

The International Information Center for Multiphase Flow

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The Japan Society of Multiphase Flow

Report on FLUID PARTICLE INTERACTIONS V
May 9-14, 1999, Santa Fe, New Mexico

by John Yates

The meeting drew together 50 researchers from 15 countries around the world all of whom are involved in some aspect of fluid-particle interaction. The aim was to establish and develop synergies between the various areas of activity through the media of formal presentations and informal discussions. The session topics were as follows.

- Inter-particle forces, colloidal suspensions and heat transfer
- Transfer processes, modelling and simulation
- Experimental methods
- Biological materials and multiphase flow processes

There were eight 40 min keynote presentations, 29 20 min papers and two posters.

The informal nature of the meeting was much appreciated by the participants since it provided an ideal forum for free discussion of new and at times controversial ideas. Exchanges were lively and constructive throughout and all participants agreed the conference was timely and contributed to their professional knowledge.

Pertinent comments made in the wrap-up session were:

- One of the strengths of the meeting is the varied background and specialities of the participants and there was a general consensus that the program was useful in bringing out bridges and analogies among different areas.

- Keynote talks should in future be more in the nature of state-of-the-art or even tutorials. Speakers should ensure that everyone gets a review of the basics of a topic given the varied backgrounds of the audience.

- Keep format much the same in future but extend presentations to 20 min followed by 10 min for discussion. Don't leave questions to the end of the session.

- Don't publish - leave people free to come with "hot off the press" results and controversial views.

Some suggested topics for the next meeting (which should go ahead!) are: more kinetic theory, more particle-particle interaction (especially for small < 10 micron) particles, include a workshop on research needs, try to get more industrial involvement via hopper flow, chemical reactors etc, include more on soft particles and bio-systems, more on micro- and nano-scale interactions.

Altogether an excellent meeting.

Prof. John Yates
 Conference Chair

Engineering University College London Torrington
 Place, London WC1 E7JE, UK

Tel: 171-419-3837, Fax: 171-383-2348

Email: john.yates@ucl.ac.uk

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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.

Chairman(Editor):

Professor Goichi Matsui
 Inst. of Engineering Mechanics and Systems
 University of Tsukuba
 Tsukuba 305-8573, Japan
 Tel: +81-298-53-5129
 Fax: +81-298-53-5207
 E-mail: matsui@kz.tsukuba.ac.jp

Vice Chairman:

Professor Yutaka Tsuji
 Faculty of Engineering
 Osaka University
 Suita, Osaka 565-0871, Japan
 Tel & Fax: +81-6-6879-7315
 E-mail: tsuji@mech.eng.osaka-u.ac.jp

**Nineth International Conference CMEM 99
Computational Methods and Experimental Measurements
27 - 29 April 1999, Sorrento, Italy**

by Karen Savage

The Nineth International Conference on Computational Methods and Experimental Measurements (CMEM 99) took place at the Sorrento Palace Hotel in Sorrento, Italy. The Conference was co-chaired by Professor Giovanni Carlomango from the renowned University Federico II of Naples and the Director of Wessex Institute of Technology, Professor Carlos Brebbia.

The Meeting was opened by Professor Brebbia with some remarks about the history of the Conference, the first of which was held in Washington, D.C. in 1981. He said: "I attribute the continuous success of the CMEM Series to the fact that it offers a unique forum for interaction between researchers involved in the development of computational methods and those working on experimental techniques. Few Conferences offer scientists from different backgrounds, the possibility to confront their work and compare their results in the way we do within this CMEM Conference series."

CMEM 99 successfully provided a forum for scientists from over 20 different countries, working on experiments to communicate with researchers developing computer codes as well as those carrying out measurements on prototypes. The range of

topics covered in the book produced for CMEM 99 illustrates the wide scope of the Meeting.

CMEM 99 was very successful and helped to strengthen links amongst the participants as well as attracting younger members. The Conference will be reconvened in the year 2001 in a location to be decided shortly.

The Conference book is available from:
WIT Press, Ashurst Lodge, Ashurst, Southampton SO40 7AA, UK
Tel: 44 (0) 238 029 3223 Fax: 44 (0) 238 029 2853 E-mail: witpress@witpress.com

For Further information on forthcoming International Conferences or Advanced Courses please contact:

Karen Savage, Wessex Institute of Technology, WIT Marketing Co-ordinator, Ashurst Lodge, Ashurst, Southampton SO40 7AA, UK
Tel: 44 (0) 238 029 3223 Fax: 44 (0) 238 029 2853 Email: ksavage@wessex.ac.uk

The full Post Conference Report for CMEM 99 can be seen at:
www.wessex.ac.uk/conferences/1999

MARK YOUR CALENDARS:

The 4th International Conference on Multiphase Flows (ICMF) will take place in New Orleans, Louisiana, USA. The dates of the Conference are May 27 to June 1, 2001. DEADLINES: Abstracts are due by July 1, 2000. Authors will be notified on paper acceptance by October 15, 2000. Papers due January 15, 2001.

Nominations are sought for the two International Awards before November 1, 1999. More information on the awards, nomination forms and for more information on the conference may be found in the conference web site:
<http://mail.eng.lsu.edu/icmf2001/>

Stathis Michaelides
Conference chair

**Report on "The 2nd Pacific Symposium on Flow Visualization and Image Processing
(PSFVIP-2)"
16-19 May 1999, Honolulu, Hawaii**

by S. Mochizuki

Following the successful 1st Pacific Symposium on Flow Visualization and Image Processing (PSFVIP-1) in 1997, the PSFVIP-2 was held on 16-19 May 1999 in Sheraton Princess Kaiulani Hotel on Waikiki Beach in Honolulu, the capital of the beautiful-islands state of Hawaii, U.S.A. The objective of the Symposium was to provide a forum for exchanging information and ideas and presenting new developments in the fields of both flow visualization and image processing over the entire range of disciplines. The meeting was the second in a series of Pacific Symposia in Flow Visualization and Image Processing to be held biennially under the auspices of the Pacific Center of Thermal-Fluids Engineering (PCTFE). PCTFE is a nonprofit organization whose mission is to promote international cooperation in various scientific and technological areas.

Flow visualization is a combined discipline of sciences and arts, with the broadest applications to practically every aspect of life and nature on earth and phenomena in the universe. The present international symposium has been planned to exchange information and ideas among the participants on the latest development and application of flow visualization and image processing techniques. The techniques have been growing very rapidly in recent years owing to the enormous expansion of high performance sensors, computers, and storage media.

Many prominent scientists and engineers from the field of flow visualization and image processing have attended both PSFVIP-1 and PSFVIP-2 which had well-balanced mixture of participants from industry, research organizations, and academic institutions from all over the world.

Papers describing current research on flow visualization and image processing from principles to applications were solicited. After review process, 104 papers were accepted to present at the symposium. All papers passed this review process were included in the CD-ROM Proceedings (ISBN 0-9652469-7-3). They were classified into the categories of vortex and wake flows, turbulent and shear flows, flows in cavity, heat transfer, heat exchangers, phase change and mass transfer, flow injection, jet flow, interferometry and LIF techniques, unsteady flows, airfoil and wings, flows around cylinders, manufacturing, PIV/PTV, image processing, plumes, high speed flows, and numerical analyses and flow visualization. The papers were presented in 25 technical sessions and one open forum session.

As one of the features of this symposium, we did a new trial: the CD-ROM proceedings were sent to

the participants *before* the symposium so that the participants could examine and printed out papers for which they had an interest before coming to the symposium. We did this because papers in the CD-ROM Proceedings can not be read without computer and distribution of the CD-ROM proceedings at the symposium site instead of distributing a hard copy of the proceedings may deteriorate effective communications between the authors and the readers at the symposium.

Three parallel sessions began on Monday, 17 May and continued until Wednesday, 19 May. Each day, one keynote presentation preceded the three parallel technical sessions. The three Keynote presentations were: "Some Notable Applications of Visualization Evolved at NAL" by Dr. T. Yoshida, "Schlieren and Shadowgraph Imaging in the Great Outdoors" by Prof. Gary S. Settles, and "Light Sheets or Light Slabs? A New Approach of Tomographic Flow Visualizations" by Prof. Jean Pierre Prenel.

On Tuesday, 18 May, the symposium participants and accompanying persons enjoyed the symposium banquet followed by a "Creation - A Polynesian Odyssey" show at Aina Hau show room of the hotel.

All participants of the symposium considered the PSFVIP-2 a success. The PSFVIP series has attained intentional fame as a major venue for disseminating up-to-date scientific and technical information on flow visualization and image processing. It has gained a reputation as a forum for specialists in flow visualization and image processing to present the state-of-the-art in technology and new developments, as well as to discuss the direction and priorities of this important field. The beautiful, tropical, Oahu Island of the Hawaiian Archipelago provided the perfect surroundings for the PSFVIP Conferences.

The 3rd PSFVIP will be held under the auspices of the Pacific Center of Thermal-Fluids Engineering in the year 2001 and Prof. T. Kobayashi, University of Tokyo, will organize it.

