# COT and Silicon Alignment

## Tracking Meeting Sept 11th,2002

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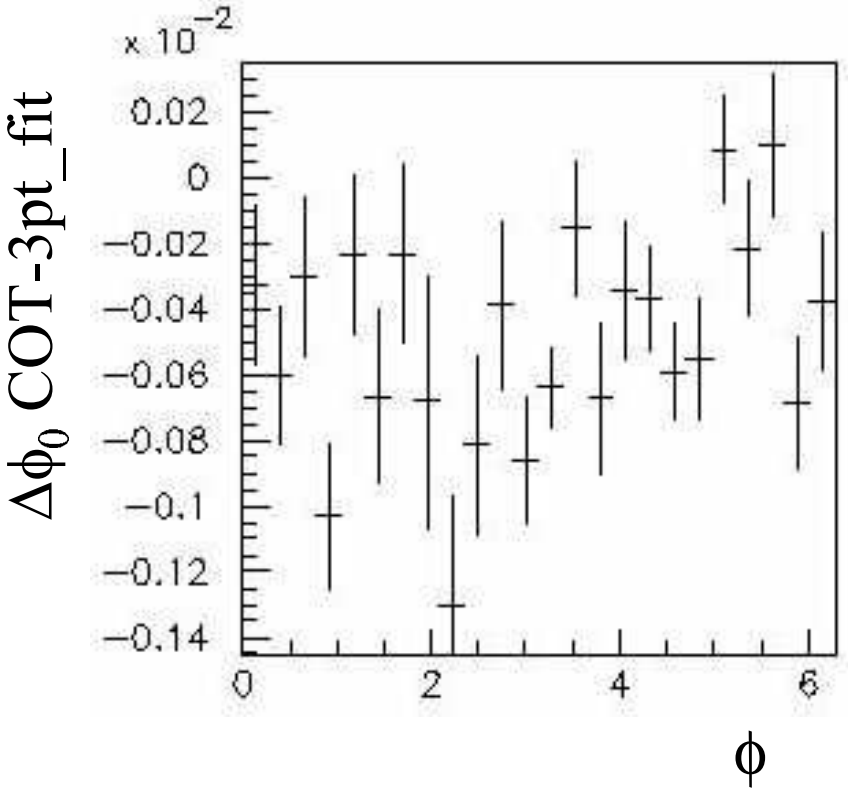
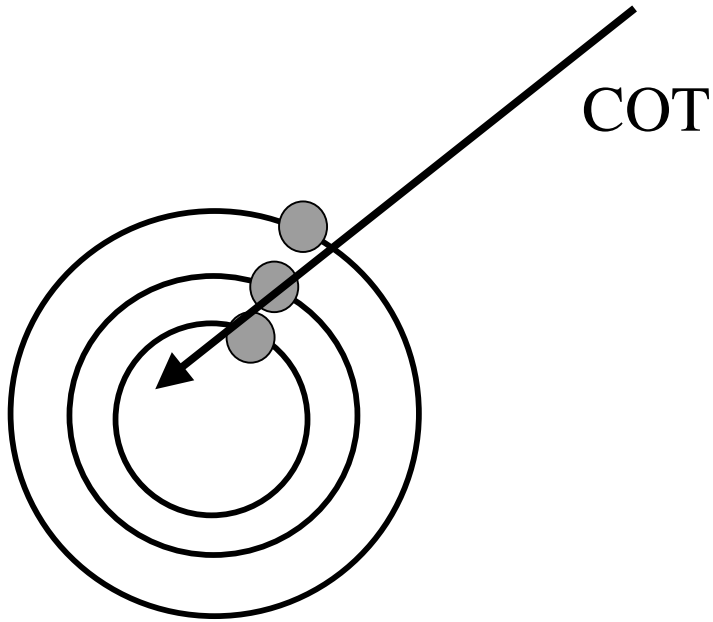
- Alignment 100027 is unbiased and consistent with mechanical survey
- ……. however it doesn't line up inside COT



