15th World Congress on Computational Mechanics
&
8th Asian Pacific Congress on Computational Mechanics

Yokohama, Japan
Virtual

Congress vision:
Pursuing the Infinite Potential of Computational Mechanics

July 31 – August 5, 2022
(Pre-Open: July 24)

Hosting Organizations:
International Association for Computational Mechanics (IACM)
The Japan Society for Computational Engineering and Science (JSCES)

Supporting Organizations:
The Asian Pacific Association for Computational Mechanics (APACM)
Japan Association for Computational Mechanics (JACM)
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Greetings from the Congress Chair

On behalf of the Local Organizing Committee, I would like to welcome you to the 15th World Congress on Computational Mechanics and the 8th Asian Pacific Congress on Computational Mechanics in 2022 (WCCM-APCOM 2022). WCCM-APCOM 2022 is organized by the International Association for Computational Mechanics (IACM) and the Asian Pacific Association for Computational Mechanics (APACM) as international societies and the Japan Society for Computational Engineering and Science (JSCES) and the Japan Association for Computational Mechanics (JACM) as local societies.

The Congress was first proposed as the normal format in Yokohama, an attractive port city near Tokyo, before the emergence of COVID-19. It must be a great and honorable event for the researchers on computational mechanics in Japan to host WCCM-APCOM since the 3rd WCCM at Chiba in 1994 and 3rd APCOM at Kyoto in 2007.

The Congress format was changed to the hybrid, in-person and online, by expecting the recovery from the worldwide pandemic. However, the situation has been still uncertain, particularly for the international border control which should be free as possible to invite the participants from the world. Finally, we decided to change the Congress format to the fully virtual. Meeting in-person has been very important, I noticed it again during the pandemic, to transfer the spirit as well as the knowledge of Computational Mechanics to the younger researchers. Unfortunately, such opportunity is not possible in this Congress but I expect it in the next one.

Nevertheless, the researchers who submitted the abstracts for presentation, the mini-symposium organizers, the plenary and semi-plenary lecturers and the sponsors keep contribution to the Congress. I would like to say the highest appreciation to all of them.

Special thanks go to Yokohama Convention & Visitors Bureau and Japan National Tourism Organization for their kind support. Pacifico Yokohama is acknowledged for their flexible attitude to cope with unpredictable conditions, though, eventually and unfortunately, the Congress format has been changed to fully virtual.

Seiichi Koshizuka
The Congress Chair
Greetings from the President of IACM

Dear IACM Community,

It is a great pleasure to welcome you to the 15th World Congress on Computational Mechanics (WCCM), which, in this edition, joins with the 8th Asian-Pacific Congress on Computational Mechanics (APCOM).

As we write these words, we are seeing the first indicators showing that the pandemic begins to recede and, in some months, it will hopefully be behind most of us. Of course, leaving much to do and to rebuild what has been broken or lost. Your safety has been our prime concern in taking the decision of going virtual. International health and travel restrictions to Japan were at the core of this decision. Moreover, we have now a solid experience, proper feedback, and excellent results with the organization of virtual events in our community. I am convinced that we will find in the future plenty of occasions to gather in Yokohama.

We are confident of the success and the quality of this virtual event because of the commitment and professionalism of the organizing team. In fact, I take this opportunity to wholeheartedly thank the Chair of the Congress, Professor Seiichi Koshizuka, and the Secretary General of the Congress, Professor Kenjiro Terada, as well as their local team and IACM staff for the service and dedication in putting together an excellent congress with a program full of timely and challenging topics covering all topics in Computational Science and Engineering. It is comforting to observe how classic topics still prevail and at the same time we embrace new subjects from neighboring disciplines. In fact, classic and new disciplines are motivated, as usual in our discipline, from scientific and industrial relevant problems, which again allows us to advance knowledge in societal pertinent challenges. This cross-fertilization between fields of knowledge has always been at the core of our community.

This 15th edition of WCCM coincides with the 40th Anniversary of the IACM. We tend to overestimate what we can do in a week, but at the same time, we always underestimate what we can achieve over four long decades of research and scientific meetings in computational mechanics. The results are patent. An amazing journey, one that would not have been possible without the enthusiasm and commitment of our entire community, which showed the ambition and boldness to step further, to climb higher. This is a collective achievement of the entire computational mechanics community. Actually, we are proud to count with all your support to showcase the frontier research in our field in this major international gathering.

I wish you all an unforgettable scientific event!

