

Development of technology for storage ring EDMs

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We outline the physics case for the study of hadron edm's that follow on from the successful FNAL $g-2$ muon experiment. The long term goal is making measurements of edm's at, or below, the standard model expectation to provide quantifiable insight into the outstanding strong CP problem. The frozen spin technique spin technique is introduced and a possible lattice for the construction of such a ring presented. The method relies on the simultaneous measurement of the polarization of beams of counter rotating protons (or deuterons). New detector technologies for polarimeters are discussed. A prototype of a 4m section of such a ring is being developed and we present progress on the construction of precision electrostatic high field deflectors and matched micron (arc-second) pair roll, yaw mechanisms. The key systematics required to be overcome are presented as the techniques that have been developed to control and evaluate these systematics.

Author: BOWCOCK, Themis

Presenter: BOWCOCK, Themis

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