



# Simulation meeting

[www-cdf.lbl.gov/~currat/talks/](http://www-cdf.lbl.gov/~currat/talks/)

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LBNL

**July 31, 2003**

- ❖ Progress report: news
  - Fix & evaluate issues Willis noticed at the PHA/WHA interface
  - Implementation of the so-called "magenta curve" below  $p = 8$  GeV
  - Change in the composition of the fake jets



## Changes in the code



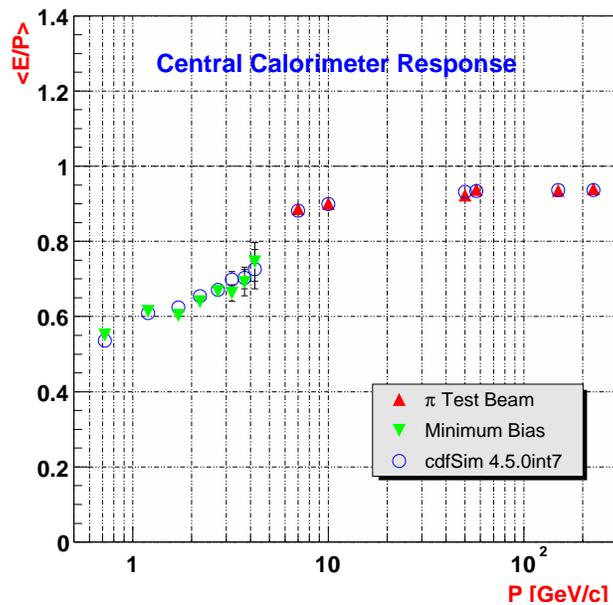
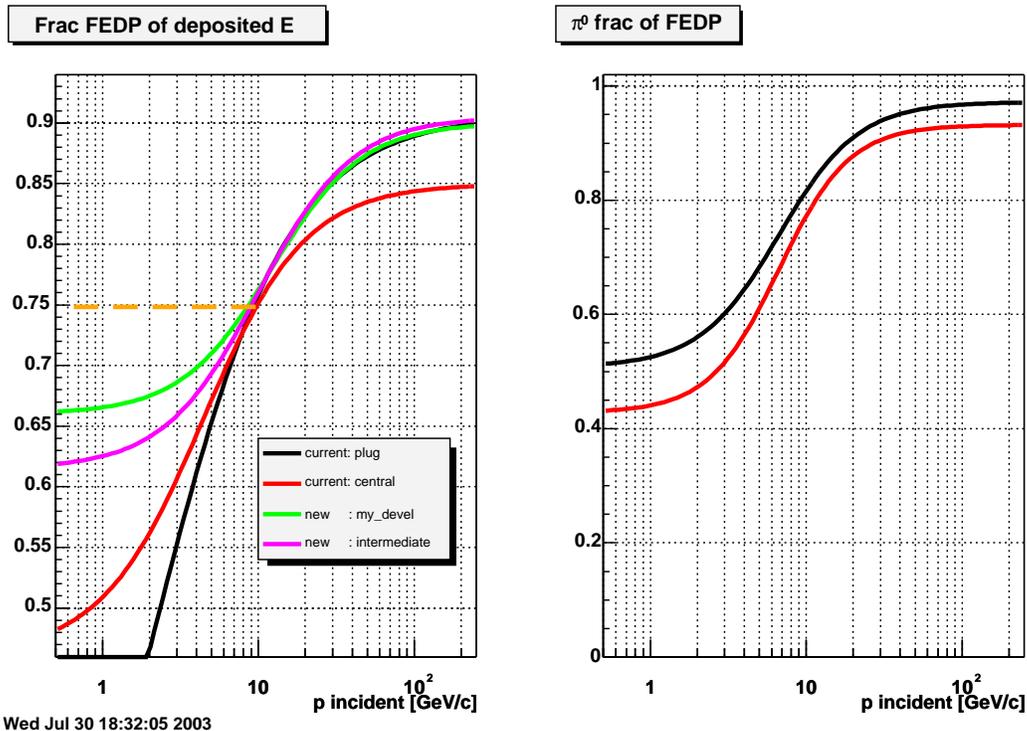
- ❖ Willis working to standardize implementation of the offline LERs... stumbled across oddities in WHA/PHA overlap region
  - incorrect treatment of tower types (PHA and PPR)
  - incorrect treatment of the  $\phi$ -segmentation (WHA=24, plug=48)
- ❖ Affected files: `Calor/src/CalDataMaker.cc` and `GflashSim/GflashSim.cc`
- ❖ Changes (partly) available in development → evaluated on top of v 4.11.1 with fake jet gun



# Non-linearity in the plug



**Reminder:** Gflash tuning in CDF#5886. Plug tuned down to  $E=8$  GeV in W1T8,  $E_T = \sin(\theta(\eta = 1.58)) \times E = 3.2$  GeV. Trying different new options below that...



