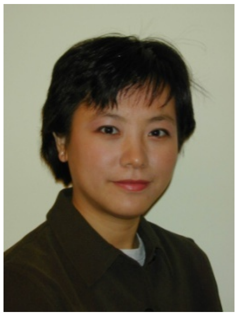
Manufacturing Engineering Division

NEWSLETTER SPRING 2009

EDITOR – Jaime Camelio

Message from the Chair

Dear Fellow Manufacturing Engineering Division (MED) Members:



It has been my great honor and pleasure to serve you as the Division Chair for 2008-2009. Despite the tough economic situation in the last year during which DOW and S&P 500 dropped 46%, our division is strong and steady with 92% of our members staying with our division! The steadiness of our division has been built upon the hard work of many past Chairs and volunteers like you, who have devised initiatives to predict the trend and to adapt to the constantly changing ways of life and business. Those initiatives include the reorganization of technical committees, the establishment of conference chairs, and the founding of our own annual flagship conference - Manufacturing Science and Engineering Conference (MSEC). All aim to provide better values to our members. On behalf of the Division, let me extend thanks to our departing Chair, Michael Molnar, who has been a primary driving force for promoting excellence in member service. I am pleased to report that Mike has recently taken the leadership position as the Chair of the Manufacturing Technology Group to which MED and three other divisions belong.

Active member participation is a key to the growth of a volunteer-based organization. Our executive committee currently consists of Dr. Bin Wei of GE as the Vice-Chair, Dr. Larry Yao of Columbia University as the Program Chair, Dr. Matt Bement of Los Alamos National Laboratory as the Secretary/Treasurer, and Dr. Cedric Xia of Ford as the incoming member. We have a conference call on the first Friday of each month with the chairs and vice chairs from the technical committees, honor committee and conference committee, our web liaison, Dr. Gap Kim, our newsletter editor, Dr. Jaime Camelio, and our ASME staff, Lee Hawkins and Abraham Hassan. If any member has a request or a proposed item to be included at our monthly conference call, please let me know.

I would also like to share one important piece of news with you. ASME has sunset the Textile Engineering Division (TED) and MED has started the work to establish a new technical committee, Textile and Composites Engineering. Members from the previous TED will be automatically rolled into MED. At the era of energy sensitive century, the importance of textile and composites in lightweight applications, energy generation, and smart cloths, cannot be emphasized enough. The objective of this new technical committee is to bring state-of-the-art research and development together with industry best practices to address manufacturing challenges associated with textile and composites. MED has committed special funds and efforts to boost the activities of this new technical committee (TC) to the level of other TCs in the division. Any member who has ideas for stimulating the activities and/or is willing to lead the new TC, please contact me.

The financial account of our division has seen a solid growth in the past year mainly coming from *ASME Journal of Manufacturing Science and Engineering* and from MSEC 2008. The journal has continuously grown to be a dominate publication in the international stage under our editor, Dr. Ehmann of Northwestern University. It addresses new challenges and developments in manufacturing. Ehmann's leadership and the hard work of the associate editors have made this possible. The journal has attracted more than 71% of its submissions from authors outside of the U.S. Similarly, in the last MSEC collocated with ICM&P, 55% of attendees came from more than 20 countries outside of the United States. I am particularly proud that we were able to run a revenue positive conference at a low registration fee while offering a pleasant meeting venue, a conference proceeding, a nice dinner cruise in downtown Chicago, and meals. Our next conference, MSEC 2009, will be hosted by Prof. Yung Shin at Purdue University. Prof. Shin is a well known scholar who is capable of bridging the fundamental research with industrial applications. The technical program will be chaired by two rising stars in our manufacturing community, Prof. Brad Kinsey at the University of New Hampshire, Durham and Prof. Yong Huang of Clemson University. We have received the record high number of abstracts for MSEC 2009. To those who have already submitted papers to MSEC 2009, thank you for your participation. To the rest of MED members, you can still join us at the event through poster submission, panel discussion, or simply attending the conference. You can find detailed reports of the journal, technical committees, MSEC 2008 and MSEC 2009 in this newsletter.

