TECHNISCHE UNIVERSITÄT DRESDEN

IFMP
Institut für Festkörper- & Materialphysik

IFMP Seminar

Date: Tuesday, December 01, 2020, at 14:50
BigBlueButton:
https://selfservice.zih.tu-dresden.de/l/link.php?meeting_id=39478&pin=e2ee70c7 (TUD)
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Speaker: **Alistair Cameron**
Technische Universität Dresden

Title: **Bambus: a new inelastic multiplexed analyser for Panda at MLZ**

Abstract: Neutron scattering is an instrumental tool for the investigation of condensed matter. Of the selection of of techniques available, cold-neutron triple-axis spectrometers (TAS) are focussed on the investigation of low-energy excitations in a wide region of condensed matter physics from magnetism to superconductivity. This technique gives us the ability to measure individual points in reciprocal space as a function of both scattering vector and energy change of the neutron, i.e. (**Q**, E) space, and is especially suited to parametric studies as a function of field and temperature. This is in contrast to the broad overview given by time-of-flight techniques, which measure multiple points in (**Q**, E) space but which tend to take long counting times to acquire useful data, allowing for only a few fields or temperatures to be measured. Recently, new engineering solutions have allowed for an intermediate concept to be developed: multiplexing analysers for TAS, which measure multiple points at the same time, increasing the useful data which can be collected and perhaps bridging the gap between the two existing techniques. Following this concept, the multiplexing analyser BAMBUS is being developed for use on the TAS spectrometer PANDA at MLZ in Garching, led by TU Dresden and in cooperation with JCNS. Its design takes advantage of the relative efficiency of Bragg diffraction for so-called neutron analyser crystals when compared to their transmission, allowing for the analysis of multiple neutron energies along the same path. This has been designed as a complementary module to the traditional TAS set-up, allowing for both to be used within a single experiment, and is expected to be commissioned in 2021.

Host: D. Inosov