

The 10th Symposium on Theoretical and Applied Mechanics

Organizing

Committee on Mechanical Engineering, Committee on General Engineering, Committee on Civil Engineering and Architecture, Science Council of Japan Joint Subcommittee on Theoretical and Applied Mechanics

Co-organizing

Consortium for Theoretical and Applied Mechanics, Japan Society of Engineers

Date

13:00 - 16:35, 14th of March (Fri), 2025

Venue

Auditorium, Science Council of Japan and Online

Free
of
charge

Classical mechanics is often regarded as a fundamental discipline established in each field of study, such as the so-called four dynamics in mechanical engineering (mechanics, mechanics of materials, fluid mechanics and thermodynamics). However, as the problems covered by mechanics become increasingly diverse, unsolved problems in mechanics across various disciplines are becoming apparent. In order to tackle these problems, it is necessary to fuse a wide range of disciplines beyond the framework of existing fundamental disciplines. Against the background of the above, this symposium, the tenth of its kind, has been held to look at the latest trends in advanced research that could broaden the base of classical mechanics research, and at the same time to look at and discuss next-generation mechanics research that should be newly developed by researchers based on classical mechanics in collaboration with different disciplines. Last year, we planned a symposium with an emphasis on diversity and inclusion, with foreign researchers active in Japan playing a central role in selecting the symposium speakers, and all lectures being given in English. This year, following last year, we planned this symposium together with foreign researchers active in Japan, related to the theme selected for the International Union of Theoretical and Applied Mechanics (IUTAM) symposium.

Part 1 Chair: Timothée Mouterde (Lecturer, The University Tokyo)

- 13:00** **Opening Remarks** **Yoko Yamanishi** (Associate Member, Science Council of Japan /Professor, Kyushu University, Japan)
- 13:10** **Invited Lecture (1)** **「Hydrophilic Slippery Surfaces for Advanced Thermal Management Applications」**
Yaerim Lee (Lecturer, The University Tokyo)
- 13:35** **Invited Lecture (2)** **「Elastic instability in porous media affected by polymer dynamics」**
Ruri Hidema (Professor, Nagoya University)
- 14:00** **Invited Lecture (3)** **「Stress Induced by Droplets Impacting onto Soft Substrates」**
Yoshiyuki Tagawa (Associate Member, Science Council of Japan | Professor, Tokyo University of Agriculture and Technology)
- 14:25** **Invited Lecture (4)** **「Evaporating and Solidifying Drops on Heated and Cooled Surfaces」**
Minori Shirota (Professor, Hirosaki University)
- 14:50** Break

Part 2 Chair: Ettore Barbieri (Senior Researcher, Research Institute for Value-added-information Generation, Japan Agency for Marine-Earth Science and Technology)

- 15:10** **Invited Lecture (5)** **「Sea-Ice Deformations at the Submesoscale and Below during the Melting Season」**
Satoshi Kimura (Researcher, Japan Agency for Marine-Earth Science and Technology)
- 15:35** **Invited Lecture (6)** **「The perspective of the recent change in Arctic sea ice dynamics, based on Viscous-Plastic rheology of sea ice」**
Takenobu Toyota (Assistant Professor, The Institute of Low Temperature Science, Hokkaido University)
- 16:00** **Invited Lecture (7)** **「Sea-ice rheology, challenges in non-Newtonian fluids」**
Jinro Ukita (Faculty of Science Fellow, Niigata University and The University of Tokyo)
- 16:25** **Closing remark** **Shu Takagi** (Member of the Third Section of Science Council of Japan | Professor, The University of Tokyo, Japan)
- 16:35** **Closing**

Registration

If you wish to participate, please register in advance by

12:00 on March 10th (Mon) at the URL below or by using the code on the right. Pre-registration will be closed as soon as capacity is reached.

