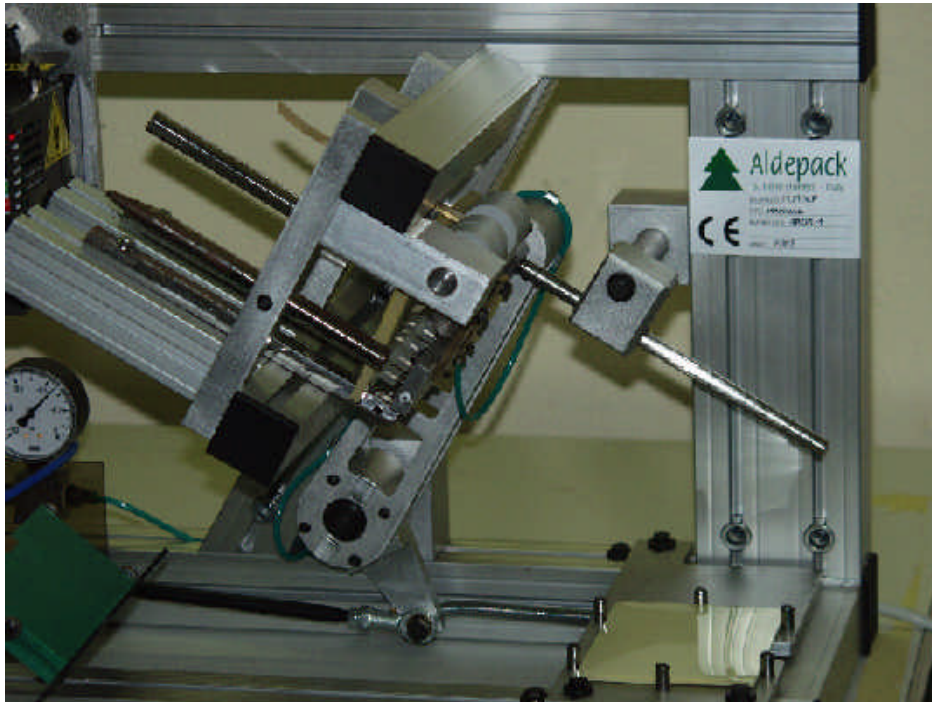




Automatic emulsion handling: test results

- ✓ Brick assembling and exposure
- ✓ Analysis
- ✓ Results

Brick assembling and exposure

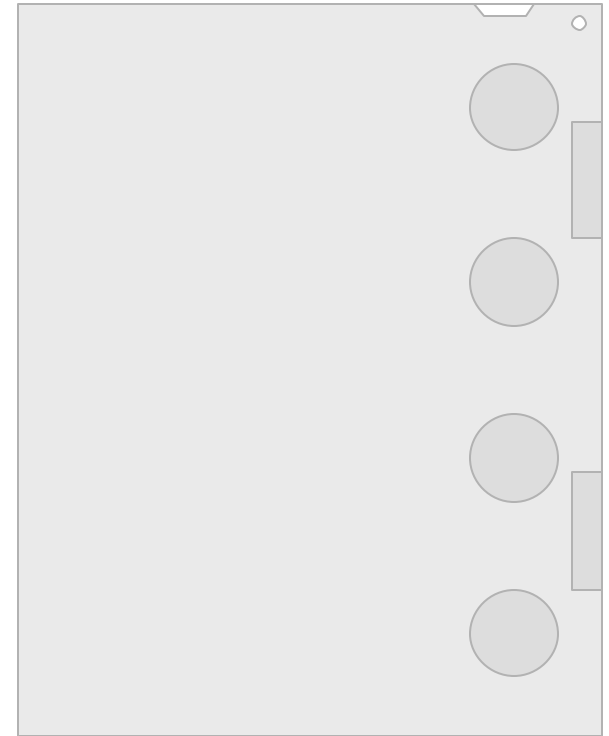
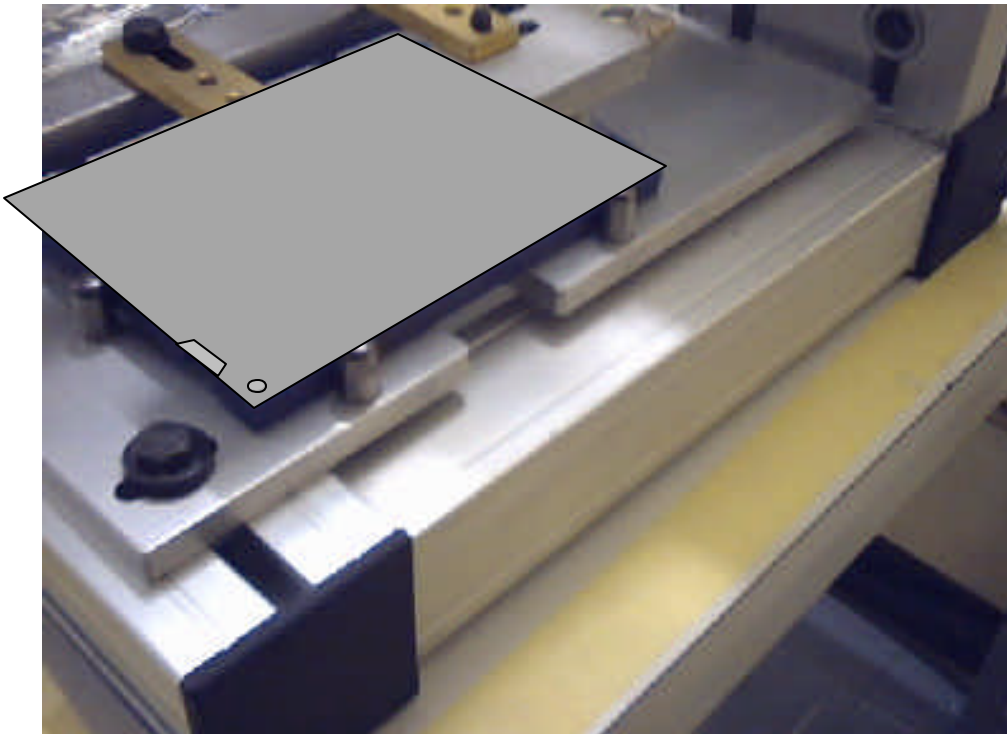


Buontempo, Chadaj, Gourbonov,
Laktineh, Kreslo, Moser, Romano,
Rosa, Sioli, Weber, . . .

