Department of Materials Science and Engineering,

Candidacy Exam

1:00PM, 05/27/2015
MEM Conference Room – Curtis 162

"The Application of Electron Backscatter Diffraction (EBSD) in Phase Analysis"

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Abstract

Electron backscatter diffraction (EBSD), since its start in 1928, when the first Kikuchi pattern was discovered, has grown into an immensely powerful technique. It has been used in the study of micro-texture, micro-structure, grain and phase boundary changes, lattice strain, and phase identification. This study focuses on the latter: using EBSD for phase identification. Having a resolution two orders of magnitude better than X-ray diffraction (XRD), but two orders of magnitude worse than transmission electron microscopy (TEM), EBSD fills in this window between the two techniques. Because of its use within the scanning electron microscope (SEM), EBSD has the added benefit of being operated simultaneously with compositional analysis techniques, such as energy dispersive X-ray spectroscopy (EDS). This talk is a discussion of the process of analyzing the Kikuchi patterns of different materials to identify the phases present.