ICCM2024 Handbook

The 15th International Conference on Computational Methods

Virtual Conference

16th-18th July 2024

Chairman: Vu-Hieu Nguyen, University of Paris-Est Créteil, France
Honorary Chairman: Guirong Liu, University of Cincinnati, USA

1. WELCOME MESSAGE

Dear Colleagues and Friends,

It is an honor to welcome you to the 15th International Conference on Computational Methods (ICCM2024) from July 15th to July 18th, by the University of Paris-Est Créteil. Although it was planned to be held in Paris, this year edition will run as virtual conference in order to avoid traveling difficulties to France during the Olympics Games period.

From the first edition organized by professor GR Liu in Singapore in 2014, the ICCM conference series have a long history of gathering the researchers who are in the field of computational science and engineering to exchange ideas and to strengthen international academic networks. The ICCM conference now is a well-established forum giving real opportunity to discuss new issues, tackle complex problems and find advanced enabling solutions able to shape new trends in Computational Science.

As previous years, the conference program accommodate presentations on a wide range of topics related to computational technology and we are very pleased to receive wide-spectrum contributions by experts and researchers from Asia, Europe, America and worldwide. All contributions have been peer-reviewed and the accepted presentations, including abstracts and papers, will be published on our conference website.

We are thankful to the plenary speakers, the conference organizing committee members, the session chairs, and additional reviewers who have made this conference a success. Most of all, we thank you, the participants, for enriching the conference by your presence. We hope you will enjoy the content, get new ideas and have a good time.

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

Professor Vu-Hieu Nguyen   **Professor Guirong Liu**
Conference Chairman   Honorary Conference Chairman
University of Paris-Est Créteil   University of Cincinnati
France   USA

2. CONFERENCE DETAILS

The time used in this handbook is based on the U.S. date and U.S. Easern Time (ET, UTC-4, GMT-4). Please take note of the time zone differences.

	Country/Region	Time 1	Time 2
1	USA (Eastern Time)	8:00 - 12:00	20:00 - 24:00
2	Australia	22:00 - 2:00	10:00 - 14:00
3	China	20:00 - 24:00	8:00 - 12:00
4	France	14:00 - 18:00	2:00 - 6:00
5	Germany	14:00 - 18:00	2:00 - 6:00
6	Japan	21:00 - 1:00	9:00 - 13:00
7	Spain	14:00 - 18:00	2:00 - 6:00
8	Taiwan, China	20:00 -24:00	8:00 - 12:00

Our conference medium is Zoom. All attendees have to download Zoom software on his/her own computer.

Please register your name on Zoom, make sure using the same name as your name at the conference website, so that your session chair can easily identify you.

Please try and test various functions on our Zoom trial session, at 8:00-10:00, or 20:00-21:00, on July 15th 2024.

How to join the meeting:

Method 1: Open the email invitation from the meeting's host, click the meeting link;

Method 2: Open the Zoom application, click **Join** and key in Metting ID and Passcode.

How to do presentation:

(a)   Click **Share Screen** and choose your presentation, and click **Start Video** (to show your face) to start speak, and click **Stop Share** and **Stop Video** after your presentation;

(b)   **Mute** when you are not speaking, **Unmute** to speak;

(c)   **Raise hand** at the **Participants** tab or by clicking on **Reactions**, to ask questions during presentations;

(d)   You may send your comments or contact the Session Chair in the **Chat** during the conference.

We will email the link for ICCM2024 Zoom to all registered participants and the co-authors by July 14th.

3. ORGANIZATION COMMITTEES

Conference Chairman
Vu-Hieu Nguyen, Universite Paris-Est Creteil, France

Honorary Chairman
Guirong Liu, University of Cincinnati, United States

France Organization Committee
Boumediene Nedjar, Université d'Évry Paris-Saclay, France
Cuong Ha-Minh, École normale supérieure Paris-Saclay, France
Fakhraddin Seyfaddini, Université Clermont Auvergne, France
Sara Touhami, Université Paris-Est Créteil, France
Felipe Figueredo Rocha, Université Paris-Est Créteil, France
Van-Thanh Nguyen, Université Paris-Est Créteil, France

International Scientific Advisory Committee (Sorting by last name)

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Liang Lihong (China)	Wan Decheng (China)	Zhou Kun (Singapore)
Liu Bin (China)	Wang Bo (China)	Zhuang Zhuo (China)
Liu Moubin (China)	Wang Cheng (China)	
Liu Xiaojing (China)	Wang Dongdong (China)	

