NEWSLETTER FALL 2015
https://community.asme.org/manufacturing_engineering_division/default.aspx

Message from the Chair

Submitted by Brian Paul - MED Executive Committee Chair

Dear Fellow Manufacturing Engineering Division (MED) Members,

On behalf of the MED Executive Committee, I am writing to provide you an update on the state-of-the-division. The division continues to grow, remaining strong with over 14,000 members including over 3,200 primary members. This growth is due to the service of dedicated members and volunteers like you that continue to advance the science and practice of manufacturing both nationally and internationally. MED offers many activities and initiatives at the division and society level designed to help meet member needs and encourage growth.

Active member participation is key to sustaining a healthy volunteer-based organization like ASME MED. Our Executive Committee is highly motivated to serve the community. I am joined by Dr. Shawn Moylan (Vice Chair), Dr. Edmund Chu (Program Chair), Professor Kevin Chou (Treasurer) and Dr. Radu Pavel (incoming member). Further, MED is well served by eight active and highly-regarded Technical Committees (TC), many of them having new leadership in the 2015-2016 term:

- **Manufacturing Processes**: Dr. Radu Pavel (chair); Professor Hitomi Yamaguchi Greenslet (vice chair);
- **Manufacturing Equipment**: Professor Johnson Samuel (chair); Professor Mathew Kuttolamadom (vice chair);
- **Manufacturing Systems**: Professor Jing Shi (chair); Professor Qing Chang (vice chair);
- **Quality & Reliability**: Professor Lin Li (chair); Professor Zeyi Sun (vice chair);
- **Life Cycle Engineering**: Professor Barbara Linke (chair); Dr. Moneer Helu (vice chair);
- **Nano/Micro/Meso Manufacturing**: Professor Curtis Taylor (chair); Professor Cheryl Xu (vice chair);
- **Biomanufacturing**: Professor Eda Yildirim-Ayan (chair); Professor Robert Chang (vice chair);
- **Textile & Composites Engineering**: Professor Ronald Bucinell (chair).

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EDITOR – Laine Mears, Clemson University
Professor Laine Mears continues to serve as our Newsletter Editor bringing you this well-conceived Fall 2015 edition. Professor Wenchao Zhou is our new Web and Communications Officer for MED, providing timely updates on matters of interests to our membership at our ASME and Linked-In websites:

https://community.asme.org/manufacturing_engineering_division/default.aspx
https://goo.gl/cc3wmf

Our Division is also supported by two dedicated ASME staff, Ms. Erin Dolan and Mr. Robert Powers. The entire MED Leadership team is here to serve our members. Please feel free to contact us if you have any questions and/or suggestions. Suggestions on how to improve MED operations are always welcome.

Our flagship annual conference, the 2015 International Manufacturing Science and Engineering Conference (MSEC 2015), was held in early June at the University of North Carolina Charlotte (UNCC) in Charlotte, North Carolina. By all accounts, it was a huge success with almost 190 papers being accepted for presentation. The conference was again co-located with the 43rd North American Manufacturing Research Conference (NAMRC43), an arrangement that continues to serve our members by providing opportunities to network with colleagues in the Society of Manufacturing Engineers. In an effort to further strengthen the technical program and grow MSEC participation, the MED Executive Committee took the initiative to sponsor high-profile symposium keynote speakers including Professor Kai Cheng from Brunel University, UK; Professor Dorel Banabic from the Technical University of Cluj, Romania; and Professor Suresh Babu from the University of Tennessee Knoxville. Topics ranged from smart cutting tools to sheet metal forming and metal additive manufacturing. More details can be found in the newsletter below. In addition, the Executive Committee sponsored two panels: one on how to get involved in the National Network for Manufacturing Innovation and one on the State-of-the-Art Challenges and Research Needs to Further Additive Manufacturing. We hope to continue facilitating gatherings of this type at future conferences.

A conference of this magnitude and stature does not happen without considerable effort from a crowd of selfless individuals. Thanks go out to the many symposium organizers, session chairs and manuscript reviewers who made the 2015 conference a success. Special thanks are extended to our hosts, Professors John Ziegert (Conference Chair), Tony Schmitz, Scott Smith and Brigid Mullany at UNCC for their exemplary efforts to welcome us all to Charlotte. Additional thanks go to our technical program chair and co-chair, Professors Gracious Ngaile and Frank Pfefferkorn, for the outstanding technical lineup at MSEC 2015.

