HEAT TRANSFER DIVISION

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.

Summer 2012

Chairman's Message

By James F. Klausner

It has been a great honor to serve the ASME Heat Transfer Division (HTD) as the 2011-2012 Chair. As we approach the 75th anniversary of the HTD in 2013, we can collectively look backward with pride on the outstanding accomplishments of the thermal engineering community throughout the 20th century. As we look forward with excitement, we see many grand challenges in front of us. Several of the National Academy of Engineering grand challenges are ripe for technological innovation from the thermal engineering community, including: making solar energy economical, provide energy from fusion, develop carbon sequestration methods, provide access to clean water, and engineer the tools for scientific discovery. With over 3000 members and growing, the HTD has outstanding talent and is well positioned to make progress toward solving these grand challenges. The HTD will continue to enable its membership by organizing high quality technical conferences, publishing high impact journals, and organize informative workshops as vehicles for knowledge dissemination.

While the *Journal of Heat Transfer* enjoys a long history of attracting the highest quality fundamental papers and is one of the most successful ASME journal publications, its sister publication, the *Journal of Thermal Science and Engineering Applications*, has rapidly grown into a highly successful, high quality ASME publication that serves a broad audience. Recently the HTD has agreed to

2012 Summer Newsletter

Yong Tao, *Media Editor*

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Chairman's Message

participate in the publication of the *Journal of Nanotechnology in Engineering and Medicine*, and we expect it to provide an excellent venue for our membership to publish their latest work relating to nanotechnology. I am extremely enthusiastic about the breadth and depth of the technical science and engineering capabilities demonstrated by our membership as exemplified by our ASME publications.

The HTD has participated in a number of excellent conferences over the past year. The 9th International Conference on Nanochannels, Microchannels, and Minichannels was held at the University of Alberta in Edmonton in June 2011. Satish Kandlikar and Yoav Peles from the HTD chaired and co-chaired the conference, respectively. The HTD returned to the November 2011 IMECE which provided an excellent forum to discuss the energy-water nexus. Ahmad Fakheri and Lou Gritzo from the HTD served as the technical program vice chair and track organizer, respectively. Raj Manglik served as the HTD coordinating scientist for the 10th ISHMT-ASME joint conference in Madras, India, December 2011 which had an excellent turnout from North America. The 3rd Micro/Nanoscale Heat & Mass Transfer International Conference was held at Georgia Institute of Technology in March 2012. Bud Peterson and Zhuomin Zhang from the HTD served as the chair and program chair, respectively. The 2012 Summer Heat Transfer Conference and 10th International Conference on Nanochannels, Microchannels, and Minichannels are scheduled to be collocated in Puerto Rico, July 2012. Roy Hogan and Chenn Zhou are serving as the general program chair and technical program chair for the SHTC, respectively. Yoav Peles is serving as the ICNMM co-chair.

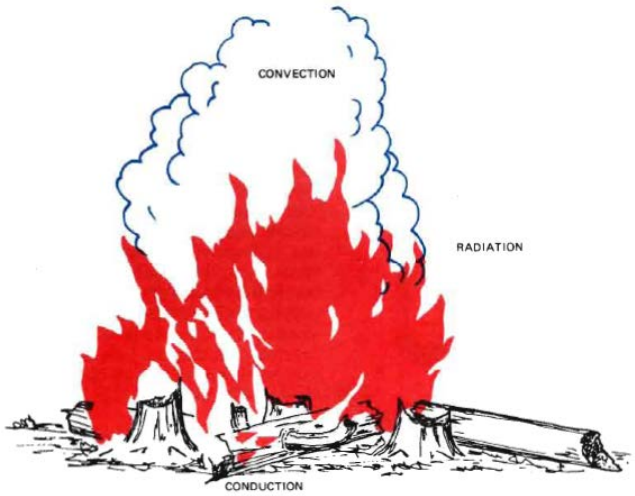
The successes of the ASME Heat Transfer Division are made possible by the smooth collaboration of the HTD technical and operating committee structure. Behind each committee are many dedicated volunteers that work tirelessly to make the HTD a body that reaches out to a broad membership to allow many opportunities for knowledge dissemination. I would like to take the opportunity to thank all of our volunteers who continuously work to improve the services provided by the HTD to our membership. It is my sincere hope that our membership continues to enthusiastically participate to make the ASME Heat Transfer Division a world leader in Thermal Engineering. As we move into the future, I am very enthusiastic to hand over the leadership of the division to our incoming chair, Roy Hogan.

Sincerely,

James F. Klausner

James F. Klausner,

2011-2012 Heat Transfer Division Chair



2011-2012 ASME Honors and Awards

By Lawrence A. Kennedy

In 2011 through mid-2012, these honors and awards are presented to the distinguished scientists as below:

Heat Transfer Memorial Award:

The Heat Transfer Memorial Award is bestowed on individuals who have made outstanding contributions to the field of heat transfer through teaching, research, practice and design, or a combination of such activities.

Each award is based on achievement through publications, patents or inventions, in an area of heat transfer or through the application of science or art of heat transfer. One award may be made annually in each of the three following categories: the science of heat transfer, the art of heat transfer, or the general subject of heat transfer.

The award was established by the Heat Transfer Division in 1959 and operated as a division award until 1974 when it was elevated to a Society award.

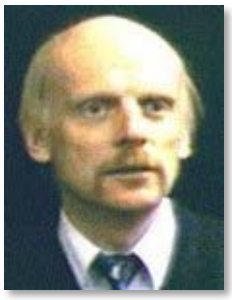
Science:

Sumanta Acharya

L.R. Daniel Professor and Fritz & Francis M. Blumer Professor (at Louisiana State Univ.) Director, Thermal Transport Program, National Science Foundation, USA

Contributed in seminal and long-lasting research contributions in gas turbine heat transfer and combustion, natural and mixed convection, and computational methods, enabling improved design of gas turbine engines, enhancement of capability of CFD software, and better understanding of complex transport phenomena.