4. PROGRAM OVERVIEW

Date (U.S. Date)	Meeting Time (U.S. Eastern Time, UTC-4, GMT-4)	Room A	Room B
Day 0 July 15th, 2024 Monday	8:00-10:00	Presentation trials at Zoom	Presentation trials at Zoom
	20:00-21:00	Presentation trials at Zoom	Presentation trials at Zoom
Day 1 July 16th, 2024 Tuesday	8:00 - 8:10	Opening Speeches	
	8:10 - 10:40	Plenary Lectures I & Semi Plenary Lecture I	
	10:30 - 12:00	Session 1A-1	Session 1B-1
	20:00 - 24:00	Session 1A-2	Session 1B-2
Day 2 July 17th, 2024 Wednesday	8:00 - 10:30	Plenary Lectures II & Semi Plenary Lectures II	
	10:20-12:00	Session 2A-1	Session 2B-1
	20:00 - 24:00	Session 2A-2	Session 2B-2
Day 3 July 18th, 2024 Thursday	8:00 - 12:00	Session 3A-1	Session 3B-1
	20:00 - 24:00	Session 3A-2	Session 3B-2

5. MINI-SYMPOSIUM AND ORGANIZERS

MS	Mini Symposium Title	Organizers
MS-001	Theory and Formulation for Novel Computational Methods	GR Liu, University of Cincinnati
MS-002	Particle Based Methods	Xiong Zhang, Tsinghua University Yong Liang, Xi'an Jiaotong University Yan Liu, Tsinghua University Zhen Chen, University of Missouri
MS-003	Mechanics of surface/interface and bionics	Shaohua Chen, Beijing Institute of Technology
MS-004	Boundary Element Methods and Mesh Reduction Methods	Xiaowei Gao, Dalian University of Technology
MS-005	Reduced order models for structures and fluids	Jianyao Yao, Chongqing University Ke Liang, Northwestern Polytechnical University
MS-006	Crash safety and structural optimization	Xu Han, Hebei University of Technology Shujuan Hou, Hunan University
MS-007	Fire, Combustion, and Gasification Modelling	Zhao-Feng Tian, University of Adelaide Xiao Chen, WSP Australia Yining Tang, Sotera Fire Engineering
MS-008	Modeling and Simulation of Complex Flow and Transport Phenomena	Jingfa Li, Beijing Institute of Petrochemical Technology Shuyu Sun, King Abdullah University of Science & Technology Bo Yu, Beijing Institute of Petrochemical Technology
MS-009	Computational Methods in Fluid Engineering	Songying Chen, Shandong University Deyu Luan, Qingdao University of Science and Technology
MS-010	Data-driven Surrogate Modeling Techniques for Inverse and Other Related Problems	Guangyao Li, Beijing Institute of Technology Teng Long, Beijing Institute of Technology Hu Wang, Hunan University Jian Zhang, Jiangsu University Xueguan Song, Dalian University of Technology
MS-011	Damage and Failure Modelling in Composite Materials	Raj Das, RMIT University
MS-012	Deformation, Fatigue and Fracture of Advanced Materials	Liguo Zhao, Loughborough University Rong Jiang, Nanjing University of Aeronautics and Astronautics
MS-013	High Performance Computing and Related Topics	Masao Ogino, Daido University Ryuji Shioya, Toyo University Lijun Liu, Osaka University Hongjie Zheng, Toyo University
MS-014	Progresses of Computational Marine Hydrodynamics	Guiyong Zhang, Dalian University of Technology Decheng Wan, Shanghai Jiaotong University Aman Zhang, Harbin Engineering Unversity
MS-015	Smoothed Finite Element Methods and Related Techniques	Yuki Onishi, Tokyo Institute of Technology Liming Zhou, Jilin University
MS-016	Computational methods in Hydraulic engineering	Nguyen The Hung, The University of Danang
MS-017	Data, Uncertainty, Machine Learning and Digital Twin	Chenfeng Li, Swansea University
MS-018	Methods for Multi-Phase Flows	Dia Zeidan, German Jordanian University Lucy Zhang, Rensselaer Polytechnic Institute
MS-019	Concurrent multiscale modeling from electrons to finite elements	Qing Peng, Institute of Mechanics, Chinese Academy of Sciences Qiang Cao, Wuhan University
MS-020	Multiscale modelling of engineering materials	Sarah Zhang, Western Sydney University Qingsheng Yang, Beijing University of Technology
MS-021	Advances in computational methods for large deformation problems in geo-mechanic	Domenico Lombardi, The University of Manchester Wei Wu, University of Natural Resources and Life Sciences
MS-022	Recent Advances In Meshfree and Particle Methods	Bin Chen, Xi'an Jiaotong University
MS-023	Meshfree and Other Advanced Numerical Methods for Engineering and Applied Mathematical Problems	Lihua Wang, Tongji University Zheng Zhong, Harbin Institute of Technology Chuanzeng Zhang, University of Siegen
MS-024	Limit state analysis of structures and materials	Canh Van Le, International University
MS-025	Modeling and Simulation for Additive Manufacturing	Van-Nam Hoang, Vietnam Maritime University Jonathan Tran, RMIT University Nguyen-Xuan Hung, HUTECH University of Technology
MS-026	Computational Acoustics and Elastodynamics in Materials and Structures	Weiqiu Chen, Zhejiang University Yuesheng Wang, Tianjin University/Beijing Jiaotong University Bin Wu, Politecnico di Torino Chuanzeng Zhang, Universitat Siegen

