

Optics Status Update

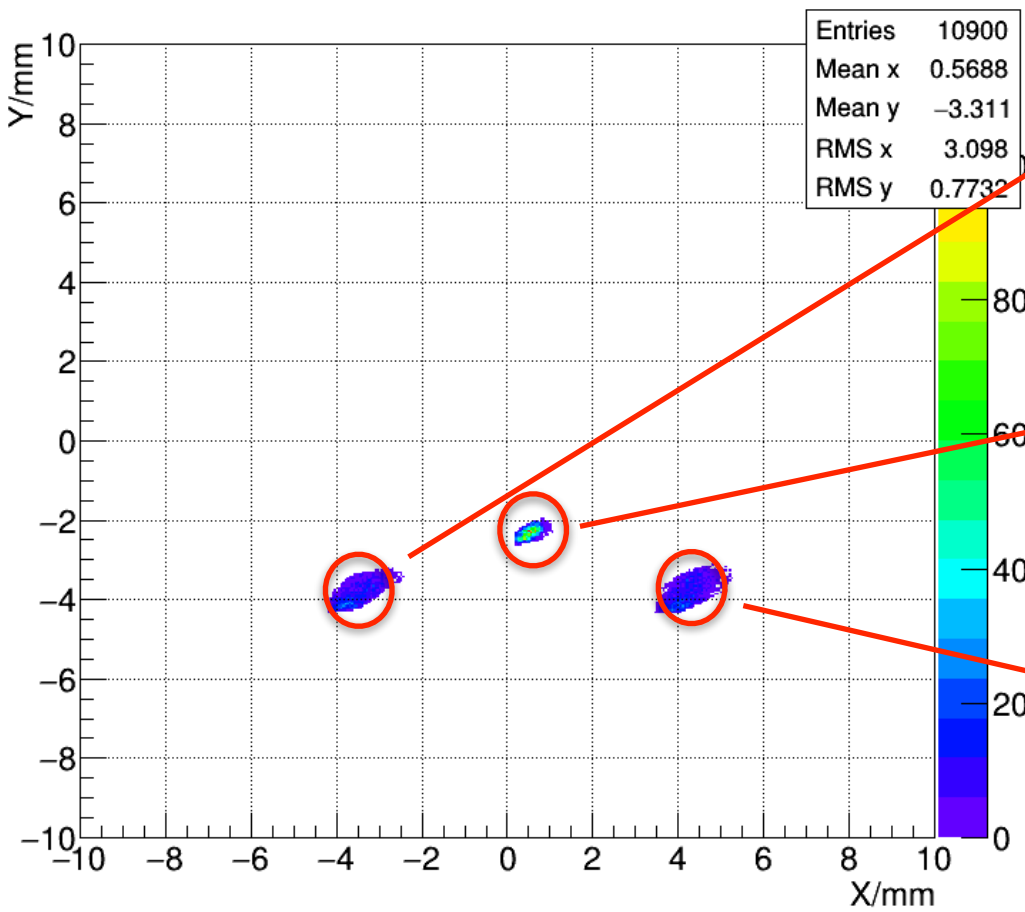
Chao Gu

Optics Status Update

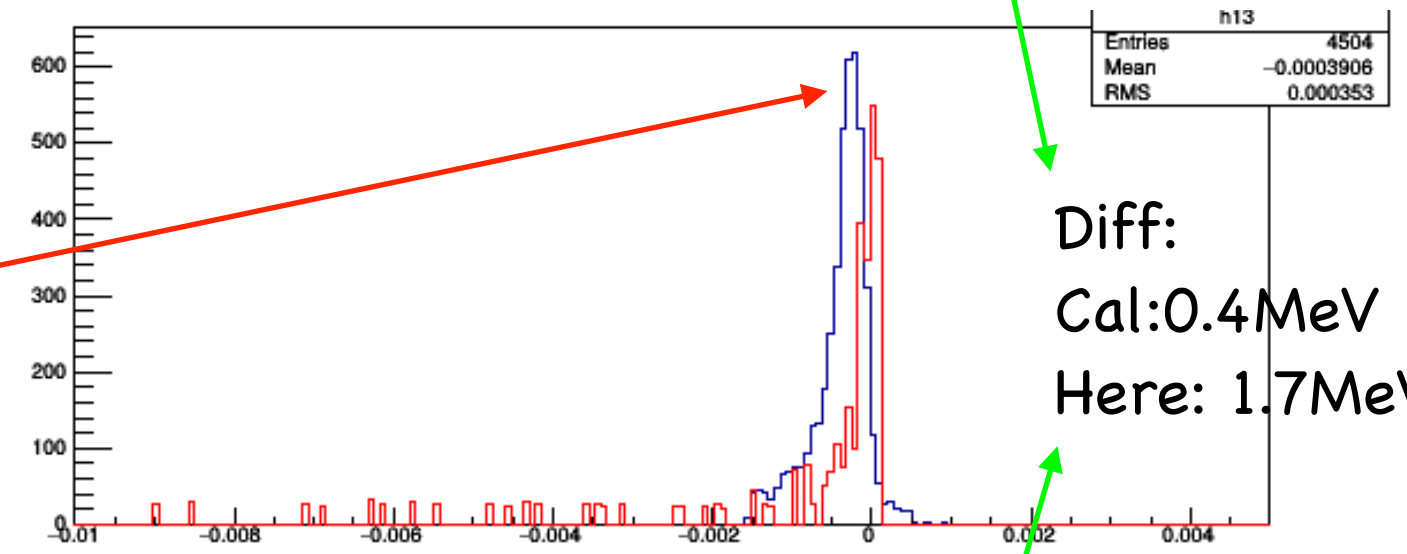
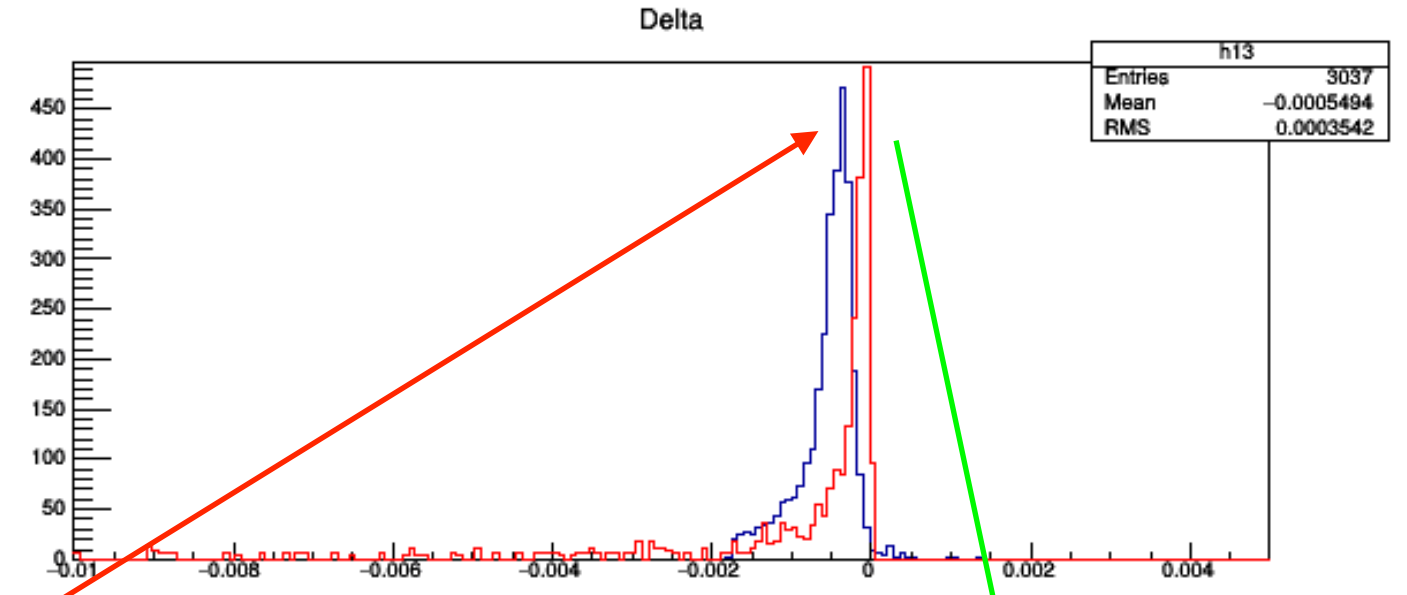
- Optics status:
 - While comparing the simulation with data, the reconstructed kinematics was found to have some offsets
 - Add a correction (vs beam position) to the reconstructed kinematics (By now this is still the method we put to the replay package to generate kinematics)
 - It is found that the correction could be merged into the database with a fine-tuned fitting procedure
 - Currently working on this

