Underlying Event Generator Study

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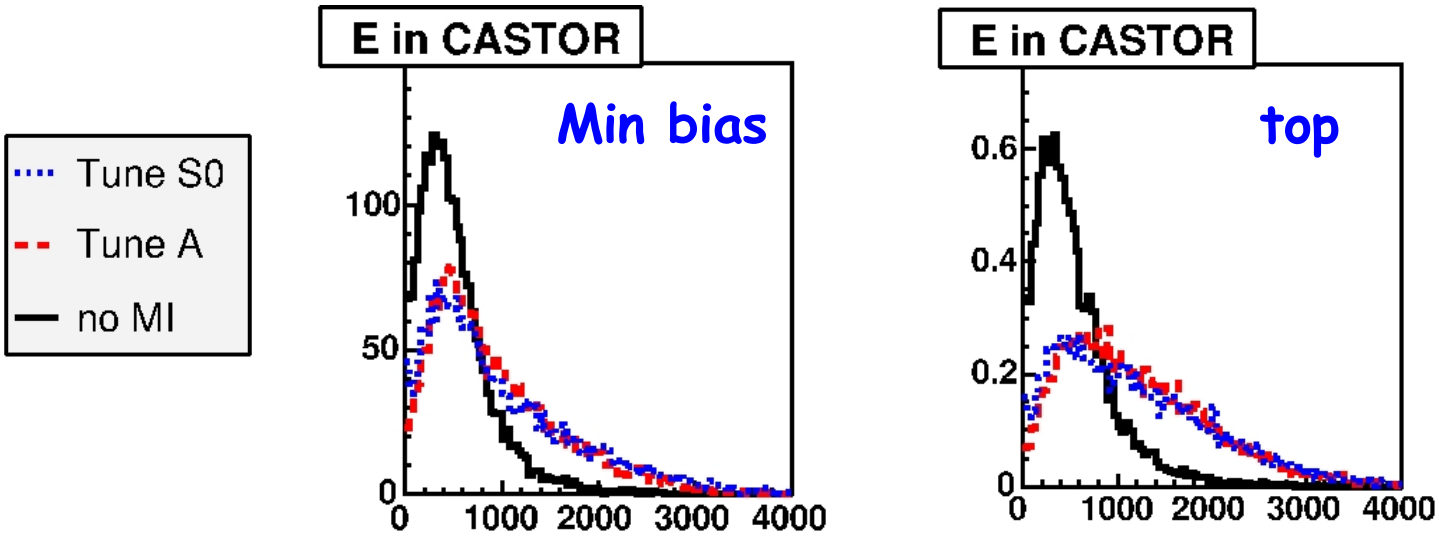
SMIX meeting
25. April 2008

Energy in Castor

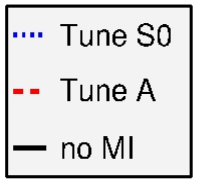
- **Readjustment of Castor trigger energy windows**
  - old bins[GeV]: 0-100, 100-300, 300-1000,1000-∞
  - new bins[GeV]: 0-300, 300-700, 700-1000,1000-∞

