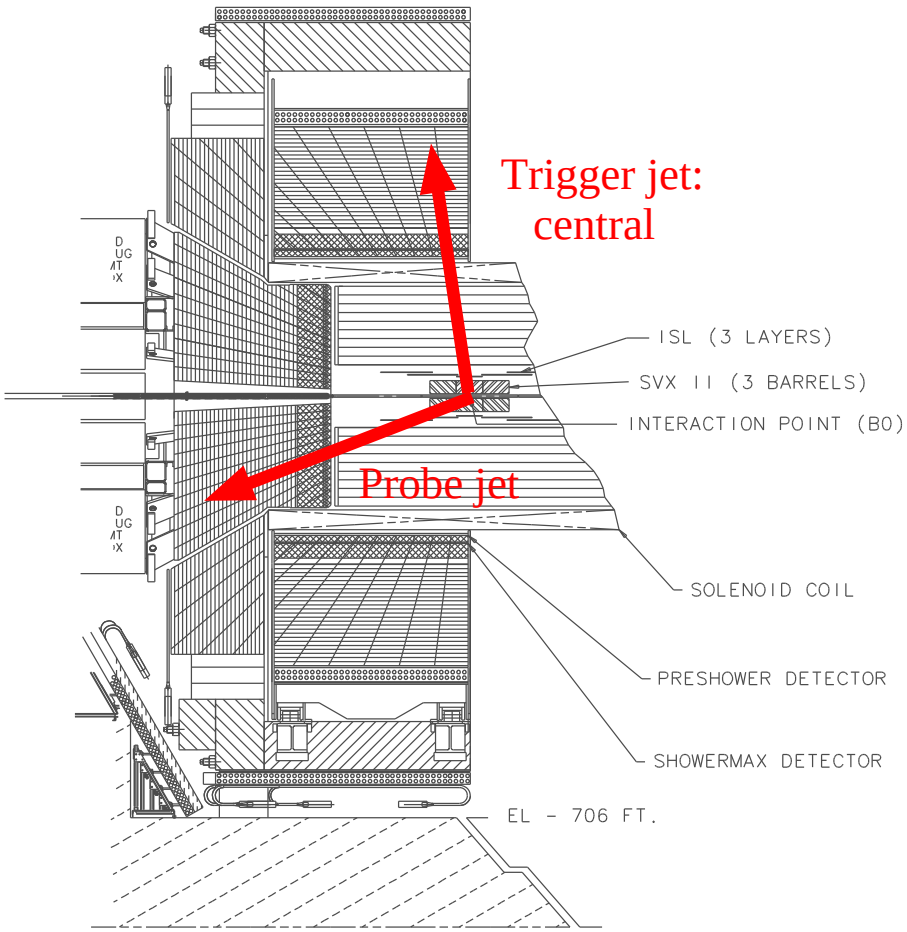
Dijet balance: data vs MC

- Check: position of cracks
- Check: dependence with z–vertex

Dijet balancing technique



$$MPF = \frac{2\cdot(P_T^{probe} - P_T^{trigger})}{P_T^{probe} + P_T^{trigger}}$$

Feb/4 – May/20

Jet_20 sample / R_{cone}=0.7

Cuts:

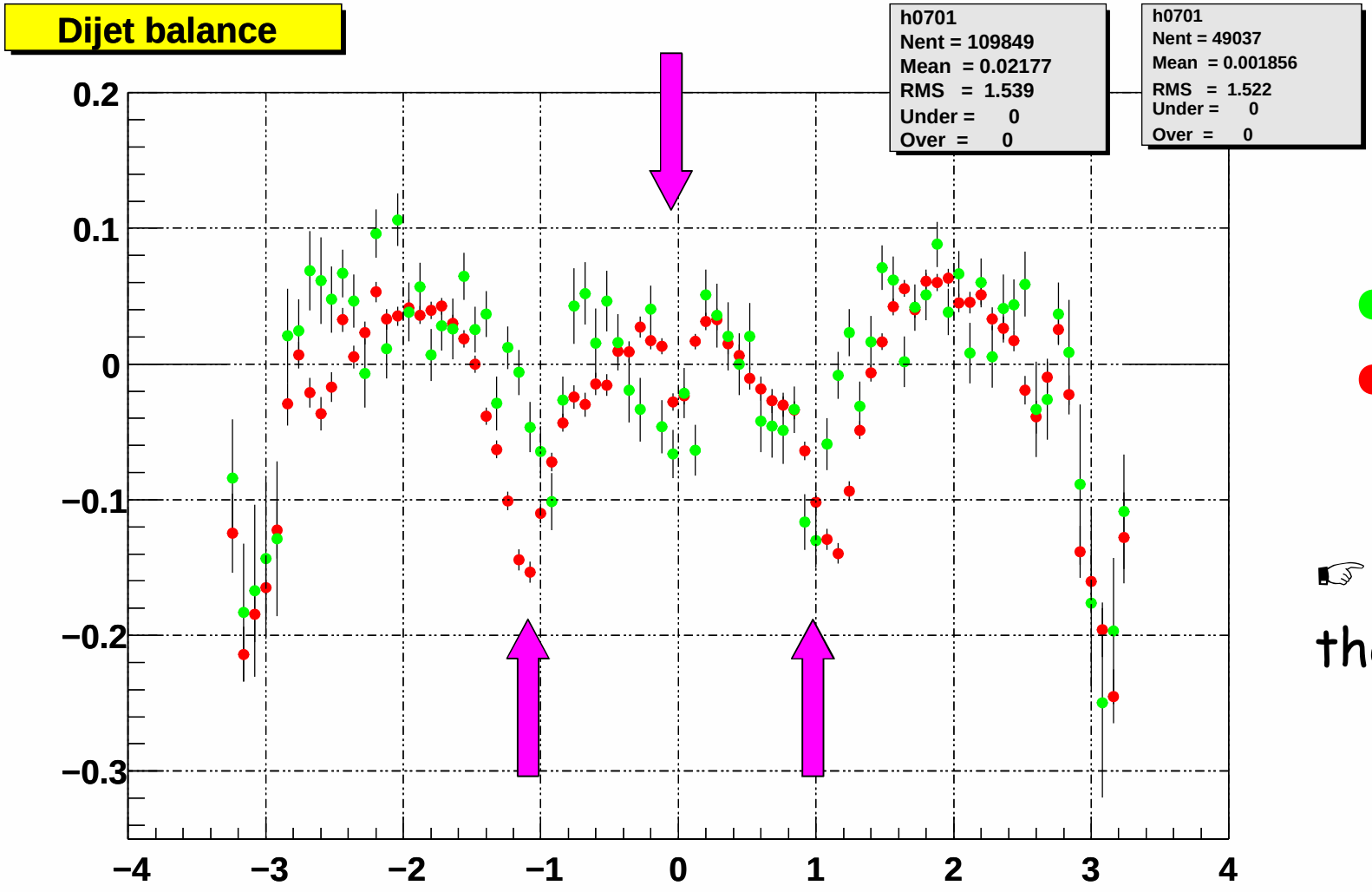
- |z–vertex| < 40 cm (FastZ)
- $0.2 < |\eta_{trigger}| < 0.8$
- E_T trigger jet > 20 GeV
- E_T 3rd jet < 15 GeV
- E_T trigger+probe > 40 GeV
- $\Delta\phi_{jj} > 2.7$

Probe jet randomly assigned when both jets are central

(cf e.g. CDF note #1513)