Yours sincerely,

Antonio Huerta
The President of IACM
Greetings from the President of APACM

Welcome all to participate in WCCM-APCOM2022 Yokohama in a virtual format. I am very pleased to hold this important and exciting scientific event in the field of computational mechanics with your participation from all over the world. Although this joint Congress is finally decided to be held in a fully virtual format due to the severe influence of COVID-19 Pandemic raging since early 2020, I am very proud of this event being successfully held with a great and dedicated organization of local organizing members in Japan, i.e. JSCES (The Japan Society of Computational Engineering and Science) and JACM (The Japan Association for Computational Mechanics) as well as the IACM (The International Association for Computational Mechanics) and the APACM (Asian Pacific Association for Computational Mechanics). I specially thank to all members of the organizing team lead by Professor Genki Yagawa (Honorary Congress Chair), Professor Seiichi Koshizuka (Chair), Professor Kazuo Kashiyama (Co-chair), Professor Marie Oshima (Co-chair), and Professor Kenjiro Terada (Secretary General).

The APACM was established in 1999, comprising of the national and regional associations for computational mechanics in the Asia-Australian region, which is one of the three continental associations affiliated with IACM. At present, there are 11 member associations affiliated in APACM. These includes China, Japan, Korea, Australia, Singapore, Taiwan, Hong Kong, India, Malaysia, Thailand and Vietnam. The APACM organizes the Asian Pacific Congress on Computational Mechanics (APCOM) in different countries of the region at the interval of three years. The first Congress was held in Sydney, Australia (2001), the second in Beijing, China (2004) in conjunction with WCCM6, the third in Kyoto, Japan (2007), the fourth in Sydney, Australia (2010) in conjunction with WCCM9, the fifth in Singapore (2013), the sixth in Seoul, Korea (2016) in conjunction with WCCM12, and the seventh in Taipei, Taiwan (2019). The eighth is now holding in Yokohama, Japan in conjunction with WCCM15.

I wish all the participants to enjoy the Congress, and to work together towards our better future.

Shinobu Yoshimura
The President of APACM
Greetings from the President of JSCES

On behalf of the Japan Society for Computational Engineering and Science (JSCES), it is a great pleasure for me to welcome you to the 15th World Congress on Computational Mechanics & 8th Asian Pacific Congress on Computational Mechanics (WCCM XV & APCOM VIII) which is organized in a virtual format.

The Japan Society for Computational Engineering and Science (JSCES) was established in 1995, after the success of the 3rd World Congress on Computational Mechanics (WCCM III, Chiba) held in 1994, as an academic organization that pursues development and progress of computational engineering and computational mechanics. Historically, this WCCM XV & APCOM VIII Congress will be a very memorable one also for JSCES.

In the coming era, circumstances surrounding our society and academic societies are becoming more complicated with rapid progress of new information technology and cutting-edge science. One of the trends is major movements such as SDGs, AI, and IoT, and technological changes and evolution. Computational engineering and mechanics are applied in various fields as useful technologies and methods, and also as a way of thinking, in the cyber space of the CPS (Cyber-Physical System) field in cooperation with mathematical information science and data analysis. As seen in the recent unpredictable phenomena such as COVID-19, a computational engineering approach that takes advantage of the characteristics of analysis and synthesis may act greatly in the relationship between humans, society, nature, information and mechanical systems. It may become a driving force to solve problems and create new values.

On the other hand, it is important to go back to the basics and further promote the deepening of expertise based on the elucidation of complex phenomena, to act against the trend of excessive information analysis.

In this background, the main objective of the WCCM Congress series is to provide a forum for presentation and discussion of state-of-the-art advances in computational methods in applied sciences and engineering, including basic methodologies, scientific developments and industrial applications, and to serve as a platform for establishing links between research groups of academia and industry with common as well as complementary activities. I hope that new interdisciplinary awareness and knowledge would be born in this congress.

We remain devoted to providing you with the best cutting-edge content in an engaging format. We thank you again for your continued support and look forward to welcoming you to our virtual WCCM XV & APCOM VIII!

Naoya Sasaki
The President of JSCES
Greetings from the President of JACM

On behalf of the members of the Japan Association for Computational Mechanics (JACM), I would like to welcome you to the 15th World Congress on Computational Mechanics & 8th Asian Pacific Congress on Computational Mechanics (WCCM-APCOM 2022). As the president of the supporting organization, I am very pleased to have all of you in what is considered to be the greatest event in the field of computational mechanics.

