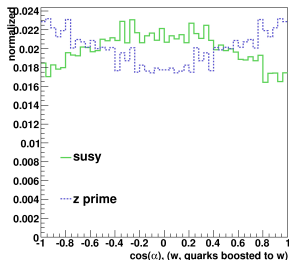
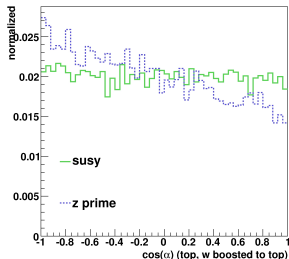


Test on Top and W Decay



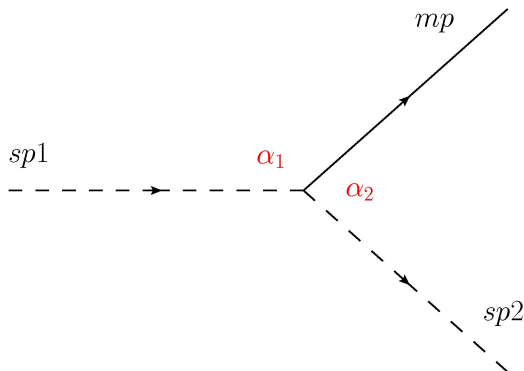
$\cos(\alpha)$ between top moving direction and daughter W boson (boosted to top)

- Z' (Herwig): Tops from Z' on average polarized
- LM4 (Pythia 6): Pythia 6 has no spin correlations for top decay

$\cos(\alpha)$ between W boson (from top decay) moving direction and quark daughters (boosted to W)

- Z' (Herwig): As W is polarized on average, boosted quark moving direction often parallel to W direction
- LM4 (Pythia 6): Unpolarized W decays \rightarrow distribution should be flat?

Generic Susy Decay



$$sp1 \rightarrow sp2 + mp$$

spin 1/2 in 0, LM4:

- gluino in sbottom_L

spin 1/2 in 1/2, LM4:

- chi2+ in chi1+

spin 0 in 1/2, LM4:

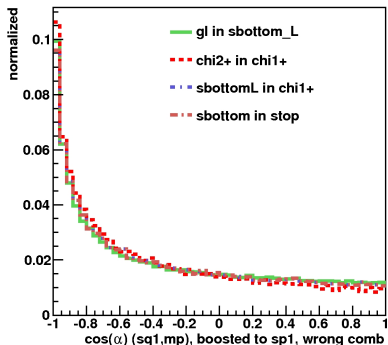
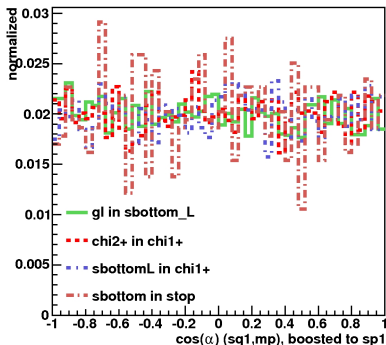
- sbottom_L in chi1+

spin 0 in 0, LM4:

- sbottom_L in stop_L

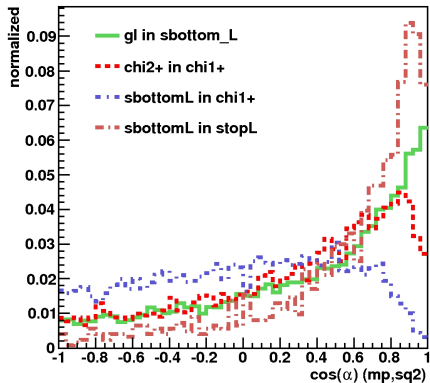
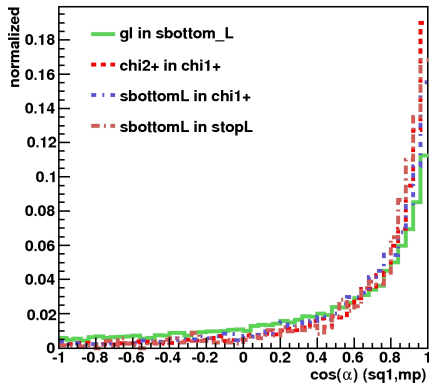
LM4: gluino = ~ 700 GeV, squarks = ~ 600 GeV, chi2+ = ~ 400 , chi1+ = ~ 200 GeV

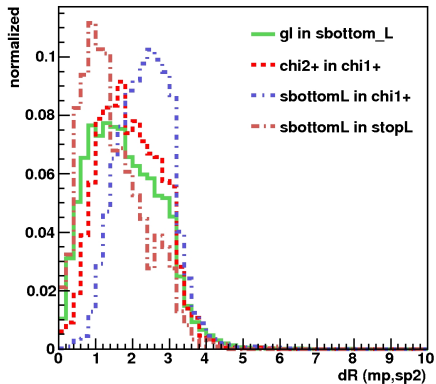
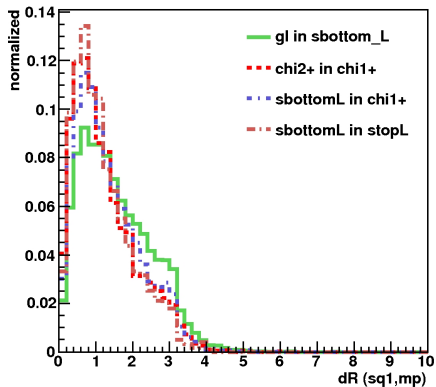
$$\cos(\alpha) = \vec{p}_1 * \vec{p}_2 / |\vec{p}_1| * |\vec{p}_2|$$



Left: $\cos(\alpha)$ between sp_1 and particle, true combination

Right: $\cos(\alpha)$ between sp_1 and particle, wrong particle





$$dR^2 = \delta\phi^2 + \delta\eta^2$$