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Lepton and neutron EDM as probe of general 2HDM

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Electric dipole moments (EDMs) of elementary particles are powerful probes of CP-violating New Physics (NP). In the context of a general two-Higgs doublet model (2HDM) which due to lack of any *ad hoc* discrete symmetry possesses complex extra Yukawa couplings that can help explain baryon asymmetry of the Universe (BAU), we discuss their NP contribution to EDMs of lepton and quarks. In leptons, while the electron EDM, given recent experimental improvements, continues to be the most sensitive probe of extra Yukawa couplings, we show that there exists NP scenarios in which muon EDM can be quite large and within sensitivity region of upcoming J-PARC and PSI experiments. We further present results for (chromo-)EDMs of various quarks. In particular, we show that neutron EDM together with electron EDM can provide crucial bound on the top Yukawa-driven BAU explanation in g2HDM. We also show the results for the top quark chromo-EDM, in light of recent analysis from CMS.

Collaboration / Activity

N/A

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