MS	Mini Symposium Title	Organizers
MS-027	Computational modeling of geological hazards and related cascading processes	Yu Huang, Tongji University Xingyue Li, Tongji University Ping Shen, University of Macau
MS-028	Kernel and machine learning based solutions of PDEs	Zhuojia Fu, Hohai University Elena Atroshchenko, The University of New South Wales Timon Rabczuk, Bauhaus University Weimar
MS-029	Stochastic BEM in Fracture Mechanics	Cheng Su, South China University of Technology Zhongwei Guan, University of Liverpool
MS-030	Acoustic metamaterials and phononic crystals:from fundamental theory to potential applications	Feng Jin, Xi'an Jiaotong University
MS-031	Design optimization of structures and metamaterials	Zhan Kang, Dalian University of Technology
MS-032	Local and nonlocal modeling approaches in dynamics	Ugo Galvanetto, University of Padova Mirco Zaccariotto, University of Padova Pawel Packo, AGH - University of Science and Technology
MS-033	Computational Biomechanics	Ken-ichi Tsubota, Chiba University Xiaobo Gong, Shanghai Jiao Tong University
MS-034	Recent Advances and Developments for Damage and Failure of Engineering Materials and Structures	Tinh Quoc Bui, Tokyo Institute of Technology Shunhua Chen, Sun-Yat-sen University
MS-035	Modelling Heterogeneous Media: Fracture, Localisation and Multiphase Flow	Yixiang Gan, The University of Sydney Leong Hien Poh, National University of Singapore Luming Shen, The University of Sydney Daniel Dias-da-Costa, The University of Sydney
MS-036	Mechanics of soft materials	Zishun Liu, Xi'an Jiaotong University Jingjie Yeo, Cornell University
MS-037	Computational Biomechanics	Xi-Qiao Feng, Tsinghua University
MS-038	Computational methods for advanced soft matter and soft robotics	Hua Li, Nanyang Technological University
MS-039	Computational Particle Dynamics	Moubin Liu, Peking University Dianlei Feng, Tongji University Christian Weißenfels, Universität Augsburg
MS-040	Energy systems for electric mobility	Pattabhi Ramaiah Budarapu, Indian Institute of Technology Bhubaneswar Ratna Kumar Annabattula, Indian Institute of Technology Madras
MS-041	Multiscale multiphysical damage and fracture simulation of cementitious composites	Zhenjun Yang, Wuhan University Jianying Wu, South China University of Technology Rena C. Yu, University of Castilla-La Mancha
MS-042	Structural Reliability Analysis and Design Optimization	Xiangyun Long, Hunan University Bingyu Ni, Hunan University Zhe Zhang, Hunan University
MS-043	Data-driven modeling and design approaches	Wenjing Ye, Hong Kong University of Science and Technology
MS-044	Micro-/Nano-mechanics for Novel Materials	Haifei Zhan, Zhejiang University Yuantong Gu, Queensland University of Technology
MS-045	Computational design, optimization and manufacturing advanced materials and structures	Quan Bing Eric Li, Teesside University Bing Li, Northwestern Polytechnical University Lifeng Wang, Nanjing University of Aeronautics and Astronautics
MS-046	Seismic performance and resilience analysis of underground space and tunnelling	Yu Huang, Tongji University Zhiyi Chen, Tongji University Zhiqian Liu, Tongji University
MS-047	Dynamic deformation and failure of advanced materials and structures	Wei Feng, Northwestern Polytechnical University Yuan Li, Northwestern Polytechnical University Tao Suo, Northwestern Polytechnical University Fei Xu, Northwestern Polytechnical University
MS-048	Buckling Analysis and Design via Numerical Methods	Peng Hao, Dalian University of Technology Bo Wang, Dalian University of Technology
MS-049	Advanced approaches in computational fracture/damage mechanics for multiphysics materials	Tinh Quoc Bui, Tokyo Institute of Technology
MS-050	Trans-scale Mechanics of Advanced Materials	Lihong Liang, Beijing University of Chemical Technology
MS-051	Recent advances in numerical modelling of damage processes	Yujie Huang, North University of China Sundararajan Natarajan, Indian Institute of Technology-Madras Hui Zhang, North University of China

