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The International Information Center for Multiphase Flow

NEWSLETTER

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The Japanese Society for Multiphase Flow

11th International Conference on Multiphase Flow (ICMF2023)
April 2-7, 2023, Kobe, Japan

by Akio TOMIYAMA
Kosuke HAYASHI
Kazuyasu SUGIYAMA

The 11th International Conference on Multiphase Flow was hosted by the ICMF Governing Board consisting of 13 members elected in the past ICMFs in Brazil (2019) and Italy (2016), Professor Akio Tomiyama (Chairperson, Kobe University), Professor Shu Takagi (Co-chairperson, The University of Tokyo), and Professor Gretar Tryggvason (Co-chairperson, Johns Hopkins University). It was held at the Kobe International Conference Center, Kobe, Japan, from April 2 to 7, 2023.

The 1st ICMF was held in Tsukuba, Japan in 1991 and then the 2nd was again in Japan, Kyoto in 1995. Since then, ICMF has been governed by the ICMF Governing Board, and has been held every three years in the three geographical regions in the order of Europe, America and Asia-Oceania. ICMF has been playing a very important role in multiphase flow R & D communities as the world's largest conference on multiphase flow. The 11th edition of ICMF was initially scheduled in 2022 after ICMF2019. However, the Governing Board decided to postpone the conference year from 2022 to 2023 due to the long-term influence of COVID-19.

The infection disease became calm in the early 2023 in many countries. As a consequence, 824 people from 32 different countries participated in ICMF2023.

To Join ICeM:
Everybody, who is interested in Multiphase flow, is welcome to join ICeM. Please contact one of the following board members to register in ICeM member.

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After a careful selection of papers by the scientific committee of ICMF2023, 619 oral and 53 poster presentations were performed. The number of invited and award lecturers, who were elected by the governing board, was 16; 2 award, 4 plenary, and 10 keynote lectures. Overall, 42% of the attendees came from Asia, 11% from the Americas, 45% from Europe and 2% from the other regions all around the world.

The presentations were classified into 20 scientific topics: Bio-Fluids, Bubbly Flows, Cavitation/ Nucleation, Collision, Agglomeration and Breakup, Colloidal and Suspension Dynamics, Computational Techniques for Multiphase Flows, Droplet Flows, Environmental and Geophysical Flows, Experimental Methods for Multiphase Flows, Fluid-Structure Interactions, Interfacial Flows, Instabilities, Mixing, Modelling of Multiphase Flows, Multiphase Flow in Heat and Mass Transfer, Non-Newtonian Multiphase Flows, Particle Dynamics, Particle-Laden Flows, Reactive Multiphase Flows, Turbulence in Multiphase Flows. Among them, Computational Techniques for Multiphase Flows, Particle-Laden Flows, Modelling of Multiphase Flows, Experimental Methods for Multiphase Flows, and Multiphase Flow in Heat and Mass Transfer had over 40 presentations respectively. In addition to those scientific topics, the following nine sessions were set as the organized sessions: Industrial Applications, Boiling, Condensation, Evaporation, Bubbles and Drops, Fluidization, Granular Flow, Numerical Modeling of Granular and Multiphase Flows, Two-phase Flow Systems under Microgravity, Micro- and Nano-Scale Multiphase Flows, Fundamentals and Applications of Fine Bubble Technology. Bubbles and Drops had 65 presentations, which occupied 10% of the total number of presentations. A special Session: Machine Learning for Multiphase Flows was organized by Professor Omar Matar on Friday and was attended by a large audience.

The Gad Hetsroni (Senior) Award and the Andrea Prosperetti (Junior) Award sponsored by the International Journal of Multiphase Flow and Elsevier went to Professor Akio Tomiyama (Kobe University) and Professor Rui Ni (Johns Hopkins University), and the award winners gave their ICMF Award Plenary Lectures on April 5.

