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Jeongmin Ahn (General Co-Chair of ICFD2023, Syracuse University)
Kaoru Maruta (Director of IFS, Tohoku University)

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Yao-Hsien Liu
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USA

Igor V. Adamovich
Jeongmin Ahn
Yiguang Ju
Kozo Saito
Rongjia Tao

Conference Venue

ICFD2023 will take place in a hybrid fashion
-both in-person and online.

Sendai International Center

Aobayama, Aoba-ku, Sendai, 980-0856
TEL (81)22-265-2211
<http://www.aobayama.jp/english/>

Registration Fee

	Without Banquet
Registration Fee	General 15,000 JPY
	Student 3,000 JPY

All participants are required to make a registration through the website.

Important Dates

- June 15, 2023:** Deadline for **Presentation Submission**. Please present your paper title / author's name / keywords through Presentation Submission page of ICFD2023 website.
- July 21, 2023:** Deadline for **Short Paper (2 to 4 pages) Submission**
- Aug. 24, 2023:** Deadline for Advanced Registration

Publication & Special Issues of International Journals

It will be available to download the proceedings through the ICFD2023 website. The URL and password will be informed the participants by e-mail in the morning on November 6, 2023. Special Issue of the Conference is being planned to be published in a journal.

For more details, please visit ICFD2023 website.

ICFD Secretariat

For further details and related questions, please contact **ICFD2023 Secretariat**: icfd2023@grp.tohoku.ac.jp
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The 20th International Conference on Flow Dynamics

Second Circular

As of May 30, 2023

<http://www.ifs.tohoku.ac.jp/icfd/2023/index.html>

Organized by
Executive Committee of ICFD

Supported by
Institute of Fluid Science,
Tohoku University

November 6 - 8, 2023



SCOPE

The 20th International Conference on Flow Dynamics (ICFD2023), in the annual series since 2004, will be held from November 6th to 8th, 2023 at Sendai, Japan. The objective of this conference is to explore new horizons in science and technology in Flow Dynamics by discussing and exchanging information related to the most advanced scientific fields and to cutting edge technologies. ICFD is now recognized by the researchers and engineers all over the world as one of the largest and the most important international conferences in the field of Flow Dynamics. It has also been playing an important role in promoting international research collaborations. Especially, ICFD2023 focuses on energy related topics, such as clean energy, hydrogen energy, and natural energy. In addition, it should be noted that ICFD provides young researchers and students with unique opportunities to develop themselves through proactive participation in the conference and young researchers and students are encouraged by awards.

The first nine ICFDs were hosted by two Tohoku University COE Programs, "The 21st Century International COE on Fluid Dynamics (21COE, Year 2003 - Year 2007)" and its successor "Global COE Program World Center of Education and Research for Trans-disciplinary Flow Dynamics (GCOE, Year 2008 - Year 2012)". Institute of Fluid Science (IFS), Tohoku University, was responsible for both 21COE and GCOE programs. GCOE ended in March of 2013. In 2013, on the occasion of its 70th anniversary, IFS was reorganized as an even more powerful research institute, particularly in energy-related research, with three new research divisions and an Innovative Energy Research Center. In this movement, IFS decided to continue to support this conference series, and ICFDs have been held annually since 2013. We pledge to maintain ICFD's dynamism and spirit as a meeting for distinguished scientists in Flow Dynamics as well as for future generations of scientists and engineers.

Flow Dynamics is an Integrated Flow Science which deals with flow and transport phenomena concerning electrons, molecules, nanoscale particles, any continuum fluid with and without chemical reaction, any material, energy, information, economic activity and so forth. It addresses multiscale, multiphysics and multidisciplinary problems and deals with all-natural phenomena including bio-processes, corrosion, weather, volcanic eruptions, earth magnetic field and tectonic motions, and in most human activities such as industrial processes, energy production & saving, and

transportation. ICFD is expected to play a significant role in encouraging Flow Dynamics to become a major academic discipline, which deals with various difficult tasks that human society is facing, such as control of nuclear power generators, global warming, energy, resource and diseases. We expect all scientists and engineers who are working or are interested in such areas to participate in ICFD2023 and extend their research areas and international human networks.

ICFD serves as a platform of discussion to reach scientific truth and engineering solutions for all the flow-relevant problems. We cordially invite researchers, teachers, students and planners exploring and studying in the relevant research and development fields of energy, bio-, nano-, material, environmental, planetary and earth sciences and technologies, particularly in the academic fields of mechanical engineering, aerospace engineering, nuclear engineering, physics, medical science and engineering, chemistry, chemical engineering and all other areas.

