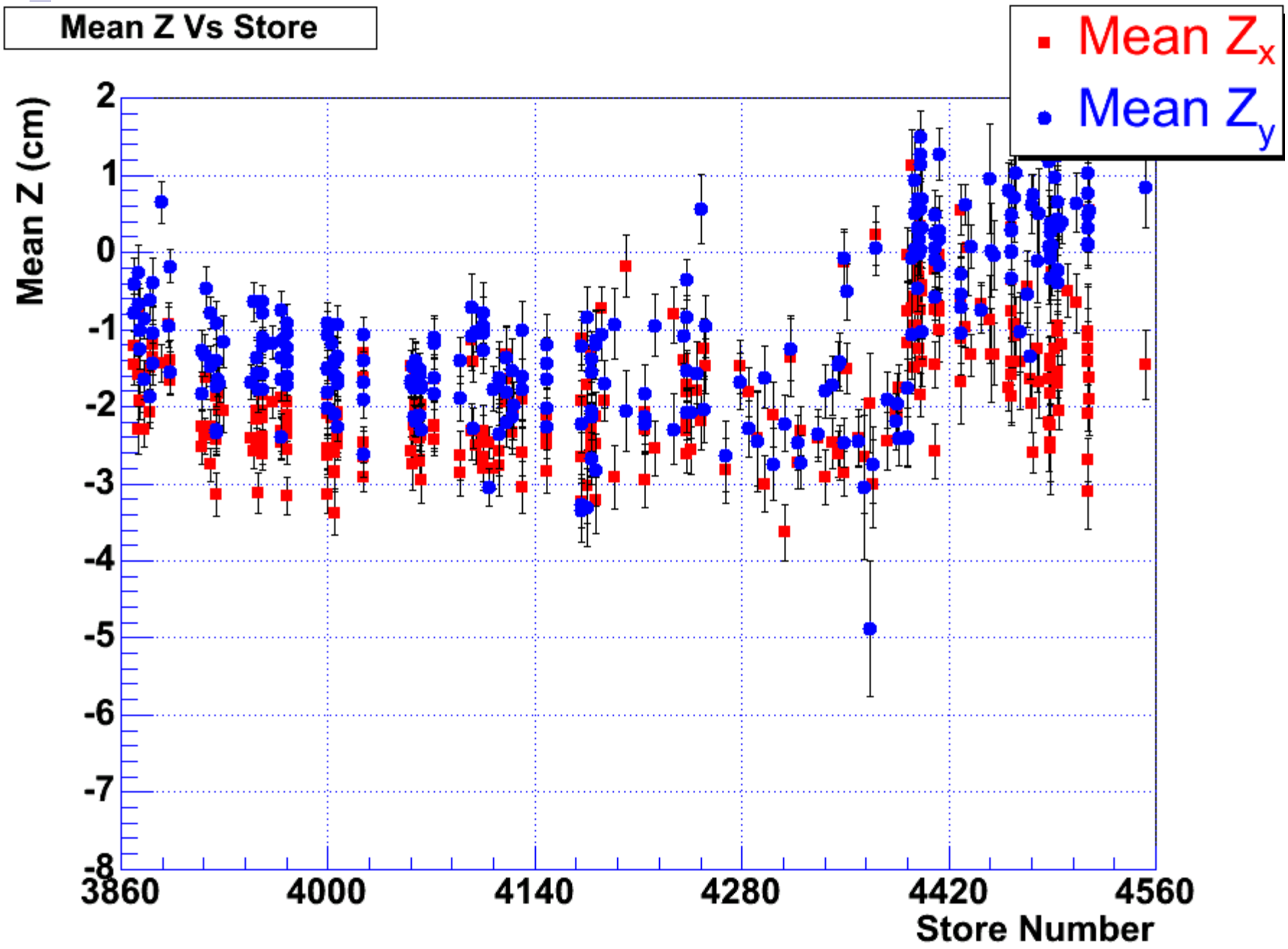
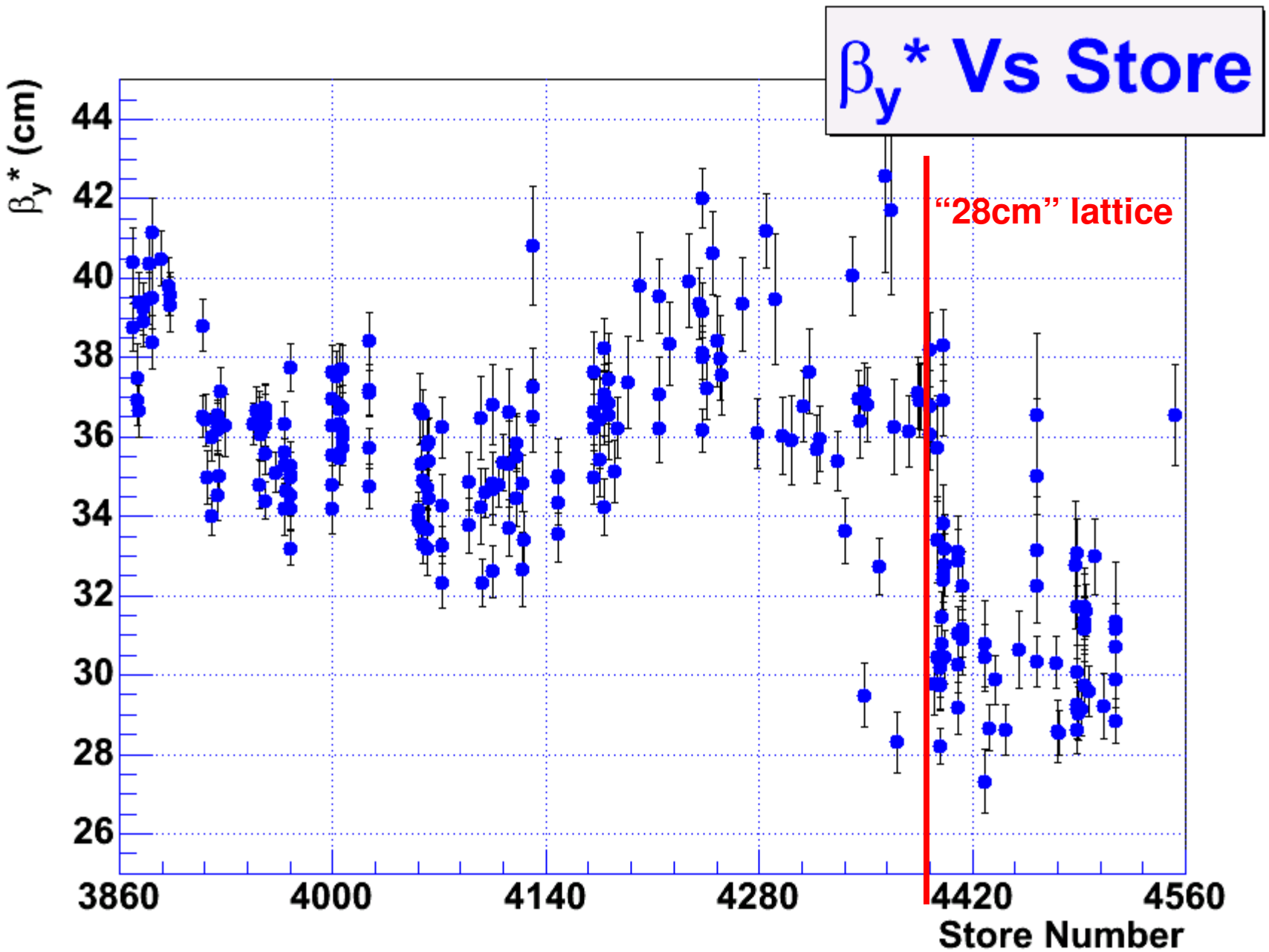