Photo 1 Reception

Photo 2 Technical Session

Photo 3 Prof. Rui Ni Awarded Andrea Prosperetti Award

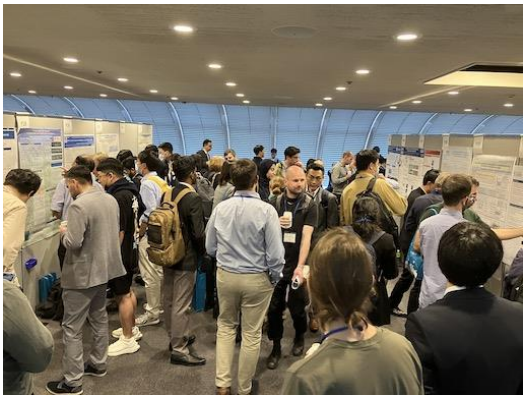

Photo 4 Poster Session with Beer

Photo 5 Banquet

The Plenary Lectures were given by Professors Rodney O. Fox (Iowa State University), Melany Hunt (Caltech), Frédéric Risso (Institut de Mécanique des Fluides de Toulouse), and Shu Takagi (The University of Tokyo), and the Keynote Lectures by Professors Arezoo Ardekani (Purdue University), Panagiota Angeli (University College London), Dieter Bothe (Technical University of Darmstadt), Marco da Silva (Johannes Kepler University Linz), Jochen Fröhlich (Technical University of Dresden), Tatiana Gambaryan-Roisman (Technical University of Darmstadt), Kosuke Hayashi (Kobe University), Shuichiro Miwa (The University of Tokyo), Yuji Tasaka (Hokkaido University), and Zhaosheng Yu (Zhejiang University).

A welcome reception was held in the evening on Sunday, April 2 at Portopia Hotel. The ICMF2023 officially opened on Monday, April 3. The conference Chairperson, Prof. Akio Tomiyama, delivered the opening address, and then, Prof. Yuichi Murai, Chairman of the ICMF Governing Board, hosted the Governing Board session, in which the award winners were announced. The technical program started on Monday at 10:00 a.m. 12 technical sessions were held in parallel in 12 rooms from Monday to Friday. The Poster Session consisting of 53 poster presentations was held from 4:20 p.m. on Monday at the Reception Hall. The poster session was filled with the excitement of many participants. The Conference Banquet with a Japanese-traditional drum show was held at Portopia Hotel on Wednesday, April 5. During the Banquet, new members of the Governing Board were announced by Prof. Yuichi Murai. The technical program ended on Friday at 11:50 a.m.

Then the Closing Ceremony was held. The statistics of the participants and the presentations were given, and the venue of the next ICMF, Toulouse, France, was announced. Professor Eric Climent, from Institut de Mécanique des Fluides de Toulouse, will serve as the ICMF2025 chairperson. The excursion tour to Himeji castle was operated by Kinki-Nippon Tourist after the Closing Ceremony.

Multiphase Science and Technology (Begell House) and Flow, Turbulence and Combustion (Springer) launched the processes for ICMF2023 special issues. The review process is undergoing and the selected papers will appear in the journals in the near future.

On behalf of the local organizing committee, we would like to express our heartfelt thanks to the participants, and the Virtual International Research Institute of Two-Phase Flow and Heat Transfer (Vir2al) and the Japanese Society for Multiphase Flow (JSMF) for supporting the conference. We are also grateful to ICMF Governing Board members for supporting the local organizing committee, to 66 members of the Scientific Committee for reviewing

the extended abstracts, and to the plenary/keynote lecturers, the session chairpersons and the speakers to make the scientific discussion in the sessions fruitful.

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The International Multiphase Flow Technology Forum 2023 (IMFTF2023) April 22-24, 2023, Haikou, China

by Jun YAO

The International Multiphase Flow Technology Forum (IMFTF) 2023 was held from 22 to 24 April, 2023, at Hai-kou City, Hannan Province, China. A total of more than 200 participants attended this conference on site and more than 28,000 persons on line. Several platforms are used to open this meeting to public parallelly including Billibili, Weibo, Baidu, Facebook, YouTube and so on. All attendee come from 8 countries including United Kingdom, Japan, Singapore, Australia, Malaysia, Ireland, Bangladesh and China. There are 67 reports presented in this conference including 6 plenary reports, 26 keynotes, 30 oral reports and 5 posters.

