



Contribution ID: 16

Type: Poster

Polarized diffraction and spectroscopy data reduction in Mantid

Tuesday, September 20, 2022 6:26 PM (2 minutes)

Polarized neutrons experiments are the only technique allowing to analyze individual contributions from nuclear-coherent, incoherent, and magnetic components of neutron scattering cross-section necessary to study, among others, properties of paramagnetic materials. This work presents all stages of data reduction implemented in Mantid for Institut Laue-Langevin's (ILL) D7 instrument, starting from wavelength and position calibration to the final cross-sections in absolute units. The new reduction workflow supports monochromatic and single-crystal diffraction, as well as time-of-flight measurements, using Z-only, 6-point, or 10-point component-separation methods. All results are benchmarked against legacy ILL software.

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Track Classification: NOBUGS 2022