ICCM2020 Handbook

The 11th International Conference on Computational Methods

Virtual Conference
9th-12th August 2020

Chairman: Nguyen-Xuan Hung
Honorary Chairman: Guirong Liu

1. WELCOME MESSAGE

Dear Colleagues and Friends,

It is our great pleasure to welcome you to the 11th International Conference on Computational Methods (ICCM2020) which will be held virtually through Zoom from August 9th to 12th, 2020. Due to the Covid-19 pandemic, this year's conference becomes the first ICCM virtual conference since its establishment. Rather than viewing this unprecedented change caused by the pandemic as an obstacle, we, as part of the scientific community, take it as an opportunity to reinforce our commitment to always staying adaptable in order to continuously demonstrate our meaningful and high-quality research work and exchanging our scientific ideas in our community.

Since its establishment, the ICCMs have been an international forum for academic and industrial researchers to exchange ideas on recent advances in areas related to computational methods, numerical modelling & simulation, and machine learning techniques. It will offer presentations on a wide range of topics to facilitate the inter-disciplinary exchange of ideas in science, engineering and related disciplines, and foster various types of academic collaborations. Publications, which have been peer-reviewed and accepted, will be showcased through oral presentations at the conference. All presentations, including abstracts and papers, will be published online at our website, as usual.

The ICCM conference series were originated in Singapore in 2004, followed by ICCM2007 in Hiroshima, Japan; ICCM2010 in Zhangjiajie, China; ICCM2012 in Gold Coast, Australia; ICCM2014 at Cambridge, England; ICCM2015 at Auckland, New Zealand; ICCM2016 at Berkeley, CA, USA; ICCM2017 at Guilin, China; ICCM2018 at Rome, Italy; ICCM2019 at Singapore, and this on the Cloud.

We would like to express our gratitude to all members of the Organizing Committee, the International Scientific Committee, and other supporters who have been working relentlessly in order to make this conference possible. Also, we would like to express our sincere appreciation to international reviewers for their diligent work on reviewing the submitted abstracts and papers.

Lastly, we would like to thank you for your contributions to the ICCM2020 conferences. We are excited to welcome you to this special virtual conference and looking forward to your continued engagement for future ICCM conferences.

Professor Nguyen-Xuan Hung   **Professor Gui-Rong Liu**
Conference Chairman   Honorary Conference Chairman
Director, CIRTECH Institute, HUTECH University of Technology   University of Cincinnati
President, Vietnam Association of Computational Mechanics   USA
Vietnam

2. CONFERENCE DETAILS

The time used in this handbook is based on the Eastern Time (New York time), which is exactly 12 hours behind Beijing-time. Please take note of the time zone differences.

	Country	Time 1	Time 2
1	USA (ET)	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	Germany	14:00-18:00	2:00-6:00
5	Italy	14:00-18:00	2:00-6:00
6	Japan	21:00-1:00	9:00-13:00
7	Poland	14:00-18:00	2:00-6:00
8	Russia	15:00-19:00	3:00-7:00
9	Saudi Arabia	15:00-19:00	3:00-7:00
10	Singapore	20:00-24:00	8:00-12:00
11	South Korea	21:00-1:00	9:00-13:00
12	Thailand	19:00-23:00	7:00-11:00
13	Vietnam	19:00-23:00	7:00-11:00

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

Please register your name on Zoon, make sure it is the same name as on the conference website, so that your Session Chairman can easily identify you.

Please try and test various functions on Zoom before attending the conference online:
(a) **Share Screen** for your presentation;
(b) **Mute** when you are not speaking;
(c) **Raise hand** at the **Participants** tab, and then ask questions when you so desire. You should turn on your **Video** when you talk;
(d) If you want, you may also send your comments in the **Chat** during the conference;
(e) Speakers can use **Annotate** to place **Spotlight** or **Text** on screen.

We will email the link for eICCM2020 Zoom rooms to all registered participants by August 9th.

