

1 lepton and \cancel{E}_T . [1]

Energy: 8 TeV

Luminosity: 5.8 fb^{-1}

Validation notes:

- Validation has been performed versus the published CMSSM (mSUGRA) parameter scan, see Figure 1.
 - The Monte-Carlo generator was Herwig++ 2.5.2 [2].
 - Cross-sections calculated with NLL-Fast 2.1 [3, 4, 5, 6, 7]
 - SUSY spectrum generated with SOFTSUSY 3.3.9 [8].
- We believe the exclusion in CheckMATE is slightly weaker than the published ATLAS result, since ATLAS uses a different limit setting procedure. CheckMATE only uses the signal region with the best expected sensitivity to set the limit. However, in this search ATLAS used a combined likelihood including all signal and control regions.
- For events with electrons and $E_T^{miss} > 80 \text{ GeV}$ (satisfy signal region) the trigger is fully efficient.
- For events with muons and $E_T^{miss} > 95 \text{ GeV}$ (satisfy signal region) the trigger is set to the plateau efficiency of 90%.
- The analysis has been superseded by atlas_conf_2013_062 with the full data set. An unvalidated version of this analysis is available on request.

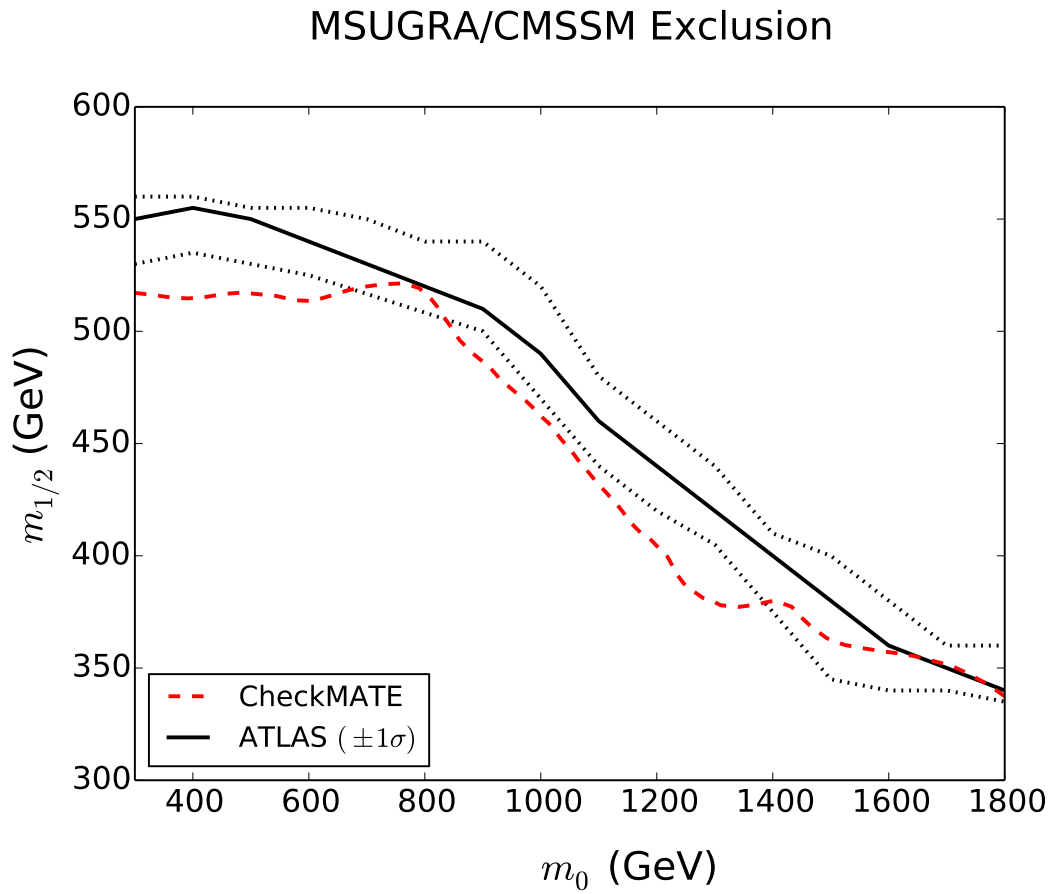


Figure 1: Exclusion curve for general supersymmetric particle production in the CMSSM (mSUGRA) for atlas_conf_2012_104.

References

- [1] Search for supersymmetry at $\sqrt{s} = 8$ tev in final states with jets, missing transverse momentum and one isolated lepton, Tech. Rep. ATLAS-CONF-2012-104, CERN, Geneva (Aug 2012).
- [2] M. Bahr, S. Gieseke, M. Gigg, D. Grellscheid, K. Hamilton, et al., Herwig++ Physics and Manual, Eur.Phys.J. C58 (2008) 639–707. arXiv:0803.0883, doi:10.1140/epjc/s10052-008-0798-9.
- [3] W. Beenakker, R. Hopker, M. Spira, P. Zerwas, Squark and gluino production at hadron colliders, Nucl.Phys. B492 (1997) 51–103. arXiv:hep-ph/9610490, doi:10.1016/S0550-3213(97)80027-2.
- [4] W. Beenakker, M. Kramer, T. Plehn, M. Spira, P. Zerwas, Stop production at hadron colliders, Nucl.Phys. B515 (1998) 3–14. arXiv:hep-ph/9710451, doi:10.1016/S0550-3213(98)00014-5.
- [5] W. Beenakker, S. Brensing, M. Kramer, A. Kulesza, E. Laenen, et al., Soft-gluon resummation for squark and gluino hadroproduction, JHEP 0912 (2009) 041. arXiv:0909.4418, doi:10.1088/1126-6708/2009/12/041.
- [6] W. Beenakker, S. Brensing, M. Kramer, A. Kulesza, E. Laenen, et al., Supersymmetric top and bottom squark production at hadron colliders, JHEP 1008 (2010) 098. arXiv:1006.4771, doi:10.1007/JHEP08(2010)098.
- [7] W. Beenakker, S. Brensing, M. Kramer, A. Kulesza, E. Laenen, et al., Squark and Gluino Hadroproduction, Int.J.Mod.Phys. A26 (2011) 2637–2664. arXiv:1105.1110, doi:10.1142/S0217751X11053560.
- [8] B. Allanach, SOFTSUSY: a program for calculating supersymmetric spectra, Comput.Phys.Commun. 143 (2002) 305–331. arXiv:hep-ph/0104145, doi:10.1016/S0010-4655(01)00460-X.