

Optics Status Update

Chao Gu

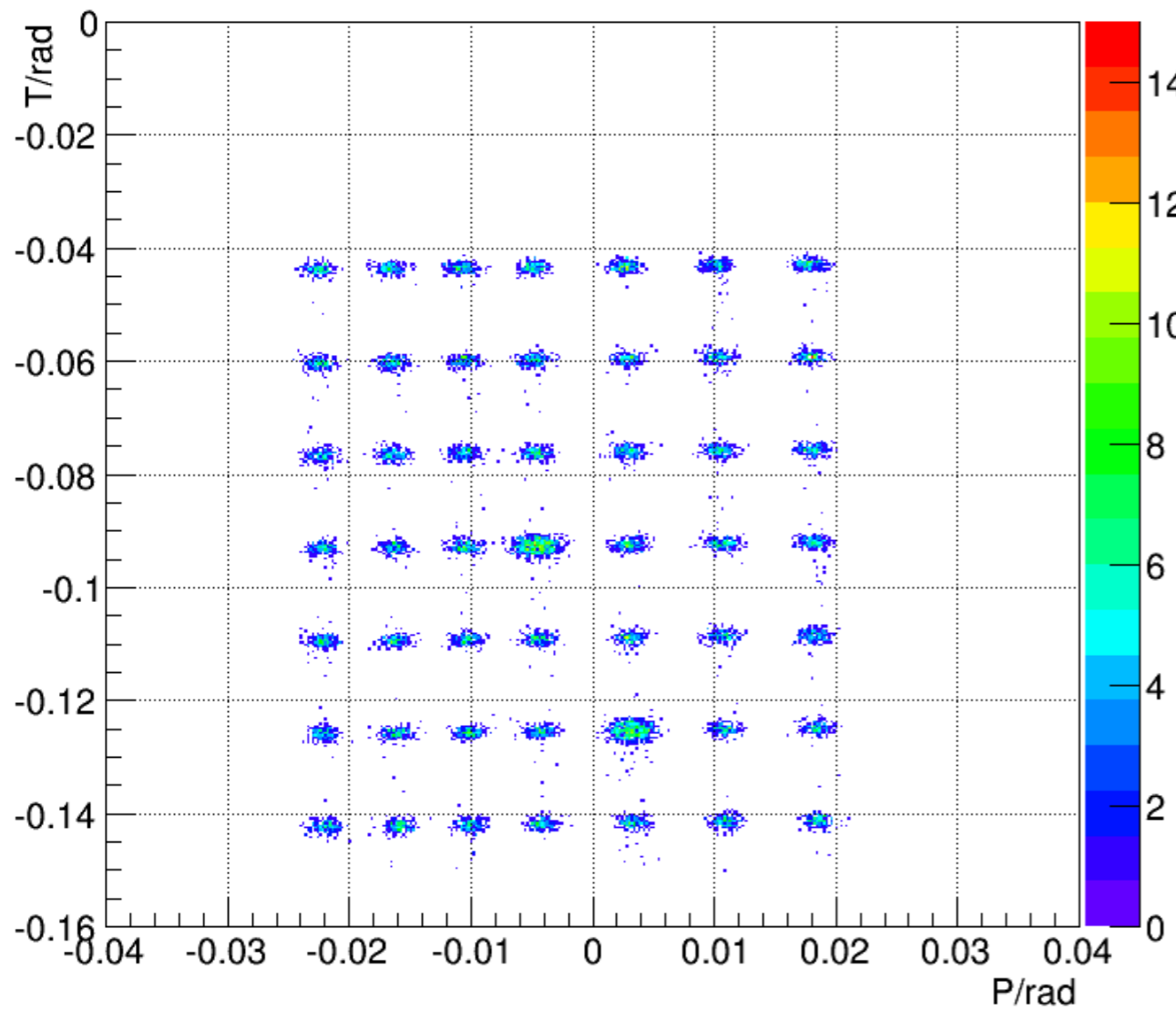
Calibration

- Settings:
 - Beam energy 1.158GeV
 - 2.5T Target Field at 90deg
 - Septum coil turns is 40-00-16
- Optics settings:
 - Full delta scan on left arm (-3%, 2%, -1%, 0%, 1%, 2%, 3%)

