

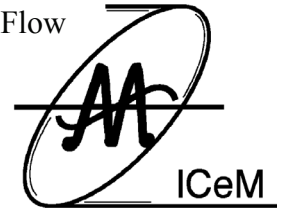


The International Information Center for Multiphase Flow

NEWSLETTER

No. 40, September 2013

The Japanese Society for Multiphase Flow



The 15th International Topical Meeting on Nuclear Reactor Thermal-Hydraulics, NURETH-15 May 12-17, 2013, Pisa, Italy

by Nicola Forgiione

The 15th International Topical Meeting on Nuclear Reactor Thermal-Hydraulics, NURETH-15, was successfully held in Pisa, Italy on 12-17 May 2013.

The 15th meeting of NURETH (Fig. 1) was organized by the Nuclear Research Group of San Piero a Grado (GRNSPG) of the University of Pisa in cooperation with the Thermal-Hydraulics Division (THD) of the American Nuclear Society (ANS), along with many co-sponsoring organizations from the Italian and international technical nuclear community. The meeting was also supported by the International Atomic Energy Agency (IAEA).

More than 500 scientists, researchers and engineers from institutes, academic communities and universities from all over the world attended this symposium.

The General Chair of the conference was Prof. Francesco D'Auria (University of Pisa, Italy) and he was co-chaired by Prof. Yassin Hassan (Texas A&M, USA) and by Prof. Jong H. Kim (KAIST/EPRI, USA).

The Chairs of the Technical and Organizing Committee were Dr Nusret Aksan (PSI retired) and Alessandro Petrucci (University of Pisa), respectively. The welcome address was held at the Verdi Theatre (Fig. 2).



Figure 1: NURETH-15 logo

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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Figure 2: Welcome address at Verdi Theatre

NURETH is the key series of international topical meetings devoted entirely to the advancement of knowledge in nuclear reactor thermal-hydraulics and related areas. It covers a wide range of topics related to the different types of current and future generation nuclear reactors.

Since the first meeting in 1980, the Thermal Hydraulics Division of the American Nuclear Society (ANS-THD) has sponsored NURETH meetings held in the USA and co-sponsored the meetings held outside the USA. Fourteen meetings were held in Saratoga Springs (NY, USA, 1980), Santa Barbara (CA, USA, 1983), Newport (RI, USA, 1985), Karlsruhe (Germany, 1989), Salt Lake City (UT, USA, 1992), Grenoble (France, 1993), Saratoga Springs (NY, USA, 1995), Kyoto (Japan, 1997), San Francisco (CA, USA, 1999), Seoul (Korea, 2003), Avignon (France, 2005), Pittsburgh (PA, USA, 2007), Kanazawa (Japan, 2009) and Toronto (Canada, 2011).

In the fifteenth edition, 439 papers were accepted for presentation at the Conference, starting from 530 submitted draft papers and more than 690 abstracts. All technical papers that were accepted for presentation were peer reviewed by 2-4 reviewers. In addition, ten Plenary Sessions including 33 invited speakers were held. Poster sessions (with almost 70 posters) were introduced on Tuesday afternoon and they include a 10 min discussion between the poster author and the chairman of each of the nine poster sessions.

The Conference included six oral conference sessions over the four and half day conference program. They are subdivided in: (S1) Basic Thermal-hydraulics; Two Phase Flow and Heat



Figure 3: Lecture about Fukushima Dai-Ichi accident analysed by MAAP code

Transfer Fundamentals, Including Experimental Thermal-Hydraulics and Instrumentation; (S2) Code Development Including Numerics (SYS TH and CFD); (S3) Code V&V, Design and Operation of SETF Including Instrumentation; (S4) Operation & Safety of Existing Reactors Including Code Assessment (final step of Validation) and Application: ITF and BEPU, Including Addressing of the Scaling Issue; (S5) Severe Accident and (S6) Other, Including Gen IV, Waste, Fusion.

The conference was enriched by fifteen Special Topics Conference Sessions oriented to place a specific emphasis on understanding thermal-hydraulic phenomena as well as developments and applications of new innovative technologies in experiments and numerical simulations.