- Problem: horizontal beam position changes dp reconstruction

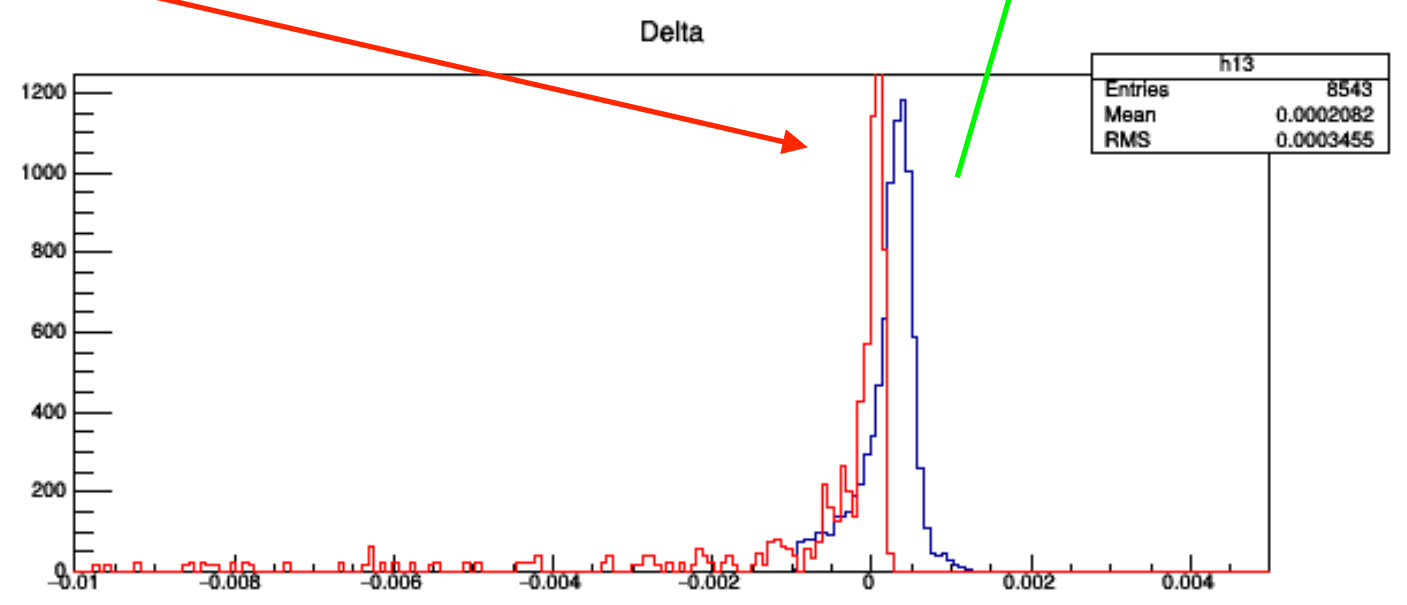
