

## Contribution submission to the conference Darmstadt 2016

**Development of Closed Orbit Diagnostics towards EDM Measurements at COSY in Jülich** — ●FABIAN HINDER for the JEDI-Collaboration — Forschungszentrum Jülich, Institut für Kernphysik IV — RWTH Aachen University, III. Physikalisches Institut B

Electric Dipole Moments (EDMs) violate parity and time reversal symmetries. Assuming the CPT-theorem, this leads to CP violation, which is needed to explain the matter over antimatter dominance in the Universe. Thus, a non-zero EDM is a hint to new physics beyond the Standard Model. The JEDI collaboration (Jülich Electric Dipole moment Investigations) has started investigations of a direct EDM measurement of protons and deuterons at a storage ring. To measure a tiny EDM signal with high precision, systematic effects have to be controlled to the same level. One major source of systematic uncertainties is a distortion of the closed orbit. To control and measure this effect, the orbit measurement system, including the readout electronics, the orbit correction system and the beam position monitor pick-ups are improved. All the mentioned developments are ongoing at the Cooler Synchrotron (COSY) at Jülich. The achievements in the mentioned fields will be presented at the conference.

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