12th European Solid Mechanics Conference
ESMC2025

Lyon 7th to 11th of July 2025

Scientific Program BOOK

Organised by :

The French Community of Solid Mechanics
The EUROpean society of MECHanics (EUROMECH)

Chaired by :

MatéIS Laboratory INSA Lyon France
Centre des Matériaux, Mines Paris PSL

MatéIS Matériaux Ingénierie et Science UMR 5510

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EUROPEAN MECHANICS SOCIETY

Welcome note to ESMC2025

Dear Colleagues,

We are delighted to wellcome all attendees of the 12th European Solid Mechanics Conference in Lyon, France, 7th – 1st July, 2025 (ESMC 2025). The conference is being held under the auspices of the European Mechanics Society (EUROMECH, https://euromech.org).

The European Solid Mechanics Conference is the major event for the solid mechanics community, and provides a unique forum for scientists and engineers from Europe and across the world to exchange ideas on the current state-of-the-art in the mechanics of solids, on new concepts and ideas and to identify new research directions.

Solid mechanics is the bedrock of engineering design in areas such as mechanical engineering, civil and structural engineering, and biomedical engineering. It is a critically important element in the design and development of almost all technologies and products in these areas, such as aircraft, automobiles, buildings, bridges, and medical implants and devices. Further, solid mechanics is a key enabler in the development of new technologies that address the major global challenges of our time in sustainability, renewable energy and health.

The first European Solid Mechanics Conference was held in Munich in 1991. This very successful conference initiated a tri-annual series with subsequent conferences held in Genova, Stockholm, Metz, Thessaloniki, Budapest, Lisbon, Graz, Madrid, Bologna, and Galway.

The 12th European Solid Mechanics Conference takes place at the Cité Internationale, in the city of Lyon, France.

We have assembled an outstanding group of invited plenary lecturers for the conference.

The conference is organised in terms of the following eight thopics:

- Mechanics of Materials
- Biomechanics
- Continuum Mechanics
- Experimental Mechanics
- Computational Mechanics
- Dynamics, Waves, and Metamaterials
- Structural Mechanics
- Tribology

There are over fifty Mini-Symposia that cover a range of specialised areas, grouped under each topic.

We warmly welcome you to the wonderful city of Lyon for what promises to be a very exciting and stimulating event.

Yours sincerely,

Eric MAIRE

Samuel FOREST

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- Julien Réthoré Ecole Centrale de Nantes,GeM, UMR CNRS 6183
- Jan Zeman Department of Mechanics Faculty of Civil Engineering Czech Technical University in Prague

Plenary lectures

Irene Arias

Irene Arias received a B.S. and M.S in Civil Engineering from Universitat Politècnica de Catalunya and a PhD in Mechanical Engineering from Northwestern University on a Fulbright/BSCH fellowship. She has been Professor of Civil Engineering at Universitat Politècnica de Catalunya since 2004. She received the Fellows Award of the International Association for Computational Mechanics (IAMC) in 2020. She was awarded an ERC Starting Grant in 2015 and was distinguished with an ICREA Academia Award in 2016. Her research focuses on the development of mathematical and computational models for electromechanics in complex materials at small scales. She is interested in exploring the effects of gradients on the physics of dielectrics and ferroelectrics, identifying fundamental manifestations and extracting the underlying engineering principles for a new generation of energy metamaterials.

Laurence Brassart

Laurence Brassart is an Associate Professor in the Solid Mechanics & Materials Group of the Department of Engineering Science at the University of Oxford. She received her diploma in Mechanical Engineering from the University of Louvain in 2007, followed by a PhD in Engineering Sciences from the same university in 2011. She then successively held postdoctoral positions at Harvard University (BAEF Fellowship) and the University of Louvain (FNRS Fellowship). From 2015 to 2019, she was a Senior Lecturer in the Department of Materials Science and Engineering at Monash University, Australia. Prof Brassart is the recipient of a prestigious Future Leaders Fellowship from UKRI (2022). She is an associate editor of the Journal of Theoretical, Computational and Applied Mechanics (JTCAM), a recently established journal committed to the principles of Open Access and Open Science. She also serves on the advisory boards of International Journal of Plasticity and International Journal of Solids and Structures. Prof Brassart's research focuses on the development of micromechanical and constitutive modelling approaches for engineering materials, including polymers, composites, soft materials, and energy materials, with emphasis on multiphysics aspects.

Laurence will present a talk entitled : Micromechanical modelling of rubbery networks

Gerhard A. Holzapfel (General lecture, Euromech solid mechanics prize)

Gerhard A. Holzapfel is Professor of Biomechanics and Head of the Institute of Biomechanics at Graz University of Technology (TUG), Austria, since 2007. He is also Adjunct Professor at the Norwegian University of Science and Technology (NTNU), Trondheim, Norway, and Visiting Professor at the University of Glasgow, Scotland. After his PhD in Mechanical Engineering in Graz he received an Erwin-Schrödinger Scholarship for foreign countries to be a Visiting Scholar at Stanford University (1993-95). Dr. Holzapfel has authored a graduate textbook entitled "Nonlinear Solid Mechanics. A Continuum Approach for Engineering", and co-edited seven books. He contributed chapters to 25+ other books, and published about 300 peer-reviewed journal articles. He is the co-founder and co-editor of the International Journal "Biomechanics and Modeling in Mechanobiology" (Springer). Among several awards and honors in the past years he is listed in "The World's Most Influential Scientific Minds: 2014" (Thomas Reuters), he received the Erwin Schrödinger Prize 2011 from the Austrian Academy of Sciences for his lifetime achievements, and he was awarded the 2021 William Prager Medal and the 2021 Warner T. Koiter Medal.

Gerhard will present a talk entitled: Selected Challenges of Nonlinear Solid Mechanics

Erica Lilleodden

Prof. Dr. Erica Lilleodden is the Director of the Fraunhofer Institute for Microstructure of Materials and Systems IMWS since February 2022. In her research work she is primarily concerned with the nano- and micromechanics of materials and correlations to microstructural characteristics. This serves to deepen an understanding of the application behavior of such materials and contributes to the tailor-made development of materials and multi-scale material systems with specific properties for high-performance applications. Following her studies in materials science at the University of Minnesota - Twin Cities and her Ph.D. at Stanford University, her professional career has included positions at Lawrence Berkeley National Laboratory (LBL), the Karlsruhe Institute of Technology (KIT) and at the Helmholtz Center hereon. From 2014 to 2022, she was Professor at the Hamburg University of Technology (TUHH) and is since 2023 Professor at the Martin Luther University in Halle. She is currently a member of the Board of Trustees of the Max Planck Institute of Microstructure Physics, the Board of Trustees of the Karl Heinz Beckurts Foundation and of the Scientific Advisory Board for the Leibniz-IWT. She was awarded the DGM Prize in 2019 and in 2023 was elected to acatech, the National Academy of Science and Engineering.

Erica will present a talk entitled: Micromechanics: the „strength“ of miniaturized testing

Pedro Reis

Pedro Miguel Reis is a Professor of Mechanical Engineering at the École Polytechnique Fédérale de Lausanne (EPFL) in Switzerland. He received a B.Sc. in Physics from the University of Manchester, UK (1999), a Certificate of Advanced Studies in Mathematics (Part III Maths) from St. John's College and DAMTP, University of Cambridge (2000), and a Ph.D. in physics from the University of Manchester (2004). He was a postdoc at the City College of New York (2004-2005) and at the CNRS/ESPCI in Paris (2005-2007). He joined MIT in 2007 as an Instructor in Applied Mathematics. In 2010, he moved to MIT's School of Engineering, with dual appointments in Mechanical Engineering and Civil and Environmental Engineering, first as the Esther and Harold E. Edgerton Assistant Professor and, since the summer of 2014, as Gilbert W. Winslow Associate Professor. In October 2013, the Popular Science magazine named Prof. Reis to its 2013 "Brilliant 10" list of young stars in Science and Technology. In 2021, he was the President of the Society of Engineering Science. Prof. Reis has also received the 2014 CAREER Award (NSF), the 2016 Thomas J.R. Hughes Young Investigator Award (Applied Mechanics Division of the ASME), the 2016 GSOFT Early Career Award for Soft Matter Research (APS), and he is a Fellow of the American Physical Society.

Pedro will present a talk entitled : Eggstreme Mechanics: Shell We Buckle?

Stéphane Roux

Stéphane Roux graduated from the Ecole Polytechnique in 1983 and the Ecole Nationale des Ponts et Chaussées (ENPC) in 1985. He received his Ph.D. in mechanical engineering from the ENPC in 1990. As a CNRS Research Professor, he served successively at the Ecole Supérieure de Physique et Chimie Industrielles de la Ville de Paris (ESPCI), at the joint CNRS/Saint-Gobain Research Laboratory, and currently, he is at the Laboratory of Mechanics Paris-Saclay at the Ecole Normale Supérieure de Paris-Saclay. His research activity is devoted to data processing and image-based measurements for experimental mechanics. This includes digital image correlation, stereo-correlation (for surface reconstructions in 3D), and also digital volume correlation for tomography. He holds 17 patents and is the author of more than 410 publications. He received the Silver Medal from the CNRS in 2006, and the Jaffé prize (French Academy of Sciences) in 2019.

Stéphane will present a talk entitled : Single-image DIC?

Vikram Deshpande (Euromech solid mechanics prize)

Vikram Deshpande is a professor of Materials Engineering at the University of Cambridge. He has also served on the faculties at the University of California, Santa Barbara and at the Technical University of Eindhoven. Prof. Deshpande has worked primarily in experimental and theoretical solid mechanics and has written 300+ peer-reviewed journal articles with his students and collaborators. He is the editor-in-chief of the Journal of the Mechanics and Physics of Solids (JMPS). His recognitions include the 2020 Rodney Hill Prize in Solid Mechanics, the 2022 Prager Medal, the 2022 ASME Koiter Medal, and the 2024 Bazant Medal ASCE. He has been elected Fellow of the Royal Society, London, the UK Royal Academy of Engineering, and an International Member of the US National Academy of Engineering (NAE).

Vikram will present a talk entitled : New measurement strategies in data-driven mechanics provide fresh physical insights

Mini Symposia

TOPIC: Mechanics of materials (MAT)

MS 1.1 - (FIBR) - Mechanics of fibrous materials and textiles
Organisers : Stepan Lomov (KU Leuven), Catalin Picu (Rensselaer Polytechnic Institute, USA), and Dmytro Vasiukov (IMT Nord Europe)

1.2 - (COMP) - Mechanics of composite materials
Organisers : Frédéric Laurin (ONERA) and François Guillet (CEA)

1.3 (ARCH) - Architected and additively manufactured materials (metals, polymers, ceramics)
Organisers : Emily D. Sanders (Georgia Tech), François Barthelat (CU Boulder), Eric Charkaluk (LMS Paris) and Dennis Kochmann (ETH Zurich)

1.4 (POLYC) - Multiscale modelling of polycrystalline materials
Organisers : Ivano Benedetti (University Palermo) and Marc Bernacki (CEMEF)

1.5 (CERA) - Mechanics of ceramics
Organisers : Sylvain Meille (MATEIS) and Emilio Jimenez-Piqué (UPC Barcelona)

1.6 (POLYM) - Mechanics of polymers
Organisers : Julie Diani (LMS), Jean-Luc Bouvard (CEMEF) and Florian Arbeiter (University Leoben)

1.7 (MMM) - Multiscale materials modelling from atoms to macroscale
Organisers : Sylvain Patinet (ESPCI), Renald Brenner (Institut Jean Le Rond D'alembert) and Sebastian Pfaller (FAU Nuremberg)

1.8 (ACT) - Mechanics of active and coupled materials
Organisers : Daniel Garcia Gonzalez (University Carlos III, Madrid) and Kostas Danas (LMS)

1.9 (MPS) - New challenges in the mechanics and physics of Solids
Organisers : Vikram Deshpande (University of Cambridge)

TOPIC: Biomechanics and Medical Implants (BIO)

2.1 (CELLS)- Mechanics of Cells, Proteins, and Microcapsules
Organisers : Anne-Virginie Salsac (UTC) and Patrick McGarry (NUI Galway), José Manuel Garcia Aznar (Universidad de Zaragoza) and Trantafyllos Stylianopoulos (University of Cyprusà)

2.2 (SOFT) - Mechanics of Soft Biological Tissues
Organisers : Aline Bel-Brunon (LAMCOS) and Gerard Ateshian (Columbia)

2.3 (CARD) - Cardiovascular Biomechanics
Organisers : Caitriona Lally (Trinity College Dublin), Christian Cyron (Hamburg University of Technology) and David Nordsletten (University of Michigan)

2.4 (MINE) - Mechanics of Mineralized Tissues
Organisers : Hanna Isaksson (Lund University), Christian Hellmich (TU Wien) and Rémy Gauthier (MATEIS)

2.5 (IMPL) - Mechanics of Biomaterials: from implant to Tissue Engineering
Organisers : Giulia Luraghi (Polimi), Diana Massai (Polito), Jérôme Chevalier (MATEIS), Jérôme Molimar (Ecole des Mines de Saint-Etienne), Svein Keliven (KTH Stockholm), Michael Gilchrist (University college of Dublin) and Philippe Beillas (University Gustave Eiffel)

TOPIC: Continuum Mechanics (CONT)

3.1 (HOM) - Homogenisation and Continuum Strategies for Multiphase Materials
Organisers : Carole Nadot-Martin (P', ISAE ENSMA), Pedro Ponte Castaneda (University of Pennsylvania), Martin Idiart (Universidad Nacional de La Plata) and Issam Doghri (UC Louvain)

3.2 (INST) - Material Instabilities Organisers : Odd Sture Hopperstad (NTNU, Norway) and Henryk Petryk (IPPT Pan)

3.3 (GRAN) - Mechanics and Physics of Dense Granular Media: Experiments, Theory and Modelling
Organisers : Stéphanie Deboeuf (Institut Jean le Rond D'Alembert) and Nathalie M. Vriend (University of Colorado, Boulder)

3.4 (FRAC) - Mechanics and physics of fracture
Organisers : Véronique Lazarus (ENSTA Paris), Eric Bitzek (Max Planck Institute Dusseldorf) and Matteo Ciccoti (ESPCI, Paris)

3.5 (NONL)- Nonlinear Elasticity
Organisers : Yibin Fu (Keele Univerisity) and Bilen Abali (Uppsala University, Sweden)

3.6 (Plast Dam) - Recent Advances in Plasticity and Damage Mechanics
Organisers : Gergely Molnár (LAMCOS), Claudia Comi (Polimi) and Corrado Maurini (Institut Jean le Rond D'Alembert)

3.7 (Fatigue)- Modeling fatigue of materials and structures
Organisers : Jean-Yves Buffière (MATEIS) and David Nowell (Imperial College London)

TOPIC: Experimental Mechanics (EXP)

4-1 (Micro Nano)- Experimental Micromechanics and Nanomechanics
Organisers : G. Dehm (MPIE-Dusseldorf), J. Molina (IMDEA-Madrid) and G. Kermouche (LGF-EMSE)

4.2 (Insitu)- In situ Mechanics
Organisers : D. Juul Jensen (DTU), J.P.M. Hoefnagels (TU-Eindhoven) and D. Seyedi (CEA-Saclay)

4.3 (Identif) - Non-invasive and Inverse Methods for Constitutive Parameter Identification
Organisers : S. Avril (SAINBIOSE-EMSE), S. Evans (Cardiff Univ) and J. Réthoré (GEM-ECN)

4.4 (Extreme)- Testing of materials and structures under extreme conditions or high-strain rate
Organisers :
P.Longère (ISAE-SUPAERO/ICA), Daniel Rittel (Technion), Michel Coret (GEM-ECN) and Fabien Souris (CEA)

TOPIC: Computational Mechanics (COMP)

5.1 (Microst) - Computational microstructures
Organisers : Karam Sab (ENPC) and Simone Morganti (University of Pavia)

5.2 (Manufac) - Computational methods for manufacturing and forming processes
Organisers : Lukasz Madej (TU Krakow) and Katia Mocellin (CEMEF, Mines Paris)

5.3 (Nonlin) - Computational nonlinear materials and couplings
Organisers : Andreas Menzel (TU Dortmund) and Julien Yvonnet (Université Gustave Eiffel)

5.4 (Dam Frac)- Computational methods for damage and fracture
Organisers : Nicolas Moes (UC Louvain) and Jean-François Molinari (EPFL)

5.5 (Energy) - Mechanical challenges in Energy Production/Harvesting/Storage
Organisers : Alberto Salvadori (University of Pavia) and Alejandro Franco (Université de Picardie Jules Verne)

5.6 (Reduc ML) - Model reduction and machine learning
Organisers : David Ryckelynk (Ecole des Mines de Paris) and Francisco Chinesta (ENSAM)

5.7 (Data)- Data driven approaches of materials structures and processes
Organisers : Laurent Stainier (EC Nantes), Michael Ortiz (Caltech) and Benjamin Klusemann (Leuphana University)

TOPIC: Dynamics, Waves and Metamaterials (WAV)

6.1 (Non Lin)- Nonlinear Dynamics in Mechanical and Structural Systems
Organisers : Sergey Sorokin (Aalborg University) and Daniele Zulli (University Aquila)

6.2 (Topo) - Elastic Metamaterials and Topological Aspects of Waves
Organisers : Agnès Maurel (ESPCI), Anastasiia O. Krushynska (Groningen, NL) and Régis Cottereau (CNRS Marseille, FR)

6.3 (Dyn) - Dynamic and transient phenomena, phase transitions, nonlinear waves
Organisers : Michael Nieves (Keele University) and Vincent Tournat (Le Mans Université)

TOPIC: Structural Mechanics (STRUC)

7.1 (Stability) - Nonconservative stability problems of structural mechanics and fluid structure interactions
Organisers : Oleg Kirillov (Northumbria University) and Olivier Doare (ENSTA Paristech)

7.2 (Historical) - Structural analysis of historical buildings
Organisers : M.Angelillo (Univ.Salerno), S. Huerta (UP Madrid)

7.4 (Mech Phys)- Mechanics and physics of structures
Organisers : Sebastien Neukirch (Sorbonne Universit), Benoit Roman (ESPCI), F. Dal Corso (Univ. Trento) and M.Diaz (University of Edinburgh)

7.6 (Topo) - Shape and topology optimization
Organisers : Francois Jouve (Université Paris Cité), Alex Ferrer (CIMNE, Spain)

TOPIC: Tribology (TRIBO)

8.1 (Contact) - Contact Mechanics
Organisers : Lars Pastewka (University of Freiburg), Nicola Menga (Politecnico Bari), and Thibaut Chaise (LAMCOS)

8.2 (Lub)- Lubrication and Interfacial Rheology
Organisers : Juliette Cayer-Barrioz (Ecole Centrale Lyon) and Nicolas Fillot (LAMCOS)

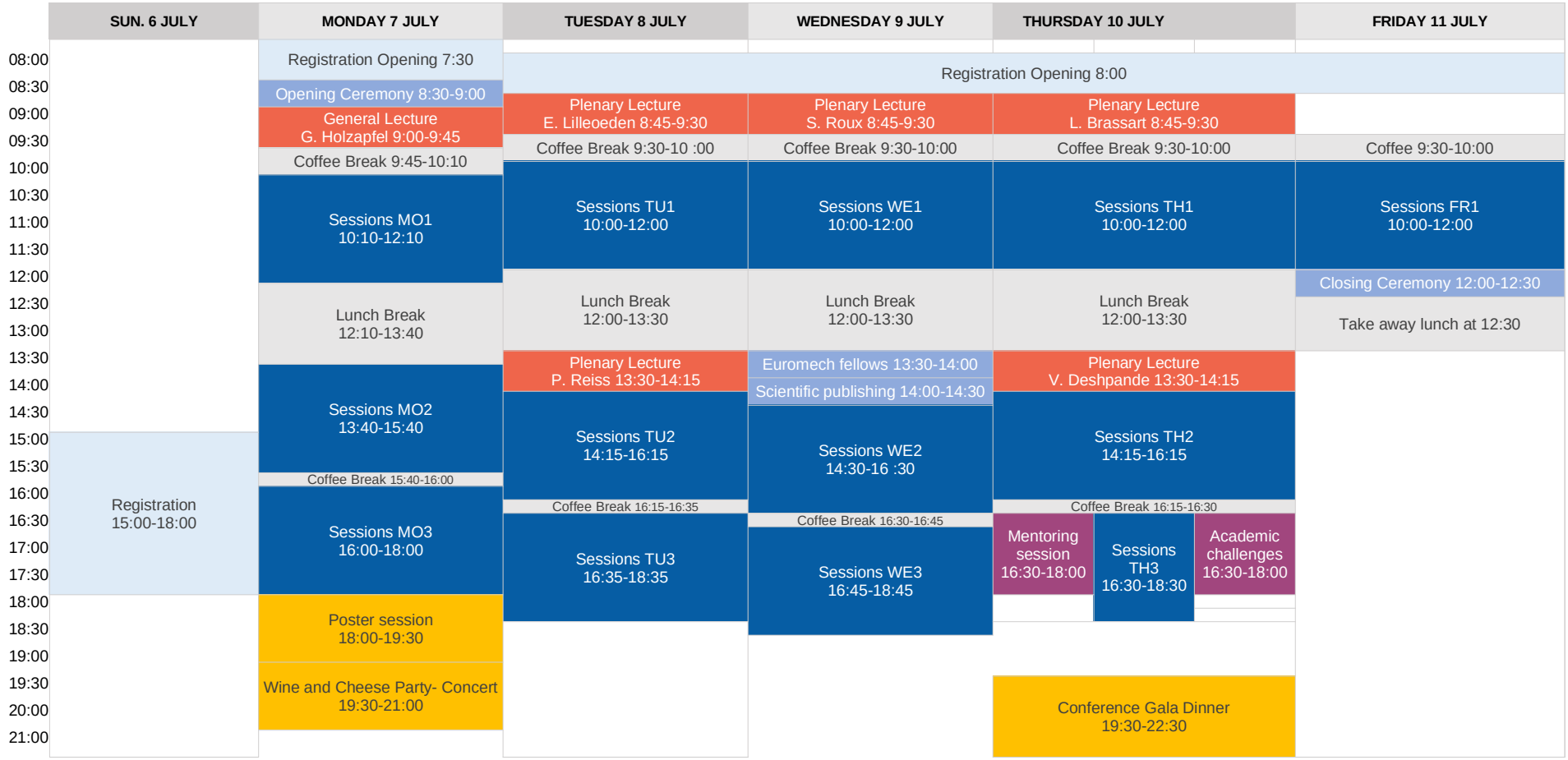
8.3 (Wear)- Wear Mechanisms
Organisers : Martin Dienwiebel (Karlsruhe Institute of Technology), Anna Igual Munoz (EPFL), Aurélien Saulot (LAMCOS)

8.4 (Fric)- Fundamentals of Friction
Organisers : Clelia Righi (University of Bologna), Lucas Frérot (Institut Jean Le Rond D'Alembert) and Denis Mazuyer (Ecole Centrale Lyon)

8.5 (Fretting) - Fretting Wear & Fretting Fatigue
Organisers : Siegfried Fouvry (Ecole des Mines de Paris), Tomasz Liskiewicz (Manchester Metropolitan University) et Sylvie Descartes (LAMCOS)

8.6 (Tactile) - Tactile and Perception
Organisers : Marie-Ange Bueno (ENSISA) Mark Rutland (KTH), and Francesco Massi (University of Rome)

PROGRAM at a glance



Parallel sessions dispatch in rooms

Session	Monday sessions July 7th			Tuesday sessions July 8th			Wednesday sessions July 9th			Thursday sessions July 10th			Friday Jul. 11th
Room	10:10-12:10	13:40-15:40	16:00-18:00	10:00-12:00	14:15-16:15	16:35-18:35	10:00-12:00	14:30-16:30	16:45-18:45	10:00-12:00	14:15-16:15	16:30-18:30	10:00-12:00
	MO1	MO2	MO3	TU1	TU2	TU3	WE1	WE2	WE3	TH1	TH2	TH3	FR1
Amphi lumière LVL-1	MS7.4 Mechanics and physics of structures (STRU)											Women in science	
Audi pasteur LVL1	MS1.3 Architected and additively manufactured materials (metals, polymers, ceramics) (MAT)											Women in science	
Salon pasteur LVL1	MS4.1 Experimental Micromechanics and Nanomechanics (EXP)											Women in science	
Rhône 1 LVL1	MS1.1 Mechanics of fibrous materials and textiles (MAT)					MS3.1 Homogenisation and Continuum Strategies for Multiphase Materials (CONT)						mentoring	MS3.1
Rhône 2 LVL1	MS3.4 Mechanics and physics of fracture (CONT)									MS5.7 Data driven approaches of mat. struc. and proc. (COMP)			
Rhône 3A LVL1		MS1.8 Mechanics of active and coupled materials (MAT)					Young Scientist Award			MS2.4 Miner. Tissues (BIO)		mentoring	MS2.4
Rhône 3B LVL1	MS1.2 Mechanics of composite materials (MAT)									MS2.5 biomaterials (BIO)		mentoring	MS2.5
Rhône 4 LVL1	MS6.1 Nonlinear Dynamics in Mechanical and Structural Systems (WAV)						MS2.2 Mechanics of Soft Biological Tissues (BIO)						
Rhône 5 LVL1	MS7.6 Shape & topological optim. (STRU)			MS5.2 Processes (COMP)			MS1.4 Multiscale modelling of polycrystalline materials (MAT)				MS8.4 Fundamentals of friction (TRIBO)		
Roseraie 1 LVL3	MS1.5 Mechanics of ceramics (MAT)			MS5.6 Mod. red. & machine learning (COMP)			MS5.4 Computational methods for damage and fracture (COMP)					MS8.6 Tactile & percep. (TRIBO)	
Roseraie 2 LVL3	MS6.3 Dynamic and transient phenomena, phase transitions, nonlinear waves (WAV)							MS6.2 Elast. Metamater. & Topo. Aspects of Waves (WAV)				mentoring	MS6.2
Roseraie 3 LVL3		MS1.6 Mechanics of Polymers (MAT)						MS2.3 Cardiovascular Biomechanics (BIO)				mentoring	MS2.3
Saint Clair 1 LVL2	MS3.5 Nonlinear Elasticity (CONT)						MS3.3 Mech and Physics of Dense Granular Media (CONT)				MS2.1 Cells	mentoring	MS2.1 (BIO)
Saint Clair 2 LVL2	MS3.6 Recent Advances in Plasticity and Damage Mechanics (CONT)							MS3.7 Modeling fatigue of materials and structures (CONT)				mentoring	3.7
Saint Clair 3A LVL2	MS1.7 Multiscale materials modelling from atoms to macroscale (MAT)								MS5.3 Nonlin. mat. & couplings (COMP)			mentoring	5.3
Saint Clair 3B LVL2	MS4.2 In situ Mechanics (EXP)						MS1.9 New challenges in mech. & phys. Solids (MAT)				MS8.5 Fretting	mentoring	MS8.5 (TRIBO)
Saint Clair 4 LVL2	MS8.1 Contact Mechanics (TRIBO)					MS3.2 Material Instabilities (CONT)				MS4.3 Param Identification		mentoring	
Saint Clair 5 LVL2		MS 7.2 Histor. Buildings (STRU)			MS7.0 (STRU) General session				MS4.4 Extreme conditions (EXP)			mentoring	MS4.4 (EXP)
Bureau Forum 2 LVL-2		MS5.5 Energy (COMP)		MS5.1 Comput. microstructures (COMP)			MS8.3 Wear Mechanics (TRIBO)			MS7.1 Stability (STRU)		MS8.2 Lubrification ... (TRIBO)	

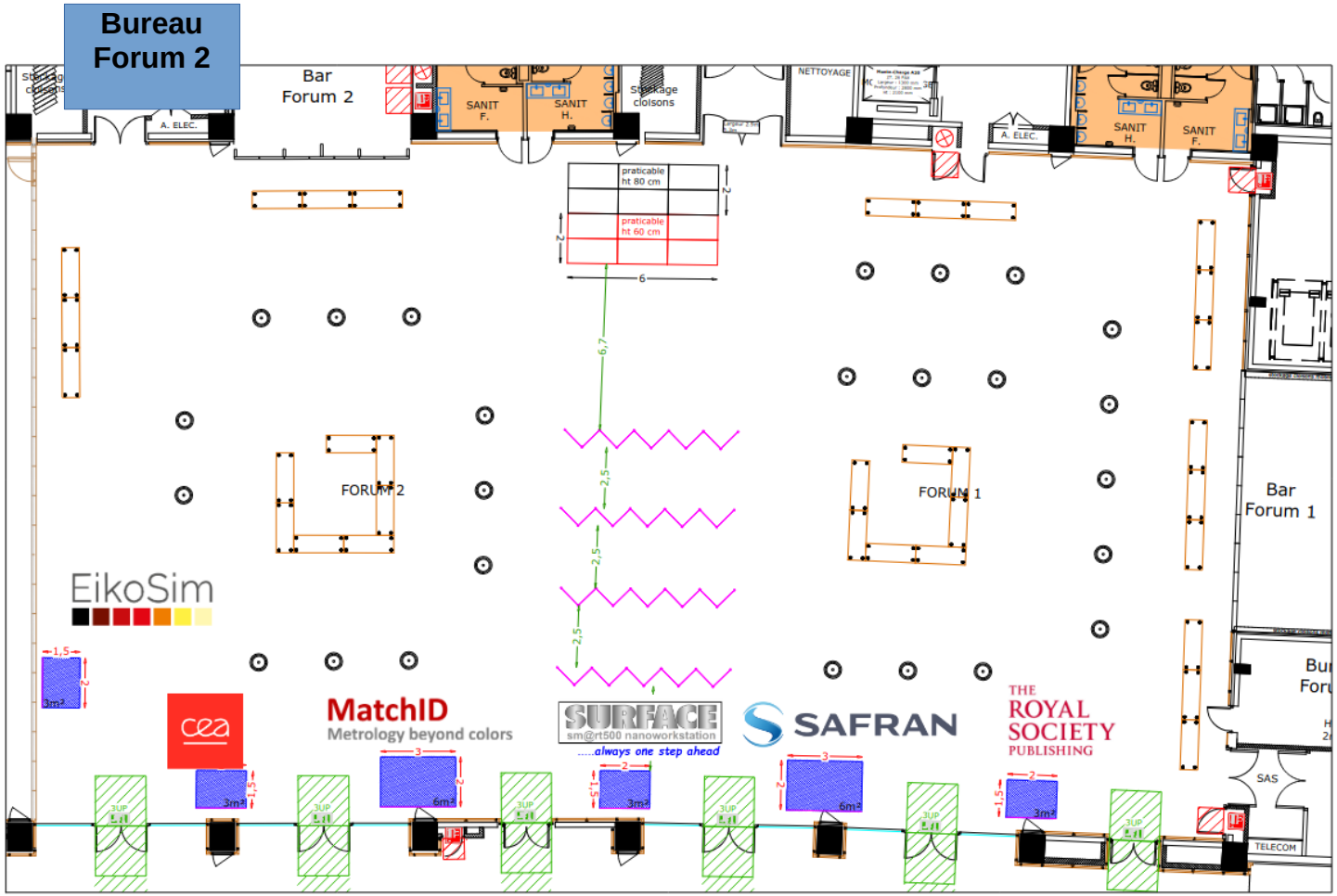
TOPICS COLOR CODE
MECHANICS OF MATERIALS
BIO MECHANICS
CONTINUUM MECHANICS
EXPERIMENTAL MECHANICS
COMPUTATIONAL MECHANICS
WAVES
STRUCTURAL MECHANICS
TRIBOLOGY

