

Higgs EFT modifications of tau $g-2$ using LHC photon collisions

Wednesday, 2 October 2019 15:15 (12 minutes)

The tau anomalous magnetic moment $g-2$ strikingly evades experimental measurement, but its larger mass implies greater sensitivity to new physics than the muon counterpart, which reports a longstanding 3–4 sigma tension. Interestingly, the only two dimension-6 SMEFT operators that modify tau $g-2$ at tree-level involve Higgs–gauge–fermion couplings. We propose a new strategy using the LHC as a photon collider, low multiplicity triggers, and recent advances in soft lepton reconstruction to open new sensitivity beyond LEP to these SMEFT operators and BSM contributions to tau $g-2$.

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Session Classification: Parallel