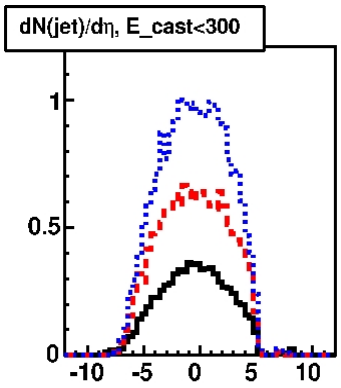


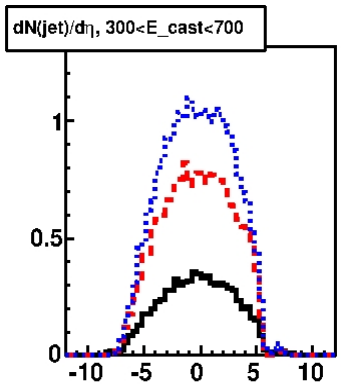
Jet multiplicities

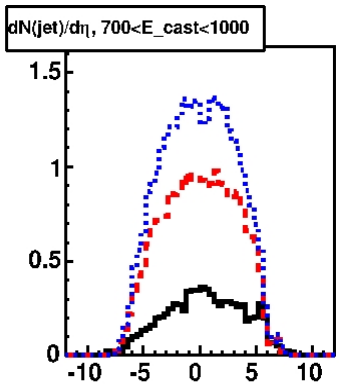
- Jets: kt-cluster algorithm, cut Et(jet)>3GeV

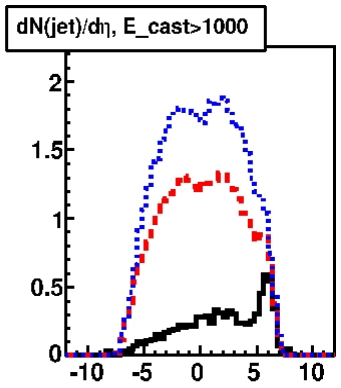
Min Bias:











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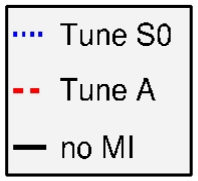
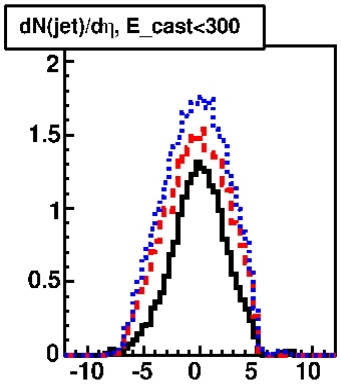
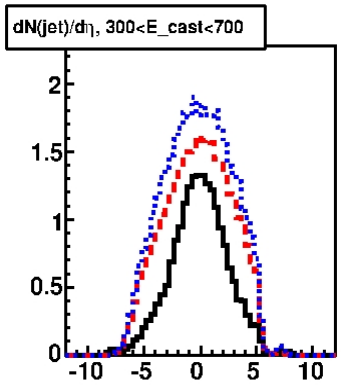
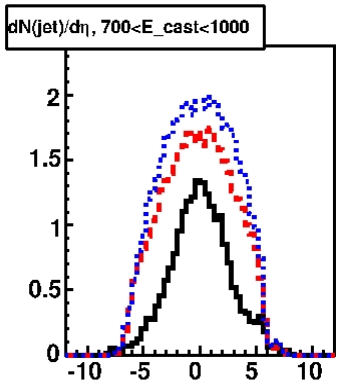
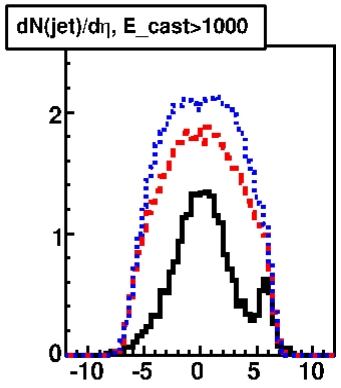






