

FEMS EUROMAT 23

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FEMS EUROMAT is the most important international congress in materials science and technology in Europe. It continues a successful congress series promoting the transfer of knowledge and the exchange of experience between academia and industry. **Submission deadline: 31 January 2023**

Area F: Materials for Healthcare

F06: Additive Manufacturing of Biomaterials and Biofabrication

The possibility of generating complex structures, together with the concept of personalized medicine, has allowed the success of Additive manufacturing (AM) in the medical sector. Advances in radiological imaging techniques have enabled the use of medical imaging data to print 3D models and reconstruct anatomical parts of patients using computer-aided design (CAD). Bioprinting of tissues and artificial organs, 3D-cell-culture and biofabrication (e.g., printing of osteochondral scaffolds), customized 3D tools (e.g., patient-specific surgical guide), 3D anatomical models and personalized implants (e.g., orthoses, hearing aids, restorative dentistry), will be some of the future growth drivers in the field of biomaterials AM.

Major bottlenecks that limit the widespread acceptance of additive manufacturing are the lack of diversity in biomaterials for AM processes as well as insufficient standardization and regulatory aspects. Although a wide range of biomaterials, including metals, polymers, ceramics, hydrogels, and composites, have been developed, the processing of these materials into parts and devices with tenable structural (e.g., mechanical properties) or functional properties (degradation behavior, bioactivity, ...) is still challenging.

This symposium will review recent developments in biomaterials for AM technologies that can be processed into personalized implants, scaffolds, biosensors, drug delivery devices, and medical devices. Materials of interest include biocompatible and biodegradable polymers (e.g., biophotopolymers, hydrogels, thermoplastics) as well as ceramics (e.g., tricalcium phosphates, alumina, zirconia, bioactive glasses, ...) and metals (e.g., titanium, magnesium). Fabrication, characterization, and surface functionalization of composite and digital materials (e.g., gradient materials, materials with spatial functionalization ...) will also fall into the scope of this symposium, as well as specific AM process optimizations and adaptations for processing biomaterials (including design and simulation). Another important topic is development in the field of innovative materials for biofabrication.

The goal of this symposium is to bring together material researchers of diverse backgrounds (experimental, characterization, analysis, and computational) with medical experts to address together the multidisciplinary challenges of this emerging field. Graduate students, post-docs, and early-career researchers are encouraged to submit abstracts.

Symposium Organizer



Prof. Dr. Lorenzo Moroni
Maastricht University



Prof. Dr. Cecilia Persson
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