

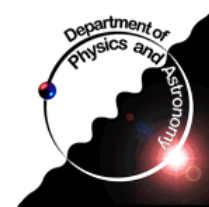
Sample 5204 Fully Hadronic t-tbar CSC 11 and 12

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Rob McPherson, Damir Lelas,
Rolf Seuster

TP week
21 March 2007

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University of Victoria
British Columbia, Canada



t-tbar fully hadronic decay samples 5204

■ CSC11 AODs

- csc11.005204.TTbar_FullHad_McAtNlo_Jimmy.recon.AOD.v11004205
- DC3-02
- MC@NLO 3.1

■ 285 files, 275 550 events

■ CSC12 AODs

- trig1_misal1_mc12.005204.TTbar_FullHad_McAtNlo_Jimmy.recon.AOD.v12000601_tid006015
- CSC-01-02-00
- MC@NLO 3.1

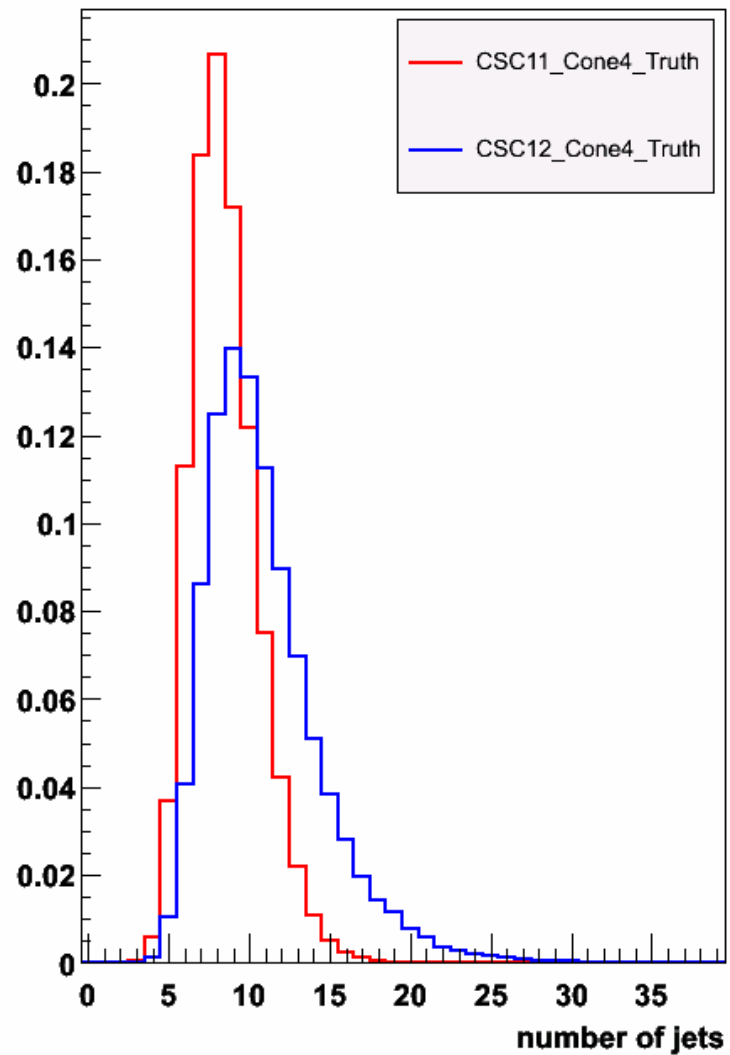
■ 298 files, 73 950 events

■ We only looked at jets

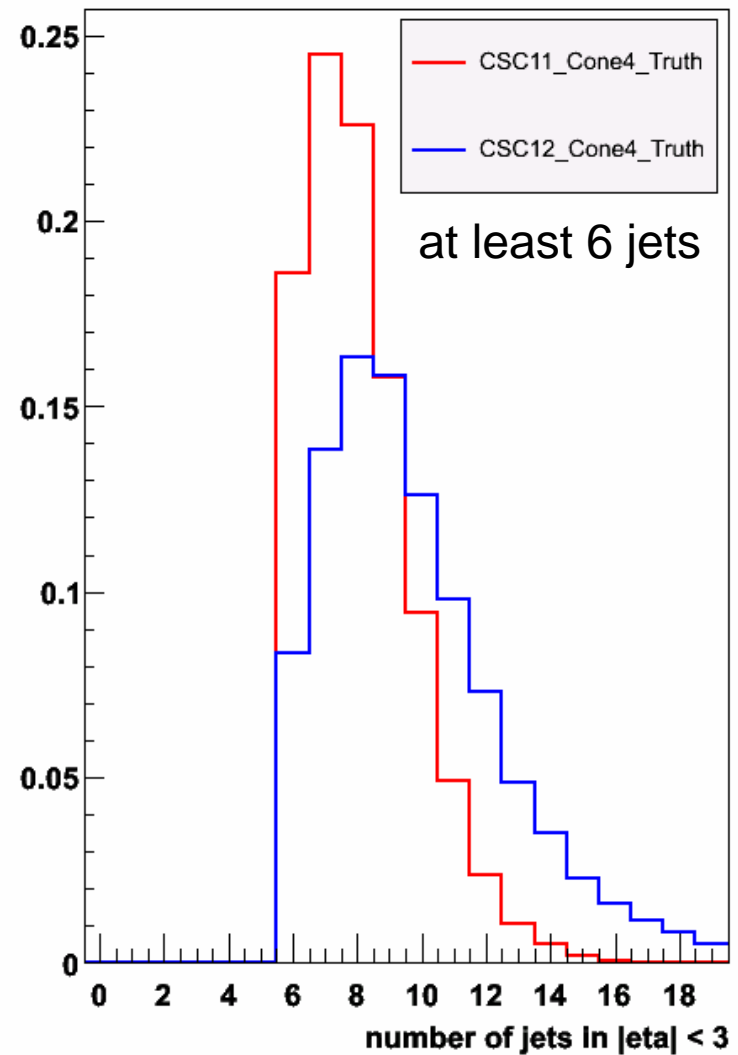
- first look at comparison...

Jet Multiplicities: Cone4 TruthJets

number of jets

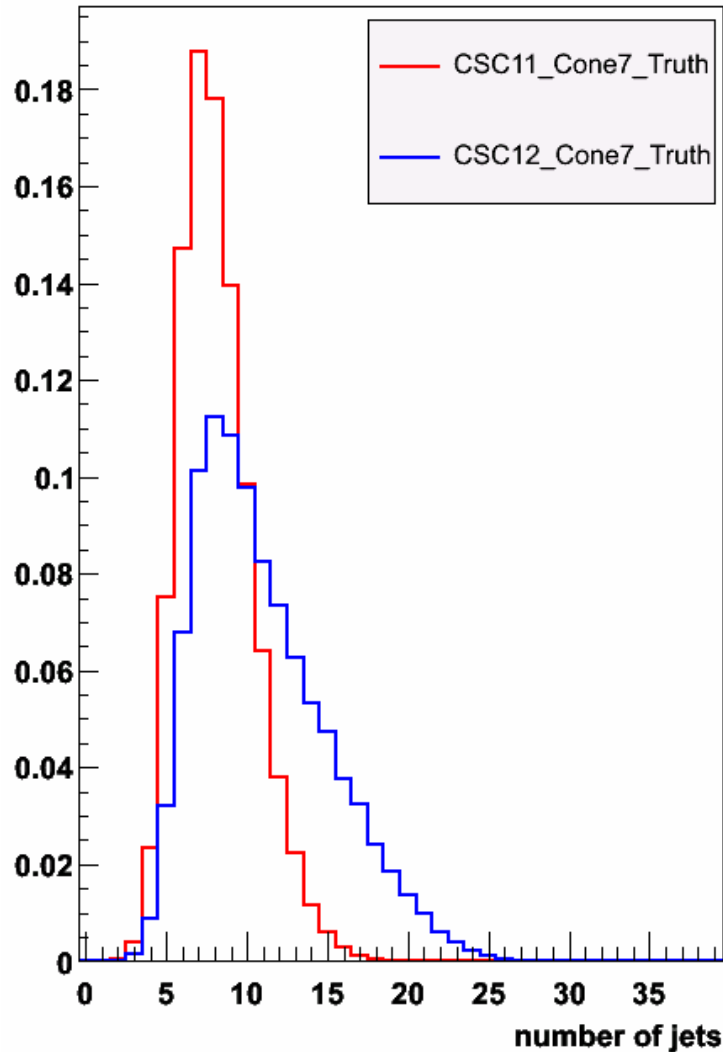


number of jets

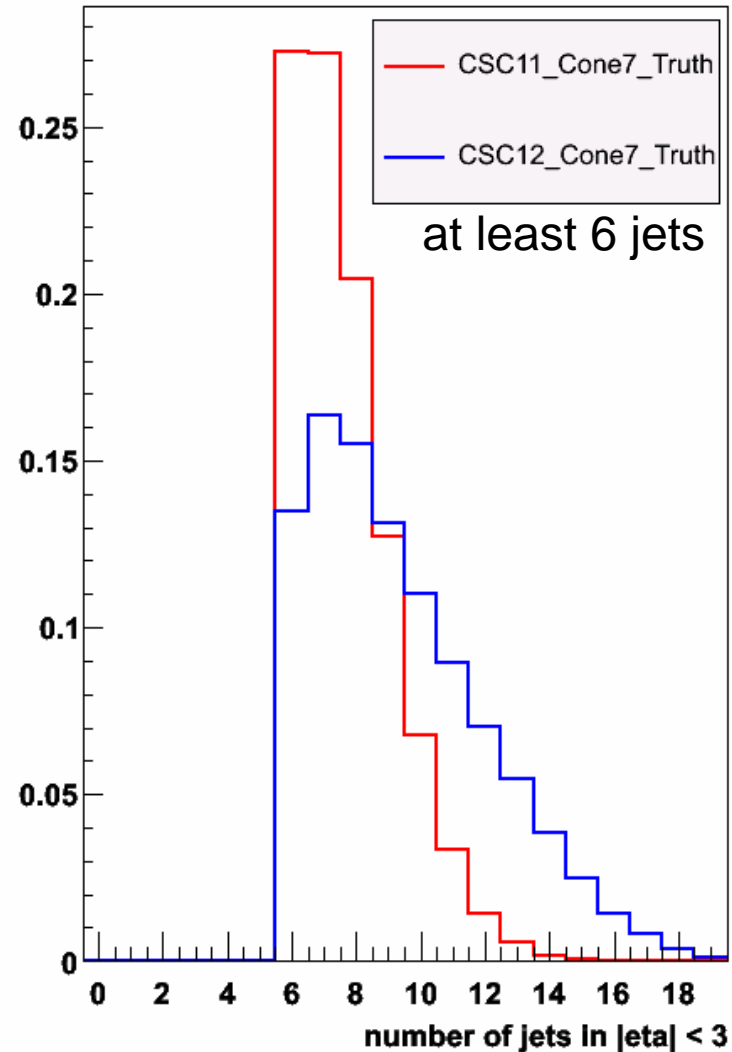


Jet Multiplicities: Cone7 TruthJets

number of jets



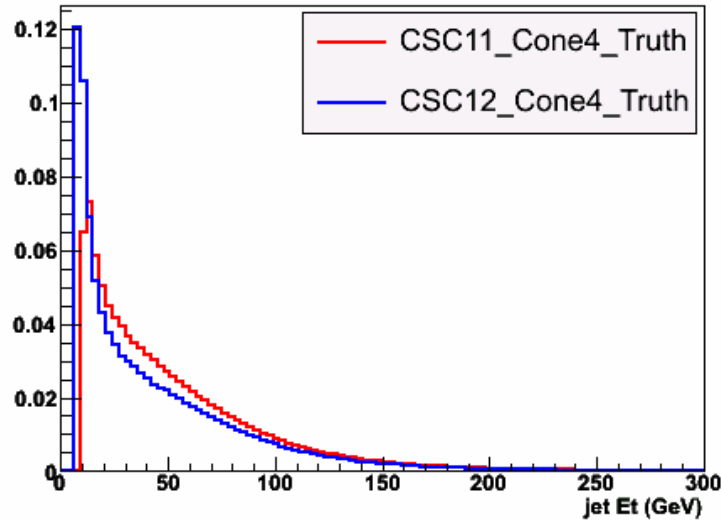
number of jets



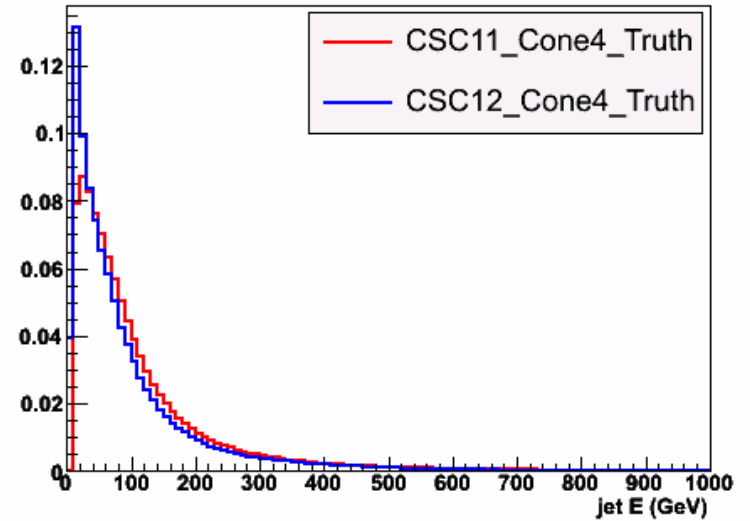
Cone4 TruthJets

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

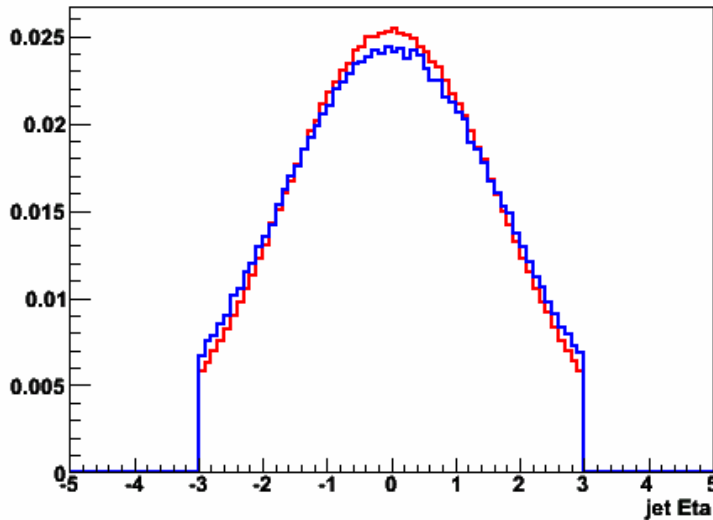
jets Et (GeV)



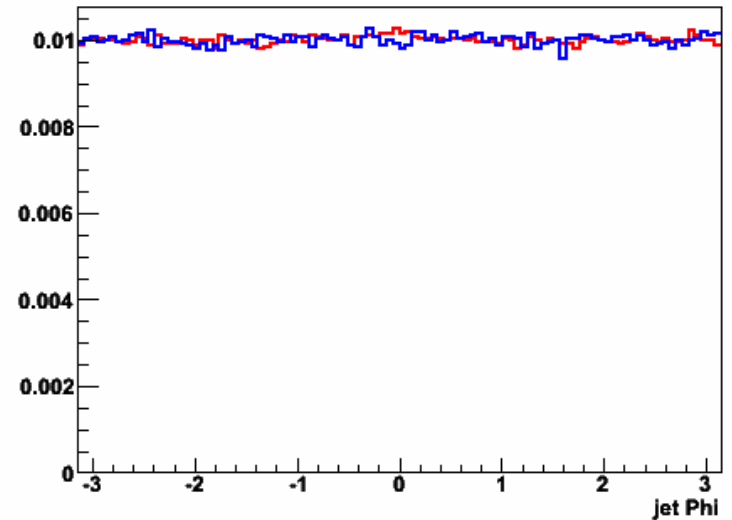
jets E (GeV)



jets pseudorapidity

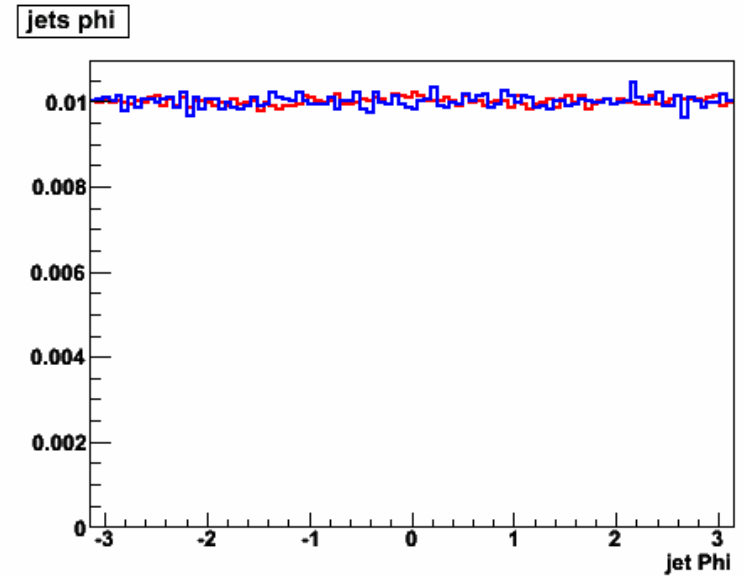
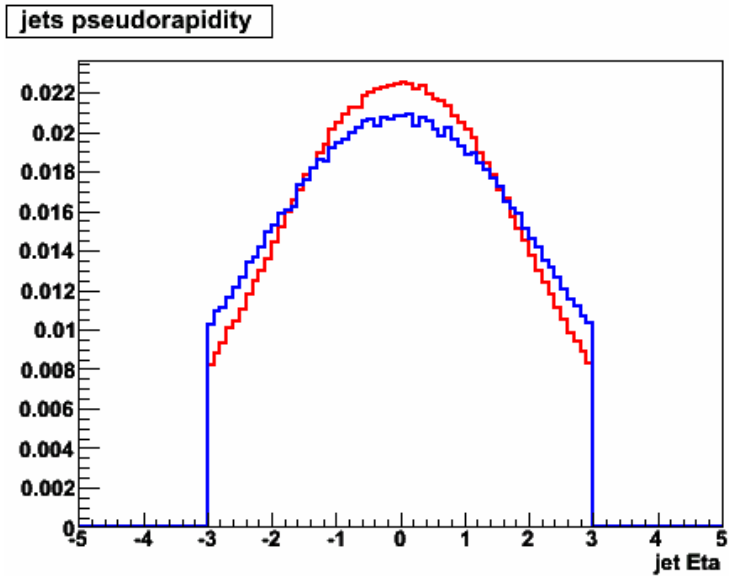
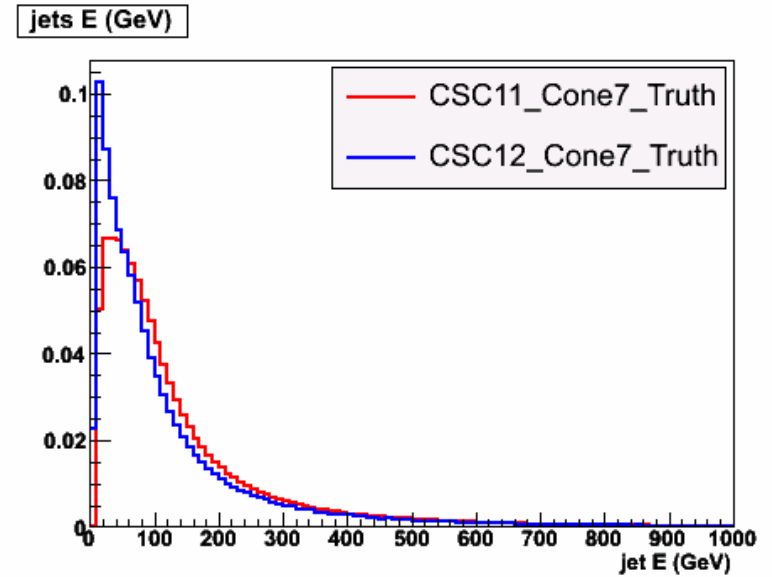
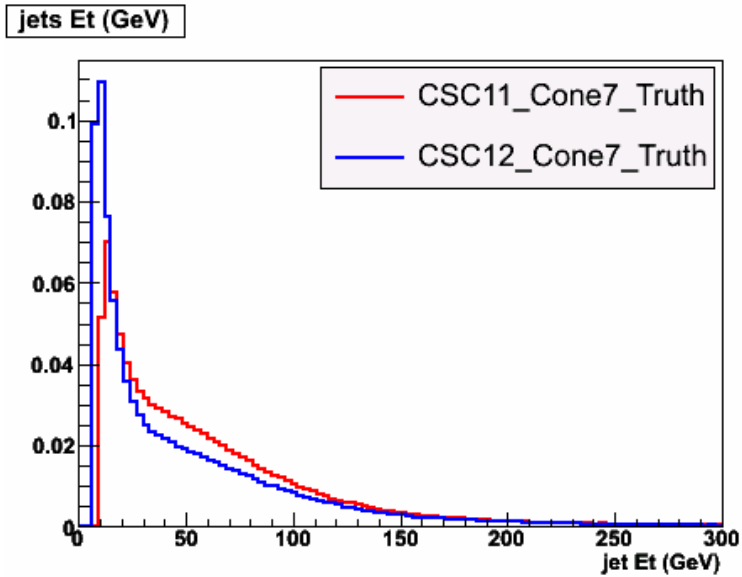


jets phi



Cone7 TruthJets

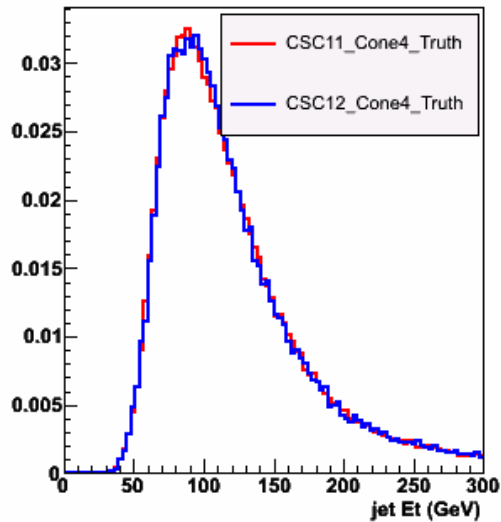
fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$



