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Cracking the dark matter code at the LHC

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Abstract:

The dark matter problem and the mystery of the feeble neutrinos greatly motivate the ongoing searches at the Large Hadron Collider (LHC) at CERN for new physics in channels with missing energy. However, at hadron colliders like the LHC, it is notoriously difficult to decipher events with invisible particles in the final state. In this study, we shall concentrate on the peaks structure of the kinematic distributions in order to answer the questions like 1) What is the number of the invisible particles in the final state? 2) What is the exact decay topology?, concurrently with the question - 3) What are the masses of the particles involved in the decay process.

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