Experimental report

04/02/2025

Proposal: **INTER-595** **Council:** 10/2023

Title: Magnetic structure of Mn2P

Research area:

This proposal is a new proposal

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Samples: Mn2P

Instrument	Requested days	Allocated days	From	To
ORIENTEXPRESS	1	1	03/03/2024	04/03/2024
D23	7	7	04/03/2024	08/03/2024
IN12	3	3	01/03/2024	04/03/2024

Abstract:

In the context of recent interest for complex spin textures and topological effects in magnetism, we proposed to reinvestigate the magnetic structure of Mn_2P that has been reported a long time ago as a simplest AF system (M. Yessik, Phil. Mag. 17, 623 (1968).). Recent bulk measurements suggest a more complex structure through anomalies in temperature dependence of susceptibility and Kerr rotation angle (X. Zhu, Y. Shi, V. Taufour et al., private communication).

The aim of the INTER-595 experiment on IN12 was to check the AF ordering of our newly synthetized sample before performing diffraction experiments on D23 with the goal to reinvestigate the magnetic structure as a function of temperature. Figure 1 shows the temperature dependence of several magnetic Bragg peaks obtained on IN12. These results validate the good behaviour of our sample and subsequent collections of Bragg peaks were performed on D23 at several temperatures (10 K, 30 K, 55 K and 80 K). Data analysis is in progress.

