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The potential high orders of vertical electric field systematic effect due to hyperbolic/elliptical deformed electrode plates in the proton-EDM ring

Tuesday 3 June 2025 16:00 (2 hours)

To achieve a high precision experiment, one needs to eliminate the field errors up to certain orders that those field errors wouldn't contribute the systematic effect to the experiment. In this study, we modeled electrode plates of electrostatic deflector with hyperbolic/elliptical shape deformation schemes, investigated the beam dynamics and spin effect caused by these type of high orders of electric field errors, explored the potential systematic effect produced by these deformed electrostatic deflectors within proton - Electric Dipole Moment (pEDM) Symmetric-Hybrid ring design*.

Footnotes

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Author: LEE, Jonathan (Stony Brook University)

Co-authors: MORSE, William (Brookhaven National Laboratory); HUANG, Haixin (Brookhaven National Laboratory); SEMERTZIDIS, Yannis (Center for Axion and Precision Physics)

Presenter: LEE, Jonathan (Stony Brook University)

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