Technical support also by Bari
group for emulsion processing

Assembling: handling with vacuum suckers

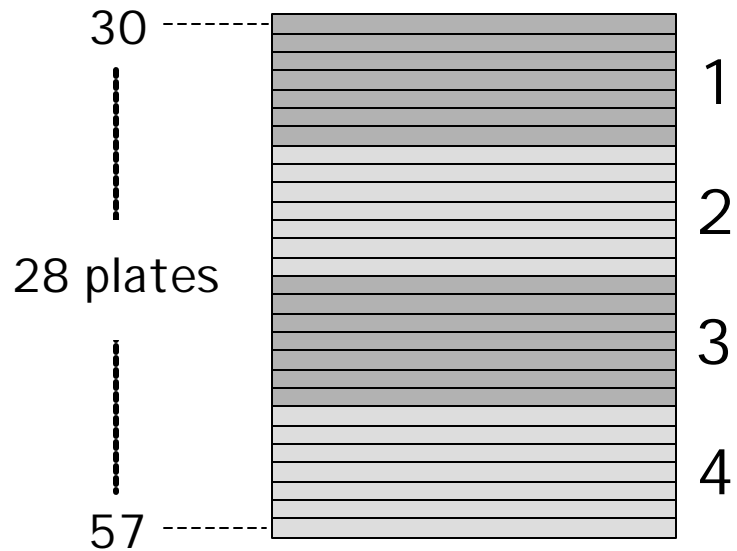
28 plates are picked-up and piled-up by 4 vacuum suckers



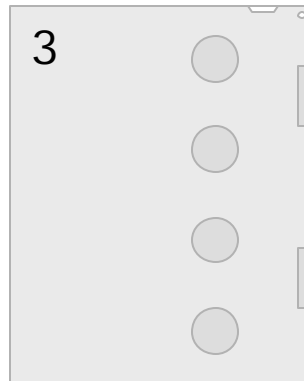
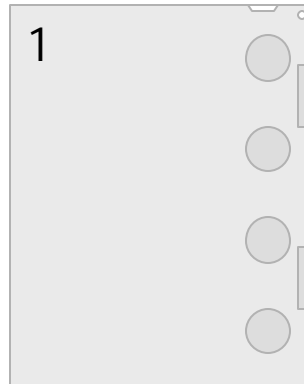
“Mechanical quality”
Fuji plates

Four different sets

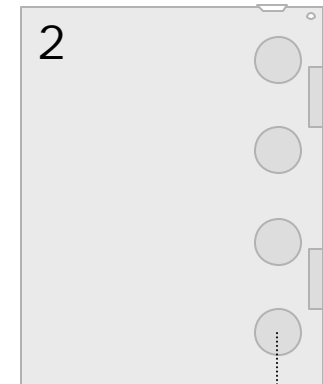
Vacuum suckers are applied in two different positions and with two different pressures



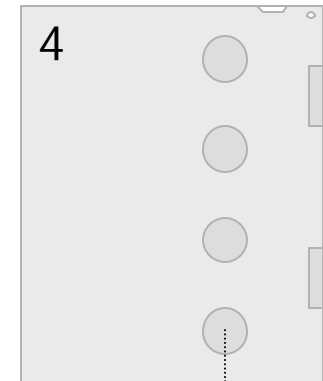
0.3 bar



0.6 bar



15 mm



33 mm

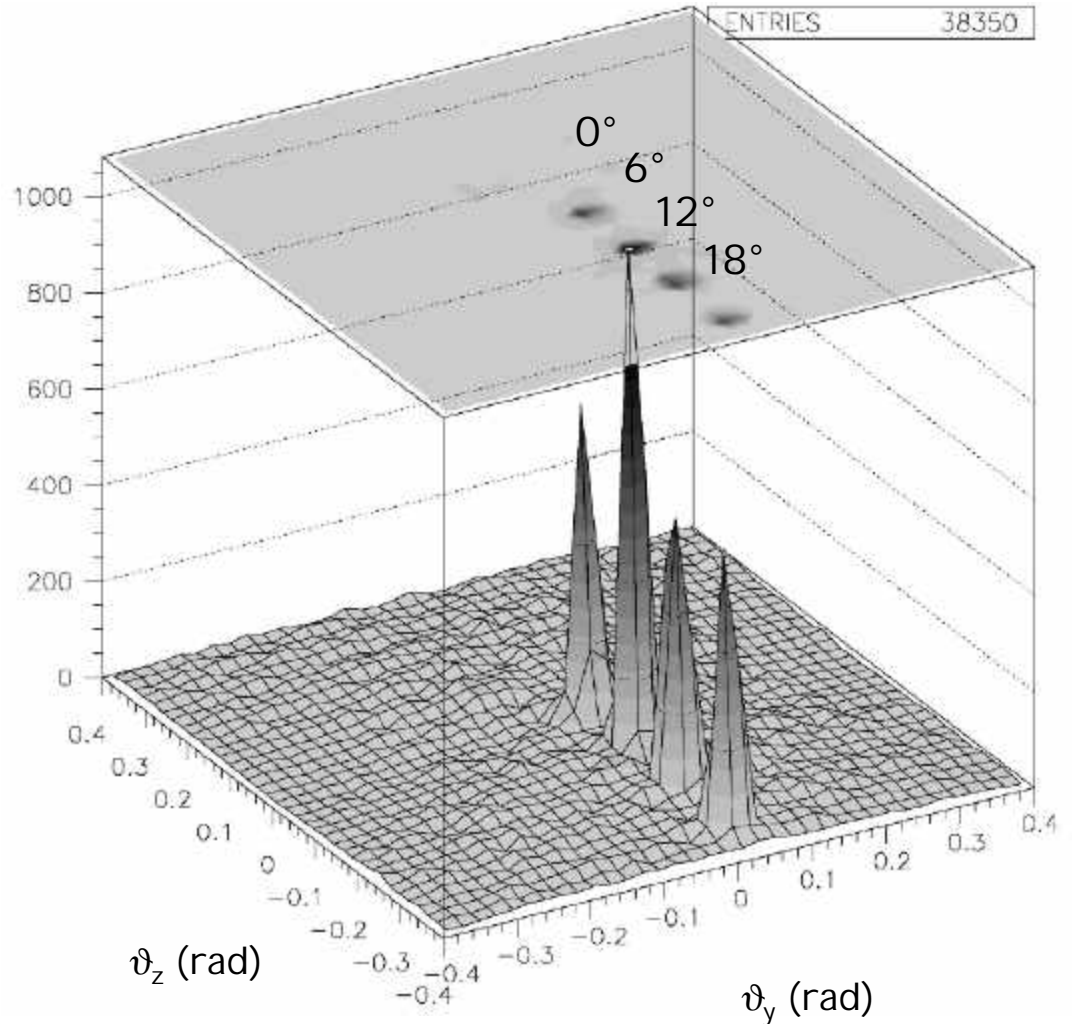
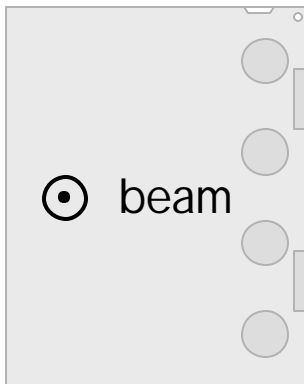
Beam exposure

