ASME
SETTING THE STANDARD
1880 2005

HEAT TRANSFER DIVISION

Summer 2009

The Heat Transfer Division's objective is to enhance the theory and application of heat transfer in equipment and thermodynamic processes in all fields of mechanical engineering and related technologies.

Chair's Remarks

On behalf of the Division's Executive Committee, I am pleased to be able to provide positive news from the division. The goal of this newsletter is to provide the readers with an update on the state of the Division and current events, including past and future conferences and other activities. A Division goal is to increase member participation by creating new technical sessions geared towards current research topics in the heat transfer field and industry needs, and making Division participation a rewarding and productive part of your professional activities.

The good news is our membership is growing steadily and a bad news is that our Division custodial fund has decreased due to the economy downturn worldwide. Even with a significant decrease of our Division's custodial fund due to the a net investment loss, we can consider undertaking initiatives to further improve service to our members in terms of best student paper competition, workshops, and other activities. We strive to ensure that all Heat Transfer Division (HTD) members receive value for their membership in the HTD.

This newsletter includes a journal of heat transfer report by Yogesh Jaluria, a new journal report by Michael Jensen, an Honor and Awards committee report by Larry Swanson, a Treasurer's report by Roy Hogan, and past and future conference reports by a number of members listed in the newsletter.

The HTD remains one of the most active Divisions in the ASME. We have traditionally been successful in organizing many technical sessions in the US and abroad.

The 2008 ASME Summer Conferences were held in Jacksonville. The traditional Summer Heat Transfer Conference (SHTC) was co-located with the Fluids Engineering Division Summer Meeting (FEDSM), the Energy Sustainability Conference (ESC), and the Energy Nanotechnology International Conference (ENIC). These co-located conferences wee hosted by four ASME divisions and one ASME institute to make it an unprecedented event. This is a unique opportunity to expand international cooperation, understanding, and promotion of efforts and disciplines in a variety of areas, creating in one location the ability to attend a broad spectrum of technical sessions for one registration fee. We have constructed these conferences in such a way so as to provide members with as much information as possible in three and one-half days.

On Monday evening, the winner of the 2007 Max Jacob Memorial Award by the Heat Transfer Division was recognized. Putting together such an outstanding technical program was made possible in part because of the hard work of ASME staff and many volunteers. I especially thank Stacey Cooper, Angeline Mendez, Gloribeth Carrero, Annette Robinson, and Nhora Cortes-Comerer for their dedication and timely response to the many inquiries from authors and organizers and for putting the technical program together and preparing the conference proceedings. My gratitude also goes out to the plenary speakers (Dr. Kathryn McCarthy, Professor Jacob N. Chung, Professor William K. George, Dr. Stuart Jessup, Dr. J. Michael Davis, Dr. Trung Van Nguyen, Dr. Arthur J. Nozik, and Professor Mildred Dresselhaus) for the time and commitment they have given in generously sharing their knowledge with the attendees.

Last but not least, our Division is open to new and energetic members who are willing to help the Division. New volunteers are encouraged to contact me or anyone in the HTD executive committee to discuss how to become involved.

Additional information is continually updated at our website http://divisions.asme.org/HTD/

Thanks to all of you who have supported me as Chair. See you in San Francisco.

Chang H. Oh
Chairperson (2008-2009)
Heat Transfer Division
Idaho National Laboratory
Chang.Oh@inl.gov

New Journal

The first question that springs to many people's minds when they hear of a new journal in the thermal sciences is: Why is another journal being started? Consider this field. The thermal sciences are used in a very wide range of devices and processes, from electronics cooling to heat treatment of metals, from power production to biomedical devices, from chemical processes to alternative energy conversion systems. Different industries and user communities have different needs. Most current journals deal with long-term, basic issues, often largely of academic interest. Frequently, the information in these papers is not presented in a manner that is easy to implement in real applications. Consequently, industrial practitioners and individuals in government labs do not seem to consult many of these journals; rather, they generate the information in-house. There is much duplication of effort, and emerging techniques and technologies discussed in journals often are not translated into practice.