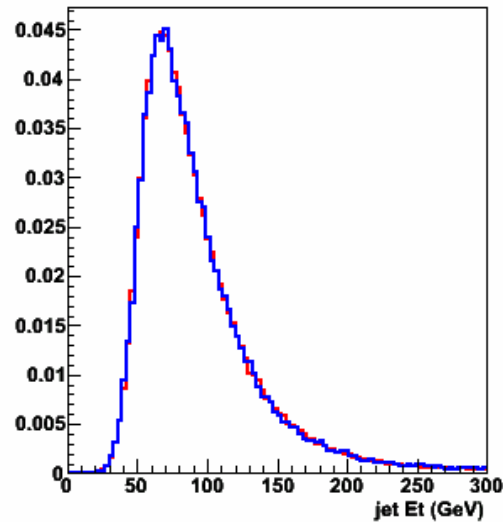
E_T Cone4 TruthJets

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

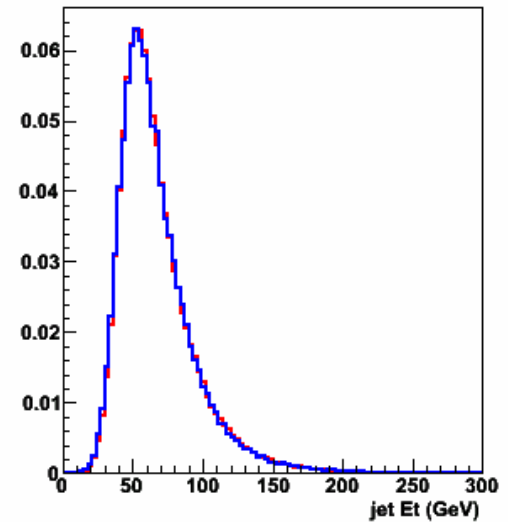
Et(GeV) of 1st highest Et jet



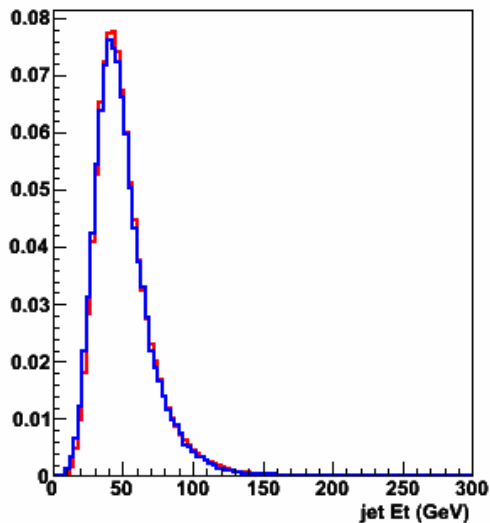
Et(GeV) of 2nd highest Et jet



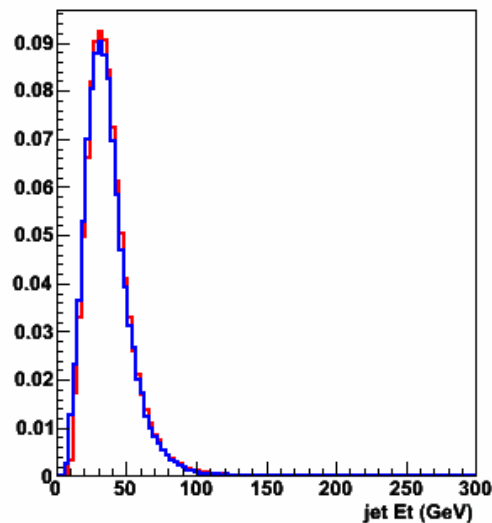
Et(GeV) of 3rd highest Et jet



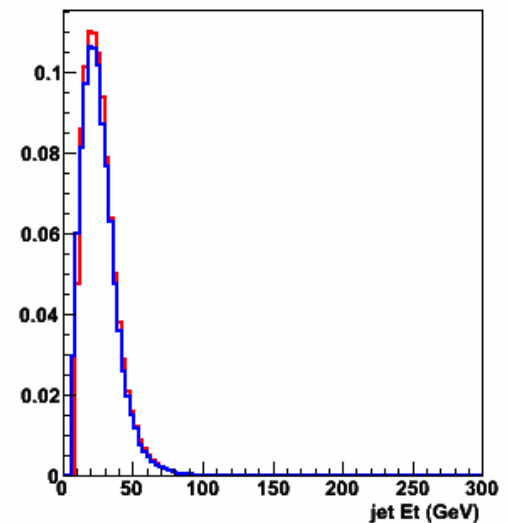
Et(GeV) of 4th highest Et jet



Et(GeV) of 5th highest Et jet



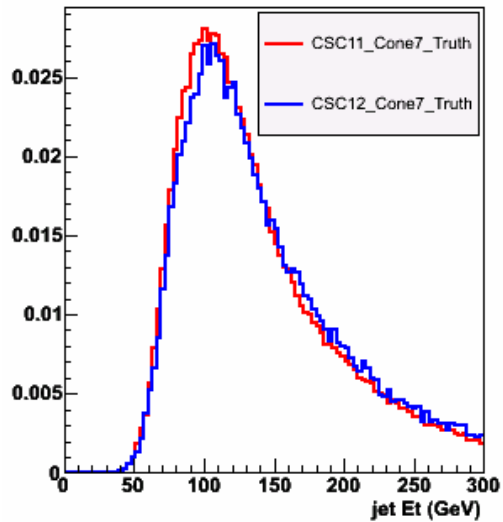
Et(GeV) of 6th highest Et jet



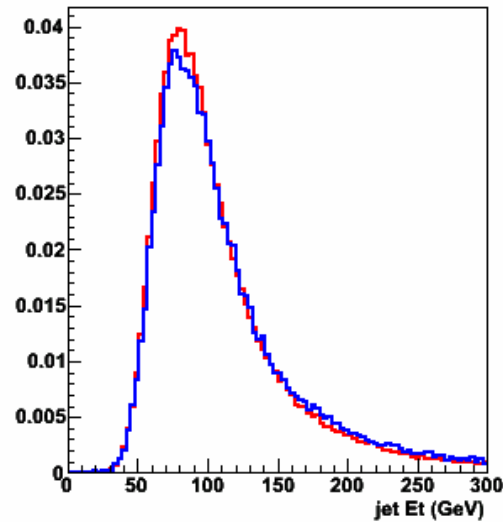
E_T Cone7 TruthJets

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

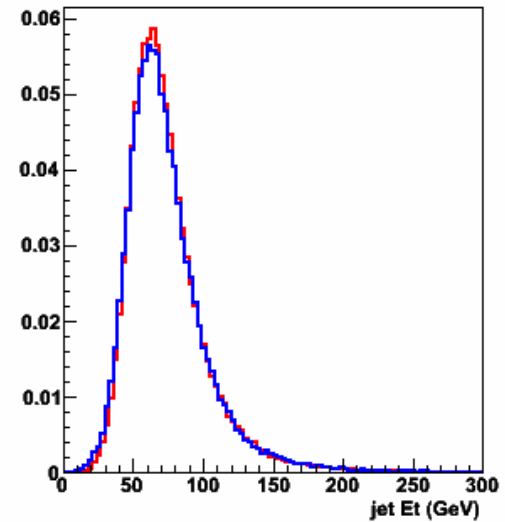
Et(GeV) of 1st highest Et jet



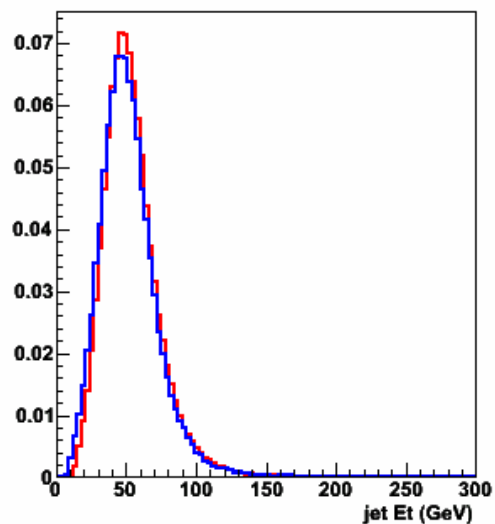
Et(GeV) of 2nd highest Et jet



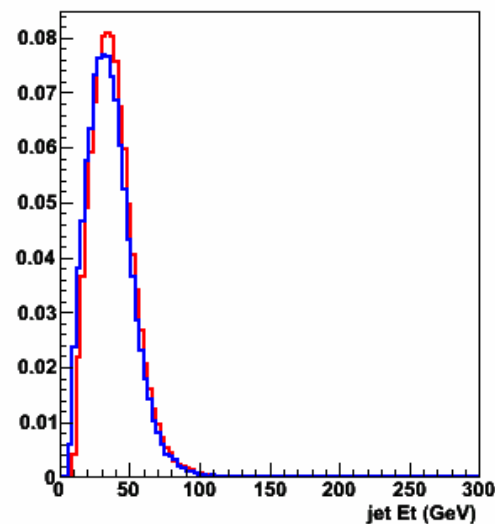
Et(GeV) of 3rd highest Et jet



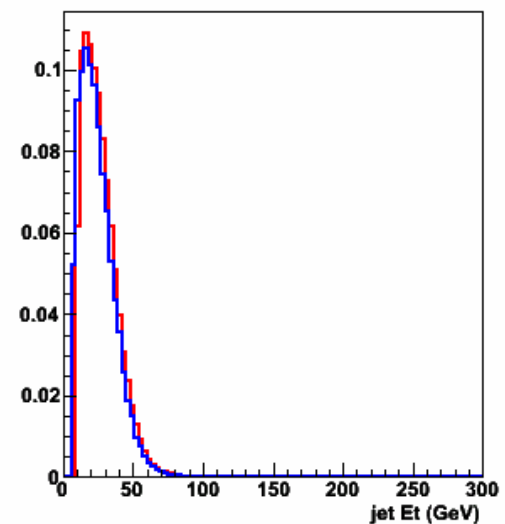
Et(GeV) of 4th highest Et jet



Et(GeV) of 5th highest Et jet



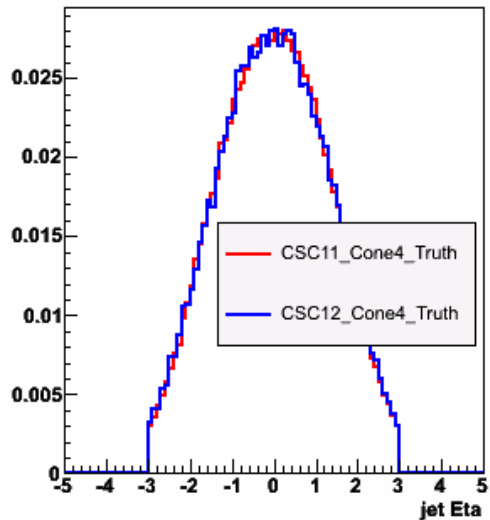
Et(GeV) of 6th highest Et jet



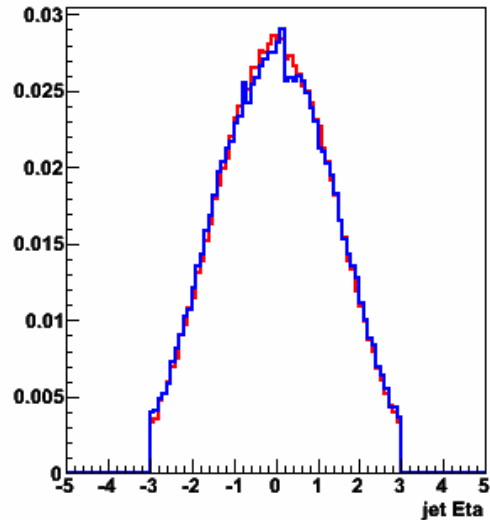
Cone4 TruthJets η distributions

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

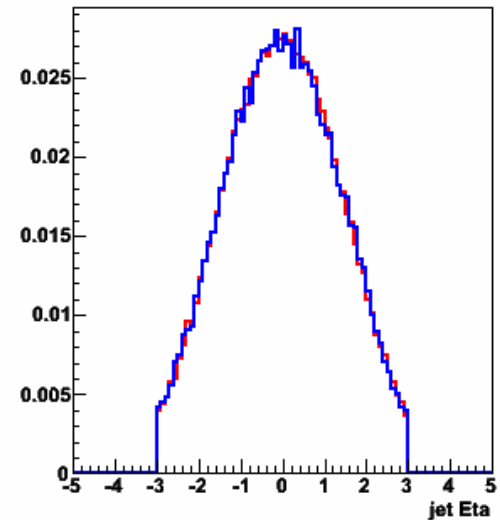
Eta of 1st highest Et jet



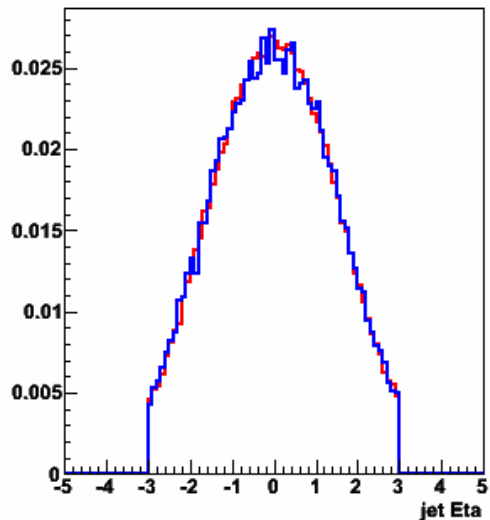
Eta of 2nd highest Et jet



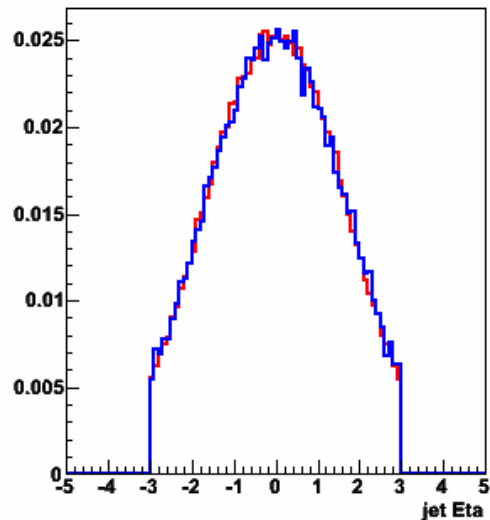
Eta of 3rd highest Et jet



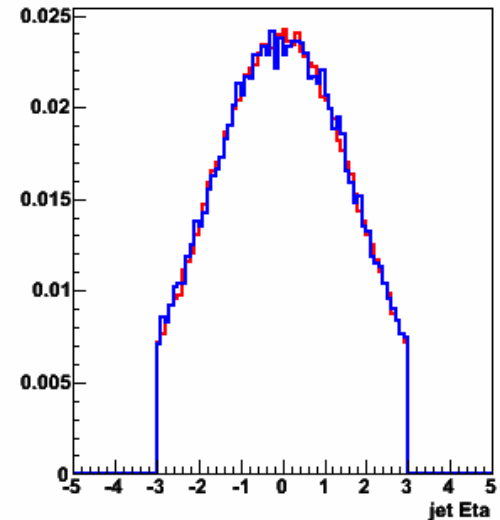
Eta of 4th highest Et jet



Eta of 5th highest Et jet



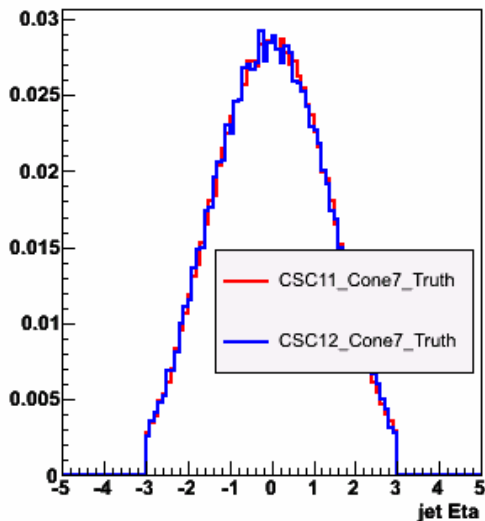
Eta of 6th highest Et jet



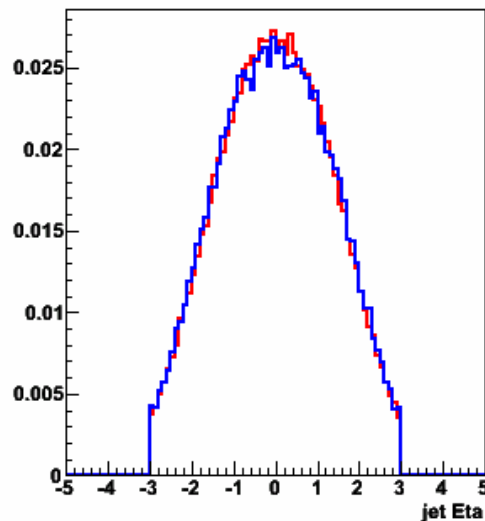
Cone7 TruthJets η distributions

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

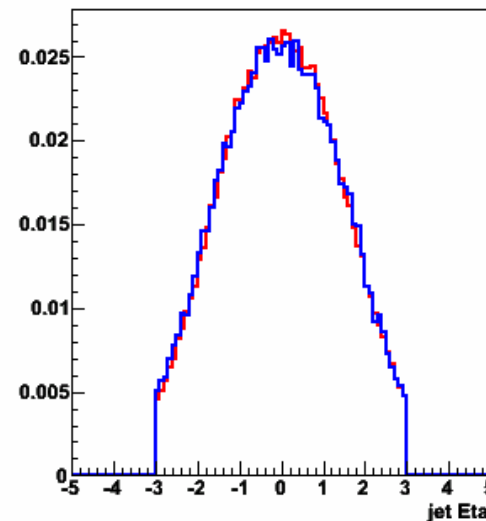
Eta of 1st highest Et jet



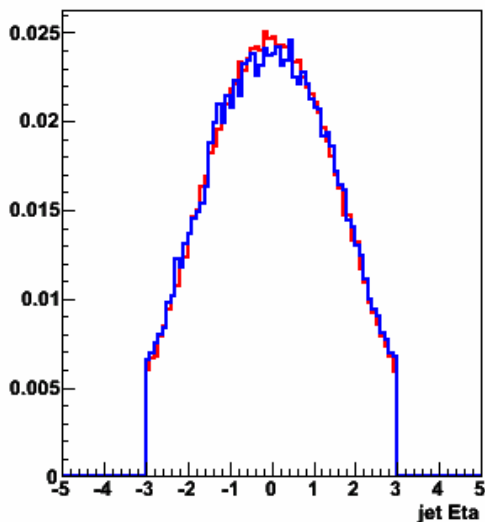
Eta of 2nd highest Et jet



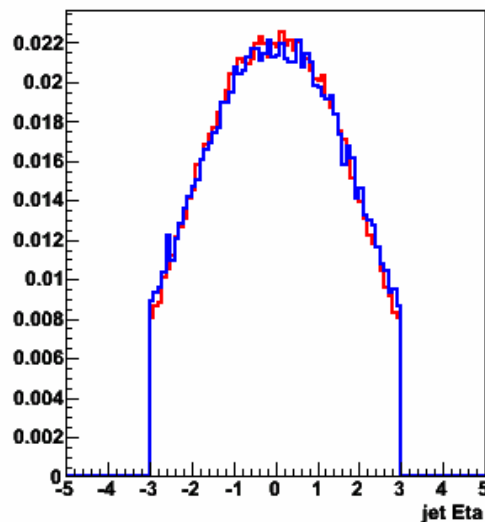
Eta of 3rd highest Et jet



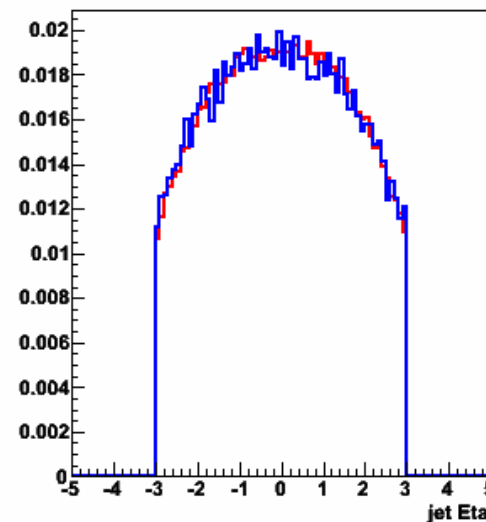
Eta of 4th highest Et jet



Eta of 5th highest Et jet



Eta of 6th highest Et jet

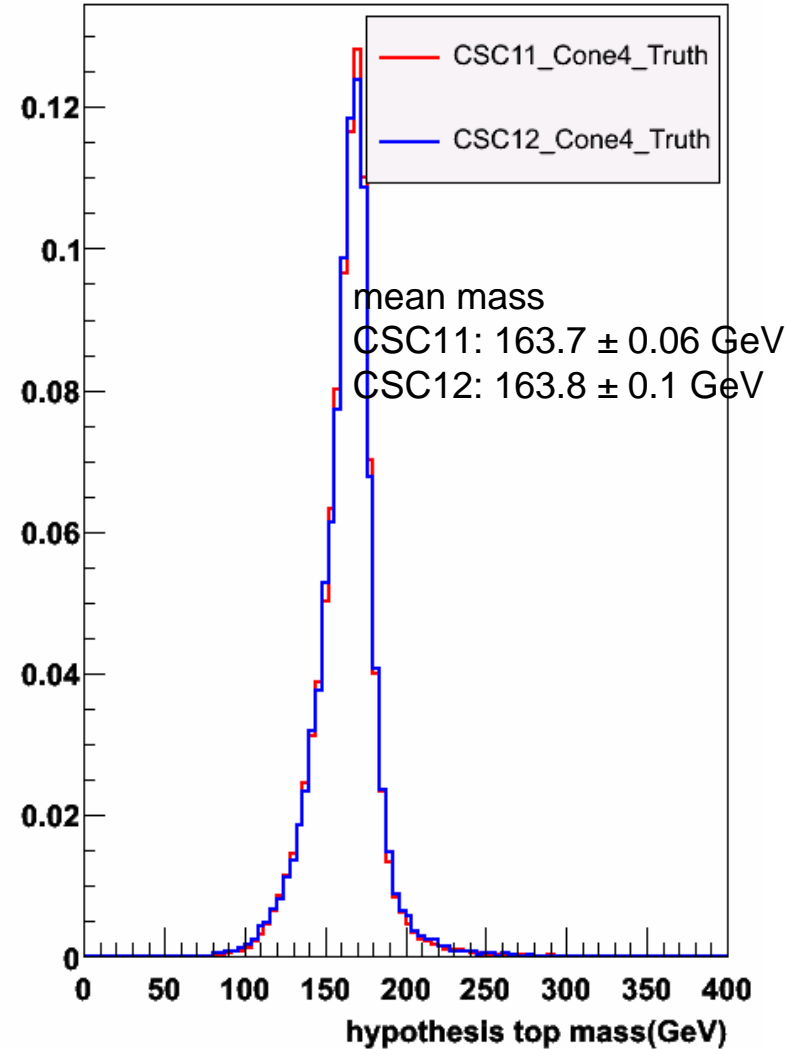
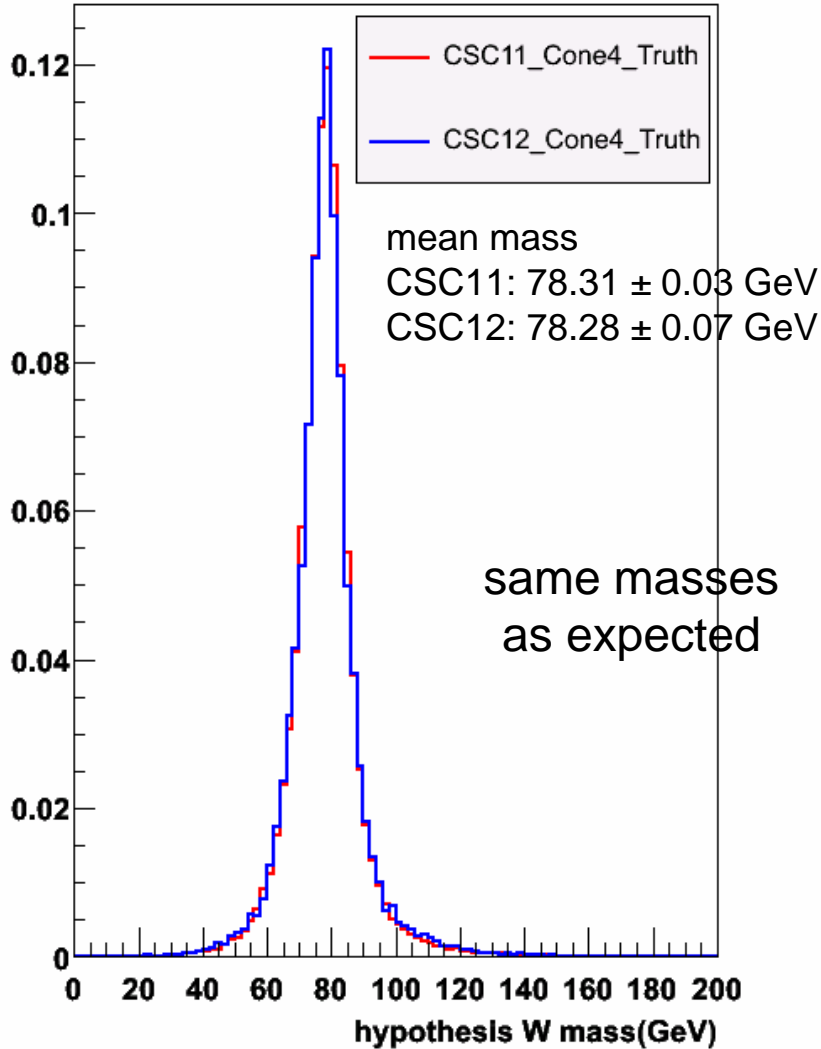


