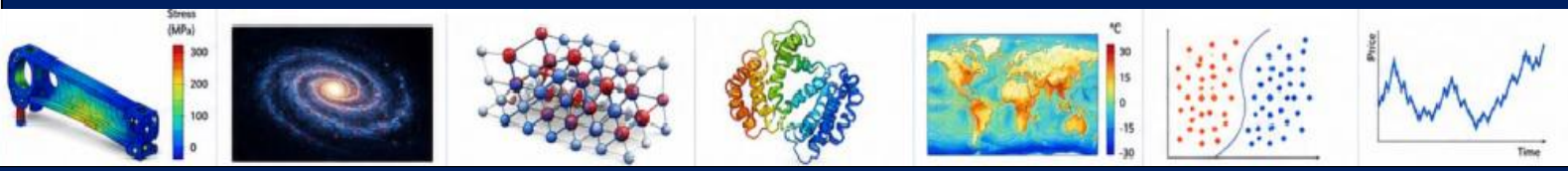
ICCM2026 Handbook



The 17th International Conference on Computational Methods

Virtual Conference

August 16th-19th, 2026

Chairman: Y. Cengiz Toklu, Istanbul Aydin University, Türkiye
Honorary Chairman: Guirong Liu, University of Cincinnati, USA

1. WELCOME MESSAGE

Dear Distinguished Guests, Speakers, and Participants,

On behalf of the Organizing Committee, it is my distinct honor and privilege to welcome you to the **17th International Conference on Computational Methods (ICCM2026)**, taking place online as a virtual conference from **August 16th to 19th, 2026**.

ICCM continues its proud tradition as a premier global forum for academics, researchers, and industry professionals to share cutting-edge research, numerical innovations, and practical applications across computational engineering and the sciences.

We had initially planned to gather in person in the magnificent city of Istanbul, hosted by our sponsor, **Istanbul Aydin University, Faculty of Engineering**. However, due to ongoing regional conflicts and unrest surrounding Türkiye, the committee decided to convert ICCM2026 into a fully virtual event. Although Türkiye itself remains entirely uninvolved in these surrounding conflicts, the broader geopolitical circumstances introduced significant travel challenges and safety considerations for our international attendees. Our top priority remains the convenience, safety, and inclusive participation of our global community.

While we are unable to meet physically in Istanbul this year, the virtual format allows us to connect seamlessly across time zones without geographical barriers. We are confident that this online gathering will foster the same spirit of rigorous scientific debate, knowledge exchange, and international collaboration that ICCM has championed for years.

We express our sincere gratitude to our sponsor, **Istanbul Aydin University, Faculty of Engineering**, for their steadfast support during this transition. Special recognition and heartfelt thanks go to our Honorary Chairman, Professor G.R. Liu (University of Cincinnati, USA), whose vision and guidance continue to inspire the ICCM community. We also thank all session chairs, reviewers, track organizers, and participants for their dedicated contributions and flexibility.

Over the coming days, I encourage you to actively engage in the technical sessions, join the digital Q&A discussions, and connect with colleagues old and new.

Thank you for your participation and support. I wish you all a successful, inspiring, and rewarding conference.

Professor Cengiz Toklu
Conference Chairman
Istanbul Aydin University
Türkiye

2. CONFERENCE DETAILS

All dates and times in this handbook are based on U.S. Eastern Time. Please pay close attention to the time zone differences to ensure that you attend your scheduled sessions at the correct local time.

	Country	Time
1	China	19:00 - 23:30
2	France	13:00 - 17:30
3	Japan	20:00 - 00:30 (next day)
4	Türkiye	14:00 - 18:30
5	U.S. (Eastern Time)	07:00 - 11:30

Our conference will be held entirely via Zoom. All participants are required to install the Zoom application on their own computer before the conference. Please register your display name in Zoom using the same name as your conference registration on the ICCM2026 website. This will help the Session Chairs identify participants easily during the conference.

