

### *Executive Committee Members*

Makoto Ohta (General Co-Chair of ICFD2025,  
Tohoku University)  
Vincent Fridrici (General Co-Chair of ICFD2025,  
Centrale Lyon)  
Kaoru Maruta (Director of IFS, Tohoku University)

### *International Scientific Committee Members*

Chair: Shigeru Obayashi

#### **Asia**

Debasish Biswas  
Chingyao Chen  
Zhenmao Chen  
Jinsoo Cho  
Kentaro Doi  
Yuji Hattori  
Chih-Yung Huang  
Jun Ishimoto  
Takatoshi Ito  
Satoyuki Kawano  
Nam Il Kim  
Hideaki Kobayashi  
Kazunori Kuwana  
XinGang Liang  
Yao-Hsien Liu  
Kaoru Maruta  
Hiroki Nagai  
Taku Ohara  
Jinhao Qiu  
Akihiro Sasoh  
Takehiko Sato  
Masaya Shigeta  
Hyung Jin Sung  
Toshiyuki Takagi  
Takashi Tokumasu  
Michio Tokuyama  
Tetsuya Uchimoto  
Jongshinn Wu  
Satoru Yamamoto  
Kazuya Yoshida

#### **Europe**

Christophe Bogey  
Christian Boller  
Jean-Yves Cavallé  
Bastien Chopard  
Philippe Dagaut  
Vincent Fridrici  
Alexis Giauque  
Fredrik Lundell  
Sergey S. Minaev  
Gael Sebald

#### **Middle East**

Hong G. Im

#### **North America**

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

#### **Oceania**

Masud Behnia  
Weihua Li  
Gary Rosengarten  
Victoria Timchenko

### *Conference Venue*

ICFD2025 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 (Japan Standard Time)	Registration Fee
Early Registration (on or before Aug. 25, 2025)	General 22,000 JPY Student 3,000 JPY
On-site Registration Fee (from Aug. 26, 2025 to Nov. 6, 2025 inclusive)	General 30,000 JPY Student 6,000 JPY

Due Date (Japan Standard Time)	Banquet Fee
Banquet Registration (on or before Sep. 30, 2025)	General 12,000 JPY Student 6,000 JPY

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

### *Important Dates*

- June 16, 2025:** Deadline for **Presentation Submission**.  
Please present your paper title / author's  
name / keywords through Presentation  
Submission page of ICFD2025 website.
- July 22, 2025:** Deadline for **Short Paper (2 to 4 pages)  
Submission**
- Aug. 25, 2025:** Deadline for Early Registration

### *Publication*

It will be available to download the proceedings through the  
ICFD2025 website. The URL and password will be informed  
the participants by e-mail in the morning on November 10,  
2025.

For more details, please visit ICFD2025 website.

### *ICFD Secretariat*

For further details and related questions, please contact  
**ICFD2025 Secretariat:** [icfd2025-ifs@grp.tohoku.ac.jp](mailto:icfd2025-ifs@grp.tohoku.ac.jp)  
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<http://www.ifs.tohoku.ac.jp/icfd/2025>

# The 22nd International Conference on Flow Dynamics

Second Circular

As of April 1, 2025

<https://www.ifs.tohoku.ac.jp/icfd/2025/index.html>

Organized by  
Executive Committee of ICFD

Supported by  
Institute of Fluid Science,  
Tohoku University

## November 10 - 13, 2025





### SCOPE

The 22nd International Conference on Flow Dynamics (ICFD2025), in the annual series since 2004, will be held from November 10th to 13th, 2025 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, ICFD2025 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, as the component of Integrated Flow Science, focus on the 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

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 ICFD2025 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.

