

Combination of searches for resonant and non-resonant Higgs boson pair production in the $b\bar{b}\gamma\gamma$, $b\bar{b}\tau\tau$ and $b\bar{b}b\bar{b}$ decay channels using pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detectors = 13 TeV with the ATLAS detector

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A combination of searches for Higgs boson pair production is performed using up to 139 fb^{-1} of proton-proton collision data at a center-of-mass energy $\sqrt{s} = 13 \text{ TeV}$ recorded with the ATLAS detector at the LHC. The combination exploits three analyses searching for HH decays to $b\bar{b}\gamma\gamma$, $b\bar{b}\tau\tau$ and $b\bar{b}b\bar{b}$. Results are interpreted in the context of non-resonant and resonant Higgs boson pair production scenarios. In the non-resonant interpretation, upper limits are set on the Higgs boson pair production cross-section and on the self-coupling modifier κ_λ . In the resonant interpretation, upper limits are set on the Higgs boson pair production cross-section as a function of the heavy resonance mass.

Career stage

Graduate student

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