



The International Information Center for Multiphase Flow

NEWSLETTER

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The Japanese Society for Multiphase Flow

**5th International Conference on Multiphase Flow ICMF-2004
May 30 to June 4, Yokohama Pacifico Conference Center, Yokohama, Japan**

by Yoichiro Matsumoto

The 5th International Conference on Multiphase Flow (ICMF-2004) was one of the most established conferences on multiphase flows. This series of Conferences (ICMF) has matured and attracts all the prominent researchers in the field of Multiphase Flow from all over the world. Approximately 500 delegates representing 34 countries came to Yokohama in order to attend this Conference.

The vice-chair of the conference, professor Hishida, opened the Conference at 10:10 am on Monday May 31. Professor Yoichiro Matsumoto spoke as the chair of the ICMF Governing Board. Professor Ikohagi addressed the attendees on behalf of the Japan Society for Multiphase Flow. There was a total of 439 presentations delivered (405 as oral presentations and 34 as poster presentations). In addition, there were 5 plenary lectures, 14 keynote lectures, two award lectures and a special session. The presentations were distributed in a total of 99 sessions on the following general topics:

- A. Constituent Elements of Multiphase Flows
- B. Adiabatic Multiphase Flows
- C. Diabatic Multiphase Flows
- D. Advanced Models and Instrumentations
- E. Applications

F. Organized Sessions

- OS1. Application of PDF/Kinetic Approaches to Dispersed Flows
- OS2. Microgravity Boiling and Two-Phase Flows
- OS3. Two-Phase Flow Applications in Environmental Systems
- OS4. Microscale Phenomena in Multiphase Flows
- OS5. Micro-Bubble and Its Application
- OS6. Imaging and Tomographic Techniques for Multiphase Flow Measurements
- OS7. Computational Simulation of Multidimensional Multiphase Flows

G. Others

Among the highlights of this International Conference were:

A. Invited Plenary Lectures:

- (1) Jacques Magnaudet
Migrating, Zigzagging, Spiraling: Fascinating Bubbles
- (2) Chih-Ming Ho
Two-Phase Flow in Microchannels with Surface Modifications
- (3) Detlef Lohse
Turbulent Bubbly Flow

To Join ICeM:

Everybody, who is interested in "multiphase flow", can be a member of ICeM. You are welcome to join ICeM. Please contact one of the following to register as an ICeM member.

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- (4) Mamoru Ishii
Two-Fluid Model based on Interfacial Area Transport Equation
- (5) Masayuki Horio
Four Topics for Further Development of DEM to Deal with Industrial Fluidization Issues

B. Invited Keynote Lectures:

- (1) Said E. Elghobashi
On the Physical Mechanisms of Drag Reduction in a Mirobubble-Laden Turbulent Boundary Layer
- (2) Martin Maxey
Self-Assembled Particle Structures for Microflow Systems
- (3) Takeo Kajishima
Numerical Investigation of Collective Behavior of Gravitationally-Settling Particles in a Homogeneous Field
- (4) Jiri Drahos
Problems of Time Series Analysis in Characterization of Multiphase Flows
- (5) Barry Azzopardi
Phase Split at T-Junctions with Vertical Main Pipes: a Bringing Together of Understanding across Flow Patterns
- (6) Ellen K. Longmire
Simultaneous Gas and Particle Velocity Measurements in Turbulent Channel Flow
- (7) J.A.M. Kuipers
Multi-Scale Modeling of Dispersed Gas-Liquid Two-Phase Flows
- (8) Olivier Simonin
Mathematical Models & Closure Laws for Dispersed Flows
- (9) Ruzhu Wang
Boiling Heat Transfer in Helium II with Complicated Phase Changes
- (10) Chiu-sen Wang
Particle Transport in the Human Respiratory Tract
- (11) Efstathios Michaelides
Transient Equations for Motion, Heat and Mass Transfer of Bubbles, Drops and Particles
- (12) Masanori Naito
Severe Accident Analysis of Light Water Nuclear Power Plants by Theoretical and Mechanistic Models
- (13) Michel Y. Louge
Role of Couple Stresses in Shallow Granular Flows down a Bumpy Incline
- (14) Kaichiro Mishima
Review of Post-CHF Heat Transfer and Rewetting Phenomena

C. Award Lectures

ICMF Senior Award Recipient: Prof. A. Prosperetti
Multiphase multifariousness

ICMF Junior Award Recipient: Dr. F. Takemura
Bubble dynamics, its continuing interest

D. Special Session

Current and Future Perspectives on Multiphase Flows
Coordinator: Y. Tsuji

Panelists:

C. T. Crowe:

Some Comments on the Needs in Multiphase Flows

G. Hetsroni:

Multiphase Flow - Past, Present and Future

M. Maeda :

Further Requirement of New Discovery by Developing Novel Analyzers for Dispersed Two-Phase Flows

On the social level, the reception on May 31 was attended by 450 attendees. The Conference banquet on Wednesday June 2, attended by 480 people, was done at the Pan Pacific Hotel. At the banquet, the ICMF Award Ceremony was celebrated. ICMF Senior award was presented to Prof. Prosperetti for his numerous contribution to the research and education on the subject of Multiphase Flow and ICMF Junior award was presented to Dr. Takemura for his contribution to a fundamental understanding of single bubble motions. The highlight of the banquet was the String Quartet by "Ensemble Mets". They gave an excellent performance of some classical and traditional musical pieces.

Finally this conference was supported by the following organization, companies and individual. We wish to thank them for their contribution to the success of this conference.

Air Force Office of Scientific Research (Asian Office of Aerospace Research and Development), CASIO Science Promotion Foundation, Ebara Research Co., Ltd, Hatakeyama Bunka Zaidan, Hitachi, Ltd, Ishikawajima-Harima Heavy Industries Co., Ltd, The Kansai Atomic Conference (Japan Atomic Industrial Forum, Inc.), Mitsubishi Heavy Industries, Ltd, Takuma Co., Ltd, Tokyo Electric Power Company, Yokohama City and Professor Kyoza Ayukawa.

The 6th International Conference on Multiphase Flow will be chaired by Professor Martin Sommerfeld and held in **Leipzig**, Germany in 2007.

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**Completion of the 5th International Conference on Multiphase Flow
May 31 - June 3, Yokohama Pacifico Conference Center, Yokohama, Japan**

by Fumio Takemura

I took part in the 5th International Conference on Multiphase Flow (ICMF-2004) as a member of the local organizing committee. Preparations by the committee members started several months before the 4th International Conference on Multiphase Flow. Fortunately it was officially decided at that conference that the next conference would be held in Yokohama. All members of the local organizing committee then began the real preparation for the conference.

This huge international conference, attended by more than 500 people, required a correspondingly huge budget. Unfortunately the Japanese economy was not so good at that time; it was predicted that financial support by domestic companies and organizations would be difficult. In such a situation, it is very difficult to hold a successful conference, so the responsibilities of the local organizing committee increased. The unity of the committee members, however, was strong enough that we overcame many difficulties. The troika system, composed of Professor Matsumoto as head plus Professors Hishida and Tomiyama, ensured that we could reach our goal without any collapse of the system. I was impressed with the liberal personality of Professor Matsumoto and the executive ability of Professors Hishida and Tomiyama, which enabled our success. Although assuming responsibility as secretary-general,

I just followed their leadership.