W and top mass: Cone4 TruthJets

hypothesis w mass (GeV)

hypothesis top mass (GeV)

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$
6 jet-parton matched 1 to 1

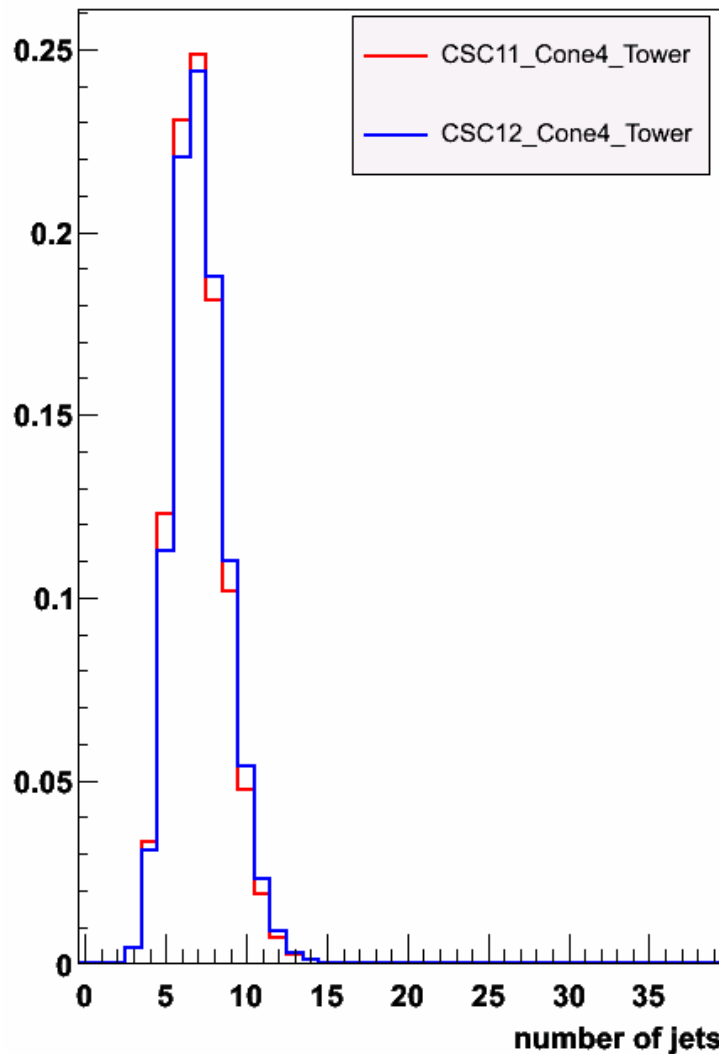


Summary TruthJets

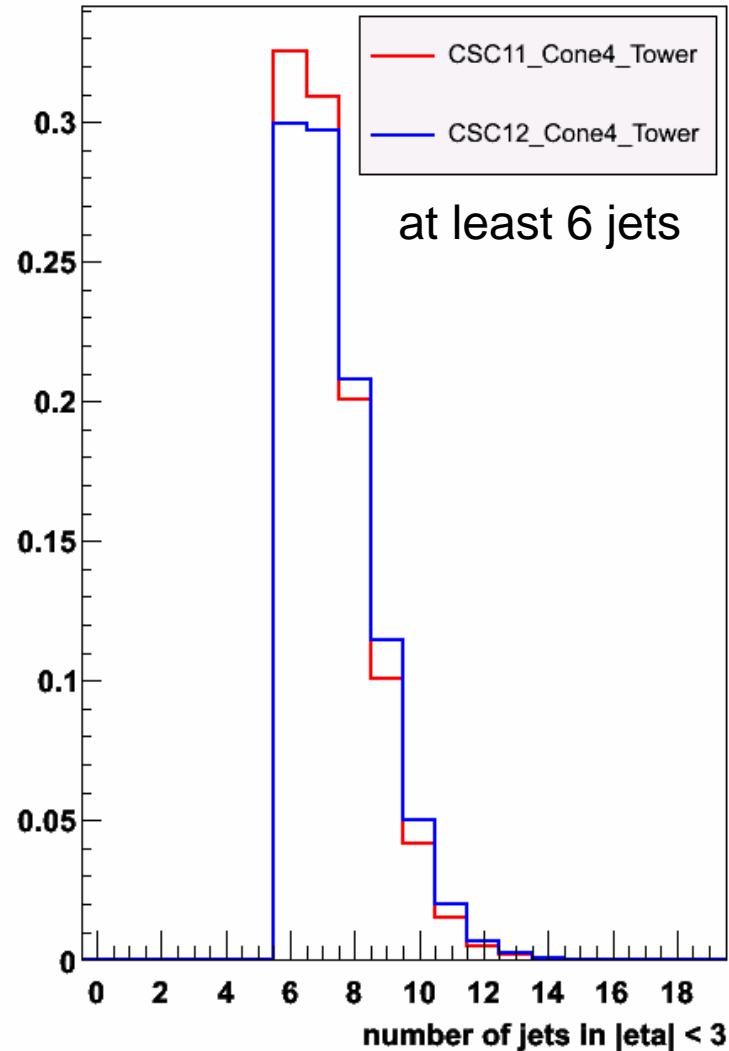
- Comparison between CSC11 and CSC12
 - Jet multiplicity higher in CSC12 for Cone4 and 7
 - different jet E_T thresholds...
 - then CSC12 has a greater number of soft and central jets.
 - the phi distributions have been verified to be flat
 - The 6 highest E_T jets have very similar distributions
 - except perhaps for the lowest E_T Cone7 jets
 - The W and top mass reconstructed with 1 to 1 matched jet-partons are the same (within statistics) as expected

Jet Multiplicities: Cone4 TowerJets

number of jets

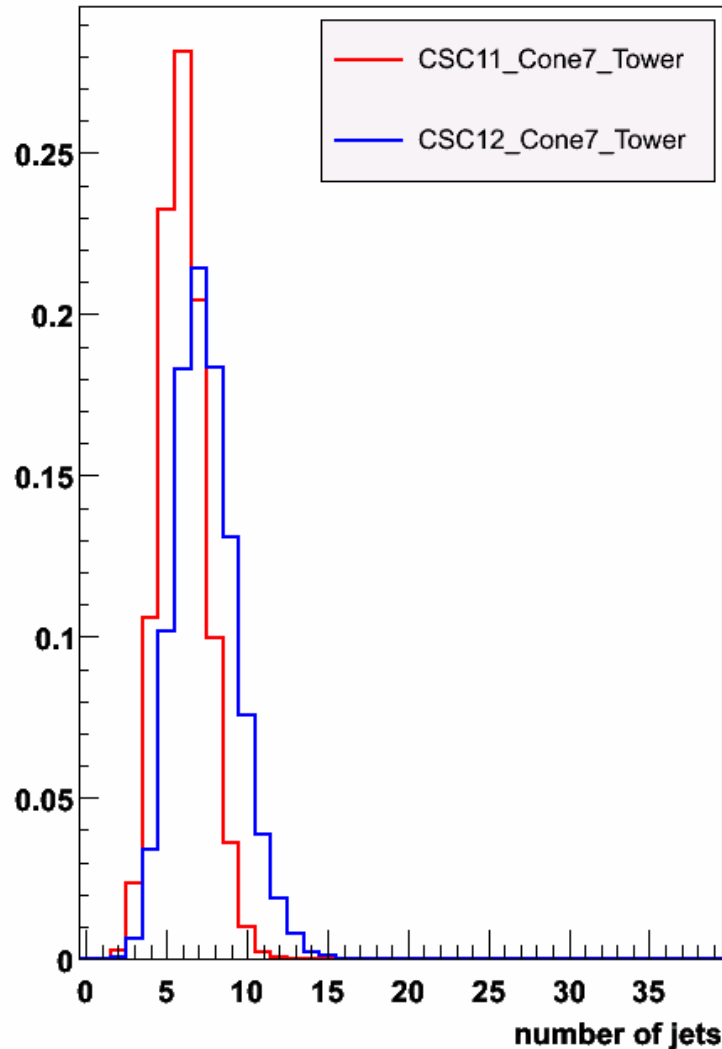


number of jets

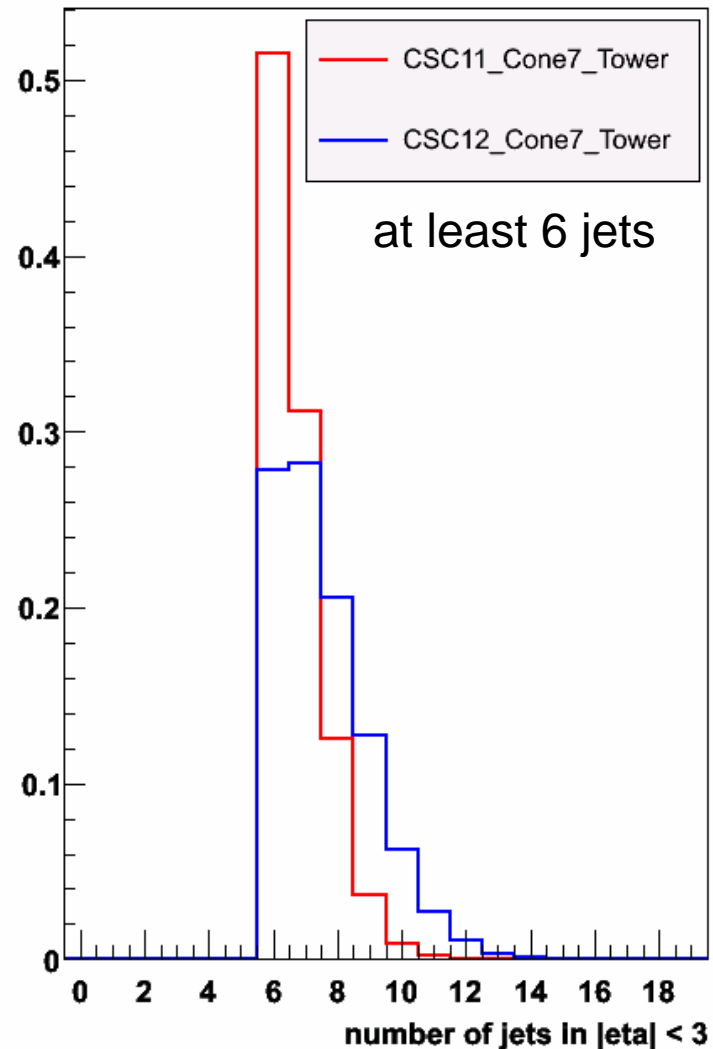


Jet Multiplicities: Cone7 TowerJets

number of jets

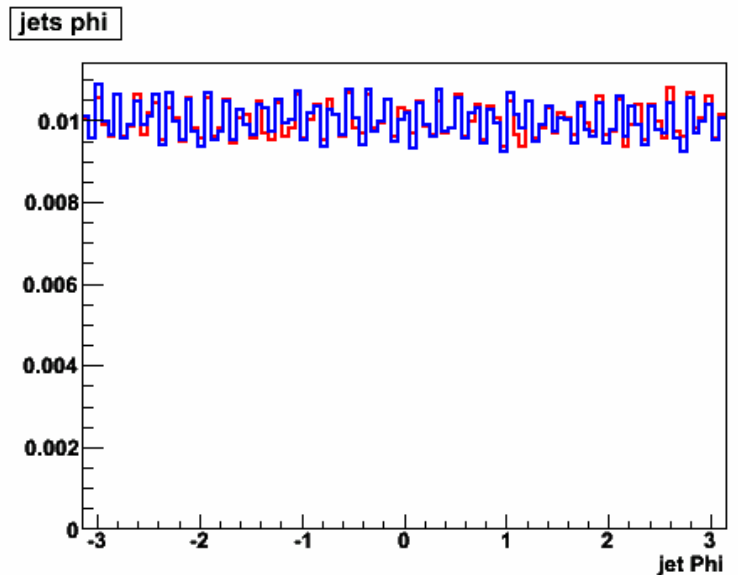
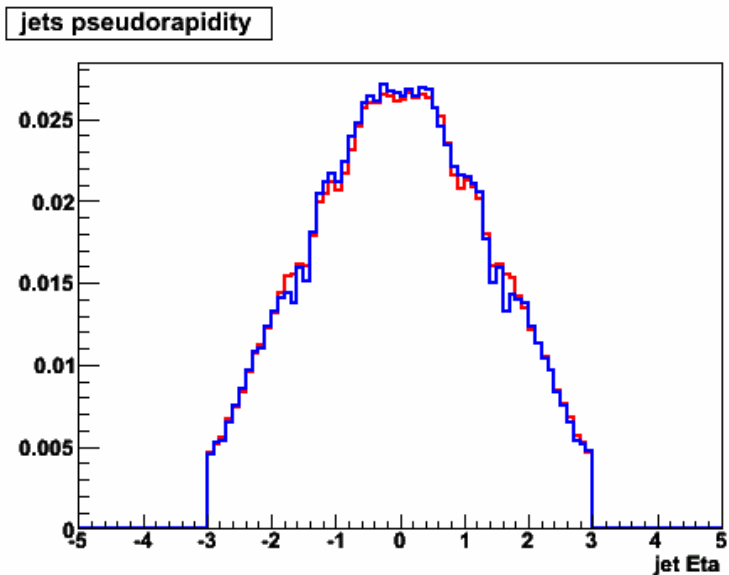
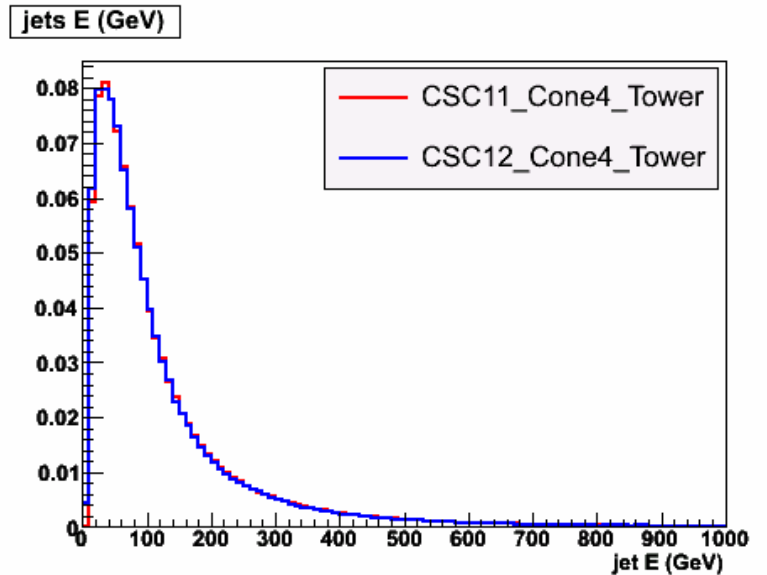
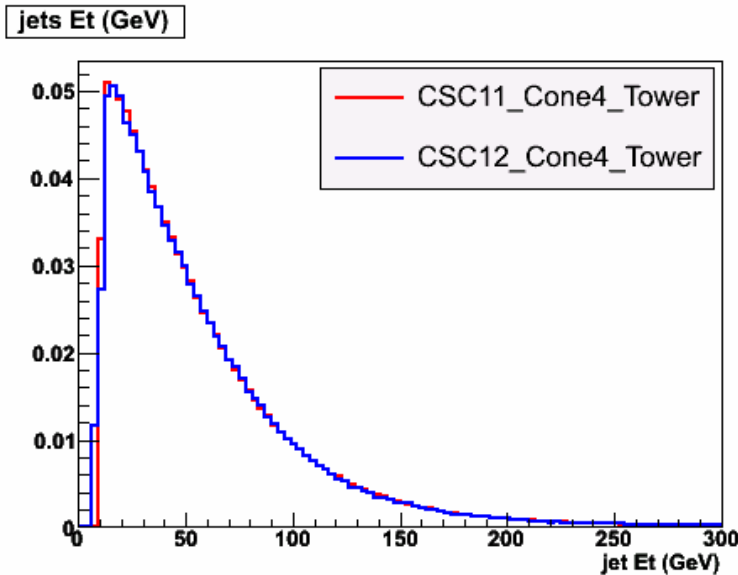


number of jets



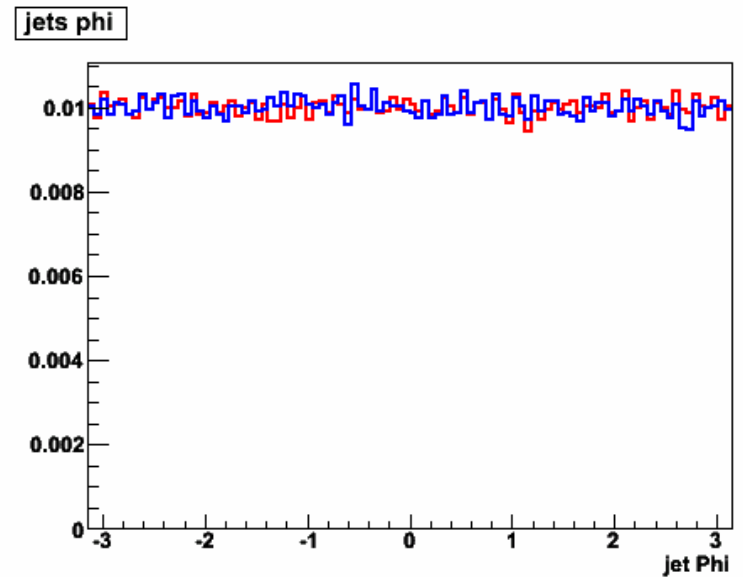
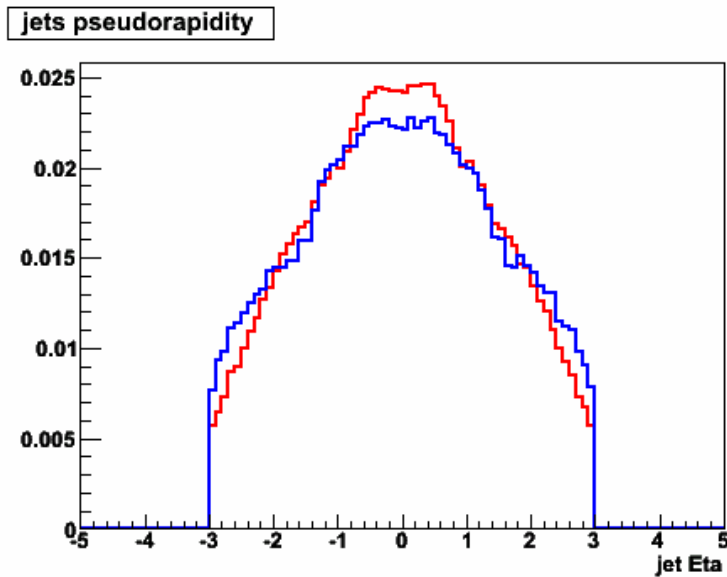
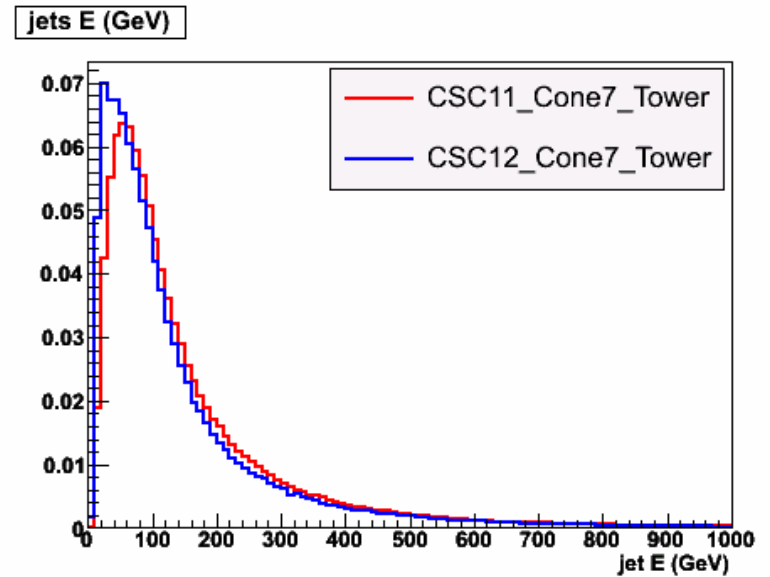
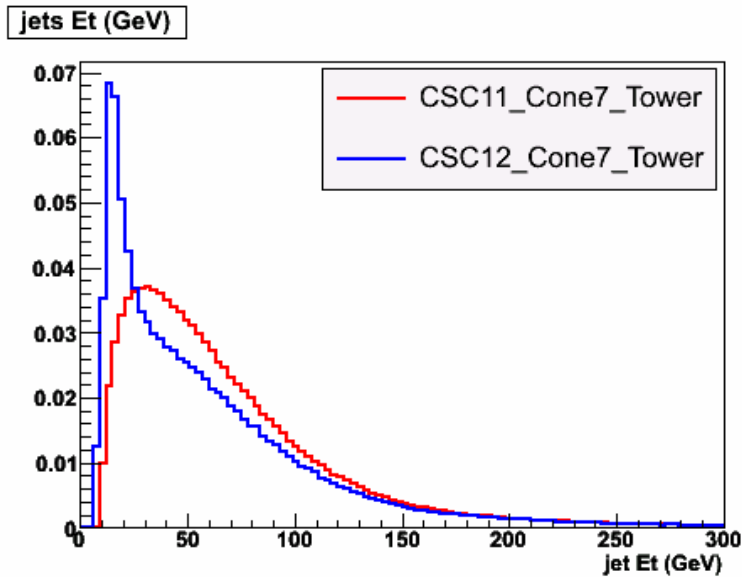
Cone4 TowerJets

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$



Cone7 TowerJets

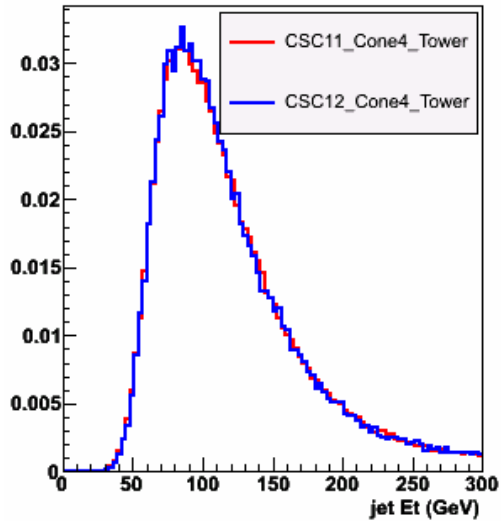
fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$