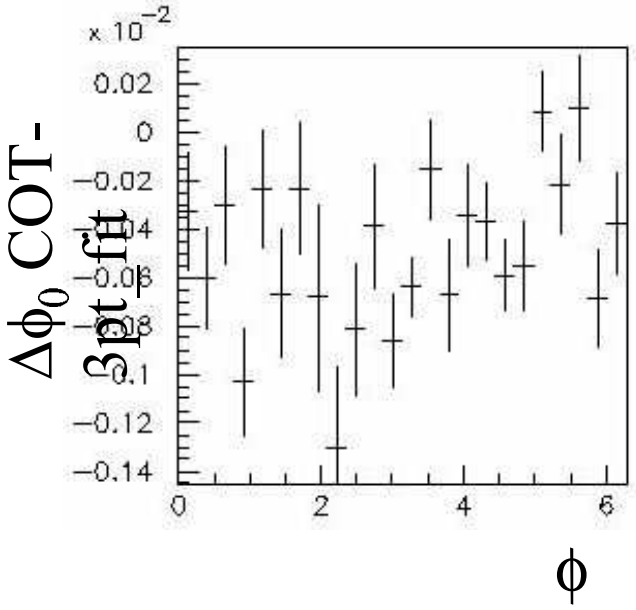



# Alignment Philosophy

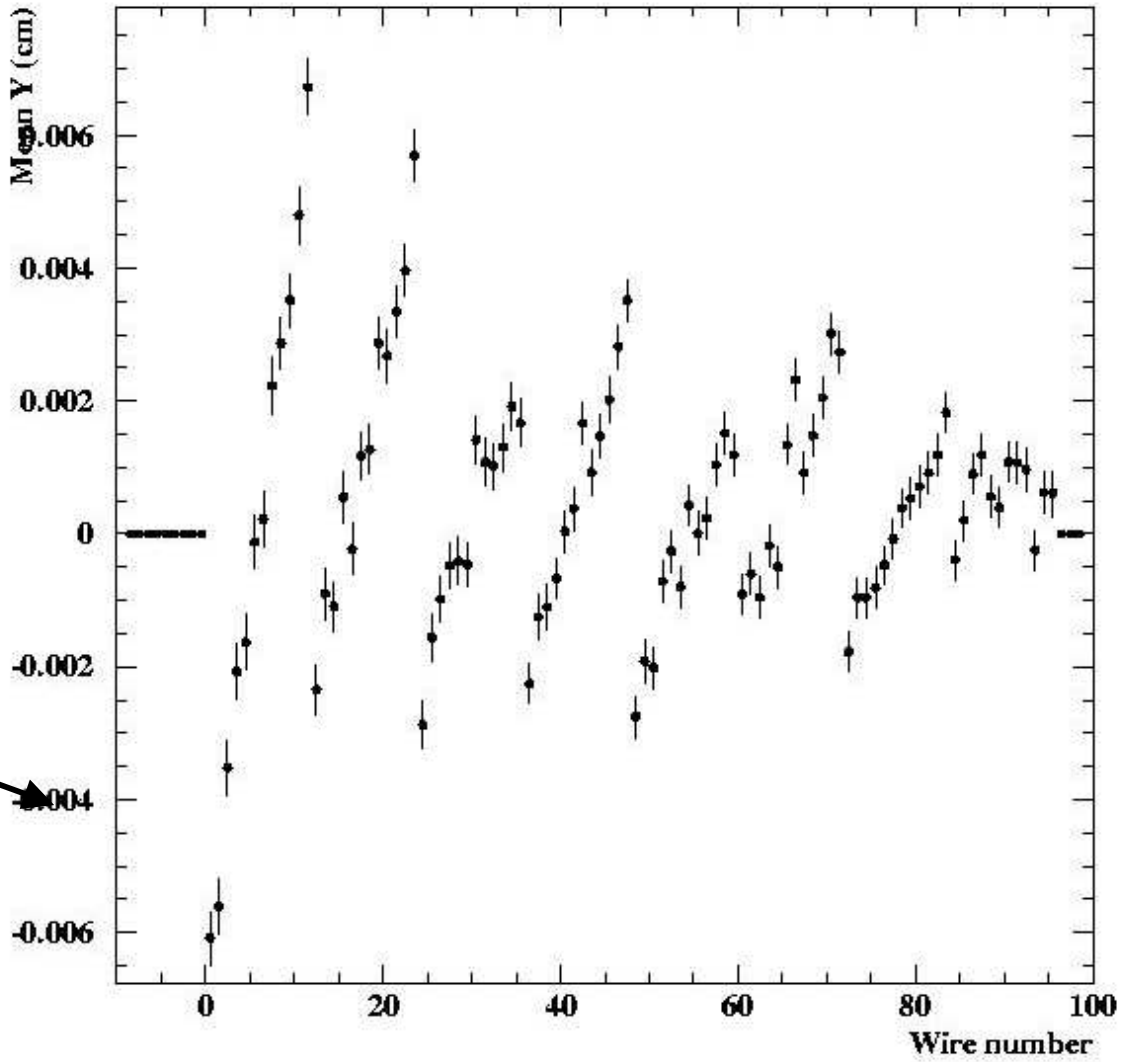
- Eventual solution must be to understand and fix the COT
- Patching up LOO and ISL to follow COT systematics will be difficult
  - eg. different modularity in ISL/LOO

