Kfactor update

- HF fraction and Kfactor with:
  - Pythia (Jet 20, Jet 50)
  - Alpgen+pythia (Jet 20, Jet 50?)
- Samples:
  - Alpgen+Pythia (PtMinJet=EtMinClus=15 GeV (black))
    - Np: 2p, 3p, 4p
    - bb+Np: 0p, 1p, 2p
    - cc+Np: 0p, 1p, 2p
  - btoprb: QCD $2 \rightarrow 2$ Pythia 6.216, EvtGen, pT>40 GeV (red)
  - btopqb: QCD $2 \rightarrow 2$ Pythia 6.216, EvtGen, pT>18 GeV (red)
  - Jet 20 or Jet 50 data (blue histograms)

Kfactor Pythia Jet50

- Jet 50 (all), btoprb
- Result after fixing bug when reweighting events and comparing with Daniel (trip to Harvard 10Oct06)
- Loose tagger, VtxMass

$$K(b) = 1.019 \pm 0.048$$

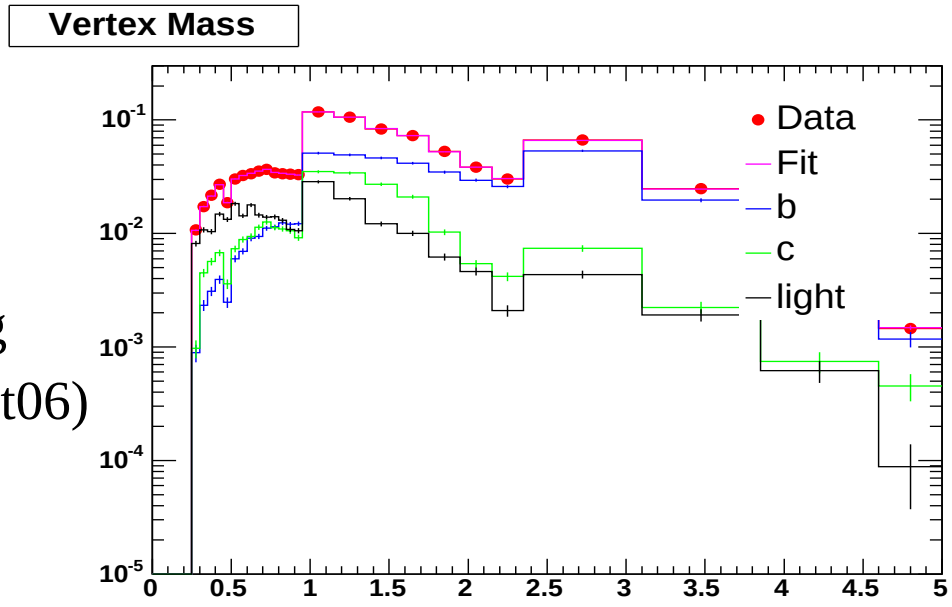
$$K(c) = 1.184 \pm 0.061$$

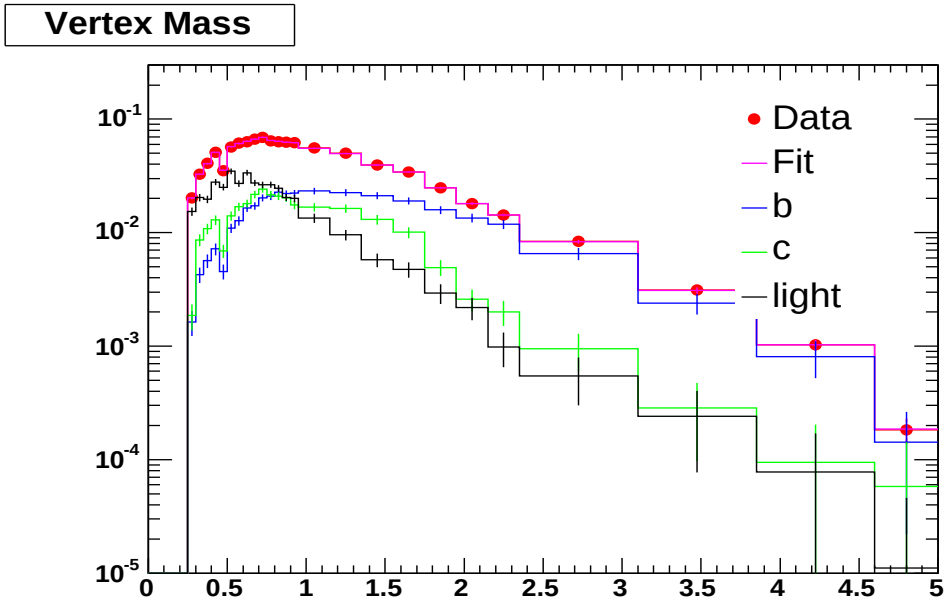
$$K = 1.073 \pm 0.052$$

$$\chi^2 = 2.27$$

Fractions:

	Data	MC
b:	0.462 ± 0.008	0.487 ± 0.006
c:	0.261 ± 0.013	0.236 ± 0.003
l:	0.275 ± 0.008	0.275 ± 0.004