As a community, it is extremely important to honor our colleagues who deserve the highest recognition. The division-level honor is usually a stepping stone for more society-level honors, university honors and memberships in the prestigious academies. The honor awardees will serve as role models and inspire colleagues and future generations in their various roles. Awards administrated by MED are Blackall Machine Tool and Gage Award (usually considered as the Best Journal Paper Award), the M. Eugene Merchant Manufacturing Medal, the William T. Ennor Manufacturing Technology Award, and Student Manufacturing Design Competition. Dr. Ranga Komanduri is leading the effort to establish two new awards, the society-level Milton Shaw award for well established researchers and the division-level Chao and Trigger award for young researchers. Dr. Shounak Athavale of Ford Motor Company will chair our division honor committee in the next fiscal year, while Dr. Robin Stevenson, the current honor committee chair, has recently picked up a new career path which requires more of his attention at this point. We thank Robin for his past service to the division in many important roles.

Finally, I would like to call for all our talents to address the ever-increasing energy challenge. Vattenfall, Europe's fifth largest generator of electricity and the largest producer of heat, has committed to be carbon neutral by 2050. As manufacturing engineers, we have enormous opportunities to make transiting and transformative contributions to energy generation, energy efficiency, energy storage, and energy transportation. We need to work collaboratively among ourselves, with other engineering disciplines, and with chemists, biologists, policy makers, social and environment scientists, etc. The message is clear, Manufacturing Matters!

With my great optimism,

Jian Cao, Ph.D. Fellow of ASME, jcao@northwestesrn.edu

A Successful ASME International Manufacturing Science And Engineering Conference (MSEC) Hosted By Northwestern University, Evanston, Il, Oct. 7-10, 2008

By Jian Cao, Kuniaki Dohda, and Kornel Ehmann - Conference Chairs

The international Manufacturing Science and Engineering Conference (MSEC), is the flagship annual forum sponsored by the Manufacturing Engineering Division (MED) of the American Society of Mechanical Engineers (ASME) to disseminate the most recent results in manufacturing research and development through both technical papers and panel sessions. The 2008 conference at Northwestern University was the 3rd MSEC since its inauguration in 2006. MSEC has been recognized as the premier meeting of our division. This year, it coincided with the 3rd JSME/ASME International Conference on Materials and Processing sponsored by the Japanese Society of Mechanical Engineers Materials and Processing Division. The co-location of these two conferences aimed to stimulate international collaboration and technical exchanges. There were a total of 413 attendees from twenty countries and areas attended this event, of which more than 120 students participated in the technical presentations and/or student manufacturing design competition. We are grateful to the generous sponsorships from Illinois Tool Works Inc., Los Alamos National Laboratory, Cummins Inc., Ford Motor Company, General Electric Company, General Motors Corporation, JTEKT Corporation, Meidoh Company, TechSolve, Toyota Motor Corporation, Chiyoda Montrow Die Manufacturing, Inc. and Sugino Corporation. Conference publications are available at the ASME publication department.

MSEC 2008 Technical Program Report

By Brad Kinsey and John T. Roth - Program Chair

The 2008 Manufacturing Science and Engineering Conference (MSEC) was jointly sponsored and co-located with the 3rd Japanese Society of Mechanical Engineering (JSME)/ASME International Conference on Materials and Processing (ICM&P). This joint conference with JSME expanded the scope of the MSEC conference to areas not typically covered, e.g. polymer, metal, and ceramic matrix composites; coating and thermal spraying; and mechanical characterization and measurement techniques.

