# — Call for Papers —

A Symposium on

## Advances in Metal Additive and Hybrid Manufacturing Processes

Sponsored by the ASME Manufacturing Engineering Division's
*Additive Manufacturing Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

Metal Additive Manufacturing (AM) and Hybrid Manufacturing (HM) deliver complex metal structures with excellent physical properties using a wide range of industrial materials, such as titanium, stainless steel, Inconel, superalloys, and refractory metals. However, the lack of fundamental understanding of the metal AM processes has made it challenging to control the quality of the product and thus hindered the adoption of metal AM. Recent advancements in metal AM expanded the processes' capabilities to fabricate AM materials by hybrid techniques, 4-D AM of functional metal alloys, 5-D AM, and beyond. This symposium will report the latest progress in all aspects of metal AM, such as new metal AM and HM processes and systems, process control and development, characterization, process-structure-property relationships of AM and HM, numerical tools, related simulation, and modeling. Authors are encouraged to submit drafts related to metal AM that may contribute to improving product quality, reducing the cost and risk of adopting metal AM, or new applications of metal AM and HM. Authors from government, academia, and industry are all encouraged to participate. Specific topics of interest include, but are not limited to:

- Development of metal AM processes, materials, systems, or hybrid processes: 3-D, 4-D, 5-D, and beyond.
- AM and HM material and mechanical characterizations: morphological, size distribution, composition, and thermal properties of metals, including structural, functional, refractory, and superalloys.
- Simulation, modeling, and process-structure-property relationships using experimental and/or computational approaches and related validation.
- AM and HM process planning: scan path planning, speed/power synchronization, material reduction, scanning strategies, tool path integration in machining, etc., and their effects on part quality/performance.
- Post-process characterization of metal AM and HM, such as microstructure, mechanical properties, fatigue, elevated temperature testing, and non-destructive testing.
- Beam-shaping in AM: the knowledge advancement related to beam shaping, such as modeling, implementation, control, and characterization.

### Paper Submission (Dates are subject to change)

| | |
|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
| Paper acceptance notification | January 30, 2026 |
| Submission of revised papers for review | February 16, 2026 |
| Author notification of acceptance of revised papers | February 27, 2026 |
| Submission of final papers and copyright form | March 20, 2026 |
| Author registration deadline | April 17, 2026 |

- Submissions will only be accepted via the conference website: https://event.asme.org/MSEC/.
- We accept full papers (7-10 pages), brief papers (4-5 pages), and abstract only presentations (industry presenters only).
- The presenting author must register by **April 17, 2026** or the paper will be withdrawn from the conference proceedings.
- **High quality MSEC 2026 papers will be channeled to an ASME journal for fast-tracked review and publication.**
- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of ManufacturingScience and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will organize a review paper for the symposium highlighting recent advances in metal additive and hybrid manufacturing.

### Organizers

Dr. Hector Siller, University of North Texas, Denton, TX, USA. hector.siller@unt.edu
Dr. Dong Lin, Oregon State University, Corvallis, OR, USA. dong.lin@oregonstate.edu
Dr. Rongxuan Wang, Auburn University, Auburn, AL, USA. rzw0090@auburn.edu
Dr. Wan Shou, University of Arkansas, Fayetteville, AR, USA. wshou@uark.edu
Dr. Mohan Sai Kiran Kumar Yadav Nartu, Pacific Northwest National Lab, Richland, WA, USA. m.nartu@pnnl.gov

The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## In Situ Monitoring, Non-Destructive Evaluation, and Qualification for Additive Manufacturing

Sponsored by the ASME Manufacturing Engineering Division's
*Additive Manufacturing Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

Key bottlenecks in additive manufacturing (AM) processes are the certification and qualification of AM parts for industrial use, especially for applications in aerospace or biomedical sectors. Much of the understanding of the final AM occurs during ex-situ characterization – for example, slicing parts, polishing cross-sections, and investigating microstructure and porosity with microscopy. Challenges in this approach show that measurements of an AM part's characteristics, including defects, structure, geometry (which can change with warping), and properties, can be time-consuming and cost-prohibitive, requiring many builds and hours of testing and characterization. However, in situ monitoring techniques and non-destructive evaluation of AM parts show promise in not only reducing processing and testing time, but also in more rapid certification and qualification in several ways: prediction of any defects or properties of the final AM part, closed-loop control of the AM process, and finally better understanding of the process physics, which can drive data-driven or modeling approaches. This symposium focuses on the advances in measurement science and techniques for more rapid qualification and certification of AM parts that could have industrial impacts.
Specific topics of interest include, but are not limited to:

- Qualification and certification of materials, processes, and products;
- Operando and custom, open-architecture manufacturing machines and instrumentations;
- In situ imaging during manufacturing processes, including thermal and optical;
- In situ methods such as X-ray or neutron diffraction, spectroscopy, thermocouple, and ultrasonic methods;
- Surface-based methods to detect for melt pool size or ripples for metal additive manufacturing;
- Data-driven techniques to consolidate monitoring data for prediction and control;
- Defect or anomaly modeling and detection during in situ monitoring;
- Non-destructive characterization after the process for porosity or stress states;
- Coupled simulation and experiments to predict for defects or anomalies;
- Data analytics that incorporate in situ and/or non-destructive measurements to qualify parts

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### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Work to attract a high profile international keynote speaker
- Organize a special issue in the ASME Journal of Manufacturing Science and Engineering

### Organizers

Dr. Arvind Shankar Raman, Applied Materials Inc., arvind.shankarraman@gmail.com
Dr. Zhaoyan Fan, Oregon State University, zhaoyan.fan@oregonstate.edu
Dr. Jihoon Jeong, Texas A&M University, jihoonjeong@tamu.edu
Dr. Yash Parikh, EOS North America, yash.parikh@eos-na.com

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# — Call for Papers —

A Symposium on

## Advances in Solid-State Additive Manufacturing

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*Additive Manufacturing Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

## Technical Focus

Solid-state additive manufacturing (SSAM) technologies such as friction stir AM, cold spray AM, and ultrasonic AM are reshaping the field of metal AM by enabling unique mechanical performance, material flexibility, and process sustainability. Unlike fusion-based AM processes, SSAM operates without melting, offering distinct advantages, including reduced heat-affected-zones and the ability to process dissimilar and/or heat-sensitive materials. Additionally, lower temperatures result in favorable microstructures, lower residual stress, and improved energy efficiency, yielding components with enhanced mechanical properties and a reduced risk of distortion or cracking. Therefore, SSAM presents compelling solutions for high-performance applications in aerospace, defense, automotive, and energy sectors where reliability, material integrity, and sustainability are of critical importance. Moreover, machining of SSAM components for hybrid manufacturing is more predictable due to their relatively homogeneous and wrought material-like mechanical properties, enabling fabrication and delivery of functional components at the point of need. Wide range adoption of SSAM, however, faces several challenges such as strain-hardening, solid-phase transformations, delamination, as well as machine tool reliability and maintenance difficulties. This symposium aims to highlight the latest developments in SSAM, with an emphasis on process innovation, hybrid manufacturing, and application-driven solutions.

Specific topics of interest include, but are not limited to:

- Intelligent toolpath generation for complex builds in SSAM.
- In-situ monitoring, characterization, metrology, and quality control during SSAM.
- Advances in feedstock materials, microstructural evolution, and phase transformations during SSAM.
- Hybrid SSAM processes and system design.
- Functional performance, durability, and reliability of SSAM components.
- Multi-material deposition and alloying using SSAM.
- Sustainable repair, reuse, and remanufacturing via SSAM.
- Physics-based and data-driven modeling and simulation of SSAM.
- Applications across aerospace, defense, energy, and biomedical sectors.
- Qualification, certification, and standards development for SSAM.
- Reviews of the current state-of-the-art in SSAM.

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## Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Invite keynote speaker(s) for the symposium

## Organizers

Dr. James Nowak, MIT Lincoln Laboratory, Lexington, MA, USA. 781-981-4247, james.nowak@ll.mit.edu
Dr. Ritin Mathews, MDF, Oak Ridge National Lab, Oak Ridge, TN, USA. 516-373-8653, mathewsr@ornl.gov
Dr. Sarvesha Rajashekara, University of Kentucky, Lexington, KY, USA, sarvesha@uky.edu
Dr. Semih Akin, Rensselaer Polytechnic Institute, Troy, NY, USA, akins@rpi.edu

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# — Call for Papers —

A Symposium on

## Smart Additive Manufacturing

Sponsored by the ASME Manufacturing Engineering Division's
*Additive Manufacturing Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

Smart manufacturing, i.e., involving the use of information, automation, computation, software, sensing, and networking technologies has the potential to revolutionize the manufacturing industry. An excellent application for smart manufacturing is additive manufacturing (AM) – due to the urgent need for quality assurance.
This symposium will focus on research aimed at leveraging advances in sensing, automation, computation, software, networking, big data analytics, machine learning, process modeling, and process control, amongst others, to reduce trial and error, and enhance the quality, productivity, scalability, cost-effectiveness and functionality of AM.

