12th Edition of the Large Hadron Collider Physics Conference



Contribution ID: 156

Type: not specified

A future experiment to measure dipole moments of short-lived particles at the LHC

A fixed-target experiment at the LHC to measure the dipole moments of charmed baryons, and potentially the tau lepton, is presented. It is based on the phenomena of particle channeling and spin precession in bent crystals. The detector comprises a spectrometer for measuring the momentum of charged particles and a Cherenkov detector for particle identification. The tracking system integrates state-of-the-art silicon pixel sensors from the LHCb VELO detector, positioned inside Roman Pot stations, in conjunction with a dipole magnet. The R&D for the experiment is in an advanced status, and a proof-of-principle test is planned during LHC Run 3. Simulation studies have been used to optimize the detector design and sensitivity to the dipole moments. The progress and advancements toward the future experiment will be presented along with the physics perspectives.

Authors: MIAO, Han (University of Chinese Academy of Sciences (CN)); GRABOWSKI, Jascha Peter (University of Bonn (DE)); NERI, Nicola (Università degli Studi e INFN Milano (IT))

Presenter: GRABOWSKI, Jascha Peter (University of Bonn (DE))

Session Classification: Poster Session

Track Classification: Future Projects