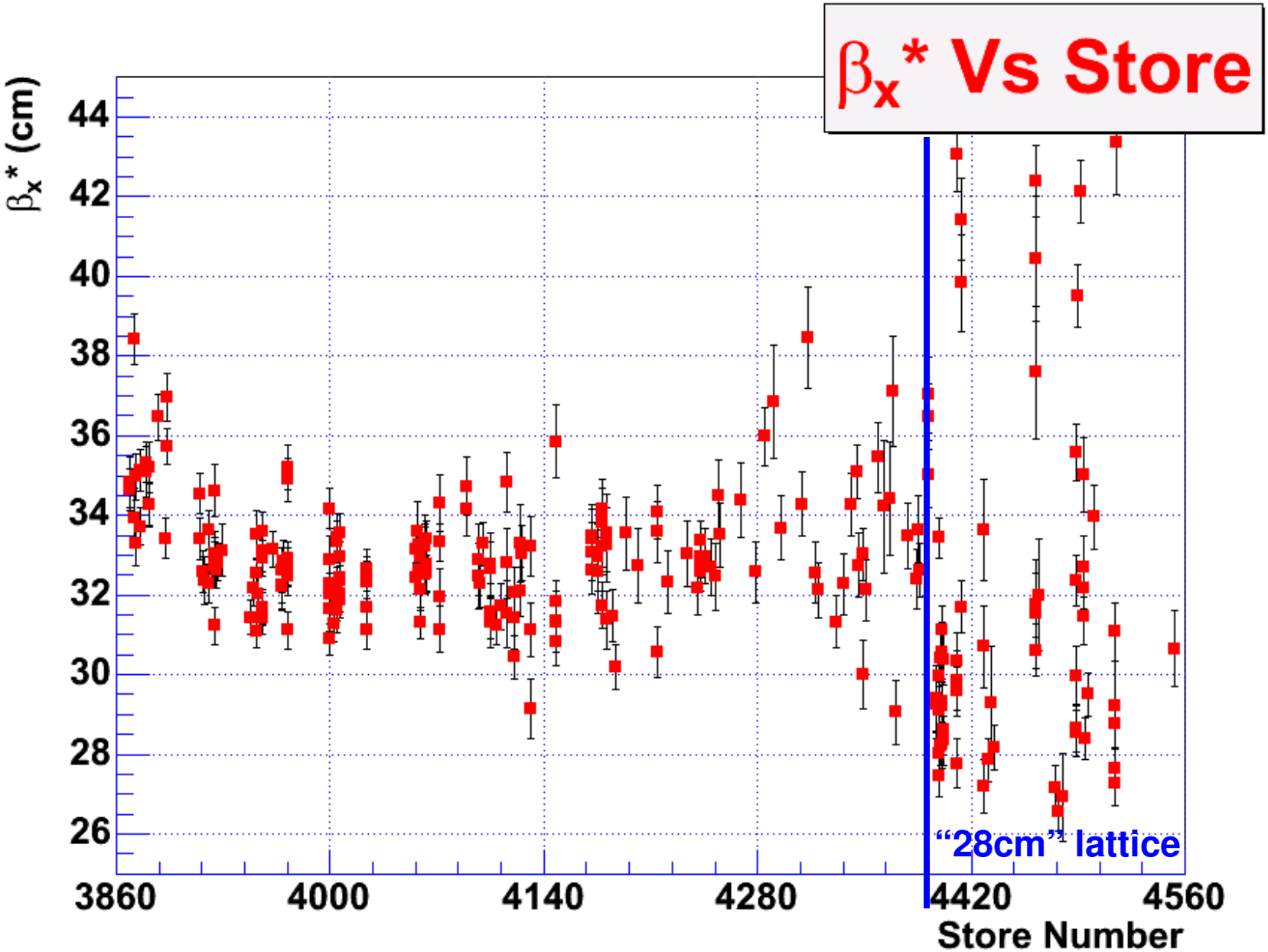
Beta* and beam position at DZero

