

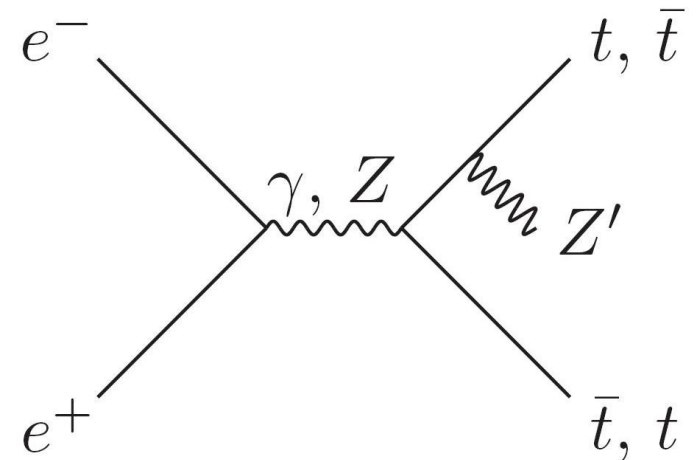
Overview of the Z' production using Pythia 8

Ambroise Espargilière

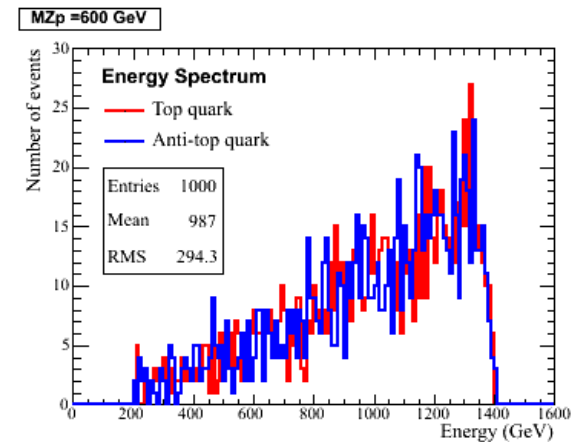
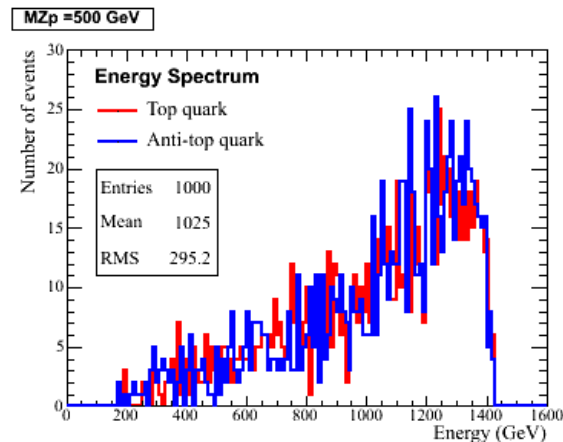
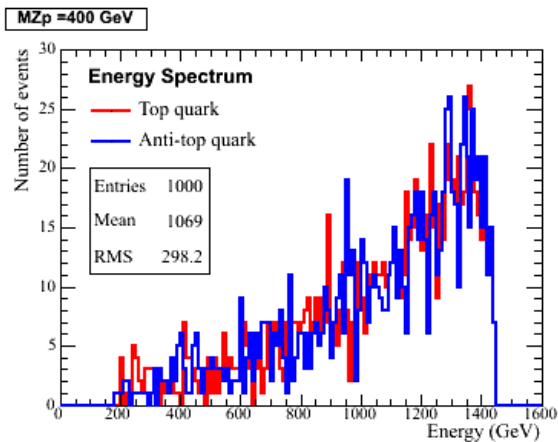
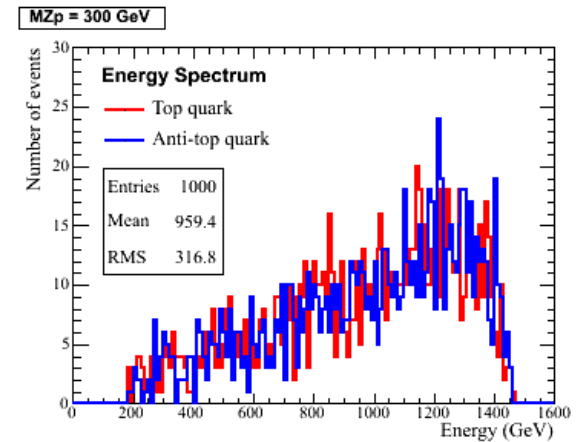
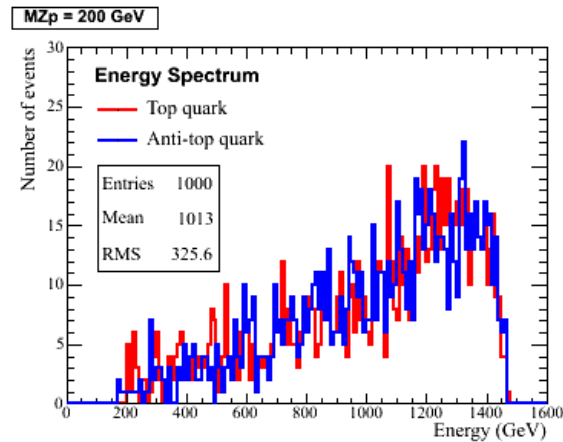
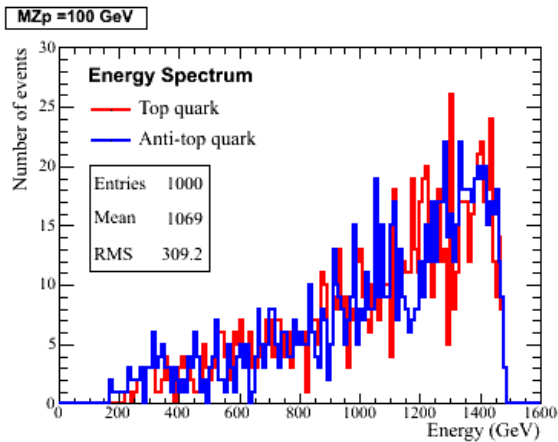
15/04/2010

