

# — Call for Papers —

A Symposium on

## Human-Automation Collaboration and Assembly in Advanced Manufacturing

Sponsored by the ASME Manufacturing Engineering Division's

*Manufacturing Systems Technical Committee*

*Manufacturing Processes Technical Committee*

2023 ASME International Manufacturing Science & Engineering Conference (MSEC)

June 12 – June 16<sup>th</sup>, 2023

New Brunswick, New Jersey, USA

Hosted by Rutgers University, College of Engineering

### Technical Focus

Automation in manufacturing is progressing rapidly through the adoption of techniques including Collaborative Robotics (Cobots), Cyber Physical Systems, Advanced Sensing and Instruments, Simulation, Data Analytics, and Artificial Intelligence (AI). However, the significantly increased complexity of manufacturing automation causes difficulty for operators to collaborate with machines that currently lack the appropriate human-computer/machine/robot coordination, safety, and planning tools. Furthermore, experienced workers are retiring steadily, and their experience cannot be captured and transferred to new generations effectively and efficiently. To address the aforementioned problems, this symposium will focus on research advances in the areas of planning, monitoring, development, performance, and control of human-automation collaborative platforms for advancing the quality, efficiency, sustainability, agility, safety, and flexibility of manufacturing processes/systems under various human involvement levels. Specific topics of interest include, but are not limited to:

- Advanced technological devices for physical support and interfacing with human-automation production technologies
- Human-centered AI and data analytics
- Cyber-physical systems and digital twin of collaborative human-automation systems and processes
- Virtual/augmented reality in collaborative manufacturing
- Risk assessment, safety, and workplace ergonomics of collaborative human-automation systems
- Process planning challenges in collaborative manufacturing involving additive/subtractive/forming/hybrid processes
- Access and inclusion in manufacturing
- Novel impedance control techniques for collaborative robots
- Relationship between man, work environment, physical and cognitive conditions
- Cyber-security in collaborative manufacturing processes/systems

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

Authors are encouraged to submit an abstract and full manuscript for review by Oct 23, 2022 and **November 1, 2022 respectively**. **Submissions will only be accepted via the conference website:** <https://event.asme.org/MSEC/>. No papers are to be submitted to the organizers. Only industry presenters are allowed to present without a paper. Final revised manuscripts must be submitted by **March 20, 2023**. The copyright transfer form must be completed by **March 20, 2023**. The presenting author must register by **April 10, 2023** or the paper will be withdrawn from the conference proceedings. **High quality MSEC 2023 papers will be channeled to an ASME journal for fast-tracked review and publication.** Accepted papers can be submitted for review to any ASME journal, such as the prestigious *ASME Journal of Manufacturing Science and Engineering* or the *ASME Journal of Micro and Nano Manufacturing*.

### Additional Symposium Activities

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

- Work to promote high-quality submissions and attract a high-profile keynote speaker
- Organize a special issue on collaborative robots in the ASME Journal of Manufacturing Science and Engineering

### Organizers

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\* The conference is collocated with NAMRI/SME's 50<sup>th</sup> North American Manufacturing Research Conference (NAMRC50), which will have separate call-for-papers. Please note that submissions of the same paper to more than one conference are not permitted.