ICCM2018

9th International Conference on Computational Methods

Rome, Italy
August **6**th-**10**th 2018

Chairman: **Patrizia Trovalusci**
(Sapienza University of Rome, Italy)

Honorary Chairman: **Gui-Rong Liu**
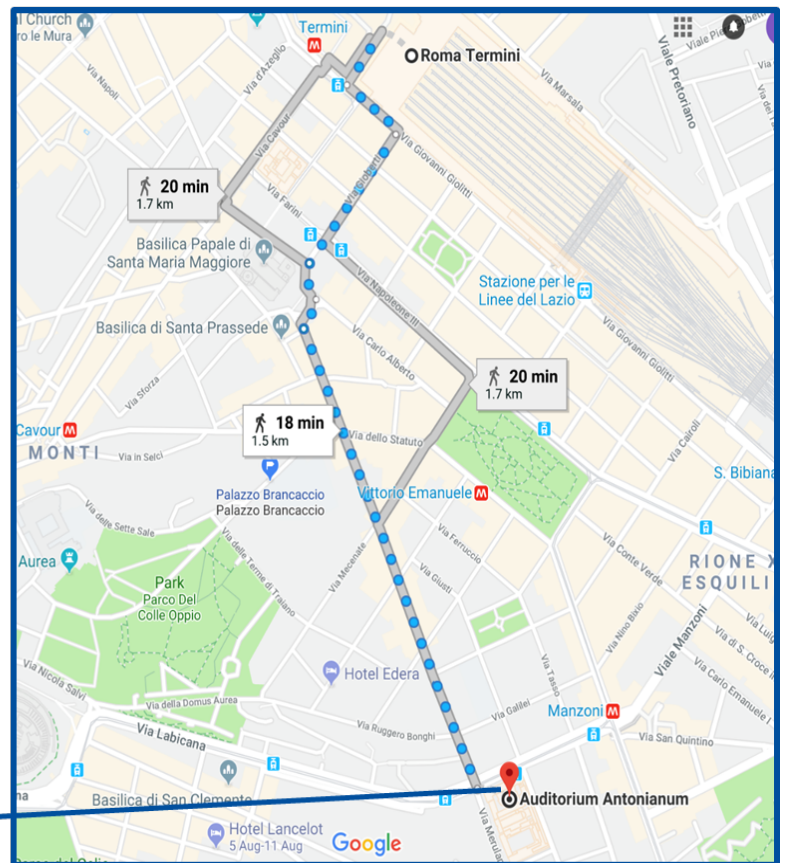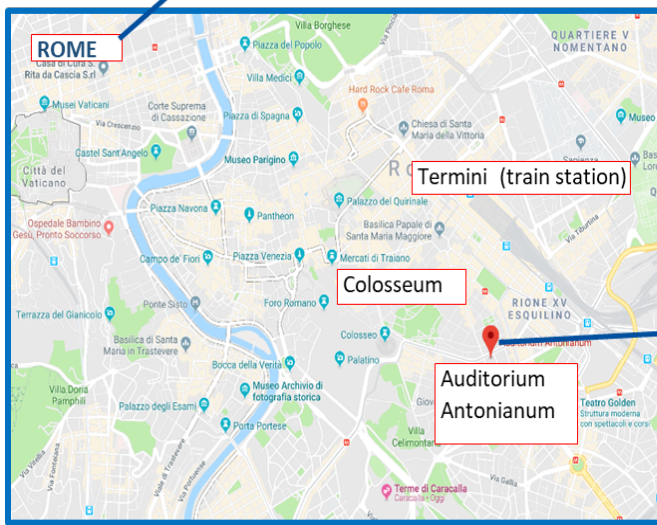(University of Cincinnati, OH, USA)

under the auspices of

SAPIENZA
UNIVERSITÀ DI ROMA
DIPARTIMENTO DI INGEGNERIA
STRUTTURALE E GEOTECNICA

AIMETA
Associazione Italiana di
Meccanica Teorica e Applicata

ABOUT ROME

Rome is the capital city of Italy. Rome also serves as the capital of the Lazio region. With 2,872,800 residents in 1,285 km2 (496.1 sq mi) it is also the country's most populated city. It is the fourth-most populous city in the European Union by population within city limits. It is the centre of the Metropolitan City of Rome, which has a population of 4.3 million residents. Rome is located in the central-western portion of the Italian Peninsula, within Lazio (Latium), along the shores of the Tiber. The Vatican City is an independent country inside the city boundaries of Rome, the only existing example of a country within a city: for this reason Rome has been often defined as capital of two states.

CONFERENCE VENUE

ICCM2018 will be held in the **Auditorium Antonianum**, Viale Manzoni, 1 – 00185 Roma, Italy.

- Plenary Lectures will be held every day at the Auditorium.
- All other sessions will be in S. Francesco, S. Bernardino, Jacopone, Michelangelo, Caravaggio and Bernini rooms
- Conference Banquet will be at **Palazzo Brancaccio** (between Roma Termini and Auditorium Antonianum, please refer to the map on page 2 and the description on page 39).

0. Auditorium (basement, level -1)

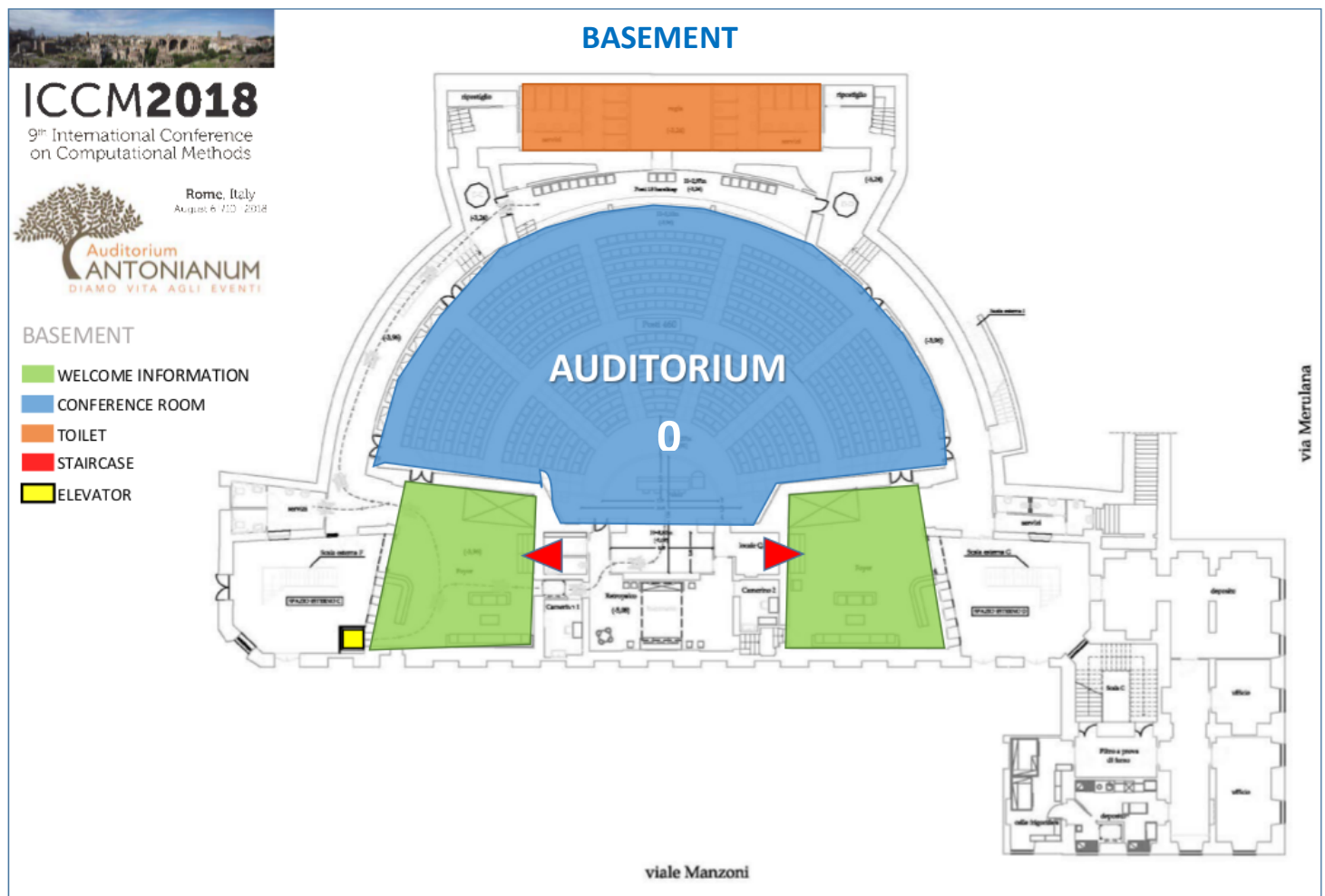*1. S. Francesco* (ground floor, level 0)

2. S. Bernardino (ground floor, level 0)
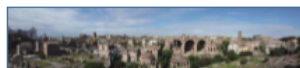
3. Jacopone (ground floor, level 0)

4. Michelangelo, Room A (first floor, level 1)

5. Caravaggio, Room B (first floor, level 1)

6. Bernini, Room C (first floor, level 1)

ICCM**2018**

9th International Conference
on Computational Methods

Rome, Italy
August 6 -10 - 2018

Auditorium
ANTONIANUM
DIAMO VITA AGLI EVENTI

GROUND FLOOR

- ▮ WELCOME INFORMATION
- ▮ CONFERENCE ROOM
- ▮ TOILET
- ▮ STAIRCASE
- ▮ ELEVATOR
- ▮ CAFE
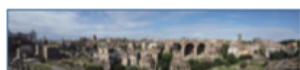
2 S. BERNARDINO DA SIENA

3 JACOPONE DA TODI

1 S. FRANCESCO

CAFE

viale Manzoni

FIRST FLOOR

ICCM**2018**

9th International Conference
on Computational Methods

Rome, Italy
August 6 -10 - 2018

Auditorium
ANTONIANUM
DIAMO VITA AGLI EVENTI

FIRST FLOOR

- ▮ CONFERENCE ROOM
- ▮ TOILET
- ▮ STAIRCASE

6 BERNINI

4 MICHELANGELO

5 CARAVAGGIO
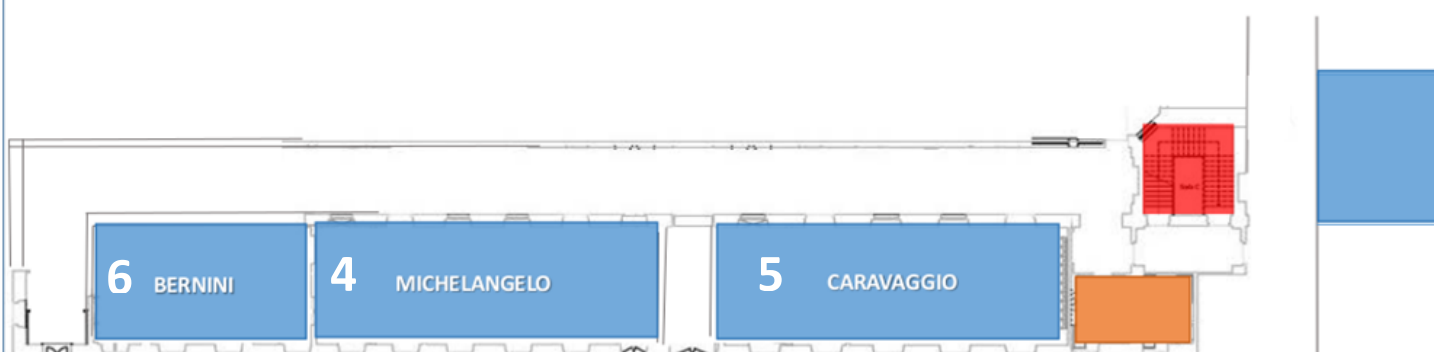
1. WELCOME MESSAGE

Dear Colleagues and Friends,

On behalf of the organizing committee and the co-chairs, we would like to welcome you to the 9th *International Conference on Computational Methods* (ICCM2018) at the Auditorium Antonianum, Rome, Italy, between August 6th and 10th, 2018. The conference aims at providing an international forum for scholars, researchers, industry practitioners, engineers and graduate and undergraduate students to promote exchange and disseminate recent findings on both contemporary and traditional subjects in computational methods, numerical modeling and simulation, and their applications in science and engineering. It accommodates presentations on a wide range of topics to facilitate interdisciplinary exchange of ideas in science, engineering and allied disciplines, and helps to foster collaborations.

Computational Modelling and Simulation are fundamental subjects in engineering and sciences. They can be applied to many of the primary engineering disciplines, including Aerospace, Bio-medical, Civil, Chemical, Mechanical, and Materials Engineering among others. Computational Modeling and Simulation covers a broad range of research areas, from conventional structural and mechanical designs, failure analysis, dynamic and vibration analysis, and fluid mechanics up to cutting-edge computational mechanics, nano-micro mechanics, multiscale mechanics, coupled multi-physics problems and novel materials. This is reflected in the variety of fields featured in the conference topics.

The genesis of the ICCM series dates back to 2004, when the first ICCM2004 conference was held in Singapore founded and chaired by Professor Gui-Rong Liu, followed by ICCM2007 in Hiroshima, Japan, ICCM2010 in Zhangjiajie, China, ICCM2012 in Gold Coast, Australia, ICCM2014 in Cambridge, UK, and ICCM2015, Auckland, New Zealand, ICCM2016, Berkeley, California, USA, ICCM2017, Guilin, Guangxi, China. The present ICCM conference in Rome, Italy encompasses about 330 oral presentations organized in 64 Mini-Symposia and general sessions, including 3 Plenary Lectures, 14 Thematic Plenary Lectures, and several Keynotes.

The ICCM conference is unique in the sense that it showcases the current developments and trends in the general topic of Computational Methods and their relationship to global priorities in science and engineering. We would like to express our gratitude for the contributions of all ICCM2018 participants and presenters at this international event. We gratefully acknowledge the contributions from the International Scientific Committee, Mini-Symposium Organizers, and expert reviewers and volunteers for their efforts and assistance in the organization. Special thanks go to Dr. Nicholas Fantuzzi for his efficient and clever assistance to the scientific organization of the Conference and his patient handling of bureaucratic issues, to the volunteers of the Local Staff and to Ms. Joanne Wang, Conference Manager, for her yearlong management of the entire conference, technical support and communication to all the participants, authors and reviewers.

Finally, we would like to warmly thank you for your contribution in making ICCM2018 in Rome a very prominent scientific event that would become a special occasion to strengthen the bridge between West and East in our worldwide community for computational methods.

We are looking forward to your participation and continued engagement for the future ICCM conferences.

Professor Patrizia Trovalusci	**Professor Gui-Rong Liu**
Conference Chairman, ICCM2018	Honorary Chairman, ICCM2018
Sapienza, University of Rome	University of Cincinnati

2. CITATION OF PAPERS PRESENTED IN THIS CONFERENCE

Papers in these proceedings may be identically cited in the following manner:
Author names, Paper title, Proceedings of the 9th International Conference on Computational Methods, 6th – 10th August 2018, Rome, ScienTech Publisher, Paper ID (ISSN 2374-3948, online).

