

Probing lepton dipole moments at colliders

Thursday 23 September 2021 12:15 (25 minutes)

Various possibilities for testing lepton dipole moments in high-energy collider experiments are investigated. A Muon Collider running at center-of-mass energies of several TeV could provide the first model-independent high-energy test of new physics in the muon $g-2$, being sensitive to deviations of few $\times 10^{-9}$, thus being able to shed light on the long-standing muon $g-2$ anomaly. At the same time, the current bound on the muon electric dipole moment can be improved by three orders of magnitude, down to few $\times 10^{-22}$ e cm. Stringent constraints on the tau dipole moment can instead be obtained from various high-energy processes (such as Drell-Yan, VBF, or tau production in association with a Higgs boson), or from precision measurements of rare Higgs decay modes.

Author: BUTTAZZO, Dario (INFN Pisa)

Co-author: PARADISI, Paride (University of Padova and INFN)

Presenter: BUTTAZZO, Dario (INFN Pisa)

Session Classification: Collider physics