

## Poster-1-18

**Spin Excitations Near the Pressure-Induced Antiferromagnetic Transition in SrCu<sub>2</sub>(BO<sub>3</sub>)<sub>2</sub>**

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SrCu<sub>2</sub>(BO<sub>3</sub>)<sub>2</sub> (SCBO) is a frustrated quantum magnet well described by the Shastry-Sutherland model [1-3], where hydrostatic pressure tunes the hierarchy of exchange interactions and drives a sequence of quantum phases including a long-range antiferromagnetically ordered state [4-7]. We performed inelastic neutron scattering on a single crystal at 4.2(2) GPa at the Institut Laue-Langevin (ILL) using the IN8 triple-axis spectrometer with a Paris-Edinburgh press, probing spin dynamics within the pressure-induced ordered phase.

The measured magnetic excitation spectrum exhibits clear dispersive modes and is well described by linear spin-wave theory, enabling extraction of effective exchange parameters from inelastic neutron scattering data measured under high pressure conditions. The refined parameters are consistent with values reported at higher pressures [8] and provide direct evidence for a Goldstone mode in the ordered state. A quantitative description requires a finite interlayer coupling, highlighting its importance for the magnetic Hamiltonian under pressure.

These results complement previous high-pressure studies and provide further input for theoretical models of SCBO under extreme conditions.

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