

Dark matter searches at the LHC

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We present results of searches for dark matter particles in ATLAS and CMS experiments at the LHC. Searches in hadron colliders focus on final states consisting of direct production of a pair of dark matter particles, which escape direct detection. Candidate events are selected as those having an initial-state radiation of a SM particle, such as a gluon or photon. These searches result in final states consisting of a high p_t jet or photon, and large missing transverse energy. If the dark matter particles' couplings to up-type and down-type quarks have opposite signs, the mono-W boson production dominates. We report on the results of these searches in pp-collisions at a center-of-mass energy of 8 TeV collected in 2012. The results are translated to bounds on the dark matter-nucleon scattering cross-section, which can be directly compared to those from the direct detection and the indirect detection experiments.

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