Soon J.,  
Sarah D.  
(single tracks)

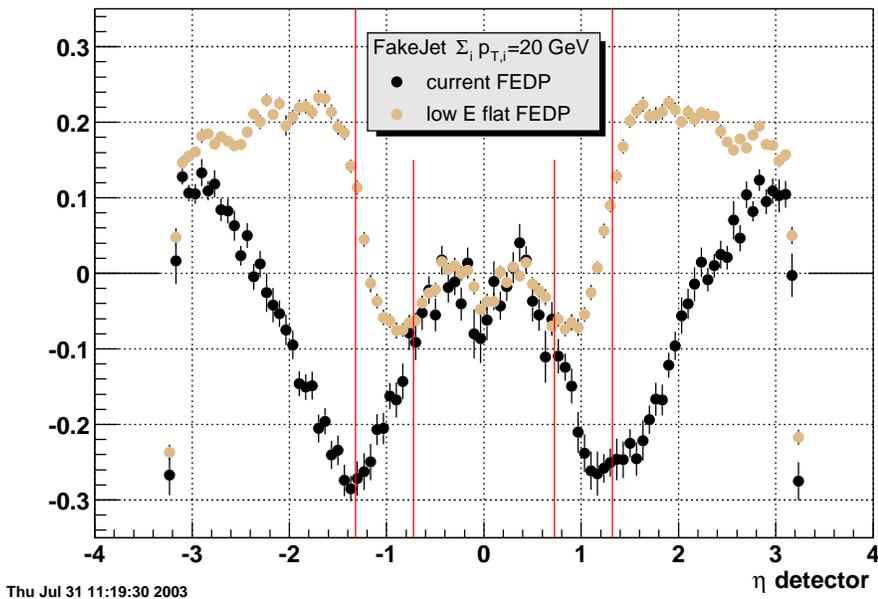


## Extreme low $E$ response in the plug



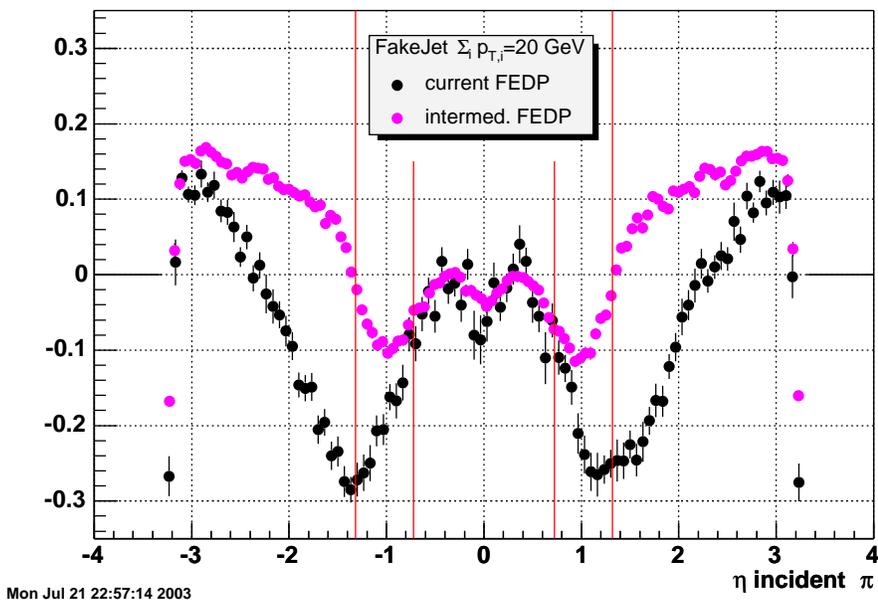
Fake jet of 20 particles with  $p_T = 1$  GeV/c each in current Gflash parameterization compared with FEDP=Cte for  $p_{inc} < 8$  GeV  $\rightarrow$  maximal amplitude available for correction (cf p.3)

Fake\_balance [R=0.7]



and with intermediate parameterization (aka magenta curve)

Fake\_balance [R=0.7]