3. CONFERENCE DETAILS

The ICCM2018 will be held at the Auditorium Antonianum in Rome, Italy.
Address: Viale Manzoni, 1 – 00185 Roma, Italy, http://www.auditoriumantonianum.it/

Instructions for chairs and presenters
Presentation Time: Plenary Lecture, 45 minutes; Thematic Plenary Lecture, 30 minutes; Keynote lectures, 20 minutes; all other Presentations, 15 minutes. The presentation time includes presentation and Q&A. It is advisable to give 5 minutes for Q&A. The conference program is fully packed. Please stick to the program to facilitate movement among sessions.

Instructions for oral presenters
A data projector and a computer are provided in each room. Please bring your file on a USB stick to the room of your presentation during the break before your session, or 30 minutes before the start of the day's presentations. You may also use your own laptop. A volunteer in the room will help you to load your presentation file.

Name tags: Name tags are required for entry to all conference events. Please wear them at all times.

Free Wifi connection: Please contact the registration desk for having details regarding the wifi.

Registration/Information desk
The registration desk will be at the entrance of the Auditorium Antonianum will be open as scheduled in the Overall Program (Section 5, Page 9).

Catering

Coffee breaks for all mornings and afternoons, lunches for all the presentation days 7th-9th August, a welcome reception on the pre-conference day (6th August) are included for all registered participants. Banquet dinner at Palazzo Brancaccio on 9th August if not included in your registration fee has to be paid separately.

Welcome Reception
All registered participants are cordially invited to the Welcome Reception hosted by Conference Chairmen. The Welcome Reception will be held at the Auditorium Antonianum from 18:00 to 20:00 on 6th August 2018. The reception will provide a unique networking opportunity for the participants and will enable all to become acquainted with colleagues and invited speakers from all around the world.

Conference Banquet
The banquet dinner will be held from 19:00 to 23:00 on 9th August 2018 at
Palazzo Brancaccio (a few minutes walking distance from the conference venue)
Viale del Monte Oppio, 7, 00184 Roma RM; https://www.palazzobrancaccio.net
Tel. +39 06 4873177; Email: palazzobrancaccio@palazzobrancaccio.com

4. ORGANIZATION COMMITTEE

Chairman: Professor Patrizia Trovalusci, Sapienza University of Rome, Italy.

Honorary Chairman: Professor Gui-Rong Liu, University of Cincinnati, USA

International Co-Chairs

Raj Das (RMIT University Melbourne, Australia)
Nasr Ghoniem (University of California at Los Angeles, USA)
Qing Li (University of Sydney, Australia)
Xikui Li (Dalian University of Technology, China)
Martin Ostoja-Starzewski (University of Illinois at Urbana Champaign, USA)
Tomasz Sadowski (Technical University of Lublin, Poland)

Local Co-Chairmen

Ferdinando Auricchio (University of Pavia, Italy)
Fernando Fraternali (University of Salerno, Italy)
Luigi Gambarotta (University of Genova, Italy)
Stefano Lenci (Marche Polytechnic University, Italy)
Walter Lacarbonara (Sapienza University of Rome, Italy)
Raimondo Luciano (University of Cassino, Italy)

Anna Pandolfi (Politecnico of Milan, Italy)
Antonina Pirrotta (University of Palermo, Italy)
Alessandro Reali (University of Pavia, Italy)
Nicola Luigi Rizzi (University of Roma Tre, Italy)
Giuseppe Rega (Sapienza University of Rome, Italy)
Elio Sacco (University of Naples Federico II, Italy)
Giorgio Zavarise (Politecnico of Turin, Italy)

International Organizing Committee

Daniela Addessi (Sapienza University of Rome, Italy)
Elena Benvenuti (University of Ferrara, Italy)
Carlo Callari (University of Molise, Italy)
Rossana Dimitri (University of Salento, Italy)
Vincenzo Gattulli (Sapienza University of Rome, Italy)

Leon Mishnaevsky (Technical University of Denmark, Danmark)
Mahmood Jabareen (Technion - Israel Institute of Technology, Israel)
Francesco Tornabene (University of Bologna, Italy)
Giuseppe Vairo (Tor Vergata University of Rome, Italy)

Secretary General

Nicholas Fantuzzi (University of Bologna, Italy)

Local Organizing Committee

Patrizia Trovalusci, Nicholas Fantuzzi, Emanuele Reccia, Marco Pingaro, Marco Pepe, Ada Amendola

Local Staff

Roberto Panei, Alessandro Tinelli, Anna Irene Del Monaco,

Ada Amendola, Maria Laura De Bellis, Mariella De Piano, Giorgia Di Gangi, Paolo Di Re, Cristina Gatta, Lorenzo Leonetti, Mariacarla Nocera, Marco Pepe, Marco Pingaro, Emanuele Reccia, Marialuigia Sangirardi, Valeria Settimi, Michela Talò

Local Secretariat: Com-it (Salerno, Italy)

International Scientific Advisory Committee

Addessi Daniela (Italy)
Andrade Jose (USA)
Auricchio Ferdinando (Italy)
Benvenuti Elena (Italy)
Birken Philipp (Sweden)
Bui Tinh Quoc (Japan)
Callari Carlo (Italy)
Chen Bin (China)
Chen Chuin-Shan David (Taiwan)
Chen Jeng-Tzong (Taiwan)
Chen Lei (USA)
Chen Shaohua (China)
Chen Zhen (USA)
Cheng Yuan (Singapore)
Chisari Corrado (UK)
Colaco Marcelo (Brazil)
Cui Fangsen (Singapore)
Das Raj (Australia)
Dimitri Rossana (Italy)
Dulikravich George (USA)
Effenhauser Carlo (Brazil)
Fantuzzi Nicholas (Italy)
Fraternali Fernando (Italy)
Fuschi Paolo (Italy)
Gambarotta Luigi (Italy)
Gan Yixiang (Australia)
Gao Xiaowei (China)
Gattulli Vincenzo (Italy)
Geers M.G.D. (Netherlands)
Gerasimov Alexander (Russia)
Ghoniem Nasr (USA)
Ghosh Somnath (USA)
Greco Fabrizio (Italy)
Gu Yuantong (Australia)
Guan Zhongwei (UK)
Guo Wanlin (China)
Hagihara Seiya (Japan)
Hirose Sohichi (Japan)
Hou Shujuan (China)
Huang Yu (China)
Huang Zheng-Ming (China)
Jabareen Mahmood (Israel)
Jacobs Gustaaf (USA)
Jiang Chao (China)
Jin Feng (China)
Kanayama Hiroshi (Japan)
Kang Zhan (China)
Khennane Amar (Australia)
Khoo Boo-Cheong (Singapore)
Khurram Rooh (Saudi Arabia)
Koh Soojin Adrian (Singapore)
Koshizuka Seiichi (Japan)
Kougioumtzoglou Ioannis (USA)
Lacarbonara Walter (Italy)
Lee Chin-Long (New Zealand)
Lee Ik-Jin (South Korea)
Leitao Vitor (Portugal)
Lenci Stefano (Italy)

Leo Hwa Liang (Singapore)
Li Chenfeng (UK)
Li Eric Quanbing (Hong Kong)
Li Hua (Singapore)
Li Qing (Australia)
Li Wei (China)
Li Xikuili (China)
Li Yan (USA)
Linder Christian (USA)
Liu Moubin (China)
Liu Yan (China)
Liu Yijun (USA)
Liu Yinghua (China)
Liu Zhaomiao (China)
Lu Weizhen Jane (Hong Kong)
Luciano Raimondo (Italy)
Luo Zhen (Australia)
Ma Qingwei (UK)
Macorini Lorenzo (UK)
Manzari Majid (USA)
Masiani Renato (Italy)
Matsubara Hitoshi (Japan)
Miller Karol (Australia)
Misnhaewsky Leon (Denmark)
Nagashima Toshio (Japan)
Natarajan Sundararajan (India)
Ng Alex (Australia)
Nithiarasu Perumal (UK)
Niu Yang-Yao (Taiwan)
Nogueira Xess (Spain)
Noto Francesco (Italy)
Ogino Masao (Japan)
Onishi Yuki (Japan)
Oudjene Marc (France)
Packo Pawel (Poland)
Pandolfi Anna (Italy)
Paolone Achille (Italy)
Papadrakakis Manolis (Greece)
Perego Umberto (Italy)
Picu Catalin R. (USA)
Pirrotta Antonina (Italy)
Popp Alexander (Germany)
Prakash Jagdish (Botswana)
Qin Qinghua (Australia)
Reali Alessandro (Italy)
Rebielak Janusz (Poland)
Reddy Daya (South Africa)
Rizzi Nicola Luigi (Italy)
Sacco Elio (Italy)
Sadowsky Tomasz (Poland)
Saitoh Takahiro (Japan)
Sakai Mikio (Japan)
Sarler Bozidar (Slovenia)
Shen Lian (USA)
Shioya Ryuji (Japan)
Shu Chang (Singapore)
Sibanda Precious (South Africa)
Siegfried Schmauder (Germany)

Skelton Robert E. (USA)
Sladek Vladimir (Slovakia)
Starzewski Martin Ostoja (USA)
Stefanou George (Greece)
Sun Waiching (USA)
Sweilam Nasser Hassan (Egypt)
Tadano Yuichi (Japan)
Tan B. C. Vincent (Singapore)
Tanaka Satoyuki (Japan)
Tian Rong (China)
Tian Zhaofeng (Australia)
Toklu Cengiz (Turkey)
Tornabene Fracesco (Italy)
Trovalusci Patrizia (Italy)
Tsubota Ken-Ichi (Japan)
Vairo Giuseppe (Italy)
Wan Decheng (China)
Wang Cheng (China)
Wang Hu (China)
Wang Lifeng (China)
Wang Xianqiao (USA)
Wang Yuesheng (China)
Wang Yunzhi (USA)
Wu Hengan (China)
Xiao Feng (Japan)
Xiao Jinyou (China)
Yang Qingsheng (China)
Yang Richard Chunhui (Australia)
Yang Zhenjun (China)
Yao Jianyao (China)
Ye Hongling (China)
Ye Wenjing (Hong Kong)
Yeo Jingjie (Singapore)
Yosibash Zohar (Israel)
Yu Chengxiang Rena (Spain)
Yvonnet Julien (France)
Zeidan Dia (Jordan)
Zelepugin Sergey (Russia)
Zhang Chuanzeng (German)
Zhang Guiyong (China)
Zhang Jian (China)
Zhang Liangchi (Australia)
Zhang Lihai (Australia
Wang Jie (China)
Zhang Xiong (China)
Zhang Zhao (China)
Zhou Kun (Singapore)
Zhuang Zhuo (China

5. PROGRAM OVERVIEW

Overall Conference Program

ICCM2018, 6th-10th August 2018

Date	Time	Conference Program
Day 0 August 6th (Monday)	16:00-18:00	On site Registration
	18:00-20:00	**Welcome Reception**
Day 1 August 7th (Tuesday) **Day 2** August 8th (Wednesday) **Day 3** August 9th (Thursday)	8:15-18:00 8:45-18:00 8:45-13:00	On Site Registration
Day 1 August 7th (Tuesday)	**8:30-9:00**	**Opening Ceremony**
Day 1 August 7th (Tuesday) & **Day 2** August 8th (Wednesday)	**9:00-9:45**	**Plenary Lecture**
	9:45-10:45	**Thematic Plenary Lectures**
	10:45-11:15	Morning Coffee/Tea
	11:15-12:50	**Parallel Sessions**
	12:50-14:00	Lunch
	14:00-15:35	**Parallel Sessions**
	15:35-16:05	Afternoon Coffee/Tea
	16:05-18:00	**Parallel Sessions**
	20:00-23:00	Forums Events
Day 3 August 9th (Thursday)	**9:00-9:45**	**Plenary Lecture**
	9:45-10:45	**Thematic Plenary Lectures**
	10:45-11:15	Morning Coffee/Tea
	11:15-12:50	**Parallel Sessions**
	12:50-14:00	Lunch
	14:00-15:35	**Parallel Sessions**
	15:35-16:05	Afternoon Coffee/Tea
	16:05-18:00	**Parallel Sessions**
	19:00-23:00	Banquet
Day 4 August 10th (Friday)	8:30-9:00	Closing Ceremony
	9:00-11:00	Visit to *Sapienza* Campus Free discussions & meetings

6. PLENARY, THEMATIC PLENARY AND MINISYMPOSIA

Plenary Lectures (PL)

Paulo B. Lourenço, University of Minho, Portugal
Computational Applications in Masonry Structures: From the Mesoscale to the Super-Large / Super-Complex

Somnath Ghosh, Johns Hopkins University, MD, USA
A Computational Multiscale Framework for Coupled Transient Electromagnetic-Mechanical Phenomena for Antenna and Sensors

Schmauder Siegfried, University of Stuttgart, IMWF, Germany
Multiscale Simulation of Metals from Atoms to Components

Thematic Plenary Lectures (TPL)

Jose Andrade, California Institute of Technology, CA, USA
Is the Discrete Element Method Predictive?

Fangsen Cui, Institute of High Performance Computing, A-Star, Singapore
Computational Device Mechanics – the Design and Computation in Acoustics and Biomechanics

Raj Das, RMIT University, Melbourne, Australia
Multiscale Damage Modelling of Sustainable Composites

Fernando Fraternali, University of Salerno, Italy
On the Dynamics of Highly Nonlinear Lattice Materials

Xiao-Wei Gao, Dalian University of Technology, China
A New Meshfree Method: Free Element Collocation Method (FECM)

Nasr Ghoniem, University of California LA, USA
Multiphysics-Multiscale Modeling of Severe-Environment Materials

Hua Li, Nanyang Technological University, Singapore
A Multiphysics Computational Modeling of Smart Soft Matters

Majid Manzari, The George Washington University, USA
Verification and Validation of Numerical Methods in Geotechnical Earthquake Engineering

Catalin R. Picu, Rensselaer Polytechnic Institute Troy, NY, USA
Structure and Mechanical Behavior of Self-Organized Fibrous Materials

Giuseppe Rega, Sapienza University of Rome, Italy
Computational Issues in the Nonlinear Dynamics and Control of Macro/Micro-Mechanics

Elio Sacco, University of Naples Federico II, Italy
Computational Modeling of Masonry Structures

Robert E. Skelton, Texas A&M University, USA
Building Tensegrity Structures in Space

Wai-Ching Sun, Columbia University, NY, USA
A Triple-Scale Discrete-Continuum Coupling Method for Path-Dependent Porous Media Enhanced by Recurrent and Recursive Deep Learning

Gianni Royer Carfagni, University of Parma, Italy
Weight is a Potential Motion. The Analysis of Vaulted Structures with a Regularized Non-Smooth-Contact-Dynamic Approach

