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Searches for Dark Matter via mono-higgs with the ATLAS detector.

Tuesday, 9 July 2019 12:40 (20 minutes)

A search for the dark matter in association with the Standard Model like Higgs boson was performed using up to 37 fbˆ(-1) pp collision data collected by the ATLAS detector at the Large Hadron Collider during 2015–2016 are summarised.

In high energy physics, deep learning is used to increase the sensitivity of physics analyses and provides a handle to evaluate the performance and potential for improvement of traditional physics algorithms.

We use Multivariate Analysis methods to suppress the fake missing transverse energy, using the Boosted Decision Tree we are able to enhance the regression performance of typically weak Multivariate Analysis methods for the dark matter search. In the case of both boosted decision trees the use of machine learning techniques is found to improve the background rejection and the signal efficiency. Linear correlations between the resulting classifiers and the substructure variables are also presented.

Apply to be
 considered for a student
   award (Yes / No)?

Yes

Level for award
 (Hons, MSc,
   PhD, N/A)?

MSc

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