Optics Status Update

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Optics Status

- 2 Major jobs:

  - SNAKE model in simulation

  - Matrix calibration

- Straight through optics calibration:

  - No LHe: Min did this setting

    - Large beam offset at horizontal direction

    - 1st order matrix element has some problem

 - With LHe: this talk

First Order Matrix

SNAKE:

```
theta_tg =   1.967E-2  x   -2.330     theta
            -2.886E-3  y   -4.511E-2   phi    -1.385E-3
phi_tg   =   4.948E-3  x   -5.233E-2  theta
            -6.645E-1  y   -2.682E-1   phi    +4.577E-3
delta    =   7.454E-2  x   -1.340E-2  theta
            -8.752E-3  y   -5.387E-3   phi    -5.309E-4
```

Database:

```
theta_tg =   2.531E-2  x   -2.813     theta
            -1.205E-1  y   +1.689E-1   phi    -1.691E-3
phi_tg   =   6.164E-3  x   -1.851E-3  theta
            -6.747E-1  y   +3.182E-1   phi    -4.709E-3
delta    =   7.469E-2  x   -3.060E-2  theta
            -1.254E-2  y   +2.702E-3   phi    -1.092E-4
```

Beam position cut
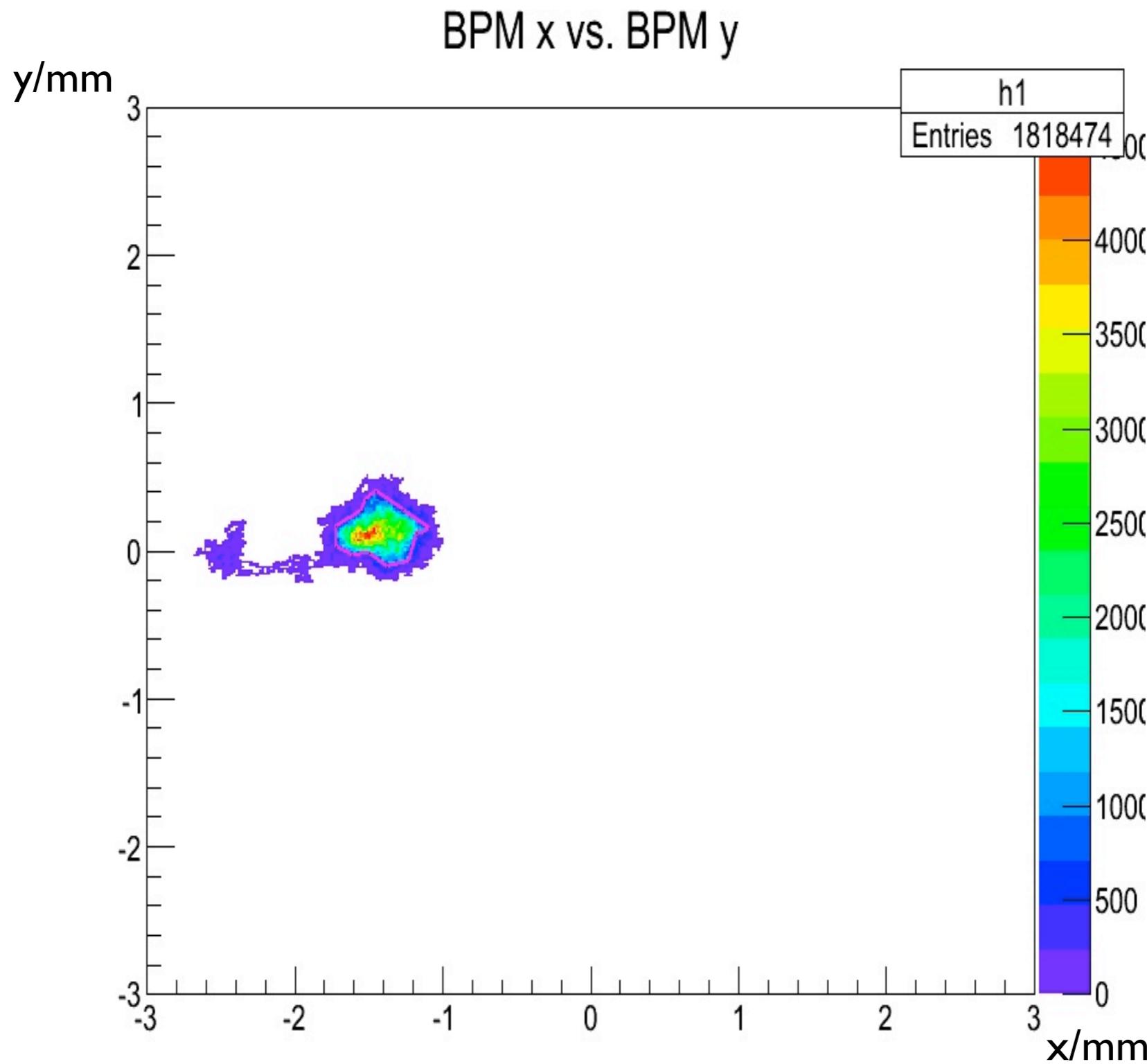
- From the most recent BPM package
- Still have ~1.5mm offset at horizontal direction

