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Higgs decay into four leptons in the presence of dimension–six operators

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We study the effects of dimension-six operators on the Higgs decay into four lepton channel. The calculation of new matrix elements has been performed in the so-called Higgs basis and it is implemented in a Monte Carlo event generator. A mapping between the parameters of the phenomenological Lagrangian and those of the Warsaw and SILH bases is also implemented. We consider all the relevant operators, both the CP-even and CP-odd operators, which contribute to this decay channel. Choosing suitable benchmark values for some relevant Wilson coefficients, we compare our predictions for partial decay width and some important kinematic distributions with the NLO (EW) SM predictions. A paper, collecting our results, has been recently published (arXiv:1703.06667) and will be submitted to an international peer-reviewed journal in the forthcoming days.

Experimental Collaboration

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