M. Weber

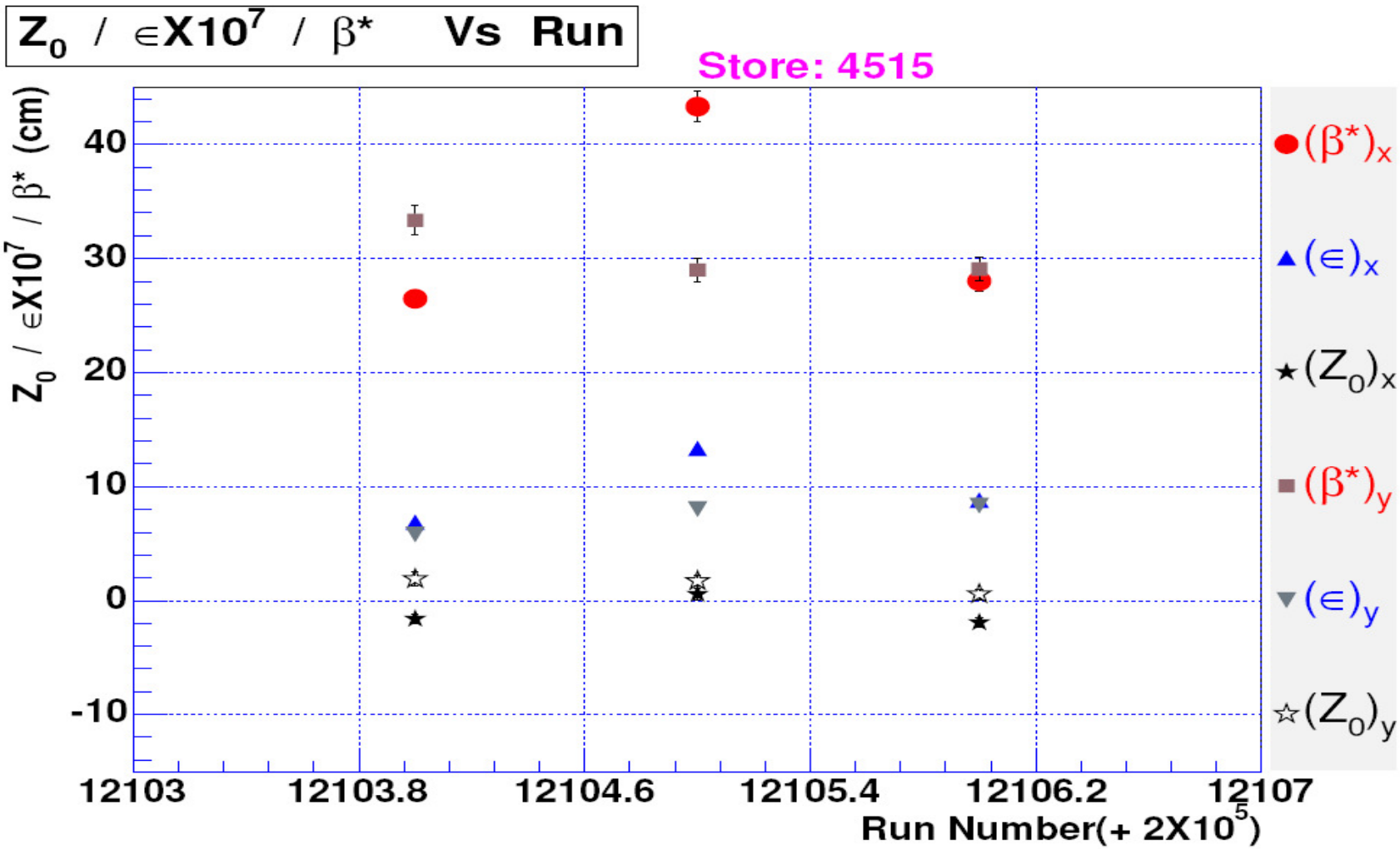
A. Chandra


Mean Z Vs Store
Mean Z_x
Mean Z_y
Mean Z (cm)
2
1
0
-1
-2
-3
-4
-5
-6
-7
-8
3860
4000
4140
4280
4420
4560
Store Number

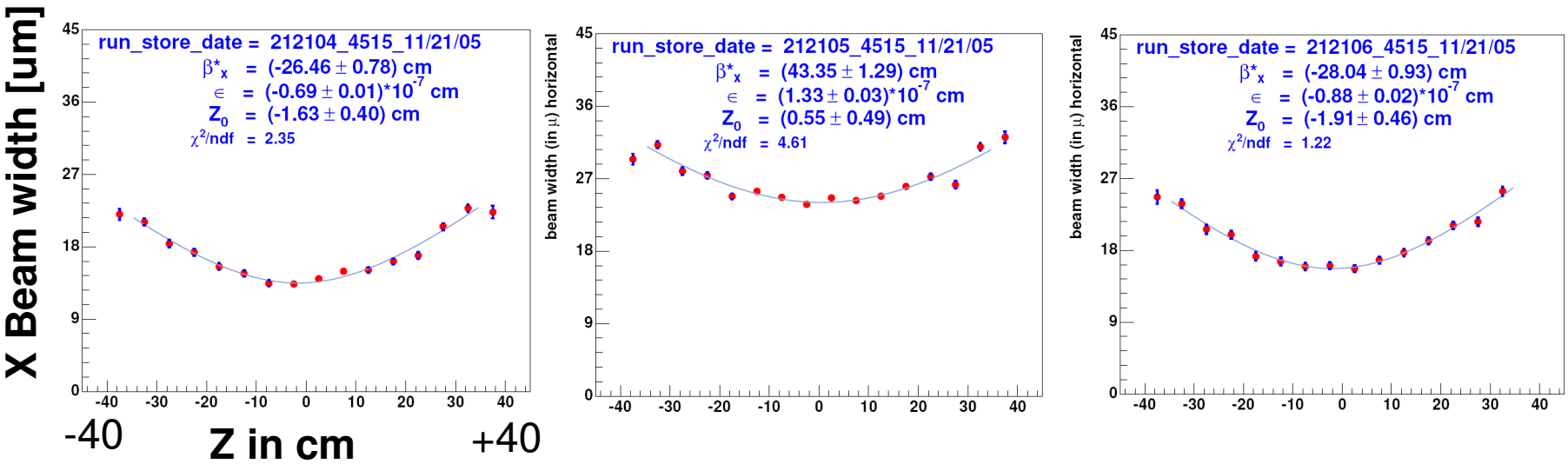

β_y* Vs Store
β_y* (cm)
44
42
40
38
36
34
32
30
28
26
3860
4000
4140
4280
4420
4560
Store Number
"28cm" lattice


βx* Vs Store
βx* (cm)
44
42
40
38
36
34
32
30
28
26
3860
4000
4140
4280
4420
4560
Store Number
"28cm" lattice

