

# Experimental report

21/12/2023

**Proposal:** TEST-3306

**Council:** 10/2023

**Title:** Magnetic structure of 6H-BaFeO<sub>3</sub> as a function of pressure

**Research area:** Materials

**This proposal is a new proposal**

**Main proposer:** Stanislav SAVVIN

**Experimental team:**

**Local contacts:** Stanislav SAVVIN

**Samples:** BaFeO<sub>3</sub>

Instrument	Requested days	Allocated days	From	To
XTREMED	4	4	04/09/2023	08/09/2023

**Abstract:**

Bulk measurements show that the magnetic structure of 6H-BaFeO<sub>3</sub> changes when the external pressure is applied. This experiment is meant to provide new data on the evolution of the magnetic structure of 6H-BaFeO<sub>3</sub> as a function of pressure and temperature.

Bulk measurements show that the magnetic structure of 6H-BaFeO<sub>3</sub> changes when the external pressure is applied. This experiment (TEST-3306) is meant to provide new data on the evolution of the magnetic structure of 6H-BaFeO<sub>3</sub> as a function of pressure and temperature.

The collected neutron diffraction data show numerous peaks which do not correspond to reflections of the nuclear or magnetic structure of the 6H-sample and have been assigned to the pressure cell used at 9 kbar(see figure 1). However, the magnetic signal is expected to be detectable as there is no overlap of maxima in the low-angle region where the most intense magnetic reflections appear. For that, we will request a proposal through Spanish CRG.

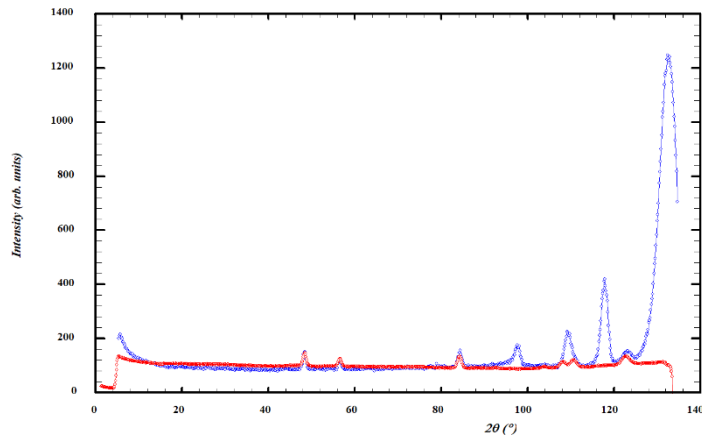


Figure 1- Neutron diffraction pattern of BaFeO<sub>2.96</sub> collected at XtremD diffractometer at RT into the pressure cell at 9 kbar (in blue color) and without pressure cell (in red color).