Dijet balance JET_20 data

MC dijet sample (p_T>20 GeV) ~ 900k events



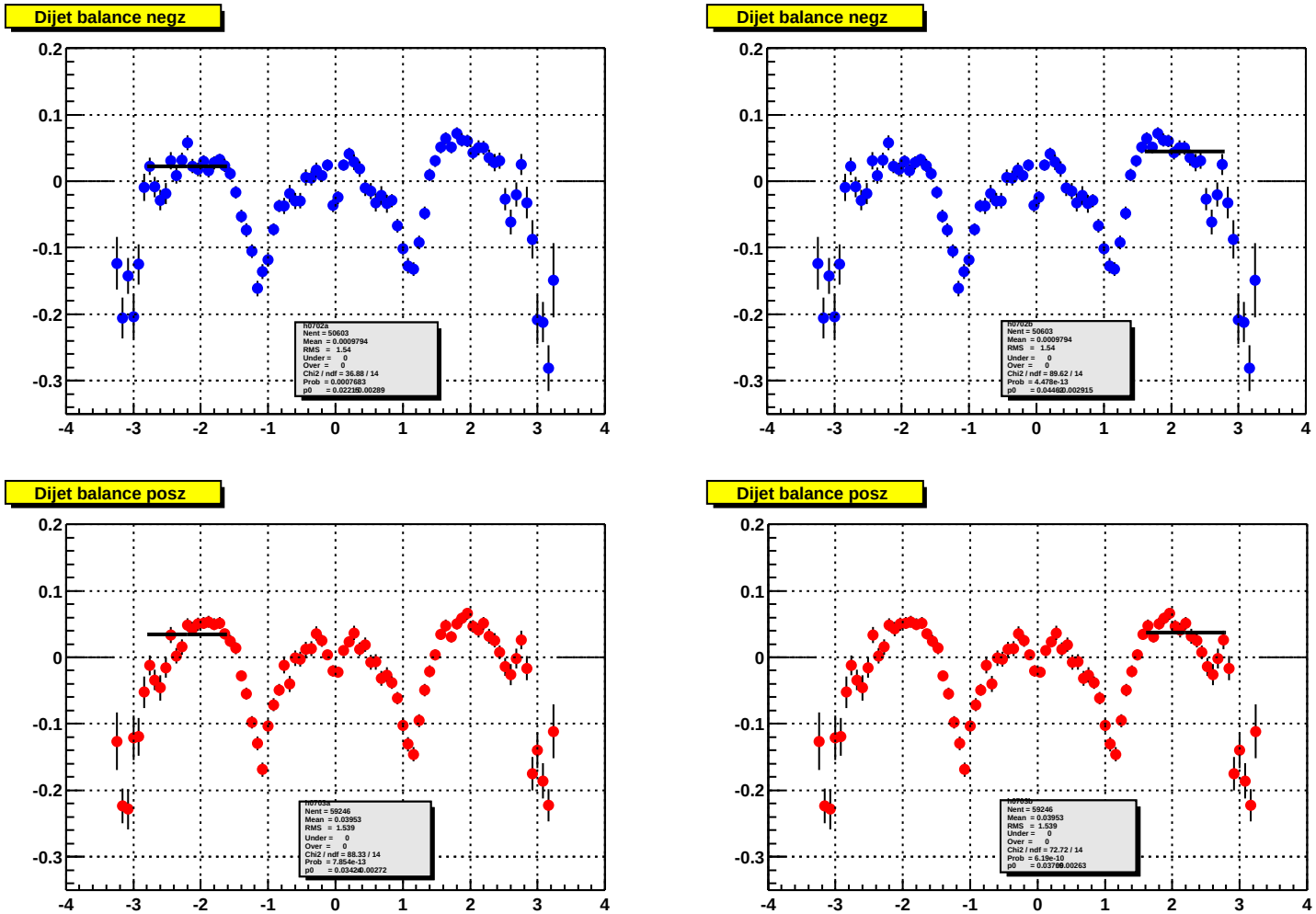
● MC

● data

☞ shift in the WHA

z-vertex dependence (data)

Sample split into z>0 / z<0 ☞ slight dependence only (projectivity ?!)

