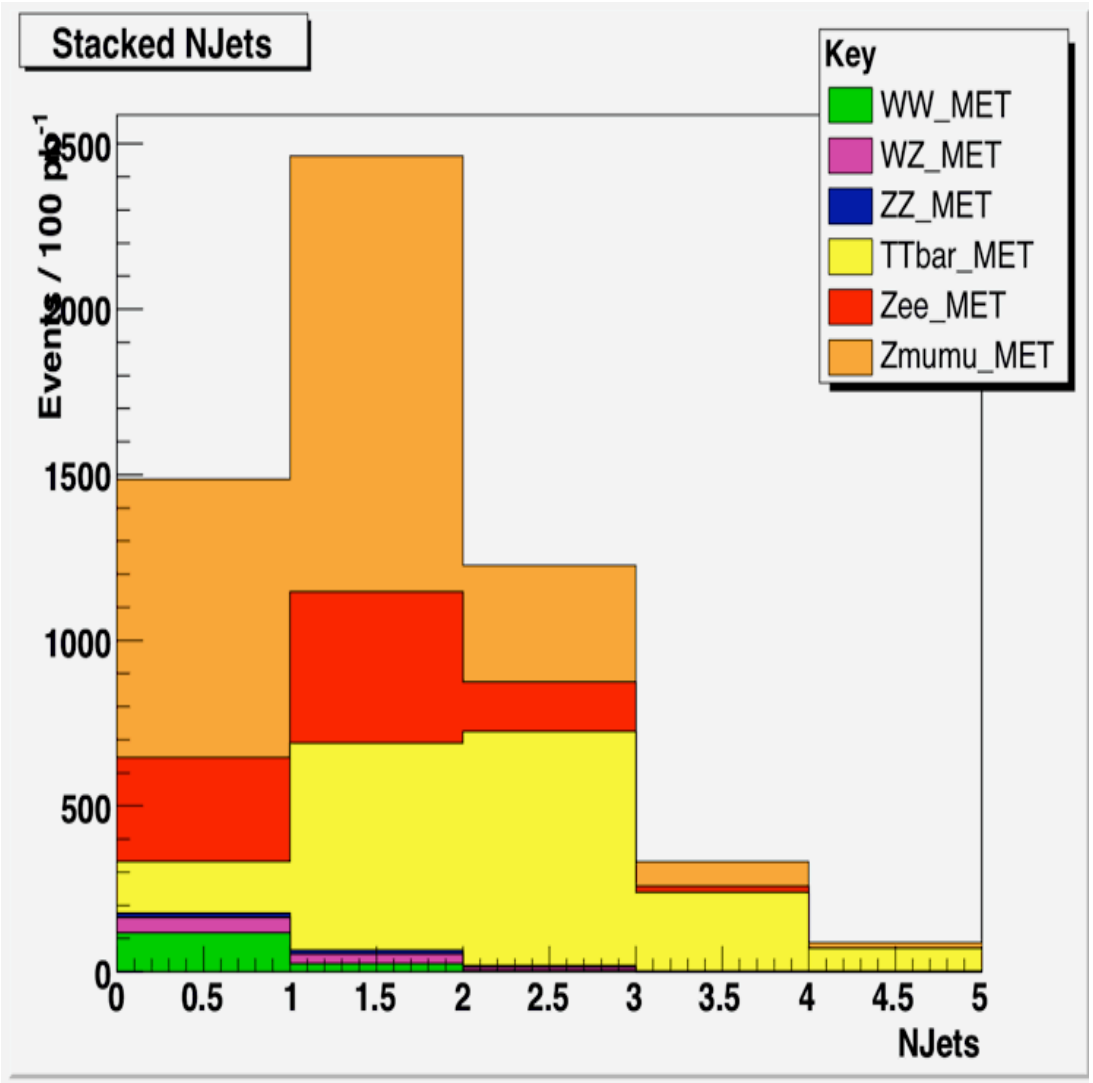
Ttbar in zero jet bin

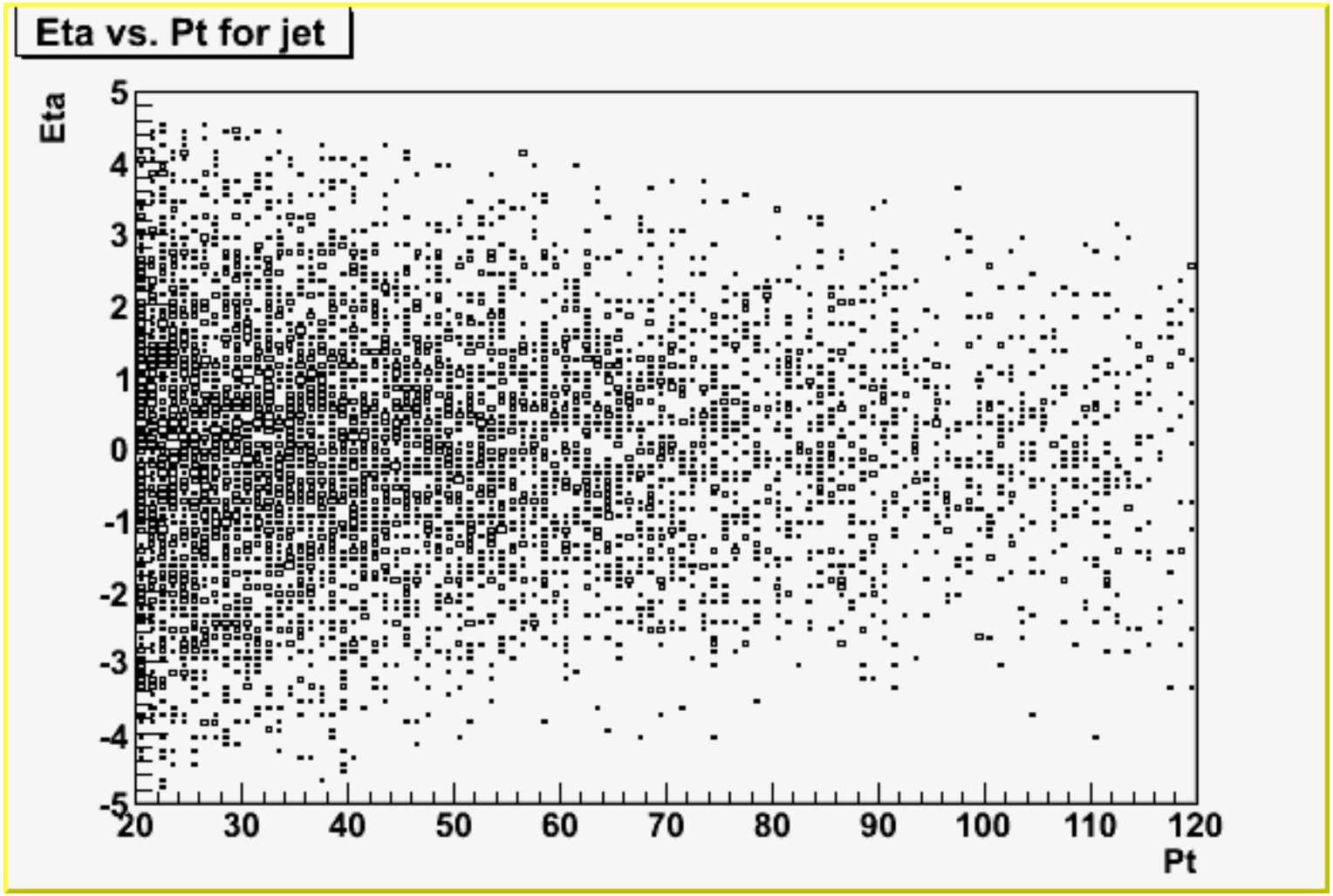
Matthew Norman
Frank Würthwein
UCSD

The Issue



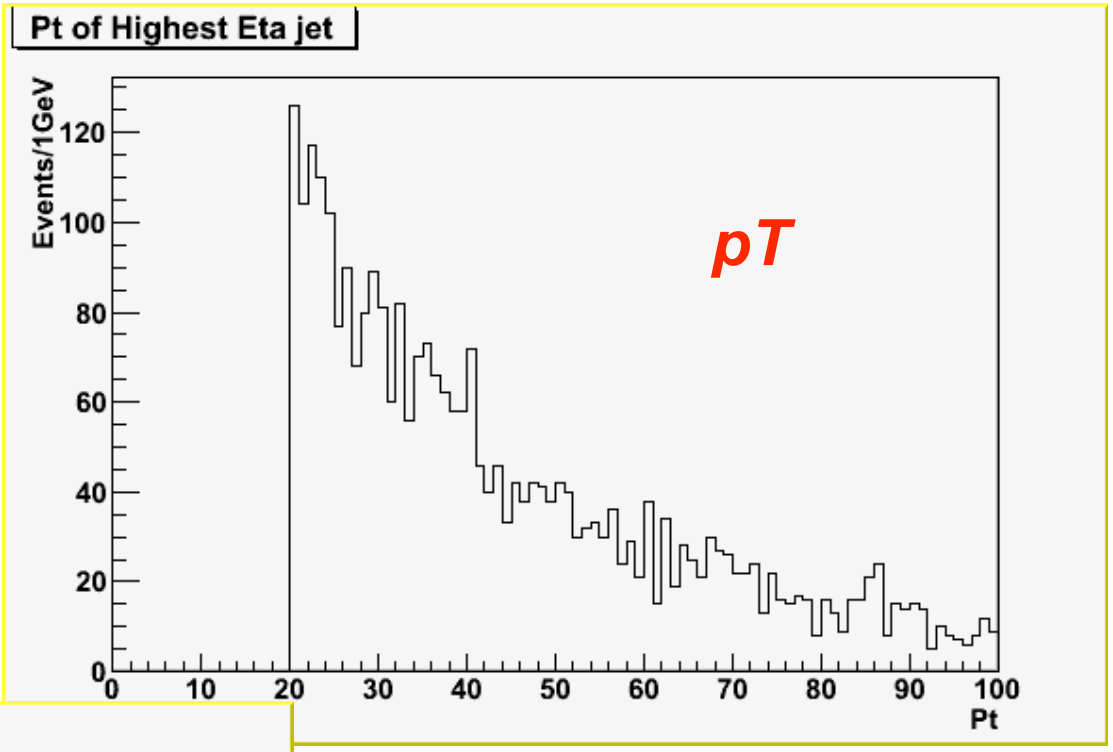
