

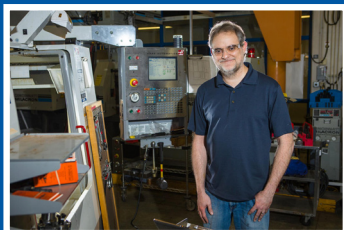
Announcements

6th International Forum on Sustainable Manufacturing, September 24-25, 2015

The 6th ISM International Forum on Sustainable Manufacturing will be held at the University of Kentucky on September 24-25, 2015. More information about this Forum can be found at: <http://www.ism.uky.edu/events/2015-international-forum-on-sustainable-manufacturing/2015-forum-speakers/>

Sustainable Manufacturing Workshop for Aerospace Industry, October 20-21, 2015

As part of the recently funded NIST-PRISM project, the second industry-led workshop will be held on Sustainable manufacturing for Aerospace Industry on October 20-21, 2015 at GE Aviation, Cincinnati, OH. More information about this invitees-only workshop can be found at our ISM website. Stay tuned.



In Loving Memory of Charles Arvin

We are sad to pass along that Charles Arvin, Lab Manager in the Institute for Sustainable Manufacturing and a 2014 Staff Excellence Award winner, passed away on June 17. He was treasured by many people inside and outside the college and his warm smile and dedication will be missed.



About the Institute for Sustainable Manufacturing

Details about our new projects, lab facilities, books, recent publications, patents, and more can be found on our website!

Contact Us

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Journals

International Journal of Sustainable Manufacturing
www.inderscience.com/ijsm

Journal of Machining Science and Technology
www.tandfonline.com/toc/lmst20/current

ISM Faculty



F. Badurdeen Y. T. Cheng L. Holloway I. S. Jawahir W. Li D. Sekulic Y. Zhang

Get Your Masters in Manufacturing Systems Engineering from the University of Kentucky Entirely Online



An advanced degree in manufacturing from an institution world renowned for its manufacturing expertise can provide you the technical knowledge and capabilities necessary to succeed in your career!

There is still time to apply for Fall 2015. No GRE score required! For more information:

- Visit www.engr.uky.edu/mfs.
- Contact Professor Fazleena Badurdeen, Director of Graduate Studies for Manufacturing Systems Engineering Program at badurdeen@uky.edu.
- Contact Graduate Program Coordinator at 859.218.0611 or manufacturing@uky.edu.

Sustainable Manufacturing

Products, Processes, and Systems

Volume 2, Issue 1

Institute for Sustainable Manufacturing Newsletter

Spring 2015

A Message from the Director



In April 2015, the Institute for Sustainable Manufacturing (ISM) began its third year of operations. We continue to make significant progress with our overall mission of conducting academic research (basic and applied), offering educational programs by developing and delivering courses, and providing outreach to industry. Our focus in sustainable manufacturing has been on products, processes and systems. During the last two years, we have exceeded our expectations in research productivity with increased funding, research publications, graduate student productivity and industry outreach activities.

Here are some highlights of recent achievements in the first half of 2015:

- As a part of the recently funded NIST-AMTech project, organized and hosted a sustainable manufacturing workshop for automotive industry at the National Center

for Manufacturing Sciences (NCMS) in Ann Arbor, MI in April 2015.

- Continued to offer courses for the online Masters Degree Program in Manufacturing Systems Engineering, focusing on sustainable manufacturing.
- Continued to expand our international collaboration with researchers from Australia, Brazil, China, Finland, France, Germany, Italy, Lebanon, Malaysia, Norway, Slovenia, Turkey and United Kingdom.
- Collaborated with the American Institute for Chemical Engineers (AIChE) in organizing and hosting of the 4th International Congress on Sustainability Science and Engineering (ICOSSE 2015) in Balatonfüred, Hungary in May 2015.
- Collaborated with Karlsruhe Institute of Technology (KIT) in organizing and hosting the 15th CIRP Conference on Modeling of Machining Operations in Karlsruhe, Germany in June 2015.

