

The Information Center for Multiphase Flow

# NEWSLETTER

No.2

April 1994

ICeM

The Japan Society of Multiphase Flow

## Multiphase Flow Symposium in Japan

"The Multiphase Flow Symposium" was first held in Tokyo on December, 1982 by Science Council of Japan, Liaison Committee of Hydrodynamics and Hydraulics. Every year since then, the Symposium was organized by the Sub-Committee of Multiphase Flow under Science Council of Japan, Liaison Committee of Hydrodynamics and Hydraulics and only invited review papers were presented.

However, since The Japan Society of Multiphase Flow (JSMF) was established in 1987 to promote further progress in the interdisciplinary fields of multiphase flow, The Multiphase Flow Symposium has been organized by JSMF under the cosponsorship of Science Council of Japan and many contributed papers besides a few keynote/invited lectures have been presented. Ever since, this Symposium has served as a place for an academic exchange among many scientists and engineers being engaged in "multiphase flow".

This year, The 13th Multiphase Flow Symposium '94 is to be held at University of Tsukuba, Japan, on July 13-15, 1994. The number of contributed papers is 89 and the major topics are as follows; numerical analysis and simulation, visualization and instrumentation, intelligent/functional fluids, dynamics, multiphase turbulence, liquid film and interface. The Symposium will also include (1) three keynote/invited lectures entitled "Intelligent functional fluids", "Earth environment and multiphase flow", and "Science of form and multiphase flow", and (2) the forum entitled "What multiphase flow research should be in the twenty first century and cooperation among industries, national institutes, and universities", and (3) the meeting to report on research activities of six technical and research committees under JSMF.

### To Join ICeM:

Everybody, who has an interest in "multiphase flow", can become a member of ICeM. ICeM welcomes his/her joining. Please contact either of the following to register in ICeM.

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### **To Corresponding Members:**

Please address information on multiphase  
flow research and researchers to the Editor.  
Also, please invite other multiphase flow  
researchers in your country to join ICeM.

## A Note from the Editor

The members, who have paid the membership fee but have not sent the Biographical Questionnaire yet : Please send the Biographical Questionnaire to the Editor as soon as possible.

The members, who have sent the Biographical Questionnaire but have not paid the membership fee yet : Please pay the fee to ICeM.

Annual membership fee is ¥3,500 (Japanese yen), and ¥1,000 for members of the Japan Society of Multiphase Flow (JSMF). The Membership fee for 3 years is ¥10,000.

Please send the above money to the Editor in one of the following ways.

1) International Postal Remittance Service

2) Postal Giro Account

Account Number: 00370-2-17483

Name of the Account: ICeM

3) Citi Bank Account

Ohtemachi Branch, Tokyo, Japan

MultiMoney Account Number: 92095054

Name of the Account: ICeM, G. Matsui

4) Checks issued by Hanil Bank in Korea are also acceptable.

- ICeM sends the membership card and the receipt of membership fee for those who paid the fee.
- The ICeM Newsletter is published twice a year and the next issue will be published in October 1995.
- Space may be bought in the Newsletter for advertisements. Please contact the Editor for details and rates.
- Any questions/comments are also welcome.
- ICeM is in trouble, because the bank charge for cashing foreign checks of a small amount of money is expensive in Japan. Please inform the Editor of more economical methods of remittance if you know about them.

**All correspondence concerning:** news items of general interest to ICeM members, notice of future meetings and conferences, personal news items, new books, etc. should be addressed to the editor or to regional corresponding members. At that time, it will be very helpful if a diskette is also attached to the manuscript.

### Committee Members & Editorial Board of ICeM:

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	A.Serizawa,	Kyoto University
Vice Chairman:	Y.Tsuji,	Osaka University

**A TRIBUTE TO THE MEMORIES OF  
PROFESSOR JOSEPH KESTIN AND PROFESSOR A.E. DUKLER**

It is with deep regret that I have to inform you of the deaths of Professor Joseph Kestin and Professor A.E. Dukler. Professor Kestin died on March 16, 1993 and Professor Dukler died on February 12, 1994. Both made important contributions to our understanding of multiphase flows, and their loss will be widely felt. Both also played important roles in the series of the International Conference on Multiphase Flow. Professor Kestin had been an invited speaker at the ICMF in Tsukuba in 1991; in the event, he was unable to attend, but he prepared a lecture which was delivered by Professor J. Bataille. Professor Dukler was a member of the Scientific Committee for the 2nd ICMF to be held in Kyoto next year. On behalf of the Organizing Committee, the Advisory Board, the Scientific Committee, the Conference Committee and the National Committee of the 2nd International Conference on Multiphase Flow, I would like to pay a tribute to the memories of these two distinguished scientists.

Akimi Serizawa  
Chairman of the 2nd ICMF (ICMF'95-Kyoto)

**Kestin, Joseph**

Professor of Engineering at Brown University

Date of birth : September 18, 1913

B.E., University of Warsaw (1937)  
Ph.D., Imperial College, London (1945)  
D.Sc., University of London (1966)

Centennial medals for research achievements  
and distinguished service  
James Harry Plotter Gold Medal  
etc.

Head of Department of Mechanical  
Engineering of the Polish University  
College, London  
Director of the Brown University's Center for  
Energy Studies

Prof. Kestin taught at many European Universities. He was a translator of works by E.Schmidt and A.Sommerfeld on thermodynamics and by H.Schlichting on Boundary Layer Theory. His research covered issues in transport properties, heat transfer, geothermal energy, and two-phase flow. His colleagues at Brown University say that his laboratory was a magnet for younger scientists from around the world and many of those are now in prominent positions. He served as editors or on editorial boards of many international journals concerned with multiphase flow.

**Dukler, Abraham Emanuel**

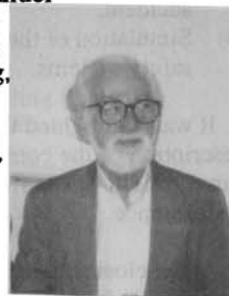
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University of Houston

Date of birth : January 5,  
1925

B.E.(Ch.E.), Yale University (1945)  
M.S.(Ch.E.), University of Delaware (1950)  
Ph.D.(Ch.E.), University of Delaware (1951)

Alpha Chi Sigma Award; AIChE (1970)  
Chemical Engineering Lectureship Award;  
ASEE (1976)  
etc.

Prof. Dukler moved to University of Houston after five years' industrial experience, and served as the Dean of Engineering for 1976-1983. His research area centered around fluid mechanics and heat and mass transfer in two-phase systems and he has made many contributions in the field of two-phase flow dynamics, especially slug flow analysis, flow pattern transitions and two-phase flow under microgravity. He served on editorial boards of international journals concerned with multiphase flow.



## **Report on the Fourth International Topical Meeting on Nuclear Thermal Hydraulics, Operation and Safety**

This meeting was held on April 5-9 at Taipei International Convention Center, Taiwan. Having the characteristic of the Pacific Rim Nuclear Conference, the first meeting was held in 1984 at Taiwan, followed by Japan as 2nd and by Korea as 3rd, and again at Taiwan as the fourth meeting.

Approximately 400 participants and 280 papers made the meeting fully informative and fruitful. The great success of the meeting owes much to the dedicative efforts by the people of INER, National Tsing-Hua University and Taiwan Power Company under the Honorary Chairman, Dr. Yih-Yun Hsu (Chairman, Atomic Energy Council) and Chairman, Dr. Der-Yu Hsia (Director, INER).

