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Fredrik Lundell (General Co-Chair of ICFD2014, KTH Mechanics, Royal Institute of Technology)

Shigeru Obayashi (Director of IFS, Tohoku University)

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Yiguang Ju

Ishwar K. Puri

Kozo Saito

John P. Sullivan

Rongia Tao

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## Locations

### Sendai International Center

Aobayama, Aoba-ku, Sendai, 980-0856

TEL (81)22-265-2211 FAX(81)22-265-2485

<http://www.sira.or.jp/icenter/english/index.html>

## Registration Fee

	With Banquet	Without Banquet
Advanced Registration Fee (on or before Aug.22)	General 20,000 JPY	General 15,000 JPY
	Student 5,000 JPY	Student 3,000 JPY
Onsite Registration Fee (after Aug.22)	General 30,000 JPY	General 23,000 JPY
	Student 8,000 JPY	Student 4,000 JPY

## Important Dates

**June 1, 2014:** Deadline for **Presentation Submission**.

**July 1, 2014 Extended** Please present your paper title / author's name / keywords through PRESENTATION SUBMISSION page of ICFD2014 website

**July 16, 2014:** Deadline for **Short Paper (A4, 2pages) Submission**

**Aug. 22, 2014:** Deadline for **Advanced Registration**

## Publication & Special Issues of International Journals

Proceedings will be distributed to the conference participants with USB memory sticks. Selected papers are being planned to be published after the conference. Please visit ICFD2014 website for the details.

## ICFD Secretariat

For further details and related questions, please contact

ICFD2014 Secretariat: [icfd2014@fmail.ifs.tohoku.ac.jp](mailto:icfd2014@fmail.ifs.tohoku.ac.jp)

ICFD2014 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/icfd2014/>

# Eleventh International Conference on Flow Dynamics

## Second Circular

As of August 1, 2014

<http://www.ifs.tohoku.ac.jp/icfd2014/>

Hosted by

Institute of Fluid Science, Tohoku University



## October 8 - 10, 2014

## Sendai International Center

## Sendai, Japan



## SCOPE

The eleventh International Conference on Flow Dynamics (ICFD2014), in the annual series hosted by the Institute of Fluid Science, Tohoku University, will be held on October 8th through 10th at the Sendai International Center, Sendai, Japan. The objectives of this conference are to explore new horizons in science by discussing and exchanging information related to the most advanced scientific fields and to cutting edge technologies in Flow Dynamics. ICFD is now recognized by world researchers, engineers and academicians as the biggest and the most important international conference in field of Flow Dynamics. It has also played an important role of initiating international research collaborations. It should be noted that another significance of this conference is that it provides young researchers and students with unique opportunities to be educated and self-developed through proactive participation in the conference.

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 (the GCOE, Year 2008 - Year 2012)". The Institute of Fluid Science (IFS) was the principal operating body for both 21COE and GCOE, the latter which came to end in March 2013. Also, last year, on the occasion of its 70th anniversary, IFS was regenerated as an even more powerful research institute, particularly in energy-related research. Its reorganization has led to the creation of three new flow research divisions and the Innovative Energy Research Center. In this new context, IFS decided to continue to host the conference, and ICFD2013 was held in November of last year. We pledge to maintain ICFD's dynamism and spirit as a meeting for present-day distinguished scientists of Flow Dynamics as well as for future generations of scientists.

Flow Dynamics is a comprehensive scientific field which deals with flow and transport phenomena concerning atoms, molecules and nanoscale particles, any fluid, any material, energy, information, economic activities and so forth. It addresses multiscale and multidisciplinary problems and deals with all natural phenomena (biochemical processes, corrosion, weather, volcanic eruptions, earth magnetic field and tectonic motions, etc.) and in most human activities (industrial processes, energy production and saving, transportation, etc.). The ICFD conferences have played a depletion, significant role in helping Flow Dynamics to become a major academic discipline which is dealing with various difficult tasks faced by human society, such as control of nuclear power generators, global warming, energy,

resource diseases and so on. Flow Dynamics is playing major roles in the realization of the advanced medicine and medical treatment, aerospace technology, robotics, IT technology accessible by anybody, anytime, anywhere, and so forth. Scientists and engineers, who are working and/or interested in such areas, please participate in the ICFD2014 and extend your domains and databases.

We cordially invite scholars, researchers, educationists, 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 so forth, to join the conference. After the East Japan Great Earthquake and Disaster in March, 2011, Sendai and the vicinities are definitely recovering, although the speed of recovery depends on the area. Fortunately, activities of Tohoku University as well as the lives of people living in the city are already at the pre-disaster level. We believe that you will enjoy the beautiful season and comfortable atmosphere of autumn in Sendai in October.