I. S. Jawahir, Director, ISM

PRISM: A New NIST-Funded ISM Project Dedicated to Developing Research Consortia in Sustainable Manufacturing

PRISM is the Partnership for Research and Innovation in Sustainable Manufacturing. It is an emerging alliance of industry, government, and academia with the goal of defining and executing a pragmatic, business-driven agenda

for achieving and maintaining sustainable manufacturing. The PRISM project is funded by the National Institute of Standard and Technology (NIST) Advanced Manufacturing Technology Consortia (AMTech) program.

Project Objectives

- Develop multi-partner consortia to create technology infrastructure and promote US excellence in sustainable manufacturing.
- Identify and priority research projects supporting long-term strategic industrial needs in sustainable manufacturing.
- Develop shared-vision roadmaps for technologies that enable transformational innovations for next-generation manufacturing.

Project Team

University of Kentucky
I.S. Jawahir (PI)
Badurdeen (Co-PI)
K.E. Rouch (Co-PI)
W. Li (Co-PI)
C. Smith (Project Manager)
B. Hogan (Graduate Student)

Richard Neal
Integrated Manufacturing Technology Initiative



Tom Goldsby
Gold 1 Enterprise



Manish Mehta
National Center for Manufacturing Sciences



Industry Partners and Collaborator



Sustainable Manufacturing Workshop for Automotive Industry, NCMS, Ann Arbor, MI, April 20-21, 2015

ISM, in conjunction with the National Center for Manufacturing Sciences (NCMS) organized and hosted a two-day workshop on sustainable manufacturing for automotive industry on April 20-21, 2015.

- 33 participants, including several top decision makers in the automotive industry, attended the workshop. The total number of participants, including attendees from the University of Kentucky and NCMS exceeded 40.
- The agenda for this first workshop included three keynote presentations from three major automotive companies (Ford, General Motors and Toyota), followed by a panel discussion.

- Three parallel breakout sessions:
 - * Energy and Resource Efficiency in Manufacturing
 - * Advanced Metals, Renewable and Lightweight Materials for Automotive Manufacturing
 - * Product Design for Sustainability and Life Cycle Cost Modeling, including End-of-life Options
- Workshop identified four project areas for industry–university collaboration:
 - * Design Guidelines for Sustainable Manufacturing
 - * Global Best Practices for End-of-Life Management
 - * Intelligent Manufacturing Framework for Automotive Sustainable Manufacturing
 - * Triple Bottom Line Cost Analysis Process Development



A breakout session.



Panel Discussion with Richard Neal (IMTI), Amanda Kurzman (GM), Kevin Butt (Toyota) and Matthew Zaluzec (Ford).

Awards and Honors



Professor YuMing Zhang, ISM faculty, was elected to the 2015 Class of Society of Manufacturing Engineers (SME) College of Fellows. Since 1986, the SME College of Fellows has honored those members who have made outstanding contributions to the social, technological and educational aspects of the manufacturing profession. This is a highly prestigious honor. There are only about 275 such SME Fellows worldwide. Two other ISM Faculty, Emeritus Professor Alan Male and Professor I.S. Jawahir are also among these SME Fellows, elected in 1992 and 2010, respectively.



PI: Fazleena Badurdeen, Co-PI: Jeffrey Seay
Award: Value Creation through Sustainable Manufacturing; September 24 and 25, 2015; Lexington, KY; Amount: \$20,000
Sponsor: National Science Foundation
Duration 07/01/2015 to 06/30/2016



Dr. Yukang Liu, a former student who finished his PhD in Electrical Engineering under the direction of Professor YuMing Zhang, won the 2015 competition for the Henry Granjon Prize, Category D, from the International Institute of Welding (IIW). Dr. Liu is the fourth student of Professor YuMing Zhang to win this competition. The previous student winners are: Dr. Kehai Liu (2008, Category A), Dr. Yi Huang (2012, Category A), and Dr. Weijie Zhang (2013 Category D).