MAPS of the Conference center

MAP of Level -2

Rhône river

Parc de la tête d'or

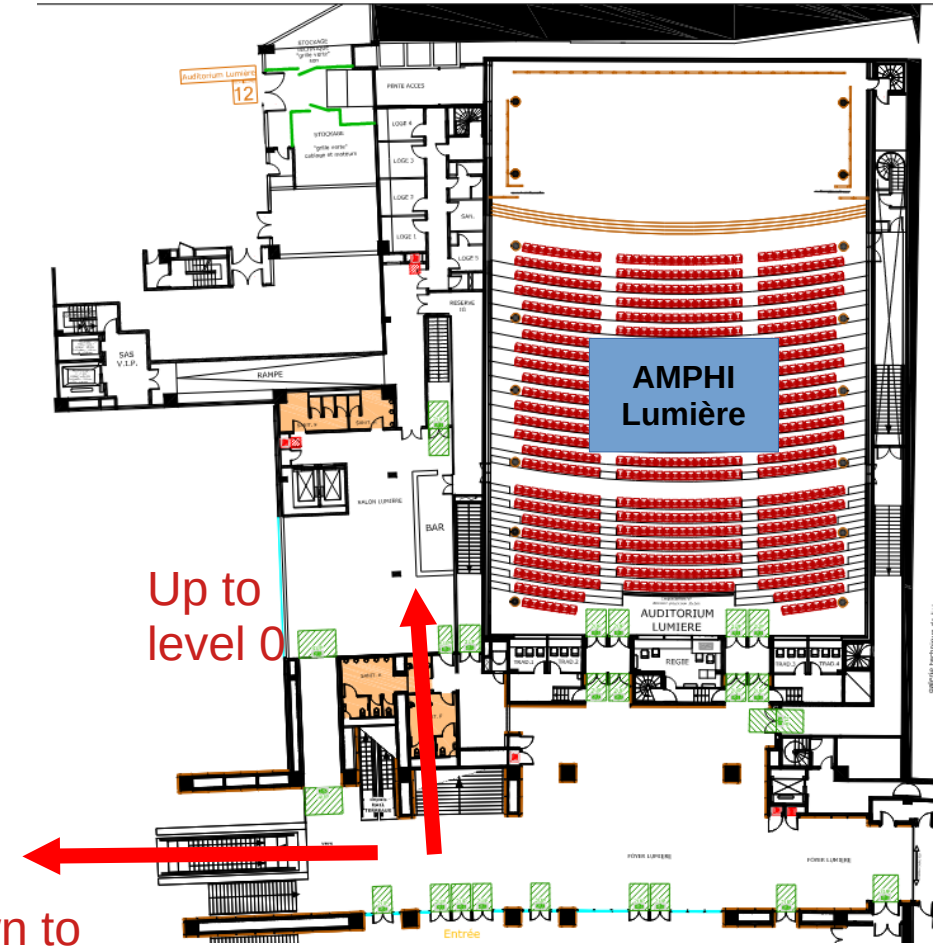


Up to level -1

MAP of Level -1

Rhône river

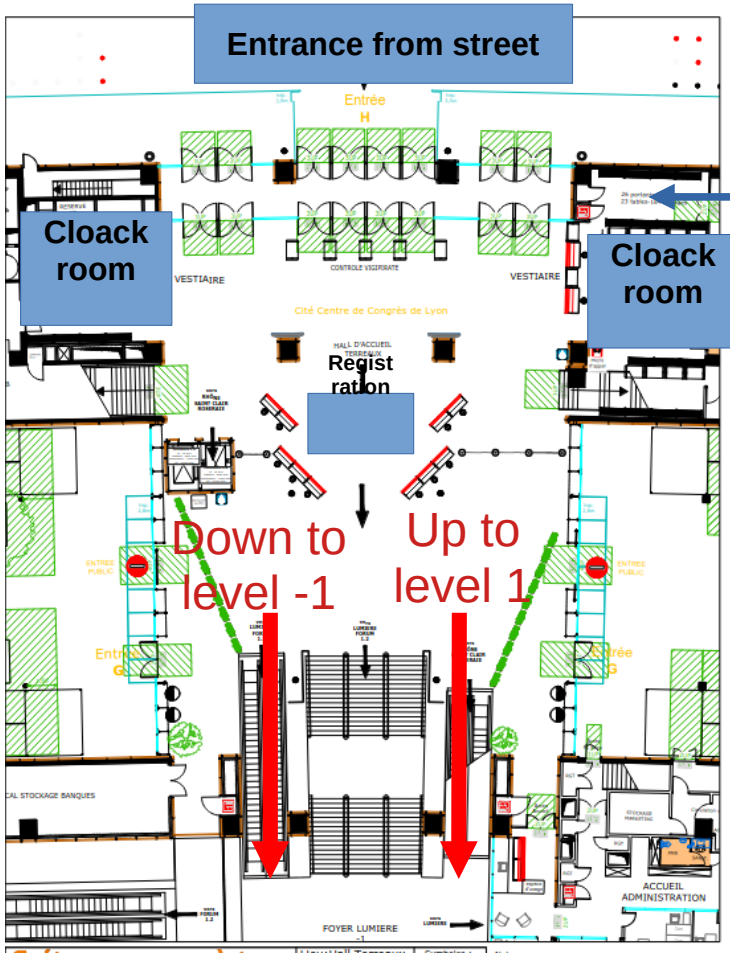
Parc de la tête d'or



MAP of Level 0

Rhône river

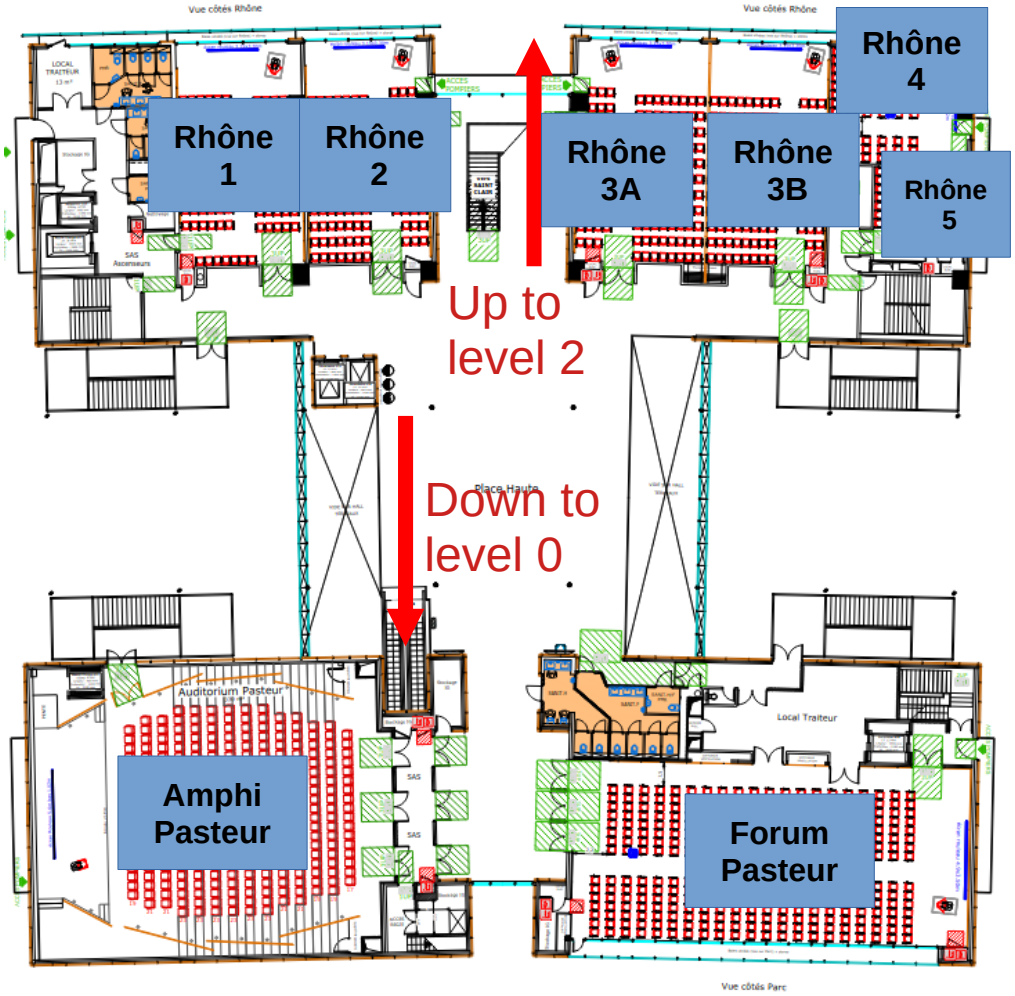
Parc de la tête d'or



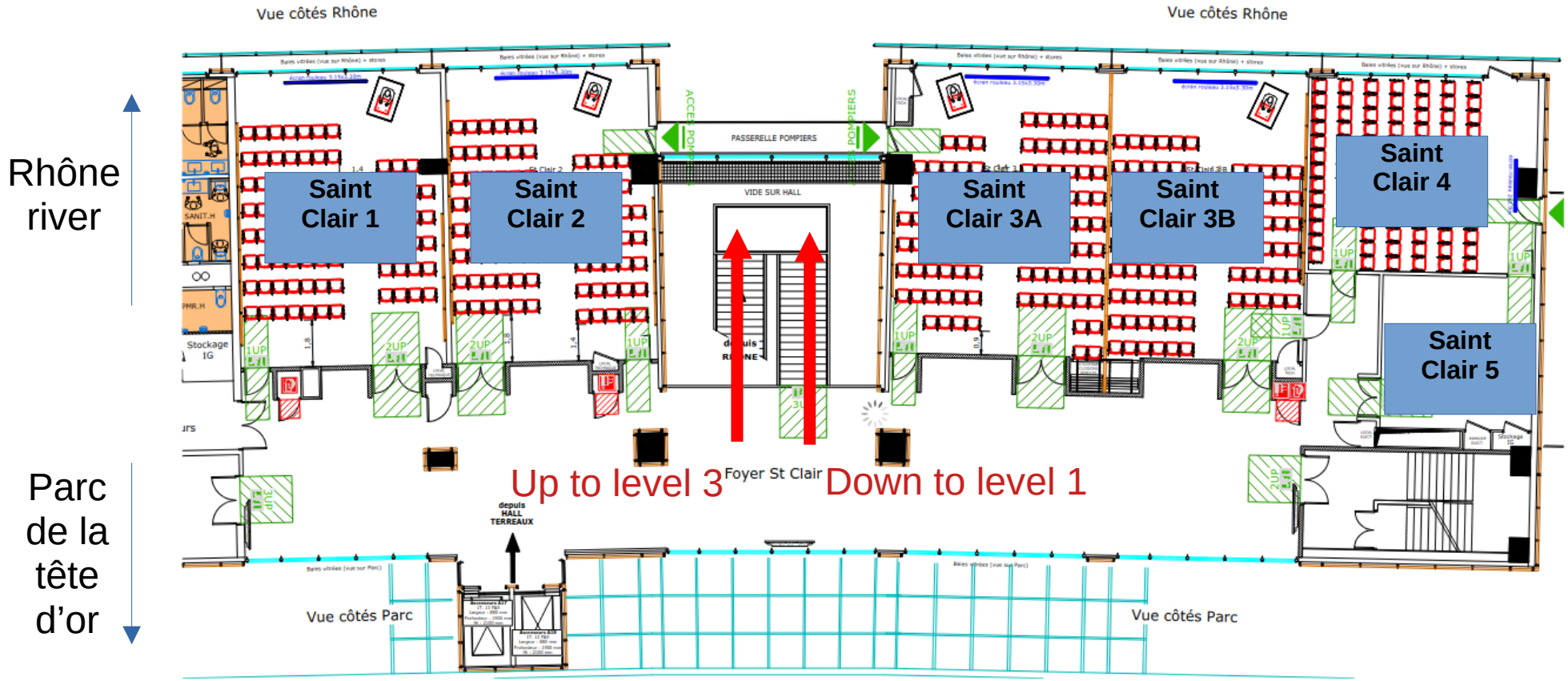
MAP of Level 1

Rhône river

Parc de la tête d'or



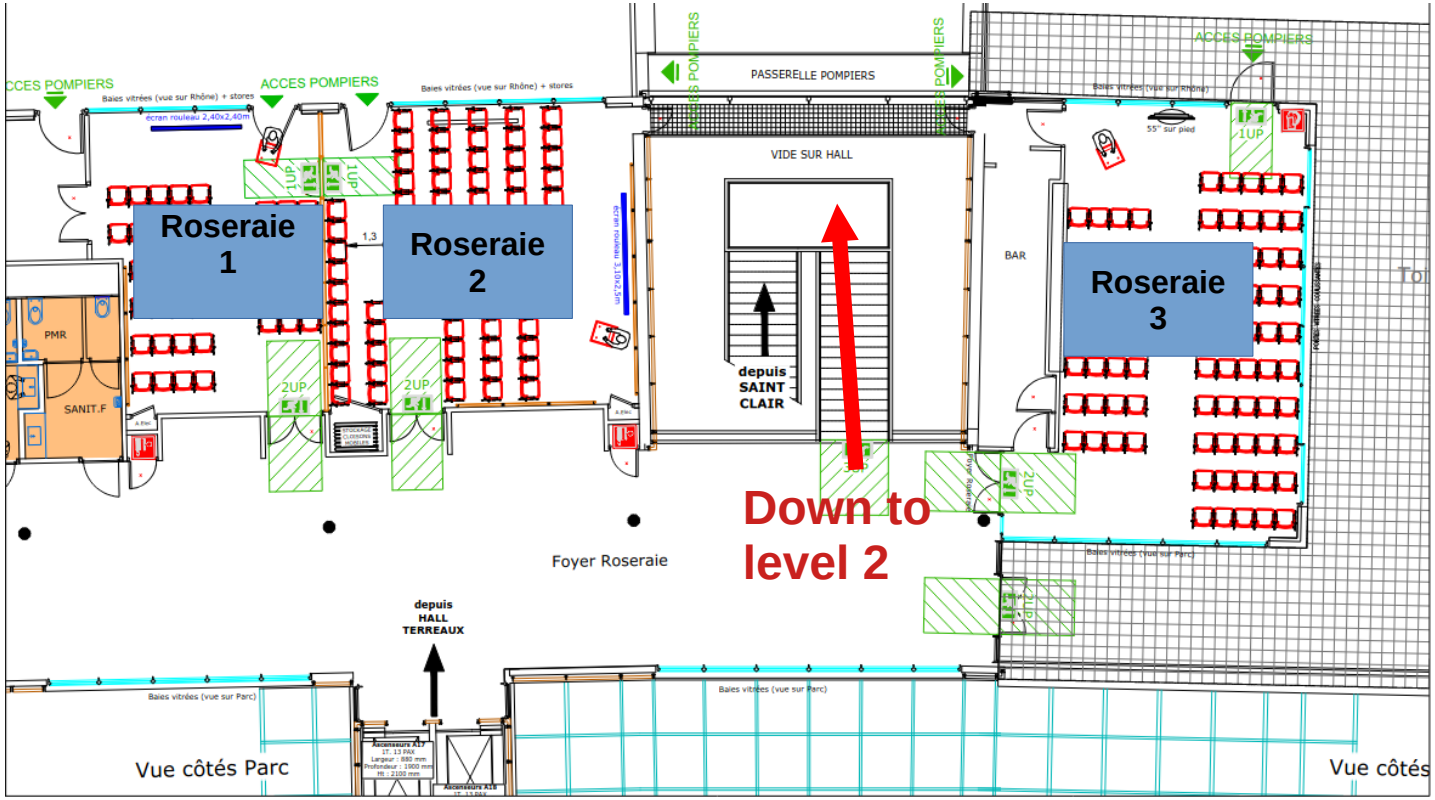
MAP of Level 2



MAP of Level 3

Rhône river

Parc de la tête d'or



Detailed Scientific Program

ESMC, July 6-11, 2025, Lyon, France

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Plenary Lectures

Selected Challenges of Nonlinear Solid Mechanics
Holzapfel Gerhard A.. **Monday**. Start time: **9:00**. Room: Amphi lumière, Amphi pasteur, Salon pasteur. Link to abstract.

Micromechanics: the „strength“ of miniaturized testing
Erica Lilleodden. **Tuesday**. Start time: **9:00**. Room: Amphi lumière, Amphi pasteur, Salon pasteur. Link to abstract.

Eggstreme Mechanics: Shell We Buckle?
Reis Pedro. **Tuesday**. Start time: **13:30**. Room: Amphi lumière, Amphi pasteur, Salon pasteur. Link to abstract.

Single-image DIC?
Roux Stéphane. **Wednesday**. Start time: **8:45**. Room: Amphi lumière, Amphi pasteur, Salon pasteur. Link to abstract.

Micromechanical modelling of rubbery networks
Brassart Laurence. **Thursday**. Start time: **8:45**. Room: Amphi lumière, Amphi pasteur, Salon pasteur. Link to abstract.

New measurement strategies in data-driven mechanics provide fresh physical insights
Deshpande Vikram. **Thursday**. Start time: **13:30**. Room: Amphi lumière, Amphi pasteur, Salon pasteur. Link to abstract.

TOPIC: Mechanics of materials

MS1.1 - Mechanics of fibrous materials and textiles

Organisers: Stepan Lomov (KU Leuven), Catalin Picu (Rensselaer Polytechnic Institute, USA), and Dmytro Vasiukov (IMT Nord Europe)

MS1.1 - Monday

Session: MS1.1 - MO1

Session chair(s) and Assistant Chair (AC): Catalin Picu; Céline Varvenne (AC)

Fluid effects on the fracture toughness of gels
Bassani John. Keynote. **Monday**. Start time: **10:10**. Room: Rhône 1 LVL1. Link to abstract.

Understanding the moisture transport and swelling in paper by using a multi-phase flow approach
Rojas Vega C.a.. **Monday**. Start time: **10:50**. Room: Rhône 1 LVL1. Link to abstract.

Water uptake in wood explained by in situ X-ray tomography observation and digital volume correlation
Bordage Romain. **Monday**. Start time: **11:10**. Room: Rhône 1 LVL1. Link to abstract.

Mechanochromic sensor for measuring high strain in the healthcare sector
Fierling Ségolène. **Monday**. Start time: **11:30**. Room: Rhône 1 LVL1. Link to abstract.

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Session: MS1.1 - MO2

Session chairs: Dmytro Vasiukov; Mateo Groux (AC)

Failure of Network Materials: from Stochastic Damage to Fracture
Picu Catalin. **Monday**. Start time: **13:40**. Room: Rhône 1 LVL1. Link to abstract.

Mechanics of Damage Propagation in Thermally Bonded Non-Wovens
Sen Shashwati. **Monday**. Start time: **14:00**. Room: Rhône 1 LVL1. Link to abstract.

Tunable mechanics of bioinspired adaptive fibrillar materials with transient crosslinking and entanglement
Pensalfini Marco. **Monday**. Start time: **14:20**. Room: Rhône 1 LVL1. Link to abstract.

Mechanical behaviour of a model random fiber network under harmonic small strain
Markey Grégoire or Barthel Etienne. **Monday**. Start time: **14:40**. Room: Rhône 1 LVL1. Link to abstract.

Accurate frictional contact algorithms for the numerical exploration of the mechanics of fibrous assemblies
Hohnadel Emile. **Monday**. Start time: **15:00**. Room: Rhône 1 LVL1. Link to abstract.

Basket Weaving Provides Remarkable Stiffness and Resilience for Functional Structures
Filipov Evgueni. **Monday**. Start time: **15:20**. Room: Rhône 1 LVL1. Link to abstract.

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Session: MS1.1 - MO3

Session chairs: Emanuela Bosco; Anwar Gamra (AC)

Full sample fiber network models of nonwoven textiles
Tkachuk Anton. **Monday**. Start time: **16:00**. Room: Rhône 1 LVL1. Link to abstract.

Local mechanical characterization of soft fibrous materials
Cameron Paula. **Monday**. Start time: **16:20**. Room: Rhône 1 LVL1. Link to abstract.

Development of a Biaxial Loading Device for Advanced Fibrous Materials (Identifying the Thermomechanical Behavior Laws of Viscoelastic-Plastic Materials with Complex Structures)
Hussein Mahmoud. **Monday**. Start time: **16:40**. Room: Rhône 1 LVL1. Link to abstract.

A multi-scale modelling-experimental framework for predicting the chemo-mechanical degradation of paper
Bosco Emanuela. **Monday**. Start time: **17:00**. Room: Rhône 1 LVL1. Link to abstract.

An elasto-plastic material model for paper and paperboard at finite deformations.
Ochoa Ontiveros Lilian Aurora. **Monday**. Start time: **17:20**. Room: Rhône 1 LVL1. Link to abstract.

Fracture mechanics of paper using cellulose from cow dung
Harrison Thomas. **Monday**. Start time: **17:40**. Room: Rhône 1 LVL1. Link to abstract.

MS1.1 - Tuesday

Session: MS1.1 - TU1

Session chair(s) and Assistant Chair (AC): Ron Peerlings; Mateo Groux (AC)

Dynamic Behavior of Parachute Canopy Fabrics and Seams
Amirkhizi Alireza. Keynote. **Tuesday**. Start time: **10:00**. Room: Rhône 1 LVL1. Link to abstract.

Bias-extension test of woven fabrics: an advanced analysis through X-ray microtomography and Digital Volume Correlation
Dumont Pierre. **Tuesday**. Start time: **10:40**. Room: Rhône 1 LVL1. Link to abstract.

Multiscale study of ballistic fabric mechanical properties over a wide strain rate range
Begaud Marie-Amélie. **Tuesday**. Start time: **11:00**. Room: Rhône 1 LVL1. Link to abstract.

TEXTILE-ELASTOMER COMPOSITES: IN-DEPTH COMPARISON OF EXPERIMENTAL RESULTS AND FIBER SCALE SIMULATIONS
Auteri Gianluca. **Tuesday**. Start time: **11:20**. Room: Rhône 1 LVL1. Link to abstract.

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Session: MS1.1 - TU2

Session chairs: Gregoire Markey; Joël Courbon (AC)

Deformation mechanisms and spinning conditions controlling the mechanical response of spider silk fibers
Olivé Renata or Cohen Noy. **Tuesday**. Start time: **14:15**. Room: Rhône 1 LVL1. Link to abstract.

Development of an Analytical Mechanical Model of Staple Fibre Yarns from fibre tensile and friction properties
Balestier Nathan. **Tuesday**. Start time: **14:35**. Room: Rhône 1 LVL1. Link to abstract.

Exploring dry and lubricated sliding friction behaviour of carbon fibre tows: Discrete Element Method simulations and mixed lubrication model
Smerdova Olga. **Tuesday**. Start time: **14:55**. Room: Rhône 1 LVL1. Link to abstract.

Impact of fiber pre-opening and number of passes on the properties of recycled carbon fibers from carded webs
Ivars Jean. **Tuesday**. Start time: **15:15**. Room: Rhône 1 LVL1. Link to abstract.

MS1.2 - Mechanics of composite materials

Organisers: Frédéric Laurin (ONERA) and François Guillet (CEA)

MS1.2 - Monday

Session: MS1.2 - MO1

Session chair(s) and Assistant Chair (AC): Florent Bouillon (SAFRAN); Mathieu Bossy (AC)

An Experimental Investigation on Flexural and Interlaminar Shear Behavior of Glass Fiber Reinforced Polymer Composites under Extreme Environments
Tudu Suplal or Ramachandran Velmurugan. **Monday**. Start time: **10:10**. Room: Rhône 3B LVL1. Link to abstract.

Analysis of the compression process of an angle made of flax fibers in a PLA resin matrix
Gawryluk Jarosław. **Monday**. Start time: **10:30**. Room: Rhône 3B LVL1. Link to abstract.

Characterizing Adhesion and Failure in Overmolded T-Joint Composites with Novel Isostatic Fixtures
Daghia Federica. **Monday**. Start time: **10:50**. Room: Rhône 3B LVL1. Link to abstract.

Linear viscoelasticity of anisotropic carbon fibers reinforced thermoplastics: from micromechanics to dynamic torsion experiments
Diani Julie. **Monday**. Start time: **11:10**. Room: Rhône 3B LVL1. Link to abstract.

Evaluation of the strain gradient effect on compressive failure of CRFP composites
Bianchi Tobias. **Monday**. Start time: **11:30**. Room: Rhône 3B LVL1. Link to abstract.

Experimental characterization and numerical simulations of fracture of interfaces in mode I and II for printed circuit boards application
Ziouani Charaf-Eddine. **Monday**. Start time: **11:50**. Room: Rhône 3B LVL1. Link to abstract.

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Session: MS1.2 - MO2

Session chairs: Frédéric Laurin (ONERA); Fatima-Zahra Moul-el-Ksour (AC)

Development of a technological test for an aircraft braking application: Study of a carbon/carbon composite and metal structure assembly
Bouillon Florent. **Monday**. Start time: **13:40**. Room: Rhône 3B LVL1. Link to abstract.

Comparative study on the residual flexural behavior of woven-ply reinforced thermoplastic or thermosetting laminates exposed to a hydrogen/oxygen flame
Vacandare Julie. **Monday**. Start time: **14:00**. Room: Rhône 3B LVL1. Link to abstract.

Design and analysis of helical vertical axis offshore wind turbine
Fereidoonnezhad Mohammad. **Monday**. Start time: **14:20**. Room: Rhône 3B LVL1. Link to abstract.

Accelerating innovations in building envelope materials using orchestrated multiscale material modelling workflows
Mercier David. **Monday**. Start time: **14:40**. Room: Rhône 3B LVL1. Link to abstract.

Energy Efficient Morphogenic Manufacturing of Composite Materials in Space and on Earth
Tawfick Sameh. **Monday**. Start time: **15:00**. Room: Rhône 3B LVL1. Link to abstract.

Novel Methodology for Monitoring Skin-Stringer Delamination Growth In Thermoplastic Composite Panels
Turteltaub Sergio. **Monday**. Start time: **15:20**. Room: Rhône 3B LVL1. Link to abstract.

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Session: MS1.2 - MO3

Session chairs: François Guillet (CEA); Geneviève Foray (AC)

Scale and stacking e ects of laminated composite plates with geometric singularities : A critical numerical/experimental comparison
Ha Minh Cuong. **Monday**. Start time: **16:00**. Room: Rhône 3B LVL1. Link to abstract.

WIRE-MATRIX DEBONDING UNDER TRANSVERSE LOAD: Inverse identification of a cohesive zone model for the interface
Fradet Adrien. **Monday**. Start time: **16:20**. Room: Rhône 3B LVL1. Link to abstract.

Carbon Fiber-Reinforced Polymer Composites: Enhanced Properties through Nanoparticle and Thin Film Integration
Haiden Lukas. **Monday**. Start time: **16:40**. Room: Rhône 3B LVL1. Link to abstract.

Experimental study using interfacial inserts to create bridging to improve delamination response in composites
Daghia Federica . **Monday**. Start time: **17:00**. Room: Rhône 3B LVL1. Link to abstract.

A compact model for the micro- to macro-scopic deformation behavior of natural short-fibre reinforced semi-crystalline polymer composites
Holopainen Sami. **Monday**. Start time: **17:20**. Room: Rhône 3B LVL1. Link to abstract.

A mesoscopic constitutive model for simulating rate-dependent plasticity and creep in unidirectional polymer composites
Hofman Pieter. **Monday**. Start time: **17:40**. Room: Rhône 3B LVL1. Link to abstract.

MS1.2 - Tuesday

Session: MS1.2 - TU1

Session chair(s) and Assistant Chair (AC): Federica Daghia (LMPS); Christophe le Bourlot (AC)

Mechanical properties of titanium matrix composites produced by Electro-Sinter Forging
Denis Gaëtan. **Tuesday**. Start time: **10:00**. Room: Rhône 3B LVL1. Link to abstract.

Behavior and damage study of Oxide/Oxide CMCs using in-situ Micro-CT test and Digital Volume Correlation
Thomas Drouin. **Tuesday**. Start time: **10:20**. Room: Rhône 3B LVL1. Link to abstract.

Experimental characterization and modeling of concrete behavior under highly confined compression loading
Calmels Théo. **Tuesday**. Start time: **10:40**. Room: Rhône 3B LVL1. Link to abstract.

Gradient damage model for simulating thermo-mechanical coupling: application to composite material degradation
Abdoussalam Mhadji. **Tuesday**. Start time: **11:00**. Room: Rhône 3B LVL1. Link to abstract.

Effect of the viscoelastic behavior of the composite substrates on the thermomechanical modeling of a printed circuit board
Girard Gautier. **Tuesday**. Start time: **11:20**. Room: Rhône 3B LVL1. Link to abstract.

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Session: MS1.2 - TU2

Session chairs: Frédéric Laurin (ONERA); Matéo Groux (AC)

Failure Analysis of a Thick Composite Tidal Turbine Blade
Valdivia-Camacho Miguel A.. **Tuesday**. Start time: **14:15**. Room: Rhône 3B LVL1. Link to abstract.

Post-fire fracture behavior of hybrid PEEK thermoplastic composite laminates under one-sided kerosene flame aggression: Experimental and numerical analysis
Lin Lanhui. **Tuesday**. Start time: **14:35**. Room: Rhône 3B LVL1. Link to abstract.

Identification method of the resin shrinkage: Application to woven composite used in Power Electronics
Leicht Mickaël. **Tuesday**. Start time: **14:55**. Room: Rhône 3B LVL1. Link to abstract.

Design of bio-inspired glass-sponge lightweight cellular structures and manufacture via 3D printing continuous flax fiber biobased composite for energy absorption application
Caillault Thomas. **Tuesday**. Start time: **15:15**. Room: Rhône 3B LVL1. Link to abstract.

Analytical modeling for ballistic impact behavior of multi-layer composite structure
Xiao Liping. **Tuesday**. Start time: **15:35**. Room: Rhône 3B LVL1. Link to abstract.

Thermal-mechanical-chemical coupled model and three-dimensional damage evaluation based on computed tomography for high-energy laser-ablated CFRP
Zhao Zeang. **Tuesday**. Start time: **15:55**. Room: Rhône 3B LVL1. Link to abstract.

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Session: MS1.2 - TU3

Session chairs: François Guillet (CEA); Matéo Groux (AC)

Influence of the fiber length distribution on the modeling procedure of short fiber-reinforced composites by cross-correlated non-Gaussian random fields
Widera Ilona Małgorzata. **Tuesday**. Start time: **16:35**. Room: Rhône 3B LVL1. Link to abstract.

Microstructure-sensitive modelling of solid explosives under mechanical impulse
Ushasi Roy Dr.. **Tuesday**. Start time: **16:55**. Room: Rhône 3B LVL1. Link to abstract.

Closed-form estimates of the homogenized elastic properties for bio-inspired staggered composites
Gaziano Pierfrancesco. **Tuesday**. Start time: **17:15**. Room: Rhône 3B LVL1. Link to abstract.

2D+ multi-scale method for industrial design of multi-layered bending plates
Triclot Julie. **Tuesday**. Start time: **17:35**. Room: Rhône 3B LVL1. Link to abstract.

On the computational methods for the analysis of transversely flexible sandwich beams
Balestro Tiago. **Tuesday**. Start time: **17:55**. Room: Rhône 3B LVL1. Link to abstract.

MS1.2 - Wednesday

Session: MS1.2 - WE1

Session chair(s) and Assistant Chair (AC): Frédéric Laurin (ONERA); Antoine Mille (AC)

From Microstructure to Mechanical Integrity: SiC/Al IPCs for Demanding Industrial Applications
Kharbatli Abdul-Rahman. **Wednesday**. Start time: **10:00**. Room: Rhône 3B LVL1. Link to abstract.

Thermal Barrier Coating for Carbon Fiber-Reinforced Plastic Composites
Lee Min Wook. **Wednesday**. Start time: **10:20**. Room: Rhône 3B LVL1. Link to abstract.

Optimization of impact properties and weaving patterns of woven composites
Zheng Shaoqiu. **Wednesday**. Start time: **10:40**. Room: Rhône 3B LVL1. Link to abstract.

Discrete Element Method (DEM): A numerical technique to insight on the role of microcracks on the sustainability of refractory materials
Huger Marc. **Wednesday**. Start time: **11:00**. Room: Rhône 3B LVL1. Link to abstract.

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Session: MS1.2 - WE2

Session chairs: François Guillet (CEA); Souleymane Drabo (AC)

Numerical analysis of regularly arranged brick structures inspiring nacre tissue
Arai Masayuki. **Wednesday**. Start time: **14:30**. Room: Rhône 3B LVL1. Link to abstract.

Steady State Thermal Non-linear Stability Analysis of Bi-directional Nanotube based Functional Graded Composite Plate
Dey Tanish. **Wednesday**. Start time: **14:50**. Room: Rhône 3B LVL1. Link to abstract.

Composite materials and structures reinforced with bamboo fibers: A comparative study on the influence of species and age on the fiber physical and mechanical properties
Noubiap Japhet. **Wednesday**. Start time: **15:10**. Room: Rhône 3B LVL1. Link to abstract.

A study on the defects in the lay-up process of prepreg-based carbon fiber composites
Hooshmand-Ahoor Zahra. **Wednesday**. Start time: **15:30**. Room: Rhône 3B LVL1. Link to abstract.

MS1.3 - Architected and additively manufactured materials (metals, polymers, ceramics)

Organisers: Emily D. Sanders (Georgia Tech), François Barthelat (CU Boulder), Eric Charkaluk (LMS Paris) and Dennis Kochmann (ETH Zurich)

MS1.3 - Monday

Session: MS1.3 - MO1

Session chair(s) and Assistant Chair (AC): Eric Charkaluk; Paul Sirdey (AC)

Effect of thermal history on defects in brittle Fe-6.5wt%Si soft magnetic alloy produced by Laser Powder Bed Fusion
Van Roy Simon. **Monday**. Start time: **10:10**. Room: Audi Pasteur LVL1. Link to abstract.

Enhancing Mechanical Properties through Graded Materials in Multi-Layer Friction Surfacing of Aluminum Alloys
Yideg Wubit Ashagre. **Monday**. Start time: **10:30**. Room: Audi Pasteur LVL1. Link to abstract.

Experimental analysis of hardening mechanisms in an aluminum alloy manufactured by the L-PBF process
Toualbi Louise. **Monday**. Start time: **10:50**. Room: Audi Pasteur LVL1. Link to abstract.

In-Situ X-Ray Compression Testing with DVC and FEA Analysis of Zr-Modified Al7075 TPMS Gyroid Lattice Structures Processed by LPBF and HIP
Farag Mohammed. **Monday**. Start time: **11:10**. Room: Audi Pasteur LVL1. Link to abstract.

Influence of additive manufacturing process parameters on cemented carbides : microstructural and mechanical behavior with Weibull analysis of sintered parts
Marciano Erwan. **Monday**. Start time: **11:30**. Room: Audi Pasteur LVL1. Link to abstract.

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Session: MS1.3 - MO2

Session chairs: Louise Toualbi; Sarah Yehya (AC)

Mechanical behaviors at 77K of Zr-modified Al 7075 alloy printed by L-PBF
Tiphéne Gabrielle. **Monday**. Start time: **13:40**. Room: Audi Pasteur LVL1. Link to abstract.

Multiaxial high cycle fatigue (HCF) behavior of IN718 thin wall structures obtained by laser powder bed fusion (LPBF)
Bouzid Souihli Badr. **Monday**. Start time: **14:00**. Room: Audi Pasteur LVL1. Link to abstract.

Multiscale mechanical testing of hybrid additively manufactured 420 stainless steel
Avegnon Kossi Loic. **Monday**. Start time: **14:20**. Room: Audi Pasteur LVL1. Link to abstract.

Optimizing Lightweight Stainless Steel 316L Structures via Material Extrusion Additive Manufacturing (MEAM)
Badin Sophie or Witz Jean-François. **Monday**. Start time: **14:40**. Room: Audi Pasteur LVL1. Link to abstract.

Properties of 7075 aluminium chips deposition produced by multi-layer friction surfacing
Jadot Matthieu. **Monday**. Start time: **15:00**. Room: Audi Pasteur LVL1. Link to abstract.

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Session: MS1.3 - MO3

Session chairs: François Barthelat; Cheryle Manfouo Tchoupmene (AC)

Compensating for distortions in architected microstructures 3D printed by two-photon polymerization
Bodelot Laurence. Keynote. **Monday**. Start time: **16:00**. Room: Audi Pasteur LVL1. Link to abstract.

Dynamic compression of additively manufactured architected materials
Ramakrishnan Karthik Ram. **Monday**. Start time: **16:40**. Room: Audi Pasteur LVL1. Link to abstract.

Compression and shear performance of pyramidal lattice structures with I-beam struts
Schiffer Andreas. **Monday**. Start time: **17:00**. Room: Audi Pasteur LVL1. Link to abstract.

A new process for designing wooden structural elements using additive manufacturing
Moutou Pitti Rostand. **Monday**. Start time: **17:20**. Room: Audi Pasteur LVL1. Link to abstract.

A PINN-based domain decomposition method for the optimal design of additively manufactured lattice structures
Cadart Thomas. **Monday**. Start time: **17:40**. Room: Audi Pasteur LVL1. Link to abstract.

MS1.3 - Tuesday

Session: MS1.3 - TU1

Session chair(s) and Assistant Chair (AC): Laurence Bodelot; Erwan Marciano (AC)

Impact of structural disorder on the micromechanical behavior of shell-based micro-architected metamaterials
Groetsch Alexander. **Tuesday**. Start time: **10:00**. Room: Audi Pasteur LVL1. Link to abstract.

Mechanical characterization of architected materials with tunable disorder
Di Brizzi Diego. **Tuesday**. Start time: **10:20**. Room: Audi Pasteur LVL1. Link to abstract.

Defect sensitivity of architected random cellular materials produced by LPBF
Leonardi Selma. **Tuesday**. Start time: **10:40**. Room: Audi Pasteur LVL1. Link to abstract.

Investigation of lattice TPMS structures between low and high-speed rate compression
Mondelin Pierre. **Tuesday**. Start time: **11:00**. Room: Audi Pasteur LVL1. Link to abstract.

Rate-dependent compressive properties of 3D printed copper microarchitectures with tunable microstructure
Ding Kuan. **Tuesday**. Start time: **11:20**. Room: Audi Pasteur LVL1. Link to abstract.

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Session: MS1.3 - TU2

Session chairs: Siddhant Kumar; Erwan Marciano (AC)

Automated discovery of reprogrammable nonlinear dynamic metamaterials
Bertoldi Katia. Keynote. **Tuesday**. Start time: **14:15**. Room: Audi Pasteur LVL1. Link to abstract.

Inverse designing three-dimensional metamaterials with programmable nonlinear responses in graph space
Maurizi Marco. **Tuesday**. Start time: **14:55**. Room: Audi Pasteur LVL1. Link to abstract.

Image-based tracking of the crack propagation within regular and irregular architected materials
Lingua Alessandra. **Tuesday**. Start time: **15:15**. Room: Audi Pasteur LVL1. Link to abstract.

AI-driven optimization of heterogeneous structures in LPBF-fabricated Al-Cu-Mg aluminum alloys for enhanced mechanical performance
Zhou Changshan. **Tuesday**. Start time: **15:35**. Room: Audi Pasteur LVL1. Link to abstract.

Experiment-Informed Finite-Strain Inverse Design of Spinodal Metamaterials
Thakolkaran Prakash. **Tuesday**. Start time: **15:55**. Room: Audi Pasteur LVL1. Link to abstract.

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Session: MS1.3 - TU3

Session chairs: Dennis Kochmann; Matthieu Bossy (AC)

Language-based deep learning for design of shellular metamaterials
Kumar Siddhant. Keynote. **Tuesday**. Start time: **16:35**. Room: Audi Pasteur LVL1. Link to abstract.

Multi-objective shape optimization of architected materials
Bosi Federico. **Tuesday**. Start time: **17:15**. Room: Audi Pasteur LVL1. Link to abstract.

Towards the Design of Re-Entrant Auxetic Structures with Magnetoactive Mechanical Behavior: A Hierarchical Experimental and Numerical Investigation
Kocharyan Hrachya. **Tuesday**. Start time: **17:35**. Room: Audi Pasteur LVL1. Link to abstract.

Inverse designing surface curvatures by deep learning
Guo Yaqi. **Tuesday**. Start time: **17:55**. Room: Audi Pasteur LVL1. Link to abstract.

MS1.3 - Wednesday

Session: MS1.3 - WE1

Session chair(s) and Assistant Chair (AC): François Barthelat; Matthieu Bossy (AC)

Wave guiding in spatially graded on-chip metamaterials
Kochmann Dennis. **Wednesday**. Start time: **10:00**. Room: Audi Pasteur LVL1. Link to abstract.

Fabrication and characterization of Si-based micro-architected metamaterials for elastic wave guiding
Kannan Vignesh. **Wednesday**. Start time: **10:20**. Room: Audi Pasteur LVL1. Link to abstract.

Asymmetric and anisotropic elasticity of contact-based architected materials
Yastrebov Vladislav. **Wednesday**. Start time: **10:40**. Room: Audi Pasteur LVL1. Link to abstract.

Predicting the domain of linear elasticity of architected materials – focus on symmetries.
Combescure Christelle. **Wednesday**. Start time: **11:00**. Room: Audi Pasteur LVL1. Link to abstract.

Elastic Mechanical Cellular Automata
Farhadi Davood. **Wednesday**. Start time: **11:20**. Room: Audi Pasteur LVL1. Link to abstract.

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Session: MS1.3 - WE2

Session chairs: Christelle Combescure; Matthieu Bossy (AC)

GROUP-THEORETIC APPROACH FOR NONLINEAR PROBLEMS IN ARCHITECTED MATERIALS AVOIDS USE OF IMPERFECTIONS
Triantafyllidis Nicolas. Keynote. **Wednesday**. Start time: **14:30**. Room: Audi Pasteur LVL1. Link to abstract.

Modeling a beam with a lattice structure made of bi-modulus material
Morozov Aleksandr. **Wednesday**. Start time: **15:10**. Room: Audi Pasteur LVL1. Link to abstract.

Scaling laws in the elasticity of additively manufactured woodpile lattice structures
Bhaskar Atul. **Wednesday**. Start time: **15:30**. Room: Audi Pasteur LVL1. Link to abstract.

Symmetries of periodic and quasiperiodic heterogeneous materials: From invariance to indistinguishability
Husert Markus. **Wednesday**. Start time: **15:50**. Room: Audi Pasteur LVL1. Link to abstract.

Design and mechanics of 3D intertwined helix-based architected materials
Elias Pescialli. **Wednesday**. Start time: **16:10**. Room: Audi Pasteur LVL1. Link to abstract.

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Session: MS1.3 - WE3

Session chairs: David Kammer; Erwan Marciano (AC)

Effect of Unit Cells Networking and Topology on Stiffness and Energy Absorption in Zero Poisson's Ratio Metamaterials
Khodabakhshi Mohammaderfan. **Wednesday**. Start time: **16:45**. Room: Audi Pasteur LVL1. Link to abstract.

Entangled particles as engineered architectured materials
Barthelat Francois. **Wednesday**. Start time: **17:05**. Room: Audi Pasteur LVL1. Link to abstract.

Exploring In-plane Elastic Properties and Energy Absorption of the Bio-inspired Glass Sponge Structure
Beigi Rizi Hassan. **Wednesday**. Start time: **17:25**. Room: Audi Pasteur LVL1. Link to abstract.

Failure of stretching dominated architected interfaces with rotation imperfections introduced by the confining structure
Hedvard Michelle. **Wednesday**. Start time: **17:45**. Room: Audi Pasteur LVL1. Link to abstract.

Fracture toughness and crack propagation of architected orthotropic triangular lattices
Omidi Milad. **Wednesday**. Start time: **18:05**. Room: Audi Pasteur LVL1. Link to abstract.

MS1.3 - Thursday

Session: MS1.3 - TH1

Session chair(s) and Assistant Chair (AC): Nicolas Triantafyllidis; Sandrine Cottrino (AC)

3D-printable wearable pad for the breast skin treatment: design and printing optimization
Graziosi Serena. **Thursday**. Start time: **10:00**. Room: Audi Pasteur LVL1. Link to abstract.

Triply Periodic Minimal Surfaces (TPMS) for Additive Manufacturing of High-Performance Beams
Schiantella Mattia. **Thursday**. Start time: **10:20**. Room: Audi Pasteur LVL1. Link to abstract.

Piezoelectric truss metamaterials: data-driven design and additive manufacturing
Sharma Saurav. **Thursday**. Start time: **10:40**. Room: Audi Pasteur LVL1. Link to abstract.

HCP granular crystals with tunable mechanics
Tian Gao. **Thursday**. Start time: **11:00**. Room: Audi Pasteur LVL1. Link to abstract.

Microstructure and mechanics of crumpled materials
Martoïa Florian. **Thursday**. Start time: **11:20**. Room: Audi Pasteur LVL1. Link to abstract.

Multifunctional Origami Packaging
Almessabi Abdulrahman. **Thursday**. Start time: **11:40**. Room: Audi Pasteur LVL1. Link to abstract.

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Session: MS1.3 - TH2

Session chairs: Florian Martoia; Maëlle Moor (AC)

Mechanical performance of architected interpenetrating phase composites: Experimental, numerical and machine learning analysis
Singh Agyapal. **Thursday**. Start time: **14:15**. Room: Audi Pasteur LVL1. Link to abstract.

Mechanics of architected interfaces for the design of tough composite-metal joints
Van Innis Charline. **Thursday**. Start time: **14:35**. Room: Audi Pasteur LVL1. Link to abstract.

Characterization and Modeling of PolyJet Materials for Realistic Anatomical Models
Martin Vincent. **Thursday**. Start time: **14:55**. Room: Audi Pasteur LVL1. Link to abstract.

Implementation of an ALE-based FE method for additive manufacturing processes
Chirianni Francesco. **Thursday**. Start time: **15:15**. Room: Audi Pasteur LVL1. Link to abstract.

Ballistic impact experiments and numerical modelling of additively manufactured and wrought maraging steel
Kristoffersen Martin. **Thursday**. Start time: **15:35**. Room: Audi Pasteur LVL1. Link to abstract.

MS1.4 - Multiscale modelling of polycrystalline materials

Organisers: Ivano Benedetti (University Palermo) and Marc Bernacki

MS1.4 - Wednesday

Session: MS1.4 - WE1

Session chair(s) and Assistant Chair (AC): Ivano Benedetti; Christophe Le Bourlot (AC)

Implementing an energy based dislocation transmission criteria for dislocation-grain boundary interaction using a dislocation transport based crystal plasticity model
Murgas Brayan. Keynote. **Wednesday**. Start time: **10:00**. Room: Rhône 5 LVL1. Link to abstract.

A grain morphology coupled crystal plasticity finite element model
Chen Jialiang. **Wednesday**. Start time: **10:40**. Room: Rhône 5 LVL1. Link to abstract.

Cyclic behavior of a Ni-based superalloy: effects of annealing twins and grain size
Ghiglione Flavien. **Wednesday**. Start time: **11:00**. Room: Rhône 5 LVL1. Link to abstract.

Comparison of Polycrystalline Full-Field and Homogenized Models for Tantalum forming
Thealler Alexandre. **Wednesday**. Start time: **11:20**. Room: Rhône 5 LVL1. Link to abstract.

Coupled crystal plasticity and phase field modelling of intergranular failure of a heat-resistant steel during creep
Ling Chao. **Wednesday**. Start time: **11:40**. Room: Rhône 5 LVL1. Link to abstract.

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Session: MS1.4 - WE2

Session chairs: Laurent Delannay; Lin Guo (AC)

Multi-scale and multi-physics modelling of polycrystalline materials by the boundary element method
Benedetti Ivano. Keynote. **Wednesday**. Start time: **14:30**. Room: Rhône 5 LVL1. Link to abstract.

A numerical framework for full scale simulations of polycristalline turbine blades
Bovet Christophe. **Wednesday**. Start time: **15:10**. Room: Rhône 5 LVL1. Link to abstract.

Multi-scale numerical simulation of the viscoplastic behavior of rock salt
Habib Nour. **Wednesday**. Start time: **15:30**. Room: Rhône 5 LVL1. Link to abstract.

Experimental and crystal plasticity investigation of the toughness of W/Cu joints
Ruiz Raúl. **Wednesday**. Start time: **15:50**. Room: Rhône 5 LVL1. Link to abstract.

Enhancing the information-richness of Berkovich nanoindentation testing to extract slip systems interaction parameters from residual topographies and crystal lattice rotations on FCC crystal using inverse method
Bourceret Alexandre. **Wednesday**. Start time: **16:10**. Room: Rhône 5 LVL1. Link to abstract.

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Session: MS1.4 - WE3

Session chairs: Vincent Chiaruttini; Lin Guo (AC)

DIC-Coupled Experimental-Numerical Modeling for Localized Strain Heterogeneity in Polycrystalline Alloys
Kılınç Adil. **Wednesday**. Start time: **16:45**. Room: Rhône 5 LVL1. Link to abstract.

FE modeling of the microscopic strain heterogeneity along grain boundaries inside metallic polycrystalline aggregates
Hanon Guillaume. **Wednesday**. Start time: **17:05**. Room: Rhône 5 LVL1. Link to abstract.

High temperature solid mechanics: mesoscale continuum describing diffusion, lattice growth and interfaces.
Mesarovic Sinisa. **Wednesday**. Start time: **17:25**. Room: Rhône 5 LVL1. Link to abstract.

Asymmtrical shear responses of grain boundaries
Dang Ruoqi. **Wednesday**. Start time: **17:45**. Room: Rhône 5 LVL1. Link to abstract.

Micromechanical Modeling and Simulations of the Effects of Oxygen in Titanium Alloys
Vernier Patricia. **Wednesday**. Start time: **18:05**. Room: Rhône 5 LVL1. Link to abstract.

MS1.4 - Thursday

Session: MS1.4 - TH1

Session chair(s) and Assistant Chair (AC): Luis Barrales-Mora; Christophe Le Bourlot (AC)

Coupled diffusion-mechanics modeling of titanium alloys under high temperature oxidizing conditions
Marano Aldo. **Thursday**. Start time: **10:00**. Room: Rhône 5 LVL1. Link to abstract.