A Call for Symposia Proposals was announced in May 2007. The MED Technical Committee (TC) chairs and vice-chairs played a key role in soliciting symposia proposals from the MED membership. There were a total of 41 symposia for the 2008 MSEC/ICM&P. Due to the large number of symposia, Technical Tracks were established to aid in the program organization. The Tracks, Track Chairs, Symposia, and MED Symposium Organizers were:

Track 1: Materials (Hiroshi Asanuma)

- Polymer and Polymer Matrix Composites (Emmanuelle Reynaud)
- Metal and Metal Matrix Composites
- Ceramic, Ceramic Matrix Composites and C/C Composites
- Adhesion and Interfaces
- Multi-functional Materials
- Smart Materials and Structures
- Material Selection, Processing, Reuse and Recycle for Sustainable Manufacturing (Fu Zhao, Hyung-Ju Kim, and Andres Clarens)

Track 2: Processing (Brad Kinsey and Jaime Camelio)

- Plastic Forming of Metals (Richard Onyancha and S. George Luckey)
- Advanced Powder Processing Technique (Anil Srivastava)
- Advanced Welding and Bonding Technology (Yong-Yi Wang)
- Coating and Thermal Spraying (Chris Weyant)
- Environmentally Sustainable Manufacturing Systems (Steve Skerlos and David Dornfeld)
- Model-Based Manufacturing Control (Laine Mears and Jeannie Falcon)
- Semiconductor Materials Manufacturing Processes (ZJ Pei and Anand Tanikella)
- Innovative Cutting Tool Technologies for Modern Machining Challenges (Kevin Chou and Raja Kountanya)
- Emerging and Non-traditional Manufacturing Technologies (Hitomi Yamaguchi Greenslet and Bin Wei)
- Energy Field Manufacturing (Wenwu Zhang and Shuting Lei)

Track 3: Properties and Applications (Prof. Ikuo Ihara)

- Mechanical Characterization and Measurement Techniques
- Intelligent Systems and Robotics for Material Processing and Inspection (Radu Pavel and Robert G. Landers)
- Contact Surface Mechanics, Fracture and Fracture Reliability

- Surface Modification Techniques, Wear and Tribology
- Dynamic Behavior of Materials and Structures
- Advances in Nondestructive Evaluation and Monitoring Techniques (Goutham R. Kirikera)
- Condition-Based and Predictive Maintenance for Manufacturing Equipment and System (Dragan Djurdjanovic, Leandro Barajas, and Haixia Wang)
- Quality Control and Compensation in Multistage Manufacturing Systems (Dragan Djurdjanovic)

Track 4: Micro and Nano Technologies (Prof. Gloria Wiens)

- MEMS and NEMS Applications (Cheng Sun)
- Advances in Mechanical Micromachining (O. Burak Ozdoganlar and Andy Phillip)
- Laser Micromachining Technology and Its Applications (Yung-Chun Lee)
- Miniaturization of Molding Processes for Microfabrication (Donggang Yao and J. Wally Cruz)
- Micro/Mesoscale Manufacturing Challenges in Material Handling (Gloria Wiens, Tim VanRavenswaay, and Xiaoping Yang)
- Development and Applications of Micro Manufacturing Equipment (Shih-Ming Wang and Jong-Kweon Park)
- New Developments in Nanomanufacturing, Nanometrology and Applications (Jack G. Zhou and Theodore Vorburger)
- Ultra-Precision and Micro/Nano Forming of Materials (Gracious Ngaile)

Track 5: Biological Technologies (Prof. Wei Sun)

- Manufacturing Processes for Biomedical Applications: Theory, Applications and Education (Yong Huang, Douglas B. Chrisey, David B. Wallace)
- Advances in Medical Micro/nano Manufacturing and its Applications (Masa P. Rao, Mark J. Jackson, and Emily R. Parker)

A total of 343 papers were received for the conference, and each paper received a minimum of two peer reviews with most receiving three peer reviews or more. Based on the reviews, 317 technical papers were accepted for final presentation and publication (of which 155 were from ASME). These papers were grouped into 76 technical paper sessions with 3, 4, or 5 papers per session.

The symposium organizers nominated ten papers for the Best Paper Award. These ten papers were subjected to another round of reviews and ranking by the symposium organizers and technical program chairs. The recipients of the Best Paper Award were Xavier Brun and Shreyes Melkote for their paper entitled “Modeling and Prediction of the Flow Pressure and Holding Force Generated by a Bernoulli Handling Device”.