6. SUMMARY OF PLENARY LECTURE, SEMI PLENARY LECTURE

Plenary Lecture (PL)

PL-1: Probabilistic Learning on Manifolds (PLoM) for statistical surrogates of stochastic nano-to-macro systems with uncertainties, and updating from small and incomplete datasets
Christian Soize, Université Gustave Eiffel, France

PL-2: Generalized free element method for solving mechanics problems
Xiao-wei Gao, Dalian University of Technology, China

PL-3: Interval process model ― a new mathematical tool for dynamic uncertainty quantification
Chao Jiang, Hunan University, China

PL-4: Wavelet Solution of Nonlinear Mechanics Problems
Jizeng Wang, Lanzhou University, China

Semi Plenary Lecture (SPL) (ordered by last name)

SPL-1: Seismic SSI of a rectangular underground structure through SPH-FEM coupled simulation
Zhiyi Chen, Tongji University, China

SPL-2: Transient analysis of orthotropic thick and thin plates using low-order triangular elements
Joe Petrolito, La Trobe University, Australia

SPL-3: Failure of quasi-brittle materials: revisit the cohesive theories of fracture
Rena C. Yu, University of Castilla-La Mancha, Spain

SPL-4: Learning Various Complex Wind Fields for Efficient Soaring
Yao Zheng, Zhejiang University, China

7. DETAILED PROGRAM – CONFERENCE SESSIONS

Please note:
※ **The times used in this handbook are in the U.S. Date and Eastern Time.**
※ **Presenters' names are in boldface.**

Plenary & Semi Plenary Lectures:
July 16th, 2024, Tuesday
Day 1: Room A

8:00 - 8:05	Chairman	**Vu-Hieu Nguyen**
8:05 - 8:10	Chairman	**Guirong Liu**

Day 1: Room A
Session 1A: Plenary Lectures I
Chair: Vu-Hieu Nguyen

Time	ID	Title / Authors
8:10-8:50	5392	Probabilistic Learning on Manifolds (PLoM) for Statistical Surrogates of Stochastic Nano-to-macro Systems with Uncertainties, and Updating from Small and Incomplete Datasets / **Christian Soize**
8:50-9:30	5403	Interval process model — a new mathematical tool for dynamic uncertainty quantification / **Chao Jiang**

Day 1: Room A
Session: Semi Plenary Lectures I
Chair: Guirong Liu

Time	ID	Title / Authors
9:30-10:00	5397	Learning Various Complex Wind Fields for Efficient Soaring / **Yao Zheng**
10:00-10:30	5398	Seismic SSI of a Rectangular Underground Structure Through SPH-FEM Coupled Simulation / **Zhiyi Chen**

July 17th, 2024, Wednesday
Day 2: Room A
Session: Plenary Lectures II
Chair: Vu-Hieu Nguyen

Time	ID	Title / Authors
8:00-8:40	5393	Generalized Free Element Method for Solving Mechanics Problems / **Xiao-Wei Gao**
8:40-9:20	5349	Wavelet Solution of Nonlinear Mechanics Problems / **Jizeng Wang**

Day 2: Room A
Session: Semi Plenary Lectures II
Chair: Guirong Liu

Time	ID	Title / Authors
9:20-9:50	5218	Transient Analysis of Orthotropic Thick and Thin Plates using Low-order Triangular Elements / **Joe Petrolito**, Daniela Ionescu
9:50-10:20	5228	Failure of Quasi-brittle Materials: Revisit the Cohesive Theories of Fracture / **Rena C. Yu**

Paelell Sessions:

Day 1: Room A
Session 1A-1: Data, Uncertainty, Machine Learning and Digital Twin
Chair: Bingyu Ni, Zeinab Awada