The number of the participants from abroad are 69 (U.S.A.), 38 (Japan), 15 (France), 11 (Korea), 7 (U.K.), 5 (Canada), 4 (Belgium), 2 (Germany), 2 (Russia), 10 (9 other countries), 163 in total. The importance of the role of Japan was re-recognized.

The presented papers in the field of multiphase flow study in nuclear thermal hydraulics are categorized into following four areas.

- (1) Development of the best estimate methodology for more accurate estimate of the safety margin of the operating LWR.
- (2) More accurate simulation of static/dynamic and local phenomena of important components and systems such as steam generator and reactor core.
- (3) The study and simulation of the key phenomena governing the beyond-designbased accident.
- (4) Simulation of the transient phenomena of the next generation reactors with the passive safety systems.

It was highlighted that further advancements of simulation technologies pursuing more precise description of the complex phenomena of nuclear plant transients are necessary even though the current multi-phase flow studies made remarkable progress with the improvement of computer performance.

At the closing ceremony, six papers were selected as the best paper including the following two papers from Japan, and beautiful awards were presented by the Chairman, Dr. Der-Yu Hsia to each author.

- (1) "Thermal Interaction Zone of Vapor Explosion with Tin-Water Drop Experiment", K. Matsumura, H. Nariai, (University of Tsukuba)
- (2) "A High Speed X-Ray Computed Tomography Scanner for Multi Purpose Flow Visualization and Measurement", K. Hori, K. Kawanishi et. al. (Mitsubishi Heavy Industries, Ltd.)

It is anticipated that the next meeting will be held in Japan. The role of Japan as a member of the Pacific Rim Nuclear Community is getting to be more important.

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**Report on the International Symposium/Workshop on  
"Boiling, Condensation & Two-Phase Flow Heat Transfer"  
Jan. 10-11, 1994**

A two-day Symposium on 10th & 11th January 1994 was organised at Andhra University, Visakhapatnam, India. Experts from USA, Germany, ITALY, Japan and India participated in the program. Contemporary problems on Boiling, Condensation and Two-Phase Flow Heat Transfer were highlighted in the workshop.

The State-of-the art lectures were comprehensively presented, followed by discussions by the participating delegates (about 100) from Indian Industries, Universities and Research Organisations. All the participants were given the workshop/symposium proceedings. Also it is anticipated that proceedings will be edited and will be brought out in printed form through an International Publisher in course of time. The topics presented in the symposium/workshop are as follows:

1. "Advanced Optical Measuring Techniques in Heat Transfer and Two-Phase Flow Studies"  
Mayinger F. and Peter Gebhard  
Technical University of Munich - Munich, Unified Germany
2. "Fouling of Enhanced Surfaces"  
Bergles, A.E. - Department of Mechanical Engineering  
Rensselaer Polytechnic Institute - New York, USA
3. "Radiative Heat Transfer in the Mixture of Particle and Gas with Anisotropic Scattering Effect".  
Hiroshi Taniguchi - Hokkaido University - JAPAN
4. "Finite Difference Modelling of Two Phase Flow Instabilities in Boiling Systems"  
Sadic Kakac and Venkata R. Mullur  
University of Miami - Florida - USA
5. "Two-Phase Flow Instabilities in Heat Recovery System"  
S. Krishnan and M. Venkatesh - Larsen & Toubro Ltd. - Bombay
6. "Stability of Nucleation Sites in Pool Boiling"  
Keshava Kant, I.I.T., Kanpur
7. "An Experimental Investigation of Density - Wave Type Oscillations in a Convective Boiling Upflow System"  
Q. Wang., X.J. Chen, S. Kakac and R.H. Shen\*  
\* Xian Jiaotong University, Xian, China-University of Miami  
Coral Gables - Florida 33146 - USA
8. "Recent Achievements in Water Subcooled Flow Boiling - Critical Heat Flux at High Liquid Velocity and Subcooling"  
G.P. Celata - Energy Department  
Thermal Process Engineering Division - Rome - Italy
9. "Recent Developments in Saturated Flow Boiling Heat Transfer"  
Khandlikar, S.G.,  
Rochester Institute of Technology - New York - USA

10. "Effect of Thermo-Physical Properties on Turbulent Film Boiling"  
P.K. Sarma, P.R.K. Prasad, V. Dharma Rao and T. Subrahmanyam  
Dept. of Mechanical Engineering - Andra University
11. "Predictions of Two Phase Flows"  
K.N. Seetha Ramu and K.V. Prasant - I.I.T. Madras
12. "Two-Phase Flow Issues Related to Nuclear Power Plant Design & Safety Analysis"  
S.K. Mehta, V. Venkat Raj, R.B. Grover and S.K. Gupta  
Bhabha Atomic Research Centre-Trombay, Bombay
13. "A New Concept End Shielding Cooling for RAPS - 1 Using 2-Phase 2 Component Flow"  
L.G.K. Murthy - Nuclear Power Corporation - Bombay
14. "Vaporization & Condensation in Compact Heat Exchangers"  
R.K. Shah and M.W. Wambsgansa  
General Motors Corporation - Lockport, New York 14094
15. "Condensation of Pure Vapors Flowing across Condenser Tubes"  
P.K. Sarma, B. Vijaya Lakshmi, T. Subrahmanyam, V.D. Rao and P.S.V.K. Rao - Dept of  
Mechanical Engineering  
Andhra University - Visakhapatnam
16. "Air Blanketting and Performance of Surface - Cum Spray Condenser"  
N.S. Murthy  
Bharat Heavy Electricals Ltd. - R & D Division-Hyderabad.
17. "Spray Droplet Evaporation from Heated Solid Surface"  
S.S. Sadhal  
University of Southren California - Los Angeles, USA
18. "Direct Contact Phase Change Process With Moving Liquid Droplets"  
P.S. Ayya Swamy  
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University of Pennsylvania - Pennsylvania - 19104 - UA
19. "Experimental Studies on the Rewetting of Hot Surfaces - A Review"  
V.Venkat Raj - Reactor Safety Division , BARC - Bombay

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## **Report on the 3rd World Conference on Experimental Heat Transfer, Fluid Mechanics, and Thermodynamics**

The 3rd World Conference on Experimental Heat Transfer, Fluid Mechanics, and Thermodynamics was held during October 31-November 5, 1993 in Honolulu, Hawaii. The conference program included the following:

- \* nine plenary and keynote lectures
- \* 20 invited lectures
- \* four panel discussions
- \* 195 contributed papers

Papers were contributed from 27 countries. The conference was attended by about 250 delegates. Over 600 reviewers from all over the world were involved with the review process of the papers presented at the conference. The following plenary, Nusselt-Reynolds Prize and keynote lectures were focused on the latest advances in experimental techniques.