Coupling Phase-Field Crystal and Field Dislocation Mechanics in Dislocation Modeling
Graini Aymane. **Thursday**. Start time: **10:20**. Room: Rhône 5 LVL1. Link to abstract.

On the importance of 3D microstructure for the prediction of microstructural evolution
Stricot Pauline. **Thursday**. Start time: **10:40**. Room: Rhône 5 LVL1. Link to abstract.

The Role of Plastic Strain on Microstructural Evolution in Bainitic Steel During Uniaxial Hot Compression Test: Experiment and Finite Element Simulation
Karamabian Mahdi. **Thursday**. Start time: **11:00**. Room: Rhône 5 LVL1. Link to abstract.

Towards real-time exploration of grain boundary effects on diffusion in solid electrolytes
Scholz Lena. **Thursday**. Start time: **11:20**. Room: Rhône 5 LVL1. Link to abstract.

MS1.5 - Mechanics of ceramics

Organisers: Sylvain Meille (MATEIS) and Emilio Jimenez-Piqué (UPC Barcelona)

MS1.5 - Monday

Session: MS1.5 - MO1

Session chair(s) and Assistant Chair (AC): Sylvain Meille; Victoire Rossignol (AC)

Understanding the fracture behaviour of tough alumina-based ceramic inspired by nacre.
Bouville Florian. Keynote. **Monday**. Start time: **10:10**. Room: Roseraie 1 LVL3. Link to abstract.

Review and perspectives in characterizing anisotropic fracture of nacre-like alumina
Bert Benjamin. **Monday**. Start time: **10:50**. Room: Roseraie 1 LVL3. Link to abstract.

The fracture of Nacre-like graphite
Li Ao. **Monday**. Start time: **11:10**. Room: Roseraie 1 LVL3. Link to abstract.

In-situ characterization of local fields in alumina using Raman and luminescence piezospectroscopy
Chalony Julie. **Monday**. Start time: **11:30**. Room: Roseraie 1 LVL3. Link to abstract.

Domain evolution mechanisms of ferroelectric ceramics elucidated by a novel EBSD indexing method
Griesbach Claire. **Monday**. Start time: **11:50**. Room: Roseraie 1 LVL3. Link to abstract.

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Session: MS1.5 - MO2

Session chairs: Florian Bouville; Audrey Tixier (AC)

Mechanics-based Tailoring of Room-temperature Dislocations in Ceramics
Fang Xufei. Keynote. **Monday**. Start time: **13:40**. Room: Roseraie 1 LVL3. Link to abstract.

TRIP effect in Zirconia: atomistic simulations and in-situ experiments
Rodney David. **Monday**. Start time: **14:20**. Room: Roseraie 1 LVL3. Link to abstract.

Dislocation mechanics in KTaO3: room-temperature plastic deformation across the length scales
Frisch Alexander. **Monday**. Start time: **14:40**. Room: Roseraie 1 LVL3. Link to abstract.

Strains, stresses and microcracks in pure zirconia polycrystals
Castelnau Olivier. **Monday**. Start time: **15:00**. Room: Roseraie 1 LVL3. Link to abstract.

Donor doping affects dislocation plasticity across the length scale in SrTiO3
Okafor Chukwudalu. **Monday**. Start time: **15:20**. Room: Roseraie 1 LVL3. Link to abstract.

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Session: MS1.5 - MO3

Session chairs: Emilio Jimenez Pique; Petr Grigorev (AC)

Effect of testing geometries and notch milling processes on micro-scale fracture energy measurements in ceramics
Li Zhuoqi Lucas. **Monday**. Start time: **16:00**. Room: Roseraie 1 LVL3. Link to abstract.

New Method Combining Nanoindentation and Finite Element Modeling (FEM) for Estimating Helium Ion Irradiation-Induced Eigenstrain/ Residual Stress in SiC
Bensalem Mohamed. **Monday**. Start time: **16:20**. Room: Roseraie 1 LVL3. Link to abstract.

Phase Field Modelling of Ni oxidation and YSZ cracking in Solid Oxide Cells
Fournier Sylvain. **Monday**. Start time: **16:40**. Room: Roseraie 1 LVL3. Link to abstract.

Novel Water-Loaded Rig for Characterising Materials in Future Fusion Reactor Windows
Colin Christian. **Monday**. Start time: **17:00**. Room: Roseraie 1 LVL3. Link to abstract.

Influence of crystallite size of alumina aggregates on the thermomechanical behaviour of refractories
Boateng Kwasi Addo. **Monday**. Start time: **17:20**. Room: Roseraie 1 LVL3. Link to abstract.

Thin films hardness: comparaison of models
Lakhlioui Zineb. **Monday**. Start time: **17:40**. Room: Roseraie 1 LVL3. Link to abstract.

MS1.6 - Mechanics of polymers

Organisers: Julie Diani (LMS), Jean-Luc Bouvard (CEMEF) and Florian Arbeiter (University Leoben)

Session: MS1.6 - MO2

Session chair(s) and Assistant Chair (AC): Jean-Luc Bouvard; Alexandre Janiak (AC)

Modelling and simulations of polymers across scales and methods
Pfaller Sebastian. Keynote. **Monday**. Start time: **13:40**. Room: Roseraie 3 LVL3. Link to abstract.

Mechanical behavior of glassy amorphous poly(ethylene oxide) under cyclic tensile loading via atomistic molecular dynamics simulations
Ilia Panagiotis. **Monday**. Start time: **14:20**. Room: Roseraie 3 LVL3. Link to abstract.

Stress transition in lamellar semi-crystalline polymers evaluated by molecular dynamic simulations
Lame Olivier. **Monday**. Start time: **14:40**. Room: Roseraie 3 LVL3. Link to abstract.

Computational indentation in highly cross-linked polymer networks
Maurya Manoj Kumar. **Monday**. Start time: **15:00**. Room: Roseraie 3 LVL3. Link to abstract.

Modulus measurements via Nanoindentation – a guide for parameter settings for testing polymers
Huszar Michael. **Monday**. Start time: **15:20**. Room: Roseraie 3 LVL3. Link to abstract.

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Session: MS1.6 - MO3

Session chairs: Julie Diani; Nina Brozecka (AC)

Modeling Rate Dependency and Relaxation Behavior of Semi-Crystalline Polyamide 6
Kulkarni Sameer. **Monday**. Start time: **16:00**. Room: Roseraie 3 LVL3. Link to abstract.

Viscoelasticity and Mechanics Properties of Crosslinked Rubbers and Glassy Composite Networks via detailed Atomistic Simulations
Kallivokas Spyridon. **Monday**. Start time: **16:20**. Room: Roseraie 3 LVL3. Link to abstract.

Characterization and modeling of temperature- and rate-dependent mechanical behaviors applied to an epoxy resin from Room: to cryogenic temperatures
Kong Xiang. **Monday**. Start time: **16:40**. Room: Roseraie 3 LVL3. Link to abstract.

Computing Virtual DMA Response of Viscoelastic Materials with an Enhanced Composite Voxels Method
Mabrouk Nadia. **Monday**. Start time: **17:00**. Room: Roseraie 3 LVL3. Link to abstract.

Modeling Thermo-Visco-Elastic Behavior of Polymer Materials based on Relaxation Models
Hille Frederik. **Monday**. Start time: **17:20**. Room: Roseraie 3 LVL3. Link to abstract.

MS1.6 - Tuesday

Session: MS1.6 - TU1

Session chair(s) and Assistant Chair (AC): Florian Arbeiter; Hélène Hembert (AC)

Filament coalescence in 3D printed magneto-rheological elastomers
Garzon-Hernandez Sara. **Tuesday**. Start time: **10:00**. Room: Roseraie 3 LVL3. Link to abstract.

Validation of the constitutive model for 3D printed shape memory polymers
Virag Lana. **Tuesday**. Start time: **10:20**. Room: Roseraie 3 LVL3. Link to abstract.

Shape memory effects in multi-phase semi-crystalline networks: from phenomenological modeling to 4D printing
Scalet Giulia. **Tuesday**. Start time: **10:40**. Room: Roseraie 3 LVL3. Link to abstract.

Novel Uniaxial and Biaxial Tensile Test Specimen for Polymer Materials
Labar Luka. **Tuesday**. Start time: **11:00**. Room: Roseraie 3 LVL3. Link to abstract.

Measurement of volume change in sheet elastomer testing using back-to-back stereo DIC
Peshave Amar. **Tuesday**. Start time: **11:20**. Room: Roseraie 3 LVL3. Link to abstract.

Impact of recycling on the mechanical properties, surface roughness and antibacterial efficiency of copper-loaded PLA for 3D Printing Applications
Helfenstein-Didier Clémentine. **Tuesday**. Start time: **11:40**. Room: Roseraie 3 LVL3. Link to abstract.

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Session: MS1.6 - TU2

Session chairs: Sebastian Pfaller; Baptiste Boulet (AC)

Couplings in the decompression failure of hydrogen-exposed rubbers: from analytical and FEM simulations to phase-field modelling
Castagnet Sylvie. Keynote. **Tuesday**. Start time: **14:15**. Room: Roseraie 3 LVL3. Link to abstract.

Study of the Ductile Fracture of PA11/EVOH Multilayer Films with the Essential Work of Fracture Method for Hydrogen Storage Applications
Gauge Ariane. **Tuesday**. Start time: **14:55**. Room: Roseraie 3 LVL3. Link to abstract.

Effect of topological disorder on the toughness of spring networks
Sanner Antoine. **Tuesday**. Start time: **15:15**. Room: Roseraie 3 LVL3. Link to abstract.

A new approach of multiaxiality for tension-torsion fatigue testing of elastomers
Martin Benjamin. **Tuesday**. Start time: **15:35**. Room: Roseraie 3 LVL3. Link to abstract.

Slow crack growth in acrylic-based polymers: quasi-static embrittlement leads to improved fatigue resistance?
Van Loock Frederik. **Tuesday**. Start time: **15:55**. Room: Roseraie 3 LVL3. Link to abstract.

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Session: MS1.6 - TU3

Session chairs: Sylvie Castagnet; Hélène Hembert (AC)

Mechanics of gels: a method to measure swelling induced stress
Levin Michal. **Tuesday**. Start time: **16:35**. Room: Roseraie 3 LVL3. Link to abstract.

Characterization of the Nonlinear Viscoelastic Behavior of PAAm-Alginate Double-Network Hydrogels
Dhaouadi Wassim. **Tuesday**. Start time: **16:55**. Room: Roseraie 3 LVL3. Link to abstract.

Simulation of chemo-mechanical coupled gastric digestion process of starch hydrogels
Liao Zisheng. **Tuesday**. Start time: **17:15**. Room: Roseraie 3 LVL3. Link to abstract.

Mechanics of cellulose gels to aerogels
Borzecka Nina. **Tuesday**. Start time: **17:35**. Room: Roseraie 3 LVL3. Link to abstract.

A Thermodynamically Consistent Constitutive Model for Hydrolytic Degradation of Oil Paint
Dizman Emir. **Tuesday**. Start time: **17:55**. Room: Roseraie 3 LVL3. Link to abstract.

Viscoelastic soft elasticity of nematic liquid crystal elastomers in tension and compression
Azoug Aurélie. **Tuesday**. Start time: **18:15**. Room: Roseraie 3 LVL3. Link to abstract.

MS1.6 - Wednesday

Session: MS1.6 - WE1

Session chair(s) and Assistant Chair (AC): Jean-Luc Bouvard; Max Zinke (AC)

Micromechanics of the yield behaviour of semi-crystalline PEEK
Van Dommelen Hans. **Wednesday**. Start time: **10:00**. Room: Roseraie 3 LVL3. Link to abstract.

Numerical study of the hyperviscoelastic response of polymer foams under compression
Merlette Thomas. **Wednesday**. Start time: **10:20**. Room: Roseraie 3 LVL3. Link to abstract.

Visco-pseudo-hyperelastic characterization of polymer foams
Berezvai Szabolcs. **Wednesday**. Start time: **10:40**. Room: Roseraie 3 LVL3. Link to abstract.

A Fracture Mechanics-Based Approach to the Structural Integrity of Fibrous Scaffolds
Terzano Michele. **Wednesday**. Start time: **11:00**. Room: Roseraie 3 LVL3. Link to abstract.

Bridging Natural Principles and Material Science: Advances in Lithomimetic-Inspired Polymeric Multi-Material Composites
Waly Christoph. **Wednesday**. Start time: **11:20**. Room: Roseraie 3 LVL3. Link to abstract.

Constitutive Framework for Brittle Failure in Thermo-Chemically Aged Elastomers Using Phase-Field
Shakiba Maryam. **Wednesday**. Start time: **11:40**. Room: Roseraie 3 LVL3. Link to abstract.

MS1.7 - Multiscale materials modelling from atoms to macroscale

Organisers: Sylvain Patinet (ESPCI), Renald Brenner (Institut Jean Le Rond D'alembert) and Sebastian Pfaller (FAU Nuremberg)

MS1.7 - Monday

Session: MS1.7 - MO1

Session chair(s) and Assistant Chair (AC): Sylvain Patinet; Audrey Tixier (AC)

Contiunous modeling of dislocation in concentrated random alloys
David Rodney. Keynote. **Monday**. Start time: **10:10**. Room: Saint Clair 3A LVL2. Link to abstract.

Dislocation dynamics in Ni-based superalloys: parameterising edge dislocation trajectories with uncertainty quantification
Anis Geraldine. **Monday**. Start time: **10:50**. Room: Saint Clair 3A LVL2. Link to abstract.

Structural Heterogeneity in the Shock-induced Plastic Deformation Mechanism of Nanocrystalline High-Entropy Alloys
Song Weidong. **Monday**. Start time: **11:10**. Room: Saint Clair 3A LVL2. Link to abstract.

Multiscale modeling of dislocation-mediated plasticity of refractory high entropy alloys
Zhang Yin. **Monday**. Start time: **11:30**. Room: Saint Clair 3A LVL2. Link to abstract.

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Session: MS1.7 - MO2

Session chairs: Rennald Brenner; Antoine Mille (AC)

All possible binary dislocation locks in face-centered cubic materials unearthed via a novel discrete mathematics-based approach
Chen Daolun. **Monday**. Start time: **13:40**. Room: Saint Clair 3A LVL2. Link to abstract.

Mobility and cross-slip of the 1/2<110> scriw dislocation in UO2
Amodeo Jonathan. **Monday**. Start time: **14:00**. Room: Saint Clair 3A LVL2. Link to abstract.

Statistics of fluctuations in mesoscopic tensorial model of crystal plasticity: the effect of different energy minimization algorithms.
Lundheim Elias. **Monday**. Start time: **14:20**. Room: Saint Clair 3A LVL2. Link to abstract.

Modelling Frank-Read dislocation sources as pinned and driven mean curvature flow
Hudson Thomas. **Monday**. Start time: **14:40**. Room: Saint Clair 3A LVL2. Link to abstract.

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Session: MS1.7 - MO3

Session chairs: Sebastian Pfaller; Camila Martin Cardozo (AC)

Simulation-Informed Models for Amorphous Metal Additive Manufacturing
Bamer Franz. **Monday**. Start time: **16:00**. Room: Saint Clair 3A LVL2. Link to abstract.

Atomistic origin of network glass fracture
Bamer Franz. **Monday**. Start time: **16:20**. Room: Saint Clair 3A LVL2. Link to abstract.

Clustering of negative topological charges precedes plastic failure in 3D glasses
Bera Arabinda. **Monday**. Start time: **16:40**. Room: Saint Clair 3A LVL2. Link to abstract.

The Critical Role of Material Length in Amorphous Fracture
Molnar Gergely. **Monday**. Start time: **17:00**. Room: Saint Clair 3A LVL2. Link to abstract.

Numerical Modeling of Sol-Gel Materials: An Aerogel Use-Case
Pandit Prakul. **Monday**. Start time: **17:20**. Room: Saint Clair 3A LVL2. Link to abstract.

MS1.7 - Tuesday

Session: MS1.7 - TU1

Session chair(s) and Assistant Chair (AC): Bamer Franz; Camila Martin Cardozo (AC)

Coarse-graining aggregate polymer nanocomposites : towards a microscopic Interpretation of the Payne Effect
Merabia Samy. Keynote. **Tuesday**. Start time: **10:00**. Room: Saint Clair 3A LVL2. Link to abstract.

Molecular dynamics simulations of polymers under shock loading: the importance of the local stress trensor
Lemarchand Claire. **Tuesday**. Start time: **10:40**. Room: Saint Clair 3A LVL2. Link to abstract.

Physical origin of strain hardening in glassy polymers and constitutive modeling based on molecular dynamics simulations
Zhao Wuyang. **Tuesday**. Start time: **11:00**. Room: Saint Clair 3A LVL2. Link to abstract.

Simulation and Analysis of Epoxy Polymer Networks: Advanced Crosslinking Approaches and Topological Modifications in LAMMPS
Lamamra Moussa. **Tuesday**. Start time: **11:20**. Room: Saint Clair 3A LVL2. Link to abstract.

A Semi-Continuum Multiscale Model of Graphene Polymer Nanocomposites: Mechanical Characterization
Barakat Malak. **Tuesday**. Start time: **11:40**. Room: Saint Clair 3A LVL2. Link to abstract.

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Session: MS1.7 - TU2

Session chairs: Rege Ameya; Camila Martin Cardozo (AC)

Bridging Scales in Boundary Lubrication: Atomistic-Continuum Coupling Enabled by Machine Learning
Holey Hannes. **Tuesday**. Start time: **14:15**. Room: Saint Clair 3A LVL2. Link to abstract.

Multi-Scale Characterization and Modelling of the Deformation Behavior in an Aged Duplex Stainless Steel
Cong Lin. **Tuesday**. Start time: **14:35**. Room: Saint Clair 3A LVL2. Link to abstract.

Multiscale Modelling of Single Crystal PMN-PT Ferro-Electric Films as a Morphotropic Phase
Wang Zian. **Tuesday**. Start time: **14:55**. Room: Saint Clair 3A LVL2. Link to abstract.

Multiscale numerical simulations for elastic properties and the flexural response of graphene sheets at finite temperature
Singh Sandeep. **Tuesday**. Start time: **15:15**. Room: Saint Clair 3A LVL2. Link to abstract.

Full magnetoelastic behavior of Dual-phase steel in biaxial mechanical loading condition
Le Soudeer Jeanne. **Tuesday**. Start time: **15:35**. Room: Saint Clair 3A LVL2. Link to abstract.

Micromechanically-based Multiscale Modeling of Materially Nonlinear and Rate Effects in Ferroelectrics
Warkentin Andreas. **Tuesday**. Start time: **15:55**. Room: Saint Clair 3A LVL2. Link to abstract.

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Session: MS1.7 - TU3

Session chairs: Claire Lemarchand; Antoine Mille (AC)

Capabilities and improvement ability of classical many-body potentials: application to hcp-Zr
Varvenne Celine. **Tuesday**. Start time: **16:35**. Room: Saint Clair 3A LVL2. Link to abstract.

An atomistic thermo-chemo-mechanical coupled model: Hydrogen storage in Mg nanowires

Ariza Pilar. **Tuesday**. Start time: **16:55**. Room: Saint Clair 3A LVL2. Link to abstract.

In-Situ Void detection in Large-Scale Molecular Dynamics Simulations: A Case Study on Tantalum Spall Fracture.
Dubois Alizée. **Tuesday**. Start time: **17:15**. Room: Saint Clair 3A LVL2. Link to abstract.

Effects of structural parameters of nanotube networks on mechanical properties and fracture mode of carbon nanotube thin films and fibers
Volkov Alexey. **Tuesday**. Start time: **17:35**. Room: Saint Clair 3A LVL2. Link to abstract.

MS1.7 - Wednesday

Session: MS1.7 - WE1

Session chair(s) and Assistant Chair (AC): Varvenne Celine; Petr Grigorev (AC)

FFT-based disclination mechanics for solute segregation at grain boundaries inferred from atomistic simulations
Berbenni Stéphane. **Wednesday**. Start time: **10:00**. Room: Saint Clair 3A LVL2. Link to abstract.

Mechanics of Dislocation-Precipitate-Grain Boundary Interactions in Aluminum Alloys: An Analytical Approach
Tatavarty Anantha Lakshmi Prasanna. **Wednesday**. Start time: **10:20**. Room: Saint Clair 3A LVL2. Link to abstract.

Micromechanical modelling and atomistic simulations of solute atom segregation towards grain boundaries in Mg
Petrazoller Joé. **Wednesday**. Start time: **10:40**. Room: Saint Clair 3A LVL2. Link to abstract.

Continuum mechanics of non-affine fibre network materials
Ehret Alexander E.. **Wednesday**. Start time: **11:00**. Room: Saint Clair 3A LVL2. Link to abstract.

Numerical modelling of sintering and thermal damage in a non-densifying refractory ceramic
Bigeard Amélie or Jauffres David. **Wednesday**. Start time: **11:20**. Room: Saint Clair 3A LVL2. Link to abstract.

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Session: MS1.7 - WE2

Session chairs: Molnar Gergely; Petr Grigorev (AC)

Odd elasticity as the multi-continuum homogenization limit of Cosserat elasticity
Nika Grigor. **Wednesday**. Start time: **14:30**. Room: Saint Clair 3A LVL2. Link to abstract.

Toupin-Mindlin first strain gradient elasticity for anisotropic and isotropic materials at small scales
Lazar Markus. **Wednesday**. Start time: **14:50**. Room: Saint Clair 3A LVL2. Link to abstract.

Wave propagation in nonlocal elasticity of Klein-Gordon type with internal length and time scales
Agiasofitou Eleni. **Wednesday**. Start time: **15:10**. Room: Saint Clair 3A LVL2. Link to abstract.

Elastic properties of Kaolin group minerals at high pressures
Benazzouz Brahim. **Wednesday**. Start time: **15:30**. Room: Saint Clair 3A LVL2. Link to abstract.

Progress Towards Micromorphic Upscaling Multiscale Damage Models of Fibrous Materials
Merson Jacob. **Wednesday**. Start time: **15:50**. Room: Saint Clair 3A LVL2. Link to abstract.

MS1.8 - Mechanics of active and coupled materials

Organisers: Daniel Garcia Gonzalez (University Carlos III, Madrid) and Kostas Danas (LMS)

MS1.8 - Monday

Session: MS1.8 - MO2

Session chair(s) and Assistant Chair (AC): Javier Crespo; Kostas Danas; Ben Kabondo Kashala (AC)

A continuum model for novel electromechanical-instability-free dielectric elastomers
Xiao Rui. Invited. **Monday**. Start time: **13:40**. Room: Rhône 3A LVL1. Link to abstract.

Discrete One-dimensional Models for the Electromomentum Coupling
Shmuel Gal. Invited. **Monday**. Start time: **14:00**. Room: Rhône 3A LVL1. Link to abstract.

Electric breakdown of dielectric membranes via axisymmetric necking
Fu Yibin. Invited. **Monday**. Start time: **14:20**. Room: Rhône 3A LVL1. Link to abstract.

Electro-mechanical behaviour of fractional viscoelastic and anisotropic dielectric elastomers

Cajic Milan. **Monday**. Start time: **14:40**. Room: Rhône 3A LVL1. Link to abstract.

Microscopic and macroscopic instability analysis of magnetoactive soft composites
Xie Chen. Invited. **Monday**. Start time: **15:00**. Room: Rhône 3A LVL1. Link to abstract.

Snap-through instabilities in magneto-elastic slender beams interacting with rigid obstacles.
Mukherjee Dipayan. Invited. **Monday**. Start time: **15:20**. Room: Rhône 3A LVL1. Link to abstract.

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Session: MS1.8 - MO3

Session chairs: Rui Xiao; Daniel Garcia Gonzalez; Tasnim Missaoui (AC)

Controlling Deformation and Instability of Magnetoactive Metamaterials
Feehilly Tigernach. Invited. **Monday**. Start time: **16:00**. Room: Rhône 3A LVL1. Link to abstract.

Magnetically assisted self-healing: modelling and experiments
Lucarini Sergio. Invited. **Monday**. Start time: **16:20**. Room: Rhône 3A LVL1. Link to abstract.

Magnetostriction of soft-magnetorheological elastomers
Stewart Eric. Invited. **Monday**. Start time: **16:40**. Room: Rhône 3A LVL1. Link to abstract.

Modelling coupled magneto-mechanical growth in hyperelastic materials
Hossain Mokarram. Invited. **Monday**. Start time: **17:00**. Room: Rhône 3A LVL1. Link to abstract.

Magnetostriction of fractionally viscoelastic MREs
Paunović Stepa. **Monday**. Start time: **17:20**. Room: Rhône 3A LVL1. Link to abstract.

Magneto-viscoelastic modeling and experiments for isotropic soft magnetorheological elastomers
Danas Kostas. Invited. **Monday**. Start time: **17:40**. Room: Rhône 3A LVL1. Link to abstract.

MS1.8 - Tuesday

Session: MS1.8 - TU1

Session chair(s) and Assistant Chair (AC): Sergio Lucarini; Eric Stewart; Joël Courbon (AC)

Chemoelasticity with anisotropic species
Guin Laurent. Invited. **Tuesday**. Start time: **10:00**. Room: Rhône 3A LVL1. Link to abstract.

Microstretch modeling of liquid crystalline elastomers
Kasarla Aishwarya or Haldar Krishnendu. **Tuesday**. Start time: **10:20**. Room: Rhône 3A LVL1. Link to abstract.

Multi-scale experimental characterisation and modelling of the thermo-electro-mechanical behaviour of 3D printed conductive composites
Crespo-Miguel Javier. Invited. **Tuesday**. Start time: **10:40**. Room: Rhône 3A LVL1. Link to abstract.

Chemomechanics of Phase Transformation in Amorphous Silicon
Bruant Xavier. **Tuesday**. Start time: **11:00**. Room: Rhône 3A LVL1. Link to abstract.

Direct printing the director field of liquid crystal elastomers to program Gaussian curvature under the nematic-isotropic phase change.
Ibarra Alejandro. **Tuesday**. Start time: **11:20**. Room: Rhône 3A LVL1. Link to abstract.

On the Numerical and Experimental Investigation of Light-Matter Interactions in Polymers
Mehnert Markus. Invited. **Tuesday**. Start time: **11:40**. Room: Rhône 3A LVL1. Link to abstract.

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Session: MS1.8 - TU2

Session chairs: Noy Cohen; Laurent Guin; Florian Mercier (AC)

Mechanics of soft living actuators
Raman Ritu. Invited. **Tuesday**. Start time: **14:15**. Room: Rhône 3A LVL1. Link to abstract.

Magnetic-driven viscous mechanisms in ultra-soft magnetorheological elastomers offer history-dependent actuation with reprogrammability options
Garcia-Gonzalez Daniel. Invited. **Tuesday**. Start time: **14:35**. Room: Rhône 3A LVL1. Link to abstract.

Reprogrammability of structural energy absorption via passive and active magnetic interactions
Perez-Garcia Carlos. Invited. **Tuesday**. Start time: **14:55**. Room: Rhône 3A LVL1. Link to abstract.

Reprogrammable nonlinear responses via magneto-mechanical metamaterials
Risso Giada. Invited. **Tuesday**. Start time: **15:15**. Room: Rhône 3A LVL1. Link to abstract.

The magneto-mechanical response of mechanically-soft hard magnetorheological elastomer foams
Lin Zehui. Invited. **Tuesday**. Start time: **15:35**. Room: Rhône 3A LVL1. Link to abstract.

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Session: MS1.8 - TU3

Session chairs: Laurent Guin; Dipayan Mukherjee; Camila Martin Cardozo (AC)

Employing thermal activation to tune auxeticity in periodic lattice structures
Cohen Noy. Invited. **Tuesday**. Start time: **16:35**. Room: Rhône 3A LVL1. Link to abstract.

Extending material-based actuators towards meter-scale applications
André Niels. **Tuesday**. Start time: **16:55**. Room: Rhône 3A LVL1. Link to abstract.

Multiphysics-based controlled shape change in soft materials
Monchetti Silvia. Invited. **Tuesday**. Start time: **17:15**. Room: Rhône 3A LVL1. Link to abstract.

Shape morphing with photo responsive structures
Fabio Nistri. **Tuesday**. Start time: **17:35**. Room: Rhône 3A LVL1. Link to abstract.

MS1.8 - Wednesday

Session: MS1.8 - WE1

Session chair(s) and Assistant Chair (AC): Mokarram Hossain; Krishnendu Haldar; Nina Brozecka (AC)

A robust computational method for coupled processes in inelastic materials under active damping regimes
Guz Igor. **Wednesday**. Start time: **10:00**. Room: Rhône 3A LVL1. Link to abstract.

In situ cyclic micro deformation of a NiMnGa ferromagnetic shape-memory alloy with concurrent AE detection
Ugi David. **Wednesday**. Start time: **10:20**. Room: Rhône 3A LVL1. Link to abstract.

Investigating thermal coupling on diffusive processes in metallic and non-metallic materials
Gisy Johannes. Invited. **Wednesday**. Start time: **10:40**. Room: Rhône 3A LVL1. Link to abstract.

Mechanical and Electrochemical Properties of Conductive Oxide Glasses
To Theany. **Wednesday**. Start time: **11:00**. Room: Rhône 3A LVL1. Link to abstract.

Mechanisms of interface kinetics during phase transformation of Shape Memory Alloys
Gao Xingke. **Wednesday**. Start time: **11:20**. Room: Rhône 3A LVL1. Link to abstract.

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Session: MS1.8 - WE2

Session chairs: Dipyan Mukherjee; Krishnendu Haldar; Nina Brozecka (AC)

Plant-inspired actuator, motion prediction and measurement.
Fiore Louison. **Wednesday**. Start time: **14:30**. Room: Rhône 3A LVL1. Link to abstract.

Surface growth models for solid-state batteries
Nevenchannyy Yury. **Wednesday**. Start time: **14:50**. Room: Rhône 3A LVL1. Link to abstract.

Writhing of Plant Tendrils: Where Kirchhoff Meets Lockhart
Derr Julien. **Wednesday**. Start time: **15:10**. Room: Rhône 3A LVL1. Link to abstract.

Experimental Study of an Untethered Magnetorheological Elastomer based Phase Change McKibben Actuator
Gupta Devansh. **Wednesday**. Start time: **15:30**. Room: Rhône 3A LVL1. Link to abstract.

MS1.9 - New challenges in the mechanics and physics of Solids

Organisers: Vikram Deshpande (University of Cambridge)

Session: MS1.9 - WE1

Session chair(s) and Assistant Chair (AC): Vikram Deshpande; Alexandre Janiak (AC)

Mechanomaterials: Towards Proactive Design of Fracture Resistance in Mechanical Metamaterials
Gao Huajian. Keynote. **Wednesday**. Start time: **10:00**. Room: Saint Clair 3B LVL2. Link to abstract.

Where the Nano-Worlds Collide: Nanoporosity-Driven Deformation of Nano-Architected Metals
Greer Julia R. Invited. **Wednesday**. Start time: **10:40**. Room: Saint Clair 3B LVL2. Link to abstract.

Mechanics-guided 3D assembly for electronics and microsystems
Zhang Yihui. Invited. **Wednesday**. Start time: **11:00**. Room: Saint Clair 3B LVL2. Link to abstract.

Nonlinear metamaterials with engineered heterogeneities
Guduru Pradeep. Invited. **Wednesday**. Start time: **11:20**. Room: Saint Clair 3B LVL2. Link to abstract.

Hybrid Piezoresistivity and Piezocapacitivity of Architected Porous Nanocomposites
Lu Nanshu. Invited. **Wednesday**. Start time: **11:40**. Room: Saint Clair 3B LVL2. Link to abstract.

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Session: MS1.9 - WE2

Session chairs: Pradeep Sharma; Alexandre Janiak (AC)

Multi-Modal Haptic Actuators
Huang Yonggang. Invited. **Wednesday**. Start time: **14:30**. Room: Saint Clair 3B LVL2. Link to abstract.

A Microstretch Approach for Modeling the Large Deformation Thermoviscoelastic Behavior of Liquid Crystal Elastomers.
Nguyen Thao (vicky). Invited. **Wednesday**. Start time: **14:50**. Room: Saint Clair 3B LVL2. Link to abstract.

Effects of void size and spatial distribution on ductile damage
Niordson Christian. Invited. **Wednesday**. Start time: **15:10**. Room: Saint Clair 3B LVL2. Link to abstract.

Nanomechanics for Deep Elastic Strain Engineering
Lu Yang. Invited. **Wednesday**. Start time: **15:30**. Room: Saint Clair 3B LVL2. Link to abstract.

The Evolution of Mechanical Instabilities for Functional Applications
Zhao Renee. Invited. **Wednesday**. Start time: **15:50**. Room: Saint Clair 3B LVL2. Link to abstract.

Second-order homogenization is variational (in dimension 1)
Audoly Basile. Invited. **Wednesday**. Start time: **16:10**. Room: Saint Clair 3B LVL2. Link to abstract.

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Session: MS1.9 - WE3

Session chairs: Christian Niordson; Joël Courbon (AC)

Failure of Li-ion cells with ceramic electrolytes: contact loss & dendrite growth
Fleck Norman. Invited. **Wednesday**. Start time: **16:45**. Room: Saint Clair 3B LVL2. Link to abstract.

Mechanics of Quantum Materials
Sharma Pradeep. Invited. **Wednesday**. Start time: **17:05**. Room: Saint Clair 3B LVL2. Link to abstract.

Microstructure-based Multiscale Modeling of Mechanical Behaviors in Metals
Duan Huiling. Invited. **Wednesday**. Start time: **17:25**. Room: Saint Clair 3B LVL2. Link to abstract.

Challenges and opportunities in phase-field modeling for the mechanics and physics of solids
De Lorenzis Laura. Invited. **Wednesday**. Start time: **17:45**. Room: Saint Clair 3B LVL2. Link to abstract.

ENNStressNet - An Unsupervised Equilibrium-Based Neural Network for End-to-End Stress Mapping in Elastoplastic Solids
Chen Changqing. Invited. **Wednesday**. Start time: **18:05**. Room: Saint Clair 3B LVL2. Link to abstract.

Conquering Generalization Challenges—A Problem-Independent Machine Learning (PIML) Approach for AI enhanced Computational Mechanics
Guo Xu. Invited. **Wednesday**. Start time: **18:25**. Room: Saint Clair 3B LVL2. Link to abstract.

MS1.9 - Thursday

Session: MS1.9 - TH1

Session chair(s) and Assistant Chair (AC): Pedro Reis; Petr Grigorev (AC)

On the state-of-the-art and some open challenges in mechanical inverse design
Sigmund Ole. Keynote. **Thursday**. Start time: **10:00**. Room: Saint Clair 3B LVL2. Link to abstract.

Dissipation Rate Considerations for Continuum Slip Crystal Plasticity
Needleman Alan. Invited. **Thursday**. Start time: **10:40**. Room: Saint Clair 3B LVL2. Link to abstract.

Fracture of Solids with Covalent Bonds
Yang Wei. Invited. **Thursday**. Start time: **11:00**. Room: Saint Clair 3B LVL2. Link to abstract.

Stored versus energy vs dissipation in gradient crystal plasticity: Application to cyclic plasticity and recrystallization
Forest Samuel. Invited. **Thursday**. Start time: **11:20**. Room: Saint Clair 3B LVL2. Link to abstract.

Mechanical tension in neurons: a new frontier for mechanics
Saif M Taher. Invited. **Thursday**. Start time: **11:40**. Room: Saint Clair 3B LVL2. Link to abstract.

TOPIC: Biomechanics and Medical Implants

MS2.1 - Mechanics of Cells, Proteins, and Microcapsules

Organisers: Anne-Virginie Salsac (UTC) and Patrick McGarry (NUI Galway), José Manuel Garcia Aznar (Universidad de Zaragoza) and Trantafyllos Stylianopoulos (University of Cyprusà)

Session: MS2.1 - TH2

Session chair(s) and Assistant Chair (AC): Anne-Virginie Salsac; Japhet Noubiap (AC)

Assessment of growth-related mechanical stresses in solid tumors and their spatial correlation with extracellular matrix components
Hadjigeorgiou Andreas. **Thursday**. Start time: **14:15**. Room: Saint Clair 1 LVL2. Link to abstract.

BAYESIAN ESTIMATION AND GAUSSIAN PROCESSES APPLIED TO A AGENT-BASED METABOLIC AND MECHANIC MODEL OF TUMOUR SPHEROIDS
Garcia-Gomez Pedro. **Thursday**. Start time: **14:35**. Room: Saint Clair 1 LVL2. Link to abstract.

DIGITAL FUNCTIONAL IMAGING AT MICROSCALE: A STUDY OF OSTEOSARCOMA TREATMENT RESISTANCE
Marty Tristan. **Thursday**. Start time: **14:55**. Room: Saint Clair 1 LVL2. Link to abstract.

Multicellular computational and in-vitro models to uncover the mechanisms underlying mechanosensitive tumour growth
Eoin Mcevoy. **Thursday**. Start time: **15:15**. Room: Saint Clair 1 LVL2. Link to abstract.

Evaluation of cancer cells mechanical phenotype associated with the resistance to treatment in myeloid leukemia
Martin Cardozo Camila. **Thursday**. Start time: **15:35**. Room: Saint Clair 1 LVL2. Link to abstract.

MS2.1 - Friday

Session: MS2.1 - FR1

Session chair(s) and Assistant Chair (AC): Anne-Virginie Salsac; Camila Martin Cardozo (AC)

Endothelium response to supraphysiological stretch
Mazza Edoardo. **Friday**. Start time: **10:00**. Room: Saint Clair 1 LVL2. Link to abstract.

Microrheometric study of damage and rupture of capsules in simple shear flow
Salsac Anne-Virginie. **Friday**. Start time: **10:20**. Room: Saint Clair 1 LVL2. Link to abstract.

Predicting tumor response to chemo-immunotherapy using attention-enhanced deep learning models and shear wave elastography
Voutouri Chrysovalantis. **Friday**. Start time: **10:40**. Room: Saint Clair 1 LVL2. Link to abstract.

MS2.2 - Mechanics of Soft Biological Tissues

Organisers: Aline Bel-Brunon (LAMCOS) and Gerard Ateshian (Columbia)

MS2.2 - Wednesday

Session: MS2.2 - WE1

Session chair(s) and Assistant Chair (AC): Aline Bel-Brunon; Wollner Maximilian; Victoire Roussignol (AC)

Mechanics of entropic biopolymer networks from the thermodynamics of molecular motors
Etienne Jocelyn. **Wednesday**. Start time: **10:00**. Room: Rhône 4 LVL1. Link to abstract.

Predicting the mechanical properties of spring networks
Grossman Doron. **Wednesday**. Start time: **10:20**. Room: Rhône 4 LVL1. Link to abstract.

MULTI-SCALE MECHANICS OF THE HUMAIN CORNEA
Jean Marc Allain. **Wednesday**. Start time: **10:40**. Room: Rhône 4 LVL1. Link to abstract.

Exploring the link between cellular mechanisms and cortical folding in the developing human brain
Budday Silvia. **Wednesday**. Start time: **11:00**. Room: Rhône 4 LVL1. Link to abstract.

Poro-piezo-electromechanical model demonstrates how voltage gated ion channels can be activated by mechanical loading intervertebral disc tissue
Huyghe Jacques. **Wednesday**. Start time: **11:20**. Room: Rhône 4 LVL1. Link to abstract.

A Thermodynamic framework for the mechanically driven remodelling and fiber reorientation in soft biological tissues
Kumar Rahul. **Wednesday**. Start time: **11:40**. Room: Rhône 4 LVL1. Link to abstract.

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Session: MS2.2 - WE2

Session chairs: Baptiste Pierrat; Da Rocha Alexis; Erwan Marciano (AC)

Computational modelling of the peristaltic contractions of the human stomach
Cyron Christian. Keynote. **Wednesday**. Start time: **14:30**. Room: Rhône 4 LVL1. Link to abstract.

Mechanical response of the human stomach wall to radial compression and associated microstructural changes
Holzer-Stock Clarissa S.. **Wednesday**. Start time: **15:10**. Room: Rhône 4 LVL1. Link to abstract.

Impact of the surgical technique on the biomechanical response of the repaired abdominal wall evaluated on a physical model
Fadil Zakaria. **Wednesday**. Start time: **15:30**. Room: Rhône 4 LVL1. Link to abstract.

Effects of Testing Conditions on the Mechanical Characterization of the tunica albuginea
Minster Pierre-Hugo. **Wednesday**. Start time: **15:50**. Room: Rhône 4 LVL1. Link to abstract.

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Session: MS2.2 - WE3

Session chairs: Pandolfi Anna; Wu Qian; Erwan Marciano (AC)

First macro-scale damage properties for Wharton's jelly membrane undergoing tensile loading using finite element analysis.
Da Rocha Alexis. **Wednesday**. Start time: **16:45**. Room: Rhône 4 LVL1. Link to abstract.

Characterization of the anisotropic viscoelastic behavior in aneurysm tissue of the ascending thoracic aorta using biaxial tensile tests and constitutive modeling
Prot Victorien. **Wednesday**. Start time: **17:05**. Room: Rhône 4 LVL1. Link to abstract.

