



Contribution ID: 128

Type: **Poster contribution**

## On the search for the electric dipole moment of strange and charm baryons at LHC

*Friday, 21 April 2017 17:00 (1 hour)*

Permanent electric dipole moments (EDMs) of fundamental particles provide powerful probes for physics beyond the Standard Model. We propose to search for the EDM of strange and charm baryons at LHC, extending the ongoing experimental program on the neutron, muon, atoms, molecules and light nuclei. The EDM of strange  $\Lambda$  baryons, selected from weak decays of charm baryons produced in pp collisions at LHC, can be determined by studying the spin precession in the magnetic field of the detector tracking system. A test of CPT symmetry can be performed by measuring the magnetic dipole moment of  $\Lambda$  and  $\bar{\Lambda}$  baryons. For short-lived  $\Lambda^+c$  and  $\Xi^+c$  baryons, to be produced in a fixed-target experiment using the 7 TeV LHC beam and channeled in a bent crystal, the spin precession is induced by the intense electromagnetic field between crystal atomic planes. The experimental layout based on the LHCb detector and the expected sensitivities in the coming years are discussed.

**Primary authors:** MERLI, Andrea (MI); MARANGOTTO, Daniele (MI); Dr NERI, Nicola (MI)

**Presenter:** MARANGOTTO, Daniele (MI)

**Session Classification:** Archivio Poster

**Track Classification:** Sessione Frontiera Intensità