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Higgcision and Higgs Boson Pair Production

Content:

A brief review on the Higgs-gauge and Yukawa couplings will be given. The most important is to determine the size and the sign of the top Yukawa coupling. The current Higgs data cannot completely ruled out the opposite sign of the top Yukawa. We propose single-top plus Higgs production to determine the sign of the top Yukawa. The second part is the study of Higgs-pair production, which can probe the trilinear coupling of the Higgs boson, which can in turn reveal the inside structure of the EWSB sector. We show how we can disentangle the triangle diagram from the box diagram, such that the trilinear coupling can be probed.

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