Mechanics and histology of lung tissue from ARDS animal models
Bruna-Rosso Claire. **Wednesday**. Start time: **17:25**. Room: Rhône 4 LVL1. Link to abstract.

Mechanical Characterization of the Porcine Atrial Appendage Under Uniaxial Tension
Reibel Kundry. **Wednesday**. Start time: **17:45**. Room: Rhône 4 LVL1. Link to abstract.

Characterizing mechanical properties of the cadaver vocal folds: Preconditioning or the Mullins effect?
Mohammadi-Gorjaei Abolfazl or Nazari Mohammad Ali. **Wednesday**. Start time: **18:05**. Room: Rhône 4 LVL1. Link to abstract.

Strain-dependent relaxation time of viscoelastic soft tissues
Iaquinta Sarah. **Wednesday**. Start time: **18:25**. Room: Rhône 4 LVL1. Link to abstract.

MS2.2 - Thursday

Session: MS2.2 - TH1

Session chair(s) and Assistant Chair (AC): Aline Bel-Brunon; Iaquinta Sarah; Ndeye Maguette Ndiaye (AC)

Extracting attenuation and wave speed from diffuse wave field in soft tissues : a semi-analytical study.
Giammarinaro Bruno. Keynote. **Thursday**. Start time: **10:00**. Room: Rhône 4 LVL1. Link to abstract.

A predictive model of UV-A-riboflavin crosslinking treatment on porcine corneas
Pandolfi Anna or Bonfanti Alessandra. **Thursday**. Start time: **10:40**. Room: Rhône 4 LVL1. Link to abstract.

Mechanics and Modelling of Brain Tissue Interaction with a Slender Ribbon-Shaped Neural Probe
Noseda Lorenzo. **Thursday**. Start time: **11:00**. Room: Rhône 4 LVL1. Link to abstract.

Unraveling the Mechanics of Tough Hydrogels: A Micro-to-Macro Perspective
Vitucci Gennaro. **Thursday**. Start time: **11:20**. Room: Rhône 4 LVL1. Link to abstract.

Statistical analysis of precompression time in laparoscopic sleeve gastrectomy using finite element modeling
Schrammel Stefan. **Thursday**. Start time: **11:40**. Room: Rhône 4 LVL1. Link to abstract.

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Session: MS2.2 - TH2

Session chairs: Vitucci Gennaro; Holzer-Stock Clarissa; Ben Kabondo Kashala (AC)

Study of the Adhesive Properties of Porcine Mandibular Periosteum
Hamma Alexandre. **Thursday**. Start time: **14:15**. Room: Rhône 4 LVL1. Link to abstract.

First results on poro-mechanical characterization of temporomandibular joint disc through multiple testing
De Oliveira Cafiero Caio. **Thursday**. Start time: **14:35**. Room: Rhône 4 LVL1. Link to abstract.

Finite-element-assisted design of a bulge inflation experiment to reproduce the anisotropic in-vivo tensions in the ascending aorta
Pierrat Baptiste. **Thursday**. Start time: **14:55**. Room: Rhône 4 LVL1. Link to abstract.

Volumic deformation of human cornea under pressure
Allain Jean-Marc. **Thursday**. Start time: **15:15**. Room: Rhône 4 LVL1. Link to abstract.

Experimental and computational studies of the time-dependent mechanical behavior of cellular and acellular collagen hydrogels
Busenhart Kim. **Thursday**. Start time: **15:35**. Room: Rhône 4 LVL1. Link to abstract.

Experimental and Computational Modelling of Brain Tissue Damage Mechanics
Sheridan Conal. **Thursday**. Start time: **15:55**. Room: Rhône 4 LVL1. Link to abstract.

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Session: MS2.2 - TH3

Session chairs: Aline Bel-Brunon; Chloé Giraudet; Erwan Marciano (AC)

On the mutual coupling of viscoelasticity and the Mullins effect
Wollner Maximilian P.. **Thursday**. Start time: **16:30**. Room: Rhône 4 LVL1. Link to abstract.

PATIENT-SPECIFIC FINITE ELEMENT MODELLING OF INTRACRANIAL ANEURYSM GROWTH AND RUPTURE
Mcdonagh Peter. **Thursday**. Start time: **16:50**. Room: Rhône 4 LVL1. Link to abstract.

Finite Element Model of Lower Limb Lymphedema Under Elastic Compression
Américo De Almeida Mateus. **Thursday**. Start time: **17:10**. Room: Rhône 4 LVL1. Link to abstract.

Quantification of the Influence of Orthopedic Insole in ex-vivo Feet
Viguie Benoît. **Thursday**. Start time: **17:30**. Room: Rhône 4 LVL1. Link to abstract.

Modeling the effects of elastic compression on fluid dynamics in lower limb lymphedema
Reda Maha. **Thursday**. Start time: **17:50**. Room: Rhône 4 LVL1. Link to abstract.

MS2.2 - Friday

Session: MS2.2 - FR1

Session chair(s) and Assistant Chair (AC): Victorien Prot; Minster Pierre-Hugo; Joël Courbon (AC)

Mechanical feedback and incompatibility in size regulation
Erlich Alexander. Keynote. **Friday**. Start time: **10:00**. Room: Rhône 4 LVL1. Link to abstract.

On the separation of equilibrium and inelastic effects in arteries
Bogoni Francesca. **Friday**. Start time: **10:40**. Room: Rhône 4 LVL1. Link to abstract.

A Thermodynamic Framework to Investigate the Role of Cell Morphological Changes in Cerebral Aneurysm Growth
Coleman Ryan. **Friday**. Start time: **11:00**. Room: Rhône 4 LVL1. Link to abstract.

Soft tissue deformability, growth, and anchoring as multiscale facial sagging mechanisms
Santoprete Roberto. **Friday**. Start time: **11:20**. Room: Rhône 4 LVL1. Link to abstract.

A Multiscale Framework for Understanding Arterial Tissue Mechanics: Coupling Cellular Dynamics and Macroscopic Behavior
Sauty Bastien. **Friday**. Start time: **11:40**. Room: Rhône 4 LVL1. Link to abstract.

MS2.3 - Cardiovascular Biomechanics

Organisers: Caitriona Lally (Trinity College Dublin), Christian Cyron (Hamburg University of Technology) and David Nordsletten (University of Michigan)

MS2.3 - Wednesday

Session: MS2.3 - WE2

Session chair(s) and Assistant Chair (AC): Caitríona Lally; Mathias Peirlinck; Elena Giovenco (AC)

Physics-based modeling and machine learning integration towards automating cardiovascular material model discovery and analysis
Peirlinck Mathias. **Wednesday**. Start time: **14:30**. Room: Roseraie 3 LVL3. Link to abstract.

Discrete network simulation of the multiaxial rupture properties of the endothelium
Jakob Raphael. **Wednesday**. Start time: **14:50**. Room: Roseraie 3 LVL3. Link to abstract.

Linking the microstructure of human middle cerebral arteries to their mechanical behavior
Demeersseman Nele. **Wednesday**. Start time: **15:10**. Room: Roseraie 3 LVL3. Link to abstract.

Regional micro- and macro-structural properties of the aortic wall in ascending thoracic aortic aneurysms
Ghorbani Omid. Invited. **Wednesday**. Start time: **15:30**. Room: Roseraie 3 LVL3. Link to abstract.

A constitutive law for the tensile and compressive behaviour of fibrin networks applied to the simulation of aspiration thrombectomy
Bein Snee Kila. **Wednesday**. Start time: **15:50**. Room: Roseraie 3 LVL3. Link to abstract.

BLOOD PRESSURE AND FLOW CONTROL DURING ASPIRATION THROMBECTOMY INCREASES THE LIKELIHOOD OF CLOT RETRIEVAL SUCCESS
Glynn Aoife. Invited. **Wednesday**. Start time: **16:10**. Room: Roseraie 3 LVL3. Link to abstract.

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Session: MS2.3 - WE3

Session chairs: Christian Cyron; Rolf-Pissarczyk; Elena Giovenco (AC)

Insights into aortic remodeling in type B aortic dissection using patient-specific fluid-structure interaction simulations
Rolf-Pissarczyk Malte. Invited. **Wednesday**. Start time: **16:45**. Room: Roseraie 3 LVL3. Link to abstract.

BIVENTRICULAR HEART MODEL WITH NOVEL PSEUDO-FLUID DOMAINS AND THERMODYNAMICALLY-MOTIVATED GROWTH & REMODELING
Senthil Darshan. **Wednesday**. Start time: **17:05**. Room: Roseraie 3 LVL3. Link to abstract.

EXPERIMENTAL AND NUMERICAL STUDY OF AORTIC GROWTH AND REMODELING UNDER GESTATIONAL HYPOBARIC HYPOXIA
Navarrete Alvaro. Invited. **Wednesday**. Start time: **17:25**. Room: Roseraie 3 LVL3. Link to abstract.

MS2.3 - Thursday

Session: MS2.3 - TH1

Session chair(s) and Assistant Chair (AC): Selda Sherifova; Christopher Blase; Laura Preiss (AC)

Global and Local Mechanics of the Aortic Media Under Radial Extension
Sherifova Selda. Invited. **Thursday**. Start time: **10:00**. Room: Roseraie 3 LVL3. Link to abstract.

In Vivo Validation of a 4D Ultrasound Strain Imaging Approach for the Identification of Patient Specific Anisotropic Elastic Material Properties of Abdominal Aortic Aneurysm
Blase Christopher. Invited. **Thursday**. Start time: **10:20**. Room: Roseraie 3 LVL3. Link to abstract.

Quantitative X-ray elastography of coronary arteries using flexural pulse waves
Gregoire Sibylle. **Thursday**. Start time: **10:40**. Room: Roseraie 3 LVL3. Link to abstract.

MODELING THE MECHANICAL INTERACTION OF SKIN AND ARTERIES WITH WEARABLE BLOOD PRESSURE SENSORS
Chakroune Mohamed. **Thursday**. Start time: **11:00**. Room: Roseraie 3 LVL3. Link to abstract.

Biaxial biomechanical properties of ex vivo perfused human thoracic aortas with and without stents
Yusefi Masoud. Invited. **Thursday**. Start time: **11:20**. Room: Roseraie 3 LVL3. Link to abstract.

Linking microstructure with mechanical behavior on the thoracic aorta: a multiscale approach
Utrera Andres. Invited. **Thursday**. Start time: **11:40**. Room: Roseraie 3 LVL3. Link to abstract.

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Session: MS2.3 - TH2

Session chairs: Christian Cyron; Gerhard Sommer; Christophe Le Bourlot (AC)

Determination of induced vascular damage by in vitro stenting
Sommer Gerhard. Keynote. **Thursday**. Start time: **14:15**. Room: Roseraie 3 LVL3. Link to abstract.

COMPUTATIONAL SIMULATION OF RESPIRATION-INDUCED DEFORMATION OF RENAL ARTERIES IN AAA PATIENTS AFTER EVAR
Corvo Alessandra. Invited. **Thursday**. Start time: **14:55**. Room: Roseraie 3 LVL3. Link to abstract.

A finite-element Julia platform for solid-to-beam contact modelling in vascular biomechanics
Bisighini Beatrice. Invited. **Thursday**. Start time: **15:15**. Room: Roseraie 3 LVL3. Link to abstract.

A fully parameterized 3D computational model of atherosclerotic arteries to simulate balloon angioplasty
Kwakman Sanne M. B.. Invited. **Thursday**. Start time: **15:35**. Room: Roseraie 3 LVL3. Link to abstract.

Numerical analysis of stent geometry and deployment technique on arterial wall adaptation
Lisac Ana. Invited. **Thursday**. Start time: **15:55**. Room: Roseraie 3 LVL3. Link to abstract.

MS2.3 - Friday

Session: MS2.3 - FR1

Session chair(s) and Assistant Chair (AC): Caitríona Lally; Laura Miller; Laura Preiss (AC)

Simultaneous Structural Damage and Calcification Dramatically Reduces Porcine Pericardium Durability
Guerin Luke. Invited. **Friday**. Start time: **10:00**. Room: Roseraie 3 LVL3. Link to abstract.

Mechanics of the calcium movement inside cardiac myocytes and the effect on contractility
Lai Choi-Hong. **Friday**. Start time: **10:20**. Room: Roseraie 3 LVL3. Link to abstract.

An in-silico framework for design and optimisation of 3D-printed bioinspired polymer heart valve leaflets
Hughes Celia. Invited. **Friday**. Start time: **10:40**. Room: Roseraie 3 LVL3. Link to abstract.

Characterization of the active response of carotid arteries measured by pressure myography.
Álvarez-Carrasco Fabián. Invited. **Friday**. Start time: **11:00**. Room: Roseraie 3 LVL3. Link to abstract.

On the Impact of Residual Strains in the Stress Analysis of Patient-Specific Atherosclerotic Carotid Vessels: Predictions Based on the Homogenous Stress Hypothesis
Alessandro Mastrofini. Invited. **Friday**. Start time: **11:20**. Room: Roseraie 3 LVL3. Link to abstract.

MS2.4 - Mechanics of Mineralized Tissues

Organisers: Hanna Isaksson (Lund University), Christian Hellmich (TU Wien) and Rémy Gauthier (MATEIS)

MS2.4 - Thursday

Session: MS2.4 - TH1

Session chair(s) and Assistant Chair (AC): Anna Gustafsson; Christian Hellmich; Rémy Gauthier

A Multiscale Ultrastructural, Chemical and Mechanical Investigation of the Musk Ox (Ovibus Moschatus) Horn
Genna Monahan. **Thursday**. Start time: **10:00**. Room: Rhône 3A LVL1. Link to abstract.

Ex vivo analysis of pressure and streaming potential in bone explants during loading: development of a new experimental protocol
Gauthier Rémy. **Thursday**. Start time: **10:20**. Room: Rhône 3A LVL1. Link to abstract.

Impact of Hydroxyapatite Morphology on the Fracture Behavior of Lamellar Bone: A Phase-Field Modeling Approach
Alijani Hamid. **Thursday**. Start time: **10:40**. Room: Rhône 3A LVL1. Link to abstract.

Microstructure influence on the local mechanical properties of human trabecular bone: insights for biomimetic scaffold for bone repair
Xiong Zhuang. **Thursday**. Start time: **11:00**. Room: Rhône 3A LVL1. Link to abstract.

Understanding cold-water coral strength: Molecular interactions and scaling simulations
Krämer Konrad . **Thursday**. Start time: **11:20**. Room: Rhône 3A LVL1. Link to abstract.

Bone Fracture Prediction: From Experimental Determination of Material Properties to Phase Field Model Implementation
Maxime Levy. **Thursday**. Start time: **11:40**. Room: Rhône 3A LVL1. Link to abstract.

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Session: MS2.4 - TH2

Session chairs: Kay Raum; Ted Vaughan; Rémy Gauthier

A mathematical model for predicting the elastic properties of cortical bone using algorithm-generated images
Zhiyu Wang. **Thursday**. Start time: **14:15**. Room: Rhône 3A LVL1. Link to abstract.

An IGA approach to flexoelectricity-induced remodelling in cortical bone
Menzel Andreas. **Thursday**. Start time: **14:35**. Room: Rhône 3A LVL1. Link to abstract.

HIERARCHICAL ELASTOPLASTICITY OF CORTICAL BONE:OBSERVATIONS, MATHEMATICAL MODELING, VALIDATION
Hellmich Christian. **Thursday**. Start time: **14:55**. Room: Rhône 3A LVL1. Link to abstract.

Modeling and simulation of the coupling between trabecular bone adaptation and microdamage repair though remodeling
Adachi Taiji. **Thursday**. Start time: **15:15**. Room: Rhône 3A LVL1. Link to abstract.

Phase-field modelling of damage evolution in cortical bone
Carlsson Jenny. **Thursday**. Start time: **15:35**. Room: Rhône 3A LVL1. Link to abstract.

Ultrasound stimulation of bone cells: 3D finite-element model of acoustic streaming around osteocytes.
Allegre Lucille or Baron Cécile. **Thursday**. Start time: **15:55**. Room: Rhône 3A LVL1. Link to abstract.

MS2.4 - Friday

Session: MS2.4 - FR1

Session chair(s) and Assistant Chair (AC): Cécile Baron; Rémy Gauthier

A Quasi-Brittle Fracture Mechanics Model for Assessing Treatment Effects in Human Cortical Bone
Gallaway Glynn. **Friday**. Start time: **10:00**. Room: Rhône 3A LVL1. Link to abstract.

Computational evaluation of geometrical and physical skull growth for craniosynostosis treatment via finite element analysis
Vafaeefar Mahtab. **Friday**. Start time: **10:20**. Room: Rhône 3A LVL1. Link to abstract.

Fibrillar-level mechanics of the healthy and aged bone-cartilage unit
Gupta Himadri Shikhar. **Friday**. Start time: **10:40**. Room: Rhône 3A LVL1. Link to abstract.

The role of inflammation on subchondral bone adaptation in post-traumatic osteoarthritis
Gustafsson Anna. **Friday**. Start time: **11:00**. Room: Rhône 3A LVL1. Link to abstract.

Ultrasound Spectroscopy of Cortical Bone: Insights from In-Silico Modeling to In-Vivo Detection of Fragility Fractures
Raum Kay. **Friday**. Start time: **11:20**. Room: Rhône 3A LVL1. Link to abstract.

Determining the Patient-Specific Anisotropy by cQCT in Vivo
Gebert Johannes. **Friday**. Start time: **11:40**. Room: Rhône 3A LVL1. Link to abstract.

MS2.5 - Mechanics of Biomaterials: from implant to Tissue Engineering

Organisers: Giulia Luraghi (Polimi), Diana Massai (Polito), Jérôme Chevalier (MATEIS), Jérôme Molimar (Ecole des Mines de Saint-Etienne), Svein Keliven (KTH Stockholm), Michael Gilchrist (University college of Dublin) and Philippe Beillas (University Gustave Eiffel)

MS2.5 - Thursday

Session: MS2.5 - TH1

Session chair(s) and Assistant Chair (AC): Jérôme Molimard; Philippe Beillas; Tasnim Missaoui (AC)

Development of a variable locking angle implant for treating of Pauwels type III femoral neck fractures and mandibular angle fractures
Adamović Petra. **Thursday**. Start time: **10:00**. Room: Rhône 3B LVL1. Link to abstract.

Mechanical target for bone implant optimization based on numerical homogenization
Vasta Marcello. **Thursday**. Start time: **10:20**. Room: Rhône 3B LVL1. Link to abstract.

Evaluation of the feasibility of 3D-printed Ti-6Al-4V assembled bone plates
Revol Laura. **Thursday**. Start time: **10:40**. Room: Rhône 3B LVL1. Link to abstract.

Trabecular-Like Structure based on Triply Periodic Minimal Surfaces 3D-Printed by low-cost LCD-Printing via two-stage curing.
Claude Joris. **Thursday**. Start time: **11:00**. Room: Rhône 3B LVL1. Link to abstract.

Investigating the Bone-Implant Interface Using Quantitative Ultrasound: A Numerical Approach
Moisan Baptiste. **Thursday**. Start time: **11:20**. Room: Rhône 3B LVL1. Link to abstract.

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Session: MS2.5 - TH2

Session chairs: Philippe Beillas; Svein Kleiven; Tasnim Missaoui (AC)

Exploring the mechanical complexity of the interface between gray and white matter in the brain
Khalaj Mina. **Thursday**. Start time: **14:15**. Room: Rhône 3B LVL1. Link to abstract.

Identifying constitutive parameters for the axon and matrix: A Finite Element and Neural Network Approach
Majdolhosseini Maryam. **Thursday**. Start time: **14:35**. Room: Rhône 3B LVL1. Link to abstract.

Biomechanical and biological characterization of brain tissue-inspired hydrogels: Focus on porous material properties for tissue engineering applications
Kainz Manuel P.. **Thursday**. Start time: **14:55**. Room: Rhône 3B LVL1. Link to abstract.

Methodology for Comparing Viscoelastic and Poroelastic Properties of GelMA Hydrogels at the Cellular Scale
Tosini Marta. **Thursday**. Start time: **15:15**. Room: Rhône 3B LVL1. Link to abstract.

Exploration of neo-formed tissue using combining reactive poromechanics with computational cellular biology
Swider Pascal. **Thursday**. Start time: **15:35**. Room: Rhône 3B LVL1. Link to abstract.

MS2.5 - Friday

Session: MS2.5 - FR1

Session chair(s) and Assistant Chair (AC): Jérôme Chevalier; Svein Kleiven; Lucian Roiban (AC)

A hitchhiker's guide to size effects in metamaterial implants.
Veluvali Meghashyam. **Friday**. Start time: **10:00**. Room: Rhône 3B LVL1. Link to abstract.

Rate-dependent Deformation and Fracture of a Thermoplastic Elastomer Tissue Surrogate
Ding Jow. **Friday**. Start time: **10:20**. Room: Rhône 3B LVL1. Link to abstract.

An in vitro Blood Loop to Assess Catheter Thrombogenicity at High Shear Rates
Raphaelle Dodart or Ku David N.. **Friday**. Start time: **10:40**. Room: Rhône 3B LVL1. Link to abstract.

Piezoelectric Composite Sensors for Artificial Arteries: Toward Realistic Simulation of Vascular Mechanics
Missaoui Tasnim or Morelle Xavier. **Friday**. Start time: **11:00**. Room: Rhône 3B LVL1. Link to abstract.

TOPIC: Continuum Mechanics

MS3.1 - Homogenisation and Continuum Strategies for Multiphase Materials

Organisers: Carole Nadot-Martin (P', ISAE ENSMA), Pedro Ponte Castaneda (University of Pennsylvania), Martin Idiart (Universidad Nacional de La Plata) and Issam Doghri (UC Louvain)

MS3.1 - Tuesday

Session: MS3.1 - TU3

Session chair(s) and Assistant Chair (AC): Issam Doghri; Djibril Gabriel Kashala (AC)

Internal variables and statistics of the viscous strain field in linear viscoelastic particulate composites
Masson Renaud. Keynote. **Tuesday**. Start time: **16:35**. Room: Rhône 1 LVL1. Link to abstract.

Thermodynamic potentials for viscoelastic composites with simple constituent rheologies
Idiart Martín. **Tuesday**. Start time: **17:15**. Room: Rhône 1 LVL1. Link to abstract.

Direct time-incremental homogenization models for elasto-viscoplastic composites based on second moments of stresses
Berbenni Stephane. **Tuesday**. Start time: **17:35**. Room: Rhône 1 LVL1. Link to abstract.

Modelling of elastic-viscoplastic composites by the additive Mori-Tanaka scheme based on a modified tangent linearization
Kowalczyk-Gajewska Katarzyna. **Tuesday**. Start time: **17:55**. Room: Rhône 1 LVL1. Link to abstract.

Prediction of local field statistics using an incremental mean-field homogenization scheme for high-concentration composites
Bourdier Éléonore. **Tuesday**. Start time: **18:15**. Room: Rhône 1 LVL1. Link to abstract.

MS3.1 - Wednesday

Session: MS3.1 - WE1

Session chair(s) and Assistant Chair (AC): Cédric Bellis; Ronan Riverie (AC)

Influence of strain hardening and elasticity upon transformation plasticity of metals and alloys
Leblond Jean-Baptiste. **Wednesday**. Start time: **10:00**. Room: Rhône 1 LVL1. Link to abstract.

A variational approach to boundary effects in higher-order homogenization
Thbaut Manon. **Wednesday**. Start time: **10:20**. Room: Rhône 1 LVL1. Link to abstract.

On modeling size-dependent strain gradient elastic adhesively bonded joints
Serpilli Michele. **Wednesday**. Start time: **10:40**. Room: Rhône 1 LVL1. Link to abstract.

On Nitsche's method for higher-order boundary conditions in coupled gradient-elastic Cahn-Hilliard problems
Kranzosch Ole. **Wednesday**. Start time: **11:00**. Room: Rhône 1 LVL1. Link to abstract.

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Session: MS3.1 - WE2

Session chairs: François Willot; Anwar Gamra (AC)

Lippmann-Schwinger spectra, composite materials eigenstates and their role in computational homogenization
Bellis Cédric. Keynote. **Wednesday**. Start time: **14:30**. Room: Rhône 1 LVL1. Link to abstract.

Quasiperiodic composites: homogenization and spectral properties
Cherkaev Elena. **Wednesday**. Start time: **15:10**. Room: Rhône 1 LVL1. Link to abstract.

Efficient Wavelet-FFT-Approaches for Multiscale Problems
Kaiser Tobias. **Wednesday**. Start time: **15:30**. Room: Rhône 1 LVL1. Link to abstract.

Simplifying FFT-based computational homogenization with automatic differentiation
Pundir Mohit. **Wednesday**. Start time: **15:50**. Room: Rhône 1 LVL1. Link to abstract.

Multiscale analysis of the anisotropy induced by defects in LPBF additive manufacturing using coarse graining homogenisation techniques
Gautier Lilou. **Wednesday**. Start time: **16:10**. Room: Rhône 1 LVL1. Link to abstract.

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Session: MS3.1 - WE3

Session chairs: Karam Sab; Souleymane Drabo (AC)

Homogenization based modelling of electroactive porous metamaterials with nonlinear effects
Rohan Eduard. **Wednesday**. Start time: **16:45**. Room: Rhône 1 LVL1. Link to abstract.

Homogenisation of Viscoplastic Properties in Porous Polycrystals Using FFT-Based Methods: Application to the Snow-Firn-Ice Transition
Védrine Louis. **Wednesday**. Start time: **17:05**. Room: Rhône 1 LVL1. Link to abstract.

Stress-driven FFT-Galerkin formulation for nucleus evolution in ferroelectric materials
Cheng Hsu-Cheng. **Wednesday**. Start time: **17:25**. Room: Rhône 1 LVL1. Link to abstract.

Machine learning-boosted nonlinear homogenization
Tannous Mikhael. **Wednesday**. Start time: **17:45**. Room: Rhône 1 LVL1. Link to abstract.

Data-driven simulations from multiphase material databases augmented by active learning
Platzer Auriane. **Wednesday**. Start time: **18:05**. Room: Rhône 1 LVL1. Link to abstract.

Implementations of homogenized behaviours in structural codes: examples and on-going efforts on extending the MFront code generator
Martin Antoine. **Wednesday**. Start time: **18:25**. Room: Rhône 1 LVL1. Link to abstract.

MS3.1 - Thursday

Session: MS3.1 - TH1

Session chair(s) and Assistant Chair (AC): Martin Idiart; Victoire Roussignol (AC)

The accelerated adaptive Eyre-Milton scheme for infinitely contrasted heterogeneous materials. Application to homogenization and damage problems.
Sab Karam. Keynote. **Thursday**. Start time: **10:00**. Room: Rhône 1 LVL1. Link to abstract.

An incremental variational approach and computational homogenization for composites with evolving damage
Dartois Sophie. **Thursday**. Start time: **10:40**. Room: Rhône 1 LVL1. Link to abstract.

Mean-field micromechanical incremental approaches for brittle damage in particulate microstructures under monotonic loading
Garajeu Mihail. **Thursday**. Start time: **11:00**. Room: Rhône 1 LVL1. Link to abstract.

A closed-form homogenization model for composites made of an elasto-damageable matrix reinforced by rigid particles and for structural computations.
Auslender François. **Thursday**. Start time: **11:20**. Room: Rhône 1 LVL1. Link to abstract.

The structure tensor field obtained by homogenization with the covariogram
Nait-Ali Azdine. **Thursday**. Start time: **11:40**. Room: Rhône 1 LVL1. Link to abstract.

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Session: MS3.1 - TH2

Session chairs: Renaud Masson; Margherita Martini (AC)

Time and space multiscale modeling of the high cycle fatigue of thermoplastic polymer solids and structures
Doghri Issam. **Thursday**. Start time: **14:15**. Room: Rhône 1 LVL1. Link to abstract.

Effective response of a nonlinear differential laminate assemblage
Willot François. **Thursday**. Start time: **14:35**. Room: Rhône 1 LVL1. Link to abstract.

On power scaling laws dictating the mechanics of porous materials
Rege Ameya. **Thursday**. Start time: **14:55**. Room: Rhône 1 LVL1. Link to abstract.

Some applications of a variationally consistent multi-scale model for microstructures displaying voids on boundary
Rocha Felipe. **Thursday**. Start time: **15:15**. Room: Rhône 1 LVL1. Link to abstract.

Asymptotic homogenization of rough elastic surface
Singh Vivek. **Thursday**. Start time: **15:35**. Room: Rhône 1 LVL1. Link to abstract.

Acoustic/elastic Willis media and their dynamic homogenization
Hu Gengkai. **Thursday**. Start time: **15:55**. Room: Rhône 1 LVL1. Link to abstract.

MS3.1 - Friday

Session: MS3.1 - FR1

Session chair(s) and Assistant Chair (AC): Carole Nadot-Martin; Hélène Hembert (AC)

Twinning and pneumatic actuation in porous elastomers
Caulfield Peter J.. **Friday**. Start time: **10:00**. Room: Rhône 1 LVL1. Link to abstract.

Buckling mechanisms in reticulated structures.
Antczak Stanislas. **Friday**. Start time: **10:20**. Room: Rhône 1 LVL1. Link to abstract.

The role of fiber plasticity on the onset of macroscopic instabilities in soft biological composites
Agoras Michalis. **Friday**. Start time: **10:40**. Room: Rhône 1 LVL1. Link to abstract.

Homogenization method applied to the mechanical behavior of the active zone of a Proton Exchange Membrane Fuel Cell
Mons-Quendo Fabien. **Friday**. Start time: **11:00**. Room: Rhône 1 LVL1. Link to abstract.

Microvia homogenised behavior for the mechanical modelling of PCB with embedded components
Dailland Flora. **Friday**. Start time: **11:20**. Room: Rhône 1 LVL1. Link to abstract.

MS3.2 - Material Instabilities

Organisers: Odd Sture Hopperstad (NTNU, Norway) and Henryk Petryk (IPPT Pan)

MS3.2 - Tuesday

Session: MS3.2 - TU3

Session chair(s) and Assistant Chair (AC): Henryk Petryk; Odd Sture Hopperstad; Hélène Hembert (AC)

Material instability in ductile multiphase materials – a computational micromechanics study
Peerlings Ron. Keynote. **Tuesday**. Start time: **16:35**. Room: Saint Clair 4 LVL2. Link to abstract.

Multiple necking in an expanding metal ring: polycrystal plasticity approach and texture influence
Dequiedt Jean-Lin. Invited. **Tuesday**. Start time: **17:15**. Room: Saint Clair 4 LVL2. Link to abstract.

Incorporating strain localization into porous plasticity modelling of ductile failure in aluminium alloys: a combined experimental and numerical study
Morin David. Invited. **Tuesday**. Start time: **17:35**. Room: Saint Clair 4 LVL2. Link to abstract.

Observation and simulation of the Portevin-Le Chatelier effect at the grain scale in a polycristalline Nickel based superalloy
Billon Florian. **Tuesday**. Start time: **17:55**. Room: Saint Clair 4 LVL2. Link to abstract.

Strain localization in thermo-viscoplastic materials
Tripathy Alok. **Tuesday**. Start time: **18:15**. Room: Saint Clair 4 LVL2. Link to abstract.

MS3.2 - Wednesday

Session: MS3.2 - WE1

Session chair(s) and Assistant Chair (AC): Henryk Petryk; Odd Sture Hopperstad; Cheryle Manfouo Tchoupmene (AC)

Wrinkling and Creasing in Crystalline Metals under Bending
Kyriakides Stelios. Keynote. **Wednesday**. Start time: **10:00**. Room: Saint Clair 4 LVL2. Link to abstract.

Interaction of instabilities and functional degradation in shape memory alloys: a macroscopic modeling study
Rezaee Hajidehi Mohsen. **Wednesday**. Start time: **10:40**. Room: Saint Clair 4 LVL2. Link to abstract.

The effect of microstructural inertia on plastic localization and void growth in porous solids
Rodríguez-Martinez José A.. Invited. **Wednesday**. Start time: **11:00**. Room: Saint Clair 4 LVL2. Link to abstract.

Yield surface modeling for failure prediction in turbine disk applications
Barrot Elodie. **Wednesday**. Start time: **11:20**. Room: Saint Clair 4 LVL2. Link to abstract.

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Session: MS3.2 - WE2

Session chairs: Henryk Petryk; Odd Sture Hopperstad; Maëlle Moor (AC)

On the criteria for material instability in rate-independent plasticity
Petryk Henryk. Invited. **Wednesday**. Start time: **14:30**. Room: Saint Clair 4 LVL2. Link to abstract.

Deformation patterns in finite strain crystal plasticity
Scherer Jean-Michel. **Wednesday**. Start time: **14:50**. Room: Saint Clair 4 LVL2. Link to abstract.

Finite Element Modeling of Deformation Bands in Single-Crystal Plasticity at Small Strain

Ryś Maciej. **Wednesday**. Start time: **15:10**. Room: Saint Clair 4 LVL2. Link to abstract.

Investigating ductile failure through strain localisation under non-proportional load paths

Kristoffersen Martin. Invited. **Wednesday**. Start time: **15:30**. Room: Saint Clair 4 LVL2. Link to abstract.

Modeling and analysis of shear banding in metallic glasses
Kamasamudram Vasudevan. **Wednesday**. Start time: **15:50**. Room: Saint Clair 4 LVL2. Link to abstract.

Mechanical instabilities in metallic glasses: a statistical nanoindentation approach
Pomes Silvia. **Wednesday**. Start time: **16:10**. Room: Saint Clair 4 LVL2. Link to abstract.

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Session: MS3.2 - WE3

Session chairs: Henryk Petryk; Odd Sture Hopperstad; Maëlle Moor (AC)

FORMING LIMIT DIAGRAMS FOR PERFECT AND IMPERFECT SHEETS USING PLASTIC MODELS WITH TWO POROSITIES
Benallal Ahmed. Invited. **Wednesday**. Start time: **16:45**. Room: Saint Clair 4 LVL2. Link to abstract.

3D Wrinkled Substrates for Soft Pressure Sensing: Maximizing Surface Area and Mechanical Resilience
Xiaoyi Chen. **Wednesday**. Start time: **17:05**. Room: Saint Clair 4 LVL2. Link to abstract.

A micromechanics-based damage model for prediction of sheet metal forming limits
Morey Krunal Namdeorao. **Wednesday**. Start time: **17:25**. Room: Saint Clair 4 LVL2. Link to abstract.

Damage modeling in the swelling evaluation of the WWERs pressure vessel internals
Dubyk Yaroslav. **Wednesday**. Start time: **17:45**. Room: Saint Clair 4 LVL2. Link to abstract.

MS3.3 - Mechanics and Physics of Dense Granular Media: Experiments, Theory and Modelling

Organisers: Stéphanie Deboeuf (Institut Jean le Rond D'Alembert) and Nathalie M. Vriend (University of Colorado, Boulder)

Session: MS3.3 - WE1

Session chair(s) and Assistant Chair (AC): Stéphanie Deboeuf; Elena Giovenco (AC)

Local strain fluctuations in granular media
Leopoldes Julien. Keynote. **Wednesday**. Start time: **10:00**. Room: Saint Clair 1 LVL2. Link to abstract.

An experimental study of creep in non-cohesive granular materials
Gicquel Cécilia. **Wednesday**. Start time: **10:40**. Room: Saint Clair 1 LVL2. Link to abstract.

Influence of grain shape on grain rotation under Coble creep
Mortadi Saad. **Wednesday**. Start time: **11:00**. Room: Saint Clair 1 LVL2. Link to abstract.

A hemivariational granular-chain model with elasticity, damage and impenetrability constraints
Tran C. Anthony. **Wednesday**. Start time: **11:20**. Room: Saint Clair 1 LVL2. Link to abstract.

Brittle-to-ductile transition in snow: a microstructural perspective
Chambon Guillaume. **Wednesday**. Start time: **11:40**. Room: Saint Clair 1 LVL2. Link to abstract.

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Session: MS3.3 - WE2

Session chairs: Cécilia Gicquel; Denis Dumont; Sarah Yehya (AC)

Swelling granular media made of plant seeds: pressurisation and inverse silo effect
Marmottant Philippe. **Wednesday**. Start time: **14:30**. Room: Saint Clair 1 LVL2. Link to abstract.

A dynamic Janssen effect
Mollon Guilhem. **Wednesday**. Start time: **14:50**. Room: Saint Clair 1 LVL2. Link to abstract.

Size segregation in confined granular shearing flows: a two-dimensional process
Caro Santiago. **Wednesday**. Start time: **15:10**. Room: Saint Clair 1 LVL2. Link to abstract.

A non-local model for stress, velocity, and packing fraction in a rotating drum: Theoretical, numerical and experimental approach for grains from convex to highly concave
Barés Jonathan. **Wednesday**. Start time: **15:30**. Room: Saint Clair 1 LVL2. Link to abstract.

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Session: MS3.3 - WE3

Session chairs: Julien Leopoldès; Sarah Yehya (AC)

Crack propagation in wet granular medium
Dalbe Marie-Julie. Keynote. **Wednesday**. Start time: **16:45**. Room: Saint Clair 1 LVL2. Link to abstract.

Numerical approach to crack initiation in irradiated nuclear fuel: brittle fracture assessment by comparison between coupled criterion and the cohesive zone model.
Rudasingwa Kimonyo Jean Paul. **Wednesday**. Start time: **17:25**. Room: Saint Clair 1 LVL2. Link to abstract.

Fiber drag and conformation in 2D dense granular flow
Corbel Pierre-Yves. **Wednesday**. Start time: **17:45**. Room: Saint Clair 1 LVL2. Link to abstract.

Drag and lift forces when moving in a cohesive granular medium
Dumont Denis. **Wednesday**. Start time: **18:05**. Room: Saint Clair 1 LVL2. Link to abstract.

Dynamics Model of a steerable drilling devices in Granular Medium
Zihao Yuan. **Wednesday**. Start time: **18:25**. Room: Saint Clair 1 LVL2. Link to abstract.

MS3.3 - Thursday

Session: MS3.3 - TH1

Session chair(s) and Assistant Chair (AC): Marie-Julie Dalbe; Alexandre Janiak (AC)

A DEM study of the damping properties in uniaxially loaded granular material mixtures
Avdić Sanel. **Thursday**. Start time: **10:00**. Room: Saint Clair 1 LVL2. Link to abstract.

Granular flows over obstacles using smooth and non-smooth discrete element methods
Oziol Mattéo. **Thursday**. Start time: **10:20**. Room: Saint Clair 1 LVL2. Link to abstract.

Particles impact on granular media
Mahjoub-Bonnaire Provence. **Thursday**. Start time: **10:40**. Room: Saint Clair 1 LVL2. Link to abstract.

MS3.4 - Mechanics and physics of fracture

Organisers: Véronique Lazarus (ENSTA Paris), Eric Bitzek (Max Planck Institute Dusseldorf) and Matteo Ciccoti (ESPCI, Paris)

MS3.4 - Monday

Session: MS3.4 - MO1

Session chair(s) and Assistant Chair (AC): Mokhtar Adda-Bedia; Alexandre Janiak (AC)

Crack growth in mechanical metamaterials: random architectures, toughness and roughness
Bonamy Daniel. Keynote. **Monday**. Start time: **10:10**. Room: Rhône 2 LVL1. Link to abstract.

Steering Fracture in Metamaterials – Synergy of Plasticity and Fracture in Slender Beams

Gkougkousi Katerina. **Monday**. Start time: **10:50**. Room: Rhône 2 LVL1. Link to abstract.

Structure property relationships in beetle wing joints
Aitzaz Ali. **Monday**. Start time: **11:10**. Room: Rhône 2 LVL1. Link to abstract.

Fracture by Design of Topological Metamaterials
Chouzouris Matthaios. **Monday**. Start time: **11:30**. Room: Rhône 2 LVL1. Link to abstract.

Crack propagation in 2-dimensional architected material: the effects of inertia on fracture
Dantas Batista Raquel. Invited. **Monday**. Start time: **11:50**. Room: Rhône 2 LVL1. Link to abstract.

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Session: MS3.4 - MO2

Session chairs: Mathias Lebihain; Ronan Riverie (AC)

Anticracks as localized damage with volume loss: overview and new experimental insights
Hach Mathis. **Monday**. Start time: **13:40**. Room: Rhône 2 LVL1. Link to abstract.

Path difference under monotonic and cyclic loading in anisotropic media
Zhai Xinyuan. Invited. **Monday**. Start time: **14:00**. Room: Rhône 2 LVL1. Link to abstract.

Predicting Crack Paths Using 'Elastic Charges'
Szachter Oran. **Monday**. Start time: **14:20**. Room: Rhône 2 LVL1. Link to abstract.

Quantifying the interplay amongst fracture, heterogeneities, plasticity and process zone
Anusuya Ponnusami Sathiskumar. **Monday**. Start time: **14:40**. Room: Rhône 2 LVL1. Link to abstract.

