



Jet Corrections meeting

<http://www-cdf.lbl.gov/~currat/talks/>

Charles Currat
LBNL

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- ◆ Plots for blessing
- ◆ Towards correction function



Definition of the **usual cuts**

$|z\text{-vertex}| < 60 \text{ cm}$

$0.2 < |\eta_{trig}| < 0.8$

E_T trigger jet $> 20 \text{ GeV}$

$\Sigma E_T(j_1, j_2) > 50 \text{ GeV}$

$\Delta\phi(j_1, j_2) > 2.7 \text{ rad}$

$E_T(j_3) < 10 \text{ GeV}$

$\frac{E_T(j_3)}{\langle E_T(j_1, j_2) \rangle} < 0.25$

select $\sim \pm 1\sigma$ of the luminous region

trigger jet \equiv central

central leading or next-to-leading jet j_1

to avoid trigger biases

jets back-to-back in the transverse plane

soft third jet (absolute), if any

soft third jet (relative), if any



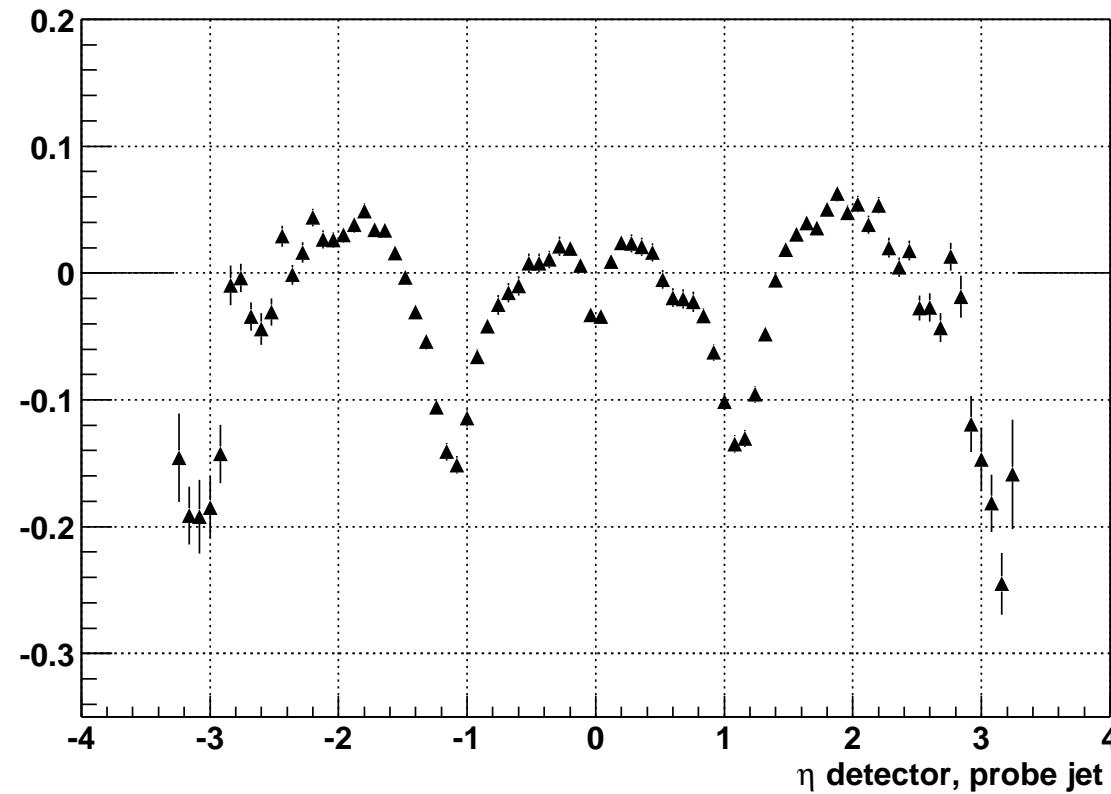
Blessing: dijet balance



JET_20 sample, usual cuts

vertexStrategy = 3

Dijet balance

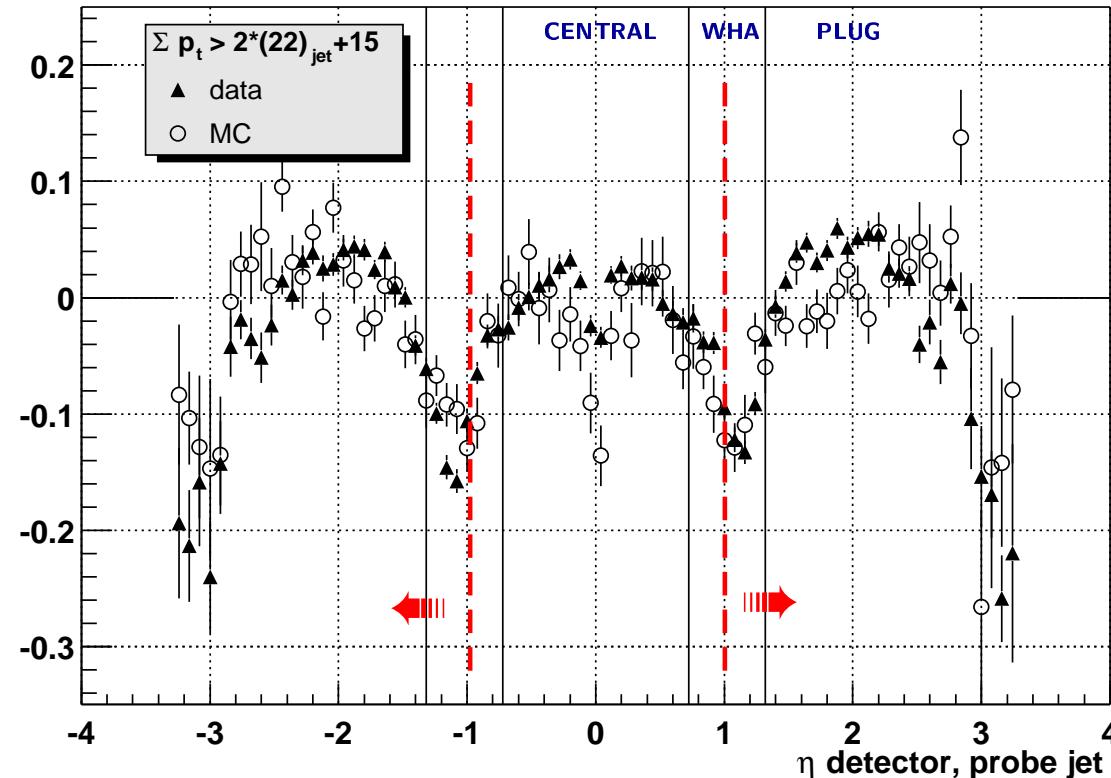


☞ Comments:

Global scaling “by hand”: $0.92 \times E_T(\text{probe})$ for $|\eta| > 1$

vertexStrategy = 3

Dijet balance

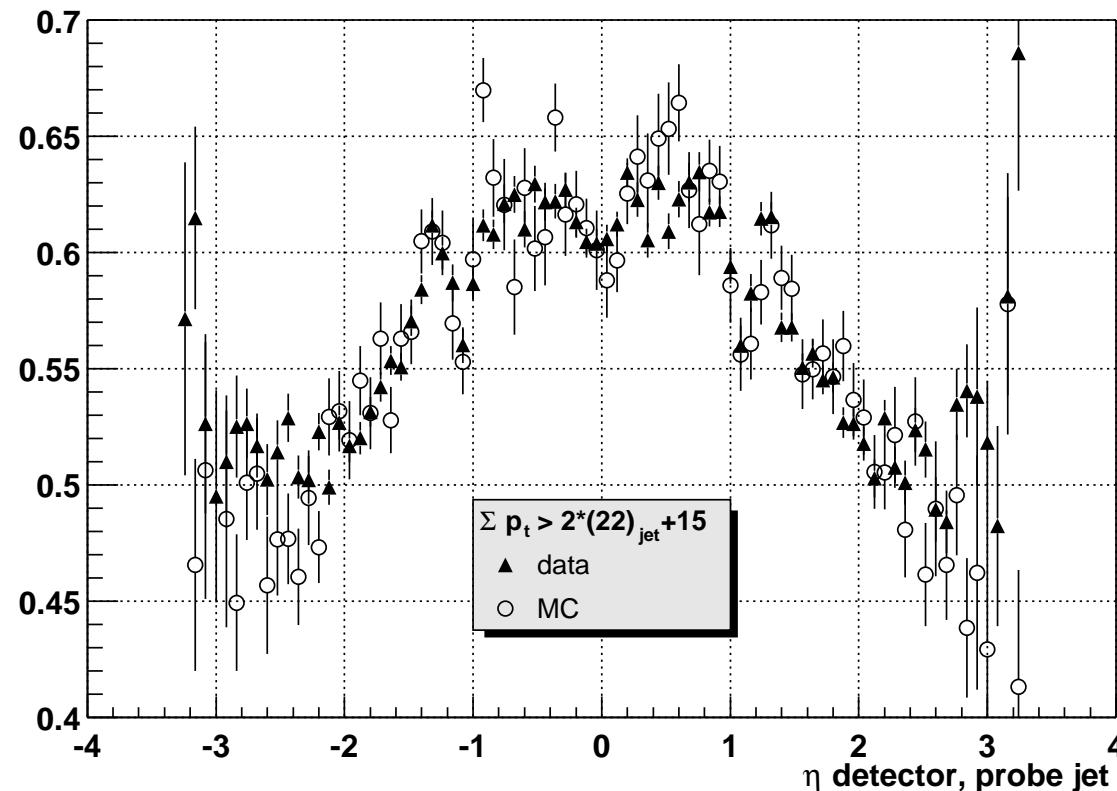


- ❖ Σp_T cut to move away from (possible) trigger bias
- ❖ 10× more MC events to be requested ... once z-vertex tuned in simulation