introduction

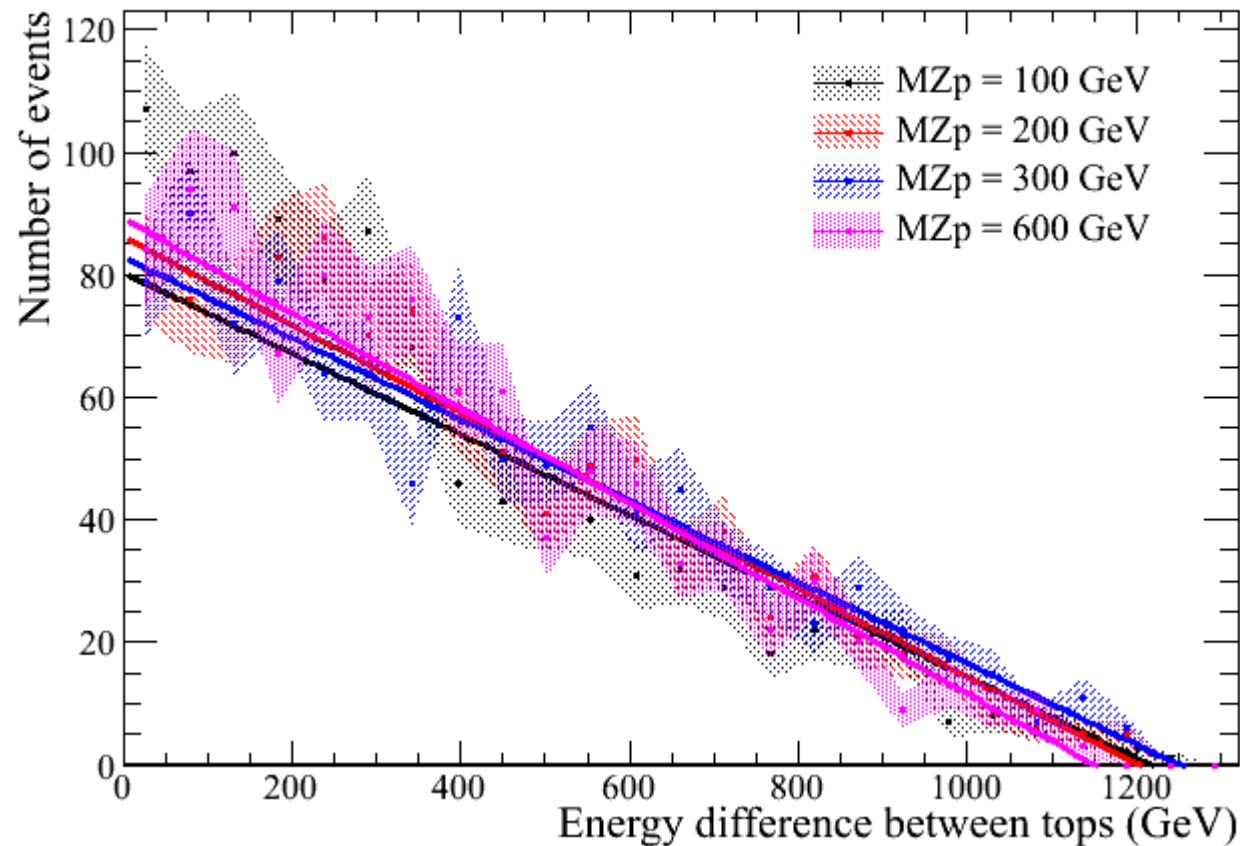
- Generator level
- MZp from 100 to 600 GeV
- 1000 events for each
- Look at top energies (single, sum, difference)
- First look at SM background



