

Dark matter searches at CMS

Sunday 3 February 2013 08:50 (35 minutes)

This presentation will summarize the results of dark matter searches in 5 fb of proton-proton collision data at the center-of-mass energy 7 TeV collected with the CMS detector at Large Hadron Collider (LHC) in 2011. Dark matter particles, if produced in the collision, will be invisible to the CMS detector; their existence can be inferred by a large missing transverse momentum (MET). Supersymmetric (SUSY) models predict the existence of dark matter candidate particles. This presentation will show interpretations of the CMS SUSY searches in terms of Constrained minimum Supersymmetric extension of the Standard Model (CMSSM) and Simplified Model Spectra (SMS) with an emphasis on dark matter searches. Events with large MET and a single jet (monojet events) or events with large MET and a single photon (mono-photon events) can be final states of direct productions of dark matter particles after the initial-state radiation (ISR). This presentation will also show the upper limits on the dark matter-nucleon cross sections that the CMS monojet and mono-photon analyses placed.

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Session Classification: Collider