



2020

AWARDS PROGRAM

**namri** | **sme**

NAMRC 48 has been cancelled due to the ongoing safety concerns associated with the COVID-19 pandemic. We reached this decision to protect the health and wellness of the global academicians, government and industry researchers, engineers, students and leaders in manufacturing who make up the inspiring collocated manufacturing conferences community.

**NAMRC 49 will take place on June 21-25, 2021, at the University of Cincinnati.**

We look forward to seeing you next June and profoundly thank you for your understanding and cooperation.

## 2019-20 NAMRI | SME Board of Directors



**President**  
**Albert J. Shih**, PhD, FSME  
University of Michigan  
Ann Arbor, Michigan



**President-Elect**  
**Lihui Wang**, PhD, FSME, PE  
KTH Royal Institute of Technology  
Stockholm



**Secretary**  
**Brigid A. Mullany**, PhD  
University of North Carolina at Charlotte  
Charlotte, North Carolina



**Scientific Committee Chair**  
**Livan Fratini**, PhD  
University of Palermo  
Palermo, Italy



**Scientific Committee Chair-Elect**  
**Ihab Ragai**, PhD, PE  
Penn State Behrend  
Erie, Pennsylvania



**Past President**  
**Hitomi Yamaguchi Greenslet**,  
Dr. Eng., FSME  
University of Florida  
Gainesville, Florida



**Second Past President**  
**Bryan G. Dods**, FSME  
Oerlikon AM  
Huntersville, North Carolina

### Directors



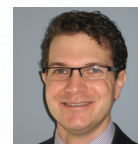
**Jeffrey A. Abell**, PhD, FSME, PE  
General Motors  
Warren, Michigan



**Joseph J. Budzinski**  
DePuy Synthes Joint  
Reconstruction  
Raynham, Massachusetts



**KC Morris**, PhD  
National Institute of Standards  
and Technology  
Gaithersburg, Maryland

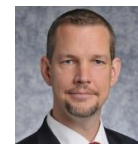


**Shawn P. Moylan**, PhD  
National Institute of Standards  
and Technology  
Gaithersburg, Maryland



**Brian K. Paul**, PhD, FSME  
Oregon State University  
Corvallis, Oregon

### Ex-Officio



**Robert W. Ivester**, PhD, FSME  
National Institute of Standards  
and Technology  
Gaithersburg, Maryland

*Thank you* to the outgoing  
NAMRI | SME Board of Directors  
for their longtime dedication and service.

## 2019-20 NAMRI | SME Board of Directors



### Second Past President

**Bryan G. Dods**, FSME  
General Manager of AM Services, US  
Oerlikon AM  
Huntersville, North Carolina



Dods is general manager of AM Services at Oerlikon AM in Huntersville, North Carolina, near Charlotte, where he oversees the company's new state-of-the-art production facility. Dods is responsible for Oerlikon AM's U.S. component production operations and coordination with European facilities. Since joining Oerlikon in June 2019, he has been focusing on building stronger relationships with customers and reaching out to interested parties. Prior to Oerlikon, Dods worked in a variety of manufacturing consultancy roles at his own firms and others. Dods first began working with additive manufacturing in the early 2000s while employed at Boeing in St. Louis. He spent more than 10 years in the aerospace industry, working for McDonnell Douglas/Boeing, later working as an executive for GE Power in South Carolina for several years. Dods is named on 12 manufacturing patents and applications with eight in additive manufacturing. He holds a bachelor's degree in metallurgy, mechanics and materials science from Michigan State University, a master's degree in materials engineering from Washington University in St. Louis, an MBA from Washington University in St. Louis, and most recently, a bachelor's degree in mathematics from Indiana University East. Dods was elected to the 2017 SME College of Fellows and is the recipient of the 2013 M. Eugene Merchant Manufacturing Medal of ASME/SME for influence and responsibility for improving the productivity and efficiency of manufacturing operations.



*Thank you* to the outgoing  
NAMRI | SME Board of Directors  
for their longtime dedication and service.