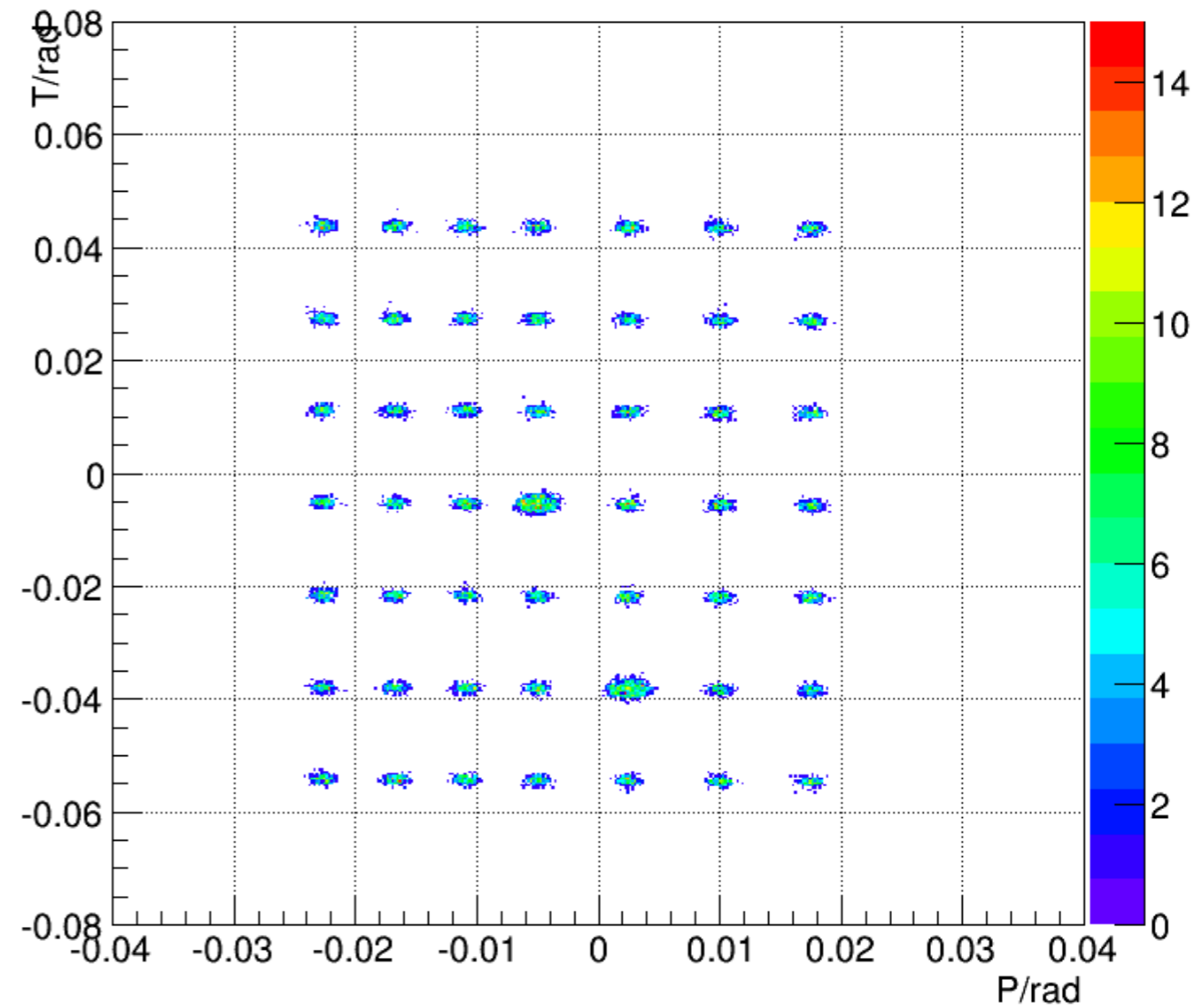
Calibration

- Simulation result to show the effect of the field
 - Assuming point beam, set to the average value of BPM readout