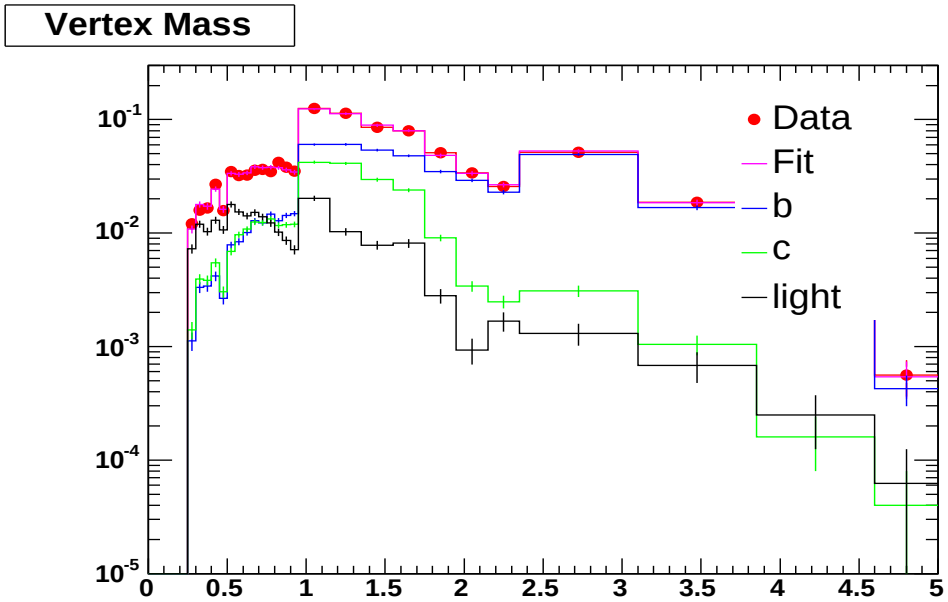
Kfactor Pyhtia Jet20

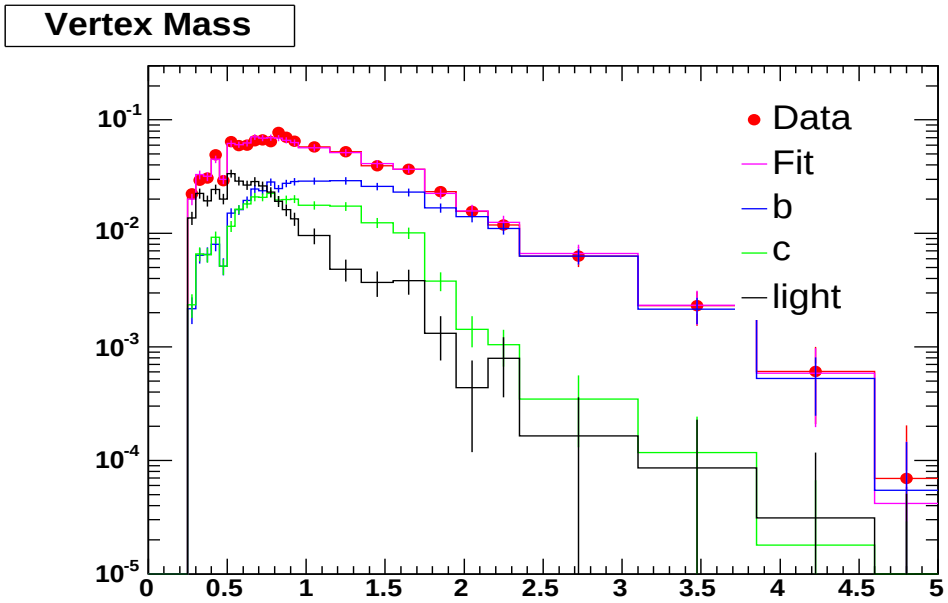
- Jet20 (part), btopqb
- Loose tagger, VtxMass

$$K(b) = 0.97 \pm 0.05$$

$$K(c) = 1.01 \pm 0.08$$

$$K = 0.98 \pm 0.05$$





Fractions:

	Data	MC
b:	0.50	0.55
c:	0.27	0.29
l:	0.23	0.16

Pythia Summary Table (loose tagger)

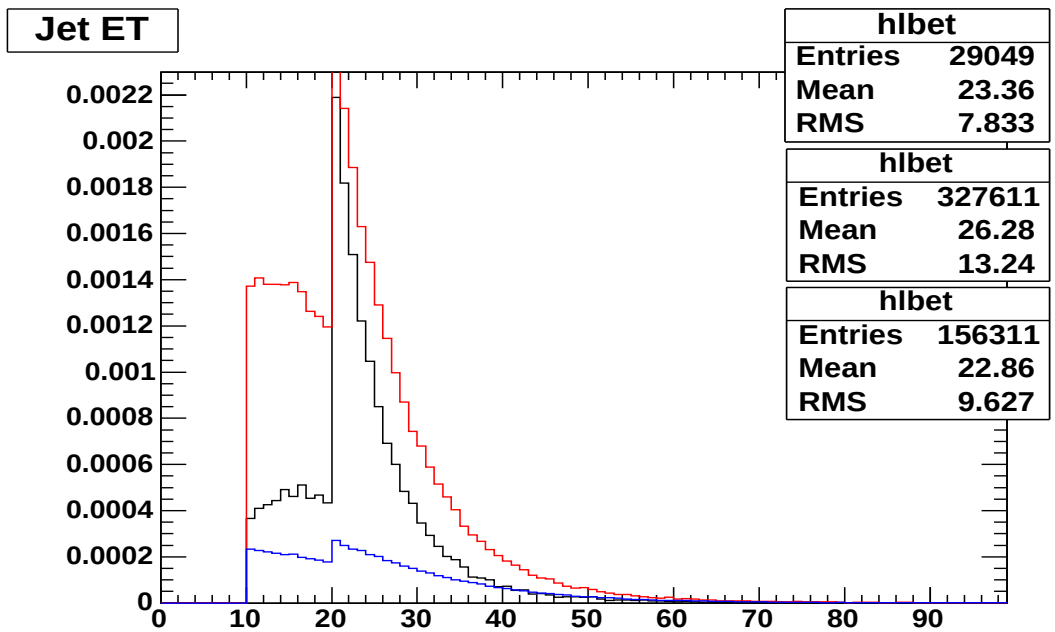
Sample	Method	E_T (data)	Fractions Data	Fractions MC	KF
Jet 20	mvtx	25.1	b 0.503 ± 0.017	0.554 ± 0.008	K(b) = 0.974 ± 0.054
			c 0.275 ± 0.023	0.293 ± 0.005	K(c) = 1.008 ± 0.079
			l 0.222 ± 0.013	0.153 ± 0.003	
Jet 20	ctau	25.1	b 0.575 ± 0.019		K(b) = 1.109 ± 0.061
			c 0.258 ± 0.016		K(c) = 0.942 ± 0.055
			l 0.167 ± 0.009		
Jet 50	mvtx	50.4	b 0.463 ± 0.009	0.488 ± 0.006	K(b) = 1.019 ± 0.049
			c 0.261 ± 0.014	0.237 ± 0.003	K(c) = 1.184 ± 0.060
			l 0.276 ± 0.009	0.275 ± 0.004	
Jet 50	ctau	50.4	b 0.481 ± 0.010		K(b) = 1.052 ± 0.051
			c 0.242 ± 0.008		K(c) = 1.093 ± 0.036
			l 0.277 ± 0.006		

