

Search for Dark Matter produced in association with a Higgs boson decaying to a pair of b quarks at 13 TeV with the ATLAS detector

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We present a search for dark matter candidates produced in association with a Higgs boson using data collected from pp collision at $\sqrt{s} = 13$ TeV with the ATLAS detector that corresponds to an integrated luminosity of 139 fb^{-1} . This search targets events that contain a large missing transverse momentum and a Higgs boson reconstructed either as two b -tagged small-radius jets or as a single large-radius jet associated with two b -tagged sub-jets. Compared to the previous iteration, this search represents an optimised event selection and advances in object identification that enhance the expected sensitivity and simplify the analysis. No significant excess from the Standard Model prediction is observed. The results are interpreted in two benchmark models with a Two-Higgs-Doublet extended by either a heavy vector boson Z' or a pseudoscalar singlet a which provide dark matter candidates.

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