

A Bright Solution to Difficult Crystals

S. J. Teat

Advance Light Source, Lawrence Berkeley National Lab, Berkeley, California, United States

The high X-ray flux provided by a synchrotron makes it possible for high quality data to be rapidly collected from small and weakly diffracting crystals, that otherwise show little or no diffraction using a laboratory source. Synchrotron radiation enables data collections and experiments that would simply not be possible in a conventional laboratory. The wavelength tunability permits anomalous dispersion based studies, making it possible to discriminate isoelectronic species, and the time structure of the beam can be exploited in excited state studies. As an example, the depiction below shows a low temperature low spin state molecular structure superimposed on the low temperature light induced high spin state structure. Drawing on several years of experience at station 9.8 at Daresbury in the UK and, more recently, at the Advanced Light Source in the US, the presentation will highlight the benefits of synchrotron radiation for small molecule crystallography.