By excellent good fortune, the conference succeeded with no problems. Afterward, we received many words of praise from conference participants. I am proud that I could take part in such a great conference as a member of the local organizing committee, and I would like to express my appreciation to both Professor Matsumoto and Professor Hishida for providing me that precious opportunity.

Finally, I was presented the ICMF Junior Award at this conference. I would like to express my sincere appreciation and gratitude to the ICMF Award committee, international organizing committee, and international scientific committee. Also I would like to express my sincere appreciation and gratitude to Professor Matsumoto, Professor Hishida, and the others have advised and supported me from the very beginning to the successful end.

Secretary-General of ICMF-2004

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**CHT-04: 3rd ICHMT Symposium on Advances in Computational Heat Transfer
April 19-24, 2004, MS Midnatsol, Norwegian Coastal Voyage, Norway**

by Graham de Vahl Davis and Eddie Leonardi
Co-chairs

Summary: CHT-04 took place on the Hurtigruten Coastal Steamer *MS Midnatsol* during its voyage down the Norwegian coast between Kirkenes and Bergen, Norway. The weather was, of course, cold - Kirkenes is at 70° N latitude - but was generally fine and the venue provided opportunities for both professional interaction and tourism. The symposium was co-sponsored by the International Centre for Heat and Mass Transfer and the CFD Research Laboratory, The University of NSW, and was financially supported by Bentours International Pty. Ltd. CHT-04 was a scientific, social and financial success.

Conference facilities: *MS Midnatsol* is a new ship, ideal for hosting a conference. It can accommodate over 600 passengers and is equipped with first-class confer-

ence facilities including a 200-seat auditorium with A/V equipment and two small rooms which were used for the poster sessions.

One advantage of having a symposium on board a ship - especially on the Norwegian Coastal Voyage - is that delegates are less tempted to arrive late or leave early.

Technical program: The programme featured eight invited keynote papers, three invited speakers at a Computational Combustion mini-symposium, two invited speakers at a Verification & Validation panel discussion and 95 contributed papers.

Among the contributed papers were the following, of particular interest to workers in multi-phase flow:

- A numerical model for 3D transient evaporation processes based on the volume-of-fluid method; Matthias Hase, Bernhard Weigand
- Finite element moving mesh analysis of phase change problems with natural convection; R. T. Tenchev, J. A. MacKenzie, T. J. Scanlon, M.T. Stickland
- Numerical simulation of glass fogging and defogging; Giulio Croce, Paola D'Agaro, Francesca Della Mora
- Calculation of dropwise condensation heat transfer using a simulation method of falling drops on a condensation surface; Masaaki Izumi, Satoshi Kumagai, Ryohachi Shimada, Ryou Kobayashi, Norio Yamakawa
- A new method for including interfacial tension and wetting dynamics in the simulation of two-phase flow; Hansmartin Friess, Djamel Lakehal

The proceedings were produced on a CD-ROM. Copies may be ordered from:

cht04@cfm.mech.unsw.edu.au.

Abstracts and the detailed programme may be seen at <http://cht04.mech.unsw.edu.au>. Selected papers will be submitted to one of six relevant journals for publication.

Attendance: 114 delegates from over 30 countries in all parts of the world attended. In addition, there were 47 accompanying persons (including a baby who celebrated his first birthday during the Symposium).

Conclusion: Following the Symposium, many delegates wrote their appreciation: "this great CHT-04 cruise conference"; "the Norwegian venue was wonderful"; "unforgettable".

The organisers are very gratified with such remarks, and cannot recommend this venue too highly for a conference of up to 200 participants.

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V Minsk International Heat and Mass Transfer Forum May 24-28, 2004, Minsk, Belarus, Russia

by I. Gurevich

Organizers of the Forum: National Academy of Sciences of Belarus, State Committee on Science and Technology of the Republic of Belarus, Ministry of Energetics of the Republic of Belarus, A.V.Luikov Heat & Mass Transfer Institute of the National Academy of Sciences of Belarus, Joint-Stock Company "Beltransgaz", RUE "Belarus Metallurgical Works", Department of Power Engineering, Mechanical Engineering, Mechanics and Control Processes of the Russian Academy of Sciences, National Committee for Heat and Mass Transfer of the Russian Academy of Sciences, Ministry of General and Professional Education of the Russian Federation, Institute of Engineering Thermo-physics of the National Academy of Sciences of the Ukraine, International Center for Heat and Mass Transfer.

The Journal of Engineering Physics and Thermo-

physics renders informational support.

The Forum included the Opening and Closing Plenary Sessions, the work of 10 sections with oral and poster papers, and 3 round tables.

Of six plenary reports of the highest interest were "Power engineering technologies and new materials of the 21st century", "Thermophysical properties of materials and processes under extreme conditions", "Heat and mass transfer in natural geyser systems", "Problems of nonisothermal adsorption".

The Program of the Forum covered 507 section reports and communications, including: 83 pertaining to the Section "Convective Radiative and Combined Heat Transfer", 38 to "Heat Conduction and Problems of Heat Exchange Optimization", 40 to "Heat and Mass Transfer in Chemically Reacting Systems", 69 to "Heat and Mass Transfer in Two-Phase (Vapor-Liquid) Sys-

tems", 50 to "Heat and Mass Transfer in Disperse and Rheological Systems", 47 to "Heat and Mass Transfer in Capillary-Porous Bodies (Including Drying Processes)", 55 to "Heat and Mass Transfer in Power Facilities", 37 to "Thermophysics and Thermal Engineering of Metallurgical Processes", 35 to "Heat and Mass Transfer in Technological Processes and Facilities".

In the course of the Forum three round tables took place, namely: "Heat Pumps and Coolers", "Problems of Heat and Mass Transfer in Nanotechnologies", "Results and Prospects of Studying Natural and Domestic Fires".

Prior to the Forum, the Extending Abstracts of the papers in 2 volumes in the original languages and the Book of Abstracts in the English language have been published. The Proceedings of the Forum can be found on the web-site of the A.V.Luikov Heat & Mass Transfer Institute: www.itmo.by

The plenary and invited keynote papers and round-table discussions will be published in the special issue of the "Journal of Engineering Physics and Thermophysics" ("Inzhenerno-Fizicheskii Zhurnal"), Vol. 78, No 1, 2005.

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JSMF Annual Meeting 2004
August 5-7, 2004, Okayama, Japan
The 23rd Multiphase Flow Symposium
August 6, 2004, Okayama, Japan

by Akihiko Horibe

The JSMF Annual Meeting 2004 was held at Okayama, Okayama University on 5th-7th August, 2004. During the Meeting, the 23rd Multiphase Flow Symposium was held 6th. Please visit <http://www.jsmf.gr.jp/ICeM/MeetingProgram.htm> to check these programs for your reference.