I have had great experiences attending WCCM and APCOM in previous years. They have been held in Beijing, Sydney, Sao Paulo, Barcelona, Seoul, New York, Taipei, Singapore and many other cities. At each event, I have enjoyed meeting new and old friends and colleagues, and discovering new trends in the field of computational mechanics. WCCM and APCOM are viewed as the world’s highest level conferences in this field, and technical presentations in these past events have been very challenging for me. It is here that the finest researchers and engineers gather together to share the most cutting-edge knowledge and technology in the field of computational mechanics. As the president of the supporting organization, JACM, my hope is for young researchers especially to experience similar feelings as I have had in the past, and to be inspired and motivated to propel forward the advancement of their field as well as their own development as researchers and engineers. I am sure that WCCM-APCOM 2022 will be an event to facilitate such growth.

JACM is one of the supporting organizations of WCCM-APCOM 2022. JACM is an affiliated organization of the International Association for Computational Mechanics (IACM) and loosely brings together academic societies related to computational mechanics in Japan. The major function of JACM is to distribute information about IACM-related international conferences among researchers and engineers in Japan through these academic societies. Currently, 29 societies participate JACM. JACM encourages researchers and engineers to participate in IACM events and to exchange ideas with their international peers. The members of JACM were very much looking forward to having the WCCM-APCOM, the largest event of both IACM and the Asian Pacific Association for Computation Mechanics (APACM), in Japan. We were so excited to host researchers and engineers from around the world and to invite our friends and colleagues to the event, as WCCM-APCOM 2022 was originally planned to be held in Yokohama, Japan.

Although the Congress is being held as a virtual event due to the pandemic, the technical content is as planned for the face-to-face format. There are about 3000 technical presentations along with plenary and semi-plenary lectures. The presentations and lectures will cover a wide range of topics related to the field of computational mechanics. These include traditional fields, such as solid mechanics, structural mechanics, fracture mechanics, fluid dynamics, and thermodynamics, along with relatively newer subjects such as machine learning. I hope that all the participants of WCCM-APCOM 2022 have great experiences and fruitful exchanges.

Hiroshi Okada
The President of JACM
Sponsors

Platinum Sponsors

- CYBERNET SYSTEMS CO., LTD.
- Dassault Systèmes
- Hexagon
- Keisoku Engineering System Co., Ltd.

Gold Sponsors

- IDAJ Co., LTD.
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- KOZO KEIKAKU ENGINEERING Inc.
- Prometech Software, Inc.
- TechnoStar Co., Ltd.

Satellite Sponsor Session

- KAJIMA Corporation
- RIKEN (R-CCS: RIKEN Center for Computational Science)

Standard Sponsors

- Hitachi, Ltd.
- ITOCHU Techno-Solutions Corporation
- NewtonWorks Corporation
Video-On-Demand (VOD)

Information about the Abstracts and Videos with Q&A feature on the VOD site is provided below. Instruction on how to access and enjoy the VOD site will be shown in the homepage of WCCM-APCOM 2022.

**Published date of Abstracts**

Published date of Abstracts: July 31

**Viewing period and published date of Videos**

Video-viewing period with Q&A function: July 24 to August 5
Video-viewing period without Q&A function: August 6 to September 30
Published date of Videos: July 31

**Presentation time (Duration of video)**

I. Plenary and semi-plenary lectures: Within 45 min
II. Keynote presentation: 40 min
III. Regular presentation: 20 min

**About Q&A**

The VOD system has a Q&A function such that the author is notified soon via e-mail when comments are received. This function contributes to make a smooth and fruitful discussion in the VOD site.
An overview of the live discussion program for the plenary/semi-plenary (PL/SPL) lectures and the mini-symposia (MS) is provided below. There will be no on-time technical program held during the congress. Assuming that attendees have viewed videos in advance, PL/SPL and MS organizers will facilitate a live discussion session on time. The links of these live discussions will be posted on the video-viewing (VOD: video-on-demand) system.