Prof. Makoto Ohta, Tohoku University and

Prof. Vincent Fridrici, Centrale Lyon

General Co-Chairs, ICFD2025

### Plenary Lectures

Prof. Christophe Bailly (Centrale Lyon, France)

Prof. Roland N. Horne (Stanford University, USA)

Prof. Hong G. Im (King Abdullah University of Science and Technology, Saudi Arabia)

Dr. Denis Veynante (CentralSupélec Laboratory EM2C, France)

### Sessions

#### General Session:

##### GS1: General Session

Co-Organizers: M.Ohta, A. Suzuki

#### Symposium / Workshop / Organized Sessions:

##### OS1: The Third 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 Third International Symposium on Integrated Flow Science II

Combustion Technology and Fundamentals

Co-Organizers: K. Maruta, TBD

##### OS3: The Third International Symposium on Integrated Flow Science IV

Advanced Semiconductor and Digital Transformation

Co-Organizers: K. Endo, D. Ohori

##### OS4: Flow Dynamics and Combustion Technology of Hybrid Rocket Propulsion, 17th 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: K. Seo, H. Nagai, K. Ueno

##### OS7: Advances in Simulation Techniques for the Computational Aerosciences

Co-Organizers: Y. Abe, F.D. Witherden, B. C. Vermeire, T. Haga, K. Otsuka, N. Tsushima, J. S. Park, A. Yakeno

##### OS8: Advanced Physical Stimuli and Biological Responses : Promotion of Collaborative Research

Co-Organizers: Y.-C. Cheng, H.-Y. Angie Wang, C.H. Dylan Tsai, S. Liu, K. Tachibana, T. Sato

##### OS9: Biomedical Flow Dynamics

Co-Organizers: H. Anzai, M. Zhang, K. Takashima, T. Nakayama, A. Qiao, M. Ohta

##### OS10: Two-Phase Thermal Control Technology

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 and Energy

Co-Organizers: T. Yamagata, S. Iio, S. Funatani, A. Komiya

##### OS14: Innovations in Oncology

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

##### OS15: Turbulence: from Fundamentals to Applications

Co-Organizers: Y. Hattori, T. Ishihara, Y. Tsuji, A. Yakeno

##### OS16: Vortex Motion

Co-Organizers: Y. Hattori, S. Llewellyn Smith

##### OS17: Supercritical Fluid

Co-Organizers: Y. Kanda, Y. Feng, H. Yingxue, L. Chen, 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. Shiota

##### OS20: Multiphysics in Fluid Mechanics

Co-Organizers: M. Shigeta, M. Tanaka, Y. Saito, Y. Inada, H. Komen, M. Sugimoto, M. Hirota, H. Muneoka

##### OS21: Smart Fluids & Soft Matters and Their Advanced Applications

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

##### OS22: Fundamentals and Applications of Thermoacoustics

Co-Organizers: T. Biwa, E. Luo, Y. Ueda, S. Zhu, G. Chen

##### OS23: Aerospace Heat, Fluid Engineering, and Mathematical Physics: Nonlinear Dynamics and Stochastic Processes with JST CREST

Co-Organizers: A. Yakeno, S. Kano, I. Ishikawa, Y. Abe, S. Yatsuyanagi

##### OS24: Dynamics of Flow of Matter in Moving Contacts

Co-Organizers: V. Fridrici, T. Tokumasu, M. Ohta

##### OS25: Combustion-generated Pollutants

Organizer: P. Dagaut

##### OS26: Liaison Office Session

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

##### OS27: The 21st International Students / Young Birds Seminar on Multi-scale Flow Dynamics

Co-Organizers: TBD

Supervisors: Y. Kanda, T. Ikami, Y. Kaneko

##### OS28: The 25th International Symposium on Advanced Fluid Information (AFI-2025)

➤ IFS Collaborative Research Forum

Co-Organizers: H. Masuda, M. Ohta

##### OS29: IFS Lyon Center Collaborative Research Forum

Organizer: T. Uchimoto

##### OS30: 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-

Organizer: T. Tokumasu

##### OS31: Japan-South Africa Bilateral Workshop

Co-Organizers: T. Kodama, O. Oluwafemi, A. Komiya