The technical program chairs also selected the recipients of the Best Organizer of Symposium and Sessions (BOSS) Award based on the organizational effort, promptness, participation in various program development steps, enthusiasm, and quality of the symposium. The recipients for this award were Wenwu Zhang and Shuting Lei for their organization of the symposium on Energy Field Manufacturing.

In addition to the technical paper presentations, a poster session was included for the first time at MSEC 2008. A total of 40 posters were presented (18 from ASME). Two posters were recognized as the Best Poster at the conference, Said Jahanmir et al. for their poster “Ultra High-Speed Micro-Milling Spindle” and Bethany Woody et al. for their poster “Deformation Machining: A New Hybrid Process”.

The Technical Program Chair for the 2008 MSEC conference was Prof. John Roth from the Penn State University – Erie and Prof. Brad Kinsey from the University of New Hampshire served as the Co-Chair.

Student Manufacturing Design Competition at MSEC 2008

By Y. Lawrence Yao - Student Competition Coordinator

Eight teams were chosen as finalists to compete at the MSEC 2008 held in Northwestern University in October 2008. Each team made a fifteen-minute oral presentation, followed by a three to five minute questions and answers. They were judged by a panel consisting of members from academy and industry. The projects and presentations were judged based on creativity, practicality, manufacturability, analysis integrity and use of A/V aids. David Willens (*photo*) from Worcester Polytechnic Institute won the First Prize based on project “Three Cylindrical Die Forced Thru-Feed Spline Rolling Adaptation” under the supervision of Prof. Yiming (Kevin) Rong. The First Prize carries a cash award of $1,000. The Second Prize, which carries a cash award of $750 was given to a team represented by Christina Laskowski from Rensselaer Polytechnic Institute. The winning project is “Automated Manufacturing of a Rocket Candy Dispenser” (*photo*) supervised by Prof. Daniel Walczyk. Rui Zhou of Northwestern University won the Third Prize for his project on “Experimental Analysis of Die Wear” supervised by Prof. Jian Cao. He received a cash award of $500.

The Student Manufacturing Design Competition was established in 1995 by MED to recognize students for “any design of a system, component or process that can be used to promote the science and practice of manufacturing engineering." The purpose of the competition is to foster interest in manufacturing, provide the manufacturing engineering community with fresh new perspectives on design, and create a forum for students to share their new and innovative ideas.

David Willens – 1st Prize Winner

Rocket Candy Dispenser – 2nd Price

Upcoming Events

Dear Colleagues:

It is our great pleasure to invite you to the 2009 ASME International Manufacturing Science and Engineering Conference (MSEC) to be held in West Lafayette on October 4-7, 2009.

The conference is an annual forum sponsored by the Manufacturing Engineering Division (MED) of the American Society of Mechanical Engineers (ASME) to disseminate the most recent results of manufacturing research and development on a global scale. Since its inauguration in 2006, the MSEC has replaced the participation of MED technical sessions in the International Mechanical Engineering Congress and Exposition (IMECE) and this is the fourth year in this format following the excellent events in previous years. With a different organizational structure than IMECE, the MSEC aims to deliver to our MED membership better value in terms of stronger technical programming, lower registration fees, lower hotel room rates, and fully covered meal and social functions.

Our MSEC Program Committee will put together an excellent technical program and our host institution, Purdue University, has arranged outstanding meeting and function venues to ensure the success of this conference. Please consider registering early to take advantage of the low registration fees and hotel rates. We sincerely hope to see you at this exciting conference in October 2009.

