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## **[317] Systematic effects in the search for the muon EDM using the frozen-spin method**

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At the Paul Scherrer Institute we are developing a high precision instrument to measure the electric dipole moment (EDM) of the muon using the frozen-spin method to suppress the anomalous precession of the muon spin. With this technique, the expected statistical sensitivity for the EDM after one year of data taking is  $6 \times 10^{-23} e \cdot \text{cm}$ .

Reaching this goal necessitates a comprehensive analysis on effects that mimic the EDM signal. This work discusses a quantitative approach to study systematic effects when searching for the muon EDM. Equations for the motion of the muon spin in the electromagnetic fields of the experimental system are analytically derived and validated by simulation.

### **Theoretical Work**

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