Specific topics of interest include, but are not limited to:

- Feedforward and feedback process control
- Data-driven predictive modeling of AM processes
- Physics and/or data-driven part design
- In-process sensing and post-built defect detection, characterization, and analysis
- Digital twin of AM process and equipment
- New sensing modalities and data fusion techniques for AM process monitoring and control
- In-situ monitoring and control techniques for AM
- Applications of machine learning (e.g., physics-guided) in any phase of AM
- Prediction of microstructure, properties, and functionality
- Physics-based machine learning and process-aware machine learning
- Use of cloud/edge and high-performance computing to advance AM
- Embedded sensors and integrated functionalities using AM
- Industrial Internet of Things (IIoT) applications in AM
- Novel applications of commercial software in AM

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### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Work to promote high-quality submissions

### Organizers

Dr. Azadeh Haghighi, University of Illinois Chicago, Chicago, IL, USA, ahaghi3@uic.edu
Dr. Prahalada Rao, Virginia Tech, VA, USA, prahalad@vt.edu
Dr. Tuhin Mukherjee, Iowa State University, Ames, IA, USA, tuhinm@iastate.edu
Dr. Sneha Prabha Narra, Carnegie Mellon University, Pittsburgh, PA, USA, snarra@andrew.cmu.edu
Dr. Chris Barrett, Laser Fusion Solutions, Fairborn, OH, USA, cbarrett@lasersoln.com

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# — Call for Papers —

A Symposium on

## Multi-Material Processing in Additive Manufacturing

Sponsored by the ASME Manufacturing Engineering Division's
*Additive Manufacturing Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

As additive manufacturing (AM) technologies evolve, there is more desire to locally tune properties within a 3D printed structure. Although locally varying composition enables control in overall function, there are many knowledge gaps such as how multi-material AM processing affects interfacial properties, how precisely composition can be tuned during a multi-material AM process, how to assess the quality of functionally graded structures, etc. In addition, combining dissimilar materials in-situ (e.g., electronic chips with polymers or ceramic coatings on metals) requires understanding of how multiple AM or manufacturing processes affect interfacial quality. Although there are many existing demonstrations of multi-material AM, this session focuses on research that advances knowledge of how multi-material AM processes control interfacial or local properties and how new and advanced characterization strategies can assess the properties of multi-material structures. This session will include a variety of AM methods used to produce metals, polymers, ceramics, electronics, etc. Specific topics of interest include, but are not limited to:

- Modeling and simulation of multi-material interfacial adhesion
- Functional hybrid/composite materials design and synthesis for additive manufacturing
- Experimental techniques to assess multi-material interfaces
- Generative AI/measurement techniques to assess compositional gradients
- Machine/software control advances that improve multi-material additive manufacturing processing
- Computational design of multi-materials for functional improvement
- Rough/Finish machining of multi-material AM components
- In-situ sensing and control techniques for optimizing multi-material additive manufacturing process performance
- Build related data analysis methods to improve multi-material AM quality and guide process refinement

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### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Organize a panel of experts for the symposium

### Organizers

Dr. Monique McClain, Purdue University, West Lafayette, IN, USA, mcclain5@purdue.edu
Dr. Mostafa Yourdkhani, Arizona State University, Mesa, AZ, USA, Mostafa.Yourdkhani@asu.edu
Dr. Muyue Han, North Carolina A&T State University, Greensboro, NC, USA, mhan@ncat.edu
Dr. Guoying Dong, University of Colorado Denver, Denver, CO, USA, guoying.dong@ucdenver.edu
Dr. Akash Tiwari, Oak Ridge National Laboratories, Oak Ridge, TN, USA, jagprasada@ornl.gov

# — Call for Papers —

A Symposium on

## Additive Manufacturing of Functional Devices and Bioinspired Structures

Sponsored by the ASME Manufacturing Engineering Division's
*Additive Manufacturing Technical Committee*
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### Technical Focus

Additive manufacturing (three-dimensional (3D) printing) has enabled the design and fabrication of a wide range of functional devices, including smart structures, energy systems, electronics, batteries, optical devices, thermal components, and meta-materials. Alongside engineering design, Nature offers inspiration through materials and structures developed over millions of years of evolution. This has led to a shift in additive manufacturing—from geometry-centered prototyping to function-focused applications. Bioinspired additive manufacturing opens new possibilities for creating multi-scale, multi-material, and multifunctional structures with enhanced acoustic, optical, electrical, thermal, mechanical, and hydrodynamic properties. Understanding and replicating natural architectures using additive manufacturing can drive innovation in biomimicry and spur the development of new fabrication processes to overcome related challenges.

This symposium will focus on recent advances in additive manufacturing for functional devices and bioinspired structures in engineering systems. The growth of this field offers exciting potential for developing next-generation materials through novel printing processes and computational design methods.

Specific topics of interest include, but are not limited to:

- Multiscale and Multi-material manufacturing, nano-and micro manufacturing.
- Field-assisted (electric, magnetic, acoustic, optics, shear force, thermal) and Templating based additive manufacturing.
- 3D printing of bioinspired structures for mechanical/surface&interface/optics/electrics applications.
- 3D printing of Meta-materials and Meta-structures.
- Manufacturing of multifunctional autonomous devices and 4D printing of active materials.
- Bioinspired design and 3D printing of bioinspired multifunctional materials for various applications (e.g. mechanical/surface&interface/optics/electrics/thermal/robots).
- 3D printing of electronics (actuators, antennas, sensors, piezoelectrics, thermoelectrics, etc.), energy storage and conversion devices.
- Design, models and simulation of bioinspired structures and material systems.
- Advanced applications of bioinspired manufacturing.

### Paper Submission (Dates are subject to change)

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### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Invite keynote speaker(s) for the symposium
- Organize a state-of-the-art paper that will be the lead article in the special issue.

### Organizers

Dr. Yang Yang, San Diego State University, CA, USA, yyang10@sdsu.edu
Dr. Xiangfan Chen, Arizona State University, Tempe, AZ, USA, Xiangfan.Chen@asu.edu
Dr. Ketki Lichade, University at Buffalo-SUNY, Buffalo, USA, ketkilic@buffalo.edu
Dr. Tengteng Tang, Union College, Schenectady, NY,USA, tangt@union.edu
Dr. Jie Jin, Ford Motor Company, Long Beach, CA, USA, jjin36@ford.com

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# — Call for Papers —

A Symposium on

## Advances in Manufacturing and Processing of Polymers and Composites

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### Technical Focus

This symposium will provide a platform for interdisciplinary discussion on recent development in polymer processing and manufacturing, including polymer-based materials discovery and development, ceramic-polymer composites, manufacturing strategy and modifications, composite architectures and constructions, mechanical analysis and characterizations, modeling and simulation, machine learning and emerging cloud technology-assisted polymer processing and manufacturing, and functional devices design and applications. Specific topics include, but are not limited to:

- Liquid molding and casting, thermoplastic and thermoset molding, injection molding, over molding processes
- Fiber spinning processes, cast and blown film extrusion, stretching forming processes
- Advances in polymer and composite additive manufacturing techniques (e.g., FDM, SLA, DLP, SLS, DIW, and Hybrid AM)
- Advances in manufacturing of multi-scale and multi-material components and structures
- Reactive processing and functional additives
- Materials removal and ablation processes
- Joining and welding of polymers and composites and interface mechanics
- Precision instrumentation and tooling for injection molding/extrusion/fiber spinning/thermoforming
- Sustainability of polymer and composite processes, recycling processes and properties of recycled materials
- SMART polymers, self-healing materials, foams and composites for Earth and Space environment
- Polymers and composites for biosystems, biomedical devices and energy and electronic devices
- Process dynamics, rheology and modeling in polymer processing
- Advanced characterization, monitoring and control of polymers and polymer composites
- Machine learning and AI in polymer processing and advance manufacturing

### Paper Submission (Dates are subject to change)

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### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Work to attract a high-profile international keynote speaker
- Organize a state-of-the-art paper that will be the lead article in the special issue
- Work to organize a special issue in an ASME Journal.
- Nominate papers for Symposium Best Paper Award.

### Organizers

Dr. Erina Joyee, University of North Carolina at Charlotte, NC, U.S. 704-687-8930; mailto:ejoyee@charlotte.edu
Dr. Felicia Stan, Dunarea de Jos University of Galati, GL, Romania. +40-742-947-501; mailto:felicia.stan@ugal.ro
Dr. Kenan Song, University of Georgia, Athens, GA, U.S. US. 480-727-2720; mailto:Kenan.Song@uga.edu
Dr. Zipeng Guo, Rochester Institute of Technology, NY, U.S. 585-475-2632; mailto:zxgeie@rit.edu

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# — Call for Papers —

A Symposium on

## Smart, Innovative, and Low-cost Tooling Systems for Advanced Materials Manufacturing

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### Technical Focus

The use of additive manufacturing (AM) and other rapid prototyping has not significantly penetrated in sectors like automotive manufacturing due to their high production rate requirements. A paradigm shift from direct production of the final parts to manufacturing tooling systems, like molds and dies, can unlock potential economic benefits. Utilizing AM and new hybrid techniques for creating tools in transformative tool-based processes can lead to reduced tooling costs, shorter lead times, and optimized weight, strength, and thermal management. The journey from concept to mass production for lightweight components, such as advanced high-strength sheet metals, fiber-reinforced composites, or hybrid parts, involves rigorous prototyping. These prototypes need to be manufactured with materials and processes similar to the final products, leading to the substantial cost of prototyping tools. The rise of digital manufacturing has fostered innovations in tool fabrication, active sensing, and data analytics. Tools have evolved with Industry 4.0, becoming pivotal linchpins in product transformation, providing real-time data and efficiency. This symposium invites papers that address theoretical implementation and applied aspects of the following topics:

- Low-cost tooling leveraging advancements in AM (metal and plastics) and hybrid technologies
- AI-enabled tooling design, manufacturing, characterization, and quality assurance
- Development and application of new tooling materials
- Integrating sensors, vision-based systems, or self-adjusting actuators in tooling
- Data-driven real-time process optimization and quality monitoring using data from tooling systems
- Developing soft sensors for tooling applications
- Customization of products through innovative tooling systems
- Coating, surface finishing, and functionalization for tooling enhancement
- Application of control and robotics in tooling systems
- Recyclability, reusability, and life-cycle analysis of tooling

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- Organize a special issue in the ASME Journal of Manufacturing Science and Engineering

### Organizers

Dr. Saeed Farahani, Clemson University, Greenville, SC, USA, sfaraha@clemson.edu
Dr. Thomas Feldhausen, Oak Ridge National Laboratory, Oak Ridge, TN, USA, feldhausenta@ornl.gov
Dr. Hamed Dardaei Joghan, Technical University Dortmund, Dortmund, Germany, Hamed.Dardaei@iul.tu-dortmund.de
Dr. Davide Masato, University of Massachusetts Lowell, Lowell, USA, Davide_Masato@uml.edu

The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Semiconductor Manufacturing: Advanced Microelectronics Packaging and Interconnection Technologies

Sponsored by the ASME Manufacturing Engineering Division's
*Advanced Materials Manufacturing Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

## Technical Focus

Semiconductors are essential to modern electronics, powering computers, tablets, smartphones, and personal devices. The performance of semiconductor manufacturing technology directly affects product quality and production efficiency, driving innovation across commercial markets. To meet growing industry demands, there is a critical need to advance interconnect and packaging materials and processes, including Pb-free solders, Ag and Cu sintering, hybrid bonding, conductive adhesives, epoxy systems, substrates, 3D and wafer-level packaging, as well as methods for quality control, reliability, and failure analysis. Despite its importance, university-level research in semiconductor manufacturing, particularly in microelectronics packaging and interconnection technologies, remains limited due to its competitive, industry-driven nature. As a result, students have few opportunities to gain research and hands-on experience in this field.

