

Neutron velocity selector on thermal three axes spectrometer PUMA

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The thermal-neutron three axes spectrometer PUMA at MLZ is designed to achieve high neutron flux at the sample position, making it a leading instrument in the worldwide research community for performing experiments with low inelastic scattering intensity, such as magnetic or phononic excitations. To further enhance its capabilities, the installation of a neutron velocity selector is proposed. The neutron velocity selector will improve the control of background levels by effectively eliminating unwanted higher-order neutrons and provide greater flexibility in inelastic neutron scattering measurements by allowing for more flexibility in choosing outgoing neutron wave vectors. Alongside the upcoming nested mirror optics on PUMA, the neutron velocity selector will bring a significant synergy effect, particularly in measuring a small-size sample under an extreme sample environment.

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