The Heat Transfer Division Executive Committee appointed a committee (chaired by Dr. Yogesh Jaluria) to consider the need for a new journal to address the above perceived problems, and the committee recommended and proposed to ASME Publications the establishment of a new journal. The main question that the new journal hopes to answer in the affirmative is: Can we tap into these underserved groups as contributors and readers demonstrate that a targeted journal can provide them with a valuable tool for information exchange? Bridging the gap between long-term basic research and the needs of companies and industries engaged in thermal systems and thermal engineering is the goal of *Thermal Science and Engineering Applications (TSEA).* This new journal is intended to be complementary to the *Journal of Heat Transfer (JHT)*, but with two significant differences. First, we seek to address thermal science and thermal engineering issues, not just the fundamentals of heat transfer. Second, while the *JHT* publishes papers with more fundamental and/or mathematical approaches, contributions to *TSEA* must have clear relevancy to an industry, an industrial process, or a device. There are other journals with goals similar to the ones set for *TSEA*. Most of these journals are focused on a particular industry and have had mixed results in achieving an industry-academic balance or coverage of a wide range of thermal science issues.

TSEA welcomes submissions that address applied areas pertaining to thermal energy transport in equipment and devices, thermal and chemical systems, and thermodynamic processes, with an emphasis on application of the fundamentals to the solution of problems faced by industry. While the phenomenon/process discussed may be complex, the presented results must have a relatively straightforward or feasible path to application. These papers could cover: original research of an applied nature; application/implementation of thermal sciences to processes or systems; technology reviews; and identification of research needs to solve industrial problems at all scales. Simple engineering design (trade-off) studies with applicability to a single application are not acceptable. Likewise, papers would be rejected if there were no substantive explanation of the application, clear description of how the results are applied, or an indication of the generality of the solution.

We believe that *Thermal Science and Engineering Applications* will fill an important niche by providing a high-quality forum for practicing engineers, industrial researchers, government lab workers, and academic researchers who address applied problems involving heat transfer and the thermal sciences. It is our sincere hope that this journal will be well received by the community. We welcome your interest, suggestions, and submissions.

Michael Jensen
Editor

Journal of Heat Transfer

The ASME *Journal of Heat Transfer* has done extremely well in the recent years. Over the past decade, it has gone from quarterly to bimonthly to monthly, where it stands now. The number of pages allotted to the journal has also climbed steadily, with the 1900 currently allotted being the highest among all ASME journals. The journal is among the most profitable ASME journals and provides a substantial return to the Heat Transfer Division. The Impact Factor for the Journal of Heat Transfer is **1.202**. This is quite good compared to other ASME journals. In fact, JHT is number 2, behind J. Biomech. Engg., which has 1.591. Most medical journals have very high impact factors. The value for Fluids Engg. is 0.571, for Applied Mech. 0.956, for Electronic Pkg. 0.583, for Solar Energy 0.426 and for Turbomachinery 0.553. The cited half-life of JHT is more than 10, which the highest number that is given for any journal.

Currently, over 600 manuscripts are submitted to the journal each year and the acceptance rate is around 35 %. Several Special Volumes have been published over the past few years to focus on new and emerging areas and to attract a wider audience. The number of papers coming from abroad is larger than those from USA, being more than 60 % from abroad. This international flavor of the journal is reflected in several Associate Editors from Europe, China, India, Japan, and Korea. However, the review process is not restricted by the country of origin and all the Associate Editors get involved in terms of their areas of expertise.

What is interesting and, perhaps, expected is that the papers submitted cover a wide range of traditional areas, like convection, radiation, combustion, boiling, and heat exchangers, as well as relatively new areas, like micro/nanoscale heat transfer, materials processing of advanced materials,

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Publications and Conferences

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bio-heat and mass transfer, and new devices and thermal systems. Even in conventional areas, recent trends and new challenges have emerged and are reflected in the published papers. Thus, the journal has emerged as a major avenue for the dissemination of analysis, experiments and results in the broader thermal science and engineering discipline.

In response to the need for papers that are focused on applications in thermal sciences, particularly those that are of particular interest to industry, a new ASME journal *Thermal Science and Engineering Applications* has been launched through the efforts of the Editorial Board of the *Journal of Heat Transfer.* This journal will, hopefully, bridge the gap between fundamental, long-range, studies and application of existing results to practical problems and systems.