JSMF Annual Meeting 2004 Program
August 5-7, 2004, Okayama, Japan

Organized Session

- OS-1 [Bubble-Surface Motion and Mass-Transfer Characteristics]
Shu Takagi (Univ. of Tokyo),
Akio Tomiyama (Kobe Univ.)
- OS-2 [Surface Active, Surface Wettability and Multiphase Flow]
Toru Sawai (Kinki Univ.),
Koichi Murakami (Ehime Univ.)
- OS-3 [Control and Characteristics of Multiphase Jet and Multiphase Wake]
Tomomi Uchiyama (Nagoya Univ.),
Toshihiko Shakouchi (Mie Univ.)
- OS-4 [Flow Friction Drag Reduction - Experiment and Modeling -]
Takeo Kajishima (Osaka Univ.),
Shu Takagi (Univ. of Tokyo),
Tsuneo Azuma (Osaka City Univ.)
- OS-5 [Heat Transfer Problems of Gas-Solid Two-Phase Flow with Phase Change]
Mamoru Ozawa (Kansai Univ.),
Hisashi Umekawa (Kansai Univ.)
- OS-6 [Multiphase Flow Characteristic of Intelligent Fluid]
Hideya Nishiyama (Tohoku Univ.),
Hiroshi Yamaguchi (Doshisha Univ.)
- OS-7 [Phase Change and Heat Transfer Characteristics]

- Yoshimoto Onishi (Tottori Univ.),
Hideo Inaba (Okayama Univ.)
- OS-8 [PIV/PTV Measurement of Multiphase Flow]
Yuichi Murai (Hokkaido Univ.)
- OS-9 [Science and Technical Application of Micro-Nano Bubbles]
Hirofumi Ohnari (Tokuyama College of Tech.),
Hideaki Shakutui (Kobe City College of Tech.)
- OS-10 [Boiling and Two-phase Flow in Microgravity and Space Thermal Transport System]
Haruhiko Ohta (Kyushu Univ.),
Haruo Kawasaki (JAXA)
- OS-11 [Industrial, academic and governmental Liaison Project]
Kiyoshi Horii (Shirayuri College),
Akiharu Ousaka (Tokushima Univ.)

International Session

- IS-1 [Multiphase Flow Research and Its Industrial Application in Asia]
Isao Kataoka (Osaka Univ.),
Koichi Hishida (Keio Univ.),
Akio Tomiyama (Kobe Univ.)

General Session

- GS-1 [Multiphase Flow Physics]
GS-3 [Numerical Analysis of Multiphase Flow]
GS-5 [Interfacial Phenomena]
GS-6 [Nuclear Power]
GS-7 [Multiphase Flow Transportation]

The 23rd Multiphase Flow Symposium
August 6, 2004, Okayama, Japan

1. Development of Center-of-Excellence Program
2. Diversification and Progress of Multiphase Flow Research I
3. Diversification and Progress of Multiphase Flow Research II

The JSMF Annual Meeting 2004 was held at Okayama, Okayama University on 5th-7th August, 2004. During the Meeting, **the 23rd Multiphase Flow Symposium** was held 6th.
Please visit

<http://www.jsmf.gr.jp/ICeM/MeetingProgram.htm>

to check these programs for your reference.

**Second International Conference on Microchannels and Minichannels Focuses
on the Role of Small Channels in Emerging Technologies
June 17-19, 2004, Rochester, NY, USA**

by Satish Kandlikar

The Second International Conference on Microchannels and Minichannels was held during June 17-19, 2004 in Rochester, NY under the joint sponsorship of American Society of Mechanical Engineers and Rochester Institute of Technologies. Over 230 participants from 27 countries participated in the conference.

The conference plenary speaker, Dr. Mike Connolly, CEO of Integrated Nanotechnologies presented an excited talk on the DNA detection technology and some of the exciting opportunities in the biomedical applications. Fourteen keynote lectures were presented along with 114 contributed papers in the three-day conference.

Although biomedical applications were eagerly received by the participants, equally enthusiastic response was received for a number of heat transfer and mass transfer related topics. Boiling received the most number of papers, followed by papers related to single-phase liquid and gas flow. Electronics cooling, especially the introduction of enhancement features in microchannels, was another topic that received wide attention.

The conference was arranged in a somewhat non-traditional format. The conference breaks and evening receptions provided opportunities for the participants to interact with each other and discuss cross-disciplinary topics.

The conference banquet speaker spoke on "So, What is the Big Deal about Shakespeare?". The talk was presented by Stan McKenzie, Provost of RIT, and was received enthusiastically by the participants. It was followed by a review of the conference papers and their contribution to the advancement of the new technologies. Suggestions were also made regarding future research needs in various areas.

The conference was closed with an announcement regarding the Third International Conference, which will be held in Toronto, Canada, during June 13-15, 2005. The conference will be sponsored by ASME, RIT and University of Toronto, and will be jointly chaired by Masahiro Kawaji and Satish Kandlikar. Authors are encouraged to submit the abstracts on traditional as well as new cross-disciplinary topics. Refer to conference web site, www.asme.org/events/micromini for future announcements.

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**The First Cappadocia International Mechanical Engineering Symposium (CMES-04)
July 14-16, 2004, Nigde, Turkey**

by Ibrahim Dincer

The First Cappadocia International Mechanical Engineering Symposium (CMES-04) was successfully held in Cappadocia, TURKEY between July 14-16, 2004. It was a multidisciplinary/interdisciplinary international conference, and provided a forum for researchers, scientists, engineers and practitioners from all over the world to disseminate information, presented new ideas and developments, and discussed the future direction and priorities in fields of Mechanical Engineering. In fact, this symposium will always be remembered for its rich technical and social events. This International symposium was chaired with Dr. H. F. ECER as General Chair; Dr. I. DINCER as International Scientific/Advisory Chair and Coordinator; Dr. M. KALKAT as Symposium Chair in Material and Mechanics; Dr. A. MIDILLI as Symposium Chair in Energy, Energy and Thermal systems; Dr. A. HEPBASLI as Technical Chair, and was organized/co-organized by Nigde University,

TURKEY; University of Ontario Institute of Technology, CANADA; International Association for Hydrogen Energy, USA; Clean Energy Research Institute, Miami, USA; The Scientific and Technical Research Council of TURKEY; Istanbul Technical University, TURKEY; The Chamber of Mechanical Engineers, TURKEY; Ministry of Culture and Tourism, TURKEY; Ege University, TURKEY; National Technical University of Athens, GREECE; Interscience Publishing Company, UK.

The Symposium received considerable international attention from all over the world. The number of abstracts received was 310 and 185 out of this were selected for full paper submission. 155 submitted full papers were peer-reviewed and 120 were accepted for presentation at the symposium. The CMES-04 featured 6 keynote lecturers by well-respected scholars, Dr. A. BEJAN from Duke University, USA; Dr. T.N.

VEZIROGLU from Miami University, USA; Dr. F. HAMDULLAHPUR from Carleton University, Canada; Dr. I. DINCER from University of Ontario Institute of Technology, Canada; Y. A. CENGEL from University of Nevada, USA; B.S. YILBAS from KFUPM, Saudi Arabia. These well-recognized and distinguished Professors presented some cutting edge type papers on new applications, developments, technologies, etc.. Also, the famous scientists, researchers and scholars from more than 20 countries participated in this conference to orally present their scientific studies, developments and works. According to us, this conference provided an exciting technical program encompassing a wide range of topics ranging from energy to mechanical impacts. The technical sessions were conducted in three parts, such as Energy, energy and envi-

ronment; Thermal systems; Mechanics and materials. Outcomes of the presentations and discussions were fruitful for both academia and industry. Moreover, the cooperation between academia and industry was developed in terms of research programs in various areas of Mechanical Engineering, in particular, energy, energy and thermodynamics.