3. ORGANIZATION COMMITTEES

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4. PROGRAM OVERVIEW

Date	Time	Conference Program
Day 0 August 9th (Sunday) U.S.A. Eastern Date and Time	8:00-9:00	Presentation trials online at Zoom
	20:00-21:00	Presentation trials online at Zoom
Day 1 August 10th (Monday) U.S.A. Eastern Date and Time	**8:00-8:10**	**Opening Ceremony**
	8:10-11:00	**Plenary Lectures** **(40 minutes for each speaker)** **Semi Plenary Lectures** **(30 minutes for each speaker)**
	20:00-23:55	**Semi Plenary Lectures** **(30 minutes for each speaker)** **Parallel Sessions** **(25 minutes for each speaker)**
Day 2 August 11th (Tuesday) **&** **Day 3** August 12th (Wednesday) U.S.A. Eastern Date and Time	**8:00-11.55**	**Parallel Sessions** **(25 minutes for each speaker)**
	20:00-23:55	**Parallel Sessions** **(25 minutes for each speaker)**

5. MINI-SYMPOSIA AND ORGANIZERS

MS	Mini Symposium Title	Organizers
MS-001	Theory and Formulation for Novel Computational Methods	Guirong Liu, University of Cincinnati
MS-002	Particle Based Methods	Xiong Zhang, Tsinghua University Yan Liu, Tsinghua University Zhen Chen, Dalian University of Technology / 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	Energy Absorption and crashworthiness of Structures and Materials	Shujuan Hou, Hunan University Qinghua Qin, Xi'an Jiaotong University Xiong Zhang, Huazhong University of Science and Technology
MS-007	Fire Simulation	Zhao-Feng Tian, Adlaide University
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 and 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	Hu Wang, Hunan University Jian Zhang, Jiangsu University
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	Large Scale Coupled Problems and Related Topics	Masao Ogino, Daido University Hiroshi Kanayama, Japan Women's University Ryuji Shioya, Toyo University Lijun Liu, Osaka 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
MS-016	Computational Mechanics for Composite Plates and Shells	Taran Kant, Indian Institute of Technology Bombay
MS-017	Computational methods in Hydraulic engineering	Nguyen The Hung, The University of Danang
MS-018	Data, Uncertainty, Machine Learning and Digital Twin	Chenfeng Li, Swansea University
MS-019	Methods for Multi-Phase Flows	Dia Zeidan, German Jordanian University Lucy Zhang, Rensselaer Polytechnic Institute
MS-020	Particle-based methods and applications to geomechanics	Giang D. Nguyen, Adelaide University Ha H. Bui, Monash University
MS-021	Concurrent multiscale modeling from electrons to finite elements	Qing Peng, University of Michigan Qiang Cao, Wuhan University
MS-022	Multiscale modelling of engineering materials	Sarah Zhang, Western Sydney University
MS-023	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-024	Recent Advances In Meshfree and Particle Methods	Bin Chen, Xi'an Jiaotong University
MS-025	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-026	Limit state analysis of structures and materials	Canh Van Le, International University
MS-027	Modeling and Simulation for Additive Manufacturing	Van-Nam Hoang, Vietnam Maritime University Jonathan Tran, RMIT Nguyen-Xuan Hung, Ho Chi Minh City University of Technology
MS-028	Computational Acoustics and Elastodynamics in Materials and Structures	Weiqiu Chen, Zhejiang University Yuesheng Wang, Beijing Jiaotong University Bin Wu, Politecnico di Torino Chuanzeng Zhang, Universitat Siegen
MS-029	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-030	New methods of approximate static calculations	Janusz Rębielak, Cracow University of Technology

