

Experimental report

28/02/2020

Proposal: CRG-2608

Council: 4/2019

Title: Electromagnon in GdMn₂O₅

Research area:

This proposal is a new proposal

Main proposer: Victor BALEDENT

Experimental team: Victor BALEDENT
Antoine VAUNAT

Local contacts: Jean Marc ZANOTTI

Samples: GdMn₂O₅

Instrument	Requested days	Allocated days	From	To
IN6-SHARP	3	3	28/06/2019	01/07/2019

Abstract:

Beamtime report from IN6, experiment CRG-2608 from 28/06/2019 to 01/07/2019

Antoine Vaunat / Victor Baledent

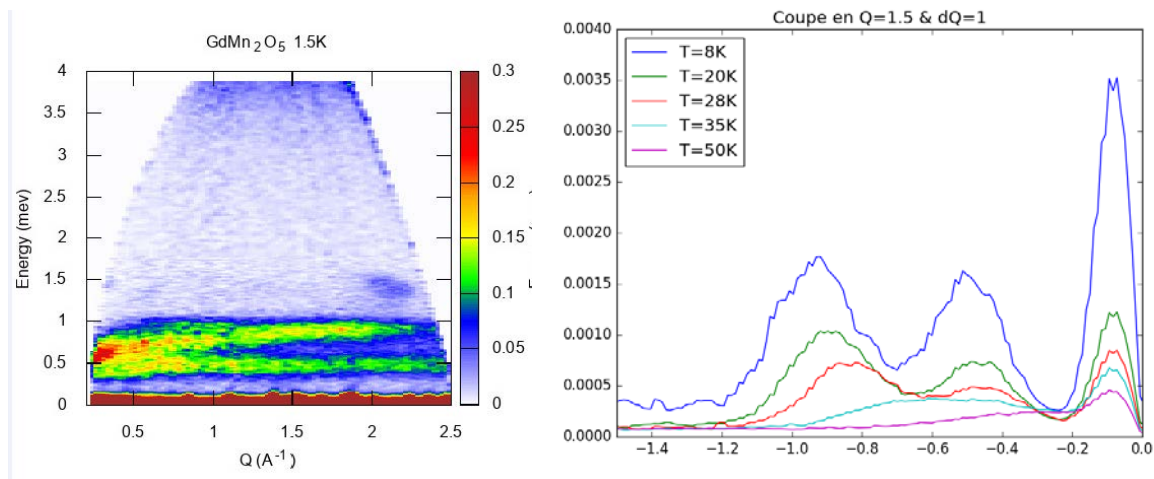
Local contact : Jean Marc Zanotti / Quentin Berrod

Sample : GdMn_2O_5 (Gd isotopic) powder, 2g.

Measurements did not provide more information on the dispersion of the spin waves, but showed the existence of two flat modes around 0.45 & 0.9 meV, whose energy decreases as the temperature increases.

The measurements in creation present a low Q anomaly for $E \sim 0.8 \text{ meV}$, certainly coming from a reflection on the cryostat.

The origin of these two modes is not yet well understood, but taking into account their existence seems to be crucial for a good understanding of the dynamics in GdMn_2O_5 . Additional measures would be recommended to track more precisely the evolution of those modes as a function of temperature.



Left: INS map (in creation), where two flat modes are clearly visible, and also the low Q anomaly.

Right: Evolution of the two modes, integrated in Q , as a function of the temperature.