## 2019–20 NAMRI | SME Board of Directors



Director

**Shawn P. Moylan, PhD**  
Project Leader and Mechanical Engineer  
in Additive Manufacturing  
National Institute of Standards and Technology  
Gaithersburg, Maryland

Moylan is a mechanical engineer at the National Institute of Standards and Technology with technical and policy experience in advanced manufacturing. He gained policy experience as a fellow in the office of U.S. Senator Gary Peters and as a detailee in the Advanced Manufacturing National Program Office. Moylan's technical experience comes from years as a project leader for multiple additive manufacturing and smart machine tool projects in NIST's Engineering Laboratory. His research has focused on developing test methods and reference data to reduce the high costs associated with qualifying machines and components for aerospace, medical and other applications. Moylan is a leader in the advanced manufacturing community, having served as chair, Executive Committee for ASME Manufacturing Engineering Division; co-chair, Technology Roadmap Advisory Group for America Makes – the National Additive Manufacturing Innovation Institute; vice-chair, Subcommittee on Test Methods in ASTM International Committee F42 on Additive Manufacturing Technologies; and other volunteer positions.

*Thank you* to the outgoing  
NAMRI | SME Board of Directors  
for their longtime dedication and service.

## 2019–20 NAMRI | SME Board of Directors



Director

**Brian K. Paul, PhD, FSME**  
Professor, Manufacturing Engineering  
Oregon State University  
Corvallis, Oregon



Paul is a professor of manufacturing engineering at Oregon State University where he teaches manufacturing process design and performs experimental and computational studies in materials joining, thin-film deposition and hybrid additive manufacturing. His collaborative publications on the scale-up of nanomaterial synthesis and deposition are on SME's former Innovations That Could Change the Way You Manufacture watch list. Paul has authored more than 110 refereed publications, received 12 U.S. patents (six licensed) and helped 15 companies advance micro and nanotechnologies toward the marketplace, four formed from work with his graduate students. Several of his joint patents established the core for a spin-out, which, in 2010 received the largest first-round venture capital funding in the history of Oregon. In 2013, Paul was invited to serve as the assistant director of technology within President Obama's Advanced Manufacturing National Program Office, to help devise a federal strategy to overcome industry impediments to manufacturing innovation, now known as Manufacturing USA. After his return to OSU, Paul helped establish the Rapid Advancement of Process Intensification Deployment (RAPID) Manufacturing Institute within Manufacturing USA where he is lead of the module manufacturing technology focus area. Paul is a fellow of SME and ASME.

*Congratulations* to our incoming NAMRI | SME Board of Directors on being elected to serve for a three-year term.

## 2020–21 NAMRI | SME Board of Directors



Director

**Robert X. Gao**, PhD, FSME  
Cady Staley Professor and Department Chair  
Department of Mechanical and Aerospace Engineering  
Case Western Reserve University  
Cleveland



Gao is the Cady Staley professor of engineering and department chair of Mechanical and Aerospace Engineering at Case Western Reserve University in Cleveland. His research is in the areas of multiphysics sensing, multiresolution signal processing, machine learning and wireless communication for improving the observability of dynamical systems such as manufacturing equipment and processes. Gao has authored or co-authored more than 170 peer-reviewed journal articles, two books, several book chapters and holds 12 patents. Currently, he serves as a senior editor for the “IEEE/ASME Transactions on Mechatronics.” Gao is a fellow of the American Society of Mechanical Engineers, SME, CIRP (International Academy for Production Engineering) and the Institute of Electrical and Electronics Engineers. He is a recipient of several professional honors, including the Eli Whitney Productivity Award from SME, the Blackall Machine Tool and Gage Award from ASME, the Technical Award and Best Application Award from the Instrumentation and Measurement Society of IEEE and several best paper awards. Gao has been named one of the 20 most influential professors in smart manufacturing.

*Congratulations* to our incoming NAMRI | SME Board of Directors on being elected to serve for a three-year term.