Select Cuts
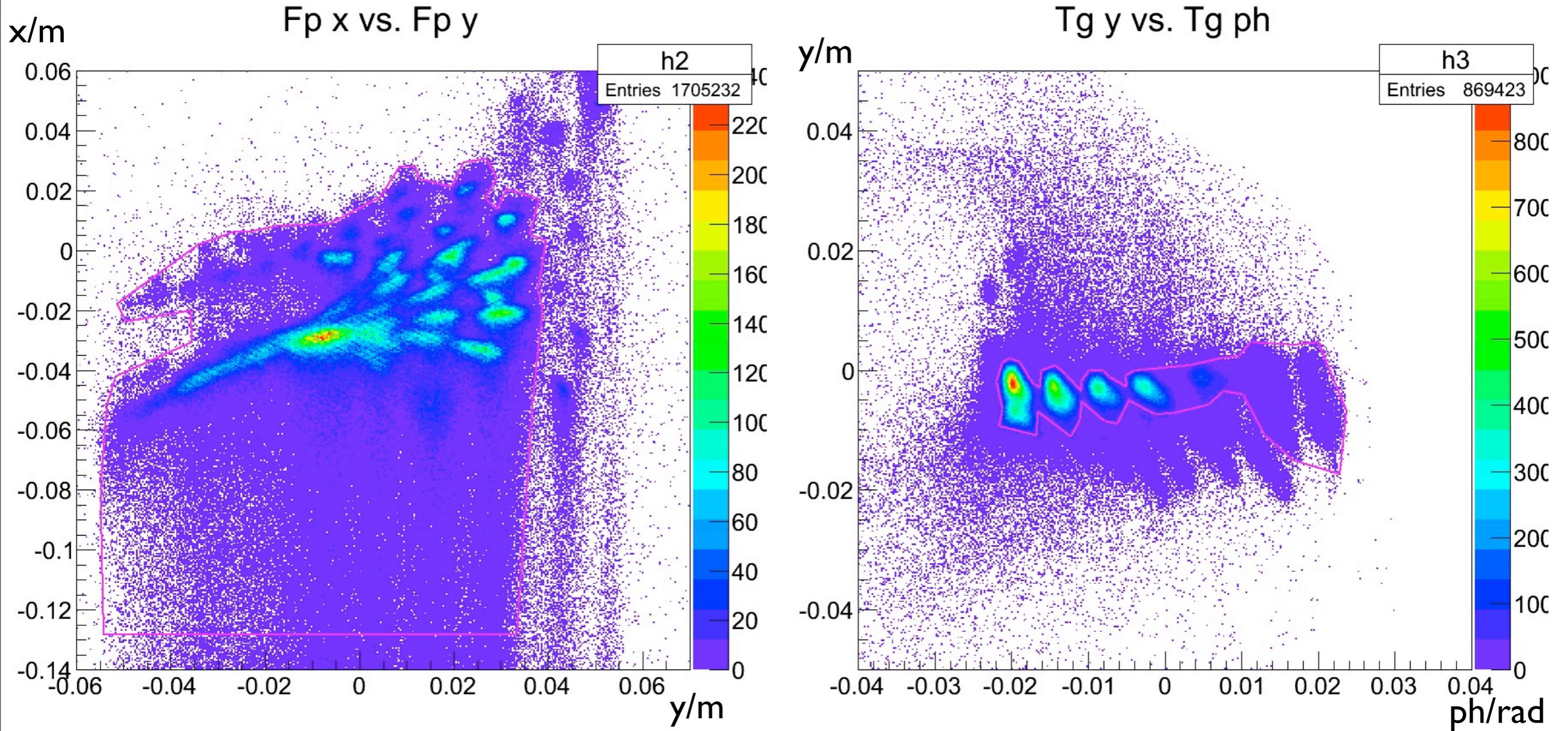
- Apply cuts on focus plane and y_{tg} to clean data