An outlier

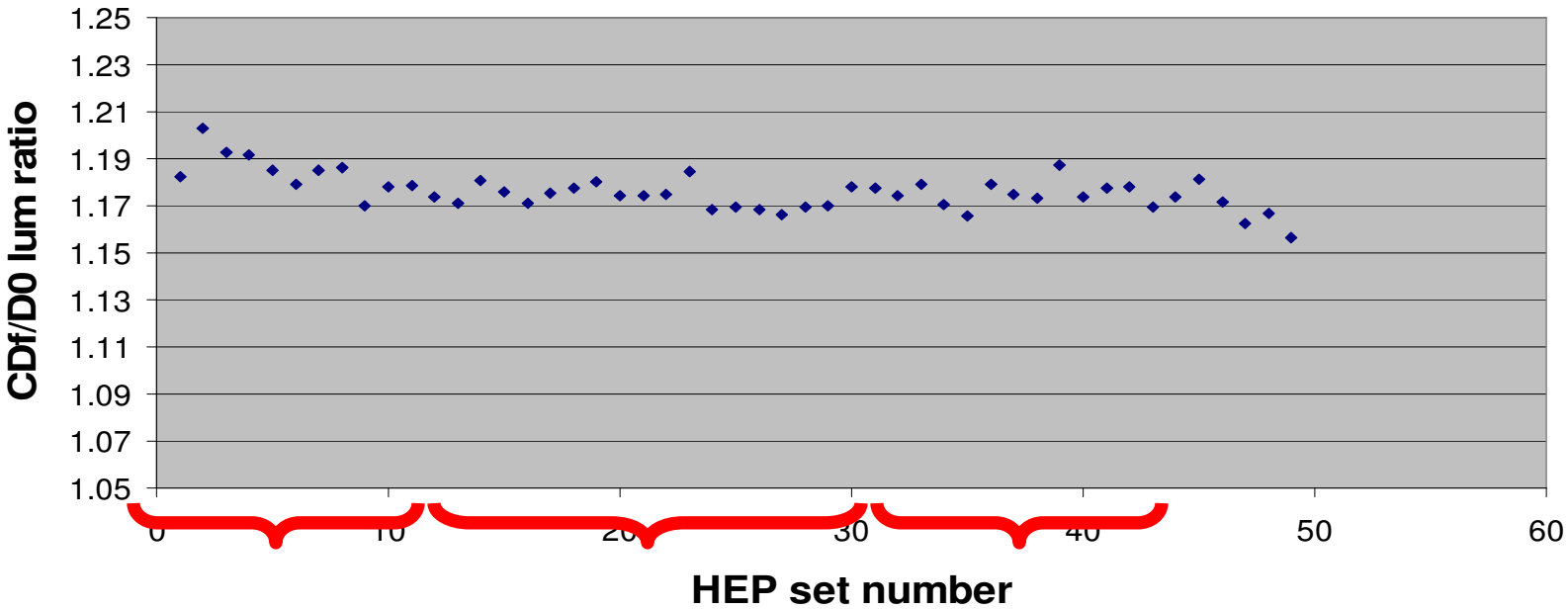

Z_0 / $\in$X10^7 / β^* Vs Run
Store: 4515
Z_0 / $\in$X10^7 / β^* (cm)
40
30
20
10
0
-10
12103
12103.8
12104.6
12105.4
12106.2
12107
Run Number(+ 2X10^5)
$(\beta^*)_x$
$(\in)_x$
$(Z_0)_x$
$(\beta^*)_y$
$(\in)_y$
$(Z_0)_y$

Outlier II



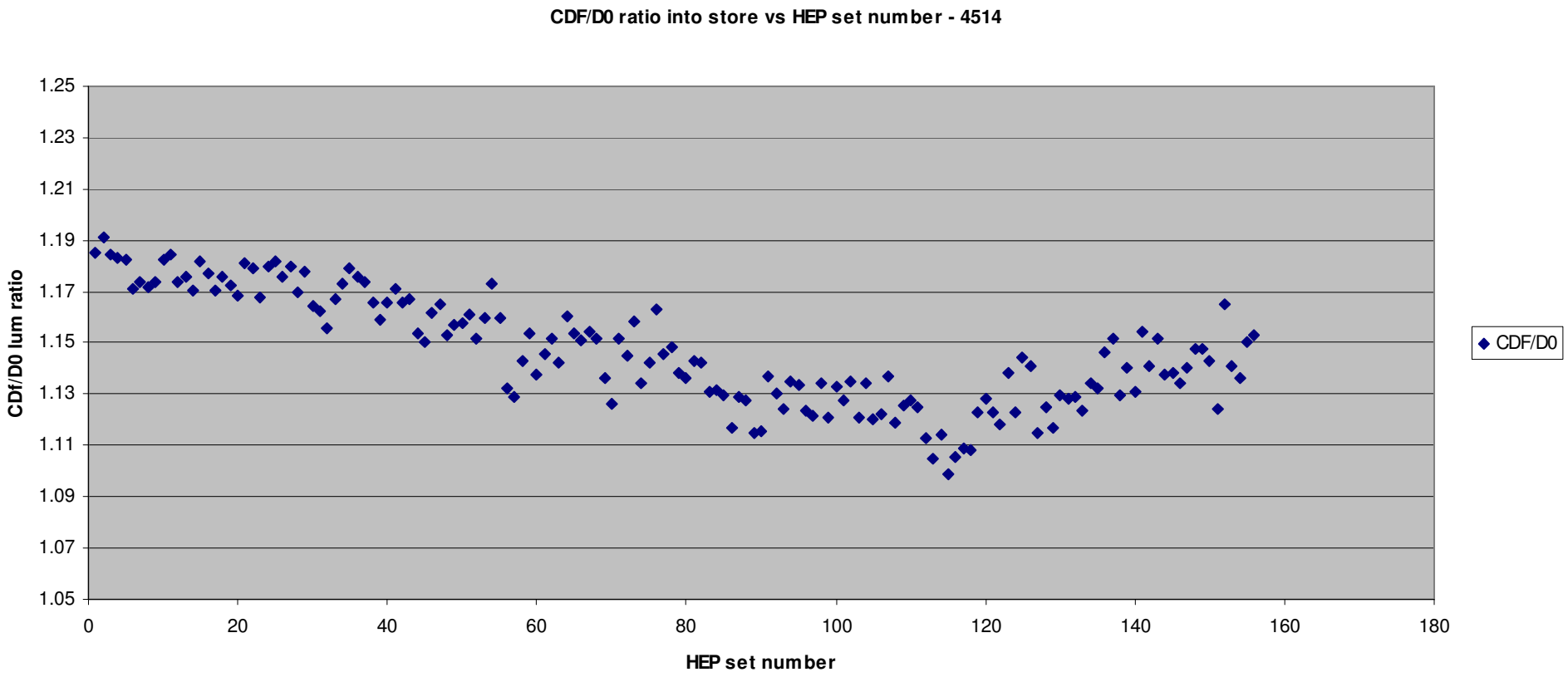
- Three consecutive runs in store 4515
- Not a problem with the fit
  (the point are really higher)

