Weekly Meeting

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ATLAS NOTE

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Search for Higgs pair production with decays to WW and $\gamma\gamma$ in 3.2 fb^{-1} proton-proton data at 13 TeV

ATLAS Collaboration

Abstract

A search is performed for resonant and non-resonant Higgs pair production with the one Higgs boson decaying to WW and the other one to $\gamma\gamma$. Two final states are considered according to the decay of the W bosons. In the first case, both W bosons decay hadronically and in the second case one W boson decays hadronically and the other to an electron or muon plus a neutrino. The search is performed using a sample of proton–proton collision data at 13 TeV centre-of-mass energy recorded with the ATLAS detector in XXX. The sample corresponds to an integrated luminosity of **3.2 fb^{-1}**. For the non-resonant Higgs pair production, the observed (expected) upper limit $gg \rightarrow hh$ is *xxx* pb (*xxx* pb). For resonant Higgs pair production, the observed (expected) upper limits range from *xxx* pb (*xxx* pb) to *xxx* pb (*xxx* pb) as a function of resonant mass assuming that the narrow-width approximation holds.