Our next conference, MSEC 2016, will once again be collocated with NAMRC, this time in late June. The conference will be hosted by Professor Jaime Camelio at Virginia Tech in Blacksburg, Virginia. The technical program will be chaired by Professor Frank Pfefferkorn and co-chaired by Professor Johnson Samuel. MSEC 2016 is expected to be an extraordinary event with balanced university research and industrial insights from experts across the globe. Manuscripts are due December 1 at the ASME conference website through one of 35 different symposia. To provide venues for disseminating impacts being made through the National Network for Manufacturing Innovation, new symposia have been added to explore “Advanced Manufacturing Research Implementation” and “Manufacturing Education, Workforce Development, and Outreach.” Other opportunities exist for participating in the conference including sponsoring a student team to compete in the Student Manufacturing Design Competition. Details can be found under the “honors and awards” section of the ASME MED website. Other ways to experience the conference included attending the variety of sessions, discussion panels, invited speakers, the Early Career Forum or visiting the industrial exhibitions. Professors Pfefferkorn and Samuel are putting together a wonderful program for us all. More detail can be found on the conference website and in the last section of this newsletter.

As the premier organization for disseminating manufacturing research in the US, MED has two technical journals: the ASME Journal of Manufacturing Science and Engineering (JMSE), edited by Professor Lawrence Yao of Columbia University, and the ASME Journal of Micro- and Nano-Manufacturing (JMNM), edited by Professor Jian Cao of
Northwestern University. Both of these editors show strong commitment to publishing excellent research findings within our journals. Thanks are extended to Professors Cao and Yao and all of the Associate Editors for their dedicated service and hard work on behalf of the MED community.

As a community of scholars and volunteers, it is extremely important to honor our distinguished colleagues. Awardees serve as role models, inspiring their peers and future generations to aim toward excellence. Awards administrated by MED include the Outstanding Service Award, Blackall Machine Tool and Gage Award, the William T. Ennor Manufacturing Technology Award, the Chao and Trigger Young Manufacturing Researcher Award, the Milton C. Shaw Manufacturing Medal, and the M. Eugene Merchant Manufacturing Medal of ASME/SME. In 2016, MED hopes to establish a new award, the Ehmann Medal, to annually recognize authors of the best paper published in the ASME Journal of Micro- and Nano-Manufacturing. Please submit nominations for any of the awards to the respective committee chairs. Contact information can be found at the MED awards website:

https://community.asme.org/manufacturing_engineering_division/w/wiki/3659.honors-awards.aspx

In pursuit of excellence, we are exploring new ideas to serve our members. We will continue to sponsor high-profile speakers selected by our technical committees. We are working to identify teams of colleagues to help write state-of-the-art papers to advance the knowledge of our community in certain emerging areas of manufacturing technology. We continue to look for opportunities to invite researchers within the burgeoning National Network for Manufacturing Innovation to use MSEC as its venue for disseminating scholarly work. In an effort to continually improve, we train our Technical Committees chairs in how to help symposium organizers understand their roles and responsibilities. We are working to use social media (Linked In) to expand communications and facilitate more networking and connection among members. The Executive Committee and the entire Leadership team are interested in hearing new ideas from you on how we can better serve the MED community as a whole!

I wish all of you the very best in the coming year.

Brian K. Paul, MED Chair (2015-2016)
Oregon State University
brian.paul@oregonstate.edu

10th ASME International Manufacturing Science and Engineering Conference
Hosted by University of North Carolina - Charlotte, June 8-12, 2015.
Technical Program Report

Submitted by Gracious Ngaile and Frank Pfefferkorn - Program Chairs

The 10th ASME International Manufacturing Science and Engineering Conference (MSEC 2015), sponsored by the Manufacturing Engineering Division (MED) of ASME, was jointly held with the 43rd North American Manufacturing Research Conference (NAMRC43), sponsored by the North American Manufacturing Research Institute of SME (NAMRI/SME), collocated and hosted by University of North Carolina at Charlotte from June 9-June 12, 2015 in Charlotte, North Carolina. As leading world-class societies in the Mechanical and Manufacturing Engineering fields, ASME and SME act as global bridges between industries, government and academic institutions.