This symposium aims to build an academic research community in microelectronics packaging and interconnection technologies, supporting the CHIPS and Science Act initiatives and expanding university research in ways that enable industrial adoption.

Specific topics of interest include, but are not limited to:

- Next-generation packaging: 3D integration, wafer-level and photonic packaging, flexible electronics, and solutions for automotive and power electronics.
- Interface reactions, bonding mechanisms, and mechanical integrity of emerging thermal management materials (e.g., diamond, SiC, AlN).
- Advanced interconnects: Pb-free solders, micro bumps, through-silicon vias (TSVs), Cu-to-Cu bonding, conductive adhesives, optoelectronic interconnects, transient liquid phase bonding, and sintered nanoparticle joints.
- Additive manufacturing and 3D printing for microelectronics packaging and interconnect applications.
- Reliability, quality assurance, and failure analysis of advanced semiconductor packages.
- Challenges in implementing Pb-free solders for interconnects, plating, and thermal interface material (TIM) applications
- High- and low-temperature Pb-free solder alloys for fine-pitch, high-reliability, and automotive applications.
- Whisker formation in Sn-based and other metallic systems.
- Electromigration, thermomigration, stress migration, and related mechanical effects in interconnects.
- Packaging materials: epoxies, molding compounds, TIMs, and innovations in substrate manufacturing.
- Advanced characterization techniques: phase transformations, computational thermodynamics, solidification behavior, microstructure evolution, micromechanics, corrosion, and material property analysis of solders and intermetallics.

## Paper Submission (Dates are subject to change)

| | |
|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
| Paper acceptance notification | January 30, 2026 |
| Submission of revised papers for review | February 16, 2026 |
| Author notification of acceptance of revised papers | February 27, 2026 |
| Submission of final papers and copyright form | March 20, 2026 |
| Author registration deadline | April 17, 2026 |

- Submissions will only be accepted via the conference website: https://event.asme.org/MSEC/.
- We accept full papers (7-10 pages), brief papers (4-5 pages), and abstract only presentations (industry presenters only).
- The presenting author must register by **April 17, 2026** or the paper will be withdrawn from the conference proceedings.
- **High quality MSEC 2026 papers will be channeled to an ASME journal for fast-tracked review and publication.**
- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of ManufacturingScience and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

## Organizers

Dr. David Yan, San Jose State University, San Jose, CA, USA. david.yan@sjsu.edu
Dr. Dekui Mu, Sun Yat-sen University, Shenzhen, China. mudk@mail.sysu.edu.cn
Dr. Zhihao Zhang, Xiamen University, Xiamen, China. zhzhang@xmu.edu.cn
Dr. Yan Li, Samsung Semiconductor Inc., San Jose, CA, USA. yan.a.li@samsung.com

The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Laser-based Advanced Manufacturing and Material Processing

Sponsored by the ASME Manufacturing Engineering Division's
*Advanced Materials Manufacturing Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

The recent advance of high-power/ultrafast lasers has considerably broadened the capability of lasers in advanced manufacturing and material processing. Depending on the power level and the mode (continuous, long/short/ultrashort pulsed), the irradiated materials can be heated, melted, evaporated, and even ionized, and hence the microstructure, geometry, morphology, properties, and/or appearance of the materials will be modified. Complex phenomena taking places during these processes include laser-matter interaction, heat/mass transfer, fluid mechanics, solid mechanics, plastic deformation, phase and microstructure change, chemical reaction, etc. All these phenomena can have significant effects on the properties and performance of the materials to be processed. This symposium focuses on the recent advance in the applications of high energy laser beams in advanced manufacturing and material processing. Both fundamental and applied studies are of interest. These include experimental observation, analytical modeling and numerical simulation.

Specific topics of interest include, but are not limited to:

- Laser-based surface modification processes, including laser shock peening, laser hardening, laser nitriding, laser coating, laser cladding, laser cleaning, etc.
- Laser-based material processing techniques, including laser sintering, laser-assisted deposition, laser recrystallization, laser annealing, laser bending/forming, etc.
- Laser-based machining processes, including laser ablation, laser assisted machining, laser cutting/drilling, etc.
- Laser-based welding/soldering/brazing processes.
- Laser-based micro-/nano- fabrication, laser micro-patterning, laser surface modification, laser induced chemical reaction, and relevant processes.
- Numerical modeling of laser-matter interaction and laser material processing.

### Paper Submission (Dates are subject to change)

| | |
|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
| Paper acceptance notification | January 30, 2026 |
| Submission of revised papers for review | February 16, 2026 |
| Author notification of acceptance of revised papers | February 27, 2026 |
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- Submissions will only be accepted via the conference website: https://event.asme.org/MSEC/.
- We accept full papers (7-10 pages), brief papers (4-5 pages), and abstract only presentations (industry presenters only).
- The presenting author must register by **April 17, 2026** or the paper will be withdrawn from the conference proceedings.
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- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of ManufacturingScience and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Invite keynote speaker(s) for the symposium
- Organize a review paper for the symposium

### Organizers

Dr. Qiong (Eric) Nian, Arizona State University, Tempe, AZ. 480-965-4543; Qiong.Nian@asu.edu
Dr. Wenda Tan, The University of Michigan, Ann Arbor, MI, USA. 801-556-8643; wendatan@umich.edu
Dr. Chang Ye, Huazhong University of S&T, Wuhan, China. +86-27-87559416; cye@hust.edu.cn
Dr. Xin Zhao, Clemson University, Clemson, SC, USA. 864-656-2151; xzhao5@clemson.edu

The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Advances in Post-Processing of Metal, Composite, and Polymer AMed Parts

Sponsored by the ASME Manufacturing Engineering Division's
*Advanced Materials Manufacturing Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

Additive Manufacturing (AM) technology has become very popular due to its unprecedent flexibility in realization of objects of variety of materials, having complex geometry. Based on the type of AM technology, materials, and part complexity, various kinds of internal and external defects, dimensional inaccuracy, and unacceptable surface roughness can be obtained in AMed parts. As a result, post-processing of AMed parts has become an important research and development area for both academia and industry. Post-processing can be primary with a focus on support structure removal or secondary with a focus on improving surface finish, dimensional accuracy, material and surface properties, and so on. A wide variety of post-processing techniques have been reported in the literature for parts fabricated using metal, polymer, and composite-based AM technologies. Post-processing of AMed parts is a highly relevant, timely, and important topic that has not been adequately addressed in recent symposia. Therefore, this symposium focuses on advances in the post-processing of AMed parts for both metallic and polymeric/composite-based AM processes. This symposium welcomes contributions on both experimental and theoretical aspects of various post-processing techniques using mechanical, chemical, thermal, electro-chemical, electro-thermal, and abrasive-based processes. A particular interest will be in application-oriented novel post-processing techniques and equipment. Papers from the industry are strongly encouraged, as they provide valuable insights into real-world challenges and solutions.
Specific topics of interest include, but are not limited to:

- Post-processing of AMed metal parts by various AM processes, i.e., laser powder bed fusion (LPBF), direct energy deposition (DED), selected laser melting (SLM), wire arc additive manufacturing (WAAM), etc.
- Machining of metallic AMed parts, i.e., milling, turning, grinding, and other finishing processes
- Abrasive-based post-processing, i.e., abrasive flow machining, shot peening, abrasive or sandblasting, etc.
- Laser polishing, finish machining, Electrochemical (ECM) or electro-discharge (EDM) polishing of metallic AMed parts
- Post-processing of AMed polymeric and fiber-reinforced polymer (FRP) composites
- Machining of AMed carbon fiber reinforced polymer (CFRP) composites
- Heat treatment of metallic and polymeric AMed parts
- Chemical treatment of chemical post-processing of polymeric AMed parts
- Hot isotropic pressing as a post-processing technique for polymeric AMed parts
- Laser finishing of polymeric and composite AMed parts
- Process monitoring and control, process and system characterization, modeling, and simulation

### Paper Submission (Dates are subject to change)

| | |
|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
| Paper acceptance notification | January 30, 2026 |
| Submission of revised papers for review | February 16, 2026 |
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- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of ManufacturingScience and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Invite keynote speaker(s) for the symposium
- Organize a review paper for the symposium

### Organizers

Dr. Muhammad Pervej Jahan, Miami University, Oxford, OH, USA, jahanmp@miamioh.edu
Dr. Abdul Sayeed Khan, Oak Ridge National Laboratory (ORNL), khana1@ornl.gov
Dr. Jianfeng Ma, Saint Louis University, Saint Louis, USA, jeff.ma@slu.edu

The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## 3D Bioprinting: New Technology and Novel Bioink Development

Sponsored by the ASME Manufacturing Engineering Division's
*Biomanufacturing Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

The world of biomanufacturing is experiencing a revolutionary shift, thanks to incredible advancements in 3D bioprinting, materials science, and computational design. We're entering an exciting era where engineered living systems meet cutting-edge fabrication, allowing us to create functional biological structures like never before. This dynamic field combines affordable, accessible hardware with sophisticated bioink formulations. Imagine the possibilities for regenerative medicine, realistic disease modeling, and even sustainable bioproduction! 3D bioprinting offers unparalleled precision, meticulously arranging cells, biomolecules, and materials to mimic natural tissue architectures and functions. New bioprinting platforms, equipped with advanced nozzle systems, modular bioreactors, and integrated AI and machine learning, are pushing the boundaries of what's achievable, leading to customized, high-performance constructs. Simultaneously, innovative bioinks are being developed to improve accuracy, support cell activity, and optimize the entire printing process. To truly bring these laboratory breakthroughs to life as clinical and commercial solutions, collaboration is key. This symposium offers a unique space for engineers, scientists, and technologists to connect, share insights, and forge partnerships. Discussions will cover everything from design principles for next-gen bioprinting and the challenges of scale-up to the ethical and social implications of engineering living systems for human applications.