Highly debated topics were the analytical activities on the accident progression and in-core status of Fukushima Dai-Ichi units, to which a Special Topic was dedicated in the Monday afternoon session, in the central Conference hall. In this session, chaired by F. Kasahara (JNES) and co-chaired by A. Hotta (JNES), the state of the art of the Fukushima accident numerical simulation was presented by S. Mizokami (Fig. 3) (Tokio Electric Power Company) using the MAAP code, M. Naitoh (The Institute of Applied Energy) by means of the SAMPSON code and H. Hoshi (Japan Nuclear Energy Safety Organization) showed the MELCORE code results.

In addition, 18 pre and post-conference professional development workshops were also organized.

The Japan Atomic Energy Agency (JAEA) very actively participated in the NURETH-15 conference

with its scientific delegates. They exposed scientific work about: SAS4A Analysis of CABRI Experiments for Validation of Axial Fuel Expansion Model (S. Ishida), Effects of Fluid Viscosity on Occurrence Behaviour of Vortex Cavitation – Vortex Structures and Occurrence Condition (T. Ezure), Major Outcomes from OECD/NEA ROSA and ROSA-2 Projects (H. Nakamura), Development of Failure Probability Evaluation Methodology of Natural Circulation Heat Removal Function in Level-1 PSA for Sodium-Cooled Fast Reactors (Fig. 4) and LSTF Test on CET Performance during PWR Hot Leg Small-break LOCA and RELAP5 Analysis.

Prof. H. Ninokata (Polytechnic of Milano) discussed, in a plenary evening session, the thermal-hydraulic aspects for the Fukushima event.

The meeting organization prepared a special program for post-conference activities. A Concert at the Verdi Theatre on Monday evening, an official dinner at Palazzo Corsini in Florence on Wednesday and a Paper Award dinner in Lucca at Palazzo del Real Collegio are just some of the various social events held during the NURETH-15 conference in Pisa.

The next meeting NURETH-16 will be held in Chicago, USA, August 30 - September 04, 2015.

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Figure 4: Hidemasa Yamano (JAEA) (left) and N. Aksan (right)

International Conference on Multiphase Flow 2013 (ICMF2013) May 26-31, 2013, Jeju, Korea

by Moo Hwan Kim and Hyun Sun Park

The 8th International Conference on Multiphase Flow (ICMF-2013) hosted by the Pohang University of Science and Technology was held at the International Convention Center Jeju (ICC Jeju), Korea from May 26 to 31, 2013. ICMF-2013, one of the most dedicated and established conferences on multiphase flows, pursued to facilitate the communication of new ideas and developments in the wide ranges of scientific and engineering applications among experts, experienced and young researchers as well as the extension of social network for initiating and strengthening the collaboration among them. Started in Tsukuba, Japan in 1991, this was the eighth followed by a series of successful meetings including Kyoto (1995), Lyon (1998), New Orleans (2001), Yokohama (2004), Leipzig (2007) and Florida (2010).

ICMF-2013 accommodated 774 attendees in total

from 39 countries all over the world: 490 from Asia and Oceania, 200 from Europe, 83 from America and 1 from Africa. This number of attendees was the largest in the history of ICMF and reflected the fast growing interests on the multiphase flow phenomena that could be observed in most of the natural processes and engineering applications from raindrops to bioengineering and power plant technologies. This multi-disciplinary nature of the conference was designed into 31 scientific topics, where 689 papers consisted of 579 oral presentations, 110 posters and 25 gallery presentations in the 17 parallel sessions were presented during the week. In the conference, the most popular session in terms of the number of papers were experimental methods for multiphase flow, modeling of multiphase flow, particle-laden flows and computational techniques for multiphase flows. However, sessions on particle, bubble and drop

dynamics, boiling and condensation and droplet flows were the most popular destination for the conference audiences. In addition, ICMF-2013 continued displaying visual works on multiphase flow at the gallery which had newly introduced since ICMF-2010. In the exhibition hall, a number of exhibitions from industries and research organizations were on display to demonstrate their activities on the research of multiphase flow phenomena.

The conference was further enriched by five plenary lectures, twenty keynote lectures and one ICMF Senior Award lecture by top researchers in the field. The five plenary lectures were given by Professors Satish Kandlikar, Michael Corradini, Yasuyuki Takata, Goodarz Ahmadi, and Gretar Tryggvason. Prof. S. Kandlikar discussed on the various key two-phase flow phenomena in GDL and reactant channel of PEMFCs that challenged our current knowledge of multiphase flow. Prof. M. Corradini elucidated the emerging multiphase flow issues in nuclear technologies that required demonstrating of the nuclear system safety and reliability as well as the challenge in balancing the competitive economics with minimal environmental impact. Prof. Y. Takata emphasized the physical ground of wettability effect on boiling heat transfer in that many researchers were currently exploring the fundamental multiphase phenomena involving the surface characteristics on boiling. Prof. G. Ahmadi overviewed the extensive research activities on the traditional multiphase flow in particle-fluid interactions such as particle transport, deposition and removal in environmental and biological flows. Lastly, Prof. G. Tryggvason animated the current efforts on DNS for multiphase flows in perspective to multi-scale issues.