We believe that you will enjoy beautiful and pleasant atmosphere of the autumn at Sendai, since the beginning November is the best season of Sendai.

Takashi Tokumasu, Professor
 Tohoku University
 and
 Jeongmin Ahn, Professor
 Syracuse University
 General Co-Chairs, ICFD2023

Plenary Lectures

Professor Christine Rousselle (University of Orleans, France)
 Professor Hai Wang (Stanford University, USA)
 Mr. Michimasa Fujino (Honda Aircraft Co., USA)

Sessions

General Session:

GS1: General Session

Co-Organizers: T. Tokumasu, J. Okajima

Symposium / Workshop / Organized Sessions:

- OS1** The First International Symposium on Integrated Flow Science I & III
 Advanced Materials and its Energy Application
 Organizer: S. Samukawa
 Multiphase Energy Science and Technology (Combination of Monozukuri-Fluid Science / Engineering)
 Organizer: J. Ishimoto
- OS2: The First International Symposium on Integrated Flow Science II**
 Combustion Technology and Fundamentals
 Co-Organizers: P. Dagaut, H. Im, K. Maruta
- OS3: The First International Symposium on Integrated Flow Science IV**
 Advanced Semiconductor and Digital Transformation
 Organizer: K. Endo

- OS4: Flow Dynamics and Combustion Technology of Hybrid Rocket Propulsion, 15th Edition**
 Co-Organizers: Y. Saito, L. Kamps
- OS5: Advanced Applications of Multi-functional Fluids**
 Co-Organizers: H. Takana, T. Fujino, K. Doi, N. Takeuchi, Y. Iwamoto
- OS6: Free Flight Experiment with MSBS and Ballistic Range**
 Co-Organizers: S. Obayashi, K. Seo, H. Nagai
- OS7: Advances in Simulation Techniques for the Computational Aerosciences**
 Co-Organizers: Y. Abe, F. Witherden, B. Vermeire, T. Haga, K. Otsuka, N. Tsushima
- OS8: Advanced Physical Stimuli and Biological Responses**
 Co-Organizers: T. Sato, T. Ohashi, S. Kawano, R. Shirakashi, Y.-C. Cheng
- OS9: Biomedical Flow Dynamics**
 Co-Organizers: H. Anzai, M. Zhang, K. Takashima, T. Nakayama, A. Qiao, M. Ohta
- OS10: Two-Phase Thermal Control for Spacecraft**
 Co-Organizers: K. Odagiri, H. Nagai
- OS11: Microfluidics and Microphysiological Modeling**
 Co-Organizers: K. Funamoto, T. Fukui, T. Omori, E. Corvera Poiré
- OS12: Complex Thermofluid System**
 Co-Organizers: C.-Y. Chen, Y.-H. Liu, Y.-H. Liao
- OS13: Flow Realization, Measurement and Visualization**
 Co-Organizers: T. Yamagata, S. Funatani, S. Iio, K. Funamoto
- OS14: Flow in Geoscience / Geoenergy**
 Co-Organizers: A. Suzuki, A. Patsoukis-dimou, J. Maes
- OS15: Turbulence: from Fundamentals to Applications**
 Co-Organizers: Y. Hattori, T. Ishihara, Y. Tsuji
- OS16: Vortex Motion**
 Co-Organizers: Y. Hattori, S. Llewellyn Smith
- OS17: Supercritical Fluid**
 Co-Organizers: Y. Kanda, Y. Hu, K. Ragui, A. Komiya
- OS18: Flow Measurements using PSP/TSP Technique**
 Co-Organizers: C.-Y. Huang, Y. Egami, Y. Matsuda, H. Nagai
- OS20: Liaison Office Session**
 Co-Organizers: M. Ohta, T. Uchimoto, T. Tokumasu, A. Komiya
- OS21: The 19th International Students / Young Birds Seminar on Multi-scale Flow Dynamics**
 Co-Organizers: H. Kosada, K. Tamaoki, R. Zhu
 Supervisors: A. Suzuki, S. Takeda, Y. Kanda
- OS22: The 23rd International Symposium on Advanced Fluid Information (AFI-2023)**
 > **IFS Collaborative Research Forum**
 Co-Organizers: H. Masuda, T. Tokumasu
- OS23: IFS Lyon Center Collaborative Research Forum**
 Organizer: T. Uchimoto
- OS24: JSPS Core to Core program workshop**
 -Construction of an international research exchange center for ammonia combustion and materials toward the realization of a low-carbon society-
 Co-Organizers: TBD