

muEDM: The search for a muon electric dipole moment using the frozen-spin technique at PSI

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Permanent electric dipole moments (EDMs) are excellent probes of physics beyond the Standard Model. Recently, the muon EDM has been of particular interest due to the tensions in the magnetic anomaly of the muon and the electron and hints of lepton-flavor universality violation in B-meson decays. At PSI, we proposed a dedicated muon EDM search experiment using the frozen-spin technique. In this technique, a radial electric field is applied in a solenoid storage ring with a vertical magnetic field to cancel the muon anomalous precession. The signal of the EDM can be inferred from the up-down asymmetry of the decay positron count versus time. The experiment is planned to take place in two phases. The sensitivity goal of phase I is 3×10^{-21} e cm and for phase II, it is 6×10^{-23} e cm. In this talk, I will present the principle and current status of the experiment.

Attendance type

Virtual presentation

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