

Contribution submission to the conference Bonn 2020

Spin Tune Measurements for Electric Dipole Moment Searches — ●ABHIROOP SEN for the JEDI-Collaboration — Institut für Kernphysik, Forschungszentrum Jülich — III. Physikalisches Institut B, RWTH Aachen

The electric dipole moment (EDM) of particles is an important property that can be studied to shed light on physics beyond the Standard Model, as well as answer questions about the matter-antimatter asymmetry in the universe (since it is CP violating). The JEDI Collaboration, using the Cooler Synchrotron (COSY) at Forschungszentrum Jülich, is working towards measuring the EDM of charged particles (protons and deuterons), which would be the first step to further, more detailed, studies about EDMs.

EDMs are measured by studying their influence on the spin motion. One important quantity in this context is the so called spin tune, defined as the number of times the spin precesses about the polarisation axis per particle turn in the ring. Using different approaches, one can analyse the spin tune of particle bunches in COSY and determine the spin coherence time (SCT), which is an estimate of how long the spins of the particles remain in phase, while they precess in the horizontal plane. This talk will concentrate on the analysis of spin tunes for longer cycles of $\sim 10^3$ s.

Part: HK
Type: Vortrag;Talk
Topic: Fundamentale Symmetrien
Email: a.sen@fz-juelich.de