Contribution ID: **454** Type: **Talk (25 + 5 min)**

Status and perspectives of neutron imaging at MLZ

Wednesday 22 March 2023 16:30 (30 minutes)

MLZ successfully operates the two neutron imaging beam lines NECTAR and ANTARES. NECTAR provides fast fission neutrons, thermal neutrons and gammas, which can be combined for multi-modal characterization of larger samples with spatial resolution down to ~100 µm. ANTARES offers a spectrum with a thermal maximum, extended towards cold neutrons, providing higher sensitivity and spatial resolutions down to ~20 µm. Together, our instruments cover a broad range of different spectra from high energy fission neutrons to cold neutrons as well as gammas and x-rays, thereby providing users with excellent capabilities to adress a large number of scientific questions.
In this presentation we will give an overview of the capabilities of the instruments illustrated by selected user experiments from different fields of applications. Moreover, the MLZ neutron imgaging group has a strong focus on the development of new and advanced neutron imaging methods. We will highlight our achievements in multimodal imaging, allowing to combine the different types of radiation and spectra provided by our instruments to obtain strongly improved material characterization capabilities. Additionally, we will demonstrate our activities in neutron grating interferometry, a spatially resolved SANS technique, as well as recent developments in event-mode detection systems, thereby overcoming classical limitations in neutron detection.

Author: SCHULZ, Michael

Co-authors: GUSTSCHIN, Alex (Neutron Imaging / ANTARES); HAN, Yiyong (Heinz Maier-Leibnitz Zentrum); LOSKO, Adrian (Technische Universität München, Forschungs-Neutronenquelle MLZ (FRMII)); NEUWIRTH, Tobias; KUMAR, Richi; SCHILLINGER, Burkhard; SEBOLD, Simon (MLZ); WOLFERTZ, Alexander (TUM FRM2)

Presenter: SCHULZ, Michael

Session Classification: Imaging & Neutron Detection

Track Classification: Neutron Instrumentation, Optics, Sample Environment, Detectors, and Software