

Higgs Hunting 2022



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Search for non-resonant Higgs boson pair production in the final state with two bottom quarks and two tau leptons with CMS

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In this talk the most recent results concerning the non-resonant Higgs boson pairs (HH) production in the final state with two tau leptons and two bottom quarks will be presented. The bbtatau channel represent a good compromise between a sizeable branching fraction (7.3%) and a very good purity of the tau pair selection. The HH search and the related 'kappa-modifiers' studies will be presented. The analysis is performed with the full LHC Run2 data. The sensitivity of the search is considerably improved compared to the previously published results with 2016 data due to increased luminosity, improved object identification algorithms, as for example Neural Network based tau lepton identification, and newly introduced machine learning based analysis techniques which allowed to enhance the sensitivity of the search.

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Classification de Session: Young scientist forum