

## Contribution submission to the conference Würzburg 2018

### Development of a Rogowski Coil Beam Position Monitor —

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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 measurement of EDMs of protons and deuterons at a storage ring COSY (COoler SYnchrotron). To measure the tiny EDM signal with high precision, systematic effects and the beam orbit have to be controlled to the same level. Therefore, a new Beam Position Monitor (BPM) based on magnetic pick-up coils has been developed. The main advantage of the coil design compared to electric pick-up BPMs is the high response to bunched beam frequency signal and the coil compactness. The Rogowski BPM measures the beam position in horizontal and vertical directions. Tests in laboratory as well as measurements at the COSY accelerator will be presented.

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