Init TP T vs P



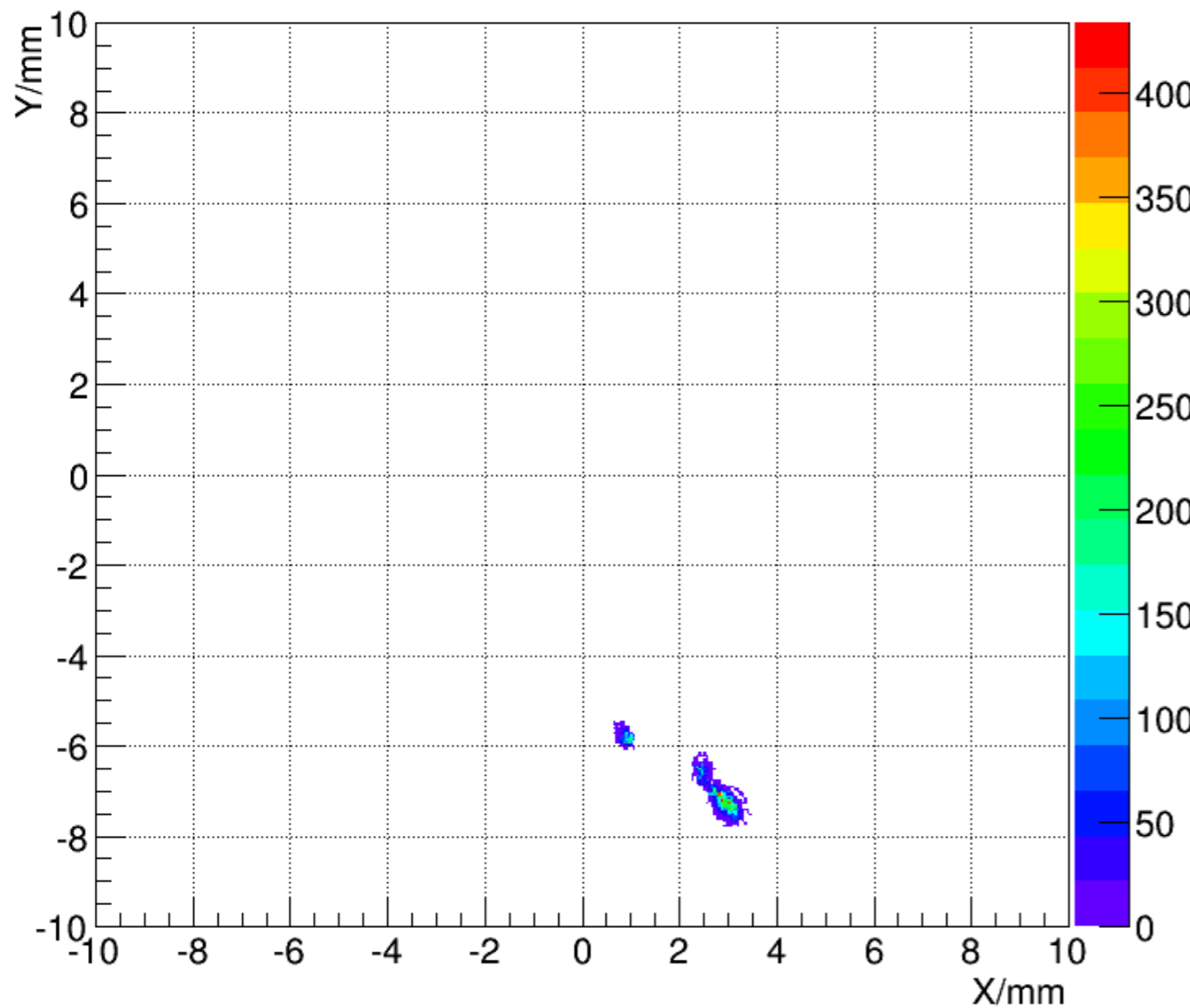
Effective Angle



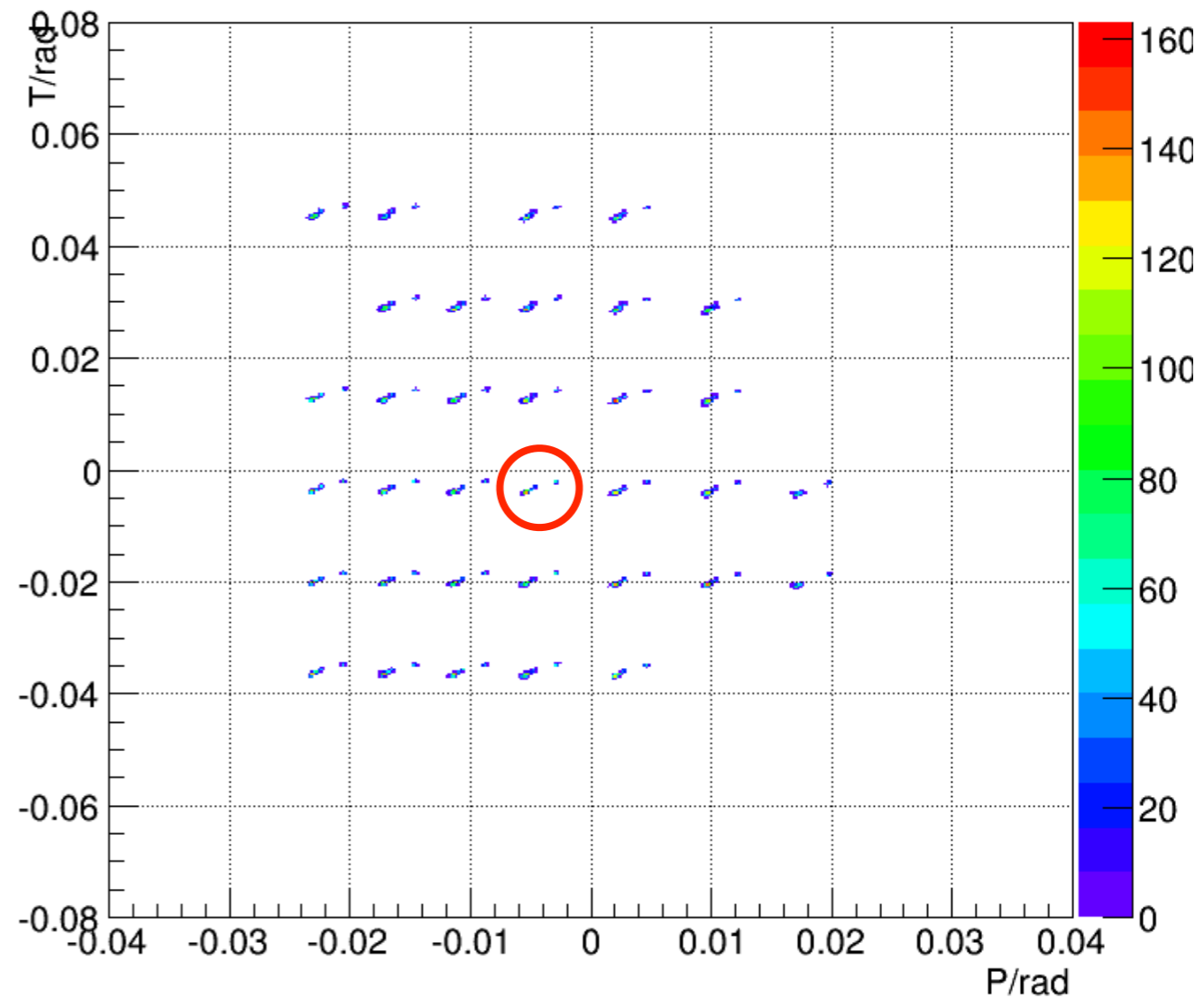
Calibration

- Use an event by event simulation to calculate the effective theta and phi angle
- Central hole has a small offset of the phi angle

