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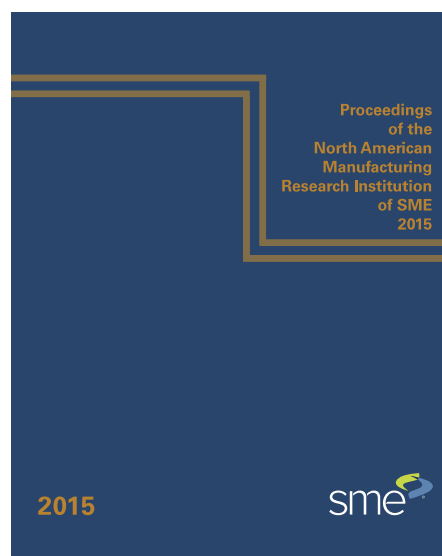


Preface



NAMRC is recognized as North America's preeminent and longest running international forum for applied research and industrial applications in manufacturing and design, with its presentations and publication of original basic and applied research in advanced manufacturing.

The renaissance of manufacturing research globally is reflected in the quality and quantity of the 109 research papers presented at the 43rd North American Manufacturing Research Conference (NAMRC) held in Charlotte, North Carolina. The Scientific Committee of the North American Manufacturing Research Institution of SME (NAMRI/SME) has been reorganized and is aligned to lead the manufacturing research community's publications.



NAMRI/SME has changed its publishing program to Elsevier's *Procedia Manufacturing*, an open access venue for publication of manufacturing conference proceedings. A number of top NAMRC papers traditionally are fast-tracked to SME's *Journal of Manufacturing Systems* (JMS) and *Journal of Manufacturing Processes* (JMP), also published by Elsevier. The change to *Procedia Manufacturing* not only broadens the access and dissemination of NAMRC papers but also streamlines their fast-tracking to JMS and JMP for journal publication. In 2015, in close collaboration with Professors Neil Duffie (JMS editor) and Shiv Kapoor (JMP editor), we will fast-track eight and 19 papers to JMS and JMP, respectively.

The NAMRI Scientific Committee has been reorganized to include Associate Chairs, who handle the paper review, and a track system. We have 21 colleagues who serve as Associate Chairs in five tracks. Many of the Scientific Committee members also serve as Associate Editors of JMS or JMP to assist the fast-tracking process.

Track 1 Manufacturing SystemsJames Kong^{*}, Laine Mears^{*}, Shihming Wang^{*}, Jeonghan Ko^{*}**Track 2 Manufacturing Processes**Wayne Cai^{**}, Gary Cheng^{**}, Gap Kim^{**}, Sathyan Subbiah^{**},
Tony Schmitz, Y.B. Guo, Brad Kinsey, Changshen Guo, Yong Huang**Track 3 Additive Manufacturing**Meisam Salahshoor (lead), Yong Huang, Ming Leu, Wayne King,
Ola Harrysson, James Yang**Track 4 Cyber-Physical Systems in Manufacturing**Lihui Wang^{*}**Track 5 Hocken Honorary Symposium**

John Ziegert, Scott Smith

^{*} Associate Editor of JMS^{**} Associate Editor of JMP

We greatly appreciate the contributions of all Associate Chairs.

The track system enables the creation of symposia dedicated to topical areas (e.g., Additive Manufacturing - Track 3 and Cyber-Physical Systems in Manufacturing - Track 4) or to honor a manufacturing leader (e.g., the Hocken Honorary Symposium - Track 5 to honor Professor Robert Hocken).

In 2016, we plan to create two new tracks in:

- **Manufacturing Education and Workforce** (co-leaders Dean Bartles, Bryan Dods, and Hitomi Yamaguchi)
- **Manufacturing Research Implementation** (co-leaders John Agapiou and David Stephenson)

We welcome your ideas and leadership to create new tracks for NAMRC 2016.

The NAMRC Best Paper Award has been transformed to the NAMRC Outstanding Paper Awards in Manufacturing Systems and Manufacturing Processes. In Tracks 1, 4, and 5, two outstanding paper awards in *manufacturing systems* will be selected. Similarly, six outstanding paper awards in *manufacturing processes* will be selected in Tracks 2 and 3. The separation of outstanding paper awards for manufacturing systems and manufacturing processes and the increase in the number of awards reflects the need for recognition in these two diverse manufacturing areas and increase in the number of NAMRC paper submissions.