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International Summer School Thermodynamic Optimization and Constructal Design 19-21 July 2004, Istanbul, Turkey

by Ugur Kesgin

The summer school was organized by Yildiz Technical University in cooperation with ICAT (International Centre for Applied Thermodynamics). The summer school was an international event with more than 50 participants and more than 17 presentations lectured by 10 Professors from different countries. The lecturers of the summer school were:

A. Bejan (USA)	H. Heperkan (Turkey)
I. Dincer (Canada)	A. Hepbasli (Turkey)
S. Lorente (France)	A. Ozturk (Turkey)
E. Sciubba (Italy)	S. Onbasioglu (Turkey)
Y. Gogus (Turkey)	U. Kesgin (Turkey)

The courses emphasized the role and the status of constructal design in engineering thermodynamics. The main focus was on the improvement of system performance through the generation and optimization of system configuration (geometry, architecture, etc.). The main topics of the summer school include the following:

- Thermodynamic optimization
- Entropy generation minimization
- Exergy analysis, sustainable development
- Simulations based on artificial neural networks
- Constructal theory and design
- Tree-shaped flow networks
- Robustness, multi-objective optimization
- Multi-scale flow structures
- Designed porous media
- Optimization techniques
- Thermo-economics
- Cold thermal energy storage
- Internal combustion engines
- Crude oil distillation
- Combined heat and power system

The course material including lecture presentations can be found in the internet site www.atc2005.net. These

materials can also be downloaded from the internet.

There are two coming events organized by the same group. The first is the 2nd international conference on applied thermodynamics to be held on May 18-20, 2005 in Istanbul.

The second is the 3rd International Sarigerme Energy End Use Efficiency Symposium and Workshop organized by Yildiz Technical University together with Eurosolar Turkey. This workshop will take place on November 1-2, 2004 in Turkey.

Detailed information on the conference and the workshop can be found at "www.atc2005.net".

On behalf of the Organizing Committee
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Report on 4th International Symposium on Measurement Techniques for Multiphase Flow September 10-12, ISMTMF'2004, Hangzhou, Zhejiang Province, China

by Jian HUANG & Qi PAN

The 4th International Symposium on Measurement Techniques for Multiphase Flow (ISMTMF'2004) was held on September 10 to 12, 2004, in Hangzhou, China. It was suspended one year for SARS, which attacked China in 2003. This symposium was organized by National Laboratory of Industrial Control Technology, and Clean Energy & Environment Engineering Key Lab of MOE, Zhejiang University; Committee on Measurement for Multiphase Flow, The Chinese Society for Measurement; Southeast University and University of Shanghai for Science and Technology. National Natural Science Foundation of China, The Chinese Society for Measurement, Zhejiang University and The Japanese Society for Multiphase Flow were sponsored it.

In order to exchange academic ideas and to present new research achievements in the measurement of multiphase flows, which is very important for both of basic study of multiphase flows and its application in industry, a series of conferences has been developed by the Chinese Society for Measurement at three-yearly intervals. The previous conferences were held in: Nanjing, China (1995); Beijing, China (1998); Fukui, Japan (2001). And the 2nd International Symposium on Multiphase, Non-Newtonian and Reaction Flows (ISMNRF'04) was held jointly with ISMTMF'2004 for the first time.

Following 7 invited lectures were contained in the proceeding of this symposium.

- Clayton T. Crowe, "Developments in Turbulence Modulation in Dispersed Phase Flow"
- Jan Mewis, "Rheo-Optics as a Probing Technique for Multiphase Systems"
- Caneron Tropea, "Optical Measurement Technique for Multiphase Flows"
- Fujio Yamamoto et al, "PIV Measurement of Gas-Liquid Two-Phase Flows"
- Akimi Serizawa, "Multiphase Flow in Micro-Channels"
- Kefa Chen et al, "Application of Some Techniques for Multiphase Flows in Energy & Environment Engi-

neering"

- Lixing Zhou, "New Developments in Second-order Moment Multiphase and Reacting Turbulence Models"

And 111 papers which were contributed from authors of Belgium, China, France, Germany, Japan, UK and USA, covered the following major topics:

- Fundamentals of Multiphase Flow Measurement
- New Sensors and Measurement Methods of Multiphase Systems
- Signal Analysis and Multi-sensor Information Fusion
- Process Tomography and Flow Visualization
- Intelligent Instruments and Monitoring Systems
- Suspension System Measurement
- Particle and Liquid-drop Measurement
- Characteristics and Measurement of Nanometer Multiphase Flows
- Measurement of High Temperature Multiphase Flow
- Emission Measurement in the Reaction Process of Multiphase Flow
- Industrial Applications
- Other Fields on the Measurement of Multiphase Flows

The success of this conference was supported by voluntary efforts by the members of the organizing committee. We trust that the conference provide a forum for the interchange of new ideas and the presentation of the latest work in the measurement technique for multiphase flow. And we look forward to the continued success of the International Symposium on Measurement Technique for Multiphase Flows next time.

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4th International Symposium on Measurement Techniques for Multiphase Flow September 10-12, ISMTMF'2004, Hangzhou, Zhejiang Province, China

by Panqi

The 4th International Symposium on Measurement Techniques for Multiphase Flow (ISMTMF'2004) was held on September 10 to 12, 2004, in Hangzhou, China. The conference chairmen were Kefa Cen (China), Jan Mewis (Belgium), Martin.Sommerfeld (Germany), Youxian Sun (China), C.Tropea (Germany), Shimin Wang (China), and Fujio Yamamoto (Japan).

The symposium has been successfully organized by National Laboratory of Industrial Control Technology, and Clean Energy & Environment Engineering Key Lab of MOE, Zhejiang University, Committee on Mea-

surement for Multiphase Flow, The Chinese Society for Measurement; and sponsored by Southeast University and University of Shanghai for Science and Technology. National Natural Science Foundation of China, The Chinese Society for Measurement, Zhejiang University and The Japanese Society for Multiphase Flow as a series of conferences on Measurement Techniques for Multiphase Flow at three-yearly intervals. The previous conferences were held in: Nanjing, China (1995); Beijing, China (1998); Fukui, Japan (2001).

This conference has been chosen to disseminate

information on various measurement techniques practiced in Multiphase Flow and to promote an exchange of technical, research & experience within this field.

To provide a forum of for the interchange of such new ideas and the presentation of the latest work in the field, the conference covered the following fundamental and applied topics in Measurement techniques of Multiphase flow:

- Fundamentals of Multiphase Flow Measurement
- New Sensors and Measurement Methods of Multiphase Systems
- Signal Analysis and Multi-sensor Information Fusion
- Process Tomography and Flow Visualization
- Intelligent Instruments and Monitoring Systems.
- Suspension System Measurement
- Particle and Liquid-drop Measurement
- Characteristics and Measurement of Nanometer Multiphase Flows
- Measurement of High Temperature Multiphase Flow
- Emission Measurement in the Reaction Process of Multiphase Flow
- Industrial Applications
- Other Fields on the Measurement of Multiphase Flows

Throughout the conference, the following 7 keynote papers and 111 general papers from authors of Belgium, China, France, Germany, Japan, UK and USA were presented:

- Clayton T. Crowe, "Developments in Turbulence Modulation in Dispersed Phase Flow"
- Jan Mewis, "Rheo-Optics as a Probing Technique for Multiphase Systems"
- Caneron Tropea, "Optical Measurement Technique for Multiphase Flows"
- Fujio Yamamoto et al, "PIV Measurement of Gas-Liquid Two-Phase Flows"
- Akimi Serizawa, "Multiphase Flow in Micro-Channels"
- Kefa Chen et al, "Application of Some Techniques for Multiphase Flows in Energy & Environment Engineering"
- Lixing Zhou, "New Developments in Second-order Moment Multiphase and Reacting Turbulence Models"

The conference was well organized and was completely succeed by the delightful planning and execution. And we look forward to the continued success of the International Symposium on Measurement Technique for Multiphase Flows next time.

