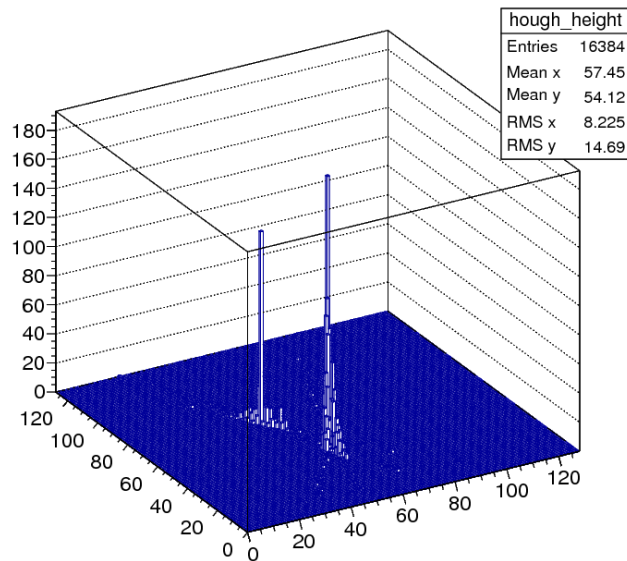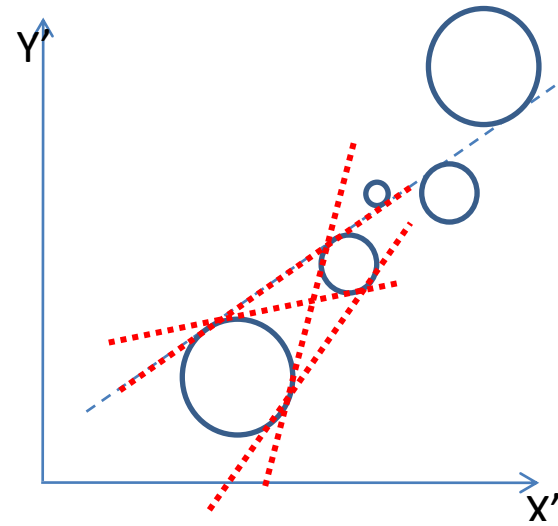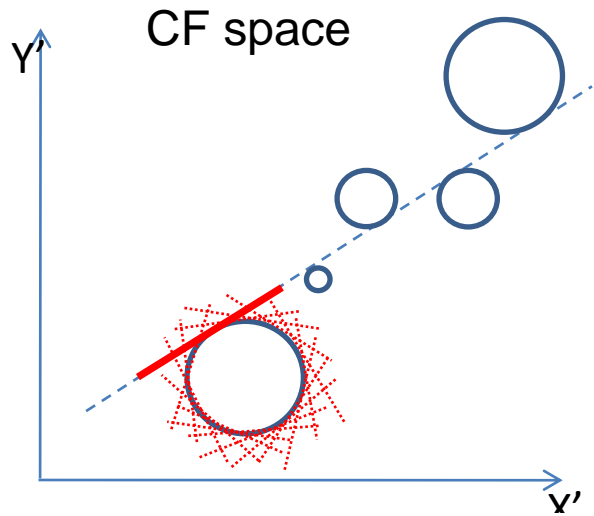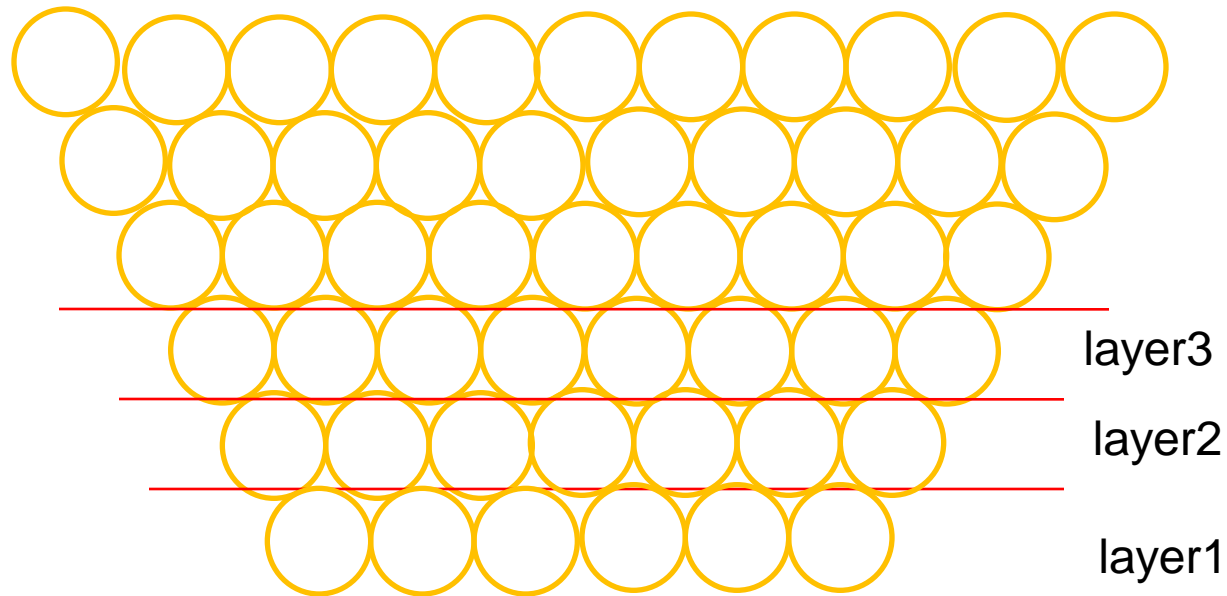# Online Tracking Algorithm

