Contribution ID: **95** Type: **not specified**

Electric Dipole Moment Measurements at Storage Rings

Tuesday 27 September 2016 09:00 (25 minutes)

Electric Dipole Moments (EDM) of elementary particles including hadrons, are considered as one of the most powerful tools to discover CP violation beyond the Standard Model. Such CP violating mechanisms are required to explain the dominance of matter over anti-matter in our universe. Up to now experiments concentrated on neutral systems (neutron, atoms, molecules). Storage rings offer the possibility to measure EDMs of charged particles by observing the influence of the EDM on the spin motion. The Cooler Synchrotron COSY at the Forschungszentrum J¨ulich provides polarized protons and deuterons up to a momentum of 3.7 GeV/c and is thus an ideal starting point for such an experimental programme. Plans for measurements of charged hadron EDMs and results of first test measurements will be presented.

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Session Classification: Beyond SM

Track Classification: F. Beyond SM