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Signals in the Co-annihilation Region of Supersymmetry RICHARD ARNOWITT, ADAM AURISANO, BHASKAR DUTTA, TERUKI KA-MON, PAUL SIMEON, DAVID TOBACK, PETER WAGNER, Texas A&M University, NIKOLAY KOLEV, University of Regina, TEXAS A&M UNIVERSITY COL-LABORATION, UNIVERSITY OF REGINA COLLABORATION — An unanswered problem in physics is the identity of the cold dark matter (CDM) in the universe. One of the leading candidates is a supersymmetric (SUSY) particle, the lightest neutralino. Recent cosmological measurements by the WMAP experiment have tightly constrained the SUSY parameter space in the mSUGRA model to the so called "co-annihilation" region in which the lightest supersymmetric tau lepton and the lightest neutralino are nearly degenerate in mass. We examine the prospects of using LHC detectors to measure this mass difference and present preliminary results.

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