

The International Information Center for Multiphase Flow

# **NEWSLETTER**

No. 48, September 2017

The Japanese Society for Multiphase Flow



### Japan-U.S. Seminar on Two-phase Flow Dynamics 2017 June 22-24, 2017, Sapporo, Hokkaido, Japan

by Shuichiro Miwa

Japan-U.S. Seminar on Two-phase Flow Dynamics 2017 was held during June 22-24, 2017 at Hokkaido University, Sapporo, Japan. The seminar was chaired by Prof. Michitsugu Mori (Hokkaido University), Prof. Gretar Tryggvason (University of Notre Dame), and vice-chair Prof. Yuichi Murai (Hokkaido University). The seminar was co-sponsored by JSMF, JSME-Hokkaido Division, AESJ-Hokkaido Division, and National Science Foundation.



Photo 1: Seminar Session at Hokkaido University



Photo 2: Laboratory Tour

This year's Japan-U.S. Seminar covered wide range of research topics including (1) Evaporating flow, (2) Micro two-phase flow, (3) Bubble swarms, (4) Numerical challenges, (5) Interfacial dynamics, (6) Bubbly shear flows, (7) Advanced measurement, (8) Speedy interfacial flows, and (9) Highly resolved visualization. Total of 35 presentations were given by

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researchers from Japan and the US. Keynote presentations were given by Prof. Steven Ceccio (University of Michigan) on bubbly shock propagation, Prof. Shu Takagi (University of Tokyo) on bubble clusters to vortical structures in turbulent bubbly flows, Prof. Akio Tomiyama (Kobe University) on modeling and numerical simulation of bubbly flow in bubble column, and Prof. Xiaodong Sun (University of Michigan) on liquid velocity field measurement around Taylor bubbles.



Photo 3: Seminar Banquet with Traditional Japanese Folk Song Group

The seminar also included laboratory tour as a part of the program and participants had opportunities to see the currently ongoing two-phase flow related experimental programs at Hokkaido University at Fluid Dynamics and Flow Control Laboratory, Nuclear System Safety Engineering Laboratory, and Wind Tunnel Laboratory. On second day of the seminar, special session was organized on the reports on currently ongoing two-phase flow research activities in Japan, US, and EU given by Prof. Yuichi Murai, Prof. Gretar Tryggvason, and Prof. Yasushi Takeda

(ETH-Zurich). In the evening of the second day, seminar banquet was held at the 20<sup>th</sup> floor of Century Royal Hotel near Sapporo station. Special remarks were given by Mr. Justin Tull of U.S. Consulate General, and Vice President of Hokkaido University Prof. Nishii. Participants also enjoyed the performance given by Japanese Folk Song Group of Hokkaido University, "Minken-Wadachi." Finally, candidate site of the next Japan-U.S. Seminar was announced by Prof. Ceccio of University of Michigan-Ann Arbor.



Photo 4: Group Photo at Hokkaido University

The Japan-U.S. seminar 2017 brought fruitful discussions among researchers from various disciplines, and reaffirmed its value with a rich history dating back to 1970s. On behalf of local organizing committee, I would like to end this column with special thanks to all the participants and staff members who made this seminar possible.

Shuichiro Miwa, Assistant Professor Secretary General of Japan-U.S. Seminar 2017 Hokkaido Univesity smiwa@eng.hokudai.ac.jp

# The 3rd International Conference on Numerical Methods in Multiphase Flows June 26-29, 2017, Tokyo, Japan

by Shu Takagi

The 3rd International Conference on Numerical Methods in Multiphase Flows (ICNMMF-III) was held at The University of Tokyo, Institute of Industrial Science, (Komaba-II campus), Tokyo, Japan, from June 26 to 29, 2017. The co-chairpersons of this conference are Prof. Akio Tomiyama (Kobe University) and myself (Shu Takagi (The University of Tokyo)).

The 1st ICNMMF was held in Penn State University (USA) in 2012, and the 2nd was in Technical University of Darmstadt (Germany). The idea behind this conference series is to have an international high-level meeting, focused on numerical aspects with respect to the latest developments and needs in CFD for multiphase flows. Our intent is to bring together the international community in a focused technical

exchange environment.