Art:



Bengt Ake Sunden

Professor and Chair of Energy Sciences Department
Lund University, Sweden

Contributed to understanding of mechanisms of the heat and momentum transport in complex geometries (e.g., compact heat exchangers, gas turbine cooling, and fuel cells), enhancement of heat transfer, improvement and development of computational methods, development of CFD and computer codes for heat exchangers.

2011 ASME Honors and Awards

Bergles-Rohsenow Young Investigator Award

The Bergles-Rohsenow Young Investigator Award in Heat Transfer is given to a young engineer who is under 36 and has received a Ph.D., or an equivalent degree in engineering. The individual must be committed to pursuing research in heat transfer, and must have demonstrated the potential to make significant contributions to the field of heat transfer. Such contributions may take the form of, but are not limited to, analytical/ numerical methods, equipment/ instrumentation, or experimentation - any of which should lead to peer-reviewed publications.

Established by the Heat Transfer Division in 2003, the award was funded through the efforts of Arthur Bergles and Warren Rohsenow who are well known for their accomplishments in heat transfer research and for their mentoring of young researchers.

Edmond Joseph Walsh

Senior Research Fellow
Univ. Limerick, Ireland

Heat Transfer Division Classic Paper Award:

(Highlights past exceptional papers and authors. The papers must have been published at least 15 years ago.)

"On the Mechanics of Vapor Bubble Collapse",
by ***L.W. Florschuetz and B.T. Chao,***
J. of Heat Transfer, pp. 209-220, May 1965.

2011 Max Jakob Award Recipient

The Max Jakob Memorial Award is bestowed in recognition of eminent achievement of distinguished service in the area of Heat Transfer

Dimos Poulikakos

Professor
Laboratory of Thermodynamics in Emerging Technologies (LTNT)
Department of Mechanical and Process Engineering
ETH Zurich

2011 ASME Distinguished Service Award

(2007 - 2010 Journal of Heat Transfer Division Editor)

Yogesh Jaluria

Board of Governors
Professor of Mechanical and Aerospace Engineering
Rutgers, the State University of New Jersey

Lawrence A. Kennedy
Chair, Honors and Awards Committee
Professor and Dean Emeritus
Mechanical Engineering University of Illinois, Chicago

Past and Future Conferences

2011 ASME International Mechanical Engineering Congress and Exposition

By Louis A. Gritzo

The Hyatt Regency Denver and Colorado Convention Center is the site of the 2011 IMECE on November 11-17. Once again, the Heat Transfer Division has teamed up with several other divisions to organize papers in several technical tracks. As an interdisciplinary meeting, HTD members have contributed works to a large spectrum of areas including Energy and Water, Nanotechnology, Biomedical, Advances for Process Industries, and others. Papers on fundamental and general heat transfer topics of broad application will be presented in the Heat and Mass Transfer Track organized by the Heat Transfer Division Executive Committee. The Heat Transfer Committee on Fire, Combustion and Reacting Flows has once again taken a lead role and is organizing a very successful track on Combustion Science and Engineering. Over 350 abstracts have been submitted by HTD members, with full paper review currently being led by a set of hard working by Session Chairs.

The HTD and the IMECE organizing committee have also sponsored three very special plenary talks;

- Dr. Art Bergles, Glenn L. Martin Institute Professor of Engineering at University of Maryland, and Senior Lecturer at Massachusetts Institute of Technology will speak on the importance of heat transfer in energy applications as part of the Energy and Water and Heat and Mass Transfer Tracks
- Prof Robert Brown, Anson Marston Distinguished Professor in Engineering, and Gary and Donna Hoover Chair in Mechanical Engineering at Iowa State University will provide a plenary on biomass renewable energy, during the Combustion Science and Engineering Track, and
- Dr. David Tillman, Chief Fuels and Combustion Engineer, Foster Wheeler, North America will present on power generation from biomass fuels, also as part of Combustion Science and Engineering.

The IMECE is also the annual event for presentation of the Heat Transfer Division Awards. This year the HTD is sponsoring a special awards luncheon that fits conveniently in the schedule of the technical presentations, and is 50% funded by the division, allowing a greatly reduced cost of only $23.

Louis A. Gritzo, Ph.D.
Heat Transfer Division Representative
Vice President, Research
FM Global

2012 ASME Heat Transfer, Fluids, and Nanochannels, Microchannels, and Minichannels Conferences

By Roy E. Hogan

On behalf of the ASME Heat Transfer and Fluids Engineering Divisions, we are pleased to report that the 2012 ASME Heat Transfer, Fluids, and Nano-, Micro- and Mini-channels Conference (HTFNMM2012), held July 8-12 in Rio Grande, Puerto Rico was a success. The HTFNMM Conference was a co-location of the traditional Fluids Engineering Division Summer Meeting (FEDSM), Summer Heat Transfer Conference (SHTC), and the 10th International Conference on Nanochannels, Microchannels, and Minichannels Conference (ICNMM). This conference was a great opportunity for technical interactions between international researchers and engineers having interests in a broad spectrum of technical areas in the thermal fluid sciences. The technical program consisted of more than 675 technical presentations and included participation of 2232 authors from 47 countries.

Additionally, there were nine plenary lectures and three distinguished speakers from each of the Fluids Engineering Division, Heat Transfer Division, and ICNMM.

