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## Thermal Neutron Three Axes Spectrometer PUMA: Recent Instrumentation Development

*Monday, 20 March 2023 16:00 (2 hours)*

PUMA is the thermal neutron three-axes spectrometer (TAS) at MLZ. Owing to the dynamical double-focusing technique and compact neutron optics with wide beam divergence, PUMA is mainly characterized as one of the highest neutron flux TAS. In addition, PUMA is equipped with the early generation multi-analyzer and -detector setup, which is suitable for a type of time-dependent kinetic measurements, known as a stroboscopy. Along with the He-3 polarizer after the monochromator and deflector before the analyzer on the top of the multiplexing setup, one can perform a novel type polarized neutron scattering experiment by measuring spin-flip and non-spin-flip channels at a time.

Since 2021, PUMA is co-operated by the Institute of Quantum Materials and Technologies of the Karlsruhe Institute of Technology (IQMT, KIT) and the Technical University of Munich (TUM) within the framework of a collaboration contract. As the first joint instrumentation project, we recently started developing a nested mirror optics (NMO) focusing technique on PUMA to further enhance the signal-to-noise ratio in measurements with a smaller sample size (less than 5 x 5 mm). This new optics will also help us to reduce background signals from a massive sample environment such as a magnet or high-pressure cell.

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