π^- beam

- momentum at 7 GeV/c
- uniform along the brick area
- six different angles:
(0, 6, 12, 18, 24, 30) degrees

Analysis done with **UTS**

Only first 4 peaks in the angular range $[-0.4, 0.4]$ rad

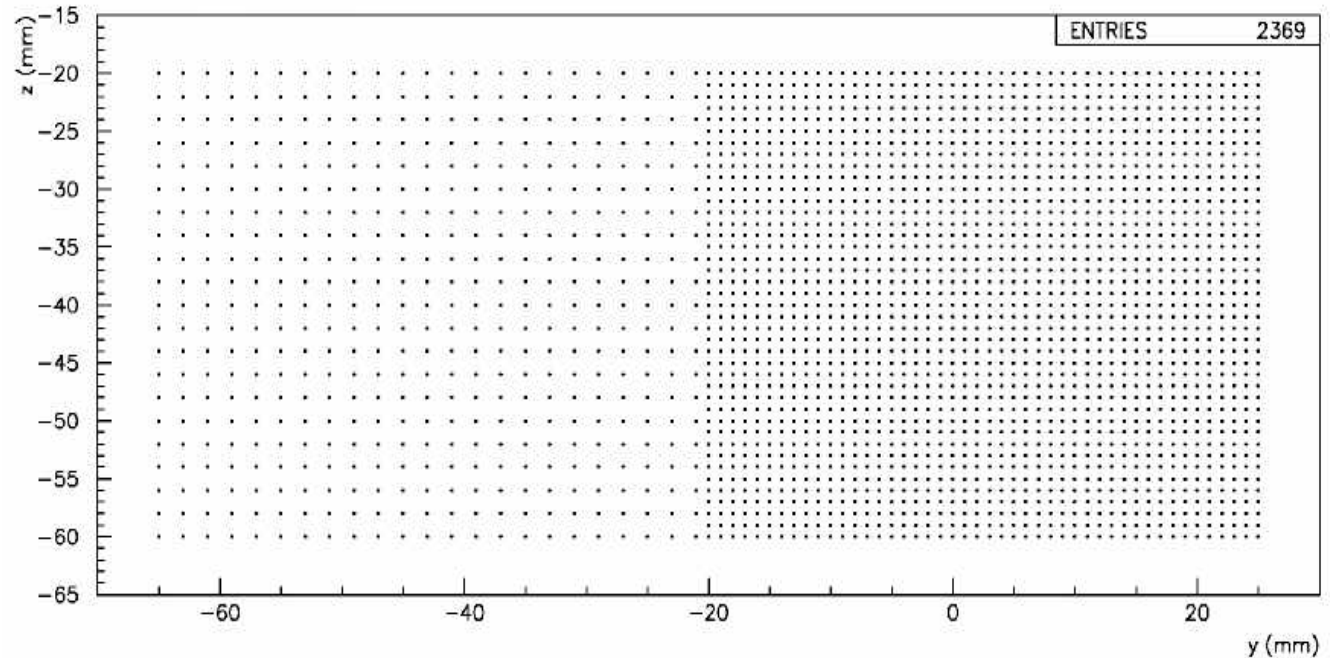
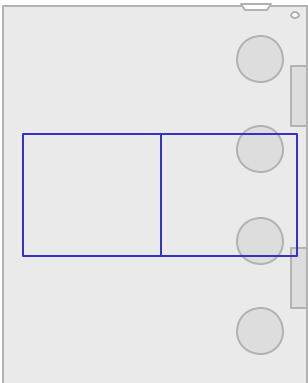


Analysis of plates

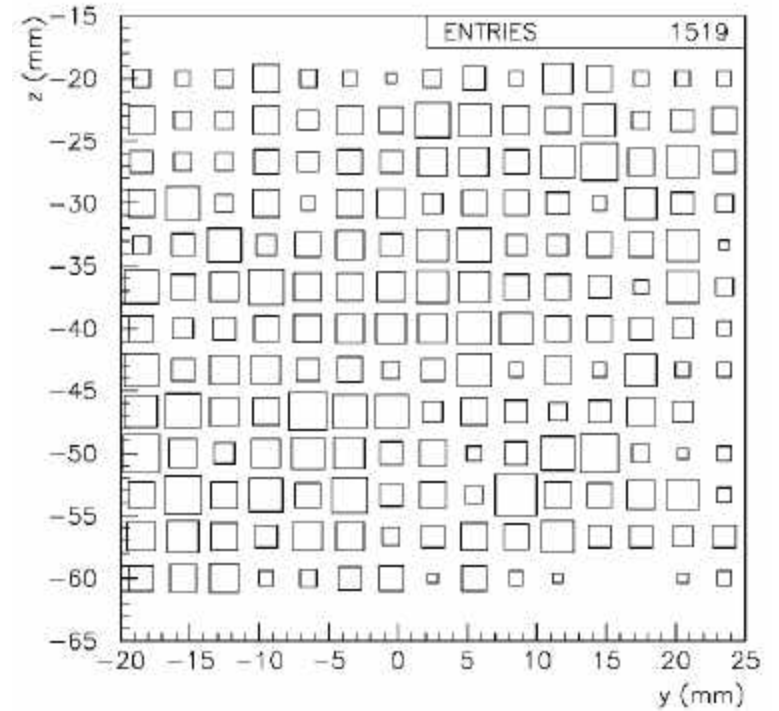
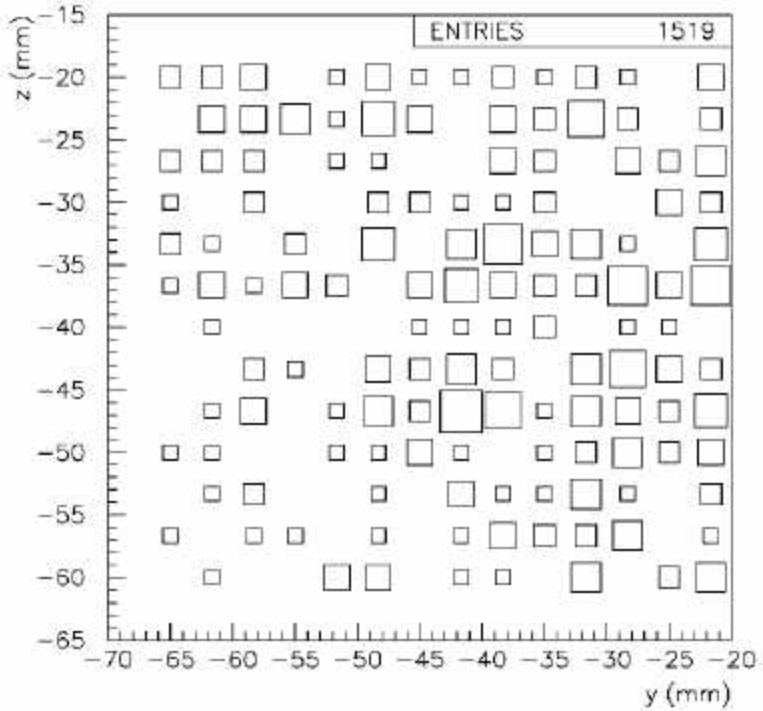
Mesh-scan is performed with:

- ✓ 1 mm step in the region near suckers
- ✓ 2 mm step in the far region

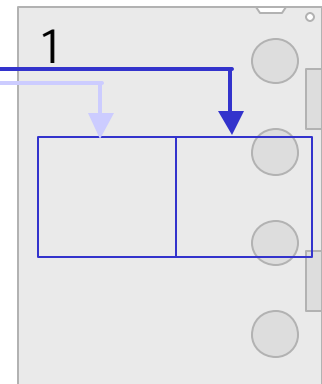
Analysed
surface:



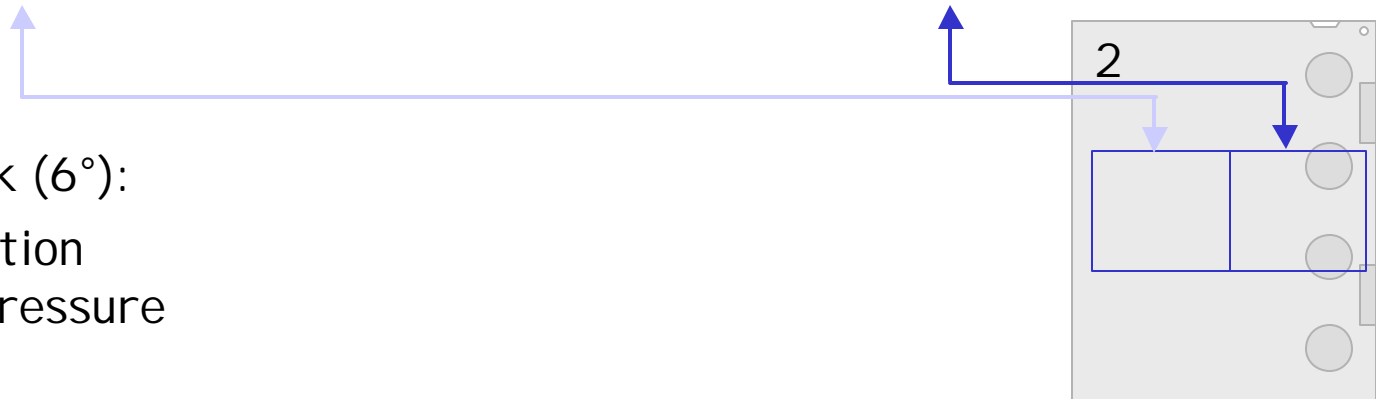
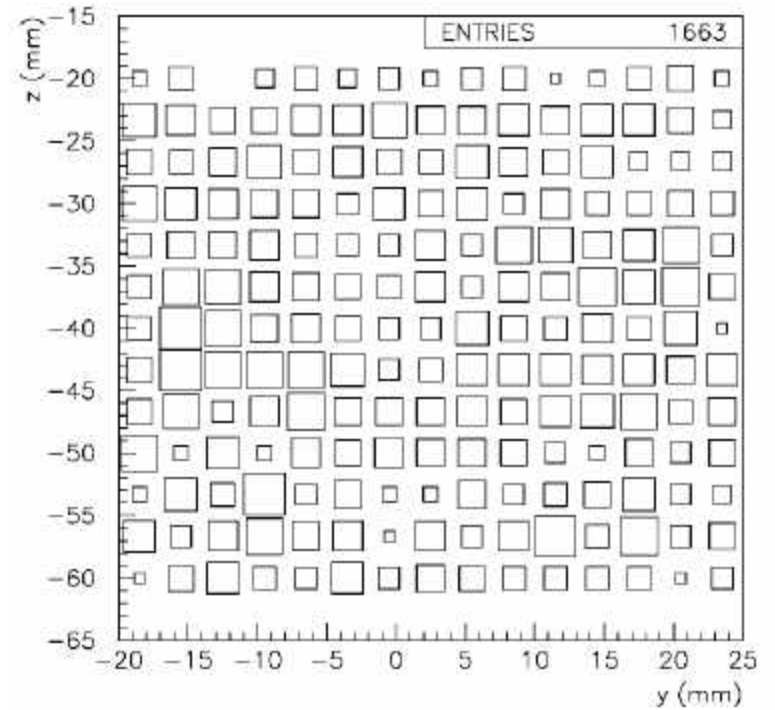
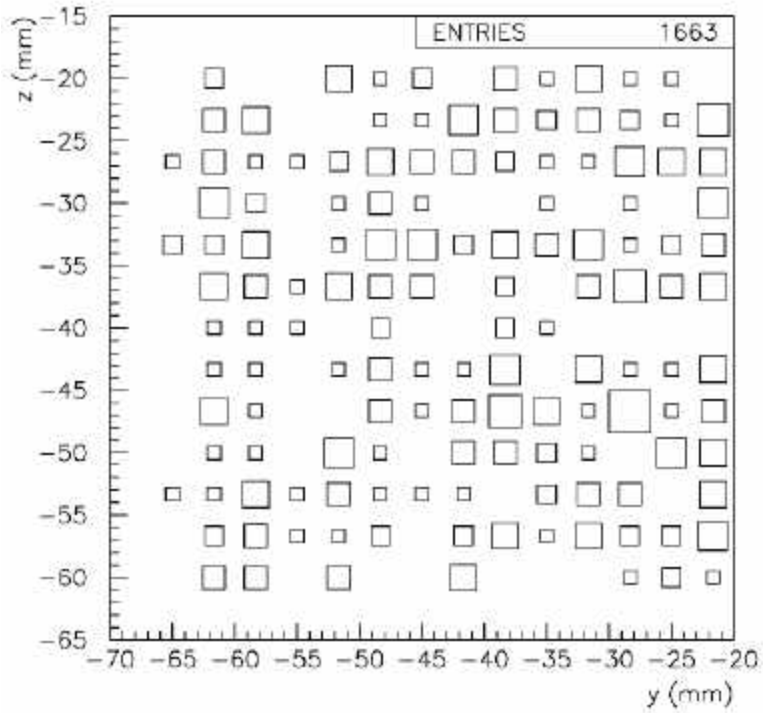
Tracks density (sheet n° 1)