One of the highlights of the conference was the breadth of plenary session topics. We are pleased to have had three exceptional speakers for the HTD plenary sessions: Professors Dimos Poulikakos, Chung K. Law, and Aldo Steinfeld. The ASME/AIChE Max Jacob Award Recipient, Professor Dimos Poulikakos of ETH Zurich, presented the Max Jacob Award lecture entitled "From Frost Halos to Optical Nanoantennas: On the Omnipresence of Heat Transfer in Nature and Technology." Professor Chung K. Law of Princeton University presented an interesting plenary on the physical and chemical aspects of fundamental combustion phenomena with applications to propulsion, energy, fuels, and the environment. Professor Aldo Steinfeld of the Paul Scherrer Institute and ETH Zurich, presented an interesting talk on the progress and promise of applying solar technologies using high-temperature, thermochemical processes to produce fuels and reduce carbon dioxide. We extend our sincere thanks and gratitude to these speakers for their contributions to the conference.

We were also pleased to present the ASME Dedicated Service Award to Russell Skocypec, 2005 HTD Chair. This Society award recognizes members who have demonstrated effective leadership and sustained service to the Society. In addition to leadership in the Heat Transfer Division, Russ has served as the Technical Group Leader of the Basic Engineering Technical Group for six years and is the past-Chair of Board of Technical Knowledge Dissemination. His service and leadership have made a difference in the Society.

The success of this conference was made possible by the hard work of ASME staff and many HTD volunteers. We especially thank ASME staff Erin Dolan, Stacey Cooper, Nhora Cortes-Comerer, for their dedication, patience, and timely responses to the many inquiries from authors and HTD organizers. We are grateful to the track and session organizers, technical reviewers, and authors for their contributions to an interesting and high-quality technical program.

Please plan to attend the Summer Heat Transfer Conference, July 14-19, 2013, in Minneapolis MN. Professors Frank Kulacki and SA Sherif are organizing this conference and are planning several activities celebrating the 75th anniversary of the Heat Transfer Division. This meeting will be co-located with the Energy Sustainability and Fuel Cell Conferences. Watch for additional details and consider joining us at this conference.

Roy Hogan
General Program Chair

Chenn Zhou
Technical Program Chair

ASME 3rd Micro/Nanoscale Heat & Mass Transfer International Conference (MNHMT2012)

By G. P. "Bud" Peterson and Zhuomin Zhang

The ASME 3rd Micro/Nanoscale Heat & Mass Transfer International Conference was held at the Georgia Institute of Technology in Atlanta, Georgia on March 3-6, with over 320 attendees from 20 countries. The conference was co-sponsored by the ASME Heat Transfer Division and the Georgia Institute of Technology. Partial support was provided by the National Science Foundation, the Office of Naval Research, and several industrial sponsors including Seagate, Praxair, General Nano Inc., and Teledyne Scientific Company).

This conference series is dedicated to Dr. Chang-Lin Tien (1935-2002), a world renowned scholar, a leader in higher education, and a close friend and colleague. Professor Tien's tremendous intellect and unique vision have continued to inspire researchers to expand the frontiers of micro/nanoscale heat and mass transfer. The first two conferences were held in Tainan (January 2008, chaired by "Bob" D. Y. Tzou) and Shanghai (December 2009, chaired by Ping Cheng).

There were three plenary addresses and six keynote speeches, over 250 oral

presentations, and 40 poster presentations. The conference provided a forum for participants (over 200 professionals and 120 graduate students) to discuss state-of-the-art research and development, and to identify the research needs in this emerging field. Nearly 140 peer-reviewed technical papers are included in the proceedings CD. Selected papers will be published after review/revision in a forthcoming special issue of the *Journal of Heat Transfer*.

Furthermore, an NSF/ONR Workshop on Nano/Microscale Thermal Transport was held on Sunday (March 4) in conjunction with the conference with more than 70 attendees. The goal of the workshop is to identify the achievements to date and the challenges and barriers currently faced by the community in the area of nano/microscale transport centered around three major themes: phonon transport fundamentals, materials challenges in thermal management, and heat transfer in microchannels.

Additional information can be found from the ASME MNHMT2012 website: https://www.asmeconferences.org/MNHMT2012/index.cfm

Workshop presentations and summaries, as well as pertinent plenary/keynote presentations, can be found from the following website: http://www.me.gatech.edu/NSF-ONR-Workshop%202012

G. P. "Bud" Peterson, *General Chair of MNHMT2012*
Zhuomin Zhang, *Program Chair of MNHMT2012*

75th Anniversary of the ASME Heat Transfer Division (HTD) at the 2013 SHTC

By F. A. Kulacki and S. A. Sherif

The Heat Transfer Division (HTD) was founded in 1938. A celebration of the 50th Anniversary of the HTD was held in 1988 in Houston. The ASME Summer Heat Transfer Conference in 2013 will mark the 75th year of the HTD. Celebrations will take place at the Conference which will be held in Minneapolis. The Department of Mechanical Engineering at the University of Minnesota has agreed to be a host with no financial obligations, while the local section of ASME in Minneapolis will be approached to help with the organizational efforts of this historic event. A steering committee has been formed that includes several key members of the Heat Transfer Community in order to put a vision together and execute it for this event. The Committee is being expanded as time progresses towards the 2013 SHTC. We have formed several ad hoc subcommittees to serve the program elements as they are developed over the next several months. The Steering Committee held its first official face-to-face meeting in Honolulu in March 2011 and held additional meetings in Denver at the 2011 IMECE and plans to hold additional meetings in the upcoming IMECE at Houston. We are currently


formulating a program scope and suggested elements/events for discussion with the HTD Executive Committee. Members of the Heat Transfer Community are encouraged to submit their ideas to either Professor Kulacki or Professor Sherif as soon as possible.

