— Call for Papers —

A Symposium on

Advances in Manufacturing, Design, and Analysis of Biomedical Devices

Sponsored by the ASME Manufacturing Engineering Division's

Biomanufacturing Technical Committee

2020 ASME International Manufacturing Science and Engineering Conference (MSEC)*

June 22 – 26, 2020

Cincinnati, Ohio

Hosted by the University of Cincinnati, College of Engineering and Applied Science

Technical Focus

The characteristics, use and performance of materials, structures and devices for biomedical applications entail unique requirements for the processes used to produce them. The better understanding of biomedical manufacturing processes can lead to safer and more effective devices, and thus reducing the healthcare costs and complications. In addition to the continual improvement of generic devices, there are also emerging areas, such as 3D printing, sensing and robotics, that have created new tools and novel ideas for research and development in biomedical devices and applications. These applications include manufacturing of soft materials, patient specific medical or assistive devices, novel surgical tools, clinical robotic surgery, intraoperative monitoring and feedback, and so on. This symposium is aimed at identifying the constraints imposed on manufacturing processes by the requirements of biomedical materials and products, presenting forefront research results, highlighting needs and solutions for the complex problems that arise in biomedical product production and pointing to new paths for conceiving, designing and operating biomedical manufacturing processes. Original contributions are invited in, but not limited to the following areas:

- Analysis of tissue cutting, removal, ablation or joining processes
- Design and manufacturing of advanced medical devices and tools for surgical procedures
- Modeling and experimentation of surgical operations
- Characterization and modeling of biomedical and biological materials and related manufacturing processes
- Additive and other new processes for biomedical manufacturing
- Energy-based machining equipment/processes, such as electrical, ultrasonic, or laser, for biomedical applications
- Advanced manufacturing processes for engineered tissue scaffolds and constructs
- Manufacturing process of new or composite materials for biomedical applications, such as soft matters
- Devices, processes, and systems in clinical robotic surgeries
- Surgical haptics rendering and sensing
- Design and manufacturing of medical simulation tools and systems
- Reviews of the current states of knowledge and technology and of research needs in biomedical manufacturing

Paper Submission

Authors are encouraged to submit an abstract and full manuscript for review by **November 15, 2019** via the conference website. Final revised manuscripts must be submitted by **March 26, 2020**. The copyright transfer form must be filled out by March 19, 2020, and the presenting author must pre-register by **April 15, 2020** or the paper will be withdrawn from the conference. ***No papers are to be submitted to the organizers; submissions will only be accepted via the conference website at https://event.asme.org/MSEC/.***

All papers accepted by MSEC2020 can be further submitted to any ASME journals, such as the highly prestigious Journal of Manufacturing Science and Engineering, for consideration of archival publication. In addition, high quality MSEC2020 papers will be automatically channeled to relevant ASME journals for fast-tracked publications.

Additional Symposium Activities

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

- Organize a special issue in the ASME Journal of Manufacturing Science and Engineering or ASME Journal of Micro and Nano-Manufacturing
- Organize a state-of-the-art paper that will be the lead article in the special issue

Organizers:

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* The conference is collocated with NAMRI/SME's 48th North American Manufacturing Research Conference (NAMRC48) and LEM&P (Leading Edge Manufacturing / Materials and Processing) by The Japan Society of Mechanical Engineers (JSME), which will have a separate call-for-papers. Please note that submissions of the same paper to more than one conferences are not permitted.