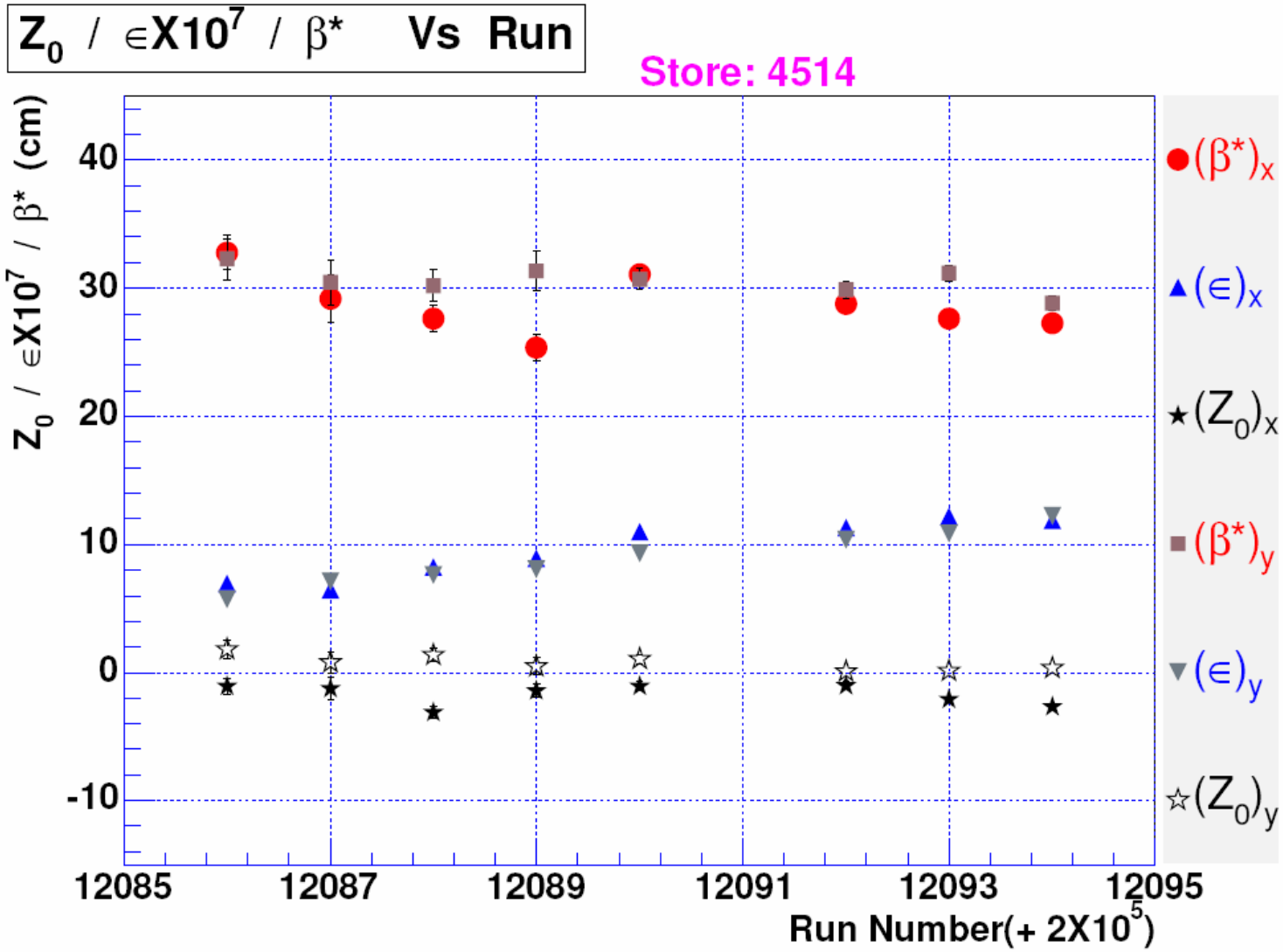
CDF/D0 lumi ratio as a function of HEP set number - 4515