To ensure everything works properly, please join our **Zoom Trial Session** on August 16, 2026, from 7:00 a.m. to 9:00 a.m. (U.S. Eastern Time) to test your audio, video, screen sharing, and other Zoom functions.

How to join the Zoom 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 enter Meeting ID and Passcode.

Presentation Guidelines:
- ✧ Click **Share Screen** and select your presentation file.
- ✧ Click **Start Video** so that attendees can see you while you present.
- ✧ Deliver your presentation.
- ✧ When you have finished, click **Stop Share** and **Stop Video**.

During the Conference
- ✧ **Mute** your microphone when you are not speaking, and **Unmute** only when you wish to speak;
- ✧ To ask a question during or after a presentation, use the **Raise Hand** feature from the **Participants** panel or the **Reactions** menu.
- ✧ You may also send your comments or contact the Session Chair through the **Chat** window during the conference.

The Zoom meeting link, Meeting ID, and Passcode for ICCM2026 will be emailed to all registered participants and co-authors by August 15, 2026.

3. ORGANIZATION COMMITTEES

Conference Chairman
Cengiz Toklu, Istanbul Aydin University, Türkiye

Honorary Chairman
Guirong Liu, University of Cincinnati, United States

Local Committee
A. Metin Ger, Ph.D, Professor, Istanbul Aydin University, Co-Chair
Pınar Yildirim, Ph.D, Istanbul Aydin University
Beste Kocak Dinc, Ph.D, Istanbul Aydin University
Yusuf Kaya, Research Assistant, Beykent University

International Scientific Advisory Committee

Philipp Birken	Sweden	Yuki Onishi	Japan
Jeng-Tzong Chen	Taiwan	Fatih Mehmet Özkal	Türkiye
Lei Chen	USA	Takahiro Saitoh	Japan
Shaohua Chen	China	Luming Shen	Australia
Zhen Chen	USA	Yuichi Tadano	Japan
Fangsen Cui	Singapore	Ken-ichi Tsubota	Japan
Raj Das	Australia	Decheng Wan	China
Xiangwei Dong	China	Lifeng Wang	China
Dianlei Feng	China	Wenquan Wang	China
Zhuojia Fu	China	Yue-Sheng Wang	China
XiaoWei Gao	China	Zhihai Xiang	China
Ahmet Metin Ger	Türkiye	Judy Yang	Taiwan
Hauke Gravenkamp	Germany	Hongling Ye	China
Yuantong Gu	Australia	Jingjie Yeo	USA
Chenfeng Li	UK	Haifei Zhan	Australia
Eric Li	UK	Aman Zhang	China
Hua Li	Singapore	Chuanzeng Zhang	Germany
Wei Li	China	Guiyong Zhang	China
Jabareen Mahmood	Israel	Lihai Zhang	Australia
Roberto Montemanni	Italy	Xiong Zhang	China
Sundararajan Natarajan	India	Zhe Zhang	China
Yufeng Nie	China	Kun Zhou	Singapore
Sinan Melih Nigdeli	Türkiye	Zhuo Zhuang	China
Hiroshi Okada	Japan		

4. PROGRAM OVERVIEW

Date (U.S. Date)	**Meeting Time** (U.S. Eastern Time, UTC-4, GMT-4)	**Session**
August 16th, 2026 Sunday	07:00 - 09:00	Presentation trials at Zoom
August 17th, 2026 Monday	07:00 - 07:05	Opening Speeches
	07:05 - 07:55	Plenary Lectures
	07:55 - 11:55	Session 1
August 18th, 2026 Tuesday	07:00 - 08:15	Keynote Lectures 1
	08:15 - 11:35	Session 2
August 19th, 2026 Wednesday	07:00 - 08:15	Keynote Lectures 2
	08:15 - 11:40	Session 3

All dates and times in this handbook are based on U.S. Eastern Time.