An anisotropic model for the multiscale analysis of short fiber reinforced polymers through Phase Field
Fajardo Lacave Angela. Invited. **Monday**. Start time: **15:00**. Room: Rhône 2 LVL1. Link to abstract.

Modelling of crack propagation in strongly anisotropic media using phase-field fracture and LEFM
Loiseau Flavien. **Monday**. Start time: **15:20**. Room: Rhône 2 LVL1. Link to abstract.

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Session: MS3.4 - MO3

Session chairs: Veronique Lazarus; Poliana Bellei (AC)

Supershear growth of tensile cracks enabled by geometric non-linearities
Kammer David. Keynote. **Monday**. Start time: **16:00**. Room: Rhône 2 LVL1. Link to abstract.

Geometrically Nonlinear Materials as a Framework for Nonlinear Elastic Fracture Mechanics
Adda-Bedia Mokhtar. Invited. **Monday**. Start time: **16:40**. Room: Rhône 2 LVL1. Link to abstract.

Brittle fracture and fatigue of unsteadily rotated structures
Yakir Gilad. **Monday**. Start time: **17:00**. Room: Rhône 2 LVL1. Link to abstract.

Macro Cleavage Energy to Micro Bond Breaking Mechanisms - Shorter is Tougher
Sherman Dov. Invited. **Monday**. Start time: **17:20**. Room: Rhône 2 LVL1. Link to abstract.

Nonlinear elasticity in the coupled criterion : Influence on crack initiation and propagation
Doitrand Aurélien. **Monday**. Start time: **17:40**. Room: Rhône 2 LVL1. Link to abstract.

MS3.4 - Tuesday

Session: MS3.4 - TU1

Session chair(s) and Assistant Chair (AC): Itamar Kolvin; Ronan Riverie (AC)

The Fundamental Physics of the Onset of Frictional Motion: How do laboratory earthquakes nucleate?
Fineberg Jay. Keynote. **Tuesday**. Start time: **10:00**. Room: Rhône 2 LVL1. Link to abstract.

The role of slow slip in triggering dynamic frictional ruptures
Bayart Elsa. Invited. **Tuesday**. Start time: **10:40**. Room: Rhône 2 LVL1. Link to abstract.

The stick-break instability of extended fractures
Albertini Gabriele. Invited. **Tuesday**. Start time: **11:00**. Room: Rhône 2 LVL1. Link to abstract.

Energy balance of fluid driven frictional rupture in a fractured rock mass
Sarma Antareep Kumar. **Tuesday**. Start time: **11:20**. Room: Rhône 2 LVL1. Link to abstract.

Physics of Earthquake Cycles: An energy perspective
S. Bhat Harsha. **Tuesday**. Start time: **11:40**. Room: Rhône 2 LVL1. Link to abstract.

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Session: MS3.4 - TU2

Session chairs: Erik Bitzek; Poliana Bellei (AC)

A Statistical and Multiscale Perspective on Solute Induced Embrittlement for Intergranular Fracture
Spearot Douglas. Keynote. **Tuesday**. Start time: **14:15**. Room: Rhône 2 LVL1. Link to abstract.

Fracture toughness thickness dependence in thin SS316L sheets
Mohtadifar Negar. Invited. **Tuesday**. Start time: **14:55**. Room: Rhône 2 LVL1. Link to abstract.

Influence of Strain Hardening on Ductile Crack Growth under Small-Scale Yielding Plane Strain Conditions
Kaniadakis Antonio. Invited. **Tuesday**. Start time: **15:15**. Room: Rhône 2 LVL1. Link to abstract.

Investigating the effect of thickness on the fracture toughness of thin metallic sheets focusing on Al2050
Javangorouh Sara. Invited. **Tuesday**. Start time: **15:35**. Room: Rhône 2 LVL1. Link to abstract.

Liquid metal embrittlement: from application of global energetical criterium to crack initiation stress intensity factors
Auger Thierry. Invited. **Tuesday**. Start time: **15:55**. Room: Rhône 2 LVL1. Link to abstract.

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Session: MS3.4 - TU3

Session chairs: Thierry Auger; Hugo Girard (AC)

Fracture behavior of brittle particulate composites consisting of a glass matrix and glass or ceramic particles
Rouxel Tanguy. Keynote. **Tuesday**. Start time: **16:35**. Room: Rhône 2 LVL1. Link to abstract.

Volume expansion vs cryosuction in frost-driven fracture: a look through numerical modeling
Chao Correas Arturo. Invited. **Tuesday**. Start time: **17:15**. Room: Rhône 2 LVL1. Link to abstract.

An in-situ study of ductile fracture using random porous metamaterials
Rocco Alessandro. **Tuesday**. Start time: **17:35**. Room: Rhône 2 LVL1. Link to abstract.

The scatter in ductile fracture: Effect of material microstructure
Stchepinsky Anne-Constance. **Tuesday**. Start time: **17:55**. Room: Rhône 2 LVL1. Link to abstract.

The scatter in ductile fracture: Effect of void distribution
Hure Jérémy. **Tuesday**. Start time: **18:15**. Room: Rhône 2 LVL1. Link to abstract.

MS3.4 - Wednesday

Session: MS3.4 - WE1

Session chair(s) and Assistant Chair (AC): David Kammer; Thomas Duminy (AC)

Tensile crack propagation in disordered materials: geometrical nonlinearities, instabilities, and toughening
Lebihain Mathias. Keynote. **Wednesday**. Start time: **10:00**. Room: Rhône 2 LVL1. Link to abstract.

Heterogeneity in dynamic fracture [1,2]
Kolvin Itamar. Invited. **Wednesday**. Start time: **10:40**. Room: Rhône 2 LVL1. Link to abstract.

Toughening effects of out-of-crack-path architected zones
Lazarus Veronique or Triclot Julie. **Wednesday**. Start time: **11:00**. Room: Rhône 2 LVL1. Link to abstract.

Toward the determination of optimal initiation and propagation interfacial crack shape
Girard Hugo. **Wednesday**. Start time: **11:20**. Room: Rhône 2 LVL1. Link to abstract.

How Stress Biaxiality Controls Crack Morphology and Apparent Fracture Energy of Rocks

Guggisberg Antoine. Invited. **Wednesday**. Start time: **11:40**. Room: Rhône 2 LVL1. Link to abstract.

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Session: MS3.4 - WE2

Session chairs: Frederic Lechanault; Thomas Duminy (AC)

Configurational Mechanics-Based Study of Mixed-Mode Fracture in Soft Hydrogels
Santarossa Angel Agustin. **Wednesday**. Start time: **14:30**. Room: Rhône 2 LVL1. Link to abstract.

Fracture of soft composites: modeling and experiments
Volokh Konstantin. **Wednesday**. Start time: **14:50**. Room: Rhône 2 LVL1. Link to abstract.

Measuring in-situ 3D deformation of stepped cracks
Wei Xinyue. **Wednesday**. Start time: **15:10**. Room: Rhône 2 LVL1. Link to abstract.

The fracture pattern of masonry dones: a shell-ring analogy
Michel Sebastien. Invited. **Wednesday**. Start time: **15:30**. Room: Rhône 2 LVL1. Link to abstract.

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Session: MS3.4 - WE3

Session chairs: Oscar Lopez-Pamier; Petr Grigorev (AC)

Damage quantification of thin films on soft substrate
Santoprete Roberto. Invited. **Wednesday**. Start time: **16:45**. Room: Rhône 2 LVL1. Link to abstract.

Size Selection of Crack Front Defects in Soft Materials: Multiple Fracture-Plane Interactions and Intrinsic Length Scales
Wang Meng. Invited. **Wednesday**. Start time: **17:05**. Room: Rhône 2 LVL1. Link to abstract.

Why cutting elastomers is easier than tearing?
Zhao Donghao. Invited. **Wednesday**. Start time: **17:25**. Room: Rhône 2 LVL1. Link to abstract.

Analysis of the relaxation time in subcritical rupture of heterogeneous materials
Braux Chloé. **Wednesday**. Start time: **17:45**. Room: Rhône 2 LVL1. Link to abstract.

The Role of Viscoelasticity and Dissipation in Fracture of Elastomeric Membranes
Ciambella Jacopo. **Wednesday**. Start time: **18:05**. Room: Rhône 2 LVL1. Link to abstract.

Characterization of local poroelastic swelling near the tip of a propagating crack in a hydrogel
Li Chenzhuo. **Wednesday**. Start time: **18:25**. Room: Rhône 2 LVL1. Link to abstract.

MS3.5 - Nonlinear Elasticity

Organisers: Yibin Fu (Keele Univerisity) and Bilen Abali (Uppsala University, Sweden)

MS3.5 - Monday

Session: MS3.5 - MO1

Session chair(s) and Assistant Chair (AC): Yibin Fu; Jey Sivaloganathan Jeyabal; Souleymane Drabo (AC)

On particle cracking in Li-ion Si-based battery electrodes
Per Isaksson. Keynote. **Monday**. Start time: **10:10**. Room: Saint Clair 1 LVL2. Link to abstract.

Deformation in batteries during charging and discharging
Abali Bilen Emek. Invited. **Monday**. Start time: **10:50**. Room: Saint Clair 1 LVL2. Link to abstract.

Chemo-mechanical coupling problems in mechanics of solids
Freidin Alexander. Invited. **Monday**. Start time: **11:10**. Room: Saint Clair 1 LVL2. Link to abstract.

Stability Analysis of an Inflated, Axially Extended, Residually Stressed Circular Cylindrical Tube
Melnikov Andrey. Invited. **Monday**. Start time: **11:30**. Room: Saint Clair 1 LVL2. Link to abstract.

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Session: MS3.5 - MO2

Session chairs: Claude Boutin; Souleymane Drabo (AC)

THE REPULSION PROPERTY IN NONLINEAR ELASTICITY
Sivaloganathan Jeyabal. Keynote. **Monday**. Start time: **13:40**. Room: Saint Clair 1 LVL2. Link to abstract.

Analytical and numerical quasiconvex relaxation of planar Biot-type energies
Martin Robert. Invited. **Monday**. Start time: **14:20**. Room: Saint Clair 1 LVL2. Link to abstract.

Symmetries of the Stiffness Tensor Induced by the Jaumann Rate of the Stress
Federico Salvatore. Invited. **Monday**. Start time: **14:40**. Room: Saint Clair 1 LVL2. Link to abstract.

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Session: MS3.5 - MO3

Session chairs: Yang Liu; Rainer Groh; Nina Borzecka (AC)

Constitutive modeling of hyperelastic materials based on the upper triangular decomposition
Li Yongqiang or Gao Xin-Lin. Invited. **Monday**. Start time: **16:00**. Room: Saint Clair 1 LVL2. Link to abstract.

On the Constitutive Boundary Conditions in Non-local Elasticity
Pramanik Dipendu. Invited. **Monday**. Start time: **16:20**. Room: Saint Clair 1 LVL2. Link to abstract.

The role of physical constants in nonlinear micropolar elasticity at finite strains
Schek Lucca. **Monday**. Start time: **16:40**. Room: Saint Clair 1 LVL2. Link to abstract.

Finite Strain Formulation of Electro-Visco-Hyperelastic Nematic Elastomers
Karlicic Danilo. **Monday**. Start time: **17:00**. Room: Saint Clair 1 LVL2. Link to abstract.

Modeling the Constitutive Behavior of Complex Elastomers
Shah Nurul Hassan or Faruque Ali Shaikh. **Monday**. Start time: **17:20**. Room: Saint Clair 1 LVL2. Link to abstract.

MS3.5 - Tuesday

Session: MS3.5 - TU1

Session chair(s) and Assistant Chair (AC): Adair Aguiar; Per Isaksson; Max Zinke (AC)

Large deformations of planar periodic trusses with rheological non-linearity
Boutin Claude. Keynote. **Tuesday**. Start time: **10:00**. Room: Saint Clair 1 LVL2. Link to abstract.

Bifurcation of the free surface of a rectangular block with second-gradient nonlinear elasticity
Pandurangi Shrinidhi Shrikant. Invited. **Tuesday**. Start time: **10:40**. Room: Saint Clair 1 LVL2. Link to abstract.

Analysis of strain-dependent elasto-capillary necking and bulging in hyperelastic cylinders based on a one-dimensional model
Zhu Pingping. **Tuesday**. Start time: **11:00**. Room: Saint Clair 1 LVL2. Link to abstract.

Mechanics of Magnetic Gel Balloons
Shaikh Nadeem. **Tuesday**. Start time: **11:20**. Room: Saint Clair 1 LVL2. Link to abstract.

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Session: MS3.5 - TU2

Session chairs: Federico Salvatore; Victor Eremeyev; Max Zinke (AC)

Post-buckling of fiber-reinforced materials
Liu Yang. Invited. **Tuesday**. Start time: **14:15**. Room: Saint Clair 1 LVL2. Link to abstract.

Creasing on finite domains and its connection to Biot's surface instability
Groh Rainer. Invited. **Tuesday**. Start time: **14:35**. Room: Saint Clair 1 LVL2. Link to abstract.

A nonlinear toroidal shell model for surface morphologies and morphogenesis
Wang Ting. Invited. **Tuesday**. Start time: **14:55**. Room: Saint Clair 1 LVL2. Link to abstract.

A model for curvature-induced morphing of hyper-elastic shells
Taffetani Matteo. Invited. **Tuesday**. Start time: **15:15**. Room: Saint Clair 1 LVL2. Link to abstract.

Wrinkling patterns of stiff shallow film mounted on curved substrate under biaxial strain
Kordolemis Alexis. **Tuesday**. Start time: **15:35**. Room: Saint Clair 1 LVL2. Link to abstract.

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Session: MS3.5 - TU3

Session chairs: Emek Abali; Sasha Freidin; Souleymane Drabo (AC)

A constrained minimization theory to prevent material overlapping in nonlinear elasticity
Aguiar Adair. Invited. **Tuesday**. Start time: **16:35**. Room: Saint Clair 1 LVL2. Link to abstract.

A self-contact preventing energy for nonlinear elastic filaments
Chiara Lonati. Invited. **Tuesday**. Start time: **16:55**. Room: Saint Clair 1 LVL2. Link to abstract.

Asymptotic and experimental modelling of three-point bending of sheet metal
Zaat Eva. **Tuesday**. Start time: **17:15**. Room: Saint Clair 1 LVL2. Link to abstract.

Tanh outperforms power-law for modeling experimental hardening of UHS steels
Singh Ravi. **Tuesday**. Start time: **17:35**. Room: Saint Clair 1 LVL2. Link to abstract.

Nonlinear dynamics of a geometrically exact beam subjected to a moving mass
Kumar Kush. **Tuesday**. Start time: **17:55**. Room: Saint Clair 1 LVL2. Link to abstract.

MS3.6 - Recent Advances in Plasticity and Damage Mechanics

Organisers: Gergely Molnár (LAMCOS), Claudia Comi (Polimi) and Corrado Maurini (Institut Jean le Rond D'Alembert)

MS3.6 - Monday

Session: MS3.6 - MO1

Session chair(s) and Assistant Chair (AC): Corrado Maurini; Jimenez; Fatima-Zahra Moul-el-Ksour (AC)

ON MODELING COUPLED THERMOELASTICITY WITH GRADIENT DAMAGE UNDER DYNAMICS CONDITIONS
Kondo Djimedo. Keynote. **Monday**. Start time: **10:10**. Room: Saint Clair 2 LVL2. Link to abstract.

A variational model coupling cavitation and damage for fracture in nearly incompressible materials
Zolesi Camilla. Invited. **Monday**. Start time: **10:50**. Room: Saint Clair 2 LVL2. Link to abstract.

A Traction-Compression Asymmetric Damage Phase Field Model based on a Fourth-order Degradation Tensor
Marco Bittencourt. Invited. **Monday**. Start time: **11:10**. Room: Saint Clair 2 LVL2. Link to abstract.

Thermodynamic framework for variance-based non-local constitutive models: Application to polycrystalline plasticity
Mareau Charles. **Monday**. Start time: **11:30**. Room: Saint Clair 2 LVL2. Link to abstract.

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Session: MS3.6 - MO2

Session chairs: Gergely Molnár; Camilla Zolesi; Max Zinke (AC)

Variational methods applied to discrete models in brittle damage
Bonhomme Elise. Keynote. **Monday**. Start time: **13:40**. Room: Saint Clair 2 LVL2. Link to abstract.

On sharp-interface cohesive models with a relaxed bulk energy
Rodella Andrea. Invited. **Monday**. Start time: **14:20**. Room: Saint Clair 2 LVL2. Link to abstract.

Strength-based phase-field approach to cohesive fracture
Maurini Corrado. Invited. **Monday**. Start time: **14:40**. Room: Saint Clair 2 LVL2. Link to abstract.

Investigating Damage and Plasticity in RC Nuclear Facilities Under Seismic Loading
D'orio Giulia. Invited. **Monday**. Start time: **15:00**. Room: Saint Clair 2 LVL2. Link to abstract.

Variational phase-field modeling of cohesive fracture with flexibly tunable strength surface
Vicentini Francesco. **Monday**. Start time: **15:20**. Room: Saint Clair 2 LVL2. Link to abstract.

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Session: MS3.6 - MO3

Session chairs: Claudia Comi; V. Upadhyay Manas; Joël Courbon (AC)

Time-dependent mechanical behaviour and failure of PVDF composites
Geers Marc. Keynote. **Monday**. Start time: **16:00**. Room: Saint Clair 2 LVL2. Link to abstract.

Towards plastic wrinkles
O' Kiely Doireann. **Monday**. Start time: **16:40**. Room: Saint Clair 2 LVL2. Link to abstract.

A transversely isotropic bimodular elasto-visco-plastic model for polymeric yarns and cords

Moscatelli Marco. Invited. **Monday**. Start time: **17:00**. Room: Saint Clair 2 LVL2. Link to abstract.

Role of the electron irradiation on the plasticity of a-Al2O3: atomistic simulations meet experiments
Materzanini Giuliana. **Monday**. Start time: **17:20**. Room: Saint Clair 2 LVL2. Link to abstract.

Role of welding interfaces on the anisotropic mechanical response of a recycled material obtained through an extrusion process of aluminium chips.
Perrin Jason. **Monday**. Start time: **17:40**. Room: Saint Clair 2 LVL2. Link to abstract.

MS3.6 - Tuesday

Session: MS3.6 - TU1

Session chair(s) and Assistant Chair (AC): Gergely Molnár; Marco Moscatelli; Poliana Bellei (AC)

Application of the in-plane torsion test to a set of engineering metallic materials
Grolleau Vincent. **Tuesday**. Start time: **10:00**. Room: Saint Clair 2 LVL2. Link to abstract.

Instability based ductile fracture prediction in AA 7075-T651 using acoustic emission data

Chakraborty Subham. **Tuesday**. Start time: **10:20**. Room: Saint Clair 2 LVL2. Link to abstract.

A Monolithic Finite Element Framework for Fully-Coupled Chemo-Mechanics and the Non-Local Gurson-Tvergaard-Needleman Model
Patil Siddhi Avinash. **Tuesday**. Start time: **10:40**. Room: Saint Clair 2 LVL2. Link to abstract.

Modeling Intergranular Damage Assisted by Oxidation in Nickel-Based Superalloys
El-Habyb Ayoub. Invited. **Tuesday**. Start time: **11:00**. Room: Saint Clair 2 LVL2. Link to abstract.

Fracture Mechanisms in Irradiated Fe–Ni–Cr Alloys: Atomic-Scale Insights and Energy-Based Modeling of the Ductile-to-Brittle Transition
Ustrzycka Aneta. **Tuesday**. Start time: **11:20**. Room: Saint Clair 2 LVL2. Link to abstract.

Assessment of different non-linear kinematic hardening laws at variable temperature
Perez Maël. **Tuesday**. Start time: **11:40**. Room: Saint Clair 2 LVL2. Link to abstract.

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Session: MS3.6 - TU2

Session chairs: Corrado Maurini; Antonino Favata; Petr Grigorev (AC)

An alternative Elastoplastic Model for Ductile Fracture with graded plasticity
Pham Clémence. **Tuesday**. Start time: **14:15**. Room: Saint Clair 2 LVL2. Link to abstract.

Eulerian rates of elastic incompatibilities in finite crystal elastoplasticity
Bardella Lorenzo. **Tuesday**. Start time: **14:35**. Room: Saint Clair 2 LVL2. Link to abstract.

Modelling of damage in 3D printed concrete: the role of interfaces and plasticity phenomena
Monaldo Elisabetta. Invited. **Tuesday**. Start time: **14:55**. Room: Saint Clair 2 LVL2. Link to abstract.

1D hybrid beam-shell tube model for progressive cracks in pipelines
Coron Amalio. **Tuesday**. Start time: **15:15**. Room: Saint Clair 2 LVL2. Link to abstract.

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Session: MS3.6 - TU3

Session chairs: Claudia Comi; Lorenzo Bardella; Fatima-Zahra Moul-el-Ksour (AC)

A Variational Gradient Plasticity Model Allowing for Shear Band Localization
Comella Maria Chiara. Invited. **Tuesday**. Start time: **16:35**. Room: Saint Clair 2 LVL2. Link to abstract.

A finite deformation dislocation thermomechanics model without multiplicative decomposition
Upadhyay Manas V.. **Tuesday**. Start time: **16:55**. Room: Saint Clair 2 LVL2. Link to abstract.

A standard thermodynamic-based extension of the Modified Cam-Clay model for elastoviscoplastic geomaterials
Raude Simon. Invited. **Tuesday**. Start time: **17:15**. Room: Saint Clair 2 LVL2. Link to abstract.

Implicit Non-Smooth Material Point Method for Non-Associated Elasto-plastic Soils
Guillet Louis. **Tuesday**. Start time: **17:35**. Room: Saint Clair 2 LVL2. Link to abstract.

Incremental variational approach to gradient damage and poroelastic coupling of saturated media
Cheng Long. **Tuesday**. Start time: **17:55**. Room: Saint Clair 2 LVL2. Link to abstract.

MS3.6 - Wednesday

Session: MS3.6 - WE1

Session chair(s) and Assistant Chair (AC): Gergely Molnár; Charles Mareau; Poliana Bellei (AC)

Aperiodic lattice metamaterials with improved resilience to impact
Cherkaev Andrej. **Wednesday**. Start time: **10:00**. Room: Saint Clair 2 LVL2. Link to abstract.

A continuum material model for concrete
Dhakal Sulata. **Wednesday**. Start time: **10:20**. Room: Saint Clair 2 LVL2. Link to abstract.

Mathematical modelling of wire flat-rolling
Erfanian Mozhdeh. **Wednesday**. Start time: **10:40**. Room: Saint Clair 2 LVL2. Link to abstract.

Modeling the anisotropic elasto-plastic material behavior of paper and paperboard at finite deformations
Simon Jaan-Willem. **Wednesday**. Start time: **11:00**. Room: Saint Clair 2 LVL2. Link to abstract.

Modelling of Visco-Plasticity Using Neural Networks
Kroon Martin. **Wednesday**. Start time: **11:20**. Room: Saint Clair 2 LVL2. Link to abstract.

MS3.7 - Modeling fatigue of materials and structures

Organisers: Jean-Yves Buffière (MATEIS) and David Nowell (Imperial College London)

Session: MS3.7 - WE2

Session chair(s) and Assistant Chair (AC): Jean-Yves Buffiere; Gabriel Bonnard (AC)

From short to long crack in thermo-mechanical fatigue, a focus on crack closure
Maurel Vincent. Keynote. **Wednesday**. Start time: **14:30**. Room: Saint Clair 2 LVL2. Link to abstract.

Fatigue Crack Propagation under Non-Proportional Loading: Experiments and Modelling

David Nowell. **Wednesday**. Start time: **15:10**. Room: Saint Clair 2 LVL2. Link to abstract.

A new incremental fatigue crack propagation model accounting for history effects under complex thermomechanical loading
De Moura Pinho Raùl. **Wednesday**. Start time: **15:30**. Room: Saint Clair 2 LVL2. Link to abstract.

High Cycle Life Fatigue Analysis of Spot Welds with High-Fidelity Modeling
Ekra Yao. **Wednesday**. Start time: **15:50**. Room: Saint Clair 2 LVL2. Link to abstract.

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Session: MS3.7 - WE3

Session chairs: Mahmoud Mostafavi; Gabriel Bonnard (AC)

Multiscale modeling strategy for predicting fatigue life of steels
Kazuki Shibanuma. **Wednesday**. Start time: **16:45**. Room: Saint Clair 2 LVL2. Link to abstract.

Transition from steel wire to cable in fatigue life prediction under complex loads
Gaudillat Maëlle. **Wednesday**. Start time: **17:05**. Room: Saint Clair 2 LVL2. Link to abstract.

Creep-induced subsequent fatigue crack retardation and acceleration in wrought nickel-based superalloy GH4169: Competing mechanism of creep damage and creep deformation using DIC technique
Yang Rong. **Wednesday**. Start time: **17:25**. Room: Saint Clair 2 LVL2. Link to abstract.

Continuum based fatigue modelling
Kouhia Reijo. **Wednesday**. Start time: **17:45**. Room: Saint Clair 2 LVL2. Link to abstract.

A FFT-based method for analyzing dissipation and fatigue behavior under low-amplitude cyclic loading in polycrystalline aggregates
Calazans Menescal De Souza André. **Wednesday**. Start time: **18:05**. Room: Saint Clair 2 LVL2. Link to abstract.

MS3.7 - Thursday

Session: MS3.7 - TH1

Session chair(s) and Assistant Chair (AC): Vincent Maurel; Jean-Yves Buffiere

Low cycle fatigue life estimation by crystal plasticity and machine learning
Mostafavi Mahmoud. Keynote. **Thursday**. Start time: **10:00**. Room: Saint Clair 2 LVL2. Link to abstract.

Competition of different fatigue crack initiation mechanisms under torsional load of cast AlSi7Mg03 alloy: An investigation using synchrotron 3D observations
Le Viet-Duc or Buffière Jean-Yves. **Thursday**. Start time: **10:40**. Room: Saint Clair 2 LVL2. Link to abstract.

Influence of Plastic Localization on Fatigue Crack Nucleation and Life Dispersion in Inconel 718 at the Microstructural Scale
Musy-Haspel Mathieu. **Thursday**. Start time: **11:00**. Room: Saint Clair 2 LVL2. Link to abstract.

Numerical study of a printed circuit board with embedded components under thermal cycling: influence of the manufacturing process
Perin Paul. **Thursday**. Start time: **11:20**. Room: Saint Clair 2 LVL2. Link to abstract.

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Session: MS3.7 - TH2

Session chairs: David Nowell; Jean-Yves Buffiere

Thermo-mechanical fatigue crack growth of a coated superalloy
Marioton Louise. **Thursday**. Start time: **14:15**. Room: Saint Clair 2 LVL2. Link to abstract.

Influence of overload on the propagation of 3D short fatigue cracks
Limodin Nathalie. **Thursday**. Start time: **14:35**. Room: Saint Clair 2 LVL2. Link to abstract.

Direct current potential drop method for the identification of onset fatigue damage in triply periodic minimal surfaces lattice structures for heat exchange applications
Brambati Giovanni. **Thursday**. Start time: **14:55**. Room: Saint Clair 2 LVL2. Link to abstract.

Identification and characterization of acoustic fatigue signatures through continuous acoustic data mining
De La Selle Théotime. **Thursday**. Start time: **15:15**. Room: Saint Clair 2 LVL2. Link to abstract.

A Fatigue Damage Diagnosis and Prognosis Method Based on Strain Monitoring for 2024 Aluminum Plates with Central Holes
Han Liang. **Thursday**. Start time: **15:35**. Room: Saint Clair 2 LVL2. Link to abstract.

Formulating an advanced severe gust load spectrum for transport aircraft, grounded in analyzed measured load data
Wei Kunyu. **Thursday**. Start time: **15:55**. Room: Saint Clair 2 LVL2. Link to abstract.

MS3.7 - Friday

Session: MS3.7 - FR1

Session chair(s) and Assistant Chair (AC): Nathalie Limodin; Jean-Yves Buffiere

Exploration of rolling contact fatigue using an ultrasonic testing device.
Didier Adrien. **Friday**. Start time: **10:00**. Room: Saint Clair 2 LVL2. Link to abstract.

Cyclic behaviour of pure alpha titanium alloy with and without hydrogen
Feaugas Xavier. **Friday**. Start time: **10:20**. Room: Saint Clair 2 LVL2. Link to abstract.

Observation and analysis of internal fatigue cracks propagating in a Ti64 alloy with or without air presence.
Palin-Luc Thierry. **Friday**. Start time: **10:40**. Room: Saint Clair 2 LVL2. Link to abstract.

Physically-based notch strain methods for fatigue life prediction of welded tubular connections in offshore wind turbine support structures
Haider Muhammad Jaon. **Friday**. Start time: **11:00**. Room: Saint Clair 2 LVL2. Link to abstract.

High Cycle Fatigue of 2507 Super Duplex Stainless Steel: comparison between Laser Powder-Directed Energy Deposition and forge processes
Szmytka Fabien. **Friday**. Start time: **11:20**. Room: Saint Clair 2 LVL2. Link to abstract.

How Varying Fatigue Loads Affect the Damage Evaluation in Front of the Crack in Hydrogels
Umut Altuntas. **Friday**. Start time: **11:40**. Room: Saint Clair 2 LVL2. Link to abstract.

TOPIC: Experimental Mechanics

MS4.1 - Experimental Micromechanics and Nanomechanics

Organisers: G. Dehm (MPIE-Dusseldorf), J. Molina (IMDEA-Madrid) and G. Kermouche (LGF-EMSE)

MS4.1 - Monday

Session: MS4.1 - MO1

Session chair(s) and Assistant Chair (AC): Guillaume Kermouche; Gabriel Bonnard (AC)

Accurate mechanical phase mapping in heterogeneous materials combining high-speed nanoindentation with a novel Machine learning-driven pile-up error correction
Rossi Edoardo. Invited. **Monday**. Start time: **10:10**. Room: Salon pasteur LVL1. Link to abstract.

Deep Learning Mechanical Properties Classification of Metal-Ceramic Composites Using Nanoindentation Curves
Ortiz-Membrado Laia. **Monday**. Start time: **10:30**. Room: Salon pasteur LVL1. Link to abstract.

Local assessment of residual stresses in a metal using FIB-DIC-FE: application to two-phase austeno-ferritic alloys
Barbe Fabrice. **Monday**. Start time: **10:50**. Room: Salon pasteur LVL1. Link to abstract.

Nanomechanical investigation of plasticity mechanisms in Al/Al2O3 nanolaminates with ultrathin oxide layers
Edwards Thomas. **Monday**. Start time: **11:10**. Room: Salon pasteur LVL1. Link to abstract.

Indentation of brittle materials – what micro-photoelasticity tells us about the stress field
Barthel Etienne. **Monday**. Start time: **11:30**. Room: Salon pasteur LVL1. Link to abstract.

A Novel Method for Rapid Assessment of Residual Stress: The Ball Impact Test
Meng Yuxian. **Monday**. Start time: **11:50**. Room: Salon pasteur LVL1. Link to abstract.

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Session: MS4.1 - MO2

Session chairs: Finn Giuliani; Fatima-Zahra Moul-El-Ksour (AC)

Ultra-tough, strong and ductile Al2O3/Al hybrid nanolaminates
Pardoen Thomas. Keynote. **Monday**. Start time: **13:40**. Room: Salon pasteur LVL1. Link to abstract.

Measuring plastic anisotropy and toughness at small scale
Aubin Veronique. Invited. **Monday**. Start time: **14:20**. Room: Salon pasteur LVL1. Link to abstract.

ENRICHING NANOINDENTATION WITH IN SITU ELECTRICAL MEASUREMENTS AND SEM OBSERVATIONS
Volpi Fabien. **Monday**. Start time: **14:40**. Room: Salon pasteur LVL1. Link to abstract.

Statistical analysis of micro-deformation mechanisms of HCP zinc coatings by in-situ SEM-DIC aligned to EBSD
Hoefnagels Johan. **Monday**. Start time: **15:00**. Room: Salon pasteur LVL1. Link to abstract.

Combining nano-DIC and ACOM TEM to study the grain boundary mediated plasticity of aluminium films
Baral Paul. **Monday**. Start time: **15:20**. Room: Salon pasteur LVL1. Link to abstract.

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Session: MS4.1 - MO3

Session chairs: Thomas Pardoen; Sarah Yehya (AC)

Role of grain boundaries and temperature on the fracture toughness of CrN and AlN hard coatings
Lee Subin. Invited. **Monday**. Start time: **16:00**. Room: Salon pasteur LVL1. Link to abstract.

Multi-scale approach applied to the macro/micro-mechanical characterization of chromium-coated Zr-based nuclear fuel claddings
TaÏbi Yanis. **Monday**. Start time: **16:20**. Room: Salon pasteur LVL1. Link to abstract.

Study of the effect of chromium doping on the grain boundary character and toughness of WC-Co
Giuliani Finn. Invited. **Monday**. Start time: **16:40**. Room: Salon pasteur LVL1. Link to abstract.

Manganese-silicate inclusions in iron: microstructural and mechanical insights to guide steel design
Hernández Escobar David or Lipcsei Sándor. **Monday**. Start time: **17:00**. Room: Salon pasteur LVL1. Link to abstract.

In situ monitoring crack growth in nanostructured materials
Kiener Daniel. **Monday**. Start time: **17:20**. Room: Salon pasteur LVL1. Link to abstract.

MS4.1 - Tuesday

Session: MS4.1 - TU1

Session chair(s) and Assistant Chair (AC): Gerhard Dehm; Annie Malchere (AC)

Correlating mechanical damage with electrical resistance of foldable thin films
Cordill Megan. Keynote. **Tuesday**. Start time: **10:00**. Room: Salon pasteur LVL1. Link to abstract.

Deciphering Acoustic Emission of Microsamples with Machine Learning
Ispánovity Péter Dusán. Invited. **Tuesday**. Start time: **10:40**. Room: Salon pasteur LVL1. Link to abstract.

Phase transformation in zirconia ceramics doped with ceria: A study by in-situ EBSD coupled with microcompression
Demetrio De Magalhaes Marcelo. **Tuesday**. Start time: **11:00**. Room: Salon pasteur LVL1. Link to abstract.

In-situ transmission kikuchi diffraction during tensile testing for assessing deformation mechanism at the nanoscale in SEM
Maeder Xavier. Invited. **Tuesday**. Start time: **11:20**. Room: Salon pasteur LVL1. Link to abstract.

Coupling micro-compression testing and Laue micro-diffraction
Comby-Dassonneville Solène. Invited. **Tuesday**. Start time: **11:40**. Room: Salon pasteur LVL1. Link to abstract.

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Session: MS4.1 - TU2

Session chairs: Daniel Kiener; Anwar Gamra (AC)

Revealing Transformation Toughening Size Effects in Ceria-Stabilized Zirconia via micro-Pillar Splitting combined with Raman spectroscopy
Sebastiani Marco. Keynote. **Tuesday**. Start time: **14:15**. Room: Salon pasteur LVL1. Link to abstract.

Impact of Intrinsic Stress on Multiple Resonance Modes in Silicon Nanowires
Muzammil Muhammad. **Tuesday**. Start time: **14:55**. Room: Salon pasteur LVL1. Link to abstract.

Fracture Toughness and Durability of HiPIMS-Deposited Hard Coatings
Molina-Aldareguia Jon. **Tuesday**. Start time: **15:15**. Room: Salon pasteur LVL1. Link to abstract.

Electrically induced viscous flow in oxide glasses at Room: temperature: electrical-nanoindentation tests vs e-beam effect
Rusinowicz Morgan. **Tuesday**. Start time: **15:35**. Room: Salon pasteur LVL1. Link to abstract.

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Session: MS4.1 - TU3

Session chairs: Megan Cordill; Lucian Roiban (AC)

Indentation size effect in metallic materials in sub-micrometer scale
Čech Jaroslav. Invited. **Tuesday**. Start time: **16:35**. Room: Salon pasteur LVL1. Link to abstract.

Experimental study of the mechanical properties of oxygen enriched Ti alloys
Bornowsky Lucille. **Tuesday**. Start time: **16:55**. Room: Salon pasteur LVL1. Link to abstract.

Advanced Thin Film High Entropy Alloys with Tailorable Microstructure and Mechanical Properties
Vacirca Davide. **Tuesday**. Start time: **17:15**. Room: Salon pasteur LVL1. Link to abstract.

Tailoring composition and microstructure to control mechanical properties and thermal stability of thin film metallic glasses
Ghidelli Matteo. **Tuesday**. Start time: **17:35**. Room: Salon pasteur LVL1. Link to abstract.

Investigation of the effect of SMAT on IN718 mechanical behavior using in situ SEM micromechanical testing
Garambois Anna. **Tuesday**. Start time: **17:55**. Room: Salon pasteur LVL1. Link to abstract.

Superelastic behaviour at the nanoscale in shape memory alloys
San Juan Jose M.. Invited. **Tuesday**. Start time: **18:15**. Room: Salon pasteur LVL1. Link to abstract.

MS4.1 - Wednesday

Session: MS4.1 - WE1

Session chair(s) and Assistant Chair (AC): Verena Maier-Kiener; Annie Malchere (AC)

Abnormal temperature dependence of strength in Fe-2.4wt.%Si by microscale cryogenic testing
Tian Chunhua. Invited. **Wednesday**. Start time: **10:00**. Room: Salon pasteur LVL1. Link to abstract.

Update of the HTSI method: application to mechanical characterization of CaF2 up to 800°C
Loubet Jean-Luc. **Wednesday**. Start time: **10:20**. Room: Salon pasteur LVL1. Link to abstract.

Analysis of Thermally Activated Processes via High Temperature Scanning Indentation
Sos Marcel. **Wednesday**. Start time: **10:40**. Room: Salon pasteur LVL1. Link to abstract.

HIGH TEMPERATURE SCANNING INDENTATION: LAST RESULTS ON AMORPHOUS SELENIUM
Moul-El-Ksour Fatima-Zahra. **Wednesday**. Start time: **11:00**. Room: Salon pasteur LVL1. Link to abstract.

Small scale deformation of cemented carbides at high temperature
Francesc Barbera. **Wednesday**. Start time: **11:20**. Room: Salon pasteur LVL1. Link to abstract.

Creep Dominated High Cycle Fatigue of Freestanding Gold Thin Films at Room: and Elevated Temperatures
Merle Benoit. **Wednesday**. Start time: **11:40**. Room: Salon pasteur LVL1. Link to abstract.

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Session: MS4.1 - WE2

Session chairs: Benoit Merle; Lucile Joly-Pottuz (AC)

Micromechanics under extreme conditions: high strain rate testing
Kalacska Szilvia. Keynote. **Wednesday**. Start time: **14:30**. Room: Salon pasteur LVL1. Link to abstract.

Extraction of reliable deformation activation parameters from nanoindentation tests covering strain rates from 0.00001 to 10,000 /s and associated changes in deformation mechanisms in metals
Mohanty Gaurav. Invited. **Wednesday**. Start time: **15:10**. Room: Salon pasteur LVL1. Link to abstract.

High-Strain-Rate Nanoindentation: Revisiting the Hardness Upturn in Metals
Bhaskar Lalith Kumar. Invited. **Wednesday**. Start time: **15:30**. Room: Salon pasteur LVL1. Link to abstract.

Hardness measurements across eleven decades of strain rate using a high throughput indentation method
Borasi Luciano. **Wednesday**. Start time: **15:50**. Room: Salon pasteur LVL1. Link to abstract.

Recent developments to measure surface mechanical properties at high temperature and high strain rate
Guillonneau Gaylord. Invited. **Wednesday**. Start time: **16:10**. Room: Salon pasteur LVL1. Link to abstract.

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Session: MS4.1 - WE3

Session chairs: Szilvia Kalacska; Lucile Joly-Pottuz (AC)

Operando small scale flow behavior – promising applications for spherical nanoindentation
Maier-Kiener Verena. Invited. **Wednesday**. Start time: **16:45**. Room: Salon pasteur LVL1. Link to abstract.

In situ Extreme Micromechanics – Recent Innovations and Prospects
Randall Nicholas. **Wednesday**. Start time: **17:05**. Room: Salon pasteur LVL1. Link to abstract.

3D Laue microdiffraction: characterization of dislocation structures at grain boundaries during fatigue cycling
Fréville Robin. **Wednesday**. Start time: **17:25**. Room: Salon pasteur LVL1. Link to abstract.

Hydrogen effect on the strain rate sensitivity of nanocrystalline Pd thin films
Colla Marie-Stéphane. Invited. **Wednesday**. Start time: **17:45**. Room: Salon pasteur LVL1. Link to abstract.

Impact of mobile hydrogen on the plasticity of bcc FeCr alloys via in situ micropillar compression
Rao Jing. Invited. **Wednesday**. Start time: **18:05**. Room: Salon pasteur LVL1. Link to abstract.

MS4.1 - Thursday

Session: MS4.1 - TH1

Session chair(s) and Assistant Chair (AC): Jon Molina; Sarah Yehya (AC)

When brittle crystals turn ductile – understanding the crystal plasticity of intermetallics from their fundamental building blocks
Korte-Kerzel Sandra. Keynote. **Thursday**. Start time: **10:00**. Room: Salon pasteur LVL1. Link to abstract.

