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TMS2024
153rd Annual Meeting & Exhibition

MARCH 3–7, 2024
HYATT REGENCY ORLANDO
ORLANDO, FLORIDA, USA
#TMSAnnualMeeting



SUBMIT AN ABSTRACT FOR THE FOLLOWING TMS2024 SYMPOSIUM:

BIOMATERIALS

Advances in Biomaterials for 3D Printing of Scaffolds and Tissues

Biomaterials have been widely utilized in a variety of biomedical applications, such as tissue engineering, regenerative medicine, biosensors, and medical implants, due to their inherent physical and chemical properties including biocompatibility, tunable mechanical properties and biodegradability, and hierarchical internal structures.

Additive manufacturing, based on layer-by-layer fabrication mechanism, possesses critical advantages in fabrication of 3D structures of biomaterials for various biomedical applications, including complex geometries, heterogeneity, porosities, and incorporation of different growth factors. Typical 3D printing techniques used for biomaterials include inkjet printing, microextrusion, laser-assisted printing, stereolithography, to name a few. The most common biomaterials used in 3D printing are ceramics, polymers, and composites.

The post-printing properties and microstructures are of great importance to biomaterial functionality, such as mechanical properties, physical properties including swelling and degradation properties, pore size and porosity. The symposium shall focus on the recent advances in the biomaterials for 3D printing of scaffolds and tissues.

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

- Design, fabrication, and characterization of 3D tissue-engineered scaffolds
- Characterization of post-printing properties of biomaterials
- Modeling and simulation of biomaterial properties
- Fabrication of biomaterials-based heterogeneous structures
- Novel biomaterials and 3D printing techniques for scaffold fabrication
- Bioprinting of cellular structures and tissues
- Cell-biomaterial interaction
- Bioink rheological properties and printability
- Organ-on-chips

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