Dr. Yung C. Shin
Organizing Committee Chair
Phone: 765-494-9775
Fax: 765-494-0539
Email: shin@purdue.edu

Dr. John Sullivan
Organizing Committee Co-Chair
Phone: 765-494-1279
Fax: 765-494-1620
Email: sulivan@purdue.edu

Symposia at MSEC 2009 Include:

SYMP-1: Advances in Biomedical Manufacturing
SYMP-2: Bioenergy Manufacturing
SYMP-3: Environmentally Sustainable Manufacturing Processes and Systems
SYMP-4: Advances in Manufacturing Process Planning and Scheduling
SYMP-5: Advances and Technical Challenges in RFID Research and Applications
SYMP-6 Meso/Micro Manufacturing Equipment and Processes for Alternative Energy Devices
SYMP-7: Advances in Modeling, Analysis, and Simulation of Manufacturing Processes
SYMP-8: Advances in Materials Forming
SYMP-9: Advances in Semiconductor Materials Manufacturing
SYMP 10: Laser Based Manufacturing

SYMP-11: Precision Molding Processes
SYMP-12: Advances in Joining Processes
SYMP-13: Smart Machining – Advances in Material Processing and Inspection
SYMP-14: Advances in Nontraditional Manufacturing
SYMP-15: New Developments in Nanofabrication, Nanometrology and Applications
SYMP-16: Process Modeling and Control Techniques for Mechanical Nano/Micro/Meso Manufacturing
SYMP-17: Numerical Modeling and Simulation of Nano/Micro/Meso Manufacturing Processes
SYMP-18: Metrology and Measurement
SYMP-19: Advances in Multistage Manufacturing Systems – Modeling, Analysis and Control
SYMP-20: Energy Field Manufacturing (EFM)
SYMP-21: Manufacturing Research Towards Better Fuel Economy
SYMP-22: High Power Density Surface Treatments
SYMP-23: Advances in Proton Exchange Membrane Fuel Cell (PEMFC) Manufacturing

Important Dates MSEC 2009

- Submission of full manuscript for review: March 30, 2009
- Paper reviews completed: June 15, 2009
- Submission of posters for review: June 15, 2009
- Acceptance notification to all paper authors: July 1, 2009
- Acceptance notification to poster authors: July 1, 2009
- Submission of ASME Copyright Transfer form: July 6, 2009
- Author registration deadline: July 15, 2009
- General pre-registration deadline: August 1, 2009
- Submission of final manuscript: August 1, 2009

Upcoming Events

Annual North American Manufacturing Research Conference

May 19 - 22, 2009

Welcome to NAMRC 37
An International Forum

We are pleased to invite you to the Clemson University International Center for Automotive Research (CU-ICAR) for the 37th Annual North American Manufacturing Research Conference! NAMRC is the premier international forum for academic research and industrial applications in manufacturing. Global academic and industrial leaders in manufacturing attend this conference to interact with each other and advance the field.

In 2009, the long tradition and manufacturing research excellence of NAMRC will be held in South Carolina for the first time. The industry focus for the conference will be the automotive sector, both OEM’s and suppliers. The event will be held at the new home for the Clemson University Automotive Engineering Program, the Campbell Graduate Engineering Center which is a 90,000 square foot facility dedicated to automotive research and education. We are located on the same campus as BMW’s Information Technology Research Campus and Timken’s Technology Center Greenville.

Your participation in this event focusing on cutting edge research in manufacturing is most welcome. All accepted papers will be published in a strictly peer-reviewed volume, the Transactions of NAMRI/SME. Therefore, this forum will offer wide-reaching access and impact to your research.

South Carolina is the heart of a newly emerging high tech international automotive manufacturing and research sector. Within a 100 mile radius one can find numerous automotive OEM and supplier production facilities, engineering units and research operations. A series of workshops, industry panels and industry tours are planned for NAMRC 37 in the Greenville area, providing a unique opportunity to learn how clusters of companies from the Americas, Europe and Asia interact in order to realize collaborative product development and global manufacturing.

The spouse program for NAMRC 37 will provide participants with the opportunity to experience the beauty and culture of the South, complete with our wonderful spring weather. NAMRC 37 at CU-ICAR will be an exciting event advancing the cutting edge of manufacturing research and providing an atmosphere that promotes international collaboration.

We look forward to seeing you in South Carolina.