Observing one peak (6°):
Uniform distribution
with 0.3 bar of pressure

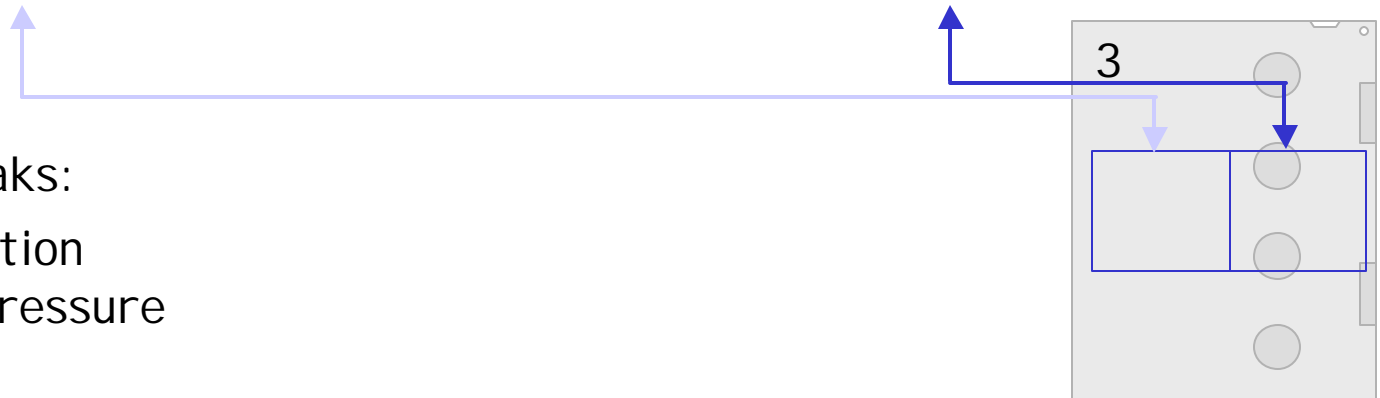
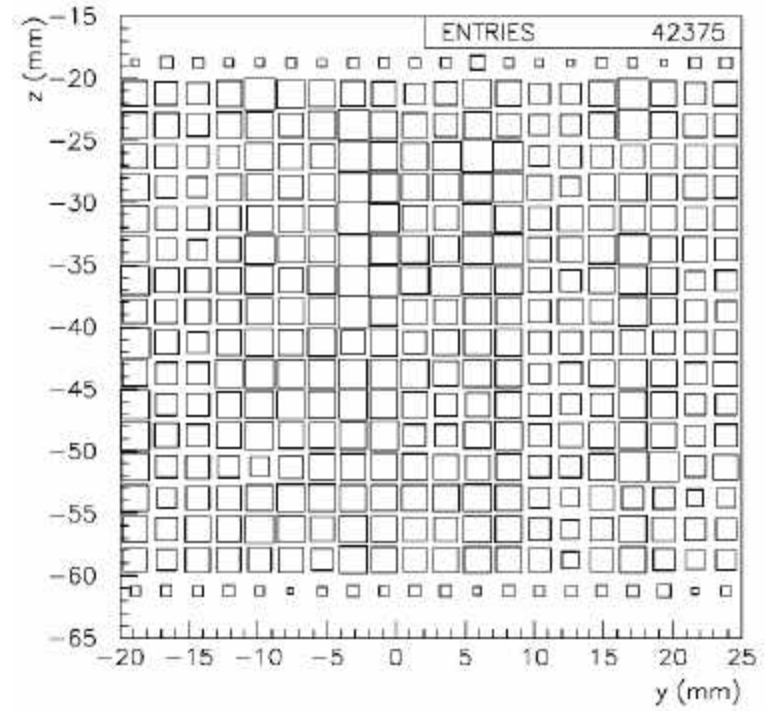
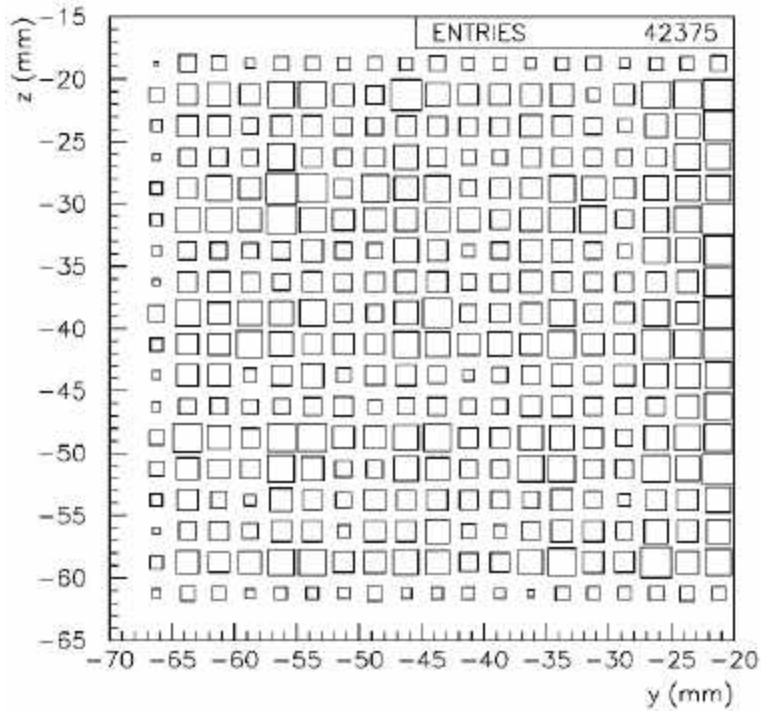


Tracks density (sheet n° 2)



