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Electroweak baryogenesis in 2HDM without EDM cancellation

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We discuss two Higgs doublet models with successful electroweak baryogenesis but without cancellations of electric dipole moments (EDMs). For the baryogenesis, additional scalar bosons are favored to couple mainly with the top quark with CP violations. However, if they also couple to light fermions of the Standard Model, the model is limited severely by EDMs, and additional CP phases irrelevant to the baryogenesis are often introduced to cancel the contributions to the EDMs. We here discuss a scenario where the light-fermion couplings are suppressed to avoid the constraints. We show that our scenario is compatible with the current experimental bounds and is within the scope of future EDM experiments.

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