F. A. Kulacki
75th Anniversary Steering Committee Chair
University of Minnesota

S. A. Sherif
General Conference Chair
University of Florida

IMECE 2012 Houston, November 9-15, 2012

By S.A. Sherif

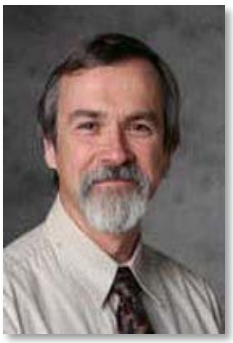
Heat Transfer papers are primarily grouped into three tracks: Track 7, Track 6, and Track 11. In Track 7, more than 1000 abstracts have been submitted. After attrition and removal of abstracts that did not materialize into draft papers, there are a total of

668 presentations. Track 6 is jointly sponsored with the Advanced Energy Systems Division and has papers dealing with energy. Several of the topics in that track deal with fire and combustion related issues. One of the topics in Track 11, is devoted to posters in heat transfer and fluids engineering. Like the rest of the Congress, posters in Track 11 are either presentation only or are associated with written papers. All written papers are subject to two independent reviews before they are accepted or rejected. The overall number of papers in 2012 is a record among past ASME Congresses. Tracks 7 and 11 are co-chaired by both HTD and the Fluids Engineering Division (FED). Professor Francine Battaglia from Virginia Tech represents FED.

S. A. Sherif
Chair of Track 7 & 11, IMECE 2012
University of Florida

Journal editors'message

Journal of Thermal Science and Engineering Applications - Editor: Michael Jensen



The *Journal of Thermal Science and Engineering Applications* focuses on the dissemination of information of permanent interest in applied thermal sciences and engineering and is intended to be complementary to the *Journal of Heat Transfer*, which focuses on fundamental research. Contributions must have clear relevancy to an industry, an industrial process, or a device. While the processes and phenomena discussed may be complex, the results must have a relatively straightforward or feasible path to application. Subject areas could be as narrow as a particular phenomenon or device or as broad as a system. Papers are sought that have long-term relevance to specific applications including: original research of an applied nature; application of thermal sciences to processes or systems; technology reviews; and identification of research needs to solve industrial problems at all time and length scales.

Contributions should describe research in 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. Topical areas include, but are not limited to, applications in: aerospace systems, gas turbines, biotechnology, defense systems, electronic and photonic equipment, energy systems, manufacturing, refrigeration and air conditioning, homeland security systems, micro- and nanoscale devices, petrochemical processing, medical systems, energy efficiency, sustainability, solar systems, and combustion systems. Discussions of problems, issues, or solutions in established industries are welcome; however, the emphasis will be on new and emerging technologies, significant questions, pressing problems and concerns, and new methods and approaches that can be applied to industrial problems.

Journal of Heat Transfer - Editor: Terry Simon

The Journal of Heat Transfer disseminates information of permanent interest in the areas of heat and mass transfer. Contributions may consist of results from fundamental research that apply to thermal energy or mass transfer in all fields of mechanical engineering and related disciplines. The *Journal of Heat Transfer* is complementary to the *Journal of Applied Thermal Science and Engineering Applications*, which focuses on applications.

Journal of Heat Transfer topical areas include, but are not limited to: biological heat and mass transfer; combustion and reactive flows; conduction; electronic and photonic cooling; evaporation, boiling and condensation; experimental techniques; forced convection; heat exchanger fundamentals; heat transfer enhancement; heat and mass transfer; heat transfer in manufacturing; jets, wakes, and impingement cooling; melting and solidification; microscale and nanoscale heat transfer; natural and mixed convection; porous media; radiative heat transfer; thermal systems; and two-phase flow and heat transfer. Such topical areas may be seen in: aerospace; the environment; gas turbines; biotechnology; electronic and photonic equipment; energy systems, fire and combustion, heat pipes, manufacturing and materials processing, low temperature and arctic region heat transfer; refrigeration and air conditioning; homeland security systems; multi-phase processes; and microscale and nanoscale devices and processes. Also, archival results of research which focuses on the evaluation of thermophysical properties associated with heat and mass transfer as well as on the theory of heat and mass transfer are appropriate for the *Journal of Heat Transfer*.

(Special Issues:- Journal of Heat Transfer)

Over the past 12 months, the JHT has published two special issues and two special sections. The first of two special issues was Recent Advances in Heat Transfer (Vol. 134 No. 3) which was edited by Yogesh Jaluria, Jungho Kim, Avram Bar-Cohen and Michael Jensen. The second was Micro/Nanoscale Heat and Mass Transfer (Vol. 134 No. 5), edited by Ping Cheng. The first special section published was Thermal Issues in Emerging Technologies (Vol. 133 No. 6), edited by Yogendra Joshi and Mohamed-Nabil Sabry and the second was Heat Transfer in Nanochannels, Microchannels, and Minnichannels (Vol. 134 No. 2), edited by Satish Kandlikar, Moo-Hwan Kim and Peter Stephan.

Upcoming special issues for the JHT are: Computational Fluid Dynamics, edited by Gerard Jones and Akshai Runchal; Heat and Mass Transfer in Human Biology, edited by Franz-Josef Kahlen; MicroNananoscale Heat and Mass Transfer, edited by Pamela Norris, George P. (Bud) Peterson and Zhuomin Zhang and, finally, Innovations/Advancements in Heat Transfer Enhancement, edited by Michael Jensen, Raj Manglik and T. S. Ravigururajan.

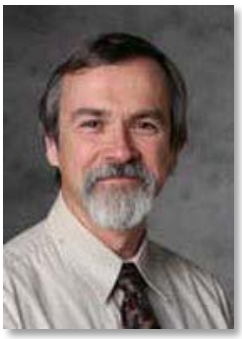
How the Journal of Heat Transfer and Journal of Thermal Science and Engineering Applications Work Together

By Terry Simon and Michael Jensen

The Heat Transfer Division (HTD) now has two archival journals addressing the thermal sciences. The Journal of Heat Transfer (JHT) disseminates information of archival value in the areas of heat and mass transfer. Contributions may consist of results from fundamental research that apply to thermal energy or mass transfer in all fields of mechanical engineering and related disciplines. The Journal of Thermal Science and Engineering Applications (TSEA) focuses on the dissemination of information of archival value in applied thermal sciences and engineering and is intended to be complementary to the Journal of Heat Transfer. The TSEA is two years old and was established by the HTD to address a need expressed by the industrial community within the HTD, as well as to provide a publishing venue for applied research topics that are not appropriate for the JHT.

