Contribution ID: **45**   Type: **not specified**

DESY CMS - Reconstructing dark matter in events with top quarks using neural networks

Some beyond the standard model (SM) scenarios predict that dark
matter (DM) could be produced in association with top quarks at the LHC. The most easily identifiable case in which this occurs are dileptonic top quark pair + DM events, however reconstructing the kinematics in these events is challenging as the DM, in addition to two neutrinos from the top quark decays, are not observed. In this project the student will investigate whether an existing neural network, designed to reconstruct SM top quark pair events, can be retrained to also reconstruct events with DM in addition to the top quark pair. Through this the student will gain experience of NN techniques in particle physics, as well as potentially produce a new tool for these types of analyses.

Group

FH - CMS

Project Category

B1. Physics Data Analysis and Performance (software-oriented)

Special Qualifications

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