Specific topics of interest include, but not limited to:

- Innovations in Bioprinting Platforms and Process Automation.
- Novel Bioink Design and Functionalization.
- Computational Modeling, Simulation, and Optimization.
- Validation, Characterization, and Translation to Practice.
- Ethics, Sustainability, and Future Directions.
- Artificial Intelligence in Biofabrication and Biomanufacturing.
- Hybrid Biofabrication Techniques (e.g., integrating of extrusion, inkjet, laser-assisted).
- In-situ Monitoring and Real-time Feedback Control for quality control of scaffold and cell observation.
- Standardization and Regulatory Pathways for clinical translation of bioprinted tissues and organs.
- Multi-scale Bioprinting for Vascularization and Innervation

### Paper Submission (Dates are subject to change)

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|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
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- Accepted papers can be later submitted for review to any ASME journal, such as the *ASME Journal of Manufacturing Science and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Invite keynote speaker(s) for the symposium
- Organize a review paper for the symposium

### Organizers

Dr. Ahasan Habib, Rochester Institute of Technology (RIT), mahmet@rit.edu
Dr. Congrui Grace Jin, Texas A&M University, jincongrui@tamu.edu
Dr. Roozbeh "Ross" Salary, Marshall University, salary@marshall.edu
Dr. Mohammad Khondoker, University of Regina, mohammad.khondoker@uregina.ca
Miles Adams, CCO, Myco Industries Group L.L.C., miles@mycoindustriesgroup.com

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The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Advances in Development and Analysis of Biomedical Devices and Their Interactions with Biological Materials

Sponsored by the ASME Manufacturing Engineering Division's
*Biomanufacturing Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

## Technical Focus

The characteristics, use, and performance of materials, structures, and devices for biomedical applications entail unique requirements for biomedical manufacturing. A better understanding of biomedical materials, manufacturing processes, and systems can lead to safer, smarter, and lower-cost biomedical devices and procedures to advance both fundamental biological research and healthcare. In addition to the continual improvement of generic devices, new technologies, such as artificial intelligence, machine learning, additive manufacturing, sensing and robotics, have been emerging to foster innovative ideas and tools for the research and development of next-generation biomedical devices as well as novel manufacturing processes and systems for the medical devices' interactions with biological materials. Examples include advanced manufacturing processes for minimal damaging flexible biomedical devices made of soft materials, personalized custom devices and procedures, novel surgical tools and processes, medical and surgical robots, intraoperative monitoring and feedback, novel bio-signal sensing and human-machine interfaces, data-driven approach for digital diagnostics, and so on. This symposium aims to identify the constraints imposed on manufacturing processes and systems by the requirements of biological materials and biomedical devices, present forefront research results, highlight needs and solutions in biomedical device development and analysis, and point to new paths for conceiving, designing, and operating the enabling novel manufacturing processes and systems to optimize the devices' interactions with biological materials. Original contributions are invited in, but not limited to the following areas:

- Analysis of biological tissue manipulation processes and modeling/experimentation of biomedical procedures.
- Design, manufacturing, and analysis of advanced biomedical devices and corresponding biological material interactions.
- Characterization and modeling of biological materials and related biomedical manufacturing processes.
- Novel manufacturing processes, equipment, materials, and systems for biomedical manufacturing cases.
- Advances in process modeling and validation of biomedical manufacturing procedures for biomedical devices.
- Novel devices, processes, controls, and systems in both fundamental biological research and healthcare.
- Development of novel tools and systems for bio-material processing, digital diagnostics, and medical procedures.
- Machine learning and artificial intelligence in biomedical manufacturing processes, systems, and devices.
- Advances in biomedical robotics, custom devices, bio-sensors, and other human-machine interfaces.

## Paper Submission (Dates are subject to change)

| | |
|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
| Paper acceptance notification | January 30, 2026 |
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## Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Work to attract a high-profile industrial keynote speaker
- Work to organize a paper on state-of-the-art biomedical manufacturing and/or certain biomedical devices

## Organizers

Dr. Lei Chen, University of Massachusetts Lowell, Lowell, MA, USA, Lei_Chen@uml.edu
Dr. Yi Wang, University of Missouri, Columbia, MO, USA, yiwang@missouri.edu
Dr. Cheng Yang, Takeda Pharmaceutical Company, Cambridge, MA, USA, cheng.yang@takeda.com

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The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Advancing Sustainable Manufacturing through Synergizing Process Innovation and Systems Planning

Sponsored by the ASME Manufacturing Engineering Division's
*Life Cycle Engineering Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

## Technical Focus

The rising global demand for emerging technologies, coupled with worsening resource scarcity and persistent geopolitical disruptions, is placing immense pressure on manufacturing processes and systems to become more sustainable and resilient. Addressing these challenges requires innovation across multiple scales, from individual machine tools to interconnected supply chain networks. Accordingly, this symposium highlights interdisciplinary research that bridges process-level innovation with systems-level strategies to foster a more sustainable and symbiotic industrial landscape. At the process level, we welcome contributions focused on material selection, product design, and process optimization aimed at improving resource efficiency, minimizing waste, and enhancing circularity. At the systems level, we encourage submissions that employ integrated modeling, simulation, and macroscopic analysis to uncover interdependencies, trade-offs, and leverage points within complex industrial ecosystems. Taken together, these complementary perspectives form the basis of this symposium, which seeks to provide a platform for exchanging diverse insights, computational tools, and analytical frameworks that operationalize sustainable manufacturing processes and systems. We invite participation from academia, industry, and government, united by a shared commitment to advancing interdisciplinary research and collaborative initiatives in life cycle engineering.

Specific topics to be covered in this symposium include, but are certainly not limited to:

- Sustainability-focused product design, process optimization, and operations management
- Simulation modeling and digital twins for sustainable process and supply chain planning
- Techno-Economic Analysis (TEA) and Life Cycle Assessment (LCA) across varying system boundaries
- Waste minimization, byproduct valorization, and industrial symbiosis
- Integration of alternative fuels and renewable energy into manufacturing processes and systems
- Preemptive planning for mitigating supply chain risks and sustainability consequences
- Risk-informed decision-making for material circularity, energy efficiency, economic feasibility, and social responsibility

## Paper Submission (Dates are subject to change)

| | |
|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
| Paper acceptance notification | January 30, 2026 |
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- Accepted papers can be later submitted for review to any ASME journal, such as the *ASME Journal of Manufacturing Science and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

## Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Host a panel discussion featuring experts in sustainable manufacturing, and/or invite a high-profile keynote speaker
- Consider outstanding submissions for fast-track publication in a special issue of the Journal of Manufacturing Science and Engineering (JMSE) and the Journal of Mechanical Design (JMD), focused on advances in design and manufacturing for sustainability.

## Organizers

Dr. Vinh Nguyen, Michigan Technological University, MI, USA, vinhn@mtu.edu
Dr. Sidi Deng, State University of New York at Binghamton, Vestal, NY, USA, sdeng6@binghamton.edu
Dr. Buddhika Hapuwatte, University of Maryland, College Park, MD, USA, buddhika@umd.edu

The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## AI-Driven Life Cycle Engineering for Sustainable and Resilient Manufacturing Systems

Sponsored by the ASME Manufacturing Engineering Division's
*Life Cycle Engineering Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

## Technical Focus

This symposium explores the integration of Artificial Intelligence (AI) and Life Cycle Engineering (LCE) to advance sustainability and resilience in manufacturing. As industries strive to reduce environmental impact while maintaining performance and adaptability, AI offers transformative capabilities for life cycle optimization, predictive decision-making, and intelligent resource management. The session welcomes theoretical and applied contributions across all areas of manufacturing – including but not limited to machining, additive manufacturing, forming, finishing, and hybrid processes – with an emphasis on real-time monitoring, digital twins, and AI-driven control. Particular focus will be placed on approaches that enhance energy efficiency, material utilization, and carbon footprint reduction through data-informed strategies across the product life cycle. Contributions from industry are especially encouraged, including case studies demonstrating practical deployment of AI and LCE principles for sustainability and operational resilience. Topics may span eco-design, circularity, end-of-life strategies, supply chain adaptability, and AI-based process optimization. The symposium aims to foster cross-sector dialogue and highlight innovations that shape the future of sustainable manufacturing.

