Materials Engineering Enabled by Advances in Imaging
Session Co-chairs: John Cumings, University of Maryland, and Valeria Nicolosi, Trinity College Dublin

The scale of materials required for technology is shrinking and advanced imaging techniques have become primary tools for exploring the complexity of devices at the nanoscale. Before applications can become a real possibility it is crucial to understand the fundamental processes taking place during materials synthesis, processing and device functioning. It is compelling to have ways of correlating how different materials' structures can impact physical and chemical behaviour and performance in devices.

The aim of this session is to cover the broad range of techniques that is currently employed in multidimensional imaging. The session will cover novel developments in the field of light, electron, X-ray, ion, in-situ and scanning probe microscopies for the micro- and nanostructural study of complex materials systems.

Speakers:

Imaging Materials at the Space-Energy-Time Limit
David Flannigan, University of Minnesota

Imaging and Spectroscopy of Molecular Nanostructures
Peter Nirmalraj, EMPA

Through Graphene and Beyond
Sarah Haigh, University of Manchester

The Universe is My Nano-fab: Scanning Transmission Electron Microscopy of Nanomaterials from Space
Rhonda Stroud, Naval Research Laboratory