MS-031	Stochastic BEM in Fracture Mechanics	Cheng Su, South China University of Technology Zhongwei Guan, University of Liverpool
MS-032	Acoustic metamaterials and phononic crystals:from fundamental theory to potential applications	Feng Jin, Xi'an Jiaotong University
MS-033	Design optimization of structures and metamaterials	Zhan Kang, Dalian University of Technology
MS-034	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-035	Computational Biomechanics	Ken-ichi Tsubota, Chiba University Xiaobo Gong, Shanghai Jiao Tong University
MS-036	Recent Advances and Developments for Damage and Failure of Engineering Materials and Structures	Tihn Q. Bui, Toyo Institute of Technology
MS-037	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

6. SUMMARY OF PLENARY LECTURE, SEMI PLENARY LECTURE

Plenary Lecture (PL)

- **PL-1:** Relation between blood pressure and pulse wave velocity for human arteries / *Yonggang Huang (Northwestern University, United States)*

- **PL-2:** Machine Learning based solutions of partial differential equations / *Timon Rabczuk (Bauhaus Universität-Weimar, Germany)*

- **PL-3:** Solving problems in structural dynamics using beam elements: From collapse behaviors of buildings to torque cancelling of robots / *Daigoro Isobe (University of Tsukuba, Japan)*

- **PL-4:** Design and testing of a rotary self-sealing component for MR fluid based devices featuring permanent magnet / *Hung Quoc Nguyen (Vietnam German University, Vietnam)*

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

- **TPL-1:** Recent Advances in Evaluating Failure Evolution with the MPM / *Zhen Chen (University of Missouri, United States)*

- **TPL-2:** Moving Morphable Component (MMC)-based Explicit Topology Optimization-Some New Developments / *Xu Guo (Dalian University of Technology, China)*

- **TPL-3:** Progress in mixed models for efficient nonlinear analysis of composite shells. Application to optimal design of smart structures / *Leonardo Leonetti (Università della Calabria, Italy)*

- **TPL-4:** Methodologies to compute fracture mechanics parameters (A revisit and some applications to large strain elastic-plastic problems) / *Hiroshi Okada (Tokyo University of Science, Japan)*

- **TPL-5:** Direct simulation approach to high cycle fatigue life prediction based on extended space-time finite element method and machine learning / *Dong Qian (University of Texas at Dallas, United States)*

- **TPL-6:** Symmetry and superposition rules proposed to apply in engineering design / *Janusz Rebielak (Cracow University of Technology, Poland)*

- **TPL-7:** Computational Modelling of 3D printed lattice structures / *Jonathan Tran (RMIT University, Australia)*

- **TPL-8:** High-pressure gas bubble dynamics and its applications / *Aman Zhang (Harbin Engineering University, China)*

- **TPL-9:** Topological insulating mechanics and generic design of metamaterials / *Xiaoying Zhuang (Leibniz Universität Hannover, Germany)*

7. DETAILED PROGRAM – CONFERENCE SESSIONS

Important: The time used in this handbook is based on the Eastern Time (New York time), which is exactly 12 hours behind Beijing-time. Please take note of the time zone differences.

Day 1: Room A

8:00 - 8:10	**Opening Ceremony** **Chair:** Nguyen-Xuan Hung

Session 1A-1 Plenary Lectures   Chair: Guirong Liu

Time	ID	Title / Authors
8:10-8:50	4504	Relation Between Blood Pressure and Pulse Wave Velocity for Human Arteries / **Yonggang Huang**
8:50-9:30	4509	Solving problems in structural dynamics using beam elements: From collapse behaviors of buildings to torque cancelling of robots / **Daigoro Isobe**

Chair: Nguyen-Xuan Hung

Time	ID	Title / Authors
9:30-10:10	4526	Design and testing of a rotary self-sealing component for MR fluid based devices featuring permanent magnet / **Hung Quoc Nguyen**
10:10-10:50	4505	Machine Learning Based Solutions of Partial Differential Equations / **Timon Rabczuk**

Day 1: Room A
Session 1A-2 Semi Plenary Lectures   Chair: Guirong Liu

Time	ID	Title / Authors
10:50-11:20	4251	Methodologies to compute fracture mechanics parameters (A revisit and some applications to large strain elastic-plastic problems) / **Hiroshi Okada**
11:20-11:50	4523	Symmetry and superposition rules proposed to apply in engineering design / **Janusz Rebielak**