Mini-Symposium (MS) Titles and Organizers

MS	Mini-symposium (MS) Title	Organizers
MS-100	General Papers	Patrizia Trovalusci, Sapienza University of Rome Gui-Rong Liu, University of Cincinnati
MS-000	Theory and Formulation for Novel Computational Methods	Gui-Rong Liu, University of Cincinnati
MS-001	Multiscale and Multiphysics Modeling for Complex Materials (MMCM11)	Patrizia Trovalusci, Sapienza University of Rome Nicholas Fantuzzi, University of Bologna Maria Laura De Bellis, University of Salento Martin Ostoja-Starzewski, University of Illinois at Urbana-Champaign
MS-002	Multiscale Modeling and Simulation of Advanced Materials and Structures	Quan Bing Eric Li, Teesside University
MS-003	Computational Modeling of Damage and Failure in Materials and Structures	Tinh Quoc Bui, Tokyo Institute of Technology Sohichi Hirose, Tokyo Institute of Technology Satoyuki Tanaka, Hiroshima University
MS-004	Particle Based Methods	Zhen Chen, Dalian University of Technology / University of Missouri Yan Liu, Tsinghua University Xiong Zhang, Tsinghua University
MS-005	Recent Advances in Meshfree and Particle Methods	Bin Chen, Xi'an Jiaotong University Seiichi Koshizuka, University of Tokyo Moubin Liu, Peking University
MS-006	Large Scale Coupled Problems and Related Topics	Hiroshi Kanayama, Japan Women's University Lijun Liu, Japan Science and Technology Agency, ACT-I Masao Ogino, Nagoya University Ryuji Shioya, Toyo University
MS-007	Fracture Mechanics and Structural Integrity	Yinghua Liu, Tsinghua University
MS-008	Computational Multiphase and Complex Flows	Yi-Ju Chou, National Taiwan University Yang-Yao Niu, Tamkang University Feng Xiao, Tokyo Institute of Technology Fuling Yang, National Taiwan University
MS-009	Micro-Nano Mechanics of Materials: Theory, Simulation and Experiment	Hengan Wu, University of Science and Technology of China
MS-010	Reduced Order Models and Computational Methods for Multiphysics Simulation	Jianyao Yao, Chongqing University
MS-011	Modelling of Lightweight Composites Subjected to Extreme Loading Conditions	Zhongwei Guan, University of Liverpool
MS-012	Methods for Multi-Phase Flows	Dia Zeidan, German Jordanian University Lucy Zhang, Rensselaer Polytechnic Institute / Tianjin University of Science & Technology
MS-013	Computational Modeling in Biomedical Applications	Xianqiao Wang, University of Georgia
MS-014	Mechanical Behavior of Low-Dimensional Materials and Nanomaterials	Shaohua Chen, Beijing Institute of Technology

MS-015	Computational Methods in Fluid Engineering	Songying Chen, Shandong University
MS-016	Smoothed Finite Element Methods and Related Techniques	Yuki Onishi, Tokyo Institute of Technology
MS-017	Numerical Modelling of Fires and Solid Combustion	Zhao Tian, University of Adelaide
MS-018	Computational Marine Hydrodynamics	Wan Decheng, Shanghai Jiao Tong University
MS-019	Modelling of Failures of Composites	Zheng-Ming Huang, Tongji University
MS-020	Advanced Computational Methods for Soft Matters and Machines	Hua Li, Nanyang Technological University
MS-021	Wave Propagation in Linear and Nonlinear Media	Pawel Packo, AGH - University of Science and Technology
MS-022	Methods of Approximate Calculations of Statically Indeterminate Systems	Janusz Rębielak, Cracow University of Technology
MS-023	Epidemic Mathematical and Computational Models and their Optimal Control	Nasser Sweilam, Cairo University
MS-024	High Performance and High Resolution Simulation of Complex Engineering Problems	Rong Tian, Institute of Applied Physics and Computational Mathematics
MS-025	Structural Optimization Methods and Applications	Hongling Ye, Beijing University of Technology
MS-026	Computational Methods for Uncertainty Quantification	Chenfeng Li, Swansea University
MS-027	Stochastic Simulation and Dynamic Reliability Analysis of Geological and Geotechnical Problems	Yu Huang, Tongji University
MS-028	Data-driven Computational Structural Mechanics of Existing and Damaged Structures	Eleni Chatzi, ETH Zürich Vincenzo Gattulli, Sapienza University of Rome Costas Papadimitriou, University of Thessaly Keith Worden, The University of Sheffield
MS-029	Finite Element Model Updating and Model Validation	Jian Zhang, Jiangsu University
MS-030	Computation Design and Dynamics af Lattice Metamaterials	Ada Amendola, University of Salerno Gerardo Carpentieri, University of Salerno
MS-031	State-of-the-Art Modeling on Discrete Element Simulation	Kun Luo, Zhejiang University Mikio Sakai, The University of Tokyo Chuan-Yu Wu, University of Surrey
MS-032	Modeling of Fracture and Fragmentation of Solids under Dynamic Loading: Deterministic & Probabilistic Approaches	Alexander Gerasimov, Tomsk State University Sergey Zelepugin, Tomsk State University

MS-033	Multiscale Modelling of Damage and Fracture in Quasi-brittle Materials	Jianying Wu, South China University of Technology Zhenjun Yang, Zhejiang University Rena C. Yu, University of Castilla-La Mancha
MS-034	Advanced Computational Methods for Strain Localization, Damage and Fracture in Porous Media	Carlo Callari, University of Molise
MS-035	Mechanics of Nanocomposites	Walter Lacarbonara, Sapienza University of Rome Giovanni Formica, University of Roma Tre Michela Talò, Sapienza University of Rome
MS-036	Advanced Modelling of Composite Materials and Structures	Francesco Tornabene, University of Bologna Nicholas Fantuzzi, University of Bologna Michele Bacciocchi, University of Bologna Rossana Dimitri, University of Salento
MS-037	Multi-scale/Mesoscale Modeling of Granular Materials Based on Discrete or Coupled Discrete-Continuum Methods	Xikui Li, Dalian University of Technology Yuntian Feng, Swansea University Shunying Ji, Dalian University of Technology Qinglin Duan, Dalian University of Technology Jidong Zhao, Hong Kong University of Science and Technology
MS-038	Modelling of Plasticity, Damage and Fracture	Shyue-Yuh Leu, China University of Science and Technology Liguo Zhao, Loughborough University
MS-039	Computational Methods in Nonlinear Dynamics Problems	Valeria Settimi, Sapienza University of Rome Jaroslaw Latalski, Lublin University of Technology
MS-040	Recent Advances in Nanocomposites and Green Materials: Theory, Computational aspects and Experiments	Raffaele Barretta, University of Naples Federico II Francesco Fabbrocino, Pegaso Telematic University Francesco Marotti de Sciarra, University of Naples Federico II Pietro Russo, Institute for Polymers, Composites and Biomaterials (IPCB) – CNR
MS-041	Numerical Methods in Smart Structures and Structronic Systems	Mu Fan, Nanjing University of Aeronautics and Astronautics Yujie Guo, Nanjing University of Aeronautics and Astronautics Hornsen Tzou, Nanjing University of Aeronautics and Astronautics
MS-042	Recent Advances in High-performance Finite Element Method	Song Cen, Tsinghua University Yan Shang, Nanjing University of Aeronautics and Astronautics Mingjue Zhou, Zhejiang University of Technology
MS-043	Computational Methods for Masonry Structures	Daniela Addessi, Sapienza University of Rome Antonio Gesualdo, University of Naples Federico II Elio Sacco, University of Naples Federico II Michela Monaco, University of Campania

MS-044	Recent Advances in Numerical Methods for Heat and Mass Transfer Problems	Precious Sibanda, University of KwaZulu-Natal
MS-045	Limit Analysis and Non-Smooth Contact Dynamics of Masonry Structures	Francesco Portioli, University of Naples Federico II Emanuele Reccia, Sapienza University of Rome Lorenzo Leonetti, University of Calabria Patrizia Trovalusci, Sapienza University of Rome
MS-046	Advanced Computational Methods in Underwater Acoustics	Wei Li, Huazhong University of Science and Technology
MS-047	Methods for Structural Problems with Particular Attention for Meshfree Methods	Antonina Pirrotta, University of Palermo / University of Liverpool
MS-048	Computational Geomechanics	Majid Manzari, The George Washington University
MS-049	Computational Methods for Acoustic Metamaterials, Sensors and MEMS/NEMS Devices	Feng Jin, Xi'an Jiaotong University
MS-050	Stochastic Modeling and Uncertainties in Computational Mechanics of Materials	Yan Li, California State University, Long Beach
MS-051	Multiscale Modelling of Advanced Materials and Structures	Chunhui Yang, Western Sydney University
MS-052	Computational Models for Multiscale/Multiphysics of Extreme Heat Flux Materials	Nasr Ghoniem, University of California at Los Angeles Yue Huang, University of California, Los Angeles Fabio Cismondi, EuroFusion
MS-053	Computational Modeling and Experimental Characterization of Soft Tissues	Jabareen Mahmood, Technion Israel Institute of Technology
MS-054	Microstructure-Based Computational Models of Materials Fatigue	Zaiser Michael, Friedrich-Alexander Universität Erlangen-Nürnberg Sandfeld Stefan, TU Bergakademie Freiberg
MS-055	Fractional Computational and Mathematical Models for Advanced Material Behavior	Massimiliano Zingales, University of Palermo Giuseppe Failla, University of Reggio Calabria Francesco Paolo Pinnola, University of Salento
MS-056	Computational Marine Hydrodynamics	Lu Zou, Shanghai Jiao Tong University Jianhua Wang, Shanghai Jiao Tong University Decheng Wan, Shanghai Jiao Tong University

MS-057	Advances on Engineering Computations and Design Optimization	Zhen Luo, The University of Technology, Sydney (UTS) Qinghua Qin, Australian National University; Henan University of Technology
MS-058	Multiscale Computational Modelling in Biomechanics and Mechanobiology	Alessio Gizzi, University Campus Bio-Medico of Rome Cristina Falcinelli, University Campus Bio-Medico of Rome Michele Marino, Leibniz Universität Hannover Anna Pandolfi, Polytechnic University of Milan Giuseppe Vairo, University of Rome - Tor Vergata Marcello Vasta, University "G. D' Annunzio" of Chieti-Pescara
MS-059	Advanced Methods for Engineering Challenges in Fracture Mechanics	Stella Brach, California Institute of Technology Marco Paggi, IMT School of Advanced Studies Giuseppe Vairo, University of Rome - Tor Vergata
MS-060	Polygonal, Polyhedral and Virtual Element for Advanced Applications	Edoardo Artioli, University of Rome Tor Vergata Marco Pingaro, Sapienza University of Rome Patrizia Trovalusci, Sapienza University of Rome
MS-061	Data-Driven Methods and Applications in Computational Mechanics and Materials	Wenjing Ye, Hong Kong University of Science and Technology
MS-062	Impact of Computational Methods on Architectural Design and Theories	Anna Irene Del Monaco, Sapienza University of Rome Elena Mele, Federico II University of Naples Patrizia Trovalusci, Sapienza University of Rome
MS-063	Uncertainty Quantification and Structural Reliability Analysis	Chao Jiang, Hunan University

Note: PL: Plenary Lecture; TPL: Thematic Plenary Lecture; MS: Mini-Symposium

7. DETAILED PROGRAM - CONFERENCE SESSIONS

DAY 1: Tuesday, 7 August 2018, **Opening Ceremony**, 8:30-9:00, Room: *Auditorium*

Plenary and Thematic Plenary

PL-1, Room**: *Auditorium***, Chairs: *Patrizia Trovalusci, Elio Sacco*

Time	ID	Presenter and Title
09:00-09:45	3106	Computational Applications in Masonry Structures: From the Mesoscale to the Super-Large / Super-Complex / *Paulo B. Lourenço*, University of Minho, Portugal

Thematic Plenary Lectures (TPL)

Time	ID	Presenter and Title
		TPL-1/2, Room: *Auditorium*, Chair: *Stefano Lenci*
09:45-10:15	3542	Is the Discrete Element Method Predictive? / *Jose Andrade*, California Institute of Technology, CA, USA
10:15-10:50	3093	Computational Issues in the Nonlinear Dynamics and Control of Macro/Micro-Mechanics/ *Giuseppe Rega*, Sapienza University of Rome, Italy (Asme Liapunov Award 2017)
		TPL-3/4, Room: *S. Francesco*, Chairs: *Fangsen Cui, Xiao-Wei Gao*
09:45-10:15	3021	A New Meshfree Method: Free Element Collocation Method (FECM) / *Xiao-Wei Gao*, Dalian University of Technology, China
10:15-10:45	3102	Computational Device Mechanics – The Design and Computation in Acoustics and Biomechanics / *Fangsen Cui*, Agency for Science, Technology and Research (A*STAR), Singapore

PL-2, Room: *Auditorium*, Chairs: *Patrizia Trovalusci, Jose Andrade*

Time	ID	Presenter and Title
09:00-09:45	3178	A Computational Multiscale Framework for Coupled Transient Electromagnetic-Mechanical Phenomena for Antenna and Sensors / *Somnath Ghosh*, Johns Hopkins University, Baltimore, USA

Thematic Plenary Lectures (TPL)

Time	ID	Presenter and Title
		TPL-5/6, Room; *Auditorium*, Chair: *Fernando Fraternali*
09:45-10:15	3147	Multiphysics-Multiscale modeling of Severe-environment Materials / *Nasr Ghoniem*, University of California LA, USA
10:15-10:45	3502	Integrating Structure and Control Design using the Tensegrity Paradigm/ *Robert E. Skelton*, Texas A&M, College Station, USA
		TPL-7/8, Room: *S. Francesco*, Chairs: *Catalin R. Picu, Wai-Ching Sun*
09:45-10:15	3060	A Triple-Scale Discrete-continuum Coupling Method for Path-Dependent Porous Media Enhanced by Recurrent and Recursive Deep Learning / *Wai-Ching Sun*, Columbia University, NY, USA
10:15-10:45	3099	Structure and Mechanical Behavior of Self-organized Fibrous Materials / *Catalin R. Picu*, Rensselaer Polytechnic Institute Troy, NY, USA

DAY 3: Thursday, 9 August 2018, Plenary Lecture (PL)

PL-3, Room: *Auditorium***,** Chairs: *Gui-Rong Liu, Patrizia Trovalusci*

Time	ID	Presenter and Title
09:00-09:45	3422	Multiscale Simulation of Metals from Atoms to Components / *Siegfried Schmauder*, University of Stuttgart, Germany

Thematic Plenary Lectures (TPL): Thursday, 9 August 2018

Time	ID	Presenter and Title
		TPL-9/10, Room: *Auditorium***,** Chair: *Giuseppe Rega*
09:45-10:15	3082	Computational Modeling of Masonry Structures / *Elio Sacco*, University of Naples, Italy
10:15-10:45	3097	Weight is a Potential Motion. The Analysis of Vaulted Structures with a Regularized Non-Smooth-Contact-Dynamic Approach / *Gianni Royer Carfagni*, University of Parma, Italy
		TPL-11/12, Room**:** *S. Francesco***,** Chairs: *Fernando Fraternali, Raj Das*
09:45-10:15	3476	Multiscale Damage Modelling of Sustainable Composites / Shyam Panamoottil**,** *Raj Das***,** Krishnan Jayaraman, RMIT University, Melbourne, Australia
10:15-10:45	3018	On the Dynamics of Highly Nonlinear Lattice Materials / *Fernando Fraternali*, University of Salerno, Italy
		TPL-13/14, Room: *Michelangelo***,** Chairs: *Majid Manzari, Hua Li*
09:45-10:15	3119	Verification and Validation of Numerical Methods in Geotechnical Earthquake Engineering / *Majid Manzari*, The George Washington University, USA
10:15-10:45	3086	A Multiphysics Computational Modeling of Smart Magnetic-sensitive Soft Matters / *Hua Li*, Nanyang Technological University, Singapore

