(https://www.facebook.com/Canadian-Institute-for-Neutron-Scattering-1278518888875055/)

(https://twitter.com/NeutronsCanada)

(https://www.linkedin.com/company/canadian-institute-for-neutron-scattering)

CINS CANADIAN INSTITUTE FOR NEUTRON SCATTERING (http://cins.ca/)

MENU

Home (http://cins.ca) › Get Beam Time (http://cins.ca/get-beam-time/) › Beamline Specifications (http://cins.ca/get-beam-time/beamline-specs/) › C2

C2 High Resolution Powder Diffractometer

The DUALSPEC facility was jointly funded by NSERC and AECL, and was transferred to NRC in 1997. It comprises the two spectrometers C2 and C5. C2 is equipped with a curved 800-wire BF3 position sensitive detector. The wire-spacing is 0.1°, so that 80° of scattering angle is measured simultaneously. The detector can be positioned in low- and high-angle settings to collect data from the complete 120° range of scattering angles. Within each setting it can be moved in steps as small as 0.01°. The detector sits in a large 7 ton shielding block. It floats across an epoxy resin dance floor on a cushion of air with the aid

of pneumatic pads and can be positioned to 0.002°. The wavelength can be varied from 4 Å to 1 Å. This instrument is ideally suited to study both long and short range magnetic correlations, with a range in wave vector $Q = 4\pi\sin(\theta)/$ from 0.15 $Å^{-1}$ to 11 $Å^{-1}$.

Typical Experiments

Physical Sciences (physics, chemistry, etc.)

- Order-disorder transitions
- Ferroelastic transitions
- Magnetic phase transitions
- Crystal structure refinements
- Atomic site ordering
- Small molecule organics
- Mineral structures

Materials Science

- Quantitative phase analysis
- Corrosion experiments
- Precipitation and phase transformations
- Kinetic studies

Ancillary Equipment Specifically Available to C2

- Continuously rotating sample table. The table may be continuously rotated from 0° to 360° in 10° increments.
- Automatic sample changer. Up to 9 samples may be run unattended under ambient conditions.

Technical Specifications

Beam Size:

- 3.656″ high 2.625″ wide (source)
- 12.5″ long (4″ high and 1.5″ wide) (specimen)

Available monochromomators and analyzers:

- Be, Cu, Ge, graphite, Si available
- Typically the (531) reflection from Si#17.
- (monochromating and analyzing crystals are shared among the spectrometers, several crystals of each type are available)

Monochromator take-off Angle: Continuously variable, 0 – 120°

Specimen scattering angle: Continuously variable from 0 – 120°

Collimators: Three source to monochromator collimations are available

- Fine: ~ 0.2°
- Coarse: ~ 0.4°
- None: ~ 0.6° (effective)

Physical dimensions:

- source to monochromator, 260″
- monochromator to specimen, 63″
- specimen to detector, 59″

SHARE THIS PAGE

FOLLOW US