Experimental evidence and first-principles verification of deformation of basal twist grain boundaries in Ti
Llorca Javier. **Thursday**. Start time: **10:40**. Room: Salon pasteur LVL1. Link to abstract.

Elementary deformation mechanisms in single-crystal MAX phase Cr2AlC: analysis of twin-dislocations interactions by micromechanical testing and Transmission Electron Microscopy
Akou Mohamed. **Thursday**. Start time: **11:00**. Room: Salon pasteur LVL1. Link to abstract.

Characterization of Slip System Activity and Deformation Behaviour in P91 Steel by Micropillar Compression Testing and Crystal Plasticity Simulation
Isavand Samaneh. **Thursday**. Start time: **11:20**. Room: Salon pasteur LVL1. Link to abstract.

SMALL SCALE MECHANICAL BEHAVIOUR OF WC-Co CEMENTED CARBIDES: NANOINDENTATION, FIB TOMOGRAPHY AND NUMERICAL MODELLING
Jiménez-Piqué Emilio. Invited. **Thursday**. Start time: **11:40**. Room: Salon pasteur LVL1. Link to abstract.

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Session: MS4.1 - TH2

Session chairs: Sandra Korte; Fatima-Zahra Moul-El-Ksour (AC)

In situ compression of oxide nanocubes in Transmission Electron Microscopy
Joly-Pottuz Lucile. Invited. **Thursday**. Start time: **14:15**. Room: Salon pasteur LVL1. Link to abstract.

Grain-scale nanoindentation on mixed uranium-plutonium oxides: a coupled experimental and simulation approach
Bertin Julie. **Thursday**. Start time: **14:35**. Room: Salon pasteur LVL1. Link to abstract.

Investigation of sapphire strength across the scales
Henry Ronan. **Thursday**. Start time: **14:55**. Room: Salon pasteur LVL1. Link to abstract.

Additive manufacturing of microscale metal-ceramic architectures with tunable mechanical properties
Schwiedrzik Jakob. Invited. **Thursday**. Start time: **15:15**. Room: Salon pasteur LVL1. Link to abstract.

Using the nanoindentation to question the impact of hydrogen on the elasticity and plasticity behaviors of pure nickel
Oudriss Abdelali. **Thursday**. Start time: **15:35**. Room: Salon pasteur LVL1. Link to abstract.

MS4.2 - In situ Mechanics

Organisers: D. Juul Jensen (DTU), J.P.M. Hoefnagels (TU-Eindhoven) and D. Seyedi (CEA-Saclay)

MS4.2 - Monday

Session: MS4.2 - MO1

Session chair(s) and Assistant Chair (AC): Darius Seyedi; Max Zinke (AC)

A New Laboratory-Based X-ray Diffraction Technique for Pointwise Stress-Strain Measurements.
Amir Ben. Keynote. **Monday**. Start time: **10:10**. Room: Saint Clair 3B LVL2. Link to abstract.

Validation of a test for measuring fretting contact damage using X-ray tomography
Gandiolle Camille. **Monday**. Start time: **10:50**. Room: Saint Clair 3B LVL2. Link to abstract.

X-ray CT scanning and in-situ densification test of sulfide electrolytes: LPS vs LPSCl
Martini Margherita. **Monday**. Start time: **11:10**. Room: Saint Clair 3B LVL2. Link to abstract.

Experimental characterization of elastomer deformation using x-ray tomography: application to the study of contact with a road surface
Adrien Jérôme. **Monday**. Start time: **11:30**. Room: Saint Clair 3B LVL2. Link to abstract.

The Road Nano Scale DVC metrology with In Situ Computed Tomography
Arzoumanidis Alex. Invited. **Monday**. Start time: **11:50**. Room: Saint Clair 3B LVL2. Link to abstract.

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Session: MS4.2 - MO2

Session chairs: Amir Ben; Max Zinke (AC)

In-situ mechanical experiments analyzed via 2P-DVC
Vargas Rafael. Keynote. **Monday**. Start time: **13:40**. Room: Saint Clair 3B LVL2. Link to abstract.

DVC Analyses and LEFM parameter calibration for additively manufactured Inconel 718 mini-CT specimens
Valmalle Malo. **Monday**. Start time: **14:20**. Room: Saint Clair 3B LVL2. Link to abstract.

In-situ characterization of Plastic Strain Localization and Strain Partitioning in Polycrystalline Materials via 3D X-ray Diffraction Imaging Techniques
Romain Charles. **Monday**. Start time: **14:40**. Room: Saint Clair 3B LVL2. Link to abstract.

In-situ synchrotron X-ray investigation of 3D microscale strain fields during tensile loading of LPBF AlSi10Mg
Defer Marion. **Monday**. Start time: **15:00**. Room: Saint Clair 3B LVL2. Link to abstract.

Investigating strain heterogeneity leading to fracture in an aluminium alloy under plane strain tension using 3D (nano)tomography and crystal plasticity simulations
Gille Maryse. Invited. **Monday**. Start time: **15:20**. Room: Saint Clair 3B LVL2. Link to abstract.

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Session: MS4.2 - MO3

Session chairs: Dorte Juul Jensen; Tianbo Yu; Jérôme Adrien (AC)

In-situ synchrotron X-ray micro-diffraction investigation of the microstructure evolution during low strain deformation of laminated Ti-Al composites
Yu Tianbo. Keynote. **Monday**. Start time: **16:00**. Room: Saint Clair 3B LVL2. Link to abstract.

In-situ multimodal X-ray characterization of local strain distributions in the bulk of metallic samples
Juul Jensen Dorte. **Monday**. Start time: **16:40**. Room: Saint Clair 3B LVL2. Link to abstract.

In situ study of double yielding in PA11: Role of the amorphous and crystalline fractions
Gros Barthelemy. Invited. **Monday**. Start time: **17:00**. Room: Saint Clair 3B LVL2. Link to abstract.

MS4.2 - Tuesday

Session: MS4.2 - TU1

Session chair(s) and Assistant Chair (AC): Johan Hoefnagels; Margherita Martini (AC)

Ascertaining the plastic deformation mechanisms of polycrystalline Zn and Mg through in situ HRDIC and EBSD
Mollaei Nafiseh. Keynote. **Tuesday**. Start time: **10:00**. Room: Saint Clair 3B LVL2. Link to abstract.

Residual stress measurement in microscopic steel wires by FIB hole drilling
Engel Raphaël. **Tuesday**. Start time: **10:40**. Room: Saint Clair 3B LVL2. Link to abstract.

High resolution surface field measurements by tracking gold nanodroplets
Tanguy Döme. **Tuesday**. Start time: **11:00**. Room: Saint Clair 3B LVL2. Link to abstract.

Experimental investigation of grain boundaries deformation behavior in austenitic stainless steels
Masset Thomas-Xavier. **Tuesday**. Start time: **11:20**. Room: Saint Clair 3B LVL2. Link to abstract.

Coupled experimental and numerical investigations of microscale plastic deformation of friction-stirred high-strength aluminum alloys.
Girault Florian. Invited. **Tuesday**. Start time: **11:40**. Room: Saint Clair 3B LVL2. Link to abstract.

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Session: MS4.2 - TU2

Session chairs: Mollaei Nafiseh; Rafael Vargas (AC)

Tailoring Mechanical Properties and Deformation Behavior in amorphous/crystalline Zr40Cu60/Fe Nanolaminates
Ezequiel Marco. Keynote. **Tuesday**. Start time: **14:15**. Room: Saint Clair 3B LVL2. Link to abstract.

CoCrNi and FexCoCrNi(100-x) complex compositional alloy thin films: Defect-induced microstructural evolution and microscale mechanical behavior
Curam Arjun Bharath. **Tuesday**. Start time: **14:55**. Room: Saint Clair 3B LVL2. Link to abstract.

X-ray tomography characterization of the impact of compression on the microstructural properties of a packing of hemp shiv particles
Chekai Tinhinane. **Tuesday**. Start time: **15:15**. Room: Saint Clair 3B LVL2. Link to abstract.

In-situ microscopic and macroscopic mechanics of flexible silica aerogels
Zinke Max. Invited. **Tuesday**. Start time: **15:35**. Room: Saint Clair 3B LVL2. Link to abstract.

Multi-instrumented in-situ measurement of strain induced martensitic transformation in medium Mn stainless steels
Lagorce Gwendal. **Tuesday**. Start time: **15:55**. Room: Saint Clair 3B LVL2. Link to abstract.

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Session: MS4.2 - TU3

Session chairs: Ezequiel Marco; Rafael Vargas (AC)

Characterization of Oil Paints Through An In-Situ Experimental Micro-Mechanics Approach : Linking Deformation Behavior to Chemistry
Bagheri Behboud Ali. Invited. **Tuesday**. Start time: **16:35**. Room: Saint Clair 3B LVL2. Link to abstract.

Identification of the damage mechanism in a ceramic matrix composite / protection CMC-EBC system under tensile test.
Lancrenon Victor. **Tuesday**. Start time: **16:55**. Room: Saint Clair 3B LVL2. Link to abstract.

In-situ imaging for the strain-engineering of deformable electrodes
Amiot Fabien. **Tuesday**. Start time: **17:15**. Room: Saint Clair 3B LVL2. Link to abstract.

How chemistry influences the stiffness of fresh cement paste
Michel Luca. **Tuesday**. Start time: **17:35**. Room: Saint Clair 3B LVL2. Link to abstract.

Fracture of Aluminum/steel welds imaged in 2D and 3D.
Dancette Sylvain. Invited. **Tuesday**. Start time: **17:55**. Room: Saint Clair 3B LVL2. Link to abstract.

MS4.3 - Non-invasive and Inverse Methods for Constitutive Parameter Identification

Organisers: S. Avril (SAINBIOSE-EMSE), S. Evans (Cardiff Univ) andJ. Réthoré (GEM-ECN)

MS4.3 - Thursday

Session: MS4.3 - TH1

Session chair(s) and Assistant Chair (AC): Stéphane Avril; Joël Lachambre (AC)

Inverse Approaches to Dynamic Viscoelastic Material Identification
Lamberson Leslie. Keynote. **Thursday**. Start time: **10:00**. Room: Saint Clair 4 LVL2. Link to abstract.

Relating local field fluctuations in composites with the sensitivity of their effective response to constitutive parameters: application to identification of elastic and viscoelastic materials.
Valmalette Robin. Invited. **Thursday**. Start time: **10:40**. Room: Saint Clair 4 LVL2. Link to abstract.

Mathematical and numerical analysis of Data-Driven Identification (DDI) method: the case of isotropic materials
Hachem Nour. Invited. **Thursday**. Start time: **11:00**. Room: Saint Clair 4 LVL2. Link to abstract.

Hetero-EUCLID: Simultaneously segmenting and discovering hyperelastic constitutive models of all components of a heterogeneous hyperelastic material using EUCLID.
Joshi Akshay or Kumar Siddhant. Invited. **Thursday**. Start time: **11:20**. Room: Saint Clair 4 LVL2. Link to abstract.

A MATERIAL TESTING 2.0 METHODOLOGY FOR CORTICAL BONE
Pierron Fabrice. Invited. **Thursday**. Start time: **11:40**. Room: Saint Clair 4 LVL2. Link to abstract.

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Session: MS4.3 - TH2

Session chairs: Julien Réthoré; Joël Lachambre (AC)

Combining continuous discrete lattice methods and Data Driven Identification to go beyond linear elasticity
Dandin Héloïse. Invited. **Thursday**. Start time: **14:15**. Room: Saint Clair 4 LVL2. Link to abstract.

Diagonal compression of masonry panels : Identification of non-linear parameters via Digital Image Correlation
Collin Louis. Invited. **Thursday**. Start time: **14:35**. Room: Saint Clair 4 LVL2. Link to abstract.

Different dynamic models for the study of ultrasonic wave dispersion for mechanical characterization of construction materials
De Fazio Nicola. Invited. **Thursday**. Start time: **14:55**. Room: Saint Clair 4 LVL2. Link to abstract.

Neural networks methods for discovering multi-regional and biphasic hyperelastic properties
He Yiqian. Invited. **Thursday**. Start time: **15:15**. Room: Saint Clair 4 LVL2. Link to abstract.

Stochastic variational inference for myocardial constitutive models using heterogeneous displacement fields
Krijnen Rogier P.. Invited. **Thursday**. Start time: **15:35**. Room: Saint Clair 4 LVL2. Link to abstract.

The Anisotropic Permeability of Skin Determined from Inverse Analysis of Centrifugal Draining Tests
Pulver Gabriel. Invited. **Thursday**. Start time: **15:55**. Room: Saint Clair 4 LVL2. Link to abstract.

MS4.4 - Testing of materials and structures under extreme conditions or high-strain rate

Organisers: P. Longère (ISAE-SUPAERO/ICA), Daniel Rittel (Technion), Michel Coret (GEM-ECN) and Fabien Souris (CEA)

MS4.4 - Wednesday

Session: MS4.4 - WE3

Session chair(s) and Assistant Chair (AC): Michel Coret; Florian Mercier (AC)

Durability Evaluation of Thermal Barrier Coating under Ultra-High Temperature for 1650°C Class Gas Turbine
Takeno Kazuma. **Wednesday**. Start time: **16:45**. Room: Saint Clair 5 LVL2. Link to abstract.

Crack propagation kinetics at the substrate/thermal barrier interface under complex thermomechanical loading
Coudon Florent. **Wednesday**. Start time: **17:05**. Room: Saint Clair 5 LVL2. Link to abstract.

In-situ observation of solid-solid phase transition in metals at high temperature
Fournier Alexandre. **Wednesday**. Start time: **17:25**. Room: Saint Clair 5 LVL2. Link to abstract.

Instrumentation of the hot cracking phenomena in iron based hard facing weld NOREM02

Moor Maëlle. **Wednesday**. Start time: **17:45**. Room: Saint Clair 5 LVL2. Link to abstract.

Deformation-induced martensitic transformation at wide range of temperatures (4K, 77K, RT) in austenitic stainless steels fabricated by Fused Deposition Modeling Process (FDM)

Tabin Jakub. **Wednesday**. Start time: **18:05**. Room: Saint Clair 5 LVL2. Link to abstract.

MS4.4 - Thursday

Session: MS4.4 - TH1

Session chair(s) and Assistant Chair (AC): Patrice Longère; Maëlle Moor (AC)

Shock energy attenuation of hydrogels: experiments and modeling
Rittel Daniel. **Thursday**. Start time: **10:00**. Room: Saint Clair 5 LVL2. Link to abstract.

The Energy Absorption Behavior of Graphene Aerogels
Xie Jing. **Thursday**. Start time: **10:20**. Room: Saint Clair 5 LVL2. Link to abstract.

High-throughput Characterization of five DP steels Plasticity and Fracture at slow, intermediate and high strain rates
Grolleau Vincent. **Thursday**. Start time: **10:40**. Room: Saint Clair 5 LVL2. Link to abstract.

Deformation and failure mechanisms of architectured materials under impact
Weller Alexis. **Thursday**. Start time: **11:00**. Room: Saint Clair 5 LVL2. Link to abstract.

Capacitors at low temperatures revealed by cryo-synchrotron X-ray phase contrast microtomography
Vijayakumar Jaianth. **Thursday**. Start time: **11:20**. Room: Saint Clair 5 LVL2. Link to abstract.

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Session: MS4.4 - TH2

Session chairs: Daniel Rittel; Nina Borzecka (AC)

Dynamic radial expansion and fragmentation of porous metal rings
Virazels Thomas. **Thursday**. Start time: **14:15**. Room: Saint Clair 5 LVL2. Link to abstract.

Development of an experimental set-up for the study of the dynamic damage of metals
Sicard Martin. **Thursday**. Start time: **14:35**. Room: Saint Clair 5 LVL2. Link to abstract.

Analytical and Numerical Analysis of Necking in Dynamic Expansion of Thin Structures
Houire Ulrich. **Thursday**. Start time: **14:55**. Room: Saint Clair 5 LVL2. Link to abstract.

In situ characterization and evolution of shear band microstructures at different shear strain rates
Schottstedt Luisa. **Thursday**. Start time: **15:15**. Room: Saint Clair 5 LVL2. Link to abstract.

Characterization of recovered iron samples after laser shock loading
Bruzy Nicolas. **Thursday**. Start time: **15:35**. Room: Saint Clair 5 LVL2. Link to abstract.

Statistical analysis of ductile damage under impact loading
Thouénon Corentin. **Thursday**. Start time: **15:55**. Room: Saint Clair 5 LVL2. Link to abstract.

MS4.4 - Friday

Session: MS4.4 - FR1

Session chair(s) and Assistant Chair (AC): Christophe Czarnota; Maëlle Moor (AC)

Multi-scale characterization of a high chromium hardfacing alloy for ballistic protection applications
Monnet Antoine. **Friday**. Start time: **10:00**. Room: Saint Clair 5 LVL2. Link to abstract.

Characterization of the mechanical behavior of fragmented ceramics under impact by using 3D tomographic-based numerical simulation confronted to experimental data
Francart Charles. **Friday**. Start time: **10:20**. Room: Saint Clair 5 LVL2. Link to abstract.

A multi-scale experimental assessment of the effects of crack propagation speed on mode I fracture properties of composite laminates
Stanek Alexis. **Friday**. Start time: **10:40**. Room: Saint Clair 5 LVL2. Link to abstract.

Mechanical Behavior of Interpenetrating Phases Composites under Dynamic Loadings
Jabin Echeveste Paul. **Friday**. Start time: **11:00**. Room: Saint Clair 5 LVL2. Link to abstract.

TOPIC: Computational Mechanics

MS5.1 - Computational microstructures

Organisers: Karam Sab (ENPC) and Simone Morganti (University of Pavia)

MS5.1 - Tuesday

Session: MS5.1 - TU1

Session chair(s) and Assistant Chair (AC): Prof. K. Sab; Tasnim Missaoui (AC)

Impacts of polycrystalline microstructures on effective ionic conductivity of ceramic electrolytes: computational homogenization and machine learning
Peng Xiang-Long. **Tuesday**. Start time: **10:00**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Reconstructing polycrystalline 3D grain architectures from 2D image data by combining stochastic 3D modeling and generative AI
Furat Orkun. **Tuesday**. Start time: **10:20**. Room: Bureau Forum 2 LVL-2. Link to abstract.

FE prediction of microcracking in a 3D graphite polycrystal - evolution of the macroscopic response under temperature changes and irradiation
Delannay Laurent. **Tuesday**. Start time: **10:40**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Generative machine learning for accelerated modelling of microstructure evolution
Ramgopal Tarakram. **Tuesday**. Start time: **11:00**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Learning textures via generative machine learning on SO(3) manifold
Nimmal Haribabu Gowtham. **Tuesday**. Start time: **11:20**. Room: Bureau Forum 2 LVL-2. Link to abstract.

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Session: MS5.1 - TU2

Session chairs: Prof. S. Morganti; Tasnim Missaoui (AC)

Computational characterization of nanowire network electrodes
Grazioli Davide. **Tuesday**. Start time: **14:15**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Microstructural Characterization of Aerogel through Deep Symbolic Regression
Chandrasekaran Rajesh. **Tuesday**. Start time: **14:35**. Room: Bureau Forum 2 LVL-2. Link to abstract.

In-silico Evaluation of Structure-Function Relationship in Biopolymer Networks
Cardona Sara. **Tuesday**. Start time: **14:55**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Mesoscale modelling and experimental validation of lightweight concrete mechanical behaviour
Brana-Linares Marcos. **Tuesday**. Start time: **15:15**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Understanding nanoindentation statistical dispersion in ceramic – metal cemented carbides by numerical simulation and FIB tomography
Cruañes-González Diego. **Tuesday**. Start time: **15:35**. Room: Bureau Forum 2 LVL-2. Link to abstract.

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Session: MS5.1 - TU3

Session chairs: Prof. S. Morganti; Prof. K. Sab; Aidarbek Kairgeldin (AC)

A variationally consistent and asymptotically convergent phase-field model for precipitation and dissolution
Lamperti Andrea. Invited. **Tuesday**. Start time: **16:35**. Room: Bureau Forum 2 LVL-2. Link to abstract.

FFT based accelerated fatigue computation using wavelet transformation based
Kesmia Nassim. **Tuesday**. Start time: **16:55**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Nonfolding Origami lattice for energy dissipation and strength
Dalaq Ahmed. **Tuesday**. Start time: **17:15**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Application of the Lippmann-Schwinger equation to the propagation of acoustic Bloch waves
Dolbeau Martin. **Tuesday**. Start time: **17:35**. Room: Bureau Forum 2 LVL-2. Link to abstract.

The VE2 method: the Virtual Element Method for Multiscale Computational Analyses with Polycrystalline Microstructures
Marino Michele. Invited. **Tuesday**. Start time: **17:55**. Room: Bureau Forum 2 LVL-2. Link to abstract.

MS5.2 - Computational methods for manufacturing and forming processes

Organisers: Lukasz Madej (TU Krakow) and Katia Mocellin (CEMEF, Mines Paris)

Session: MS5.2 - TU1

Session chair(s) and Assistant Chair (AC): Lukasz Madej; Aidarbek Kairgeldin (AC)

Original Eigenstrain Framework Combined with Machine Learning for Fast Residual Stress and Distortion Prediction in LPBF Parts
Markovic Patrik. **Tuesday**. Start time: **10:00**. Room: Rhône 5 LVL1. Link to abstract.

Cold Rolling Process Simulation: Analyzing Mechanical and Microstructural Development in Electrical Steels
Herard Laura. **Tuesday**. Start time: **10:20**. Room: Rhône 5 LVL1. Link to abstract.

Computation of residual stress development in boron steels and experimental assessment with X-ray and neutron diffraction.
Morel Xavier. **Tuesday**. Start time: **10:40**. Room: Rhône 5 LVL1. Link to abstract.

Towards a thermo-mechanical metallurgical model for TMCP of structural steel for offshore wind turbines
Parandavar Pedram. **Tuesday**. Start time: **11:00**. Room: Rhône 5 LVL1. Link to abstract.

Numerical framework for evaluation of distortions in bearing rings.
Sankaran Harihara Krishnan or Cazes Fabien. **Tuesday**. Start time: **11:20**. Room: Rhône 5 LVL1. Link to abstract.

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Session: MS5.2 - TU2

Session chairs: Katia Mocellin; Audrey Tixier (AC)

Integration of numericaly computed residual stresses into fatigue life model for lifetime optimisation of machined parts
Valiorgue Frédéric. Keynote. **Tuesday**. Start time: **14:15**. Room: Rhône 5 LVL1. Link to abstract.

Prediction of the recrystallisation defect in Nickel-based single-crystal parts following cooling after a casting operation.
Roche Louis. **Tuesday**. Start time: **14:55**. Room: Rhône 5 LVL1. Link to abstract.

Incorporating grain boundary curvature-driven growth mechanisms into the random cellular automata dynamic recrystallization model
Madej Łukasz. **Tuesday**. Start time: **15:15**. Room: Rhône 5 LVL1. Link to abstract.

Investigation of the fracture mechanics in TiN thin films deposited on different substrates based on the digital material representation concept.
Perzynski Konrad. **Tuesday**. Start time: **15:35**. Room: Rhône 5 LVL1. Link to abstract.

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Session: MS5.2 - TU3

Session chairs: Konrad Perzynski; Audrey Tixier (AC)

Nonlinear Analysis of Functionally Graded Materials Using Linear and Quadratic Solid–Shell Finite Elements
Younas Nabeel. **Tuesday**. Start time: **16:35**. Room: Rhône 5 LVL1. Link to abstract.

Defining mechanical boundary conditions representatives of the frictional tool-part interaction when modelling the cure-induced deformations of thermoset-based composite parts
Parmentier Antoine. **Tuesday**. Start time: **16:55**. Room: Rhône 5 LVL1. Link to abstract.

Numerical simulation of the welding of thermoplastic parts using a level-set method
Jezequel Yohann. **Tuesday**. Start time: **17:15**. Room: Rhône 5 LVL1. Link to abstract.

MS5.3 - Computational nonlinear materials and couplings

Organisers: Andreas Menzel (TU Dortmund) and Julien Yvonnet (Université Gustave Eiffel)

MS5.3 - Wednesday

Session: MS5.3 - WE3

Session chair(s) and Assistant Chair (AC): Andreas Menzel; Japhet Nubiap (AC)

A full-field model for dynamic recrystallization
Ask Anna. **Wednesday**. Start time: **16:45**. Room: Saint Clair 3A LVL2. Link to abstract.

A Crystallization-Enhanced Thermo-mechanically Coupled Visco-hyperelastic-plastic Model for Thermoplastics Overmolding Processes
Liu Tiansheng or Simon Jaan-Willem. **Wednesday**. Start time: **17:05**. Room: Saint Clair 3A LVL2. Link to abstract.

A Solid-State Phase Transformation Model for Multiphase Alloys – Application to Laser Powder Bed Fusion
Noll Isabelle. **Wednesday**. Start time: **17:25**. Room: Saint Clair 3A LVL2. Link to abstract.

Numerical Investigation of Glass Phase Transformations: An Implementation of Kinetic Models Using ANSYS and Neighbor Element Method
Rudolf Tobias. **Wednesday**. Start time: **17:45**. Room: Saint Clair 3A LVL2. Link to abstract.

Phase-field modelling of twinning in magnesium: microstructure evolution and size effects in nano-indentation
Stupkiewicz Stanislaw. **Wednesday**. Start time: **18:05**. Room: Saint Clair 3A LVL2. Link to abstract.

Interplay of martensitic phase transformation and plasticity in shape memory polycrystalline alloys: energetic considerations-based constitutive modeling
Frost Miroslav. **Wednesday**. Start time: **18:25**. Room: Saint Clair 3A LVL2. Link to abstract.

MS5.3 - Thursday

Session: MS5.3 - TH1

Session chair(s) and Assistant Chair (AC): Anna Ask; Japhet Nubiap (AC)

Understanding grain boundary resistivity – A multiscale approach for electrical conductors
Güzel Dilek. **Thursday**. Start time: **10:00**. Room: Saint Clair 3A LVL2. Link to abstract.

Derivation of a macroscopic nonlinear beam model for cables using homogenization
Zeidan Lara. **Thursday**. Start time: **10:20**. Room: Saint Clair 3A LVL2. Link to abstract.

A transfer function package-modeling approach for speeding up multi-scale MEMS sensor drop simulations
Plavecz Lambert. **Thursday**. Start time: **10:40**. Room: Saint Clair 3A LVL2. Link to abstract.

Interplay of elastic and chemical driving forces for phase separation in biphasic media at large strains
Gomero Soria Andrea. **Thursday**. Start time: **11:00**. Room: Saint Clair 3A LVL2. Link to abstract.

Phase-Field Modeling of High-Temperature Oxidation Corrosion in Multi-Chemical Component Systems
Löps Paul. **Thursday**. Start time: **11:20**. Room: Saint Clair 3A LVL2. Link to abstract.

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Session: MS5.3 - TH2

Session chairs: Isabelle Noll; Mateo Groux (AC)

Modeling of Hysteretic Behavior of Shape Memory Alloys Using a Rate-Independent Phase-Field Framework
El Khatib Omar. **Thursday**. Start time: **14:15**. Room: Saint Clair 3A LVL2. Link to abstract.

Kwinking as the plastic forming mechanism of B19' NiTi martensite
Sedlak Petr. **Thursday**. Start time: **14:35**. Room: Saint Clair 3A LVL2. Link to abstract.

Two-way coupled modeling of dislocation substructure sensitive crystal plasticity and hydrogen diffusion at the crack tip of FCC single crystals
Gu Tang. **Thursday**. Start time: **14:55**. Room: Saint Clair 3A LVL2. Link to abstract.

Consistent Eulerian and Lagrangian variational formulations of non-linear kinematic hardening
Heuzé Thomas. **Thursday**. Start time: **15:15**. Room: Saint Clair 3A LVL2. Link to abstract.

Modelling the thermomechanical behaviour of high strength steel beams exposed to the fire resistance test using microplane approach.
Mundó Tijeras Ignasi. **Thursday**. Start time: **15:35**. Room: Saint Clair 3A LVL2. Link to abstract.

Finite element estimation of internal stresses induced by the carburizing quenching process.
Ben Ayed Salim. **Thursday**. Start time: **15:55**. Room: Saint Clair 3A LVL2. Link to abstract.

MS5.3 - Friday

Session: MS5.3 - FR1

Session chair(s) and Assistant Chair (AC): Dilek Güzel; Antoine Mille (AC)

Foundational aspects of an hybrid equilibrium element for finite poroelasticity
Lo Franco Simona. **Friday**. Start time: **10:00**. Room: Saint Clair 3A LVL2. Link to abstract.

Fluid-Structure Interaction Model for Actuation of Immersed Light-Responsive Liquid Crystal Elastomer (LCE) Beams
Norouzikudiani Reza. **Friday**. Start time: **10:20**. Room: Saint Clair 3A LVL2. Link to abstract.

Advanced Dynamic X-Mesh Interface Modeling for Yield-stress fluid application
Hun Darith Anthony. **Friday**. Start time: **10:40**. Room: Saint Clair 3A LVL2. Link to abstract.

MS5.4 - Computational methods for damage and fracture

Organisers: Nicolas Moes (UC Louvain) and Jean-François Molinari (EPFL)

MS5.4 - Wednesday

Session: MS5.4 - WE1

Session chair(s) and Assistant Chair (AC): Jean-François Molinari; Nicolas Moës; Joël Lachambre (AC)

State of the art of the Lip-field approach
Chevaugeon Nicolas. **Wednesday**. Start time: **10:00**. Room: Roseraie 1 LVL3. Link to abstract.

Sharp cracks in continuous damage models using the eXtreme Mesh deformation approach (X-Mesh) : a 1D study
Moës Nicolas. **Wednesday**. Start time: **10:20**. Room: Roseraie 1 LVL3. Link to abstract.

A Griffith description of fracture for non-monotonic loading conditions and its phase-field implementation
Saha Subhrangsu. **Wednesday**. Start time: **10:40**. Room: Roseraie 1 LVL3. Link to abstract.

Constitutive modelling of viscoelastic materials coupling damage and healing
Samal Priyanka. **Wednesday**. Start time: **11:00**. Room: Roseraie 1 LVL3. Link to abstract.

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Session: MS5.4 - WE2

Session chairs: Jean-François Molinari; Nicolas Moës; Aidarbek Kairgeldin (AC)

Description of thermal shocks using micromorphic damage gradient models
Nava Soto Pedro. **Wednesday**. Start time: **14:30**. Room: Roseraie 1 LVL3. Link to abstract.

Discrete Element Method to predict cracks initiation and propagation in plasma-sprayed Thermal Barrier Coatings during a thermal cycle
Leclerc Willy. **Wednesday**. Start time: **14:50**. Room: Roseraie 1 LVL3. Link to abstract.

On a hybrid simulation using a phase-field approach for predicting the concrete behavior under fire
Kandekar Chaitanya. **Wednesday**. Start time: **15:10**. Room: Roseraie 1 LVL3. Link to abstract.

On the thermo-mechanical modeling of crack propagation and healing in a brittle solid
Salmon Lucas or Lejeunes Stéphane. **Wednesday**. Start time: **15:30**. Room: Roseraie 1 LVL3. Link to abstract.

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Session: MS5.4 - WE3

Session chairs: Jean-François Molinari; Nicolas Moës; Aidarbek Kairgeldin (AC)

Bridging variational and perturbation approaches in brittle fracture: application to shear crack in heterogeneous media
Egorov Serafim. **Wednesday**. Start time: **16:45**. Room: Roseraie 1 LVL3. Link to abstract.

FE-FFT multiscale model of damage in hydroelectric dams under alkali-silica reaction
Fourel Lucas. **Wednesday**. Start time: **17:05**. Room: Roseraie 1 LVL3. Link to abstract.

Identification of Phase-Field Fracture Models from Molecular Simulations on Silicon
Denzer Ralf. **Wednesday**. Start time: **17:25**. Room: Roseraie 1 LVL3. Link to abstract.

Micromechanical simulations of coalescence in a random porous material
Cadet Clément. **Wednesday**. Start time: **17:45**. Room: Roseraie 1 LVL3. Link to abstract.

The covariogram: the link between a heterogeneous medium microstructure and its non-local damage behavior.
El Mansouri Hicham. **Wednesday**. Start time: **18:05**. Room: Roseraie 1 LVL3. Link to abstract.

The role of the organic matrix for the compressive strength of nacre
Vigliotti Andrea. **Wednesday**. Start time: **18:25**. Room: Roseraie 1 LVL3. Link to abstract.

MS5.4 - Thursday

Session: MS5.4 - TH1

Session chair(s) and Assistant Chair (AC): Jean-François Molinari; Nicolas Moës; Hugo Girard (AC)

Hyperbolic formulation of gradient damage models and finite volume simulations of dynamic brittle fracture
Renaud Adrien. **Thursday**. Start time: **10:00**. Room: Roseraie 1 LVL3. Link to abstract.

A length-scale insensitive cohesive phase-field interface model: application to concurrent bulk and interface fracture simulation in Lithium-ion battery materials
Chen Wanxin. **Thursday**. Start time: **10:20**. Room: Roseraie 1 LVL3. Link to abstract.

A multi-field decomposed model order reduction approach for thermo-mechanically coupled gradient-extended damage simulations
Zhang Qinghua. **Thursday**. Start time: **10:40**. Room: Roseraie 1 LVL3. Link to abstract.

A tri-dimensional model for the numerical treatment of ductile fracture in dynamics using the Extended Finite Element Method
Scheidt Louis. **Thursday**. Start time: **11:00**. Room: Roseraie 1 LVL3. Link to abstract.

Dynamic fragmentation using phase-field modelling of fracture
Durussel Shad. **Thursday**. Start time: **11:20**. Room: Roseraie 1 LVL3. Link to abstract.

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Session: MS5.4 - TH2

Session chairs: Jean-François Molinari; Nicolas Moës; Djibril Gabriel Kashala (AC)

A coarse-grained molecular dynamics study of damage localization during the fracture of double polymer networks
Ortellado Laureano. **Thursday**. Start time: **14:15**. Room: Roseraie 1 LVL3. Link to abstract.

Computational modelling of biodegradable bone implants
Zoboli Lorenzo. **Thursday**. Start time: **14:35**. Room: Roseraie 1 LVL3. Link to abstract.

On the finite strain phase field fracture of nearly incompressible hyperelastic material
George Deepak. **Thursday**. Start time: **14:55**. Room: Roseraie 1 LVL3. Link to abstract.

MS5.5 - Mechanical challenges in Energy Production/Harvesting/Storage

Organisers: Alberto Salvadori (University of Pavia) and Alejandro Franco (Université de Picardie Jules Verne)

MS5.5 - Monday

Session: MS5.5 - MO2

Session chair(s) and Assistant Chair (AC): Alberto Salvadori; Paul Sirdey (AC)

Modeling the phase transformations in tin-based anodes for sodium-ion batteries
Bastanfar Marzieh. **Monday**. Start time: **13:40**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Void evolution in the lithium anode of a solid state battery
Roach Ashley. **Monday**. Start time: **14:00**. Room: Bureau Forum 2 LVL-2. Link to abstract.

A Fracture Mechanics-Based Model of Lithium Dendrite Growth in Partially Filled Cracks of Solid Electrolytes
Esmizadeh Sahar. **Monday**. Start time: **14:20**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Micromechanics of lithium dendrite growth in solid electrolytes
Leronni Alessandro. **Monday**. Start time: **14:40**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Modeling the effect of electrode geometry, and interface properties in solid-state batteries
Bucci Giovanna. **Monday**. Start time: **15:00**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Phase-field fracture predictions for composite solid-state battery cathode microstructures

Boyce Adam. **Monday**. Start time: **15:20**. Room: Bureau Forum 2 LVL-2. Link to abstract.

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Session: MS5.5 - MO3

Session chairs: Alberto Salvadori; Paul Sirdey (AC)

Exploring Deformation-Driven Short-Circuit Mechanisms in Li-Ion Pouch Cells Using In-Situ Synchrotron Laminography
Tancogne-Dejean Thomas. **Monday**. Start time: **16:00**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Intergranular cracking of polycrystalline particles during electrochemical cycling of Lithium-ion batteries
Pinot Clémence. **Monday**. Start time: **16:20**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Effect of Stresses with Different Triaxiality Ratios on the Electrochemical Response of Silicon Electrodes
Le Anh Tuan. **Monday**. Start time: **16:40**. Room: Bureau Forum 2 LVL-2. Link to abstract.

A variational continuum model for the 'adsorption-intercalation-pore filling'-type Na storage in hard carbon anode particles of sodium ion batteries
Mukherjee Dipayan. **Monday**. Start time: **17:00**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Structural analysis of solid-state transformers using the inductive power transfer technology through a multiphysics computational framework
Rogkas Nikolaos. **Monday**. Start time: **17:20**. Room: Bureau Forum 2 LVL-2. Link to abstract.

MS5.6 - Model reduction and machine learning

Organisers: David Ryckelynk (Ecole des Mines de Paris) and Francisco Chinesta (ENSAM)

MS5.6 - Tuesday

Session: MS5.6 - TU1

Session chair(s) and Assistant Chair (AC): Francisco Chinesta; David Ryckelynck; Alexandre Janiak (AC)

A multifidelity deep learning model for predicting the internal excitation sources in geared systems
Mouton Valentin. **Tuesday**. Start time: **10:00**. Room: Roseraie 1 LVL3. Link to abstract.

Achieving universal approximations with a novel neural network framework for isotropic polyconvex hyperelasticity
Kurzeja Patrick. **Tuesday**. Start time: **10:20**. Room: Roseraie 1 LVL3. Link to abstract.

The determination method of supplement training condition for neural network model fusing real data and virtual data
Lu Songsong. **Tuesday**. Start time: **10:40**. Room: Roseraie 1 LVL3. Link to abstract.

Parametric Physics-Informed Neural Networks (PINNs) for Solving Inverse Problems in Mechanics: Viscoplastic Constitutive Model Calibration
Xu Haotian. **Tuesday**. Start time: **11:00**. Room: Roseraie 1 LVL3. Link to abstract.

Machine Learned Interatomic Potential for Shock Response of B4C
Subhash Ghatu. **Tuesday**. Start time: **11:20**. Room: Roseraie 1 LVL3. Link to abstract.

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Session: MS5.6 - TU2

Session chairs: Francisco Chinesta; David Ryckelynck; Ndeye Maguette Ndiaye (AC)

Hyper-reduction by statistically corrected clustering
Wulfinghoff Stephan. **Tuesday**. Start time: **14:15**. Room: Roseraie 1 LVL3. Link to abstract.

Component wise hyperreduction in nonlinear mechanics
Ritzert Stephan. **Tuesday**. Start time: **14:35**. Room: Roseraie 1 LVL3. Link to abstract.

REDUCED ORDER MODEL FOR DRAINAGE COMPUTATION IN LOWER LIMB LYMPHEDEMA
Garcia-Llona Aratz. **Tuesday**. Start time: **14:55**. Room: Roseraie 1 LVL3. Link to abstract.

Efficient cooling time optimization in Wire Arc Additive Manufacturing using a multi-layer reduced order model
Robens-Radermacher Annika. **Tuesday**. Start time: **15:15**. Room: Roseraie 1 LVL3. Link to abstract.

Physics-Informed Surrogate Model for Forward and Inverse Problems in 3D Polycrystalline Elastostatics
Monteiro Fernandes Lucas. **Tuesday**. Start time: **15:35**. Room: Roseraie 1 LVL3. Link to abstract.

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Session: MS5.6 - TU3

Session chairs: Francisco Chinesta; David Ryckelynck; Ndeye Maguette Ndiaye (AC)

An open-source scalable architecture for finite elements with neural network based constitutive models (FENN)
Alheit Benjamin. **Tuesday**. Start time: **16:35**. Room: Roseraie 1 LVL3. Link to abstract.

Implicit automatic differentiation and implicit layers for constitutive modeling
Bleyer Jérémy. **Tuesday**. Start time: **16:55**. Room: Roseraie 1 LVL3. Link to abstract.

On the role of interpretability of data-driven constitutive modeling by constitutive artificial neural networks
Abdolazizi Kian. **Tuesday**. Start time: **17:15**. Room: Roseraie 1 LVL3. Link to abstract.

The Prediction of Cellular Materials Properties Through Deep Learning and Semantic Segmentation
Sadia Haleema or Alam Parvez. **Tuesday**. Start time: **17:35**. Room: Roseraie 1 LVL3. Link to abstract.

Modelling of pulsed laser interaction with stainless steel for laser ablation.
Hardman Christopher. **Tuesday**. Start time: **17:55**. Room: Roseraie 1 LVL3. Link to abstract.