This conference of IMFTF is held biennially. IMFTF 2023 is the first one which has been delayed repeatedly from 2022 due to COVID-19. This conference has been very successful in terms of quality of technology and number of participants, providing a unique opportunity to discuss the latest technical and academic information around the world. All attendees together discussed the multi-phase flow simulation and experimental methods including basic research, industrial application and the latest progress and innovation in the field of process engineering.

Besides IMFTF, this conference is jointly-organized by Chinese Society of Particuology, Shanghai Institute for Advanced Study, Zhejiang University, and China University of Petroleum. Thanks to the efforts and dedication of the organizers and participants in this conference. We were able to hold a successful conference.

The International Multiphase Flow Technology Forum (IMFTF) is set up in January 2020, aims at facilitating the academic exchange and experience sharing worldwide. Its main objectives are promoting scientific and technical communication as well as fostering collaborations among researchers.

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Photo 1 Group photo 1

Photo 2 Group photo 2

30th International Conference on Nuclear Engineering (ICONE30)
May 21-26, 2023, Kyoto, Japan

by Kei ITO on behalf of Technical Program Committee

The Japan Society of Mechanical Engineers, The American Society of Mechanical Engineers and Chinese Nuclear Society held the 30th International Conference on Nuclear Engineering (ICONE30) from May 21 to 26 at Kyoto International Conference Center in Kyoto. It should be noted here that ICONE30 was held at the same time as the International Conference on Power Engineering (ICOPE-2023) and have joint sessions with ICOPE about Carbon Neutral Power Systems for Future World. The International Conference on Nuclear Engineering (ICONE) is the premier global conference held by the contribution of numerous professionals from companies, governments, academia and technical societies. Since the first ICONE was held in Tokyo (1991), ICONE has been held successfully in San Francisco (1993), Kyoto (1995), New Orleans (1996), Nice (1997), San Diego (1998), Tokyo (1999), Baltimore (2000), Nice (2001), Washington (2002), Tokyo (2003), Washington (2004), Beijing (2005), Miami (2006), Nagoya (2007), Orlando (2008), Brussels (2009), Xi'an (2010), Osaka (2011), Anaheim (2012), Chengdu (2013), Prague (2014), Makuhari (2015), Charlotte (2016), Shanghai (2017), London (2018), Tsukuba (2019), and Virtual Conferences (2020, 2021, 2022). This time, ICONE marked the 30th anniversary of providing the unique opportunities to discuss the state-of-the-art technical topics and the current status of nuclear power around the world, and also contributing to foster future nuclear professionals through the ICONE student program. The memorial ICONE30 was organized by three conference chairs, Koji Okamoto (The University of Tokyo), Jovica Riznic (Canadian Nuclear Safety Commission) and Jianquao Liu (Chinese Nuclear Society) and sponsored by Westinghouse, Toshiba Energy Systems & Solutions Corporation, Hitach-GE Nuclear Energy, Ltd., Mitsubishi Heavy Industries, Ltd., TVE Co., Ltd., etc. In consideration of the situation of COVID-19, the organizing committee decided to hold ICONE30 as a fully on-site conference, and therefore, this ICONE was also memorial to give the participants to meet face-to-face after the three-years virtual conferences and promote their friendships.

