

# PDF reweighting of RESBOS events

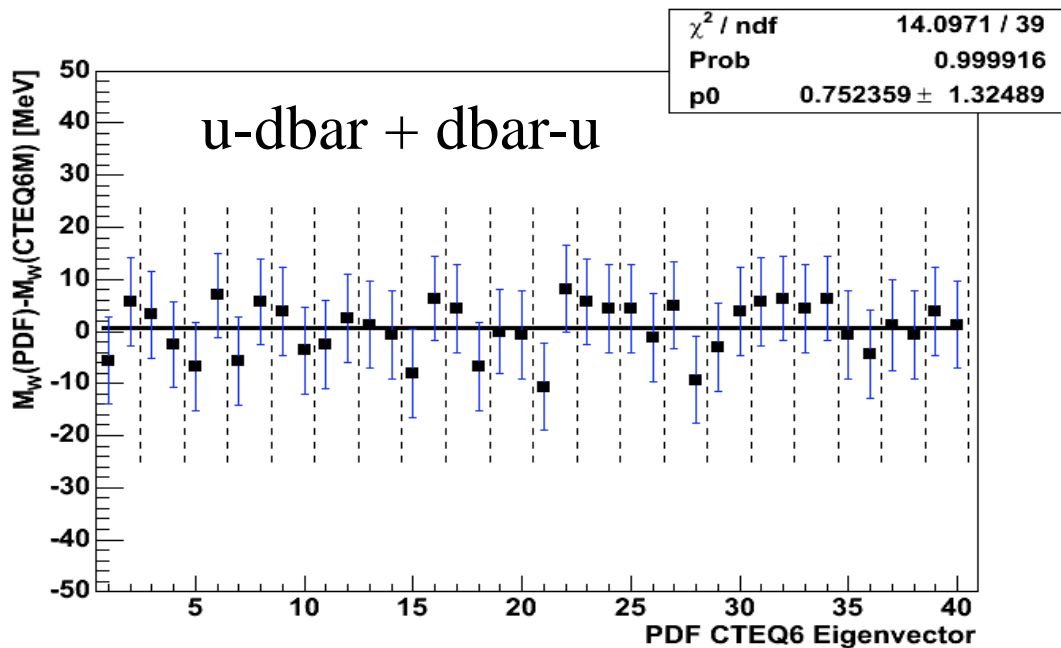
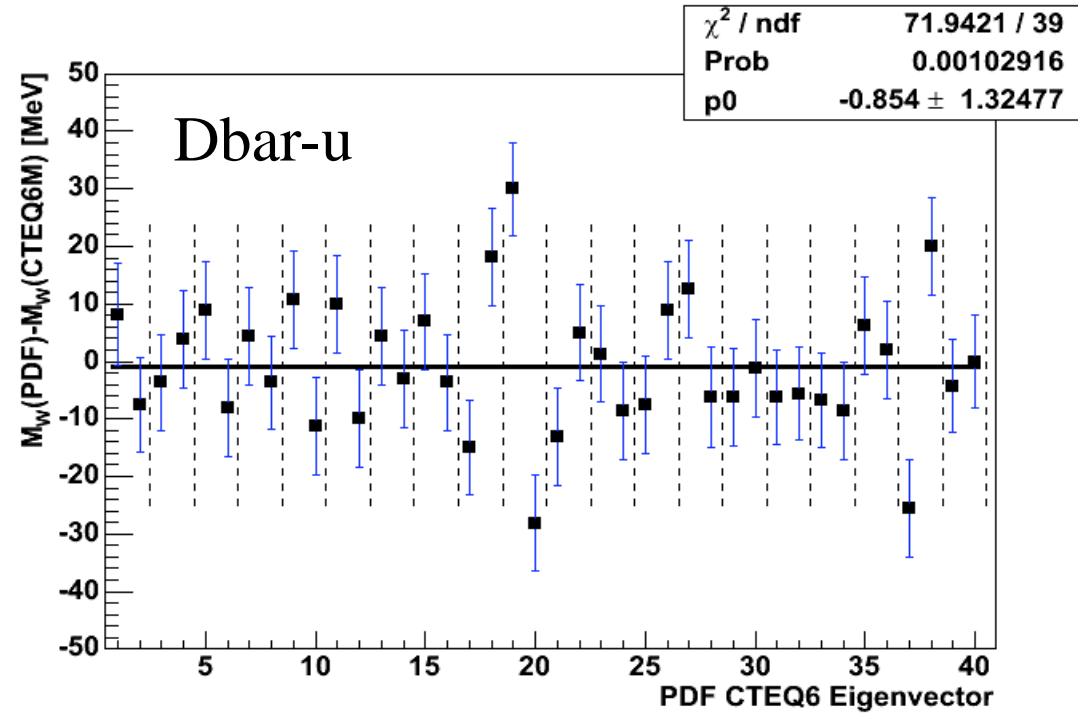
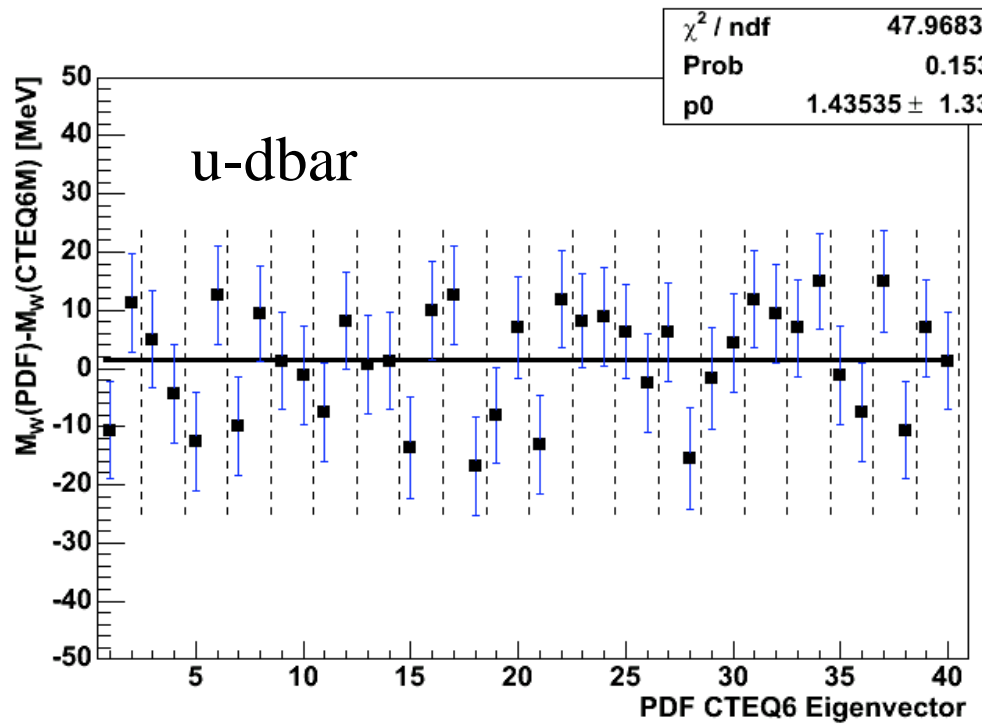
Yu Zeng and Ashutosh Kotwal

5 October 2010

W Mass Workshop, Fermilab

- For fun, we calculated PDF uncertainty for 3 combinations of incoming partons for making a  $W^+$  (combination is reversed for a  $W^-$ ):
  - U quark from proton and  $d\bar{b}$  from antiproton
  - U quark from antiproton and  $d\bar{b}$  from proton
  - Both of the above together (most realistic)
- We find larger  $M_W$  errors from the first two, but they cancel when combined, i.e. The third (realistic) combination gives smaller error than its components.

# PDF-weighted MT fits



## Summary

- For u-dbar only, MW error is 23, 27, 25 MeV for  $M_t$ ,  $p_T$ , Missing  $E_t$  fits respectively
- For dbar-u only, MW error is 30, 36, 31 MeV respectively
- For (u-dbar + dbar-u) combined, MW error is 12, 15, 13 MeV respectively
- It would be interesting to understand the physics reason for the cancellation between the components
  - (note that strange and charm quark contributions were not included in this exercise)