BPM Y vs X



Run 5585
Run 5597
Blue: Data, Red:Sim

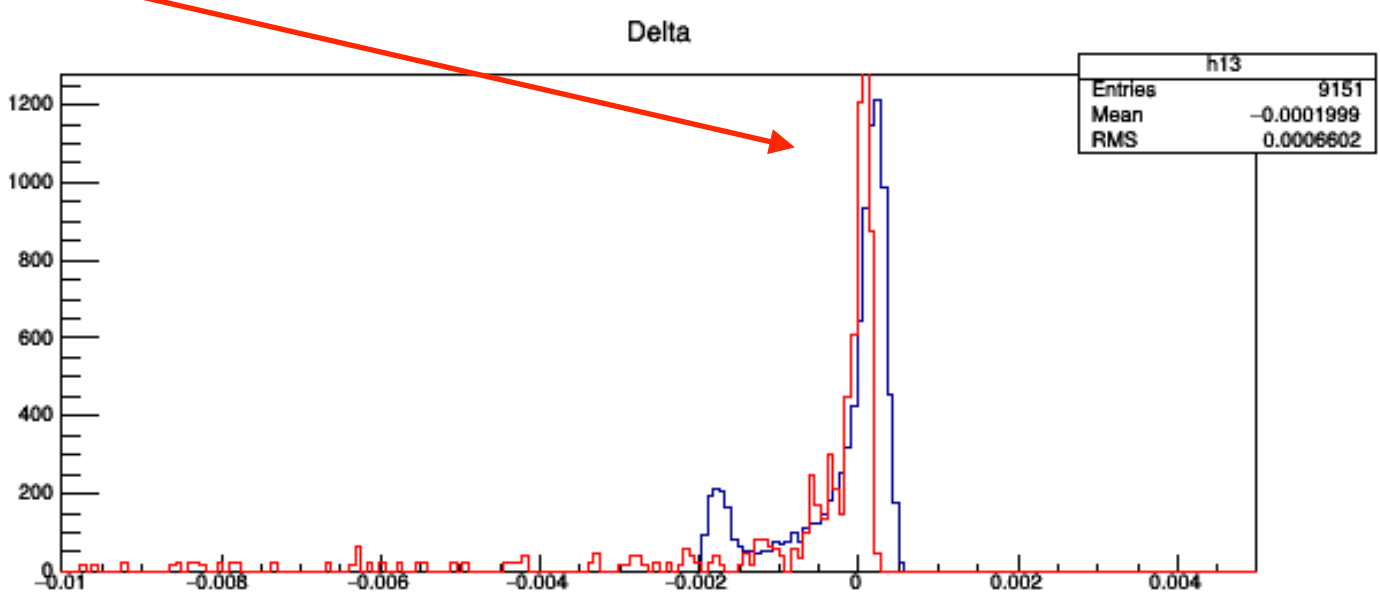
