XtaLAB Synergy-ED: Over 160 Structures and Counting

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Recognizing the potential of Single-Crystal Electron Diffraction (SC-ED), also known as 3DED and MicroED, Rigaku and JEOL announced a collaboration in 2020 to develop an instrument designed in a fashion that will make it easy for any crystallographer to use. The resulting instrument, the XtaLAB Synergy-ED [1], a new and fully integrated electron diffractometer, was released about one year later, in May 2021. Many materials only form nanosized crystals or are challenging to produce in large quantities. Before the development of the SC-ED technique, synthetic chemists were forced to rely on other methods, such as NMR, often in combination with each other, to postulate 3D structure. Unfortunately, for complicated molecules such as natural products, the NMR results can be challenging to interpret. SC-ED has become a revolutionary technique for the advancement of structural science. The XtaLAB Synergy-ED is an electron diffractometer operated via CrysAlisPro for a seamless workflow from data collection to structure determination of three-dimensional molecular structures from nanocrystals.

Since its launch, our demo lab XtaLAB Synergy-ED has generated over 160 structures of various samples, from organics to MOFs, with a range of compositions and cell dimensions as shown in the pie chart in Figure 1 and the histogram in Figure 2, respectively. In this presentation, we will provide an overview of the capabilities of the Synergy-ED and review some of more interesting structures that have been determined since May of 2021.

[1] https://doi.org/10.1039/D1CE01172C