Ms Panqi
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Southeast University
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ILASS 2004 September 6-8, 2004, Nottingham, UK

by Barry Azzopardi

Report on the 19th Meeting of the Institute for Liquid Atomization and Spray Systems - the ILASS 2004 Conference - held at Nottingham, U.K. on 6th to 8th September 2004 by Barry Azzopardi, School of Chemical, Environmental and Mining Engineering, University of Nottingham, University Park, Nottingham NG7 2RD, United Kingdom.

A good show is hard to follow. Therefore, I was initially apprehensive to have to organise the local (European) meeting the year after the successful International Conference (ICLASS) at Sorrento in July 2003. However, having worked with an excellent group of persons, I am pleased to report on a very successful meeting. The chairmen of ILASS (Europe) - Professor Antonio Cavalieri, of ILASS (Americas) - Professor Chris Edwards as well as Professor Lee of ILASS International were all in attendance.

ILASS has recently lost one of its leading lights. The community is mourning the death last year of Professor Arthur Lefebvre. The meeting was a tribute to and a celebration of his life and work. This was appropriate as Arthur Lefebvre was born in Nottingham and was educated locally, gaining his bachelor's degree in engineering at the precursor of the University of

Nottingham. His career and achievements were movingly recalled by his one time colleague, Dr Arvind Jasuja of Cranfield University, during the opening ceremony of the conference. The participants gave a hearty round of applause at the end of this as befits a celebration of such a positive person as Arthur Lefebvre.

In the conference itself, there were four keynotes and 104 papers presented (the latter in three parallel sessions). One hundred and eighty delegates from Europe (U.K., Finland, Sweden, Denmark, Belgium, Germany, Czech Republic, Switzerland, Austria, France, Italy, Greece, Spain and Portugal) as well as further afield (USA, Canada, Japan, Korea, Turkey, Israel) participated with enthusiasm.

The proceedings were opened by a keynote lecture given by Dr Hamish Low (Director, Combustion Engineering, Rolls Royce plc, Derby) who brought out the sometimes conflicting requirements of gas turbine aero-engine design and how understanding of atomisation and sprays has led to significant improvements in performance. Professor Chris Edwards of Stamford University, USA reminded the participants that the control of pollutants from automobile engines has now been reduced to levels which decades ago were considered un-

thinkable. He then went on to point out that a new battle has emerged, that of combating environmental change due to carbon dioxide. Though noting that there were political, industrial, societal, and technical aspects, in his keynote lecture he attempted to outline the scope and magnitude of the problem and areas where technical progress from the sprays community may help contribute to a solution. A lively and thought provoking lecture was given by Philip Threlfall-Holmes of ICI, UK who brought to the audience's attention the many possibilities for spray applications in the manufacture of consumer products where the morphology of the product could be strongly influenced by the production history. Dr Oskar Haidn of the German Space Technology Centre, Lumpoldshausen, then enthralled the audience with the enormous size of rocket engines for space technology. His keynote lecture placed research on sprays in Space Technology in to a very understandable context

The papers presented covered a wide range of topics involving drops. There were sessions on Gas Turbines, Automotive applications, Modelling, Measurement Techniques, Spray Characterisation, Space Technology, Medical Applications and General Applications.

It is invidious to pick out any papers for special approbation. However, Cambridge University Press and Springer Verlag had provided prizes for the best papers. These went to M. R. Maneshkarimi for Numerical Investigation of Turbulence- Evaporating Spray Interaction in a Swirling Combustor Flow by M. R. Maneshkarimi and A. Sadiki of the University of Darmstadt, Germany and D.Yildiz for Droplet Size And Velocity Characterizations of a Supereheated Two-

phase Flashing Jet by D.Yildiz, P.Rambaud, J.P.A.J Van Beeck from the Von Karman Institute for Fluid Dynamics, Belgium.

Feedback from the participants has been very positive. I am particularly pleased that the informal atmosphere that I had aimed to achieve was appreciated by many.

Thanks are due to the organising committee Doug Brown and Hong Sun of SCHEME Nottingham, Aroussi and Steve Pickering of Mechanical Engineering, Nottingham, Graham Wigley, Automotive Engineering , Loughborough, Arvind Jasuja, Cranfield and Ghasem Nasr and Andrew Yule from the Spray Technology Centre at Salford.

The papers presented at the meeting have been produced as a bound volume. Copies of this may be purchased from the School of Chemical, Environmental and Mining Engineering, University of Nottingham, University Park, Nottingham NG7 2RD, United Kingdom at a cost of •'80 plus post and packaging. Inquiries to Professor Barry Azzopardi at that address or by e-mail at barry.azzopardi@nottingham.ac.uk.

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Third International Symposium on Two-Phase Flow Modelling and Experimentation September 22-25, 2004, Pisa, Italy

by Gian Piero Celata and Paolo Di Marco

The Third International Symposium on Two-Phase Flow Modelling and Experimentation was held in Pisa, Italy, during September 22-25, 2004. It was jointly organized by The Assembly of World Conferences on Experimental Heat Transfer, Fluid Mechanics And Thermodynamics, the ENEA Institute of Thermal-Fluid Dynamics, and the Department of Energetics, University of Pisa, with participation of the Japan Society of Multiphase Flow. The Symposium was chaired by Gian Piero Celata and co-chaired by Ramesh K. Shah. Paolo Di Marco acted as Scientific Secretary, and the Organizing Committee was chaired by Andrea Mariani.

The intention of this Symposium, since the first edition, was to bring together the whole international multi-phase flow community, i.e. not only experimentalists or theoreticians or numericists, but all of them together to look for a synergic effect. In fact, the organizers strongly believe that interchange of ideas be-

tween experimentalists and people involved in mathematical modelling is of the utmost importance for synergism between the two disciplines.

The two first editions of this Symposium were held in Rome in 1995, and in Pisa in 1999. At the first Symposium 162 papers were received, plus 6 keynote lectures, and about 225 participants attended the event. The number of papers at the second Symposium raised to 246 (50% more than in 1995) and more than 290 people came to Pisa. This time, notwithstanding the ICMF Conference was held in Yokohama in June this year, the number of papers raised again up to 340 (38% more than in 1999 and more than the double than in 1995) and the Symposium gathered about 350 participants, a clear evidence of increasing favor among the scientific community.

The previous two editions of this Symposium, and especially the first, were mainly dedicated to gas-liquid

flow; this time much wider distribution of subjects in multiphase flow was covered, with gas-particle, liquid-liquid and three-phase flows well represented. Some of the major topics covered, beside the traditional ones, such as boiling and condensation, were combustion, porous media, bubble dynamics and bubbly flow, measurement techniques, heat transfer enhancement, micro- and mini-channels, process and industrial applications. The main theoretical and experimental aspects of two-phase flow in gas-liquid, gas-particle and liquid-liquid flow were tackled.

