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Electric Dipole Moment Measurements at Storage Rings

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The Electric Dipole Moment (EDM) of elementary particles, including hadrons, is considered as one of the most powerful tool to study CP-violation beyond the Standard Model. Such CP-violating mechanisms are searched for to explain the dominance of matter over anti-matter in our universe.

Up to now EDM experiments concentrated on neutral systems, namely neutron, atoms and molecules. Storage rings offer the possibility to measure EDMs of charged particles by observing the influence of the EDM on the spin motion. First steps towards in EDM measurement can be done at the Cooler Synchrotron COSY at the Forschungszentrum Jülich. It provides polarized protons and deuterons up to a momentum of 3.7 GeV/c, making it an ideal starting point for such an experimental programme. First results of test measurements at COSY and plans towards the construction of a new type of storage ring will be presented.

Content of the contribution

Experiment

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