

W0368

Anomalous Diffraction at Ultra High Energy for Protein Crystallography. Jean Jakoncic, Marco di Michiel, Zhong Zhong, Veijo Honkimaki, Peter David Siddons, Yves Jouanneau, Vivian Stojanoff, National Synchrotron Light Source, Brookhaven National Laboratory, Upton, NY.

Multiwavelength Anomalous Diffraction (MAD) and Singlewavelength Anomalous Diffraction (SAD) phasing at ultra high energy X-rays, 55 keV, are used to successfully determine a high quality and high resolution experimental electronic density map. The 2.5 % anomalous signal, at the Ho K edge, from three Ho atoms found in the model protein, Hen Egg-White Lysozyme, was sufficient to obtain a remarkable electron density and build the 3D molecular model in its integrity. Advantages and disadvantages on the use of ultra high energy X-rays are discussed in light of radiation damage problems and phasing power.