The *Journal of Heat Transfer* continues to be a close indication of the advancements, growth and interests in the field of heat transfer. The Associate Editors and the Editor are always on the lookout for new ideas that might enhance the value of the journal to the community and its impact on the field. These include review articles, invited papers, special volumes, discussions, and rapid publications. Please feel free to contact us with suggestions to improve the journal and its offerings.

Yogesh Jaluria
Editor, JHT

2009 HTD Awards

The Heat Transfer Memorial Award was established in 1959 by the Heat Transfer Division and was elevated to a Society award in 1974 to recognize outstanding contributions to the field of heat transfer through teaching, design, or publication. The 2009 Heat Transfer Memorial Award recipients are:

Dr. Jong H. Kim (Art)
Dr. Richard H. Pletcher (Science)
Dr. Cristina H. Amon (General)

The Bergles-Rohsenow Young Investigator Award in Heat Transfer, established in 2003, is given to a young engineer who is committed to pursuing research in heat transfer, and has demonstrated the potential to make significant contributions to this field. The 2009 Bergles-Rohsenow Young Investigartor Award recipient is:

Dr. William P. King

Larry Swanson
Chair of HTD Honors and Awards

2008 Hewlett Packard Best Paper Award

Hewlett-Packard Laboratories sponsored a Best Paper Award at the ASME IMECE 2008 Conference. This award is intended to encourage and support research that focuses on heat transfer and thermal systems research and design with particular emphasis on topics related to energy, sustainability, and multiphase heat transfer. The award is for graduate student authors who present their work at the IMECE.

Five papers were nominated by session chairs and 4 nominees (1 was unable to attend) presented their work in a special session at the 2008 IMECE conference which was held on Nov 3, 2008. A panel of judges (Ann Anderson, Dereje Agonafer, Andrew Smith, Gamal Refai-Ahmed and Patrick Hopkins) read the papers and attended the presentations. The judges were impressed with the work of the students and with their ability to present that work in a clear fashion and answer questions. The student participants were recognized at the Heat Transfer Division Banquet.

The first place winner was **Sheng Shen** of MIT who presented the paper *"Near-field thermal radiation: comparison of numerical results and experiments.* (IMECE2008-69230)" which he coauthored with Arvind Narayanaswamy of Columbia University and Gang Chen of MIT.

The second place winner was **Zhi Liang** of the Missouri University of Science and Technology who presented the paper *"Ab Initio Calculations Of Vibrational Energy Levels And Transition Dipole Moments Of Co2 Molecules.* (IMECE2008-67765)" which he coauthored with Hai-Lung Tsai of Missouri University of Science and Technology.

The runners up were **Fabien Volle** of Purdue University for *"A Thermal Quadrupole-Based Model for Heat Diffusion in a Multilayered System: Application to Determination of Transient Performance of a Medium-Voltage Soft Starter.* (IMECE2008-67470)" which he co-authored with Suresh V. Garimella of Purdue University and Mark A. Juds of Eaton Corporation and **Jaime Garcia** of the Universidad del Norte for *"Soft Sensor Design for Biodiesel Concentration in a Transesterification Reactor.* (IMECE2008-68697)" which he co-authored with Jose Posada, Pedro J. Villalba, and Marco Sanjuan of the Universidad del Norte

Ann Anderson

Treasurer's Report

After a period of substantial growth of the division's custodial account, this year seen a significant decrease in value due to stock market losses. The custodial account balance has decreased from $138518 at the beginning of the 2008 fiscal year (July 1, 2008) to $88855 at the end of April 2009. This decrease resulted from a net investment loss of $30836 in the ASME investment account and operating expenses of $18827. The operating expenses include food & beverage, reproduction, teleconferences, and awards & honorariums. A notable revenue increase that occurred in the previous year (FY2008) was the implementation of a revenue sharing process for surpluses from the ASME journals. For the Journal of Heat Transfer, this amounted to $32830.

