Contribution ID: **399** Type: **Talk (17 + 3 min)**

Energy Resolved Time of Flight Imaging at the High Intensity Short Pulsed Neutron Instrument n_ToF at CERN

Wednesday, 22 March 2023 17:20 (20 minutes)

Neutron radiography plays an important part in the diagnostic repertoire of nondestructive inspection techniques providing information of the inner part of an object often not accessible by any other means. Since the start-up of n_TOF's second experimental area (EAR2), the possibility of diversifying the capabilities of EAR2, profiting from a high instantaneous neutron flux, were exploited. First results with conventional neutron imaging have been published and showed a reasonable performance of the facility with respect to flux and resolution. The potential use of energy resolved neutron imaging was not exploited but the facility's usefulness for imaging of highly radioactive objects proved valuable. The recent upgrade of the n TOF spallation target resulted in an increased neutron flux, which, combined with the rise of commercially available time-of-flight imaging detectors, opens the possibility to explore energy resolved neutron radiography at n_TOF EAR2. Here, we present recent results in utilizing a high spatial and temporal resolution time-of-flight imaging setup at EAR2, including absorption resonance imaging, Bragg-edge imaging and first data to compare experiments with simulations for a wide range of neutron energies at n_TOF.

Primary authors: LOSKO, Adrian (Technische Universität München, Forschungs-Neutronenquelle MLZ (FRMII)); BACAK, Michael (CERN)

Co-authors: PAVON-RODRIGUEZ, Jose Antonio (CERN); SCHEUREN, Stefan (TU Darmstadt); JAEGER, Tim (TU Darmstadt)

Presenter: BACAK, Michael (CERN)

Session Classification: Imaging & Neutron Detection

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