Both journals use the same approach for handling submitted papers. For a paper submitted to the JHT or TSEA, we first quickly review its core topic, content, and coverage; if it appears that the paper is not of archival value or the content is not appropriate for the journal to which it was sent, we reject it outright or ask one of our Associate Editors to give us their opinion of the paper. If the paper is appropriate for the journal to which the paper was submitted, we send it for review. However, if we deem a paper not appropriate for one of the journals (e.g., a paper that is more fundamental in nature is submitted to the TSEA, or an applied paper is submitted to the JHT), we either transfer the paper to the other journal, or remove/reject the paper and recommend to the author that it be submitted to the other journal. If a paper core topic is not appropriate for either the TSEA or JHT, then we either transfer it to another ASME journal (if appropriate) or remove it and suggest to the author another non-ASME journal for submittal.

Because of the volume of papers submitted to the well-established JHT, it is published monthly; as a new journal just being established, TSEA receives far fewer submissions, so it is published quarterly. However, the acceptance rate for the two journals is similar (between 25-35%). TSEA will soon apply for inclusion in all indexing services (must have three years of publishing to qualify) and to start building an impact factor. We greatly appreciate your continued support of the JHT and TSEA, and we enthusiastically look forward to continuing to provide high quality publication services for the Heat Transfer Division.



(Joint Journal of Heat Transfer and Journal of Thermal Science and Engineering Applications Special Issues:)

By Terry Simon and Michael Jensen

The JHT and the TSEA are offering two cooperative special issues. The first is High Heat Flux of Cooling of Electronics. The JHT editor for this special issue is Sujoy Kumar Saha and the TSEA editor is Mehmet Arik. The second joint special issue is Heat Transfer Fluids Engineering & Nanochannels, Microchannels and Minichannels. The JHT editors for this special issue are Jinkook Lee, Roy Hogan and Sushanta Mitra. The TSEA editor is Arun Muley. Presently, TSEA and JHT are preparing a special issue to be available for the 2013 Summer Heat Transfer Conference, offered in celebration of the 75th year of the Heat Transfer Division. The primary JHT editor is Leslie Phinney and the primary TSEA editor is Srinath Ekkad.

Michael K. Jensen
Editor, Journal of Thermal Science and Engineering Applications
Rensselaer Polytechnic Institute

Terrence W. Simon
Editor, Journal of Heat Transfer
University of Minnesota

HTD Sponsors New ASME Journal in Nanotechnology

By Debjyoti Banerjee

HTD, in partnership with three other divisions of ASME, has recently become a sponsor for the ASME Journal of Nanotechnology in Engineering and Medicine (JNEM). Three associate editors (AEs) have been nominated to the JNEM editorial board on behalf of HTD: Dr. Malissa Sarntinoranont (Email: msarnt@ufl.edu), Dr. Kunal Mitra (kmitra@fit.edu) and Dr. Debjyoti Banerjee (Email: dbanerjee@tamu.edu). Dr. Sarntinoranont and Dr. Banerjee were also nominated to the advisory board of JNEM.

To publicize the change in the scope of JNEM, which now includes topics in thermal fluids sciences, **a special issue on** "***Micro/Nano-Scale Transport Phenomena***" is scheduled to be published (online in September, 2012 and print issue in January 2013). Dr. Banerjee is the editor for the special issue and Dr. Mitra is the associate editor for the special issue. Additional details can be obtained at:

http://files.asme.org/Nano/31182.pdf

Manuscripts are also being invited in multi-disciplinary topics at the interface of thermal-fluid sciences and nanotechnology. Manuscripts are invited in these topics for review and publication in the regular issues of the journal (published quarterly each year). Manuscripts can be submitted online using the ASME Journal tools website. Authors are encouraged to contact these associate editors from HTD as well as other members of the editorial board. Additional details can be obtained at:

http://asmedl.org/NANO/;
http://journaltool.asme.org/Content/Masthead25.cfm;

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Technical Committee News

K-2 Committee on Long Range Directions and Issues in Heat Transfer

By Pamela Norris

Calling all thermal scientists. Have you ever wondered how you can become more involved with the Heat Transfer Division of ASME? As a volunteer organization, ASME is only as strong as its members. We rely on YOU to help maintain the quality of our programs and to help keep the division strong. So, how can you help?

Obviously your participation in the Heat Transfer Division sponsored meetings, such as the Summer Heat Transfer Conference and the IMECE, is important. And your contribution to the ASME heat transfer journals, such as *Journal of Heat Transfer*, *Journal of Thermal Science and Engineering Applications*, as authors and reviewers is important. But how can you be more involved? We are always looking for volunteers to help in developing the technical program, reviewing papers, organizing panels, and charting our future. The best way to become integrated into these activities is by joining one of the 16 technical "K-committees" listed below:

K-6 Heat Transfer in Energy Systems (Tim Fisher, tsfisher@purdue.edu)

K-7 Thermophysical Properties (Heng Ban, heng.ban@usu.edu)

K-8 Theory and Fundamental Research (Leslie Phinney, lmphinn@sandia.gov)

K-10 Heat Transfer Equipment (Yaroslav Chudnovsky, yaroslav.chudnovsky@gastechnology.org)

K-11 Fire and Combustion (Alexander Brown, albrown@sandia.gov)