The opening session was co-organized by ICONE30 and ICOPE-2023 and held at the main hall famous as the conference site of COP3, 1997. Starting with the welcome speeches by the conference chairs, the welcome remarks were made by Yasutoshi Nishimura (Minister of Economy, Trade and Industry) and Akimasa Yamashita (Vice-Governor of Kyoto Prefecture), followed by the opening remarks by the representatives of JSME, ASME, CNS, and CSPE. Then, two keynote speeches were performed: “Secure Transition of Power Systems and the Role of Nuclear” by Keisuke Sadamori (Director of Energy Markets and Security, International Energy Agency) and “Designing Carbon Neutral Power Systems - Scenario Analysis for 2050 Carbon Neutrality –” by Kenji Yamaji (the President of the Research Institute Technology for the Earth). In Plenary Session 1. Current Status of Nuclear Power, the current status of nuclear power plants in Japan, USA, China and Europe were introduced in relation to the nuclear policies in each region, followed by Plenary Session 2. Current Status and Future of Nuclear Power from Industries, which introduces the current challenges and future prospective of nuclear energy, including, e.g. the synergy with the renewable energy and the development of advanced reactors.

ICONE30 covered various topics related to the nuclear engineering, which were categorized into 17 tracks: Track0. Carbon Neutral Power Systems for Future World (ICONE-ICOPE shared Track), Track 1. Nuclear Plant Operation & Maintenance, Engineering and Modification, Operation Life Extension (OLE), and Life Cycle, Track 2. Nuclear Fuel and Material, Reactor Physics and Transport Theory and Fuel Cycle Technology, Track 3. I&C, Digital Control, and Influence of Human Factors, Track 4. SMRs, Advanced Reactors and Fusion, Track 5. Nuclear Safety, Security, and Cyber Security, Track 6. Nuclear Codes, Standards, Licensing, & Regulatory Issues,

Track 7. Thermal-Hydraulics and related Safety Analysis, Track8. Computational Fluid Dynamics (CFD) and Applications, Track 9. Decontamination & Decommissioning, Radiation Protection & Waste Management, Track 10. Advanced Methods of Manufacturing for Nuclear Reactors and Components, Track 11. Mitigation Strategies for Beyond Design Basis Events, Track 12. Innovative and Smart Nuclear Power Plant Design, Track 13. Risk Assessments and Management, Track 14. Computer Code Verification and Validation, Track 15. Nuclear Education and Public Acceptance, Track 16. Student Paper Competition. Some foreign researchers still had difficulties to travel abroad, and the organizing committee decided to allow them to make video presentations which were recorded in advance, as the special treatment only for this ICONE. 569 presentations, including 79 video presentations, were conducted in total 128 technical sessions, by the researchers from 26 countries and regions (China: 273, Japan: 187, United States: 30, France: 10, Italy: 9, Canada: 8, Korea: 8, Sweden: 8, India: 5, Lithuania: 5, Germany: 5, others: 21). In each technical session, fruitful discussions were held, which were highly useful to enhance the knowledge of the audiences, especially for students and young researchers.

In addition, 7-panel sessions were hosted by the specialists of each topic: Panel 1. SMRs and Advanced Reactors, Panel 2. Robust Fuel Development, Panel 3. Advanced Manufacturing, Panel 4. Recruitment and Retention of Women Experts in Nuclear Energy Sector: Challenges and Worldwide Initiatives, Panel 5. Post Fukushima-Daiichi safety and Decommissioning study opens a new era of nuclear energy, Panel 6. Decommissioning Technologies and Nuclear Waste Disposal, Panel 7. Motivations for Verification & Validation Activities in Thermal-Hydraulics Analysis in Nuclear Systems. 4 workshops were also planned and held to provide the basic and up-to-date knowledge to young researchers, engineers, and students: Workshop 1. Computational Fluid Dynamics, Workshop 2. Thermal-Hydraulics Methods, Experimentation and Benchmarking, Workshop 3. Nuclear Codes and Standards, Workshop 4. PRA and Severe Accidents.

Photo 1 Opening Session

Photo 2 Banquet

30th Anniversary Session was held as the ICONE/ICOPE special session, and the histories of ICONE and ICOPE were introduced by executives including the founders of ICONE/ICOPE. In Closing Session, the Statistics of ICONE30 were announced and the student awards were presented to the winners.

In conclusion, ICONE30 was organized successfully with 1090 participants, including ICOPE-2023 participants, from 28 countries and regions. They enjoyed not only the technical presentations, but also the reunion time with their friends, especially in the welcome reception, banquet and the student poster

sessions held with coffee breaks. The next ICONE (ICONE31) will be held in July or August, 2024 somewhere in USA or Canada.