Hideaki Kobayashi, Professor

Institute of Fluid Science, Tohoku University  
and

Fredrik Lundell, Associate Professor  
KTH Mechanics, Royal Institute of Technology  
General Co-Chairs, ICFD2014

## Plenary Lectures

**Professor James F. Driscoll** (University of Michigan, USA)

**Professor Christian Boller** (Saarland University / Fraunhofer IZFP, Germany)

**Professor Constantine Megaridis** (University of Illinois at Chicago, USA)

## Sessions

This conference consists of the following professional sessions. If you have questions and requests about the session of your interest, please contact the ICFD2014 secretariat ([icfd2014@fmail.ifs.tohoku.ac.jp](mailto:icfd2014@fmail.ifs.tohoku.ac.jp)).

### General Session:

#### **GS1: General Session**

Co-Organizers: H. Kobayashi, S. Yonemura (Tohoku University)

### Organized Sessions & Symposia:

#### **OS1: The Second International Symposium on Innovative Energy Research I**

##### **Core Technology for Advanced Energy Devices**

Organizer: S. Samukawa (Tohoku University)

#### **OS2: The Second International Symposium on Innovative Energy Research II**

##### **State-of-the-art Combustion Research**

Co-Organizers: K. Maruta (Tohoku University), S. Minaev (Far-Eastern Federal University)

#### **OS3: The Second International Symposium on Innovative Energy Research III**

##### **Multiphase Energy Science and Risk Mitigation**

Organizer: J. Ishimoto (Tohoku University)

#### **OS4: International Symposium on Smart Layered Materials and Structures for Energy Saving (Joint Symposium)**

Co-Organizers: T. Takagi, T. Uchimoto (Tohoku University), J. Y. Cavallé (INSA de Lyon), C. Boller (Saarland University / Fraunhofer IZFP), J. Qiu (Nanjing University of Aeronautics and Astronautics), F. Lundell (KTH Mechanics, Royal Institute of Technology)

#### **OS5: Biomedical Flow Dynamics**

Co-Organizers: H. Anzai, T. Nakayama, M. Ohta (Tohoku University)

#### **OS6: Advanced Physical Stimuli and Biological Responses**

Co-Organizers: T. Sato (Tohoku University), T. Ohashi (Hokkaido University), S. Kawano (Osaka University), R. Shirakashi (The University of Tokyo)

#### **OS7: Cutting Edge of Thermal Science and Engineering**

Co-Organizers: S. Maruyama, A. Komiya (Tohoku University)

#### **OS8: Flow Dynamics and Combustion in Hybrid Rockets**

Co-Organizers: T. Shimada (Japan Aerospace Exploration Agency), K. Sawada (Tohoku University)

#### **OS9: Advanced Control of Smart Fluids and Fluid Flows**

Co-Organizers: M. Nakano, Y. Fukunishi (Tohoku University)

#### **OS10: The Tenth International Students / Young Birds**

##### **Seminar on Multi-scale Flow Dynamics**

Co-Organizers: Y. Takahashi, H. Sato, R. Kikuchi (Tohoku University), Supervisors: K. Miyata, H. Shimizu, A. Hayakawa, K. Sato (Tohoku University)

### Colloquium Sessions

#### **CS1: The Second International Workshop on Fluid and Material Sciences in Cooperation between Tohoku University and KTH**

Co-Organizers: T. Hayase (Tohoku University), F. Lundell (KTH Mechanics, Royal Institute of Technology)

#### **CS2: Heat and Fluid Flow**

Co-Organizers: Y. H. Liu, M. C. Lu (National Chiao Tung University)

#### **CS3: Global / Local Innovations for Next Generation Automobiles (Joint Session) (Tentative)**

Co-Organizers: A. Miyamoto (Tohoku University), P. Kapsa (Ecole Central de Lyon), M. C. Williams (URS Corporation), K. Nakatsuka (Intelligent Cosmos Research Institute)

#### **CS4: IFS Collaborative Research Forum (AFI-2014)**

Co-Organizers: H. Kobayashi, H. Masuda (Tohoku University)

#### **CS5: Fluids Science Research Award Lectures**

Co-Organizers: T. Hayase, H. Masuda (Tohoku University)

### Special Session

#### **SS1: Liaison Office Session**

Co-Organizers: T. Takagi, M. Ohta (Tohoku University)