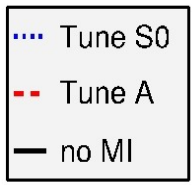


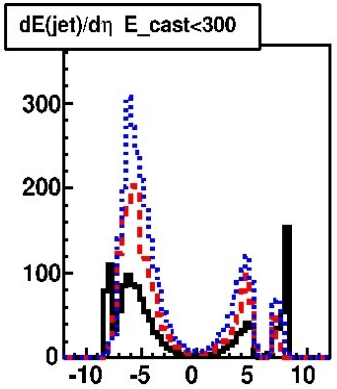


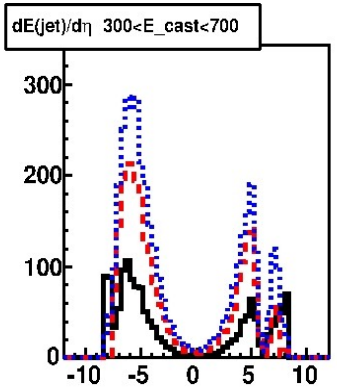
Energy Jet Flow

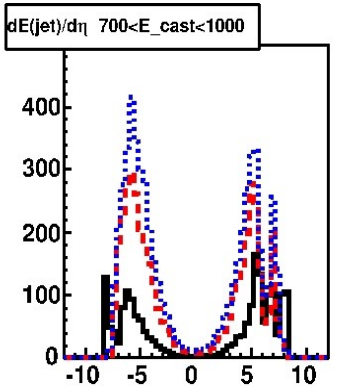
- Jets: kt-cluster algorithm, cut Et(jet)>3GeV
- differences between tune A and S0 better pronounced than in single particle energy flow plots

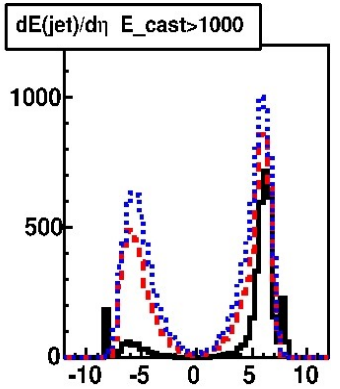
Min Bias:











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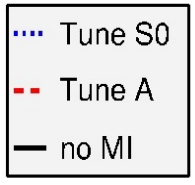
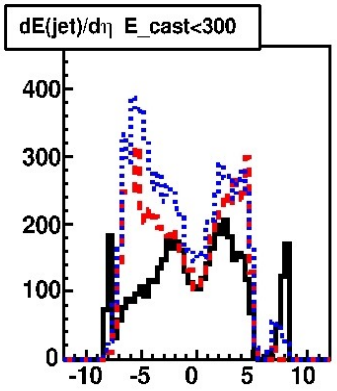
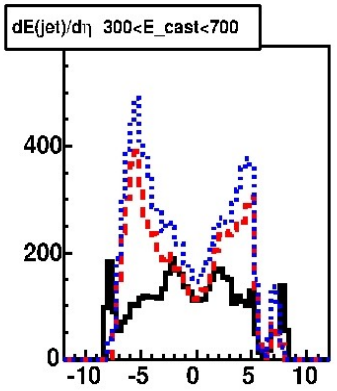
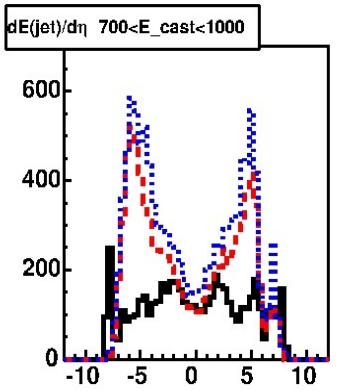
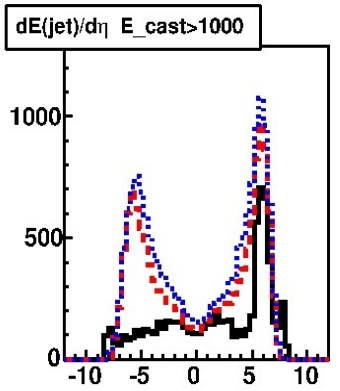




