2022 AWARDS PROGRAM

June 27-July 1, 2022
Purdue University, West Lafayette, Indiana
2021-22

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Manufacturing Systems — General Submission
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Members: Grace Guo, Yuqian Lu, Paol Parenti, Dazhong Wu,* Thorsten Wuest

Track 2
Manufacturing Processes — General Submission
Track Chair: Stefania Bruschi
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Members: Brad Kinsey, Yannis Korkolis, Scott Wagner, Dinakar Sagapuram, Rohan Shirwaiker, Benxin Wu^*

Track 3
Material Removal
Track Chair: Jeff Ma^*
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Members: Shuting Lei, Barbara Linke, Brigid Mullany, Chandra Nath, Christopher Saldana, Tony Schmitz, Iqbal Shareef, Zhongde Shi

Track 4
Additive Manufacturing
Track Chair: Jingyan Dong^*
Track Co-Chairs: Murali Sundaram,* Bruce L. Tai
Members: Allison Beese, Bruno Azeredo, Yong Chen, Tsz Ho Kwok, Yayue Pan, Changxue Xu, Jun Yin, Fiona Zhao

Track 5
Smart Manufacturing — Processes, Systems and Integration
Track Chair: Robert Gao
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Members: Qing "Cindy" Chang, Xu Chen, Zhaoyan Fan, David Hoelzle, Shaopeng Liu, Sandipan Mishra, Hantang Qin, Chenhui Shao, Rok Vrabić, Peng Wang, Xi "Vincent" Wang,* Gloria Wiens

Track 6
Industrial Applications and Manufacturing Education
Track Chair: Brian Paul
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**Editor in Chief of Journal of Manufacturing Letters
* Associate Editor of Journal of Manufacturing Systems
^ Associate Editor of Journal of Manufacturing Processes
The NAMRC 50 Outstanding Paper Award recognizes both the engineering value and industrial relevance of publications presented at NAMRC. The 2022 winners were selected representing the top-three papers.

Outstanding Paper in Manufacturing Systems:

**NAMRC-75**

“Toward Smart Manufacturing: Analysis and Classification of Cutting Parameters and Energy Consumption Patterns in Turning Processes”

Ihab Ragai, Abdallah Abdallah, Hussein Abdeltawab, Feng Qian and Jeff Ma

Outstanding Papers in Manufacturing Processes:

**NAMRC-50**

“Data-driven prediction of next-layer melt pool temperatures in laser powder bed fusion based on co-axial high-resolution Planck thermometry measurements”

Dominik Kozjek, Fred Carter, Conor Porter, Jon-Erik Mogonye, Kornel Ehmann and Jian Cao

**NAMRC-55**

“A control strategy for incremental profile forming”

Ryo Nakahata, Satyanarayana Seetharaman, Krishnaswamy Srinivasan and Erman Tekkaya

Best Reviewers

Sekhar Rakurty, PhD
The M. K. Morse Co.

Ping Ren
North Carolina State University
Jay Lee, PhD, FSME
University of Cincinnati
Cincinnati

Summary
Jay Lee, PhD, FSME, has frequently contributed high-impact research works to SME’s NAMRC conferences and technical journals for publication. The four selected NAMRC papers are listed below. In the 2003 NAMRC paper, Lee and his collaborators proposed a novel algorithm for generic process/machine performance assessment based on merged multiple sensor readings. This algorithm is built on the extraction of generic signal features and generic methods of signature matching, and thus the methodology is application-independent and can be applied in a wide range of applications. The concept was quickly adopted in many applications by researchers in the U.S., Japan, Spain, New Zealand and China. In the three NAMRC papers published in 2019 and 2020, Lee and his collaborators developed advanced machine learning techniques such as deep learning and domain adaptation for prognostics and diagnosis in industrial applications.

NAMRC Paper Citations


“Enhancing intelligent cross-domain fault diagnosis performance on rotating machines with noisy health labels,” Procedia Manufacturing 2020, 48, 940-946
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Arizona State University
Tempe, Arizona

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Virginia Tech  
Blacksburg, Virginia

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2022 Outstanding Lifetime Service Award

Thomas R. Kurfess, PhD, FSME, NAE, PE
Professor and HUSCO/Ramirez Distinguished Chair in Fluid Power and Motion Control
Georgia Tech
Executive Director
Georgia Tech Manufacturing Institute
Atlanta

Thomas R. Kurfess currently serves as the HUSCO/Ramirez distinguished chair in fluid power and motion control and professor of Mechanical Engineering at Georgia Tech. He was recently selected as the new executive director of the Georgia Tech Manufacturing Institute. Kurfess first joined the faculty at Georgia Tech in 1994, and has taken on a variety of special assignments in addition to his teaching and research. Kurfess’ research focuses on the design and development of advanced manufacturing systems targeting secure digital manufacturing, additive and subtractive processes, and large-scale production enterprises. He is a member of the National Academy of Engineering and is a fellow of the American Association for the Advancement of Science, ASME and SME. He was president of SME in 2018, and currently serves on the Board of Governors of ASME. During 2019-21, Kurfess was on leave serving as the chief manufacturing officer at Oak Ridge National Laboratory where he was responsible for strategic planning for ORNL in advanced manufacturing. Kurfess was also the founding director for the Manufacturing Science Division at ORNL. He served as the assistant director for advanced manufacturing at the Office of Science and Technology Policy in the executive office of the President of the United States of America from 2012-13, where he was responsible for coordinating federal advanced manufacturing research and development.
On the 50th anniversary of NAMRI – A time to reflect
NAMRI | SME Founders Lecture, June 2022

Abstract
In 1973, a group of eminent manufacturing engineering professionals, known today as the Founders, organized the first North American Metalworking Research Conference (NAMRC). Seven years later, the name changed to North American Manufacturing Research Conference, and in 1982, an institution known as the North American Manufacturing Research Institution (NAMRI) with a formal elected membership was formed. Today, as we commemorate 50 years of its continuing successful existence, we will take the opportunity to recall our past: the achievements, milestones reached and lessons learned. It will also be a time to reflect on the challenges that we face today and how we can better contribute to a sustainable future.