Day 1: Room B
Session 1B-2 Semi Plenary Lectures   Chair: Nguyen-Xuan Hung

Time	ID	Title / Authors
10:50-11:20	4516	Progress in mixed models for efficient nonlinear analysis of composite shells. Application to optimal design of smart structures /**Leonardo Lenetti**
11:20-11:50	4522	Topological insulating mechanics and generic design of metamaterials / **Xiaoying Zhuang**

Day 1: Room A   Session 1A-3: Semi Plenary Lectures

Chair: Dong Qian, Jonathan Tran

Time	ID	Title / Authors
20:00-20:30	4520	Direct simulation approach to high cycle fatigue life prediction based on extended space-time finite element method and machine learning / **Dong Qian**
20:30-21:00	4528	Computational Modelling of 3D printed lattice structures / **Jonathan Tran**
21:00-21:30	4524	High-pressure gas bubble dynamics and its applications / **Aman Zhang**

Day 1: Room A   Session 1A-4: Computational Methods and Theory for PDEs and Engineering Problems

Chair: Zhuojia Fu, Fran Pahlevani

Time	ID	Title / Authors
21:30-21:55	*4393	Physics Informed Kernel Collocation Solver for Partial Differential Equations / **Zhuojia Fu**, Wenzhi Xu
21:55-22:20	4440	A Mathematical Analysis Method for Bending Problem of Clamped Shallow Spherical Shell on Elastic Foundation / **Shanqing Li**
22:20-22:45	4490	An Improved Design of Magnetic Crawler Wall-climbing Robot with Capacities of High Payload and Good Locomotion on the Convex Surface for Hull Maintenance / **Junyu Hu**
22:45-23:10	4310	Theoretical analysis of the balaenid whale's hydrodynamic filtering system / Dean Hu, **Yawei Zhu**, Gang Yang
23:10-23:35	4486	Energy, Enstrophy and Parameter Sensitivity for the Time Relaxation Model / **Fran Pahlevani**
23:35-24:00	4239	Localisation of fire source in a warehouse using plume-tracing method / **Zeqi Li**, Zhao Feng Tian, Tien-fu Lu, Houzhi Wang

* Keynote

Day 1: Room B   Session 1B-3: Semi Plenary Lectures

Chair: Zhen Chen, Xu Guo

Time	ID	Title / Authors
20:00-20:30	4518	Recent Advances in Evaluating Failure Evolution with the MPM / **Zhen Chen**
20:30-21:00	4529	Moving Morphable Component (MMC)-based Explicit Topology Optimization-Some New Developments / **Xu Guo**

Day 1: Room B   Session 1B-4: FEM, 3D Printing, Reduced Models, Tesegrity Structures, Friction

Chair: Hiroshi Okada, Shuyong Duan

Time	ID	Title / Authors
21:00-21:25	4342	Study on an Analysis Methodology for Metal Additive Manufacturing Process using a Large Scale Parallel Finite Element Computation / **Hiroaki Kobayashi**, Yuma Murakami, Yasunori Yusa, Hiroshi Okada
21:25-21:50	4280	A Novel Stabilized Finite Element Method for Solving the Three-dimensional Poisson-Nernst-Planck Equations in Ion Channel Simulations / **Qin Wang**
21:50-22:15	4279	Model Reduction-based Initialization Methods for Solving the Poisson-Nernst-Plank Equations in Three-dimensional Ion Channel Simulations / **Qianru Zhang**
22:15-22:40	4457	Geometrical and Energetic Analysis of Curved Surfaces Due to Disclination in Graphene Sheet / **Yoshitada Tomioka**, Xiao-Wen Lei
22:40-23:05	4376	Homogenization approach for representative laminate plate using Hsieh-Clough-Tocher element / **Nguyen Hoang Phuong**, Le Van Canh, Ho Le Huy Phuc
23:05-23:30	4339	Tensegrity Form-finding using Measure Potential and Its Influential Coefficients on the Solution / **Cho Kyi Soe**
23:30-23:55	4463	Key parameters inverse for nonlinear friction model of robot joints / **Changluo Li**, Shuyong Duan, Guirong Liu