BPM Y vs X

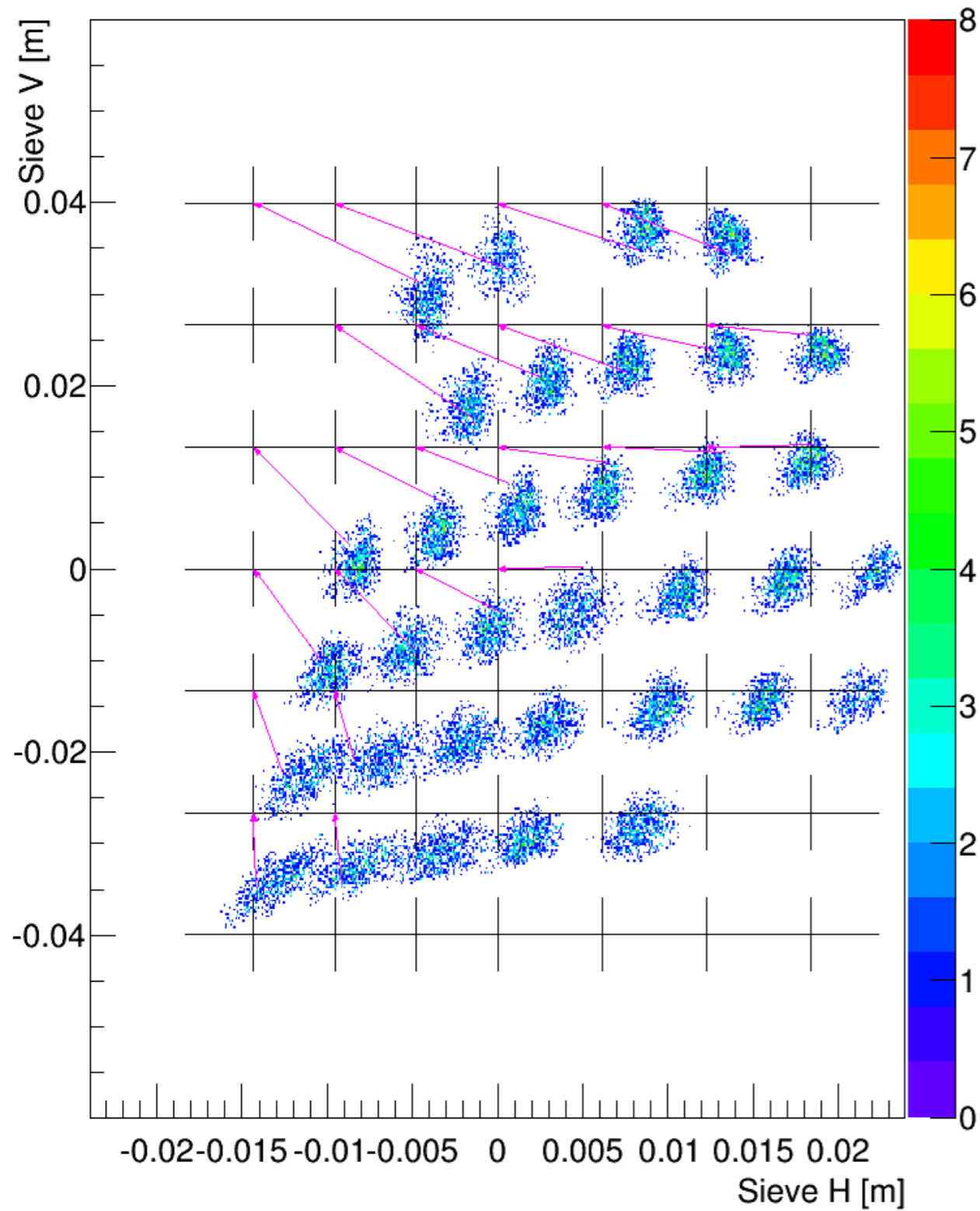


Effective Angle

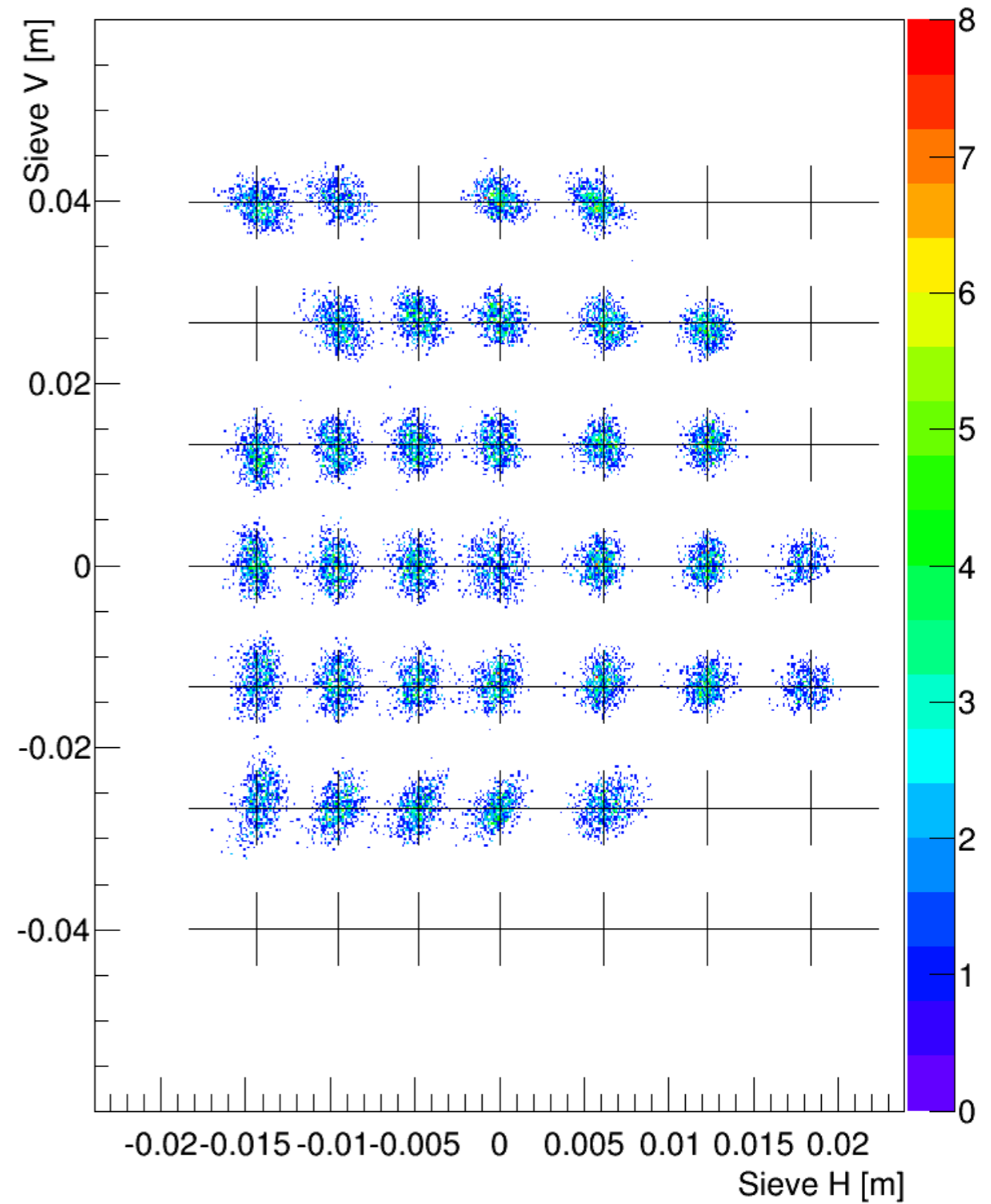


Calibration

Before Calibration

