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Dark Matter as a Guide to SUSY at the LHC

Friday, July 20, 2007 2:00 PM (1 hour)

If the lightest neutralino is a stable thermal relic from the Big Bang, thus comprising dark matter (DM) in the Universe, its relic abundance can be used to severely constrain the parameter space of supersymmetric models. For instance, in the paradigm mSUGRA model, each DM allowed region gives rise to distinct signatures for new physics at the LHC. We explore an array of well-motivated scenarios with non-universal soft terms –normal scalar mass hierarchy, non-universal Higgs models, mixed wino DM, bino-wino co-annihilation (BWCA) DM, low M_3 (compressed) SUSY, mixed higgsino DM, mixed moduli-AMSB DM– and show that each of these gives rise to distinct characteristics that ought to be measureable by the Atlas and CMS experiments starting next year at the LHC.

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Session Classification: Seminar