

B-L MSSM Z' production and decay to sleptons

$$q\bar{q} \rightarrow \gamma, Z^*, Z_{BL}^* \rightarrow \tilde{e}_i^* \tilde{e}_i \rightarrow e_i^+ e_i^- \tilde{\chi}_1^0 \tilde{\chi}_1^0 \rightarrow e_i^+ e_i^- e_j^\pm e_k^\pm 4j,$$

Z' production and decay to sleptons, with decay to final state of 4 leptons and 4 jets

- <https://arxiv.org/pdf/1201.5923.pdf>
- <https://arxiv.org/pdf/1308.0524.pdf>

Also search for LSP production and decay
(next slide)

LSP Scenario	Decays
\tilde{t}_1	$t\bar{\nu}, j\bar{\nu}, b e_i^+, j e_i^+$
\tilde{b}_1	$b\bar{\nu}, j\bar{\nu}, t e_i^-, j e_i^-$
$\tilde{\chi}_1^0$	$e_i^\pm W, \nu Z, e_i^\pm H^\mp, \nu H_i^0$
$\tilde{\chi}_1^\pm$	$e_i^\pm Z, \nu W^\pm, e_i^\pm H_i^0, \nu H_i^0$
$\tilde{\tau}^\pm$	$e_i^\pm \nu, \bar{q} q', h W^\pm$
$\tilde{\nu}_3$	$\bar{q} q, \bar{e}_i e_j, WW, ZZ, hh, HH$

TABLE I: Lepton number violating LSP decays.

B-L MSSM Searches for specific LSPs

Stop

- [Spontaneous R-Parity Breaking, Stop LSP Decays and the Neutrino Mass Hierarchy](#)
- [LSP Squark Decays at the LHC and the Neutrino Mass Hierarchy](#)
- [A search for B-L R-parity-violating top squarks \(36/fb\) ATLAS](#)

Chargino/Neutralino

- [The R-parity Violating Decays of Charginos and Neutralinos in the B-L MSSM](#)
- [R-parity Violating Decays of Wino Chargino and Wino Neutralino LSPs and NLSPs at the LHC](#)
- [R-parity Violating Decays of Bino Neutralino LSPs at the LHC](#)
- [Search for trilepton resonances from chargino and neutralino pair production \(139/fb\) ATLAS](#)

