

A muon entrance detector for the muEDM experiment at PSI



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Physics Motivation for muon EDM

Why are EDMs interesting to measure?

- A search for new physics which is "background-free"
 - The contribution from SM's CKM matrix is too small [1] $(d_{\mu} \sim 10^{-42} \text{ e cm})$
- Many BSM models predict large EDMs [2,3]
 - Complementary to LHC searches
- Matter-antimatter asymmetry requires more CPV
 - EDMs are good probes of BSM CPV
- In some BSM models, g-2 and EDM are connected [2,3]!

Frozen-spin approach in muEDM^[6]

Freeze g-2 by applying a radial E-field of ~ $aBc\beta\gamma^2$ \rightarrow no anomalous precession in the storage plane \rightarrow EDM causes an increasing vertical polarization s_x







References

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