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Tetsuya Uchimoto (General Co-Chair of ICFD2024,
Tohoku University)
Gael Sebald (General Co-Chair of ICFD2024, INSA de
Lyon, CNRS)
Kaoru Maruta (Director of IFS, Tohoku University)

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Chih-Yung Huang
Yao-Hsien Liu
Jongshinn Wu

USA

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

Conference Venue

ICFD2024 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

Due Date	Registration Fee
Advanced Registration Fee (on or before Aug. 26, 2024)	General 16,000 JPY Student 3,000 JPY
On-site Registration Fee (from Aug. 27, 2024 to Nov. 14, 2024)	General 23,000 JPY Student 6,000 JPY

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

Important Dates

- June 15, 2024:** Deadline for **Presentation Submission**.
Please present your paper title / author's
name / keywords through Presentation
- July 19, 2024:** Submission page of ICFD2024 website.
Deadline for **Short Paper (2 to 4 pages)**
Submission
- Aug. 26, 2024:** Deadline for Advanced Registration

Publication & Special Issues of International Journals

It will be available to download the proceedings through the
ICFD2024 website. The URL and password will be informed
the participants by e-mail in the morning on November 18,
2024. Special Issue of the Conference is being planned to be
published in a journal.

For more details, please visit ICFD2024 website.

ICFD Secretariat

For further details and related questions, please contact
ICFD2024 Secretariat: icfd2024@grp.tohoku.ac.jp
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TEL&FAX: (81)22-217-5301
<http://www.ifs.tohoku.ac.jp/icfd/2024/>

The 21st International Conference on Flow Dynamics

Second Circular

As of May 10, 2024

<https://www.ifs.tohoku.ac.jp/icfd/2024/index.html>

Organized by
Executive Committee of ICFD

Supported by
Institute of Fluid Science,
Tohoku University

November 18 - 20, 2024



SCOPE

The 21st International Conference on Flow Dynamics (ICFD2024), in the annual series since 2004, will be held from November 18th to 20th, 2024 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, ICFD2024 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 ICFD2024 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.

Tetsuya Uchimoto, Professor
Tohoku University
and

Gael Sebald, Professor
INSA de Lyon, CNRS
General Co-Chairs, ICFD2024

Plenary Lectures

Prof. Annemie Bogaerts (University of Antwerp, Belgium)
"Computational fluid dynamics simulations of plasma reactor design, for gas conversion applications"

Prof. Epaminondas Mastorakos (University of Cambridge, UK)
"Modelling of dual-fuel combustion"

Prof. Jonathan F. Morrison (Imperial College, London, UK)
"Boundary layer control with moving surfaces"

Sessions

General Session:

GS1: General Session

Co-Organizers: T. Uchimoto, K. Funamoto

Symposium / Workshop / Organized Sessions:

OS1: The Second International Symposium on Integrated Flow Science I & II 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 Second International Symposium on Integrated Flow Science II Combustion Technology and Fundamentals

Co-Organizers: P. Dagaut, H. Im, O.L. Gulder, K. Maruta

OS3: The First International Symposium on Integrated Flow Science IV Advanced Semiconductor and Digital Transformation

Co-Organizers: D. Ohori, K. Endo

OS4: Flow Dynamics and Combustion Technology of Hybrid Rocket Propulsion, 16th Edition

Co-Organizers: Y. Saito, L. Kamps

OS5: Advanced Applications of Multi-functional Fluids

Co-Organizers: H. Takana, T. Fujino, K. Doi, N. Takeuchi

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, J. S. Park, A. Yakeno

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, M. Nishikawara, 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: Innovations in Oncology

Co-Organizers: C. Moyret-Lalle, R. Charlotte, J.-P. Rieu, F. Hollande, K. Funamoto

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, H. Yingxue, K. Ragui, A. Komiya

OS18: Flow measurements using PSP/TSP technique

Co-Organizers: C.-Y. Huang, Y. Egami, Y. Matsuda, H. Nagai

OS19: Multiphase Thermal Fluid Flow and Its Interface Dynamics

Co-Organizers: J. Okajima, T. Okabe, M. Shirota

OS20: Multiphysics in Fluid Mechanics

Co-Organizers: M. Shigeta, M. Tanaka, Y. Saito, Y. Inada, J. Yoshikawa, N. Kodama, H. Komen, M. Sugimoto

OS21: Smart Fluids & Soft Matters and Their Advanced Applications

Co-Organizers: M. Nakano, X. Gong, W. Li, G. Sebald

OS22: Liaison Office Session

Co-Organizers: M. Ohta, T. Uchimoto, T. Tokumasu, A. Komiya

OS23: The 20th International Students / Young Birds Seminar on Multi-scale Flow Dynamics

Co-Organizers: T. Koizumi, A. Nakamura, M. Okawa, D. Tsuneoka
Supervisors: Y. Kanda, T. Ikami, Y. Kaneko

OS24: The 24th International Symposium on Advanced Fluid Information (AFI-2024)

➤ IFS Collaborative Research Forum

Co-Organizers: H. Masuda, T. Uchimoto

OS25: IFS Lyon Center Collaborative Research Forum

Organizer: T. Uchimoto

OS26: 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