

# Optics Status Update

Chao Gu

# Longitudinal Optics

- Settings:
  - Beam energy 2.254GeV
  - 5T Target Field at 0deg
  - Septum coil turns is 40-00-16
- Optics settings:
  - Full delta scan on left arm (-3%, -1%, 0%, 1%, 3%)
  - Only have 0% on right arm

# Matrix Angle Calibration

- Using Min's straight through matrix as initial matrix
- Ignore the longitudinal field at first

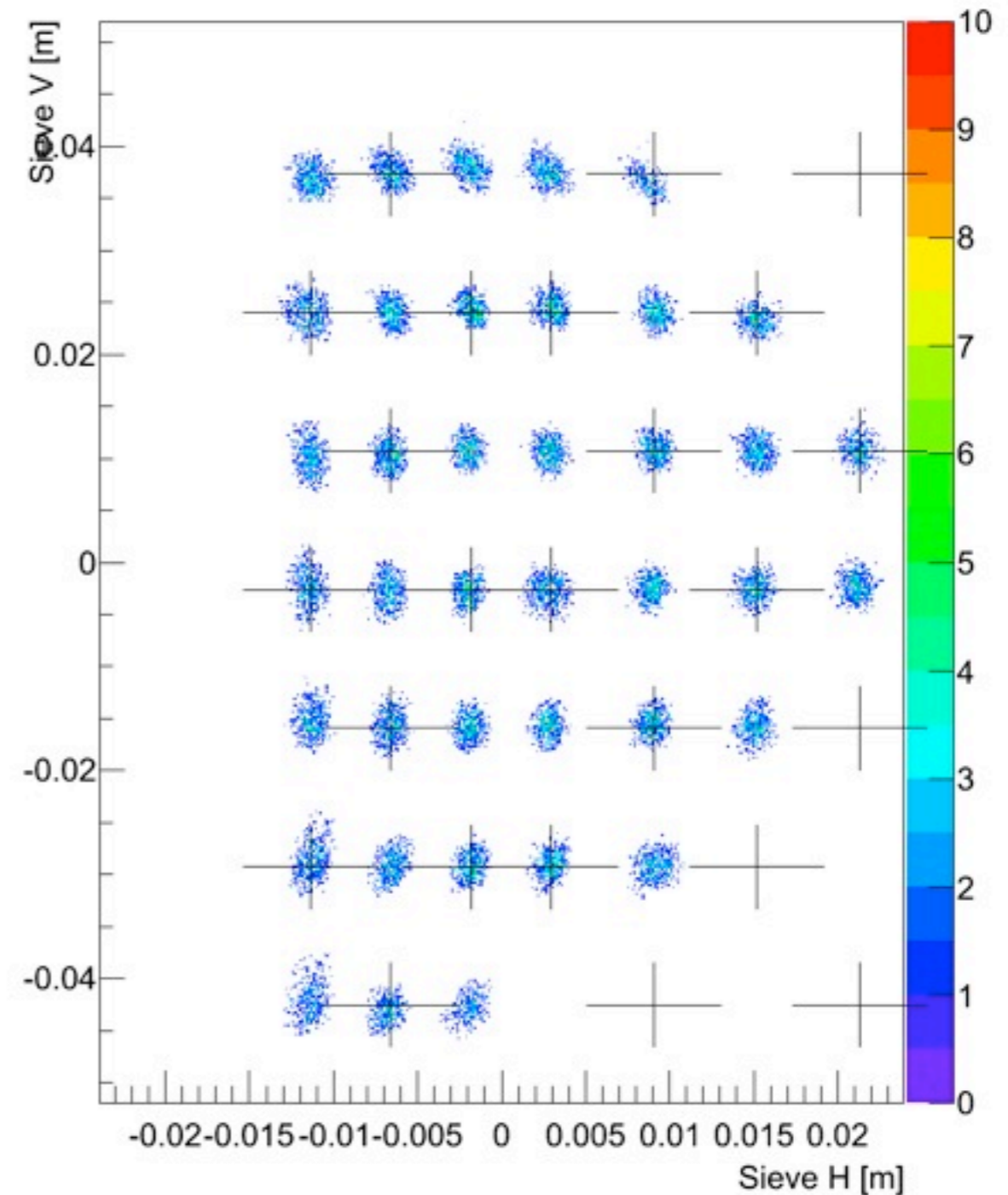
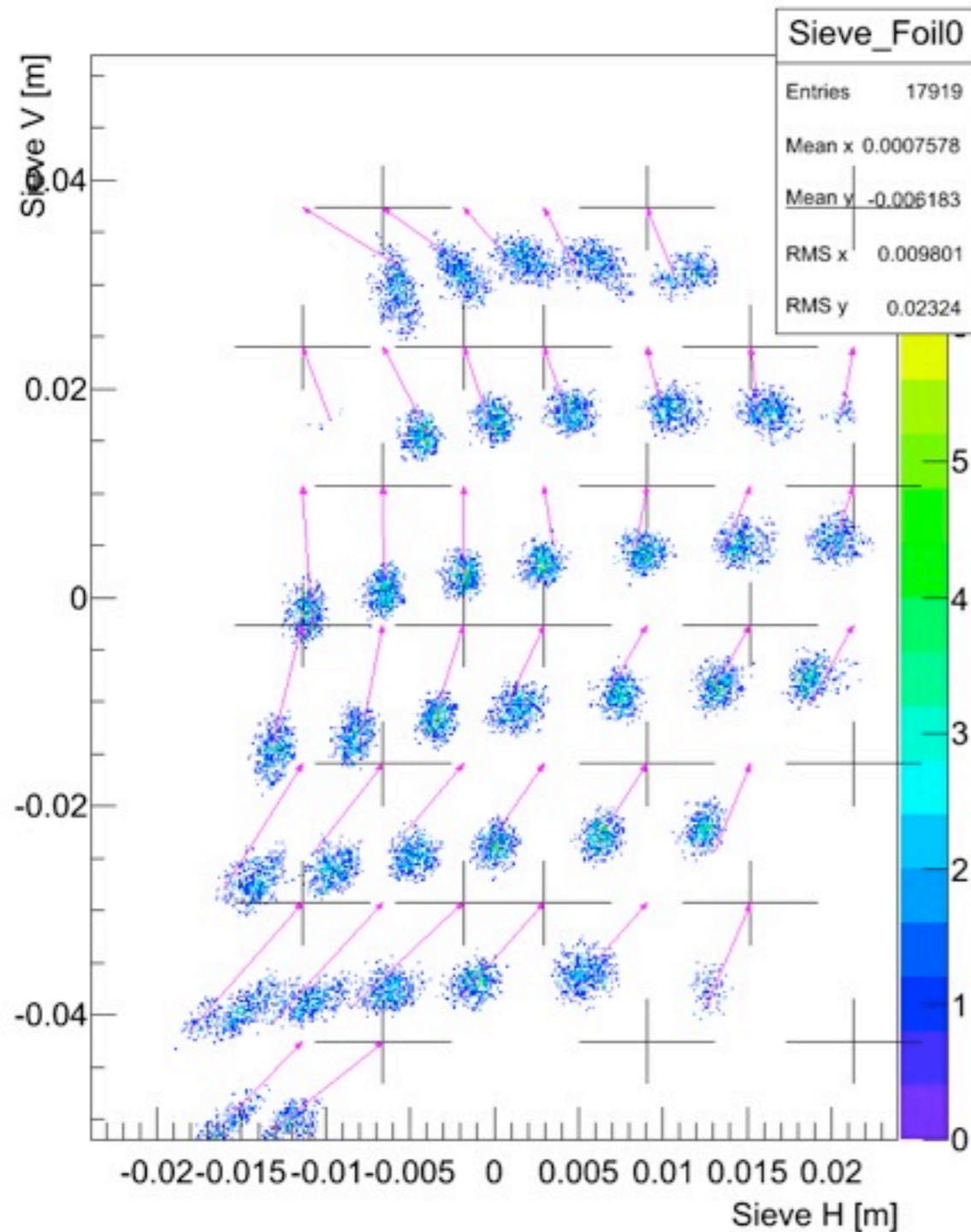
# Matrix Angle Calibration

