



	<b>Experiment title:</b> Light-induced phase transition in ferroelectric crystals studied by high resolution X-ray diffraction.	<b>Experiment number:</b> 25-01-1098
<b>Beamline:</b> BM 25A	<b>Date of experiment:</b> from: 01-Dec-2018 to: 03-Dec-2018	<b>Date of report:</b> 10-Dec-2018
<b>Shifts:</b> 6	<b>Local contact:</b> Dr. Germán R. Castro	<i>Received at ESRF:</i>
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**Report:** The experiment focused on demonstrated that a light-induced phase transition phenomenon can occur in a ferroelectric crystal, which had been hypothesized before from dielectric measurements.

Unfortunately, the experiment was unsuccessful. High resolution XRD pattern had to be collected in order to analyse the splitted peaks in ( $h00$ ) reflections as a function of temperature during the application of a visible light to the sample (provided by a laser diode of 532 nm of wavelength).

Two days (6 shifts) were scheduled for the experiments, which a priori seemed time enough. However, couple the optical system to the diffractometer took one day (3 shifts). The 3 shifts left were used to try getting the required measures, but a set of problems appeared as a result of the temperatre variation in the range where the expected transition had to take place (temperatures higher than 80 °C). The thermal expansion of some component of the sample holder provoked sample misalignment. Various new sample holder were proposed, designed and builded, but the beamtime finished before the experiment came to fruition.

Although the experimentalists received full support from the beamline staff, the experiment failed.