- In pass0, we saw what seemed an excessive number of ttbar events in the zero jet bin.
- This is of relevance because it would be an irreducible bkg to H->WW larger than the WW bkg which we expect to dominate.

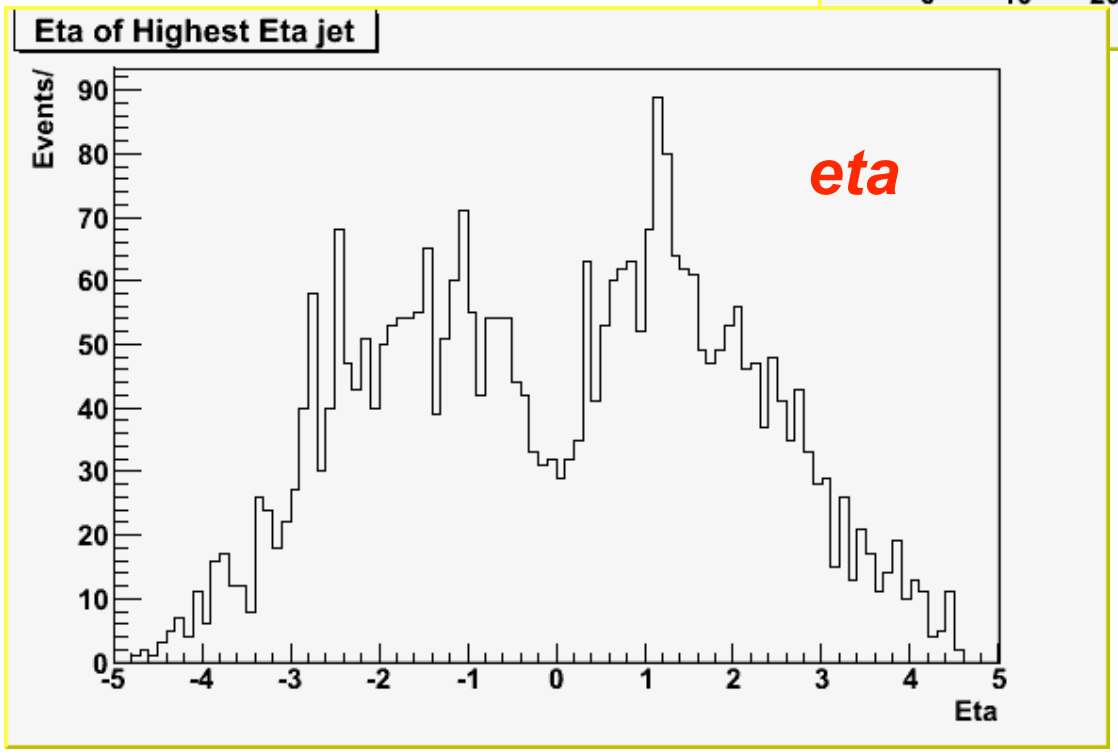
Looking at jets in ttbar



- ***Loosen the eta requirements on jets, and plot pT vs eta for all reconstructed jets.***