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<td>16:00–17:00 [−1 day]</td>
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<td>PL: M Oshima</td>
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# Live Discussion Program for Plenary Lectures (PL) and Semi-Plenary Lectures (SPL)

## JST August 1 (Monday) AM

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<tr>
<th>JST (Yokohama)</th>
<th>CEST (Paris)</th>
<th>EDT (NY)</th>
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<th>Speaker</th>
<th>Chairpersons</th>
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<td>PL: Akiko Matsuo</td>
<td>Seiichi Koshizuka, Gretar Tryggvason</td>
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<td>SPL: Emilio Silva</td>
<td>SangJoon Shin, Shinji Nishiwaki</td>
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<td>SPL: Zishun Liu</td>
<td>Gui-Rong Liu, Akiyuki Takahashi</td>
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## JST August 1 (Monday) PM

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<td>PL: Marie Oshima</td>
<td>Peter Wriggers, Kazuo Kashiyama</td>
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<td>SPL: Francisco Chinesta</td>
<td>Alessandro Reali, Naoki Takano</td>
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<td>SPL: Chuin-Shan (David) Chen</td>
<td>Daigoro Isobe, Haeng Ki Lee</td>
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## JST August 2 (Tuesday) PM

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<td>PL: Irene Arias</td>
<td>René de Borst, Marie Oshima</td>
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<td>SPL: Sanjay Mittal</td>
<td>Takayuki Aoki, Minoru Shirazaki</td>
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<td>PL: C.W. Lim</td>
<td>Charbel Farhat, Hiroshi Okada</td>
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<td>SPL: SangJoon Shin</td>
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<td>SPL: YuanTong Gu</td>
<td>Ellen Kuhl, Tomohiro Takaki</td>
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### JST August 4 (Thursday) PM

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<td>PL: Charbel Farhat</td>
<td>C.W. Lim, Shinobu Yoshimura</td>
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### JST August 5 (Friday) PM

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Organization

Hosting Organizations

International Association for Computational Mechanics (IACM)
The Japan Society for Computational Engineering and Science (JSCES)

Supporting Organizations

The Asian Pacific Association for Computational Mechanics (APACM)
Japan Association for Computational Mechanics (JACM)

Steering Committee

Honorary Chair: Genki Yagawa
Congress Chair: Seiichi Koshizuka
Secretary General, Co-chair: Kenjiro Terada
Co-chair: Kazuo Kashiyama
Co-chair: Marie Oshima
Co-chair: Shinobu Yoshimura

Congress Organizing Committee (COC)

S. Koshizuka (Congress Chair, Japan)
A. Huerta (IACM President, Spain)
O. Allix (IACM Vice President, Europe-Middle East-Africa, France)
J. Fish (IACM Vice President, Americas, USA)
S. Yoshimura (IACM Vice President, Asia Pacific; APACM President, Japan)
J. Dolbow (IACM Secretary General, USA)
K. Kashiyama (APACM Secretary General, Japan)
N. Sasaki (JSCES President, Japan)
H. Okada (JACM President, Japan)
K. Terada (Secretary General, Japan)

Local Organizing Committee (LOC)

S. Koshizuka (Congress Chair)
M. Oshima (Co-chair, Leader of Track 4 in TPC)
K. Kashiyama (Co-chair)
S. Yoshimura (Co-chair)
K. Terada (Secretary General, Co-chair)
Y. Ishitsuka (Deputy Secretary General, JSCES Secretary General)
J. Kato (Deputy Secretary General)
T. Nagashima (Deputy Secretary General)
A. Takahashi (Deputy Secretary General)
D. Isobe (Technical Program Chair, Leader of Track 7 in TPC)
N. Takano (Local Chair)
M. Koishi (Vice-Local Chair)
M. Shirazaki (Secretary-Local)
R. Shioya (Public affairs manager)
M. Asai (Sponsorship manager)
T. Aoki (Leader of Track 1 in TPC)
S. Nishiwaki (Leader of Track 2 in TPC)
A. Matsuo (Leader of Track 3 in TPC)
H. Okada (Leader of Track 5 in TPC)
H. Okuda (Leader of Track 6 in TPC)
T. Hirano (Leader of Track 8 in TPC)

International Advisory Board

A. Huerta (IACM President, Spain)
O. Allix (IACM Vice President, Europe-Middle East-Africa, France)
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<th>Organization</th>
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<td>O. Allix (France)</td>
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Plenary and Semi-Plenary Lectures

**Plenary Lectures**

**Designing flexoelectric metamaterials through computational strain gradient engineering**
*Irene Arias*
Lacan, Universitat Politècnica de Catalunya, Spain

**Fracture and flow in porous media: a two-scale approach and spline-based discretisation**
*René de Borst*
University of Sheffield, UK

