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EBSD for Diffraction Based, Quantitative Microstructural Characterization of Metals, Ceramics and Rocks in the SEM

Thursday, December 11, 2014--Olin 408
9:00-9:30—Refreshments
9:30-10:30—Presentation
Followed by Open Discussion

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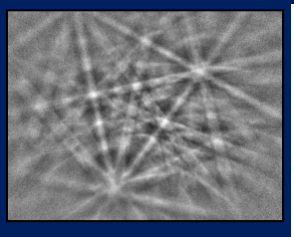
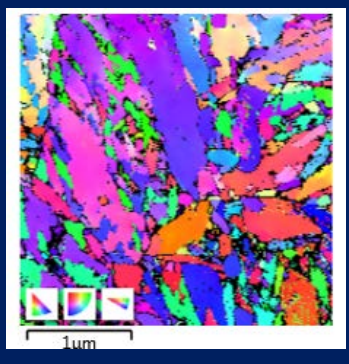
Although Electron BackScatter Diffraction (EBSD) is now a mature and common technique in materials science and geological characterization labs, its capabilities continue to expand. This powerful technique is based on the capture and automated analysis of Kikuchi patterns generated from bulk samples on the SEM, from which crystal phase and orientation information are collected at high spatial resolution. These dataset are, in turn, used to produce visual representations (maps) and quantitative information about microstructure, including for grain size and shape, degree of preferred crystallographic orientation, grain boundary characterization, phase area %, inter-phase orientation relationships, and strain analysis. FIB-SEM based EBSD systems can deliver 3D datasets, allowing visualization and analysis of grain size and shape in 3D, and full grain boundary plane characterization. More recently, the application of EBSD to thin, electron transparent samples in the SEM has effectively introduced a new, TEM-complementing technique, which has proven especially useful for the analysis of very fine grained and highly strained microstructures.

Space is extremely limited. Please email skd4@case.edu to reserve your seat. Use “EBSD” as the subject line.





For questions contact Amir.Avishai@case.edu