Prof. S. Mochizuki
Dept. of Mechanical Systems Engineering, Tokyo
University of A&T
Koganei, Tokyo 184-8588, Japan
Tel/Fax: +81 (0)423 88 7088
E-mail: motizuki@cc.tuat.ac.jp
<http://www.cc.tuat.ac.jp/~psfvip-2/>
<http://www.cc.tuat.ac.jp/~motizuki/>

**Report on the 2nd International Symposium on
Two-Phase Flow Modelling & Experimentation
May 23-26, 1999, Pisa, Italy**

by Ramesh K. Shah

The Second International Symposium on Two-Phase Flow Modelling and Experimentation was held in Pisa, Italy during May 23-26, 1999. It was sponsored by The Assembly of World Conferences on Heat Transfer, Fluid Mechanics and Thermodynamics, jointly with the ENEA National Institute of Thermal Fluid Dynamics and the Department of Energetics of the University of Pisa, and the participation of the Japan Society of Multiphase Flow.

The objectives of this Symposium were to bring together the international two-phase flow community of the researchers, designers, experimentalists, modellers, and numerical analysts for high-level scientific and technical exchange of ideas, to exchange their expertise and experiences, to network. As usual, in a maturing field of study, the expansion of the leading edges of technology causes the frontiers of research to become more isolated and specialised. Interchange of ideas between experimentalists and specialists involved in mathematical modelling is of utmost importance for synergism between the two disciplines. Thus most participants had an opportunity to become informed on: (i) Experimental, computational and theoretical work on two-phase flow, including heat and mass transfer, fluid mechanics and thermodynamics aspects. (ii) Latest developments in optical methods and instrumentation for two-phase flow measurements. (iii) State-of-the-art of two-phase flow modelling.

The Symposium was attended by 292 delegates, with 246 papers accepted for presentation, 7 keynote lectures and 18 papers accepted for presentation at the Open Forum Session. This second Symposium showed a significant growth over the first Symposium, held in Rome on October 9-11, 1995, attended by 220 participants with 160 papers accepted for presentation, and 6 keynote lectures. With specialists participating from 33 countries, this Symposium was truly international with about 87% of participants from outside Italy, the host Country, testifying how the two-phase flow scientific community is well distributed and come together for the technical exchange. Countries with 15 or more participants were Italy, Germany, Japan, France, UK, USA and Russia.

Presentation of papers, all in stand-up sessions, were organized in 5 parallel sessions, with a total of 50 sessions. Keynote lectures were delivered in ple-

nary sessions. Papers in the Open Forum Session were presented in the poster format, besides a short (7 minute) presentation in an oral session. Seven outstanding keynote lectures covered the state-of-the-art on the following topics: two-phase heat transfer and boiling (G. Hetsroni), turbulence in bubbly flow (M. Lance), tomographic methods for flow pattern analysis (D. Mewes), multiphase transport (P. Fuchs), gas-solid flow and its industrial application (Y. Tsuji), numerical methods (A. Prosperetti), and condensation of refrigerants (A. Cavallini).

When organizing the first Symposium, our motivation was to organize a symposium on a specialty subject of two-phase flow modelling and experimentation. However, the coverage of so many subfields of this subject at the Second Symposium indicated it as a generalists' rather than specialists' conference. This gave an opportunity to many specialists to be exposed to many subfields of two-phase flow. Some of the major topics covered were from the traditional topics, such as boiling and condensation, to combustion, porous media, process and industrial applications, covering theoretical and experimental aspects of two-phase flow in gas-liquid, gas-particle and liquid-liquid flow. Some fundamental aspects covered were flow pattern identification, bubbly flow, interface phenomena, etc. We tried to maintain high scientific quality of accepted papers, through a review process on full-length manuscripts handled by the Lead Scientists (Members of the Scientific Committee). We hope that the proceedings of this Symposium will be an excellent reference point for many years to come.

_ For further information about the program can be found on the internet at the two following URL addresses: <http://www.ing.unipi.it/ISTP99/> (about the Symposium); (about the Symposium Proceedings). <http://www.erg.casaccia.enea.it/eurotherm/istp99.html>

The Third International Symposium on Two-Phase Flow Modelling and Experimentation will be held in the island Sardinia in Italy during Spring/Summer 2003.

Gian Piero Celata
Ramesh K. Shah
Paolo Di Marco

**Report on
MEDITERRANEAN COMBUSTION SYMPOSIUM
20-25 June 1999, Antalya, Turkey**

from Faruk Arinc

More The first Mediterranean Combustion Symposium (MCS-99), jointly organized by the Combustion Institute and the International Centre for Heat and Mass Transfer (ICHMT), was held in Antalya, Turkey, June 20-25, 1999. The objective of the Symposium was to give combustion scientists, engineers and students from Mediterranean as well as from other countries, an opportunity to get together for the dissemination of the international state-of-the-art and recent advancements in the fields of energy production, pollution reduction and possible energy recovery from end-life materials and wastes with the goal of promoting collaborative research activities between scientists from different countries especially those from the Mediterranean area.

About 140 scientists from 24 countries (Algeria, Australia, Belarus, Belgium, Canada, Egypt, Finland, France, Germany, Israel, Italy, Japan, Kazakhstan, Morocco, Poland, Portugal, Romania, Russia, Spain, Sweden, Tunisia, Turkey, U.K., U.S.A.) participated at the meeting. The program included 3 or 4 plenary lectures, 3 parallel sessions for oral presentations and a poster session each day. The plenary lectures were delivered by well-known experts (E.J. Anthony, J.M. Beer, R. Borghi, M.G. Carvalho, N. Chigier, R. Chirone, A. Ghoniem, O.L. Gulder, L.A. Kennedy, M.S. Mansour, L.R. Radovic, P. Roth, M. Sassi, E. Sher, A. Sarofim, F. Williams) in the field. The sessions were performed on following colloquia topics: Stationary sprays and gas combustions systems, Combustion of solid fuels: PF, FBC and waste, Internal combustion engines, Optical diagnostic and radiative transfer, Flame dynamics and turbulence, Pollutants, Fire and explosions, Kinetics.

Out of about 200 papers submitted, 80 contributed papers and 39 posters were presented together with 16 plenary lectures. All papers were reviewed on the basis of full manuscripts by colloquia co-chairs. Plenary lectures and accepted contributed

papers were put together in a soft-bound volume (Mediterranean Combustion Symposium-99, F. Beretta, Ed., 1999, 1502 p.). The volume was prepared prior to meeting and was distributed to the participants. They can be purchased through ICHMT Secretariat: ichmt@me.metu.edu.tr. The abstracts of oral and poster presentations can be found on the ICHMT's Web page at <http://ichmt.me.metu.edu.tr/abstracts/mcs99-paplist.html>.

Symposium Co-Chairs:

Dr. Federico Beretta
Istituto di Ricerche sulla Combustione
Consiglio Nazionale delle Ricerche
P.le V. Tecchio, 80
80125 NAPOLI - ITALY
tel. 39-081-768 2247
fax 39-081-5936936
e-mail: beretta@irc.na.cnr.it

Prof. Nevin Selçuk
Dept. of Chemical Engineering
Middle East Technical University
Inönü Bulvari
06531 Ankara - TURKEY
tel. 90-312-210 2603
fax 90-312-210 1264
e-mail: selcuk@metu.edu.tr

Prof. Mostafa M. Kamel
Dept. of Mechanical Power Engineering
University of Cairo
Giza EGYPT
tel. 20-2-366 8409
fax 20-2-5780105
e-mail: mokamel@idsc1.gov.eg

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. It will be very helpful if any manuscripts proposed for publication are sent by E-mail.

Report on the 4th Liquid Matter Conference July 1999, University of Granada, Spain

by Pedro Tarazona

The 4th Liquid Matter Conference took place in Granada (Spain) during the first week of July. The event, promoted by the Liquids Section of the European Physical Society, was organized by the University of Granada and attracted nearly seven hundred participants, including a large number of scientists from USA, Japan and from other overseas countries. Detailed information may be obtained at the Conference web pages at site:<http://www.ugr.es/liquid99/>. From the beginning of the conference series, the aim has been to gather together physicists, chemists and engineers working on the different aspects of the theoretical and experimental study, characterization and control of soft-matter systems; including simple and complex liquids, liquid crystals, polymers, colloids, membranes and granular materials.

Among the most exciting features the Conference we may remark the advances in the characterization and control of liquid structures at the micrometer scale. The different techniques used to achieve such micro-engineering of liquids and colloidal systems are accumulating at a very fast rate; they already offer a wide choice of complementary methods which may be combined in many different ways. The optical tweezers have become a standard tool to separate and manipulate single colloidal particles. It was shown by C. Bechinger (Univ. of Konstanz, Germany) how the same optical forces with light interference patterns may be used to create two-dimensional systems of colloidal particles moving on a periodical one-dimensional field, with remarkable properties in their transition from fluid to crystalline phases. D.A. Weitz (Univ. of Pensilvania, USA) showed how micrometer droplets of water, in a nematic crystal matrix, experience peculiar solvation forces which may anchor the droplet at the center of an spherical cavity or may induce the formation of droplets chains. When the water droplets are substituted by a ferromagnetic fluid, in the presence of a magnetic field, the force balance offers a way to control these "ordered microemulsion" structures. The effects of magnetic fields on suspensions of magnetic particles was also analyzed by M. Rubi (Univ. of Barcelona, Spain), who discussed their self-organization and non-linear rheology.