Parallel Sessions

DAY 1: Tuesday, 7 August 2018, Room: *S. Francesco* (ground floor)

Session 1.1A Chair: *Elio Sacco*
MS-001/MS-100 Multiscale and Multiphysics Modeling for Complex Materials (MMCM11) / General Papers

Time	ID	Title / Authors
11:15-11:35	3385	KEYNOTE: Advanced Triaxial Interface Elements for Nonlinear Mesoscale Modelling of Brick-masonry / **Lorenzo Macorini**
11:35-11:50	3135	INVITED: A Multilevel Domain Decomposition Method Based on a Couple-stress Homogenization Approach for the Failure Analysis of Masonry Structures / **Lorenzo Leonetti**, Fabrizio Greco, Patrizia Trovalusci, Raimondo Luciano
11:50-12:05	3376	INVITED: An Effective Elastic Model for Nanostructured Composite Materials / **Michela Talò**, Walter Lacarbonara, Giovanni Formica, Giulia Lanzara
12:05-12:20	3061	Evolution of Tolerance Averaging Technique on the Example of Thermo-elasticity Problem in Micro-heterogeneous Structures / **Piotr Ostrowski**
12:20-12:35	3381	Wire Rope Model with Elliptic Cross Sectional Outer Wires / **Cengiz Erdonmez**
12:35-12:50	3350	A Biphasic Continuum Model for Large Deformation Visco-elastic Mechanics of Uncured Carbon Fibre Prepregs / **Amir Hosein Sakhaei**, Timothy Dodwell

Session 1.2A Chair: *Paulo B. Lourenço*
MS-001/MS-045 Multiscale and Multiphysics Modeling for Complex Materials (MMCM11) / Limit Analysis and Non-Smooth Contact Dynamics of Masonry Structures

Time	ID	Title / Authors
14:00-14:20	3123	KEYNOTE: Computational Methods for Confined Concrete Composites at the Mesolevel Through the Aid of 3D Advanced Measurement Techniques / **Carmelo Majorana**, Gianluca Mazzucco, Beatrice Pomaro, Giovanna Xotta, Nico De Marchi, Valentina Salomoni
14:20-14:35	3276	INVITED: Homogenization of Graphene Sheet Reinforced Composites Considering Material and Geometrical Uncertainty / **George Stefanou**, Dimitrios Savvas
14:35-14:50	3094	INVITED: Fast Statistical Homogenization Procedure (FSHP) for Particle Random Composite / **Marco Pingaro,** Emanuele Reccia, Patrizia Trovalusci
14:50-15:05	3180	Stochastic Homogenization of Polymeric Composites with Randomly Ellipsoidal Reinforcement / **Damian Sokolowski**, Marcin Kaminski
15:05-15:20	3526	INVITED: Application of the Liablock_3D Software for the Seismic Vulnerability Assessment of The Castle of Bussi (Italy) **/** Lucrezia Cascini, Francesco Portioli, **Morena Forgione**, Marcello Vasta, Giuseppe Brando
15:20-15:35		

Session 1.3A Chair: *Stefano Lenci*
MS-039 Computational Methods in Nonlinear Dynamics Problems

Time	ID	Title / Authors
16:05-16:25	3071	KEYNOTE: Nonlinear Dynamics of Continuous and Discrete Models of Tall Buildings / **Daniele Zulli**, Angelo Luongo
16:25-16:40	3069	INVITED: Exploiting Global Dynamics to Investigate the Effects of Thermomechanical Coupling in Laminated Plates / **Valeria Settimi,** Eduardo Saetta, Giuseppe Rega
16:40-16:55	3072	INVITED: Dynamics and Vibration Stability Analysis of a Rotating Composite Beam Under Harmonic Base Excitation / **Jaroslaw Latalski**, Jerzy Warminski
16:55-17:10	3108	INVITED: High-dimension Basins of Attraction Computation on Clusters (distributed Memory Systems) with Simple Cell Mapping / **Nemanja Andonovski**, Stefano Lenci
17:10-17:25	3263	INVITED: Dynamics of Mistuned Rotor - Analytical and Numerical Calculations / **Zofia Szmit**
17:25-17:40	3269	Expansion of a Multi-scale Hysteresis Friction Simulation to Include Direction-dependent Friction / **Johan Bothe**

DAY 1: Tuesday, 7 August 2018, Room: *Michelangelo* (first floor)

Session 1.1B Chairs: *Yuantong Gu, Moubin Liu*

MS-005 Recent Advances in Meshfree and Particle Methods

Time	ID	Title / Authors
11:15-11:35	3079	KEYNOTE: FPM Modeling of Particulate Flows with Thermal Convection / **Moubin Liu**
11:35-11:50	3227	A Multi-level Method of Fundamental Solutions using Quadtree-generated Sources / **Csaba Gaspar**
11:50-12:05	3064	The Forward and Inversion Analysis of High Rock-fill Dams in Construction Period using the Node-Based Smoothed Point Interpolation Method / **Shiyang Pan**, Tongchun Li, Jing Cheng
12:05-12:20	3315	A Smoothed Particle Hydrodynamics Particle Suspension Mixture Model and Its Application to Turbulent Sediment Transport / **Erwan Bertevas**, Thien Tran Duc, Khoa Le-Cao, Boo Cheong Khoo, Nhan Phan-Thien
12:20-12:35	3274	A Stabilization Method for Smoothed Particle Hydrodynamics Preventing Tensile Instability and Zero-energy Modes / **Shoya Mohseni-Mofidi**, Claas Bierwisch
12:35-12:50	3573	Computation of Deformable Image Registration by Weighted Kernel-based Meshless Method / **S. M. Wong**, K. S. Ng, T. S. Li

Session 1.2B Chairs: *Moubin Liu, Yuantong Gu*

MS-005/MS-004 Recent Advances in Meshfree and Particle Methods / Particle Based Methods

Time	ID	Title / Authors
14:00-14:20	3463	KEYNOTE: A Novel Particle Method to Predict the Compression Properties of Liquid Marbles / **Yuantong Gu**
14:20-14:35	3298	Assessment of Nodal Integration for Meshfree Analysis of Higher-order Gradient Crystal Plasticity / **Yuichi Tadano**, Seiya Hagihara
14:35-14:50	3281	Meshless Method with Reduced Integration - High Performance / **Wilber Velez**, Tiago Oliveira, Elvis Pereira, Artur Portela
14:50-15:05	3316	The Generalized Finite Difference Method for the Inverse Cauchy Problem in Linear Elasticity / **Po-Wei Li**, Yan Gu, Chia-Ming Fan
15:05-15:20	3574	Solving the Singular Motz Problem using Radial Basis Functions / **T. S. Li**, S. M. Wong
15:20-15:35	3034	Precise Integration Dynamic Analysis of Equivalent Spring Particle Elements in The Continuum Mechanics / **XiangRong Fu**, MingWu Yuan, Pu Chen

Session 1.3B Chairs: *Carmelo Maiorana, Rena C.Yu*

MS-003/033 Computational Modeling Of Damage and Failure in Materials and Structures / Multiscale Modelling of Damage and Fracture in Quasi-brittle Materials

Time	ID	Title / Authors
16:05-16:25	3544	KEYNOTE: Meshfree Modelling of Dynamic Mixed-mode Fracture in Fibre-reinforced Concrete / **Rena C. Yu**, Pedro Navas, Gonzalo Ruiz
16:25-16:40	3056	Numerical Study on Debonding Failure Between FRP and Concrete / **Huang Lihua**, Yang Zhiquan, Wang Yuefang
16:40-16:55	3339	Simulations of Dynamical Fracture of Concrete using Implicit Time Integration / **Josef Květoň**
16:55-17:10	3505	Efficient Simulation of the Through-the-thickness Damage Composition in Composite Aircraft Structures for Use with Integrated SHM Systems / **Marc Garbade**
17:10-17:25	3196	Numerical Simulation of Riedel Shear in Surface Earthquake Faults / Kenji Oguni, **Sayako Hirobe**
17:25-17:40	3235	FEM Non-linear Modelling of Cob using ANSYS / **Alejandro Jimenez Rios**, Dermot O'Dwyer

DAY 1: Tuesday, 7 August 2018, Room *S. Bernardino* (ground floor)

Session 1.1C Chairs: *Hongling Ye, Qinghua Qin*
MS-025/MS-057 Structural Optimization Methods and Applications / Advances on Engineering Computations and Design Optimization

Time	ID	Title / Authors
11:15-11:35	3586	KEYNOTE: Topology Optimization of Transient Heat Transfer Problems using Fourier and Cattaneo Idealizations / Marco Pingaro, **Paolo Venini**
11:35-11:50	3522	Multiscale Structural and Thermal Optimization Towards 3D Printable Structures / **Chikwesiri Imediegwu**, Ryan Murphy, Robert Hewson, Matthew Santer
11:50-12:05	3152	Hole Nucleation for Level Set Based Topology Optimization by Hard Kill as BESO / **Qi Xia**
12:05-12:20	3325	Projection-Based Topology Design Optimization with Discrete Object Projections / **Seung-Hyun Ha**
12:20-12:35	3528	Topology Optimization for Cellular Composite Compliant Mechanisms with Auxetic Metamaterials by Level Sets / Zhen Luo, **Tao Wu**
12:35-12:50	3137	Optimization of Multi-functional Laminates by a Spectral Element Method / **Elias Perras**, Chuanzeng Zhang

Session 1.2C Chairs: *Paolo Venini, Hongling Ye*
MS-025/MS-057 Structural Optimization Methods and Applications / Advances on Engineering Computations and Design Optimization

Time	ID	Title / Authors
14:00-14:20	3443	KEYNOTE: Multi-material Topology Optimization for Continuum Structure by Using Independent Continuous Mapping Method / **Hongling Ye**, Zongjie Dai, Yunkang Sui
14:20-14:35	3130	Shape and Topology Optimization Method for Designing a Shell Structure with Multi-materials / **Masatoshi Shimoda**
14:35-14:50	3538	Concurrent Design of Structures and Materials with Nonuniform Microstructures / Liang Gao, **Hao Li**, Zhen Luo, Junjian Fu
14:50-15:05	3529	Robust Dynamic Topology Optimization Under Hybrid Uncertainties using a Level Set Method / Zhen Luo, **Jing Zheng**
15:05-15:20	3302	Variable Screening by Global Sensitivity Analysis and Its Application in Uncertainty Based Optimization / **Changcong Zhou**, Zheng Zhang, Fuchao Liu
15:20-15:35	3480	Dynamics and Hybrid Optimization of Cylindrical Composite Shells / **Leonard Ziemianski**, Bartosz Miller

Session 1.3C Chairs: *Giovanni Formica, Quan Bing Eric Li*
MS-002 Multiscale Modeling and Simulation of Advanced Materials and Structures

Time	ID	Title / Authors
16:05-16:25	3031	KEYNOTE: Computational Design of Acoustic Metamaterials with Volumetric Locking and Uncertainty Issues / **Quan Bing Eric Li**
16:25-16:40	3590	Hybrid Multiscale Model for Nonlinear Analysis of Arbitrarily Stiffened Composite Structures / **Jie Cong**, Kuo Tian, Tong Li, Mingfa Ren, Bo Wang
16:40-16:55	3497	Computational Design of New 2D Nanostructures / **Tadeusz Burczynski**
16:55-17:10	3552	Generation Of Open-Foam RVEs With Strut Variations Using Distance Fields And Level Sets / **Nanda Gopala Kilingar**, Ludovic Noels, Karim Ehab Moustaffa Kamel, Thierry Massart
17:10-17:25	3447	Numerical Investigation of Beam-column Connections using a New Multi-axial-spring Model / **Hu Qi**, Haishan Guo, Kan Liu, Lida Tian, Jiao Geng
17:25-17:40	3520	Simulation of Metallic Powder Bed Additive Manufacturing Processes / **Aleksandr Zinoviev**, Olga Zinovieva, Vasily Ploshikhin

Session 1.1D Chair: *Nasr Ghoniem*
MS-052/MS-001 Computational Models for Multiscale/Multiphysics of Extreme Heat Flux Materials /
Multiscale and Multiphysics Modeling for Complex Materials (MMCM11)

Time	ID	Title / Authors
11:15-11:35	3109	KEYNOTE: Design of the european demo water-cooled blanket with a multiscale-multiphysics framework / Yue Huang, **Fabio Cismondi**, Eberhard Diegele, Giafranco Federici, Alessandro Del Nevo, Fabio Moro, Nasr Ghoniem
11:35-11:50	3157	INVITED: Global Thermal-hydraulic Model of the EU DCLL Breeding Blanket / **Ivan Fernandez-Berceruelo**, Iole Palermo, Fernando Urgorri, David Rapisarda, Belit Garcinuno, Angel Ibarra
11:50-12:05	3345	INVITED: A Multi-scale Dynamic Thermal-hydraulic Modelling Approach for the EU DEMO Breeding Blanket / **Antonio Froio**, Fabio Cismondi, Laura Savoldi, Roberto Zanino
12:05-12:20	3294	INVITED: A Coupled Model for Helium Flow Along Eurofer Cooling Channels: Practical Implementation for TBM Design / **Sergio Sadaba**, Francisco Calvo, Joelle Vallory, Milan Zmitko, Yves Pointevin
12:20-12:35	3166	Magneto-convective Analyses of the EU-DCLL Outboard Equatorial Module using Q2D Methods / **Fernando R. Urgorri**, Ivan Fernandez-Berceruelo, David Rapisarda, Iole Palermo, Angel Ibarra
12:35-12:50	3179	Quantitative Modeling for Gas Bubble Evolution in Nuclear Fuel and Pitting Corrosion / **San-Qiang Shi**, Zhihua Xiao, Talha Ansari

Session 1.2D Chairs: *Fabio Cismondi, Andrea Bertinetti*
MS-052/MS-100 Computational Models for Multiscale/Multiphysics of Extreme Heat Flux Materials /
General Papers

Time	ID	Title / Authors
14:00-14:20	3349	KEYNOTE: Self-consistent Multi-physics Modelling for the Analysis of the Working Conditions in Gyrotron Cavities / **Andrea Bertinetti**, Ferran Albajar, Konstantinos Avramidis, Francesca Cau, Fabio Cismondi, Parth Kalaria, Laura Savoldi, Roberto Zanino
14:20-14:35	3176	INVITED: Multi-scale Approach to the Thermal-hydraulic Modeling of High-Temperature Superconducting Magnets for Fusion / **Andrea Zappatore**, Roberto Bonifetto, Laura Savoldi, Roberto Zanino
14:35-14:50	3280	INVITED: A Multi-physics Integrated Approach to Breeding Blanket Modelling and Design / **Gandolfo Spagnuolo**, Pierluigi Chiovaro, Pietro Di Maio, Riccardo Favetti
14:50-15:05	3282	Validation of Multi-physics Integrated Procedure for the HCPB Breeding Blanket / **Riccardo Favetti**
15:05-15:20	3046	Parametrization of Radiative Properties of Mono- and Multi-component Plasmas for Astrophysics and Nuclear Fusion Applications / **Rafael Rodriguez**, Guadalupe Espinosa, Juan Miguel Gil
15:20-15:35	3351	Computational Package for the Simulation of Plasma Microscopy Properties and Ion Beam-Plasma Interaction in High Energy Density Plasmas / **Juan Miguel Gil**