Kornel F. Ehmann, PhD, FSME
2004-05 NAMRI | SME President
Northwestern University
Evanston, Illinois

Shiv G. Kapoor, PhD, FSME
2003 NAMRI | SME President
University of Illinois at Urbana-Champaign
Champaign, Illinois
Journal Recognitions

SME would like to recognize the following individuals for their service, diligence and oversight in reviewing and editing the submissions for its three peer-reviewed journals.

Manufacturing Letters

Editor-in-Chief
Laine Mears, PhD, FSME
Clemson University
Clemson, South Carolina

2021 Manufacturing Letters
Outstanding Editor
Horacio Ahuett Garza, PhD
Tecnológico de Monterrey
Monterrey, Mexico

2021 Manufacturing Letters
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Kush Mehta, PhD
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Journal of Manufacturing Processes

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2021 Journal of Manufacturing Processes
Area Editors
YuMing Zhang, PhD
Welding/Joining/Additive Manufacturing

Shiv G. Kapoor, PhD, FSME
Advanced Manufacturing Processes and Automation

2021 Journal of Manufacturing Processes
Outstanding Associate Editor
Martin Jun, PhD
Purdue University
West Lafayette, Indiana

2021 Journal of Manufacturing Processes
Outstanding Reviewers
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Journal of Manufacturing Systems
Best Paper Award

The Journal of Manufacturing Systems (JMS) Best Paper Award is awarded annually to the JMS paper published within the past seven years that has received the highest number of citations, as measured in Scopus within the past five years.

Award Criteria

Qualification Period
One Best Paper is awarded each year to a JMS paper published in the past seven years.

Citation-Based
The impact of a paper is measured based on the number of citations in Scopus in the past five years. The Journal of Manufacturing Systems Best Paper goes to the paper with the highest number of citations.

Exclusion Rule
No paper shall receive this award more than once.

Award Type
Certificate.

Announcement
In June of each calendar year at NAMRC, in person or by email.

2020 Award Winner

Lihui Wang, Martin Törngren, Mauro Onori
“Current Status and Advancement of Cyber-Physical Systems in Manufacturing”
Journal of Manufacturing Systems
Volume 37, Part 2, October 2015, Pages 517-527

2021 Award Winner

Jinjiang Wang, Yulin Ma, Laibin Zhang, Robert X. Gao, and Dazhong Wu
“Deep Learning for Smart Manufacturing: Methods and Applications”
Journal of Manufacturing Systems
Volume 48, Part C, July 2018, Pages 144-156
As part of the annual North American Manufacturing Research Conference (NAMRC), a Student Research Presentation Award is presented in recognition of students’ contributions to NAMRC. Encouraging young talents to pursue a career in manufacturing research is of vital importance to the long-term goals of the manufacturing community.

Paul Paradise, Daniel Bruce, Anushree Saxena, Samuel Temes, Ryan Clark, Cameron Noe, Mark Benedict, Thomas Broderick and Dhruv Bhate

Four Rs Framework for the Development of a Digital Twin: The Implementation of Representation with a FDM Manufacturing Machine
John Osho, Anna Hyre, Minas Pantelidakis, Allison Ledford, Gregory Harris, Jia Liu and Konstantinos Mykoniatis

Stamping Colors with Solid-State Superionic Stamping (S4)
Boqiang Qian, Papia Sultana, Placid Ferreira, Glennys Mensing and Pingju Chen

Study of Surface Wettability on Fused Silica by Ultrafast Laser-induced Micro/Nano-Surface Structures
Kewei Li, Nathaniel Myers, Grant Bishop and Xin Zhao

Modulation-assisted machining of compacted graphite iron with coated carbide tool in dry condition
Juan Sandoval, Aaqib Ali, Patrick Kwon and Yang Guo

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Finalists

The Next Generation in Additive Manufacturing
Gaurav Nilakantan, The Boeing Co.

Federated Smart Manufacturing
Ashif Iquebal and Michel Kinsey, Arizona State University

“Unreal” Factories in the Meta-Verse
Binil Starly, North Carolina State University

Exorcising Ghosts from Manufacturing Machines: Fabrication-at-Scale with Self-Assembly and Emergence
M. Ravi Shankar, University of Pittsburgh

Discertory: The Medium to High Volume, Automated, Reverse-Manufacturing Factory
Sathyan Subbiah, Indian Institute of Technology Madras

Semiconductor Foundry in a Box: Additive Manufacturing of Nanoelectronics
Ahmed Busnaina, Ahmed Abdelaziz and Anthony Childress, Northeastern University

Additive Manufacturing of Neutron-Absorbent, Totimorphic Superconducting Structures for Nuclear Fusion and Deep-Space Propulsion Applications
Fabiano Carvalho de Castro Sene, Bradley Jared and Rupy Sawhney, The University of Tennessee, Knoxville

Feeding the Future through Convergent Manufacturing
Michael Sealy, Purdue University
Acknowledgments and Appreciation

The NAMRI | SME Board of Directors would like to acknowledge and extend its appreciation to:

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Martin Jun and Benxin Wu

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Ajay Malshe, Yung Shin, John Sutherland, Richard Liu, Karthik Ramani, Wenzhuo Wu, Liang Pan and Partha Mukherjee

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