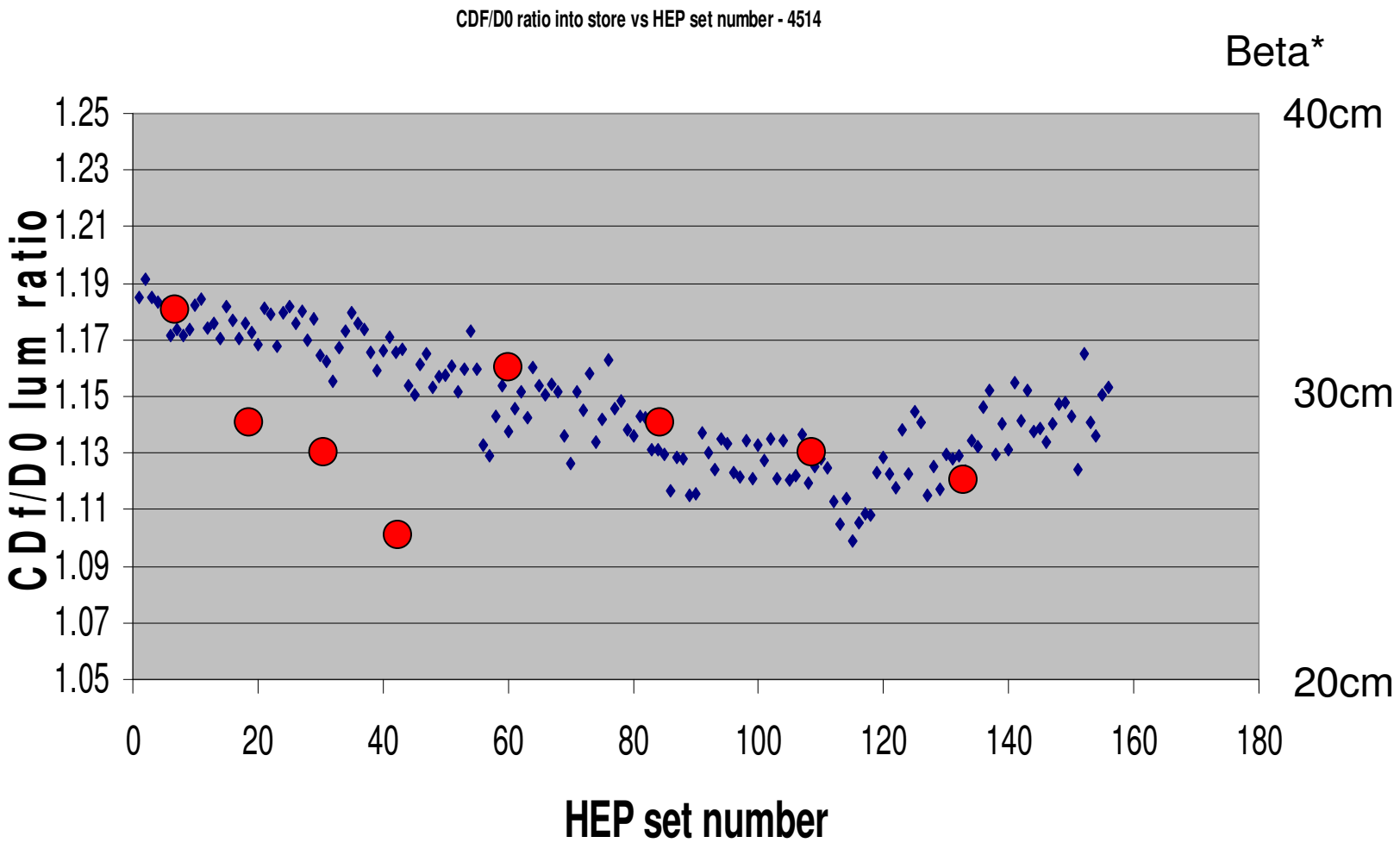


= beta* measurement

4514 lumi ratio

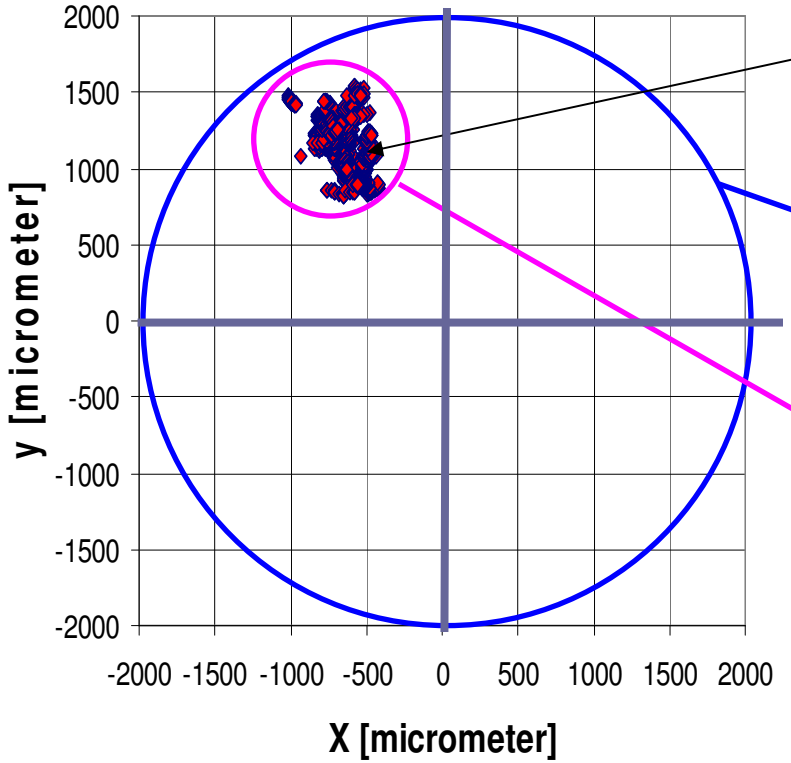



Z_0 / $\in$X10^7 / β^* Vs Run
Store: 4514
Z_0 / $\in$X10^7 / β^* (cm)
40
30
20
10
0
-10
12085
12087
12089
12091
12093
12095
Run Number(+ 2X10^5)
$(\beta^*)_x$
$(\in)_x$
$(Z_0)_x$
$(\beta^*)_y$
$(\in)_y$
$(Z_0)_y$