K-12 Aerospace Heat Transfer (Erol Ulucakli, ulucakli@lafayette.edu)

K-13 Heat Transfer in Multiphase Systems (Ali Siahpush, ali.siahpush@inl.gov)

K-14 Gas Turbine Heat Transfer (Ting Wang, twang@uno.edu)

K-15 Transport Phenomena in Manufacturing and Materials Processing (Yuwen Zhang, zhangyu@missouri.edu)

K-16 Heat Transfer in Electronic Equipment (Gamal Refai-Ahmed, gamal.refai-ahmed@amd.edu)

K-17 Heat and Mass Transfer in Biotechnology Committee and Biotransport Technical Committee (Ram Devireddy, devireddy@me.lsu.edu)

K-18 Heat Transfer Under Extreme Conditions (Zhixiong Guo, guo@jove.rutgers.edu)

K-19 Environmental Heat Transfer (Sandra Boetcher, sandra.boetcher@erau.edu)

K-20 Computational Heat Transfer (N.K. Anand, nkanand@tamu.edu)

K-21 Education (Patrick Hopkins, phopkins@virginia.edu)

K-22 Committee on Visualization of Heat Transfer (Kenneth Kihm, kkihm@utk.edu)

Each of these committees is focused on a topical area, and each committee has its own set of officers. Most of the technical committees hold meetings at both the Summer Heat Transfer Conference and the IMECE, and these meetings are open to attendance by any ASME member and their times and location are advertised in the technical program. If you desire to join a technical committee, attend a committee meeting and talk with the chair of that committee (names and e-mail addresses of current chairs are in parentheses above) about being added to the roster. Joining the committee indicates willingness to contribute to the activities of the committee.

Another important opportunity that we have as members of the division is to nominate our colleagues for honors and awards. A listing of some of the awards (such as the Max Jacob Memorial Award, the Heat Transfer Memorial Award, the Bergles-Rohsenow Young Investigator Award, the James Harry Potter Gold Medal, the Melville Medal, and the Yeram S. Touloukian Award) is available at http://divisions.asme.org/HTD/Honors_Awards.cfm, and we encourage you to consider your role in making sure that deserving colleagues are recognized for their research and service activities. Please also consider supporting

others, and even leading nominations for Fellow status within ASME.

Working together, we can make the division even stronger and of more value to all our members

Pamela Norris
Chair of K-2 Committee on Long Range Direction and Issues in Heat Transfer
University of Virginia

New Formation of K-9 Technical Committee (Nanoscale Thermal Transport)

By Zhoumin Zhang

I am pleased to announce that the proposal to form a new technical committee, K-9 Nanoscale Thermal Transport, was voted on and received unanimous support at the EC Open Meeting July 8, 2012. The initial leadership for the committee is as follows and it is our expectation that the new committee will meet in November at the IMECE.

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K-11 Technical Committee (Fire and Combustion)

By Alexander L. Brown

The K-11 committee on combustion fire and reacting flows organized three special sessions at the 2011 IMECE in Denver. Dr. David Tillman, a retired chief fuels and combustion engineer from Foster-Wheeler, presented a plenary session on the merits of biomass co-firing with coal. His decades of experience were evident in his insightful review of quantitative results from past projects involving industrial biomass combustion demonstrations. The K-11 committee also invited Dr. Robert Brown, distinguished and chaired professor from Iowa State University, who presented a panel session on biomass pyrolysis. Dr. Brown gave a dynamic lecture on his extensive experience with thermochemical conversion of biomass to pyrolysis oils.

Following these two plenary lectures, the two invited speakers were joined by Dr. Mark Nimlos, a manager from the National Bioenergy Center at the National Renewable Energy Laboratory. They engaged the audience in a panel session where they discussed the merits of various biomass thermochemical conversion pathways.

Each event was well attended, and several attendees went out of their way to express very positive compliments about the quality and value of the focused emphasis on biomass technologies presented at the IMECE conference. Thanks to the Heat Transfer Division for supporting this activity.

Alexander L. Brown
Chair of K-11 Committee

K-14 Technical Committee (Gas Turbine Heat Transfer)

By Tim Wang

In March 13-17, K-14 sponsored two sessions (7 papers) in the ASME/JSME Thermal Engineering Joint Conference in Honolulu, Hawaii

In June 11-15, K-14 Committee attended ASME Turbo Expo 2012 in Copenhagen, Denmark. K-14 Committee sponsored seven tracks with a total of 47 sessions. 311 abstracts were received and 204 final papers were presented. Among them 47 papers were recommended for publication in either ASME Journal of Turbomachinery or ASME Journal of Gas Turbine and Power. The committee meeting was held on June 13. Approximately 125 members attended the committee meeting. Three best paper awards were given for papers presented in Turbo Expo 2011 in Vancouver, Canada. After the committee meeting, the highlight of the year – the committee dinner- was enthusiastically attended by approximately 108 members and their spouses.

In July 8-12, K-14 Committee attended ASME Summer Heat Transfer Conference in Puerto

Rico. K-14 Committee sponsored 4 sessions. 34 abstracts were received and 17 final papers were presented. The presentations were judged by a jury for the Warren M. Rohsenow Awards.

The committee is currently organizing three sessions for IMECE 2012. K-14 Committee consists of 142 active members; among them 52 are ASME Fellows. Ray Chupp (GE Energy) has completed his two-year term as Chair in June. The new Chair is Ting Wang (University of New Orleans) and new Vice Chair is Nirm Nirmalan (GE Aviation).

