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Missing energy based searches at colliders: gateway to dark matter in the lab?

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The results from cosmology experiments on the properties of the particles that make up the observed dark matter in the universe are consistent with its having a mass on order the weak scale ($O(100 \text{ GeV}/c^2)$) and weak couplings. Many models of new physics that contain such a particle, such as supersymmetry or universal extra dimensions, predict its copious production at the Large Hadron Collider, either directly or via the decays of other new particles. Events containing these particles would show an apparent momentum imbalance in the plane transverse to the beam direction (missing transverse energy). In this talk, I report on the status of searches by the ATLAS and CMS collaborations for an excess of such events beyond the expectations from production of known particles.