Roy Hogan
Treasurer

Past and Future conferences

2008 ASME Summer Conference

In the period August 10-14, 2008, the Heat Transfer Division (HTD) joined forces with four other ASME divisions for its yearly Summer Heat Transfer Conference (SHTC). For the first time, HTD along with the Fluids Engineering Division (FED), the Solar Energy Division (SED), the Advanced Energy Systems Division (AESD), and the ASME Nanotechnology Institute co-located their summer conferences. SED and AESD typically run the International Conference on Energy Sustainability. The Nanotechnology Institute typically runs the Energy Nanotechnology International Conference. FED typically runs the Fluids Engineering Division Summer Meeting (FEDSM). So, there were five divisions and four co-located conferences with one registration fee. On Sunday August 10, a workshop jointly sponsored and organized by Mississippi State University, the University of Florida, North Carolina State University, and the Southeast CHP Application Center under the umbrella of the ASME was conducted. The title of the workshop was "The Role of Combined Cooling, Heating and Power in Florida's Energy Future." The workshop attracted over 65 participants. The Summer Heat Transfer Conference, on the other hand, attracted 333 abstracts and 290 draft papers with 272 papers accepted in final form. Overall, over 850 people attended the four conferences with close to 600 papers presented.

Chang H. Oh,
General Conference Chair
S.A. Sherif,
Technical Conference Chair

2008 ASME International Mechanical Engineering Congress and Exposition

The Heat Transfer Division was a strong participant in the 2008 IMECE on November 1-6, 2008 in Boston, Massachusetts, with 212 accepted papers from 320 submitted abstracts. Most HTD contributions were presented as part of a technical track on Heat Transfer, Fluid Flows and Thermal Systems jointly organized with the ASME Fluids Engineering Division. Heat Transfer Technical Committees were principal contributors to additional tracks including the joint organization of a technical track on Combustion Science and Engineering by the Heat Transfer Committee on Fire, Combustion and Reacting Flows. In addition to the spectrum of presented papers, meetings of the HTD Executive and Technical Committees were conducted which focused on division operations, and future meeting planning.

Lou Gritzo,
EC Member at Large

Seventeenth Symposium on Thermophysical Properties

The 17th Symposium on Thermophysical Properties was held from June 22 to June 26, 2009 in Boulder Colorado. The Symposium was organized by NIST Boulder and the Joint ASME-AIChE Committee on Thermophysical Properties. Dr. Dan Friend of NIST was symposium chair with Dr. Marcia Huber of NIST and Zhuomin Zhang of Ga. Tech. as co-chairs. It was attended by 550 researchers representing more than 50 countries from 6 continents. In addition, the ASME Yeram S. Touloukian Memorial Award was presented to Andreas Mandelis (Solids) and Koichi Watanabe (Fluids). Plans are underway for the 18th Symposium to be held in 2012.

Elections for officers of the Joint Committee were held at the Symposium, in accordance with the committee's bylaws. The newly elected officers of the committee are:

Vice-Chair and K-7 representative to HTD: Zhuomin M. Zhang, Georgia Institute of Technology, Woodruff School of Mechanical Engineering, 801 Ferst Drive, N.W., Atlanta, GA 30332-0405, Phone: (404) 894-3759, FAX: (404) 894-8496, email: zhuomin.zhang@me.gatech.edu

Chair: J. Ilja Siepmann, University of Minnesota, Department of Chemistry, 207 Pleasant St. SE, Minneapolis, MN 54555-0431, Phone: (612) 624-1844, FAX: (612) 626-7541, email: siepmann@umn.edu

Secretary: Clare McCabe, Vanderbilt University, Department of Chemical and Biomolecular Engineering, Box 1604, Station B, Nashville, TN 37235, Phone: (615) 322-6853, FAX: (615) 343-7951, c.mccabe@vanderbilt.edu

Neil T. Wright
K-7 Committee Chair

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2009 ASME International Mechanical Engineering Congress and Exposition

Lake Buena Vista, Florida is the site of the 2009 IMECE on November 13-19, 2009. Once again, the Heat Transfer Division has teamed up with several other divisions to organize papers into key technical tracks. Most HTD contributions will be presented in the Heat Transfer, Fluid Flows and Thermal Systems track jointly organized with the ASME Fluids Division. The Heat Transfer Committee on Fire, Combustion and Reacting Flows has taken a lead role in the track on Combustion Science and Engineering, and the Heat Transfer Committee on Aerospace Heat Transfer is co-organizing the Aerospace Technology Track. Over 400 abstracts have been submitted by HTD members, with full paper review currently being lead by a set of hard working by Session Chairs. This promises to be a great meeting, and a great time to travel to Florida. As you make plans to attend, please mark your calendars for the Heat Transfer Awards Luncheon on Tuesday, November 17 at 11:30am.