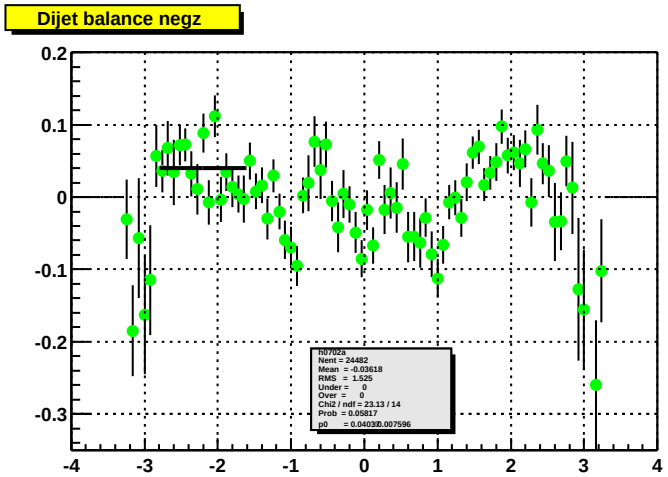


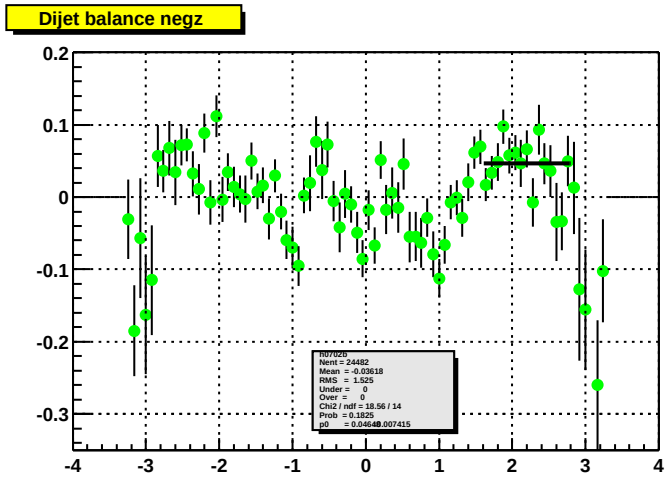
Data

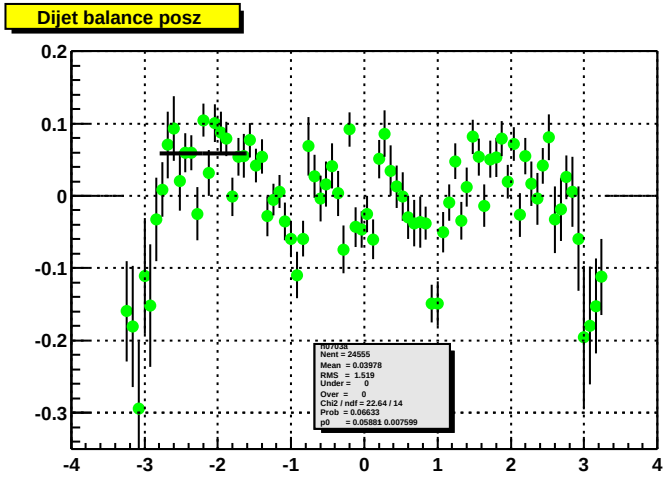
- z<0
- z>0

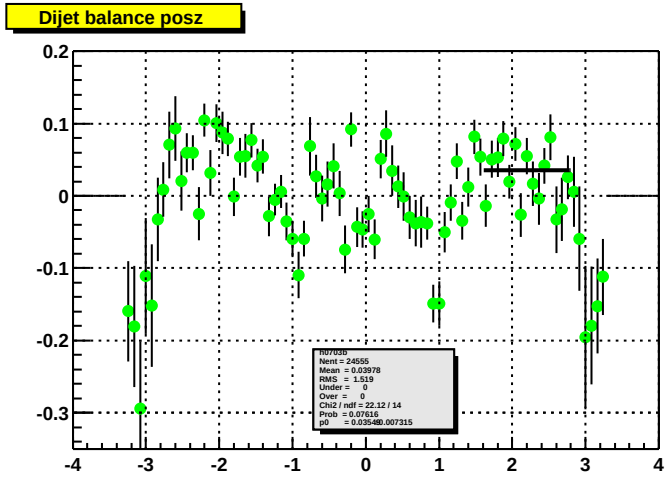
z-vertex dependence (MC)

... comparable behavior since bug fix (v. 4.5.3 OK)