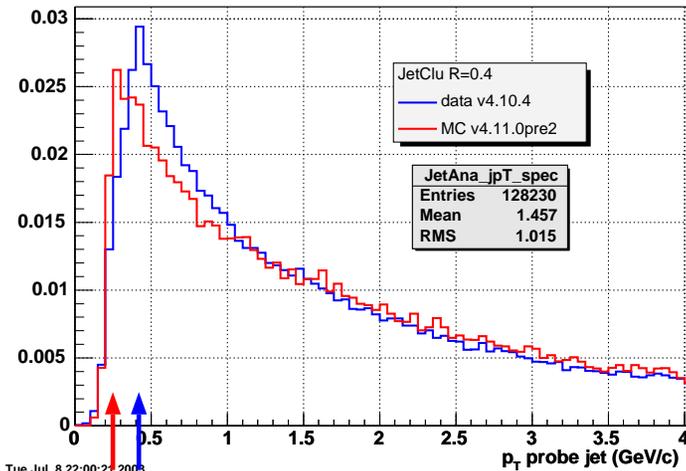




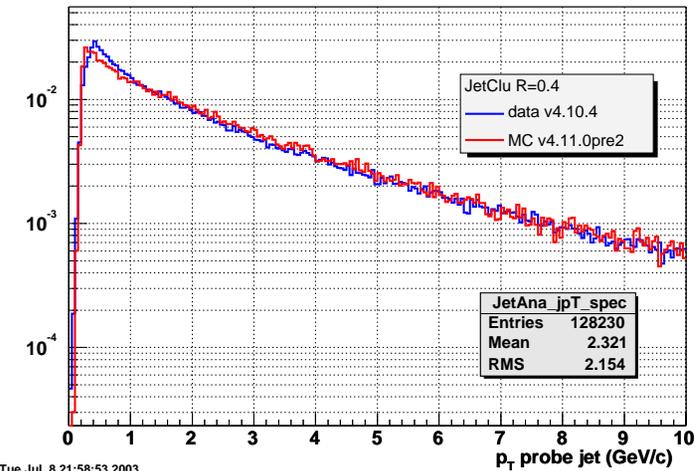
# Jets anatomy 101



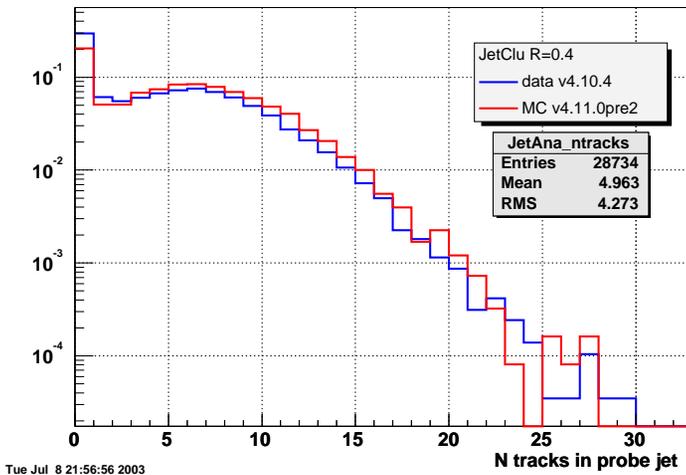
JetAna: jet trk pT spectrum



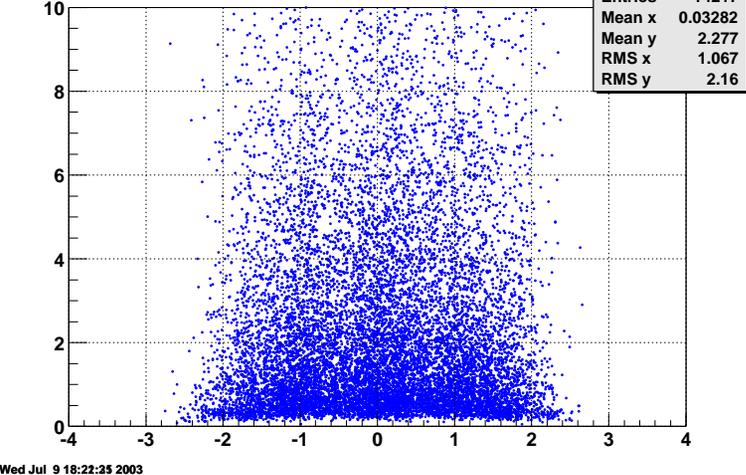
JetAna: jet trk pT spectrum



JetAna: N(tracks)



