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MIEZEPY: An Open-Source Tool for Efficient MIEZE Data Reduction

MIEZEPY is an open-source software package designed for the efficient reduction of data acquired in the MIEZE (Modulation of Intensity with Zero Effort) mode. MIEZE is a neutron resonant spin echo technique that enables the measurement of the intermediate scattering function, $S(Q, \tau)$, in depolarizing sample environments, such as under high magnetic fields. This technique is implemented at the RESEDA (Resonance Spin Echo for Diverse Applications) spectrometer at MLZ, which offers sub-µeV energy resolution and an exceptional dynamic range (~8 orders of magnitude). As part of its commitment to making data FAIR, MLZ is preparing to switch to the NeXus data format in the near future. Initial steps towards implementing the new data format include drafting a NeXus template for raw data recording in NICOS and enabling NeXus file readout in MIEZEPY for subsequent data reduction and analysis. Further progress in this transition is expected in the coming months.

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