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Projected sensitivity of Higgs boson pair production combining the bbyy and bbtautau decay channels at the HL-LHC with the ATLAS detector

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A combination of projection studies of non-resonant Higgs boson pair production is performed in the bbyy and bbtautau decay channels with the ATLAS detector, assuming 3000/fb of proton-proton collision data at a center-of-mass energy of sqrt{s} = 14 TeV at the HL-LHC. The projected results are based on extrapolations of the Run 2 analyses conducted with 139/fb data at $\sqrt{s}$ = 13 TeV. In addition to the increased luminosity and center-of-mass energy at the HL-LHC, both experimental and theoretical systematic uncertainties are expected to be reduced relative to their Run 2 values. The projected results are expressed in terms of the significance for the observation of the Standard Model Higgs boson pair production, and the constraint on Higgs boson trilinear self-coupling modifier kLambda.

In-person participation

No

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