* Keynote

Chair: Joe Petrolito and Xiao-Wei Gao

Time	ID	Title / Authors
8:00-8:25	*4449	Higher-order Mixed Finite Elements for Nonlinear Analysis of Frames Including Shear Deformation / **Joe Petrolito**, Daniela Ionescu
8:25-8:50	4242	Influence of Time-step-size Sensitivity on the Performance of the Direct Integration Method for Nonviscously Damped Structural Systems / Hui Zheng, **Taufeeq Ur Rehman Abbasi**
8:50-9:15	4487	Simulation of High Rayleigh Number of Natural Convection in a Square Cavity using Smoothed Particle Hydrodynamics Method / **Pengying Yang**, Moubin Liu
9:15-9:40	4250	Debonding Analysis of Adhesively Bonded Pipe Joints Subjected to Combined Thermal and Mechanical Loadings / Hong Yuan, Jun Han, Huanliang Zhang, **Lan Zeng**
9:40-10:05	4420	Convolution Quadrature Time-domain Boundary Element Method for Viscoelastic Wave Scattering by Many Cavities in 3-D Infinite Space / **Haruhiko Takeda**, Takahiro Saitoh
10:05-10:30	*4245	Advances in Element Differential Method and Free Element Method / **Xiao-Wei Gao**
10:30-10:55	4494	Boundary element of B-spline wavelet on the interval / **Qi Wei**, Jiawei Xiang
10:55-11:20	4497	A Novel Method for Jittering Mitigation at the Arm-tip of Robots Over Working Trajectory / **Chunlu Li**, Fang Wang, Shuyong Duan
11:20-11:45	4468	An improved A-star algorithm for safety corner turns / **Qifan Wang**

*Keynote

Chair: Isamu Riku, Xiao-Wen Lei

Time	ID	Title / Authors
8:00-8:25	*4260	Effect of Mechanical and Chemical Constraints on Swelling of Polyelectrolyte Gels / **Isamu Riku**
8:25-8:50	*4456	Configurational Force of Lattice Defects / **Xiao-Wen Lei**
8:50-9:15	4304	An Improved Nested Sampling Method for Path Parameter Inference of Variable Stiffness Composite / Hu Wang, **Xin Wang**, Yong Cai, Guangyao Li
9:15-9:40	4343	Fatigue Crack Propagation Experiment using Additive Manufactured Specimen and Crack Propagation Analysis / **Tomonori Iso**, Shungo Mizutani, Hiroshi Okada
9:40-10:05	4438	Crystal Plasticity Simulation of the Indentation Behavior of Ni-based Single Crystal Superalloy Considering the Crystal Orientation Effect / **Qinan Han**, Wenhui Qiu, Haitao Cui, Huiji Shi
10:05-10:30	4328	An alternating iteration strategy based on the reduced-order model for heat flux identification / **Yu Liang**, Xiao-Wei Gao
10:30-10:55	4469	Novel Image Reconstruction Method for Limited-angle CT Inverse Problem / **Botao Yang**
10:55-11:20	4491	Establishment and Analysis of Three-dimensional Force Chains Model for Granular Solids / **Bowen Liang**
11:20-11:45	4483	Application of Inverse Problem in Fault Diagnosis / **Huiyun Liu**

*Keynote

Day 2: Room A Session 2A-2: Machine Learing, Hydrodynamics, Fluid-Structure Interactions