Sieve hole cut
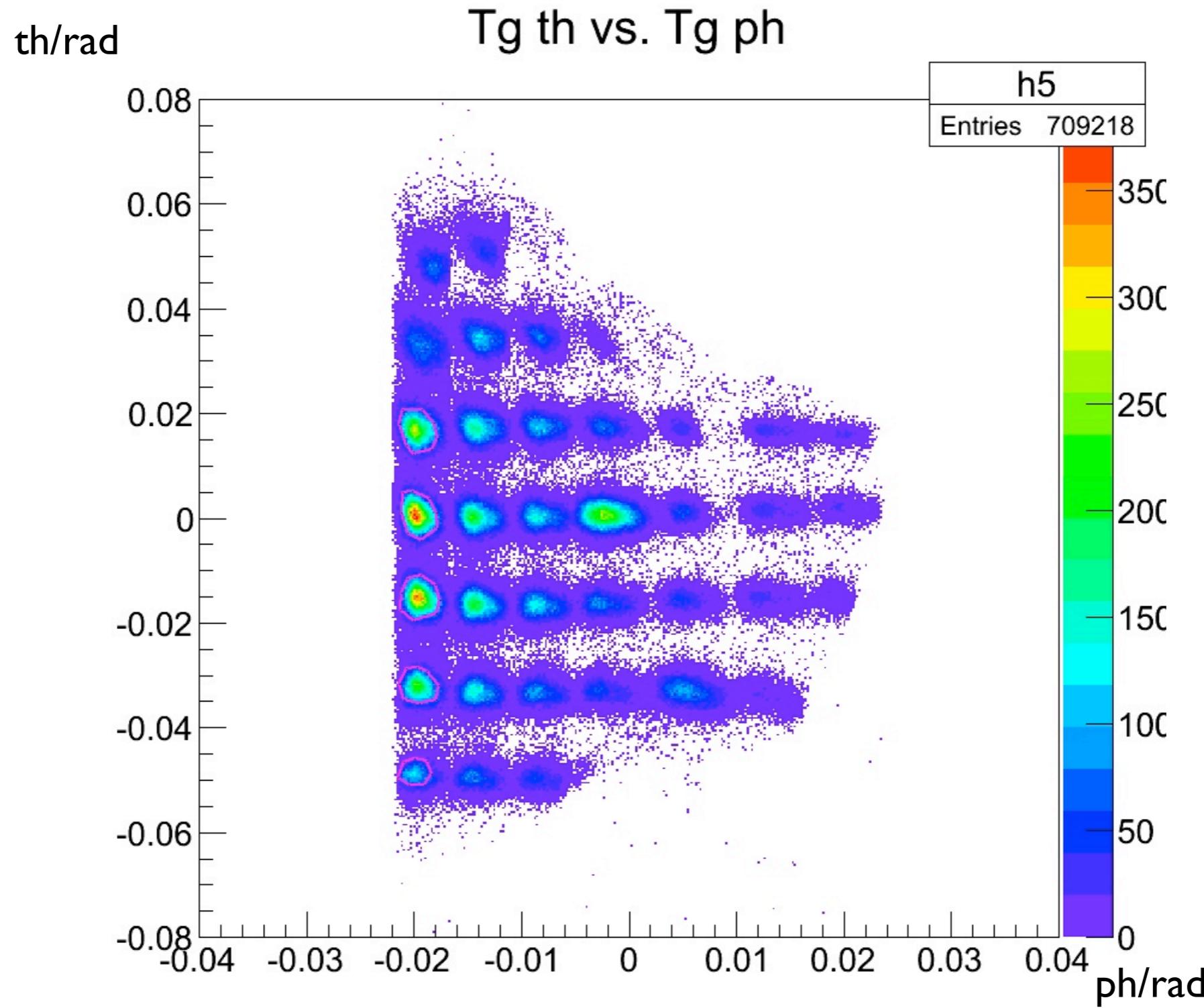
# dp cut

Tg th vs. Tg ph