Engaging manufacturing researchers who recently received their doctoral degrees is important for NAMRC. The Scientific Committee of NAMRI/SME has established a Young Reviewers Panel for outstanding reviewers who have received their PhD in the past five years. In 2015, 43 panelists were recommended by the Associate Chairs. The following are members of the **43rd NAMRC Young Reviewers Panel**:

Ronald Aman
Rochester Institute of Technology

Imran Bhamji
University of Manchester

Vadim Bromberg
GE Global Research

Roland Chen
University of Michigan

Changqing Cheng
University of South Florida

Fatos Derguti
University of Sheffield

Vimal Dhokia
University of Bath

Alaa Elwany
Texas A&M University

Haijun Gong
University of Louisville

Neil Hodge
*Lawrence Livermore
National Laboratory*

Timothy Horn
North Carolina State University

Saad A. Khairallah
*Lawrence Livermore
National Laboratory*

Mathew Kuttolamadom
Texas A&M University

Vincent Lee
*National Institute of Standards
and Technology*

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Western New England University

Junjie Ma
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North Carolina State University

Ajay Sidpara
*Indian Institute of Technology
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Saint Gobain Research India, Chennai

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and State University*

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Amanda S. Wu
*Lawrence Livermore
National Laboratory*

Dazhong Wu
Iowa State University

Zhenhua Wu
Virginia State University

Li Yang
University of Louisville

Lang Yuan
GE Global Research

This is an outstanding group of young manufacturing researchers who will be the future leaders of our research community.

Changes are often difficult and require patience and understanding. We acknowledge the advice received from John Ziegert (past chair of the NAMRI/SME Scientific Committee) and the support of the NAMRI/SME Board of Directors, the leaders of SME, SME staff Mark Stratton and Ellen Kehoe, and JMS and JMP editors Neil Duffie and Shiv Kapoor. We particularly recognize the professional support of Dr. Gaia Lupo of Elsevier. Looking ahead, we are excited about the future of manufacturing research and its potential impact to transform our society.

May 1, 2015

Albert J. Shih
*University of Michigan
NAMRI/SME Scientific Committee
Chair*

Lihui Wang
*KTH Royal Institute of Technology
NAMRI/SME Scientific Committee
Chair-Elect*

NAMRC and NAMRI

The North American Manufacturing Research Conference (NAMRC) is the flagship event of the North American Manufacturing Research Institution of SME (NAMRI/SME)—the premier international forum where academic and industrial leaders in manufacturing interact with each other and advance the field. The distinctive feature of NAMRC is the presentation and critical discussion of research on technical innovations and new methods and applications of leading-edge technology from around the world.

NAMRC was organized in 1973 by a group of researchers interested in discussing and disseminating research results in the field of manufacturing. For its first few years, the event was known as the North American Metalworking Research Conference, but the word “manufacturing” soon began to be used to recognize the expanding base of research. From its inception in 1973 until 1981, NAMRC was facilitated through its Scientific Committee. In 1982, NAMRC became an affiliated organization of the Society of Manufacturing Engineers (SME) and became known as NAMRI/SME.

NAMRI/SME brings together researchers from leading companies, government laboratories, academic institutions, and industrial think tanks located around the world for the purpose of advancing the scientific foundation of discrete-parts manufacturing. This group’s work covers refining fundamental technologies and developing emerging technologies and processes for material removal and material forming, as well as research on manufacturing modeling, simulation, monitoring, and control systems.

A bound volume of papers presented at NAMRC was been produced, under the titles *Proceedings* and *Transactions*, from 1973 to 2010 to serve as a permanent record of the research ideas and results presented and discussed at the annual conference. Beginning in 2011, the *Proceedings of NAMRI/SME* was published in CD format only, and in 2015 Elsevier’s *Procedia Manufacturing* becomes the publishing venue for the *Proceedings of NAMRI/SME*.

At NAMRC, many important scientific and technological milestones have been set by renowned researchers. The NAMRI/SME proceedings in *Procedia Manufacturing* continues the archival record that has faithfully documented the tremendous evolution of manufacturing science and technology in the recent decades.

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