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Type: **Experimental poster**

Search for Dark Matter produced in association with a Standard Model Higgs boson decaying to b-quarks with 139 fb⁻¹ of pp collision data with the ATLAS detector

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Many extensions of the Standard Model predict the production of Dark Matter in association with Higgs bosons.

This search examines the final state of missing transverse momentum accompanied by a bb pair coming from a Higgs boson decay. For this purpose proton-proton collision data is used which is produced at 13 TeV centre-of-mass energy and recorded by the ATLAS experiment at the LHC, amounting to an integrated luminosity of 139 fb⁻¹.

The increase in integrated luminosity in conjunction with many analysis optimizations result in a better sensitivity in comparison to previous iterations. No significant deviation from the Standard Model is observed and the results are interpreted in the context of the 2-Higgs doublet models with an additional vector or pseudoscalar mediator.

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