The other twenty keynote lectures were given by Professors Yassin Hassan, Stathis Michaelides, Tomio Okawa, Lixing Zhou, Jungho Kim, Steven Ceccio, Chih-Chen Chen, Yuichi Murai, Martin Sommerfeld, Jacopo Buongiorno, Haruhiko Ohta, Sivaramakrishnan Lalchandar, Shu Takagi, Toshiyuki Hayase, Keumnam Cho, Haecheon Choi, Takeo Kajishima, Afshin Ghajar, Rick Wang, and Massoud Kaviany. This year's recipient of the ICMF Senior Awards, Prof. John K. Eaton of Stanford University was also one of the distinguished speakers.



Figure 5: Photo of a plenary lecture in ICMF-2013

The conference welcomed early-arrived participants at the lobby of ICC-Jeju on Sunday May 26. On Monday morning at 8:30 am, the official opening ceremony of ICMF2013 was held at Halla Hall. Prof. Moo Hwan Kim, the conference chair delivered the opening address followed by congratulatory remarks by Prof. Koichi Hishida, the elected president of the Japan Society of Multiphase Flow (JSMF) and Prof. Michael Corradini, the president of American Nuclear Society (ANS). Regular technical programs followed the opening ceremony on Monday and carried on till Friday at noon. Each day, the regular technical program consisted of plenary lecture, parallel technical sessions in the morning and keynote lectures followed by afternoon parallel technical sessions from 8:30 am to approximately 6:30 pm. The poster session and gallery presentation took place at 4:40 pm on Tuesday then followed the award lecture. The conference reception and Gala dinner were held at Tamna Hall accommodating more than 650 participants. In the reception ceremony led by Ms. R. Lee, Prof. Moo Hwan Kim of POSTECH, the conference chair gave the welcome speech and Dr. Young Wook Chung of FNC Inc. also gave the congratulatory speech in lieu of FNC president Byung Churl Lee. As a special dinner event, the ICMF-2013 Senior Award for Prof. J. Eaton was announced and he expressed his thanks to the audience. On Friday at the closing ceremony, Prof. Hyun Sun Park of POSTECH, the conference secretariat, summarized the conference and Prof. Y. Hagiwara of Kyoto Institute of Technology, the ICMF governing board chair, introduced new board members elected and announced the new location for

ICMF 2016. The next meeting will take place during the last week of May in Firenze, Italy. Professor Alfredo Soldati of the University of Udine and CISM will be the next conference chair. Prof. Daniele Matchisio of the Polytechnic University of Turin (Politecnico di Torino) invited all to the next conference and introduced the venue of ICMF-2016, Villa Vittoria.

The conference was organized with the extraordinary efforts of many individuals and organizations for the last three years that included 86 international scientific organization committee members, 33 local organization committee members, 14 governing board members, staffs of MICErang and Korean Tourist Bureau at Jeju and graduate students and research staffs of the two-phase flow laboratory of POSTECH (so-called "orange-shirts"). FNC, Doosan, Korea Institute of Nuclear Safety, ANFLUX, CORHEX, CD-ADAPCO, UIT, Korea Atomic Energy Research Institute, Samsung, and LG Electronics also financially supported the conference. Finally, on behalf of the organization committees of ICMF-2013, we believe our sincere thanks go to all of our participants who tirelessly visited all the session rooms instead of enjoying the beautiful scenery of Jeju Island and were willing to inspire us by sharing their new ideas.

Future Meetings

Following list includes Conference Name, Place, Date and Contact.