Specific topics to be covered in this symposium include, but are certainly not limited to:

- Artificial Intelligence and Machine Learning for Life Cycle Assessment (LCA)
- Digital Twins for Circular and Sustainable Manufacturing
- Smart Monitoring and Diagnostics for Sustainable Manufacturing
- Resilience Engineering and Adaptive Manufacturing via AI
- AI-driven Optimization for Energy and Resource Efficiency in Manufacturing
- Case Studies and Industrial Applications
- AI-Enabled Sustainability in Manufacturing Processes: machining, forming, additive manufacturing, and hybrid manufacturing processes.
- Data-driven Decision-making for Sustainable Manufacturing

## Paper Submission (Dates are subject to change)

| | |
|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
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## Additional Symposium Activities

To emphasize recent advancements in this technical area, the symposium organizers will undertake the following initiatives:

- Invite a high-profile international expert

## Organizers

Dr. Tanmay Tiwari, The University of Akron, OH, USA. ttiwari@uakron.edu
Dr. Vikram Bedekar, The Timken Company, OH, USA. vikram.bedekar@timken.com
Dr. Jing (Julia) Zhao, Penn State Behrend, PA, USA. jqz5665@psu.edu

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# — Call for Papers —

A Symposium on

## Quality, Reliability, and Environmental Impact Modeling in Manufacturing under Uncertainty

Sponsored by the ASME Manufacturing Engineering Division's
*Quality and Reliability & Life Cycle Engineering Technical Committees*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

Manufacturing systems are expected to consistently achieve high levels of quality and reliability while reducing environmental footprint. These demands are compounded by the presence of uncertainty and variability in the manufacturing materials, systems and conditions. This symposium will showcase recent advances in modeling methods that address these challenges through robust design strategies, data-driven decision-making, and integrated assessment frameworks. It brings together cutting-edge research on uncertainty quantification, reliability engineering, quality control, and sustainability metrics, highlighting validated tools and industrial applications that ensure product reliability, geometric precision, and environmental accountability.

Interdisciplinary approaches spanning process simulation, artificial intelligence (AI) and machine learning (ML), probabilistic design, and life cycle assessment (LCA), particularly those that improve transparency, traceability, and comparability of system performance under real-world conditions, are emphasized. Contributions that integrate standards, including geometric dimensioning and tolerancing (GD&T), and support design intent, quality assurance, and downstream manufacturing decisions are especially encouraged. This symposium supports actionable improvements in manufacturing system design, policy alignment, and sustainability reporting.

Specific topics of interest include, but are not limited to:

- Theoretical and computational methods for uncertainty quantification in manufacturing
- Statistical and probabilistic approaches for quality control and assurance
- Robust design methodologies and process optimization under uncertainty
- Data-driven and AI/ML-enabled methods for resilience, robustness, traceability, and reliability
- Integration of GD&T with digital twins, process models, and quality assurance frameworks
- Integration of LCA with manufacturing process models and simulations
- Sensitivity analysis and uncertainty propagation in environmental impact modeling
- Environmental data transparency, traceability, interpretability, and interoperability
- Blockchain, IoT, and other digital traceability tools for quality and sustainability
- Standards and frameworks for qualification and certification under uncertainty
- Case studies demonstrating improved system performance and validated applications
- Open-source and industrial platforms for environmental and quality metrics reporting

### Paper Submission (Dates are subject to change)

Submission of abstract for review (**mandatory**) ..... October 20, 2025
Submission of full manuscripts for review ..... October 31, 2025
Paper acceptance notification ..... January 30, 2026
Submission of revised papers for review ..... February 16, 2026
Author notification of acceptance of revised papers ..... February 27, 2026
Submission of final papers and copyright form ..... March 20, 2026
Author registration deadline ..... April 17, 2026

- Submissions will only be accepted via the conference website: https://event.asme.org/MSEC/.
- We accept full papers (7-10 pages), brief papers (4-5 pages), and abstract only presentations (industry presenters only).
- The presenting author must register by **April 17, 2026** or the paper will be withdrawn from the conference proceedings.
- **High quality MSEC 2026 papers will be channeled to an ASME journal for fast-tracked review and publication.**
- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of ManufacturingScience and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Invite keynote speaker(s) for the symposium
- Organize a review paper for the symposium

### Organizers

Dr. Paromita Nath, Rowan University, NJ, USA, nath@rowan.edu
Dr. Joseph (Yossi) Cohen, Rutgers University, NJ, USA, jc3626@rutgers.edu
Dr. Neha Shakelly, Argonne National Laboratory, Lemont, IL, USA, nshakelly@anl.gov

The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Innovations in Equipment Design, Control and Automation

Sponsored by the ASME Manufacturing Engineering Division's
*Manufacturing Equipment and Automation Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

Advances in manufacturing technologies need to be aided by innovations in manufacturing equipment, tooling, and control/automation for effective deployment and commercialization. Most often, innovations in equipment/tooling design or control/automation are inspired by the requirements of a new manufacturing technology or the need to improve existing manufacturing processes. This symposium focuses on such demonstrated innovations in the design and control of equipment or components that enable new or improve existing manufacturing technologies. Specific topics of interest include, but are not limited to:

- Machine tools, industrial robots, and other equipment in manufacturing
- Design and control of additive manufacturing systems, metrology systems, or hybrid machine systems
- Novel multi-axis machine structures and controllers
- Modeling, monitoring, and control of manufacturing equipment (CNC machining, joining, forming, and so on)
- Advances in sensors, actuators, motion command algorithms for positioning systems
- Data acquisition methods and data-driven machine tool/process automation and control
- Design and control of novel precision positioning systems (e.g., lithography, deposition, micro-machining)
- Sensor systems and integration for manufacturing equipment (e.g., sensor assisted 3D printing or machining)
- Smart Manufacturing in automation: machine learning, deep learning, and digital twin for equipment control and autonomous operation
- Novel tool holder design, tool path planning (e.g., in machining), and tool design (e.g., in forming)
- Automation in metrology systems and processes
- Remote data collection and smart control of equipment, cloud data storage, accessibility, and processibility.

### Paper Submission (Dates are subject to change)

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|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
| Paper acceptance notification | January 30, 2026 |
| Submission of revised papers for review | February 16, 2026 |
| Author notification of acceptance of revised papers | February 27, 2026 |
| Submission of final papers and copyright form | March 20, 2026 |
| Author registration deadline | April 17, 2026 |

- Submissions will only be accepted via the conference website: https://event.asme.org/MSEC/.
- We accept full papers (7-10 pages), brief papers (4-5 pages), and abstract only presentations (industry presenters only).
- The presenting author must register by **April 17, 2026** or the paper will be withdrawn from the conference proceedings.
- **High quality MSEC 2026 papers will be channeled to an ASME journal for fast-tracked review and publication.**
- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of ManufacturingScience and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Invite a high-profile international keynote speaker.
- Organize a special issue in the ASME Journal of Manufacturing Science and Engineering, and
- Organize a state-of-the-art paper that will be the lead article in the special issue.

### Organizers

Dr. Chandra Nath, Purdue University, West Lafayette, IN, USA, Ph: +1-217-607-3029, nathc@purdue.edu
Dr. Huitaek Yun, Korea Advanced Institute of Sci & Tech (KAIST), Daejeon, S. Korea, +82-42-350-3011, htyun@kaist.ac.kr
Dr. Kyle Saleeby, Georgia Institute of Technology, Atlanta, GA, USA, +1- 404-384-0033, kylesaleeby@gatech.edu

The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Intelligent Sensing, Analytics, and Control for Manufacturing Processes

Sponsored by the ASME Manufacturing Engineering Division's
*Manufacturing Equipment and Automation Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

Modern manufacturing systems face growing pressures such as tighter quality requirements, limited resources, and increasing demands for sustainability. To remain competitive, manufacturers must achieve higher levels of efficiency, flexibility, and adaptability, while ensuring robust and reliable operations.

Intelligent sensing, analytics, and control offer powerful tools to meet these challenges. By integrating advanced sensing technologies, data analytics, dynamic modeling, and AI-driven decision-making, manufacturers can enable real-time adaptation to changing conditions, better resource utilization, and improved process consistency. This symposium will highlight innovations that combine sensing, analytics, and control to improve manufacturing performance, enable reconfigurable systems, and support emerging technologies such as robotics and additive manufacturing.

The session is designed for researchers and practitioners interested in how sensing, analytics, and automation can directly impact manufacturing from reducing scrap and downtime to enabling smarter, more sustainable production. We invite contributions that demonstrate real-world applications, emerging techniques, and lessons learned at the intersection of manufacturing processes, sensing technologies, analytics, and control strategies. This session will also encourage discussion on future opportunities and challenges in bringing intelligent, learning-enabled automation into mainstream manufacturing practice.

Topics of interest include, but are not limited to:

- Advanced sensing technologies and sensor integration for manufacturing processes
- Data-driven optimization tools for improving process efficiency, quality, and sustainability
- Physics-informed modeling to better predict and control manufacturing processes
- Process monitoring, anomaly detection, and predictive maintenance enabled by analytics
- Model predictive control (MPC) for robotics and complex manufacturing systems
- Hierarchical control strategies for multi-stage and large-scale manufacturing
- Path planning and motion control for robotic manufacturing applications
- Robotics for flexible and reconfigurable manufacturing
- AI- and learning-based control for adaptive and autonomous operation
- Control solutions for additive manufacturing processes
- Digital twins for process monitoring, analytics, and optimization
- Learning-enabled adaptation and continuous process improvement

### Paper Submission (Dates are subject to change)

| | |
|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
| Paper acceptance notification | January 30, 2026 |
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- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of ManufacturingScience and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

### Organizers

Dr. Nazanin Farjam, University of Illinois at Urbana-Champaign, Urbana, IL, USA, nfarjam@illinois.edu
Dr. Ilya Kovalenko, Penn State University, State College, PA, USA, iqk5135@psu.edu
Dr. Uduak Inyang-Udoh, University of Michigan, Ann Arbor, MI, USA, udinyang@umich.edu
Dr. Duan Molong, Hong Kong University of Science and Technology, Clear Water Bay, HK, duan@ust.hk
Stephanie Locks-Hartle, Lockheed Martin, Orlando, FL, US, stephanie.locks-hartle@lmco.com

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The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Advancing In-Space Manufacturing: Capabilities, Infrastructure, and Applications

Sponsored by the ASME Manufacturing Engineering Division's
*Manufacturing Equipment & Automation Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