Yutie Liang

24.05.2013

# Method of Pt reconstruction with STT

CF space
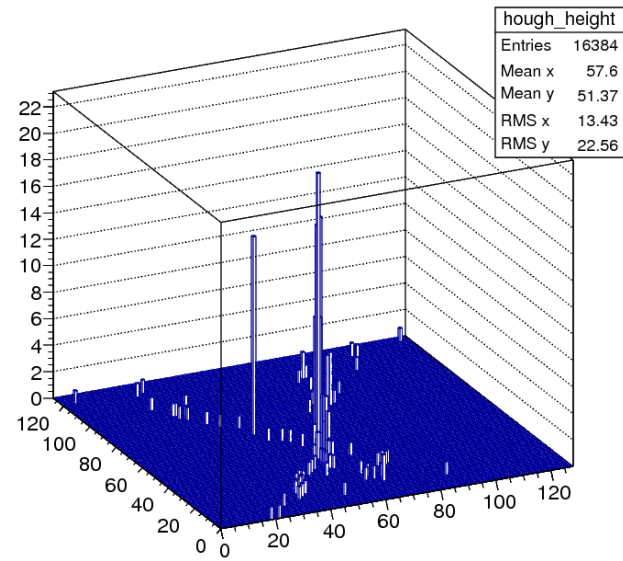
If 100 hits, assume we divide the detector into 10 layers: 10 hits/per layer
10 hits in layer N need to combine with the other 10 hits in layer N+1:
(10 * 10)combinations * 4 lines/ combination * 10 layers = 4000 lines

Previous method:
Iteration 1: 100 hit * 16 lines/hit = 1600
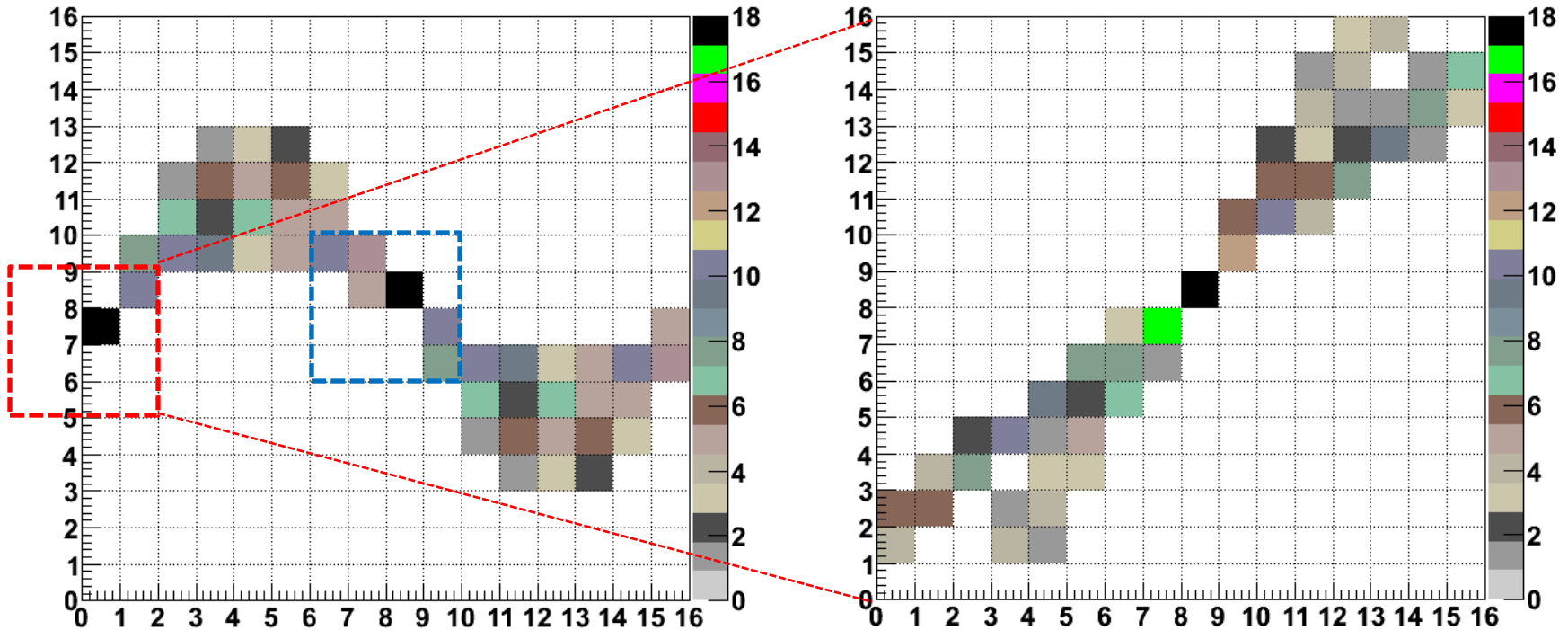Iteration 2: 100 hit * 16 lines/hit * 16 (peaks from iteration 1) = 25600
Iteration 3: same as iteration 2…

