

# An Automated Approach to MicroED Enables Structure Determination of Complex Samples

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One of the advantages of MicroED is that a structure can be determined from a few sub- micro-meter sized crystals only. Nevertheless, collecting a large number of data sets can improve the data substantially in cases where diffraction is not ideal, or the sample contains several compounds.

An automated approach to MicroED is presented using the commonly used SerialEM software. This allows unattended data collection after initial setup of typically 1000 data sets per day, where typically 20-30 data sets would be collected manually. Also, a MicroED accostumized processing pipeline that includes all steps from image conversion and data processing to structure determination is presented. The processing pipeline EffortLess merges the successful data sets in any useful combination and finally the structure or the best merged data is presented.

The protocols and pipelines together with examples and applications of using an automated approach to MicroED is presented.