7th World Congress on Industrial Process Tomography(WCIPT7)

Krakow, Poland, September 2 - 5, 2013

Chair: Prof. Dominik Sankowski

Co-Chair: Prof. Uwe Hampel

<http://wcipt7.kis.p.lodz.pl/index.html>

Eurotherm Seminar, Convective Heat Transfer Enhancement

Brussels, Belgium, September 17-18, 2013

Chair:

Prof. Jean-Marie Buchlin (von Karman Institute for Fluid Dynamics)

Prof. Walter Bosschaerts (Royal Military Academy)

Prof. Souad Harmand (Université de Valenciennes et du Hainaut-Cambrésis)

Tel/Fax: 32-2-359-9604/32-2-359-9611

E-mail: secretariat@vki.ac.be

<http://www.vki.ac.be/eurotherm2013/index.php>



Figure 6: Photo of the Reception Dinner in ICMF-2013

Prof. Moo Hwan Kim, Conference Chair
Prof. Hyun Sun Park, Conference Secretariat
Division of Advanced Nuclear Engineering
Pohang University of Science and Technology (POSTECH),
Pohang, Gyungbuk, Republic of Korea
Email: mhkim@postech.ac.kr,
hejsunny@postech.ac.kr

International Conference on Power Engineering-2013 (ICOPE-2013)

Wuhan, China, October 23 - 27, 2013

Chair: Prof. Shuhong Huang (CSPE)

Huazhong University of Science and Technology

Co-Chair:

Dr. Jun Inumaru (JSME)

Mr. George Saxon (ASME)

Contact: Prof. Xiaobing Luo

Tel/Fax: 86-27-87542618-612/86-27-87540724

E-mail: icope2013@126.com

<http://www.icope-2013.org/>

2013 ANS Winter Meeting and Nuclear Technology Expo

Washington DC, USA, November 10 - 14, 2013

General Chair:

James Rogers (Duke Energy)

Program Chair:

Linda Hansen (Argonne National Laboratory)

http://www.new.ans.org/meetings/c_1

The 12th International Symposium on Fluid Control, Measurement and Visualization (FLUCOME 2013)

Nara, Japan, November 18 - 22, 2013
FLUCOME 2013 Paper Submission Office
Chair: Prof. Toshiharu Kagawa (Tokyo Institute of Technology)
Vice Chair: Prof. Masahiro Takei (Chiba University)
Tel/Fax: 81-3-3219-3541/81-3-3219-3577
E-mail: flucome2013@ics-inc.co.jp
<http://www.k-k.pi.titech.ac.jp/FLUCOME2013/>

66th Annual Meeting of the American Physical Society's Division of Fluid Dynamics (DFD)

Pittsburgh, USA, November 24 - 26, 2013
Co-Chair:
Prof. Nadine Aubry (Northeastern University)
Prof. Peyman Givi (University of Pittsburgh)
<http://www.apsdfd2013.pitt.edu>

10th International Conference on Flow Dynamics

Sendai, Japan, November 25 - 27, 2013
Chair: Prof. Shigenao Maruyama (Tohoku University)
Tel/Fax: 81-22-217-5301
E-mail: icfd2013@fmail.ifs.tohoku.ac.jp
<http://www.ifs.tohoku.ac.jp/icfd2013/>

8th International Symposium on Measurement Techniques for Multiphase Flow (ISMTMF'2013)

Guangzhou, China, December 13 - 15, 2013
Guangdong University of Technology
Chair:
Prof. Xin Chen (Guangdong University of Technology)
Prof. Shimin Wang (Southeast University)
Prof. Yuichi Murai (Hokkaido University)
Prof. Yassin A. Hassan (Texas A&M University)
Prof. Yong Yan (University of Kent)
Conference Secretary: Prof. Yang Li
Tel: 86-020-39322245
E-mail: ismtmf2013@gdut.edu.cn
<http://ismtmf2013.csp.escience.cn/>

16th Annual Conference of the Institute for Liquid Atomization and Spray Systems - Asia (ILASS-Asia 2013)

Nagasaki, Japan, December 18 - 19, 2013
<http://www.ilass-japan.gr.jp/english/activity/ilass-asia2013.php>

----- 2014 -----

International Workshop on Thermal Hydraulics of Innovative Nuclear Systems (THINS 2014)

Modena, Italy, January 20 - 22, 2014

E-mail: thins2014@unimore.it
<http://www.thins2014.unimore.it/>

2014 the 3rd International Conference on Fluid Dynamics and Thermodynamics Technologies (FDTT 2014)

Antalya, Turkey, April 21 - 23, 2014
Chair: Dr. Mahir Dursun (Gazi University)
Tel: 86-28-86527868
E-mail: fddt@iacsit.org
<http://www.fddt.org/>