5. MINI-SYMPOSIUM AND ORGANIZERS

MS	Mini Symposium	Organizers
MS-01	Theory and Formulation for Novel Computational Methods	**GR Liu**, University of Cincinnati, U.S.A.
MS-02	Particle Based Methods	**Zhen Chen**, University of Missouri, U.S.A.
MS-03	Smoothed Finite Element Methods and Related Techniques	**Chen Jiang**, Central South University, China **Yuki Onishi**, Institute of Science Tokyo, Japan
MS-04	Computational Modeling and Artificial Intelligence for Advanced Manufacturing	**Lei Chen**, University of Michigan, U.S.A.
MS-05	Advanced Computational Methods for Soft Sensor/Actuator and Robotics	**Hua Li**, Nanyang Technological University, Singapore
MS-06	AI-Driven Computational Methods and Digital Twin Technologies for Advanced Materials and Manufacturing	**Quanbing Eric Li**, Teesside University, U.K. **Lifeng Wang**, Nanjing University Aeronautics and Astronautics, China
MS-07	Numerical methods for nonlocal models and its application	**Yufeng Nie**, Northwestern Polytechnical University, China
MS-08	Fluid-structure interaction and application in Engineering	**Wenquan Wang**, Kunming University of Science and Technology, China
MS-09	Computational Biomechanics	**Hiromi Miyoshi**, Tokyo Metropolitan University, Japan **Ken-ichi Tsubota**, Chiba University, Japan
MS-10	Surface and interface mechanics and biomimetics	**Shaohua Chen**, Beijing Institute of Technology, China
MS-11	High Performance Computing and Related Topics	**Masao Ogino**, Daido University, Japan **Ryuji Shioya**, Toyo University, Japan **Lijun Liu**, The University of Osaka, Japan **Hongjie Zheng**, Toyo University, Japan

6. SUMMARY OF KEYNOTE LECTURES

Plenary Lectures (PL)

PL-1: Essentials of Finite Element Method with Energy Minimization - FEMEM
Cengiz Toklu, Instanbul Aydin University, Turkiye

PL-2: Adaptive Deflation Continuation Algorithm for Bifurcation Detection and Post-buckling Analysis
Weiqiu Chen, Zhejiang University, China

Keynote Lectures (KL)

KL-1: A low-cost and pressure-checker-free smoothed finite element formulation using 4-node tetrahedral meshes for nearly incompressible large deformation analyses
Yuki Onishi, Institute of Science Tokyo, Japan

KL-2: Large-Scale Three-Dimensional DEM Simulations of Landslides with Erodible Terrain
Jian Chen, Japan Agency for Marine-Earth Science and Technology, Japan

KL-3: Multi-scale optimization design of topology and fiber orientation with path planning method for additive manufactured continuous fiber-reinforced polymer structures
Hongling Ye, Beijing Institute of Technology, China

KL-4: A 3D numerical microfluidic model for reaction-driven evolving porous media problems with an application of MICP
Dianlei Feng, Tongji University, China

KL-5: Hierarchical Cell Segmentation via Iterative Thresholding
Wen Li, Fordham University, United States

KL-6: Transient Fracture Behavior of Piezoelectric Composites with Complex Interfaces
Shuhao Huo, Taiyuan University of Technology, China

7. DETAILED PROGRAM

Please note:
All times listed in this handbook are based on the U.S. Eastern Time Zone (ET) and the corresponding U.S. calendar dates.

Plenary and Keynote Lectures

August 17th, 2026, Monday

Time	Opening Speech
07:00 - 07:05	Welcome speech: **Cengiz Toklu**

Plenary Lectures
Chair: Guirong Liu, Cengiz Toklu

Time	Title / Presenter
07:05 - 07:30	Essentials of Finite Element Method with Energy Minimization - FEMEM / **Cengiz Toklu**
07:30 - 07:55	Adaptive Deflation Continuation Algorithm for Bifurcation Detection and Post-buckling Analysis / **Weiqiu Chen**

August 18th, 2026, Tuesday
Keynote Lectures 1
Chair: Jian Chen, Yuki Onishi, Shuhao Huo