In April 2015, Professor I.S. Jawahir, ISM Director, received the University of Kentucky 2015 Dean's Award for Excellence in Research in the College of Engineering.



Adam Brown received the Cincinnati Roundtable of the Council of Supply Chain Management Professionals (CSCMP) 2015 student scholarship award, which entitles him to an expenses paid trip to the CSCMP National Conference in San Diego that is being held September 26-30, 2015.



Professor Dusan Sekulic presented a keynote lecture, titled Modeling in Brazing: Theoretical vs. Experimental Paradigms at the International Brazing and Soldering Conference, June 10, 2014 in Beijing, China. Professor Sekulic also served as editor of the Handbook of Heat Exchanger Design, 5 Volumes, Begell House, New York, 2015.

International Collaboration

Dr. Jawahir Delivered Invited Research Lectures in the United Kingdom and Turkey

ISM Director, Dr. Jawahir traveled to United Kingdom twice, in February and March 2015 under the sponsorship of the Royal Academy of Engineering (RAE) as a Distinguished Visiting Fellow and gave a series of research lectures on topics ranging from surface integrity in manufacturing processes and sustainable material processing technologies including cryogenic processing of materials in three universities: University of Birmingham, University of Nottingham, University of Sheffield; two industry –university research centers: Manufacturing Technology Center (MTC) in Coventry; Advanced Manufacturing Research Center (AMRC) in Sheffield; and two major manufacturing companies: Rolls-Royce, Darby; and Yamazaki Mazak–European HQ,



Professor Jawahir's lectures at Marmara University (Istanbul, Turkey).

Worcester. He also established new research collaboration with researchers from the University of Birmingham.

Dr. Jawahir also traveled to Turkey in May 2015 under the Turkish government sponsorship by TÜBİTAK Foundation, and visited two universities: Marmara University (Istanbul) and Atilim University (Ankara) and presented research seminars on sustainable manufacturing covering product, process and system level innovation focusing on product design for sustainability and sustainable machining. In Turkey, he also visited two major manufacturing companies: GE Aviation–Marmara Technology Center (Istanbul); and Kale Automation (Istanbul) and gave research seminars on cryogenic processing of aerospace materials.

Karlsruhe Institute of Technology and University of Kentucky Jointly Offer a Course in Global Energy Issues

Professor Larry Holloway, ISM Faculty and the Chair of Electrical and Computer Engineering, and our former Dean, Professor Emeritus Thomas Lester, are actively engaged in teaching a course for KIT and UK students in Karlsruhe, Germany this summer.



L. Holloway T. Lester

This course is EGR 240 Global Energy Issues. This is the third year that this course is being taught in Germany by our faculty. As part of the course, the students and faculty also visit different energy-oriented sites in Germany to gain practical knowledge.

Karlsruhe Institute of Technology and University of Kentucky Strengthen Collaboration with the Recent International Conference

As a part of the ongoing research collaboration between University of Kentucky (Lexington, KY, USA) and Karlsruhe Institute of Technology (Karlsruhe, Germany), 15th CIRP Conference on Modeling of Machining Operations was organized and hosted by the collaborating researchers under the leadership of Professor Volker Schulze in Karlsruhe, Germany on June 11-12, 2015. Professor V. Schulze and Professor I.S. Jawahir served as Co-chairs for this major international conference, which was attended by over 150 participants from 22 countries, with over 95 technical papers being presented. Professor I.S. Jawahir, who was the founder of this conference series in 1998, with the very first conference organized and held in Atlanta, GA, USA, was honored at this conference for his continued contributions to this conference series and for his most recent commitment to sustainable manufacturing. More information about this conference can be found at the conference website: <http://www.cirp-cmmo2015.com>. The next conference in this series will be held in Cluny, France in June 2017.



(Left) Professor I.S. Jawahir is honored as the Founder of the conference series by Professor Volker Schulze.



(Below) Conference participants at the opening session.