

Beamline 5-BM / DND-CAT

Scientific focus: Crystallography, EXAFS, polymer scattering, and tomography

Scientific programs: Materials science and engineering, polymer science, crystallography, surface science, catalysis, and imaging

Optics & Optical Performance

- 4.5–80 keV spectral range (white beam)

Experiment Stations

5-BM-B

- monochromatic beam station

5-BM-C

- monochromatic and white beam beam station
- powder diffraction

5-BM-D

- monochromatic and white beam station
- general purpose station for
EXAFS
crystallography
x-ray scattering

Detectors

- spectroscopy-grade ionization chambers
- Lytle detector
- Fuji BAS 2000 image-plate system
- scintillation detectors
- Mar 135 mm CCD detector
- Spectra Source CCD camera for imaging applications
- EG&G Ortec Iqlet solid-state detector

Beamline Controls and Data Acquisition

- Linux running custom control code for motors and actuators on all systems
- SPEC used to control diffractometers and surface-science instruments
- Vendor-supplied software used to control CCD detectors

Beamline Support Equipment/Facilities

- 4-circle diffractometer
- 2-circle powder diffractometer
- Mar CCD detector system
- Fuji BAS 2000 image-plate system

Bending Magnet Source Characteristics (nominal)

source	APS bending magnet
critical energy	19.51 keV
on-axis peak brilliance at 16.3 keV	2.9×10^{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 μm 36 μm
source divergence at critical energy $\sum_{x'}$ $\sum_{y'}$	6 mrad 47 μrad