Time	ID	Title / Authors
10:30-10:50	5303	(Keynote) Reconstruction of unloaded configurations of soft tissues: Application to pathological arteries / **Zeinab AWADA**
10:50-11:10	5330	Research on Crack Propagation Based on Machine Learning / **Wenjing Ye**, Lihua Wang
11:10-11:30	5362	Data-driven Efficient Simulation Methods for Solid Statics Analysis / Hu Wang, **Shihao Li**, Ziming Wen

Day 1: Room B
Session 1B-1: Mechanics of Soft, Composite and Superconducting Materials
Chair: Jingjie Yeo, Huadong Yong

Time	ID	Title / Authors
10:30-10:50	5244	(Keynote) Bacterial Multiphysical Interactions with Hard and Soft Materials Interfaces: Towards Computational Design of Engineered Living Materials / **Jingjie Yeo**
10:50-11:10	5271	Tensile Characterization of Modern and Ancient Egyptian Yarns: Insights from X-ray Microtomography and Finite-Element Analysis / **Vasuki Rajakumaran,** Sofiane Guessasma, Johnny Beaugrand, Alain Bourmaud
11:10-11:30	5340	Electromagnetic-mechanical Behavior and Homogenization Modelling of Superconducting Magnets / **Huadong Yong**, Sijian Wang, Youhe Zhou

July 16ᵗʰ, 2024, Tuesday
Day 1: Room A
Session 1A-2: Novel Computational Techniques and AI Models
Chair: Wen Li, Hongjie Zheng, Zhenquan Li

Time	ID	Title / Authors
20:00-20:20	5290	(Keynote) A Hierarchical Method of Fundamental Solutions for Solving Inverse Problems / **Wen Li**
20:20-20:40	5274	(Keynote) Early Detection of Transformer Faults Using AI-based DGA Technology / **Hongjie Zheng**, Ryuji Shioya, Yasushi Nakabayashi, Masato Masuda, Hiroshi Matoba, Keiichi Nakajima, Hideyuki Okakura, Hiroki Nakamura
20:40-21:00	5233	(Keynote) Further Accuracy Verification of the 2D Adaptive Mesh Refinement Method by the Benchmarks of Lid-driven Cavity Flows / **Zhenquan Li**, Rajnesh Lal, Miao Li
21:00-21:20	5291	Topological Classification of Circulating Stromal Cells for Cancer Detection / **Jue Wang**, Yongjian Yu
21:20-21:40	5217	A Novel Research on the Base Force Element Method of Complementary Energy Principle for Finite Strain Problems / **Zhonghai Li**, Yijiang Peng
21:40-22:00	5367	Development of a System for Classifying J-core and UKHardcore Music Genres using Music2vec / **Nanase Kishi**, Ryuji Shioya, Yasushi Nakabayashi
22:00-22:20	5366	The Evolution of AI in Crafting Artistic Imagery / **Sihan Liu**, Ryuji Shioya, Yasushi Nakabayashi
22:20-22:40	5356	A Novel High-order Wavelet Precise Integration Method for Nonlinear Dynamic Problems / Jizeng Wang, **Bin Zhang**
22:40-23:00	5284	G-CSRBN: Graph-based Approach With Compactly Supported Radial Basis Function Neural Networks / jin Hong Ren, **Ping Rui Niu**, en Hong Jia, wen Jian Zhang

Day 1: Room B
Session 1B-2: Particle, Meshfree, and Optimization Methods
Chair: Peigang Jiao, Yuan Li, Shengya Li

Time	ID	Title / Authors
20:00-20:20	5381	(Keynote) Numerical Study of Inter-floating Platform Mooring Systems Based on the SPH Method / **Peigang Jiao**, Weibo Du, Kangning Li, Jiaming Ding
20:20-20:40	5394	(Keynote) SPH modeling for the detonation driven under different charge lengths / **Yuan Li**
20:40-21:00	5326	(Keynote) Artificial Intelligence-assisted Multi-scale Optimization of Continuous Fiber Reinforced Composites / Shujuan Hou, **Shengya Li**, Wenyang Liu, Yiqi Mao
21:00-21:20	5255	A Meshfree Formulation of Higher Order Hermite Finite Elements with Particular Focus on Free Vibration Analysis of Euler-Bernoulli Beams / Dongdong Wang, **Zhenyu Wu**, Songyang Hou
21:20-21:40	5353	A Meshfree Stabilized Collocation Method with Gradient Reproducing Kernel Approximations for High-order Partial Differential Equations / **ZhiYuan Xue**, Lihua Wang
21:40-22:00	5212	The Crush Behavior of Glass Fiber Reinforced Polymer Composite Pipe Fabricated by Pullwinding Process / **Haibin Tang**, Zhangxing Chen, Jia Li, Zhiqiang Cao
22:00-22:20	5220	An Adaptive Discontinuous Galerkin Method for Simulating Viscoelastic Two Phase Flows / **Xiaodong Wang**
22:20-22:40	5345	Cross-scale Optimization of Advanced Materials for Micro and Nano Structures Based on Strain Gradient Theory / **Haidong Lin**, Shujuan Hou
22:40-23:00	5253	Identification of Effective Cohesive Parameters for FRP-concrete Interface using Multi-island Genetic Algorithm / **Tianxiang Shi**, Yangyang Wang, Miao Pang, Yongqiang Zhang