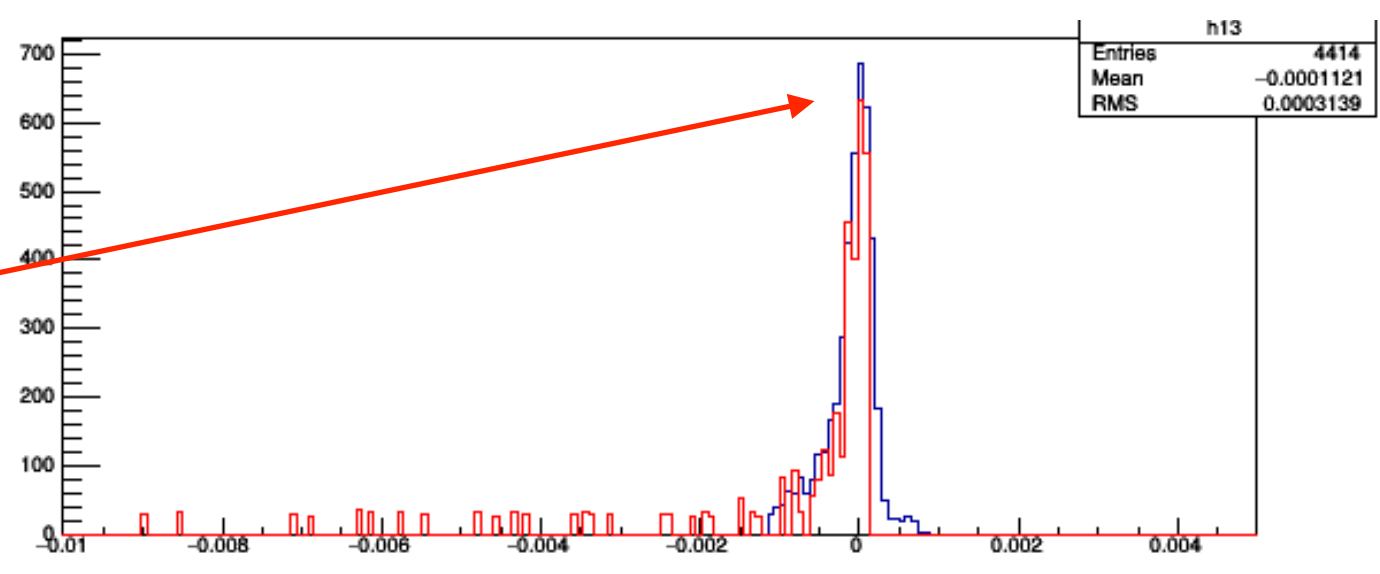
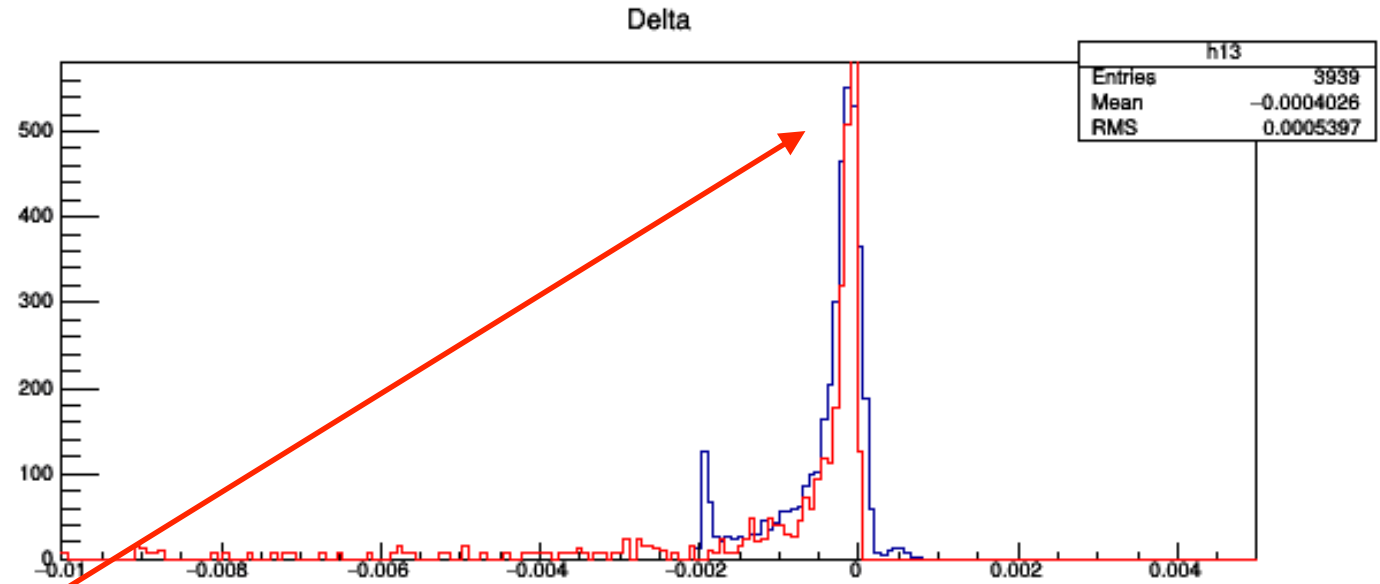
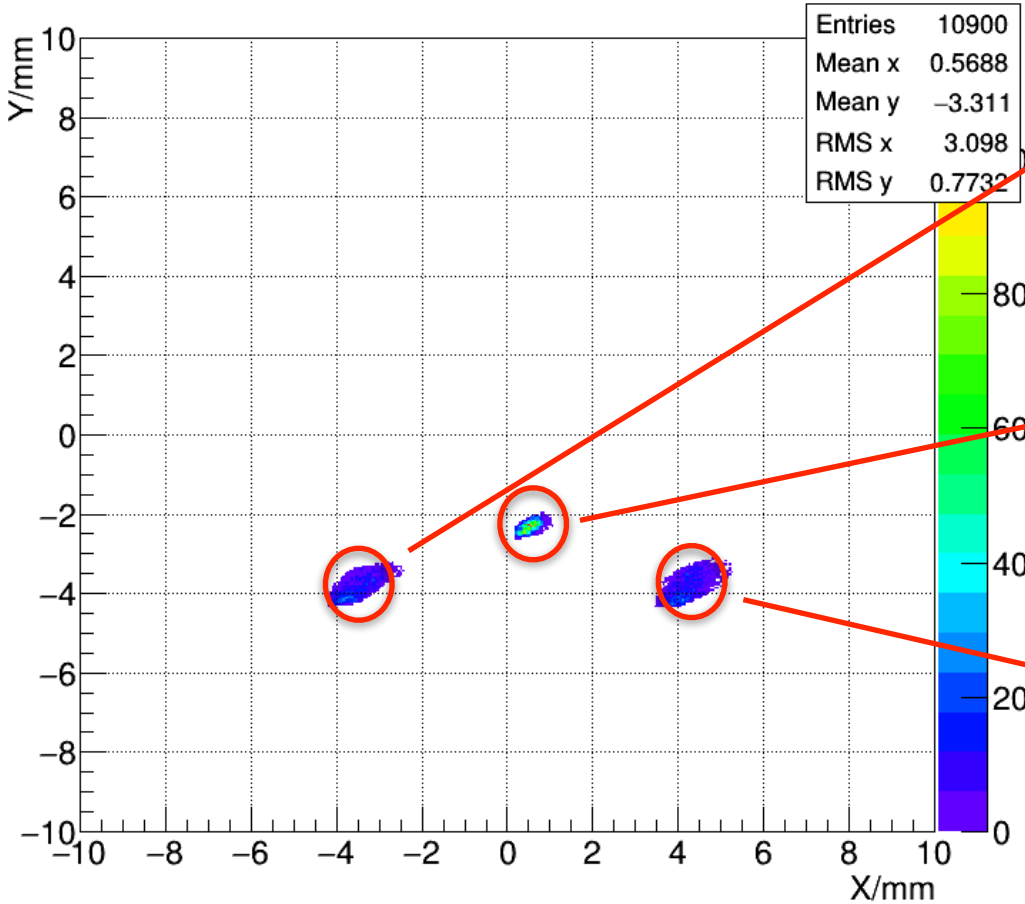