Lou Gritzo,
EC Member at Large

2011 ASME/JSME

The American Society of Mechanical Engineers (ASME) and the Japan Society of Mechanical Engineers (JSME) have co-developed a successful series of joint conferences on thermal engineering at four-year intervals. AJTEC 2011 is the 8th ASME/JSME Thermal Engineering Joint Conference. The previous conferences in this series were held in: Honolulu, Hawaii (1983 and 1987); Reno, Nevada (1991); Maui, Hawaii (1995); San Diego, California (1999); Hawaii Island, Hawaii (2003); and Vancouver, Canada (2007). AJTEC 2011 will be held again in Honolulu Hawaii.

The Key Themes of AJTEC 2011 are "Fundamental" and "Interdisciplinary" with a vision for the future of Thermal Engineering.

The 20th century is, in many ways symbolized by the phrases "Division" and "Development". In the early part of the century, engineers divided systems into their most fundamental elements for purpose of study. As the century progressed, scientific understanding enabled the enormous development of many new technologies.

In the dawn of the new century, thermal engineers will be required to attain a better understanding of fundamental phenomena governing complex and integrated mechanical, chemical, and energy systems. As such, we must increase our efforts to integrate thermal engineering with other disciplines, and broaden our perspective to include an ever-widening range of time scales (from ultra rapid to long term) and length scales (from nanoscale to global). Such efforts require a strong collective will from the thermal engineering community to engage new technological challenges and to collaborate with scientists and engineers from other disciplines to meet these challenges with unique and innovative solutions. The 21st century has opened the gate for this new direction and the thermal engineering community appears ready and willing to embrace the challenges that lie ahead.

The objective of the AJTEC 2011 conference is to provide an international forum for the exchange of such new ideas and direction as described above and the presentation of the latest work in the field. We strongly encourage attendance and paper submission from sister societies around the globe including those from ASME and JSME. A web listing by JSME appears at http://www.jsme.or.jp/conference/AJTEC2011/.

Koichi Hishida,
Keio University,
Conference Co-Chair (JSME)
James Klausner,
University of Florida,
Conference Co-Chair (ASME)
Isao Satoh,
Tokyo Institute of Technology,
Secretary-General

2009 ASME Summer Heat Transfer Conference

Co-located with ASME InterPACK '09 and Energy Sustainability Conferences

July 19-23, 2009

Westin St. Francis Hotel, San Francisco, California, USA

Invitation to Register

You are invited to register this annual conference that is sponsored by ASME Heat Transfer Division and co-located with ASME InterPACK '09 and Energy Sustainability Conferences. This is a unique opportunity to expand international cooperation, understanding and exchange of state-of the art knowledge in research, development and application in thermal science and engineering and related areas. Although the majority of sessions are in the usual oral presentation format, other types of sessions include panel discussions, open forums, posters and tutorials. We have keynote speakers from three co-located conferences and SHTC as well.

The Summer Heat Transfer Conference alone is expected to include about 350 papers (about 875 papers from all 3 Conferences) covering a wide range of relevant topics such as: ŏ Heat Transfer in Energy Systems ŏ Thermophysical Properties ŏ Theory and Fundamental Research ŏ Heat Transfer Equipment ŏ Fire and Combustion ŏ Aerospace Heat Transfer ŏ Heat Transfer in Multiphase Systems ŏ Gas Turbine Heat Transfer ŏ Heat Transfer in Transport Phenomena in Manufacturing and Materials Processing ŏ Heat Transfer in Electronic Equipment ŏ Heat and Mass Transfer in Biotechnology ŏ Low Temperature Heat Transfer ŏ Environmental Heat Transfer ŏ Computational Heat Transfer ŏ Heat Transfer Education ŏ Visualization of Heat Transfer. The Conference also provides an opportunity for students and early-career professionals to engage with scientists, engineers, students, and faculty to address the broad topic of thermal sciences and engineering and enhance their careers and future potential. A set of ~6 Tutorial Shortcourses are available on Sunday, July ~9, 2009, with free admission to all conference registrants. Professional Engineers will also be able to earn PDH (Professional Development Hours).

The Preliminary Program is Available at: http://www.heattransferconference.org/program.html

To Register Please go to: http://www.asmeconferences.org/HT09/
or http://www.heattransferconference.org/

and select the link (left menu) for either author or non-author registration. Your registration fee covers admission to all three conferences, conference proceedings, conference meals and receptions, and coffee breaks.