Before Optimize

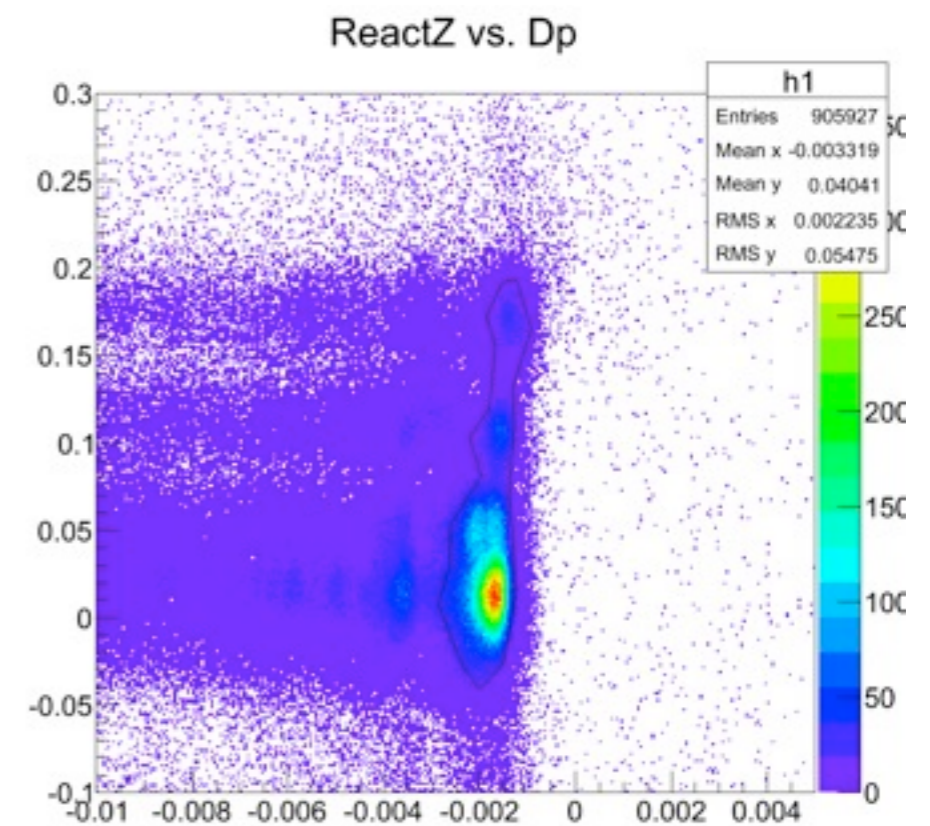
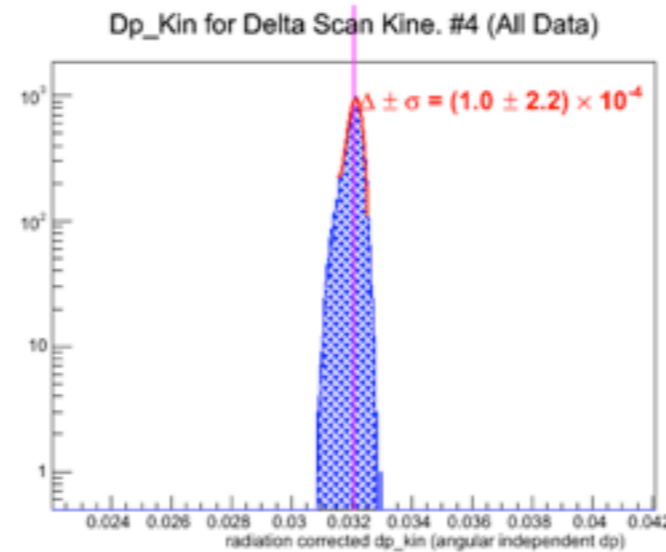
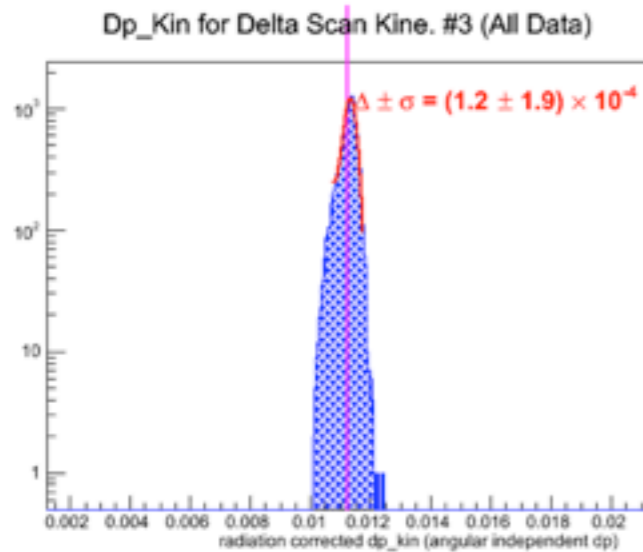