## 2020–21 NAMRI | SME Board of Directors



Director

**Dale R. Lombardo**  
Principal Engineer, Manufacturing Technology  
GE Aviation  
Niskayuna, New York



Lombardo leads a diverse team of manufacturing technologists working across GE Aviation’s broad process and product portfolio. His team links materials to design to customers through a variety of special processes used in the manufacture of jet engines. Lombardo’s group manages the processes’ technical and quality requirements via a distributed team of hundreds of experts and practitioners across engineering and manufacturing. His team is a key part of how GE Aviation maintains high-quality standards while also leaning forward into novel special processes and process control strategies. Lombardo graduated from Rensselaer Polytechnic Institute with both a bachelor’s degree and a master’s degree in mechanical engineering with a specialization in mechatronics and controls. He has worked in a variety of manufacturing technology roles for GE including Global Research, GE Power and GE Aviation. Lombardo’s personal technical background is in machining, monitoring, surface treatment (peening) and surface finishing. He has represented himself and GE on industry task groups (Nadcap), standards boards (ASME B46.1), and various panels and paper review processes including NAMRI | SME and CIRP. Lombardo holds multiple patents in a broad array of manufacturing-related disciplines. He is also a volunteer and mentor in his local school district and supports STEM activities from elementary through graduate-level programs locally.



*Congratulations* to our incoming NAMRI | SME Board of Directors on being elected to serve for a three-year term.

## 2020-21 NAMRI | SME Board of Directors



**Tony L. Schmitz, PhD, FSME**  
Professor, Mechanical, Aerospace, and Biomedical  
University of Tennessee  
Knoxville, Tennessee



Schmitz received his bachelor's degree in mechanical engineering from Temple University in 1993, his master's degree in mechanical engineering from the University of Florida in 1996 and his doctorate in mechanical engineering from the University of Florida in 1999. Schmitz completed a postdoctoral appointment at the National Institute of Standards and Technology and was then employed as a mechanical engineer from 1999-2002. His professional recognitions include: 2019 SME Frederick W. Taylor Research Medal; 2019 UNC Board of Governors Award for Teaching; 2019 Best Presentation ASPE Annual Meeting; 2019 NAMRI | SME Outstanding Paper (NAMRC 47); 2018 51st Annual Bank of America Award for Teaching Excellence; 2017 NAMRI | SME David Dornfeld Manufacturing Vision Award; 2016 SME College of Fellows; 2013 UNC Charlotte College of Engineering; 2013 Undergraduate Award for Teaching Excellence; 2012 Temple University Alumni Fellow; 2011 Sports Emmy Award (NBC Learn) for the Science of NFL Football Video Series; 2010 NAMRI | SME Outstanding Paper (NAMRC 38); 2009 UF MAE Teacher of the Year; 2005 SME Outstanding Young Manufacturing Engineer Award; 2004 Journal of Tribology Best Paper Award; 2003 Office of Naval Research Young Investigator Award; 2003 National Science Foundation CAREER Award; 1999 Measurement Science and Technology Highly Commended Article; 1999 NIST National Research Council Postdoctoral Research Associateship; 1999 Temple University Gallery of Success Inductee; 1998 Department of Energy/National Academy of Engineering Integrated Manufacturing Predoctoral Fellowship; and 1994 National Science Foundation Graduate Traineeship. Schmitz also serves as an associate editor for ASME's "Journal of Manufacturing Science and Engineering."

## 2018-20 NAMRI | SME Scientific Committee



**Chair**  
**L. Fratini**  
University of Palermo



**Chair-Elect**  
**I. Ragai**  
Penn State Behrend



**Advisor (Past Chair)**  
**L. Wang**  
KTH Royal Institute  
of Technology

### Track 1

Manufacturing Systems -  
General Submission

**Track Chair:** X. Xu

**Track Co-Chairs:**  
L. Mears, R. Zhong

**Members:** T. AlGeddawy,  
G. Guo, J. Kong, D. Wu,  
T. Wuest, F. Zhao

### Track 2

Manufacturing Processes -  
General Submission

**Track Chair:** S. Bruschi

**Track Co-Chairs:**  
Y. Guo, G. Ngaile

**Members:** B. Kinsey, D.  
Sagapuram, S. Schmid,  
B. Wu, M. Strano, G. Daehn,  
E. Tekkaya, T. Welo,  
R. Malhotra, R. Shirwaiker