Ting Wang
Chair of K-14 Committee
University of New Orleans

Name change of K-18 Technical Committee

By Zhixiong Guo

The initiative on the K-18 committee name change started in Denver IMECE 2011 has attracted much attention among active members of K-18 committee. The members had near unanimous consensus to change the name of the committee to "**Heat Transfer Under Extreme Conditions .**" Although several good names were proposed, the new name will retain the tradition of K-18 committee on low temperature heat transfer and distinguish itself from other committees; but most importantly, it is more inclusive, extending our broad interests to high temperature, low and high pressure, and harsh environment heat transfer, etc. The EC members casted a unanimous vote in favor the name change in early December 2012 and the new name became effective immediately. The EC reappointed **Dr. Zhixiong Guo** from Rutgers University as K-18 committee Chair for the term 2012 – 2015.

Zhixiong (James) Guo
Chair of
K-18 Technical Committee
Rutgers University

K-21 Heat Transfer Education Committee Sponsoring Undergraduate and Graduate Poster Sessions in Heat Transfer at 2012 IMECE

By Patrick E. Hopkins

K-21 and HTD sponsor two poster sessions at the upcoming IMECE in Houston, TX. These two poster sessions, described below, will be offered annually at IMECE.

1) Dewitt Poster Session for Undergraduate Research in Thermal/Fluid Sciences (11-18): The ASME Heat Transfer Division will sponsor a session highlighting student contributions in the broad area of heat transfer engineering, thermal/fluid sciences and thermal management. The session will consist of poster presentations of research conducted by Undergraduate Students. Topics should deal with a research or design contribution to the general area of heat transfer engineering. Appropriate for this session would be papers describing an analysis of an industrial thermal management problem, analysis of a fundamental heat transfer and fluid phenomena, studies intended to satisfy a particular thermal/fluid design need, or studies used for the optimization of an existing heat transfer process application. Only undergraduate students and recent graduates (within 18 months of the session) are eligible to submit and present posters. The Heat Transfer Division will provide a partial travel reimbursement to the presenter of each paper to defray their conference costs.

2) The Graduate Student Poster Competition in Heat Transfer and Fluid Sciences (7-3): This poster session provides an opportunity for a student author (or coauthors) to present their research alongside other students in the field of heat transfer. The poster can be presented by a student that is already giving an oral presentation in a technical session, or this could be an opportunity for a student coauthor to give a presentation. For example, if an advisor is presenting in a technical session and you are a coauthor, the student is invited to present the same paper in this poster session. The intention of this session is to promote the interaction, collaboration, and socialization of fellow students that are conducting research in the field of Heat Transfer. The criteria for participation in this poster session are as follows: (i) The work presented must be accepted in a technical session at IMECE 2012 (abstract only or full technical paper); and (ii) The poster presenter must have been a graduate or undergraduate student when the work was conducted.

The top three student presenters, as determined by the K-21 Heat Transfer Education Committee, will be recognized for their outstanding posters and research. This is a valuable opportunity to further publicize your research and foster collaboration with other students from institutions around the world in the field of heat transfer.

K-21 Education Committee Open Membership!

The K-21 Education Committee is seeking new members to join ASME's mission in furthering Heat Transfer Education. Our committee is dedicated to further Education in Heat Transfer through ASME by creative opportunities such as unique conference organization, online outreach, industry collaborations, student discussions, and demonstrations and involvement at all levels of Education and Academia.

We are excited for participation from all interested parties in Academia, Industry, and Government. *We encourage Graduate Students to get involved with ASME conference planning and outreach by joining K-21!* Note that there are no committee membership restrictions with K-21, and you can still be an active member of K-21 and another K-committee.

K-21 Contact and Chair:

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New HTD Media Editor

I am also very pleased to announce the appointment of Patrick Hopkins as the new Media Editor for the HTD starting August 2012.

Yong Tao
Media Editor

Coming Chair's Vision

By Dr. Roy E. Hogan
2012-2013 Chair

It is a privilege and honor to serve as the Chair of Heat Transfer Division Chair for the next year. I am optimistic that this year will be an exciting year for the HTD; highlighted by the Summer Heat Transfer Conference, July 14-19, 2013, in Minneapolis MN. A unique aspect of this meeting will be activities celebrating the 75th anniversary of the HTD. Professors Frank Kulacki and SA Sherif are leading the organization of this exceptional event. This meeting will be co-located with the Energy Sustainability and Fuel Cell Conferences. Watch for additional details over the next few months and consider joining us at this conference.

The HTD has a long history as a leader in the heat transfer community. We will continue to support our historical activities while seeking new and better ways to serve our membership and profession. In addition to our technical conferences and journals, we have opportunities to recognize the accomplishments of our colleagues. I encourage each of you to consider nominating your colleagues for HTD and Society awards.We presently have over 3000 members who have selected the HTD as their primary or secondary division of intereste within ASME. Many of these members are active in the technical activities of the HTD; activities include organizing conferences and sessions, serving on division committees, and contributing to our journals as editors, reviewers, and authors. However, the majority of our members are not directly involved in the HTD activities. I believe we have an opportunity to improve our interactions with these members. We welcome suggestions and ideas of how to better serve this segment of our membership. Please feel free to share your suggestions and ideas with any of the Executive Committee Members.

I would like to thank all of the HTD members serving in leadership positions in the HTD and the Society. The technical committees and administrative committees are the heart and soul of our division. It takes the collective contributions from all of us for the HTD to be successful. Your contributions are appreciated and I thank you for your dedicated service to the HTD. Lastly, I thank Professor James Klausner for his exceptional leadership as HTD Chair over the past year.

