

Search for dark matter produced in association with a pair of bottom quarks at CMS

Saturday, 1 November 2025 15:40 (20 minutes)

A search for dark matter (DM) particles produced in association with bottom quarks using proton-proton collision data at a center-of-mass energy of $\sqrt{s}=13$ TeV, corresponding to an integrated luminosity of 138fb⁻¹ is presented. The search is performed in a final state with large missing transverse momentum and a pair of jets originating from bottom quarks. No significant excess of data is observed with respect to the standard model expectation. Results are interpreted in the context of a type-II two-Higgs-doublet model with an additional light pseudoscalar (2HDM+a). An upper limit is set on the mass of the lighter pseudoscalar, probing masses up to 260GeV at 95% confidence level. Sensitivity to the parameter space with the ratio of the vacuum expectation values of the two Higgs doublets, $\tan\beta$, greater than 15 is achieved, capitalizing on the enhancement of couplings between pseudoscalars and bottom quarks with high $\tan\beta$.

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Session Classification: Parallel 2

Track Classification: CMS