Xtalab Synergy-ED: Single Crystal Structures from Powders

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The Rigaku XtaLAB Synergy-ED is a fully integrated electron diffractometer, with a seamless workflow from data collection to 3D structure determination. The Synergy-ED is the result of Rigaku's collaboration with JEOL, synergistically combining each partner's core technologies: Rigaku's hybrid pixel array detector (HyPix-ED) and CrysAlisPro software, and JEOL's long- standing excellence in electron beam generation and control.

Using MicroED, a three-dimensional electron diffraction method, single crystals of all classes below one micron in size can be studied. The Synergy-ED offers the ability to determine the single crystal structure from a single grain from powder samples. In fact, one can determine the single crystal structure of multiple compounds present in a single powder sample.

There are two well-characterized polymorphs of acetaminophen with known single crystal structures. In this presentation, we will explore the case of a third polymorph of acetaminophen generated in an XRD-DSC experiment with a structure determined by MicroED. This result is a major step in understanding the properties of acetaminophen and demonstrates to potential to solve many more unsolved problems in structural science.