No error bars shown on the beta* points

Beamposition specs



Bean positions

1. Hardware geometry specification (2mm radius)

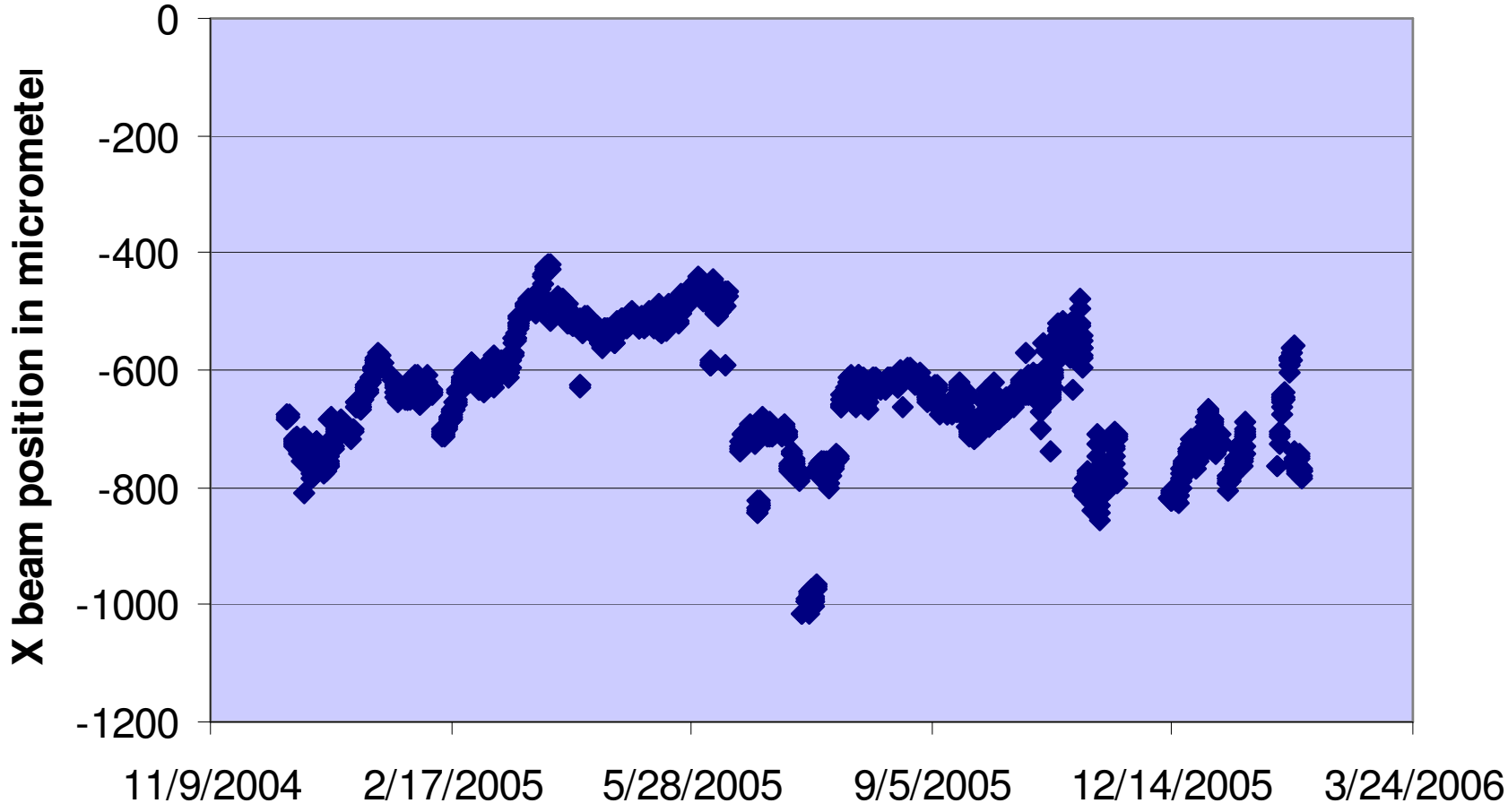
2. Software specification
Track Trigger
Lookup equations

(Layer0 will be at 16mm)