Pythia Summary Table (tight tagger)

Sample	Method	E_T (data)	Fractions Data	Fractions MC	KF
Jet 20	mvtx	24.9	b 0.548 ± 0.019	0.627 ± 0.010	K(b) = 0.939 ± 0.054
			c 0.305 ± 0.025	0.294 ± 0.006	K(c) = 1.114 ± 0.086
			l 0.147 ± 0.014	0.079 ± 0.002	
Jet 20	ctau	24.9	b 0.673 ± 0.026 (.64)		K(b) = 1.153 ± 0.068
			c 0.232 ± 0.018 (.24)		K(c) = 0.846 ± 0.065
			l 0.095 ± 0.012 (.12)		
Jet 50	mvtx	50.4	b 0.566 ± 0.012	0.581 ± 0.008	K(b) = 1.046 ± 0.051
			c 0.233 ± 0.017	0.243 ± 0.004	K(c) = 1.029 ± 0.071
			l 0.201 ± 0.010	0.175 ± 0.003	
Jet 50	ctau	49.4	b 0.592 ± 0.014		K(b) = 1.093 ± 0.055
			c 0.205 ± 0.010		K(c) = 0.907 ± 0.043
			l 0.203 ± 0.008		

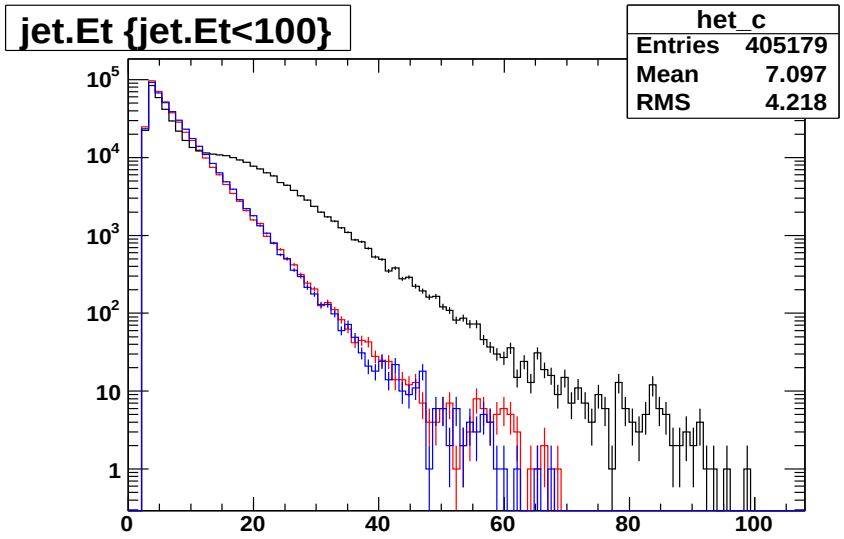
