Beamline 2-ID-D & 2-ID-E / SRI-CAT

Scientific focus: Synchrotron instrumentation and techniques, imaging, and coherence

Scientific programs: High-resolution imaging and coherence-based techniques

Optics & Optical Performance

- high-heat-load mirror M1
  29.5 m from source
  0.15° incident angle
  plane figure
  Pt, Rh, Si coatings

- Kohzu monochromator
  62.0 m from source
  2–32 keV energy range Si(111)
  10^{-4} monochromaticity ($\Delta E/E$)

- zone plate microprobe
  71.0 m from source
  0.1 μm hor. x 0.1 μm vert. focus size
  10^{11} ph/sec/μm^2/0.01% bw flux

- beam properties in station:
  4.2 mm hor. x 1.6 mm vert. FWHM size
  0.22 mm hor. x 0.013 mm vert. FWHM coherent size
  10^9–10^{11} ph/sec flux

Detectors

- ionization chambers
- NaI scintillation detector
- avalanche photodiodes
- CCD cameras
- 13-element dispersive detector
- 3-element dispersive detector

Beamline Controls and Data Acquisition

- Sun UNIX running EPICS with VME
- PC NT running EPICS CCD camera controller

Beamline Support Equipment/Facilities

- optical table with six degrees of freedom
- scanning microscopes
- Kappa diffractometer

Insertion Device Source Characteristics (nominal)

source	Undulator A
period	3.30 cm
length	2.47 m
effective K_{max} (at minimum gap = 10.5 mm)	2.78
energy range 1st harmonic	2.9 - 13.0 keV
energy range 1st - 5th harmonics	2.9 - 45.0 keV
on-axis peak brilliance at 6.5 keV	9.6 x 10^{18} ph/sec/mrad^2/mm^2/0.1% bw
source size at 8.0 keV Σ_x Σ_y	 359 μm 21 μm
source divergence at 8.0 keV $\Sigma_{x'}$ $\Sigma_{y'}$	 24 μrad 6.9 μrad