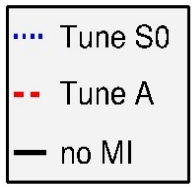


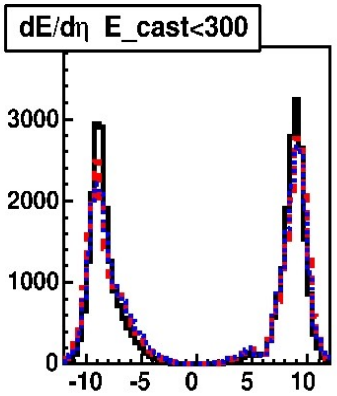


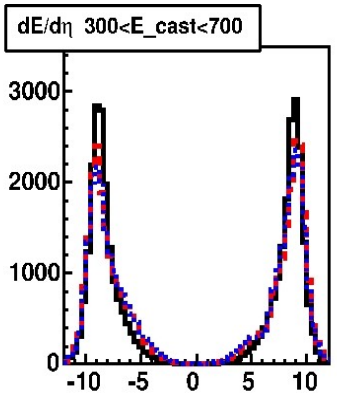


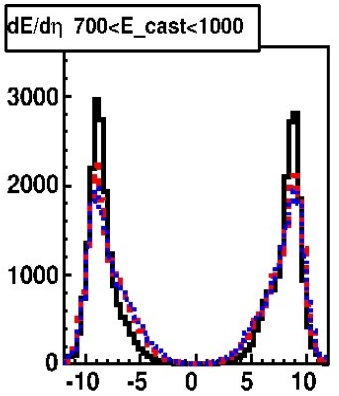
Particle Energy Flow

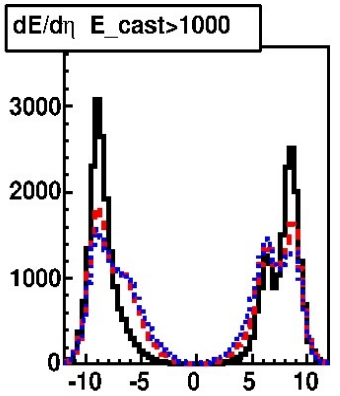
Min Bias:











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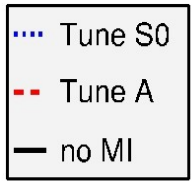
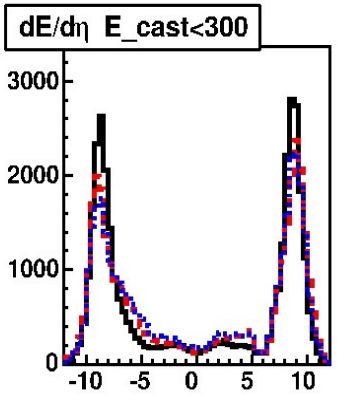
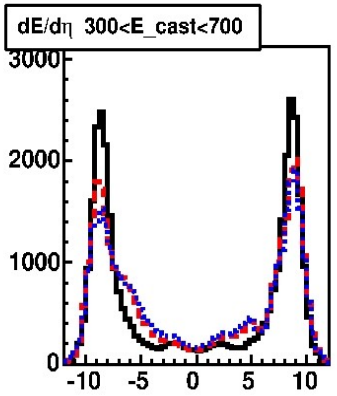
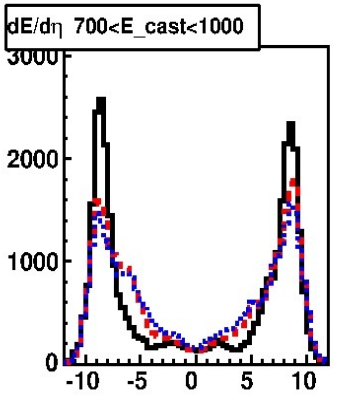
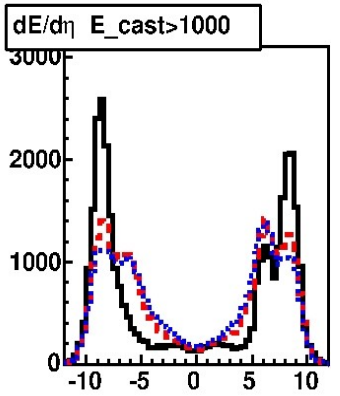