MSEC 2015 received 216 draft papers. After the peer review process, 187 papers were accepted for presentation in 68 sessions. The conference featured 23 Technical Symposia in 5 Technical Tracks: Materials, Processing, Biomanufacturing, Properties, Applications and Systems, and Sustainable Manufacturing. In addition, 19 posters were accepted for publication in the proceedings and 47 NSF student posters were accepted for presentation at the conference.
The joint conferences hosted keynotes from world-renowned scientists in several areas, including: smart cutting tools for high precision smart machining, Plastic Anisotropy and Forming Limits in Sheet Metal Forming, Additive Manufacturing, Precision Engineering and Metrology, and Cyber-Physical Manufacturing Systems. In addition to the keynotes, expert panel discussions were provided in the areas of Additive Manufacturing, Manufacturing Education and Workforce Development, Future Federal Support for Manufacturing Research, and Working with the National Network for Manufacturing Innovation Institutes.

The MSEC 2015 keynote on Development of Smart Cutting Tools for High Precision Smart Machining was presented by Prof. Kai Cheng from Brunel University, UK. His presentation featured innovative design concepts, particularly the development of a number of smart tooling devices such as a force-based smart cutting tool, a temperature-based internally-cooled smart cutting tool, smart collet and smart diamond cutting tool as required for precision and micro manufacturing purposes.

The MSEC 2015 keynote on Plastic Anisotropy and Forming Limits in Sheet Metal Forming was given by Prof. Dorel Banabic from Technical University of Cluj Napoca, Romania. This presentation covered new phenomenological yield criteria developed in the last decade, which are able to describe the anisotropic response of sheet metals, as well as new models and experiments used to predict and determine the forming limit curves.

The MSEC 2015 keynote on Opportunities and Challenges of Metal Additive Manufacturing was presented by Prof. Suresh Babu from the University of Tennessee, Knoxville, TN. This presentation discussed the needed interdisciplinary science and technology ranging from robotics and automation, process control, multi-scale in-situ and ex-situ characterization methodologies, and high-performance computational tools to address these challenges. Specific focus on understanding and controlling physical processes pertaining to powder/wire/tape, powder sintering, adsorption and dissolution of gases, and microstructure evolution under extreme thermal gradients were discussed. Emerging pathways to scale up metal additive manufacturing were also presented.

The MSEC 2015 Panel on State-of-the-Art Challenges and Research Needs to Further Additive Manufacturing was organized by Prof. Kevin Chou of the University of Alabama, Dr. Shaw Moylan of NIST, and Prof. Ihab Ragai of Penn State - Erie. The purpose of this panel was to provide a forum for conference participants to engage in a discussion about the research priorities of future AM technologies that demonstrate significant potential for revolutionary, rapid design-to-product cycles for high-value, complex-shape, and mass-customizing manufactures. Panelists gave perspectives from Industry (Bryan Dods, GE Power & Water; Rajeev Kulkarni, 3D Systems), Federal government (Rob Ivester, US Department of Energy; Shawn Moylan, National Institute of Standards and Technology, and Academia (Suresh Babu, University of Tennessee at Knoxville; Yong Chen, University of Southern California). Over 50 participants attended.

The MSEC 2015 Panel on How to Get Involved in the National Network for Manufacturing Innovation was organized by Prof. Brian Paul of Oregon State University. The purpose of this panel was to provide a forum for conference participants to engage in a discussion about how university faculty can interact with and participate in the Manufacturing Innovation Institutes (MIIs) under the National Network for Manufacturing Innovation (NNMI). Panelists included:

- Dean Bartles, Executive Director, Digital Manufacturing and Design Innovation Institute
- Ralph Resnick, Founding Director, America Makes and President & Executive Director, NCDMM
- Janis Terpenny, Joseph Walkup Professor and Department Chair, Industrial and Manufacturing Systems Engineering, Iowa State University
- Steve Schmid, Professor of Aerospace and Mechanical Engineering, University of Notre Dame

Perspectives were shared on how to get involved including specific examples of how academic researchers have benefited in terms of research and education.
The symposium organizers nominated 18 papers for the Best Paper Award. The 18 papers were reviewed and ranked by symposium organizers, technical program chairs and MED executive committee. Awards were as follows:

