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【384】 Electric and magnetic field studies towards muon storage in the search for a muon electric dipole moment

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A precise configuration of electric and magnetic fields will be essential to realise the yet-undemonstrated frozen-spin technique [Farley *et al.* (2004), PRL:**93**:052001]. The apparatus under development at PSI relies on storing muons within a 3T solenoid. The trapping scheme involves a pulsed magnetic field to kick their longitudinal momentum upon entry into a weakly-focusing magnetic field which thereafter provides longitudinal confinement. The electric field tuned to satisfy the frozen-spin condition must be highly uniform within this storage region. Simulation studies demonstrate that the proposed design suitably constrains systematic effects [Cavoto *et al.* (2024), EPJ.C:**84**:262] and permits sufficient storage efficiency to undertake a search for the muon EDM with unprecedented precision.

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