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Testing Gaugino Universality in Minimal Supergravity at the LHC ABRAM KRISLOCK, RICHARD ARNOWITT, BHASKAR DUTTA, ALFREDO GURROLA, TERUKI KAMON, NIKOLAY KOLEV, PAUL SIMEON, Texas A&M University — SUSY is a leading theory to uniquely open the possibility of unification of fundamental forces. As a result, the well motivated minimal supergravity (mSUGRA) models predict a particular mass relation among the three kinds of supersymmetric gauge bosons (gluino, next-to-lightest neutralino, and the lightest neutralino). The relation, originated by gaugino mass universality, will give an insight of Grand Unified Theories. The previous study showed that we will have to identify the tau lepton with a transverse energy above 20 GeV to probe the cosmologically allowed mSUGRA parameter space at the LHC. We extend the study by investigating a methodology of testing the mass universality hypothesis as well as the maximum reach of the gaugino masses.

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