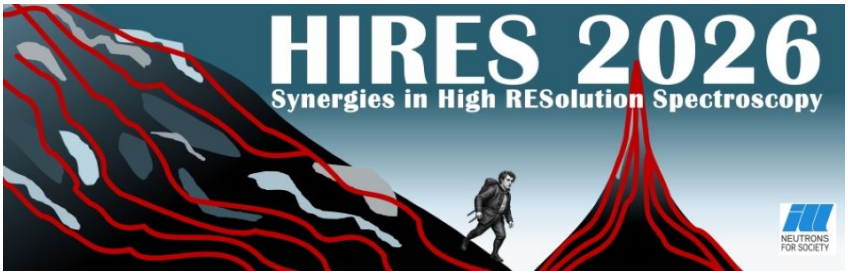

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Using applied magnetic fields to induce unconventional magnetic order in the frustrated quantum magnet, clinoatacamite, Cu2Cl(OH)3

The natural mineral clinoatacamite, [Cu2Cl(OH)3], exhibits low-temperature, frustrated magnetic behaviour where competing interactions are responsible for novel magnetic properties. Attempts to establish the magnetic phases in this material have been undertaken and an unconventional applied field (H||b) phase diagram has been revealed [1]. Two critical transition temperatures at zero field have been identified with long range antiferromagnetic (AFM) order for T1 < 6K, and paramagnetic behaviour for T2 >18K. In-field magnetisation data collected between 6-18K reveal three distinct phases for H||b which are not completely understood. Until now, the phase diagram of clinoatacamite has not been probed for H||a*or H||c*. We will present neutron scattering measurements of single crystal clinoatacamite in applied fields up to 10T. With these measurements we have mapped out the phase diagram of the antiferromagnetic structure for H||a*.

I will be conducting TOF experiments in future to determine accurate exchange interactions in this frustrated materaial.

Session

Magnetism

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