

Beamline 1-BM / SRI-CAT

Scientific focus: Synchrotron instrumentation and techniques and time-resolved studies

Scientific programs: Time-resolved studies, dispersive diffraction, and spectroscopy

Optics & Optical Performance

- standard mode
 - vertical collimating mirror
 - 25.5 m from source
 - bent cylinder
- PSL double-crystal monochromator
 - 27.2 m from source
 - sagittal focus
 - Si(111) crystal
 - 1.5×10^{-4} energy resolution ($\Delta E/E$)
 - 35 mm beam offset
 - water cooling
 - focusing $\approx 0.25 \times 0.6$ mm
 - 9×10^{11} (photons/sec)/100mA at 10keV
- vertical focusing mirror
 - 45.5 m from source
 - cylindrical bend
- dispersive crystal mode
 - bent-crystal monochromator
 - 31.5 m from source
 - horizontal focus
 - with or without first mirror

Experiment Stations

1-BM-A

- first optics enclosure
- collimating mirror
- PSL monochromator

1-BM-B

- white, pink, and monochromatic beam station
- dispersive modes

1-BM-C

- monochromatic beam station

Detectors

- NaI scintillation counters
- ionization chambers
- Si(Li) and Ge energy dispersive detectors
- CCDs
- image plates

Beamline Controls and Data Acquisition

- Sun UNIX running EPICS with VME
- SPEC

Beamline Support Equipment/Facilities

- 6-circle Huber diffractometer
- image plate reader

Bending Magnet Source Characteristics (nominal)

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