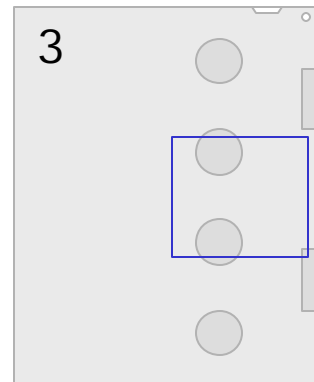
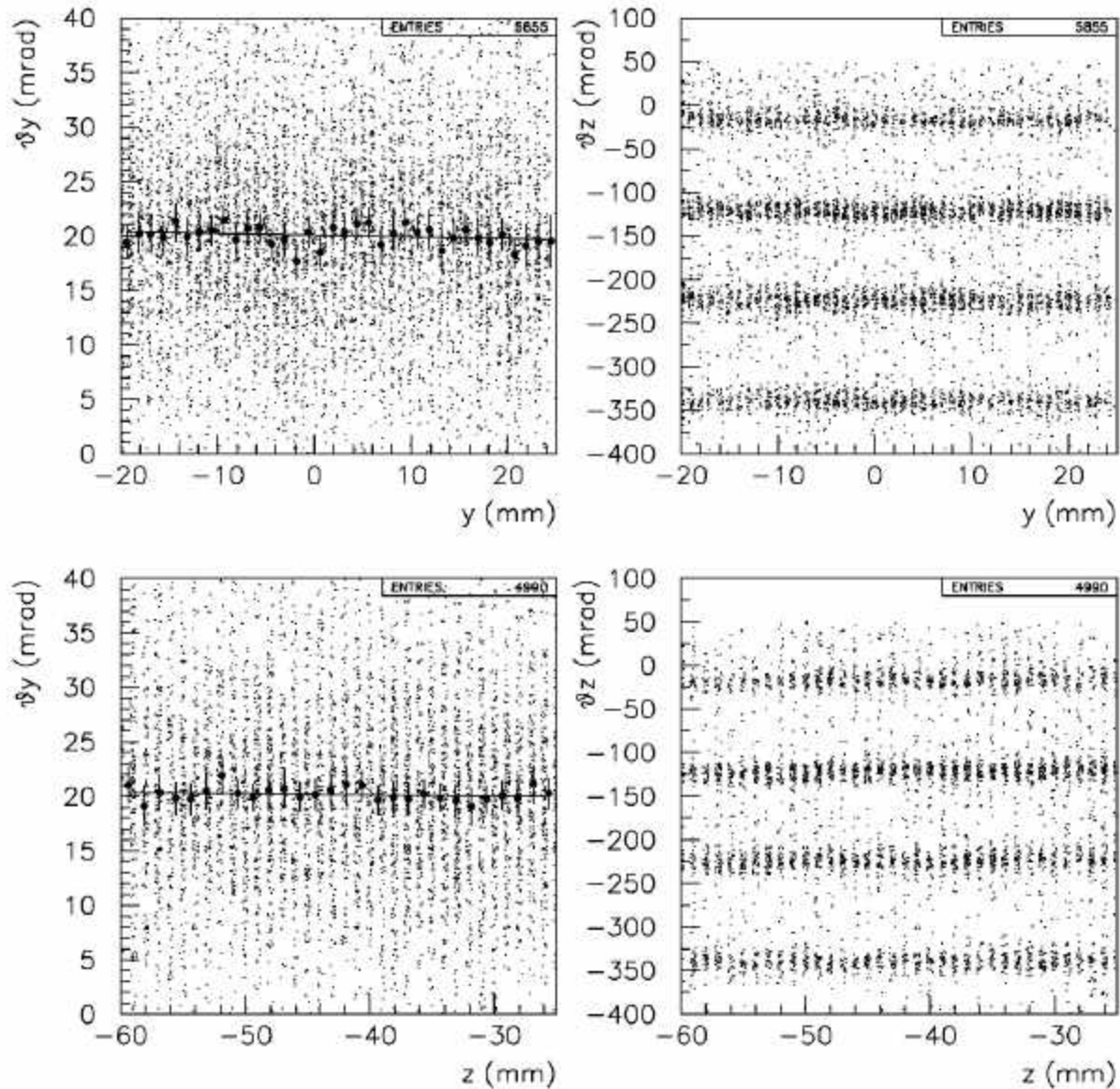
Observing one peak (6°):
Uniform distribution
with 0.6 bar of pressure

Tracks density (sheet n° 3)

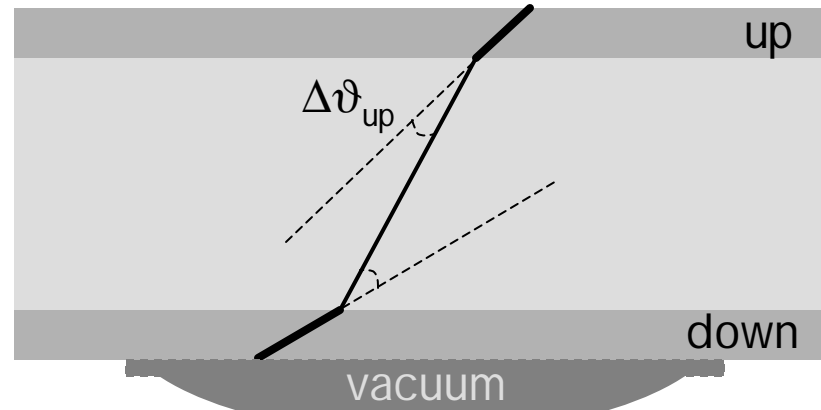
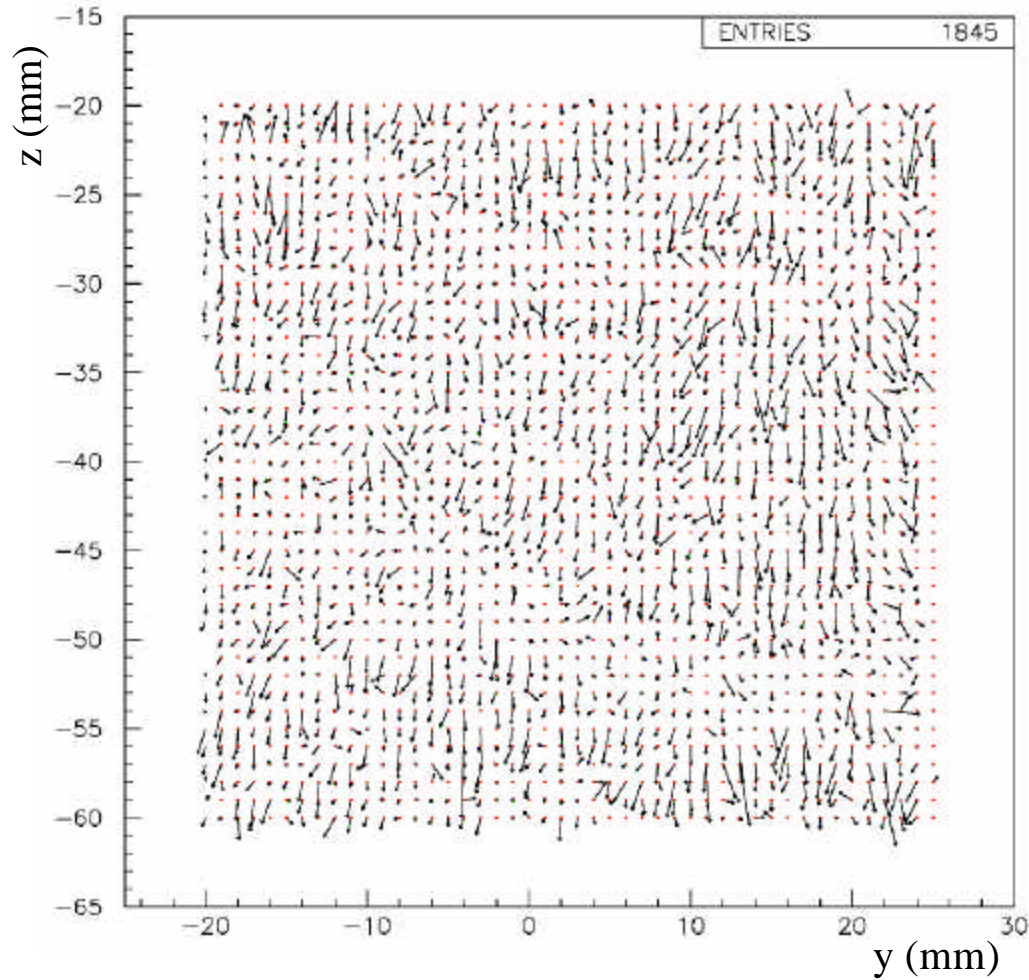


