

EUROMAT 2021

EUROPEAN CONGRESS AND EXHIBITION
ON ADVANCED MATERIALS AND PROCESSES

WWW.EUROMAT2021.FEMS.EU

12. - 16. SEPTEMBER 2021

GRAZ, AUSTRIA

ASMET

THE AUSTRIAN SOCIETY FOR
METALLURGY AND MATERIALS

FEMS

FEDERATION OF EUROPEAN
MATERIALS SOCIETIES

30

1987 - 2017
www.FEMS.org

Area F

Symposium F9

Title Smart biomaterials		
Organizer	Institution	Contact email
Matthew Baker	Maastricht University	m.baker@maastrichtuniversity.nl
James Henderson	Syracuse University	jhhender@syr.edu
Abstract		
<p>Smart biomaterials, which possess engineered properties capable of changing in response to specific stimuli, are enabling advances in basic and applied science across diverse fields. Control of properties such as shape, volume, color, and modulus under stimuli such as heat, light, current, magnetic field, and enzymatic exposure is leading to development of new functional materials and biomedical devices, including sensors, actuators, scaffolds, and delivery vehicles. The ability for these smart biomaterials to sense and respond in real-time leads us towards biomimetic and next-generation biomaterials with complex functions.</p> <p>This symposium will provide a forum for discussion of the most recent advances in the field of smart biomaterials. With the diversity of current work in the field, the symposium will broadly cover all aspects of smart biomaterials work, from bench to bedside, including the following: Natural and synthetic polymers, composites, and alloys for smart biomaterial applications. Stimuli responsive materials for biomedical application, including both fundamental work such as logic operations and applied work with a clear, often clinical, need. Smart sensors, including wearables, electronic implants, and sensors for disease or threat detection. Smart materials for use in medical devices, tissue engineering, regenerative medicine, and theranostics. Fabrication technologies for smart biomaterials, such as 3D printing and electrospinning, if focused on the biomaterial and not on fundamental fabrication techniques better suited for other symposia. Characterization, including functional assessment, mechanical and material properties, delivery, and biocompatibility. In vitro and in vivo assessment. Bio/material (e.g., cell/material) feedback systems. Computational tools that enable smart biomaterials, such as predictive modeling or mechanistic analysis. Imaging tools that enable smart biomaterials development or application.</p>		