

Poster Presentation

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Commissioning the Neutron Laue Diffractometer in Berlin

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The Fast Acquisition Laue Camera for Neutrons (FALCON) is a thermal neutron Laue diffractometer situated in the experimental hall of the BER-II reactor at HZB in Berlin. The thermal beamtube, D1S, delivers a stream of neutrons direct to FALCON just 8m from the reactor core but with a low gamma radiation count. FALCON benefits from a beam that does not pass through any objects upstream whilst a beam definer delivers a highly focused neutron beam to the instrument with <math><1^\circ</math> divergence. The instrument comprises two scintillator plate detectors coupled to four iCCD cameras each. The neutron beam passes through the detector units enabling one detector to be placed in the backscattering position and the second detector in the transmission position. The image-intensified CCDs are capable of obtaining 20-bit digitization Laue images in under ten seconds and variable sample table and detector positions allow a full range of sample environments to be utilised. Scientifically, FALCON offers the opportunity to study samples from a wide range of fields for example; low-temperature magnetic studies, high-temperature structural phase transitions, in-situ kinetics studies and point-defect analysis in compound semiconductors. Data from FALCON can be used to solve crystallographic structures and as a neutron instrument it has all the advantages of neutrons as a probe for condensed matter, for instance, identification of the location of hydrogen atoms within structures and differentiation between electronically similar elements. FALCON will now enter the commissioning phase using in-house samples to test both ambient and sample environment conditions on the instrument. We present here details of the upcoming commissioning tests and invite users to submit proposals for Laue diffraction experiments.

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