JetAna: jet trk pT vs eta



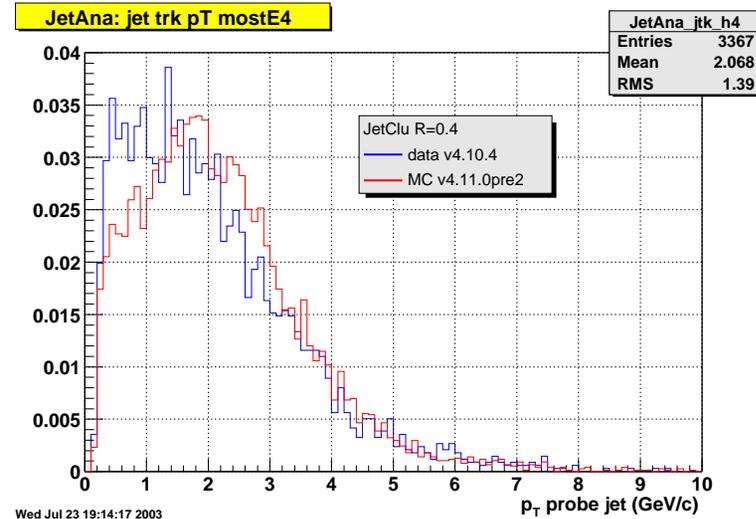
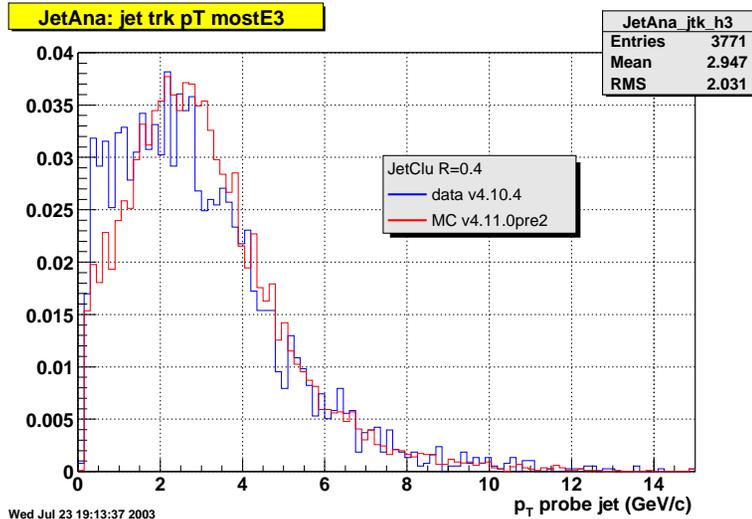
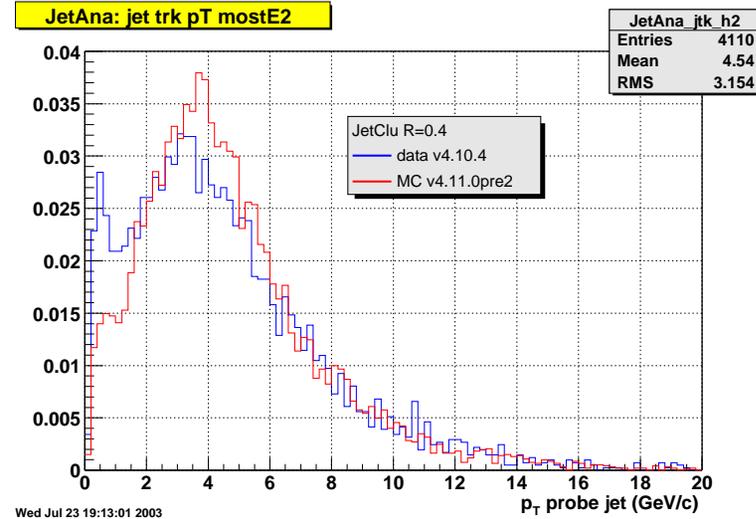
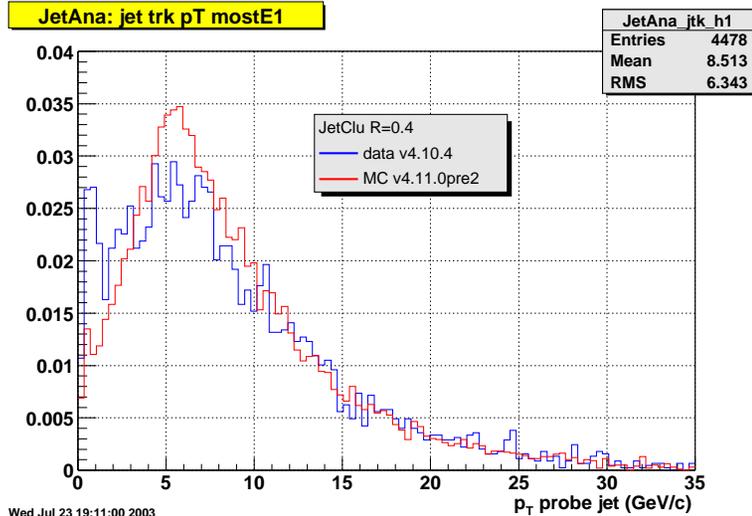
➡ Proper low-E Gflash parameterization in the plugs is definitely required!