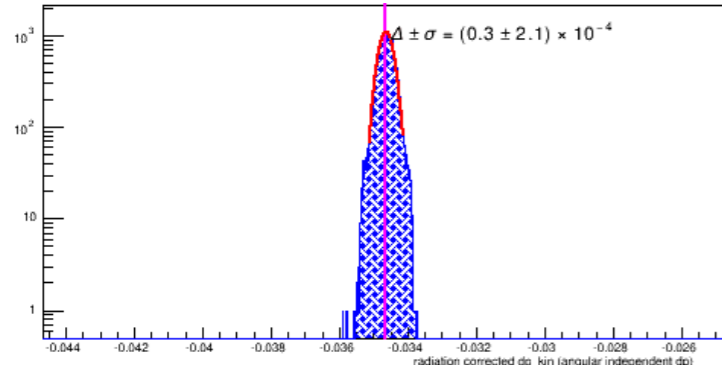


After Calibration

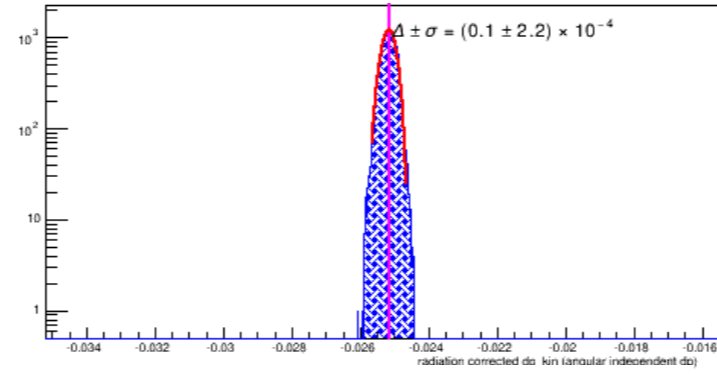


Calibration

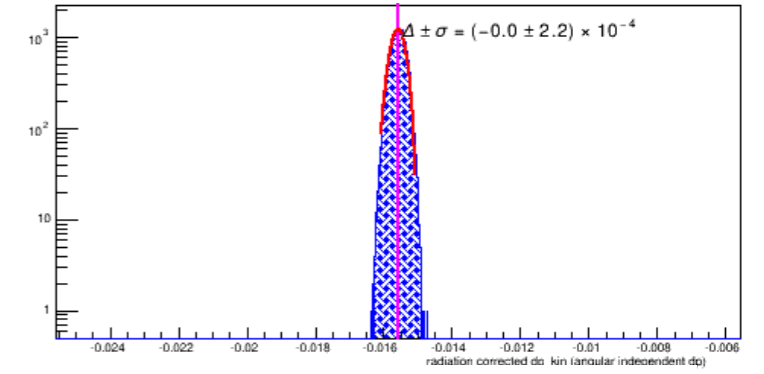