Chair: Fangsen Cui, Lijun Liu

Time	ID	Title / Authors
20:00-20:25	*4467	Structural Damage Detection by FEM and CNN / **Fangsen Cui**, Shuai Teng, Kefeng Zhong, Yue Hu, Gen Liu, Zhiqiang Teng, Gongfa Chen
20:25-20:50	*4476	A physics-informed data-driven model for uncertainty quantification and reduction in metal additive manufacturing / **Lei Chen**
20:50-21:15	*4479	Two-way neural network computational inverse theory method and application in parameter inverse / **Shuyong Duan**
21:15-21:40	4357	New Deep Learning Interatomic Potential for Pure Magnesium / **Lijun Liu**, Daisuke Matsunaka, Yoji Shibutani
21:40-22:05	4262	Development of the numerical method for simulation of ship motions in regular waves with changing wave direction / **Kunihide Ohashi**
22:05-22:30	4482	Quantitative Inverse Method Via Two-way TubeNets for Joint Stiffnesses of Robot Arms / Fang Wang, **Li Wang**
22:30-22:55	4466	A Technique to Improve Bounding Box Anchors for One-stage Object Detection Based on Computer Image Processing / **Ningning Lu**, Shuyong Duan, Guirong Liu
22:55-23:20	4472	Research on the operation and intelligent obstacle avoidance of mowing robot in the whole life cycle of grassland / **Honglei Ma**, Shuyong Duan, Guirong Liu

* Keynote

Day 2: Room B Session 2B-2: S-FEM

Chair: Yuki Onishi, Sawekchai Tangaramvong

Time	ID	Title / Authors
20:00-20:25	*4287	SelectiveCS-FEM-T10 with Radial-type Mesh Subdivision / **Yuki Onishi**
20:25-20:50	*4407	Automatic Adaptive ES-FE Approach for Limit Load Determination of Engineering Structures / **Sawekchai Tangaramvong**, Vu Le Hoang
20:50-21:15	*4493	Contact Analysis Based on a Linear Strain Node-based Smoothed Finite Element Method with Linear Complementarity Formulations / **Yan Li**, Junhong Yue
21:15-21:40	4422	Nonlinear Vibration Investigation of Magneto-electro-elastic Structures with the Cell-based Smoothed Finite Element Method / Liming Zhou, **Ming Li**
21:40-22:05	4495	A Novel Bone Remodeling Algorithm Based-on the Smoothed Finite Element Methods / **Shuhao Huo**, Chao Sun, Guirong Liu
22:05-22:30	4311	An Edge Based Smoothed Finite Element Method for Analysis of Axisymmetric Problems / **Xin Cui**, Guirong Liu
22:30-22:55	4368	An Edge-based Smoothed Finite Element Method for the Assessment of Human Exposure Under Extremely Low Frequency Electric Fields / **Gang Wang**, Zhibin Guo
22:55-23:20	4510	Contact Analysis Within the Bi-potential Framework using Cell-based Finite Element Method / **Qianwei Chen**, Yan Li, Zhiqiang Feng, Huijian Chen
23:20-23:45	4508	A smoothed finite element method for three-dimensional dynamic impactcontact problem based on penalty function method / **Chao Sun**

*Keynote

Day 3: Room A   Session 3A-1: Meshfree, S-PIM, MD, DEM, Phase-field, Spectrum Methods