Day 2: Room A
Session 2A-1: Nonlinear models for structures and fluids
Chair: Jianyao Yao, Wen Li

Time	ID	Title / Authors
10:20-10:40	5219	(Keynote) Modal Analysis Methods for Rotor-stator Interaction Fluid Fields / **Jianyao Yao**
10:40-11:00	5289	Discrete Element Method to Predict Creep Effects on the Failure Behaviour of Plasma-sprayed Thermal Barrier Coatings During a Thermal Cycle / **Willy Leclerc**
11:00-11:20	5265	Modeling Nonlinear Dynamics with Low-dimensional Manifolds Based on Time Delay Embedding / **Zihao Wang**

Day 2: Room B
Session 2B-1: Structural Reliability Analysis and Design Optimization
Chair: Zhe Zhang, Jiachang Tang

Time	ID	Title / Authors
10:20-10:40	5275	(Keynote) A Reliability-based Design Optimization Method by Instance-based Transfer Learning and the Application of Nuclear Fuel Element Design / Haibo Liu, **Zhe Zhang**
10:40-11:00	5311	An Interval Analysis Method for Chatter Stability of Cutting Systems with Uncertainty / **Jiachang Tang**, Taolin Zhang
11:00-11:20	5263	Integrating Dimensionality Reduction Integration and Active Learning for High-Dimensional Reliability Analysis with Cross-Terms / **Mengchen Yu**, Xiangyun Long

Day 2: Room A
Session 2A-2:   Meshfree and Other Advanced Numerical Methods
Chair: Jianying Zhang, Jian Chen, Isamu Riku

Time	ID	Title / Authors
20:00-20:20	5248	(Keynote) Numerical Simulation of Complex Fluid Flows Using Neural Networks / **Jianying Zhang**
20:20-20:40	5261	(Keynote) A DEM Numerical Sandbox for Investigating Thrust Formation / **Jian Chen**, Yanfang Qin, Daisuke Nishiura, Mikito Furuichi
20:40-21:00	5240	(Keynote) Study on the Identification of Physical Cross-linkages in Polymer Chains' Network / **Isamu Riku**
21:00-21:20	5238	The Radial Basis Function Pseudo-spectral Method with Ghost Points for Dynamic Bioheat Transfer / Ruiping Niu, **Xinglong Lu**, Shijie Zhao
21:20-21:40	5322	Modeling, Simulation and Analysis of Caving Process of Multi-layered Loose Top-coal Based on the SPH Method / **Liu Yang**, Zhang Qiang, Dong Xiangwei
21:40-22:00	5338	SPH Numerical Simulation of Interaction Between Different Types of Baffles and Liquid Sloshing / **Heng Zhang**, Bo Liu, Hanxiang Wang, Yanxin Liu, Xiangwei Dong, Yu Zhang
22:00-22:20	5318	Least-squares Stabilized Collocation Method for the Boundary Condition Identification in the Inverse Heat Conduction Problem / Lihua Wang, **Ruoyu Jiang**
22:20-22:40	5343	Free Vibration Analysis of Welded Curved Beams using Modified Variational Method / **Runxin Zhang**
22:40-23:00	5242	A Radial Point Interpolation Method Enhanced with Neural Network Solvers for Nonlinear Mechanics / **Jinshuai Bai**, Xi-Qiao Feng, YuanTong Gu

Day 2: Room B
Session 2B-2: Smoothed Finite Element Methods and Multi-physics Methods
Chair: Yuki Onishi, Yan Li, Shuhao Huo

