

Seminar

Advancing Electron Backscatter Diffraction (EBSD) Analysis

 31 Thursday, 4 November 2021	<p>Associate Professor Ben Britton is an associate professor in the Department of Materials Engineering at the University of British Columbia, Vancouver Canada.</p>
 10.00 – 11.00 am (AEDT)	
 ZOOM – Register in advance for this meeting: https://monash.zoom.us/meeting/register/tZwsceGrrTgjEtIDGmiloYFPxRX1HaC4Sq8 Passcode: 111111	
<p>Abstract</p> <p>EBSD is a commonly used technique in the scanning electron microscope (SEM) to study crystalline materials. As the beam is scanned, a Kikuchi pattern is collected and analysed. These patterns reveal information about material within the interaction volume, and conventional approaches use the Hough transform to extract the crystal orientation (with an absolute precision of ~2 degrees, and a misorientation precision of ~0.5 degrees). In this talk, I will introduce a few examples of improved analysis of EBSD patterns, including: fast pattern matching; successful classification of small precipitates using machine learning and combined energy dispersive X-ray spectroscopy (EDX) with EBSD; imaging of the ordered superlattice Ni₃Al in a Ni-based superalloy; and some recent developments using direct electron detectors.</p>	<p>The Presenter</p>  <p>Dr Ben Britton is an Associate Professor at the University of British Columbia, Vancouver, and a Visiting Reader at Imperial College London. Within the Experimental Micromechanical Characterisation Research Group, he has led efforts to improve materials characterisation with new electron microscopy methods including EBSD developments and in-situ deformation studies. Typically these have been applied to understand materials used in high-value high-risk applications, such as oil & gas, aerospace, and nuclear power. In addition to his technical work, he is involved in efforts to improve equity in STEM, often focussed on promoting the inclusion of LGBTQIA+ individuals. Ben is a Fellow of the Institute of Materials, Minerals and Mining, a Chartered Engineer, a Chartered Scientist and has been decorated with numerous awards (including the Royal Academy of Engineering Young Engineer of the Year, the TMS Frank Crossley Diversity Award, the IOM3 Harvey Flower Award, and the IOM3 Silver Medal). Ben also tries to share ‘more than the science’ via twitter as @bmatb.</p> <p>Convener: Professor Joanne Etheridge Director, Monash Centre for Electron Microscopy, Monash University</p>