S. Herminhghaus (Univ. Ulm, Germany) presented a different approach to control the structure and the flow of liquids, at the pico-litre scale, on imprinted surfaces with straight or bent channels. He also demonstrated the use of channel crossings as micro-chemical reactors for the mixture of different liquids. A different type of solid surface preparation was presented by J. Klein (Weizmann Inst., Israel) by means of polymer brushes combined with polyelectrolytes. The frictional forces between the surfaces can be modulated by the composition of the adsorbed macromolecules. The solvation forces acting on membrane proteins were studied by O.G. Mouritsen (Tech. Univ. of Denmark), showing that they induce a complex manometer scale structure. J.F. Joanny (Inst. Charles Sadron, France) discussed the formation of controlled multilayer structures of charged polyelectrolytes and the wrapping transition of charged polymers on nanospheres.

Among the long standing problems still open in simpler fluids P.A. Madden (Univ. of Oxford, UK) presented theoretical calculations and computer simulations showing the formation of complex clustering structures, with covalent bonding, in ionic liquid mixtures. D.G. Grier (Univ. of Chicago, USA) presented experiments and theoretical analysis of the effective forces between like-charged spheres, for which has been recently proposed the existence of attractions. The discovery of giant fluctuations in a fluid evolving toward equilibrium was presented by M. Giglio (Univ. of Milano, Italy) and this holds promise of exciting new phenomena in a microgravity environment. These are just some examples of the many exciting advances which have been presented during the conference. It was announced that the next conference of the series is scheduled for September 2002 at Konstanz (Germany). The e-mail address :liquids2002@unikonstanz.de. may already be used for advanced information.

Prof. Pedro Tarazona
Depto. Fisica Teorica de
la Materia Condensada, C-V
Univ. Autonoma de Madrid
Madrid, E-28049, Spain
pedro@fluid5.fmc.uam.es

**Report on FIFTH INTERNATIONAL CONFERENCE ON
TECHNOLOGIES AND COMBUSTION FOR A
CLEAN ENVIRONMENT (CLEAN AIR V)
12 - 15 JULY 1999, LISBON, PORTUGAL**

by Maria da Graça Carvalho

OVERVIEW

The Conference was held in July 1999, in Lisbon, and the present report allows several important conclusions as regards its organisation, execution and dissemination. In order to achieve its goals, a highly qualified scientific and administrative board was mobilised, the task of organising this conference being their responsibility. The main office of the organising committee was in IST - Instituto Superior Técnico, Lisbon. The organising committee, consisting of 7 scholars, headed by Prof. Maria da Graça Carvalho and an international advisory committee of 69 scientists from 18 countries. The main objectives of the Conference were:

- to promote a forum for discussion on the topic of technologies and combustion for a clean environment
- to promote the interchange of ideas between the European energy sector and the rest of the world
- to disseminate results of European projects, mainly THERMIE and JOULE
- to promote the dissemination of new energy technologies developed in Europe to the market
- to import from the market knowledge about existing barriers to the implementation of certain new technologies
- to disseminate European energy technology to Emerging Economy Countries.

The conference was attended by 325 participants from 28 countries. 200 paper presentations were made and it had 8 invited lectures from different sectors of the energy world. In order to achieve the proposed objectives, the Conference had several activities:

1.Oral Sessions

The oral presentations were organised in 50 sessions. Each presentation took 20 minutes including 5 minutes for discussion.

2.Poster Sessions

Two poster sessions were organised, one in the area of Combustion and the other in the area of Transports sponsored by DG XVII of the European Union's Commission of European Communities. The works selected for the poster sessions were of very practical engineering nature. In some cases, the authors displayed some equipment together with their work presentations.

3.Invited Lectures

The present edition of the Conference was particularly devoted to the subject of the dissemina-

tion of European energy technologies to the Emerging Economy Countries. The invited speakers were world-wide recognised authorities in the energy field: Ing. P. Sampaio Nunes (European Commission), Profs. R. Bilger (The University of Sydney, Australia), W. Malalasekera (Loughborough University, U.K.), A. Sanchez (University of Madrid, Spain) and A. Williams (Leeds University, U.K.), Mr. T. Kaiser (ABB Power Generation Group Ltd, Switzerland), Dr. N. Shah (Sundstrand Power Systems, USA) and Mr. C. Soothill (Alstom Energy Technology Centre, U.K.)

4.Open Discussion and Workshops

Complementing the regular Conference activity, an Open Discussion on New Technologies Solutions for Wastes and a Workshop on the Challenge of Kyoto were organised. Associated to Clean Air V a Workshop on Advanced IGCC Technologies was held on the 16th July.

5.Exhibitions

An exhibition of measuring equipment and pollutant abatement technologies representatives and manufacturers, scientific instrumentation, CFD vendors, computer hardware/software, research institutions and technical and publishing societies ran continuously throughout the Conference. A painting exhibition entitled "The Engineer and Painting" was on display for the duration of the Conference.

CONCLUSIONS

In what concerns the results of the Conference in the near future, it is expected that will allow the international dissemination of new developed technologies in combustion for a clean environment. This will be carried out through the publication of a selected number of papers in a Conference book of the series "Energy, Combustion and the Environment" and in a special issue of the new *Int. Journal on Environmental Combustion Technologies*, both edited by Gordon and Breach Science Publishers (USA). Some of the persons involved in the Conference organisation are presently leading research projects from different EC programmes (THERMIE, JOULE, BRITE, ESPRIT, ECSC, etc.). Therefore, the Conference was one suitable vehicle for dissemination of the projects results.

Prof. M. G. Carvalho, Technical University of Lisbon
Portugal
Tel: +351-1-8417378, Fax: +351-1-8475545
E-mail: cleanair@esoterica.p

**Report on the Compact Heat Exchangers and Enhancement
Technology for the Process Industries
July 18-23, 1999, Banff, Canada**

by R.K. Shah

The Second International Conference on Compact Heat Exchangers and Enhancement Technology for the Process Industries was held in Banff, Canada during July 18-23, 1999. It was sponsored by The Engineering Foundation, New York, USA.

The Conference theme was to facilitate the introduction and use of advanced heat exchanger technology into the process industries. The Conference objectives were to identify: (i) present applications of advanced heat exchanger technology, evaluating benefits and drawbacks; (ii) further areas where advanced heat exchanger technology could be used; (iii) barriers, real and perceived, to further applications; and (iv) actions which can be taken by the various parties and disciplines to overcome these barriers, and to provide communication channels to the several segments of the technical community.

The Conference was attended by 82 delegates (from 41 industrial/industrial research organizations, 36 academic institutes and 5 governmental labs) from 16 countries with 65 papers presented including 5 invited lecturers. This second specialists' Conference was also highly successful as the first one with about 25% better attendance than normal Engineering Foundation conferences. The first International Conference on Compact Heat Exchangers for the Process Industries was held during June 22-27, 1997 in Snowbird, Utah. That conference program included the following: 17 Invited Lectures, 2 Tutorial Lectures, 5 Panel Discussions, and 45 Contributed Papers. That conference was attended by 79 participants (from 41 industrial/industrial research organizations, 30 academic institutes and 8 governmental labs) from 13 countries.

The Conference sessions (including two panel discussions) were scheduled in the mornings, afternoons, and/or evenings, with breaks in the formal program to allow small group interactions. There

were no parallel sessions. All participants stayed at the Conference site. Conference registration fee included complete room and board, Conference proceedings and other related Conference material, and coffee/tea breaks. This format employed in Engineering Foundation Conferences allows maximum interaction, discussion and networking among the Conference participants being together from early morning to late evening. This was one of the important networking approaches that the delegates appreciated and acknowledged. With this informal as well as formal Conference program, the Conference objectives were very well accomplished.

The Conference proceedings are available through Begell House Publishers, 79 Madison Avenue, Suite 1205, New York, NY 10016. ISBN No. 1-56700-134-3. Price US \$97.50 plus shipping & handling. E-mail: begellhouse@worldnet.att.net.

For further communication and interactions, a Compact Heat Exchangers chat group is formed on the ASME Internet at the following site: <http://www.ASME.org/bboard/index2.html>. In the left-hand column, click on the title Compact heat Exchangers.

The next Conference is scheduled at Davos, Switzerland in May or June of 2001. For further information, contact Engineering Foundation at engfnd@aol.com, or R.K. Shah at shahrk@asme.org.

Dr. Ramesh K. Shah
Vice President, ASME Board on Communications
Delphi Harrison Thermal Systems
200 Upper Mountain Road, Bldg. 6
Lockport, NY 14094-1896, USA
Tel: 716-439-5580
Fax: 716-439-3168
E-mail: shahrk@asme.org or rkshah@ibm.net

To Corresponding Members

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

**Report on the International Symposium on Gas-Particle Flows
July 19-22, 1999, San Francisco, California, USA**

by David E. Stock

The Eighth International Symposium on Gas-Particle Flows was held as part of the ASME/JSME Fluids Engineering Summer Meeting in San Francisco, California, USA, on July 19-22, 1999. The symposium was co-chaired by Prof. D. Stock, Washington State University, USA, and Prof. Y. Tsuji, Osaka University, Japan. Other members of the organizing committee included Prof. E. Michaelides, Tulane University, USA, Prof. M. Gautam, West Virginia University, USA, and Prof. M. Reeks, EC Joint Research Center, Italy. The International Symposium on Gas-Particle Flows is held every other year at the ASME Fluids Engineering Summer Meeting and every four years as a joint Fluids Engineering Summer Meeting of the ASME and JSME. Past ASME/JSME International Symposia on Gas-Particle Flows have been held in Portland, Oregon (1991) and at Hilton Head, South Carolina (1995).