Time	ID	Title / Authors
20:00-20:20	5300	(Keynote) Performance Evaluation of the Edge Center-based Strain Smoothing Element with Selective Reduced Integration using 4-node Tetrahedral Meshes (EC-SSE-SRI-T4) in Nearly Incompressible Large Deformation Analyses / **Yuki Onishi**
20:20-20:40	5225	(Keynote) Polytopal Composite Finite Element Method for Contact and Large Deformation Problems / **Yan Li**
20:40-21:00	5390	(Keynote) Conservative immersed-type algorithm with a hybrid smoothed finite element method for the fluid-structure interaction / **Shuhao Huo**, Chen Jiang, GuiRong Liu, Zhiqiang Li
21:00-21:20	5379	A Reduced Smoothing Domain Integration Method for Cell-based S-FEM with Incompressible Laminar Flow / **Jingyu Wang**
21:20-21:40	5216	Dynamic Analysis of a Rotating Mindlin Plate with High-order Rigid-flexible Coupled Model Based on Cell-based Smoothed Finite Element Method (CS-FEM) / **Ningning Xu**
21:40-22:00	5333	Motor Magnetic Field Analysis using the Alpha Finite Element Method (αFEM) / **Mingdong Peng**, G.B. Chang, Z.C. He, Eric Li
22:00-22:20	5328	3D Multi-physics Simulation of High Temperature Induced Thermo-hygral Fracture of Concrete / **Elia Nicolin**, Maddegedara Lalith, Kohei Fujita, Tsuyoshi Ichimura
22:20-22:40	5364	Topology Optimization for Underwater Pressure Hull Considering Buoyancy-weight Ratios Minimization / Zhao Min, **Jiang Yuanteng**, He Tengwu
22:40-23:00	5331	Research on the Performance and Shafting Vibration Characteristics of Francis Turbine / **Xiu Wang**, Yaping Gong, Wenquan Wang

Day 3: Room A
Session 3A-1: Novel Techniques for Complex Engineering and Biological Systems
Chair: Jean-Louis Tailhan, Wenquan Wang, Weizhong Li

Time	ID	Title / Authors
8:00-8:20	5306	(Keynote) A Mechanical Approach to Modeling Implant Osseointegration / Boumediene Nedjar, **Jean-Louis Tailhan**, Ebretche R.V.I. Amoakon, Fernando L.B. Ribeiro, Manon Sterba, Elouan Tronchon
8:20-8:40	5327	(Keynote) Research Progress and Challenges in Multi Field Coupling Dynamic Characteristics of Hydroelectric Power Generation Units / **Wenquan Wang**, Xiu Wang
8:40-9:00	5319	(Keynote) Research on Energy Harvesting Performance of Flapping Foil Under Flow Control / **Li Weizhong**
9:00-9:20	5355	Adaptive Multiresolution Second-generation Wavelet Collocation Upwind Schemes for Hyperbolic Conservation Law / Jizeng Wang, **Bing Yang**, Youhe Zhou
9:20-9:40	5380	Stochastic Modeling of Fluid Forces on a Finite-size Spherical Particle in Turbulence / **Yuqi Wang**
9:40-10:00	5363	Mathematical Model of Musculo-tendinous System for Design of Fish-inspired Soft Robot / **Xuenan Du**
10:00-10:20	5351	Monte Carlo Simulation of Effects of Thermal Fluctuation and Membrane Mechanics on Dynamics of Cellular Uptake of Nanoparticle Under Volume Constraint / **Xu Huang**
10:20-10:40	5309	Inverse design of elastic wave metamaterials based on hybrid reinforcement learning and particle swarm optimization approach / **Wenzhi Xu**, Zhuojia Fu, Xiaoying Zhuang

Day3: Room B
Session 3B-1: Computational Acoustics, Elastodynamics, and failure in Materials and Structures
Chair: Weiqiu Chen, Shuyong Duan, Boumediene Nedjar

Time	ID	Title / Authors
8:00-8:20	5229	(Keynote) Coupled Vibration of Laminated Dielectric Elastomer Circular Plates / **Weiqiu Chen**
8:20-8:40	5389	(Keynote) On Two-way Neural Network for Inverse Problems / **Shuyong Duan**, X. Han, G.R. Liu
8:40-9:00	5375	Elastic Metasurfaces Based on Data-Driven Machine Learning / **Weijian Zhou**
9:00-9:20	5305	(Keynote) Gradient damage modeling in shell structures / **Boumediene Nedjar**
9:20-9:40	5276	Incompatible unsymmetric plane elements with high distorted mesh immunity for geometric nonlinear analysis / **Yuanfan Yang**, Yingqing Huang, Haibo Chen
9:40-10:00	5354	Precise control of Lamb wave bandgaps for piezoelectric metamaterial plate enabled by tunable electric circuits / **Yanzheng Wang**, Weiqiu Chen, Chuanzeng Zhang
10:00-10:20	5360	A Loop Subdivision-Based Integrated CAD/CAE Reanalysis Method / Hu Wang, **Wenke Li**, Jichao Yin
10:20-10:40	5388	Power Activation Functions Constructed for Two-way Neural Network / **Yingnan Qi**, Shuyong Duan
10:40-11:00	5382	A Novel Approach to PINN for Solving Inverse Problems / **Yijun Lu**, Shuyong Duan