Top quarks Energy spectra

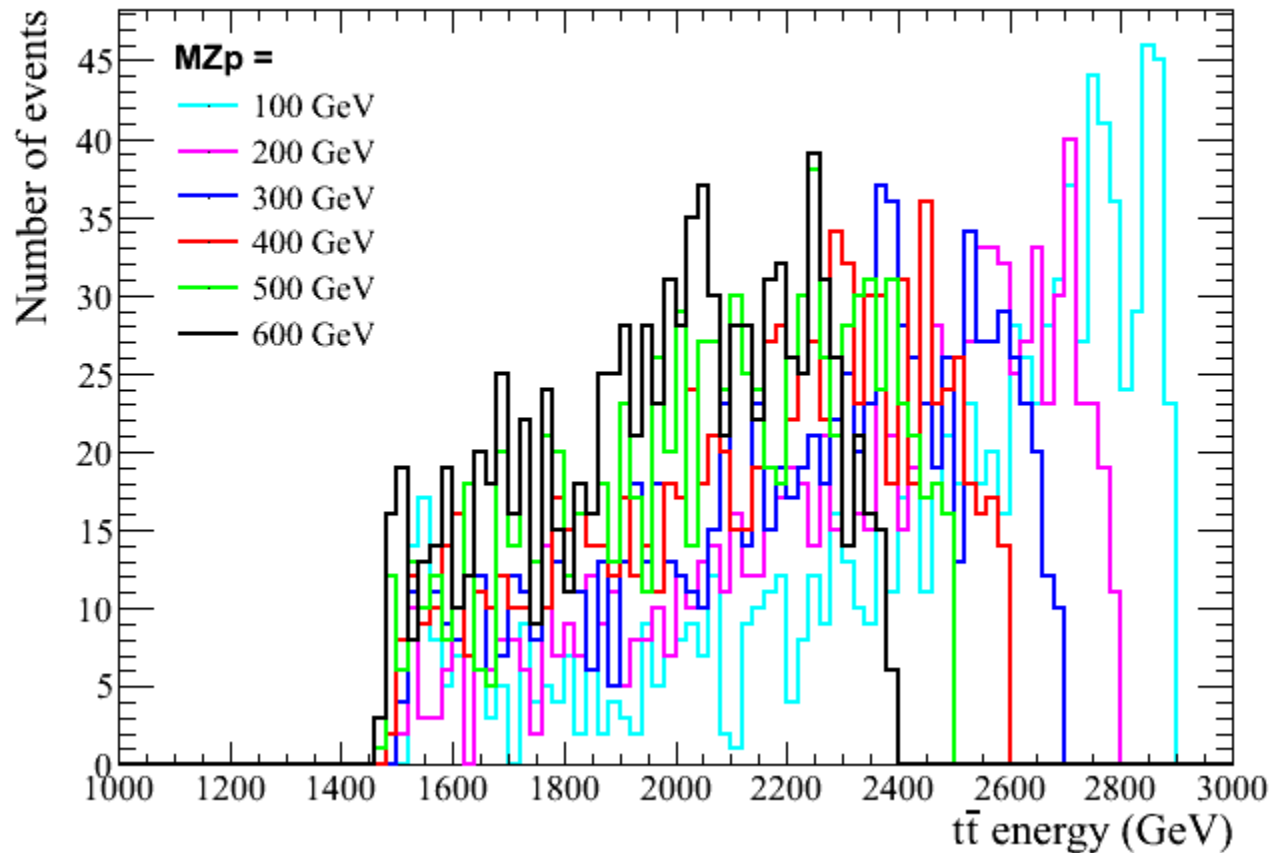


Energy Difference between tops



Spectrum independent
of the Z' mass (MZ_p)

