



ID de Contribution: 131

Type: **Talk**

## Theoretical expectations for dark matter detection at the LHC

*vendredi 30 juillet 2010 16:10 (30 minutes)*

Dark matter candidates emerge naturally in many theories of particle physics beyond the Standard Model. In the case of supersymmetry, several compelling candidates emerge: the neutralino, the gravitino, the axion/axino multiplet and others. While dark matter won't be directly observable at LHC, the host of new particles associated with the new physics giving rise to dark matter should be. For supersymmetric theories, we expect large rates for multi-jet plus multi-lepton plus missing  $E_T$  events (depending on sparticle masses). I detail what LHC can be expected to accomplish during Run 1 for supersymmetry and dark matter. In the case of Yukawa-unified SUSY, as expected from  $SO(10)$  SUSY GUTs, LHC should be able to either discover or exclude this compelling class of theories.

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**Classification de Session:** Plenary session : Dark Matter Searches at the LHC

**Classification de thématique:** Dark Matter Searches at the LHC