

Searches for mSUGRA in τ channels at ATLAS

Searches for mSUGRA models with τ -rich signatures in the $\tau - \chi$ coannihilation region, using 2010 data as a training ground in preparation for analyses with the full 2011 data set is presented. The models are chosen such that they are compatible with cosmological bounds. The analysis presents data collected in 2010 and compares to signal and background MC simulations.

After a basic event selection and cuts to reject QCD events, a single cut to increase the signal significance is applied. Finally the data is split into $n\tau = 0$, $n\tau = 1$, and $n\tau \geq 2$ channels and exclusion limits are presented. It is shown that by including the contribution from τ -signal, it is possible to improve the limits compared to a 0-lepton analysis.

The prospect for an one tau analysis with the full 2011 data set is also discussed, with special emphasis on data driven methods of background estimation.

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