# Jets anatomy 102



## Spectrum of first 4 highest $p_T$ -tracks in a jet



👉 New fake jets composition  $p_T = 7 + 4 + 3 + 5 \times 1 = 19$  GeV, 8 particles

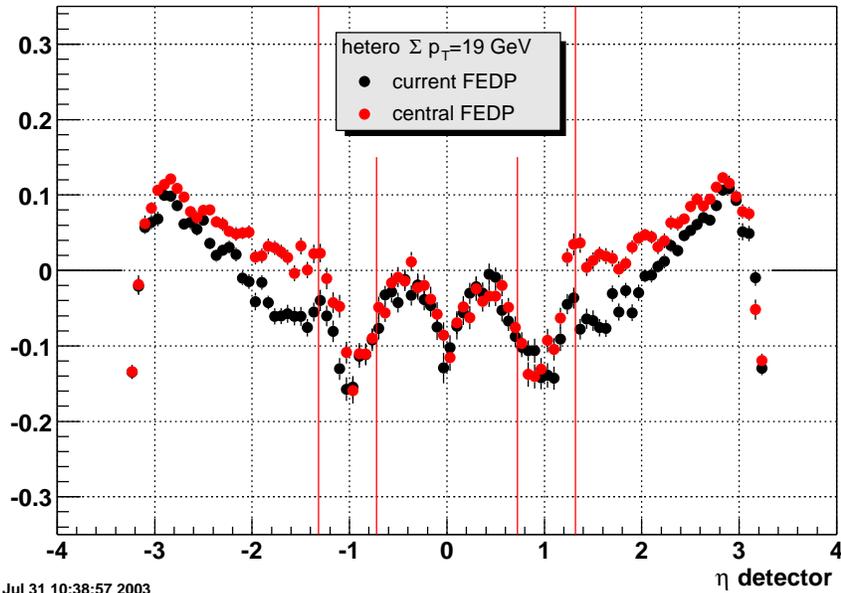


# Low $E$ parameterizations in plug 1/2



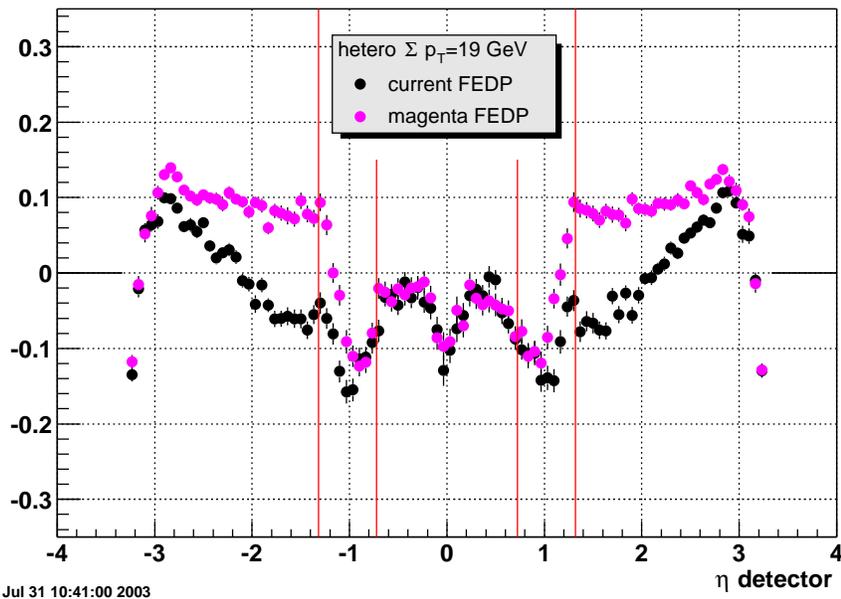
Central-like **red FEDP** curve behavior below  $E = 8$  GeV (cf p.3)

