

Systematic errors investigation in frozen and quasi-frozen spin lattices of dEDM ring.

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The search for the electric dipole moment (EDM) in the storage ring raises two questions: how to create conditions for maximum growth of the total EDM signal of all particles in bunch, and how to differentiate the EDM signal from the induced magnetic dipole moment (MDM) signal. The T-BMT equation distinctly addresses each issue. Because the EDM signal is proportional to the projection of the spin on the direction of the momentum, it is desirable to freeze the spin direction of all particles in a bunch along momentum. It can be successfully implemented in the Quasi Frozen (QFS) and Frozen (FS) Spin structures. However, in case of magnet misalignments, the induced MDM signal may arise in the same plane as the EDM signal and thereby prevent its registration. In this paper, we analyze the effect of errors together with the spin-tune decoherence of all particles in the bunch for FS and QFS options.