Diff:
Cal:0.4MeV
Here: 1.7MeV



- With new matrix

BPM Y vs X



Run 5585

Run 5597

Blue: Data, Red: Sim

Plans

- Plan:
 - Optics: Apply this method to all kinematics settings, study the uncertainty of the optics
 - Continue with acceptance study
 - Write a NIM paper for g2p optics
- Long term plan:
 - Plan to graduate in Feb to Mar 2016
 - Use cross-section difference data for one or two settings with tuned acceptance combine with model inputs to get some physics results (thesis topic)

Backups

No correction
Use dp scan together with beam
position scan (only x) to fit

-3%, $y_{tg}=0.4\text{mm}$

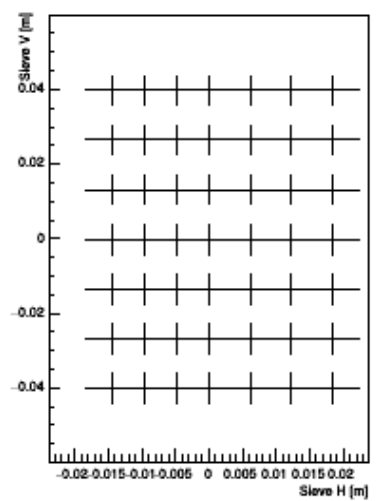
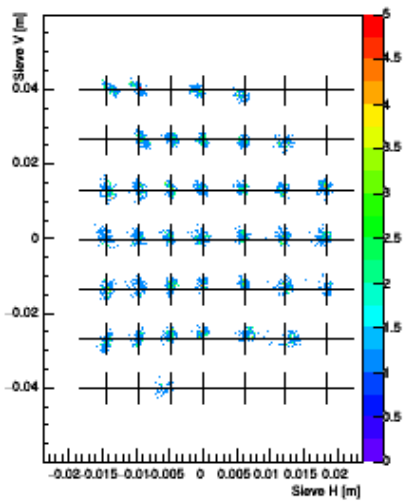
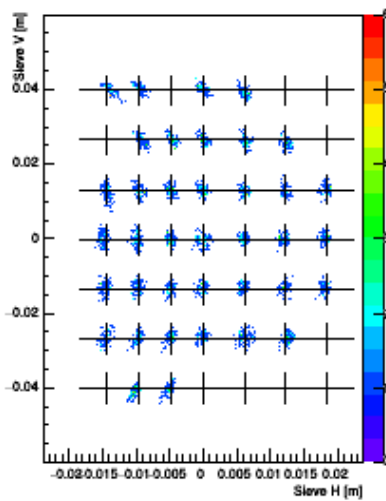
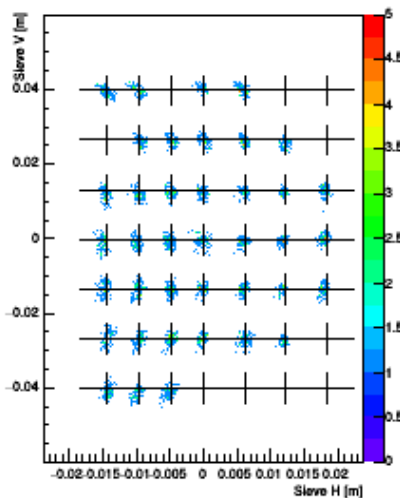
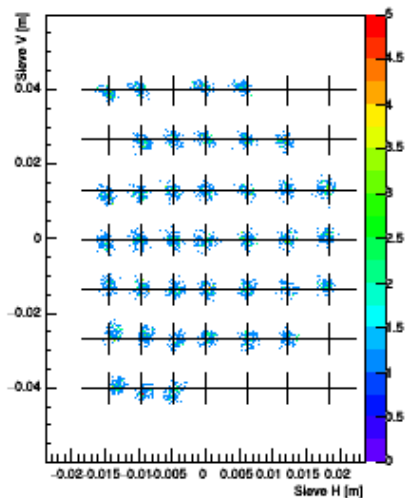
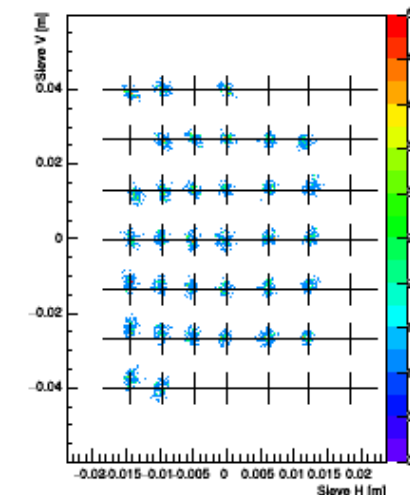
-1%, $y_{tg}=3.7\text{mm}$

0%, $y_{tg}=2.0\text{mm}$

1%, $y_{tg}=1.5\text{mm}$

3%, $y_{tg}=0.9\text{mm}$

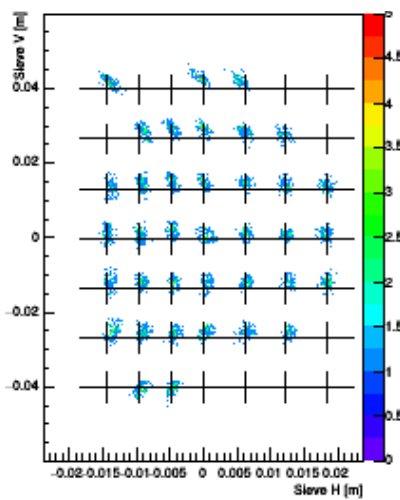
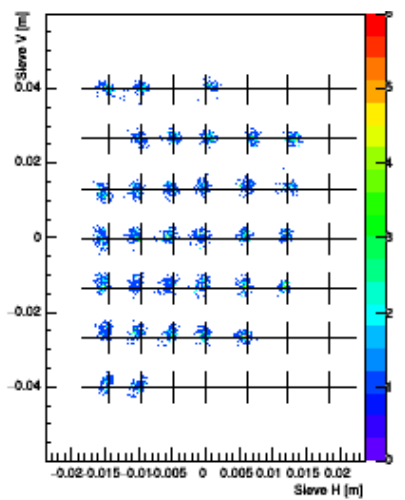
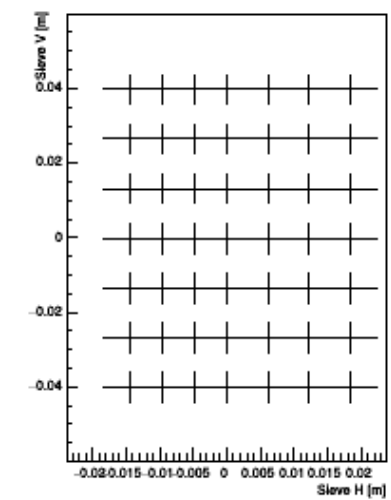
0%, $x_{tg}=7.2\text{mm}$