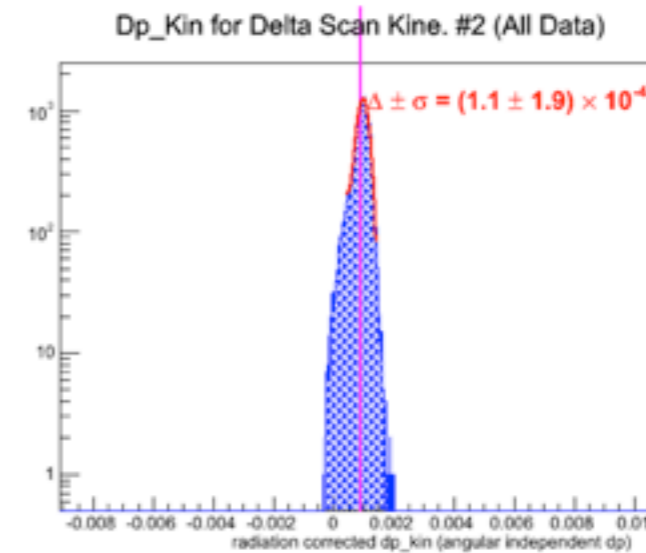
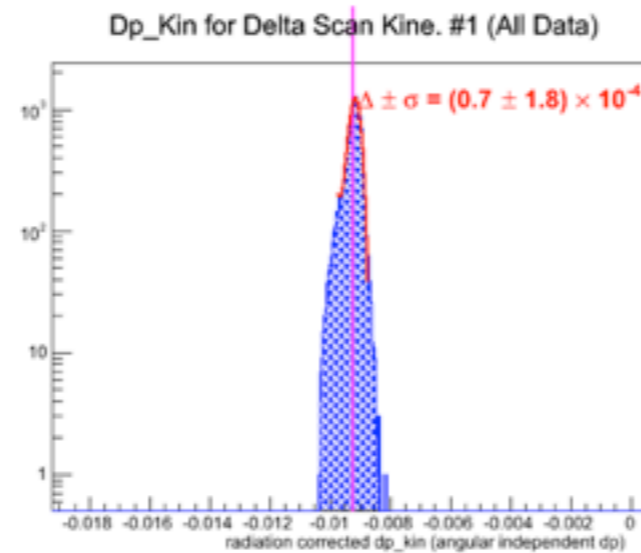
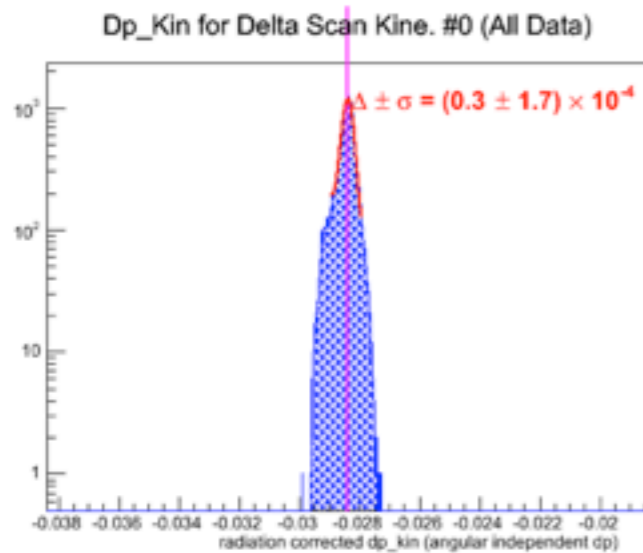
After 2 iteration

