

Dark Matter search at ATLAS experiment: Mono-H and Missing transverse energy improvement

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Summary

Study of DM signals associated with a Higgs boson. The decay of the Higgs is reconstructed as a high momentum $b\bar{b}$ system with either a pair of small-radius jets, or a single large-radius jet with substructure. Results are interpreted using a simplified model with a Z' gauge boson mediating the interaction between dark matter and the Standard Model as well as a two-Higgs-doublet model containing an additional Z' boson which decays to a Standard Model Higgs boson and a new pseudoscalar Higgs boson, the latter decaying into a pair of dark matter particles. Also, the missing transverse energy performance of the ATLAS detector is studied in order to improve the analysis with Missing transverse energy as the Mono-H searches. The idea is to obtain the resolution for all objects that feed into the calculation of MET, and from those get the total uncertainty for MET. This should be useful to many analyses for example to suppress backgrounds with MET from mismeasured jets or exotics searches.

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Classification de Session: Au-delà du modèle standard