

Poster Presentation

MS68.P05

Bringing Instrumentation to the Undergraduate Laboratory

H. Ott¹, B. Noll², S. Phillips², M. Ruf²

¹*Bruker AXS GmbH, Karlsruhe, Germany*, ²*Bruker AXS Inc., Madison, WI, USA*

Efforts to bring crystallography into undergraduate laboratories are often hampered by one principal factor: the available funding. The acquisition of instrumentation has always been the stumbling block to establishing a program of crystallography in the undergraduate curriculum. With the introduction of Bruker's D8 QUEST ECO line of diffractometers, new opportunities arise. The ECO line is an all air-cooled set of instrumentation that lowers initial cost, operating cost, and environmental footprint. The system is configured with molybdenum radiation, and, for the first time in a low-cost instrument, with copper radiation. While molybdenum radiation has long been the dominant wavelength, copper allows access to absolute configuration of light-atom molecules. These instruments are fully capable research instruments, allowing for the demonstration and training of the complete experiment, from crystal selection, to selection of experimental parameters, data collection, and structure solution and refinement. Various levels of automation are available to match the needs and abilities of the students, making these instruments versatile through the entire undergraduate program. The transition from this entry-level system to high-end research instrumentation is transparent and undergraduate students will be well prepared for the next steps in their careers.

Keywords: Instrumentation, Teaching