- \* The Changing Roles of Experimental and Computational Fluid Mechanics
- \* A Review of Mass (Heat) Transfer Measurements Using Naphthalene Sublimation
- \* Measurement Techniques in High Enthalpy Hypersonic Facilities
- \* Experimental Techniques in Natural Convection
- \* Density-Sensitive Whole-Field Flow Measurement Optical Speckle Photography
- \* Emission and Laser Induced Fluorescence Imaging Methods in Experimental Combustion
- \* The Role of Surface Tension for Two-Phase Heat and Mass Transfer in the Absence of Gravity
- \* Velocity Profile Measurement by Ultrasonic Doppler Method
- \* Pressure Sensitive Paints in Aerodynamic Testing

The panel discussions were organized in:

- \* New Experimental Methods
- \* Thermal Hydraulics of High Heat Flux Components in Fusion Reactor
- \* The Most Important Topics in Future Experimental Heat Transfer
- \* Recent Advances in Experiments and Numerical Simulation for Complex Flows

The following were the invited lectures:

- \* Experimental Heat Transfer, Fluid Mechanics and Thermodynamics in the Development of Large Air-Cooled Heat Exchangers
- \* Experimental Thermal Hydraulic Studies for Pressurized Heavy Water Reactors
- \* Experimental Demonstration of Inert Gas Cycle Direct Power Generation System
- \* Study on EHD Convection
- \* Pressure Probe Measurement of the Turbulent Stress Distribution in a Swirling Jet
- \* Measurement of Heat Transfer Coefficient and Axial Dispersion Coefficient Using Temperature Oscillations
- \* Thermography-Fundamentals and Applications
- \* Laser Speckle Photography for Heat Transfer
- \* Use of Probes in Combustion Systems
- \* Aerothermodynamics of Vibrationally Nonequilibrium Gases
- \* On the Kinematics of the Quasi-Coherent Vortical Structure in Near-Wall Turbulence
- \* A Review of Pool and Forced Convective Boiling of Binary Mixtures
- \* Condensation of R113 on a Bank of Horizontal Tubes in the Presence of Air

- \* Hydrodynamics of Vertical Two-Phase Gas-Liquid Flow
- \* The Electrospray: Fundamentals and Applications
- \* Heat and Flow Characteristics of Packed Beds
- \* Analysis of Experimental and Computational Results for Incipient Separation and Dynamic Stall
- \* Interactions of Particles and Microbubbles with Turbulence
- \* Development of a Spot in a Flow with Streamline Divergence

The contributed papers were grouped in the following technical sessions:

- \* Heat Exchangers and Heat Pipes
- \* Power, Refrigeration Systems and Fluid Machinery
- \* Forced Convection
- \* Additional Papers-Thermodynamics and Heat Transfer
- \* Natural and Mixed Convection
- \* Additional Papers-Fluid Mechanics
- \* Turbulent Flow
- \* Reacting Flow
- \* Aerodynamics
- \* Boiling
- \* Boiling Critical Heat Flux
- \* Two-Phase Flows and Condensation
- \* Gas-Liquid Flows
- \* Multi-Component/Multi-Phase Flows
- \* Optical and Non-Intrusive Experimental Methods
- \* Novel Phenomena, Sensors and Applications
- \* Thermodynamic and Thermophysical Properties

Four papers were presented in open forum session. The video session provided an opportunity to the conference participants to see ASME films on heat transfer and fluid flow.

This was the third conference of its kind that brought together experimentalists in heat transfer, fluid mechanics, and thermodynamics. The conference provided an open forum for discussion of current research and practice where experimentation is necessary to resolve the problems. State-of-the-art experimental techniques and results were also presented at the conference, and future areas of research were indicated. The conference proceedings, which include all plenary, keynote, invited and contributed papers (a total of 1,842 pages, in two hard cover volumes) are available. For information, write to Elsevier Science Publishers, P.O. Box 211, 1000 AE Amsterdam, The Netherlands; Fax: 31-20-5803-705; in the USA & Canada: Elsevier Science Publishers, Inc. P.O. Box 945, Madison Square Station, New York, NY 10160-0757 Fax: 212-633-3880.

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## **Report on HYDROTRANSPORT 12**

The 12th International Conference on Slurry Handling and Pipeline Transport (HYDROTRANSPORT 12) was held on September 28-30, 1993 in Brugge, Belgium. This conference was organized by British Hydromechanics Research Group (BHRG) and about 80 researchers from 19 countries attended this conference.

In the opening address, Dr. Wilson, Prof. of Queen's Univ. explained the outlines of the past eleven conferences. In this address, he showed the Japanese style banquet at Hydrotransport 7, which was held in Sendai, Japan. It reminded the author the pleasure time in Sendai in 1980.

The conference consisted of 11 sessions : The session names were as follows : Pump and Valves, Wear and Corrosion, Systems Analysis and Maintenance, Instrumentation, Coal and Ash, Snow and Ice, Three Phase Flow, Pipeline Hydraulics I: Non-Newtonian Flows, Pipeline Hydraulics II: Mixed Flow Slurries, Pipeline Hydraulics III: Coarse particles Flows, Slurry Preparation. Slurry pumps, valves and wear were old problems, but still remains in slurry transportation.

Three pipeline Hydraulics sessions were organized. As shown in the sub names of these sessions, non-Newtonian flows and coarse particles slurries have recently been receiving considerable attentions, and many papers were published in these sessions. Furthermore, Snow and Ice session was organized because four papers concerned with the ice and snow slurry flows were published. The purpose of the research for these flows was the application of these flows to the air conditioning system, and this session was quite new. In this conference, the research on the measurement of particle concentration distribution by using the neural network was presented and it received considerable attentions.

In the closing address, Dr. Shook, Prof. of Saskatchewan Univ. announced that Dr. Duckworth and Dr. Faddick passed away. It is very regrettable for us to lose the excellent researchers. The author felt that we should succeed to their work and develop them.

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## MEETING ANNOUNCEMENT

**Seventh International Topical Meeting on Nuclear Reactor Thermal-Hydraulics (NURETH-7)**, September 10-15, 1995, Saratoga Springs, N. Y., sponsored by the ANS Thermal-Hydraulics Division and hosted by the Northeastern New York Section of ANS. This conference will cover general topics in the area of nuclear reactor thermal-hydraulics and safety, with specific emphasis on recent progress and break-throughs in thermal-hydraulics technology and the impact of these advances on reactor design, operation and safety. Non-reactor applications of nuclear thermal-hydraulics will also be included. Abstracts are solicited on the following subjects: advances in two-phase flow modeling, advances in boiling and condensation heat transfer modeling, experimental methods and instrumentation, multi-dimensional effects in two-phase flow, CCFL effects and applications, natural circulation and/or convection, instability mechanisms and nonlinear dynamics, transient analysis and simulation, fluid-structure interaction, microgravity thermal-hydraulics, advanced water reactor thermal-hydraulics, gas-cooled reactor thermal-hydraulics, fusion system thermal-hydraulics, liquid-metal-cooled reactor thermal-hydraulics, containment thermal-hydraulics, fuel-coolant interaction, thermal-hydraulics of severe accidents, computational and mathematical modeling, model and computer code validation and assessment.

Deadline for submission of 600 word abstracts is June 15, 1994. Author notification: July 15, 1994. Full papers due: December 15, 1994. Summaries should be submitted to: Dr. Michael Z. Podowski, Technical Program Chairman, Department of Nuclear Engineering and Engineering Physics, Rensselaer Polytechnic Institute, Troy, NY 12180-3590, USA, PHONE (518) 276-6110, FAX (518) 276-3055, EMAIL: root@mikerisc.ne.rpi.edu.

### **To Members:**

For future data bank on Multiphase Flow Research/Researchers, ICeM wants to get your personal data. Please send your name, address, research field and a list of papers etc. to the Editor.

ICeM would also be very grateful to receive recent reprints, along with up to five keywords per paper.

ICeM welcomes articles for inclusion in the future Newsletters written by Multiphase Flow Research/Researchers. It will be very helpful if a diskette is also attached to the manuscript.