Regards,

Thomas R. Kurfess
Professor and BMW Chair of Manufacturing
NAMRC 37 Conference Co-Chair
Clemson University
International Center for Automotive Research
Greenville, South Carolina

John C. Ziegert
Professor and Timken Chair of Automotive Design
NAMRC 37 Conference Co-Chair
Clemson University
International Center for Automotive Research
Greenville, South Carolina

ASME First Global Congress on NanoEngineering for Medicine and Biology (NEMB 2010)

February 7-10, 2010, Houston, TX

The ASME 2010 Congress on NanoEngineering for Medicine and Biology (NEMB 2010) focuses on the integration of Engineering Sciences and Nanotechnology to aid in addressing fundamental problems in Biology and Medicine and in developing devices for the early detection, imaging and cure of diseases. The technical program comprises three main thematic areas: (i) NanoEngineering applied to Biomedical Sciences; (ii) Manufacturing and Biomaterials in Medicine; (iii) BioEngineering Sciences.

We invite you to submit papers for presentation and discussion at NEMB 2010. Papers are now being solicited from members of the engineering community, scientists and clinicians involved in the development of new tools and materials in nanomedicine, experts from industry in the field of life sciences and all those investigating the potential of future emerging technologies.

Papers are solicited in the following areas:

Track 1: NanoEngineering for Medical Diagnostics

Track 2: NanoEngineering for Imaging

Track 3: Nanoengineering for Medical Therapeutics

Track 4: Nano-/Micro-fluidics for Medical Diagnostics and Therapeutics

Track 5: NanoEngineering for Regenerative Medicine

Track 6: Manufacturing for Nanomedicine

Track Chairs:
Shaochen Chen - The University of Texas at Austin
Wei Li - University of Washington
Jack Zhou - Drexel University

Track 7: Materials for NanoMedicine

Important Dates:

- Submission of Draft Extended Abstract for Review - July 27, 2009
- Author Paper Review Complete and/or Acceptance Notification - August 31, 2009
- Submission of Final Extended Abstract - December 28, 2009

More information about this new conference may be found at http://www.asmeconferences.org/nemb2010/.

5th International Conference on MicroManufacturing

April 6 – 8, 2010

Madison, Wisconsin, USA

Many fields, including medical, aerospace, military/defense, optics, automotive, consumer products, and communications, have been increasingly demanding miniature devices and components with complex micro-scale features made from a wide selection of materials. Some current applications of miniature parts - with dimensions ranging from a few micrometers to tens of millimeters - include miniature motors and turbines, micro-satellites, implantable medical devices, minimally invasive surgery equipment, micro robots, and miniature molds and dies. It is expected that miniature parts will be increasingly demanded in the future.

The 5th International Conference on MicroManufacturing (ICOMM'10) focuses on the processes, equipment, and systems for fabricating miniature parts with micro-scale features. The conference will be held on **April 6 – 8, 2010 at the University of Wisconsin, Madison, USA.** Information about the past ICOMM conferences can be found at http://manufacturing.northwestern.edu/ICOMM09/.

Papers are sought to address theoretical and applied research issues related to manufacture, assembly, and metrology for components and systems with micro-scale features. Topics may include, but are not limited to, mechanics and dynamics of process behavior at the microscale; the miniaturization of machines and equipment as well as associated issues such as tooling, fixturing, positioning, motion generation, sensors systems, and control; the microfactory paradigm; new concepts and methods for micro-scale metrology; materials handling, joining, and assembly at the micro-scale; multi-scale modeling and simulation; design for micro-scale manufacturing; and materials-related issues at the micro-scale. A broad range of processes will be considered including machining, forming, EDM and ECM, laser-based processing, molding, and others. Papers are also sought that describe interesting applications of both current and emerging micromanufacturing methods and equipment, including those that bridge the nano- and macro- worlds. All papers must be technical in nature and include original work. Copyrights remain with the authors.

We look forward to having you there.

Regards,

Frank Pfefferkorn (UW-Madison) CHAIR, ICOMM 2010
E-mail: pfefferk@engr.wisc.edu Tel: USA + (608) 263-2668

Call for Symposium Proposals

ASME – Manufacturing Engineering Division

2010 ASME International Conference on Manufacturing Science & Engineering (MSEC)

October, 2010 - Erie, PA

Hosted by Penn State - Erie

Proposals for technical symposia, including panel sessions, are being solicited for the 2010 ASME International Conference on Manufacturing Science & Engineering (MSEC) sponsored by the Manufacturing Engineering Division (MED) of the ASME. The conference will be hosted by Purdue University from October, 2010 in Erie, PA (the detailed conference date information will come soon).