Authors: Jinkyoo Park, Raunak Bhinge, Nishant Biswas, Amrita Srinivasa, Kincho Law, David Dornfeld, Moneer Helu, Sudarsan Rachuri

Authors: Lai Yu Leo Tse, Kira Barton

3rd place: MSEC2015-9262: Analysis of Weld Formation in Multilayer Ultrasonic Metal Welding Using High Speed Images
Authors: S. Shawn Lee, Tae Hyung Kim, S. Jack Hu, Wayne Cai, Jeffrey A. Abel

The Program Chair and Co-Chair selected the recipient of the Best symposium and Session Organizer (BOSS) Award; the candidates were nominated by the technical program chairs. The recipients of this award were Prof. Malik Arif and Dr. Zhichao (Charlie) Li, for their symposium entitled “Advances in Modeling, Analysis, and Simulation of Manufacturing Processes.” The symposium organizers played key roles in constructing high-quality technical sessions and drawing a large number of papers.

The Civil, Mechanical and Manufacturing Innovation (CMMI) Division of the National Science Foundation supported student conference participation. Students studying in US institutions who were planning to attend the MSEC2015/NAMRC43 applied for this opportunity. A total of 90 students were supported.

The conference program is the result of the outstanding efforts of many people. We would like to thank all the authors for their technical paper and poster submissions. We also express our gratitude to all the organizers for their dedicated management of the tracks and symposia, as well as for ensuring the quality of the papers and posters presented. In addition, we would also like to thank the host Organizing Committee, the Conference Coordinating Committee, the NAMRI/SME Scientific Committee, and the ASME MED Executive and Technical Committees. Our thanks also go to the ASME staff for their outstanding job in presenting conference information on the Internet, managing the submitted technical papers and posters, and ensuring high-quality publication of the conference proceedings for MSEC2015.

Student Manufacturing Design Competition at MSEC 2015

Submitted by Edmund Chu - Student Competition Coordinator

The 2015 Student Manufacturing Design Competition, jointly sponsored by ASME MED and NAMRI/SME, took place during the 2015 MSEC/NAMRC which was held at the University of North Carolina in Charlotte, NC. Each of the six finalists was represented by at least one team member who attended the conference. Teams received travel assistance from MED and/or the National Science Foundation. The top three awardees were:

- First place: Michael Streitwieser representing the University of Texas at Dallas for “Electronic Package Automated Lid Placement”
- Second place: Deokkyun Yoon representing the University of Michigan for “Magnet Assisted Precision Scanning Stage”
- Third place: James Novak representing Rensselaer Polytechnic Institute for “Desktop Basketball Game”
Awardees were granted cash prizes of $1000, $750, and $500, respectively. All participants were well-prepared and presented projects of high quality, demonstrating results with a high potential for impact in industry. However, I was unable to attend the event due to work-related constraints and am grateful to Professor Steven Schmid of Notre Dame University who ran the event in my absence. He was supported by two additional judges: Professor Kevin Chou of the University of Alabama, and Professor Jyhwen Wang of Texas A & M University. The event went extremely well and the MED Executive Committee is looking forward to yet more high-quality participants in the 2016 event.

Early Career Forum at MSEC 2015

Submitted by Ihab Ragai - Organizing Committee Chair

The Early Career Forum (ECF) was held during the joint conference of the 10th ASME International Manufacturing Science and Engineering Conference (MSEC 2015) and the 43rd North American Manufacturing Research Conference (NAMRC43) at the University of North Carolina at Charlotte, Charlotte, NC on June 11, 2015. The event attracted 115 participants who interacted closely with a talented panel representing industry, academia, and governmental career paths. Sponsorship came primarily from the National Science Foundation.

The objective of the Early Career Forum was to educate students engaged in scientific programs around manufacturing and early-career manufacturing engineers and scientists on the possible career paths available to them, and details of feasible expectations for activities and future opportunities when following a given career path. This objective was addressed through a small-scale networking event where manufacturing students and young engineers were introduced to a panel of mid-career professionals and placed in an environment of local discussion.