The extreme environment in space brings a new set of opportunities to realize sustained long-term presence, for commerce and defense in addition to exploration. As part of this momentum toward Space 2.0, this inaugural NAMRC/MSEC symposium focused on 'In-Space Servicing, Assembly, and Manufacturing' (ISAM) invites contributions to engage and discuss cutting-edge ideas and solutions that will shape the future of in-space infrastructure. This symposium will spotlight emerging technologies and methodologies in ISAM, with a focus on enabling scalable, autonomous, and resilient systems for space-based operations. Contributions focusing on novel in-space manufacturing science and engineering approaches, tools/platforms(s) for enabling ISAM operations (including physical and digital footprints) are encouraged. The symposium expects active participation of authors from academia, industry, and government to foster interdisciplinary collaboration and accelerate the realization of ISAM capabilities. Specific topics of interest include, but are not limited to:

- Robotics, automation, and autonomy for ISAM
- Testbeds, platforms, and experimental infrastructure for ISAM
- Advanced manufacturing processes in microgravity environments
- In-situ resource utilization (ISRU) for sustainable operations
- Digital twins and simulation frameworks for space manufacturing
- Qualification and certification of ISAM-fabricated components
- Application case studies: ISAM for space-based and terrestrial benefits
- Education, training, and workforce development for the ISAM ecosystem

### Paper Submission (Dates are subject to change)

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|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
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| Submission of revised papers for review | February 16, 2026 |
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- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of ManufacturingScience and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers plan to include the following activities in addition to the technical presentations:

- Invited keynote speaker(s) for the symposium
- Organize a panel discussion session with ISAM subject matter experts from industry, academia, and government.
- Presentations based on papers published in the world's first special issue on ISAM (ASME Journal of Materials Science and Engineering, Vol. 146, Issue 12, Dec. 2024).

### Organizers

Dr. Salil Bapat, Purdue University, West Lafayette, IN, USA, bapat0@purdue.edu
Dr. Sathyan Subbiah, Indian Institute of Technology Madras (IITM), Chennai, India, sathyans@iitm.ac.in

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The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Advanced Machining and Deformation Processes

Sponsored by the ASME Manufacturing Engineering Division's
*Manufacturing Processes Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

The technical focus is on "advanced machining and deformation processes", which are required for manufacturing of diversified products at different scales. Despite being a traditional area, machining and deformation technologies continue to evolve to improve the part quality, handle new materials, and reduce energy consumption and environmental impacts. New topics have emerged in the past few years, such as hybrid manufacturing and smart manufacturing, in both hardware and software development. There is also a great need from the industry to seek advanced machining research, collaborate with academia, and find future workforce with a strong background in this field. However, with the enlarging scope of the manufacturing community, machining research has been dramatically expanded. Overall, this symposium aims to serve as a robust platform for advancing both applied and fundamental research in machining and deformation processes, machine tools, instrumentation, metrology, and AI-enabled technologies. Specific topics may include, but are not limited to:

- Advances in machine tools, cutting/abrasive tools, coatings, and tooling
- Advances in machining processes: cutting, abrasive machining, polishing, EDM, ultra-precision machining, etc.
- In-situ sensing, measurement and diagnostics
- Modeling and simulations of machining and deformation processes at multiple scales
- Modeling and experimental studies in machining dynamics
- Lubrication, tribology and wear in machining and deformation processes
- Machining of difficult-to-process materials, such as new alloys, ceramics, or composites
- Smart machining and deformation processes with sensor fusion and machine learning
- Machining aspects of hybrid manufacturing
- Sustainability issues and solutions
- Advances in metrology, measurement instruments and uncertainty evaluation
- Microstructure evolution and related effects on processes
- Automation and control of machining and deformation processes
- Process planning for multi-axis and multi-tasking machining operations
- Part surface integrity in machining

### Paper Submission (Dates are subject to change)

| | |
|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
| Paper acceptance notification | January 30, 2026 |
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| Author notification of acceptance of revised papers | February 27, 2026 |
| Submission of final papers and copyright form | March 20, 2026 |
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- **High quality MSEC 2026 papers will be channeled to an ASME journal for fast-tracked review and publication.**
- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of ManufacturingScience and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering*.

### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Invite keynote speaker(s) for the symposium
- Organize a review paper for the symposium

### Organizers

Dr. Burak Sencer, Oregon State University, Corvallis, USA, burak.sencer@oregonstate.edu
Dr. Xiaoliang Jin, University of British Columbia, Vancouver, BC, Canada, xjin@mech.ubc.ca
Dr. Norikazu Suzuki, Kobe University, Japan, nsuzuki@mech.kobe-u.ac.jp
Dr. Tatsuya Sugihara, Osaka University Japan, sugihara@cape.mech.eng.osaka-u.ac.jp
Dr. Christopher Tyler, Oak Ridge National Labs, USA, tylerct@ornl.gov

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* The conference is collocated with NAMRI/SME's 54rd North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Advanced Manufacturing of Energy Technologies

Sponsored by the ASME Manufacturing Engineering Division's
*Manufacturing Processes Technical*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

The growing energy demand in modern society is a major driving force behind the advancement of diverse energy technologies, including batteries, fuel cells, solar cells, wind, hydropower, and nuclear energy, alongside traditional fossil fuels. Among these developments, electro-mobility has emerged as a globally recognized paradigm, referring to the use of electric energy to power a wide range of vehicles, from motorcycles and scooters to cars and buses. The integration of advanced energy technologies, particularly batteries and fuel cells, into modern vehicles has spurred the rapid evolution of specialized manufacturing processes. These processes must accommodate high-volume production, minimize waste, and offer the flexibility needed to keep pace with the continual innovations defining this disruptive industrial landscape. As such, manufacturing has become a focal point in the push for various energy adoption, given its significant impact on cost, material waste, and carbon emissions. This symposium highlights recent research and technological advancements in manufacturing processes for emerging energy technologies and their components, with a particular emphasis on electro-mobility and other critical applications. Specific topics of interest include, but are not limited to:

- Novel manufacturing technologies and methods for energy technologies.
- Joining, cutting, and texturing for production of battery electrodes, cells, and packs.
- Additive manufacturing processes to produce advanced housing and highly electro-conductive materials.
- Manufacturing process and system design and optimization.
- In-situ monitoring and sensing the manufacturing process for energy technologies.
- Computational modeling and simulation for manufacturing processes of energy technologies.
- Artificial intelligence in advanced manufacturing of energy technologies.
- Manufacturing equipment, facilities, and infrastructure for energy technologies.
- Sustainability and scalability of manufacturing technologies.

### Paper Submission (Dates are subject to change)

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|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
| Paper acceptance notification | January 30, 2026 |
| Submission of revised papers for review | February 16, 2026 |
| Author notification of acceptance of revised papers | February 27, 2026 |
| Submission of final papers and copyright form | March 20, 2026 |
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- The presenting author must register by **April 17, 2026** or the paper will be withdrawn from the conference proceedings.
- **High quality MSEC 2026 papers will be channeled to an ASME journal for fast-tracked review and publication.**
- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of ManufacturingScience and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Invite keynote speaker(s) for the symposium
- Organize a review paper for the symposium
- Attract the members in energy manufacturing to broaden the manufacturing community

### Organizers

Dr. Lei Chen, University of Michigan-Dearborn, Dearborn, MI, USA. 313-593-5122; leichn@umich.edu
Dr. Jianlin Li, Argonne National Laboratory, Lemont, IL, USA. 630-252-4051; jianlin.li@anl.gov
Dr. Wayne Cai, General Motors, Warren, MI, USA. 248-807-3949; wayne.cai@gm.com
Dr. Heng Pan, Texas A&M University, College Station, TX, USA, hpan@tamu.edu

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The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Convergent Manufacturing: Multi-Material, Multi-Process Integration for Next-Generation Products

Sponsored by the ASME Manufacturing Engineering Division's
*Manufacturing Processes Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

Convergent manufacturing represents a transformative shift in how materials, processes, and systems are integrated within the production workflow. Merging additive manufacturing with subtractive machining, surface engineering, and in-situ monitoring technologies enables the creation of adaptive, cyber-physical manufacturing environments that hold the potential to redefine product design and production. The convergence of multiple manufacturing techniques and processing domains enables repurposing of existing manufacturing infrastructure and offers significant potential for tailored material performance, enhanced system-level functionality, and reduced lifecycle cost. This symposium aims to provide a forum for researchers, practitioners, and industry experts to share and review recent developments and advances in convergent manufacturing, multi-process modalities, and application-driven system architecture across various sectors, including aerospace, automotive, energy, tooling, repair etc. Special attention will be given to how the integration of different manufacturing techniques and processing domains with additive manufacturing can create novel workflows that accelerate innovation in production, part and material design, promote productivity and sustainability.
Specific topics of interest include, but are not limited to:

- Integration of additive manufacturing with conventional processes such as subtractive machining, thermal and surface treatments (e.g., induction heating, peening, rolling) in a single system
- Design for hybrid and convergent manufacturing using Integrated Computational Materials Engineering (ICME)
- Digital twins, modeling, simulation, AI/ML- enabled process planning and control of production systems
- Recycling materials and remanufacturing products to extend product lifecycle
- Hybrid and convergent manufacturing processes for integration of dissimilar materials (e.g., metals, ceramics, and polymers) by co-processing and interfacial integration for functionally hybrid structures (e.g. soft robotics/ actuators, active metamaterials, smart and multifunctional textiles, embedded sensors, antennas, and other printed electronics)
- Manufacturing processes of functionally graded materials (FGMs) for controlled property gradients (e.g. in composition, microstructure, or porosity) across a single product (e.g., aerospace thermal protection system)
- Design and manufacturing processes of parts with inherent need for co-fabrication of structural, electrochemical, and/or optical components within a unified architecture (e.g., energy storage devices, advanced optoelectronics, bioelectronics)

### Paper Submission (Dates are subject to change)

| | |
|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
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- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of ManufacturingScience and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Invite a high-profile keynote speaker from the industry to share industrial needs and practices about development and deployment of convergent manufacturing systems
- Organize a special issue in a relevant ASME journal