### Track 3

Material Removal

**Track Chair:** I. Ragai

**Track Co-Chairs:**  
M. Vogler, J. Ma

**Members:** M. Annoni, S. Lei,  
T. Schmitz, B. Linke,  
C. Saldana, W. Cong,  
C. Nath, B. Mullany,  
J. Muhammad

### Track 4

Additive Manufacturing

**Track Chair:** J. Dong

**Track Co-Chairs:**  
Y. Huang, K. Chou

**Members:** A. Elwany, Y. Chen,  
Y. Pan, M. Sundaram, B. Tai,  
C. Xu, J. Yin, A. Zadpoor,  
X. Zheng, I. Fidan,  
H. Qin, S. Moylan

### Track 5

Smart Manufacturing -  
Processes, Systems and  
Integration

**Track Chair:** R. Gao

**Track Co-Chairs:** R. Landers,  
Z.J. Pei

**Members:** Z. Fan,  
T. Hedberg, S. Liu, C.H. Shao,  
X. Wang, P. Wang, G. Wiens,  
Q. Chang, D. Bristow, S.  
Mishra, X. Zhao, X. Chen, C.  
Okwudire, H. Qin, D. Hoelzle

### Track 6

Industrial Applications and  
Manufacturing Education

**Track Chair:** H.Y. Greenslet

**Track Co-Chairs:**  
W. Cai, A. Shih

**Members:** S. Min, J. Samuel,  
B. Paul, C. Guo, D. Lombardo,  
J. Budzinski, J. Abell



## NAMRC 48 Outstanding Paper Award

The **NAMRC 48 Outstanding Paper Award** recognizes both the engineering value and industrial relevance of publications presented at NAMRC. The 2020 finalists were selected representing the top papers in two categories — manufacturing systems and processes.

### Manufacturing Systems

#### NAMRC-164

**“Transferable Two-stream Convolutional Neural Network for Human Action Recognition”**

**Qianqian Xiong, Jianjing Zhang, Peng Wang, Dongdong Liu and Robert Gao**, Case Western Reserve University, Cleveland

### Manufacturing Processes

#### NAMRC-63

**“Cutting force model of power skiving of internal gear”**

**Hideaki Onozuka** and **Fuminao Tayama**, Hitachi Automotive Systems Ltd., Kanagawa, Japan

**Yu Huang** and **Masatomo Inui**, Ibaraki University, Ibaraki, Japan

#### NAMRC-125

**“A new model for predicting the thickness of intermetallic compounds in friction stir welding”**

**Farhang Momeni** and **Jun Ni**, University of Michigan, Ann Arbor, Michigan

### NAMRC 48 Outstanding Reviewers

**Fuda Ning**, State University of New York at Binghamton, Binghamton, New York

**Maxwell Pranievicz**, Georgia Institute of Technology, Atlanta

**Shanshan Zhang**, University of Louisville, Louisville, Kentucky

## NAMRI | SME S.M. Wu Research Implementation Award



**“Error Compensation and Accuracy Improvements in 5-axis machine tools using the global offset method”**

The GM COMP system and method were invented and developed with the sole purpose of performing global offset compensation in the multi-axis machine tools. Sheri Kurgin, PhD, and Jie Gu, PhD, are the leaders in the development and implementation of the CNC offset method. Kurgin and Gu developed a set of systematic methods for estimating the machine tool variation based on CMM errors and performing a global and local compensation directly in the controller and successfully applied the method to automotive machining with significant economic benefits. Three technical papers were presented at the 2015, 2016 and 2017 NAMRC events to describe the concept and highlight some of the major technical challenges. The COMP system is integrated in all the new machine tools in production for more than eight years.

The patented and commercialized innovative COMP system and method enables calculating and implementing global and local compensation for multi-axis computer-controlled manufacturing systems as opposed to traditional methods. Benefits are better part quality, quality consistency, (>3%) improved productivity and enhanced product/process flexibility.