Observing all 4 peaks:
Uniform distribution
with 0.3 bar of pressure

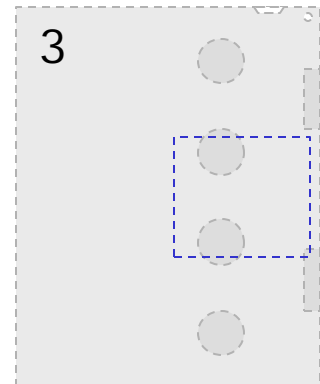
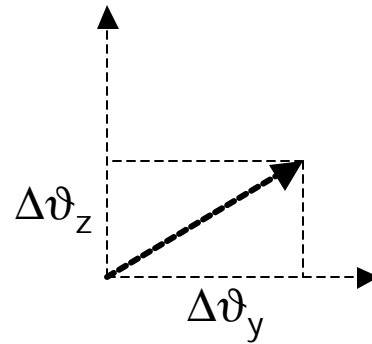
Angular distribution



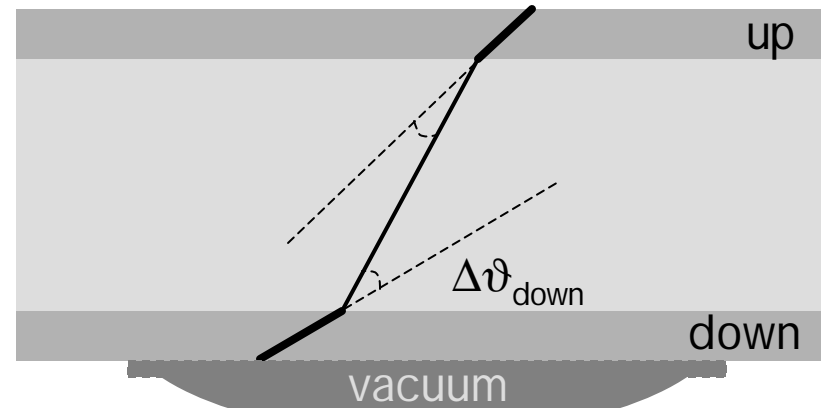
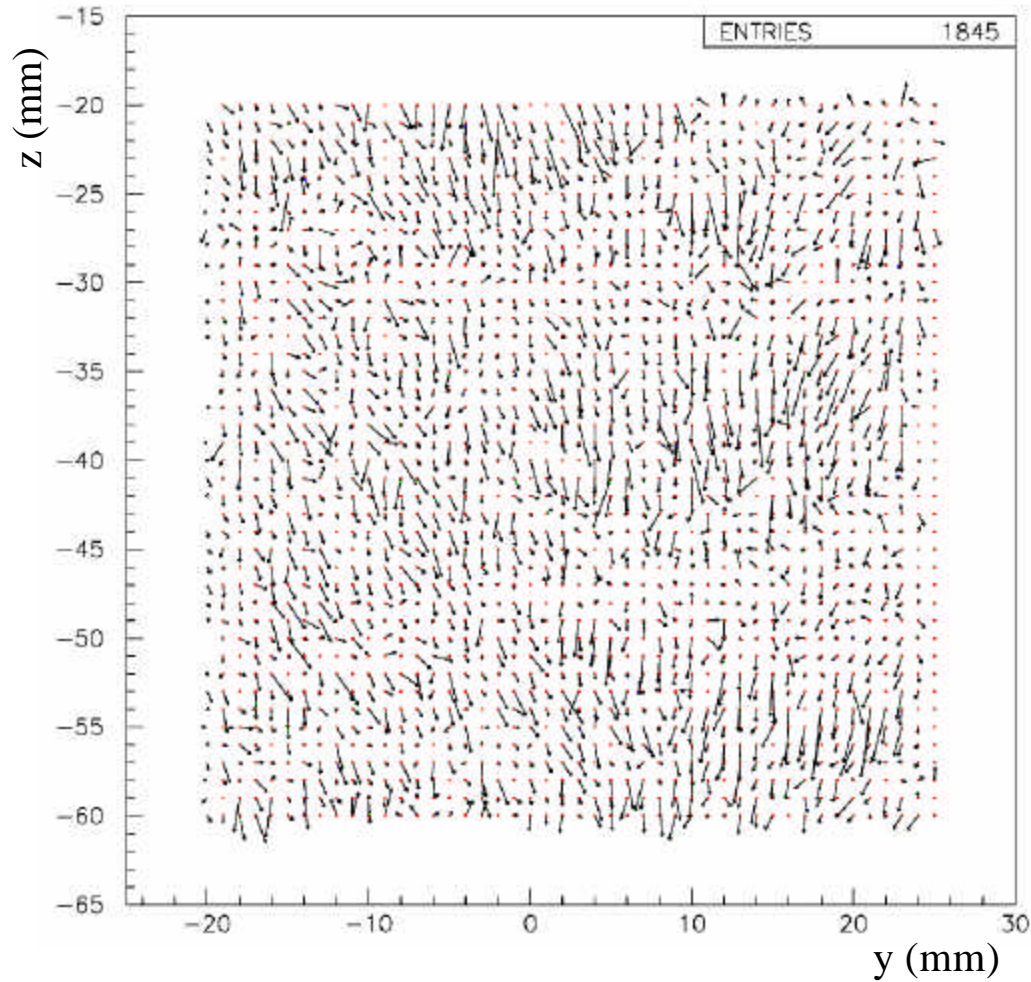
Distorsion plot (up side)



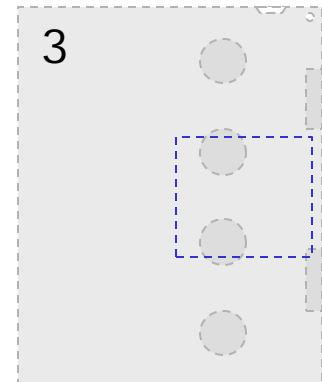
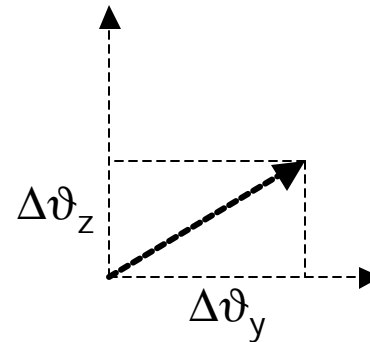
$$\Delta\vartheta_{up} \equiv (\Delta\vartheta_{y'}, \Delta\vartheta_z)$$