MS5.7 - Data driven approaches of materials structures and processes

Organisers: Laurent Stainier (EC Nantes), Michael Ortiz (Caltech) and Benjamin Klusemann (Leuphana University)

MS5.7 - Thursday

Session: MS5.7 - TH1

Session chair(s) and Assistant Chair (AC): Laurent Stainier; Lin Guo (AC)

Discovering New Constitutive Models for Soft Materials by Symbolic Regression
Itskov Mikhail. Keynote. **Thursday**. Start time: **10:00**. Room: Rhône 2 LVL1. Link to abstract.

Optimization of TFA homogenization based on data-driven approach
Marfia Sonia. Invited. **Thursday**. Start time: **10:40**. Room: Rhône 2 LVL1. Link to abstract.

HyperCAN: Hypernetwork-driven deep parameterized constitutive models for metamaterials
Zheng Li. Invited. **Thursday**. Start time: **11:00**. Room: Rhône 2 LVL1. Link to abstract.

Nonlinear two-scale beam simulations accelerated by thermodynamics-informed neural networks
Leclezio Helen. Invited. **Thursday**. Start time: **11:20**. Room: Rhône 2 LVL1. Link to abstract.

Morphing As-Designed Databases for Lattice Materials with Image-Based Models to Capture Manufacturing-Induced Effects
Court Clément. Invited. **Thursday**. Start time: **11:40**. Room: Rhône 2 LVL1. Link to abstract.

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Session: MS5.7 - TH2

Session chairs: Thorsten Bartel; Lin Guo (AC)

Physics augmented neural network model for simple isotropic damage in hyperelasticity
Zlatić Martin. Invited. **Thursday**. Start time: **14:15**. Room: Rhône 2 LVL1. Link to abstract.

Data-driven finite element computations for materials with an open-cell microstructure
Weinberg Kerstin. Invited. **Thursday**. Start time: **14:35**. Room: Rhône 2 LVL1. Link to abstract.

Phase-space iterative solvers
Joaquin Garcia-Suarez. Invited. **Thursday**. Start time: **14:55**. Room: Rhône 2 LVL1. Link to abstract.

Efficient and noise-resilient nonlinear elastic simulations via a continuous data-driven framework
Karaca Kaan. Invited. **Thursday**. Start time: **15:15**. Room: Rhône 2 LVL1. Link to abstract.

An Efficient Multiscale Method for Modelling Anisotropic Fracture in Heterogeneous Structures Based on Data-Driven Approach
Chafia Zakaria. Invited. **Thursday**. Start time: **15:35**. Room: Rhône 2 LVL1. Link to abstract.

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Session: MS5.7 - TH3

Session chairs: Kerstin Weinberg; Lin Guo (AC)

Neural simulation of plastic phenomena using MeshGraphNets
Iparraguirre Mikel M. Invited. **Thursday**. Start time: **16:30**. Room: Rhône 2 LVL1. Link to abstract.

Graph neural network modeling of time-dependent materials under indentation
Secchi Paolo. Invited. **Thursday**. Start time: **16:50**. Room: Rhône 2 LVL1. Link to abstract.

Hybrid modeling via machine learning corrections of numerical process simulations towards experimental measurements for friction surfacing
Campos Pedro. Invited. **Thursday**. Start time: **17:10**. Room: Rhône 2 LVL1. Link to abstract.

MS5.7 - Friday

Session: MS5.7 - FR1

Session chair(s) and Assistant Chair (AC): Laurent Stainier; Aidarbek Kairgeldin (AC)

A data-based derivation of internal stress and material microstructure characteristics
Schulz Katrin. Keynote. **Friday**. Start time: **10:00**. Room: Rhône 2 LVL1. Link to abstract.

A Neural Network-Based Framework for Data-Driven Inelasticity in Two Dimensions
Harnisch Marius. Invited. **Friday**. Start time: **10:40**. Room: Rhône 2 LVL1. Link to abstract.

A Thermodynamic-Consistent Reduced-Order Machine Learning Model for Non-Equilibrium Materials Response
Huang Shenglin. Invited. **Friday**. Start time: **11:00**. Room: Rhône 2 LVL1. Link to abstract.

TOPIC: Dynamics, Waves and Metamaterials

MS6.1 - Nonlinear Dynamics in Mechanical and Structural Systems

Organisers: Sergey Sorokin (Aalborg University) and Daniele Zulli (University Aquila)

MS6.1 - Monday

Session: MS6.1 - MO1

Session chair(s) and Assistant Chair (AC): Sergey Sorokin; Manuel Ferretti; Hugo Girard (AC)

Nonlinear damping in large-amplitude vibrations
Amabili Marco. Keynote. **Monday**. Start time: **10:10**. Room: Rhône 4 LVL1. Link to abstract.

Dynamic Responses of Parameter-Tuned Nonlinear Oscillator Arrays Under Harmonic Excitation
Zaraza Espinosa Javier or Agarwal Vipin. **Monday**. Start time: **10:50**. Room: Rhône 4 LVL1. Link to abstract.

Vibration-assisted friction modulation: theory and application for a slip joint connection
Cabboi Alessandro. **Monday**. Start time: **11:10**. Room: Rhône 4 LVL1. Link to abstract.

Linear and Nonlinear Vibration of a Beam with Constant Curvature
Firouzi Behnam. Invited. **Monday**. Start time: **11:30**. Room: Rhône 4 LVL1. Link to abstract.

Utilizing Nonlinear Oscillator Arrays as Physical Reservoir Computers
Gupta Ayush Agarwal Vipin. **Monday**. Start time: **11:50**. Room: Rhône 4 LVL1. Link to abstract.

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Session: MS6.1 - MO2

Session chairs: Marco Amabili; Vladislav Sorokin; Aidarbek Kairgeldin (AC)

Hybrid Passive Seismic Protection Strategies of Rigid Blocks
Ferretti Manuel. Invited. **Monday**. Start time: **13:40**. Room: Rhône 4 LVL1. Link to abstract.

On the dynamics of a collapsing set of blocks
Theresa Honein. **Monday**. Start time: **14:00**. Room: Rhône 4 LVL1. Link to abstract.

Horizontal and vertical base isolation for the seismic protection of non-symmetric rigid blocks
Amoroso Lorenzo. Invited. **Monday**. Start time: **14:20**. Room: Rhône 4 LVL1. Link to abstract.

Longitudinal Seismic Isolation Strategies for Pipelines in Underground Utility Tunnels
Mancini Lorenzo. Invited. **Monday**. Start time: **14:40**. Room: Rhône 4 LVL1. Link to abstract.

Transverse seismic isolation of pipelines in underground utility tunnels for enhanced earthquake protection
Di Egidio Angelo. Invited. **Monday**. Start time: **15:00**. Room: Rhône 4 LVL1. Link to abstract.

Parameter identification of nonlinear dynamical systems through the Hilbert Huang Transform and the Multiple Scales Method
De Flaviis Andrea. Invited. **Monday**. Start time: **15:20**. Room: Rhône 4 LVL1. Link to abstract.

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Session: MS6.1 - MO3

Session chairs: Giuseppe Habib; Alessandro Cabboi; Nicolas Durand (AC)

Theoretical and Experimental Analysis of Axial Wave Transmission in a Rod with a Nonlinear Absorber
Sorokin Vladislav. Invited. **Monday**. Start time: **16:00**. Room: Rhône 4 LVL1. Link to abstract.

On the role of 5-wave resonances in the nonlinear dynamics of the Fermi-Pasta-Ulam-Tsingou system
Lotriglia Matteo. **Monday**. Start time: **16:20**. Room: Rhône 4 LVL1. Link to abstract.

Bending edge waves on a thin functionally graded cylindrical shell
Som Rahul. **Monday**. Start time: **16:40**. Room: Rhône 4 LVL1. Link to abstract.

Design and Experimental Validation of a Two-to-One Internally Resonant Point Wave Energy Harvester
Khasawneh Mohammad. Invited. **Monday**. Start time: **17:00**. Room: Rhône 4 LVL1. Link to abstract.

Dynamics of axially traveling string with fluctuating speed and curved obstacles at both ends
Sharma Abhishek. **Monday**. Start time: **17:20**. Room: Rhône 4 LVL1. Link to abstract.

Nonspherical oscillations of an encapsulated magnetic microbubble
Krishna B J Arun. **Monday**. Start time: **17:40**. Room: Rhône 4 LVL1. Link to abstract.

MS6.1 - Tuesday

Session: MS6.1 - TU1

Session chair(s) and Assistant Chair (AC): Daniele Zulli; Matteo Lotriglia; Anwar Gamra (AC)

Energy exchange in a mass-in-mass meta cell with geometrically customized nonlinearity
Ture Savadkoohi Alireza. Keynote. **Tuesday**. Start time: **10:00**. Room: Rhône 4 LVL1. Link to abstract.

Design of a nonlinear energy sink with energy harvester
Dalroti Mohammad Huzefabhai. **Tuesday**. Start time: **10:40**. Room: Rhône 4 LVL1. Link to abstract.

Elastic wave transmission in a 1D elastic structure with an attached nonlinear autoparametric pendulum absorber
Pan Junqi. Invited. **Tuesday**. Start time: **11:00**. Room: Rhône 4 LVL1. Link to abstract.

Vibration attenuation on Tubular Telecommunications Towers using Non-Linear Energy Sink
Mbaki Zacarias. Invited. **Tuesday**. Start time: **11:20**. Room: Rhône 4 LVL1. Link to abstract.

Analysis of radiation efficiency and sound transmission loss of functionally graded plates using the state space method
Paital Chittaranjan. **Tuesday**. Start time: **11:40**. Room: Rhône 4 LVL1. Link to abstract.

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Session: MS6.1 - TU2

Session chairs: Alireza Ture Savadkoohi; Murillo Santana; Aidarbek Kairgeldin (AC)

Data-driven Soft Robot Control using Adiabatic Spectral Submanifolds
Kaundinya Roshan. Invited. **Tuesday**. Start time: **14:15**. Room: Rhône 4 LVL1. Link to abstract.

High codimension bifurcation in suspended cables under aerodynamic forces
Zulli Daniele. Invited. **Tuesday**. Start time: **14:35**. Room: Rhône 4 LVL1. Link to abstract.

Direct parametrisation of invariant manifold with shell finite element: nonlinear dynamics of thin structures using reduced order modeling
Xia Zixu. **Tuesday**. Start time: **14:55**. Room: Rhône 4 LVL1. Link to abstract.

Utilizing Nonlinear Oscillator Arrays as Physical Reservoir Computers
Gupta Ayush Agarwal Vipin. **Tuesday**. Start time: **15:15**. Room: Rhône 4 LVL1. Link to abstract.

Stability and robustness assessment of self-synchronizing vibrating screens
Szabó Márton. Invited. **Tuesday**. Start time: **15:35**. Room: Rhône 4 LVL1. Link to abstract.

Nonlinear Modeling and Control of Artificial Muscles via Spectral Submanifolds
Bettini Leonardo. Invited. **Tuesday**. Start time: **15:55**. Room: Rhône 4 LVL1. Link to abstract.

MS6.2 - Elastic Metamaterials and Topological Aspects of Waves

Organisers: Agnès Maurel (ESPCI), Anastasiia O. Krushynska (Groningen, NL) and Régis Cottereau (CNRS Marseille, FR)

MS6.2 - Wednesday

Session: MS6.2 - WE2

Session chair(s) and Assistant Chair (AC): Agnes Maurel; Djibril Gabriel Kashala (AC)

Programmable Surface Dimpling for Aerodynamic Textile Metamaterials
Farrell David. **Wednesday**. Start time: **14:30**. Room: Roseraie 2 LVL3. Link to abstract.

Surface impedance and topologically protected interface modes in one-dimensional phononic crystals for longitudinal and bending elastic waves
Rallu Antoine. **Wednesday**. Start time: **14:50**. Room: Roseraie 2 LVL3. Link to abstract.

Design of interface states using canonical phononic waveguides
Morini Lorenzo. **Wednesday**. Start time: **15:10**. Room: Roseraie 2 LVL3. Link to abstract.

Designing elastic metasurfaces for Scholte-Stoneley wave control at solid-fluid Interfaces
Palermo Antonio. **Wednesday**. Start time: **15:30**. Room: Roseraie 2 LVL3. Link to abstract.

Vibration bandgap of immersed periodic plates with fluid surface sloshing effect
Shen Nian. **Wednesday**. Start time: **15:50**. Room: Roseraie 2 LVL3. Link to abstract.

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Session: MS6.2 - WE3

Session chairs: Anastasiia Krushynska; Djibril Gabriel Kashala (AC)

Non-local programmable floppy sequences in kagome chains
Gonella Stefano. Keynote. **Wednesday**. Start time: **16:45**. Room: Roseraie 2 LVL3. Link to abstract.

A well-posed homogenized strain-gradient model for elastic waves in periodic media.
Cornaggia Rémi. **Wednesday**. Start time: **17:25**. Room: Roseraie 2 LVL3. Link to abstract.

Improved direct mapping of acoustic waveguides to lattice models
Cheong Su Ho. **Wednesday**. Start time: **17:45**. Room: Roseraie 2 LVL3. Link to abstract.

Nonlinear harmonic generation in mechanical metamaterials
Yi Jianlin. **Wednesday**. Start time: **18:05**. Room: Roseraie 2 LVL3. Link to abstract.

MS6.2 - Thursday

Session: MS6.2 - TH1

Session chair(s) and Assistant Chair (AC): Régis Cottereau; Cheryle Manfouo Tchoupmene (AC)

Dispersion and ellipticity of Rayleigh waves in a soil supporting resonant beams/plates
Pham Kim. **Thursday**. Start time: **10:00**. Room: Roseraie 2 LVL3. Link to abstract.

Modeling Anthropogenic Cavities as Elastic Meta-Interfaces: Implications for Seismic Surface Displacements
Maurel Agnès. **Thursday**. Start time: **10:20**. Room: Roseraie 2 LVL3. Link to abstract.

Metamaterial Sandwich Structures: Boundary Effects and Performance Optimization
Hermann Svenja. **Thursday**. Start time: **10:40**. Room: Roseraie 2 LVL3. Link to abstract.

High Bulk Modulus Pentamodes: the Three-Dimensional Metal Water
Cominelli Sebastiano. **Thursday**. Start time: **11:00**. Room: Roseraie 2 LVL3. Link to abstract.

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Session: MS6.2 - TH2

Session chairs: Agnes Maurel; Paul Sirdey (AC)

Controlling wave propagation by modulating in time the parameters of imperfect interfaces
Darche Michaël. **Thursday**. Start time: **14:15**. Room: Roseraie 2 LVL3. Link to abstract.

Non-reciprocity for the time-modulated wave equation and diffusion equation through the lens of high-order homogenization
Touboul Marie. **Thursday**. Start time: **14:35**. Room: Roseraie 2 LVL3. Link to abstract.

NON-HERMITIAN DEGENERACIES AND PT SYMMETRIC SCATTERING IN ELASTIC METAMATERIALS
Amirkhizi Alireza. **Thursday**. Start time: **14:55**. Room: Roseraie 2 LVL3. Link to abstract.

Single-Phase Phononic Crystals with 4-Fold Rotational Symmetry
Galich Pavel. **Thursday**. Start time: **15:15**. Room: Roseraie 2 LVL3. Link to abstract.

Validity of radiative transfer approximations in bounded random media
Cottereau Régis. **Thursday**. Start time: **15:35**. Room: Roseraie 2 LVL3. Link to abstract.

MS6.2 - Friday

Session: MS6.2 - FR1

Session chair(s) and Assistant Chair (AC): Régis Cottereau; Alexandre Janiak (AC)

Third-order exceptional points and frozen modes in planar elastic laminates
Shmuel Gal. Keynote. **Friday**. Start time: **10:00**. Room: Roseraie 2 LVL3. Link to abstract.

Design and fabrication of 3D-printed composite metastructure with subwavelength and ultrawide bandgaps
Gulzari Muhammad. **Friday**. Start time: **10:40**. Room: Roseraie 2 LVL3. Link to abstract.

Improvements to the PWE-based methods for analyzing 2D phononic crystals with complex geometries
Shen Wei. **Friday**. Start time: **11:00**. Room: Roseraie 2 LVL3. Link to abstract.

Topology optimization of 2D lattice structures for target band gaps with continuity conditions
Gómez-Silva Francisco. **Friday**. Start time: **11:20**. Room: Roseraie 2 LVL3. Link to abstract.

Strain-induced tunability of topological properties in phononic crystals
Bosia Federico. **Friday**. Start time: **11:40**. Room: Roseraie 2 LVL3. Link to abstract.

MS6.3 - Dynamic and transient phenomena, phase transitions, nonlinear waves

Organisers: Michael Nieves (Keele University) and Vincent Tournat (Le Mans Université)

MS6.3 - Monday

Session: MS6.3 - MO1

Session chair(s) and Assistant Chair (AC): Michael Nieves; Joël Courbon (AC)

Acoustic lattice resonances and generalised Rayleigh–Bloch waves
Peter Malte A.. Keynote. **Monday**. Start time: **10:10**. Room: Roseraie 2 LVL3. Link to abstract.

Achieving negative reflection
Brun Michele. Invited. **Monday**. Start time: **10:50**. Room: Roseraie 2 LVL3. Link to abstract.

Surface waves in 2D bistable lattices
Shuminov Maor. Invited. **Monday**. Start time: **11:10**. Room: Roseraie 2 LVL3. Link to abstract.

Edge resonance in micro-structured waveguides and convergence to the corresponding continuum case
Carta Giorgio. Invited. **Monday**. Start time: **11:30**. Room: Roseraie 2 LVL3. Link to abstract.

Acoustic wave diffraction by a quadrant of sound-soft scatterers
Nethercote Matthew. Invited. **Monday**. Start time: **11:50**. Room: Roseraie 2 LVL3. Link to abstract.

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Session: MS6.3 - MO2

Session chairs: Santannu Manna; Baptiste Boulet (AC)

Conformal Elastodynamics in 2D Dilational Metamaterials
Watkins Audrey. Invited. **Monday**. Start time: **13:40**. Room: Roseraie 2 LVL3. Link to abstract.

A novel theory of elastic wave propagation in a multi-porous medium with multi-permeability

Manna Santanu or Pramanik Dipendu. Invited. **Monday**. Start time: **14:00**. Room: Roseraie 2 LVL3. Link to abstract.

Low-frequency propagating and evanescent waves in high-contrast sandwich structures
Prikazchikova Ludmila. Invited. **Monday**. Start time: **14:20**. Room: Roseraie 2 LVL3. Link to abstract.

A high-order implicit time integration method for linear and nonlinear dynamics with efficient computation of accelerations
Daniel O'shea Daniel. Invited. **Monday**. Start time: **14:40**. Room: Roseraie 2 LVL3. Link to abstract.

Non-linear waves in an array of bistable flexible cells
Faulconnier Antoine. Invited. **Monday**. Start time: **15:00**. Room: Roseraie 2 LVL3. Link to abstract.

Controlled distributed damage phenomenon in architectured lattice materials.
Ryvkin Michael. Invited. **Monday**. Start time: **15:20**. Room: Roseraie 2 LVL3. Link to abstract.

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Session: MS6.3 - MO3

Session chairs: Giorgio Carta; Ndeye Maguette Ndiaye (AC)

A quantum graph approach to metamaterial design
Tanner Gregor. Keynote. **Monday**. Start time: **16:00**. Room: Roseraie 2 LVL3. Link to abstract.

Lattice systems with frontiers possessing contrasting periodicity: wave scattering and transmission
Aktunc Ege. **Monday**. Start time: **16:40**. Room: Roseraie 2 LVL3. Link to abstract.

Cochlea-inspired sensor for speech recognition
Beoletto Paolo Han. Invited. **Monday**. Start time: **17:00**. Room: Roseraie 2 LVL3. Link to abstract.

MS6.3 - Tuesday

Session: MS6.3 - TU1

Session chair(s) and Assistant Chair (AC): Matthew Nethercote; Anwar Gamra (AC)

Propagation of elastic waves in a soft strip: effect of a static pre-stretch
Lanoy Maxime. Keynote. **Tuesday**. Start time: **10:00**. Room: Roseraie 2 LVL3. Link to abstract.

Dual subharmonic instability in a soft strip submitted to a parametric forcing
Duval Eléonore. Invited. **Tuesday**. Start time: **10:40**. Room: Roseraie 2 LVL3. Link to abstract.

Elastic wavepackets crossing a space-time interface
Lemoult Fabrice. Invited. **Tuesday**. Start time: **11:00**. Room: Roseraie 2 LVL3. Link to abstract.

Dynamics of multistable mechanical metamaterials: recent results on nonlinear waves, transition fronts and their interactions
Tournat Vincent. Invited. **Tuesday**. Start time: **11:20**. Room: Roseraie 2 LVL3. Link to abstract.

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Session: MS6.3 - TU2

Session chairs: Ludmila Prikazchikova; Poliana Bellei (AC)

A reduced-order model formulation for dispersion curve computation in nonlinear metamaterial beams
Quqa Said. Invited. **Tuesday**. Start time: **14:15**. Room: Roseraie 2 LVL3. Link to abstract.

Acoustoelasticity in Materials: The Influence of Plastic Deformation on Wave Propagation
Ruetz Marcel. Invited. **Tuesday**. Start time: **14:35**. Room: Roseraie 2 LVL3. Link to abstract.

Dynamics and Elasticity of Origami-based Beams
Berinskii Igor. Invited. **Tuesday**. Start time: **14:55**. Room: Roseraie 2 LVL3. Link to abstract.

Multimode approximations for thin elastic coatings and interfaces
Erbas Baris. Invited. **Tuesday**. Start time: **15:15**. Room: Roseraie 2 LVL3. Link to abstract.

Origami for Robotics and Active Mechanical Haptics
Jiang Hanqing. Invited. **Tuesday**. Start time: **15:35**. Room: Roseraie 2 LVL3. Link to abstract.

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Session: MS6.3 - TU3

Session chairs: Michele Brun; Tasmin Missaoui (AC)

Modelling the elastodynamics of a thin flexible aerogel layer
Prikazchikov Danila. Invited. **Tuesday**. Start time: **16:35**. Room: Roseraie 2 LVL3. Link to abstract.

Enhancing thermal negative expansion with hierarchical beam structures
Ioannou Sougleridis Ioannis. Invited. **Tuesday**. Start time: **16:55**. Room: Roseraie 2 LVL3. Link to abstract.

Forcing the Silence of the Lamb waves: Uni-directional propagation in structured gyroelastic strips and networks
Nieves Michael. Invited. **Tuesday**. Start time: **17:15**. Room: Roseraie 2 LVL3. Link to abstract.

TOPIC: Structural Mechanics

MS7.0 - General session, Structural Mechanics

Organisers: Elodie Prud'Homme (INSA Lyon) and Sabine Rolland Du Roscoat (Grenoble INP)

Session: MS7.0 - TU2

Session chair(s) and Assistant Chair (AC): Elodie Prud'homme

A Comparative Study on Model Order Reduction Techniques for Structural Health Monitoring and Prediction of Ship and Marine Structures with Detachable Mooring System
Sim Kichan. **Tuesday**. Start time: **14:15**. Room: Saint Clair 5 LVL2. Link to abstract.

Improving the Resilience of Structures through Active Curvature Modulation
Varkonyi Peter. **Tuesday**. Start time: **14:35**. Room: Saint Clair 5 LVL2. Link to abstract.

Analytic and numerical models for digital twins in sheet metal bending: A computational study
Zehetner Christian. **Tuesday**. Start time: **14:55**. Room: Saint Clair 5 LVL2. Link to abstract.

Performance of a Guided-Wave SHM System for Launcher Structure Revalidation
El Guerjouma Lina. **Tuesday**. Start time: **15:15**. Room: Saint Clair 5 LVL2. Link to abstract.

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Session: MS7.0 - TU3

Session chairs: Elodie Prud'homme

Free-form Design of Funicular Arches Coupled by Straight Bars in Two and Three Dimensions
Szesztay Ágoston Péter. **Tuesday**. Start time: **16:35**. Room: Saint Clair 5 LVL2. Link to abstract.

Screen Printed Piezoelectric Transducers for Structural Health Monitoring of Curved Thick Composite Panels
Rebillat Marc. **Tuesday**. Start time: **16:55**. Room: Saint Clair 5 LVL2. Link to abstract.

Geometry and control of scissor mechanism
A Mohanraj. **Tuesday**. Start time: **17:15**. Room: Saint Clair 5 LVL2. Link to abstract.

Potential of friction to damp vibrations in the use case of a car tailgate
Kugler Marion. **Tuesday**. Start time: **17:35**. Room: Saint Clair 5 LVL2. Link to abstract.

Cyclic elastoplastic shakedown behavior of an auxetic metamaterial
Wang Shen. **Tuesday**. Start time: **17:55**. Room: Saint Clair 5 LVL2. Link to abstract.

MS7.0 - Wednesday

Session: MS7.0 - WE1

Session chair(s) and Assistant Chair (AC): Sabine Rolland du Roscoat; Elodie Prud'homme

Perturbed holes in two-dimensional anisotropic elastic solids
Hwu Chyanbin. **Wednesday**. Start time: **10:00**. Room: Saint Clair 5 LVL2. Link to abstract.

Projective Geometric Elasticity
Baranyai Tamás. **Wednesday**. Start time: **10:20**. Room: Saint Clair 5 LVL2. Link to abstract.

The Impact of Pitch Angle and Porosity on the Tensile Properties Porous Bouligand Structured Polymer.
Patil Praveenkumar. **Wednesday**. Start time: **10:40**. Room: Saint Clair 5 LVL2. Link to abstract.

A coupled FEM-BEM formulation to solve electroelastic problems including free space effects
Shikhar Manoj. **Wednesday**. Start time: **11:00**. Room: Saint Clair 5 LVL2. Link to abstract.

Detaching a sphere from an elastic nanofilm: Experiments and multiscale theories
Dai Zhaohe. **Wednesday**. Start time: **11:20**. Room: Saint Clair 5 LVL2. Link to abstract.

Surface morphing in 3D-printed magneto-active elastomers.
Selvam Vignesh. **Wednesday**. Start time: **11:40**. Room: Saint Clair 5 LVL2. Link to abstract.

MS7.1 - Nonconservative stability problems of structural mechanics and fluid structure interactions

Organisers: Oleg Kirillov (Northumbria University) and Olivier Doare (ENSTA Paristech)

MS7.1 - Thursday

Session: MS7.1 - TH1

Session chair(s) and Assistant Chair (AC): Barnabas Piri; Xiaochen Wang; Mateo Groux (AC)

The instability of a membrane enclosed by two viscous fluids with a free surface
Labarbe Joris. Keynote. **Thursday**. Start time: **10:00**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Numerical Simulation of Fluid-Structure Interaction in Soft Cylindrical Actuators
Siddiqui Aquib. **Thursday**. Start time: **10:40**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Dynamic analysis of a thin blade moving inside a narrow fully lubricated kerf
Scheidl Jakob. Invited. **Thursday**. Start time: **11:00**. Room: Bureau Forum 2 LVL-2. Link to abstract.

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Session: MS7.1 - TH2

Session chairs: Jakob Scheidl; Maxence Bogey; Mateo Groux (AC)

Non-Hamiltonian symmetry for coupled Ziegler pendulums
Disca Stefano. Keynote. **Thursday**. Start time: **14:15**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Mechanical characterization and sensitivity of critical parameters in inflatable soft elliptical snap-through
Piri Barnabas. **Thursday**. Start time: **14:55**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Advanced Numerical Modeling of Buckling in Thin-Walled Structures Under Nonconservative Dynamic Loads
Bogey Maxence. Invited. **Thursday**. Start time: **15:15**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Explicit analysis of a planar Timoshenko beam : Pure shear follower load example
Hariz Marwan. Invited. **Thursday**. Start time: **15:35**. Room: Bureau Forum 2 LVL-2. Link to abstract.

The strongest stable massless column with a follower load and relocatable masses
Kirillov Oleg. Invited. **Thursday**. Start time: **15:55**. Room: Bureau Forum 2 LVL-2. Link to abstract.

MS7.2 - Structural analysis of historical buildings

Organisers: M.Angelillo (Univ.Salerno), S. Huerta (UP Madrid)

MS7.2 - Monday

Session: MS7.2 - MO2

Session chair(s) and Assistant Chair (AC): Katalin Bagi; Poliana Bellei (AC)

Computerized Upper Bound Limit Analysis CUBLA for complex historical masonry structures
Milani Gabriele. Keynote. **Monday**. Start time: **13:40**. Room: Saint Clair 5 LVL3. Link to abstract.

On the integrated use of continuous FE-based computational approaches for the structural analysis of 2D compression-only structures
Iannuzzo Antonino. Invited. **Monday**. Start time: **14:20**. Room: Saint Clair 5 LVL3. Link to abstract.

Airy-based form-finding process for purely compressed masonry cross vaults under combined vertical and horizontal loading
Cocking Sam. Invited. **Monday**. Start time: **14:40**. Room: Saint Clair 5 LVL3. Link to abstract.

FEMANOLA: A finite element nonlinear software for masonry structures
Pingaro Natalia. Invited. **Monday**. Start time: **15:00**. Room: Saint Clair 5 LVL3. Link to abstract.

Advanced numerical model for historical masonry structures subjected to seismic sequences

Buzzetti Martina. Invited. **Monday**. Start time: **15:20**. Room: Saint Clair 5 LVL3. Link to abstract.

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Session: MS7.2 - MO3

Session chairs: Maurizio Angelillo; Djibril Nubiap (AC)

Investigating the mechanics of masonry structures with the help of virtual experiments
Bagi Katalin. Invited. **Monday**. Start time: **16:00**. Room: Saint Clair 5 LVL3. Link to abstract.

Three-dimensional limit analysis through the Thrust Surface Method to investigate the structural behaviour of Apulian star vaults
Scarcelli Ilaria. Invited. **Monday**. Start time: **16:20**. Room: Saint Clair 5 LVL3. Link to abstract.

Condition Assessment and Enhancing Seismic Resilience of an Existing Masonry Building in a Bradyseismic Region
Katouli Habibollah. Invited. **Monday**. Start time: **16:40**. Room: Saint Clair 5 LVL3. Link to abstract.

The late gothic ribbed vaults of San Miguel church in Segovia: from geometric and proportional analysis to structural assessment
Cirabisi Chiara or Parente Maria. Invited. **Monday**. Start time: **17:00**. Room: Saint Clair 5 LVL3. Link to abstract.

Stop Motion Computation for Masonry Arches according to Limit Analysis Theorem
Cennamo Claudia. Invited. **Monday**. Start time: **17:20**. Room: Saint Clair 5 LVL3. Link to abstract.

MS7.2 - Tuesday

Session: MS7.2 - TU1

Session chair(s) and Assistant Chair (AC): Santiago Huerta; Antoine Mille (AC)

Seismic fragility of historical masonry constructions: A variational-based non-smooth contact dynamics formulation
Nodargi Nicola A.. Invited. **Tuesday**. Start time: **10:00**. Room: Saint Clair 5 LVL3. Link to abstract.

Dome of Nuestra Señora de los Ángeles, case study and assessment
Orozco Barrera Fabian Bernal. Invited. **Tuesday**. Start time: **10:20**. Room: Saint Clair 5 LVL3. Link to abstract.

The dome of the Royal Museum for Central Africa: Construction of a tile dome and its graphical static analysis
Santiago Huerta. Invited. **Tuesday**. Start time: **10:40**. Room: Saint Clair 5 LVL3. Link to abstract.

An improved interface material model for the in-plane cyclic response of masonry
Cera Giovanna. Invited. **Tuesday**. Start time: **11:00**. Room: Saint Clair 5 LVL3. Link to abstract.

MS7.4 - Mechanics and physics of structures

Organisers: Sebastien Neukirch (Sorbonne Universit), Benoit Roman (ESPCI), F. Dal Corso (Univ. Trento) and M.Diaz (University of Edinburgh)

MS7.4 - Monday

Session: MS7.4 - MO1

Session chair(s) and Assistant Chair (AC): François Neukirch; Sebastiano Dal Corso; Sarah Yehya (AC)

Apparent and real Gaussian curvature in axisymmetric kirigami
Vella Dominic. **Monday**. Start time: **10:10**. Room: Amphi lumière LVL-1. Link to abstract.

Bending properties of kirigami sheets
Domino Lucie. **Monday**. Start time: **10:25**. Room: Amphi lumière LVL-1. Link to abstract.

Inverse Design of Conformal Kirigami Structures
Ying Xiaoyuan. **Monday**. Start time: **10:40**. Room: Amphi lumière LVL-1. Link to abstract.

Plastically controlled deployable kirigami structures
Hong Joo-Won. **Monday**. Start time: **10:55**. Room: Amphi lumière LVL-1. Link to abstract.

Stress Distribution and Buckling prediction in Kirigami sheets: an analytical approach
Du Yuwen. **Monday**. Start time: **11:10**. Room: Amphi lumière LVL-1. Link to abstract.

Geometry of multi-state pop-up materials.
Chavda Jay. **Monday**. Start time: **11:25**. Room: Amphi lumière LVL-1. Link to abstract.

Origami tubular structures with degree-n vertices for anisotropic stiffness properties
Zhang Mingkai. **Monday**. Start time: **11:40**. Room: Amphi lumière LVL-1. Link to abstract.

Mechanics of Metallic Kirigami-based Energy-Dissipating Devices
Walker Martin. **Monday**. Start time: **11:55**. Room: Amphi lumière LVL-1. Link to abstract.

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Session: MS7.4 - MO2

Session chairs: Lucie Domino; Tasnin Missaoui (AC)

Plasticity can yield doubly-negative post-buckling behaviour in hard metastructures
Box Finn. **Monday**. Start time: **13:40**. Room: Amphi lumière LVL-1. Link to abstract.

Mechanics of ribbon gridshells
Bico José. **Monday**. Start time: **13:55**. Room: Amphi lumière LVL-1. Link to abstract.

Programmable anisotropy with pressure: nonlinear effects in homogenization of cellular solids
Lacorre Paul. **Monday**. Start time: **14:10**. Room: Amphi lumière LVL-1. Link to abstract.

A generalized beam model for the analysis of the mechanical behavior of beam-like meta-materials
Pancella Chiara. **Monday**. Start time: **14:25**. Room: Amphi lumière LVL-1. Link to abstract.

Mechanics of woven tensile fibrous networks
Papin Thibault. **Monday**. Start time: **14:40**. Room: Amphi lumière LVL-1. Link to abstract.

Homogenization of an inflatable architectured material for free-form surface design
He Siyuan. **Monday**. Start time: **14:55**. Room: Amphi lumière LVL-1. Link to abstract.

Influence of elasto-plastic behavior of thin films on buckling delamination of circular blisters
Parry Guillaume. **Monday**. Start time: **15:10**. Room: Amphi lumière LVL-1. Link to abstract.

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Session: MS7.4 - MO3

Session chairs: Yamaguchi Tetsuo; Max Zinke (AC)

Dynamic performance of architected beam structures
Karathanasopoulos Nikolaos. **Monday**. Start time: **16:00**. Room: Amphi lumière LVL-1. Link to abstract.

Impacting metamaterials : the threshold for wave propagation in holey columns
Monnery Sophie. **Monday**. Start time: **16:15**. Room: Amphi lumière LVL-1. Link to abstract.

3D straw-based metamaterials: modeling, experimental characterization, and tunable mechanical properties
Chen Junyu. **Monday**. Start time: **16:30**. Room: Amphi lumière LVL-1. Link to abstract.

Architected Piezoelectric Metamaterials with Electric Auxetic Effect and Multi-deformation Modes
Zewei Hou. **Monday**. Start time: **16:45**. Room: Amphi lumière LVL-1. Link to abstract.

Cellular solids under geometric frustration: Animal architecture and bio-inspired designs
Lopez Jimenez Francisco. **Monday**. Start time: **17:00**. Room: Amphi lumière LVL-1. Link to abstract.

Design of optimal architectures for ultra-light isotropic microtruss-based metamaterials
Derieux Thibaud. **Monday**. Start time: **17:15**. Room: Amphi lumière LVL-1. Link to abstract.

Domain wall propagation in assembled structures of rotating squares
Kopecz-Muller Caroline. **Monday**. Start time: **17:30**. Room: Amphi lumière LVL-1. Link to abstract.

Discontinuous mechanical metamaterials with controllable Poisson's ratios
Lee Hyeon. **Monday**. Start time: **17:45**. Room: Amphi lumière LVL-1. Link to abstract.

MS7.4 - Tuesday

Session: MS7.4 - TU1

Session chair(s) and Assistant Chair (AC): Ren Yingying; Victoire Rossignol (AC)

Compaction and Buckling of a Sheet Confined by Rigid Walls
Deboeuf Stephanie. **Tuesday**. Start time: **10:00**. Room: Amphi lumière LVL-1. Link to abstract.

Dominantly Funicular Arches via Active Supports
Sipos Andras A.. **Tuesday**. Start time: **10:15**. Room: Amphi lumière LVL-1. Link to abstract.

Elastica Constrained Between Walls
Wang Jiayu. **Tuesday**. Start time: **10:30**. Room: Amphi lumière LVL-1. Link to abstract.

dynamical snap-through of a buckled beam
Bense Hadrien. **Tuesday**. Start time: **10:45**. Room: Amphi lumière LVL-1. Link to abstract.

Bending and Torsion of Composite Cable Structures
Doerlich Vanessa. **Tuesday**. Start time: **11:00**. Room: Amphi lumière LVL-1. Link to abstract.

A Model for the Dynamic Snap-Through of an Elastica
Rangarajan Ramsharan. **Tuesday**. Start time: **11:15**. Room: Amphi lumière LVL-1. Link to abstract.

Tencers: Tension-Constrained Elastic Rods
Pauly Mark. **Tuesday**. Start time: **11:30**. Room: Amphi lumière LVL-1. Link to abstract.

Optimal Targeted Reconfiguration of Straw-Inspired Elements
Ilssar Dotan. **Tuesday**. Start time: **11:45**. Room: Amphi lumière LVL-1. Link to abstract.

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Session: MS7.4 - TU2

Session chairs: Vanessa Doerlich; Cheryle Manfouo Tchoupmene (AC)

Modal self-tuning and mode-jumping of an oscillating variable-length rod
Dal Corso Francesco. **Tuesday**. Start time: **14:15**. Room: Amphi lumière LVL-1. Link to abstract.

Dynamic instability of nonlinear mechanical systems subject to non-holonomic constraints

Migliaccio Giovanni. **Tuesday**. Start time: **14:30**. Room: Amphi lumière LVL-1. Link to abstract.

Nonreciprocal dynamics of active structures
Boiardi Ariel Surya. **Tuesday**. Start time: **14:45**. Room: Amphi lumière LVL-1. Link to abstract.

How Curvature Governs the Snap-Through Dynamics of a Bi-Stable Arch
Simpkins William. **Tuesday**. Start time: **15:00**. Room: Amphi lumière LVL-1. Link to abstract.

Dynamical elastic boundary layer in a snapping problem
Kozyreff Gregory. **Tuesday**. Start time: **15:15**. Room: Amphi lumière LVL-1. Link to abstract.

Parametric excitation of rotating modes
Koutsogiannakis Panagiotis. **Tuesday**. Start time: **15:30**. Room: Amphi lumière LVL-1. Link to abstract.

Random-access mechanical memory with a spin: path-dependent control of independent bistable beams in a rotating frame
Reis Pedro. **Tuesday**. Start time: **15:45**. Room: Amphi lumière LVL-1. Link to abstract.

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Session: MS7.4 - TU3

Session chairs: Stephanie Deboeuf; Cheryle Manfouo Tchoupmene (AC)

Continuous and soft robot modeling based on Cosserat rod theory
Boyer Frédéric. **Tuesday**. Start time: **16:35**. Room: Amphi lumière LVL-1. Link to abstract.

Stability and Singularities of Continuum Robots
Briot Sebastien. **Tuesday**. Start time: **16:50**. Room: Amphi lumière LVL-1. Link to abstract.

Non-material finite element model for the contact problem of sliding extensible rods
Ramsauer Stefan. **Tuesday**. Start time: **17:05**. Room: Amphi lumière LVL-1. Link to abstract.

On the use of the Hamiltonian invariant of elastic rods
Neukirch Sebastien. **Tuesday**. Start time: **17:20**. Room: Amphi lumière LVL-1. Link to abstract.

Kirchhoff Knots: a new analytical model for loose and semi-tight regimes
Bertails-Descoubes Florence or Neukirch Sebastien. **Tuesday**. Start time: **17:35**. Room: Amphi lumière LVL-1. Link to abstract.

Effects of Bending Stiffness on the Pull-Out of Model Roots
Yamaguchi Tetsuo. **Tuesday**. Start time: **17:50**. Room: Amphi lumière LVL-1. Link to abstract.

Perversions in Helical Rods and a Plant-Inspired Phase Transition
Dilly Emilien. **Tuesday**. Start time: **18:05**. Room: Amphi lumière LVL-1. Link to abstract.

Hydraulically-Actuated Asymmetric Flexible Hinge: A Bio-Inspired Design Principle
Starostin Eugene. **Tuesday**. Start time: **18:20**. Room: Amphi lumière LVL-1. Link to abstract.

