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Non-Universal gaugino masses and implications on the Dark Matter and Higgs searches

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Non-universal boundary conditions in grand unified theories can lead to non-universal gaugino masses at the unification scale. In R-parity preserving theories the lightest supersymmetric particle is a natural candidate for the dark matter. We have studied the composition of the lightest neutralino in non-universal gaugino mass cases from the SU(5), and implications on the dark matter. In the 24 dimensional representation areas of proper thermal relic density are found. The possibility to observe the neutral MSSM Higgs bosons (h/H/A) at the LHC via neutralino cascades when the lightest neutralino is dark matter, is discussed, and the connection to neutralino dark matter is established.

The talk is based on:
K. Huitu, J. Laamanen, P.N. Pandita, S. Roy, Phys.Rev. D72 (2005) 055013
K. Huitu, R. Kinnunen, J. Laamanen, S. Lehti, S. Roy, T. Salminen, (in preparation)

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