0%, $x_{tg}=0.4\text{mm}$

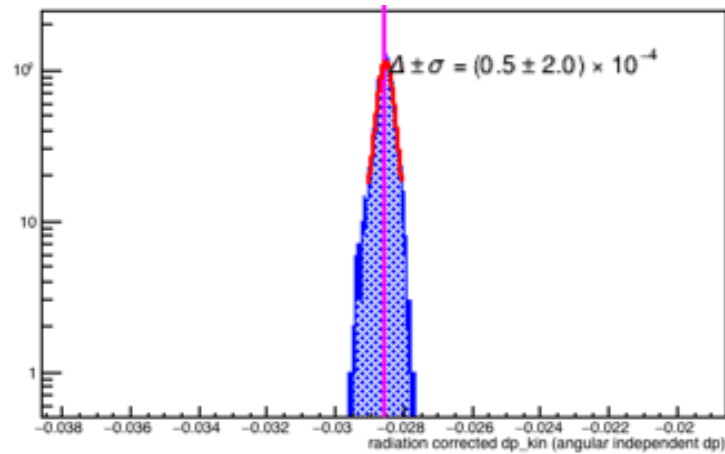
0%, $y_{tg}=5.7\text{mm}$

0%, $y_{tg}=-1.9\text{mm}$

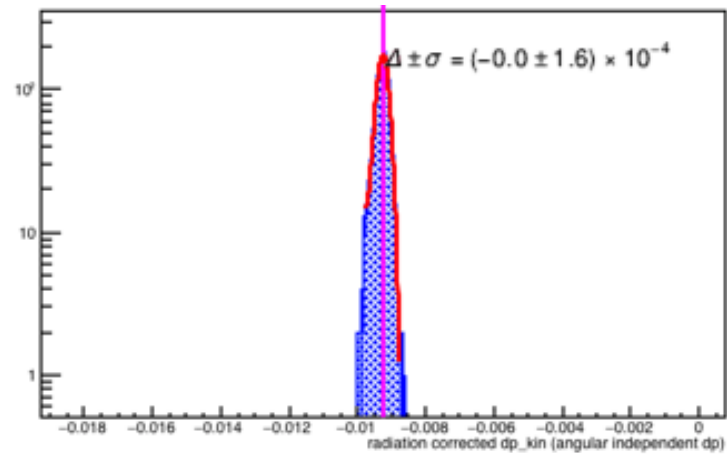


After Calibration

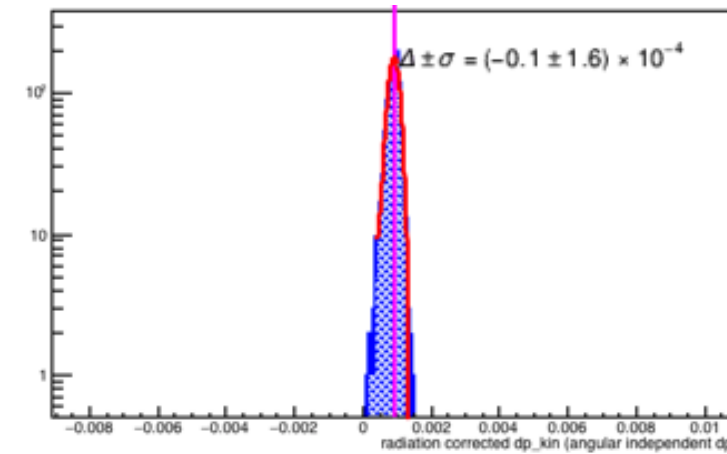
-3%, $y_{tg}=0.4\text{mm}$



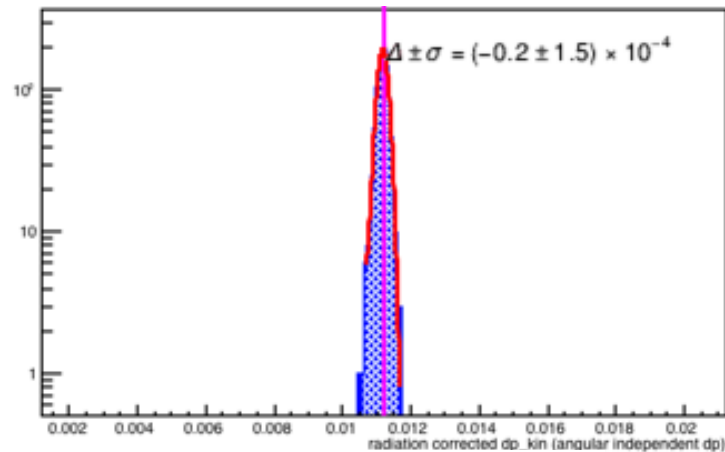
-1%, $y_{tg}=3.7\text{mm}$