Jet EM fraction in agreement right “out of the box” ...

vertexStrategy = 3

Jem frac



👉 note that 90°-crack is OK

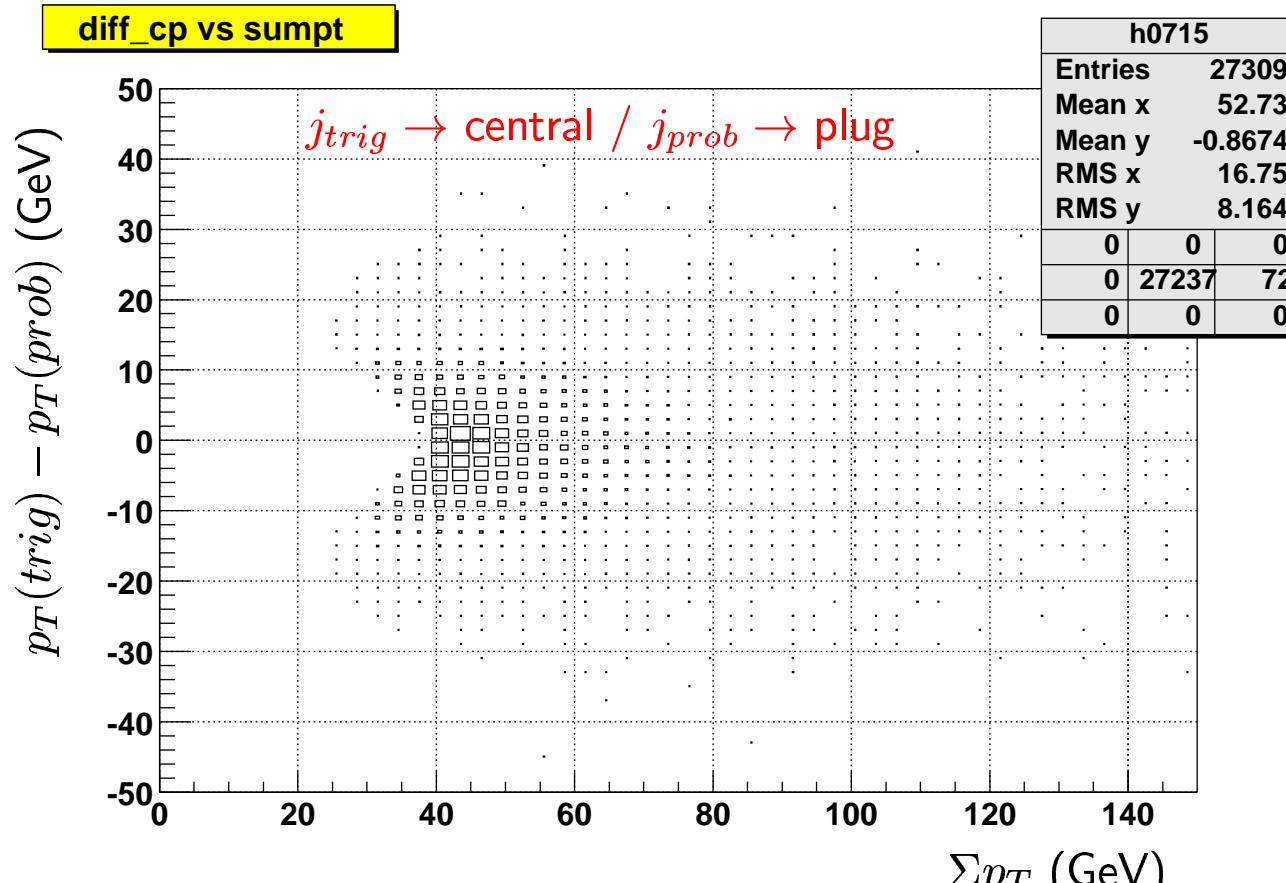


Dijet balance: trigger



Speaking of trigger bias ...

$\Sigma p_T > 2 \times E_T^{cut}(trig)$... dates back to the time of early balancing studies
(cf e.g. CDF note #835 / gas hadron not in the trigger)



- ❖ no visible/obvious bias
- ❖ reassess Σp_T cut ?



Relative correction functions



Start playing ...

See Run I and note #1513:

$$B = \frac{2(p_T^{probe} - p_T^{trigger})}{p_T^{probe} + p_T^{trigger}}$$

$$\text{Defining } \beta = \frac{p_T^{trigger}}{p_T^{probe}} \Rightarrow \beta = -\frac{2+B}{2-B}$$

used to consider 5 ranges in p_T

Trigger	Σp_T (GeV)
Jet_20	50 → 100
Jet_40	100 → 130
Jet_60	130 → 170
Jet_60	170 → 200
Jet_60	> 200

👉 Fit the $\beta = \beta(\eta)$ distributions to a continuous curve (spline), and parameterize p_T dependence (2 pars/ η bin)



Relative correction: p_T ranges

Insight: what can we do with the data available?

- Need to process (have a look to) JET_50, JET_70, JET_100(?)

