

E0019

Upgrade of NSLS X25 Macromolecular Crystallography Beamline. L.E. Berman¹, J. Skaritka¹, T. Tanabe¹, G. Rakowsky¹, D. Harder¹, S. Ramamoorthy¹, E. Zitvogel¹, I. Pinayev¹, T. Shaftan¹, P. Montanez¹, A. Lenhard¹, S. LaMarra¹, S. Hulbert¹, D. Lynch¹, M. Becker², W. Nolan², A. Saxena², D. Schneider², R. Sweet², G. Rosenbaum³, ¹NSLS, ²Biology Dept, BNL, Upton, NY 11973, USA, ³ANL, Argonne, IL 60439, USA.

The radiation source, optics, and experimental station of the NSLS X25 beam line are being improved to optimize for macromolecular crystallography. We established a plan that would increase the intensity and quality of the X-ray beam delivered to the specimen, and improve the experimental sensitivity, especially for small crystals (~10 μm size). This is being done through the replacement of the original wiggler source by an in-vacuum small-gap undulator. This new source is 15 times brighter than the original one at 6.3 keV, and 6 times brighter at 10.5 keV. Upgrades to the beamline optics are also being pursued that will exploit the new source's properties. For the monochromator, we will implement cryogenic cooling of the first crystal and sagittal bending of the second crystal to permit horizontal focusing. A new bendable mirror, to permit vertical focusing, will be installed just after. Finally, the diffractometer in the station is being upgraded, in part to accommodate the use of a microfocusing optical element in the beam path just before the sample.

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