Chair: Ken-Ichi Tsubota, Koichiro Ishikawa, Jian Chen

Time	ID	Title / Authors
8:00-8:25	*4349	Computer Simulation of Thrombus Formation Based on Low-shear-rate History using Particle Method / **Ken-ichi Tsubota**
8:25-8:50	*4459	Response Spectrum Method Considering Specific Dominant Natural Modes of Double Layer Truss Domes Subjected to Earthquake Motions / **Koichiro Ishikawa**
8:50-9:15	4434	A Parametric Study of a Soil Mixing Process Under Water Based on Discrete Element Simulations: Geometric and Operational Factors / **Jian Chen**, Mikito Furuichi, Daisuke Nishiura, Azusa Kitamura
9:15-9:40	4370	A Meshfree Collocation Method Based on Moving Taylor Polynomial Approximation / **Xiaodong Wang**, Ying Liu
9:40-10:05	4452	Dynamic Analysis of a FGM Beam with the Point Interpolation Method / Chaofan Du , **Xiang Gao**, Dingguo Zhang, Xiaoting Zhou
10:05-10:30	4447	A Node-based Smoothed Point Interpolation Method for Coupled Hydro-mechanical Analysis of Geomechanical Problems / **Ashkan Shafee**, Arman Khoshghalb
10:30-10:55	4474	Mechanical Properties & Energy Storage of Spiral Nanocone Fibers / **FuTian Xu**
10:55-11:20	4475	Simulation of metal Grain Growth in Laser Powder Bed Fusion Process using Phase-field Thermal Coupled Model / **Zhida Huang**, Jian Lu, Chong Liu, Bo Li
11:20-11:45	4514	A Selective S-FEM with Visco-hyperelastic Model for Analysis of Biomechanical Responses of Brain Tissues / **Shaowei Wu**, Chen Jiang, Chao Jiang, Guirong Liu

*Keynote

Day 3: Room B   Session 3B-1: Bio-Mechanics, Optimization, Waves, Fault Detection

Chair: Reza Alebrahim, Aleksandr Poliakov, Jianbing Sang

Time	ID	Title / Authors
8:00-8:25	*4499	Parameters Identification of Hyperelastic Material Properties of Meniscus Based on an Inverse Numerical Method / **Jianbing Sang**
8:25-8:50	*4489	Modified Wave Dispersion Properties in 2-D Bond-based Peridynamics / **Reza Alebrahim**, Pawel Packo, Mirco Zaccariotto and Ugo Galvanetto
8:50-9:15	*4488	Improvement of a Ceramic Head in the Design of a Total Hip Arthroplasty / **Aleksandr Poliakov**, Vladimir Pakhaliuk
9:15-9:40	4282	Structural design of multi-rotor wind turbine using topology optimization considering static and dynamic behaviors / **Hyeonjin Park**, Jeonghoon Yoo
9:40-10:05	4274	Structural design for electromagnetic wave reflector in aircraft engine intake considering incident angle change / **Taeil Lee**, Jeonghoon Yoo
10:05-10:30	4396	Stability and Reflection/transmission Analysis of a Dynamic Hybrid Coupling Scheme for Elastic Wave Propagation / Pawel Packo, **Siddhesh Raorane**, Tadeusz Uhl, Michael Leamy
10:30-10:55	4465	A Two-stage Genetic Algorithm for Molding Parameters Optimization for Minimized Residual Stresses in Composite Laminates During Curing / **Li Xuerui**
10:55-11:20	4256	Computer Simulation of Effects of Renal Vessel Structure on the Blood Flow / Ken-ichi Tsubota, **Wei Deng**

*Keynote

Chair: Qing Peng, Chin Chun Ooi

Time	ID	Title / Authors
20:00-20:25	*4517	High-order nonlinear mechanical properties of g-SiC / **Qing Peng**
20:25-20:50	4458	U-Net-based Surrogate Model for Evaluation of Microfluidic Channels / Quang Tuyen Le, Pao-Hsiung Chiu, **Chin Chun Ooi**
20:50-21:15	4230	Dual IIBEM for solving multi-medium fracture problems / **Weizhe Feng**, Lan-Fang Gao, Xiao-Wei Gao
21:15-21:40	4386	Extreme longitudinal wave absorption in rods / **Beniamin Sawicki**, Pawel Packo
21:40-22:05	4481	Two-way TubeNets Uncertain Inverse methods for improving Positioning Accuracy of robots Based on Interval / **Lutong Shi**, Fang Wang, Shuyong Duan, Guirong Liu
22:05-22:30	4503	A Global Sensitivity Analysis Method for Multi-input Multi-output System / Qiming Liu, **Nichen Tong**, Xu Han
22:30-22:55		
22:55-23:20		

*Keynote