

Indirect search for CP-violation in the Higgs sector by the precision test of Higgs couplings

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Although the discovered Higgs boson appears to favor the standard model, the structure of the Higgs sector is not clear yet. For instance, we can consider some extension of the Higgs sector while we keep consistency in the collider experiments. In particular, CP-violating Higgs sector is motivated by the baryon number asymmetry of the Universe. In this talk, we discuss how effects of the CP-violation in the Higgs sector can be observed indirectly. We focus on two Higgs doublet model (2HDM) with the CP-violation, and then we analyze indirect effects of the CP-violation on couplings of the discovered Higgs boson and discuss the precision test using the future colliders. As a result, we find that by measuring the Higgs boson couplings very precisely we are able to distinguish the CP-violating 2HDM from the CP-conserving one. This talk is based on [M. Aoki, K. Hashino, D. Kaneko, S. Kanemura and M. Kubota, arXiv:1808.08770 [hep-ph]].

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