# American Society of Mechanical Engineers Multiphase Flow Technical Committee (MFTC)

Prof. M.C. Roco, Chairman of MFTC  
University of Kentucky, Dept. of Mechanical Engineering, and  
National Science Foundation, Arlington, VA 22230  
4201 Wilson Blvd., Room 525;  
703-306-1371, Fax: 703-306-0319

## **MFTC HAS THREE SUBCOMMITTEES:**

GAS - SOLIDS, LIQUID - SOLIDS, GAS - LIQUID

## **MFTC MEETS AT TWO MAIN CONFERENCES PER YEAR:**

IN SUMMER (next in Lake Tahoe, Nevada, June 19-23, 1994 Fluids Engineering Conference; Dr. M.L. Billet, Head, Fluid Dynamics Dept., Applied Research Lab., Penn State University, P.O. Box 30, State College, PA 16804; 814-865-3001, Fax 814-865-3287)

IN WINTER (next in Chicago, Illinois, Nov. 6-11, 1994 Winter Annual Meeting, Dr. M.L. Billet, 814-865-3001, Fax 814-865-3287)

## **SELECTED SYMPOSIA AND FORUMS ORGANIZED BY MFTC:**

*RECURRING THEMES* (meetings are held about each 2 years; with reviewed proceedings, and international participation)

International Symposium on Liquid - Solid Flows (next in June 1994)  
M.C. Roco, 703-306-1371; Fax 703-306-0319

International Symposium on Gas- Solid Flows (next in August 1995)  
D.E. Stock, 509-335-3223, Fax 509-335-4662

International Symposium on Gas - Liquid Flows (next in August 1995)  
U.S. Rohatgi, 516-282-2613, Fax 516-282-2613

Bubble Noise and Cavitation (last in Nov. 1993)

Flow Instabilities in Two-Phase Systems (last in Nov. 1993)

Cavitation and Gas-Liquid Flows in Fluid Machinery (next in June 1994)  
J.H. Kim, 415-855-2671, Fax 415-855-1026

Multiphase Flow in Wells and Pipes (next in Nov. 1994)  
M.P. Sharma, 307-766-6317, Fax 307-766-4444

Multiphase Transport in Porous Media (next in Nov. 1995)  
R.R. Eaton, 505-844-4063, Fax 505-844-8251

Cavitation and Multiphase Flow Forum (next in June 1994)  
J. Katz, 410-516-5470, Fax 410-516-7254  
Forum on Multiphase Flow: Work in Progress (next in June 1994)  
A. Prosperetti, 410-516-8534, Fax 410-516-7254  
Open Questions in Multiphase Flow (Forum, next in June 1994)  
R. Gore, 505-667-0954, Fax 505-667-1754  
University-Industry Cooperative Research in Multiphase Flow  
(Open Forum, next in Nov. 1994)  
M.C. Roco, 703-306-1371, Fax 703-306-0319  
Forum on Measurement Techniques in Multiphase Flows (next in Nov. 1995)  
T.J. O'Hern, 505-844-9061, Fax 505-844-8251  
Sprays (last in Nov. 1993)  
Electrorheological Flows (next in Nov. 1994)  
D.A. Siginer, 205-844-3331, Fax 205-844-3307  
Multiphase in Materials Processing and Manufacturing (next in Nov. 1994)  
C.T. Crowe, 509-335-3214, Fax 509-335-4662  
Multiphase Flow in Environment (next in Nov. 1995)  
D.E. Stock, 509-335-3223, Fax 509-335-4662

#### *CURRENT INTEREST THEMES*

Exp. Data for Validation of Multiphase Flow CFD Codes (in June 1994)  
D. Hughes, 208-526-0477, Fax 208-526-6971  
Numerical Methods for Multiphase Flows (in June 1994)  
C.T. Crowe, 509-335-3214, Fax 509-335-4662  
Free-Surface Turbulence (in June 1994)  
E.P. Rood, 703-696-4305, Fax 703-696-0934  
Parallel Computing in Multiphase Flow Systems Simulations (in Nov. 1994)  
S. Kim, 608-262-5921, Fax 608-262-0832  
Validation of Systems Transients Analysis Codes (in August 1995)  
R.R. Schultz, 208-526-9508, Fax 208-526-6971  
Flow Visualization of Multiphase Flow (in August 1995)  
W.-J. Yang, 313-764-9910, Fax 313-747-3170  
Erosion Processes (in Nov. 1995)  
J.R. Kadambi, 216-368-2940, Fax 216-368-6445  
Turbomachinery Performance Deterioration (in Nov. 1995)  
W. Tabakoff, 513-556-3226, Fax 513-556-5038

#### PUBLICATIONS:

JOURNAL OF FLUIDS ENGINEERING  
ASME PROCEEDINGS (VOLUMES, INDIVIDUAL PAPERS)

## Future Meetings

Listings include Conference Name, Place, Date and Contact.

- \* 2nd World Conference in Applied Computational Fluid Dynamics  
Basel, SWITZERLAND, May 1-5, 1994  
Dr. Müller, Transfercenter-HTCO, Wipperstrasse 2, D-W7800 Freiburg i. Br., Deutschland,  
Tel +49-761-409-8883, Fax +49-761-409-8881
- \* IUTAM Waves in Two-Phase System  
Kyoto, JAPAN, May 9-13, 1994  
S. Morioka, Aero. Engng., Kyoto University, Kyoto 606-01, Japan
- \* MECH '94 - International Mechanical Engineering Congress and Exhibition  
Perth, AUSTRALIA, May 15 - 19, 1994  
Martin Ooms
- \* EUROMECH Thero. and Exp. Aspects of Particle-Laden Flows  
Tallinn, ESTONIA, May 17-20, 1994  
Ü. Rudi, Inst. of Energy Res., Estonian Acad. Sci., Paldiski 1, Tallinn E00001, Estonia
- \* International Conference on New Trends in Nuclear Systems Thermohydraulics  
Pisa, ITALY, May 30 - June 2, 1994  
Prof. F. Oriolo, Dip. Costruzioni Meccaniche e Nucleari, Università di Pisa  
Via Diotisalvi, 2 56100, Pisa, Italy, Fax +39 50 585265
- \*ACHEMA, International Meeting on Chemical Engineering  
Frankfurt am Main, GERMANY, June 5 - 11, 1994  
Kinki Chemical Society, Attn.: Mr. Yoshio Shibahara, 1-8-4, Utsubo-Honmachi,  
Nisi-ku, J-Osaka, 550, Japan
- \* SIET European Two-Phase Flow Group Meeting  
Piacenza, ITALY, June 6-8, 1994  
Dr. G. P. Gaspari/ Mrs. R. Piva, Via Bixio 27, 1-29100 Piacenza, Italy,  
Tel +39-523-594159, Fax +39-523-594160
- \* 1994 ASME Fluids Engineering Division Summer Meeting  
Lake Tahoe, NV, USA, June 19 - 23, 1994  
ASME
- \* International Symposium Numerical Methods for Multiphase Flows, ASME  
Lake Tahoe, NV, USA, June 19 - 23, 1994  
Prof. C. T. Crowe, Dept, Mech, Matis Engr, Wasington State University, Pullman WA  
99164-2920,  
Tel +1-509-335-3214, Fax +1-509-335-4662, E-mail crowe@wsuvm1, csc, wsu, edu  
(for more information, see p.16 of the Newsletter No.1)
- \* 25th Fluid Dynamics, Plasma-Dynamics and Laser Conference  
Colorado Springs, Colorado, USA, June 20- 23, 1994  
AIAA
- \* 12th UIT National Heat Transfer Conference  
L'Aquila, ITALY, June 23-24, 1994  
Prof. A. Ponticiello, Fax +39-862-432633
- \* Symposium on Dispersed Phase Turbulence Interactions  
Seattle, USA, June 26 - July 1, 1994  
Prof. John Eaton, Department of Mechanical Engineering, Stanford University,  
Stanford, CA 943005 - 3030, USA  
(for more information, see p.17 of the Newsletter No.1)