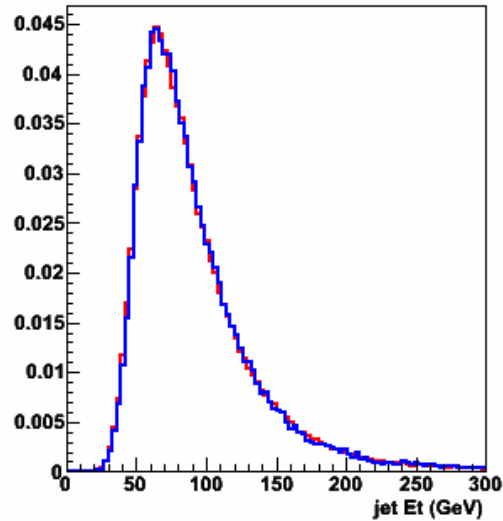
E_T Cone4 TowerJets

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

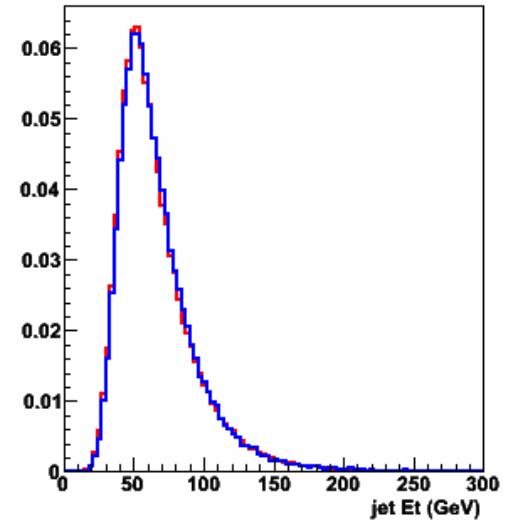
Et(GeV) of 1st highest Et jet



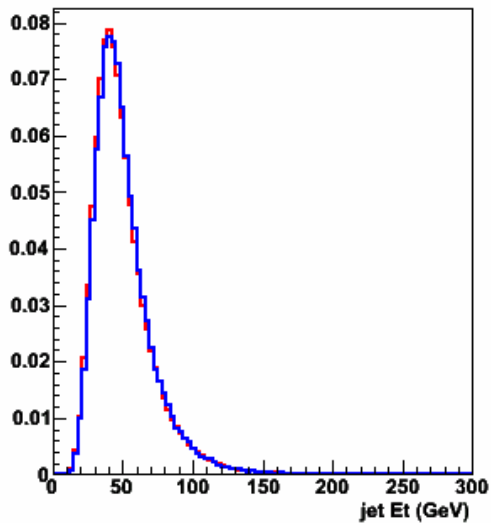
Et(GeV) of 2nd highest Et jet



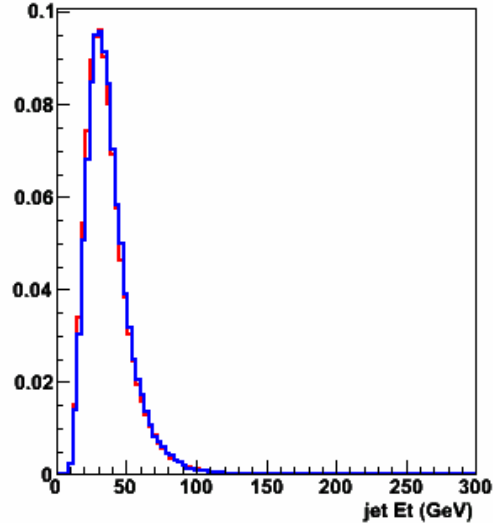
Et(GeV) of 3rd highest Et jet



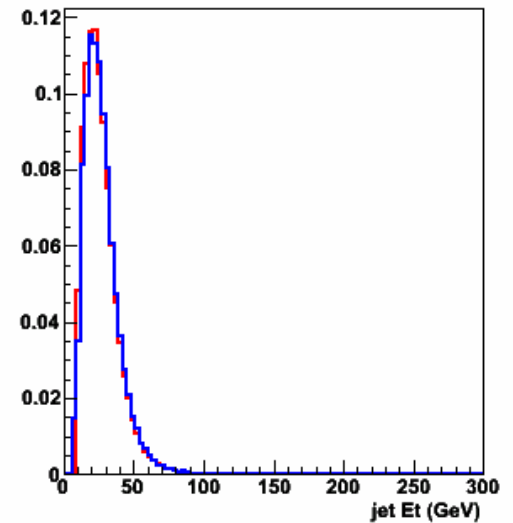
Et(GeV) of 4th highest Et jet



Et(GeV) of 5th highest Et jet



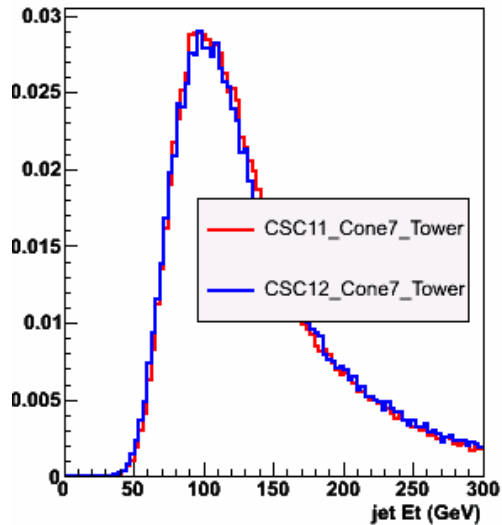
Et(GeV) of 6th highest Et jet



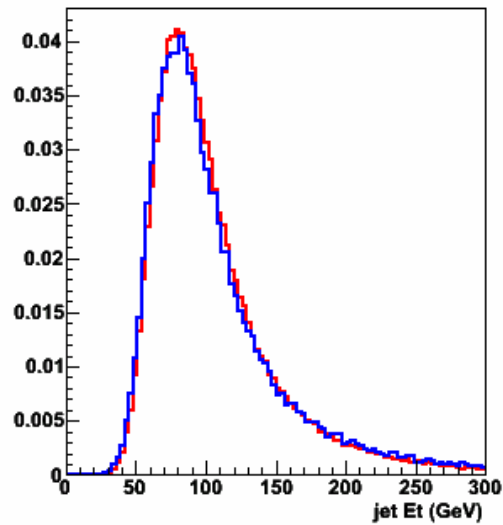
E_T Cone7 TowerJets

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

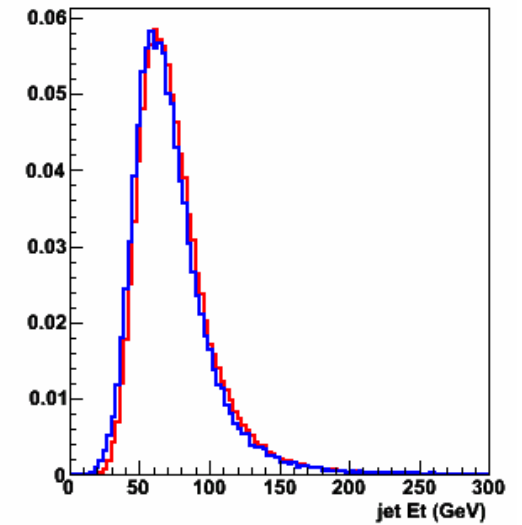
Et(GeV) of 1st highest Et jet



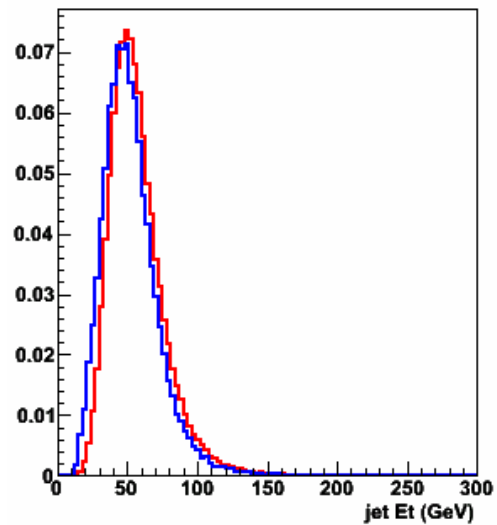
Et(GeV) of 2nd highest Et jet



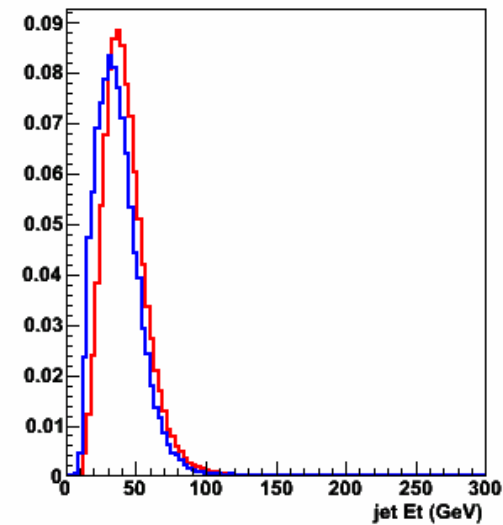
Et(GeV) of 3rd highest Et jet



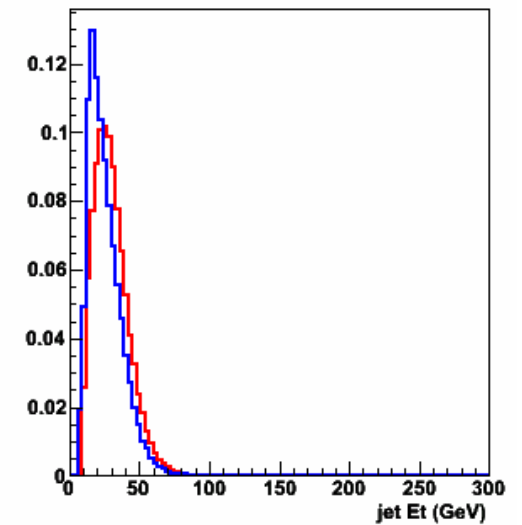
Et(GeV) of 4th highest Et jet



Et(GeV) of 5th highest Et jet



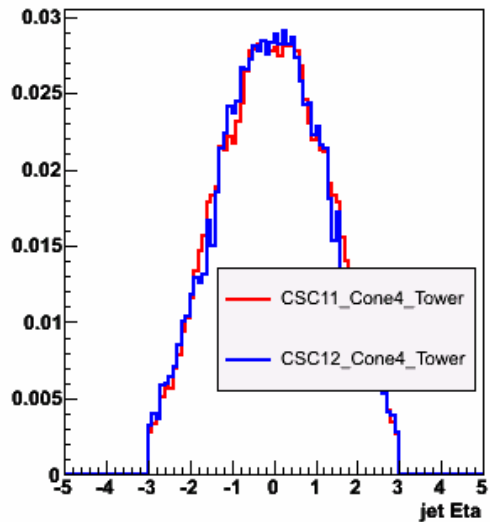
Et(GeV) of 6th highest Et jet



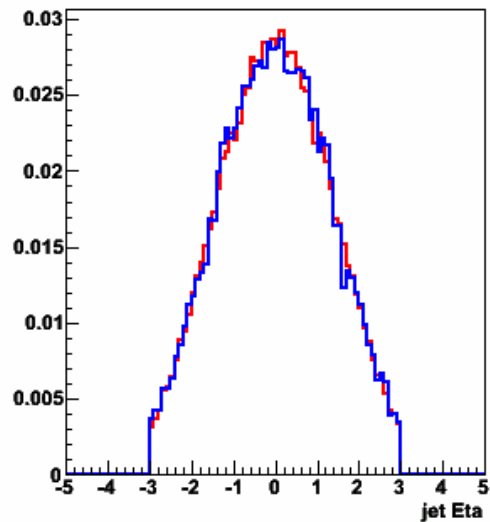
Cone4 TowerJets η distributions

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

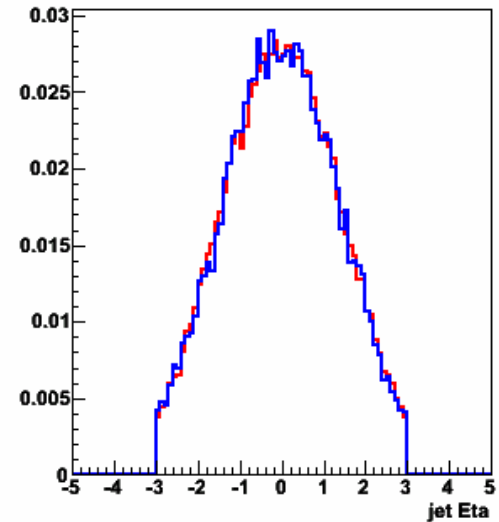
Eta of 1st highest Et jet



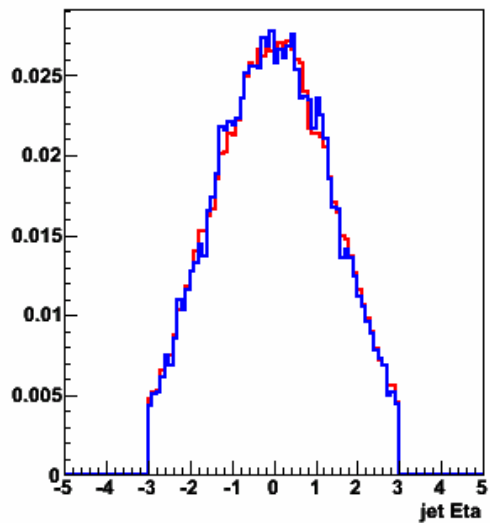
Eta of 2nd highest Et jet



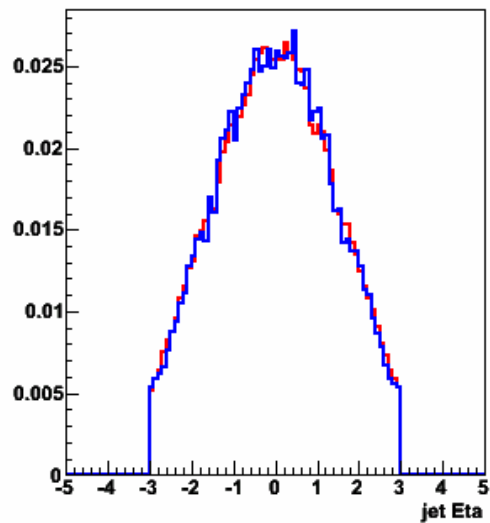
Eta of 3rd highest Et jet



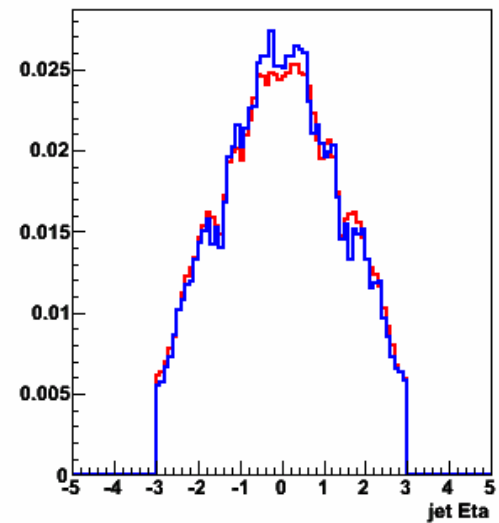
Eta of 4th highest Et jet



Eta of 5th highest Et jet



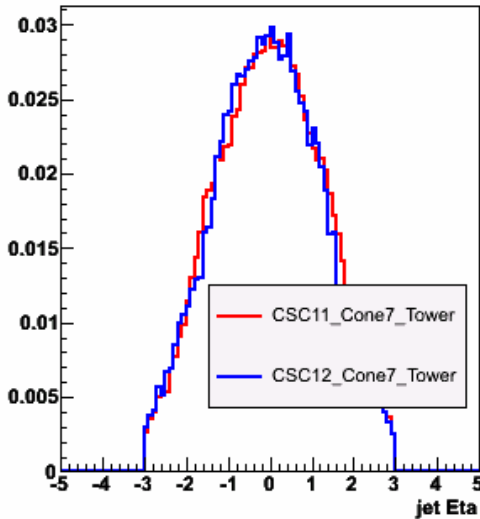
Eta of 6th highest Et jet



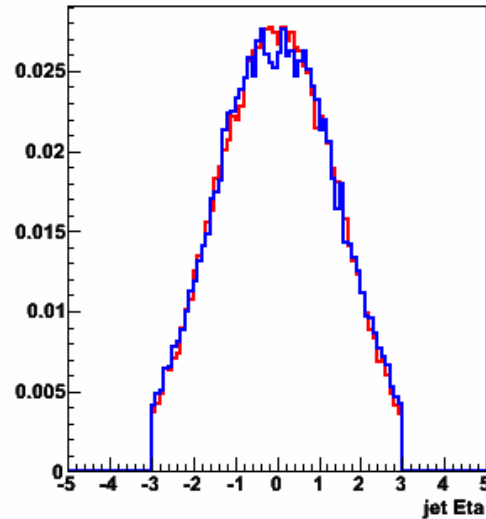
Cone7 TowerJets η distributions

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

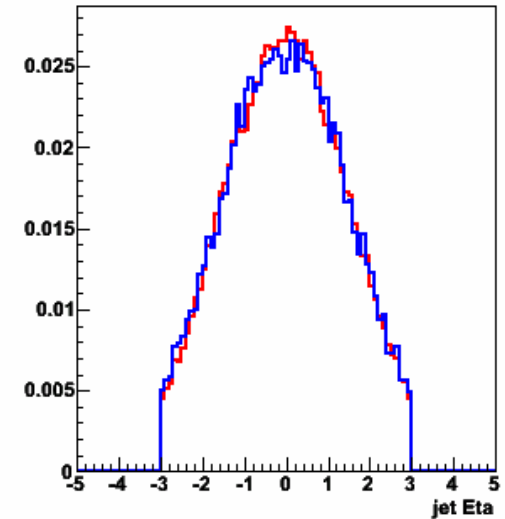
Eta of 1st highest Et jet



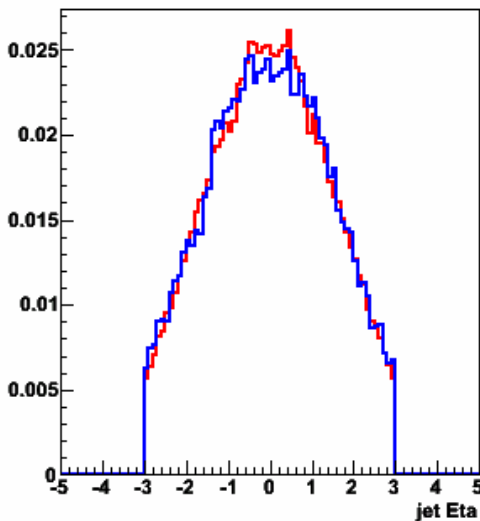
Eta of 2nd highest Et jet



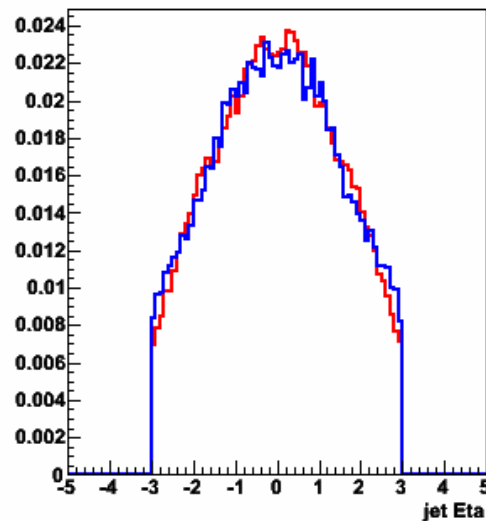
Eta of 3rd highest Et jet



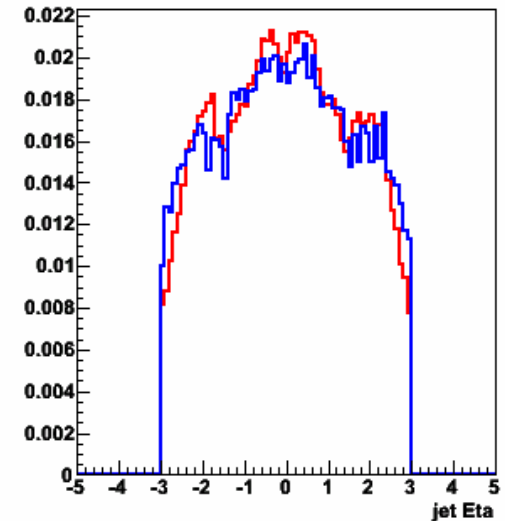
Eta of 4th highest Et jet



Eta of 5th highest Et jet



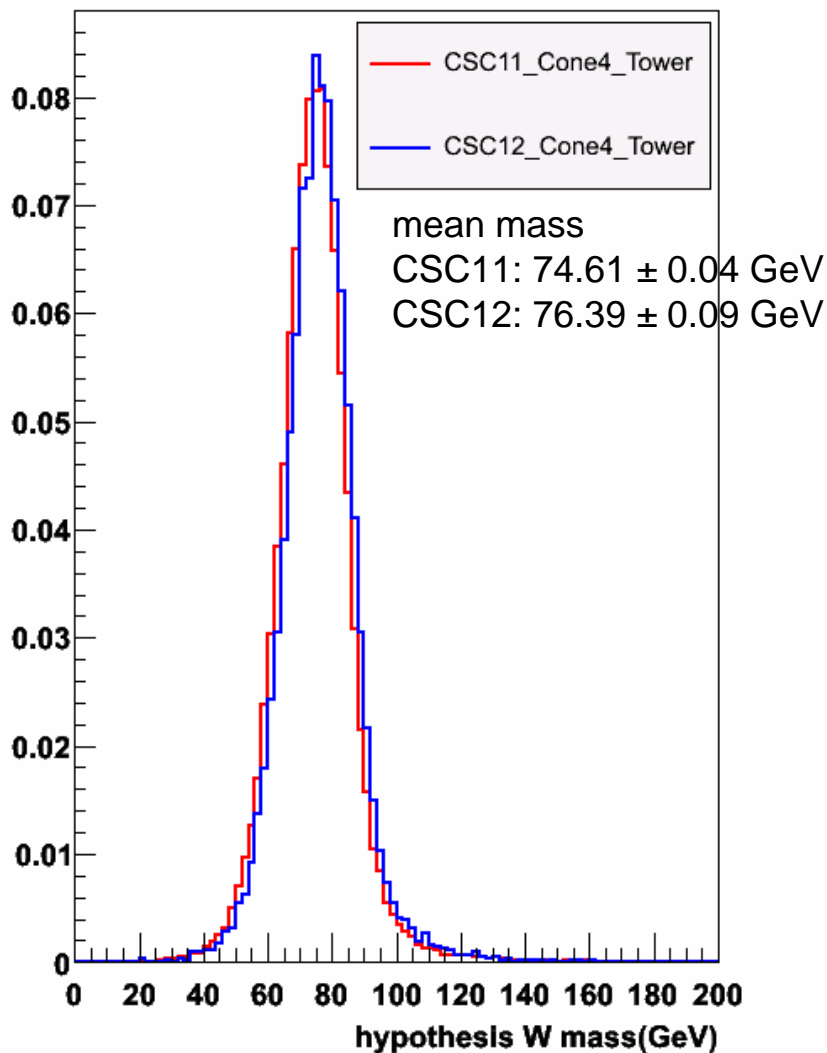
Eta of 6th highest Et jet



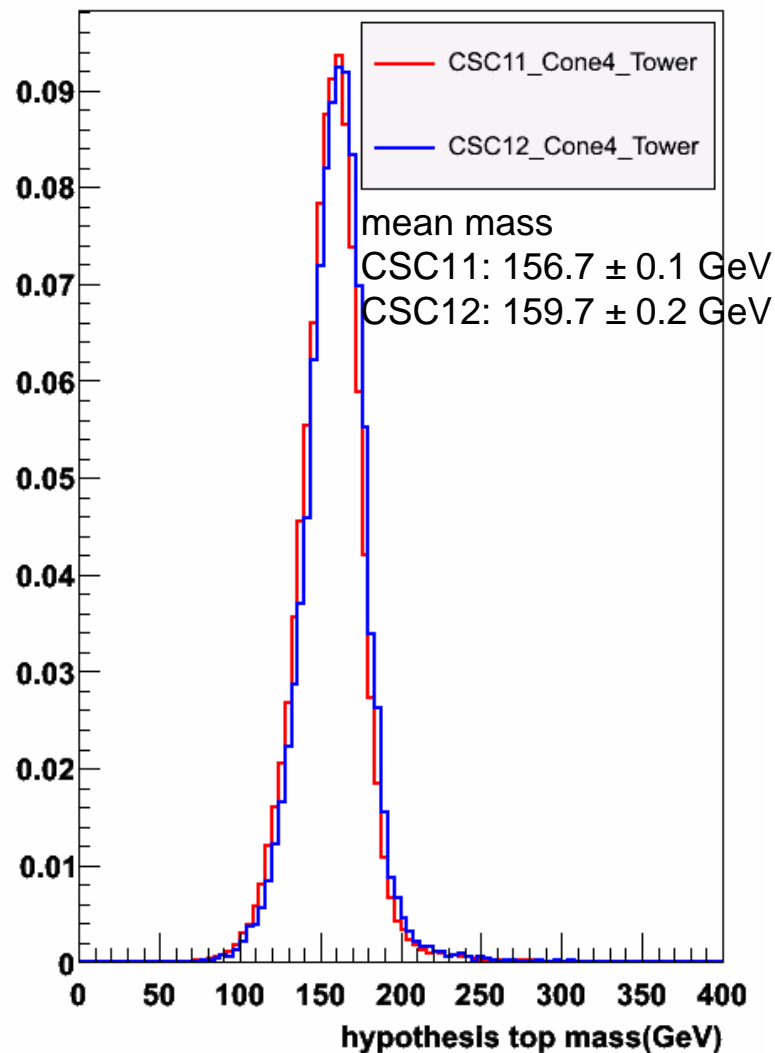
W and top mass: Cone4 TowerJets

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$
6 jet-parton matched 1 to 1

hypothesis w mass (GeV)



hypothesis top mass (GeV)



