CTAX

Cold Neutron Triple-Axis Spectrometer

High Flux Isotope Reactor

BEAMLINE

CG-4C

The US/Japan Cold Neutron Triple-Axis (CTAX) Spectrometer is a conventional triple-axis spectrometer with variable incident energy and variable sample-analyzer distance. The cold guide 4 bender and guide hall shielding reduce background levels at CTAX, and the 15 cm tall guide profile is well exploited by CTAX's vertically focusing PG(002) monochromator. To enhance accommodation of strong magnetic fields at the sample position and to simplify future polarization analysis, the amount of ferromagnetic material has been minimized in the construction of this instrument.

CTAX is a collaboration of the Neutron Sciences Directorate at Oak Ridge National Laboratory and the Neutron Science Laboratory, Institute for Solid State Physics, at the University of Tokyo, as part of the US-Japan Cooperative Program on Neutron Scattering.

SPECIFICATIONS

Incident energy range PG (002)	2–18 meV
Final energy range PG (002)	≥ 3.0 meV
Monochro-mators	Variable vertical focusing PG (002)
Analyzer	≥ 3.0 meV [fixed vertically and variable horizontally focusing PG (002)]
Sample scattering angles	$-15° \leq 2\Theta s \leq 115°$, with additional restrictions depending on Ei
Analyzer angle	<103°
Collimations	Pre-analyzer: 20′, 40′, 80′; Pre-detector: 80′, 120′, 240′
Detector	Single He^3 detector
Resolution	Best elastic energy resolution ~0.1 meV

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APPLICATIONS

- Studies of nuclear and magnetic structures, quasi-elastic scattering, and lattice and magnetic dynamics in a variety of materials, including superconductors, transition metal oxides, multiferroics, thermoelectric materials, and low-dimensional quantum magnets.
- CTAX enables better analysis of low-energy excitations in materials with high signal-to-noise ratio.

For more information, contact

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