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Aligned Higgs couplings originated from the twisted custodial symmetry at high energies

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We study the scenario of the two Higgs doublet model, where the Higgs potential respects the twisted custodial symmetry at high energy scale. In this scenario, experimental data for the Higgs boson couplings and those for the electroweak precision observables can be explained even when the masses of the extra Higgs bosons are near the electroweak scale. We also discuss the predictions on the mass spectrum of the additional Higgs bosons and also those on the coupling constants of the standard-model-like Higgs boson, which make it possible to test this scenario at the current and future collider experiments. This talk is based on JHEP 02 (2021) 046 [arXiv:2009.04330].

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