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## Probing Supersymmetry with Very Light Gravitino by Using Impact Parameter at the LHC

*Thursday, September 1, 2011 11:15 AM (20 minutes)*

I discuss LHC phenomenology of low-scale SUSY breaking scenario that the gravitino mass is around 10 eV and that the NLSP (in this talk, stau) decays well inside the detector. Even if the stau decays before hitting the inner detector, the tau-jet from the stau decay may have a large impact parameter, which is useful to identify the decay products of the stau. I show that the impact parameter information is useful for the mass and lifetime measurements of SUSY particles; in particular, the lifetime of the stau can be well determined when the stau lifetime is longer than  $O(10^{-12})$  sec (i.e., when the decay length is  $O(100)$  micro meter).

**Presenter:** Mr ITO, Takumi (The University of Tokyo, Tohoku University)

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