This was the sixth ECF tied to the co-located conferences. A big thanks to the 11 talented panelists for their time:

- **Dr. Kavit Antani**, BMW Manufacturing
- **Mr. Bryan Dods**, GE Power and Water
- **Dr. George Hazelrigg**, National Science Foundation
- **Dr. Moneer Helu**, National Institute of Standards and Technology
- **Dr. Zhichao (Charlie) Li**, Dante Solutions
- **Prof. Barbara Linke**, University of California, Davis
- **Prof. Arif Malik**, Saint Louis University
- **Prof. Laine Mears**, Clemson University
- **Dr. Shawn Moylan**, National Institute of Standards and Technology
- **Prof. John Roth**, Penn State University, Erie
- **Prof. Lihui Wang**, KTH Royal Institute of Technology, Sweden

The forum consisted of a brief spoken introduction by each panelist, followed by small-group discussions and question sessions as participants moved to different panelist tables. The informal nature of the session facilitated some meaningful discussions, and participants came away with powerful personal information for their future. The committee would like to thank all who participated, and would also like to express gratitude to the staff at UNCC for their help and cooperation.
The Journal is on solid ground and gaining each year. Our annual submission rate has increased so much that we will publish monthly in 2016 (rather than bi-monthly). To align with this increase, our page allotment per year was increased (from 1200 to 1400) to accommodate an increase in the number of papers that can be published per issue: from 180-200 pages in 2014 to about 220 in 2015.

Despite our confidence in this strong showing, we continue to focus on streamlining our review process without sacrificing quality. Not only do we want to serve our submitting authors fairly—we want to improve journal metrics, such as impact factor. Accordingly, we brainstormed with our AEs and are implementing some new initiatives to improve our system: (1) When authors submit, we invite them to send us their suggestions for up to four appropriate institutionally or organizationally based reviewers, which can make it easier for our AEs to find good reviewers and has helped to shorten the time papers that spend in the overall review process; (2) we published a number of special issues on topics of great interest (see below). We are encouraged by the level of interest and the responses we have received, and are gratified that our impact factor for 2014 was over 1.000 for the first time since impact factors were calculated; this increase represents a faster improvement than we had anticipated.

Time spent in review, the number of submissions, and impact factor are inter-connected, as the graphs below illustrate: Authors are encouraged to submit when their papers are published relatively quickly, so submissions increase, and timely publication of an increased number of papers leads to a higher rate of citations. NOTE: The number of submissions for year 2015 shown in the graph below is only as of September 1.
We also plan to draw readers to JMSE through the publication of several robust and timely special issues. We completed two this year—one on Advances and Challenges in Cloud Manufacturing (August 2015 issue), and one on the Forming and Joining of Lightweight and Multi-material Systems (October 2015 issue)—and we have two more in the pipeline for 2016. We wish to thank our Guest Editors, Lihui Wang, KTH Royal Institute of Technology, Sweden; and Xun Xu, University of Auckland, New Zealand, for handling submissions to the issue on Cloud Manufacturing in an expert and timely manner. Likewise, we thank Guest Editors Yannis Korkolis of the University of New Hampshire, Jingjing Li of the University of Hawaii, Edmund W. Chu of the Alcoa Technical Center, and Blair Carlson of General Motors Global R&D for their superb handling of the submissions for the issue on Lightweight Materials.

In 2016, we anticipate two interesting and robust special issues, and gratefully acknowledge the willingness of our Guest Editors to contribute so generously of their valuable time. The first of these, Innovations in Materials Forming Processes, will be published in September 2016, and submissions are due by November 15. The second, Sustainable Manufacturing, will comprise our October 2016 issue, and submissions are due by December 1.

Our current Editorial Board consists of 18 members, including the TE. We want to thank three AEs, whose terms are expiring, for their fine service to JMSE: Robert Gao, Case Western Reserve University; Brad Kinsey, University of New Hampshire; and Patrick Kwon, Michigan State University. We were also very pleased to be able to renew the terms of the following AEs as we move forward: Yuebin Guo, University of Alabama; and Donggang Yao, Georgia Institute of Technology; and are excited to welcome three new AEs: Laine Mears, Clemson University; Yannis Korkolis, University of New Hampshire; and Daniel Walczyk, Rensselaer Polytechnic Institute.