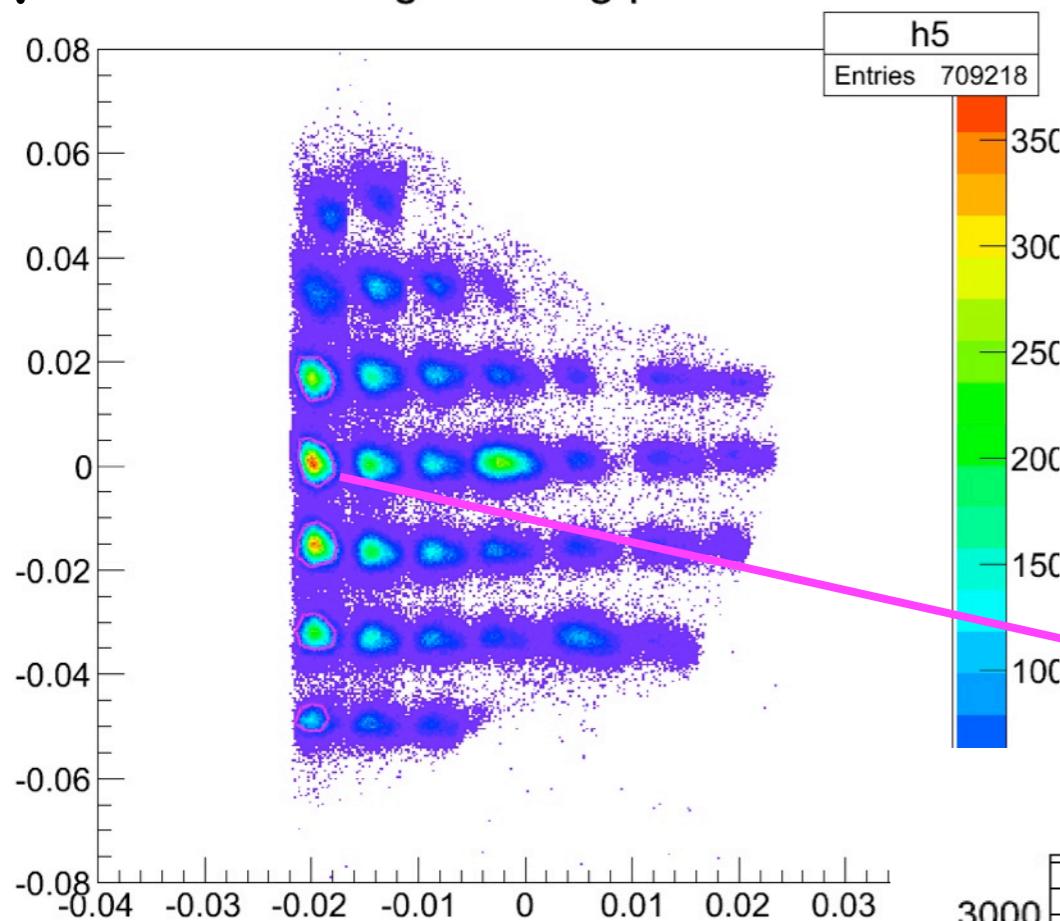
- 1-D dp cut
- He peak and C peak are distinguishable