- \* 30th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exh.  
Indianapolis, Indiana, USA, June 27 - 29, 1994  
AIAA
- \* 2nd International Conference on Experimental Fluid Mechanics  
Torino, ITALY, July 4 - 8, 1994  
Prof. M. Onorato, DIAS - Politecnico di Torino, C.so Duca degli Abruzzi, 24  
10129 Torino, Italy, Fax +39-11-5646899
- \* 7th International Symposium on Applications of Laser Techniques to Fluid Mechanics  
Lisbon, PORTUGAL, July 11-14, 1994  
LADOAN, 7-c/o Prof. M. V. Heitor, Dept. of Mechanical Engineering, Institute Superior  
Técnico Av. Rovisco Pais, P-1096 Lisbon Codex, Portugal, Tel +351-1-847-3453, Fax  
+351-1-849-6156
- \* 14th International Conference on Numerical Methods in Fluid Dynamics  
Bangalore, INDIA, July 11 - 15, 1994  
Dr. S. S. Desai, Computational & Theoretical Fluid Dynamics Division,  
National Aerospace Laboratories, Post Bag No. 1779 - Bangalore 560 017, India
- \* 13th Multiphase Flow Symposium '94  
Tsukuba, JAPAN, July 13 - 15, 1994  
Prof. G. Matsui, Institute of Engineering Mechanics, University of Tsukuba,  
Tsukuba 305, Japan, Fax +81-298-53-5207
- \* Iclass 94 - Sixth International Conference on Liquid Atomization and Spray Systems  
Rouen, FRANCE, July 18 - 22, 1994  
Dr. Christophe Dumouchel, Université de Rouen, URA 230 / CORIA,  
BP 118, 76134 Moint-Saint-Agnan Cedex, France
- \* ICLASS Liquid Atomization & Spray Systems  
Rouen, FRANCE, July 18-24, 1994  
Chr. Domouchel, Univ. of Rouen, URA 230/CORIA, BP 118, F76 130 Mont-Saint-Aignan,  
France
- \* 3rd JSME - KSME Fluids Engineering Conference  
Sendai, JAPAN, July 25 - 27, 1994  
(from Korea) Prof. J.H.Boo, Dept. Mechanical Engineering, Hankuk Aviation Univ.  
200-1, Hwajon-dong, Koyang-shi, Kyongki-do, 411-791, Korea  
(from Japan and other countries) Prof. T.Ikohagi, Inst. Fluid Science, Tohoku Univ.  
2-1-1, Katahira, Aoba-ku, Sendai 980, Japan
- \* EUROMECH 324, The Combustion of Drops, Sprays and Aerosols  
Marseille, FRANCE, July 25-27, 1994  
Dr. G. Searby, Lab. de Recherche en Combustion Faculté des Science de St. Jérôme,  
Service 252, Av. Escadrille Normandie Nieman, F-13397 Marseille Cedex20, France
- \* WCCM III - 3rd World Congress on Computational Mechanics  
Chiba, JAPAN, August 1 - 5, 1994  
Prof. T.Kawai, WCCM III Office, c/o International Communications Specialists, Inc.  
Kasho Bldg., 2-14-9, Nihombashi, Chuo-ku, Tokyo 103, Japan  
Tel +81-3-3272-7981, Fax +81-3-3273-2445, Telex +72-0222-3585 ICS J
- \* 1994 ICHMT International Symposium on Turbulence, Heat and Mass Transfer  
Lisbon, PORTUGAL, August 9-12, 1994  
Prof. J. C. F. Pereira, Instituto Superior Técnico, Av. Rovisco Pais, P-1096 Lisbon Codex,  
Portugal



- \* Joint ASME/JSME Fluids Engineering Conference and ASME/EALA Sixth International Conference on Laser Anemometry  
Hilton Head Island, South Carolina, U.S.A., August 13-18, 1994  
(ASME) Dr. E.P.Rood, Office of Naval Research (333), Arlington VA 22217, USA,  
Tel +1-703-696-4305, FAX +1-703-696-0934, E-mail Fluids95@aol.com  
(JSME) Prof. M. Inoue, Department of Mechanical Engineering for Power, Faculty of Engineering, Kyushu University, Hakozaki, 6-10-1, Higashi-ku, Fukuoka 812, Japan, FAX +81-92-641-9744  
(EALA) Dr. J.T. Tuner, Engineering Department, University of Manchester, Simon Building, Manchester, M13 9PL, UK, FAX +44-61-275-3844

**Symposiums** (Abstracts Due to Organizer : August 31, 1994)

- Gas-Liquid Two-Phase Flows  
Dr. U.S. Rohatgi, Brookhaven National Laboratory, Building 475 Upton NY 11973, Tel +1-516-282-2475, Fax +1-516-282-2613,  
Prof. T. Fukano, Mechanical Engineering Department, Kyushu University, 6-10-1 Hakozaki, Higashi-ku, Fukuoka 812, Japan, Tel +81-92-641-1101 ext.5440, Fax +81-92-641-9744
- Gas-Solid Flows  
Prof. D. E. Stock, Mechanical Engineering Department, Washington State University, Pullman WA 99164-2920, Tel +1-509-335-3223, Fax +1-509-335-4662, E-mail stock@mme.wsu.edu,  
Prof. Y. Tsuji, Dept. of Mechanical Engineering, Osaka University, 2-1 Yamadaoka, Suita, Osaka 575, Japan, Tel +81-6-877-5111 ext.5126, Fax +81-6-876-4975, E-mail tsuji@mupf.meim.eng.osaka-u.ac.jp
- Cavitation and Gas-Liquid Flow in Fluid Machinery and Devices  
Dr. J. H. Kim, Electric Power Research Institute, 3412 Hillview Ave. P.O.Box 10412, Palo Alto CA 94303, Tel +1-415-855-2671, Fax +1-415-855-1026,  
Prof. A. Furukawa, Department of Mechanical Engineering, Kyushu University, 6-10-1 Hakozaki, Higashi-ku, Fukuoka 812, Japan, Tel +81-92-641-1101 ext.5451, Fax +81-92-641-9744
- Bio-Medical Fluid Engineering  
Dr. R. Gerbsch, Div. of Cardiothoracic Surgery, Box 8109-3308 CSRB Washington University School of Medicine 660 South Euclid Ave. St. Louis, MO 63110-1013, U.S.A., Tel +1-314-362-8314, Tel +1-314-362-8945,  
Prof. K. Ohba, Department of Mechanical Engineering, Kansai University, 3-3-5 Yamate, Suita, Osaka 564, Japan, Tel +81-6-388-1121, Fax +81-6-388-8785
- Flow Visualization and Image Processing of Multiphase Systems  
Prof. Wen-Jei Yang, Mech. Eng. & Applied Mech. University of Michigan, 2150 G.G. Brown Bldg. Ann Arbor MI 48109, Tel +1-313-764-9910, Fax +1-313-747-3170, E-mail wjyang@um.cc.umich.edu,  
Prof. F. Yamamoto, Dept. of Mechanical Engineering, Fukui University, 3-9-1 Bunkyocho, Fukui 910, Japan, Tel +81-776-23-0500 ext.2768, Fax +81-776-27-8748,  
Dr. F. Mayinger, Institut fur Thermodynamic A, Technische Universitat Munchen, Postfach 202420, 8000 Munchen 2, Germany, Tel +49-89-2105-3451, Fax +49-89-2105-2000