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Photo 3 Closing Session (Group Photo)

Future Meetings

The following list includes the conference name, place, date, and contact information.

International Conference on Computational Heat and Mass Transfer (ICCHMT2023)
Düsseldorf, Germany, September 4–8, 2023
Chair: A. C. Benim (Düsseldorf University of Applied Sciences)
https://www.icchmt2023.de/

European Conference on Thermophysical Properties (ECTP2023)
Venice, Italy, September 10–13, 2023
Chair: A. Muscio (AIPT / Univ. Modena e Reggio Emilia)
https://www.ectp2023.eu/

10th International Conference on Turbulence, Heat and Mass Transfer (THMT-23)
Rome, Italy, September 11–15, 2023
Chair: K. Hanjalić (TU Delft)
http://www.thmt-23.org/

9th International Conference on Discrete Element Methods (DEM9)
Erlangen, Germany, September 17–21, 2023
https://www.dem9.fau.de/

The 8th International Conference on Micro and Nano Flows (MNF2023)
Padova, Italy, September 18–20, 2023
Chair: T. G. Karayiannis (Brunel University London)
https://www.micronanoflows.com/

The 33th International Symposium on Transport Phenomena (ISTP33)
Kumamoto, Japan, September 24–27, 2023
Chair: H. Saitoh (Sojo University)
https://istp33.jp/

International Congress on Particle Technology (PARTEC2023)
Nuremberg, Germany, September 26–28, 2023
Chair: A. Kwade (Technische University of Braunschweig)
https://www.partec.info/

VIII International Conference on Particle-Based Methods (PARTICLES2023)
Milan, Italy, October 9–11, 2023
Chair: U. Perego (Politecnico di Milano)
https://particles2023.cimne.com/

14th International Symposium on Ultrasonic Doppler Methods for Fluid Mechanics and Fluid Engineering (ISUD2023)
Kobe, Japan, October, 23–25, 2023
Chair: H. Murakawa (Kobe University)
https://www.org.kobe-u.ac.jp/isud2023/

2023 AIChE Annual Meeting
Orlando, USA, November 5–10, 2023
https://www.aiche.org/conferences/aiche-annual-meeting/2023

76th Annual Meeting of the APS Division of Fluid Dynamics (APS-DFD23)
Washington DC, USA, November 19–21, 2023
https://www.2023apsdfd.org/

The 12th International Symposium on Measurement Techniques for Multiphase Flows (ISMTMF2023)
Tokyo, Japan, November 27–30, 2023
Chair: H. Kikura (Tokyo Institute of Technology)
https://ismtmf2023.org/

---------- 2024 and beyond, not yet determined ---------

13th International Symposium on Turbulence and Shear Flow Phenomena (TSFP13)

Montreal, Canada, June 25–June 28, 2024
Chair: S. Tavoularis (University of Ottawa)
http://www.tsfp13.org/

The 26th International Congress of Theoretical and Applied Mechanics (ICTAM2024)
Daegu, Korea, August 25–30, 2024
Chair: H. D. Kim (Andong National University)
http://www.ictam2024.org/

The 14th International Topical Meeting on Nuclear Reactor Thermal-Hydraulics, Operation, and Safety (NUTHOS-14)
Vancouver, Canada, August 25–28, 2024
Chair: D. Novog (McMaster University)
https://nuthos-14.org/

The 9th Asian Particle Technology Symposium (APT2024)
Sydney, Australia, December 1–4, 2024
Chair: Y. Shen (The University of New South Wales), A. Yip (University of Canterbury)

The 12th International Conference on Multiphase Flow (ICMF2025)
Toulouse, France, May 12–16 or May 19-23, 2025
Chair: E. Climent (Toulouse Institute of Fluid Mechanics)

10th World Congress on Particle Technology (WCPT10)
Osaka, Japan, May 11–14, 2026
Chair: T. Matsuyama (Soka University)

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