Session 1.3D Chairs: *Carlo Callari, Xikui Li*
MS-037 Multi-scale/Mesoscale Modeling of Granular Materials Based on Discrete or Coupled Discrete-Continuum Methods

Time	ID	Title / Authors
16:05-16:25	3158	KEYNOTE: Multiscale Modeling of Saturated Granular Materials in Concurrent Second-order Computational Homogenization Method / **Xikui Li**, Zhang Songge, Duan Qinglin
16:25-16:40	3100	Hierarchical Multiscale Modeling of Large Deformation Problems in Granular Media / **Jidong Zhao**, Weijian Liang
16:40-16:55	3159	An Improved DEM/FEM Model for Analyzing the Ice-structure Interaction / Shunying Ji, **Shuailin Wang**
16:55-17:10	3195	DEM Analysis of Sheltering Effect of Ice Loads on Multi-legs Offshore Structure / Shunying Ji, **Yueqiao Ba**, Shuailin Wang
17:10-17:25		
17:25-17:40		

DAY 1: Tuesday, 7 August 2018, Room *Caravaggio* (first floor)

Session 1.1E: Chair: *Catalin R. Picu*

MS-035/MS-040/MS-100 Mechanics of Nanocomposites / Recent Advances in Nanocomposites and Green Materials: Theory, Computational Aspects and Experiments / General Papers

Time	ID	Title / Authors
11:15-11:35	3062	KEYNOTE: Modeling and Simulation of Mechanical Damping in Nanocomposites / **Giovanni Formica**
11:35-11:50	3143	Impact Damage Behavior of Basalt Fibers Composite Laminates: Comparison Between Thermoplastic and Thermosetting Matrix / **Ilaria Papa**, Valentina Lopresto, Pietro Russo
11:50-12:05	3284	Natural Fiber Composites Subjected to Low Velocity Impacts: Experimental and Analytical Approach / **Simonetta Boria**, Carlo Santulli, Elena Raponi, Fabrizio Sarasini, Jacopo Trillò
12:05-12:20	3532	Use of Natural Fibrous Lime Mortar for Improving the Out of Plane Lateral Resistance of Masonry / Francesco Fabbrocino, **Federico Cecchini**, Pietro Russo, Francesca Nanni
12:20-12:35	3084	Prediction of the Glass Transition Temperature of Polymer Systems / **Jong Hak Kim**
12:35-12:50	3125	INVITED: Interfacial Sliding-driven Hysteresis in Polymer/carbon Nanotube Nanocomposites / **Michela Talò**, Walter Lacarbonara, Giovanni Formica, Giulia Lanzara

Session 1.2E Chairs: *Vincenzo Gattulli, Yan Li*

MS-050/MS-043/MS-003/MS-100/MS-057 Stochastic Modeling and Uncertainties in Computational Mechanics of Materials / Computational Methods for Masonry Structures / Computational Modeling of Damage and Failure in Materials and Structures / General Papers / Advances on Engineering Computations and Design Optimization

Time	ID	Title / Authors
14:00-14:20	3511	KEYNOTE: A Multiscale Framework to Quantify the Competing Failure Mechanisms in Metal Matrix Composites / **Yan Li**
14:20-14:35	3329	INVITED: Rock Mounted Iconic Lighthouses Under Extreme Wave Impacts: Limit Analysis and Discrete Element Method / **Athanasios Pappas**, Dina D'Ayala, Alessandro Antonini, Alison Raby
14:35-14:50	3328	INVITED: 2016-2017 Central Italy Earthquake: Seismic Assessment of "Pietro Capuzi" School in Visso (Marche) / **Chiara Ferrero**, Paulo B. Lourenço, Chiara Calderini
14:50-15:05	3584	Timber Shear Walls: Numerical Assessment of the Equivalent Viscous Damping / **Giorgia Di Gangi**
15:05-15:20	3030	Mode Shapes Complexity for Damage Identification of Structures Experiencing Plasticization / **Fabrizio Iezzi**, Claudio Valente
15:20-15:35	3378	Approximation of the parallel robot working area using the method of nonuniform covering / **Larisa Alexandrovina Rybak**, Mikhail Anatolyevich Posypkin, Alexander Leonidovich Usov, Dmitry Ivanovich Malyshev

Session 1.3E Chairs: *Jose Andrade, Kun Luo*

MS-031/MS-000 State-of-the-art Modeling on Discrete Element Simulation / Theory and Formulation for Novel Computational Methods

Time	ID	Title / Authors
16:05-16:25	3396	KEYNOTE: Discrete Element Modeling for Industrial Multi-phase Flows / **Mikio Sakai**
16:25-16:40	3331	Numerical Study on Solid-liquid Separation in a Stirred Vessel / **Kotaro Tamura**, Mikio Sakai
16:40-16:55	3449	DEM Modelling of Normal Impact of Wet Particles / **Chuan-Yu Wu**, Ling Zhang
16:55-17:10	3055	Hydrodynamics and heat transfer validation of a coarse grained particle method in a bubbling fluidized bed / Junjie Lin, **Kun Luo**, Shuai Wang, Chenshu Hu, Jianren Fan
17:10-17:25	3029	Development of an Implicit Algorithm for Drag Force Term in an Euler-Lagrange Approach, **Yuki Mori**, Mikio Sakai
17:25-17:45	3054	KEYNOTE: DEM-based method study of steam biomass gasification in a fluidized bed reactor / Shuai Wang, **Kun Luo**, Liyan Sun, Chenshu Hu, Junjie Lin, Jianren Fan

Session 1.1F Chairs: *Yan Li, Sohichi Hirose*
MS-021/MS-100 Wave Propagation in Linear and Nonlinear Media / General Papers

Time	ID	Title / Authors
11:15-11:35	3472	KEYNOTE: 2-D Inverse Scattering Analysis using Pure SH Wave for Delamination in Carbon Fiber Reinforced Plastic / **Sohichi Hirose**
11:35-11:50	3144	Numerical Simulation of Nonlinear Elastic Wave Propagation in Locally Damaged Reinforced Concretes / **Benjamin Ankay**, Chuanzeng Zhang
11:50-12:05	3347	A Frequency-domain Boundary Element Method using Sinc Approximation for SH Wave Scattering / **Akira Furukawa**
12:05-12:20	3190	Wave Propagation in the Piezoelectric Porous Material Filled with Charge Ions / **Young June Yoon**
12:20-12:35	3375	Optimization Strategy for Development of New Numerical Models / **Mateusz Gawronski**
12:35-12:50	3209	Auto-adaptive Resolution Strategy for Wave Equations in Integral Formulation / **Nadir Alexandre Messai**, Sebastien Pernet, Marc Bakry

Session 1.2F Chair: *Majid Manzari*
MS-034/MS-048/MS-009 Advanced Computational Methods for Strain Localization, Damage and Fracture in Porous Media / Computational Geomechanics / Micro-Nano Mechanics of Materials: Theory, Simulation and Experiment

Time	ID	Title / Authors
14:00-14:20	3104	KEYNOTE: Computational Methods for Localized Erosion in Porous Media / **Carlo Callari**
14:20-14:35	3484	Second Gradient Hydro-mechanical Formulation in Saturated Conditions using Isogeometric Analysis / **Carlos Plua**
14:35-14:50	3309	SPH Modelling of Consolidation Problem Based on Two-phase Mixture Theory / Jianhua Wang, Hao Wu, **Jinjian Chen**, Chencong Liao, Jian Wang
14:50-15:05	3306	An Oscillation-free Finite Volume Method with Staggered Grids for Solving Problems of Poroelasticity / **Clovis Maliska**, Herminio Honorio
15:05-15:20	3450	Micro-nano-CT Imaging in Shale Structure Analysis / **Yanfei Wang**
15:20-15:35		

Session 1.3F Chairs: *Nicholas Fantuzzi, Janusz Rębielak*
MS-022/MS-017/MS-100 Methods of Approximate Calculations of Statically Indeterminate Systems / Numerical Modelling of Fires And Solid Combustion / General Papers

Time	ID	Title / Authors
16:05-16:25	3289	KEYNOTE: Analysis of the Results Obtained from the Application of the Two-Stage Method with Calculations of Some Statically Indeterminate Trusses / **Janusz Rębielak**
16:25-16:40	3201	Nomograph to Calculate Amount of Reinforcing Bar Against Bending Moment in Circular Void Slabs / **Shigehiro Morooka**
16:40-16:55	3291	Two-stage Method Applied in Calculations For Statically Indeterminate Truss Of Larger Span / **Janusz Rębielak**
16:55-17:10	3399	A Numerical Study of Thermal Impact of Forest Fires on Buildings / **Valeriy Perminov**
17:10-17:25	3020	Study of Error Based on Six Segments Ring Pair Electrical Resistance Sensor / **Xiaona Wang**, Yi Ding, Shide Song, Yi Huang
17:25-17:40	3133	Sloshing Characters of Vary Density in Depth / **Zhen Wang**, Zongbing Yu, Li Zou

Session 2.1A Chair: *Lorenzo Macorini*
MS-045 Limit Analysis and Non-Smooth Contact Dynamics of Masonry Structures

Time	ID	Title / Authors
11:15-11:35	3341	KEYNOTE: Limit Analysis of Masonry Structures using Discontinuity Layout Optimization / **Matthew Gilbert**, John Valentino, Colin Smith, Maxime Gueguin
11:35-11:50	3356	INVITED: Nonlinear Dynamic Mesoscale Analysis of Masonry Buildings Subjected to Earthquake Loading / **Corrado Chisari**, Lorenzo Macorini, Bassam Izzuddin
11:50-12:05	3091	INVITED: Multiscale Couple-stress Model, FEM/DEM Approach and Limit Analysis for the In-plane Failure Analysis of Masonry Walls: a Critical Review / **Emanuele Reccia**, Lorenzo Leonetti, Patrizia Trovalusci, Marco Pepe
12:05-12:20	3524	INVITED: A New Discontinuum Finite Element Modelling Approach for Masonry Structures / **Davide Rapone**, Giuseppe Brando, Enrico Spacone
12:20-12:35	3270	INVITED: Discrete and Continuous Models for the Estimation of the Seismic Vulnerability of Masonry Church / **Marialaura Malena**, Giovanni Tommaselli, Gianmarco De Felice, Raffaele Gagliardo, Francesco Portioli, Chiara Calderini
12:35-12:50	3155	INVITED: Yield Surface of a Zero-tension Masonry Quadrilateral Section Subjected to an Eccentric Compressive Force / **Carlalberto Anselmi**, Filomena Galizia, Eduardo Saetta

Session 2.2A Chair: *Matthew Gilbert*
MS-045/MS-043 Limit Analysis and Non-Smooth Contact Dynamics of Masonry Structures / Computational Methods for Masonry Structures

Time	ID	Title / Authors
14:00-14:20	3154	KEYNOTE: Limit Analysis for a Safety Evaluation of Masonry Pavilion Domes on Octagonal Drum Subjected to Increasing Vertical Loads / **Carlalberto Anselmi**, Filomena Galizia, Eduardo Saetta
14:20-14:35	3087	INVITED: A Simple Contact Model for Dynamic Analysis of Masonry Block Structures using Mathematical Programming / **Francesco Portioli**, Elias Dimitrakopoulos
14:35-14:50	3467	INVITED: Limit Analysis of Masonry Structures Based on Fictitious Associative-type Contact Interface Laws / Giuseppe Quaranta, **Francesco Trentadue**
14:50-15:05	3122	INVITED: Nonlinear Analysis of Masonry Arches Adopting a Multiscale Curved Beam Finite Element Model / Daniela Addessi, **Paolo Di Re**, Elio Sacco
15:05-15:20	3342	INVITED: Limit Analysis of Masonry Arch Bridges Containing Internal Spandrels / **Serenella Amodio**, Matthew Gilbert, Colin C. Smith
15:20-15:35		

Session 2.3A Chair: *Antonina Pirrotta*
MS-055 Fractional Computational and Mathematical Models for Advanced Material Behavior

Time	ID	Title / Authors
16:05-16:25	3127	KEYNOTE: A Fractional Model for Blood Flow in Small Arterial Vessels / Gioacchino Alotta, Emanuela Bologna, Mario Di Paola, **Massimiliano Zingales**
16:25-16:40	3332	INVITED: A New Class of Functions for Applications in Modeling Real Materials and Structures / Igor Podlubny, **Iryna Trymorush**
16:40-16:55	3352	INVITED: Fractional Viscoelasticity of Soft Materials: Modeling, Experimental Comparisons, and Uncertainty Quantification / **William Oates**
16:55-17:10	3075	Fractional Order Derivative Computation with a Small Number of Discrete Input Values / **Dariusz Brzezinski**
17:10-17:25	3242	Fractional Viscoelastic Modelling of the Transient Behavior of a Reduced Structural Model / **Michael Burgwitz**, Matthias Wangenheim
17:25-17:40		

DAY 2 Wednesday, 8 August 2018, Room *Michelangelo* (first floor)

Session 2.1B Chair: *Mamohood Jabareen*

MS-047/MS-000 Methods for Structural Problems with Particular Attention for Meshfree Methods / Theory and Formulation for Novel Computational Methods

Time	ID	Title / Authors
11:15-11:35	3063	KEYNOTE: Line Element-less Method (LEM) for Beams in Torsion and Plates in Bending / **Antonina Pirrotta**
11:35-11:50	3221	Extension of the Line Element-Less Method to Dynamic Problems / **Carsten Proppe**, Antonina Pirrotta
11:50-12:05	3493	Application of BEM to Defect Detection by Means of Topology Optimization with Strain Objective Functional / **Toshiro Matsumoto**
12:05-12:20	3027	Optimal Design and Error Analysis Based on Pulsed Eddy Current Sensor / **Shide Song**, Tianyang Qu, Xiaona Wang, Yi Huang
12:20-12:35	3251	Numerical Evaluation of Singular Integrals using the Tetrahedron Polar Co-ordinates / **Jungki Lee**
12:35-12:50	3569	A Robust Inversion-based Fourier Transformation Algorithm Used in the Interpretation of Non-equidistantly Measured Magnetic Data / **Mihaly Dobroka**, Daniel Nuamah, Tamas Ormos, Judit Somogyi Molnar

Session 2.2B Chairs: *Rena C. Yu, Massimiliano Zingales*

MS-036 Advanced Modelling of Composite Materials and Structures

Time	ID	Title / Authors
14:00-14:20	3040	KEYNOTE: An innovative numerical approach for the mechanical analysis of damaged laminated composite structures / **Tornabene Francesco**, Fantuzzi Nicholas, Bacciocchi Michele
14:20-14:35	3388	INVITED: The Influence Of: Specimen Geometry, Elasticity Properties Ratio and Boundary Conditions on Purity of Mode I During Interfacial Crack Growth in Sandwich Panels / Tomasz Sadowski, **Daniel Pietras**, Vyacheslav Burlayenko
14:35-14:50	3118	INVITED: Advanced Modeling of the Mixed-mode Delamination for Composite Specimens / Francesco Tornabene, **Rossana Dimitri**
14:50-15:05	3078	Application of XFEM to Structural Analyses of Composites / **Toshio Nagashima**
15:05-15:20	3326	Numerical Simulations of Coupling Effects in FGM Plates by Meshfree Methods / **Vladimir Sladek**, Ladislav Sator, Miroslav Repka, Jan Sladek
15:20-15:35	3373	Numerical Analyses of Cement-based Piezoelectric Smart Composites / Jan Sladek, Peter Bishay, Pavol Novak, **Vladimir Sladek**

