

Society of Engineering Science

56th Annual Technical Meeting, October 13-15, 2019

Call for Abstracts

Track 9: Structural Mechanics, Metamaterials and Manufacturing

Symposium 9.1: 3D/4D printed functional materials and structures

Submit abstracts at: <https://ses2019.wustl.edu/>

Abstract submission deadline: **April 30, 2019**

We would like to invite you to submit an abstract to the symposium on 3D/4D printed functional materials and structures at the 2019 Society of Engineering Science meeting to be held from October 13 to October 15 on the campus of Washington University in St. Louis, MO.

Additive manufacturing, also known as 3D printing, offers unique opportunities to explore novel properties and mechanics of materials and structures, with its ability to spatially control material constituents. In addition, as an emerging biomanufacturing technique, 3D printing offers great precision and control of the internal architecture and outer shape of a scaffold, allowing for close recapitulation of complicated structures found in biological tissues/organs. This symposium calls for abstracts from research efforts related to i) materials and structures with novel mechanical properties/functionalities realized via 3D/4D printing techniques, and ii) design of innovative printing systems and printable biomaterials for the various biomedical applications. Computational and analytical challenges will be a special focus. Specific topics of interest include, but are not limited to:

- Advanced 3D/4D printing techniques
- 3D printed materials with novel properties and functionalities, such as self-healing, reprocessing and recycling, unique acoustic properties, negative Poisson's ratio, negative stiffness etc.
- 3D/4D printed active materials with programmable deformation or/and active modulation of physical properties
- Design theory or methodology, constitutive modeling, and computational simulation for 3D/4D printed materials and structures
- Instabilities and failure in 3D printed materials
- 3D/4D printing for tissue and organ regeneration
- Design and applications of advanced printable biomaterials
- Simulation of material, cell-material interaction or 3D tissue constructs
- 3D/4D printed tissue and organ models
- 3D/4D printing for health

Symposium Co-Chairs:

Kai Yu, University of Colorado-Denver
Lijie Grace Zhang, The George Washington University
Sung Hoon Kang, Johns Hopkins University
Howon Lee, Rutgers University
Jordan R. Raney, University of Pennsylvania
Qiming Wang, University of Southern California