### Organizers

Dr. Shramana Ghosh, Oak Ridge National Laboratory, Oak Ridge, TN USA. ghoshs2@ornl.gov
Dr. Eric McDonald, University of Texas El Paso, TX, USA, emac@utep.edu
Dr. Jason Jones, Hybrid Manufacturing Technologies, McKinney, TX USA. jj@hybridmanutech.com
Dr. Jenny Qiu, Texas A&M University, TX, USA. jennyqiu@tamu.edu

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The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Advances in Surface Engineering: Process, Metrology, and Property/Performance

Sponsored by the ASME Manufacturing Engineering Division's
*Manufacturing Processes Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

Surface quality and integrity play a critical role in determining the functionality and durability of a wide range of manufactured products. Advances in surface engineering techniques, particularly novel processing approaches, advanced metrology/inspection methods, and analytical methodologies, will lead to the design and manufacturing of high-performance surfaces at various length scales. This symposium will focus on research advances in the field of surface science and engineering, with an emphasis on innovations in manufacturing processes, dimensional metrology, surface inspection/characterization, and properties/performance testing. Such surface engineering techniques will have an industrial impact by achieving better dimensional accuracy and process control, a deeper understanding of factors affecting the specific manufacturing process, and, ultimately, a reduction in manufacturing costs through improved control and reduced process development time. Specific topics of interest include, but are not limited to:

- Surface processing processes: coating/deposition, finishing, patterning, cleaning, peening, hardening, etc.
- Surface quality of components fabricated by machining, casting, welding, additive manufacturing, etc.
- Advanced functional surfaces/coatings: nanotechnology, energy conversion/storage, biomaterials and biodevices, etc.
- Theoretical calculation/modeling of surface processing.
- Surface science of catalysis, electrocatalysis, photocatalysis, photoelectrochemical devices, etc.
- Dimensional metrology: metrology system design and fabrication, 3D/4D metrology methods, precision calibration techniques, machine-learning/deep-learning-based metrology, etc.
- Surface inspection/characterization: surface profilometry in manufacturing processes, characterization of surface topography, trustworthiness of 3D surface topography data, surface data analytics, etc.
- In-situ/in-process/multi-modal measurement techniques for additive or other manufacturing processes.
- Surface properties: tribology (friction and wear), corrosion and oxidation resistance, hydrophilicity/hydrophobicity, contact/bending fatigue, anti-icing, anti-bacterial, anti-biofouling, etc.
- Multifunctional performance of advanced surface designs for energy, biomedical, and environmental applications.
- Semiconductor (wafer, photomask, pellicle, etc.) surface/defect metrology and inspection.

### Paper Submission (Dates are subject to change)

| | |
|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
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- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of ManufacturingScience and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Work to attract a high-profile international keynote speaker
- Organize a special issue in the ASME Journal of Manufacturing Science and Engineering or ASME Journal of Micro and Nano-Manufacturing
- Promote a partnering platform connecting university research with industry R&D for successful partnerships

### Organizers

Dr. Avik Samanta, University of South Florida, Tampa, FL, USA, aviksamanta@usf.edu
Dr. Yiliang (Leon) Liao, Iowa State University, Ames, IA, USA, leonl@iastate.edu
Dr. Beiwen Li, University of Georgia, Athens, GA, USA, beiwen.li@uga.edu
Dr. Yao Qiao, Pacific Northwest National Laboratory, Richland, WA, USA, yao.qiao@pnnl.gov

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The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## AI in Manufacturing Systems

Sponsored by the ASME Manufacturing Engineering Division's
*Manufacturing Systems Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

Artificial Intelligence (AI) is assuming an increasingly significant role in the evolution of manufacturing systems, facilitating deeper integration between human decision-makers and data-intensive operational environments. Recent advances in generative artificial intelligence (GenAI) further this trend by fundamentally transforming how manufacturing systems operate under uncertainty and engage with humans, fostering natural human-system communication, semantic understanding, cross-task generalization, and autonomous task planning. These capabilities are critical for meeting the growing demands for sustainability, resilience, and human-centered innovation in modern manufacturing.

This symposium will focus on the latest research and advancements in the innovation and application of AI techniques—including neural networks, reinforcement learning, and emerging GenAI methods such as large language models (LLMs), vision-language models (VLMs), multimodal generative models, and domain-specific foundation models. The emphasis is on leveraging these technologies to enhance the design, operation, interaction, and continuous improvement of adaptive, sustainable, and resilient manufacturing systems.

Specific topics of interest include, but are not limited to GenAI and other AI techniques for:

- System modeling, control, planning, and optimization
- Resilience planning to withstand, adapt to, and recover from disruptions
- Sustainable product design and system planning
- Human-in-the-loop design, operation and collaboration
- Product and system ideation, design, and engineering support
- Data synthesis and augmentation
- Manufacturability assessment
- Explainable and/or trustworthy system modeling, decision-making and control
- Generation of on-demand training contents, procedural updates, and interactive troubleshooting guides
- Integration of AI/GenAI with digital twins, IoT, and cyber-physical systems
- Domain-specific AI/GenAI for real-world challenges

### Paper Submission (Dates are subject to change)

| | |
|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
| Paper acceptance notification | January 30, 2026 |
| Submission of revised papers for review | February 16, 2026 |
| Author notification of acceptance of revised papers | February 27, 2026 |
| Submission of final papers and copyright form | March 20, 2026 |
| Author registration deadline | April 17, 2026 |

- Submissions will only be accepted via the conference website: https://event.asme.org/MSEC/.
- We accept full papers (7-10 pages), brief papers (4-5 pages), and abstract only presentations (industry presenters only).
- The presenting author must register by **April 17, 2026** or the paper will be withdrawn from the conference proceedings.
- **High quality MSEC 2026 papers will be channeled to an ASME journal for fast-tracked review and publication.**
- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of ManufacturingScience and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- work to attract a high profile international invited speaker including honorarium
- organize a state-of-the-art review paper that will be the lead article in the special issue

### Organizers

Dr. Xingyu Li, Purdue University, West Lafayette, IN, USA. li4558@purdue.edu
Dr. Rajiv Malhotra, Rutgers University, New Brunswick, NJ, USA. rm1306@soe.rutgers.edu
Dr. Sekhar Rakurty, The M. K. Morse Company, OH, USA. RakurtyS@mkmorse.com
Dr. Quan (Jason) Zhou, Hitachi America, Ltd., MI, USA. Quan.Zhou@hal.hitachi.com

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The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Robotics and Automation in Smart Manufacturing Systems

Sponsored by the ASME Manufacturing Engineering Division's
*Manufacturing Systems Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

Robotics is a key enabler of smart manufacturing systems. The integration of robotic technologies with advanced sensing, artificial intelligence (AI), digital twin, automation, and controls is transforming manufacturing operations toward greater autonomy, adaptability, efficiency, and resilience. From collaborative robots (cobots) to mobile and reconfigurable platforms, robotics in modern manufacturing now extends beyond traditional automation to include flexible task execution, real-time decision-making, and intelligent human-machine interaction. This symposium focuses on the innovations and applications of robotics in smart manufacturing systems. It aims to provide a forum for researchers and practitioners to exchange knowledge on methodologies that enable robots to interact with complex production environments, support adaptive production, and collaborate with human operators safely, efficiently, and effectively. The goal is to highlight the role of robotics and modern automation as a central pillar of the smart manufacturing transformation. Specific topics of interest include but are not limited to:

- AI-enhanced robot perception, planning, and control
- Mobile robots and intralogistics in smart factories
- Robotics-enabled manufacturing processes and systems (e.g., machining, welding, forming, additive manufacturing, hybrid manufacturing)
- Robotics for flexible and high-precision assembly
- Robotics for metrology and dimensional inspection (e.g., machine vision, 3D scanning)
- Cobots and human-robot collaboration
- Robotics for in-line inspection, quality assurance, and process adaptation
- Robotics-enabled reconfigurable manufacturing systems and production lines
- Computer vision for robotic systems and automation
- Digital twins and simulation tools for design, operation, and maintenance of robotic systems
- Multimodal data fusion for robotic perception and decision-making
- Real-time adaptive control in robotic manufacturing
- Cyber-physical systems for integrated robotic manufacturing systems
- Multi-robot coordination and task allocation
- Other intelligent automation technologies in manufacturing systems
- Industrial case studies of robotic integration in smart manufacturing environments

### Paper Submission (Dates are subject to change)

Submission of abstract for review (**mandatory**) ..... October 20, 2025
Submission of full manuscripts for review ..... October 31, 2025
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- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of ManufacturingScience and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering.*

### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will organize an industry-academia discussion panel.

### Organizers

Dr. Chenhui Shao, University of Michigan, Ann Arbor; +1 (734) 615-6474; chshao@umich.edu
Dr. Haseung Chung, Michigan State University; +1 (517) 432-6583; chunghas@msu.edu
Dr. Amit Bagchi, US Naval Research Laboratory; +1 (202) 557-5222; bagchia@asme-member.org
Dr. Guangze Li, General Motors R&D; +1 (313) 720-0156; guangze.li@gm.com
Dr. Gary Zhang, General Motors Autonomous Robotic Center; +1 (586) 487-2617; yubiao.zhang@gm.com

The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Emerging Nontraditional Methods for Micro and Nano Manufacturing

Sponsored by the ASME Manufacturing Engineering Division's
*Nano/Micro/Meso Manufacturing Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

## Technical Focus

This symposium focuses on emerging nontraditional manufacturing methods operating at micro-, nano- and meso-scales, where conventional approaches such as mechanical machining or bulk forming face significant limitations due to scale-induced effects and resolution requirements. As the demand grows for highly integrated microsystems, precision biomedical devices, and engineered functional surfaces, new fabrication strategies are imperative. This symposium will cover additive, electrochemical, photonic, field-assisted, and other advanced techniques that operate effectively at small scales. It aims to highlight fundamental advances in process science, novel system architectures, and application-driven development of micro/nanoscale devices. Distinct from symposia focusing on traditional or subtractive approaches, this session emphasizes nontraditional, non-contact, and multi-physics enabled processes. Both theoretical and experimental contributions are welcome, with special interest in interdisciplinary integration, in-situ metrology, and applications in biomedical devices, sensors, flexible electronics, and energy systems. Papers from academia, industry, and national labs are encouraged.