Sincerely,

Roy E. Hogan

2012-2013 Heat Transfer Division Chair

Program Chair

Photographs from "2011 ASME INTERNATIONAL MECHANICAL ENGINEERING CONGRESS & EXHIBITION"

Photographs from "ASME 2012 3rd Micro/Nanoscale Heat & Mass Transfer International Conference", March 3-6, Atlanta, Georgia

Welcome Address

Plenary Session

Lunch Poster Session

Banquet Address

Best Paper Awards

"Long Time No See"

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PASSING THE TORCH

Dr. Allan D. Kraus

It is hard to describe the incredible sadness that came over me when hearing that Allan had died on Monday, April 16th 2012. I know all too well that the past few years had not been kind to Allan and that Ruth's recent death took away his last best reason for fighting to stay alive. But after nearly 40 years of friendship - with the sometimes judgmental, sometimes celebratory, sometimes "belly-laugh" funny, sometimes paternal, sometimes petty, but always loving Allan – it is hard to imagine professional life without him.

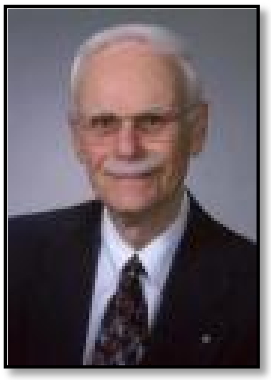
It is remarkable how many of us enjoyed a unique and extended friendship with Allan. These friendships spanned decades of professional and personal interactions and led to remarkable personal achievements, professional breakthroughs, and technological and scientific successes. His passion and commitment to the highest professional standards and integrity, his ability to extract humor from every situation – though often at his own expense - the love he had for students and working engineers, and his boundless energy inspired us all to accomplish more than we could have imagined.

Allan Kraus, or the Coach as he was known fondly in the community, uniquely impacted the field of heat transfer and energy conversion through his research, writings, teaching, and professional society leadership. His contributions in thermal management of electronics span the full spectrum of electronic systems and applications, pre-dating the microelectronic era, underpinning electronic countermeasures during the cold war, and setting the foundation for today's reliance on air-cooled microprocessors. Through his seminal papers and 1965 book, "Cooling Electronic Equipment," Allan is credited with virtually inventing this field and laying the groundwork for both the art and science of thermal packaging. In the mid-1960's he served as a corporate-wide thermal management consultant for all of Honeywell Corporation and initiated his highly acclaimed studies of heat sinks and cold-plate thermal design and optimization. In 1983 I had the honor of seeing our first co-authored book, "Thermal Analysis and Control of Electronic Equipment," published by McGraw Hill/Hemisphere, find ready and widespread acceptance in the electronic community.

Beyond the broad respect that Allan commanded in the engineering community, his accomplishments were also more formally recognized by his peers in ASME and AIChE. He received the American Society of Mechanical Engineers (ASME) Memorial Heat Transfer Award in 1969, the ASME Worcester Reed Warner Medal in 1983, and ASME Honorary Membership – reserved for just 2-3 members each year - in 1986. In 1997 he received the Donald Q. Kern Award from the AIChE society and in 1998 the ASME Edwin F. Church Medal. He also served as an Associate Editor of the Journal of Heat Transfer, and as an Associate Editor of the IEEE CPMT Transactions. Together we taught numerous Short Courses, in the US, Israel, Brazil, China, Japan, and India and he served as an invited Consultant to the United Nations.

Throughout his career Allan Kraus was indefatigable in his efforts on behalf of the profession and fellow engineers. His colleagues, at the University of South Florida and Naval Postgraduate School, recognized him as a truly outstanding teacher, advisor, and mentor to young engineers. In the early 1960's he was a founder of ASME's subcommittee on Heat Transfer in Electrical and Electronic Equipment and later served as the mentor to the newly-formed Electronic and Photonic Packaging Division, awakening hundreds of mechanical engineers to this emerging technology and industry. In the mid-1980's he was elected as ASME Vice-President for Professional Development, overseeing a significant expansion in ASME's offerings of Short Courses. In the mid-1990's Allan Kraus was elected to one of the highest offices in ASME, serving on the Board of Governors. I had no better friend than Allan and will miss his dearly in the years ahead. Yeheye Zichru Baruch…..May his memory be a blessing for all who knew him.

By Avram Bar-Cohen, DARPA



Dr. Ralph Lee Webb, Feb. 22, 1934 – April 3, 2011

Dr. Ralph L. Webb, Professor Emeritus of Mechanical Engineering at the Pennsylvania State University, passed away in State College on Sunday April 3, 2011. He was born to Grace and Kenneth Webb on the family farm in Parker, KS. The family survived the Depression by relocating to Illinois, where Dr. Webb's father worked the oil fields. After graduating with honors from Kansas State University, Dr. Webb served in the U.S. Air Force in Las Vegas. He earned his master's at Rensselaer Polytechnic Institute in New York and doctorate from the University of Minnesota. After 14 years as the Manager of Heat Transfer Research at The Trane Company in La Crosse, WI, Dr. Webb joined Penn State's Mechanical Engineering Department in 1977. He performed pioneering research in the field of enhanced heat transfer, authoring the text "Principles of Enhanced Heat Transfer" and founding the *Journal of Enhanced Heat Transfer*. During his tenure, Dr. Webb guided to graduation 49 master and 17 doctoral students. He was awarded the American Society of Mechanical Engineers Heat Transfer Memorial Award and the Institute of Refrigeration Hall-Thermotank Gold Medal for outstanding career contributions to the field of heat transfer design. As a hobby, Dr. Webb enjoyed repairing antique clocks. He is survived by his wife Sylvia Apple of State College; two daughters, Janet Lee and her husband Seungbi of San Diego, CA, and Laura Tymas and her husband Baron of Durham, NC, and their children, Elias and Jesse. He is also survived by two stepchildren, Scott Atkinson of Springfield, MO, and Amy Copperthwaite of Wilmington, DL.

Professor Webb was a truly unique and talented individual. He is considered, along with Professor Arthur E. Bergles, as one of the two godfathers of the science of enhanced heat transfer. But above all, he was an extremely kind human being who was loved by the many people who had the good fortune of knowing him.

By S.A. Sherif
University of Florida