- Lim Detector_understanding -> Truth
  $t \to \infty$

- Progressive patching may not converge




Known problem #1



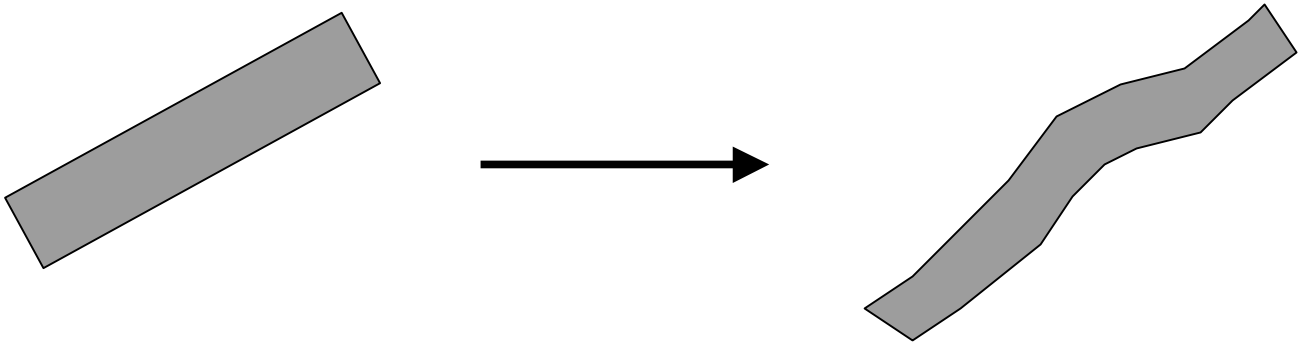

Known problem #2
(for 2 years)

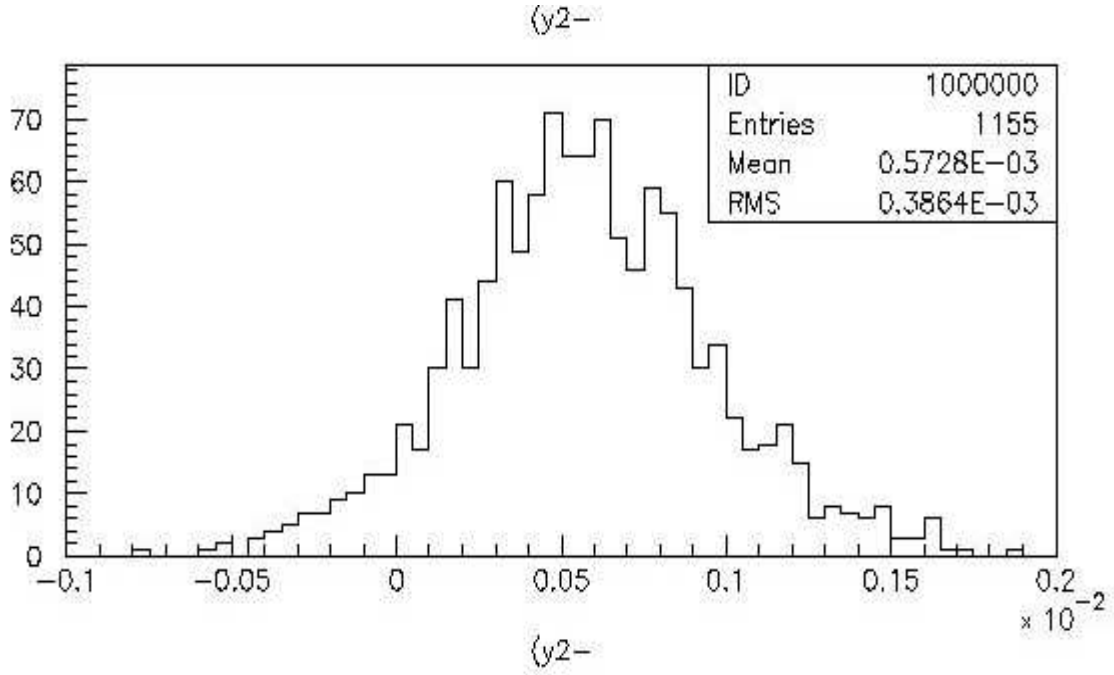
Are they related ?