Alpgen, combining samples

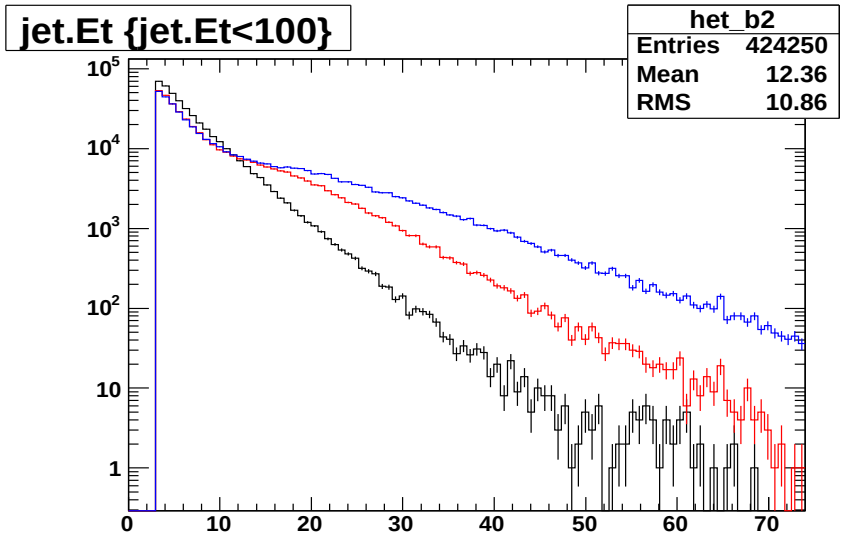
- Get alpgen cross sections (after matching, mean value weighted by number of events) fcdflnx4:/cdf/home/gris/get_sigma_alpgen.sh
- Combine the samples (Scale histograms) with σ_i/n_i
  - n_i: number of events in sample (toptree)
  - n'_i: historgram entries (per jet)
- Make combined histogram integral = n'_{total} (only affects fit errors)
- bb+Np Jet E_T distr $\rightarrow$
  back: bb+0p
  red: bb+1p
  blue: bb+2p

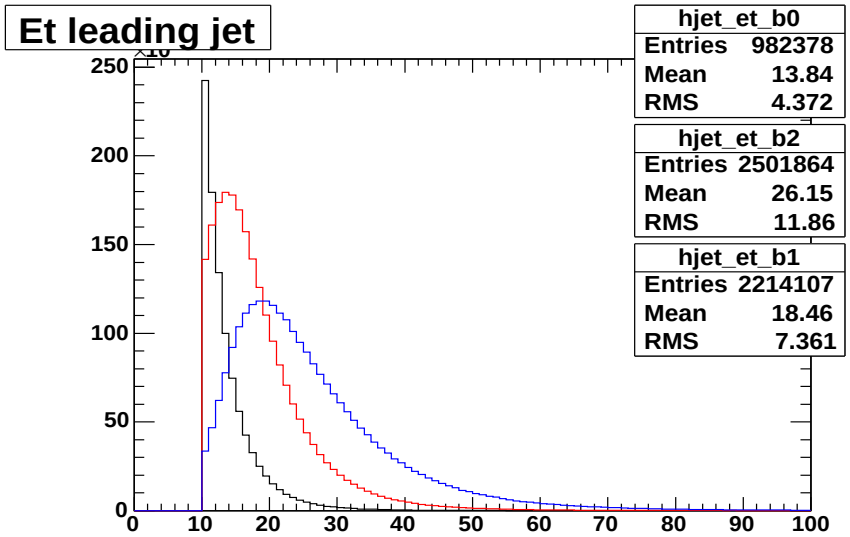


Alpgen, combining samples...

- Np: Et cut 15GeV (for Np, PTMIN_JET)
- bb: no cut (PTMIN_BB)
  8GeV cut (hardwired) in 2Qusr.f

