

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**



www.ictam2020.org

LOCAL ORGANIZING COMMITTEE

President

Alberto Corigliano

Politecnico di Milano

Secretary General

Umberto Perego

Politecnico di Milano

AIMETA Representative

Carlo Cinquini

Università di Pavia

Ferdinando Auricchio, Università di Pavia

Paolo Biscari, Politecnico di Milano

Carlo Bottasso, Politecnico di Milano/ Technische Universität München

Annalisa Buffa, CNR-IMATI- Pavia / Ecole Polytechnique Fédérale de Lausanne

Federico Cheli, Politecnico di Milano

Massimiliano Cremonesi, Politecnico di Milano

Gabriele Dubini, Politecnico di Milano

Roberto Frassine, Politecnico di Milano

Aldo Ghisi, Politecnico di Milano

Alberto Guadagnini, Politecnico di Milano

Carlo Lovadina, Università di Milano (formerly Università di Pavia)

Anna Pandolfi, Politecnico di Milano

Paolo Pennacchi, Politecnico di Milano

Maurizio Quadrio, Politecnico di Milano

Alfio Quarteroni, Politecnico di Milano / Ecole Polytechnique Fédérale de Lausanne

Alessandro Reali, Università di Pavia

Valentina Zega, Politecnico di Milano

EXECUTIVE COMMITTEE OF THE IUTAM CONGRESS COMMITTEE - <https://iutam.org/>

Alberto Corigliano

President of the ICTAM 2020 Congress

Politecnico di Milano

Nadine Aubry

President IUTAM and of the Congress Committee

Northeastern University
Boston, MA, USA

Robert M. McMeeking

Secretary of the Congress Committee

University of California Santa Barbara,
USA

Leslie Banks-Sills

Tel Aviv University, Israel

Bruno Eckhardt

Philipps-Universität
Marburg, Germany

Jacques Magnaudet

Institut de Mecanique des Fluides
de Toulouse, France

Gabor Stepan

Budapest University of Technology
and Economics, Hungary

SCIENTIFIC PROGRAMME

PLENARY LECTURERS

Opening Lecture:

BIO-INSPIRED NANOMECHANICS

Nicola Pugno

Department of Civil, Environmental and Mechanical Engineering
Università di Trento, Italy

Closing Lecture:

RHEOLOGY OF DENSE GRANULAR SUSPENSIONS

Elisabeth Guazzelli

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

Department of Civil, Chemical and Environmental
Engineering
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 Niordson

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
Technische Universität Darmstadt, Germany

Roberto Verzicco

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

Emmanuel Villermaux

Institut de Recherche sur le Phénomène Hors
Equilibre
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

Graduate Aerospace Laboratories
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
Università Politecnica delle Marche, Ancona, Italy

5 • Mechanics of additive manufacturing

Co-Chairs

Ferdinando Auricchio

Department of Civil Engineering and Architecture
Università di 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
Università di 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 Lesshaft, 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 DalFre 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
Alexander 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

FM11 • Low-Reynolds-number Flows and Suspensions

Co-Chairs

Sebastien Michelin, Ecole Polytechnique, France
Amy Tsai, University of Alberta, Canada

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, Institute of Continuous Media Mechanics, Perm, 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

SCIENTIFIC PROGRAMME

THEMATIC SESSIONS

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

Co-Chairs

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

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

Co-Chairs

Paolo Pennacchi, Politecnico di Milano, Italy
Mitjan Kalin, University of Ljubljana, Slovenia

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, ENSTA ParisTech, France

SM06 • Geomechanics and Geophysics

Co-Chairs

Tomasz Hueckel, Duke University, USA
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, Università di 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

SCIENTIFIC PROGRAMME

THEMATIC SESSIONS

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

Co-Chairs

Katia Bertoldi, Harvard University, USA
Pedro Reis, EPFL, Switzerland

SM18 • Metamaterials

Co-Chairs

Richard Craster, Imperial College, London, UK
Vincent Laude, FEMTO-ST, Besancon, France

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

Co-Chairs

Laurette Tuckerman, ESPCI Paris, France

Jean Luc Thiffeault, U. Wisconsin, USA

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

Huilong 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

Co-Chairs

Miguel Bessa, TU Delft, The Netherlands
Vikram Deshpande, Cambridge University, UK

FS12 • Education in Mechanics

Co-Chairs

Michael Gilchrist, University College Dublin, Ireland
Quanshui Zheng, Tsinghua University, Beijing, China

IMPORTANT DATES

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



AIM GROUP INTERNATIONAL

Milan Office

Via G. Ripamonti 129

20141 Milano - Italy

phone: +39 02566011

e-mail: ictam2020@aimgroup.eu

web: www.ictam2020.org