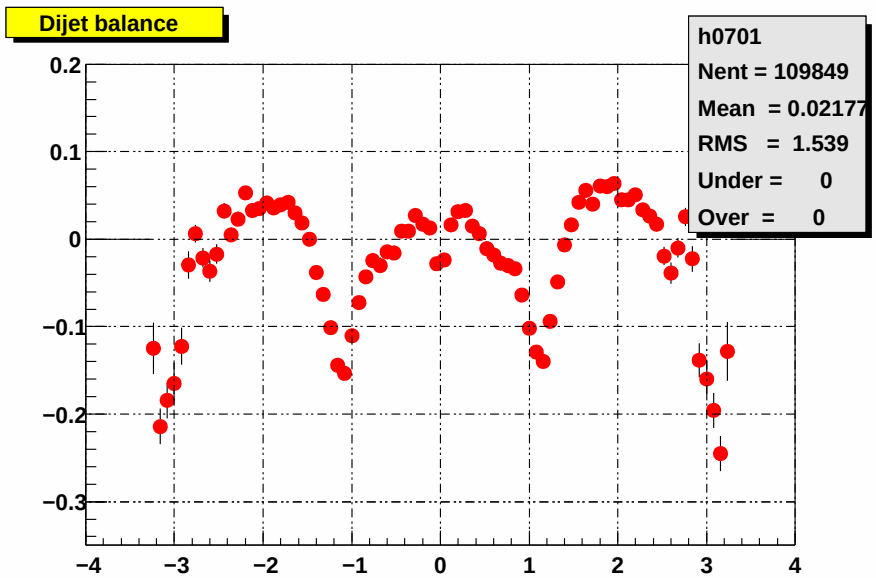


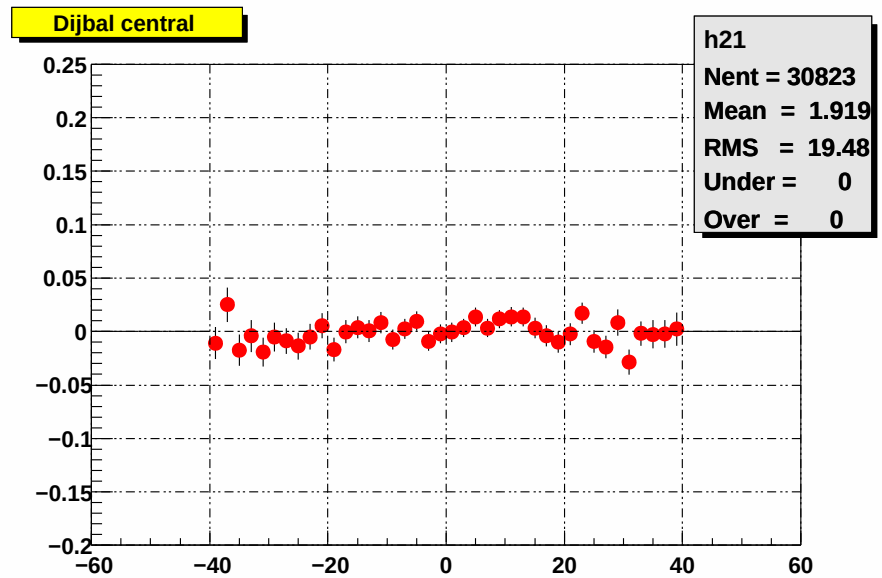


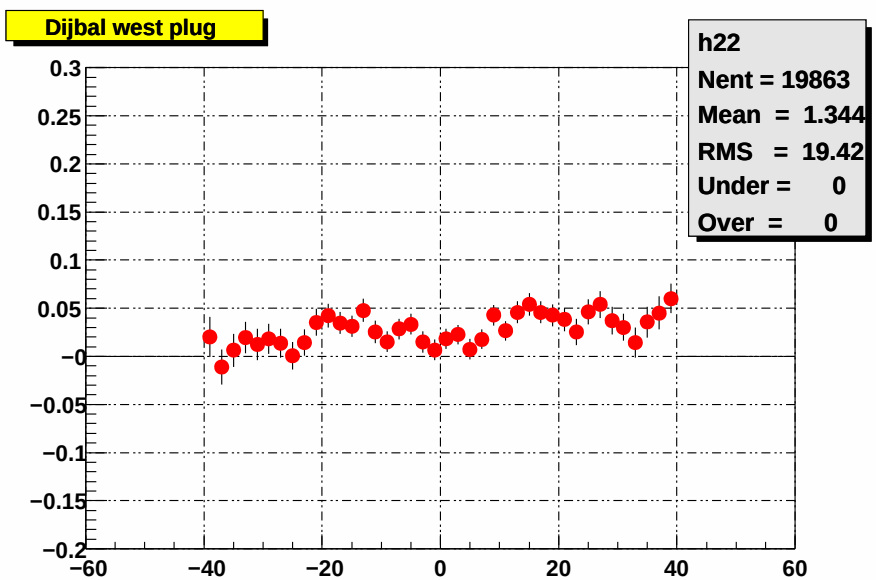