The Eighth International Symposium consisted of 13 sessions, with each regular session consisting of 5 papers. One session was used for a tutorial on PFD modeling and another for a panel on modeling dense flows. Four invited papers were also presented at various sessions.

Prof. M. Reeks, EC Joint Research Center, and Prof. O. Simonin, Toulouse, started the symposium with a tutorial on the PDF approach for two-fluid modeling of gas-particle flows. The tutorial was a significant event because it brought together the leading researchers in the area and gave them a chance to compare their approaches and terminology. The overflow crowd that attended and considerable discussion during the tutorial set the tone for the remaining sessions. At the session on two-fluid modeling following the tutorial, five authors discussed their implementation of the model. Two-fluid modeling and, in particular, the PDF approach seems have great potential but still needs considerable work before it can be used to model industrial problems.

Another session consisted of three invited papers on experimental techniques. Prof. C. Richards, Washington State University, discussed techniques used to visualize both the gas and particles. Prof. E.

Longmire, University of Minnesota, discussed planar field velocity measurements, and Prof. C. Rogers, Tufts University, talked about a technique for measuring the gas velocity along a particle trajectory. The three talks gave the audience an excellent overview of the advances that have been made in the techniques used to study gas-particle flows.

Dr. Syamlal, Fluent Inc., started the session on fluidized beds with an invited presentation on the issues involved in CFD modeling of circulating fluidized beds. Following this session was a panel discussion, lead by Prof. M. Gautam, West Virginia University, on modeling of dense flow systems. Panel members were O. Simonin, Toulouse, T. Tanaka, Osaka University, M. Syamlal, Fluent Inc., and S. Fohanno.

Three sessions were devoted to dilute flows. In one of these, the talks focused on Lagrangian modeling techniques and, in another, on particle dispersion studies. The third session contained talks on particle dynamics. In these three sessions, the focus was on the interaction between particles and the fluid turbulence.

Three sessions were devoted to modeling and measuring dense flows. Many of the talks focused on particle-particle interaction and on modification of the gas flow due to the particles. A session on application of gas-particle flows included talks on separators and mass flow measuring devices.

The papers from the symposium were distributed at the symposium on a CD disk. The next ASME/JSME International Symposium on Gas-Particle flows is tentatively planned for 2003.

Prof. David E. Stock
School of Mechanical and Materials Engineering
Washington State University
Pullman, WA 99164-2920
TEL:509335 3223
FAX:509 335 4662

**Report on the 4th International Symposium on Coal Combustion
(4th ISCC)
August 18-21,1999 , Beijing, P. R. China**

by Haiying Qi

The 4th International Symposium on Coal Combustion organized by the State Key Laboratory of Clean Combustion of Coal, Tsinghua University, was held successfully from August 18 to 21, 1999 at Fragrant Hill Hotel in Beijing, P. R. China.

Chairman of the symposium was Prof. Xu Xu-Chang of Tsinghua University, member of the Chinese Academy of Engineering. Honorary chairmen was Prof. Feng Jun-Kai. The Symposium was sponsored by the National Natural Science Foundation of China and China International Economy and Culture Exchange Center.

About 110 participants attended the symposium, of which 40 foreigners came from USA, Germany, UK, Portugal, Japan, Korea, Australia, Russia and Vietnam. 84 papers including one invited lecture and 7 keynote speeches were presented orally. There are many people from the famous universities and great companies in the world, such as Tokyo University, Ishikawajima-Harima Heavy Industries Co. Ltd (IHI), Japan, Stuttgart University, Aachen University of Technology, Siemens AG and Steinmueller GmbH, Germany, and so on. German delegation had more than 20 persons and was the largest one. They showed their great interests in development of coal combustion science in China and gave their powerful support to the symposium.

The 4th ISCC was held jointly with the first International Conference of Engineering Thermophysics (ICET'99) which has about 100 participants. In the inaugural ceremony vice-president of the Standing Committee of the National People's Congress, Prof. Zhou Guang-Zao, vice-mayor of Beijing City, Prof. Lin Wen-Yi of Tsinghua University and adviser of science and technology of USA president, Prof. Chang-Lin Tian, were invited to give speeches. After that, American famous combustion expert, Prof. A. Sarofim gave the invited lecture "mineral matter transformation during pulverized coal combustion".

Compared with the previous symposiums this symposium had an obvious characteristic that the

pollution control and environmental protection became a main topic. Emission and Pollution of SO₂, NO_x, superfine powder, heavy metal and harmful microelements were discussed. This indicates an important developing tendency of the coal combustion science. People in the whole world have paid more attention to environment problems. Coal is the major energy source of China and this situation will not be changed in a rather long period in the future. Therefore, how to develop the clean and efficient utilization of coal and improve the seriously damaged natural environment of our country are considerable subjects that not only China but also the world is caring for very much.

During the conference we conferred Guest Professor of Tsinghua University on Prof. U. Renz from Aachen University of Technology (RWTH Aachen), Germany and Prof. M. Sadakata from the Tokyo University, Japan to acknowledge gratefully them for their firm support to the symposium and great contribution to our cooperation.

A proceedings-CD of the symposium was available. The printed proceedings will be reedited and published after the conference. The organizing work of the symposium won high praise of the International Committee of the 4th ISCC and participants.

We acknowledge gratefully the financial support of the National Natural Science Foundation of China, and K. C. Wong Education Foundation, Hong Kong, and the China International Economy and Culture Exchange Center.

Associate Professor Dr. -Ing. Haiying QI
Secretary-General of the 4th ISCC
The State Key Laboratory of Clean Combustion of Coal
Tsinghua University
Beijing 100084, P. R. China
E-mail: qihy@te.tsinghua.edu.cn

To Members

ICeM welcomes research articles on multiphase flow or articles on personalities in the field for inclusion in the future Newsletters. It would be very helpful if the manuscripts are sent by E-mail.

**Report on 15th European Conference on Thermophysical Properties
September 5-9, 1999, Wurzburg, GERMANY**

by H.-P. Ebert

It was a pleasure and an honor for the thermophysics research team at the University of Wurzburg and the Bavarian Center for Applied Energy Research to host the 15th ECTP from 5th to 9th Sept 1999 in Wurzburg, Germany. In the past this Conference has been held at 13 different European cities, some of them located at the edges of our continent. Outstanding scientists, elected by the International Committee, made each of these meetings of the thermophysics community a special event and a demonstration of the innovation and the progress in the field. With about 530 abstracts received initially for ECTP 15 in Wurzburg, the strength of the research activities within the thermophysics community is again underlined.

The Organizing Committee in Wurzburg had selected 10 topics of general interest and special importance for invited presentation by outstanding, well-known scientists. In addition 130 contributed oral papers and 200 poster papers have reported the recent progress in the various fields of thermophysics. Invited talks were given by: Prof. Egry, Prof. Wittwer, Dr. Goodwin, Prof. Dr. Taylor,

Prof. Dr. Cahill, Prof. Dr. Richter and Prof. Anisimov. Further highlights were the panel discussion "Science meets Industry" and three workshops on:

Major Challenges for Fluids transport Property Research in the Next Century Innovative Building Technology

Transient Methods for Measuring Thermophysical Parameters

ECTP-Organisation
Bayerisches Zentrum fuer Angewandte
Energieforschung e.V.
Abt. Waermedaemmung / Waermetransport
Bavarian Center for Applied Energy Research
Dept. of Thermal Insulation and Heat Transfer
ZAE Bayern, Am Hubland, 97074 Wurzburg, Germany
Phone: ++49 931 70564-13
Fax: ++49 931 70564-60
Email: ectp@zae.uni-wuerzburg.de

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Office of JSMF:

The Japan Society of Multiphase Flow
c/o Academic Publication & Printings Co., Ltd.
2-14-9 Kasugadenaka, Konohana-ku, Osaka, 554 Japan
Tel: +81-6-6466-1588, Fax: +81-6-6463-2522
e-mail: QYM02135@niftyserve.or.jp
WWW: <http://www.ijnet.or.jp/JSMF>

**Report on the First International Symposium on Turbulence and Shear Flow Phenomena
- TSFP-1
September 12-15, 1999, Santa Barbara, California**

by Nobuhide Kasagi

This new symposium series is the successor to the highly regarded biennial series of Symposia on Turbulent Shear Flows (TSF), which terminated with the eleventh one in Grenoble two years ago. TSF had been playing roles of promoting turbulence research, driving the exploitation of turbulence in engineering technologies and cultivating professional contacts and friendships among the international turbulence-research community. The core members of the Organizing Committee - Professors F. Durst, B. E. Launder, F. W. Schmidt and J. H. Whitelaw - indicated their wish to relinquish their organizational role after the 11th Symposium, which was to be held in Grenoble 1997. This decision was met with regret from all quarters of the turbulence research community, for it was mainly due to their efforts that "TSF" had become an instantly recognized acronym reflecting quality.