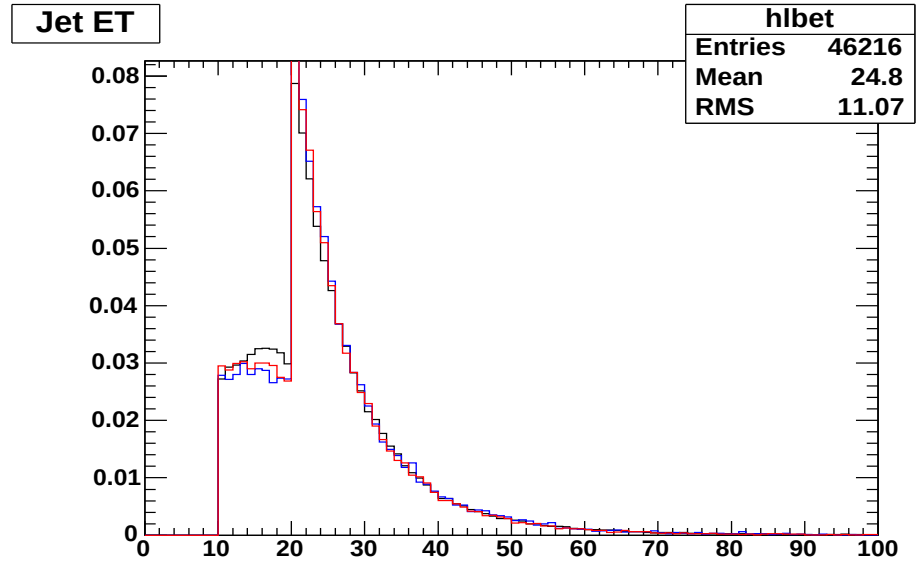


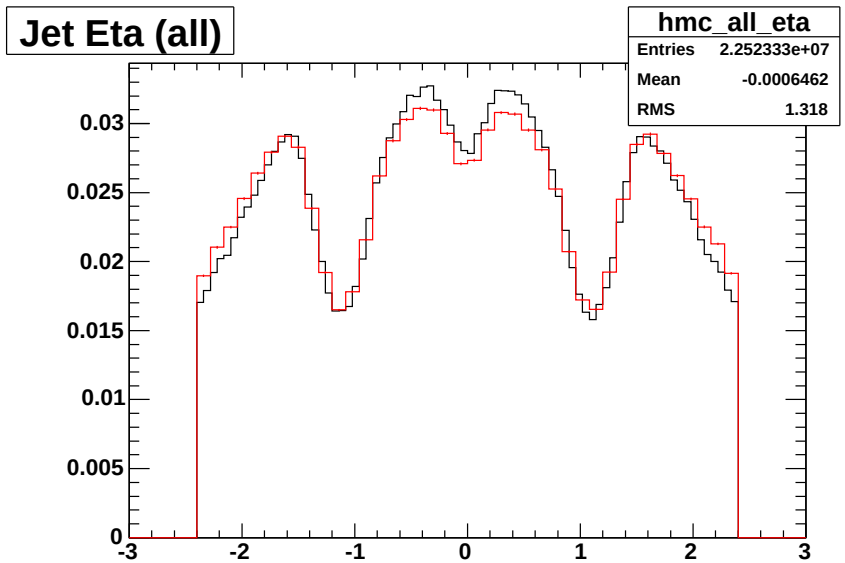


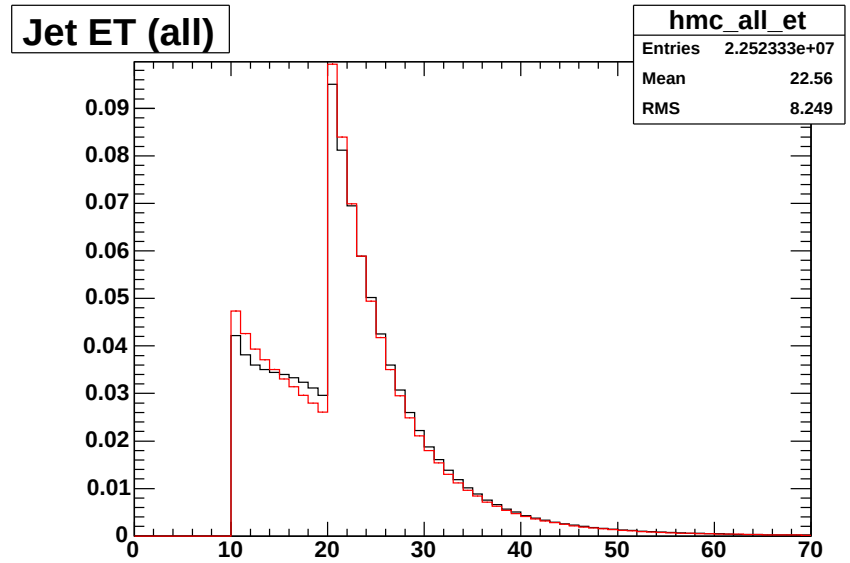


Alpgen, combining samples...

