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Dual-Wavelength X-Ray Generation From one Machine to Facilitate Protein Structure Determination. Kurt L. Krause, John Cutfield, Sue Cutfield, Peter Mace, Sigurd Wilbanks, Calum Smits, Catherine Day, Dept. of Biochemistry, Univ. of Otago, New Zealand.

We present our initial experience at using chromium and copper X-rays from the same generator to facilitate in-house determination of protein crystal structures. The availability of focussed high-flux chromium X-rays has greatly facilitated the in-house determination of protein crystal structures. At the same time in-house high-flux copper sources allow for improved native data collection at higher resolutions. Most commonly these two sources of X-rays are found on separate diffractometers at the same facility. Generating both wavelengths of X-rays from the same machine is cost effective, but can greatly increase the complications of the experimental set-up. Newer multi-layer optics that allow for more rapid switching between wavelengths have been developed that preserve the same Bragg angle for Copper and Chromium sources. The details of switching between these two-wavelengths will be described and illustrated in case studies.