**Forums** (Abstracts Due to Organizer : November 18, 1994)

- Cavitation & Multiphase Flow  
Prof. J. Kats, Mechanical Engineering Department, Johns Hopkins University, Baltimore MD 21218, USA, Tel +1-410-516-5470, Fax +1-410-516-7254, E-mail Katz@polaris.me.jhu.edu  
Prof. Y. Matsumoto, Department of Mechanical Engineering, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113, Japan, Tel +81-3-812-2111 Ext.62865, Fax +81-3-818-0835

- Multiphase Flow  
 Prof. A. Prosperetti, Department of Mechanical Engineering, Johns Hopkins University, Baltimore MD 21218, USA, Tel +1-410-516-8534, Fax +1-410-516-7254, E-mail prosper@polaris.me.jhu.edu  
 Prof. K. Kikuyama, Department of Mechanical Engineering, Nagoya University, Furocho, Chikusa-ku, Nagoya 464-01, Japan, Tel +81-52-781-5111 Ext.2710, Fax +81-52-781-9243
- \* 10th International Heat Transfer Conference  
 Brighton, UK, August 14 - 18, 1994  
 Prof. G. F. Hewitt, Dept of Chemical Engng and Chemical Technology, Imperial College of Science, Technology and Medicine - Prince Consort Road, London SW7 2BY, U.K., Fax +44-71-5841170
- \* 1st International Particle Technology Forum  
 Denver, Colorado, USA, August 17 - 19, 1994  
 Dr. B.J. Ennis, Secretariat, 1st International Particle Technology Forum  
 E.I. du Pont de Nemours & Co., Inc. Experimental Station, E304/A204, Wilmington, DE 19880, USA, Tel +1-302-695-3835, Fax +1-302-695-2504
- \* German-Japanese Seminar on Multiphase Flow  
 Kernforschungszentrum, Karlsruhe, GERMANY, August 23-25, 1994  
 Prof. Dr. U. Müller, IATF, Postfach 3640, D-76021 Karlsruhe, Germany, Tel +49-7247-82-3450, Fax +49-7247-82-4837, E-mail DK@IATF.KFK.KFK.D400.DE  
 Prof. Dr. T. Saito, Dept. of Mech. Engng., Faculty of Engineering, The University of Tokyo, Hongo 7-3-1, Bunkyo-ku, Tokyo 113, Japan, Tel +81-3-3812-2111 ext.6322, Fax +81-3-3815-8356
- \* IUTAM Symposium on Laminar-Turbulent Transition  
 Sendai, JAPAN, September 5-9, 1994  
 Secretary, IUTAM Symposium on Laminar-Turbulent Transition, Sendai, Department of Machine Intelligence and Systems Engineering, Faculty of Engineering, Tohoku University, Aramaki-aza-Aoba, Aoba-ku, Sendai 980, Japan, Tel +81-22-216-8103, Fax +81-22-216-8143
- \* 1st International Conference on Flow Interaction  
 HONG KONG, September 5 - 9, 1994  
 N. W. M. Ko, Dept. of Mech. Engng, University of Hong Kong, Hong Kong
- \* The Royal Society-Unilever Indo-UK Forums, Inaugural Meeting, Solid-Solid Interactions  
 London, UK., September 12-16, 1994  
 Mrs. Joyce Burberry, Department of Chemical Engineering, Imperial College of Science, Technology & Medicine, London SW7 2BY, UK, Tel +44-71-225-8311, Fax +44-71-581-9053
- \* 1994 International Symposium on Heat and Mass Transfer in Chemical Process Industry  
 Accidents  
 Rome, ITALY, September 15 - 16, 1994  
 Prof. Antonio Naviglio, ICHMT 1994 Symposium, University of Rome "La Sapienza", Corso Vittorio Emanuele Ilo, 244 - 00186 Rome, Italy
- \* 3rd International Symposium on Multiphase Flow and Heat Transfer  
 Xi'an, P.R.CHINA, September 19 - 21, 1994  
 Prof. X.J. Chen, Engng. Thermophysics Reseach Institute, Xi'an Jiaotong University  
 Xi'an, Shaanxi Province, 710049, P.R.China, Fax +86-29-334716
- \* International Conference on CFCs, The Day After  
 Padova, ITALY, September 21-23, 1994  
 Prof. A. Cavallini, Fax +39-49-831405

- \* Hydrosoft 94  
Portocarras, GREECE, September 21 - 23, 1994  
Jane Evans, Wessex Institute of Technology, Ashurst Lodge,  
Ashurst, Southampton, SO4 2AA, UK
- \* 4th International Conference on Multiphase Flow Engineering  
Ancona, ITALY, October 6-7, 1994  
Dr. D. Ercolani, Fax +39-721-881273
- \* The 2nd International Conference on Fluid Dynamic Measurement and Its Applications  
Beijing, P.R.CHINA, October 19 - 22, 1994  
Prof. Sun Xijiu, Department of Thermal Engineering, Tsinghua University  
Beijing 100084, P.R.China
- \* International Conference on Advanced Technology and Equipment of Materials Handling  
ATEMH'94  
Shanghai, P.R.CHINA, October 25 - 27, 1994  
Mr. Hu Chuanying, Chinese Mechanical Engineering Society, Sanlihe Road, Beijing,  
100832, P.R.China  
Tel +86-1-8595318, Fax +86-1-8033613, +86-1-8513867
- \* Winter Annual Meeting (MFTC)  
Chicago, Illinois, USA, November 6-11, 1994  
Dr. M.L. Billet, Head, Fluid Dynamics Dept., Applied Research Lab., Penn State  
University, P.O. Box 30, State College, PA 17804, U.S.A., Tel +1-814-865-3001,  
Fax +1-814-865-3287
- \* ANS Annual Winter. Multiphase Flow Experiments & Instrumentation  
Washington, DC, U.S.A., November 13-18, 1994  
Prof. M. Ishii, School of Nucl. Eng. Purdue Univ., 1290 Nuclear Eng. Bldg. West Lafayette,  
IN 47907-1290, U.S.A., Tel +1-317-494-4587, Fax +1-317-494-9570, Dr. Richard Lee,  
Div. of Systems Research, U.S. Nuclear Regulatory Commission, 5650 Nicholson Ln.,  
Rockville, MD 20852, Tel +1-301-492-3560, Fax +1-301-492-3585
- \* IUTAM Mechanics and Combustion  
Taipei, TAIWAN, December 6-10, 1994  
N. A. Chigier, Carnegie-Mellon Univ., Pittsburgh, PA 15123, U.S.A.
- \* Fifth International Conference of Fluid Mechanics (ICFM5)  
Cairo, EGYPT, January 2-5, 1995  
Prof. M. Abou Rayan (Secretary General), Mech. Eng. Dept. Mansoura University, El-  
Mansoura 33516, Egypt, Tel +20-205-0344105, Fax +20-205-0347900
- \* 4th Int. Congress on Optical Particle Sizing  
Nuremberg, GERMANY, March 21-24, 1995  
Prof. Dr. F. Durst, Lehrstuhl für Strömungsmechanik Universität Erlangen-Nürnberg,  
Cauerstr. 4, D-91058 Erlangen, Germany, Tel +49-9131-85-9501, Fax +49-9131-85-9503
- \* 2nd International Conference on Multiphase Flow '95 - Kyoto  
Kyoto, JAPAN, April 3 - 7, 1995  
Prof. A. Serizawa, Dept. of Nuclear Engineering, Kyoto University  
Yoshida, Sakyo-ku, Kyoto 606, Japan, Tel/Fax +81-75-753-5829,  
Prof. T. Fukano, Dept. of Mechanical Engineering, Kyushu University, 6-10-1 Hakozaki,  
Higashi-ku, Fukuoka 812, Japan, Tel +81-92-641-1101 ext.5440, Fax +81-92-641-9744  
(for more information, see p.15 of the Newsletter No.1 and p. 20 of No. 2)
- \* International Symposium on Measuring Techniques for Multiphase Flows  
Nanjing, P.R.CHINA, April 11-14, 1995  
Prof. Wang, Shimin, Thermoenergy Engineering Research Institute, Southeast University,  
Nanjing 210018, China, Tel +86-25-7714519, Fax +86-25-7714489