MS7.4 - Wednesday

Session: MS7.4 - WE1

Session chair(s) and Assistant Chair (AC): Linn Joachim; Ben Kabondo Kashala (AC)

Thin-walled rods with open sections: asymptotic dimensional reduction of shell equations from 2D to 1D
Vetyukov Yury. **Wednesday**. Start time: **10:00**. Room: Amphi lumière LVL-1. Link to abstract.

Buckling and post-buckling of twisted strips: experimental and numerical analyses
Niiranen Jarkko. **Wednesday**. Start time: **10:15**. Room: Amphi lumière LVL-1. Link to abstract.

Twist-controlled force amplification and spinning tension transition in yarn
Crassous Jérôme. **Wednesday**. Start time: **10:30**. Room: Amphi lumière LVL-1. Link to abstract.

A ribbon model for nematic polymer networks
Singh Harmeet. **Wednesday**. Start time: **10:45**. Room: Amphi lumière LVL-1. Link to abstract.

Torsional buckling in tape-springs: wavelength considerations
Clarkson Jamie. **Wednesday**. Start time: **11:00**. Room: Amphi lumière LVL-1. Link to abstract.

A 1D Kinematically Enriched Ribbon Model for Simulation of Winding of Superconducting Tapes for CORC-like Cables
Saadat Mohammad Ali. **Wednesday**. Start time: **11:15**. Room: Amphi lumière LVL-1. Link to abstract.

Local Impenetrability in Slender Bodies of Finite Thickness
Suryanarayanan Krishnan. **Wednesday**. Start time: **11:30**. Room: Amphi lumière LVL-1. Link to abstract.

The problem of shear in finite elasticity: An alternative formulation to simple shear and pure shear
Lanzoni Luca. **Wednesday**. Start time: **11:45**. Room: Amphi lumière LVL-1. Link to abstract.

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Session: MS7.4 - WE2

Session chairs: Audrey Steinberger; Ronan Riverie (AC)

Simulating plane deformations of elastoplastic Cosserat rods using a variational approach
Linn Joachim. **Wednesday**. Start time: **14:30**. Room: Amphi lumière LVL-1. Link to abstract.

The Design Space of Kirchhoff Rods
Hafner Christian. **Wednesday**. Start time: **14:45**. Room: Amphi lumière LVL-1. Link to abstract.

Asymmetric Bending Boundary Layer
Vani Nathan. **Wednesday**. Start time: **15:00**. Room: Amphi lumière LVL-1. Link to abstract.

The deterministic role of edge states in slender structures buckling, and how edge states depend on geometric defects
Yang Tian. **Wednesday**. Start time: **15:15**. Room: Amphi lumière LVL-1. Link to abstract.

Static friction models for a rod deforming on a cylinder
Shah Rehan. **Wednesday**. Start time: **15:30**. Room: Amphi lumière LVL-1. Link to abstract.

Modeling ribbons/ strips as a Cosserat rod
Kumar Roushan. **Wednesday**. Start time: **15:45**. Room: Amphi lumière LVL-1. Link to abstract.

Knot Strength – A Mechanics-Based Investigation
Sabater Gazulla Javier. **Wednesday**. Start time: **16:00**. Room: Amphi lumière LVL-1. Link to abstract.

When does matter matter with slender matter?
Croll Andrew. **Wednesday**. Start time: **16:15**. Room: Amphi lumière LVL-1. Link to abstract.

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Session: MS7.4 - WE3

Session chairs: Andras Sipos; Cheryle Manfouo Tchoupmene (AC)

Active twisting for adaptive droplet collection
Xu Fan. **Wednesday**. Start time: **16:45**. Room: Amphi lumière LVL-1. Link to abstract.

Soft textured sheets mimic the hummingbird's tongue for efficient fluid capture
Siéfert Emmanuel. **Wednesday**. Start time: **17:00**. Room: Amphi lumière LVL-1. Link to abstract.

Periodic bulging in the elastic Rayleigh-Plateau instability
Magni Francesco. **Wednesday**. Start time: **17:15**. Room: Amphi lumière LVL-1. Link to abstract.

Coalescence of slender structures removed from a liquid bath
Brau Fabian. **Wednesday**. Start time: **17:30**. Room: Amphi lumière LVL-1. Link to abstract.

Optimum control strategies for maximum thrust production in underwater undulatory swimming
Fu Li. **Wednesday**. Start time: **17:45**. Room: Amphi lumière LVL-1. Link to abstract.

Optimal brush for fluid capture
Radisson Basile. **Wednesday**. Start time: **18:00**. Room: Amphi lumière LVL-1. Link to abstract.

Snap-induced flow in a closed channel
Oshri Oz. **Wednesday**. Start time: **18:15**. Room: Amphi lumière LVL-1. Link to abstract.

Bioinspired shape shifting of liquid-infused ribbed sheets
Cappello Jean. **Wednesday**. Start time: **18:30**. Room: Amphi lumière LVL-1. Link to abstract.

MS7.4 - Thursday

Session: MS7.4 - TH1

Session chair(s) and Assistant Chair (AC): Fan Xu; Hélène Hembert (AC)

Soda forming: sequential ring buckling of uniaxially compressed beverage cans
Jain Shresht. **Thursday**. Start time: **10:00**. Room: Amphi lumière LVL-1. Link to abstract.

Simple stimuli drive complex responses in non-Euclidean active shells
Marchello Roberto. **Thursday**. Start time: **10:15**. Room: Amphi lumière LVL-1. Link to abstract.

Nontrivial and Nonlinear Behavior of Negative Gauss Curvature Shells
Ubamanyu Uba K.. **Thursday**. Start time: **10:30**. Room: Amphi lumière LVL-1. Link to abstract.

Modelling a feather as a strongly anisotropic elastic shell
Romero Victor. **Thursday**. Start time: **10:45**. Room: Amphi lumière LVL-1. Link to abstract.

Geometrically Frustrated Rose Petals
Zhang Yafei. **Thursday**. Start time: **11:00**. Room: Amphi lumière LVL-1. Link to abstract.

The many shapes of a knitted fabric at rest
Poincloux Samuel. **Thursday**. Start time: **11:15**. Room: Amphi lumière LVL-1. Link to abstract.

Laddering in a knitted fabric
Steinberger Audrey. **Thursday**. Start time: **11:30**. Room: Amphi lumière LVL-1. Link to abstract.

Vibration Analysis of Curved Lattice Metamaterial Structures by Using Higher-Order Shear Deformation and Modified Strain Gradient Theories
Soleimani Javid Zeinab. **Thursday**. Start time: **11:45**. Room: Amphi lumière LVL-1. Link to abstract.

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Session: MS7.4 - TH2

Session chairs: Yury Vetyukov; Nina Borzecka (AC)

Computational Homogenization for Inverse Design of Surface-based Inflatables
Ren Yingying. **Thursday**. Start time: **14:15**. Room: Amphi lumière LVL-1. Link to abstract.

Shape and mechanics of asymmetric inflatables
Reyssat Etienne. **Thursday**. Start time: **14:30**. Room: Amphi lumière LVL-1. Link to abstract.

Creating patterned microchannels by swelling
Pihler-Puzovic Draga. **Thursday**. Start time: **14:45**. Room: Amphi lumière LVL-1. Link to abstract.

D-cone : influence of gravity and dynamics
Boedec Gwenn or Deschamps Julien. **Thursday**. Start time: **15:00**. Room: Amphi lumière LVL-1. Link to abstract.

Evaluating the efficacy of using drop-film interaction to estimate the film's tension and surface energy.
Nair Vineet. **Thursday**. Start time: **15:15**. Room: Amphi lumière LVL-1. Link to abstract.

Wrinkling of thin sheets on a rotating cylinder
Ebine Yuna. **Thursday**. Start time: **15:30**. Room: Amphi lumière LVL-1. Link to abstract.

Tension-induced giant actuation in unstructured elastic sheets
Suñé Marc. **Thursday**. Start time: **15:45**. Room: Amphi lumière LVL-1. Link to abstract.

Buckling of a hanging elastic sheet
Borum Andy. **Thursday**. Start time: **16:00**. Room: Amphi lumière LVL-1. Link to abstract.

MS7.6 - Shape and topology optimization

Organisers: Francois Jouve (Université Paris Cité), Alex Ferrer (CIMNE, Spain)

MS7.6 - Monday

Session: MS7.6 - MO1

Session chair(s) and Assistant Chair (AC): Alex Ferrer; François Jouve; Antoine Mille (AC)

Shape derivative : A mortar formulation
Pantz Olivier. Invited. **Monday**. Start time: **10:10**. Room: Rhône 5 LVL1. Link to abstract.

An incompatibility-based model of small-strain elastoplasticity
Le Thien-Nga or Amstutz Samuel. Invited. **Monday**. Start time: **10:30**. Room: Rhône 5 LVL1. Link to abstract.

Optimal perforation of bending-active sheets
Fehér Eszter. **Monday**. Start time: **10:50**. Room: Rhône 5 LVL1. Link to abstract.

Topology Optimization Based on an Approximate Model of a 2D Link Mechanism Derived from Generalized Continuum Mechanics
Yamada Takayuki. **Monday**. Start time: **11:10**. Room: Rhône 5 LVL1. Link to abstract.

Design of compliant mechanisms using topology optimization involving design-dependent effects
Shuya Onodera. **Monday**. Start time: **11:30**. Room: Rhône 5 LVL1. Link to abstract.

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Session: MS7.6 - MO2

Session chairs: Alex Ferrer; François Jouve; Japhet Nubiap (AC)

A multimaterial topology optimisation approach to Dirichlet control with piecewise constant functions
Sturm Kevin. Invited. **Monday**. Start time: **13:40**. Room: Rhône 5 LVL1. Link to abstract.

A variational method for the topology optimisation problem
Portillo David. Invited. **Monday**. Start time: **14:00**. Room: Rhône 5 LVL1. Link to abstract.

Macroscopic optimization of porosity distribution using Thermodynamic Topology Optimization
Pravda Ján. **Monday**. Start time: **14:20**. Room: Rhône 5 LVL1. Link to abstract.

On third medium regularization in thermodynamic topology optimization
Von Zabiensky Max. **Monday**. Start time: **14:40**. Room: Rhône 5 LVL1. Link to abstract.

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Session: MS7.6 - MO3

Session chairs: Alex Ferrer; François Jouve; Aidarbek Kairgeldin (AC)

On the solution of stochastic topology optimization problems via OCM and MMA
Stingl Michael. Invited. **Monday**. Start time: **16:00**. Room: Rhône 5 LVL1. Link to abstract.

A Reinforcement Learning-Based Cellular Automaton Method for Structural Topology Optimization
Si Yuanhang. **Monday**. Start time: **16:20**. Room: Rhône 5 LVL1. Link to abstract.

Modular-Topology Optimization: Towards Performant and Reusable Designs
Doškář Martin. **Monday**. Start time: **16:40**. Room: Rhône 5 LVL1. Link to abstract.

Spin-It Faster: Quadrics Solve All Topology Optimization Problems That Depend Only On Mass Moments
Ly Mickael. **Monday**. Start time: **17:00**. Room: Rhône 5 LVL1. Link to abstract.

Liquid Crystal Elastomer Kirigami
Strugaru Irina Malina. **Monday**. Start time: **17:20**. Room: Rhône 5 LVL1. Link to abstract.

TOPIC: Tribology

MS8.1 - Contact Mechanics

Organisers: Lars Pastewka (University of Freiburg), Nicola Menga (Politecnico Bari), and Thibaut Chaise (LAMCOS)

Session: MS8.1 - MO1

Session chair(s) and Assistant Chair (AC): Guilhem Mollon; Petr Grigorev (AC)

Rounded conforming Contacts in Partial Slip
Hills David. **Monday**. Start time: **10:10**. Room: Saint Clair 4 LVL2. Link to abstract.

An explicit solution for the elastic quarter-space and general wedge problem in matrix formulation
Guo Liang. **Monday**. Start time: **10:30**. Room: Saint Clair 4 LVL2. Link to abstract.

Towards robust calculations in axial blade/disk attachments
Kabondo Kashala Ben. **Monday**. Start time: **10:50**. Room: Saint Clair 4 LVL2. Link to abstract.

Primal-Dual Non-Smooth Friction for Rigid Body Animation
Chen Yi-Lu. **Monday**. Start time: **11:10**. Room: Saint Clair 4 LVL2. Link to abstract.

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Session: MS8.1 - MO2

Session chairs: David Hills; Nina Brozecka (AC)

Impact of friction on adhesion of elastomeric contacts
Dalmas Davy. Keynote. **Monday**. Start time: **13:40**. Room: Saint Clair 4 LVL2. Link to abstract.

Frictional Contact in an Eulerian Phase-Field Framework
Lorez Flavio. **Monday**. Start time: **14:20**. Room: Saint Clair 4 LVL2. Link to abstract.

Modeling of the elastic tractive rolling contact for the prediction of pavement damage
Chaise Thibaut. **Monday**. Start time: **14:40**. Room: Saint Clair 4 LVL2. Link to abstract.

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Session: MS8.1 - MO3

Session chairs: Thibaut Chaise; Thomas Duminy (AC)

CONTACT MECHANICS OF HYDROGELS
Hu Yuhang. **Monday**. Start time: **16:00**. Room: Saint Clair 4 LVL2. Link to abstract.

Influence of surface roughness on the mechanics of nano-objects
Amodeo Jonathan. **Monday**. Start time: **16:20**. Room: Saint Clair 4 LVL2. Link to abstract.

Physico-chemical characterization of a third body adherent deposit on highly loaded greased oscillating ball bearings
Gilleron Louis. **Monday**. Start time: **16:40**. Room: Saint Clair 4 LVL2. Link to abstract.

Multiscale modeling of a sphere-plane contact based on local third-body simulations
Daigne Kévin. **Monday**. Start time: **17:00**. Room: Saint Clair 4 LVL2. Link to abstract.

MS8.1 - Tuesday

Session: MS8.1 - TU1

Session chair(s) and Assistant Chair (AC): Nicola Menga; Ben Kabondo Kashala (AC)

Enhancing and regulating the adhesive performances of soft viscoelastic contacts with microvibrations: an experimental and numerical study
Tricarico Michele. **Tuesday**. Start time: **10:00**. Room: Saint Clair 4 LVL2. Link to abstract.

Construction of Johnson-Kendall-Roberts Relations for Adhesive Contact between an Indenter and an Elastic Layer of Arbitrary Thickness
Perepelkin Nikolay. **Tuesday**. Start time: **10:20**. Room: Saint Clair 4 LVL2. Link to abstract.

Adhesive contact mechanics of viscoelastic materials
Mandriota Cosimo. **Tuesday**. Start time: **10:40**. Room: Saint Clair 4 LVL2. Link to abstract.

Real-time insight into adhesion of Hertzian indenter unloaded from a broadband viscoelastic substrate through a physic-augmented machine learning model
Maghami Ali. **Tuesday**. Start time: **11:00**. Room: Saint Clair 4 LVL2. Link to abstract.

Oscillating a JKR adhesive viscoelastic contact
Tricarico Michele replacing Ciavarella Michele. **Tuesday**. Start time: **11:20**. Room: Saint Clair 4 LVL2. Link to abstract.

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Session: MS8.1 - TU2

Session chairs: Davy Dalmas; Ben Kabondo Kashala (AC)

Unsteady crack propagation in viscoelastic solids
Carbone Giuseppe. Keynote. **Tuesday**. Start time: **14:15**. Room: Saint Clair 4 LVL2. Link to abstract.

Extensions of the Johnson–Kendall–Roberts Theory of Adhesive Contact to Transversally-Isotropic Systems and Structures
Borodich Fedor. **Tuesday**. Start time: **14:55**. Room: Saint Clair 4 LVL2. Link to abstract.

Viscoelastic crack propagation: is the fracture process zone contribution to dissipation rate-dependent?
Papangelo Antonio. **Tuesday**. Start time: **15:15**. Room: Saint Clair 4 LVL2. Link to abstract.

A periodic Semi Analytical Method (SAM) for the tire pavement contact
Durand Nicolas. **Tuesday**. Start time: **15:35**. Room: Saint Clair 4 LVL2. Link to abstract.

MS8.2 - Lubrication and Interfacial Rheology

Organisers: Juliette Cayer-Barrioz (Ecole Centrale Lyon) and Nicolas Fillot (LAMCOS)

MS8.2 - Thursday

Session: MS8.2 - TH3

Session chair(s) and Assistant Chair (AC): Juliette Cayer-Barrioz; Lucian Roiban (AC)

Bridging Theory and Practice in Transient Elastohydrodynamic Lubrication: Implementation and Experimental Insights
Yahiaoui Malik. Invited. **Thursday**. Start time: **16:30**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Lubrication of a truncated EHL spinning contact
Patrigeon Tristan. **Thursday**. Start time: **16:50**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Heat generation in high speed rolling element bearing : the role of the cage-ring contact
Rion Valentin. **Thursday**. Start time: **17:10**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Hydrodynamic Lubrication Mechanisms under Transient Severe Loading Conditions
Zwick Cyril. **Thursday**. Start time: **17:30**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Transition from boundary to hydrodynamic lubrication
Bertin Vincent. **Thursday**. Start time: **17:50**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Theoretical and experimental research on the tribological characteristics of reciprocating seals
Peng Chao. **Thursday**. Start time: **18:10**. Room: Bureau Forum 2 LVL-2. Link to abstract.

MS8.2 - Friday

Session: MS8.2 - FR1

Session chair(s) and Assistant Chair (AC): Nicolas Fillot; Lucile Joly-Pottuz (AC)

Surface Curvature Enhances the Electrotunability of Ionic Liquid Lubrication
Gus Greenwood. Keynote. **Friday**. Start time: **10:00**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Monitoring the in situ formation of slippery tribofilms by ab initio and machine learning molecular dynamics
Righi Maria Clelia. Invited. **Friday**. Start time: **10:40**. Room: Bureau Forum 2 LVL-2. Link to abstract.

An atomistic study of temperature and surface chemistry effects on the slip constitutive law of polyalfaolefins in contact with amorphous carbon
Peeters Stefan. Invited. **Friday**. Start time: **11:00**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Squeeze and Nanomechanics of Boundary Layers in a Lubricated Interface
Cayer-Barrioz Juliette. **Friday**. Start time: **11:20**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Singular viscoelastic perturbation to soft lubrication
Ferreira Quentin. **Friday**. Start time: **11:40**. Room: Bureau Forum 2 LVL-2. Link to abstract.

MS8.3 - Wear Mechanisms

Organisers: Martin Dienwiebel (Karlsruhe Institute of Technology), Anna Igual Munoz (EPFL), Aurélien Saulot (LAMCOS)

MS8.3 - Wednesday

Session: MS8.3 - WE1

Session chair(s) and Assistant Chair (AC): Anna Igual; Ndeye Maguette Ndiaye (AC)

A combined Cellular Automata/FFT based tool for modelling third body flows
De Sercey Agathe. **Wednesday**. Start time: **10:00**. Room: Bureau Forum 2 LVL-2. Link to abstract.

An analytical wear model for particles generation during dry sliding
Brunetiere Noël. **Wednesday**. Start time: **10:20**. Room: Bureau Forum 2 LVL-2. Link to abstract.

How third body thickness influences sub-surface damage
Saulot Aurelien. **Wednesday**. Start time: **10:40**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Quantitative Wear Prediction Based on Persson Contact Mechanics
Xu Ruibin. **Wednesday**. Start time: **11:00**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Evolution of stress/displacement fields and contact area of elastomer spheres during oblique landing
Mille Antoine. **Wednesday**. Start time: **11:20**. Room: Bureau Forum 2 LVL-2. Link to abstract.

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Session: MS8.3 - WE2

Session chairs: Aurélien Saulot; Ndeye Maguette Ndiaye (AC)

Coupling tribological and advanced electrical measurements for the monitoring of sliding interfaces
Mekouar Naoufal. **Wednesday**. Start time: **14:30**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Insights of material flows under shearing and pressure
Pereira Agudelo Juan Ignacio. **Wednesday**. Start time: **14:50**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Insights into Solid Lubrication Processes of DLC Films thanks to Analytical Tribology
Fontaine Julien. **Wednesday**. Start time: **15:10**. Room: Bureau Forum 2 LVL-2. Link to abstract.

How hydrogen influences wear and friction under tribocorrosion conditions
Igual Munoz Anna. **Wednesday**. Start time: **15:30**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Coatings that manufacture themselves: Formation and performance of protective coatings in situ via tribosintering
Carpick Robert. **Wednesday**. Start time: **15:50**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Insights on the humidity influence on graphite-phenolic resin solid lubricants in highly loaded contacts
Zouina Omar. **Wednesday**. Start time: **16:10**. Room: Bureau Forum 2 LVL-2. Link to abstract.

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Session: MS8.3 - WE3

Session chairs: Martin Dienwiebel; Nicolas Durand (AC)

Tribological Insights into Supercritical CO2 and MQL in Titanium Alloy Machining for Sustainable Manufacturing
Xu Nan. **Wednesday**. Start time: **16:45**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Use and understanding of the new abrasion test bench for the study of emergency landing with retracted landing gear
Lammens Bastien. **Wednesday**. Start time: **17:05**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Single-asperity friction and wear in seismic faults
Clerc Adriane. **Wednesday**. Start time: **17:25**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Miniatured wheel-rail contact in lubricated conditions
Lesage Thibault. **Wednesday**. Start time: **17:45**. Room: Bureau Forum 2 LVL-2. Link to abstract.

Observations of a Carbon/Carbon composite interface under thermal and tribological solicitations
Bergère Hugo. **Wednesday**. Start time: **18:05**. Room: Bureau Forum 2 LVL-2. Link to abstract.

MS8.4 - Fundamentals of Friction

Organisers: Clelia Righi (University of Bologna), Lucas Frérot (Institut Jean Le Rond D'Alembert) and Denis Mazuyer (Ecole Centrale Lyon)

MS8.4 - Thursday

Session: MS8.4 - TH2

Session chair(s) and Assistant Chair (AC): Denis Mazuyer; Cheryle Manfouo Tchoupmene (AC)

Tailoring the Steel/Amorphous Carbon Interfacial Shear Strength by Doping Amorphous Carbon with Rare-Earth Elements
Mangolini Filippo. Keynote. **Thursday**. Start time: **14:15**. Room: Rhône 5 LVL1. Link to abstract.

Relating atomic-scale surface structure to friction via multiscale simulations: the cases of PTFE and B-doped diamond-like carbon
Moras Gianpietro. **Thursday**. Start time: **14:55**. Room: Rhône 5 LVL1. Link to abstract.

Synergistic effects of nitrogen-containing functionalized copolymer and silicon-doped DLC for friction and wear reduction
Pedretti Enrico. **Thursday**. Start time: **15:15**. Room: Rhône 5 LVL1. Link to abstract.

Tribochemical Phenomena at Diamond-Silica Interfaces by Ab Initio and Machine Learning Molecular Dynamics
Ferrario Mauro. **Thursday**. Start time: **15:35**. Room: Rhône 5 LVL1. Link to abstract.

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Session: MS8.4 - TH3

Session chairs: Maria Clelia Righi; Anwar Gamra (AC)

Why Static Friction Decreases From Single to Multi-asperity Contacts
Roch Thibault. **Thursday**. Start time: **16:30**. Room: Rhône 5 LVL1. Link to abstract.

Physical origin of friction relaxation after interrupted sliding
Boulet Baptiste. **Thursday**. Start time: **16:50**. Room: Rhône 5 LVL1. Link to abstract.

Concurrent slow and fast frictional ruptures
Shi Songlin. **Thursday**. Start time: **17:10**. Room: Rhône 5 LVL1. Link to abstract.

Friction sound: A fundamental mechanism of dissipation at the origin of friction force
Le Bot Alain. **Thursday**. Start time: **17:30**. Room: Rhône 5 LVL1. Link to abstract.

Experimental and numerical study of the thermomechanical and tribological mechanisms involved in dry friction brake emissions
Caradec Quentin. **Thursday**. Start time: **17:50**. Room: Rhône 5 LVL1. Link to abstract.

MS8.4 - Friday

Session: MS8.4 - FR1

Session chair(s) and Assistant Chair (AC): Lucas Frérot; Baptiste Boulet (AC)

Friction mechanisms of water-rubber multi-asperity interfaces
Mazuyer Denis. **Friday**. Start time: **10:00**. Room: Rhône 5 LVL1. Link to abstract.

Multiscale Investigation of Tribological Interactions at the Rubber/Ice Interface
Dalavale Kaiser Pinto Anderson. **Friday**. Start time: **10:20**. Room: Rhône 5 LVL1. Link to abstract.

Investigating the effect of size, shape, and strain on the sliding behavior of bilayer graphene using a continuum-based approach.
Yadav Gourav. **Friday**. Start time: **10:40**. Room: Rhône 5 LVL1. Link to abstract.

Metainterfaces with specified friction laws : new designs from numerical optimization
Scheibert Julien. **Friday**. Start time: **11:00**. Room: Rhône 5 LVL1. Link to abstract.

Friction dynamics in the presence of a third body - Application to earthquakes
Mollon Guilhem. **Friday**. Start time: **11:20**. Room: Rhône 5 LVL1. Link to abstract.

MS8.5 - Fretting Wear & Fretting Fatigue

Organisers: Siegfried Fouvry (Ecole des Mines de Paris), Tomasz Liskiewicz (Manchester Metropolitan University) et Sylvie Descartes (LAMCOS)

MS8.5 - Thursday

Session: MS8.5 - TH2

Session chair(s) and Assistant Chair (AC): Sylvie Descartes; Hugo Girard (AC)

The cohesive zone crack analogue for torsional fretting under mild wear conditions
Giannakopoulos Antonios. Keynote. **Thursday**. Start time: **14:15**. Room: Saint Clair 3B LVL3. Link to abstract.

Experimental study and modelling of fretting-fatigue-corrosion of galvanised steel in power lines.
Medrala Clément. **Thursday**. Start time: **14:55**. Room: Saint Clair 3B LVL3. Link to abstract.

In-situ monitoring of crack initiation and propagation for additive manufactured 316L stainless steel under fatigue loading
Ozdogan Cansin. **Thursday**. Start time: **15:15**. Room: Saint Clair 3B LVL3. Link to abstract.

A reverse identification of the friction coefficient operating within crack lips through a complete elastoplastic simulation of 3D fretting fatigue cracks
Arnaud Pierre. **Thursday**. Start time: **15:35**. Room: Saint Clair 3B LVL3. Link to abstract.

Experimental and numerical study on the effect of interference on shrink-fitted assemblies under fretting-fatigue solicitations
Fourcin Morgan. **Thursday**. Start time: **15:55**. Room: Saint Clair 3B LVL3. Link to abstract.

MS8.5 - Friday

Session: MS8.5 - FR1

Session chair(s) and Assistant Chair (AC): Siegfried Fouvry; Hugo Girard (AC)

In-situ measurement of the Fracture Toughness of Fretting obtained TTS in Ti6Al4V
Gandiolle Camille. **Friday**. Start time: **10:00**. Room: Saint Clair 3B LVL3. Link to abstract.

Identification of the tangential contact stiffness from reciprocating sliding tests
Zheng Yi. **Friday**. Start time: **10:20**. Room: Saint Clair 3B LVL3. Link to abstract.

Investigation of fretting wear damage in the cooling channel of Europe's Demonstration Fusion Reactor DEMO: effect of normal force fluctuation
Baydoun Soha. **Friday**. Start time: **10:40**. Room: Saint Clair 3B LVL3. Link to abstract.

Wear mechanisms in oscillating bearings: A semi-analytical method to study radial fretting and false brinelling
Duquesne Rémy. **Friday**. Start time: **11:00**. Room: Saint Clair 3B LVL3. Link to abstract.

Fretting of DLC coating systems: Analysis of H/E ratio, contact pressure, surface roughness and oil lubrication
Mcmaster Samuel. **Friday**. Start time: **11:20**. Room: Saint Clair 3B LVL3. Link to abstract.

Effect of high-pressure hydrogen on the tribological behaviour of a 304L stainless steel contact subjected to fretting sliding
Fartas Mohammed. **Friday**. Start time: **11:40**. Room: Saint Clair 3B LVL3. Link to abstract.

MS8.6 - Tactile and Perception

Organisers: Marie-Ange Bueno (ENSISA) Mark Rutland (KTH), and Francesco Massi (University of Rome)

MS8.6 - Thursday

Session: MS8.6 - TH3

Session chair(s) and Assistant Chair (AC): Marie-Ange Bueno; Margherita Martini (AC)

Effect of Surface Textures on Tactile Perception. A numerical model for friction-induced mechanoreceptor stimulation with application to the tactile perception of topical films.
Masen Marc. Keynote. **Thursday**. Start time: **16:30**. Room: Roseraie 1 LVL3. Link to abstract.

Fingertip friction and tactile perception of materials
Bennewitz Roland or Fett Yan. **Thursday**. Start time: **17:10**. Room: Roseraie 1 LVL3. Link to abstract.

Evaluating tactile interactions with fine textures obtained with femtosecond laser surface texturing
Schuhler Guillaume or Rutland Mark. **Thursday**. Start time: **17:30**. Room: Roseraie 1 LVL3. Link to abstract.

Skin Model Development for the Study of Complex Skin/Textile Interactions in Dry and Humid Conditions
Pinateau Astrid. **Thursday**. Start time: **17:50**. Room: Roseraie 1 LVL3. Link to abstract.

MS8.6 - Friday

Session: MS8.6 - FR1

Session chair(s) and Assistant Chair (AC): Francesco Massi; Margherita Martini (AC)

Analyzing the Touch Quality of Formulations on Human Hair and Skin
Luengo Gustavo S.. Keynote. **Friday**. Start time: **10:00**. Room: Roseraie 1 LVL3. Link to abstract.

Rendering and comprehending texture perception by a vibrational tactile device
Felicetti Livia. **Friday**. Start time: **10:40**. Room: Roseraie 1 LVL3. Link to abstract.

Finite Element Analysis of Surface Strains in Fingertip Mechanics
Duprez Guillaume. **Friday**. Start time: **11:00**. Room: Roseraie 1 LVL3. Link to abstract.

Long-lasting biosourced wear engines based on PolyHydroxyalkanoates for high-performance cosmetic deposit
Waltz Victoria. **Friday**. Start time: **11:20**. Room: Roseraie 1 LVL3. Link to abstract.

Influence of finger movement direction on friction induced vibrations and perception of textured surfaces
Bueno Marie-Ange. **Friday**. Start time: **11:40**. Room: Roseraie 1 LVL3. Link to abstract.

Young Scientist Award finals

Organisers: Sylvain Dancette and Jean-Lin Dequiedt

Jury: Federica Daghia; Cécile Baron; Stéphane Berbenni; Renaud Masson; Benoit Merle; Laurent Delannay; Ludmila Prikazchikova; Stephanie Deboeuf; Giuseppe Carbone; Sylvain Dancette; Jean-Lin Dequiedt

On the importance of 3D microstructure for the prediction of microstructural evolution
Stricot Pauline. **Wednesday**. Start time: **16:45**. Room: Rhône 3A LVL1. Link to abstract.

Review and perspectives in characterizing anisotropic fracture of nacre-like alumina
Bert Benjamin. **Wednesday**. Start time: **16:50**. Room: Rhône 3A LVL1. Link to abstract.

Bridging Natural Principles and Material Science: Advances in Lithomimetic-Inspired Polymeric Multi-Material Composites
Waly Christoph. **Wednesday**. Start time: **16:55**. Room: Rhône 3A LVL1. Link to abstract.

A hitchhiker's guide to size effects in metamaterial implants.
Veluvali Meghashyam. **Wednesday**. Start time: **17:00**. Room: Rhône 3A LVL1. Link to abstract.

A variational approach to boundary effects in higher-order homogenization
Thbaut Manon. **Wednesday**. Start time: **17:05**. Room: Rhône 3A LVL1. Link to abstract.

Yield surface modeling for failure prediction in turbine disk applications
Barrot Elodie. **Wednesday**. Start time: **17:10**. Room: Rhône 3A LVL1. Link to abstract.

Deep Learning Mechanical Properties Classification of Metal-Ceramic Composites Using Nanoindentation Curves
Ortiz-Membrado Laia. **Wednesday**. Start time: **17:15**. Room: Rhône 3A LVL1. Link to abstract.

Understanding nanoindentation statistical dispersion in ceramic – metal cemented carbides by numerical simulation and FIB tomography
Cruañes-González Diego. **Wednesday**. Start time: **17:20**. Room: Rhône 3A LVL1. Link to abstract.

Parameter identification of nonlinear dynamical systems through the Hilbert Huang Transform and the Multiple Scales Method
De Flaviis Andrea. **Wednesday**. Start time: **17:25**. Room: Rhône 3A LVL1. Link to abstract.

Non-material finite element model for the contact problem of sliding extensible rods
Ramsauer Stefan. **Wednesday**. Start time: **17:30**. Room: Rhône 3A LVL1. Link to abstract.

Liquid Crystal Elastomer Kirigami
Strugaru Irina Malina. **Wednesday**. Start time: **17:35**. Room: Rhône 3A LVL1. Link to abstract.

Effect of high-pressure hydrogen on the tribological behaviour of a 304L stainless steel contact subjected to fretting sliding
Fartas Mohammed. **Wednesday**. Start time: **17:40**. Room: Rhône 3A LVL1. Link to abstract.

Posters

A bio-mechanical model to explore the influence of the cell-matrix interactions as a key factor for cell motility
Louviaux Nicolas. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

A geometric nonlinear length scale in the fracture of elastic materials
Lazo-Molina Raúl. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

A multiplicative decomposition for the folding of active viscoelastic tissue
Jallon Antoine. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

A Multiscale Approach to Modeling Regional Coronary Perfusion and Myocardial Function
Sasidharan Sumesh. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Aging-Induced Embrittlement in Short-Fiber Reinforced Thermoplastics: A Micromechanical Approach Using Numerical Homogenization
Ashour Mahmoud. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

AI-Based Model Reduction for Real-Time Predictive Simulation in Solid Mechanics
Mekhfioui Mohcin. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Analysis of Bending Curve and Intelligent Design of Carbon Fiber Composite Fishing Rod Based on VFIFE
Lin Hang. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Automated Ritz method for the analysis of bi-directional functionally graded deep beams
Algahtani Husain. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Basis problem in the stability loss problem of the plate with a hole under uniaxial tension
Voloshinova Stanislava. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Biaxial tensile testing of stretchable micro-LED display using mechanical metamaterials
Jang Bongkyun. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Casting the Future: A Versatile and Cost-effective Approach to Metallic Components
Juarez Ortiz Valentina. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Chatter Prediction of Curved Thin-walled Parts Considering Variation of Dynamic Characteristics Based on Acoustic Signals Acquisition
Damous Mohamed. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Combining two strategies to modulate the tumor microenvironment and optimize efficacy of nano-immunotherapy
Angeli Stella. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Crack propagation analysis using the peridynamic approach in the Cosserat pseudo-continuum framework
Nosal Przemysław. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Depot visualization and tissue back-pressure measurement of large volume subcutaneous injections
Baquié Aurélien. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Design of control signal of a tactile device for textile fabric rendering
Martin Emilie. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Development of an FDM 3D printer capable of additive manufacturing on arbitrary curved surfaces
Nagumo Yo Nagumo Yo Yo. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Development of deep processing technology and equipment for vacuum freeze drying of mare's and camel's milk
Rakhmatulina Ayaulym. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Dynamic Investigation of a Mechanical Metamaterial Beam: A Numerical Study
Bashmal Salem. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Effect of Temperature on the Mechanical Performance of Woven Carbon Epoxy Composites Under Dynamic Compression
Kumar Rohit. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Energetically exhaustive homothetic tests of hyperelastic isotropic materials: analytic tools and experimental characterization
Falope Federico Oyedeji. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Enhancing PEEK Implant Performance: Role of Hydroxyapatite Coatings and Mechanotransduction in Osseointegration and Cell Response
Labadi Cerine. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Friction behaviour of meso-scaled textured metallic surfaces using numerical and experimental methods
Rogkas Nikolaos. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Friction between lubricated soft contact lens and eyelid from free responses measurements
Perret-Liaudet Joel. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

High shear thrombi formed in vitro stop blood flow by cables of VWF and platelets
Ku David. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Impact of Static Strain Ageing on the Fracture Toughness Properties of C-Mn Steel Welds in the Secondary Circuit of Pressurized Water Reactors
Riverie Ronan. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

In Situ SEM Experimental Studies on the Mechanical Properties of Two-Dimensional Materials
Yan Yabin. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

In Vitro Validation of a 4D Ultrasound Strain Imaging Approach for the Identification of Patient Specific Anisotropic Elastic Material Properties of Abdominal Aortic Aneurysm
Hegner Achim. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Influence of Microvoids and Grain Heterogeneity on Ultrasonic Longitudinal Wave Propagation in Polycrystalline Metal
Yadav Anuj. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Investigation of Structural Stability and Mechanical properties for full Heusler alloy: Co2FeGa

Salima Labidi. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Magnetically Tunable Defective Phononic Crystal Microbeams: Wave Propagation and Energy Harvesting Characteristics
Zhang Gongye. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Mechanical Behavior and Energy Release in PTFE/Al Composites Enhanced with Ammonium Perchlorate Micro-Particles
Benattallah Sofiane or Makaoui Ramzi. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

MICROMECHANICAL MODELING AND EXPERIMENTAL ANALYSIS OF MAGNESIUM ALLOY WE43, FOR MEDICAL IMPLANT APPLICATIONS
Karamifard Fatemeh. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Micromechanical properties of ion irradiated hard anodized layer developed on Al6061-T6 alloy: A micropillar compression and splitting tests study
Sao Joao Sergio. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Mise en place et optimisation du procédé hybride CNC / FFF dans le cadre de la fabrication de pièces métalliques en acier inoxydable 316L
Tejada Martinez Luis Vincent. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Mixed variable system Monte Carlo tree search for sizing and shape optimization of truss structures
Ko Fu-Yao. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Modelling of the permanent strain of a titanium plate riveted to a composite plate under the exposure to a kerosene flame
Krauskopf Paul. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Molecualr Dynamics Study on the Strain Rate-Dependent Tensile Deformation and Failure Behavior of Single-Crystal β-Sn
Wang Xiaoyuan. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Nanocrystalline Nickel Synthesis by Pulsed Current
Boukhouiete Amel. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

NON LINEAIR ANALYSES FOR A HYDRODYNAMIC JOURNAL BEARING
Meramria Ouafa. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Non-affine lattice dynamics approach to measure viscosity in polymeric systems
Singh Ankit. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Novel indentation methods to investigate the tribomechanical behavior of ceramic-based dental materials
Borrero-Lopez Oscar. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Numerical investigation of viscoelastic solid deformation induced by bubble collapse
Son Gihun. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

On the localization of a new phase domain in the vicinity of a crack
Kabanova Polina. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

On the role of body couples in linear-elastic fracture of polar dielectric continua
Lennart Behlen. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

On the vertical shift function in the frequency-temperature superposition mastercurves of thermo-rheologically complex polymers: multiaxial constitutive modeling, numerical implementation and experiments
Iaccarino Paolo. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Optimizing Biaxial Test Protocols for Hyperelastic Material Characterization in Lode Invariant Space
Mondal Pranay. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Post fracture surface roughness in the SmartCutTM technology
Salomon Grégoire. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Probing the mechanical and thermal properties of bilayer graphene stacks
Zhao Pei. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Pyrough: a new tool to model sample roughness in atomistic and finite element simulations
Amodeo Jonathan. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Solid Marangoni stresses
Nicolas Bain. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Stress and local structure evolution in the sol-gel thin-films during high temperature annealing
Bringuier Jean-Baptiste. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Surface microstructural evolution during Rolling Contact Fatigue of Rolling Element Bearing steels
Cazottes Sophie. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Synergetic Effect of Cryogenic Treatment and Minimal Quantity Lubrication of WC Cutting Inserts on Machinability of EN24 Steel
Nissar Tabin. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Temperature and Time-Dependent Mechanical Behavior and Optimized Bolt Preload Management in HDPE Piping Systems with Steel Flanged Connections
Barsoum Imad or Awad Sherif. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Temperature Dependence of Incipient Plasticity in Tungsten
Tropper Florian. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

The elastic field in the vicinity of a cylindrical defect with nanosized irregularities under plane stress
Vakaeva Aleksandra. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Traitement d'enrobage des faisceaux de fibres d'ananas avec de l'huile de palmiste et de la cire d'abeilles pour la Fabrication d'enduits composites de gypse
Manfouo Tchoupmene Cheryle. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Tribological behavior of a contact between a glass plane and a PDMS ellipsoidal asperity
Gabriel Kashala Djibril. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Two-dimensional time-domain finite-difference analysis for dynamic thermoelastic equations coupled with dual-phase-lag heat conduction model
Masui Kaito. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.

Influence of amorphous thermoplastic polymers behaviors on the filling of micro cavities during hot embossing process
Barrière Thierry. **Monday**. Start time: **18:00**. Room: FORUM 1 and 2. Link to abstract.