

CORRELATIVE AND MULTISCALE IMAGING OF BIOMATERIALS

Organizers/Chair

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Theme

This symposium will focus on imaging of biomaterials correlatively with lasers, x-rays and/or electrons to provide insights at the several length scales (mm through to nm). Particular emphasis will be on the use of X-ray tomography which is increasingly being applied to image biomaterials and in situ processes in 4D (3D + time). Recent developments in advanced x-ray optics, cryo sample stages and phase contrast techniques has enabled laboratory and synchrotron based tomography systems to peer into the structures of biomaterials and soft tissues at several length and time scales. This symposium will explore these exciting developments by highlighting their application in; biomaterial synthesis, in vitro cell-material interactions and in vivo tissue regeneration. Invited talks will focus on time resolved studies of fast processes in biomaterials development and cell material interactions from the nanoscale through to the macroscale on fibrous as well as 3D porous scaffolds.

Invited Speakers

Session 1

Combining histology and micro computed tomography in the field of biomedical imaging
Bert Müller, Biomaterials Science Center (BMC), University of Basel, Switzerland
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X-ray tomography of biological tissues: nanoscale resolution and large field views
Tim Salditt, University of Göttingen, Germany
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Micromechanics and DVC of bone-biomaterial systems produced by osteoregenerative biomaterials in vivo
Dr. Gianluca Tozzi
University of Portsmouth, UK
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Session 2

Characterisation of lymphatic system components for transport analysis

James Moore Jr, Imperial College London, UK

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Multiscale and multimodal imaging of biomaterials and tissue material interactions

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Biologically functional nerve conduits for triggering functional nerve regeneration

Srinivas Madduri, ETH Zurich, Switzerland

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