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Special Issue: 3D Printing of Medical Devices

Significant advances have been made in the field of additive manufacturing. Three-Dimensional printing has already had an impact on healthcare, including the use of 3D printed models for pre-surgical planning and patient education, 3D printing for medical device design, and 3D printing of implanted and non-implanted medical devices that are custom made for individual patients. In the future, physicians will be able to customize and print on demand a medical device that meets the needs of one patient, giving the physician more treatment options than ever before.

One of the most exciting advances in medical 3D printing is bioprinting: the 3D printing of human tissues by depositing cells layer-by-layer to grow organs. Some of the challenges in bioprinting that need to be addressed include cell mapping and sourcing for organ function, bio-ink recipes, vascularization of bioprinting structures, bioprinter technologies, bioprinting techniques, and characterization of bioprinted structures. Furthermore, manufacturers of 3D printed medical devices operate in a strict regulatory framework that results in further challenges for printing devices that are safe and effective. The focus of this Special Issue is on novel additive manufacturing methods that are relevant to 3D printing of medical devices, preclinical testing of 3D printed test devices, and the performance and safety challenges related to long-term durability of implantable 3D printed devices.

Topic Areas

- Orthopedic solutions
- Surgical instrumentation
- Prosthetics
- Dental implants
- Biocompatible materials
- Pharmaceutical and drug delivery
- Bio-ink composition
- Mechanical and functional characterization of printed structures
- Tissue Preservation

Publication Target Dates

Paper Submission Deadline: **Jan 15, 2019**

Initial Review Completed: **March 15, 2019**

Special Issue Publication Date: **June 30, 2019**

Standard Submission Instructions

Papers should be submitted electronically to the Journal at <http://journaltool.asme.org>. If you already have an account, log in as author and select **Submit Paper** at the bottom of the page. If you do not have an account, select **Submissions** and follow the steps. In either case, at the **Paper Submittal page**, select the [Journal of Medical Devices](#) and then select the special issue **3D Printing of Medical Devices**. Papers received after the deadline or papers not selected for inclusion in the Special Issue may be accepted for publication in a regular issue.

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