### Award Winners

- **Sheri K. Kurgin**, PhD, Senior Manufacturing Engineer, General Motors, Macomb, Michigan
- **Jie Gu**, PhD, Senior Project Engineer, General Motors, Pontiac, Michigan

### Nominated by

- **John S. Agapiou**, PhD, FSME, Technical Fellow, General Motors, R&D Center, Warren, Michigan



## SME JOURNALS 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**  
**L. Mears**  
Clemson University

#### Associate Editors

**H. Ahuett-Garza**  
Tecnológico de Monterrey

**E. Brousseau**  
Cardiff University

**H. Ding**  
University of Iowa

**R. Harik**  
University of South Carolina

**M. Helu**  
NIST

**T. Kurfess**  
Oak Ridge National Lab

**J. Li**  
Pennsylvania State University

**B. Linke**  
University of California Davis

**R. Malhotra**  
Rutgers, The State University  
of New Jersey

**A. Nee**  
National University of  
Singapore

**S. Ong\***  
National University of  
Singapore

**G. Tosello\***  
Technical University of  
Denmark

**P. Wiederkehr**  
Technische Universität  
*\*Outgoing associate editors*

#### Editorial Board

**E. Ahearne**  
University College Dublin

**M. Annoni**  
Polytechnic of Milan

**D. Biermann**  
TU Dortmund University

**M. Bigerelle**  
Polytechnic University  
Hauts-de-France

**A. Brosius**  
TU Dresden

**A. Caggiano**  
University of Naples Federico II

**S. Castagne**  
KU Leuven

**Y. Chen**  
University of Southern California

**A. Clare**  
University of Nottingham

**P. Coronado**  
Tecnológico de Monterrey

**A. Elkaseer**  
Karlsruhe Institute of Technology  
Institute of Applied Informatics

**P. Guo**  
Northwestern University

**L. Hof**  
École de Technologie Supérieure

**M. Hoffmann**  
RWTH Aachen University

**M. Jun**  
Purdue University

**Y. Kakinuma**  
Keio University

**P. Koshy**  
McMaster University

**R. Morales-Menéndez**  
Tecnológico de Monterrey

**A. Qattawi**  
The University of Toledo

**C. Saldana**  
Georgia Institute of Technology

**H. Siller**  
University of North Texas

**M. Soshi**  
University of California Davis

**J. Valentinčič**  
University of Ljubljana

**X. Xu**  
The University of Auckland

**J. Yagüe-Fabra**  
University of Zaragoza

**Y. Yan**  
Harbin Institute of Technology

**C. Yuan**  
Case Western Reserve University

**F. Zanger**  
Karlsruhe Institute of Technology

**F. Zhao**  
Purdue University

## Journal of Manufacturing Systems



**Editor-in-Chief**  
**L. Wang**  
KTH Royal Institute of Technology

#### Associate Editors

**O. Battaia**  
Graduate School of  
Aeronautics and Space  
Science

**A. Diabat**  
New York University – Abu  
Dhabi Campus

**M. Doolan**  
Australian National University

**E. Frazzon**  
Federal University of Santa  
Catarina

**M. Freitag**  
University of Bremen

**J. Ko**  
Ajou University

**B. Kulvatunyou**  
NIST

**S. Kumar**  
University of St. Thomas

**M. Kurz**  
Clemson University

**Y. Li**  
Nanjing University of  
Aeronautics and Astronautics

**J. Liu**  
University of Arizona

**K. Salonitis**  
Cranfield University

**A. Syberfeldt**  
University of Skövde

**X. Wang**  
KTH Royal Institute of  
Technology

**D. Wu**  
University of Central Florida

**S. Yang**  
Xi'an Jiaotong University

#### Editorial Board

**S. Akpinar**  
Dokuz Eylül University

**B. Babic**  
University of Belgrade

**R. Babiceanu**  
Embry-Riddle Aeronautical  
University

**T. Becker**  
University of Bremen

**C. Chandra**  
University of Michigan  
Dearborn

**Q. Chang**  
Stony Brook University

**A. Giret**  
Polytechnic University of  
Valencia

**W. Guo**  
Rutgers, The State University  
of New Jersey

**J. Heger**  
Leuphana University  
of Lüneburg

**W. Ji**  
AB Sandvik Coromant

