



	Experiment title: Details of complex magnetic interactions in the magnetic phase diagram of $\text{NpAs}_{1-x}\text{Se}_x$	Experiment number: HE-1830
Beamline:	Date of experiment: from: 8/9/2004 to: 14/9/2004	Date of report: 17/02/2005
Shifts:	Local contact(s): Laurence Bouchenoire	<i>Received at ESRF:</i>
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Report:

This experiment was not successful due to a combination of sample and technical problems. Two small samples of $\text{NpAs}_{0.85}\text{Se}_{0.15}$ and $\text{NpAs}_{0.80}\text{Se}_{0.20}$ tightly encapsulated in the same sealed container and glued on top of a Ge wafer were examined in this experiment. Unfortunately, despite our efforts, no proper Bragg peaks were found for any of the two samples in extensive scans over the whole sample surfaces. Only broad, weak peaks were detected.

Fluorescent scans of the whole Ge substrate looking at the Se and As signals using a high resolution detector and a MCA did show the presence of the two crystals. Therefore, the absence of the expected intense and sharp Bragg peaks could only be explained as a deterioration of the sample surfaces over the time elapsed between encapsulation and the experiment. The reason for this is unknown and is being investigated at EITU. In previous experiments no such problems occurred with similar samples encapsulated in the same way.

Unfortunately, we also came across technical problems at the beamline due to the failure of the cryostat heater in the second day of the experiment. Therefore, we had no control on the sample temperature that prevented us to perform any of the planned studies. If the poor quality of the sample surfaces prevented the study of resonant magnetic scattering, this technical problem made it impossible for us to use the available beamtime to investigate the lattice distortions due to the cryostat failure.