Summary TowerJets

■ Comparison between CSC11 and CSC12

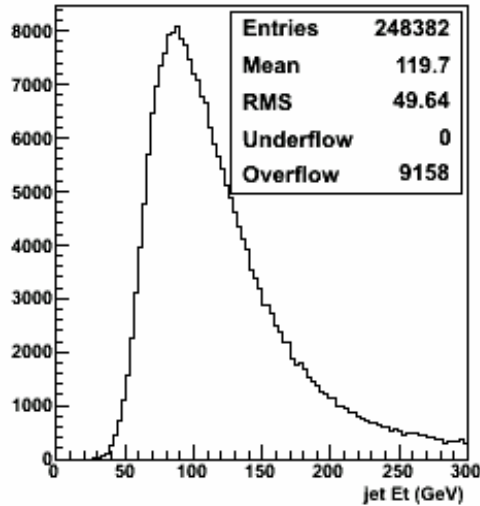
- Jet multiplicity higher in CSC12 for Cone4 and 7
 - different jet E_T thresholds
 - more pronounced for Cone7
 - but less pronounced than for TruthJets
- For Cone4, the agreement between CSC11 and 12 for the other distributions is remarkable
 - The phi distributions have been verified to be flat
- For Cone 7, The 6 highest E_T jets have similar distributions, except for the lowest E_T jets
- The W and top mass reconstructed with 1 to 1 matched jet-partons are higher for CSC12
 - +2.4% for W mass
 - +1.9% for the top mass

Extra slides

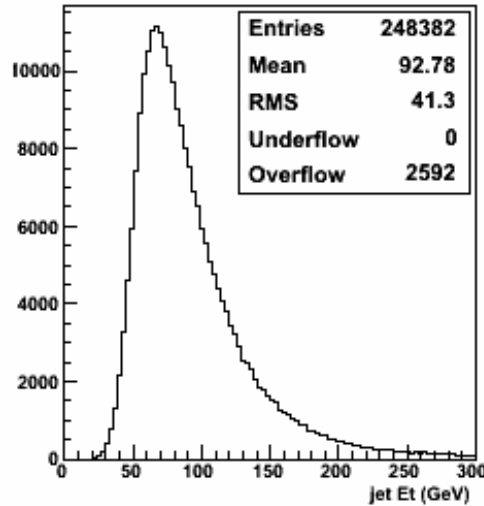
E_T Cone4 TruthJets CSC11

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

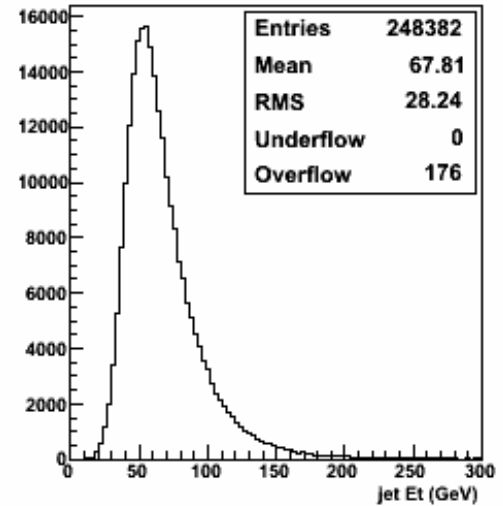
Et(GeV) of 1st highest Et jet



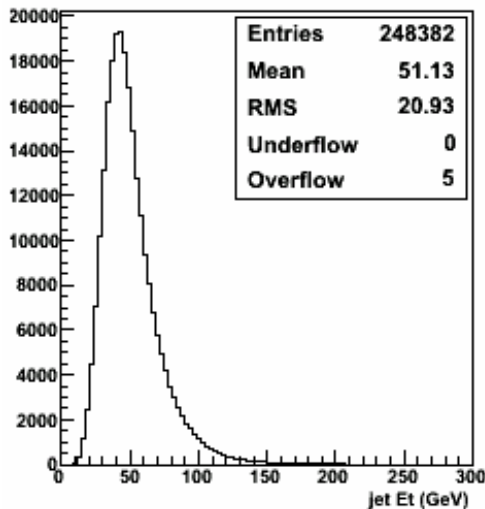
Et(GeV) of 2nd highest Et jet



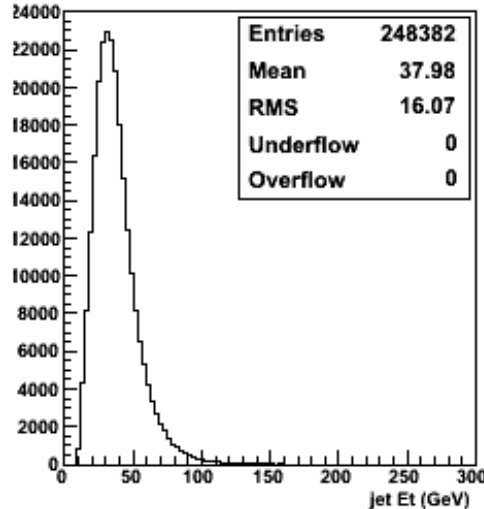
Et(GeV) of 3rd highest Et jet



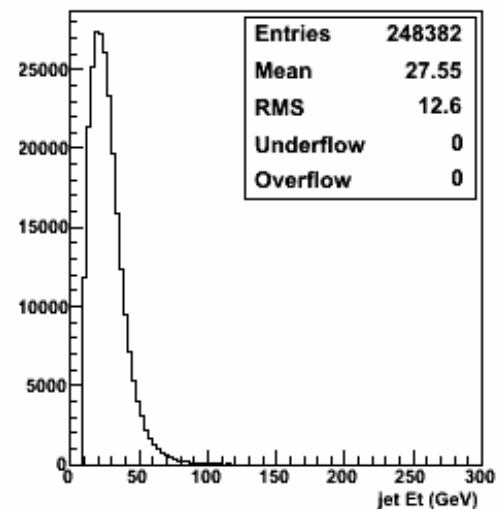
Et(GeV) of 4th highest Et jet



Et(GeV) of 5th highest Et jet

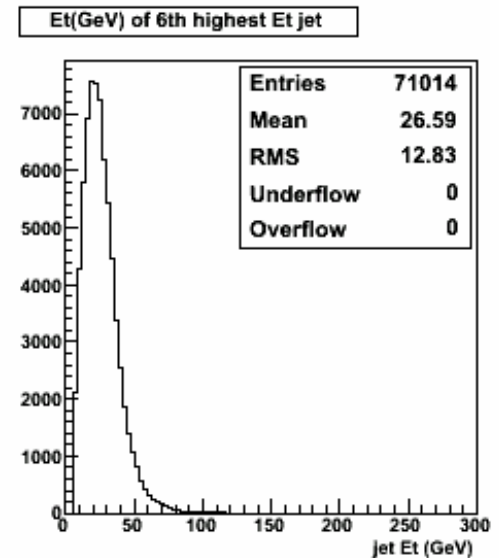
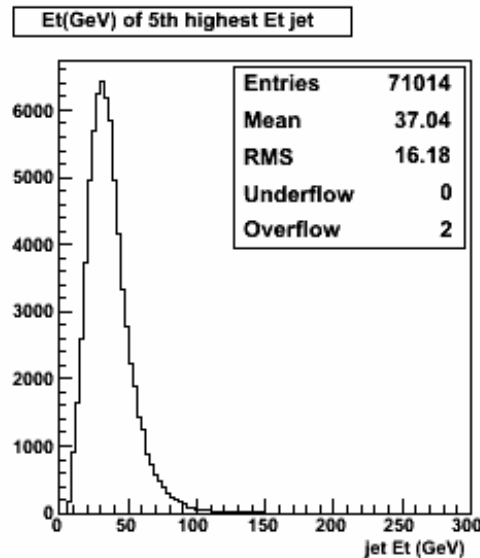
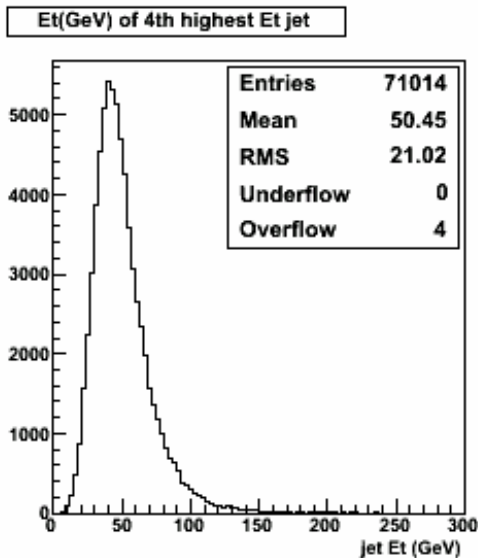
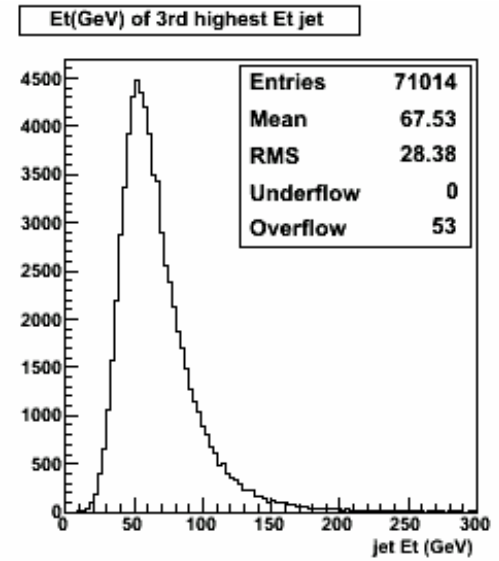
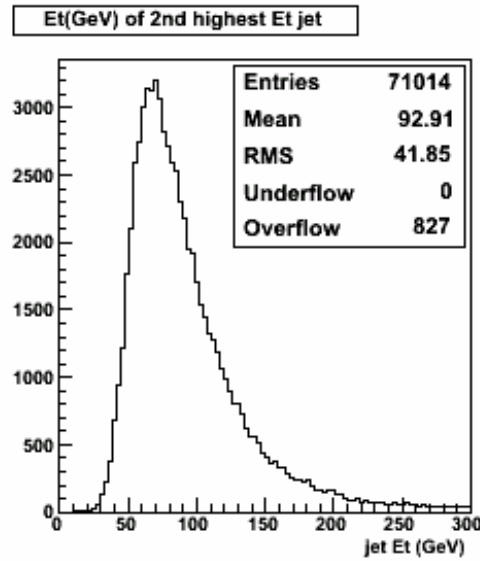
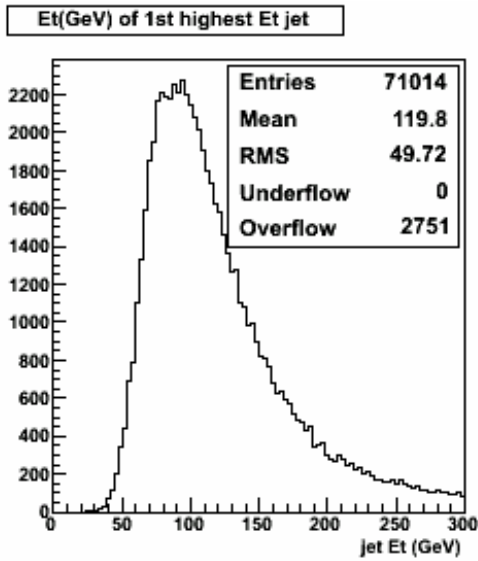


Et(GeV) of 6th highest Et jet



E_T Cone4 TruthJets CSC12

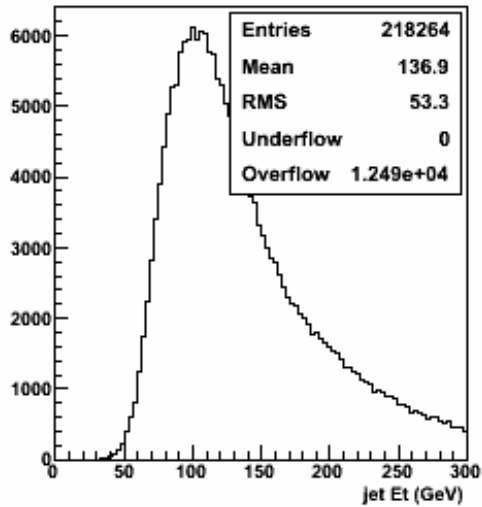
fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$



