



Contribution ID: 318

Type: Parallel Talk

## Long-lived superpartners in the MSSM

*Monday 30 July 2007 15:20 (20 minutes)*

Specific regions in the MSSM parameter space are analysed. It is shown that in the narrow band near the co-annihilation region charged sleptons (staus) may be long-lived particles. This region is consistent with the WMAP restrictions on the Dark matter and depends on the value of  $\tan\beta$ . Due to a relatively small mass stau production cross-section at LHC may reach a few % pb. In the other region top squarks become light and even may be the LSP. This happens when the triple scalar coupling  $A$  becomes very big compared to  $m_0$  and negative. We show that in this case the requirement that the LSP is neutral imposes noticeable constraint on the parameter space similar to constraint from the Higgs mass limit. In some cases these constraints overlap. This picture takes place in a wide region of  $\tan\beta$ . In a narrow band close to the border line stops are long-lived particles and decay into quarks and neutralino (chargino). The cross-section of their production at LHC via gluon fusion mechanism in this region may reach a few pb.

**Author:** Dr GLADYSHEV, Alexey (Joint Institute for Nuclear Research)

**Co-authors:** Prof. KAZAKOV, Dmitry (Joint Institute for Nuclear Research); Mr PAUCAR, Manuel (Joint Institute for Nuclear Research)

**Presenter:** Dr GLADYSHEV, Alexey (Joint Institute for Nuclear Research)

**Session Classification:** Colliders - Susy Phenomenology 7 (Theory)

**Track Classification:** Colliders - Susy Phenomenology