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Searches for dark matter particles produced in VBF processes in pp collisions at sqrt(s)=13 TeV with the ATLAS detector

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Dark Matter constitutes 80% of the matter in the universe, as confirmed by astrophysical and cosmological observations, but it has never been detected directly.
An important role in the search for the dark matter particles is played by the LHC.
In particular, scenarios where the dark matter has a coupling to the Higgs boson can be tested at the LHC by searching for the invisible decay of the 125 GeV Higgs Boson.
I will present the ATLAS search for the invisible decay of the Higgs boson produced via the vector boson fusion (VBF) mechanism. I will explain the strategy of the analysis, its main features and challenges.
I will show that the same topology of events selected within this analysis can be used to test other dark matter models, such as minimal dark matter models.

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