

Contribution submission to the conference Wuppertal 2015

Development of new Beam Position Monitors at COSY

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Electric Dipole Moments (EDMs) violate parity and time reversal symmetries. Assuming the CPT-theorem is valid, 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 physics beyond the Standard Model. The JEDI (Jülich Electric Dipole moment Investigations) collaboration has started investigations of a direct EDM measurement of charged hadrons at a storage ring. To measure a tiny EDM signal with high precision, systematic effects have to be controlled to the same level. One way of controlling systematic effects is the use of high precision Beam Position Monitors (BPMs). The idea is based on the usage of magnetic pick-ups in a Rogowski coil configuration. The main advantage of the coil design is the response to the particle bunch frequency and the compactness of the coil itself. In a first step the BPMs will be benchmarked in a laboratory test system. In the next step the calibrated BPMs will be installed and tested at the conventional storage ring COSY (Cooler Cyclotron). In a further step an extension of the BPMs to measure the relative position of two counter rotating particle beams is proposed. At the conference first results and the planned developments will be presented.

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