The membership of a new core Organizing Committee later approved was comprised of N. Kasagi, University of Tokyo, Chairman; J. K. Eaton, Stanford University; J. A. C. Humphrey, Bucknell University; M. A. Leschziner, Queen Mary and Westfield College; M. Sommerfeld, University of Halle-Wittenberg. In addition, Professor S. Banerjee at UC Santa Barbara, who kindly accepted to serve as the Chair of the Executive Committee, was co-opted.

Rather than simply continuing the TSF series, the above Organizing Committee decided to name a new series as "Turbulence and Shear Flow Phenomena" - with acronym TSFP - to reflect a planned extension in its scope. The previous TSF Symposia had traditionally been inclined towards fundamentals, with distinctive focal points being DNS, LES, novel turbulence closures, experimental studies and predictive performance of closures in complex strain. Although this preference should be retained, the intention was to substantially broaden the scope of future symposia to reflect the increasing range of

technological applications and environmental processes in which turbulence plays a key role. Considered especially important was the identification and integration of interdisciplinary and transdisciplinary areas. Some favored new topics identified were turbulence in biological systems and medicine; environmental and geophysical turbulence; turbulence in industrial processes; turbulence and chaos as nonlinear phenomena; control of turbulence; microelectromechanical systems for turbulence measurement and control; multiphase and reactive flows.

Last fall, with the help of about 60 International Advisory Committee members, more than 320 extended abstracts were received in response to the announcement of Call for Papers. Each abstract was evaluated by two members of the Advisory and Executive Committees and two members of the Papers Committee. Most of the abstracts were judged of high quality, so that the papers Committee decided to increase the number of parallel sessions from three to four in setting the final program. Eventually, 204 papers were selected for oral presentation, and 40 for presentation at the two poster sessions. One of the new features planned was a series of keynote papers, in which the current status in selected areas of turbulence research were surveyed by leading experts. The following is a list of the five keynote speakers for TSFP-1:

- H. J. S. Fernando: Environmental Fluid Motions
- M. Gharib: On the Role of Vortical Shear Flows in the Cardiovascular Fluid Dynamics
- R. J. Perkins: The Role of Turbulent Structure in the Dispersion of Bubbles and Particles
- A. Glezer: Shear Flow Control Effected by Fluidic Actuators
- T. Poinsot: LES of Combustion Instabilities

This three day Symposium was attended by about 350 researchers from about 30 countries.

The hard-cover Proceedings containing all papers presented was published by the Begell House Inc. Three international journals, i.e., *Int. J. Heat Fluid Flow*, *Exp. Therm. Fluid Sci.*, *J. Flow Turbulence Combustion*, are planning to publish special issues containing selected papers within a year time. Finally, the 2nd TSFP will be held at the Royal Institute of Technology (KTH) in Stockholm, June 2001, and its details are found on the webpage at <http://www/mech.kth.se/tsfp2>.



Santa Barbara, California

Prof. Nobuhide Kasagi
The University of Tokyo
Tel: +81-3-3812-2111/6417
Fax: +81-3-5800-6999,
E-mail: kasagi@thtlab.t.u-tokyo.ac.jp

The 18th Multiphase Flow Symposium '99

Suita, July 15, 16, 1999

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13th International Conference on PIPELINE PROTECTION

Edinburgh, Scotland, September 29-October 1, 1999

Mrs. Tracey Wheeler, BHR Group Limited,
Cranfield, Bedfordshire MK43 0AJ, UK
Fax: +44-(0)1234-750074
E-mail: twheeler@bhrgroup.co.uk

NURETH-9, Ninth International Topical Meeting on Nuclear Reactor Thermal Hydraulics

San Francisco, CA, USA, October 3-8, 1999

Virgil E. Schrock, Tech. Prog. Chair, Department of Nuclear Engineering, University of California, Berkeley, CA 94720-1730

Tel: +1-510-642-6431, Fax: +1-510-643-9685

E-mail: schrock@nuc.berkeley.edu

www: <http://www.nuc.berkeley.edu/NURETH9/NURETH9.html>

26th International Electric Propulsion Conference

Kitakyushu, Japan, October 17-21, 1999

Prof. Yoshihiro Arakawa, Dept. Aeronautics & Astronautics, University of Tokyo, 7-3-1 Hongo, Bunkyo-Ku, Tokyo 113-8656, Japan

Tel: +81-3-3812-2111 ext.6629, Fax: +81-3-3818-7493

E-mail: arakawa@al.t.u-tokyo.ac.jp

The 3rd International Conference on Material Handling & International Conference on Freight Pipeline

Shanghai, China, October 19-23, 1999

Prof. Wang Ruigang, Chinese Mechanical Engineering Society, 46 Sanlihe Road, Beijing 100823, China,

Tel: +86-10-6859-5318, Fax: +86-10-6859-5314

E-mail: cmesgzzb@public.fhnet.cn.net

1999 ASME International Mechanical Engineering Congress and Exhibit

Nashville, TN, USA, November 14-19, 1999

Dr. L.C. Witte; E-mail: imece99@uh.edu

7th Symposium on Multiphase Transport in Porous Media

Dr. M.J. Martinez, Fax: +1 505 844 4523; E-mail: mjmarti@engsci.sandia.gov

Fundamental Heat Transfer Issues in Direct Energy Conversion

Prof. Gang Chen, Fax: +1 310 206 5210; E-mail: gchen@seas.ucla.edu

Supercritical System Thermal Hydraulics

Dr. S.Y. Lee, Fax: +82 42 869 5210; E-mail: e_hyunny@cais.kaist.ac.kr

4th Maghrebine Conference on Studies in Mechanical Engineering (MCSME'99)

Constantine, ALGERIA, November 28-30, 1999

Secretariat, Tel.: +213 4 92 3100, Fax: +213 4 92 3100
E-mail: jegm.cirta@caramail.com

15th National Heat and Mass Transfer Conference and 4th ISHMT/ASME Heat and Mass Transfer Conference

Grinagar, PUNE, INDIA, January 5-8, 2000

Prof. S.P. Venkateshan, Fax: +91 44 235 0509

E-mail: spv35@hotmail.com

Dr. V. Prasad, Fax: +1 516 632 8339

E-mail: prasad@pml.eng.sunysb.edu

Symposium on Energy Engineering in the 21st Century

Hong Kong, January 9-13, 2000

Prof. Ping Cheng, Fax: +852 2358 1543

E-mail: mepcheng@ust.hk

Population Balance Modeling of Particulate Systems

Kona, HI, January 23-28, 2000

Dr. John A. Herbst

J. A. Herbst & Associates, PO Box 2568, 79-7460

Mamalahoa Hwy, Mango Court, Bldg. 2, Suite 215
Kealahou, HI 96750-2568 USA

Tel: +808-324-6100, Fax: +808-324-6304

E-mail: john.herbst@jan-net.com

Space Technology and Applications International Forum (STAIF-2000)

Albuquerque, NM, January 30 - February 3, 2000
(Abstract due: May 31, 1999)

Prof. Mohamed S. El-Genk, Tel: 505-277-0446

Prof. Mary Bragg, Tel: 505-277-4950

E-mail: mjbragg@unm.edu

Web Page: <http://www-chne.unm.edu/isnps>

3rd International Symposium on TURBULENCE, HEAT AND MASS TRANSFER

Nagoya, Japan, April 3-6, 2000

Prof. Y. Nagano, Department of Environmental Technology Graduate School of Engineering Nagoya Institute of Technology

Gokiso-cho, Showa-ku, Nagoya 466-8555, Japan

Fax: +81-52-735-5359

E-mail: nagano@heat.mech.nitech.ac.jp

<http://heat.mech.nitech.ac.jp/thmt3>

Symposium BB: The Granular State Materials Research Society Spring Meeting

San Francisco, CA, USA, April 24-28, 2000

Dr. Surajit Sen, SUNY-Buffalo, Dept. of Physics, Buffalo, NY 14260-1500

Tel: +1-716-645-6314, Fax: +1-716-645-2507

E-mail: sen@physics.dynamics.buffalo.edu

4th International Boiling Conference

Anchorage, ALASKA, USA, April 30 - May 5, 2000

Prof. A. Bar-Cohen, Fax: +1 612 624 1398
E-mail: abc@cdtl.umn.edu
Dr. G.P. Celata, Fax: +39 06 3048 3026
E-mail: celata@casaccia.enea.it

Fitst International Conference on ENVIRONMENTALIMPACTSOFFENERGYUTILIZATION (EIEU-1)

Cairo, EGYPT, MAY 1-4, 2000
Prof.Saad A.Ragab, Engineering Science and Mechanics Department Virginia Tech.
Blacksburg, VA 24061-0219, USA
Tel:(540)231-5950, Fax:(540)231-0219
E-mail:Ragab@ragab1.esm.vt.edu
Prof.Ahmed F.Abdel Azim El-Sayed, Mechanical Power Engineering Faculty of Engineering Zagazig University, Zagazig , EGYPT
Tel:202-4016598, Fax:2055-324987
E-mail:Afayez@frcu.eun.eg