Time	Title / Presenter
07:00 - 07:25	A low-cost and pressure-checker-free smoothed finite element formulation using 4-node tetrahedral meshes for nearly incompressible large deformation analyses / **Yuki Onishi**
07:25 - 07:50	Large-Scale Three-Dimensional DEM Simulations of Landslides with Erodible Terrain / **Jian Chen**
07:50 - 08:15	Transient Fracture Behavior of Piezoelectric Composites with Complex Interfaces / **Shuhao Huo**

August 19th, 2026, Wednesday
Keynote Lectures 2
Chair: Dianlei Feng, Hongling Ye, Wen Li

Time	Title / Presenter
07:00 - 07:25	Multi-scale optimization design of topology and fiber orientation with path planning method for additive manufactured continuous fiber-reinforced polymer structures / **Hongling Ye**
07:25 - 07:50	A 3D numerical microfluidic model for reaction-driven evolving porous media problems with an application of MICP / **Dianlei Feng**
07:50 - 08:15	Hierarchical Cell Segmentation via Iterative Thresholding / **Wen Li**

Technical Sessions

August 17th, 2026, Monday
Session 1
Chair: Zhiqiang Wu, Jiqiao Zhang, Metin Ger, Yusuf Kaya

Time	Title / Authors
07:55 - 08:15	Consistent non-conforming mesh coupling via area regularization node-to-segment contact algorithm based on cell-based smoothed finite element method / **Jingui Zhao**, Jinhui Zhao, Shuhao Huo, Yunxuan Xiao
08:15 - 08:35	Shape Optimization for Minimizing Integrated Dynamic Compliance of Structures with Local Kelvin–Voigt Viscoelastic Dampers under Broadband Excitation / **Zhiqiang Wu**, Yuto Isobe, Yuta Nakagawa
08:35 - 08:55	Toward Robust and Lightweight Facial Expression Recognition under Occlusion and Pose Variations / **Yin Liu**, Yasushi Nakabayashi, Ryuji Shioya
08:55 - 09:15	Structural Damage Detection Based on Improved Noise Reduction Technique and Convolutional Neural Network / Tianlong Ouyang, Junfeng Dai, Shixing Liu, **Jiqiao Zhang**, Gongfa Chen, Fangsen Cui
09:15 - 09:35	Improved Physics-Informed Radial Basis Network with Boundary-Extended Centers and Curriculum Learning for High-Frequency and Time-Dependent Partial Differential Equations / **Xi Zhao**, Yan Li, Zhiqiang Feng
09:35 - 09:55	Physics-informed Deep Operator Network (PI-DeepONet) for thermo-fluid coupling field prediction of variable-geometry corrugated plates in steam-water separators / **Junxiong Hu**, Shaowei Wu
09:55 - 10:15	A high-performance SPH framework for multi-phase, multi-resolution fluid-soil-structure interaction / **Can Yi**, Dianlei Feng
10:15 - 10:35	A novel local connect general function neural network 1 for complicated domain partial differential equations / **Le Liu**, Ruiping Niu
10:35 - 10:55	A Confidence-Gated Seismic DT-Driven CPS Framework for Trustworthy Structural Monitoring / **Ahsan Shahbaz**, Baiping Dong
10:55 - 11:15	A meshfree augmented Lagrangian formulation for incompressible Bingham flows using RBF-FD discretization / **Jianying Zhang**
11:15 - 11:35	A Computational Shell SPH model for Micromechanical Damage Prediction in Sheet Metal Forming / **Hakim Naceur**, Huicheng Huang, Yabo Jia
11:35 - 11:55	A comparison between FEM and FEMEM in solving structural problems / **Yusuf Kaya**, Yusuf Cengiz Toklu