Those interested in organizing a technical symposium in their field of interest are urged to contact the relevant MED Technical Committee Chair (or the Program Chair and Co-Chair) for instructions on submitting a proposal. In addition to the traditional symposia topics, the MSEC 2010 organizers are particularly interested in symposia which include the application of scientific knowledge in non-manufacturing fields that have the potential to significantly benefit manufacturing research. The Technical Committee areas of focus and the corresponding contacts are as follows:

- Manufacturing Processes – areas include machining, casting, assembly, forming, welding, polymers, nontraditional processes, electronics manufacturing, and micro/meso-scale processes. Chair: Dr. Santosh Ranganath, Ph: 860-610-7246, rangans@utrc.utc.com (co-Chair: Prof. Zhijian Pei, zpei@ksu.edu)
- Manufacturing Equipment – microfactory, miniature machine tools, micro/nano manufacturing equipment, medical device manufacturing, precision machine tools, sensors, controls, dynamics. Chair: Prof. Burak Ozdoganlar, Ph: 412-268-9890, ozdoganlar@cmu.edu (co-Chair: Prof. Martin B.G. Jun, mbgjun@me.uvic.edu)
- Manufacturing Systems – computer-integrated mfg., fixturing, material handling, process planning, scheduling, management optimization, lean layout. Chair: Prof. Lihui Wang, University of Skövde, Sweden., Ph: 46-500-44-8519, lihui.wang@his.se (co-Chair: Prof. April Bryan, bryan1@rose-hulman.edu)
- Quality and Reliability – metrology, measurement systems, SPC, process monitoring. Chair: Prof. Laine Mears, Clemson University, Ph. 864-283-7229, mears@exchange.clemson.edu (co-Chair: Prof. Dragan Djurdjanovic, dragand@me.utexas.edu)
- Life Cycle Engineering – service, maintenance, waste streams, recycling, sustainability. Chair: Prof. Fu Zhao, Purdue Univ., Ph: 765-494-6637, fzhao@purdue.edu (co-Chair: Prof. Jaime A. Camelio, jcamelio@vt.edu)

- Nano/Micro/Meso Manufacturing – Chair: Prof. Xiaochun Li, University of Wisconsin, Ph. 608-262-6142, xcli@engr.wisc.edu (co-Chairs: Prof. Xin Zhang, xinz@bu.edu and Dr. Xiaoping Yang, Xiaoping.Yang@cummins.com)
- Biomanufacturing – Chair: Prof. Wei Sun, Drexel University, Ph: 215-895-5810, sunwei@drexel.edu (co-Chair: Prof. Wei Li, weiwli@u.washington.edu)

The tentative deadline for receipt of proposals is **June 30, 2009** (see below for other important dates). For more information, please contact any of the above technical committee chairs or the Program Chair: Prof. Yong Huang, Clemson University, Ph: 864-656-5643, yongh@clemson.edu or Program Co-Chair: Prof. Kevin Chou, University of Alabama, Ph: 205-348-0044, kchou@eng.ua.edu. The complete paper submission and review process will utilize the ASME web-based conference toolbox at www.asmeconferences.org/msec10 (which is not yet available).

Important Dates:

- Submission of symposia proposals to TC Chairs: June 30, 2009
- Publication of Call for Papers by symposium organizers: September 15, 2009
- Submission of abstract (optional, but strongly encouraged): February 1, 2010
- Submission of full manuscript for review: March 30, 2010
- Acceptance notification to authors: June 15, 2010
- Submission of ASME Copyright Transfer form: July 15, 2010
- Author Registration Deadline: July 15, 2010
- General Pre-registration Deadline: August 1, 2010
- Submission of final manuscript and Agreement to Present Paper at MSEC 2010: August 15, 2010