Renewable Technologies for Sustainable Development

Madeira, PORTUGAL, June 2000
Prof. M.G. Carvalho, Fax: +351 1 847 5545/726 2633
E-mail: maria@navier.ist.utl.pt

**The Third Israeli Conference for Conveying and Handling of Particulate Solids
Joined with the Tenth International Freight Pipeline Society Symposium**

The Dead Sea, Israel, May 29- June, 2000
Dr. Haim Kalman, Department of Mechanical Engineering, Ben-Gurion University of the Negev, P.O.Box 653, Beer-Sheva, 84105, Israel
Tel:+972-7-6477099, Fax:+972-7-6472813
E-mail:kalman@menix.bgu.ac.il

Integral Methods in Science and Engineering 2000

Alberta, CANADA, June 12-15, 2000
Dr. P. Schiavone, Department of Mechanical Engineering, University of Alberta, 4-9 Mechanical Engineering Building, Edmonton, ALBERTA, T6G 2G8, CANADA
Tel:(403)492-3638, Fax:(403)492-2200
E-mail: Peter.Schiavone@ualberta.ca

8Th European Turbulence Conference

Barcelona, Spain, June 27-30, 2000
(Abstract due: October 30, 1999)
ETC8 Secretariat-Barcelona, International Center for Numerical Methods in Engineering, (CIMNE)
C1 Campus Nord Univ. Politècnica de Catalunya, Barcelona E-08034, Spain
Tel:+34+932057016, Fax:+34-934016517
E-mail: leia@cimne.upc.es

International Conference on Fluid and Thermal Energy Conversion 2000 (FTEC 2000)

July 2-6, 2000, Jakarta
<http://www.pauir.itb.ac.id/FTEC2000>

10th European Conference on MIXING

The Netherlands, July 2-5, 2000
Prof. H.E.A. Van den Akker, Dept. University of Technology, NL
Tel: +32 3 216 09 96, Fax: +32 3 216 06 89
E-mail: mixing@conferences.ti.kviv.be
<http://www.ti.kviv.be/conf/mixing.htm>

7th Australasian Heat and Mass Transfer Conference

Townsville, Queensland, July 3-6, 2000
John Patterson-Chair, Gary Brassington-Secretary, James Cook University
Tel: 61 7 4781 4346, Fax: 61 7 4775 11847
E-mail: 7ahmtc@jcu.edu.au
<http://www.eng.jcu.edu.au/AHMTc/>

Tenth International Symposium on Applications of Laser Techniques to Fluid Mechanics

Lisbon, Portugal, July 10-13, 2000
(Abstract due: December 17, 1999)
Prof. M. V. Heitor, Dept. of Mechanical Engineering, Institute Superior Tecnico, Av. Povisco Pais, 1049-001 Lisbon, Portugal
Tel: +351-1-8417379, Fax: +351-1-8496156
E-mail:llaser@in3.dem.ist.utl.pt

5thINTERNATIONALSYMPOSIUMONHEAT TRANSFER

BEIJING, CHINA, August 12-16, 2000
(Abstract due: December 1, 1999)
Professor B.X. Wang, Director, Institute for Thermal Science and Engineering Tsinghua University Beijing 100084, China
Email: bxwang@tsinghua.edu.cn

INTERNATIONAL CENTRE FOR HEAT AND MASSTRANSFER TURBINE-2000

INTERNATIONAL SYMPOSIUM ON HEAT TRANSFERINGASTURBINE SYSTEMS

Cesme, Izmir, TURKEY, 13-18 August 2000
(Abstract due: February 29, 2000)
Prof.Dr. Faruk Arinc, ICHMT Secretary-General Mechanical Engineering Department Middle East Technical University, 06531 Ankara, Turkey
Tel: +90312-210-5214, Fax: +90312-210-1331
E-mail: arinc@metu.edu.tr
<http://ichmt.me.metu.edu.tr/upcoming-meetings/Turbine-2000/announce.html>

5th International Conference on Measurement and Control of Granular Materials (MCGM 2000)

Xi'an, China, August 21-23, 2000
Dr. Jingbo Xia, MCGM 2000 Secretariat, P.O Box 321 Northeastern University Shenyang 110006 P.R.China
Fax:86-24-23891977
E-mail: mcgm@mail.neu.edu.cn
<http://202.118.21.8>

9th International Symposium on Flow Visualiza-

tion

Edinburgh, Scotland, UK, August 22-25, 2000
(Abstract due: December 12, 1999)
Prof. I. Grant, Heriot-Watt University, Edinburgh,
Scotland, EH105PJ, UK
Tel: +44-131-447-8800 Fax: +44-131-447-8660
E-mail: 9misfv@ode-web.demon.co.uk
<http://www.ode-web.demon.co.uk/9misfv/>
<http://www.ode-web.demon.co.uk/post-conf-web/flyer.html>

20th International Congress of Theoretical and Applied Mechanics

Chicago, IL, USA, August 27-September 2, 2000
(Abstract and Extended Summary due: January 17, 2000)
Prof. James W. Phillips, Secretary-General, ICTAM 2000, Department of Theoretical and Applied Mechanics, University of Illinois at Urbana-Champaign, 216 Talbot Laboratory, 104 South Wright Street, Urbana, IL 61801-2983, USA
Tel: +1-217-333-4388 Fax: +1-217-244-5707
E-mail: ictam2000@tam.uiuc.edu
<http://www.tam.uiuc.edu/ICTAM2000>

BEM (Boundary element method) 22

Cambridge University, UK, 4-6 September 2000
Susan Hanley
E-mail: REMOVE@WESSEX.AC.UK
<http://www.wessex.ac.uk/conferences/2000/BEM22>

The Fourth International Conference on Supercomputing in Nuclear Applications (SNA2000)

Tokyo, Japan, September 4-7, 2000
(Abstract due: January 7, 2000)
Dr. Hideo Kaburaki
Center for Promotion of Computational Science and Engineering, Japan Atomic Energy Research Institute
Tel: +81-3-5723-2513, Fax: +81-3-5723-2537
E-mail: sna2000@koma.jaeri.go.jp
<http://ciscper.tokai.jaeri.go.jp/sna2k/>

3rd European Thermal Sciences Conference

Heidelberg, GERMANY, September 10-13, 2000
Prof. E. Hahne, Fax: +49 711 685 3503
E-mail: pm@itw.uni-stuttgart.de
www: <http://www.werg.casaccia.enea.it/eurotherm/frame.html>

4th JSME-KSME Thermal Engineering Conference

Kobe, Japan, October 1-6, 2000
Tel: +81-724-51-2449, Fax: +81-724-51-2637
Prof. Mishima (Multiphase Flow)
E-mail: mishima@rri.kyoto-u.ac.jp
<http://www.mech.kobe-u.ac.jp/jktec/home.html>

MFTP-2000 International Symposium on

Multiphase Flow and Transport Phenomena

Antalya Turkey, 5-10 November 2000
(Extendend abstract due November 1, 1999)
Prof. Faruk Arinc, ICHMT Secretary-General, Mechanical Engineering Department Middle East Technical University, 06531 Ankara, Turkey
Tel: +90312-210-5214, Fax: +90312-210-1331
E-mail: arinc@metu.edu.tr
Prof. David M. Maron, Center for Technological Education Holon, POB 305, Holon 58102, Israel
Tel: +972-3-502-6501, Fax: +972-3-502-6510
E-mail: barad_r@barley.cteh.ac.il
<http://ichmt.me.metu.edu.tr>

First Asian Particle Technology Symposium (APT 2000)

Bangkok, Thailand, December 13-15, 2000
(Abstract due: February, 2000)
Prof. Yoshinobu Fukumori, E-mail: fukumori@pharm.kobegakuin.ac.jp
Dr. Tawatchai Charinpantitkul, E-mail: ctawat@pioneer.chula.ac.th
Fax: +662-218-6480

The 10th International Conference on Fluidization

Bijing, P. R. China, May 20-25, 2001
Prof. Mooson Kwauk, Tel: +86-10-6255-8318
Fax: +86-10-6255-8065
E-mail: moodon@lcc.icm.ac.cn.