For Hotel Reservations at the Westin St. Francis Conference Hotel
Please visit: http://www.asmeconferences.org/HTIPES/hotelInfo.cfm

2010 AIAA Thermophysics Conference
28 June- 1 July 2010
McCormick Place, Chicago, IL

Abstract Deadline: November 5, 2009
Final Manuscript Deadline: June 15, 2010
See: www.aiaa.org for regular updates

The ASME Heat Transfer Division and the AIAA Thermophysics Technical Committee solicit papers on topics in heat transfer and thermophysics. Contributions are solicited on subjects related to all aspects of thermal energy transfer in aerospace and mechanical engineering applications. Articles based upon analytical, experimental and/or numerical studies are welcome. Significant scientific and technical contributions are emphasized over status reports of work in progress. Areas of specific interest include, but are not limited to:

- Advances in computational heat transfer
- Aerothermodynamics and high speed flows
- Aircraft and spacecraft thermal management
- Applications of computational heat transfer
- Computational heat transfer in industrial applications
- Cryogenics and cryogenic systems
- Direct simulation Monte Carlo methods
- Electronic and microelectronics thermal management
- Heat pipes, loop heat pipes, and innovative heat pipe designs
- Heat exchangers and pumps
- Heat transfer: computational and experimental, conduction, convection (free and forced), phase change (boiling, evaporation, sublimation, ablation), and radiation
- Heat transfer and cooling in turbomachinery
- Historical perspectives in thermophysics research
- Hypersonic and low density facilities
- Materials processing thermal management
- Microgravity effects on high power two phase thermal management systems
- Microgravity testing for aerospace applications
- Microscale and nanoscale heat transfer and transport phenomena
- Nonequilibrium flows
- Nonequilibrium radiation
- Particle-laden flow modeling and measurement
- Propulsion and power systems
- Radiation analyses (surface properties)
- Radiators and heat rejection systems
- Spacecraft contamination
- Space environmental effects
- Surface catalysis
- Thermal contact conductance and interfaces
- Thermal control, management, and protection systems
- Thermophysical properties

Emerging Topics:

- Integrated and multidisciplinary modeling and simulation
- Minimization of entropy production
- Microfluidics
- MEMS and nanotechnologies
- Multiphase flows and heat transfer continuum methods for transition-to-rarefied flows
- Wireless thermal measurements

With your submission, please indicate your preferred session topic, choosing from the bulleted topic areas listed above. Potential authors should note that the submission of full manuscripts for consideration is encouraged. However, at a reduced chance of acceptance, authors can submit extended abstracts of at least 1000 words that include major results of the work backed by illustrative figures. A few succinct data figures that clearly show actual results are mandatory. Submissions not meeting these criteria will not be considered for acceptance. Authors are expected to attend the conference and present their papers.

Each year, the AIAA Thermophysics Technical Committee has offered a Best Paper Award in both the Professional and Student Categories (with the student receiving a monetary award). Student submissions are strongly encouraged. Also, timely survey and review articles on the above topics are solicited. Authors are encouraged to submit their manuscripts, either before or after the meeting, to the *AIAA Journal of Thermophysics and Heat Transfer* or *ASME Journal of Heat Transfer* for possible publication.

The 8th ASME-JSME Thermal Engineering Joint Conference

March 13 - 17, 2011

Waikiki Beach Marriott Resort & Spa, Honolulu, Hawaii

Co-sponsored by
The Thermal Engineering Division, The Japan Society of Mechanical Engineers
and
The Heat Transfer Division, The American Society of Mechanical Engineers

AJTEC 2011 Conference Organizers

Koichi Hishida, Keio University, Conference Co-Chair (JSME)
James Klausner, University of Florida, Conference Co-Chair (ASME)
Isao Satoh, Tokyo Institute of Technology, Secretary-General

http://www.jsme.or.jp/conference/AJTEC2011/

Technical Themes

The Key Themes of AJTEC 2011 are "Fundamental" and "Interdisciplinary" with a vision for the future of Thermal Engineering.