Distribution of papers by country is: 41 Japan, 34 Russia, 32 Italy, 25 Germany, 24 France, 20 China, 19 Poland and USA, 14 Korea, 11 UK, 10 The Netherlands, 9 Brazil and Spain, 8 Portugal, 6 Canada, 5 India, etc. Globally, papers were gathered from more than 40 countries, and this is an indication of the network existing in the two-phase flow community, and how globalization is a positive term in our community. The high scientific quality of accepted papers was maintained high through a review process on full-length manuscripts, handled by the 39 Lead Scientists (members of the Scientific Committee). The proceedings of the Symposium have been distributed to the attendants in CD-ROM format, and will be issued in printed volumes after the conference: it is hoped that they will be an excellent reference point for many years to come. Copies of the CD and of the volumes are available from the organizers.

The Symposium gathered about 350 participants. Distribution of participants by country was: 52 Japan, 51 Italy, 36 Germany, 30 France, 20 USA, 17 Russia, 15 UK, 12 Poland, 11 Korea and 10 The Netherlands.

Presentation of papers, all in stand-up sessions, was organized in 7 parallel sessions, with a total of 65 sessions. Seven outstanding keynote lectures, covering the state-of-the-art on multiphase flow, were delivered in plenary sessions. Papers in the Open Forum Session were presented in the poster format, besides in a short presentation in an oral session.

The Symposium had a follow-up on Saturday with a special Mini-Symposium to celebrate the 65th birthday and the career of Prof. Richard T. Lahey. Six keynote lectures, spanning the field of multi-phase flows, were delivered by R.T. Lahey, R. Taleyarkhan, R. Nigmatulin, G. Hewitt, G. Yadigaroglu and S. Banerjee. They will be published along with some selected contributed papers of the Symposium, in a special issue of Nuclear Engineering and Design. A special issue of Experimental Thermal and Fluid Sciences, containing selected papers from the Symposium, will be published as well.

The Internet site of the Symposium (www.ing.unipi.it/pisa04) will remain opened after the meeting as a reference information point for the Symposium complete program and the proceedings.

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Prof. Paolo Di Marco
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University of Pisa
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Report on 3rd International Symposium on Two-Phase Flow Modelling and Experimentation September 22-25, 2004, Pisa, Italy

by Akira Sou

The International Symposium on Two-Phase Flow Modelling and Experimentation was held on September 22-25, 2004 in Pisa, which is well-known with the Leaning Tower.

The keywords of the sessions in the symposium were as follows:

- * Keynote Lecture (7 papers)
- * Bubbles (15 papers)
- * Bubbly Flow (15 papers)
- * Bubble Motion & Dynamics (16 papers)
- * Slug Flow (8 papers)
- * Drop Motion & Dynamics (8 papers)
- * Particle Motion & Dynamics (6 papers)
- * Fluid Particle Flow (31 papers)
- * Packed Beds & Porous Media (6 papers)
- * Measurement Techniques (31 papers)
- * Numerical Modelling (8 papers)

- * Two-Phase Flow Modeling (9 papers)
- * Mass Transfer & Non-Boiling Heat Transfer (5 papers)
- * Enhancement of Heat Transfer (10 papers)
- * Boiling Heat Transfer (10 papers)
- * Critical Heat Flux (5 papers)
- * Condensation (12 papers)
- * Evaporation (11 papers)
- * Combustion (6 papers)
- * Falling Films (5 papers)
- * Jets (7 papers)
- * Liquid-Liquid Systems (5 papers)
- * Oil-Water Flow (4 papers)
- * Interfacial Phenomena (9 papers)
- * Phase Distribution & Separation (12 papers)
- * Turbulence (10 papers)
- * Flow Structure (8 papers)

- * Oscillation, Instability & Unsteady Flow (6 papers)
- * Waves (6 papers)
- * Pressure Drop (5 papers)
- * Mixtures (5 papers)
- * Atomization & Sprays (6 papers)
- * Micro- & Minichannels (14 papers)
- * T-Junctions (5 papers)
- * Nuclear Reactor Safety (11 papers)
- * Two-Phase Flow Equipment & Industrial Applications (10 papers)

The seven keynote lectures (KL) delivered at the meeting were as follows:

- (KL1) Prof. A. Tomiyama from Kobe University, Japan reviewed the experimental and modelling works on the drag, the lift and the virtual mass forces acting on a single bubble having carried out in his laboratory, which are useful in practical applications.
- (KL2) Prof. Y. Hassan from Texas A&M University, USA presented the experiment measuring velocity distribution within the turbulent boundary layer by PIV with microbubbles injected, and the effects on drag reduction were shown.
- (KL3) Prof. V. V. Yagov from Moscow Power Engineering Institute (Technical University), Russia talked about the boiling heat transfer and CHF of swirl flows in tubes, and CHF of the flow with twisted tape at uniform heating and one-side heating were investigated.
- (KL4) Prof. G. Sotgia from University of Milan, Italy and Prof. P. Tartarini from University of Modena and Reggio Emilia, Italy surveyed the state-of-the-art review on the oil-water mixture flows in horizontal pipes and presented their recent works especially on the pressure drop reductions and flow pattern maps with wide variety of conditions.

(KL5) Prof. D. Butrymowicz from Institute of Fluid-Flow Machinery, Gdansk, Poland gave the state-of-the-art review on the enhancement of condensation heat transfer technique by using passive and active drainage. Not only experimental works but also modelling works were presented.

(KL6) Prof. D. Lakehal from ETH, Zurich, Switzerland showed the DNS and the LES approaches on turbulent two-phase flows and several computational results to discuss the issues such as the near-interface turbulence.

(KL7) Prof. D. Lhuillier from Universite Pierre et Marie Curie, Paris, France talked on the approaches on the modelling of volumetric interfacial area in two-phase flows using his transparencies.

Banquet was held at La Stazione Leopolda from 20:30. The huge hall for hundreds of participants has been used as a train station. A course of various Italian pastas and foods were served until 24:00 with bottles of Tuscany red wine, Chianti.

The symposium was one of the most fruitful symposiums for me, since we could spend enough time for exchanging our ideas with other participants thanks to the following features of the symposium:

- (1) All chairmen kept to a minute to save at least five minutes for discussion after each presentation,
- (2) Coffee-breaks were scheduled before and after noon for as long as thirty-minutes at the front hall where we could easily find right researchers,
- (3) A number of active researchers working on modelling, experiments and numerical analysis on a topic shared some time within the friendly two-phase flow community.

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An Announcement from Editor

The JSMF gives internet-service for ICMF members.

