid Mechanics

Co-Chairs

Andreas Menzel, Lund, Sweden

Stefanie Reese, Aachen University, Germany

SM16 • Vibrations and Control of Structures

Co-Chairs

Vikram Pakrashi, University College Dublin, Ireland

Jerzy Warminski, Lublin University of Technology, Poland

SM17 • Soft Materials and Extremely Deformable Structures

SM18 • Metamaterials

Co-Chairs

Richard Craster, Imperial College, London, UK

Vincent Laude, FEMTO-ST, Besancon, France

SCIENTIFIC PROGRAMME

THEMATIC SESSIONS

Solid/Fluid Mechanics

FS01 • Acoustics

Co-Chairs

Linda Franzoni, Duke University, Durham, USA

Peter Jordan, University of Poitiers, France

FS02 • Exascale Computing

Co-Chairs

Dan Meiron, Caltech, Pasadena, USA

Philipp Schlatter, KTH, Stockholm, Sweden

FS03 • Experimental Methods in Mechanics

Co-Chairs

FLUIDS:

Christian Kaehler, Universität der Bundeswehr München, Germany

Jerry Westerweel, TU Delft, Netherlands

SOLIDS:

Francois Hild, LMT Cachan, France

Michael Sutton, University of South Carolina, USA

FS04 • Nonlinear Dynamics and Pattern Formation

FS05 • Porous Media

Co-Chairs

Ruben Juanes, Massachusetts Institute of Technology, USA

Michel Quintard, IMFT, Toulouse, France

FS06 • Fluid Structure Interactions

Co-Chairs

Marco Amabili, Montreal, Canada

Carlo Bottasso, Technische Universität, München, Germany

FS07 • Smart Actuating Systems

Co-Chairs

Huiling Duan, Peking University, China

Marie-Caroline Jullien, Université de Rennes, France

FS08 • Granular Materials and Flows

Co-Chairs

Pascale Aussillous, Aix-Marseille Université, France

Diego Berzi, Politecnico di Milano, Italy

FS09 • Foams and Cellular Materials

Co-Chairs

Chang-Qing Chen, Tsinghua University, Beijing, China

Sascha Hilgenfeldt, University of Illinois at Urbana-Champaign, USA

FS10 • Optimization for Solids and Fluids

Co-Chairs

Matteo Bruggi, Politecnico di Milano, Italy

James Guest, Johns Hopkins University, Baltimore, USA

FS11 • Inverse problems in fluid and solid mechanics

FS12 • Education in Mechanics

Co-Chairs

Michael Gilchrist, University College Dublin, Ireland

Quanshui Zheng, Tsinghua University, Beijing, China

IMPORTANT DEADLINES

Abstract submission & Registration opening	October 1, 2019
Abstract submission closing	January 10, 2020
Early bird Registration deadline	April 30, 2020
Regular Registration deadline	June 30, 2020
Late & On-site Registration	from July 1, 2020

ORGANIZING SECRETARIAT



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