2nd International Symposium on Advances in Computational Heat Transfer

Queensland, Australia, 20-25 May, 2001
Prof. Graham de Vahl Davis, Computational Fluid Dynamics Research Laboratory, School of Mechanical and Manufacturing Engineering University of New South Wales, Sydney, NSW, Australia 2052
Tel: (+61 2) 9385 4099, Fax: (+61 2) 9663 1222
Email: cht01@cfm.mech.unsw.edu.au
<http://ichmt.me.metu.edu.tr/upcoming-meetings/CHT-01/announce.html>

4th ICMF 2001-New Orleans

New Orleans, Louisiana, USA, May 27-June 1, 2001
(Abstract due: July 1, 2000)
Prof. E. Michaelides
School of Engineering, Tulane University
New Orleans LA 70118, USA
Tel: +1-504-865-5764, Fax: +1-504-862-8747
E-mail: emichael@mailhost.tcs.tulane.edu
<http://mail.eng.lsu.edu/icmf2001/>

Second International Symposium on Turbulence and Shear Flow Phenomena-2001 TSFP-2

Stockholm, Sweden, June 27-29, 2001
(Abstract due: August 2000)
Prof. Arne Johansson
Symposium Website: <http://www.mech.kth.se/tsfp2>

6th World Congress of Chemical Engineering
Melbourne Australia, 23-27 September, 23-27, 2001
(Abstract due: September 30, 2000)
The Meeting Planners, 108 Church Street Hawthorn, Victoria Australia 3122
Tel: 61-3-9819-3700, Fax: 61-3-9819-5978
E-mail: chemeng@meetingplanners.com.au
www.chemengcongress.com

5th World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics
Thessaloniki, GREECE, September 24-28, 2001
Dr. G.P. Celata, Tel.: +39 06 3048 3905,
Fax: +39 06 3048 3026
E-mail: celata@casaccia.enea.it
Dr. P. Di Marco, Tel.: +39 050 569 610,
Fax: +39 050 569 666; E-mail: p.dimarco@ing.unipi.it

A Note from the Editor

Members, who have paid the membership fee but did not send their Biographical Questionnaire, please send the Questionnaire to the Editor as soon as possible.

Members, who have sent the Biographical Questionnaire but did not pay the membership fee, should pay the fee to ICeM.

The annual membership fee is ¥3,500 (Japanese yen) (¥1,500 for members of the Japan Society of Multiphase Flow (JSMF)); the fee for 3 years (2000-2002) is ¥10,000 (¥4,500 for members of JSMF).

Please send your remittance to the Editor in one of the following ways.

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- 3) Citi Bank Account

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Name of the Account: Mr. Goichi Matsui I / F / O ICeM

(Personal checks payable to Mr. Goichi Matsui I / F / O ICeM at Citi Bank are acceptable, but that depends.)

- 4) Checks drawn by Hanil Bank in Korea are also acceptable

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- The ICeM Newsletter is published twice a year and the next issue will be published in April 2000.
- Space may be bought in the Newsletter for advertisements. Please contact the Editor for details.

Information on the Japan Society of Multiphase Flow (JSMF) and on the International Information Center for Multiphase Flow (ICeM) available on:

JSMF: <http://www.ijnet.or.jp/JSMF>

ICeM: <http://www.kz.tsukuba.ac.jp/~monji/> (tentative)

Corresponding Members

CANADA

Prof. M.Kawaji
University of Toronto
TEL: +1-416-978-3064, FAX: +1-416-978-8605
E-MAIL: kawaji@ecf.toronto.edu
Prof. S.B.Savage
McGill University
TEL: +1-514-398-6864, FAX: +1-514-398-7361

FRANCE

Prof. J.M.Delhaye
CEA/GRENOBLE
TEL: +33-2--76-88-42-75, FAX: +33-2-76-88-31-96
TLX: 320 323, E-MAIL: DELHAYE@DTP.CEA.FR
Prof. G.Gouesbet
INSA de Rouen
TEL: +33-2-35-52-83-91, FAX: +33-2-35-52-83-90

F.R.G.

Dr. J.Domnick
Fraunhofer-Institut fuer
TEL: +49-711-970-1762, FAX: +49-711-970-1004
E-MAIL: jhd@IPA.FhG.de
Prof. M. Sommerfeld
Martin-Luther-Universitat
TEL: +49-3461-462879(or 2806), FAX: +49-3461-462878
E-MAIL: martin.sommerfeld@vt.uni-halle.de

ITALY

Dr. G.P. Celata
Heat Transfer Unit Head
TEL: +39 6 3048 3905, FAX: +39 6 3048 3026
E-MAIL: celata@casaccia.enea.it, TLX: 613296
ENEACAI

ISRAEL

Prof. G.Hetsroni
Israel Institute of Technology
FAX: +972-8-432-4538
E-MAIL: MERHGO1@TECHNION.BITNET

JAPAN

Prof. T.Fukano
Kyushu University, Fukuoka 812-8581, Japan
TEL: +81-92-641-9744 Ext.5440, FAX: +81-92-641-9744
E-MAIL: fukanot@mech.kyushu-u.ac.jp
Prof. M.Maeda
Keio University, Yokohama 223-0061, Japan
TEL: +81-45-563-1141 Ext.3120, FAX: +81-45-563-5943
E-MAIL: maeda@mech.keio.ac.jp
Prof. T.Masuyama
Tokai University, Shimizu, 424-8610, Japan
TEL: +81-543-34-0411 Ext.2278, FAX: +81-543-34-9840
E-MAIL: masuyama@scc.u-tokai.ac.jp
Prof. Y.Matsumoto
University of Tokyo, Tokyo 113-8656, Japan
TEL: +81-3-3812-2111 Ext.6286, FAX: +81-3-3818-0385
E-MAIL: ymats@mech.t.u-tokyo.ac.jp
Prof. K.Ohba
Kansai University, Osaka 564-8680, Japan
TEL: +81-6-6388-1121 Ext.5793, FAX: +81-6-330-63370
E-MAIL: ohbak@ipcku.kansai-u.ac.jp
Prof. A.Serizawa
Kyoto University, Kyoto 606-8501, Japan
TEL: +81-75-753-5829, FAX: +81-75-753-5845
E-MAIL: serizawa@kuiae.kyoto-u.ac.jp

KOREA

Dr. M.K.Chung
Korea Advanced Institute of Science and Technology
Dept. of Mechanical Engineering
TEL: +82-42-869-3002, FAX: +82-42-861-1694
Prof. S.D.Kim
Korea Advanced Institute of Science and Technology
Dept. of Chemical Engineering
TEL: +82-42-829-3902/3903, FAX: +82-42-829-3910
TLX: KAISROK K45528, E-MAIL: kimsd@cais.kaist.ac.kr

NORWAY

Prof. K.H.Bendiksen
Institutt for Energiteknikk
TEL: +47-63-80-60-00
+47-63-80-62-01 (Direct Line)
FAX: +47-63-81-11-68

P.R.CHINA

Prof. H.Chen
The Ministry of Communications P.R.C
Water Borne Transportation Institute
TEL: +86-10-6-2018898, FAX: +86-10-6--2011659
Prof. L.Zhou
Tsinghua University
TEL: +86-10-6278-2231/5419
FAX: +86-10-6277-5569
TLX: 22617 QHTSC CN
E-MAIL:zhoulx@mail.tsinghua.edu.cn

RUSSIA

Prof. R.I.Nigmatulin
(Tyumen) Russian Academy of Sciences Siberian Branch,
TEL,FAX: [7] 3452/ 24-36-48
(Moscow) Michurinskiy pr. 1, Institute of Mechanics Lomonosov University of Moscow, Moscow, GSP, V-192, 119899, Russia
TEL,FAX: [7](0)95/939-30-88, FAX: [7](0)95/253-90-04 (Int. Line), TLX: 413311

SLOVENIA

Prof. I.Zun
University of Ljubljana
TEL,FAX: +386-61-1771-403, FAX: +386-61-1254-217
TLX: 32240 FAKSTR 51, E-MAIL: iztok.zun@fs.uni.lj.si

THE NETHERLANDS

Prof. B. Scarlett (tentative)
Department of Chemical Process
TEL: +31-15-783577, FAX: +31-15-784452

U.K.

Prof. G.F.Hewitt
Imperial College of Science, Technology and Medicine
TEL: +44-171-594-5562 or 5563 FAX: +44-171-594-5564 or 5604, E-MAIL: g.hewitt@ic.ac.uk

U.S.A.

Prof. M.Ishii
Purdue University
TEL: +1-317-494-4587, FAX: +1-317-494-9570
Prof. R.T.Lahey, Jr.
Rensselaer Polytechnic Institute
TEL: +1-518-276-8579, FAX: +1-518-276-8788
E-MAIL: laheyr@rpi.edu
Prof. M.C.Roco
National Science Foundation
TEL: +1-703-306-1371, FAX: +1-703-306-0319
E-MAIL: mroco@nsf.gov

If you are interested in submitting a paper or want to receive further information, please e-mail to:

Chairman of the Scientific and Technical Committee,
Prof. Yoshinobu Fukumori
 (fukumori@pharm.kobegakuin.ac.jp)

and simultaneously, Secretary of the Local Organizing Committee,
Dr. Tawatjai Charinpanitkul
 (ctawat@pioneer.chula.ac.th).

