



Contribution ID: 3

Type: **not specified**

Triple Higgs couplings in the di-Higgs production in the 2HDM at future colliders

Thursday 2 June 2022 17:15 (15 minutes)

Two Higgs doublet models (2HDM) are one of the simplest and most popular extensions to the SM and predict very different scalar interactions compared to the SM. These new interactions include new triple couplings of the SM-like Higgs bosons with itself and with the new Higgs bosons present in the 2HDM. In consequence, these new triple Higgs interactions can enter at tree-level in the cross section production of two Higgs bosons. In this talk, we analyze the main production channels at future colliders in the 2HDM, and we study the possible effects coming from the triple Higgs couplings. The results of the cross sections are presented in benchmark planes where large triple Higgs couplings can be realized inside the region allowed by all the relevant theoretical and experimental constraints. We also discuss the relevance of studying the differential cross section on the invariant mass of the two final Higgs bosons to extract the effects of the triple Higgs couplings at future colliders.

Authors: ARCO, Francisco (UAM - IFT); HERRERO SOLANS, Maria Jose (Universidad Autonoma de Madrid (ES)); HEINEMEYER, Sven (CSIC (Madrid, ES))

Presenter: ARCO, Francisco (UAM - IFT)

Session Classification: Future colliders