Highest eta jet

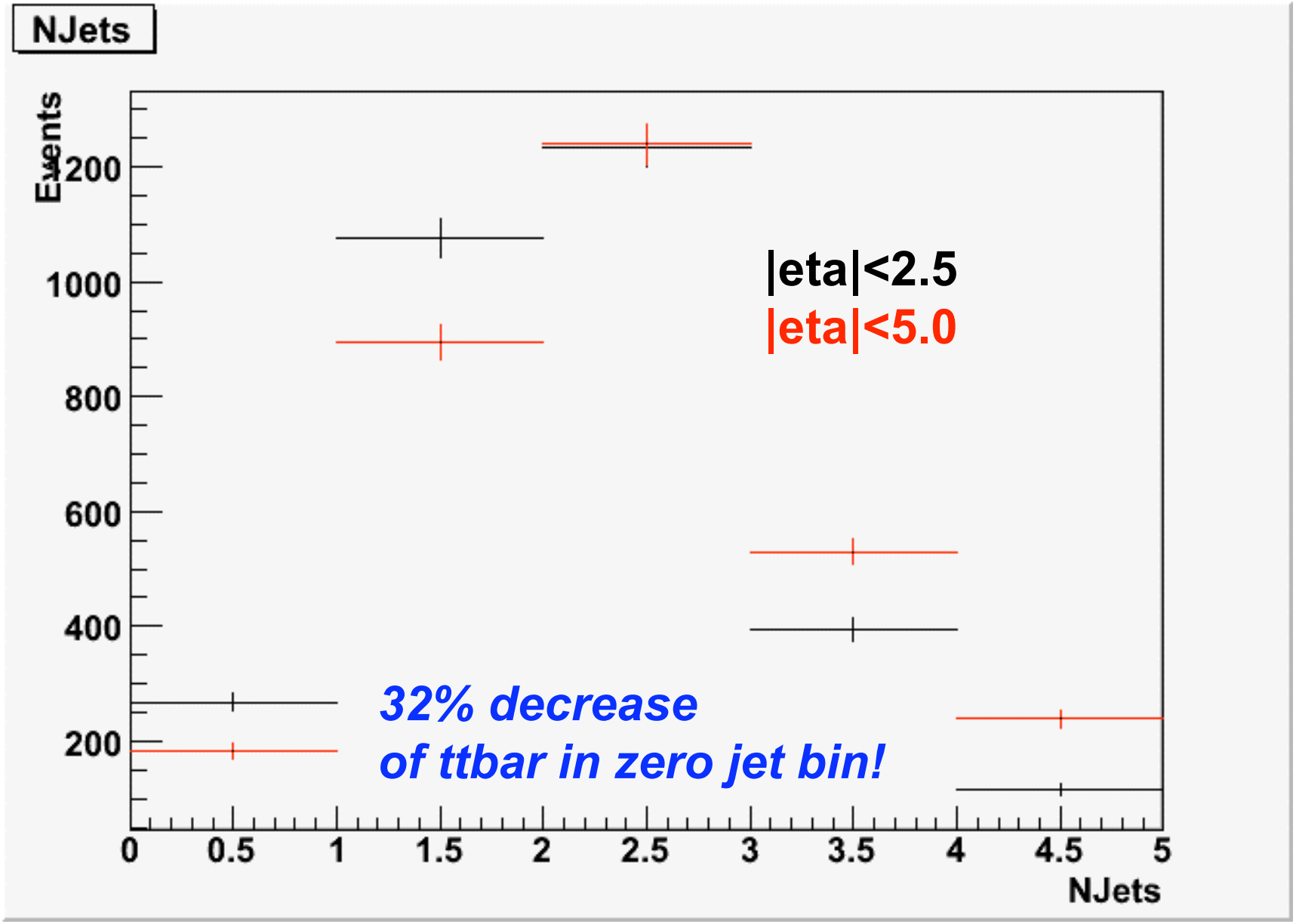




Large number of events have jets with |eta|>2.5.

=> Depend on large eta when counting jets!

Njet before and after



Next Steps

- Look at b-quark pt and eta for b-quark from top decay.
  - Are the high eta jets we see due to the b-quarks as we expect?
  - Why do we miss both b-quarks in 6% of the events even after the |eta|<5.0 ?
- Will eventually work on improved jet counting. However, for now, DY bkg suppression is more urgent than this.
- Sanity check from CDF:
  - Njet .le. 1 gives 14/1 for WW/ttbar bkg in H->WW analysis.
  - There's roughly a factor 10/1 favoring ttbar over WW as we go from 1.96TeV to 14TeV in collission energy.