- \* Convective Flow Boiling, An International Conference  
Banff, CANADA, April 30-May 5, 1995  
Prof. J. C. Chen; Fax +1-215-758-5057, Prof. Y. Fujita; Fax +81-92-641-9744, Prof. F. Mayinger; Fax +49-89-2105-3435, Engineering Foundation; Fax +1-212-705-7441
- \* Moving Boundaries '95, Third International Conference on Computational Modeling of Free and Moving Boundary Problems  
Bled, SLOVENIA, June 27-29, 1995  
Prof. L. C. Wrobel, Wessex Institute of Technology, University of Portsmouth, Ashurst Lodge, Ashurst, Suthampton, SO4 2AA, UK, Tel +44-703-293-223, Tax +44-703-292-853; or Dr. B. Sarler, LFDT, Faculty of Mechanical Engineering, University of Ljubljana, Askerceva 6, 61000 Ljubljana, Slovenia, Tel +386-61-1254-217
- \* 5th International Conference on Bulk Materials Storage, Handling and Transportation  
Newcastle, AUSTRALIA, July 10-12, 1995  
The Conference Manager, Newcastle Division, The Institution of Engineers, Australia, PO Box 238C, Newcastle NSW 2300, Australia, Tel +61-49-26-4440, Fax +61-49-297-121
- \* Seventh International Topical Meeting on Nuclear Reactor Thermal-Hydraulics (NURETH-7)  
Saratoga Springs, N.Y., U.S.A., September 10-15, 1995  
Dr. R. T. Lahy, Jr. (General Chairman), Center for Multiphase Research, Rensselaer Polytechnic Institute, Troy, NY 12180-3590 U.S.A., Tel +1-518-276-3040, Fax +1-518-276-3055, E-mail userfnwa@rpi.edu, Dr. M. Z. Podowski (Technical Program Chairman), Nuclear Engineering & Engineering Physics Dept., Rensselaer Polytechnic Institute, Troy, NY 12180-3590, U.S.A., Tel +1-518-276-6110, Fax +1-518-276-3055, E-mail root@mikersc.ne.rpi.edu
- \* International Symposium on Gas-Solid Flows and Coal Combustion  
Beijing, P.R.CHINA, September, 1995  
Prof. L.X.Zhou and Prof. X.C.Xu. (Prof. L.X.Zhou: Department of Engineering Mechanics Tsinghua University, Beijing 100084. P.R.China).
- \* International Symposium on Two-Phase Flow Modelling and Experimentation  
Rome, ITALY, October 9 - 11, 1995  
Dr. G.P. Celata, ENEA Casaccia, Energy Department, Via Anguillarese, 301 I-00060 Rome, Italy, Fax +39-6-3048-3026  
(for more information, see p.19 of the Newsletter No.1)
- \* 2nd European Thermal - Science and 14th UIT National Heat Transfer Conference  
Rome, ITALY, May 27 - 31, 1996  
Dr. G.P. Celata, ENEA Casaccia, Energy Department, Via Anguillarese, 301 I-00060 Rome, Italy, Fax +39-6-3048-3026

## Call for Papers

### Second International Conference on Multiphase Flow Kyoto, Japan, April 3 - 7, 1995

The purpose of the Second International Conference on Multiphase Flow (ICMF '95-Kyoto) is to provide a forum for specialists in multiphase flow to exchange information, present the latest developments, review the state-of-the-art, and discuss the future direction of the multiphase flow science and technology. The meeting will provide ample opportunity for the participants to interact both in formal sessions and in informal sessions. The program will consist of an opening plenary sessions with invited papers followed by several parallel programs consisting of oral presentation sessions and poster sessions. Several Round Table Discussions will be also organized on specific topics.

#### Scope

Papers are solicited which deal with any aspect of multiphase flow. Fundamentals, analysis, experimentation, and applications are all appropriate. Topics include but are not limited to:

- . Hydrodynamics modeling
- . Interfacial dynamics (coalescence, deformation, disintegration, interfacial turbulence and transport phenomena, etc)
- . Phase distribution and separation
- . Instabilities
- . Chaos and nonlinear dynamics
- . Wave phenomena and critical flow
- . Fluidization and aeration
- . Plasma flows
- . Phase change phenomena (boiling, evaporation, condensation, etc)
- . Combustion and chemically reacting flow
- . Industrial applications of multiphase flow
- . Component technology and system design/scaling of multiphase flow
- . Computer code development, simulation and graphics in multiphase flow
- . Instrumentation, measurement, and visualization techniques

#### Deadlines

- |                    |   |
|--------------------|---|
| July 1, 1994       | Four copies of 1500 to 2000 words abstracts due |
| September 15, 1994 | Notification of abstract acceptance             |
| December 15, 1994  | Author-prepared camera-ready manuscripts due    |

Abstracts should be sent to:

Professor Tohru Fukano  
Department of Mechanical Engineering  
Kyushu University  
6-10-1 Hakozaki, Higashi-ku, Fukuoka 812, Japan

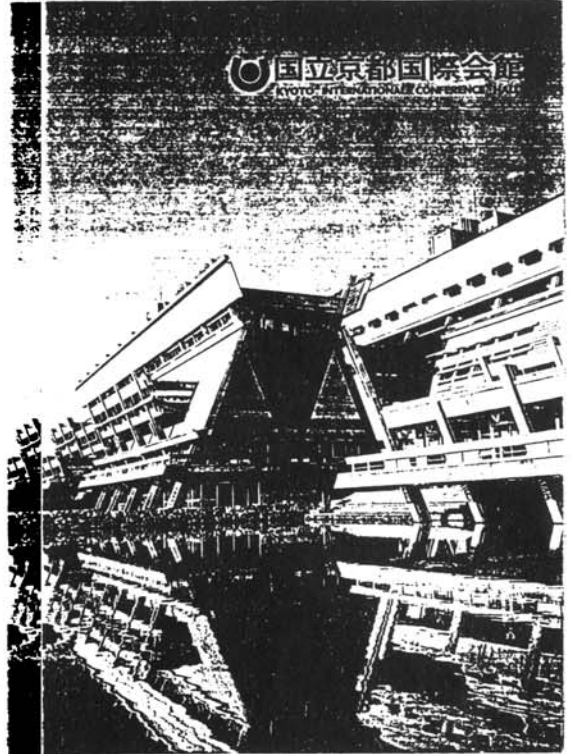
Tel:+81-92-641-1101 (Ext.5440)  
Fax:+81-92-641-9744

#### For further information

Please contact the Conference Chairman:

Professor Akimi Serizawa  
Department of Nuclear Engineering  
Kyoto University  
Yoshida, Sakyo, Kyoto 606-01, Japan

Tel:+81-75-753-5829  
Fax:+81-75-753-5829 or 5845



Conference Hall

ISMTEF

ANNOUNCEMENT AND CALL FOR PAPERS  
**INTERNATIONAL SYMPOSIUM ON  
MEASURING TECHNIQUES  
FOR MULTIPHASE FLOWS**

April 11-14, 1995  
Nanjing, China



**SPONSOR**

- \* THE CHINESE SOCIETY FOR MEASUREMENT
- \* SOUTHEAST UNIVERSITY

**CO-SPONSORSHIP**

- \* National Natural Science Foundation of China
- \* China Society of Engineering Thermophysics
- \* The Chinese Society of Theoretical and Applied Mechanics
- \* China Instrument Society
- \* Chemical Industry and Engineering Society of China

The International Symposium on Measuring Techniques for Multiphase Flows (ISMTEF) will be held in Southeast University, Nanjing, China during April 11-14, 1995.

