

A31

Second generation undulator beamlines for high-resolution soft x-ray spectromicroscopy at the NSLS

Barry Winn

Physics Department, SUNY, Stony Brook, NY 11794-3800

Harald Ade

North Carolina State University, Raleigh, NC 27695-8202

Christopher Buckley

Physics Department, King's College, The Strand, London, UK

Malcolm Howells

Advanced Light Source, Lawrence Berkeley Lab, Berkeley, CA 94720

Steve Hulbert

National Synchrotron Light Source, Brookhaven National Lab, Upton, NY 11973

Chris Jacobsen, Janos Kirz, and Jianwei Miao

Physics Department, SUNY, Stony Brook, NY 11794-3800

Ian McNulty

Advanced Photon Source, Argonne National Lab, Argonne, IL 60439

Tom Oversluizen

*Creative Instrumentation, 412 S. Country Rd.,
E. Patchogue, NY 11772*

The X1A undulator beamline is being rebuilt with two independent monochromators on its two branches. The new arrangement will deliver spatially coherent beams to imaging experiments, with a spectral resolving power of up to 5000, and optimized capability to trade resolving power for flux. The X1 undulator produces radiation which has several spatial modes in the horizontal. The microscopy beamlines will each use 15% of the available modes (via scraper mirrors), and will operate simultaneously. An advantage of using relatively few modes is that the acceptance of the spherical grating monochromators are sufficiently modest that they have a small defocus and can operate with a fixed exit slit throughout the 250 - 800 eV energy range with good resolving power. This paper presents the design concepts and instrumentation of the new facility.

Supported in part by the Department of Energy.