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Muon EDM in Models with Chiral Enhancement

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We study the muon electric dipole moment(EDM) in models with chiral enhancement, in which the long-standing muon g-2 anomaly is easily explained. Examples include the standard model or 2HDM with vectorlike leptons, models with new scalars, and MSSM among others. We find that, for example in 2HDM, the muon EDM can be as large as $\mathcal{O}(10^{-20})|e|cm$ while all couplings and masses satisfy perturbativity limits and experimental constraints. We emphasize that three observables, muon g-2, muon EDM, and higgs to mu mu, are correlated and show that the muon EDM can be predicted once muon g-2 and higgs to mu mu are precisely measured.

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