**S. Lee**  
University of Miami

**A. Nassehi**  
University of Bristol

**A. Ng**  
University of Skövde

**J. Rickli**  
Wayne State University

**D. Roy**  
Indian Institute of Management  
Ahmedabad

**J. Sagawa**  
Federal University of Sao Carlos

**M. Thompson**  
GE Additive

**A. Valente**  
University of Applied  
Sciences and Arts of Southern  
Switzerland

**K. Wang**  
Tsinghua University

**L. Wells**  
Western Michigan University

**T. Wuest**  
West Virginia University

**H. Yang**  
Pennsylvania State University



## Journal of Manufacturing Processes



**Editor-in-Chief**  
**S. Kapoor**

University of Illinois at Urbana-Champaign

### Associate Editors

**M. Annoni**

Polytechnic of Milan

**M. Banu**

University of Michigan

**G. Cheng**

Purdue University

**K. Chou**

University of Louisville

**H. Chung**

Michigan State University

**H. Ding**

The University of Iowa

**J. Dong**

North Carolina State University

**A. Elwany**

Texas A&M University College Station

**H. Greenslet**

University of Florida

**P. Guo**

Northwestern University

**M. Jun**

Purdue University

**A. Kumar**

National University of Singapore

**J. Li**

Pennsylvania State University

**J. Ma**

Saint Louis University

**A. Malik**

University of Texas at Dallas

**C. Nath**

Hitachi Automotive Systems Americas Inc.

**G. Ngaile**

North Carolina State University

**C. Nikhare**

The Pennsylvania State University Erie

**S. Park**

University of Calgary

**J. Samuel**

Rensselaer Polytechnic Institute

**M. Strano**

Polytechnic of Milan

**M. Sundaram**

University of Cincinnati

**G. Tosello**

Technical University of Denmark

**B. Wu**

Purdue University

**F. Yang**

University of Kentucky

**Y. Zhang**

University of Kentucky

## SME JOURNALS 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.



### Editor

**J. Li**

Penn State University

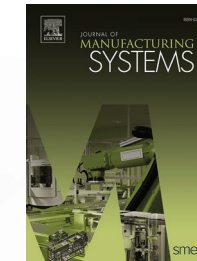
### Reviewers

**O. Lopez-Botello**

Tecnológico de Monterrey

**Y. Yan**

Harbin Institute of Technology



### Associate Editor

**S. Yang**

Xi'an Jiaotong University

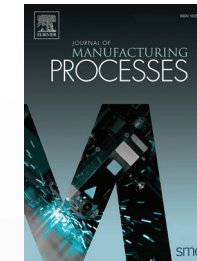
### Reviewers

**R Babiceanu**

Embry Riddle Aeronautical

**P. Renna**

University of Basilicata



### Associate Editor

**P. Guo**

Northwestern University

### Reviewers

**S. James**

California State University

**J. Kangazian**

Isfahan University of Technology

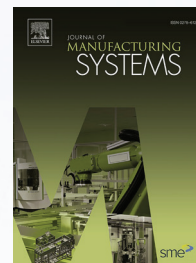
**K. Ramkumar**

Vellore Institute of Technology



## Journal of Manufacturing Systems Best Paper Award

The Journal of Manufacturing Systems Best Paper Award is awarded annually to a 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.

### Award Winner:

Awarded to the paper attracting the most citations during the period 2015-19.

### “Cloud manufacturing: Strategic vision and state-of-the-art”

Published in Oct. 2013

**Dazhong Wu, Matthew J. Greer, David W. Rosen and Dirk Schaefer**

*Georgia Institute of Technology, Atlanta*

## ACKNOWLEDGMENTS AND APPRECIATION

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

- 2019-20 NAMRI | SME Scientific Committee for its dedication in maintaining the high standards of published papers
- The authors for sharing their work
- The sponsors for their support

### NAMRC 48 Organizing Committee

**Sam Anand, PhD; Jing Shi, PhD; and Murali Sundaram, PhD**  
Department of Mechanical and Materials Engineering  
College of Engineering and Applied Science  
University of Cincinnati  
Cincinnati

### NAMRC 48 Conference Organizing Sponsors

**namri** | **sme**



**namrc49**  
North American Manufacturing Research Conference

**June 21-25, 2021**  
University of Cincinnati

[sme.org/namrc](http://sme.org/namrc)