σ ~ 3.2%
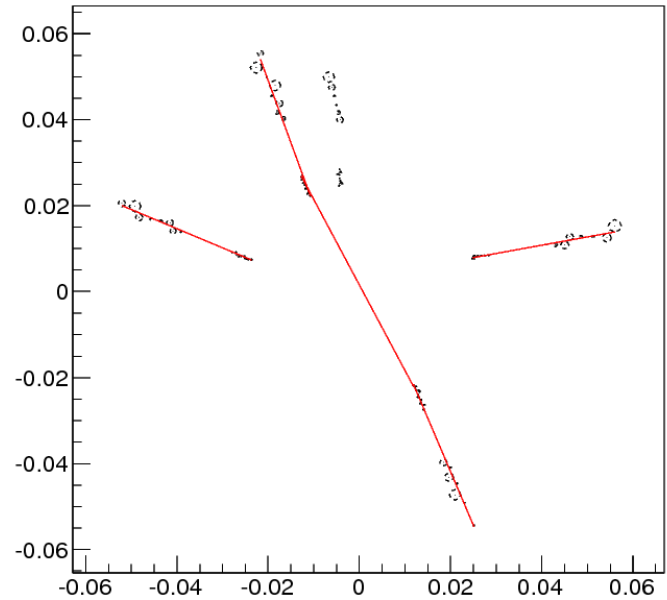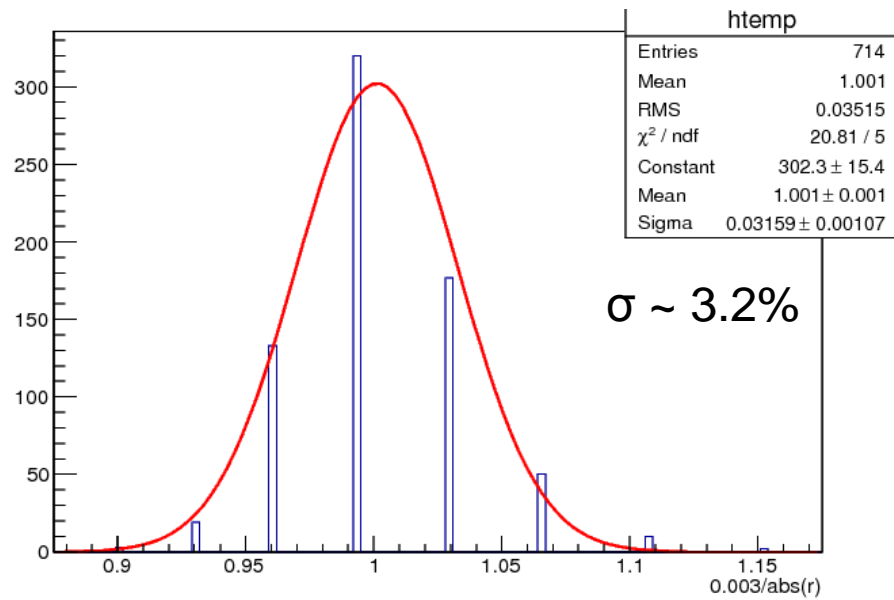
Thank you

Adaptive Hough transformation

Initially, 16 X 16 Hough space, keep the best 16 bins for the next step.
For a peak(r, θ), locate the area of   r-2 ~ r+1, θ-2 ~ θ+1
Divide the area into 16 X 16 Hough space. (equivalent to 64 X 64)

Iteration	0	1	2	3	4	5
Hough space	16X16	64X64	256X256	1024X1024	4096X4096	16384X16384