Experimental report

05/10/2019

Proposal: 5-42-461 **Council:** 4/2017

Title: Magnetic correlations and phase diagram below Tc in Cu2OSeO3.

Research area: Physics

This proposal is a resubmission of 5-42-448

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Samples: Cu2OSeO3

Instrument	Requested days	Allocated days	From	To
D33	5	4	15/06/2018	19/06/2018

Abstract:

Ac susceptibility measurements showed that the low-temperatures phase diagram of the chiral magnet Cu2OSeO3 is more complex than that of other helical magnets. This is possibly due to the spin 1/2 of Cu2+ ions occupying two inequivalent sites of the crystal structure and quantum effects or complex magnetization processes during the formation of the cone and field-polarized state at Bc1 and Bc2, respectively. We propose to investigate the evolution of the low-temperature region of the phase diagram of Cu2OSeO3 by conducting SANS measurements at D33 in magnetic field applied perpendicular and parallel to the incoming neutron beam. These measurements will allow us to map the magnetic correlations as a function of the magnetic field and will reveal details of the processes underlying the transitions at Bc1 and Bc2.

The results of this experiment have been published at Bannenberg et al. npj Quant. Mater. 11 (2019).