If e-mail contact is unavailable, please send a filled reply card per fax or per post to

Secretariat
1st Asian Particle Technology Symposium
 (APT2000)
 c/o Thai Powder Technology Center
 Chulalongkorn University
 Patumwan, Bangkok 10330 THAILAND
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Submission of Abstracts
 Abstracts of papers in the following fields are invited

- A. Particle Science and Engineering**
1. Particle Formation
 2. Particle Characterization
 3. Particulate Materials Science
 4. Particle Modification and Design
 5. Particle & Powder Mechanics
 6. Multiphase Flow, Fluidization & Conveying
 7. Fluid/Particle Separation
 8. Modeling and Simulation
 9. Aerosol Technology
 10. Measurement: In-Line Control
 11. Bulk Processing and Bulk Handling
 12. New Frontier
- B. Particle Technology Applications**
1. Mineral Processing & Powder Metallurgy
 2. Pharmaceutical
 3. Food & Bio-Technology
 4. Ceramics
 5. Catalysis
 6. Polymer
 7. Combustion & Energy
 8. Waste Management
 9. Environment & Health
 10. Different Aspects for Sustainable Development

A number of banquet speeches will also be given.
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 Chair : Mamoru Sema (Keio University)
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Scientific and Technical Program :
 Plenary and keynote lectures
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 Poster discussion
 Technical seminars

Official language :
 English

Seminars and Special Complex Program :
 See above

Social Events :
 Opening and closing ceremonies
 Banquet
 Luncheons for mixing people from academia and industry
 Sightseeing tours
 Factory visits

Important Deadlines :
 February 2000 : Abstract submission
 April 2000 : Notification of acceptance of abstracts
 April 2000 : Second Circular with Tentative Program
 June 2000 : Submission of camera-ready, full paper manuscripts for Proceedings
 August 2000 : Notification of acceptance of full papers
 September 2000 : Pre-registration deadline

First Asian Particle Technology Symposium (APT 2000)

First Circular

REGIONAL COOPERATION & SUSTAINABLE DEVELOPMENT THROUGH PARTICLE TECHNOLOGY

December 13-15, 2000
 Bangkok, Thailand

Organized by :
 Society of Powder Technology, Japan
 Thai Powder Technology Center,
 C.U. Thailand

In collaboration with :
 Association of Powder Process Industry and Engineering, Japan
 Thai Association of Powder Industries Information Center for Powder Technology, Japan
 AIChE Particle Technology Forum, USA
 (the list is to be extended)



Symposium Website

(<http://www.mech.kth.se/tsfp2>)

Second International Symposium on **Turbulence and Shear Flow Phenomena - 2001** **TSFP-2**

Organizing Committee

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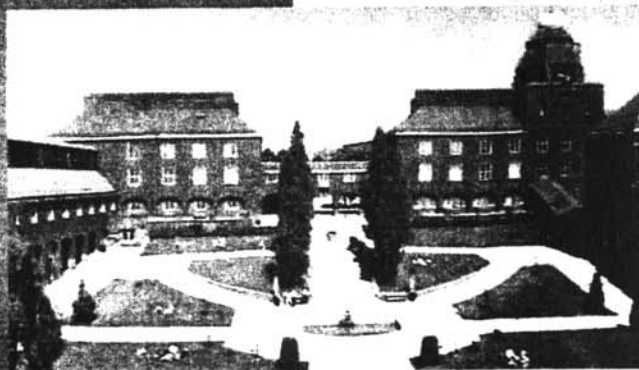
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(U. Halle)

A. Johansson,
Co-opted Member
(KTH)

The Turbulence community will be aware that the *TSFP* series of Symposia has been initiated as a successor to the Turbulent Shear Flows (*TSF*) meetings which were held, biennially, in the period 1977-1997.

As final preparations are in progress for what promises to become a highly successful *TSFP-1* Symposium in Santa Barbara, California, the Organizing Committee of the series are pleased to announce that the second *TSFP* Symposium will be held at the



Royal Institute
of Technology
(KTH),
Stockholm,
Sweden

in the period

27-29 June 2001.

Local arrangements for *TSFP-2* will be made by the following Executive Committee:

Prof. Arne Johansson, KTH, (Chairman, co-opted to Organizing Committee)
Prof. Henrik Alfredsson, KTH
Dr. Erik Lindborg, KTH
Prof. Fritz Bark, KTH
Dr. Dan Henningson, KTH
Prof. Lennard Löfdahl, Chalmers (Gothenburg)
Prof. Lars Davidson, Chalmers (Gothenburg)
Prof. Laszlo Fuchs, LTH (Lund)

The *First Call for
Papers* is likely to be
issued in
January 2000,
for a submission
deadline of Abstracts
in August 2000.

6TH WORLD CONGRESS OF CHEMICAL ENGINEERING MELBOURNE AUSTRALIA 23-27 SEPTEMBER 2001

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The Congress provides for six Vision plenaries, 42 invited keynote addresses and 570 oral papers as well as posters. The specific categories for these oral and poster presentations are available on our website, and authors should select from these.

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Full Peer Review:

Designed particularly for researchers, papers will be examined by an international panel for quality, originality, technical accuracy and the significance of results.

Fast Track Review:

Designed particularly for practising engineers, these papers will be reviewed in the context of the theme.

SUBMITTING ABSTRACTS

If possible, abstracts should be submitted via the web page www.chemengcongress.com. If you do not have access to the internet, contact our conference organiser, The Meeting Planners (108 Church Street Hawthorn, Victoria Australia 3122) to request that an information package be mailed to you. Abstracts for submission for full peer review must be received by 30 September 2000. Abstracts for submission for fast track review must be received by 30 November 2000.



ADDITIONAL INFORMATION

For more information on all aspects of the Congress please contact:
The Meeting Planners
108 Church Street Hawthorn,
Victoria Australia 3122
Phone: 61 3 9819 3700
Fax: 61 3 9819 5978
Email: chemeng@meetingplanners.com.au
WWW.chemengcongress.com

SNA2000

Instruction for Abstracts

Authors are requested to submit an abstract absolutely not to exceed one sheet of A4 paper including tables and figures by the deadline of January 7, 2000. The abstract should include title, author(s), and affiliations). The program committee will review each submission and select papers to be presented at the conference and within a maximum of 6 pages of A4 paper including tables and figures, and are due on May 14, 2000. Accepted papers will be presented at a conference and published in the Conference Proceedings (in CD-ROM form). Submitted abstracts should be sent electronically by January 7, 2000 to sna2k-abstract@koma.jaeri.go.jp. On-line registrations will be available through the conference website around March 2000.

Important deadlines:

January 7, 2000: Submission of abstract.
 March 10, 2000: Notification of referee results.
 March 2000: Conference registration.
 May 12, 2000: Submission of full-length paper.

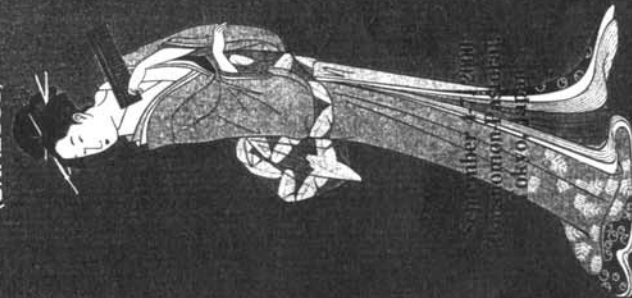
For further information, please contact:
 Hideo Kaburaki
 Center for Promotion of Computational Science and Engineering, Japan Atomic Energy Research Institute
 Tel. +81-3-5723-2513 Fax. +81-3-5723-2537
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Mark Your Calendar

**FLUIDIZATION X
 The 10th International Conference on Fluidization**

May 20-25, 2001
 Holiday Inn Lido, Beijing, P. R. China

For more information
www.engfnd.org

The United Engineering Foundation is sponsoring the 10th event of International Conference on Fluidization with the central theme - Fluidization for Sustainable Development.

The conference will be co-chaired by Prof. Mocoson Kwauk (Emeritus Director, Prof. Jinghai Li (Deputy Director) of Institute of Chemical Metallurgy, Chinese Academy of Sciences, Beijing 100080, P. R. China (Tel: 86-10-6235-8318; Fax: 86-10-6235-9065; E-mail: mocoson@icc.im.ac.cn or jli@home.im.ac.cn), and Dr. Wen-Ching Yang, Science and Technology Center, Siemens Westinghouse Power Corporation, 1310 Beulah Road, Pittsburgh, PA 15235-5098, USA (Tel: 1-412-256-2207; Fax: 1-412-256-2121; E-mail: wcyang@swpc.siemens.com).

Since fluidization became a research field in the middle of this century, its application in a variety of industries has been extended significantly, making it one of the most reported fields in chemical engineering at the turn of the new century. In addition to all the usual activities at the previous conferences of this kind, overviews on fluidization of the last century and prospects of its next century will be made by the invited distinguished scholars. Special programs will also be arranged for celebrating this 10th event. The following aspects will be emphasized and encouraged:

- Exploitation of fluidization applications for sustainable development
- New methodologies in simulating and scaling-up fluidized systems
- Integrating of previous understandings into users-friendly software package
- Enhancement of interaction between academicians and industrialists

All those who received this calendar announcement by direct mail will receive the General Announcement and Call for Abstracts on the conference making list should complete the information form on the Foundation's website (www.engfnd.org).

Up to date information on the conference will be available at the United Engineering Foundation website: www.engfnd.org and www.im.ac.cn/fluidization-X.

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ICMF-2001

4th International Conference on Multiphase Flows

**May 27-June 1
in New Orleans, LA
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**A Conference for
all Subjects and Areas
of Multiphase Science and Technology**

Important Dates:

July 1, 2000 abstracts due

October 15, 2000, authors notified on abstract acceptance

January 15, 2001, papers due

Abstracts can be sent by e-mail or through the web page
(address below) mailed or faxed to:

Dr. Stathis Michaelides, School of Engineering, Tulane
University, New Orleans, LA 70118, tel. 504-865-5764,
fax 504-862-8747

home page: <http://mail.eng.lsu.edu/icmf2001/>

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