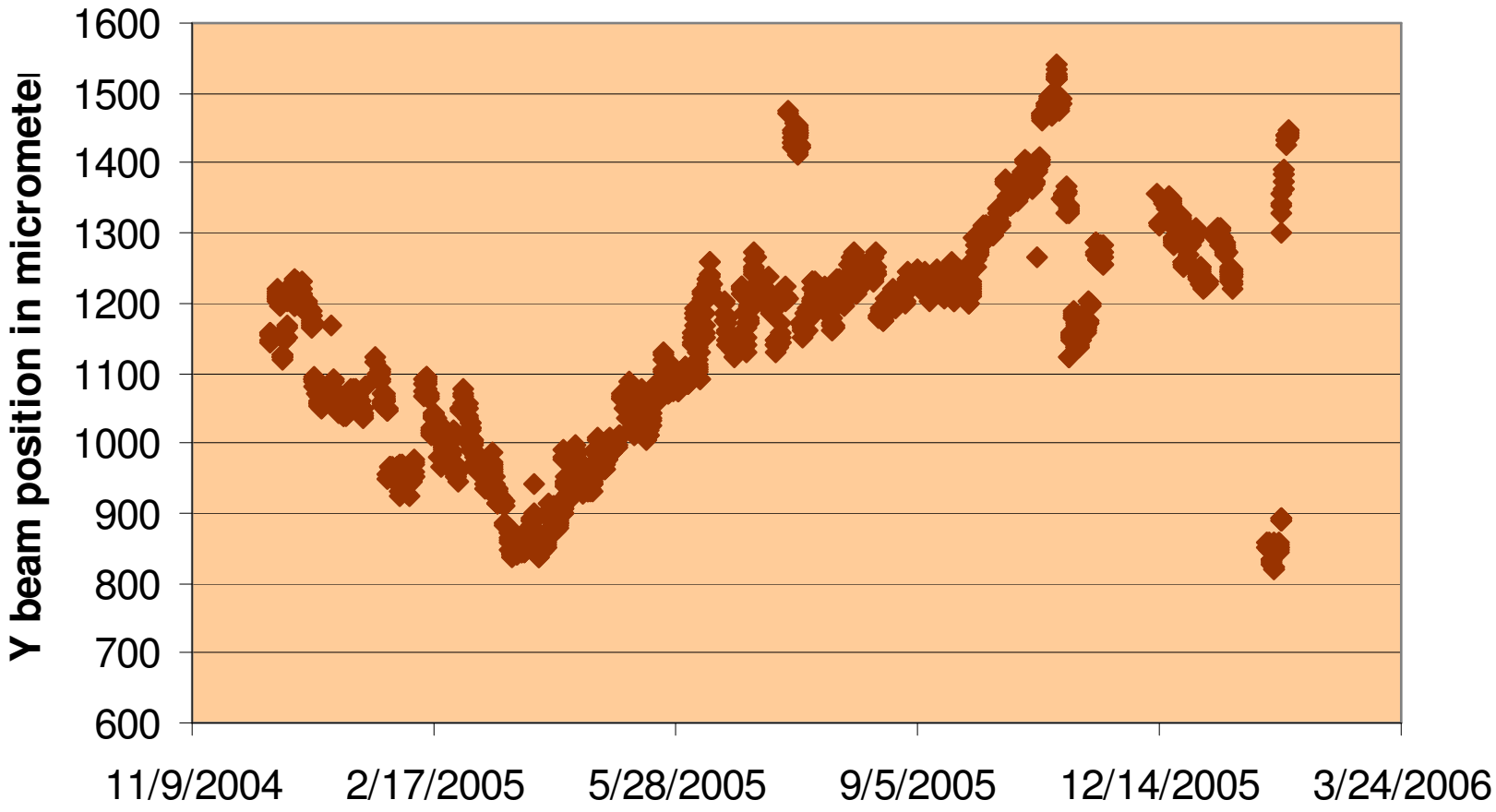
DZero beampositions in ACNET

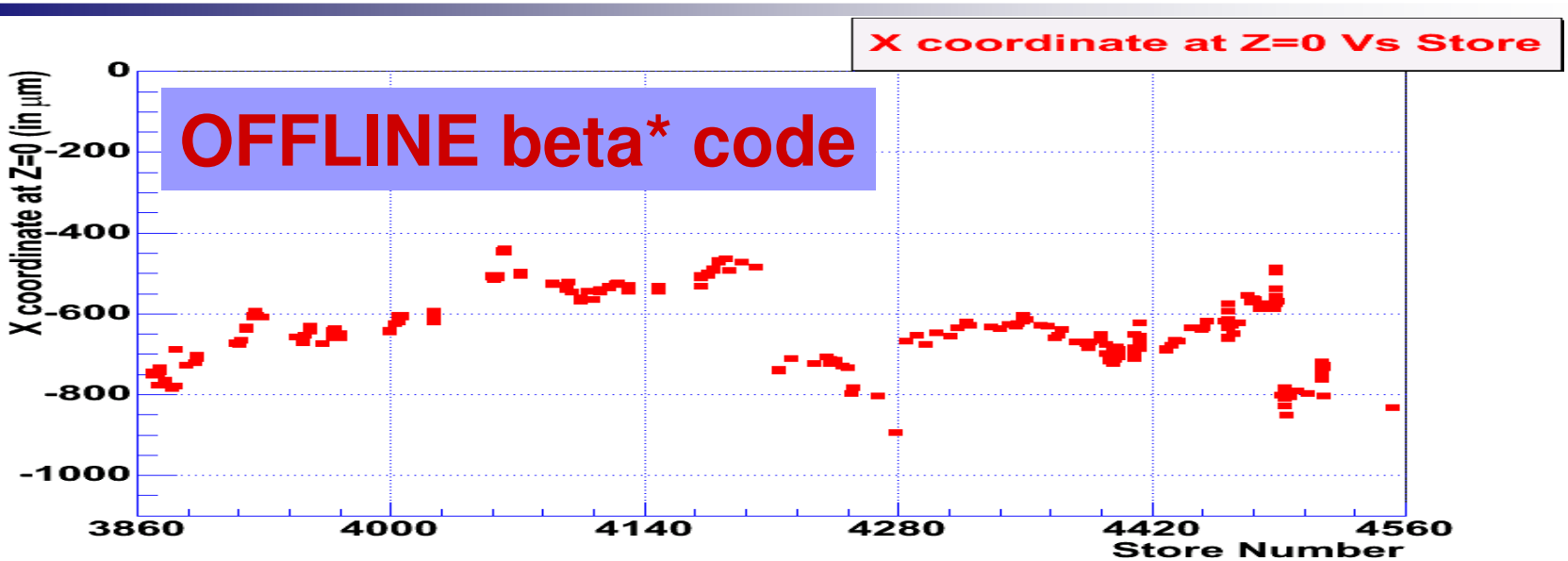
C:D0XIP	position x (at z=0) in cm
C:D0YIP	position y (at z=0) in cm
C:D0ZIP	position z (average z of primary vertices)
C:D0DX	tilt xz
C:D0DY	tilt yz
C:D0IPTM	time of the last measurement
C:D0IPN	number of measurements during ongoing run
C:D0NINT	number of primary vertices per event

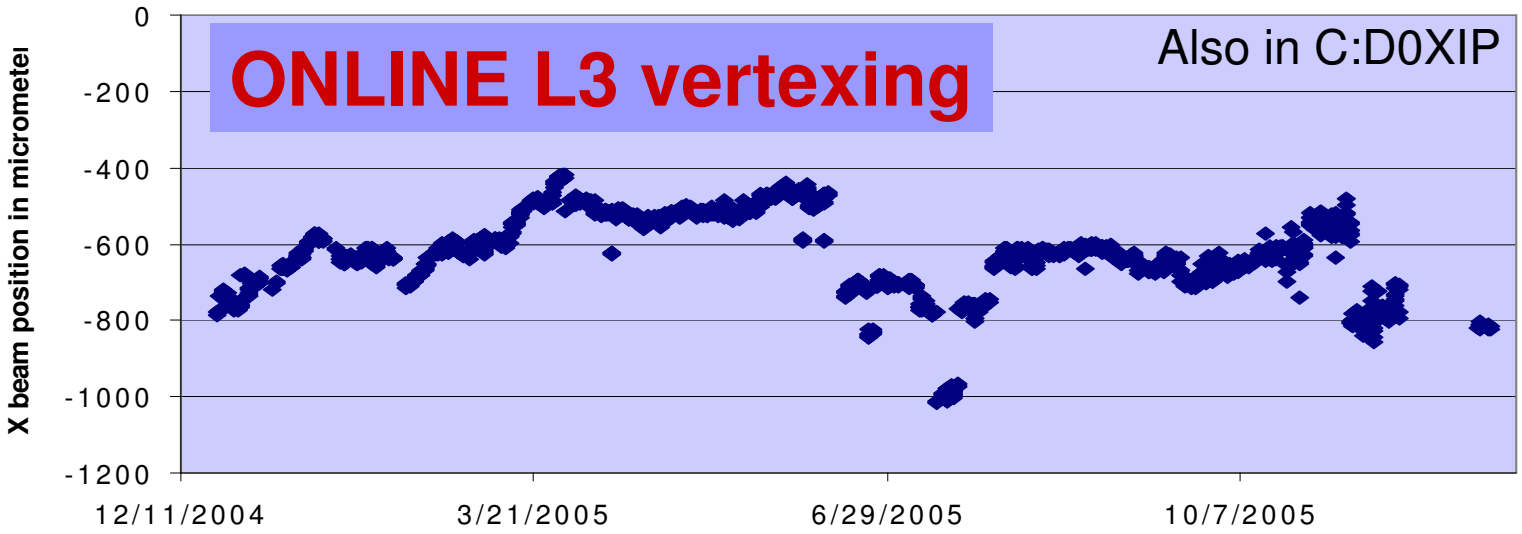
Beam position in X



Beam position in Y







- Horizontal axis is not identical: offline is store number, online is time
- Online has more points

Conclusions

- Updated beta* plots at http://clued0/~avdhesh/Beam_main.html
- We have fluctuations of the measured beta*, even within a store.
  More investigation needed when the expert is available.
- Beam positions are kept within specs: Thanks !