**Computational mechanics-based digital twin for model predictive control of autonomous UAV landing in adverse conditions**
*Charbel Farhat*
Stanford University, USA

**From engineered metastructures to natural seismic metamaterials: theory, computational aspects and experiments**
*C.W. Lim*
City University of Hong Kong, Hong Kong

**Development of new rocket propulsion system "Rotating Detonation Engine"**
*Akiko Matsuo*
Keio University, Japan

**Computational hemodynamics for clinical applications - crossroad between patient-specific simulation and machine-learning techniques**
*Marie Oshima*
The University of Tokyo, Japan
Semi-Plenary Lectures

Deep materials modeling and design
Chuin-Shan (David) Chen
National Taiwan University, Taiwan

Empowering data-informed engineering from smarter data, sensing and hybrid modelling
Francisco Chinesta
ENSAM Institute of Technology, France

Machine-learning based computational mechanics as a powerful tool for engineering and science
YuanTong Gu
Queensland University of Technology, Australia

Discrete crack models in regularized fracture mechanics for mesh-based and mesh-free methods
Michael Kaliske
TU Dresden, Germany

Opportunities for Machine Learning in Computational Mechanics
Ellen Kuhl
Stanford University, USA

On law- and data-based methods
Gui-Rong Liu
University of Cincinnati, USA
A semi-resolved CFD-DEM approach for particulate flows with thermal convection
Moubin Liu
Peking University, China

Hierarchical Deep Learning Neural Network (HiDeNN)-FEM-AI for process design and performance prediction of material systems
Wing Kam Liu
Northwestern University, USA

Recent advances of constitutive models of soft smart materials - from molecular, network scales to continuum scale
Zishun Liu
Xi’an Jiaotong University, China / National University of Singapore, Singapore

Wings at low Reynolds numbers and lifting line theory
Sanjay Mittal
Indian Institute of Technology Kanpur, India

Isogeometric analysis: some recent advances and applications
Alessandro Reali
University of Pavia, Italy

Parametric model order reduction for fluid and structure objects
SangJoon Shin
Seoul National University, Korea
A Topology Optimization Approach Towards Fluid Flow Design Problems

Emilio Silva
Polytechnic School of University of São Paulo, Brazil

Prediction of fatigue crack propagation using effective regularization techniques for regression problems

Yoshitaka Wada
Kindai University, Japan

Virtual elements in engineering sciences

Peter Wriggers
Leibniz University Hannover, Germany
Social Events

**Opening Ceremony (Aug. 1)**
JST (Yokohama): 8:00–8:10
CEST (Paris): 1:00–1:10
EDT (NY): 19:00–19:10 [–1 day]
PDT (LA): 16:00–16:10 [–1 day]
- Welcome addresses
  - Congress Chair - Seiichi Koshizuka
  - IACM President - Antonio Huerta
  - APACM President - Shinobu Yoshimura

**Award Ceremonies (Aug. 1)**
JST (Yokohama): 8:15–9:00
CEST (Paris): 1:15–2:00
EDT (NY): 19:15–20:00 [–1 day]
PDT (LA): 16:15–17:00 [–1 day]
- APACM Award Ceremony
- IACM Award Ceremony

**Closing Ceremony (Aug. 5)**
JST (Yokohama): 12:30–13:00
CEST (Paris): 5:30–6:00
EDT (NY): 23:30–0:00 [–1 day]
PDT (LA): 21:30–22:00 [–1 day]
- Closing remarks
  - IACM President
  - New IACM President
  - New APACM President
- Announcement of next conferences
  - USNCCM 2023
  - WCCM-PANACM 2024
  - APCOM 2025
- Congress Chair final remark
Side Events

Short Courses (IACM)
- Advanced Parallel Programming in C++
- Machine Learning for Solid Mechanics

Women’s Networking Event (FRC: IACM Female Researchers Chapter) (Aug. 3)

JST (Yokohama): 23:00–1:00
CEST (Paris): 16:00–18:00
EDT (NY): 10:00–12:00
PDT (LA): 7:00–9:00
- Welcoming messages
- Panel discussion
- Announcement of the WCCM-FRC Merit-Based award recipients
- Communication exchange for developing networks among attendees
List of Minisymposia

**0100-Fracture, Damage and Failure Mechanics**

**MS0101** ADVANCED MATERIALS: COMPUTATIONAL ANALYSIS OF PROPERTIES AND PERFORMANCE  
Vadim V. Silberschmidt, Valery P. Matveenko