July 18th, 2024, Thursday
Day 3: Room A
Session 3A-2: Computational Methods in Fluids and Flowing Solids
Chair: Dianlei Feng, Guannan Wang, Lihua Wang

Time	ID	Title / Authors
20:00-20:20	5368	(Keynote) Effects of solid particle on the properties of turbulent/non-turbulent interface in a spatially developing flat-plate boundary layer / **Ping Wang**
20:20-20:40	5268	(Keynote) Concurrent Topology Optimization of Multiscale Piezoelectric Actuators / Chaofeng Lu, **Guannan Wang**
20:40-21:00	5404	(Keynote) Stabilized Lagrange Interpolation Collocation Method: a meshfree method incorporating the advantages of finite element method / **Lihua Wang**
21:00-21:20	5310	An Improved Multi-material Interface Treatment Method for Modeling Soil-water Coupling Problems / Dianlei Feng, **Can Yi**
21:20-21:40	5249	Pore-Scale Modeling of the MICP Process by Using a Coupled FEM-LBM-CA Model: 2D and 3D Simulations / **Yajie Chu**, Dianlei Feng
21:40-22:00	5294	DEM Modelling of the Debris-baffle Interaction Problem / **Bei Zhang**
22:00-22:20	5304	Multi-phase Simulation of Selective Laser Melting with Ray Tracing by Using Adaptive Resolution SPH Method / Moubin Liu, **Yibo Ma**, Lingxiao Ma, Xu Zhou
22:20-22:40	5314	GPU-Accelerated WC-ISPH Multiphase Flow Model / **Chaoyang Guo**
22:40-23:00	5209	Simulation of the effect of uniform magnetic field on bubble rising in ferrofluid by the ISPH-FVM coupling method / **Xu Yi Xiang**, Gang Yang, An De Hu, Yulin Xing, Hao Yang

Day 3: Room B
Session 3B-2: Progresses of Computational Marine Hydrodynamics
Chair: Lihong Liang, Jianqiao Hu, Zhaohe Dai

Time	ID	Title / Authors
20:00-20:20	5316	(Keynote) Multiscale Study of Friction and Wear Due to Asperity Plowing / **Jianqiao Hu**
20:20-20:40	5239	(Keynote) Mechanical Behavior and Fracture Mechanism of Nacre Brick-mortar Structure / **Lihong Liang**
20:40-21:00	5313	(Keynote) Detaching a Rigid Sphere from an Ultrathin Elastic Sheet: Experiments and Multiscale Theories / **Zhaohe Dai**
21:00-21:20	5260	GPU-based Parallel WCSPH Method for Free Surface Flows / Guiyong Zhang, **Xi Yang**, Guangqi Liang, Zhifan Zhang
21:20-21:40	5296	Numerical investigation on hydrodynamic and thermal wake of an underwater vehicle / **Gang Gao**, Liushuai Cao, Decheng Wan
21:40-22:00	5285	Lamellar Vortex Generator around Submarine Hull Rudder：ANN/GA-based Sound Source /Structural Optimization / **Xinxin Meng**, Yuan Zhuang, Decheng Wan
22:00-22:20	5295	Numerical simulation of mooring platforms in regular waves using MPS method / **Congyi Huang**, Weiwen Zhao, Decheng Wan
22:20-22:40	5286	Study on the effect of disturbances at the inlet boundary to the turbulent transition noise based on parabolized stability equation / **Bohan Xie**, Yuan Zhuang, Decheng Wan
22:40-23:00	5282	Encoder-decoder ConvLSTM neural network for parameter identification in PDE / **Qi Guo**, en Hong Jia, ping Rui Niu, bin Hong Wang

Day 3: Room A
Final Session: Farewell Speeches

Time	ID	Title / Authors
23:00-23:05	Chairman	Closing words: **Vu-Hieu Nguyen**
23:05-23:10	Chairman	Closing words: **Guirong Liu**