This time, we had more than 160 attendants and more than 130 presentations including 18 invited speakers (6 Plenary Speakers and 12 Keynote speakers). Plenary talks were given by

- Prof. Tim Colonius (California Institute of Technology, USA),
- Prof. Jacobus Derksen University of Aberdeen, UK),
   Dr. Djamel Lakehal (ASCOMP, Switzerland),
- Prof. Dominique Legendre (Institut de Mécanique des Fluides de Toulouse, France),
- Prof. Andrea Prosperetti (University of Houston, USA),
- Prof. Hiroyuki Takahira (Osaka Prefecture University, Japan) ( in alphabetical sequence )

We had many participants from foreign countries, 124 participants from 25 countries. As was expected, the quality of the talks was very good and I got many e-mails after the conference saying that the quality of the talks, especially by the invited speakers were excellent.

Compared with the previous ICNMMFs, I had an impression this time that more emphasis was on the interpretation of the numerical results. The ICNMMF had originally the purpose of sharing the detail knowledge for the development of accurate and

robust numerical schemes. In some sense, this has been achieved in the last 2 conferences and thepurpose objectives are gradually moving to the next stage, that is how we utilize the developed scheme to understand the multiphase flow physics. So, I amvery much looking forward to seeing what kinds of new analysis will be given in the next ICNMMF.

Finally, I would like to thank to all the Local Organizing Committee members, Scientific Program Committee members and supporting stuffs for the conference. Special thanks are to Prof. Akio Tomiyama for co-chairing the conference, Prof. Takeo Kajishima as a chair of scientific committee members for finalizing the program and Kosuke Hayashi for website and general stuffs.

The next conference, ICNMMF-IV, will be held in Houston chaired by Prof. Andrea Prosperetti (University of Houston). I look forward to seeing you there.

Shu Takagi, Professor, Co-Chair of ICNMMF-III The University of Tokyo, takagi@mech.t.u-tokkyo.ac.jp



### **Obituarty**

It is with deep sadness that we inform you that **Professor Barry Azzopardi** (University of Nottingham) passed away on May 22, 2017.

We would like to express our sincere appreciation for his enormous contributions and to offer our deepest sympathies.

### **Future Meetings**

Following list includes conference name, place, date and contact information.

# The 28th International Symposium on Transport Phenomena (ISTP 28)

Peradeniya, Sri Lanka, September 22 - 24, 2017

Chair: L. Rajapaksha (University of Peradeniya)

http://www.pdn.ac.lk/istp28/

# The 6th International Conference on Jets, Wakes and Separated Flows (ICJWSF 2017)

Cincinnati, USA, October 9 - 12, 2017 Chair: E. J. Gutmark (University of Cincinnati)

https://www.uc.edu/eventservices/ICJWSF-2017.html

# 2nd Workshop on Advances in CFD and MD modelling of Interface Dynamics in Capillary Two-Phase Flows

Lausanne, Switzerland, October 9-13, 2017 http://ltcm.epfl.ch/cms/page-127462.html

### The 19th Annual Conference on Liquid Atomization & Spray Systems - Asia (ILASS-Asia 2017)

Jeju Island, Korea, November 6 - 9, 2017 Chair: C. Bae (KAIST) https://www.ilass-asia2017.org/

# The 9th JSME-KSME Thermal and Fluids Engineering Conference (TFEC9)

Okinawa, Japan, October 28 - 30, 2017 Chair: M. Takei (Chiba University) http://www.tfec9.org/

# **2017 ANS Winter Meeting and Nuclear Technology Expo**

Washington, DC, USA, October 29 -November 2, 2017 Chair: T. Troutman (Bechtel Nuclear,

Security & Environmental)

http://www.ans.org/meetings/m 149

# The 14th International Conference on Flow Dynamics (ICFD2017)

Sendai, Japan, November 1 - 3, 2017 Chair: S. Maruyama (Tohoku University) http://www.ifs.tohoku.ac.jp/icfd2017/

# The 12th International Symposium on Advanced Science and Technology in Experimental Mechanics (12th ISEM'17)

Kanazawa, Japan, November 1 - 4, 2017 Chair: M. Nakada (Kanazawa Institute of Technology)

http://www.jsem.jp/ISEM12/

### **TINTERCOH2017**

Montevideo, Uruguay, November 13 -17, 2017

Chair: L. Sanford (University of Maryland Center for Environmental Science) https://www.fing.edu.uy/imfia/intercoh/

# 15th Multiphase Flow Conference & Short Course

Dresden, Germany, November 14 – 17, 2017

http://www.hzdr.de/multiphase

## The 17th International Conference on Micro and Nanotechnology for Power Gneration and Energy Conversion Applications (Power MEMS 2017)

Kanazawa, Japan, November 14 - 17, 2017 Chair: Y. Suzuki (University of Tokyo) http://www.powermems.org/

# The 11th Pacific Symposium on Flow Visualization and Image Processing (PSFVIP-11)

Kumamoto, Japan, December 1 – 3, 2017 Chair: S. Torii (Kumamoto University) http://www.psfvip11.jp/