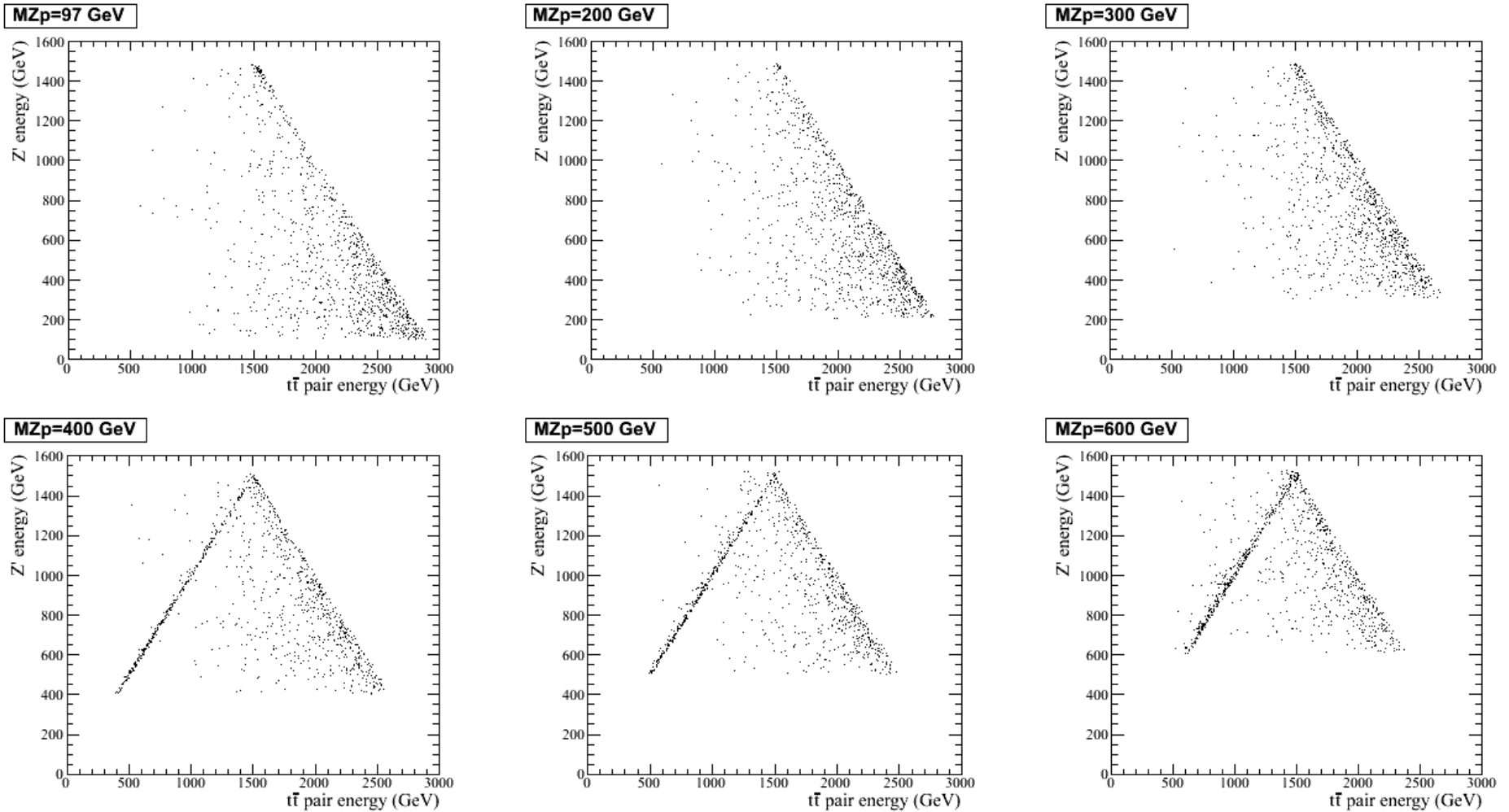
Energy Sum of the quarks



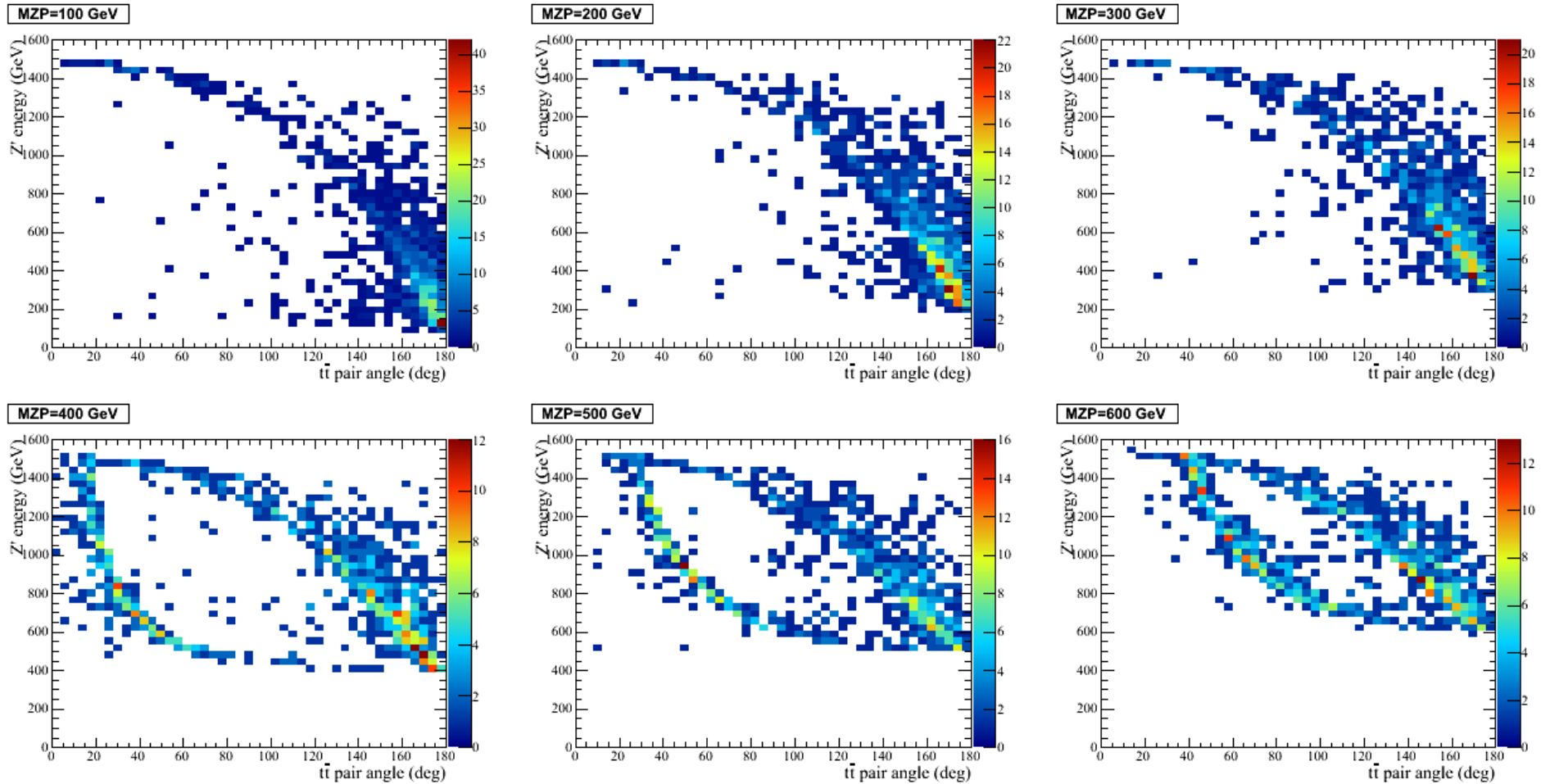
Large difference for various Z' mass

spectrum endpoints clearly defined

Z' energy vs top pair energy



Z' energy vs top pair angle

