SIMULATION OF ELECTRON DIFFRACTION PATTERNS WITH THE POWDER DIFFRACTION FILE DATABASE

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Abstract

For over sixty years ago, the Powder Diffraction File (PDF) has been the key source of standard powder diffraction data for identification and analysis of materials of all types. In order to better serve the electron diffraction community, the ICDD has recently developed software tools for the simulation of 2-dimensional (2D) electron diffraction patterns. Currently, three different types of 2D electron diffraction patterns can be simulated: selected area electron diffraction (SAED) patterns generated for single crystals in the transmission electron microscope (TEM), ring patterns generated for polycrystalline materials in the TEM, and electron backscatter diffraction (EBSD) patterns typically obtained using a scanning electron microscope (SEM). These electron diffraction simulation tools have been implemented in all the PDF-4 series of databases, connecting to more than 700,000 entries in the current version of these databases.