	Fractions	
	Pythia (Jet 20)	Alpgen
b	0.554 ± 0.008	0.534 ± 0.002
c	0.293 ± 0.005	0.282 ± 0.001
l	0.153 ± 0.003	0.184 ± 0.001

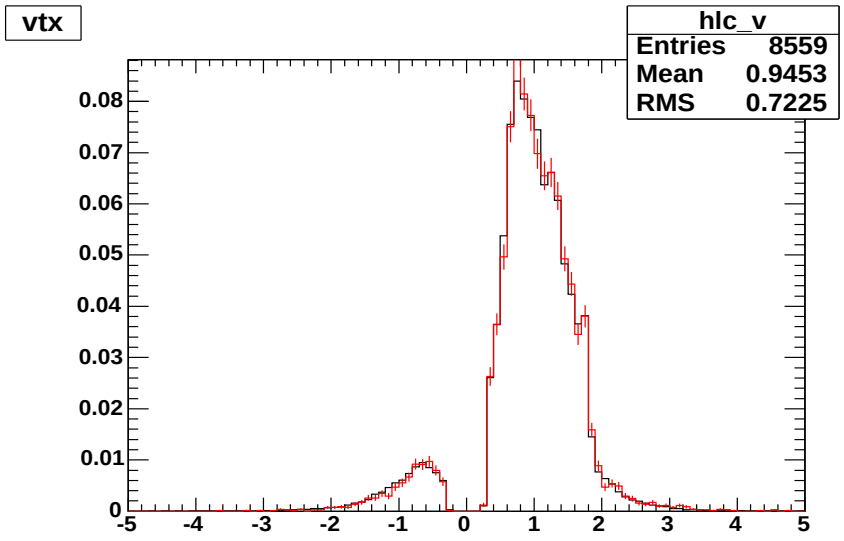


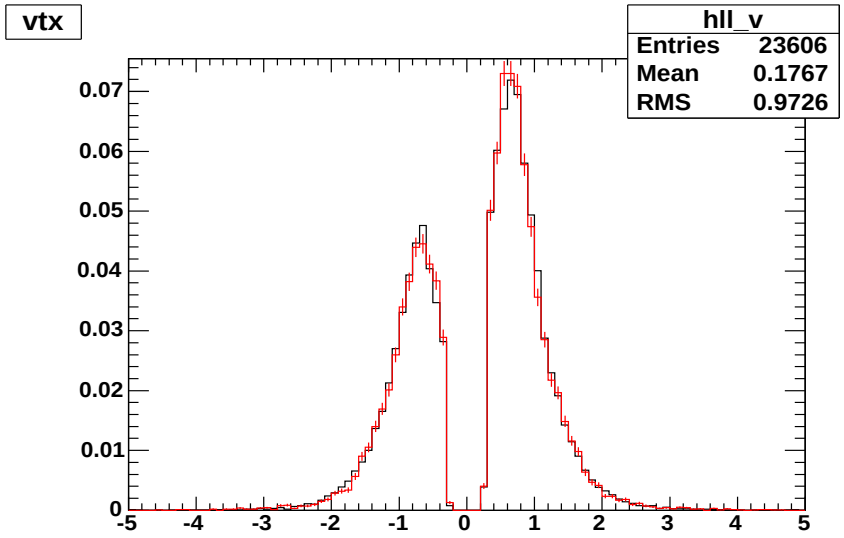


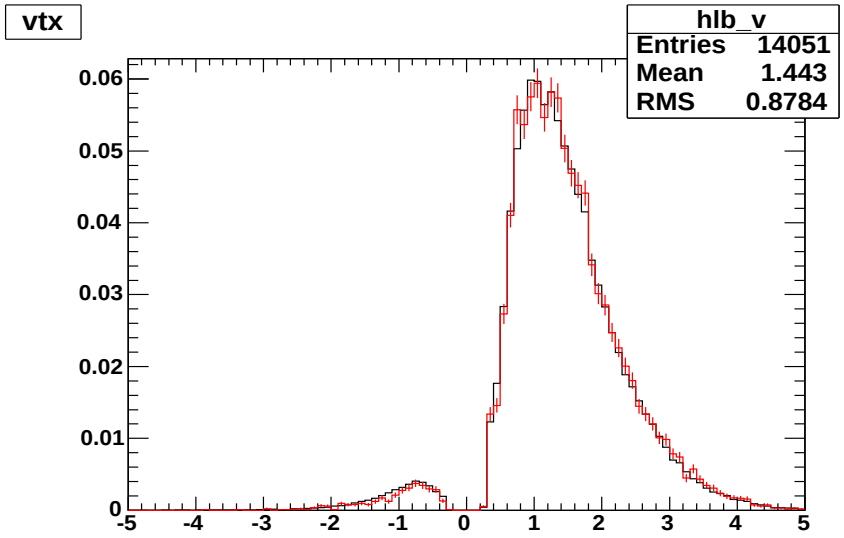


Alpgen, combining samples...