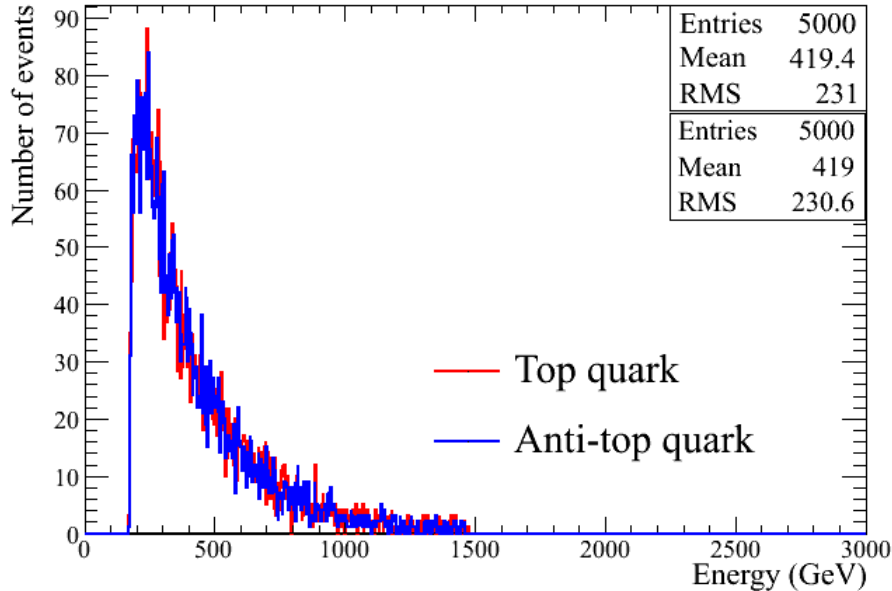


Background from SM

- Process : $e, E \rightarrow t, T, Ne, ne$ (23 diagrams)
- Process : $e, E \rightarrow t, T, Nm, nm$ (11 diagrams)
- Process : $e, E \rightarrow t, T, Nl, nl$ (11 diagrams)