Session 2.3B Chairs: *Fernando Fraternali, Xiong Zhang*

MS-004/MS-060/MS-100 Particle Based Methods / Polygonal, Polyhedral and Virtual Element for Advanced Applications / General Papers

Time	ID	Title / Authors
16:05-16:25	3066	KEYNOTE: V-p Form Material Point Method for Weakly Compressible Problems / **Xiong Zhang**, Zhenpeng Chen
16:25-16:40	3205	INVITED: Some Recent Advances of the EXtended Finite Element Method in Problems with Interfaces and Displacement Singularities / **Elena Benvenuti**
16:40-16:55	3323	INVITED: 2D and 3D Isogeometric Boundary Element Analysis of Steady Incompressible Viscous Flow / **Vincenzo Mallardo**
16:55-17:10	3577	INVITED: Scalar Damage in 2D Solids: a VEM Formulation / **De Bellis Maria Laura**, Peter Wriggers, Blaz Hudobivnik, Giorgio Zavarise
17:10-17:25	3474	Tsunami Run-Up Simulation Using Particle Method and Its Visualization with Unity / **Takahiro Saitoh**, Gohki Noguchi, Takumi Inoue
17:25-17:45	3478	KEYNOTE: The Polygon Finite Element Approach: From Linear to Nonlinear Structural Analysis / **Jabareen Mahmood**

Session 2.1C Chairs: *Raj Das, YinBo Zhu*
MS-009 Micro-Nano Mechanics of Materials: Theory, Simulation and Experiment

Time	ID	Title / Authors
11:15-11:35	3210	KEYNOTE: Two-Dimensional Water/Ice in Graphene Nanocapillaries / **YinBo Zhu**
11:35-11:50	3267	Pressure-dependent Transport Characteristic of Methane Gas in Slit Nanopores / **Hao Yu**
11:50-12:05	3266	Forces Within Three Phase Contact Zone: a Mechanical Interpretation of Young's Equation at the Nanoscale / **Jingcun Fan**
12:05-12:20	3234	Asymmetry Mechanism of Anion and Cation Transporting in Angstrom-scale Graphene Channels / **YanZi Yu**
12:20-12:35	3314	The Size-dependent Behavior of a Broadband Magnetic Energy / **Feng Jin**
12:35-12:50	3260	Self-folding Mechanics of Graphene Tearing and Peeling from a Substrate / HengAn Wu, **ZeZhou He**

Session 2.2C Chairs: *Giuseppe Rega, Chatzi Eleni*
MS-028/MS-061 Data-driven Computational Structural Mechanics of Existing And Damaged Structures

Time	ID	Title / Authors
14:00-14:20	3129	KEYNOTE: Assessing Modal Property Variation in an Historical Retrofitted Masonry Building / **Gattulli Vincenzo**, Francesco Potenza, Francesco Smarra, Alessandro D'Innocenzo, Fabio Graziosi
14:20-14:35	3377	Fatigue Damage Estimation of Large Scale Structural Systems using Finite Element Model Updating Techniques and Output Vibration Measurements / **Dimitrios Giagopoulos**, Alexandros Arailopoulos, Sotirios Natsiavas
14:35-14:50	3366	Ambient Vibration Testing of Existing Buildings Aimed to Seismic Assessment: Experiences in Liguria / **Daniele Sivori**, Serena Cattari, Roberto De Ferrari, Marco Lepidi, Daniele Spina
14:50-15:05	3142	Vision-based system identification for MDOF structures / **Seunghoon Shin**, Wonbin Park, Donghyeon Seol, Hongjin Kim
15:05-15:20	3126	A Data-driven Diagnostic Tool for Wind Turbines Under Operational Variability / **Simona Bogoevska**, Eleni Chatzi, Elena Dumova-Jovanoska, Rudiger Hoffer
15:20-15:35	3518	Data-Driven Bayesian Uncertainty Quantification and Propagation Framework for Dynamical Systems / **Papadimitriou Costas**

Session 2.3C Chairs: *Yuan Cheng, Chenfeng Li*
MS-026/MS-061/MS-063 Computational Methods for Uncertainty Quantification / Data-Driven Methods and Applications in Computational Mechanics and Materials / Uncertainty Quantification and Structural Reliability Analysis

Time	ID	Title / Authors
16:05-16:25	3324	KEYNOTE: Inverse Design with Variational Auto-encoder / **Wenjing Ye**, Yujie Zhang
16:25-16:40	3083	Uncertainty Quantification of Complex Nonlinear Systems using Structural Health Monitoring Techniques / **Dana Nasr**, George Saad
16:40-16:55	3217	Deep Learning Based Rapid Response Tools for Air Pollution Prediction and Uncertainties Analysis / **Fangxin Fang**, Dunhui Xiao, Jie Zheng, Junxi Li, Christophe Pain, Ionel Navon
16:55-17:10	3145	A Modified Rolling Bearing Fault Diagnosis Approach Based on Improved Multiscale Permutation Entropy and Generalized Hidden Markov Model / **Youmin Hu**
17:10-17:25	3412	Multivariate Global Sensitivity Analysis for the Tubular Structure using Neural Network / **Wang Pan**, Tan Shiwang
17:25-17:40		

DAY 2 Wednesday, 8 August 2018, Room *Jacopone* (ground floor)

Session 2.1D Chairs: *Decheng Wan, Precious Sibanda*

MS-015 / MS-044 Computational Methods in Fluid Engineering / Recent Advances in Numerical Methods for Heat and Mass Transfer Problems

Time	ID	Title / Authors
11:15-11:35	3311	KEYNOTE: CFD Simulation of Chemical Gas Dispersion Under Atmospheric Boundary Conditions / **George Xu**
11:35-11:50	3164	Lattice Boltzmann Method for Convection and Heat Transfer in Multi-layer Metal Droplet Deposition / **Zhaomiao Liu**, Yanlin Ren, Yan Pang, Yuandi Xu, Xixiang Zhong
11:50-12:05	3258	Spectral Quasi-linearization Method for Entropy Generation using the Cattaneo-Christov Heat Flux Model / Precious Sibanda, **Hiranmoy Mondal**
12:05-12:20	3262	Heat and Mass Transfer of an Unsteady Second Grade Nanofluid with Viscous Heating Dissipation / **Shina Oloniiju**, Sicelo Goqo, Precious Sibanda
12:20-12:35	3482	Application of a New Multivariate Spectral Quasilinearisation Method on a Nuclear Reactor Problem / Shina D. Oloniiju, **Sicelo P. Goqo**, Precious Sibada, Sandile S. Motsa
12:35-12:50	3445	Entropy Generation in Unsteady Magneto-micropolar Nanofluid Flow with Thermal Radiation and Viscous Dissipation / **Mohammed Almakki**

Session 2.2D Chairs: *Wai-Ching Sun*, *Masao Ogino*

MS-006 Large Scale Coupled Problems and Related Topics

Time	ID	Title / Authors
14:00-14:20	3186	KEYNOTE: Finite Element Analysis of a Human Body Model with Smooth Organ Boundaries in the High-frequency Electromagnetic Field / **Masao Ogino**, Yoshitaka Wada, Amane Takei, Shin-ichiro Sugimoto
14:20-14:35	3245	A Reactive Molecular Dynamics Study of Graphene as a Protective Barrier Against Hydrogen Embrittlement / **Lijun Liu**, Katsumi Hagita, Jun Hirotani
14:35-14:50	3243	3-D Discrete Dislocation Dynamics Simulation Considering Boundary Effect Coupling With Finite Element Method / **Hongjie Zheng**, Ryuji Shioya, Hiroshi Kawai, Akiyuki Takahashi
14:50-15:05	3070	Analysis for Flow Induced Vibration of Slender Tubes of a Shell-and-tube Heat Exchanger / **Yuefang Wang**, Feng Su, Hai Shi, Yan Liu
15:05-15:20	3504	Element-by-element Matrix Storage-free Subdomain Local FE Solver for Domain Decomposition Method / **Hiroshi Kawai**, Masao Ogino, Ryuji Shioya, Tomonori Yamada, Shinobu Yoshimura
15:20-15:35	3521	Efficient Computational Strategy for Fluid Structure Interaction Problem using Asymmetric Solver with Machine Learning / **Yasushi Nakabayashi**, Masato Masuda, Shinsuke Nagaoka

Session 2.3D Chairs: *Somnath Ghosh, Shaohua Chen*

MS-014 Mechanical Behavior of Low-Dimensional Materials and Nanomaterials

Time	ID	Title / Authors
16:05-16:25	3134	KEYNOTE: The Microscopic Deformation Mechanism and Energy Dissipative Mechanism of Graphene Foam Materials / **Shaohua Chen**, Chao Wang
16:25-16:40	3088	Interface Effect on Failure of Ceramic Coating/alloy Substrate Systems / **Lihong Liang**
16:40-16:55	3169	Size Dependent Elasticity of Nanoporous Materials Predicted by Surface Energy Density-based Theory / **Yin Yao**
16:55-17:10	3213	Theoretical Study on the Directional Motion of a Nano-object Driven by Inhomogeneous Strain / **Zhilong Peng**
17:10-17:25	3279	Grain Boundaries Applied in Attenuation of Mechanical Transverse Wave Propagations in Graphene / **Jun Xia**
17:25-17:40	3428	Straining Two-Dimensional Materials at Strong Interfaces: The Shear-Lag Model and Experiments / **Pei Zhao**

Session 2.1E Chair: *Yi Ju Chou*
MS-008 Computational Multiphase and Complex Flows

Time	ID	Title / Authors
11:15-11:35	3411	KEYNOTE: Numerical Investigation of Hydrodynamic Coupling Between a Falling Immersed Sphere and Its Downstream Wall / **Fuling Yang**
11:35-11:50	3148	Computational Fluid Dynamics Modelling of Slurry Transport by Pipeline / **Ming-Zhi Li**
11:50-12:05	3435	Particle Simulation of Sliding Mud-water Interaction / **Khoa Le Cao**
12:05-12:20	3545	Effects of Uncertainty in Bubble Density on Flow Structures in Shock-bubble Interaction / **Jonghoon Jin**, Xi Deng, Yoshiaki Abe, Feng Xiao
12:20-12:35	3357	Numerical Simulation of Particle Settling in an Inclined Vesel / Te Chiu, **Yi Chou**
12:35-12:50	3295	High-resolution Capturing of Discontinuities of Multi-component Flows / **Yang-Yao Niu**

Session 2.2E Chairs: *Zhen Chen, Yan Liu*
MS-004/MS-007 Particle Based Methods / Fracture mechanics and Structural Integrity

Time	ID	Title / Authors
14:00-14:20	3151	KEYNOTE: The Influences of Strain Rate on the Failure Behavior of Nanowire by Atomistic Simulation / **Yan Liu**, Leiyang Zhao
14:20-14:35	3188	Numerical Simulation of Crack Propagation Interacting with Microdefects using Adaptively Refined XFEM / **Zihao Teng**, Dunming Liao
14:35-14:50	3204	A Finite Element Based Procedure for Accurate Determination of Mode I SIF of Orthotropic Materials Based on Two Parameter Strain Series / **Debabrata Chakraborty**
14:50-15:05	3451	Elastic-Plastic Interaction of a Griffith Crack with a Wedge Disclination Dipole in an Inclusion-Matrix System / **Mu Fan**
15:05-15:20	3252	Parametric Study on RPV Integrity Assessment Under Pressurized Thermal Shock / **Jong-Wook Kim**, Hanbum Suhr, Shinbeom Choi
15:20-15:35	3516	An Application of the Option Design Pattern to the Probabilistic Fracture Mechanics Program / **Yasuhiro Kanto**

Session 2.3E Chairs: *Yan Liu, Zhen Chen*
MS-004/MS-100/MS-008 Particle Based Methods / General Papers / Computational Multiphase and Complex Flows

Time	ID	Title / Authors
16:05-16:25	3073	KEYNOTE: The Development of the MPM for Better Simulating Nonlocal Failure / **Zhen Chen**
16:25-16:40	3076	Micromechanical Modeling of Heterogeneous Materials by Computational Grains / **Leiting Dong**
16:40-16:55	3562	Numerical Simulation of Natural Convection from a Heated Cylinder / **Gregor Kosec**, Jure Slak
16:55-17:10	3219	KBL: A Knowledge Based Learning Method for Extracting Formulas of Aerodynamic Heating / **Changtong Luo**, Zonglin Jiang
17:10-17:25	3047	Numerical Modeling of Flow and Reaction Characteristic in Chemical Looping Combustion System / **Liyan Sun**, Kun Luo, Jianren Fan
17:25-17:40	3307	The Effects of Rotation on Gravity Currents: From Stable to Unstable Flow Behavior / **Ching-Sen Wu**

DAY 2 Wednesday, 8 August 2018, Room *Bernini* (first floor)

Session 2.1F Chairs: *Masao Ogino, Daniela Addessi*
MS-058/MS-006/MS-013 Multiscale computational modelling in biomechanics and mechanobiology / Large Scale Coupled Problems and Related Topics / Computational Modeling in Biomedical Applications

Time	ID	Title / Authors
11:15-11:35	3124	INVITED: Characterization of Femoral Nonlinear Behavior Through Patient-specific CT-based FE Modeling / Giuseppe Vairo, **Cristina Falcinelli**, Alessio Gizzi
11:35-11:50	3523	The Effects of Solution Techniques on the Results of the Simulation of Human Motion / **Behzat Kentel**
11:50-12:05	3391	Multiscale Analysis of Flow and Transport for Modeling Targeted Drug Delivery in the Cerebrovascular System / **Vittoria Flamini**, Omar Tanweer
12:05-12:20	3264	Numerical Simulation of Human Skin Burns Using Finite Element Method / Abul Mukaddes, **Ryuji Shioya**, Rezwan Jaher, Dipon Roy
12:20-12:35	3140	Biological Ion Channels: Theory and Simulation / **Jinn-Liang Liu**
12:35-12:50	3431	Computational Analysis and Optimisation of Coronary Stents / **Nai Chun Liu**

Session 2.2F Chairs: *Xianqiao Wang, Yuan Cheng*
MS-009/MS-013/MS-003 Micro-Nano Mechanics of Materials: Theory, Simulation and Experiment / Computational Modeling in Biomedical Applications / Computational Modeling of Damage and Failure in Materials and Structures

Time	ID	Title / Authors
14:00-14:20	3393	KEYNOTE: Investigation of Structural and Mechanical Properties of Silk Fibroin and its Applications in Biomedical areas / **Yuan Cheng**
14:20-14:35	3492	Delineating Protein-protein Curvilinear Dissociation Pathways and Energetics with Multi-walker Umbrella Sampling Molecular Dynamics Simulations / **Jung-Hsin Lin**
14:35-14:50	3149	The Study of the Multi-scale Modeling Method to Determine the Reason of the Graft's Non-patency Based on Transit Time Flow-meter / **Boyan Mao**, Youjun Liu, Wenxin Wang, Bao Li
14:50-15:05	3455	Optimization of Left Ventricle Pace Maker Location Using Echo-Based Fluid-Structure Interaction Models / Dalin Tang, **Longling Fan**, Jing Yao, Chun Yang, Di Xu
15:05-15:20	3448	Predicting Plaque Area Increase and Plaque Burden Increase Using Patient-Specific Fluid-Structure-Interaction Models Based on IVUS and OCT Images with Follow-Up / Dalin Tang, **Xiaoya Guo**, David Molony, Chun Yang, Habib Samady, Jie Zheng, Gary Mintz, Akiko Maehara, Jian Zhu, Genshan Ma, Don Giddens
15:20-15:35	3506	Identification of Neumann Boundary Condition Assuring the Destruction of Target Region of Biological Tissue / **Lukasz Turchan**