**PURPOSE**

The objective of this symposium is to exchange information among participants, particularly between scientists and engineers working in fundamental research and those engaged in technology development. The symposium will reflect the current international status of measuring techniques for multiphase flows.

For further information please contact with

Symposium Chairman  
Prof. XU, YIQIAN  
Thermomegny Engineering Research Institute  
Southeast University  
Nanjing 210018, China  
Tel. 86-25-7714519 Fax. 86-25-7714489

**TOPICS**

General areas of interest are measurement techniques for multiphase flows.

- \* Measurement system design and experimental research
- \* Novel sensors, probes and instrumentation
- \* Optical, non-intrusive and other advanced measuring techniques
- \* Flow visualization methods and flow imaging techniques
- \* Data processing
- \* Fundamental of multiphase flow measuring devices
- \* Industrial Application

**LANGUAGE**

English Only

**PAPER SUBMISSION**

Three copies of 500 word abstract should be sent to:  
Prof. WANG, SHIMIN  
Thermomegny Engineering Research Institute  
Southeast University  
Nanjing 210018, China  
Tel. 86-25-7714519 Fax. 86-25-7714489

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YU, HONGRU, Inst. of Mech., Chinese Acad. of Sciences, China  
ZHOU, GUANGJIONG, Beijing University, China  
ZHU, QICHANG, Automation Research Inst. of Ministry of Metallurgical Industry, China

**SCHEDULE**

July 1, 1994. Abstracts due  
August 1, 1994. Acceptance notification  
December 1, 1994. Author-prepared full paper due

**REGISTRATION FEE**

The symposium registration fee is US \$ 330. This fee covers the symposium proceedings, welcome reception, banquet, entertainments and attending all sessions.

The registration fee for accompanying person is US \$ 150. It should be noted that this fee will not include the symposium proceedings



**5TH INTERNATIONAL  
CONFERENCE ON  
BULK MATERIALS STORAGE,  
HANDLING AND  
TRANSPORTATION**

**NEWCASTLE, NSW AUSTRALIA**

**10 - 12 JULY 1995**

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**CALL FOR PAPERS**

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Organised by :  
The National Committee on Bulk Materials Handling.

Sponsored by :  
Mechanical College  
Newcastle Division,  
The Institution of Engineers, Australia

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**THE CONFERENCE**

The handling and transportation of bulk solid materials is a major activity of a vast number and variety of industries throughout the world. This is particularly true in Australia where the applications of bulk handling, storage and transportation are somewhat unique in the sense of their wide ranging nature and scale of operations. Such activities are of fundamental importance to a broad spectrum of industries including :

- mining and mineral production and processing
- chemical processing industries
- agricultural crop production and processing
- food processing

Considerable advances continue to be made in research, development, application and implementation of the technologies associated with the various aspects of bulk solids storage, handling and transportation. This event will provide a forum to review the state-of-the-art with respect of research and development and promote the exchange of ideas and experiences between researchers and practitioners.

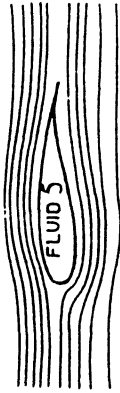
The 5th International Conference on Bulk Materials Storage, Handling and Transportation will follow on the success of the previous conferences.

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**DEADLINES**

Receipt of Synopsis	30 September 1994
Notification of provisional acceptance	1 November 1994
Receipt of full text for review	28 February 1995

Synopses should be accompanied by a statement that at least one of the authors intend to attend the conference to present the paper.



**FIFTH  
INTERNATIONAL  
CONFERENCE  
OF FLUID MECHANICS**

**ICFM5**

**January 2 - 5, 1995**  
**Cairo, EGYPT**

The fifth international conference of fluid mechanics will be held in Egypt January 1995, and is open to participants from all over the world

The conference will bring together an international community of those who are interested in any aspect of fluid mechanics the gathering will provide an excellent opportunity for the informal discussion of new ideas and concepts in your area of expertise.

7th International Meeting On Nuclear Reactor Thermal-Hydraulics

# NURETH-7

Saratoga Springs, NY USA - September 10-15, 1995

**THE THERMAL-HYDRAULICS FOR THE 21ST CENTURY**

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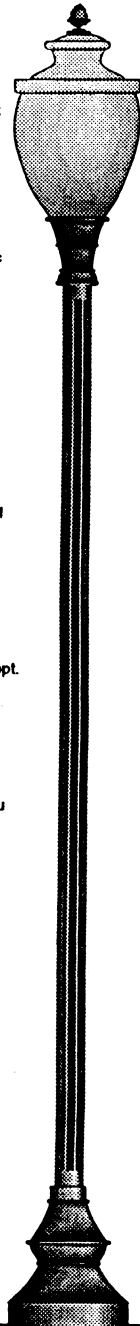
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## CALL FOR PAPERS

The NURETH-7 conference is sponsored by the Thermal-Hydraulics Division of the American Nuclear Society (ANS) with co-sponsors as shown below, and is hosted by the Northeastern New York Section of the ANS.

The conference will cover general topics in the area of nuclear reactor thermal-hydraulics and safety, with specific emphasis on recent progress and breakthroughs in thermal-hydraulics technology and the impact of these advances on reactor design, operation and safety.

### PAPER SUBMISSION PROCEDURE

Submission of 600 words abstracts (5 copies) by June 15, 1994  
Notification of authors about abstract acceptance by July 15, 1994  
Submission of full papers (5 copies) by Dec. 15, 1994  
Notification of authors about reviewers' comments and/or paper acceptance by March 15, 1995  
Submission of revised papers on mats by May 15, 1995

Both abstracts and full papers must be submitted in English. Summaries should contain sufficient information about the problem, methodology and original new results. The summary should be accompanied by a suggested classification regarding the appropriate technical topic of the meeting. Please send inquiries and/or abstracts to:

**Dr. Michael Z. Podowski, Professor and Head**  
Department of Nuclear Engineering & Engineering Physics  
Rensselaer Polytechnic Institute  
Troy, New York 12180-3590 USA  
(518)276-6110 Fax: (518)276-3055 E Mail: root@mikerisc.ne.rpi.edu

### MEETING ORGANIZATION

The conference will include a plenary session, several parallel technical sessions, and poster sessions. Also, discussion sessions are planned with the reporters summarizing the previously presented papers.

### MEETING LOCATION

Saratoga Springs is located in upstate New York, 40 minutes from the Albany airport. Transportation from Albany is by ground carrier (rental car, or taxi). Albany is readily accessed by major airlines and by bus and railroad through New York City, Boston, Montreal and Buffalo.



混相流