August 18th, 2026, Tuesday

Session 2

Chair: Ken-ichi Tsubota, Sinan Melih Nigdeli, Jianying Zhang

Time	Title / Authors
08:15 - 08:35	Numerical simulation of thrombus formation in medium - sized blood vessels based on red blood cell dynamics and coagulation reactions / **Ken-ichi Tsubota**, Shintaro Fujiwara, Shota Kozuka
08:35 - 08:55	Three-dimensional displacement field analysis of the actin cytoskeleton and nuclear interior by diffusion model-regularized digital volume correlation / **Hiromi Miyoshi**, Iori Inoue, Go Uchida
08:55 - 09:15	Assessment of Squat Exercise Quality from 2D Human Pose Sequences / **Yuxiao Liu**, Hongjie Zheng
09:15 - 09:35	Computational Analysis of the Effects of Cerebellar Cortical Folding on Neural Connectivity and Motor Learning / **Kazuki Goda**, Yoshitaka Kameo
09:35 - 09:55	A Brownian Dynamics Study on the Tensile Mechanics of the Cell Nucleus: Effects of Chromatin Structure / **Riku Maruyama**, Shota Horikoshi, Ken-ichi Tsubota
09:55 - 10:15	Multiscale Homogenization and Concurrent Topology Optimization of Multiphase Piezoelectric Actuators and Energy Harvesters / Cheng Liu, Mengyuan Gao, Zhelong He, **Guannan Wang**
10:15 - 10:35	Boundary-Information-Enhanced Physics-Informed Neural Network for Solving Partial Differential Equations / **Junliang Li**, Eric Li, Xu Xu
10:35 - 10:55	Meshing force theoretical modeling of harmonic drive under various loads / **Yunxuan Xiao**, Nanxian Zheng, Jingui Zhao, Bo Li
10:55 - 11:15	Three-Dimensional Synergistic Topology Optimization of Plate Structures: Exploiting the Through-Thickness Design Space via the CUF Approach / **Zhaojin Chen**, Xuayan Hu, Bin Wu, Erasmo Carrera, Weiqiu Chen
11:15 - 11:35	Finite Element Method with Energy Minimization (FEMEM) in Structural Analysis with Applications to Tensegrity Structures / Yusuf Cengiz Toklu, Gebrail Bekdaş, Ayla Ocak, **Sinan Melih Nigdeli**

August 19th, 2026, Wednesday
Session 3
Chair: Hongjie Zheng, Dianlei Feng, Wen Li

Time	Title / Authors
08:15 - 08:35	Application of High Frame Rate Video Generation to Sprint Motion Analysis / **Hongjie Zheng**
08:35 - 08:55	Autonomous Prompt Optimization for Motion Pictogram Generation Based on Multimodal LLM Evaluation / **Natsumi Okatani**, Ryuji Shioya, Yasushi Nakabayashi
08:55 - 09:15	Data-Driven Inverse Modeling of Coupled Electro-Thermal Fields Using Deep Learning / **Sihan Liu**, Ryuji Shioya, Masamune Nomura, Amane Takei
09:15 - 09:35	Vision-Based Proficiency Evaluation of Runners Using AlphaPose and DTW Algorithm / **Hongpan Li**, Hongjie Zheng
09:35 - 09:55	Video-Based Analysis of Pedestrian Hesitation Behavior Before Crossing Outside Crosswalks Using Pose Estimation / **Junwei Li**, Hongjie Zheng
09:55 - 10:15	Research on Shared Autonomy via Imitation Learning and Uncertainty-Aware Perception / **Junxiu Quan**, Ryuji Shioya, Yasushi Nakabayashi
10:15 - 10:35	Research on a CAD system for large-scale simulations using generative AI / **Yuze Li**, Ryuji Shioya
10:35 - 10:55	The meshfree methods for obstacle wave scattering problems / **Siqing Li**
10:55 - 11:15	Progressive-Annealing PIGNN-LBM method for two-dimensional flow simulations / **Huicao Shao**, and Dianlei Feng
11:15 - 11:35	A Meshless GFDM Approach for Incompressible Flow in an Eccentric Annulus / **Kutay Celebioglu**, Metin Ger
11:35 - 11:40	Closing speeches: Cengiz Toklu, Guirong Liu