Session 2.3F Chairs: *Gianni Royer Carfagni, Chao Jiang*
MS-063/MS-001/MS-045/MS-100 Uncertainty Quantification and Structural Reliability Analysis /Multiscale and Multiphysics Modeling for Complex Materials (MMCM11) / Limit Analysis and Non-Smooth Contact Dynamics of Masonry Structures / General Papers /

Time	ID	Title / Authors
16:05-16:25	3558	KEYNOTE: Variation Bounds Analysis for Structures Under Uncertain Excitations / **Chao Jiang**, Jinwu Li
16:25-16:40	3557	Analytical Formulation of Dynamic Response Bounds for Structures Based on Interval Process Model / **Chao Jiang**, Jinwu Li
16:40-16:55	3559	Sensitivity Analysis of a Real Gas Conical Diffuser using Uncertainty Quantification / **Aihong Zou**, Emilie Sauret, Wei Li, YuanTong Gu
16:55-17:10	3485	Vibrations and Stability of Slender Visco-elastic Periodic Beams Posed on a Foundation with Damping. Tolerance Modelling / **Jaroslaw Jedrysiak**
17:10-17:25	3387	INVITED: New Computational Algorithms for the Limit Analysis of Large-scale 3D Truss-frame Structures, **Rosalba Ferrari**, Giuseppe Cocchetti, Egidio Rizzi
17:25-17:40	3337	A Dynamic Analysis of Base Isolated Structures Subject to Strong Dynamic Loadings / **Fabio De Angelis**, Donato Cancellara

Session 3.1A Chair: *Paolo Fuschi*
MS-043/MS-045 Computational Methods for Masonry Structures / Limit Analysis and Non-Smooth Contact Dynamics of Masonry Structures

Time	ID	Title / Authors
11:15-11:35	3432	KEYNOTE: Solving Differential Variational Inequalities in Non-smooth Dynamics using the Preconditioned Spectral Projected Gradient Method / **Alessandro Tasora**
11:35-11:50	3383	INVITED: Damage Assessment by Non-Smooth Contact Dynamics Method of the Iconic Crumbling of the Clock Tower in Amatrice After 2016 Central Italy Seismic Sequence / Marina Poiani, **Francesco Clementi**, Gabriele Milani, Valentina Gazzani, Stefano Lenci
11:50-12:05	3089	INVITED: A Minimum Energy Strategy for the In-plane Behaviour of Masonry / Antonio Gesualdo, Bruno Calderoni, Antonino Iannuzzo, **Michela Monaco**
12:05-12:20	3456	INVITED: Three Continuum Forms for Regularly Packed Particle Systems and Applications / **Maddegedara Wijerathne**
12:20-12:35	3548	Macromechanical Damage Model for the 2D Analysis of Masonry Structures / **Cristina Gatta**, Daniela Addessi
12:35-12:50	3592	A Force-based Macroelement with Damage and Plasticity for the Analysis of Masonry Structures / **Marialuigia Sangirardi**, Daniela Addessi, Domenico Liberatore

Session 3.2A Chair: *Daniele Zulli*
MS-039/MS-100 Computational Methods in Nonlinear Dynamics Problems / General Papers

Time	ID	Title / Authors
14:00-14:20	3173	KEYNOTE: Wave propagation in lattice materials: polarization, energy, nonlinearities / **Marco Lepidi**, Andrea Bacigalupo
14:20-14:35	3513	The Influence of Non-linear Parameters on the Model of Reconstructed Middle Ear / **Joanna Rekas**, Rafal Rusinek
14:35-14:50	3193	A Positional FEM Formulation Applied to 2D Dynamic Nonlinear Analysis of Structures and Mechanisms with Improved Frictional Internal Sliding Connections / **Tiago Siqueira**, Humberto Coda
14:50-15:05	3570	Bifurcational analysis of the friction-induced mechanical oscillator with modified LuGre friction model / Danylo Pikunov, **Andrzej Stefanski**
15:05-15:20	3244	Nonlinear Vibration of an Elastic Soft String: Large Amplitude and Large Mechanical Curvature / **Demin Zhao**
15:20-15:35	3594	Finite Element Simulation of Rear Seat Back Frame Impacted by Wood Blocks for Securing Proper Bracket installation / **Tae Ho Yoon**, Hoyoon Kim, Cheol Heo

Session 3.3A Chairs: *Francesco Tornabene, Shengyang Zhu*
MS-055 Fractional Computational and Mathematical Models for Advanced Material Behavior

Time	ID	Title / Authors
16:05-16:25	3202	KEYNOTE: Vibration Reduction Performance of Floating Slab Track with Fractional Derivative Model for Rubber Bearings / **Shengyang Zhu**, Xuancheng Xuan
16:25-16:40	3226	INVITED: Boundary Element Method and Statistical Linearization Solution of Nonlinear Fractional Diffusion Equations / **Giovanni Malara**, Pol Spanos, Yiyu Jiao
16:40-16:55	3292	INVITED: Efficient Complex Modal Analysis for Noisy Fractional-order Systems / **Francesco Pinnola**, Alotta Gioacchino, Mario Di Paola, Giuseppe Failla, Giorgio Zavarise
16:55-17:10	3363	Random Vibration of Beams Resting on Fractional Dampers and Non-linear Supports / **Andrea Burlon**, Ioannis Kougioumtzoglou, Giuseppe Failla, Felice Arena
17:10-17:25	3238	Anomalous Diffusion in Periodic Phononic Crystals / **Salvatore Buonocore**, Mihir Sen, Fabio Semperlotti
17:25-17:40		

DAY 3: Thursday, 9 August 2018, Room *Michelangelo* (first floor)

Session 3.1B Chairs: *Jose Andrade, Chen Jiang*

MS-016/MS-046/MS-018/MS-056 Smoothed Finite Element Methods and Related Techniques / Advanced Computational Methods in Underwater Acoustics / Computational Marine Hydrodynamics

Time	ID	Title / Authors
11:15-11:35	3247	KEYNOTE: A Stabilized Face-based Smoothed Finite Element Method for Incompressible laminar flow / **Chen Jiang**, Guang-Jun Gao, G.R. Liu
11:35-11:50	3318	An Edge-based Smoothed Point Interpolation Method for Underwater Acoustic Propagation / **Xiangyu You**, Yingbin Chai, Wei Li
11:50-12:05	3404	Numerical Investigation on Harmonic Components of Wave Loads on a Vertical Cylinder / Wan Decheng, **Zhenghao Liu**
12:05-12:20	3453	Hydrodynamic Characteristics of Twin Rudders / **Linfeng Chen**
12:20-12:35	3141	Numerical Modeling of Free-surface Wave Effects on Flexural Vibration of Floating Structures / **Shahrokh Sepehrirahnama**, Eng Teo Ong, Heow Pueh Lee, Kian-Meng Lim
12:35-12:50	3487	Numerical Simulation of Two-dimensional Risers Under Oscillatory Flows with Low Reynolds and KC for Predicting the Involve Forces Response / **Maria Valencia-Cardenas**, Carlos Riveros-Jerez

Session 3.2B Chairs: *Cui Fangsen, Wan Decheng*

MS-018 Computational Marine Hydrodynamics

Time	ID	Title / Authors
14:00-14:20	3401	KEYNOTE: Numerical Investigation of Vortex-induced Vibration (VIV) of a Flexible Cylinder in Combined Flow / **Wan Decheng**, Di Deng
14:20-14:35	3402	Numerical Analysis on Two Floating Offshore Wind Turbines with Different Layouts / Wan Decheng, **Yang Huang**
14:35-14:50	3406	Numerical Simulation of Ship Bow Wave Breaking using SST-DES and SST-URANS / Wan Decheng, **Zhen Ren**
14:50-15:05	3403	Numerical Calculations for Smooth Circular Cylinder Flow in Different Reynolds Numbers with SST-DDES Turbulence Model / Wan Decheng, **Jiawei He**
15:05-15:20	3407	Numerical Study of Bubble Coalescence During Rising Process by Multiphase MPS Method / Wan Decheng, **Xiao Wen**
15:20-15:35	3405	Drag Reduction of KCS Based on Extended FFD Method and EGO / Wan Decheng, **Aiqin Miao**

Session 3.3B Chairs: *George Xiangguo Xu, Dia Zeidan*

MS-012/MS-015 Methods for Multi-Phase Flows / Computational Methods in Fluid Engineering

Time	ID	Title / Authors
16:05-16:25	3442	KEYNOTE: Simulations of Thermal-Hydraulics Two-Phase Flows using Mixture Formulations / **Dia Zeidan**
16:25-16:40	3112	Level-set Based Numerical Simulation of Vapor Bubble Motion in Acoustic Fields / Gihun Son, **Sungwook Cho**
16:40-16:55	3067	Simulation of Liquid Cargo - Vehicle Interaction Under Lateral and Longitudinal Accelerations / **Jose A. Romero**, Frank Otremba, Alejandro Lozano-Guzman
16:55-17:10	3065	Effects of Seismic Actions in Offshore Areas using the Boundary Element Method / **Andriy Kryvko**, Alejandro Rodriguez-Castellanos, Norberto Flores-Guzman
17:10-17:25	3369	A Discontinuous Galerkin Method for Compressible Flow on 3D Hybrid Grids / **Penghui Su**, Liang Zhang
17:25-17:40		

DAY 3: Thursday, 9 August 2018, Room *S. Bernardino* (ground floor)

Session 3.1C Chairs: *Alessandro Beghini*, *Hongling Ye*

MS-062/MS-100/MS-025 Impact of Computational Methods on Architectural Design and Theories / General Papers / Structural Optimization Methods and Applications

Time	ID	Title / Authors
11:15-11:35	3338	KEYNOTE: Dealing with Structural Patterns Based on Voronoi Diagram: Mechanical Efficiency Vs. Visual Complexity / **Elena Mele**, Arianna Simeone, Valentina Tomei
11:35-11:50	3390	INVITED: Use of Layout Optimization in the Conceptual Design of Building Structures / **Matthew Gilbert**, Buick Davison, Linwei He, Andy Tyas
11:50-12:05	3459	INVITED: The Role of Joints in the Structural Optimization of Grid Shells / Maura Imbimbo, **Ernesto Grande**, Valentina Tomei
12:05-12:20	3394	Research on the Optimization Method of Modular Design in Architecture Based on Digital Information Technology / **Shanchao Xin**, Zhiqiang Wang, Yun Wang
12:20-12:35	3486	Application of Uniform Design on Improvement Design of Detector Slides in Switch Machine System / **Yung-Chang Cheng**
12:35-12:50	3530	Multi-Fidelity Optimization for Aerospace Vehicle Design / **Ramana Grandhi**, Christopher Fischer

Session 3.2C Chair: *Robert E. Skelton*

MS-001/MS-036/MS-030 Multiscale and Multiphysics Modeling for Complex Materials (MMCM11) / Advanced Modelling of Composite Materials and Structures / Computation Design and Dynamics of Lattice Metamaterials

Time	ID	Title / Authors
14:00-14:20	3211	KEYNOTE: Stress Evaluation in Nonhomogeneous Nonlocal Elastic 2D Structures / Aurora Pisano, **Paolo Fuschi**
14:20-14:35	3039	INVITED: Mechanical behavior of orthotropic micropolar continua subjected to localized loads / **Fantuzzi Nicholas**, Leonetti Lorenzo, Trovalusci Patrizia, Tornabene Francesco
14:35-14:50	3136	INVITED: Concrete Cover Separation Analysis in FRP-plated RC Beams Via an Inter-element Cohesive Fracture Approach / Fabrizio Greco, **Umberto De Maio**, Lorenzo Leonetti, Paolo Nevone Blasi, Paolo Lonetti
14:50-15:05	3043	INVITED: Numerical Modeling of the Band Structure of Tensegrity Metamaterials / **Ada Amendola**, Anastasiia Krushynska, Chiara Daraio, Nicola Pugno, Fernando Fraternali
15:05-15:20	3042	A Computational Approach to the Static of Masonry Vaults Reinforced with Composite Materials / Valentino Paolo Berardi, **Mariella De Piano**, Rosa Penna, Luciano Feo
15:20-15:35	3466	Vibration and Wave Propagation in Pre-deformed Periodic Lattice Frame Structures / **Marius Mellmann**, Chuanzeng Zhang

Session 3.3C Chair: *Elena Mele*

MS-062 Impact of Computational Methods on Architectural Design and Theories

Time	ID	Title / Authors
16:05-16:25	3382	KEYNOTE: Applications of Structural Optimization to Architectural Design / **Alessandro Beghini**, Mark Sarkisian
16:25-16:40	3372	INVITED: Computational Methods in Architecture. From Theories to Architectural Design / **Anna Del Monaco**
16:40-16:55	3549	An Innovative Pedestrian-Bicycle Bridge Shape for Environmental Sustainability and Structural Efficient Improvement / Alberto Viskovic, **Melania Lucci**
16:55-17:10	3575	Application of Parametric Modeling in the Early Design Phase for an Interdisciplinary Design Approach for Adaptive Buildings / **Frederik Ernst**
17:10-17:25	3477	Cosmotic, Aquatic. Exploring the Potential of Computational Design in the Preservation of Aquatic Ecotones / **Aya Mohanna**
17:25-17:40		

Session 3.1D Chairs: _Siegfried Schmauder, Seiya Hagihara_
MS-038/MS-059 Modelling of Plasticity, Damage and Fracture / Advanced Methods for Engineering Challenges in Fracture Mechanics

Time	ID	Title / Authors
11:15-11:35	3111	KEYNOTE: Determination of Fracture Initiation of Cut Surface for Punching Press Process using Ductile Fracture Criteria / **Seiya Hagihara**
11:35-11:50	3418	Fatigue Life Prediction Based on AMPS Strain-Life Approach / **Yu Hou**, H. Theodore Lin
11:50-12:05	3468	Molecular Dynamics Simulation of the Initiation of Plastic Deformation in Nanocrystalline Material / **Takuya Uehara**
12:05-12:20	3117	Numerical Simulation and Experimental Verification of Ti/APC-2/Kevlar Hybrid Composite Laminates Due to Low-Velocity Impact / **Ming-Hwa Jen**, Dong-Yi Cai, Che-Kai Chang, Feng-Chi Hsu
12:20-12:35	3272	Non-equilibrium Molecular Dynamics Simulations of the Shock Induced Failure in Al with Helium Bubbles / **FengChao Wu**
12:35-12:50	3182	KEYNOTE: Static and Kinematic Shakedown Analyses Involving Temperature-dependent Properties / **Shyue-Yuh Leu**

Session 3.2D Chairs: _Sunbin Liang, Jian Chen_
MS-027 Stochastic Simulation and Dynamic Reliability Analysis of Geological and Geotechnical Problems