<https://forms.gle/BGXdkJZJ6fL6QGS16>



Contact: Yoko Yamanishi (Professor, Kyushu Univ.) e-mail: yoko * mech.kyushu-u.ac.jp (Please change * to @ when you send it.)

主催 日本学術会議機械工学委員会・総合工学委員会・土木工学・建築学委員会合同理論応用力学分科会
共催 公益社団法人日本工学会理論応用力学コンソーシアム



日時

令和 7年 3月14日 (金) 13:00 - 16:35

場所

日本学術会議講堂(東京都港区六本木7-22-34)ハイブリッド開催

参加料

無料

古典力学は、機械工学におけるいわゆる4力学(機械力学・材料力学・流体力学・熱力学)のように、学問分野ごとに確立された基盤学問のように捉えられがちである。しかし、力学が対象とする問題の多様化に伴い、様々な学問分野にまたがる未解決の力学の問題が顕在化してきている。これらの諸課題に取り組むためには、既存の基盤学問領域の枠にとらわれない広範囲な学問分野との融合が必要である。本シンポジウムは今回が10回目となるが、上記を背景に、古典力学研究の裾野を広げうる先端的研究に関する最新動向を俯瞰すると同時に、古典力学を基盤とする研究者が異分野と協働して新たに開拓すべき次世代力学研究を展望・討論を重ねてきた。その中で、昨年度は日本で活躍する外国人研究者が中心となりシンポジウム講演者の選定を行い、すべての講演を英語で行うなど、ダイバーシティ&インクルージョンを重視したシンポジウムを企画した。本年度は、国際理論応用力学連合(IUTAM)のシンポジウムに採択されたテーマに関連し、昨年度に続き、日本で活躍する外国人研究者とともに本シンポジウムを企画した。

Part 1 司会: Timothée Mouterde (東京大学大学院工学系研究科・講師)

- 13:00 開会の挨拶 山西 陽子 (日本学術会議連携会員/九州大学大学院工学研究院機械工学部門・教授)
13:10 招待講演(1)「Hydrophilic Slippery Surfaces for Advanced Thermal Management Applications」
Lee Yaerim (東京大学大学院工学系研究科・講師)
13:35 招待講演(2)「Elastic instability in porous media affected by polymer dynamics」
日出間 るり (名古屋大学大学院工学研究科・教授)
14:00 招待講演(3)「Stress Induced by Droplets Impacting onto Soft Substrates」
田川 義之 (日本学術会議連携会員/東京農工大学大学院工学研究院先端機械システム部門教授)
14:25 招待講演(4)「Evaporating and Solidifying Drops on Heated and Cooled Surfaces」
城田 農 (弘前大学理工学部機械科学科・教授)
14:50 休憩

Part 2 司会: Ettore Barbieri (国立大学開発法人海洋研究開発機構付加価値情報創成部門主任)

- 15:10 招待講演(5)「Sea-Ice Deformations at the Submesoscale and Below during the Melting Season」
木村 仁 (国立研究開発法人海洋研究開発機構・研究員)
15:35 招待講演(6)「The perspective of the recent change in Arctic sea ice dynamics, based on Viscous-Plastic rheology of sea ice」
豊田 威信 (北海道大学低温科学研究所水・物質循環研究部門・助教)
16:00 招待講演(7)「Sea-ice rheology, challenges in non-Newtonian fluids」
浮田 甚郎 (新潟大学自然科学系・理学部フェロー、東京大学)
16:25 閉会の挨拶 高木 周 (日本学術会議第三部会員/東京大学大学院工学研究科・教授)
16:35 閉会

参加申込み方法

参加を希望される方は、3/10(月)12:00までに下記URLまたは右のコードより事前
申込をお願いします。定員になり次第、事前申込みの受付は終了します。
<https://forms.gle/BGXdkJZJ6fL6QGS16>

連絡先: 山西陽子 (九州大学) e-mail: yoko * mech.Kyushu-u.ac.jp (送信の際には * を @ に変えてください)