dp
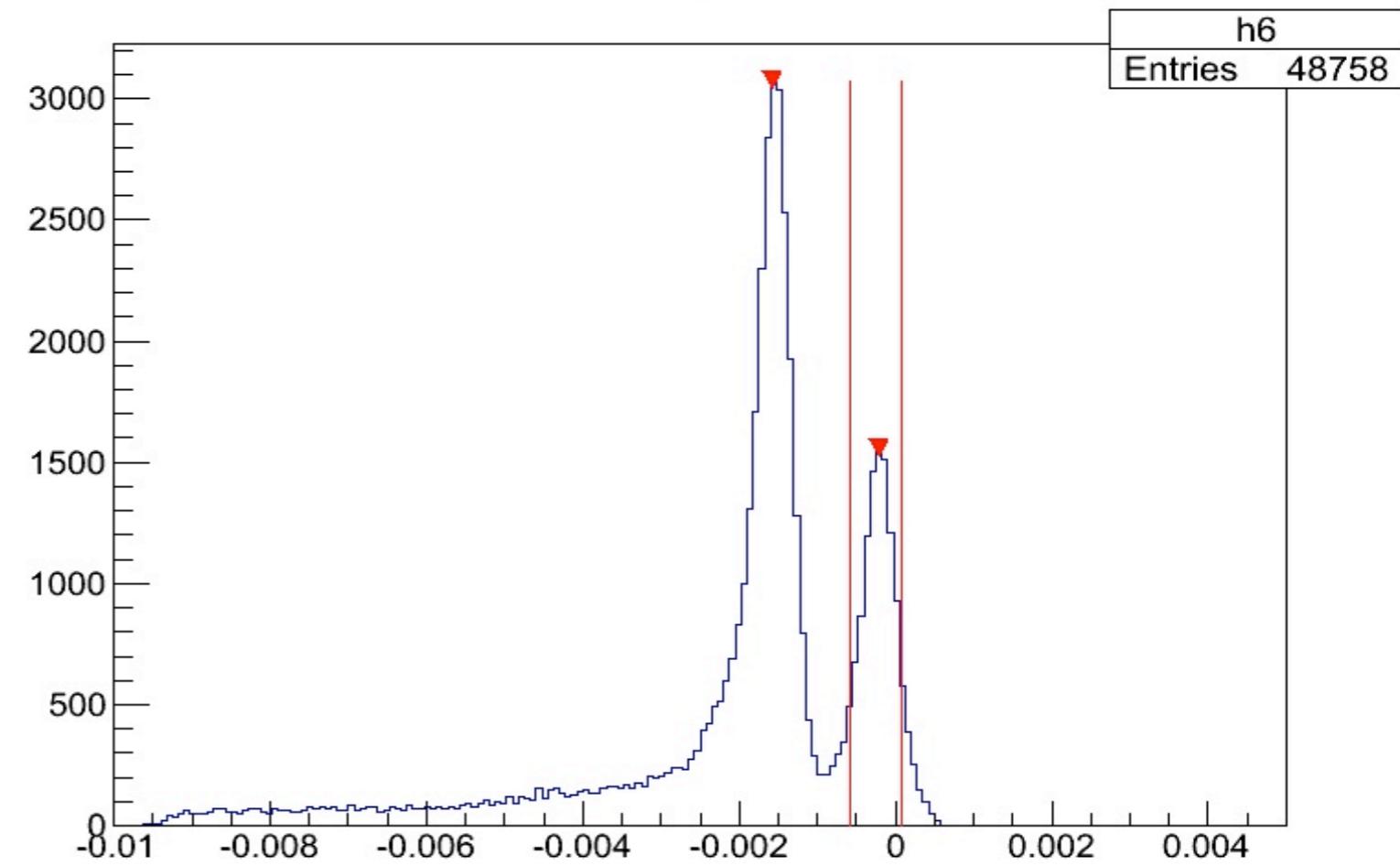
Calibration Result

Before optimize
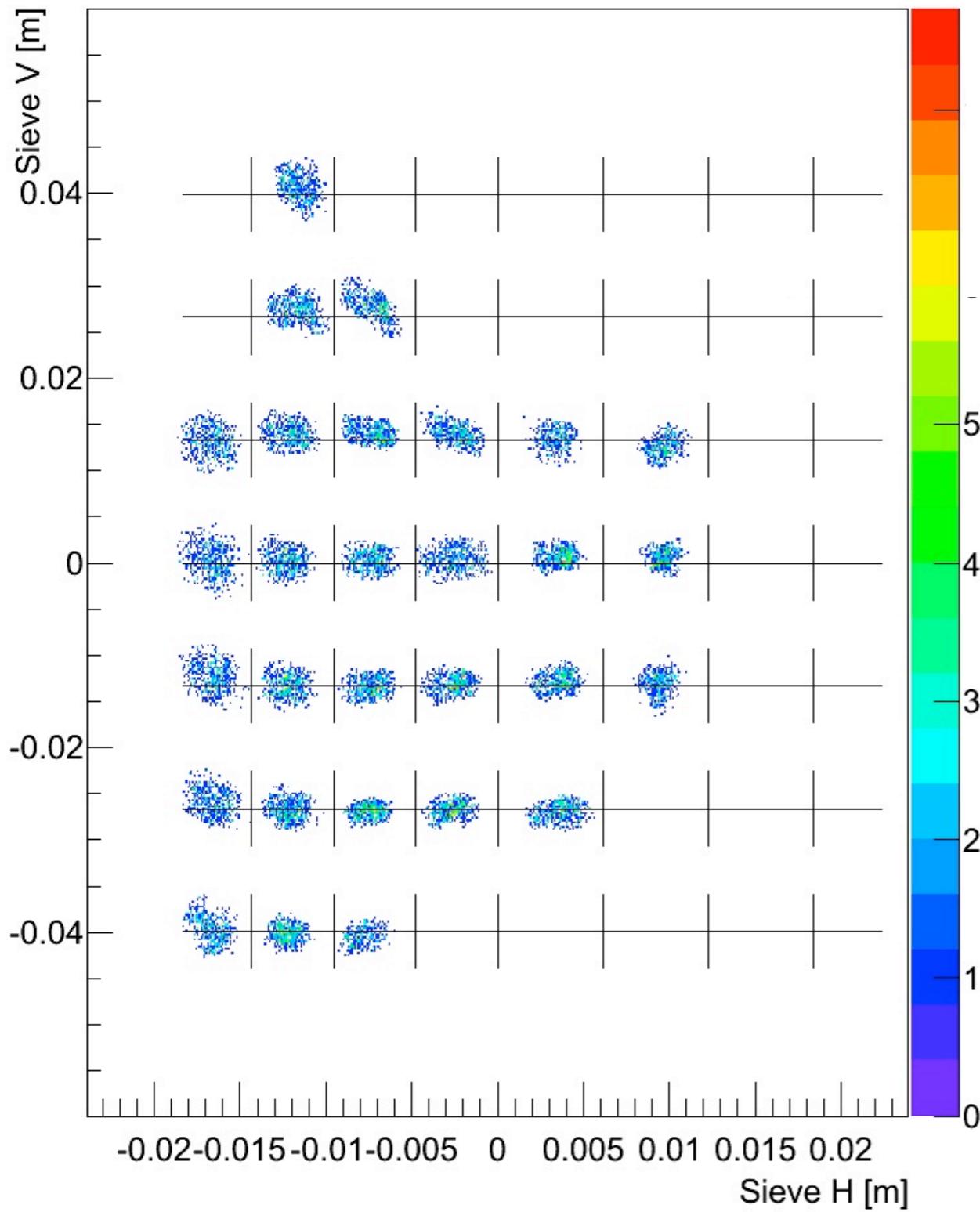
After optimize
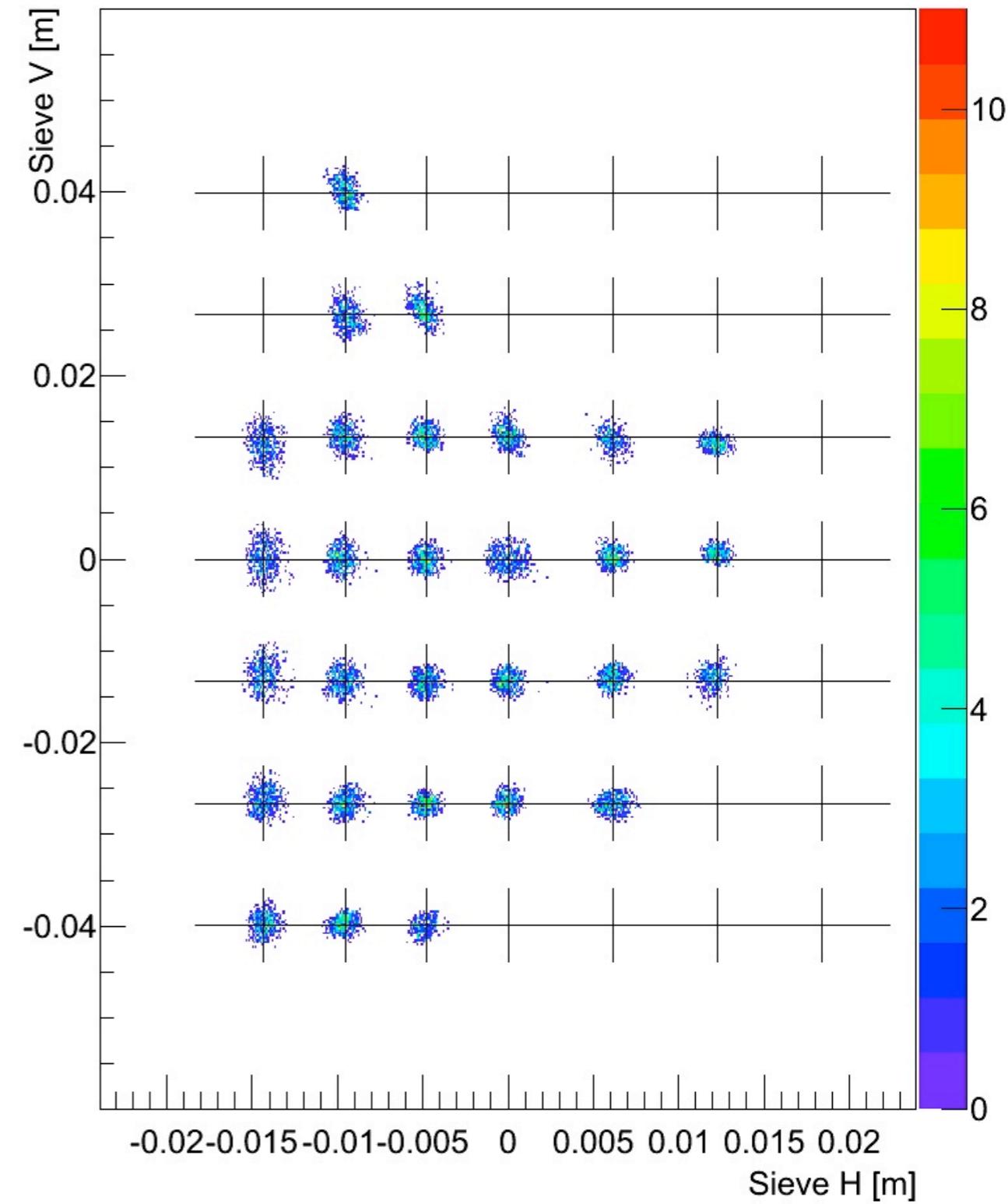
Calibration Result
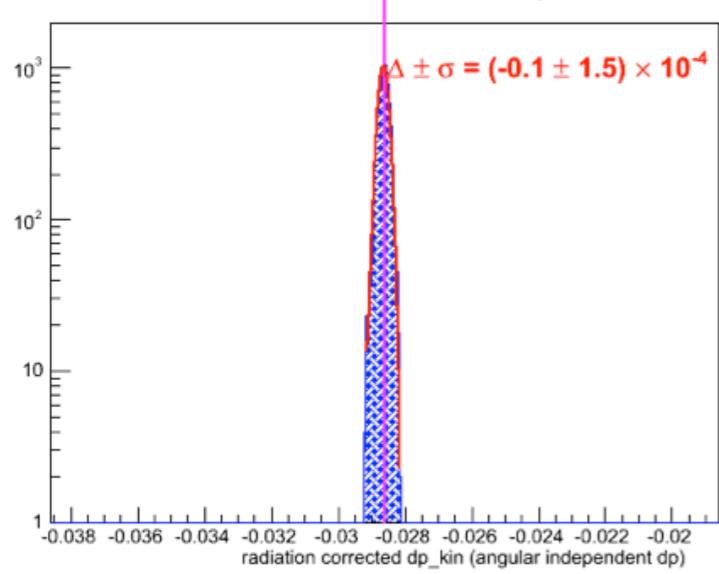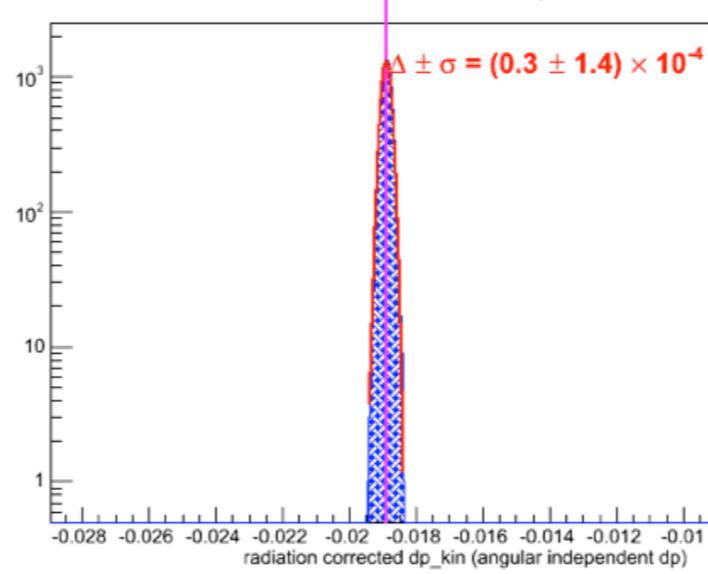