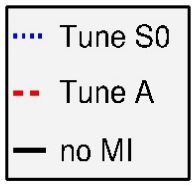
Questions

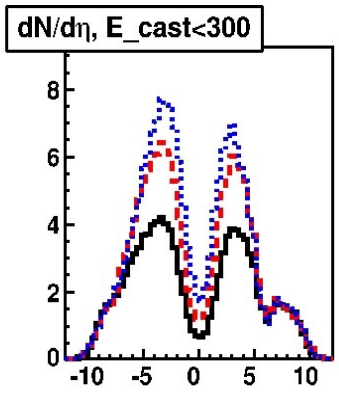
- Since differences between UE in minimum bias and top processes are in Pythia expected should we not focus on dependence of UE on hard scale?
  - UE as function of leading jet Et
  - How correlates Et leading jet with E(castor)?

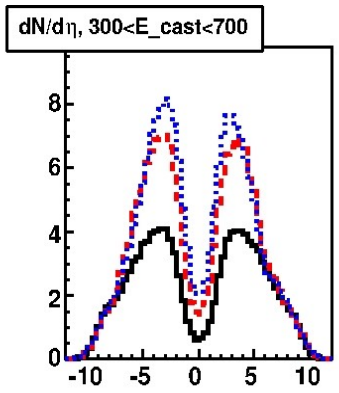
Backup

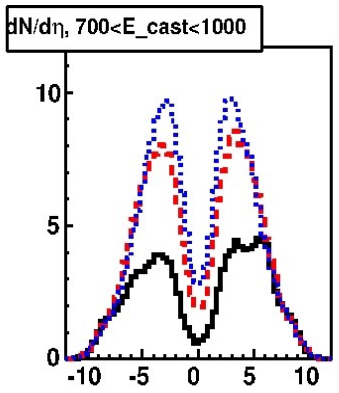
Charged Particle Multiplicities

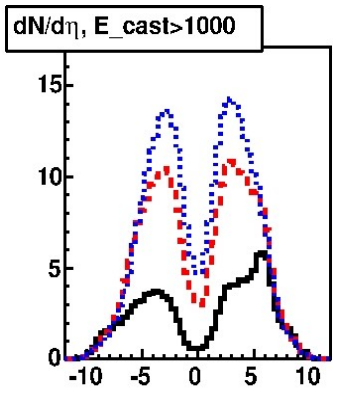
Min Bias:



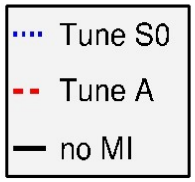


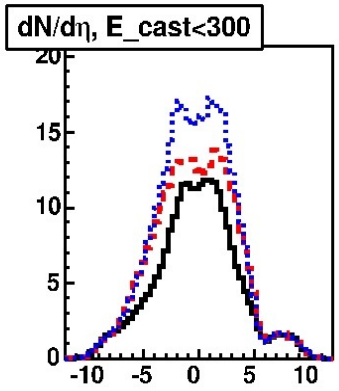


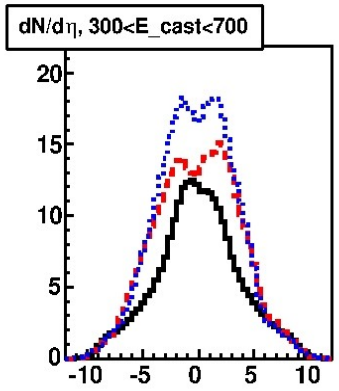


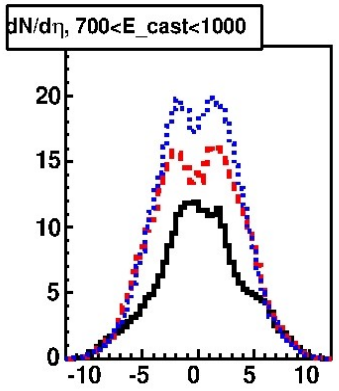


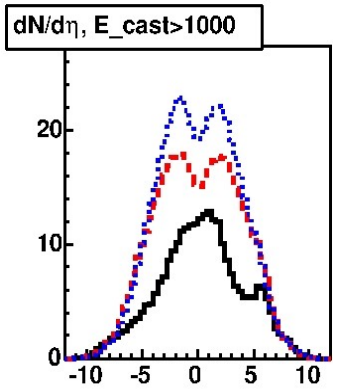
top:







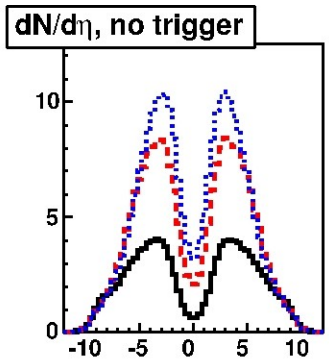


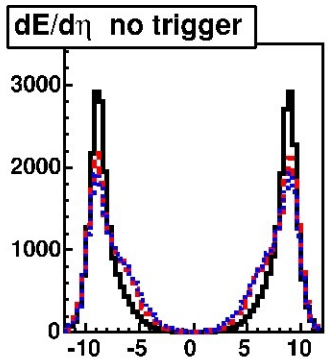


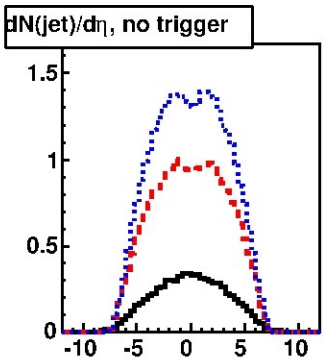
No Castor Trigger Requirements

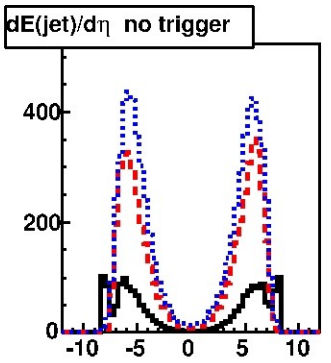
Min Bias:

Tune S0
Tune A
no MI



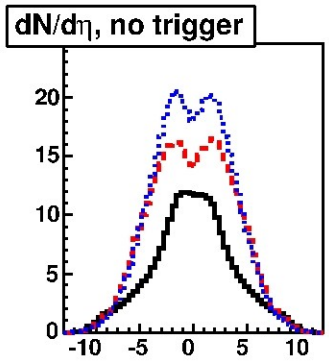


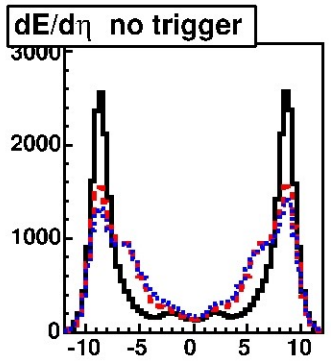


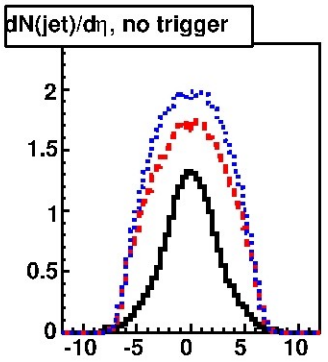


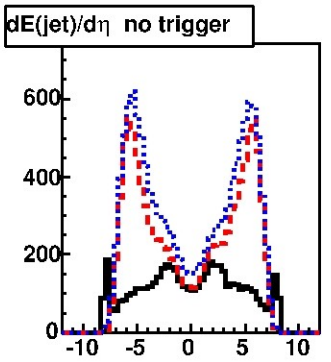
top:

Tune S0
Tune A
no MI









MI - noMI:

min bias MI(A)-noMI
min bias MI(S0)-noMI
top MI(A)-noMI
top MI(S0)-noMI