The 20th century is, in many ways symbolized by the phrases "Division" and "Development." In the early part of the century, engineers divided systems into their most fundamental elements for purpose of study. As the century progressed, scientific understanding enabled the enormous development of many new technologies.

In the dawn of the new century, thermal engineers will be required to attain a better understanding of fundamental phenomena governing complex and integrated mechanical, chemical, and energy systems. As such, we must increase our efforts to integrate thermal engineering with other disciplines, and broaden our perspective to include an ever-widening range of time scales (from ultra rapid to long term) and length scales (from nanoscale to global). Such efforts require a strong collective will from the thermal engineering community to engage new technological challenges and to collaborate with scientists and engineers from other disciplines to meet these challenges with unique and innovative solutions. The 21st century has opened the gate for this new direction and the thermal engineering community appears ready and willing to embrace the challenges that lie ahead.

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Conference Calendar

Abstract for review due:	May 31, 2010
Notification of abstract acceptance:	June 30, 2010
Full paper for review due:	July 31, 2010
Notification of paper acceptance:	October 30, 2010
Final paper due:	November 30, 2010
Deadline for hotel reservation at the conference rate:	December 31, 2010
Deadline for advance conference registration:	January 15, 2011
AJTEC 2011 Conference	March 13 - 17, 2011

http://www.jsme.or.jp/conference/AJTEC2011/

HEAT TRANSFER DIVISION

Preliminary Announcement

2nd ASME Micro/Nanoscale Heat and Mass Transfer International Conference (MNHMT09)

Dec18-21, 2009
Shanghai, China
Email:MNHMT09@sjtu.edu.cn
http://www.asmeconferences.org/MNHMT09/

The **2nd ASME Micro/Nanoscale Heat & Mass Transfer International Conference(MNHMT09)** will be held at Shanghai Jiaotong University in Shanghai, China, on December 18-21, 2009. It is a follow-up conference to the highly successful MNHT08, held in Tainan on 6-9 January 2008. This Conference is sponsored by the ASME Heat Transfer Division and Shanghai Jiaotong University (SJTU).

Research and education on micro/nanoscale heat and mass transfer has advanced rapidly over the last decade through many dedicated individuals and teams efforts, with direct impact now extending into various fields in both science and engineering. This conference series is dedicated to Dr. Chang-Lin Tien (1935-2002), a world renowned scholar and a leader in higher education, whose intellect and unique visions have continued to inspire our upmost efforts in expanding the frontiers of micro/nanoscale heat and mass transfer.

The conference is intended to provide a forum for researchers and educators around the world to exchange the state-of-the-art research and development and identify research needs in this emerging field. The conference will include keynote and invited papers, as well as contributed oral and poster presentations.

Organizing Committee

Conference Chair
Dr. Ping Cheng, Shanghai Jiaotong University

Conference Co-Chairs
Dr. Yildiz Bayazitoglu, Rice University
Dr. Gang Chen, Mass. Inst. of Technology
Dr. Stephen U. S. Choi, U. of Illinois at Chicago
Dr. Yogesh Jaluria, Rutgers, University
Dr. Dongqing Li, U. of Waterloo
Dr. Pamela M. Norris, U. of Virginia
Dr. Bud Peterson, U. of Colorado at Boulder
Dr. "Bob" D. Y. Tzou, U. of Missouri-Columbia

Conference Secretary
Dr. Fangjun Hong, Shanghai Jiaotong U.

International Advisory Board
Dr. G. P. Celata, ENEA,
Dr. Hsueh-Chia Chang, U. of Notre Dame
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Dr. Arun Majumdar, U. of California at Berkeley
Dr. Shigeo Maruyama, Univ. of Tokyo
Dr. W.J.Minkowycz, U. of Illinois at Chicago
Dr. D. Poulikakos, Swiss Fed. Inst. of Tech.
Dr. John Rose, U. of London
Dr. Masahiro Shoji, Kanagawa University
Dr. Yasuyuki Takata, Kyushu University
Dr. W. Q. Tao, Xi'an Jiaotong University

Deadlines

On-line submission of abstracts and papers is available through the ASME website:
http://www.asmeconferences.org/MNHMT09/

Submission of Short 400 Word Abstract
May 4, 2009
Author Notification of Abstract Acceptance
May 20, 2009
Submission of Full-Length Draft Paper for Review
August 1, 2009
Notification of Paper Acceptance
September 15, 2009
Submission of Copyright Form (1903)
October 5, 2009
Submission of Final Paper
October 15, 2009

Location

The Conference will be held on the beautiful new Minghang campus of Shanghai Jiaotong University, 800 Dongchuan Road, Shanghai 200240. Please visit the website at http://www.sjtu.edu.cn for information about SJTU.