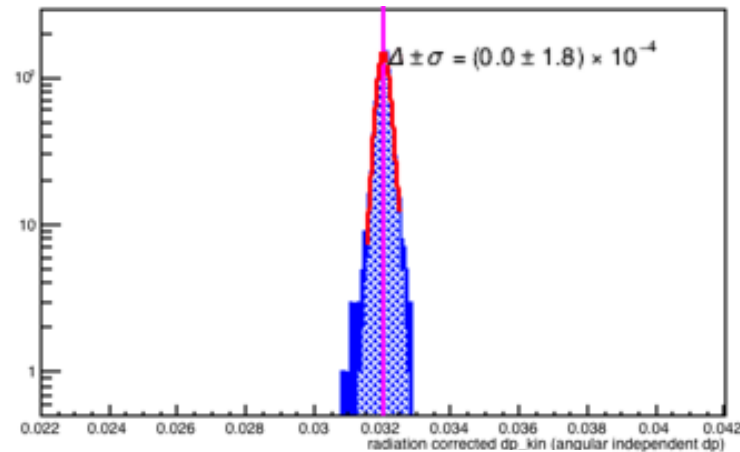
0%, $y_{tg}=2.0\text{mm}$



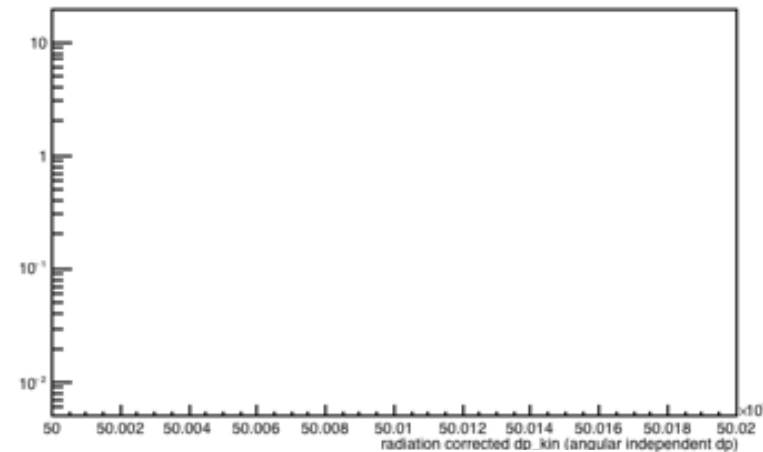
1%, $y_{tg}=1.5\text{mm}$



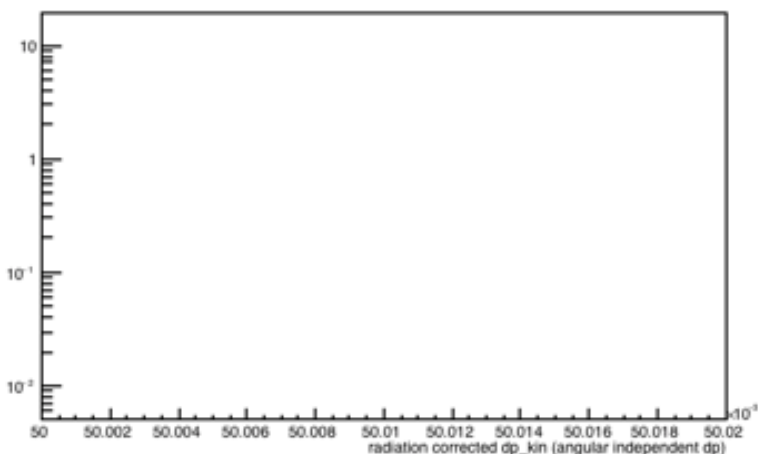
3%, $y_{tg}=0.9\text{mm}$



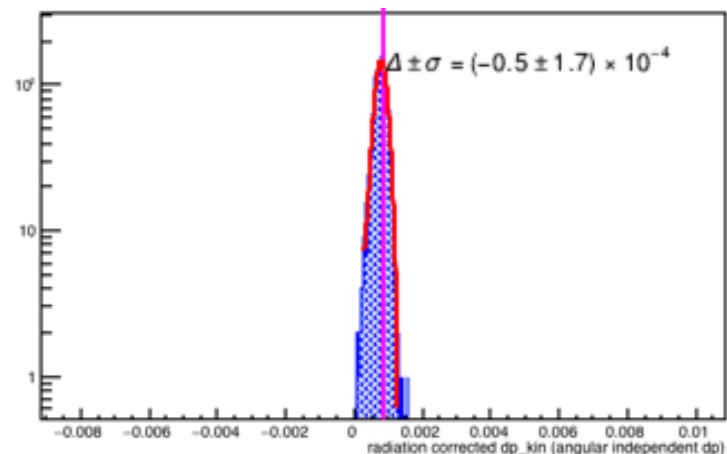
0%, $x_{tg}=7.2\text{mm}$



0%, $x_{tg}=0.4\text{mm}$



0%, $y_{tg}=5.7\text{mm}$



0%, $y_{tg}=-1.9\text{mm}$