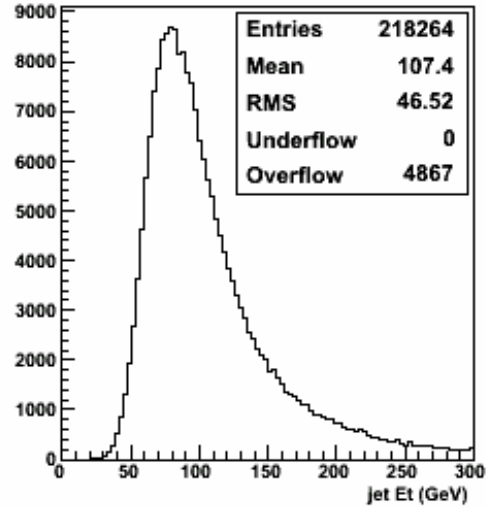
E_T Cone7 TruthJets CSC11

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

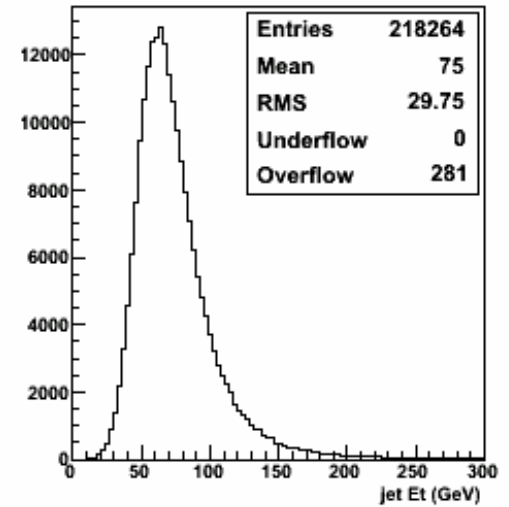
Et(GeV) of 1st highest Et jet



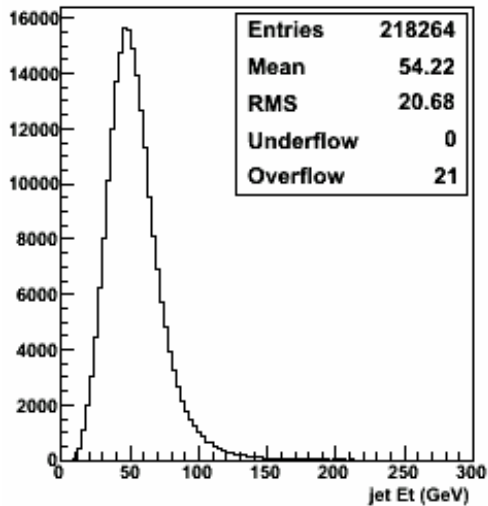
Et(GeV) of 2nd highest Et jet



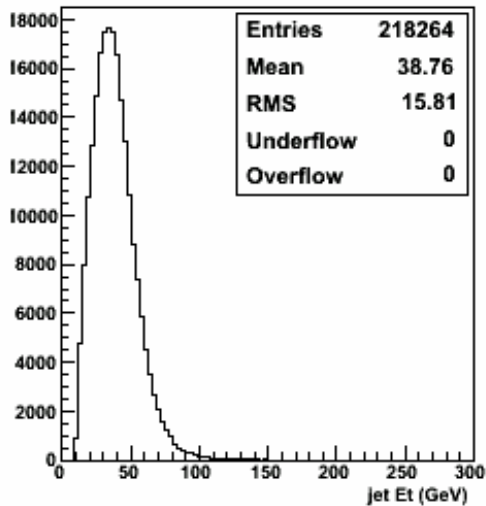
Et(GeV) of 3rd highest Et jet



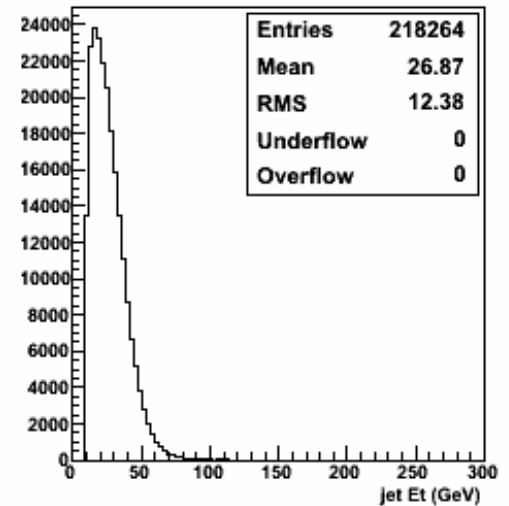
Et(GeV) of 4th highest Et jet



Et(GeV) of 5th highest Et jet



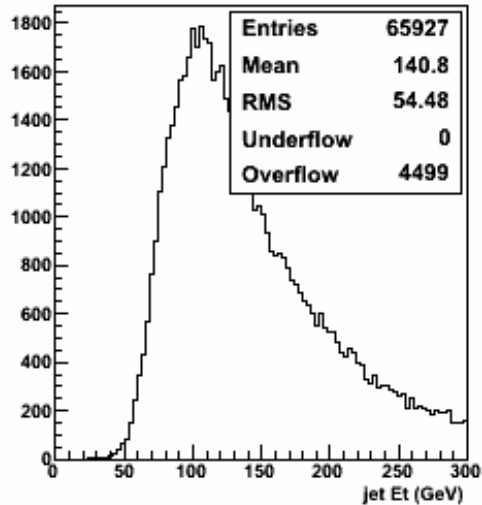
Et(GeV) of 6th highest Et jet



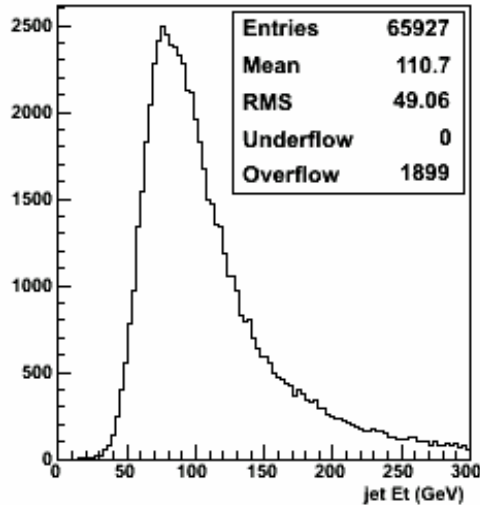
E_T Cone7 TruthJets CSC12

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

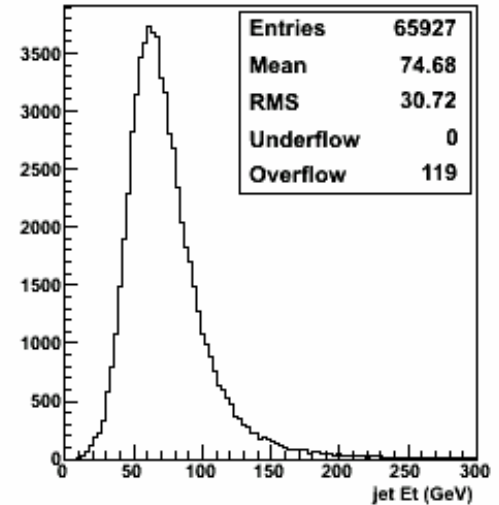
Et(GeV) of 1st highest Et jet



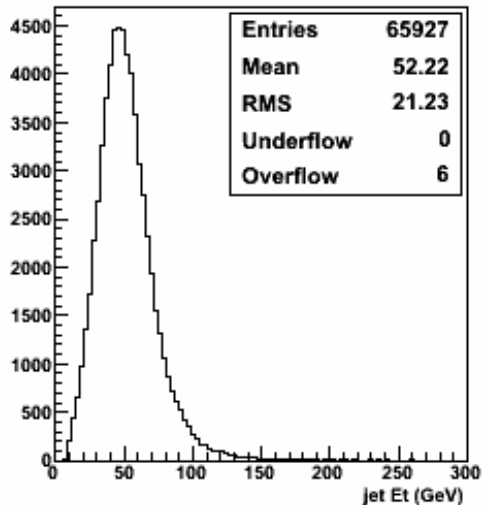
Et(GeV) of 2nd highest Et jet



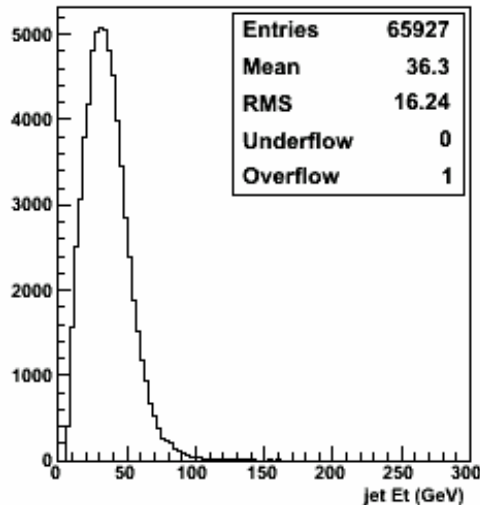
Et(GeV) of 3rd highest Et jet



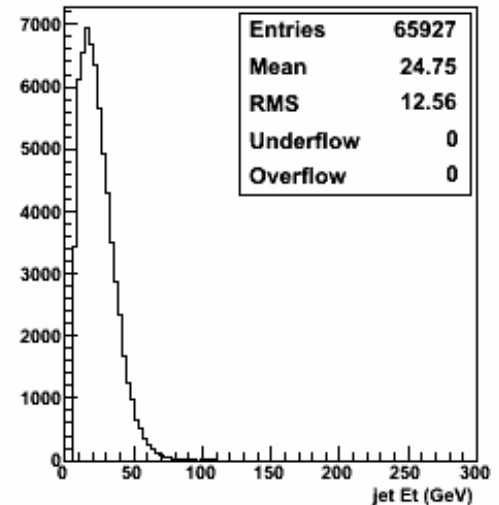
Et(GeV) of 4th highest Et jet



Et(GeV) of 5th highest Et jet



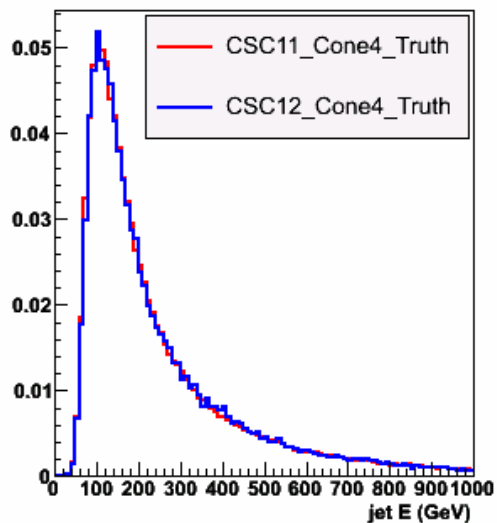
Et(GeV) of 6th highest Et jet



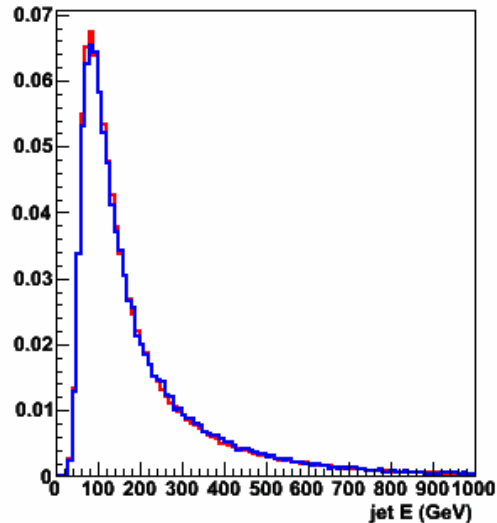
E Cone4 TruthJets

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

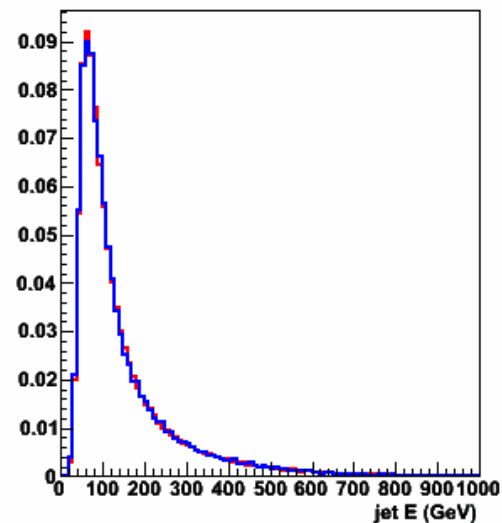
E(GeV) of 1st highest Et jet



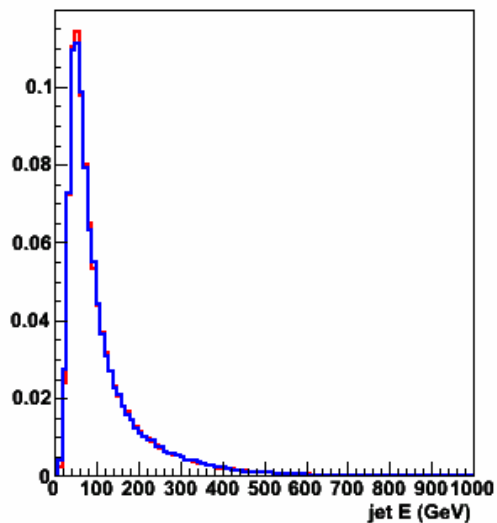
E(GeV) of 2nd highest Et jet



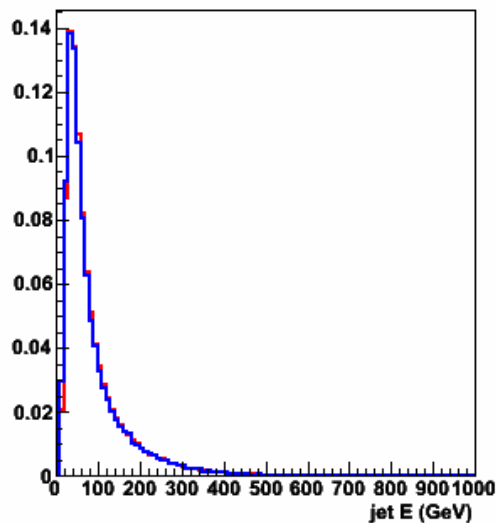
E(GeV) of 3rd highest Et jet



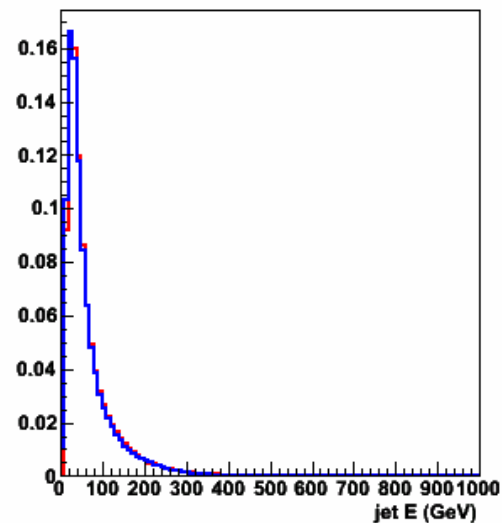
E(GeV) of 4th highest Et jet



E(GeV) of 5th highest Et jet

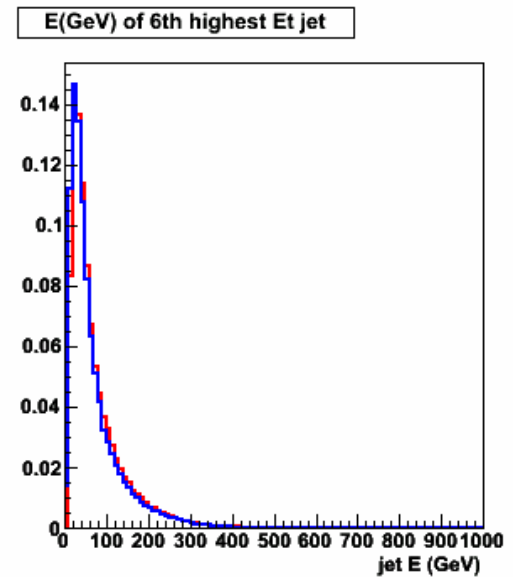
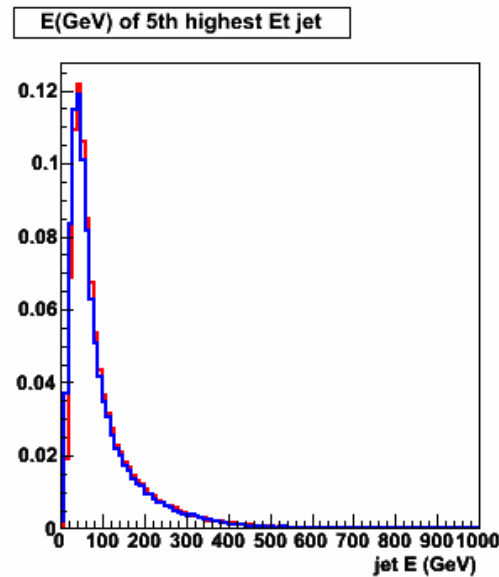
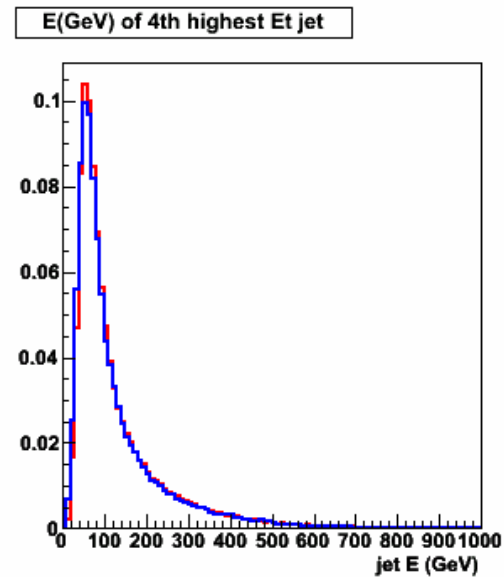
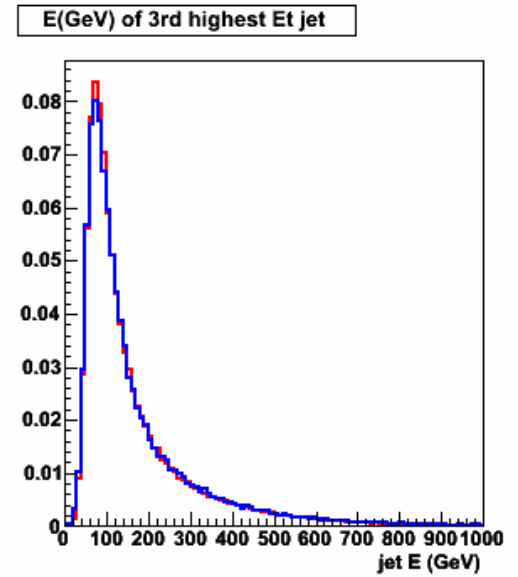
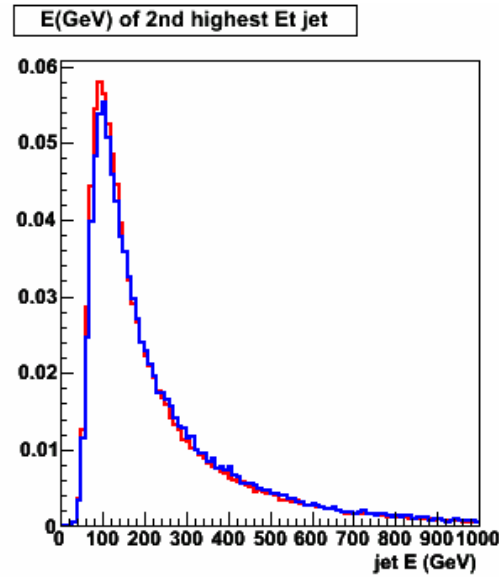
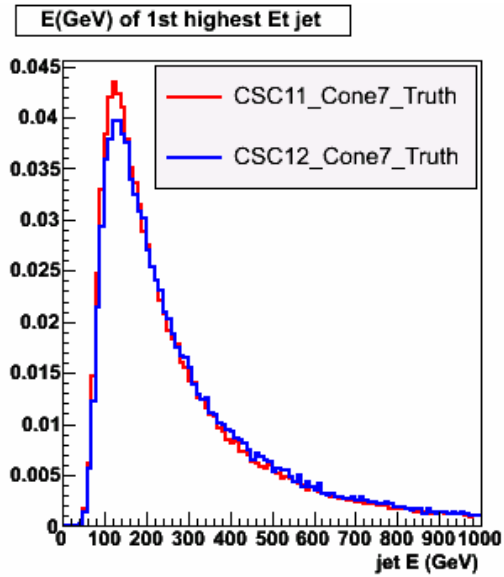


E(GeV) of 6th highest Et jet



E Cone7 TruthJets

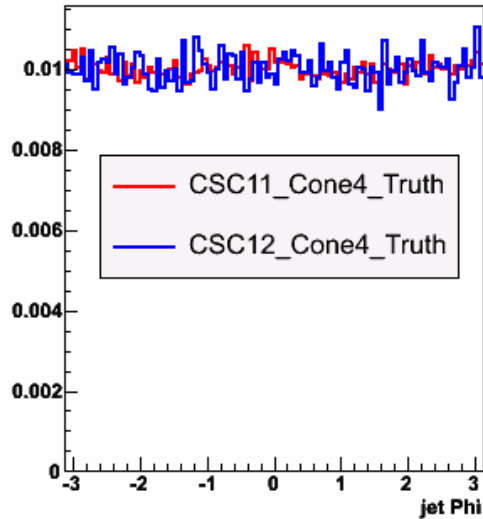
fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$