On behalf of the Editorial Board, I would like to thank the authors and reviewers for their continued support of JMSE, and thank the MED Executive Committee for its guidance and support. I also invite and strongly encourage you to participate in the process of strengthening the Journal by sending me your thoughts and ideas for improving JMSE and our service to the community: yly1@columbia.edu, 212-854-2887.

**ASME Journal of Micro and Nano-manufacturing (JMNM)**

Submitted by Jian Cao - Editor

Now in its third year of publication, the ASME Journal of Micro- and Nano-Manufacturing (JMNM) continues to offer high-quality publications within the ASME journal series. I am grateful for the hard work and support of our colleagues within the ASME community who have helped us build and maintain the solid foundation on which this publication assuredly grows.

The Journal of Micro- and Nano-Manufacturing provides a forum for the rapid dissemination of original theoretical and applied research in the areas of micro- and nano-manufacturing. It offers special coverage of research relating to process innovation, accuracy and precision, throughput enhancement, material utilization, compact equipment development, environmental and life-cycle analysis and predictive modeling of manufacturing processes with features sizes less than one hundred micrometers.
On average, we receive 79 papers annually, and aim to exceed that number this year with increasing quality submissions. We have continued to improve our Submission-to-Acceptance rate from 8 months within a year 1 to 3.9 months so far this year, a 51% decrease. We have actually cut the time for all of our process stages, including the Time in Review, which we have reduced by 67% from 4.3 months in year 1 to just 1.4 months or 42 days this year. We attribute this gained efficiency to well-maintained and managed review progression that allows for the same rigorous and quality review process in the shortest time frame possible.

This year we have welcomed high-quality ICOMM and IMECE papers to submit extended versions of their top-rated work to our Journal. In July alone, we received 17 submissions. As a result, we have enlisted the help of Guest Editors Dr. Martin Jun of the University of Victoria, Dr. Gracious Ngaile of North Carolina State University, and Dr. Gloria J. Wiens, of the University of Florida, to assist us in editing these submissions. I am pleased with the support they have provided thus far and look forward to these publications in our coming issues.

The past year has seen the departure of two Editorial Board members, Dr. Liwei Lin from the University of California Berkeley and Dr. Brad Nelson from ETH Zurich. Having worked with us from the beginning of this publication, their work was fundamental to the success of JMNM and I am certainly appreciative for their support. I am also proud to work with a team of international experts on the JMNM Editorial Board who provide expertise and conduct the peer-review process for our full-length research papers and technical briefs.

On behalf of the Editorial Board, I would like to thank the authors and reviewers for their continued support of JMNM. Particularly, we would like to express our sincere gratitude to our journal assistant Mrs. Maegen Gregory, for her extraordinary organization skills and her continued dedication to JMNM. We look forward to continuing our work within and beyond the ASME community in creating a platform for scholars and experts from across the globe to educate and discover.

Please submit your manuscripts to JMNM at http://journaltool.asme.org

**Honors Committee Reports**

Every year ASME bestows a number of awards on our most outstanding colleagues for their efforts to move various aspects of the manufacturing field forward. It is important that these individuals be recognized for their tremendous contributions. Please consider nominating a deserving colleague for one for the ASME administrated by MED including the Blackall Machine Tool and Gage Award, the William T. Ennor Manufacturing Technology Award, the Chao and Trigger Young Manufacturing Engineer Award, the Milton C. Shaw Manufacturing Medal, the M. Eugene 3 Merchant Manufacturing Medal of ASME/SME and the Ehmann Medal. See https://www.asme.org/about-asme/get-involved/honors-awards for further information on these awards and their nomination process.
Blackall Machine Tool and Gage Award

Submitted by David Dornfeld - Committee Chair

The Blackall Machine Tool and Gage Award is presented for the best current original paper or papers (not published elsewhere) which has/have been presented before ASME and/or published by ASME during the two calendar years immediately preceding the year of the award. The paper(s) should be clearly concerned with or related to the design or application of machine tools, gages, or dimensional measuring instruments that have been submitted to ASME for presentation and publication.

The Blackall award process has been extended for 2015, with deadlines for the award extended as follows, to allow more time and preparation of a complete nomination package if the paper nominated meets our criteria:

Nomination Deadline (Blackall): **December 15** (this requires that the nominator has completed the nomination package, including references and additional assessment of the impact and significance of the nominated paper.