Sieve Plane Proj. (tg\_X vs tg\_Y) for Data set #0

Sieve Plane Proj. (tg\_X vs tg\_Y) for Data set #0

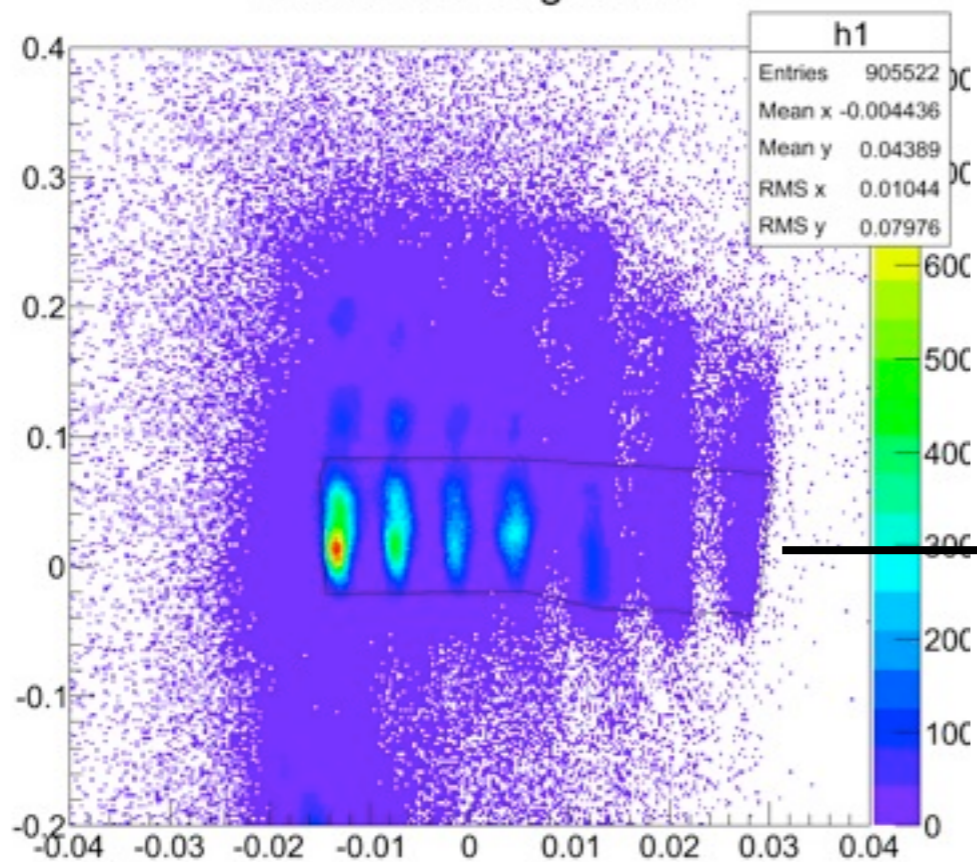


# Matrix Angle Calibration

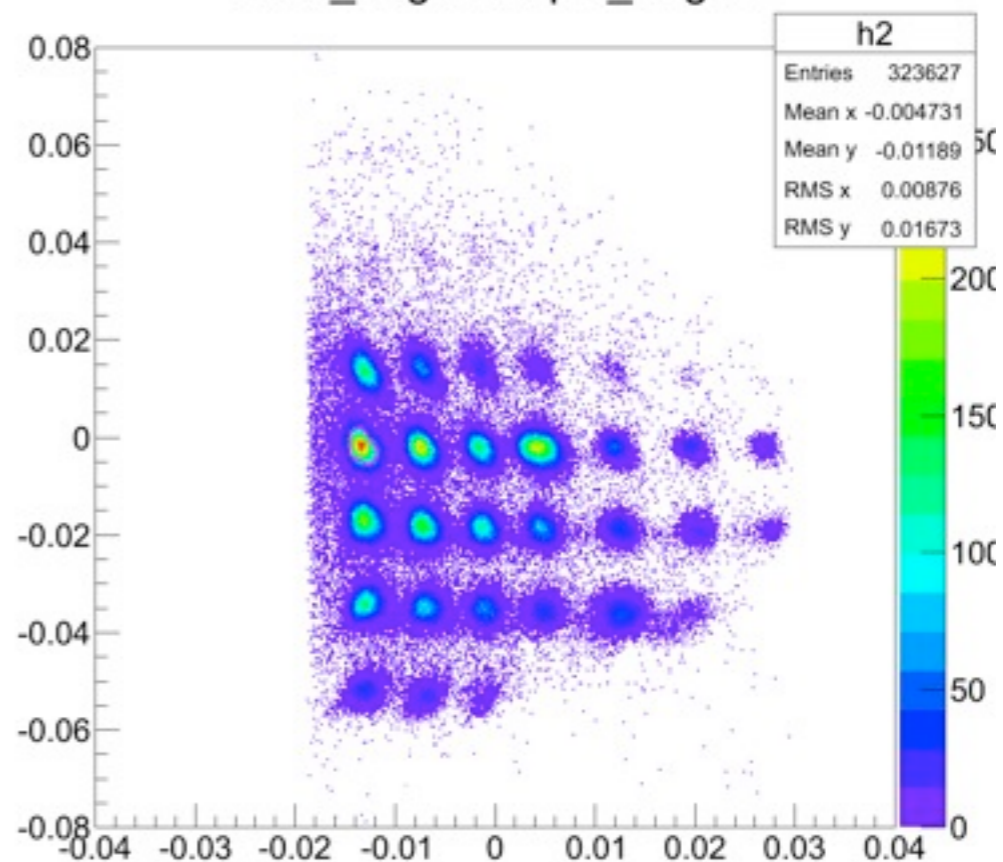


React z is relatively bad comparing to the straight through condition