Time	ID	Title / Authors
14:00-14:20	3233	KEYNOTE: Stochastic Liquefaction Hazard Assessment for Urban Regions Based on Soil Dynamics / **Jian Chen**, Tomohide Takeyama, Hideyuki O-tani, Satoru Oishi, Hori Muneo
14:20-14:35	3434	A Stochastic Multi-criteria Decision-making Model for Vulnerability Assessment of Natural Disasters: A Case Study in Beijing / **Qian Zhao**, Yan Ju, Jun Ma, Wen Zhang
14:35-14:50	3253	Failure-flow Process Simulation of Landslides Triggered by Earthquakes / Yu Huang, **Geye Li**
14:50-15:05	3343	Reliability Analysis of Reinforced Soil Slope System Considering Local Reinforcement Failure / **Rui Sun**, Jianfeng Chen, Ming Peng
15:05-15:20	3250	The Simulation of the Stochastic Slip Distribution of Earthquake Rupture / **Yi Zhong**
15:20-15:35	3441	Solid-fluid Transition Modeling of Flow Liquefaction Considering Instability State of Soil / **Xueqian Ni**, Bin Ye, Yu Huang, Feng Zhang

Session 3.3D Chairs: _Jian Chen, Sunbin Liang_
MS-027 Stochastic Simulation and Dynamic Reliability Analysis of Geological and Geotechnical Problems

Time	ID	Title / Authors
16:05-16:25	3194	KEYNOTE: Effect of Soil Properties on Seismic Response of Underground Station / **Sunbin Liang**, Zhiyi Chen
16:25-16:40	3224	The Effect of Spatially Varying Permeability on Hydrate Production Induced Instability Of A Submarine Slope / **Lin Tan**, Fang Liu, Yu Huang
16:40-16:55	3231	Solution of Stochastic Dynamic Difference Equation Based on Machine Learning Method / **Min Xiong**, Yu Huang
16:55-17:10	3454	Winkler Model for Seismic Response of Shafts Under Stochastic Earthquakes / **Bu Zhang**, Zhiyi Chen
17:10-17:25	3452	Failure Modes Analysis of a Multi-story Subway Station Under Stochastic Earthquake Based on Probability Density Evolution Method / **Zhiqian Liu**, Zhiyi Chen
17:25-17:45	3268	KEYNOTE: Stochastic Simulation and Dynamic Reliability Analysis of Earth Structures / **Yu Huang**

Session 3.1E Chairs: *Dia Zeidan, Wen Li*
MS-015 Computational Methods in Fluid Engineering

Time	ID	Title / Authors
11:15-11:35	3509	KEYNOTE: A Cell-based Smoothed Radial Point Interpolation Method for Groundwater Flow Simulation Captured by the Horizontal Reactive Media Well / **Wen Li**, G.R. Liu, Guangming Yao, Michelle Crimi
11:35-11:50	3191	A Semi-Lagrangian Method Based on Moving Particles and Its Application in Fluid Simulation of Casting Filling Process / **Yulong Tang**, Dunming Liao, Tao Chen, ShuYuan Fan
11:50-12:05	3081	CFD Analysis of EHD Flow in the Circular Pipe with Electrodes / **Tetsuhiro Tsukiji**, Takahiro Shimizu
12:05-12:20	3510	A Novel Approach for Regulation of the Diffusive Effects of Limiters in Viscous-compressible-flow Computations using a Boundary-layer Sensor / **Anoop Dass**, Paragmoni Kalita
12:20-12:35	3576	Comparison of Characteristic-wise WENO and Central Difference Schemes with Numerical Viscosity Models for the Unsteady Compressible Flow / **Hyun-Jin Kwon**, Se-Myong Chang
12:35-12:50		

Session 3.2E Chairs: *Hua Li, Yuki Onishi*
MS-016/MS-100 Smoothed Finite Element Methods and Related Techniques / General Papers

Time	ID	Title / Authors
14:00-14:20	3490	KEYNOTE: Selective Cell-based Smoothed Finite Element Method using 10-node Tetrahedral Elements for Large Deformation of Nearly Incompressible Solids / **Yuki Onishi**
14:20-14:35	3491	Electrodeposition Simulation with Edge-based Smoothed Finite Element Method using 4-node Tetrahedral Elements for Complex Car Body Shapes / **Kai Kitamura**
14:35-14:50	3183	Unsymmetric Mindlin-Reissner Plate/Shell Finite Elements Insensitive to Severe Mesh Distortion / **Yan Shang**
14:50-15:05	3249	Multi-region Isogeometric Analysis using Boundary Integral Equation / **Bonyong Koo**
15:05-15:20	3048	INVITED: Modeling Observational Learning with Recurrent Hopfield Neural Networks / **Giorgio Gosti**, Giancarlo Ruocco, Viola Folli
15:20-15:40	3299	KEYNOTE: An Octree Algorithm Together with the Cell-based Smoothed Finite Element Method (CS-FEM) for Adaptive Stress Analysis / Xu Han, **ShuYong Duan**, ShuHao Huo, YinShan Li, GuiRong Liu

Session 3.3E Chairs: *Marco Lepidi, Vladimir Skripnyak*
MS-032 Modeling of Fracture and Fragmentation of Solids under Dynamic Loading: Deterministic & Probabilistic Approaches

Time	ID	Title / Authors
16:05-16:25	3410	KEYNOTE: Numerical Simulation of Mechanical Behavior of Zr-Nb Alloys in a Wide Temperature Range / **Vladimir Skripnyak**, Evgeniya Skripnyak, Vladimir Skripnyak, Vitas Serbenta, Natalia Skripnyak
16:25-16:40	3364	INVITED: Numerical Simulation of Metal-intermetallic Laminate Composites Failure Under Dynamic Loading / **Sergey Zelepugin**, Alexey Zelepugin, Alexey Popov, Dmitri Yanov
16:40-16:55	3409	INVITED: Fracture of Alpha Titanium Alloys at High Strain Rates and Stress Triaxiality / Vladimir Skripnyak, Alexander Kozulyn, **Evgeniya Skripnyak**, Vladimir Skripnyak
16:55-17:10	3246	Numerical Simulation of Simultaneous Multiple Fractures Initiation in Unconventional Reservoirs Through Injection Control of Horizontal Well / **Chuang Liu**
17:10-17:25	3540	Modeling of the plastic deformation of metal-intermetallic layered composites / **Yana Lipatnikova**, Artem Solov'ev, Yuliya Solov'eva, Vladimir Starenchenko
17:25-17:40		

ICCM2017 Young Researcher Best Paper Award Winners

Conference Chair: Professor Xu Han (Huna University, China)
Selection-Panel Chair: Dr. Guiyong Zhang (Dalian University of Technology, China)
Conference Venue: Guilin, Guangxi, China, Conference Date: 25th – 29th, July, 2017

ID	Name	Title	Affiliation	Country
2464	Lihua Wang	A Meshfree Method for Inverse Wave Propagation Using Collocation And Radial Basis Functions	Tongji University	China
2569	Zongjun Li	Numerical Modeling of a Hybrid GFRP-Concrete Beam Subjected To Low-Velocity Impact Loading	The University of New South Wales	Australia
2681	Yi Liu	Numerical Predictions of Hydrodynamic Forces and Squat of Ships in Confined Waters	Shanghai Jiao Tong University	China
2922	Hu Chen	A Coupled Phase-Field and Finite Element Method to Simulate Tthe Elasto-Plastic Deformation Induced Cementite Dissolution in Pearlitic Rail Steels	Tsinghua University	China
2303	Xiaoya Guo	A Segmentation Method for Intracoronary Optical Coherence Tomography (OCT) Image Based on Least Squares Support Vector Machine: Vulnerable Coronary Plaque Cap Thickness Quantification	Southeast University	China
2229	Kun Wang	3D Nonlinear Dynamical Analysis of Cable-Stayed Offshore Structures	University of Macau	China (Macau)
2342	Dong Sung Pae	Pattern Matching for Industrial Object Recognition Using Geometry Based Vector Mapping Descriptor	Korea University of Seoul	South Korea
2581	Shuangqiang Wang	Coupling Immersed Boundary-Lattice Boltzmann Method with Smoothed Point Interpolation Method for Large-Displacement Fluid-Structure Interaction Problems	Dalian University of Technology	China
2780	Tingzhe Huang	2-D Numerical Simulation of Grounded Electrical-source Airborne Transient Electromagnetic Exploration based on Meshfree Method	Jilin University	China
2530	Yan Li	Probabilistic Fracture Toughness Prediction of Composite Materials	California State University	USA
2285	Shoue Chen	Temperature Influences on the Performance Of A Dielectric Elastomer Generator With Consideration Of Dissipation Processes and Failures	Hunan University	China
2172	Zhilang Zhang	A new Formula for Predicting the Crater Size of a Target Plate Produced by Hypervelocity Impact	Peking University	China
2311	Junhong Yue	A Four-Noded Triangular (Tr4) Element for Solid Mechanics Problems with Curved Boundaries	Taiyuan University of Technology	China
2658	Songtao Chen	Meshfree Modeling of Heat Transfer in Selective Laser Melting Process	Dalian University of Technology	China

Note: ICCM2018 Young Researcher Best Paper Award Winners will be announced and awarded at ICCM2019. Other ICCM2018 **ICCM Awards** will be announced at the ICCM2018 Banquet.

Sapienza University of Rome *The largest University in Europe, The oldest University in Rome*

A brief history: Founded on April 20th **1303** by Pope Boniface VIII as "Studium Urbis". In **1431** Pope Eugene IV reorganized the Studium including four faculties (Law, Medicine, Philosophy and Theology) and buying a palace which later housed the Sant'Ivo alla Sapienza church, a baroque masterpiece built by Francesco Borromini. In **1808**, the Faculties were Sacred Sciences, Law, Philosophy, Medicine and Surgery, Philology. In **1904** the Policlinico Umberto I University hospital was opened as headquarters of the Faculty of Medicine and Surgery. In **1935** the new university campus designed by Marcello Piacentini, close to Termini railway station and Policlinico Umberto I, was completed

Organization: Sapienza is organised in 11 Faculties: Architecture, Arts and Humanities, Civil and Industrial Engineering, Economics, Information Engineering, Informatics and Statistics, Law, Mathematics, Physics, and Natural Sciences, Medicine and Dentistry, Medicine and Psychology, Pharmacy and Medicine, Political Science, Sociology, and Communication Science; and 2 Schools: Advanced Studies, Aerospace Engineering.

Internationalization: The main internationalization activities carried out by Sapienza are implemented at several levels, all closely related to each other: international agreements, internationalization of teaching and research, cooperation and development, international initiatives aimed at promoting the University abroad, participation in European projects for training, mobility and research, welcome office, welcome of international delegations.

Research: Sapienza promotes incoming mobility of foreign scholars as "visiting professors": 1 Call for proposals per year; Applicants: Sapienza's teachers and researchers interested in hosting a foreign scholar. In the last 3 years Sapienza hosted 256 visiting professors coming from the top Universities and Research Centres in the world. Sapienza took part into the Horizon2020 program. Sapienza University participates in a wide range of international projects addressing didactics, research and cooperation, both as a coordinator and as a project partner.

https://sites.google.com/a/uniroma1.it/multiscale-and-multiphysics-modelling-for-complex-materials/

MMCM (*Multiscale and Multiphysics Modelling for 'Complex Materials'*) group, coordinated by Patrizia Trovalusci, is a research team of experts in advanced mechanical modeling and development of multiscale computational methods for the analysis of composite and microstructured materials.
The main skills of the group regard the formulation of theoretical models and computational strategies via multiscale and multifield approaches for the simulation of complex materials, with internal structure and complex constitutive behaviour. The research team focuses on non-classic continuum formulations and constitutive models connecting different scales of descriptions for accounting at the macroscopic level of the microscopic characteristics and capturing the evolutionary behaviour, exploiting the dialogue among the different descriptive levels. Moreover, advanced computational tools, such as enhanced Finite Element formulations based on mixed-type variational functionals, Virtual Element Method and interactive Multiphysics codes, are developed to process and manufacture composite materials and to further progress in material science and structural engineering, structural analysis and optimization of new buildings and risk mitigation and reliability of our Cultural Heritage.

NOTES

NOTES

Rome

The "eternal city", is so called because it is a place of great beauty, contrast and life. Rome is an eclectic city: the religious world centre of Catholic Church, the fabulous ruins of the centre of the Roman Empire, and modern, bustling Rome. All three seem incongruous, yet they live inside and beside each other with great ease. You will soon realise Rome was built to rule and dominate the world. Everything is on a massive scale, solid and "eternal". Discover the greatness of Rome: Monuments, Museums, Buildings, Churches and Basilicas, Catacombs and Rome's Castles. Discover the Vicus Caprarius, called also "The City of Water", a fascinating archaeological area in the heart of Rome. This spectacular area is a recent excavation of an imperial roman quarter. In the Vicus Caprarius the same water of Trevi Fountain gushes out. Don't lose a walk in the gardens and villas or in search of the wonderful fountains of the city. Take note of Holiday and Feast in Rome! If you want to feel the roman atmosphere take a walk through the local typical markets! And don't forget to taste the Roman cuisine.
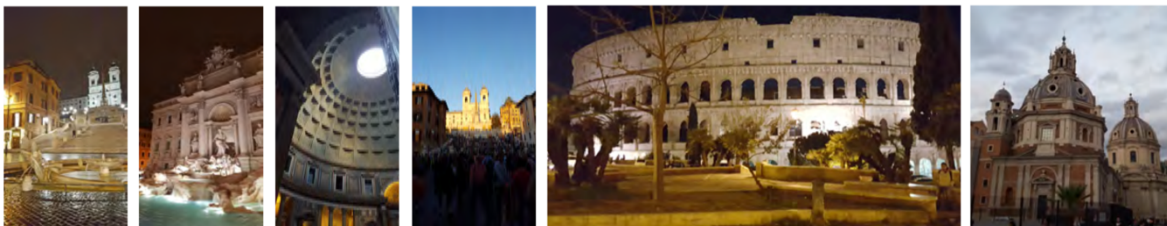
Auditorium Antonianum

At the Auditorium Antonianum, exceptional history and technology is combined with the philosophy of Franciscan hospitality and a fraternal welcome. Large and small rooms are all completed with a spirit of collaboration and the cordiality of personal attention. Every event hosted respects the centrality of the person. For the 64 years and more of its history courtesy and professionalism of the staff have been united with the importance of the past, in which the historical uniqueness of the building has been enhanced by a restoration and the installation of advanced technical facilities. The result is not only an exceptional venue in the heart of Rome, of great scenic impact and with perfect acoustics, but a whole new concept of hospitality.

Brancaccio Palace

The princely palace was built in the 29th Century by Salvatore Brancaccio member of one of the oldest and most prestigious families of the Neapolitan nobility, and by his wife Mary Elisabeth Field, rich American heiress. The building was conceived by architect Gaetano Koch - one of the most celebrated architects in Rome, in the 19th century, known also for the construction of Palazzo Koch, and for the two Esedra Palaces on Piazza della Repubblica -, and by Luke Carimini, another architect and sculptor in vogue at the time. The style of the building can be called "Baroque Classicism" in the sense that it embodies the characteristics of the glitz and elegance connected directly with the classic art.