- Total cross section $\sim 5\text{fb}$

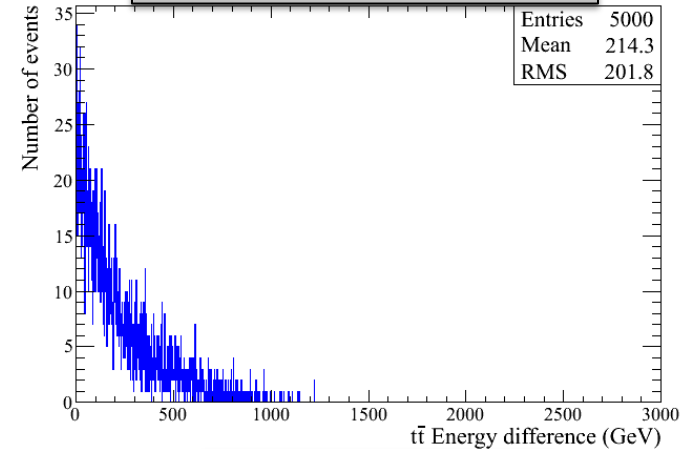
Background from SM

Tops energy spectrum

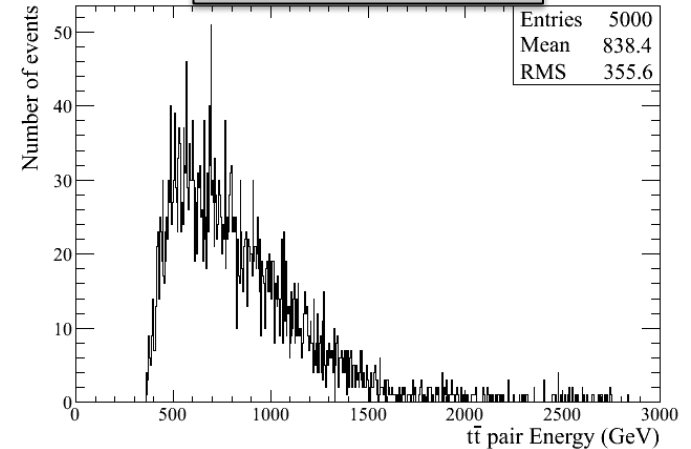


Trend very different from Z' events

Top energy difference



Top energy sum



Background from SM