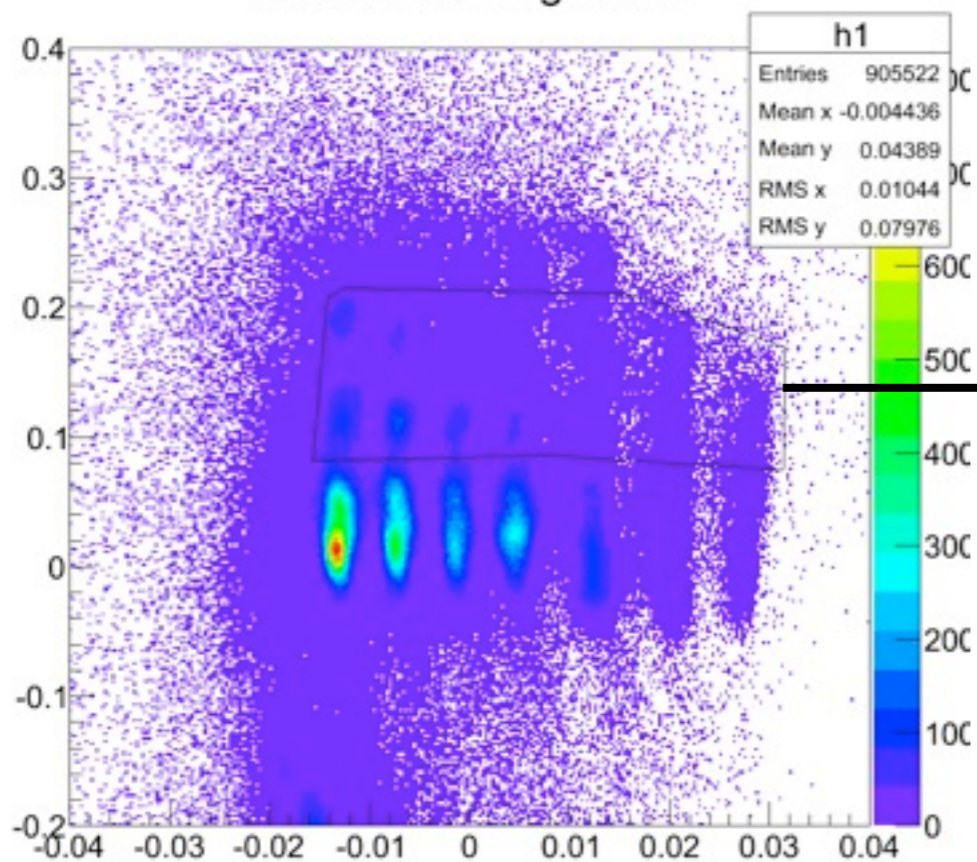
ReactZ vs. Target Phi



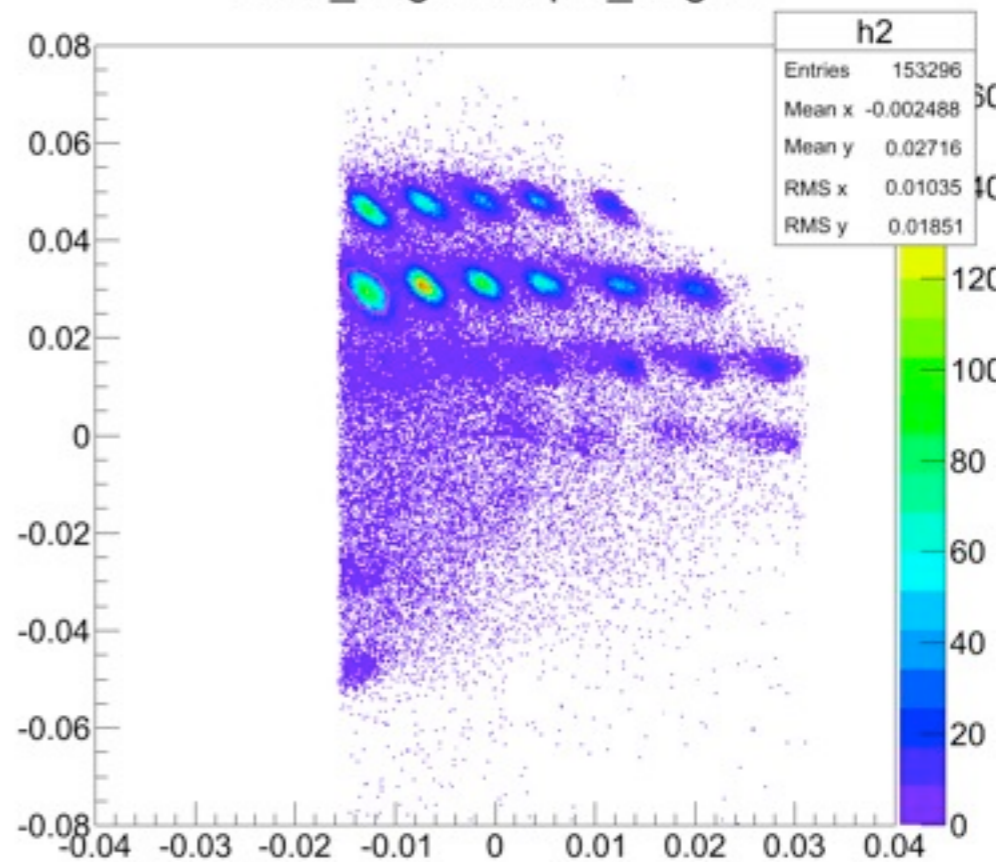
theta\_target vs. phi\_target



ReactZ vs. Target Phi



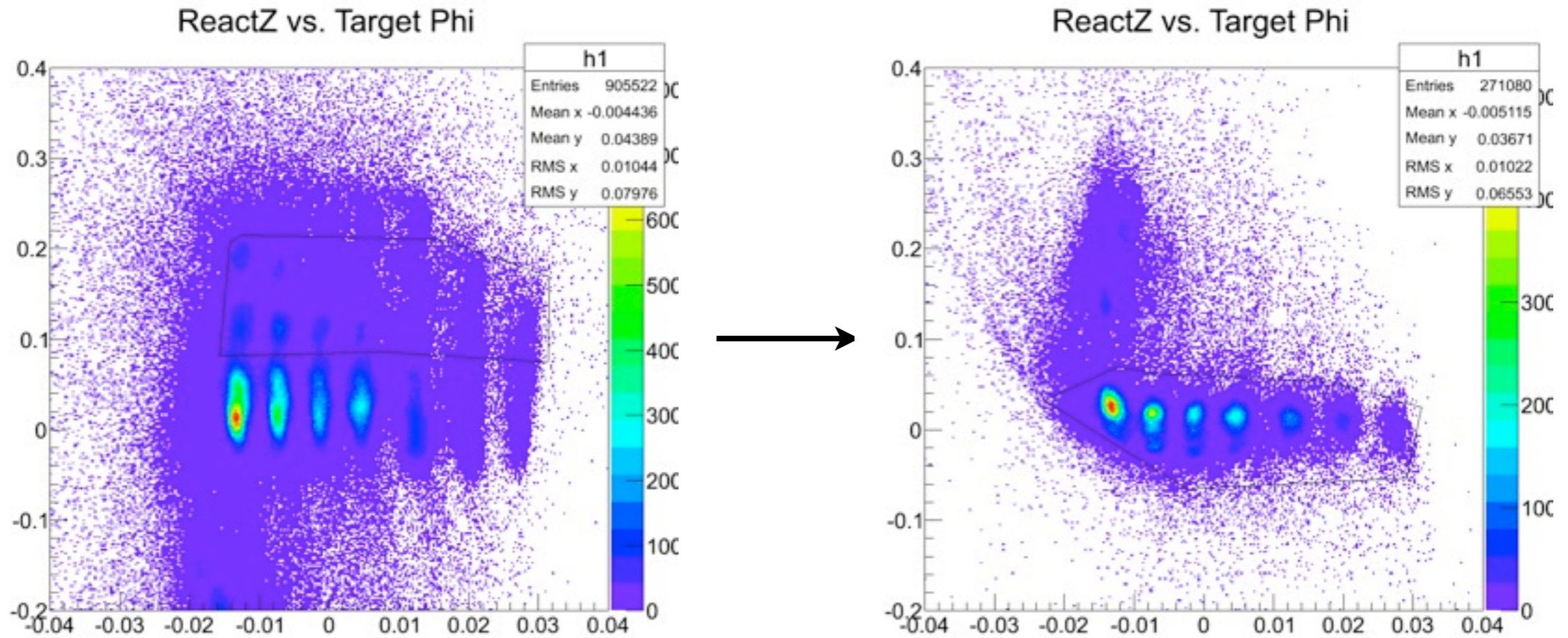
theta\_target vs. phi\_target



# Matrix Angle Calibration

- Min suggests to use beam position scan to do a target  $y$  calibration
- This depends on the beam position readout, which is not finished yet
- So just prepare the code and give a try using some existed beam position value in the rootfile.

# Matrix Angle Calibration





# TODO

- Try play with the weight of hole and the matrix order to improve the calibration
- Get better input from beam position to see if `tg_y` calibration really work
- Any suggestions from this meeting