Executive Committee Members
Takehiko Sato (General Co-Chair of ICFD2019, Tohoku University)
Jong-Shinn Wu (General Co-Chair of ICFD2019, National Chiao Tung University)
Shigeru Obayashi (Director of IFS, Tohoku University)

International Scientific Committee Members
Chair: Shigenao Maruyama

Australia
Taku Ohara
Masud Behnia
WeiHua Li
Gary Rosengarten
Victoria Timchenko

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Javad Mostaghimi
Zhenmao Chen
XinGang Liang
Jinhao Qiu

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Philippe Kapsa

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Kozo Salto
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Rongjia Tao
Satish Udpa

Conference Venue
Sendai International Center
Aobayama, Aoba-ku, Sendai, 980-0856
TEL: (81)22-265-2211 FAX: (81)22-265-2485
http://www.aobayama.jp/english/

Banquet Venue
Hotel Metropolitan Sendai
1-1-1, Chuo, Aoba-ku, Sendai, 980-8477
TEL: (81)22-268-2525
http://www.sendaimetropolitan.jp/en-gb

Registration Fee

<table>
<thead>
<tr>
<th></th>
<th>With Banquet</th>
<th>Without Banquet</th>
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<tr>
<td>Advanced</td>
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*Banquet will be held on November 7 at Hotel Metropolitan Sendai.

Important Dates

**June 15, 2019:** Deadline for Presentation Submission. Please present your paper title / author’s name / keywords through Presentation Submission page of ICFD2019 website.

**July 1, 2019:** Submission

**July 26, 2019:** Deadline for Short Paper (A4, 2pages) Submission

**Aug. 30, 2019:** Deadline for Advanced Registration

Publication & Special Issues of International Journals
Proceedings will be distributed to the conference participants with USB flash memory. Selected papers are being planned to be published in a journal after the conference. Please visit ICFD2019 website for the details.

ICFD Secretariat
For further details and related questions, please contact ICFD2019 Secretariat: icfd2019@fmail.ifs.tohoku.ac.jp
ICFD2019 Secretariat, Institute of Fluid Science, Tohoku University
2-1-1, Katahira, Aoba-ku, Sendai, 980-8577, JAPAN
TEL&FAX: (81)22-217-5301
http://www.ifs.tohoku.ac.jp/icfd2019/
The 16th International Conference on Flow Dynamics
Second Circular

SCOPES

The 16th International Conference on Flow Dynamics (ICFD2019), in the annual series since 2004, will be held from November 6th to 8th, 2019 at the Sendai International Center, Sendai, Japan. The objectives of this conference are 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. 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 2018, on the occasion of its 75th 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 new 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 a comprehensive scientific field 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 ICFD2019 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. Participants will know when they come to Sendai that a wide variety of technical sessions are available to provide the seeds and to fulfill the needs from a viewpoint of flow dynamics. We cordially invite researchers, teachers, students and planners exploring and studying in the relevant research and development fields of bio-, nano-, material, energy, 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. November is a beautiful month in Sendai. We believe that you will enjoy beautiful and pleasant atmosphere of the autumn in Sendai.

Takehiko Sato, Professor, Tohoku University
Jong-Shinn Wu, Professor National Chiao Tung University

General Session:

Plenary Lectures:

Dr. Mohamed Farhat (EPFL, Switzerland)
“Jets, Shocks and Light Emission from Collapsing Cavitation Bubbles”
Professor Joaquim R.R.A. Martins (University of Michigan, USA)
“CFD-based Aircraft Design Optimization”
Professor Luc Vervisch (INSA de Rouen Normandie, France)

Sessions

GS1: General Session
Co-Organizers: T. Sato, G. Kikugawa

Symposium / Workshop / Organized Sessions:

OS1: The Seventh International Symposium on Innovative Energy Research I: Advanced Materials and its Energy Application
Co-Organizers: S. Samukawa, S. Orimo

Co-Organizers: P. Dagaut, H. Im, N. I. Kim, K. Maruta, S. Mirev

Organizer: J. Ishimoto

Co-Organizers: T. Shimada, K. Sawada

OS5: Advanced Applications of Multi-functional Fluids
Co-Organizers: H. Takanaka, T. Fujino, K. Doi, N. Takeuchi

OS6: New Dimensions of Magnetic Suspension and BioNano System
Co-Organizers: S. Obayashi, K. Asai

OS7: Smart Fluids & Soft Matters and Their Advanced Applications
Co-Organizers: M. Nakano, R. Tao, W. Li, G. Sebald

OS8: Advanced Physical Stimuli and Biological Responses
Co-Organizers: T. Sato, T. Ohashi, S. Kawano, R. Shirakashi

OS9: Biomedical Flow Dynamics
Co-Organizers: H. Anzai, M. Zhang, K. Takashima, T. Nakayama, M. Ohta

OS10: Biomolecular Dynamics
Co-Organizers: Y. Mukai, K. Etchuya, M. Ohta

OS11: Microfluidics and Microphysiological Systems
Co-Organizers: K. Funamoto, M. Ohta

OS12: Complex Thermofluid System

OS13: Flow Realization, Measurement and Visualization
Co-Organizers: N. Fujisawa, T. Yamagata, T. Hayase, S. Funatani, S. Ito

OS14: Photo-Medical
Co-Organizers: A. Suzuki, S. Tupin, M. Ohta

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: Liaison Office Session
Co-Organizers: M. Ohta, T. Uchimoto, T. Tokumatsu, A. Komiyu

OS18: The 15th International Students / Young Birds Session on Multi-scale Flow Dynamics

The 19th International Symposium on Advanced Fluid Information (AFi-2019)

IFS Collaborative Research Forum
Co-Organizers: H. Masuda, T. Sato

Fluids Science Research Award Lectures
Organizer: S. Obayashi

OS20: AFI-2019 IFS Lyon Center Collaborative Research Forum
Organizer: T. Uchimoto

http://www.ifs.tohoku.ac.jp/icfd2019/ November 6 – 8, 2019

November is a beautiful month in Sendai. We believe that you will enjoy beautiful and pleasant atmosphere of the autumn in Sendai.

Takehiko Sato, Professor, Tohoku University
Jong-Shinn Wu, Professor National Chiao Tung University

General Co-Chairs, ICFD2019
Co-Organizers: H. Takama, T. Fujino, K. Doi, N. Takeuchi

Co-Organizers: S. Obayashi, K. Asai

Co-Organizers: M. Nakano, R. Tao, W. Li, G. Sebald

Co-Organizers: T. Sato, T. Ohashi, S. Kawano, R. Shirakashi

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

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Co-Organizers: A. Suzuki, S. Tupin, M. Ohta

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

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