Nominations should be sent To: Blackall Machine Tool and Gage Award Committee Chair Prof. D. Dornfeld, 510-643-7013, dornfeld@berkeley.edu

William T. Ennor Manufacturing Technology Award

Submitted by David Dornfeld - Committee Chair

The William T. Ennor Manufacturing Technology Award is presented to an individual or team of individuals for developing or contributing significantly to an innovative manufacturing technology, the implementation of which has resulted in substantial economic and/or societal benefits.

The Ennor awardee for 2015 is Professor Elijah Kannatey-Asibu, Jr., of the University of Michigan, recognized for his contributions in the field of multi-sensor monitoring of manufacturing processes, specifically machining, welding, and laser processing, especially multiple-beam laser processing.

Chao and Trigger Young Manufacturing Engineer Award

Submitted by Shounak Athavale - Committee Chair

The award recognizes a young manufacturing researcher under 40 with potential for significant fundamental contributions to the science and technology of manufacturing processes.

The Chao and Trigger awardee for 2015 is Professor Seok Kim of the University of Illinois, chosen for his contributions to biomimetic design to develop synthetic surfaces with various functionalities including adhesion, wettability, and optical properties. Congratulations to Prof. Kim!
M. Eugene Merchant Manufacturing Medal of ASME/SME

Submitted by Jian Cao - Committee Chair

On behalf of the members of the M. Eugene Merchant Medal of ASME/SME award selection committee, it is our great pleasure to announce this year’s awardee: Dr. David A. Dornfeld of the University of California at Berkeley, for his outstanding contributions to manufacturing research, and its implementation in industry, through pioneering development of life cycle analysis tools to quantify the environmental impacts of the manufacturing supply chain, and for leadership in US research in sustainable manufacturing.

The M. Eugene Merchant Manufacturing Medal of ASME/SME is awarded to an individual who has had significant influence and responsibility for improving the productivity and efficiency (either by research or by implementation of research) of the manufacturing operation(s). This award was established in 1986 in honor of M. Eugene Merchant.

The selection committee consists of three immediate past recipients, the ASME/MED Vice Chair, ASME VP MTG, three members-at-large, the SME President, and the committee Chair. Congratulations to Dr. David Dornfeld for receiving this prestigious award!

Milton C. Shaw Manufacturing Research Medal

Submitted by Shounak Athavale - Committee Chair

Milton C. Shaw Manufacturing Research Medal was established in 2009; however the medal was awarded for the first time in 2011. The award recognizes significant fundamental contributions to the science and technology of manufacturing processes. Nominations are due to the Honors Committee by February 1, and are considered for five calendar years, beginning the first year of consideration. Nominations can be revised each year; forms and rules are available on the ASME web site.

The 2015 Milton C. Shaw Manufacturing Medal Committee this year recognizes the fundamental contributions of Prof. Y. Lawrence Yao of Columbia University in advancing manufacturing science and engineering, as evidenced by his research in a wide variety of areas of laser materials processing. Congratulations to Professor Yao on receiving this award.

Past recipients of this award are: Prof. Hoshi (2011), Prof. Ehmann (2012), Prof. Jawahir (2013), and Prof. Shih (2014).

Nomination Deadline for All Awards above:

February 1 annually. Please visit the ASME MED awards website for details:

https://community.asme.org/manufacturing_engineering_division/w/wiki/3659.honors-awards.aspx
Upcoming Events

11th ASME International Manufacturing Science and Engineering Conference

Submitted by Jaime Camelio, Frank Pfefferkorn, and Johnson Samuel - Conference and Program Chairs

Our next conference, MSEC 2016, will be hosted June 27, 2016 – July 1, 2016 by Virginia Polytechnic Institute and State University in Blacksburg, VA.

Virginia Tech website: http://www.cpe.vt.edu/2016namrc-msec/
ASME website: https://www.asme.org/events/msec
ASME submission webtool: http://www.asmeconferences.org/MSEC2016/Author/NewAbstract.cfm

Publication Schedule

This is the overall publication schedule for MSEC2016. For specific details and questions regarding these dates, please contact the appropriate volunteer organizer.


You must submit your abstract and full-length paper at the same time. ONLY engineers/researchers from industry may submit an abstract for Presentation Only. Poster abstracts must be submitted at this time.


