

Beamline 2-BM / SRI-CAT

Scientific focus: Synchrotron instrumentation and techniques, lithography, and microtomography

Scientific programs: Deep x-ray lithography and x-ray microtomography

Optics & Optical Performance

- vertical deflecting mirror
 - 24.9 m from source
 - 0.15° incident angle
 - Cr, Pt coatings
 - plane figure
- double multilayer monochromator
 - 27.4 m from source
 - unfocused
 - 10⁻² monochromaticity ($\Delta E/E$)
- Kohzu double-crystal monochromator
 - 28.8 m from source
 - unfocused
 - 10⁻⁴ monochromaticity ($\Delta E/E$)
- vertical deflecting mirror
 - 49.4 m from source
 - 0°–2° incident angle, variable
 - Pt coating
 - plane figure

Experiment Stations

2-BM-A

- white beam first optics enclosure

2-BM-B

- pink and monochromatic beam station

Detectors

- energy dispersive detector
- scintillation detector
- ionization chambers
- peltier-cooled CCD camera

Beamline Controls and Data Acquisition

- Sun UNIX running EPICS with VME; NT and MacOS workstations
- SPEC

Beamline Support Equipment/Facilities

- precision scanning stage for x-ray lithography
- 6-circle diffractometer
- fast x-ray tomography system

Bending Magnet Source Characteristics (nominal)

source	APS bending magnet
critical energy	19.51 keV
on-axis peak brilliance at 16.3 keV	2.9 x 10 ¹⁵ ph/sec/mrad ² /mm ² /0.1%bw
on-axis peak angular flux at 16.3 keV	9.6 x 10 ¹³ ph/sec/mrad ² /0.1%bw
on-axis peak horizontal angular flux at 5.6 keV	1.6 x 10 ¹³ ph/sec/mradh/0.1%bw
source size at critical energy	\sum_x 145 μ m \sum_y 36 μ m
source divergence at critical energy	$\sum_{x'}$ 6 mrad $\sum_{y'}$ 47 μ rad