# COT: Back to basics.

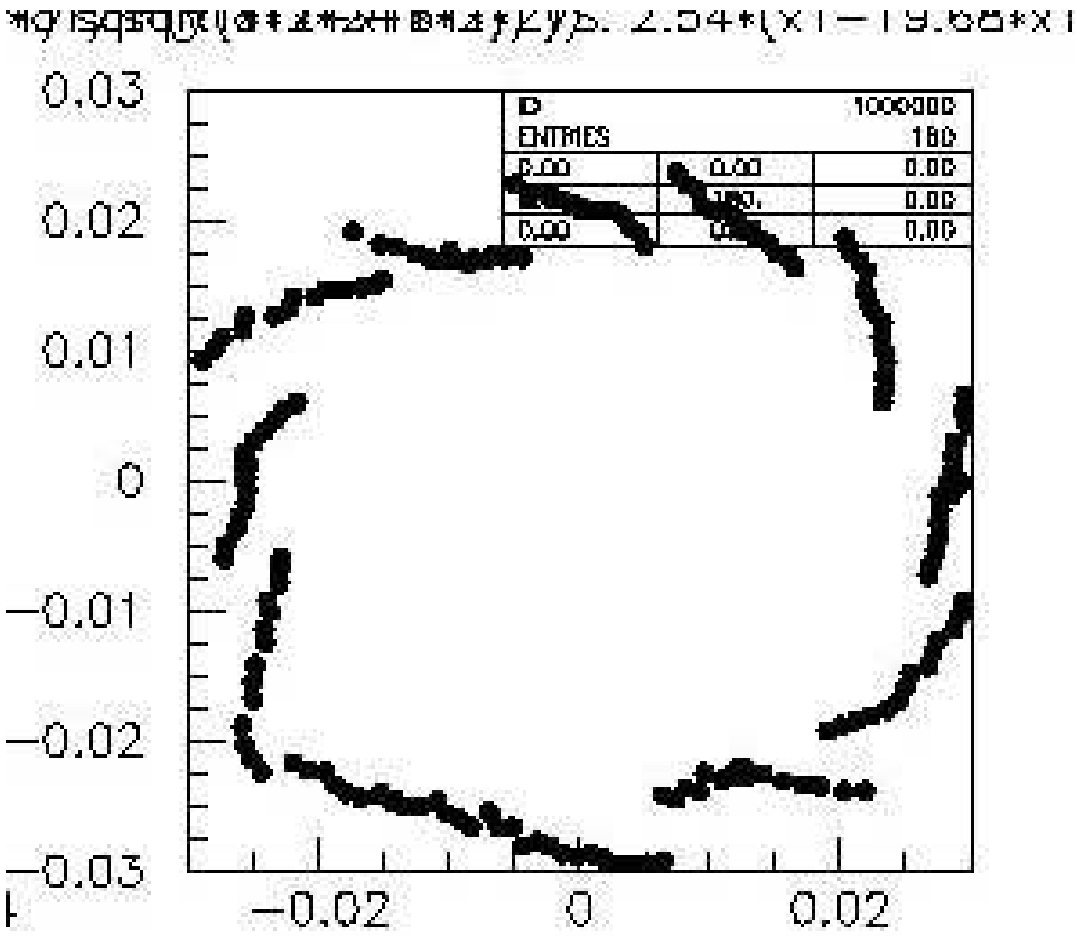
- Review construction and survey of COT with Aseet.
- Number of features
  - Slot convex
  - CNC milling drift
  - Gravitational sag of wires
  - Twist of stereo wires
  - Rvz deformation of endplates
  - Phi deformation of endplates