## The 10th International Symposium on **Measurement Techniques for multiphase** Flows (ISMTMF'17)

Hong Kong, December 3 - 7, 2017 Chair: Huihe Qiu (Hong Kong University of Sci. & Tech.) http://ismtmf2017.ust.hk

## 24th National and 2nd International **ISHMT -ASTFE Heat and Mass Transfer Conference (IHMTC-2017)**

Telangana, India, December 27 - 30, 2017 http://www.ishmt2017.com/

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### The 35th Short Courses on Modelling and **Computation of Multiphase Flows**

Zurich, Switzerland, February 12 - 16, 2018 E-mail: shortcourse@lke.mavt.ethz.ch http://www.lke.mavt.ethz.ch/news-andevents/events/short-course-mpf.html

### μFluidics and Non-Euqilibrium **Flows**

Strasbourg, France, February 28 – March 2,

http://mflu-negf-2018.com/

## The 10th International Conference on **Boiling and Condensation Heat Transfer** (ICBCHT10)

Nagasaki, Japan, March 12 - 15, 2018 Chair: Y. Takata (Kushu University) http://www2.mech.nagasakiu.ac.jp/ICBCHT10/

## **European-Japanese Two-phase Flow Group Meeting**

New York, USA, April 22 - 26, 2018 Chair: Masahiro Kawaji (City College of New York)

## The 3rd International Symposium on Application of High-voltage, Plasma & Micro/Nano Bubble to Agriculture and Aquaculture

(ISHPMNB 2018)

Morioka, Iwate, Japan, May 9 - 12, 2018 Chair: Koichi Takaki (Iwate University) Chair: Kiyoshi Yoshikawa (Kyoto University)

http://ishpmnb2018.sgk.iwate-u.ac.jp

### The 10th International Symposium on Cavitation (CAV2018)

Baltimore, Maryland, USA, May 14 – 16, 2018

Chair: J. Katz (Johns Hopkins University) https://cav2018.jhu.edu/

#### ASME Pressure Vessels & **Piping** Conference (PVP)

Praha, Czech Republic, July 15 - 20, 2018 Chair: P. Mertiny (University of Alberta) https://www.asme.org/events/pvp

### The 19th International Symposium on Applications of Laser and **Imaging Techniques to Fluid Mechanics**

Lisbon, Portugal, July 16 – 19, 2018 http://www.lisbonlasersymposium.org/LXLASER2018/

### 2018 ANS Annual Meeting

Philadelphia, USA, June 17 - 21, 2018 General Chair: K. P. Singh (Holtec International)

http://www.ans.org/meetings/m 244

## The 26th International Conference on **Nuclear Engineering (ICONE-26)**

London, England, July 22 - 28, 2018 https://www.asme.org/events/icone

## The 14th International Conference on Liquid Atomization and Spray Systems (ICLASS 2018)

Chicago, IL, USA, July 22 - 26, 2018

http://www.iclass2018.org/

# 31st International Symposium on Rarefied Gas Dynamics (RGD31)

Glasgow, UK, July 23-27, 2018

# The 16th International Heat Transfer Conference (IHTC-16)

Beijing, China, August 10 - 16, 2018

Chair: P. Cheng (Shanghai Jiao Tong

University)

http://www.ihtc16.org/

# The 12th International Topical Meeting on Nuclear Reactor Thermal-Hydraulics, Operation and Safety (NUTHOS-12)

Qingdao, China, October 14 - 18, 2018

Chair: G. Li (CNS)

Chair: J.H. Kim (KAIST)

Chair: H. Ninokata (POLIMI) http://www.nuthos-12.org/

# ----- 2019 -----

# The 11th International Symposium on Turbulence and Shear Flow Phenomena (TSFP11)

Southampton, UK, July 30 – August 2, 2019 Chair: M. Oberlack (Technische Universitat Darmstadt)

http://tsfp11.org/

# The 10th International Conference on Multiphase Flow (ICMF10)

Rio de janeiro, Brazil, May, 2019

Chair: O. Rodriguez (Universidade de São

Paulo)

Chair: N. Mangiavacchi (Universidade do

Estado do Rio de Janeiro)

http://eventos.abcm.org.br/icmf2019/

### **Executive Division of The Japanese Society for Multiphase Flow (2017)**

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The 10th International Symposium on Measurement Techniques for Multiphase Flow - 2017