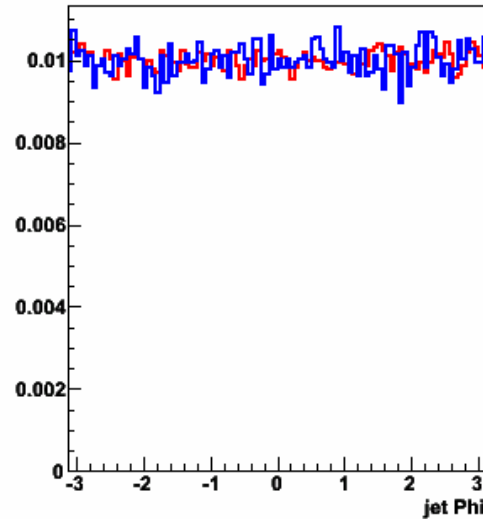
Cone4 TruthJets ϕ distributions

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

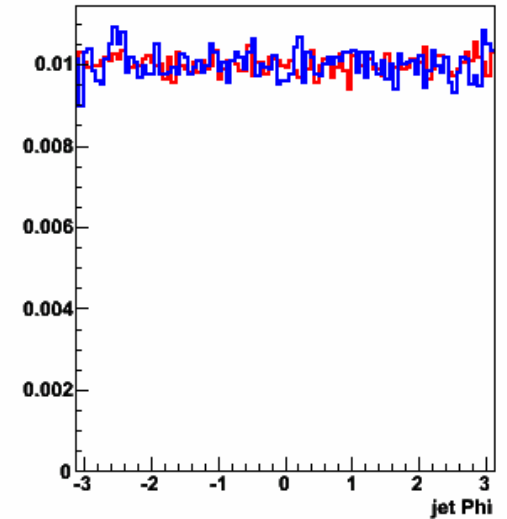
Phi of 1st highest Et jet



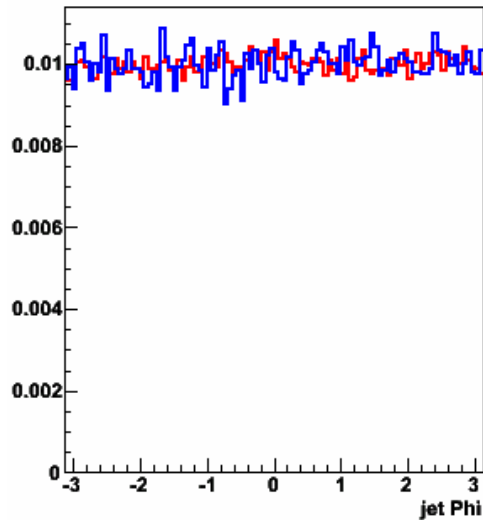
Phi of 2nd highest Et jet



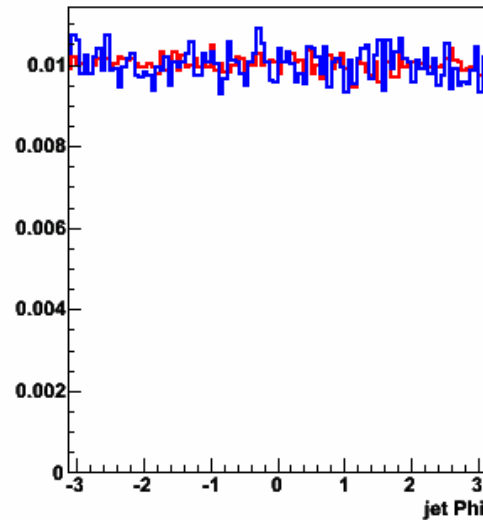
Phi of 3rd highest Et jet



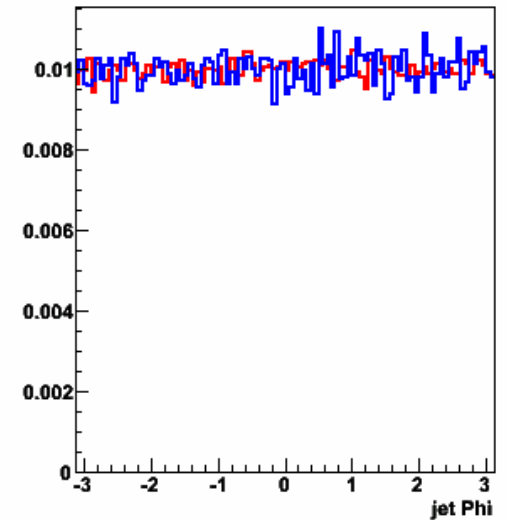
Phi of 4th highest Et jet



Phi of 5th highest Et jet



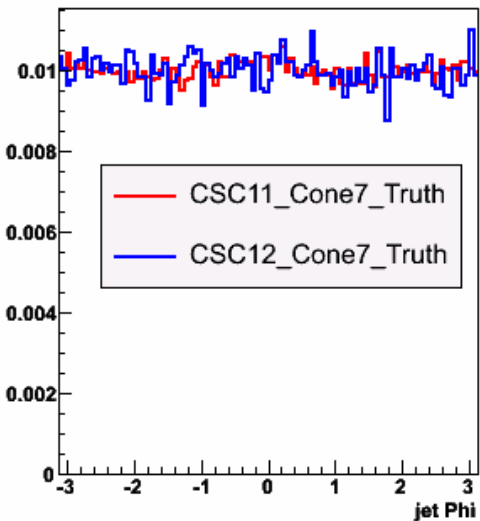
Phi of 6th highest Et jet



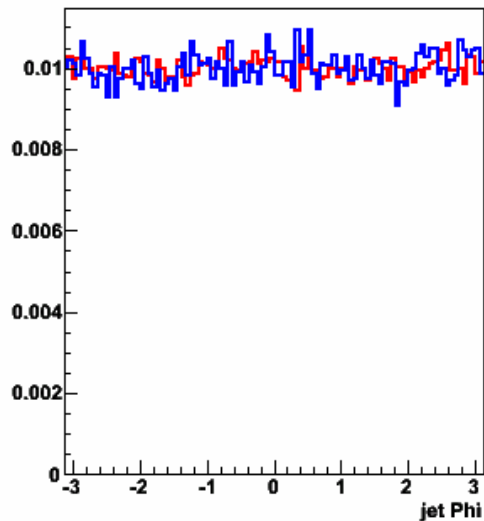
Cone7 TruthJets ϕ distributions

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

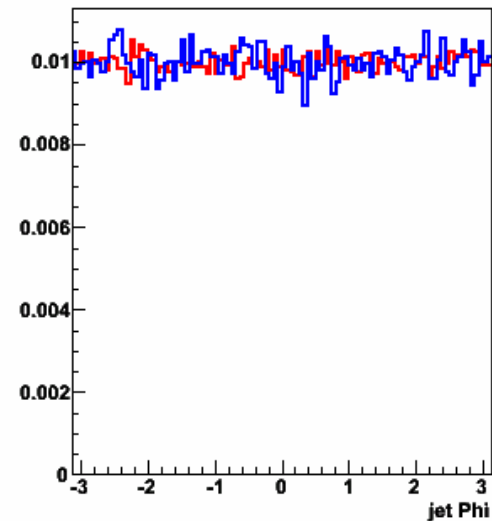
Phi of 1st highest Et jet



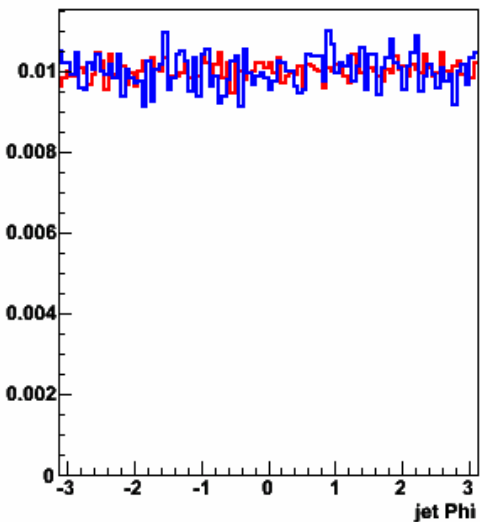
Phi of 2nd highest Et jet



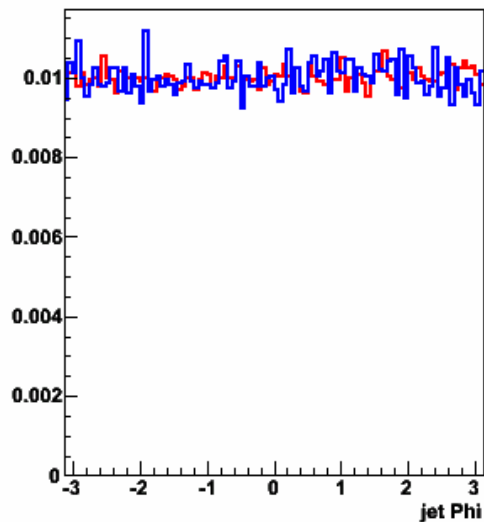
Phi of 3rd highest Et jet



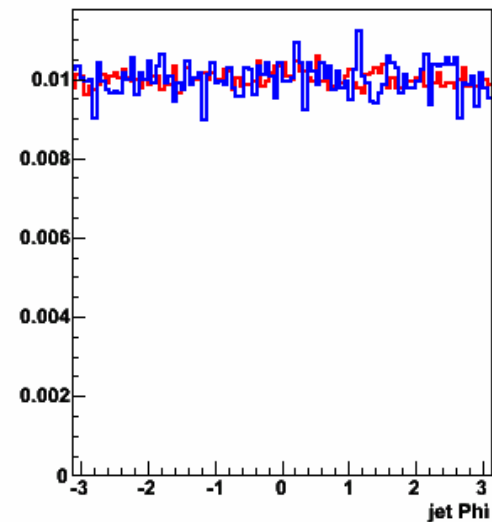
Phi of 4th highest Et jet



Phi of 5th highest Et jet

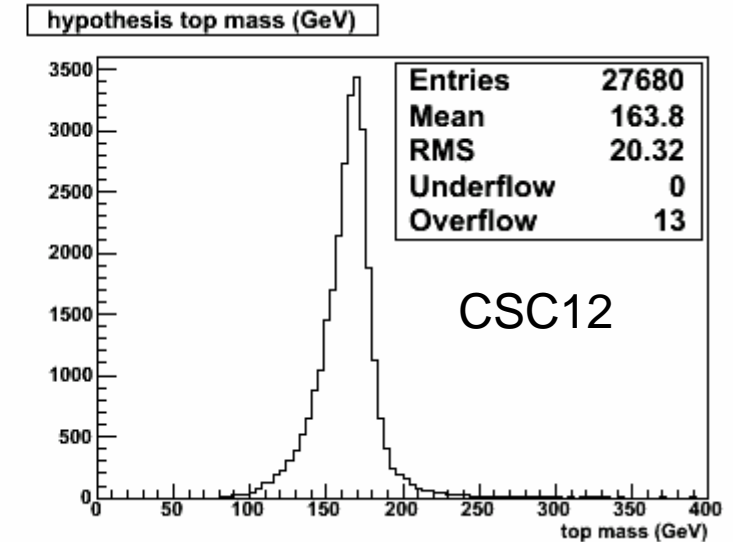
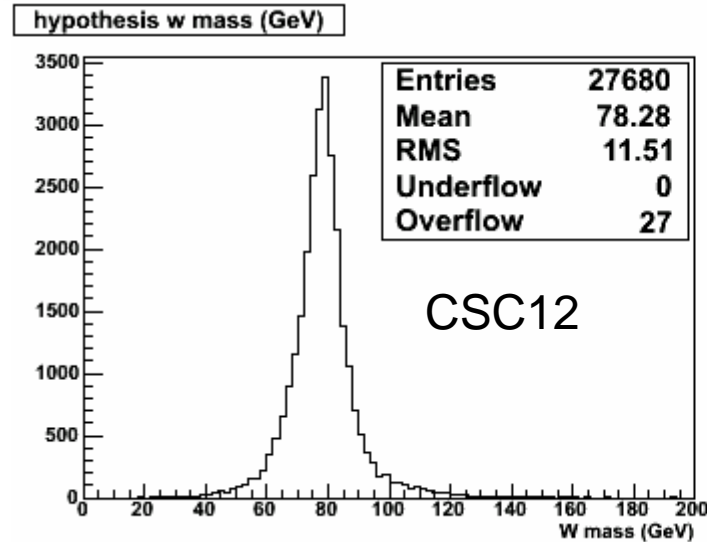
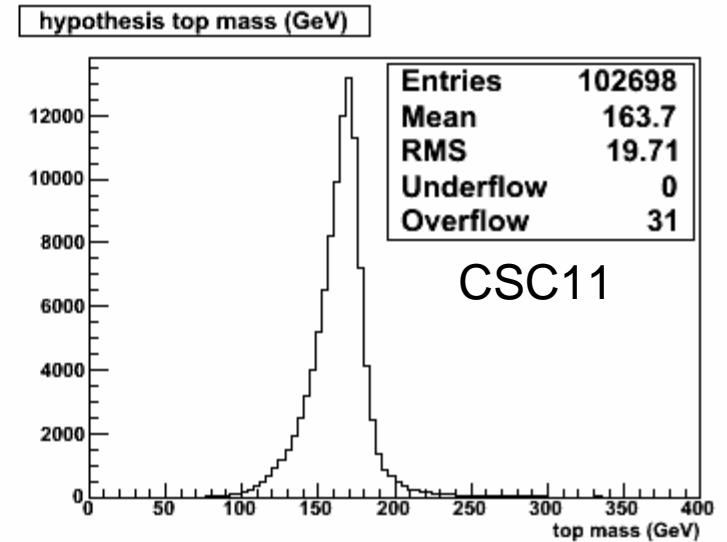
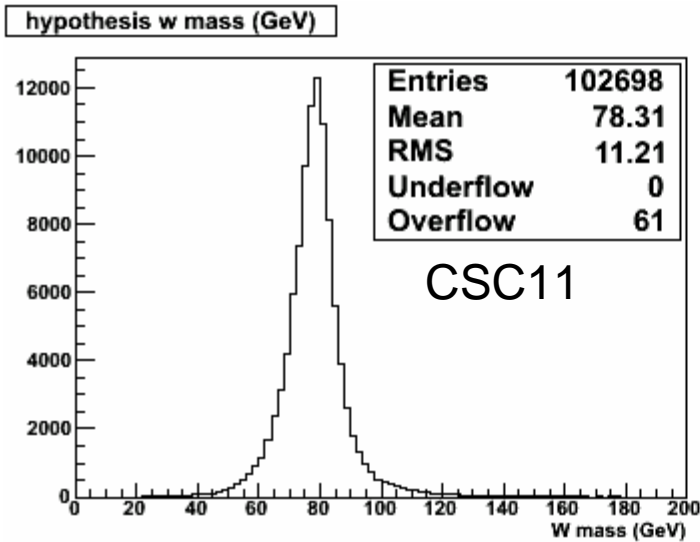


Phi of 6th highest Et jet



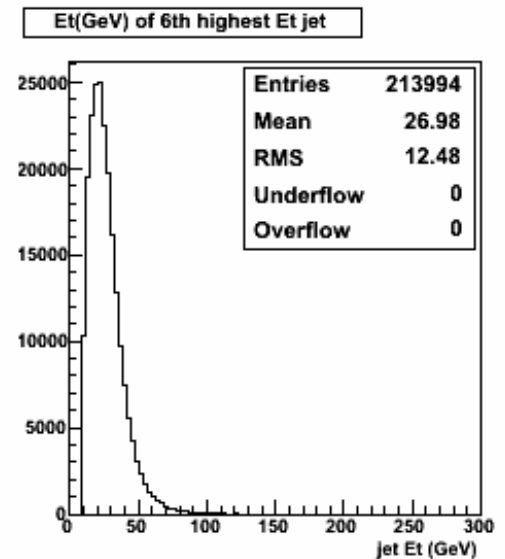
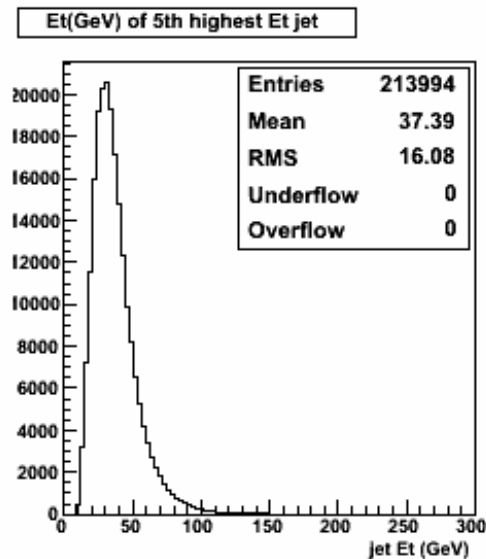
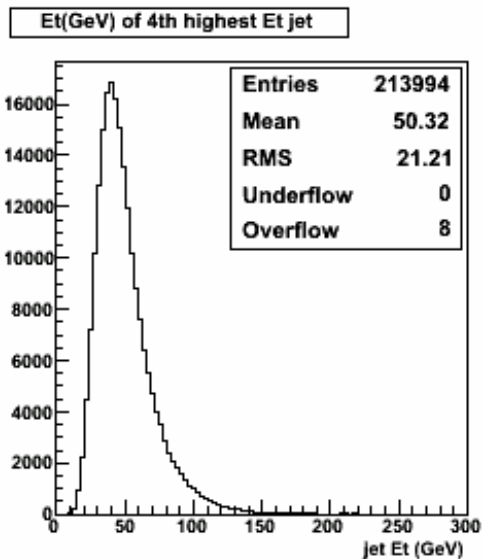
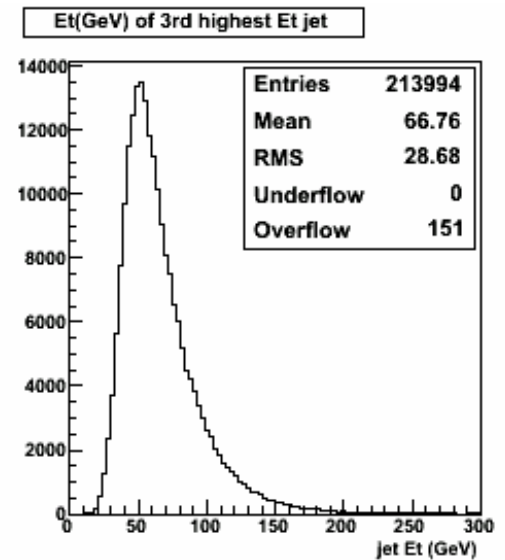
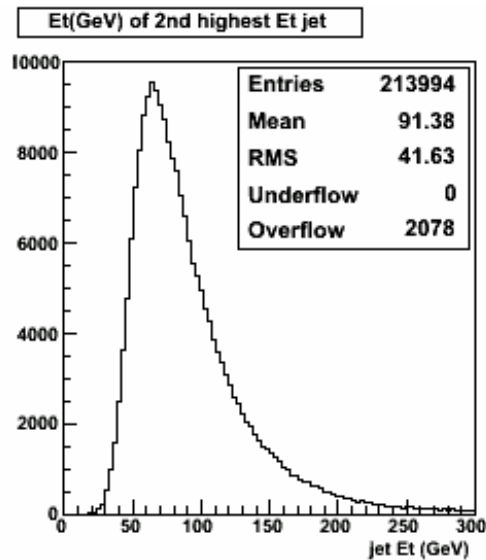
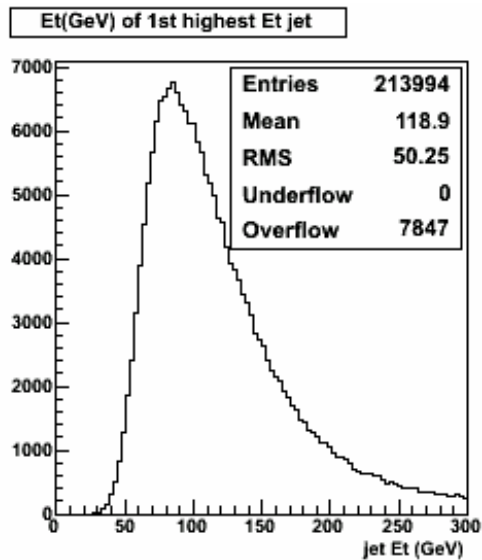
W and top mass: Cone4 TruthJets

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$
6 jet-parton matched 1 to 1



E_T Cone4 TowerJets CSC11

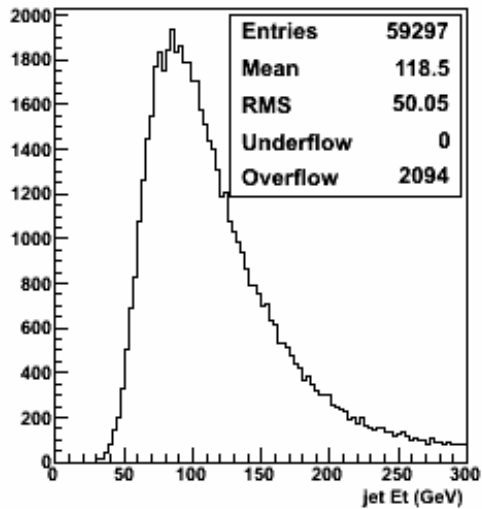
fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$