Specific topics of interest include (but are not limited to):

- Photonic and beam-based processes
- Micro and nanoscale additive manufacturing, such as two-photon polymerization, focused electron/ion beam deposition, electrochemical additive manufacturing, EHD printing, direct-ink writing, and nanoparticle jetting techniques
- Electrochemical and electrocapillary processes, such as ECM, ECDM, and electrochemical polishing
- Soft lithography, nanoimprint, and maskless lithography
- Self-assembly and directed assembly processes
- Hybrid process integration (e.g., electrochemical + lithographic systems)
- Scalable non-traditional microfabrication processes and systems
- In-situ monitoring, process control, and simulation of micro/nano processes, such as molecular dynamics simulations
- Applications of nano/micro/meso manufacturing in Biomedical microdevices and implants, Semiconductor manufacturing, Energy harvesting and storage (e.g., micro-batteries, thermoelectric systems), Flexible/wearable electronics, Microfluidic and lab-on-chip systems, and Thermal management systems

## Paper Submission (Dates are subject to change)

| | |
|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
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- Accepted papers can be later submitted for review to any ASME journal, such as *ASME Journal of Manufacturing Science and Engineering* or the *ASME Journal of Micro and Nano Science and Engineering*

## Additional Symposium Activities

To promote the growth and visibility of this field, the organizers will:

- Invite a high-impact international keynote speaker
- Coordinate a **state-of-the-art review article** summarizing advances in nontraditional micro/nano manufacturing methods

## Organizers:

Dr. Abishek B. Kamaraj, Grand Valley State University, Grand Rapids, MI, USA, Ph: +1-513-608-7803, balsamya@gvsu.edu
Dr. Hangbo Zhao, University of Southern California, CA, USA, Ph: +1-213-740-2664, hangbozh@usc.edu
Dr. Pushpinder Kumar, SGT University, pushpinder_feat@sgtuniversity.org

* The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have separate call-for-papers. Please note that submissions of the same paper to more than one conference are not permitted.

# — Call for Papers —

A Symposium on

## Advances in Meso, Micro, and Nano Subtractive and Formative Manufacturing

Sponsored by the ASME Manufacturing Engineering Division's
*Nano/Micro/Meso Manufacturing Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

Meso-, Micro- and nano-scale manufacturing is gaining more attention due to production miniaturization and customization. High precision and product quality are difficult to achieve at this length scale; thus, a deeper understanding of the processes, development of characterization methods, modeling, simulations, and monitoring are required to improve product quality. Additionally, process and system technologies need to be advanced for scalable manufacturing. Due to the size effects and difficulties in monitoring and control, simulation and prediction are particularly important at a small scale. This symposium will focus on advances in micro- and nano-scale manufacturing technologies, specifically subtractive and formative processes such as machining, forming, and joining, that address these requirements. We welcome both theoretical and experimental contributions, with a particular interest in application-oriented novel manufacturing processes and systems. Papers from the industrial sector are strongly encouraged, as they provide valuable insights into real-world challenges and solutions. Specific topics of interest at the Meso-, Micro- and Nano-scale include, but are not limited to:

1. Subtractive and Formative Processes and Technologies
   - Machining (including both mechanical and non-traditional machining methods, e.g., laser, EDM, ECM, AWJM, USM)
   - Forming, joining, and hybrid manufacturing processes
   - Surface texturing, surface integrity, and process optimization
2. Materials Science and Engineering in Manufacturing
   - Micro- and nanomaterials for manufacturing applications
   - Manufacturing of micro- and nano-composites, ceramics, and other advanced materials
   - Use of nano/micro additives and fluids to enhance manufacturing processes
3. Process Characterization, Control, and Metrology
   - Characterization, modeling, and simulation of manufacturing processes and systems
   - Process monitoring and control techniques
   - Measurement science and metrology for manufacturing precision
4. Design Innovations and Manufacturing Equipment
   - Novel product design and assembly technologies
   - Design and fabrication of micro- and nano-scale sensors
   - Equipment development for micro- and nano-scale manufacturing

### Paper Submission (Dates are subject to change)

| | |
|---|---|
| Submission of abstract for review (**mandatory**) | October 20, 2025 |
| Submission of full manuscripts for review | October 31, 2025 |
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### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Invite keynote speaker(s) for the symposium
- Organize a review paper for the symposium

### Organizers

Dr. Soham Mujumdar, IIT Bombay, Mumbai, India, Ph: +91-9922900074, sohammujumdar@iitb.ac.in
Mr. Nithin Rangasamy, The M.K. Morse Company, Canton, OH, USA, +1-330-453-8187, rangasamyn@mkmorse.com
Dr. Shiqi Fang, Fraunhofer IPK, Berlin,Germany, +1-732-867-8969, shiqi.fang@ipk-extern.fraunhofer.de

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The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

## Advances in AI-Enabled Process Monitoring and Product Quality Assurance

Sponsored by the ASME Manufacturing Engineering Division's
*Quality and Reliability Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

### Technical Focus

Artificial Intelligence (AI) is revolutionizing quality control and process monitoring techniques in modern manufacturing. This symposium will explore the transformative role of AI-driven technologies, ranging from advanced machine learning, sensor integration, computer vision, edge AI, cloud computing, and data analytics to achieve integrated process and product monitoring for a wide range of manufacturing processes and systems. The focus will be on enabling real-time process monitoring, in-situ quality assessment, early-stage defect detection, and product quality assurance in multi-stage manufacturing systems. Submissions highlighting practical implementations, validation studies, emerging frameworks, and novel AI algorithms to deliver actionable insights and continuous improvement in manufacturing quality and reliability are encouraged.

Specific topics of interest include, but are not limited to:

- AI-enabled process and product monitoring for automated defect detection, prevention, and reduction
- AI-driven predictive quality analytics and root cause analysis for anomaly detection
- Comprehensive quality assessment and traceability for processes, systems and products supported by AI-driven tools
- Explainable AI (XAI) for transparent and reliable decision-making support in quality-critical processes and systems
- Computer vision and sensor integration techniques for enhanced process and product monitoring
- Physics-informed AI models integrating domain knowledge with data-driven approaches for robust quality prediction
- Edge AI and cloud computing for secure, low-latency quality analytics
- AI techniques for adaptive process control and continuous quality optimization
- AI-based decision support systems for enhancing reliability and mitigating risk

### Paper Submission (Dates are subject to change)

| | |
|---|---|
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### Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Host a panel discussion featuring experts from academia and industry
- Organize a special issue in an ASME Journal
- Organize a state-of-the-art paper for the symposium

### Organizers

Dr. Purvee Bhatia, University of South Florida, FL, USA, purveebhatia@usf.edu
Dr. Swarit Anand Singh, Clemson University, SC, USA, swarits@clemson.edu
Dr. Ankit Agarwal, University of North Carolina Charlotte, NC, USA, aagarw31@charlotte.edu
Dr. Tyler Grimm, Kennametal Inc., PA, USA, tyler.grimm@kennametal.com

The conference is collocated with NAMRI/SME's 54th North American Manufacturing Research Conference (NAMRC54), which will have a separate call-for-papers. Please note that submission of the same paper to more than one conference is not permitted.

# — Call for Papers —

A Symposium on

# Generative AI for Machine Predictive Maintenance in Manufacturing

Sponsored by the ASME Manufacturing Engineering Division's
*Quality and Reliability Technical Committee*
2026 ASME International Manufacturing Science & Engineering Conference (MSEC)
June 22nd – June 26th, 2026
State College, Pennsylvania, USA
Hosted by the Penn State University

## Technical Focus

This symposium will focus on the emerging role of Generative AI (GenAI) in enabling advanced predictive maintenance and lifecycle management at the machine level in manufacturing environments. With the increasing availability of high-resolution, multi-sensor data and embedded tacit knowledge from CNC machines, robots, and other equipment, there is a growing need for GenAI techniques that can integrate sensor signals and domain expertise to support intelligent maintenance planning and decision-making. The goal of this symposium is to explore GenAI-powered approaches that enhance equipment reliability, enable uncertainty-aware scheduling, and provide intuitive, human-centered interfaces for operator support. We seek contributions that apply large language models (LLMs), vision-language models (VLMs), and foundation models to predictive maintenance workflows, such as RUL estimation, adaptive maintenance optimization, and multi-modal reasoning for machine-level decision support.
Topics of interest include, but are not limited to:

- GenAI for adaptive maintenance scheduling and resource-aware planning
- GenAI for Remaining Useful Life (RUL) prediction and lifecycle modeling under uncertainty
- GenAI for fusing sensor data with tacit/operator knowledge for maintenance insights
- GenAI-driven decision agents for predictive maintenance strategy generation
- Vision-Language Models (VLMs) for visual inspection and operator-facing explanations
- LLM-powered natural language interfaces for interacting with machine health data
- Foundation models specialized in machine condition interpretation and knowledge retrieval
- Integration of GenAI with digital twins for lifecycle management and human-machine collaboration

## Paper Submission (Dates are subject to change)

| | |
|---|---|
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| Submission of full manuscripts for review | October 31, 2025 |
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## Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- Invite keynote speaker(s) for the symposium
- Organize a special issue in an ASME Journal
- Organize a state-of-the-art paper for the symposium

## Organizers

Prof. Jiho Lee, University of North Texas, Denton, TX, USA, jiho.lee@unt.edu
Dr. Eunseob Kim, Purdue University, West Lafayette, IN, USA, kim3235@purdue.edu
Dr. Seokpum Kim, Oak Ridge National Lab., Oak Ridge, TN, USA, kimsp@ornl.gov

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