

Analysis of non-resonant $HH \rightarrow b\bar{b}\gamma\gamma$ using CMS Run 3 data

Thursday, 30 October 2025 20:30 (1 minute)

A search for nonresonant Higgs boson pair production in the $b\bar{b}\gamma\gamma$ channel is performed using 61.9 fb^{-1} of CMS data at $\sqrt{s} = 13.6 \text{ TeV}$. Two analysis strategies are employed. The 2D fit approach yields a 95% CL upper limit of 11.0 (7.3 expected) times the SM prediction, while the 1D approach gives 7.4 (8.7 expected). Constraints on the self-coupling modifier κ_λ are set, excluding κ_λ outside -5 to 12 (2D) and -3.9 to 10.4 (1D).

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Session Classification: Poster

Track Classification: poster