

Probing the Higgs self-coupling in the $HH \rightarrow b\bar{b}\gamma\gamma$ channel

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Since its discovery in 2012, measurements of the properties and couplings of the Higgs boson have been at the forefront of LHC physics. The trilinear self-coupling of the Higgs boson λ determines the shape of the Higgs potential, and deviations of its value from the Standard Model prediction may point to new physics. λ can be probed experimentally via diHiggs (HH) production. This talk presents a search for HH production with b-quark and photon pairs in the final state using the full Run 2 and partial Run 3 ATLAS datasets. The analysis strategy, key improvements from the Run 2 analysis and the published Run 2 results for the HH production cross-section and κ_λ limits will be shown.

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