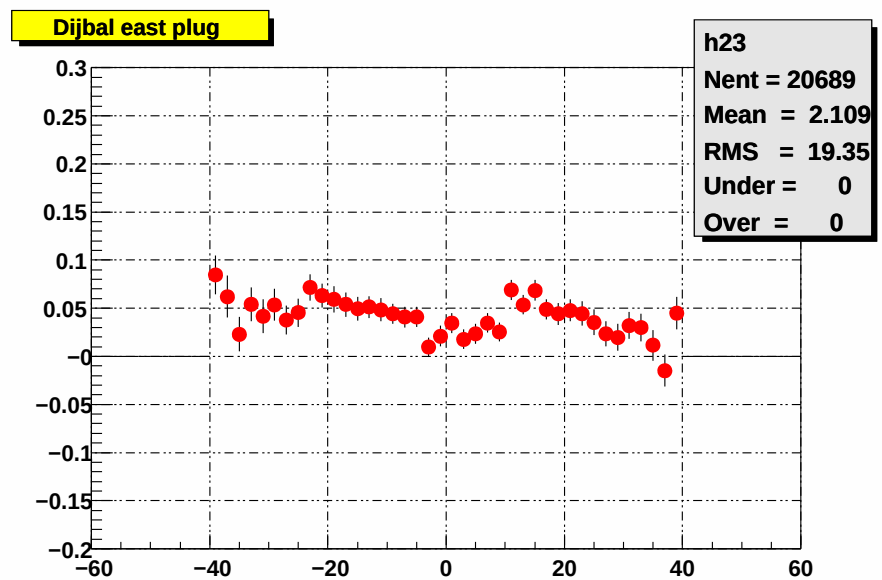
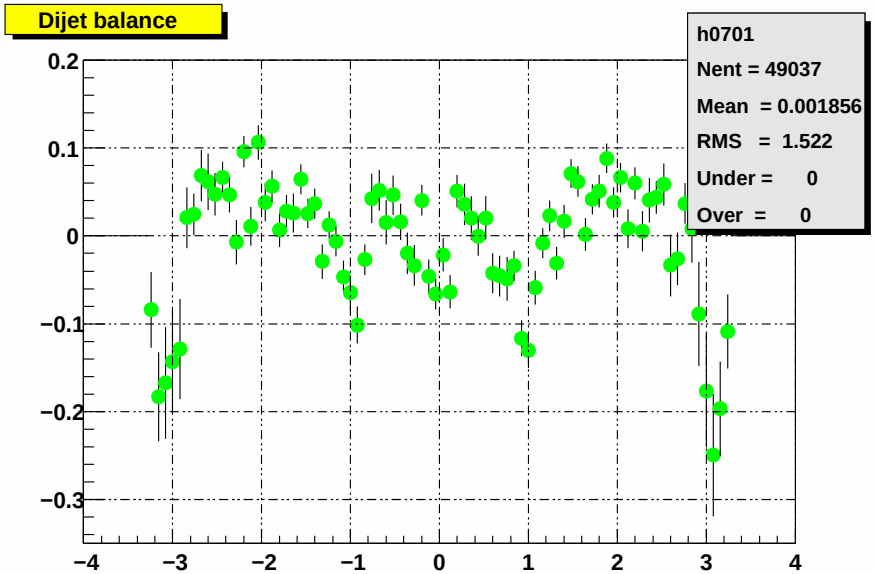
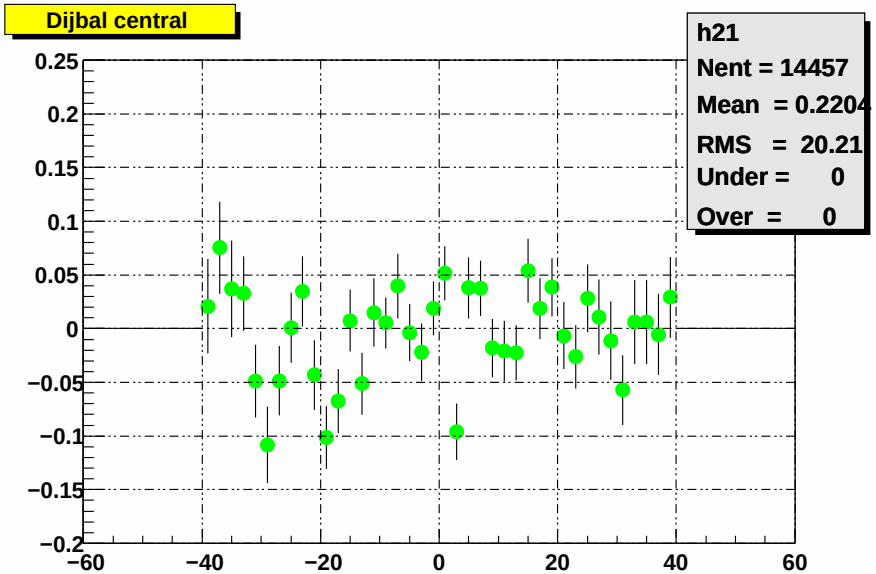