Distorsion plot (down side)



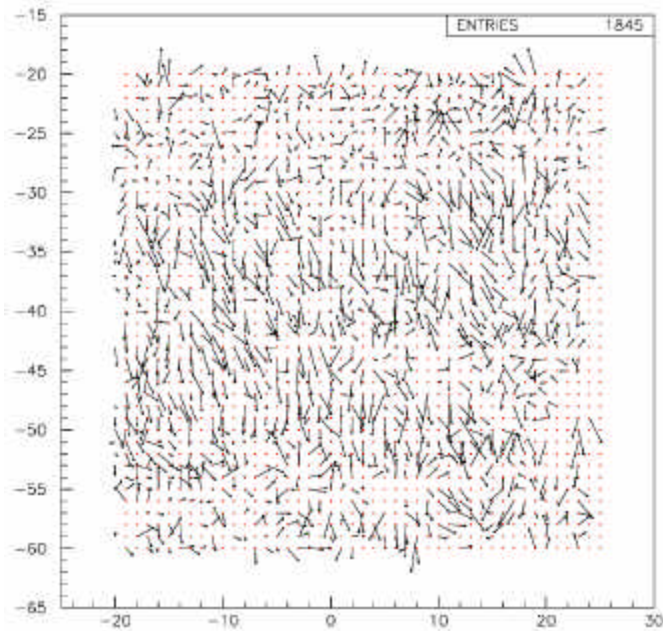
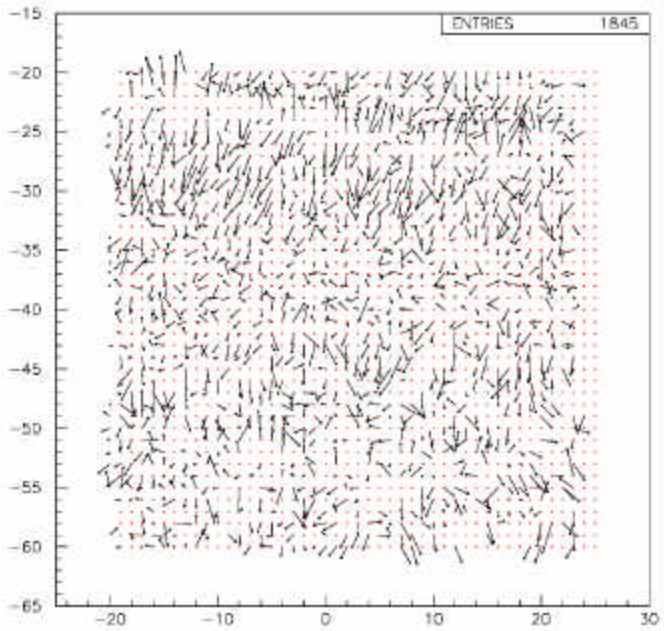
$$\Delta\vartheta_{\text{down}} \equiv (\Delta\vartheta_y, \Delta\vartheta_z)$$



up side

down side

1

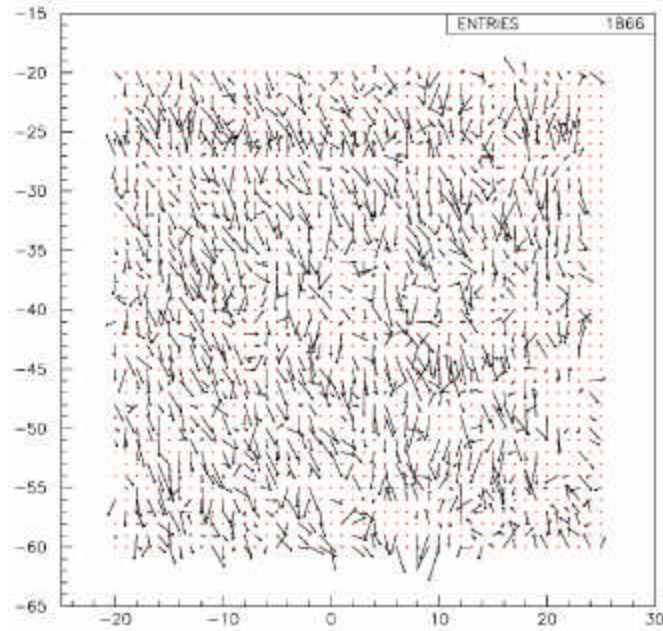
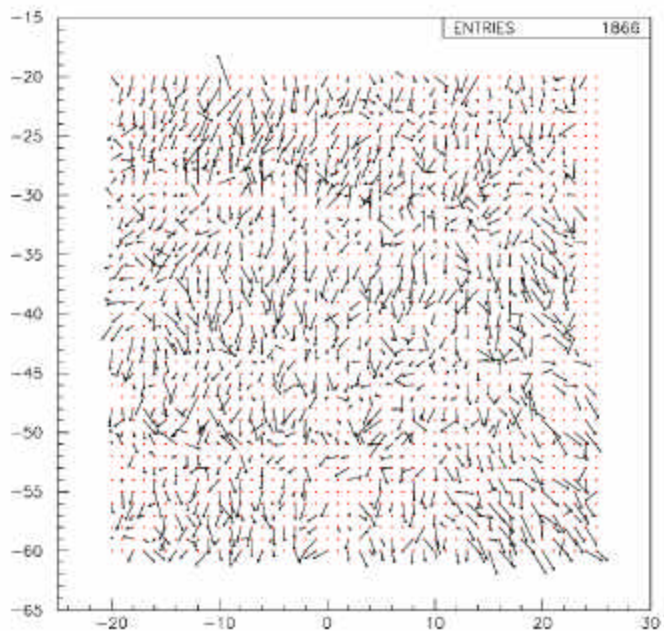


More
distorsion
plots

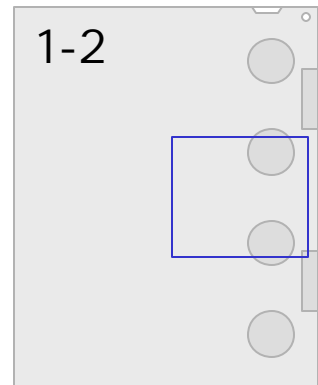


(0.3 bar)

2



(0.6 bar)



Conclusions

- ✓ No tracks deficit in the regions near vacuum suckers (0.3 and 0.6 bar)
- ✓ No dependency of tracks' slope from position
- ✓ With statistics collected until now, no visible effects on distortion caused by suckers (neither on segments, nor on tracks)



Outlook: to collect more consistent statistics in order to estimate other possible effects (even for emulsion stoppers on the edges)