You can read updated ICM NEWSLETTER by visiting JSMF homepage

<http://www.jsmf.gr.jp/index-en.htm>

Future Meetings

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

International Conference on Energy, Environment & Technological Innovation (EETI2004)

Rio de Janeiro, Brazil, October 4-7, 2004

E-mail: info@eeti2004.org

<http://www.eeti2004.org/>

6th International Topical Meeting on Nuclear Reactor Thermal Hydraulics, Operations and Safety (NUTHOS-6)

Nara-Ken New Public Hall, Nara, JAPAN, October 4-8, 2004

Dr. Mamoru Akiyama

Inst. Applied Energy

E-mail: info@nuthos6.org

<http://www.nuthos6.org/>

3rd International Heat Powered Cycles Conference

Larnaca, Cyprus, October 11-13, 2004

Prof. Tassos Karayiannis

Chairman of the Organising Committee

London South Bank University

Tel: +44 (0) 207 815 7628

E-mail: karayitg@lsbu.ac.uk

<http://www.hpc2004.com/>

Transport Phenomena in Micro and Nanodevices

Ohana Keauhou Beach Resort, Kona Coast,

Island of Hawaii, USA, October 17-21, 2004

Chair:

Prof. Mohamed Gad-el-Hak

Caudill Eminent Professor and Chair of Mechanical Engineering

Virginia Commonwealth University

P. O. Box 843015 Richmond, VA 23284-3015 U.S.A.

Tel: 1-804-828-3576

Fax: 1-804-827-7030

E-mail: gadelhak@vcu.edu

<http://www.engconfintl.org/4at.html>

ASME Internal Combustion Engine Division 2004 Fall Technical Conference

Long Beach, California, USA, October 24-27, 2004

Technical Program Chair

Dr. Neil X. Blythe

Fairbanks Morse Engine

701 White Avenue

Beloit, Wisconsin 53511

Tel: 608-364-8017

Fax: 608-364-8233

E-mail: neil.blythe@fairbanksmorse.com

<https://www.asmeconferences.org/ICEF04/>

IUTAM Symposium on Elementary Vortices and Coherent Structures - Significance in Turbulence Dynamics -

Kyoto International Community House, Kyoto, Japan, October 26-28, 2004

IUTAM Chairman

Prof. Shigeo Kida

Fax: +81-75-753-5251

E-mail: kida@mech.kyoto-u.ac.jp

E-mail: iutam-office@kyoryu.scphys.kyoto-u.ac.jp

<http://www-kyoryu.scphys.kyoto-u.ac.jp/iutam/>

AIChE 2004 Annual Meeting

Austin Convention Center, Austin, TX, USA,

November 7-12, 2004

Meeting Program Chair

Prof. John G. Ekerdt MPC

University of Texas at Austin

Professor and Chair Department of Chemical Engineering

Austin, TX 78712

Tel: (512) 471-4689

Fax: (512) 471-7060

E-mail: ekerdt@che.utexas.edu

<http://www.aiche.org/conferences/annual/index.htm>

Fourth International Symposium on Advanced Fluid Information and Transdisciplinary Fluid Integration (AFI/TFI-2004)

Sendai International Center, Sendai, Japan, November 11-12, 2004

Prof. Shigeru Obayashi

AFI-2004 Secretariat, Institute of Fluid Science,

Tohoku University, Katahira 2-1-1, Aoba-ku,

Sendai 980-8577, Japan

E-mail: afi-2004@ifs.tohoku.ac.jp

<http://www.ifs.tohoku.ac.jp/afi-tfi-2004/>

ANS Winter Meeting and Nuclear Technology Expo

Omni Shoreham Hotel, Washington, D.C.,

November 14-18, 2004

General Chair:

Dr. William D. Magwood, IV

U.S. Department of Energy

<http://www.ans.org/meetings/winter/>

2004 ASME International Mechanical Engineering Congress and Exposition - IMECE

Anaheim, California, USA, November 13-19, 2004

Chair

Prof. Michael J. Askew
16319 Howe Rd.
Strongsville, OH 44136-6346
Tel: (330) 379-5580
Fax: (330) 379-5551
E-mail: askewm@uakron.edu
<http://www.asmeconferences.org/congress04/>

International Forum on Heat Transfer (IFHT2004)

Kyoto Research Park, Kyoto, Japan, November 24-26, 2004
Conference Chair
Prof. Shigenao Maruyama
Institute of Fluid Science, Tohoku University
2-1-1 Katahira, Aoba-ku, Sendai 980-8577, Japan
Tel & Fax: +81-22-217-5243
E-mail: maruyama@ifs.tohoku.ac.jp
<http://www.ifht2004.energy.osakafu-u.ac.jp/>

Advances in the Modeling Methodologies of Two-Phase Flows

Lyons, France, November 24-26, 2004
Dr. Hisashi Ninokata
Chairman of IAHR Division II (Applied Hydraulics)
Tokyo Inst Tech, Japan
Dr. Herve Lemonnier
DEN/DER/SSTH/LIEX
CEA/Grenoble, France
E-mail: shf@shf.asso.fr
<http://shf.asso.fr/diphastique/>

The 4th Korea-Japan Symposium on Nuclear Thermal Hydraulics and Safety (NTHAS4)

Hokkaido University Conference Hall, Sapporo, Japan, November 28 - December 1, 2004
Honorary Chairs
Dr. H. Nariai, JNES
Prof. U. C. Lee, SNU
General Chairs
Prof. A. Serizawa, Kyoto U.
Prof. S. H. Chang, KAIST
E-mail: info@nthas4.org
<http://www.nthas4.org/>

International Conference on Advanced Optical Diagnostics in Fluids, Solids and Combustion (VSJ-SPIE04)

University of Tokyo, Tokyo, Japan, December 4-6, 2004
Conference Chair
Prof. Masaaki Kawahashi
Saitama University, Japan
E-mail: vsj-spie04@vsj.or.jp
<http://www.vsj.or.jp/vsj-spie04/>

International Mechanical Engineering Conference & Expo (IMEC2004)

Marriott Courtyard Hotel, Kuwait, December 5-8, 2004
Conference Chairman
Dr. Mohammad Al-Hajeri
E-mail: malhajeri@imece2004.com
E-mail: imec@imec2004.com
<http://www.imece2004.com/>

International Conference on Computational Methods (ICCM 2004)

Singapore, December 15-17, 2004
Chairman
Prof. Liu G. R.
National University of Singapore
E-mail: iccm2004@nus.edu.sg
<http://www.nus.edu.sg/ACES/ICCM2004.htm>

----- 2005 -----

The 6th KSME-JSME Thermal & Fluids Engineering Conference

Jeju City, Jeju, Korea, March 20-23, 2005
Chairman
Prof. Shin-Hyoung KANG, Seoul National Univ.
Prof. Hideo INABA, Okayama Univ.
Secretary General
Prof. Haecheon Choi, School of Mechanical and Aerospace Engineering, Seoul National University,
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Prof. Yuichi Murai, Graduate School of Engineering, Hokkaido University,
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E-mail: murai@eng.hokudai.ac.jp
Fax: +81-11-706-7889
Tel: +81-11-706-6372
<http://www.tfec6.org/>

ASME Power Conference

McCormick Place Convention Center, Chicago, Illinois, USA, April 5-7, 2005
<http://www.asmeconferences.org/power05/>

Heat Transfer in Components and Systems for Sustainable Energy Technologies: Heat-SET 2005

Grenoble, France, April 5-7, 2005
Secretariat: greth@cea.fr
<http://www.greth.fr/heatset2005/>