The 5th International Conference on Heat Transfer and Fluid Flow in Microscale (HTFFM-V)

Marseille, France, April 22 - 26, 2014
Chair: Prof. Lounes Tadrist (Aix Marseille University)
Co-Chair: Prof. Irina Graur (Aix Marseille University)
E-mail: contact@htffm-v.fr
<http://www.htffm-v.fr>

7th World Congress on Particle Technology (WCPT-7)

Beijing, China, May 19 - 22, 2014
Chinese Society of Particology
Chair: Prof. Jinghai Li (Chinese Academy of Science)
Co-Chair:
Prof. Junji Cao (Chinese Academy of Science)
Prof. Yunfa Chen (Chinese Academy of Science)
Prof. Yulong Ding (Chinese Academy of Science)
Prof. Qingshan Zhu (Chinese Academy of Science)
Tel: 86-10-62647657
E-mail: wcpt7@home.ipe.ac.cn
<http://www.wcpt7.org/>

International Conference on Energy Systems Engineering and Technology (ICESET 2014)

New York, USA, June 5 - 6, 2014
<http://www.waset.org/conferences/2014/newyork/iceset/>

11th AIAA/ASME Joint Thermophysics and Heat Transfer Conference

Atlanta, Georgia, June 16 - 20, 2014
<http://www.aiaa.org/EventDetail.aspx?id=18644>

2014 ANS Annual Meeting

Reno, NV, June 15 - 19, 2014
Grand Sierra Resort
Chair: Prof. John J. Grossenbacher (Idaho National Laboratory)
http://www.new.ans.org/meetings/c_1

The 16th International Symposium on Flow

Visualization (ISFV16)

Okinawa, Japan, June 24 - 28, 2014
Chair: Prof. Koji Okamoto (The University of Tokyo)
E-mail: info@isfv.org
<http://www.isfv.org>

Heat Transfer 2014

A Coruña, Spain, July 2 - 4, 2014
Chair:
Prof. B. Sunden (Lund University of Technology)
Pfor. C. A. Brebbia (Wessex Institute of Technology)
Tel/Fax: 44-238-029-3223/44-238-029-2853
E-mail: imoreno@wexsex.ac.jp
<http://www.wessex.ac.uk/heat2014>

10th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT2014)

Orlando, Florida, USA, July 6 - 9, 2014
<http://edas.info/web/hefat2014/home.html>

4th Joint US-European Fluids Engineering Summer Meeting / 12th International Conference on Nanochannels, Microchannels, and Minichannels

Chicago, USA, August 3 - 7, 2014
<http://www.asmeconferences.org/FEDSM2014/>

15th International Heat Transfer Conference (IHTC-15)

Kyoto, Japan, August 10 - 15, 2014
Chair:
N. Kasagi, Japan Sci. & Tech. Agency
Vice Chair:
H. Yoshida, Kyoto University
S. Maruyama, Tohoku University
E-mail: info@ihtc-15.org
<http://www.ihtc-15.org>

4th Micro and Nano Flows Conference

London, UK, September 7 - 10, 2014
E-mail: mnf-2014@ucl.ac.uk
<http://www.mnf2014.com/>

2014 ANS Winter Meeting and Nuclear Technology Expo

Anaheim, CA, November 9 - 13, 2014
Disney Resort & Hotel
Chair: Prof. Ed Halpin (PG&E)
http://www.new.ans.org/meetings/c_1

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**The 8th International Symposium
on Measurement Techniques for
Multiphase Flows**
ISMTMF' 2013

(December 13-15, 2013, Guangzhou, P.R. China)



The 8th International Symposium on Measurement Techniques for Multiphase Flows

Organized by

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The Japanese Society for Multiphase Flow
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Novel Sensors and Measurement Methods of Multiphase Systems
Information Technology for Multiphase Flow
Process Tomography and Flow Visualization
Intelligent Instruments and Monitoring Systems
Optical, Non-intrusive and Other Advanced Measurement Techniques
Characterization and Measurement of Multiphase Nanometer Flow
Measurement of High Temperature Multiphase Flow
Industrial Trials of Multiphase Flowmetering Techniques
Environmental Monitoring
Measurement of Bio-fluids
Other Fields on the Measurement of Multiphase Flow

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Prof. Huihe Qiu, The Hong Kong University of Science and Technology, P.R. China
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