# Slot slightly convex

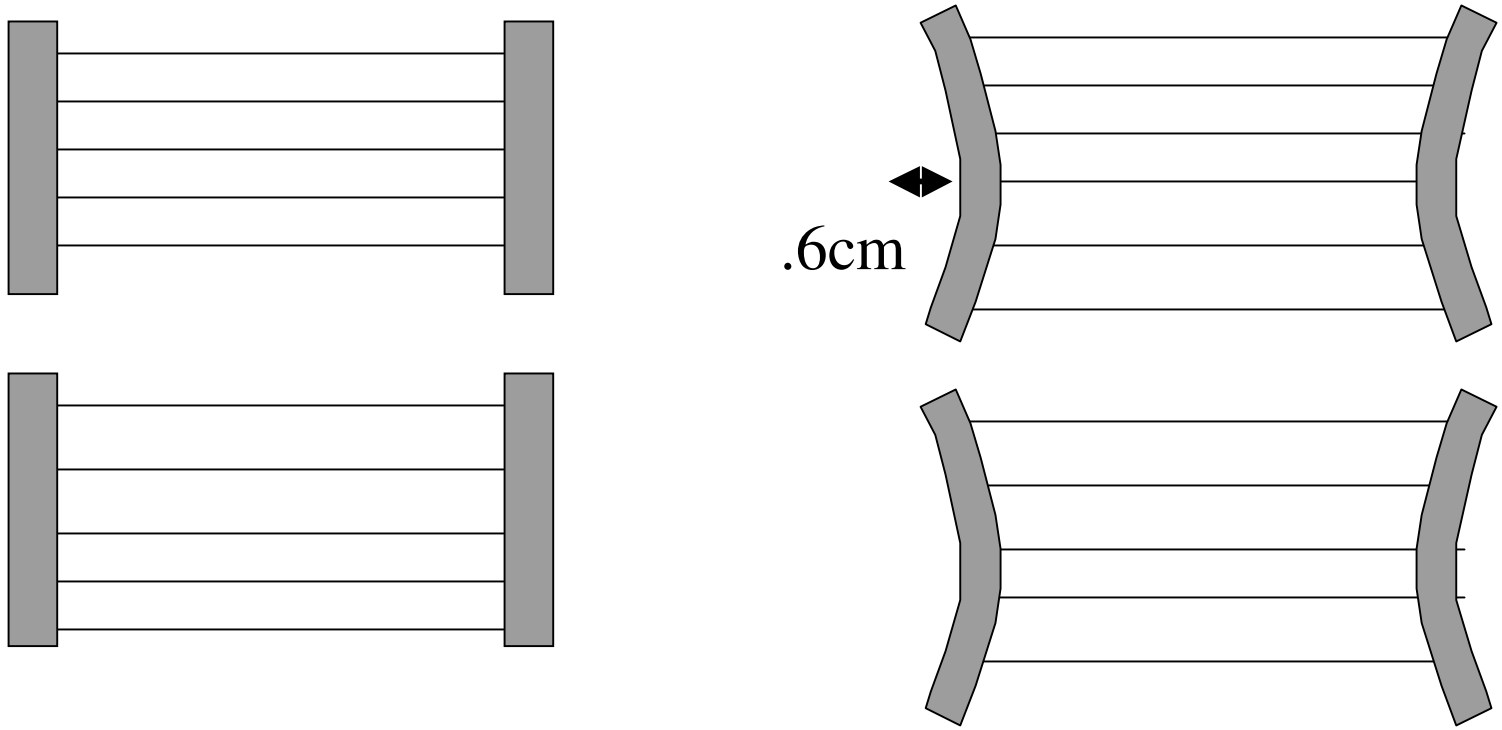




# CNC milling drift



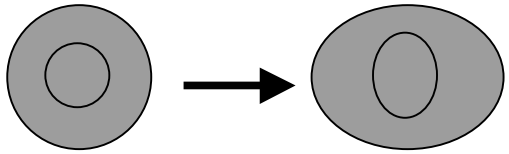
# Deformation of End Plate




Centre of plate moves out/in at in/outside (30um)

Edge of plate moves in/out at in/outside (500um)

Phi deformations too. Need FEA model



# Status of Offline

- We are trying to discover what's in the offline
- Aseet's latest file is not.
- Can explain both problems… at some level.
- Attempt to quantify (Tara). Compare
  - Offline
  - Aseet's latest file
  - CMM no deformation
  - CMM with quadratic, circle, cubic deformation
  - Artificial 1mrad, 3mrad slot rotation.

# Future

- For the future, can we find the ‘correct’ position of COT, and/or must we align it.
- Silicon Alignment should be ‘independent’ of COT, and should assist with COT alignment.