Publications

All of the papers presented at MNHMT09 will be published in an CD by ASME Heat Transfer Division. Keynote papers and selected papers will be published in a special issue of J. of Heat Transfer in 2010.

Conference Topics and Track Chairs

Track 1.Micro/Nanofluidics and Lab-on-a Chip
Chair: Dr. Dongqing Li, University of Waterloo;
Track 2. Nanofluids
Chair: Dr. Stephen U. S. Choi, U. of Illinois at Chicago;
Track 3. **Biomicrofluidics**
Chair: Dr. Leslie Yeo, Monash University;
Track 4. Micro/Nanoscale Evaporation Heat Transfer
Chair: Dr. Xiaofeng Peng, Tsinghua University;
Track 5 Micro/Nanoscale Condensation Heat Transfer
Chair: Dr. Alberto Cavallini, University of Padova;
Track 6. Microscale/Nanoscale Mass Transfer with/ without Chemical Reactions
Chair: Dr. Hirofumi Daiguji, University of Tokyo;
Track 7. Micro/Nanoscale Transport in Porous Media /Fuel Cells
Chair: Dr. Tim Zhao, HKUST;
Track 8. Micro/Nanoscale Thermal Radiation
Chair: Dr. Zhuomin Zhang, Georgia Institute of Tech;,
Track 9. Ultrafast Transport and Ultrafast Diagnostics
Chair: Dr. Xianfan Xu, Purdue University;
Track 10. Experimental and Measurement Technologies in Micro/Nanoscale Transport
Chair: Dr. Steven T. Wereley, Purdue University;
Track 11. Computational Methods in Micro/ Nanoscale Transport
Chair: Dr. David R. Emerson, STFC Daresbury Laboratory;
Track 12. Heat & Mass Transfer in Small Scales
Chair: Dr. Liqiu Wang, University of Hong Kong;
Track 13. Micro/Nanoscale Interfacial Transport Phenomena
Chair: Dr. Bao Yang, University of Maryland;
Track 14. Micro/Miniature Two-Phase Devices
Chair: Dr. Hongbin Ma, University of Missouri-Columbia;
Track 15. Bio-Medical Applications of Micro/ Nanoscale Transport
Chair: Dr. Lisa Xu, Shanghai Jiaotong University;
Track 16. Microscopic Thermophysical Process and Properties
Track 17.Nano-Systems and Engineering
Track 18.Keynote and Invited Papers
Chair: Dr. Ping Cheng, Shanghai Jiaotong University;
Track 19.Posters
Chair: Dr. G. Nakayama, Kyushu Inst. Of Tech.

Keynote and Invited Speakers

Dr. Avram Bar-Cohen (University of Maryland):
"Thermal Management of On-Chip Hot Spots"
Dr. Yildiz Bayazitoglu (Rice University):
"Nanoparticle Assisted Cancer Therapy: Numerical Simulations"
Dr. Jacopo Buongiorno (MIT)
"Nanofluid Heat Transfer Enhancement for Nuclear Reactor Applications"
Dr. Hsueh-Chia Chang (U. of Notre Dame):
"Ion Current Across Nanopores: Towards an Intelligent Design of Ion-Selective Membranes for Solar Cells and Microfuel Cells"
Dr. Z.Y. Guo (Tsinghau University):
"A Novel Driving Force for Nanodevices: Force Induced by Phonon Current in a Carbon Nanotube"
Dr. Satish Kandlikar (Rochester Institute.of Technology):
"The Next Frontier in Microchannel Boiling"
Dr. Bingcheng Lin (Dalian Institute of Chemical Physics):
"Droplets Control in Microfluidics and It's Biomedical Application"
Dr. Shigeo Maruyama (University of Tokyo):
"Heat and Mass Transfer in Carbon Nanotubes"
Dr. "Bob" D. Y. Tzou (U. of Missouri-Columbia):
"Lagging Behavior in Nonequilibrium Heat and Mass Transfer"

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