The Characterization of Texture and Microstructure by Electron Backscatter Diffraction
Stuart I. Wright, EDAX, Draper, Utah

The automation of the electron backscatter diffraction (EBSD) technique has made it a viable tool for the characterization of texture and microstructure in polycrystalline materials. Because of the spatially specific nature of the technique it allows the local texture to be linked with features of the microstructure. As texture is a statistical description of a material characteristic, it is important to consider the fundamental sampling mode when comparing EBSD texture measurements with X-Ray (or neutron) based texture measurements. In simplest terms, EBSD measurements of orientation are obtained through point sampling whereas X-Ray measurements provide an areal sampling of the surface (and neutron a volumetric sampling). This has distinct consequences on the processing of the measurements that must be properly considered when interpreting the texture results from these different techniques. The impact of the sampling differences between EBSD and X-Ray diffraction will be discussed in this presentation. Such considerations will also be extended to other statistical descriptions linking crystallographic orientation with different aspects of the microstructure available through EBSD.