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Storage and Guide Tests at SUN2 for PanEDM

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Neutron Electric Dipole Moment searches typically compare spin precession of trapped ultra-cold neutrons (UCN) with a stable clock, in an applied high electric field. One approach to limit systematic uncertainties in this type of experiment employs two storage chambers, allowing for simultaneous differential measurements with two electric field orientations. In PanEDM [1] this approach is supported by exceptional low-frequency magnetic shielding [2], advanced optical magnetometry systems [3], and a high-density superthermal UCN source –SuperSUN [4].

The PanEDM experiment is currently under commissioning at the Institut Laue-Langevin, and characterisations of individual systems continues in parallel with preparations for first UCN production at SuperSUN. We present a short overview of the current status of the PanEDM experiment and report on measurements carried out at SUN2, the predecessor of SuperSUN, to investigate solutions for UCN transport and storage in PanEDM.

References

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