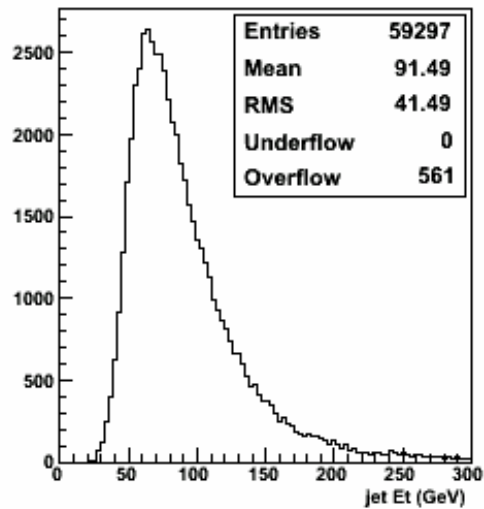
E_T Cone4 TowerJets CSC12

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

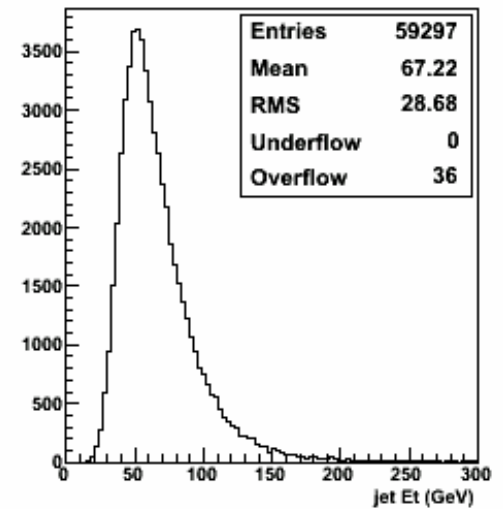
Et(GeV) of 1st highest Et jet



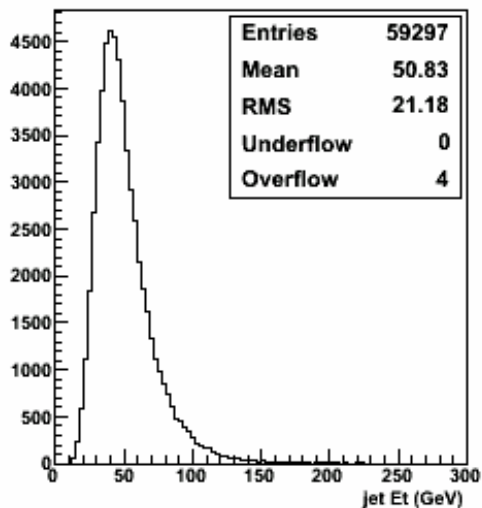
Et(GeV) of 2nd highest Et jet



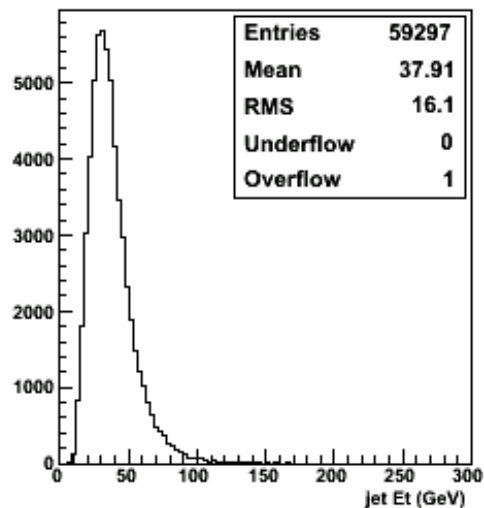
Et(GeV) of 3rd highest Et jet



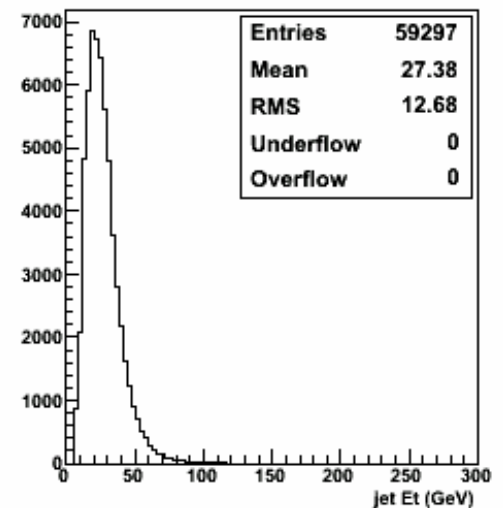
Et(GeV) of 4th highest Et jet



Et(GeV) of 5th highest Et jet



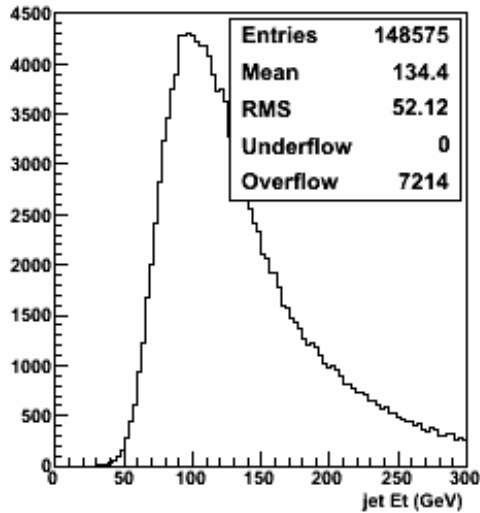
Et(GeV) of 6th highest Et jet



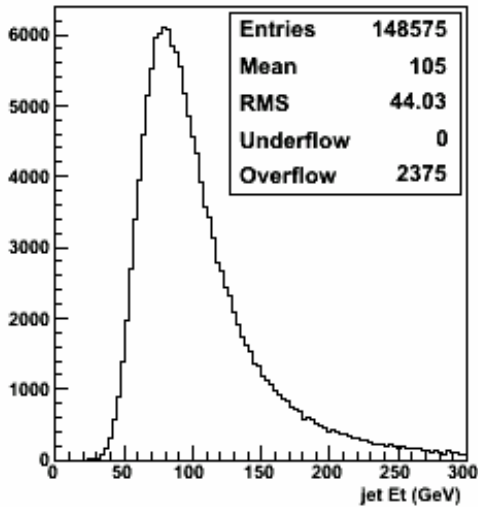
E_T Cone7 TowerJets CSC11

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

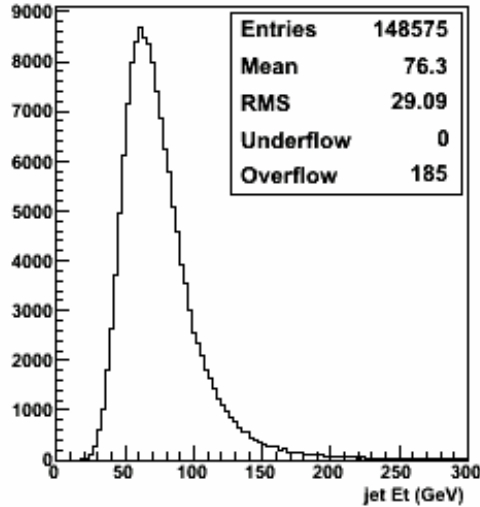
Et(GeV) of 1st highest Et jet



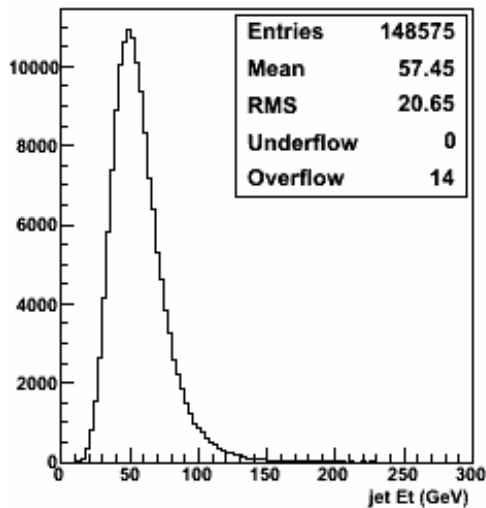
Et(GeV) of 2nd highest Et jet



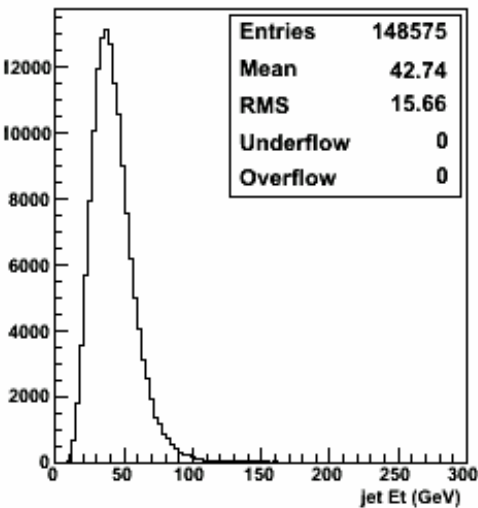
Et(GeV) of 3rd highest Et jet



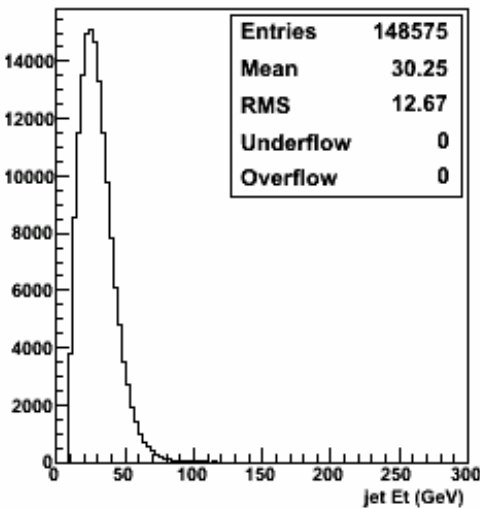
Et(GeV) of 4th highest Et jet



Et(GeV) of 5th highest Et jet



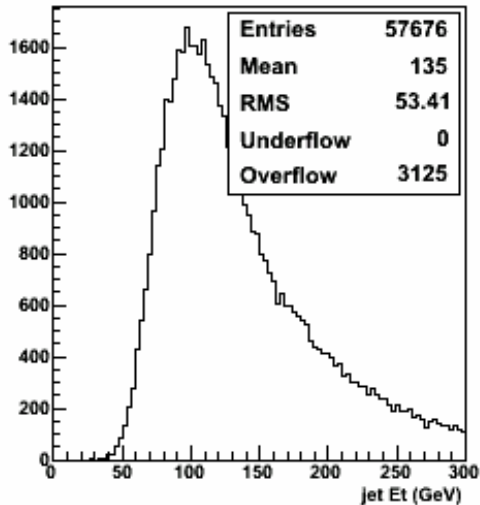
Et(GeV) of 6th highest Et jet



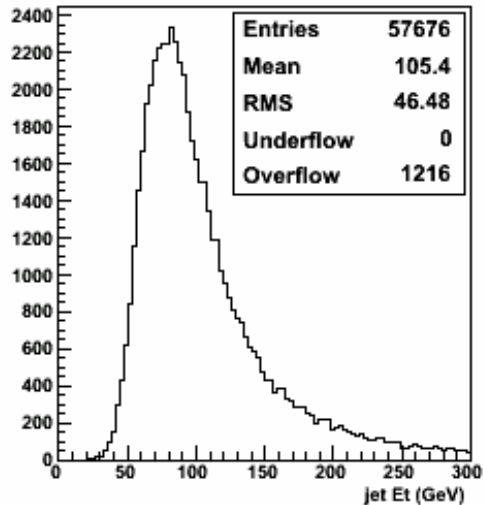
E_T Cone7 TowerJets CSC12

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

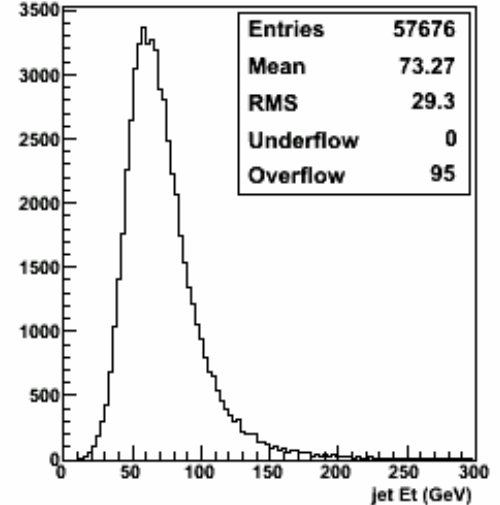
Et(GeV) of 1st highest Et jet



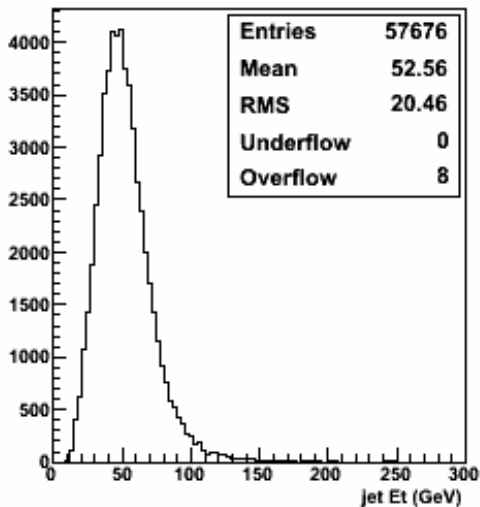
Et(GeV) of 2nd highest Et jet



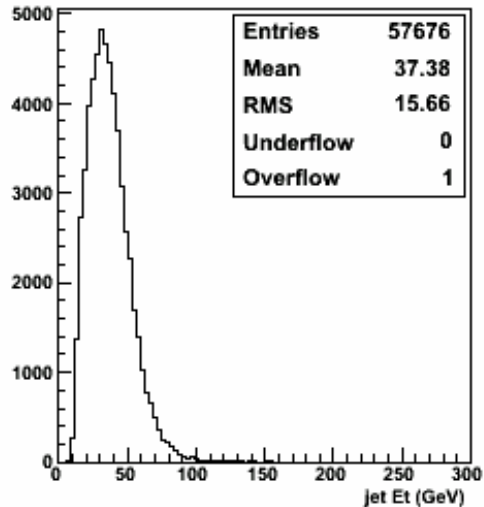
Et(GeV) of 3rd highest Et jet



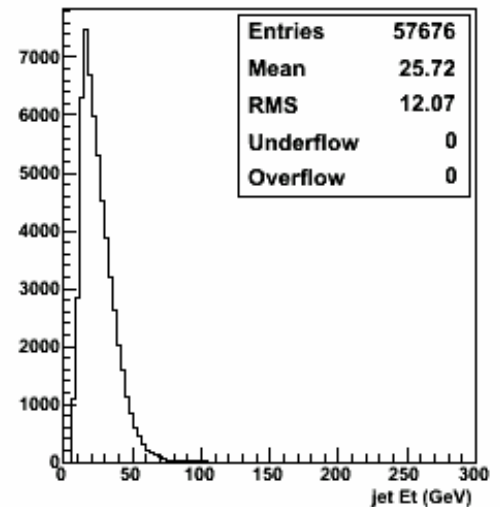
Et(GeV) of 4th highest Et jet



Et(GeV) of 5th highest Et jet



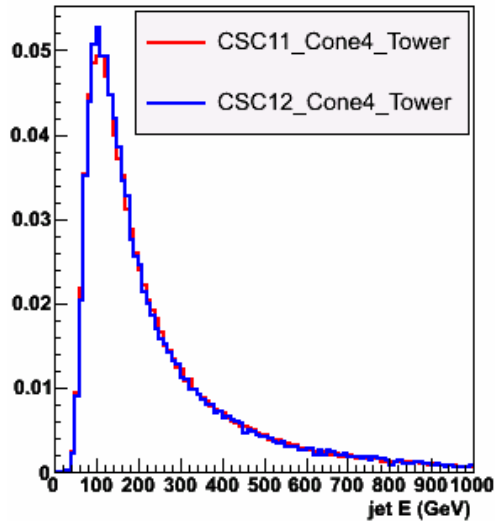
Et(GeV) of 6th highest Et jet



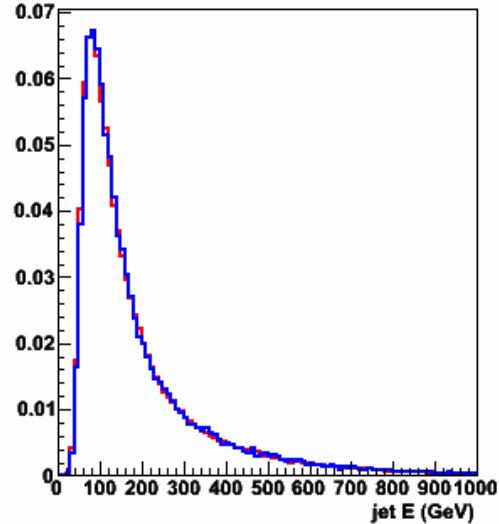
E Cone4 TowerJets

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

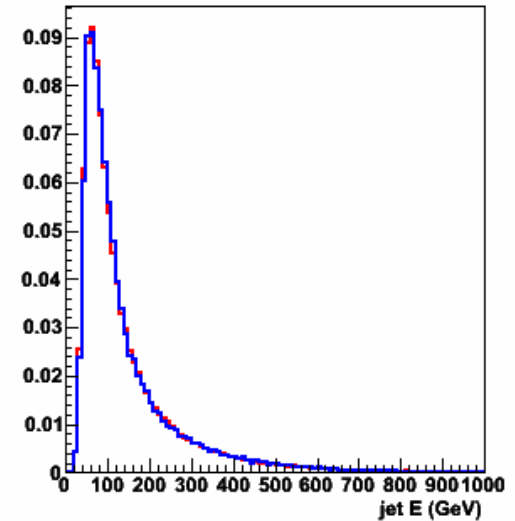
E(GeV) of 1st highest Et jet



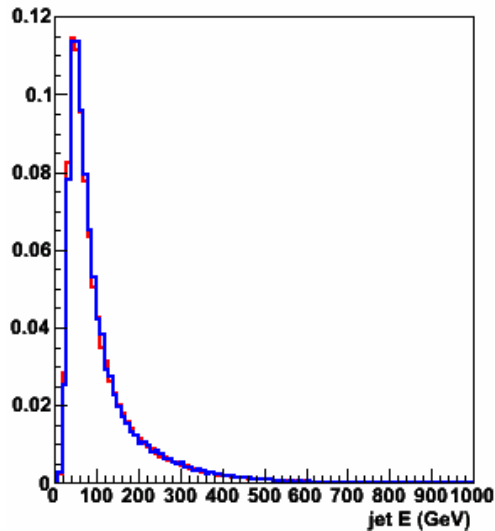
E(GeV) of 2nd highest Et jet



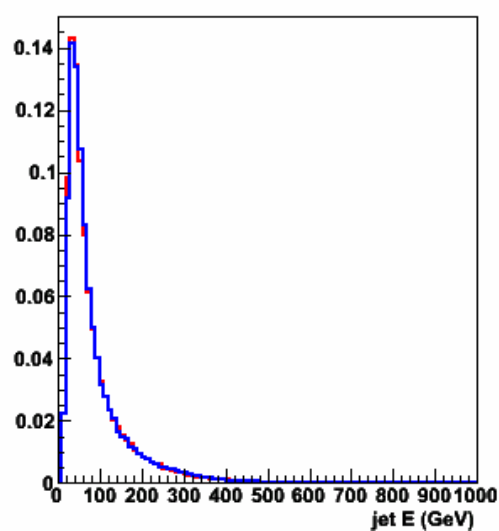
E(GeV) of 3rd highest Et jet



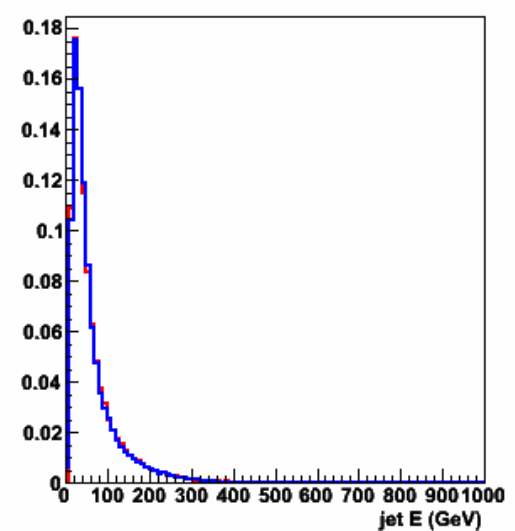
E(GeV) of 4th highest Et jet



E(GeV) of 5th highest Et jet



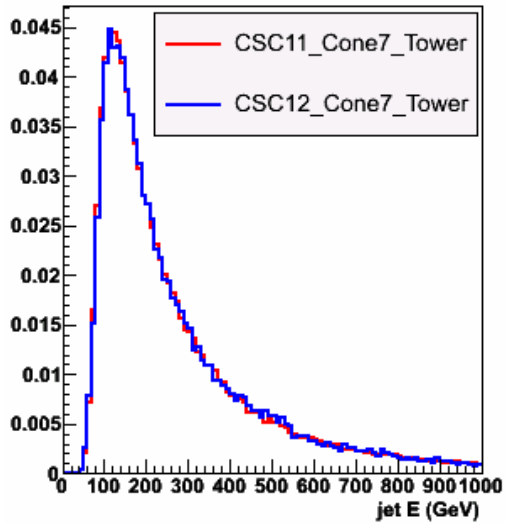
E(GeV) of 6th highest Et jet



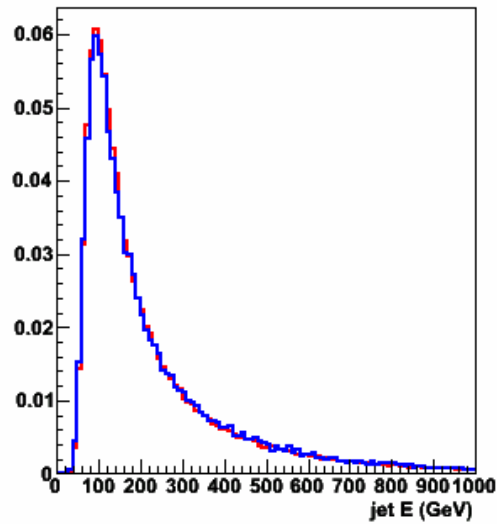
E Cone7 TowerJets

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

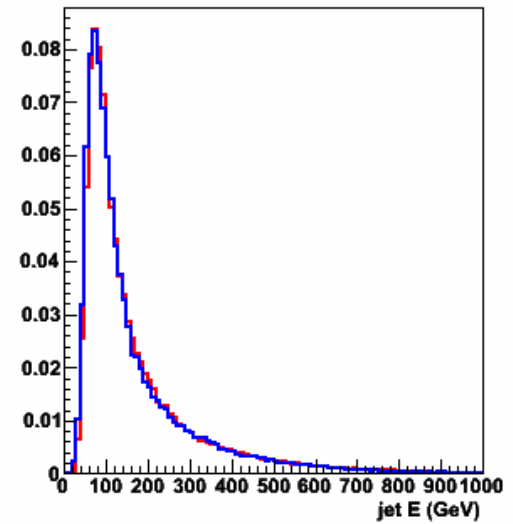
E(GeV) of 1st highest Et jet



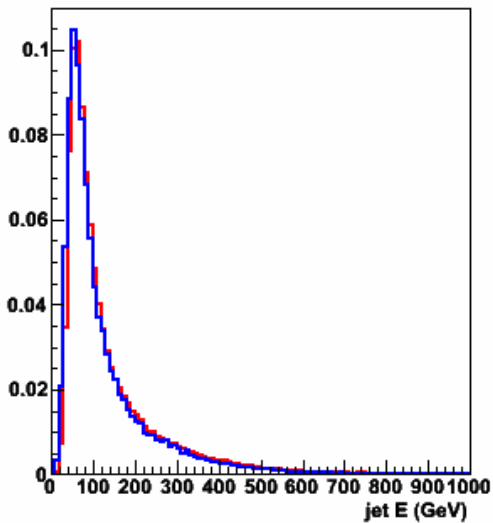
E(GeV) of 2nd highest Et jet



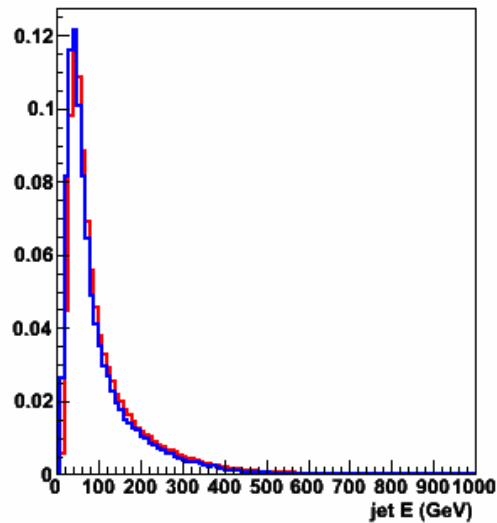
E(GeV) of 3rd highest Et jet



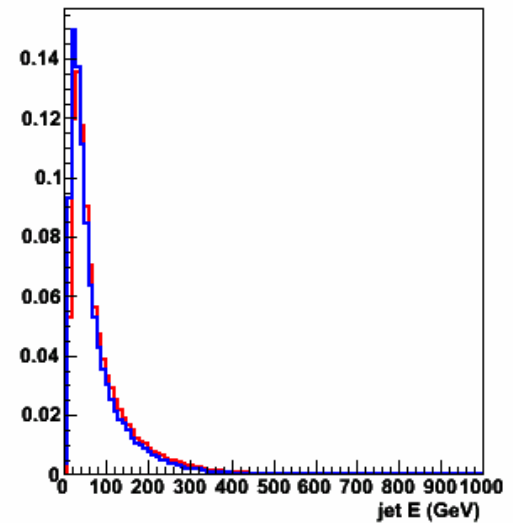
E(GeV) of 4th highest Et jet



E(GeV) of 5th highest Et jet



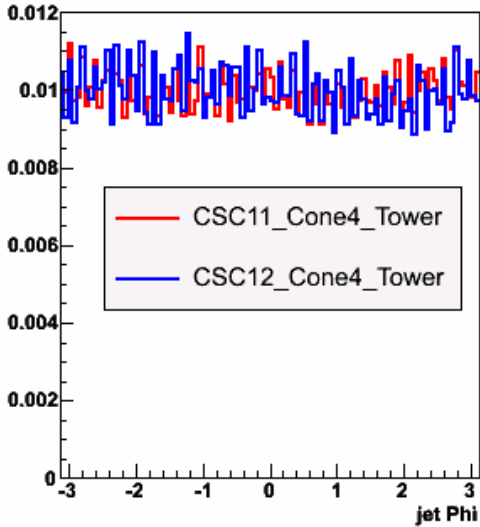
E(GeV) of 6th highest Et jet



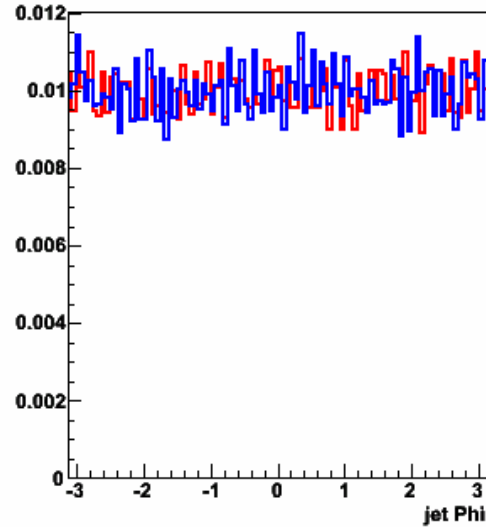
Cone4 TowerJets ϕ distributions

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

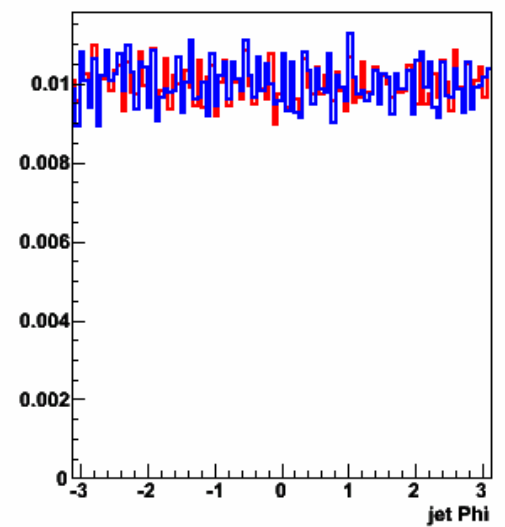
Phi of 1st highest Et jet



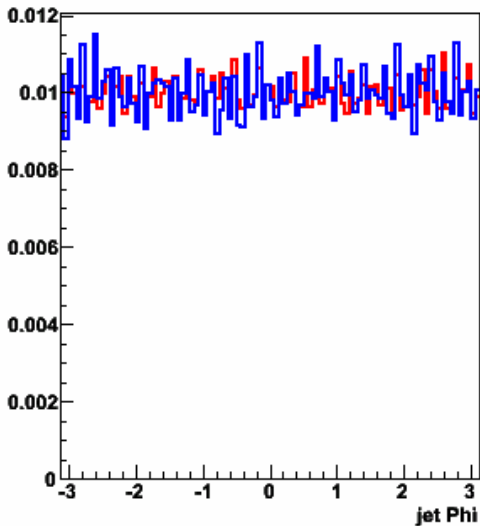
Phi of 2nd highest Et jet



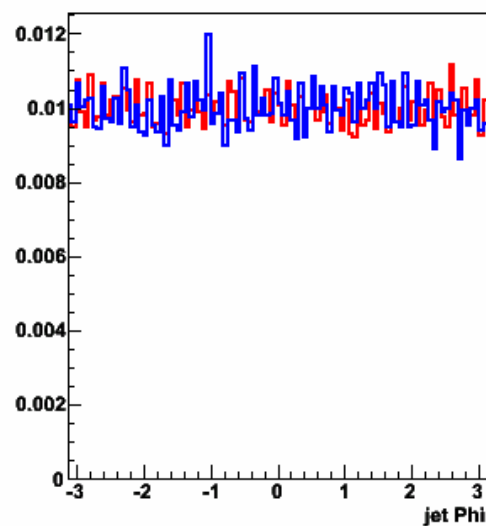
Phi of 3rd highest Et jet



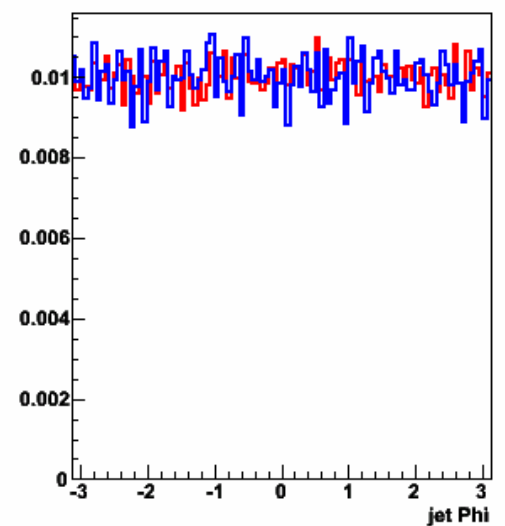
Phi of 4th highest Et jet



Phi of 5th highest Et jet



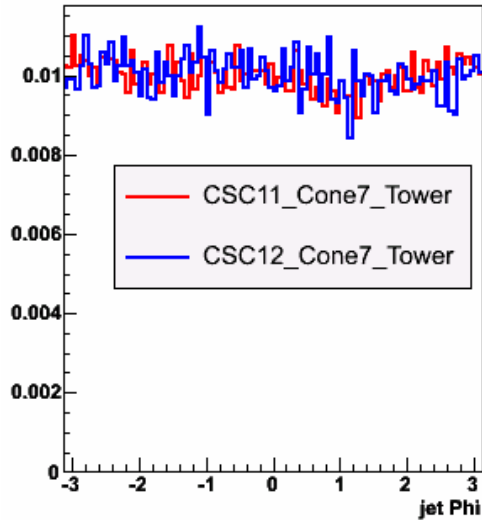
Phi of 6th highest Et jet



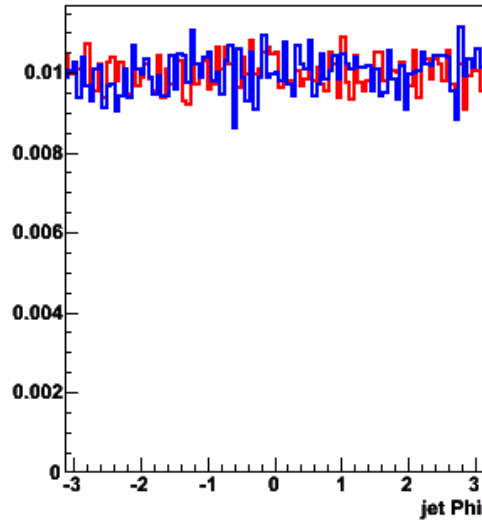
Cone7 TowerJets ϕ distributions

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$

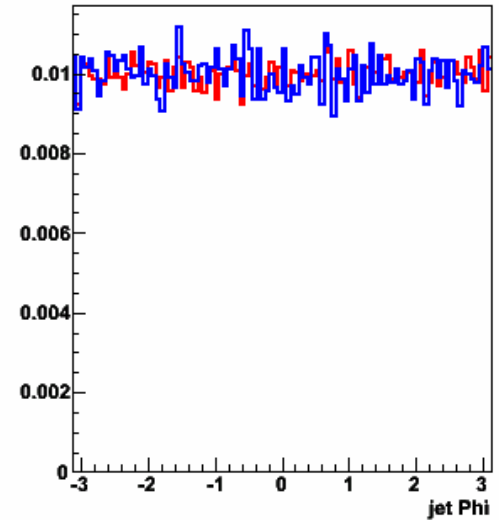
Phi of 1st highest Et jet



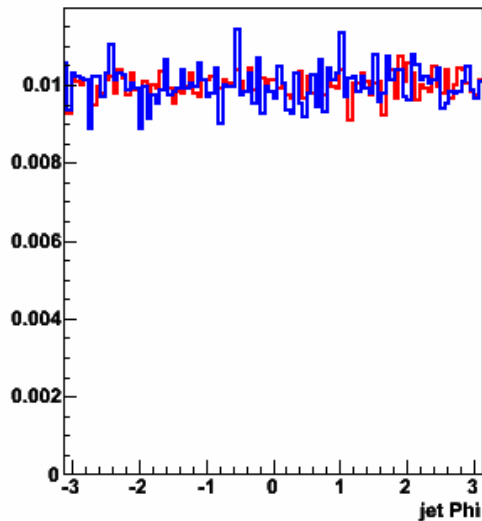
Phi of 2nd highest Et jet



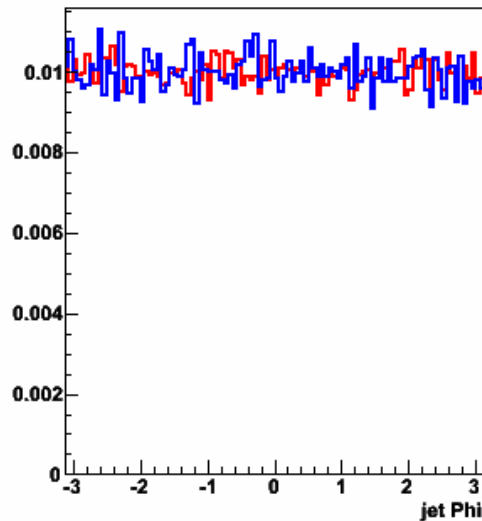
Phi of 3rd highest Et jet



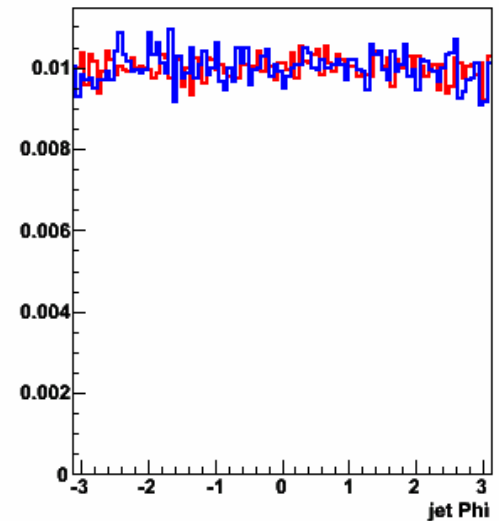
Phi of 4th highest Et jet



Phi of 5th highest Et jet



Phi of 6th highest Et jet



W and top mass: Cone4 TowerJets

fully hadronic t-tbar events 5204
with at least 6 jets in $|\eta| < 3$
6 jet-parton matched 1 to 1