Abstracts Available Online: February 18, 2016

Electronic Copyright Form Submission Process Opens: February 15, 2016

Electronic Copyright transfer forms are requested upon acceptance of the draft or revised draft and prior to the submittal of the final paper.


Submission of Posters for Review: March 4, 2016

Author Notification of Acceptance of Revised Paper/Posters: March 18, 2016

Abstracts removed for papers that are rejected or withdrawn.

Submission of Copyright Form: March 28, 2016

Electronic Copyright transfer forms are requested upon acceptance of the draft or revised draft and prior to the submittal of the final paper.

Submission of Final Paper: March 31, 2016

In accordance with ASME final paper requirements. Publication in the conference proceedings is not guaranteed if materials are received after this date.

Author Registration Deadline: April 25, 2016

A presenter must be identified for each presentation. The presenter of each paper, poster, or presentation only will be required to pay the author registration by this date. For more information about this requirement please visit the Mandatory Presenter Registration page.
**Technical Program**

**Tracks (7)**

Track 1: Materials (2 symposia)
Track 2: Processing (14 symposia)
Track 3: Biomanufacturing (2 symposia)
Track 4: Properties, Applications and Systems (11 symposia)
Track 5: Sustainable Manufacturing (3 symposia)
Track 6: Posters
Track 7: National Manufacturing Initiatives (2 symposia jointly run with NAMRC)

**Symposia (34)**

**Track 1: Materials**
- Advances in Experiments and Modeling of Micromechanics and Microstructure Evolution in Manufacturing Processes
- Advances in Manufacturing of Smart Material Systems

**Track 2: Processing**
- Advances in Energy Field Manufacturing Processes
- Advances in Assisted / Augmented Manufacturing Processes
- Advances and Challenges in Joining and Assembly Processes
- Advances in Solid-State Manufacturing Processes
- Abrasive Machining
- Innovations in Materials Forming Processes
- Scalable Nanomanufacturing Processes
- Advances in Modeling, Analysis, and Simulation of Manufacturing Processes
- Process Characterization for Sustainable Manufacturing
- Machining of Advanced Composite and Ceramic Materials
- Advances in Processing of Polymers and Polymer-Based Composites
- Processes and Materials for 3D Printed Smart Polymers
- Advancing the State of the Art in Additive Manufacturing and 3D Printing
- Advances in Composites Manufacturing Processes

**Track 3: Biomanufacturing**
- Advances in Analysis, Design, and Manufacturing of Biomedical Devices
- Advances in Additive Biomanufacturing of Tissues and Multiscale Engineered Tissue Constructs
- Innovations in Equipment Design, Tooling, and Control/Automation to Enhance Manufacturing Processes
Track 4: Properties, Applications and Systems

- Innovations in Equipment Design, Tooling, and Control/Automation to Enhance Manufacturing Processes
- Process-Machine-Interactions (PMI) in Advanced Manufacturing
- Advances in Cyber Physical Systems, Stochastic Modeling and Sensor Networks in Advanced Manufacturing
- Advances in Data Infrastructures for Manufacturing Operations Planning and Control
- Advances in Sustainable Design-Centered Remanufacturing
- Cloud Manufacturing - an Industrial Perspective
- Competitive Manufacturing Engineering (CME)
- High Performance Computing and Data Analytics in Manufacturing
- Engineering Analytics and Data Science for Advanced Manufacturing System Informatics and Sustainability
- Quality Assurance in Additive Manufacturing: Integrated Sensing, Modeling and Control
- Intelligent Maintenance Decision Making for Manufacturing Systems

Track 5: Sustainable Manufacturing

- Advances in Data Observation through System-of-Systems Integration Across the Product Lifecycle
- Advances in Energy Efficient and Carbon-Neutral Manufacturing
- Advances in Sustainable Manufacturing Processes and Systems

Track 7: National Manufacturing Initiatives

- Advanced Manufacturing Research Implementation
- Manufacturing Education, Workforce Development, and Outreach
Virginia Tech welcomes you to join us for the 44th SME North American Manufacturing Research Conference (NAMRC44) and ASME’s 11th Manufacturing Science and Engineering Conference (MSEC2016). This conference is the premier international forum for fundamental and applied research and industrial applications in manufacturing.

For more information about the conference please visit
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