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Search for Dark Matter produced in association with a Higgs Boson decaying to two bottom quarks in s= 8TeV pp collisions with the ATLAS detector

Thursday, August 6, 2015 2:15 PM (15 minutes)

This talk will present a search for dark matter pairs produced in association with a Higgs boson decaying into two bottom quarks at the LHC, based on 20 fb−1 of pp collision data collected by the ATLAS experiment at 8 TeV. Events with large missing transverse momentum are selected when produced in association with high momentum jets, of which at least two are identified as jets containing b-quarks consistent with those from a Higgs decay. The results are interpreted through a simplified model (2HDM) where a Higgs-doublet is produced via Z'decay, and the heavy higgs decays into a pair of dark matter particles. Results are presented in terms of the mass of the Z'particle and the heavy pseudoscalar higgs. Results are also presented on the mass scale of effective field theories that describe scalar and tensor interactions between dark matter and Standard Model particles. Additional interpretations are shown using simplified models where the Higgs is produced through Higgs-strahlung of the Z'. The fiducial cross section will also be presented for this analysis.

Oral or Poster Presentation

Oral

Primary authors: TEOH, Jia Jian (Osaka University (JP)); CHENG, Yangyang (University of Chicago (US))

Co-authors: WANG, Jike (Deutsches Elektronen-Synchrotron (DE)); SHOCHET, Mel (University of Chicago (US)); HSU, Shih-Chieh (University of Washington, Seattle)

Presenter: CHENG, Yangyang (University of Chicago (US))

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