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Phasing in the Home Laboratory. Joseph D. Ferrara, Cheng Yang, Robert Bolotovsky, James W. Pflugrath, Rigaku Americas Corp., The Woodlands, TX, 77381.

Many examples of S-SAD and Se-SAD phasing have been reported with diffraction data collected using copper radiation (1.54 Å) or radiation at the selenium K absorption edge (0.98 Å). With recent advances in X-ray technology, chromium radiation (2.29 Å) is now available for in-house data collection and appears to be ideally suited for measuring anomalous signals from weak anomalous scatterers such as sulfur, selenium, calcium and other atoms commonly found in protein crystals. The results of a number of successful SAD experiments using Cr radiation have been published by several groups including our own.

With the addition of Cr radiation to the crystallographer's toolkit, in-house X-ray sources can provide at least two routinely useful wavelength options for macromolecular crystallography. This report also discusses the results of phasing by combining diffraction data collected using both Cu and Cr radiation sources.

Finally, we report the results of data collection with a new imaging plate detector (R-AXIS HR) designed specifically for use with Cr radiation. This new detector allows the collection of data suitable for both phasing and refinement with Cr radiation from a single crystal in a single, simple diffraction experiment.