## 2019 Workshop on Polarized Sources, Targets, and Polarimetry



Contribution ID: 5 Type: not specified

## Search for Electric Dipole Moments of charged particles with polarised beams in storage rings

Monday, 23 September 2019 13:40 (20 minutes)

The Electric Dipole Moment (EDM) of elementary particles, including hadrons, is considered as one of the most powerful tools 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 off represent the possibility to measure EDMs of charged particles by observing the in fluence of the EDM on the spin motion. A dedicated program is underway at the COSY storage ring to develop the required experimental and technical tools.

A step-wise approach starting with a proof-of-principle experiment at the existing storage ring Cooler Synchrotron COSY at Forschungszentrum Jülich, followed by an electrostatic prototype ring allowing for a simultaneous operation of counter circulating beams in order to cancel systematic electrostatic to the design of a dedicated 500 m circumference storage ring will be presented.

## **Summary**

**Primary author:** Prof. LENISA, Paolo (University of Ferrara and INFN - Ferrara (Italy))

Presenter: Prof. LENISA, Paolo (University of Ferrara and INFN - Ferrara (Italy))

**Session Classification:** Fundamental Symmetry Tests

Track Classification: Polarization Applications for Fundamental Symmetry Tests