**MS0103** Composite materials under crash and impact loading  
Michael May

**MS0104** NUMERICAL SIMULATION AND EXPERIMENT OF CATASTROPHIC FAILURE MECHANICS  
Tiantang Yu, Qingwen Ren

**MS0105** Computational Damage & Fracture Modeling in Multiphysics Framework  
Mostafa Mobasher, Haim Waisman, C. Armando Duarte, Patrice Longère, Sundararajan Natarajan

**MS0106** Crack propagation in multiphysics problems  
Ugo Galvanetto, Bernhard A. Schrefler

**MS0107** Peridynamic Theory and Multiscale Methods for Complex Material Behavior  
Patrick Diehl, Pablo Seleson, Fei Han, Erkan Oterkus, Gilles Lubineau

**MS0108** Recent advances in computational modeling of damage and fracture  
Leong Hien Poh, Ron Peerlings, Tinh Quoc Bui, John Dolbow, Amine Benzerga

**MS0109** Recent Advances in Modeling and Simulating Extreme Events  
Yan Liu, Xiong Zhang, Zhen Chen, Dongdong Wang, Fei Xu, Cheng Wang

**MS0110** CURRENT TRENDS IN PHASE-FIELD MODELING AND COMPUTATION OF FRACTURE & FATIGUE  
Fadi Aldakheel, Ralf Müller, Laura De Lorenzis

**MS0112** DUCTILITY ENHANCEMENT: ADVANCES IN EXPERIMENTAL AND COMPUTATIONAL MECHANICS  
Kaan Inal, Toshihiko Kuwabara, Dirk Mohr, Jidong Kang

**MS0113** Damage and Failure of Composite Materials and Structures  
Stephen Hallett, Joris Remmers, Pedro Camanho

**MS0114** Computational Modelling of Self-healing Composite Materials and Structures  
Ivica Smojver, Vassilis Kostopoulos

**MS0115** Plastic instability and fracture in ductile materials  
Shmuel Osovski, Ankit Srivastava, José A. Rodríguez-Martínez

**MS0116** Multi-stage Failure Simulations  
Mao Kurumatani, Kyoungsoo Park, Kenjiro Terada, Norio Takeuchi, Rene de Borst

**MS0117** Advancement of computational fracture mechanics applications  
Yoshitaka Wada, Hiroshi Okada, Toshio Nagashima, Xueling Fan, Liu Zhanli

**MS0118** Computational analysis of fiber reinforced composites  
Vincent Tan, Ryo Higuchi, Jun Koyanagi, Tong Earn Tay

**MS0119** Ductile-Fracture Modeling and Simulation  
Kazutake Komori

**MS0120** Peridynamics and Nonlocal Theories for Fracture Modelling: Recent Developments and Their Applications  
Satoyuki Tanaka, Tinh Bui Quoc, Selda Oterkus, Erkan Oterkus, Erdogan Madenci
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<tr>
<th>MS0121</th>
<th>Recent Advances in Computational Fracture Mechanics for Subsurface Applications</th>
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<td>Juan Michael Sargado, Michael Welch, Inga Berre</td>
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<th>Fracture, Damage and Failure Mechanics of Smart and Active Materials</th>
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<td>Sergey Kozinov, Bai-Xiang Xu, Andreas Ricoeur, John Huber, Hongjun Yu</td>
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<th>Computational Fracture Modeling in Heterogeneous Materials – Recent Advances and Future Challenges</th>
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<td>Paras Kumar, Dhananjay Phansalkar, Julia Mergheim, Sigrid Leyendecker, Paul Steinmann</td>
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<th>Modeling of concrete in an Experimental-Virtual-Lab</th>
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<td>Jörg Schröder, Steffen Anders, Dominik Brands, Laura de Lorenzis, Peter Wriggers, Michael Kaliske, Ken Terada</td>
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### 0200-Advanced Discretization Techniques

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<tr>
<td>Sascha Eisentraeger, Hauke Gravenkamp, Ean Tat Ooi, Sundararajan Natarajan, Carolin Birk, Sven Kinkel, Chongmin Song</td>
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<th>MS0202</th>
<th>Virtual Element and related polygonal methods in solid and fluid mechanics applications</th>
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<td>Peter Wriggers, Edoardo Artioli, Lourenco Beirão da Veiga</td>
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<td>Orhun Davarci, Alex Viguerie, Emily Yang, Thomas Yankeelov, Guillermo Lorenzo</td>
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