Fake jets: balance [R=0.7]



So-called **magenta** curve behavior below  $E = 8$  GeV (cf p.3)

Fake jets: balance [R=0.7]



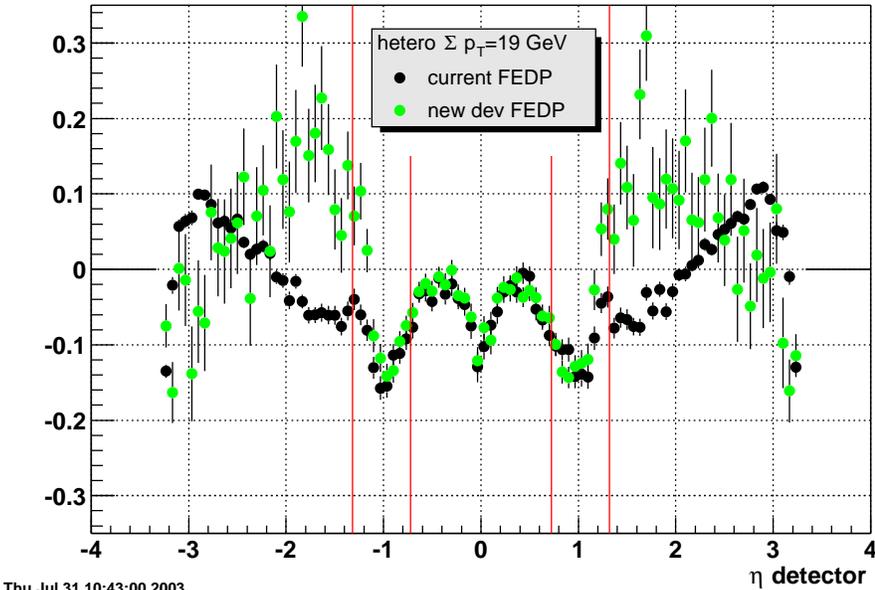


# Low $E$ parameterizations in plug 2/2



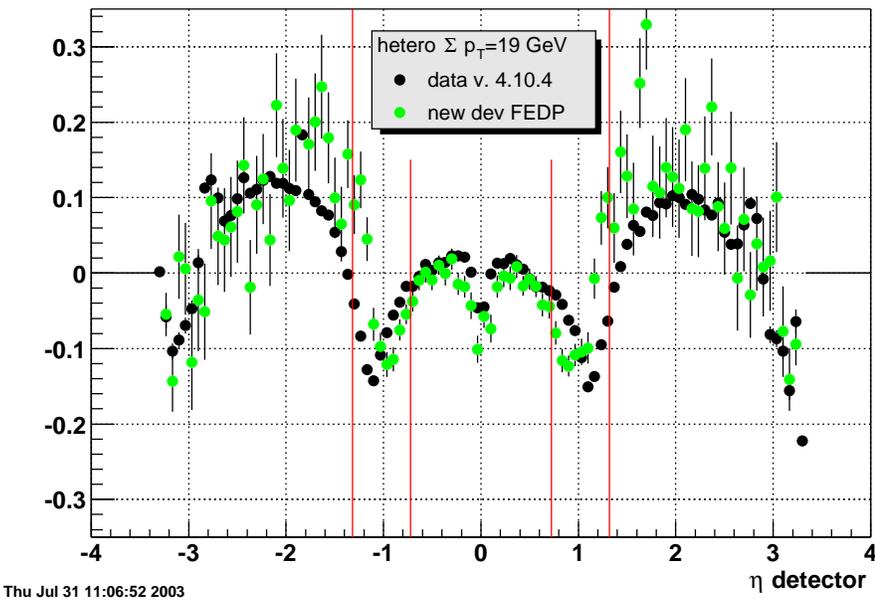
My latest development curve behavior below  $E = 8$  GeV

Fake jets: balance [R=0.7]



Let's have some fun: development parameterization of FEDP compared with data

Fake jets: balance [R=0.7]





## Comments



- ❖ Good feeling for the new development parameterization
- ❖ Request for  $O(1M)$  MC dijet events magenta production imminent
- ❖ Gonna submit all necessary changes soon ↪ drop magenta curve in favor of latest development

👉 We are almost there!!