# ISMTMF'17

December 3-7, 2017 Hong Kong SAR, China

### 3RD ANNOUNCEMENT AND CALL **FOR PAPERS**

#### ORGANIZED BY:

Department of Mechanical and Aerospace Engineering and HKUST Energy Institute Hong Kong University of Science & Technology

The Chinese Society for Measurement techniques on Multiphase Flow

The Japanese Society for Multiphase Flow



### Conference Website:

http://ismtmf2017.ust.hk

#### ORGANIZING COMMITTEE

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### **Conference Secretariat**

Secretariat: Mr Dong Liao Department of Mechanical and Aerospace Engineering Hong Kong University of Science & Technology Clear Water Bay, Kowloon, Hong Kong, SAR China Tel. (852) 2358 7184; Fax (852) 2358 1543 E-mail: ismtmf@ust.hk

#### Conference Venue

Hong Kong University of Science & Technology Clear Water Bay, Kowloon, Hong Kong

#### International Scientific Committee

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### BACKGROUND

After enthusiastic responses to the past nine ISMTMFs held in Nanjing (1995), Beijing (1998), Fukui (2001), Hangzhou (2004), Macau (2006), Okinawa (2008), Tianjin (2011), Guangzhou (2013) and Sapporo (2015), the 10th International Symposium on Measurement Techniques for Multiphase Flows (ISMTMF) will be held in Hong Kong from December 3 to 7, 2017. The focus of this symposium will be on the latest progress in the development of measurement techniques for multiphase flows and exchanging new information among scientists and engineers working in universities, industries and other fields.

This symposium aims to provide an international forum for presentation, exchange of ideas and creation of knowledge in recent advances on various aspects of theories, analyses, and applications of measurement techniques in complex multiphase/multicomponent flows. The focus of this symposium is to report the latest progress in developing measurement techniques for multiphase flows and exchanging new information among scientists and engineers working in universities, industries and other fields. It will bring together researchers and practitioners from academia, research institutions and industry to exchange experiences, disseminate up-to-date information, and explore new opportunities in the field; in particular, it will expose young or new researchers to the state of the art in the field by means of the symposiums. It is anticipated that the 10th International Symposium on Measurement Techniques for Multiphase Flows-2017 (ISMTMF 2017) will provide an opportunity for stimulation of the researchers as well as for furthering cooperation among the investigators in the field of advanced Multiphase Flow Measurement Techniques.

#### **CALL FOR PAPERS**

ISMTMF'17 will focus on the following topics (include but not limited to):

Fundamentals of multiphase flow measurement

techniques and experimental methods Novel sensors and measurement methods of multiphase

Information technology for multiphase flow Process tomography and flow visualization

Intelligent instruments and monitoring systems

Koji Okamoto University of Tokyo Tomio Okawa Tokyo Elect Comm Univ Kuangfang Ren Rouen University Toshihiko Shakouchi Mie University

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Optical, non-intrusive and other advanced measurement

Micro/nanoscale multiphase flow measurement

Bio multiphase flow measurement techniques

Selected papers from ISMTMF'17 will be further reviewed and published in special issues of Measurement Science and Technology, International Journal of Multiphase Flow and Case Studies in Thermal Engineering

#### ABSTRACT SUBMISSION

Papers will be selected based on one page abstracts (A4, single space, Times New Roman letters of 10 font size) including results and figures. Papers submitted should include the title of the paper, authors' names and affiliations, a concise statement of the problem, method of approach, results and discussion, and conclusions. Please identify the results and discussion, and conclusions. Please identify the corresponding author. Electronic submissions are strongly encouraged. Template is available from the symposium website (http://ismtmf2017.ust.hts) which will be available in March 2017. Please submit your abstract in a Word or PDF format to the ISMTMF\*17 Secretariat via ISMTM\*17 website (online submission) or e-mail. The file size is limited to 5MB.

### **REGISTRATION FEES**

(by September 20, 2017) Early Registration Standard Registration (after September 20, 2017) Student Registration (by September 20, 2017) US\$600 US\$300 Student Registration (after September 20, 2017) US\$350 US\$100 Spouse Registration

### **IMPORTANT DATES (NEW)**

#### Abstract:

Deadline of abstracts: July 15, 2017 July 20, 2017 August 20, 2017 Notification of acceptance Full paper submission (Optional) Full paper acceptance: August 31, 2017 Final paper submission: September 15, 2017

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### ACCOMMODATION INFORMATION

Conference Hotels:

□ Crowne Plaza Hong Kong Kowloon East

Holiday Inn Express Hong Kong Kowloon East

The symposium will also reserve some rooms in the Conference Lodge at HKUST campus where is near the Institute of Advanced Studies (IAS) at HKUST.

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