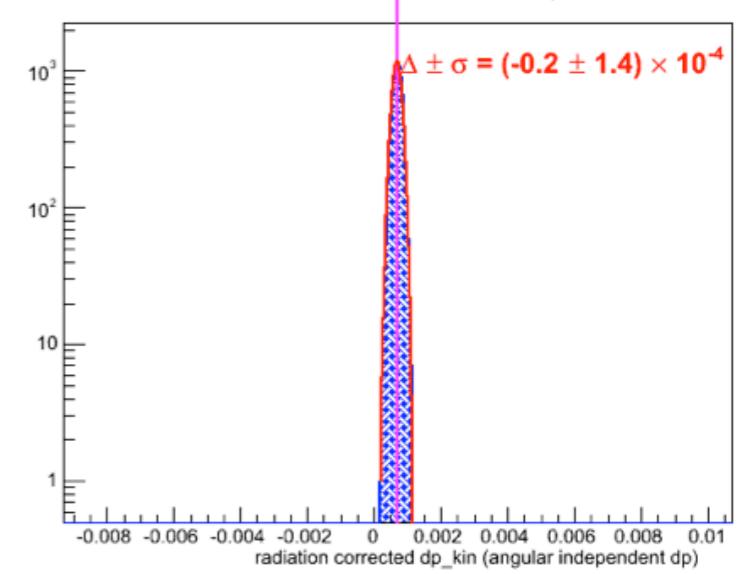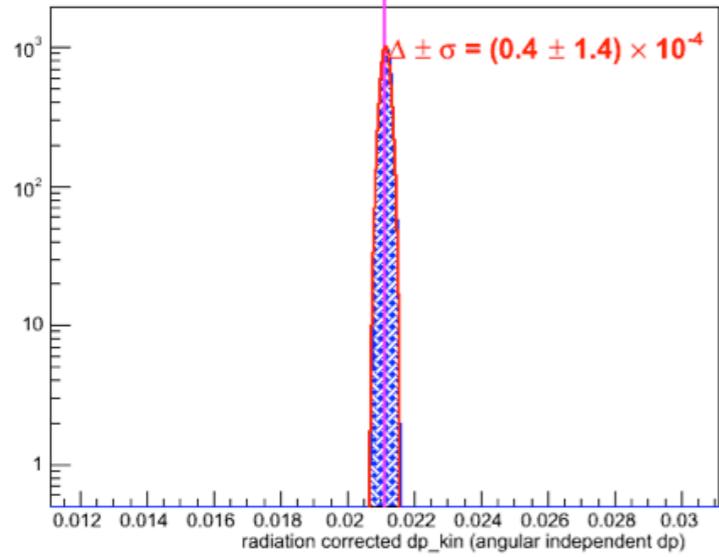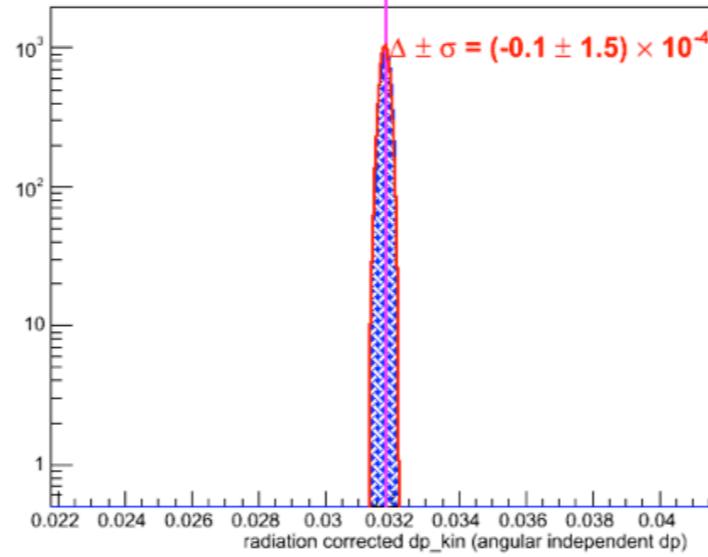
First Order Matrix

- Will compare to the latest SNAKE model later

- Use lower order to redo the optimize and compare the result (working on this)

No LHe:

```
theta_tg =  2.531E-2  x  -2.813      theta
           -1.205E-1  y  +1.689E-1  phi    -1.691E-3
phi_tg   =  6.164E-3  x  -1.851E-3  theta
           -6.747E-1  y  +3.182E-1  phi    -4.709E-3
```

With LHe (better beam position):

```
theta_tg =  2.204E-2  x  -2.746      theta
           -1.961E-3  y  +3.797E-3  phi    +1.152E-3
phi_tg   =  1.789E-2  x  +1.136E-2  theta
           -7.271E-1  y  +4.274E-1  phi    -1.951E-3
```

Optics Status

- TODO:

    - Finish the database optimize

        - Check matrix calibration result

        - y_{tg} calibration on this setting