

Abstract Submitted  
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**SUSY-Cosmology at the LHC** ALFREDO GURROLA, RICHARD ARNOWITT, BHASKAR DUTTA, TERUKI KAMON, NIKOLAY KOLEV, ABRAM KRISLOCK, PAUL SIMEON — Supersymmetry (SUSY) is a very attractive theory of particle physics that could connect to cosmology and explain the early universe. With an assumption of the lightest supersymmetric neutral gauge boson (neutralino) to be a dark matter (DM), the recent measurement of the amount of DM of the universe with other experimental results constrains a SUSY parameter space where a mass difference between the supersymmetric tau lepton (stau) and the neutralino is very small (5 to 15 GeV). The Large Hadron Collider (LHC) will produce the SUSY events copiously and contain two or more tau leptons in the final state. We systematically study an experimental requirement of measuring the characteristic mass difference at the LHC. Within a benchmark framework of minimal supergravity, we confirm the conclusion in our previous publication that the tau lepton must be identified with a transverse energy above 20 GeV.

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