ExHFT-6, 6th World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics

Hotel Taikanso in Matsushima, Miyagi, Japan,
April 17-21, 2005
Conference Co-Chairmen
Prof. Nobuhide Kasagi
The University of Tokyo
Hongo 7-3-1, Bunkyo-ku, Tokyo 113-8656, Japan
Prof. Shigenao Maruyama
Tohoku University
Katahira 2-1-1, Aoba-ku, Sendai, Miyagi 980-8577 Japan
E-mail: exhft6@pixy.ifs.tohoku.ac.jp
<http://pixy.ifs.tohoku.ac.jp/exhft6/>

Fourth International Conference on Computational Heat and Mass Transfer

Paris-Cachan, France, May 17-20, 2005
Prof. R Bennacer (Co-Chair),
rachid.bennacer@iupgc.u-cergy.fr, University of Cergy-Pontoise, France
Prof. S. Kakac (Honorary-Chair),
skakac@miami.edu, University of Miami, USA
Prof. A. A. Mohamad (Chair),
amohamad@enme.ucalgary.ca, Calgary University, Canada
Prof. J. Sicard (Co-Chair), sicard@dgc.ens-cachan.fr, Ecole Normale Supérieure, France
E-mail: icchmt@lmt.ens-cachan.fr
<http://wwwpriv.lmt.ens-cachan.fr/~4thICCHMT/>

The 13th International Conference on Nuclear Engineering (ICONE-13)

Beijing, China, May 16-20, 2005
Conference Chairmen
Dr. Rixin Kang, China National Nuclear Corporation, China
Dr. Yoshio Miyake, Mitsubishi Heavy Industries, Ltd., Japan
Romney Duffey, Atomic Energy of Canada Limited, Canada
E-mail: cns@ns.org.cn, cns@cnc.com.cn
<http://www.ns.org.cn/ICONE2005/>

8th Asian Symposium on Visualization (8ASV)

BChiangmai, Thailand, May 23-27, 2005
Chairman
Prof. B Suwantragul
King Mongkut's University of Technology Thonburi
91 Suksawad 48, Bangmod, Tungkru, Bangkok 10140
THAILAND
Tel: (66)24708271-5
Fax: (66)24279633

E-mail: 8ASV@kmutt.ac.th
<http://www.8asv-thailand.com/>

ANS Annual Meeting

San Diego, CA, June 5-9, 2005
General Chair:
Dr. Lawrence T. Papay, Consultant
<http://www.ans.org/meetings/docs/2005/am2005-cfp.pdf>

SPRAY-05 International Symposium on Heat and Mass Transfer in Spray Systems

Antalya, Turkey, June 5-10, 2005
Professor Faruk Arinc
ICHMT Secretary-General
Mechanical Engineering Department
Middle East Technical University
06531 Ankara, Turkey
Tel: +90 312-210-5214 or 1429
Fax: +90 312-210-1331 or 1266
E-mail: arinc@ichmt.org
<http://www.ichmt.org/Spray-05>

The 2nd International Exergy, Energy and Environment Symposium (IEEES-2)

Kos, Greece, July 3-7, 2005
Symposium Chairman
Dr. Christopher J. Koroneos
Laboratory of Heat Transfer and Environmental Engineering (LHTEE)
Aristotle University of Thessaloniki
Box 483, 54124 Thessaloniki, Greece
Tel: +30 2310 995968
Fax: +30 2310 996012
E-mail: ieees@aix.meng.auth.gr
<http://www.ieees.org/>

5th International Symposium on Multiphase Flow, Heat Mass Transfer and Energy Conversion

Xi'an, China, July 3-6, 2005
Chairmen
Prof. X.J.Chen, Xi'an Jiaotong University, China
E-mail: ismf05@mail.xjtu.edu.cn
<http://www.ismf05.xjtu.edu.cn/>

8th International Symposium on Fluid Control, Measurement and Visualization (8FLUCOME)

Chengdu, China, August 22-25, 2005
Prof. Qing-Ding WEI,
Chairman of FLUCOME2005
Department of Mechanics and Engineering Science
Peking University
Beijing 100871, China
Tel: +86.10.6275.1992

E-mail: qdwei@pku.edu.cn
E-mail: flucome@8flucome.org
<http://www.8flucome.org/>

The Sixteenth International Symposium on Transport Phenomena (ISTP- 16)

Prague, Czech Republic, August 29 - September 1, 2005

Chairmen

Prof. Jan JEZEK

Czech Technical University in Prague

Faculty of Mechanical Engineering

Division of Fluid Mech. and Thermodynamics

Technicka 4, Praha 6 - Dejvice, 166 07

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E-mail: motizuki@cc.tuat.ac.jp

<http://www.fsid.cvut.cz/istp-16/>

4th World Congress on Industrial Process Tomography

Aizu, Japan, September 5-9, 2005

<http://www.vcipt.org.uk/wcipt4/>

ASME/ATI/UIT Symposium on Thermal Fluid Dynamics and Energy Engineering

Rome, Italy, September 18-22, 2005

Contact: Edison Aulestia

Email: aulestia@asme.org

<http://www.asme.org/events/>

6th International Symposium on Particle Image Velocimetry (PIV'05)

Pasadena, California, USA, September 21-23, 2005

Chairman of PIV'05

Prof. Mory Ghairb, California Institute of Technology

E-mail: msalcedo@caltech.edu

<http://piv05.caltech.edu/>

Heat Transfer and Fluid Flow in Microscale

Il Ciocco, Castelvecchio Pascoli (Tuscany), Italy, September 25-30, 2005

Dr. Gian Piero Celata

ENEA Casaccia, Institute of Thermal-Fluid Dynamics

E-mail: info@eci.poly.edu

<http://www.engconfintl.org/5ah.html>

11th International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH11)

Avignon, France, October 2-6, 2005

General Chair:

Dr. Jean-Claude Bouchter, CEA-Saclay, France

E-mail: nureth11@cea.fr

<http://www.nureth11.com/>

ANS Winter Meeting and Nuclear Technology Expo

Washington, D.C., November 13-17, 2005

General Co-Chairs:

Dr. Thomas A. Christopher, AREVA

Michael Wallace, Constellation Generation

<http://www.ans.org/meetings/>

----- 2006 -----

The 18th National & 7th ISHMT/ASME Heat and Mass Transfer Conference

Guwahati, India, January 4-6, 2006

Dr. Subhash C. Mishra

Organizing Secretary

IIT Guwahati, Guwahati - 781039, INDIA

Tel: +91-361-2582660/+91-9864072060

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Email: hmtc@iitg.ac.in

<http://www.iitg.ac.in/hmtc/>

Heat and Mass Transfer in Biotechnology

TURKEY (organized by ICMHT), June 2006

The 13th International Heat Transfer Conference (IHTC-13)

Sydney, NSW, Australia, August 13-18, 2006

Prof. Graham de Vahl Davis,

E-mail: g.devahldavis@unsw.edu.au

Prof. Eddie Leonardi,

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School of Mechanical and Manufacturing Engineering,

The University of New South Wales, Sydney, Australia

Fax: +61 2 9663 1222

IHTC-13 Conference Secretariat,

GPO Box 128, Sydney 2000, Australia

Tel: +61 2 9248 0800

Fax: +61 2 9248 0894

E-mail: ihtc-13@tourhosts.com.au

<http://www.ihtc-13.com/>

ANS Winter Meeting and Nuclear Technology Expo

Albuquerque, NM, November 12-16, 2006

<http://www.ans.org/meetings/>

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