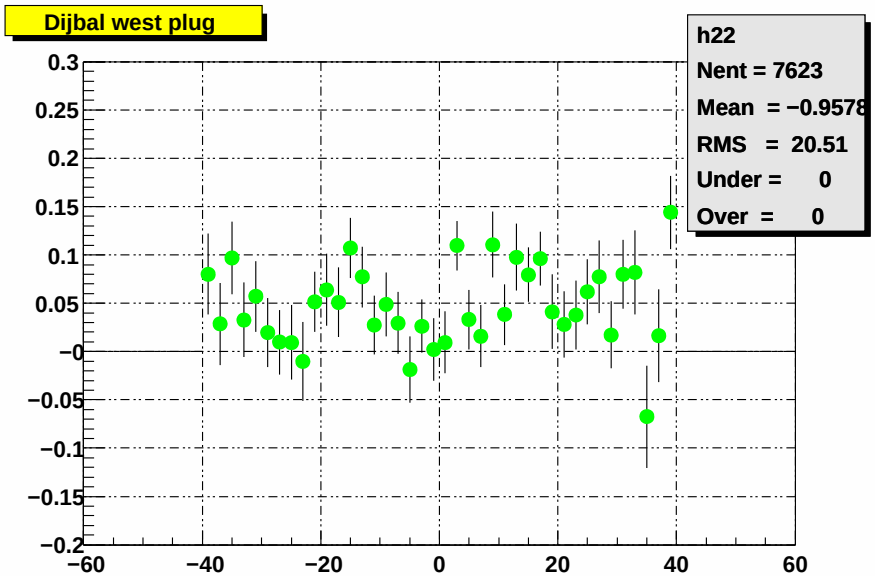
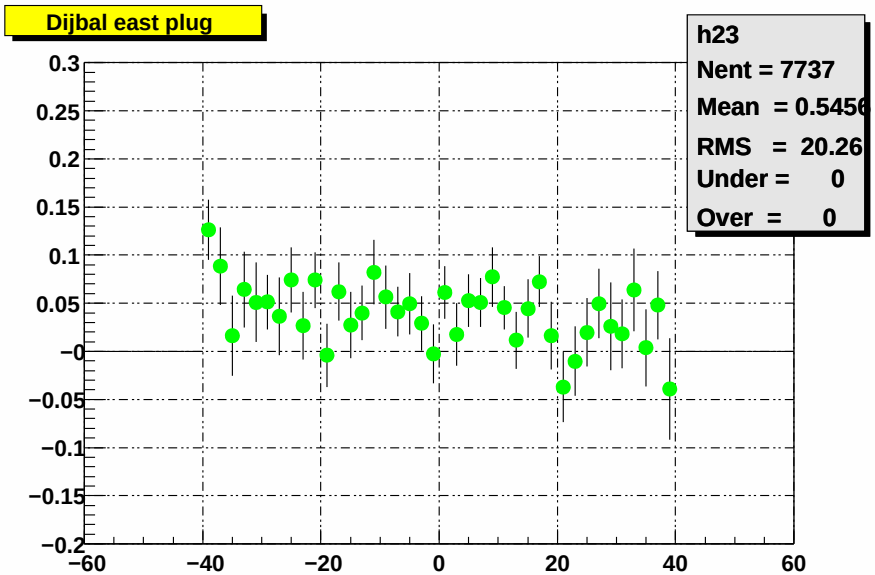


z-vertex dependence (data)









z-vertex dependence (MC)