- Pythia, Alpgen VtxMass templates





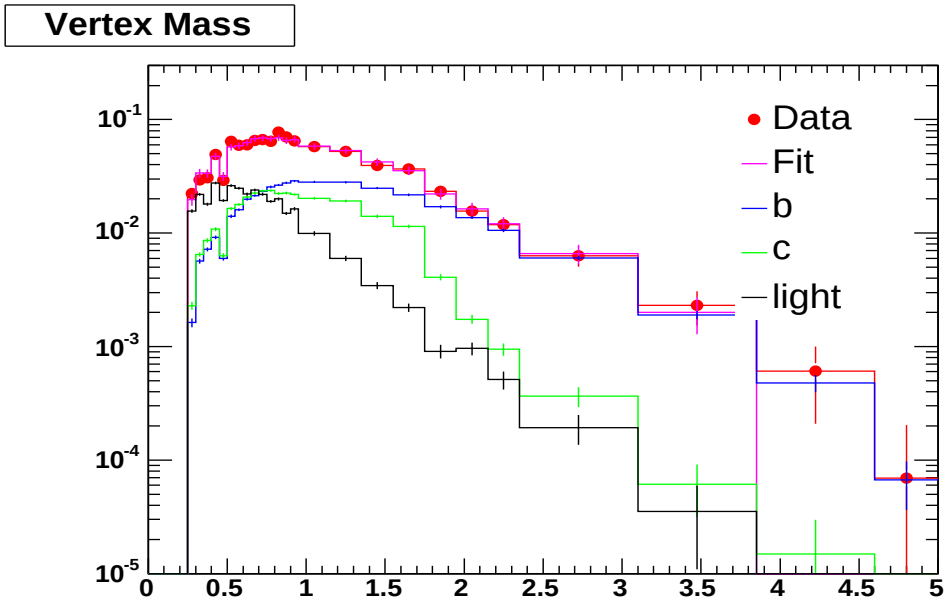


Kfactor Alpgen Jet20

- Jet20 (part), Alpgen
- Loose tagger, VtxMass

  K(b) = 1.025 ± 0.051

  K(c) = 1.044 ± 0.067



	Fractions	
	Data (Jet 20)	Alpgen
b	0.509 ± 0.014	0.534 ± 0.002
c	0.274 ± 0.019	0.282 ± 0.001
l	0.216 ± 0.010	0.184 ± 0.001