-3%



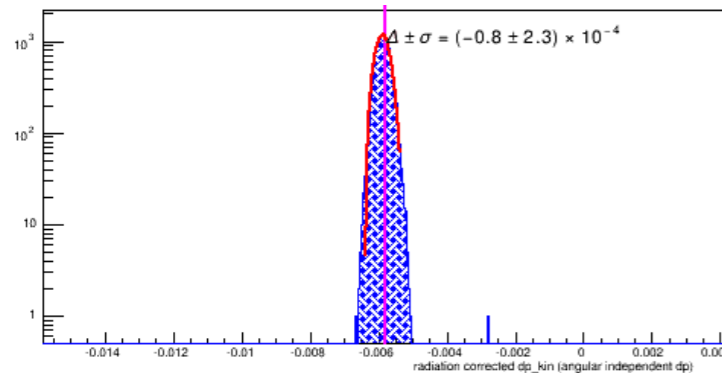
-2%



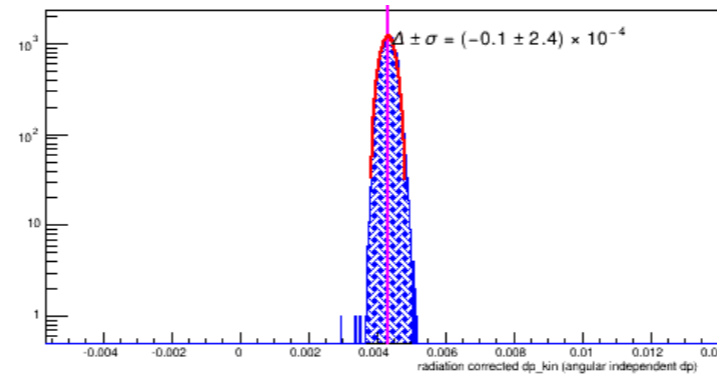
-1%



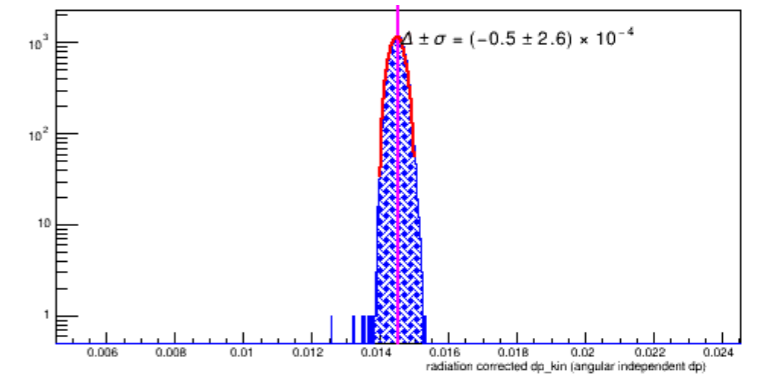
0%



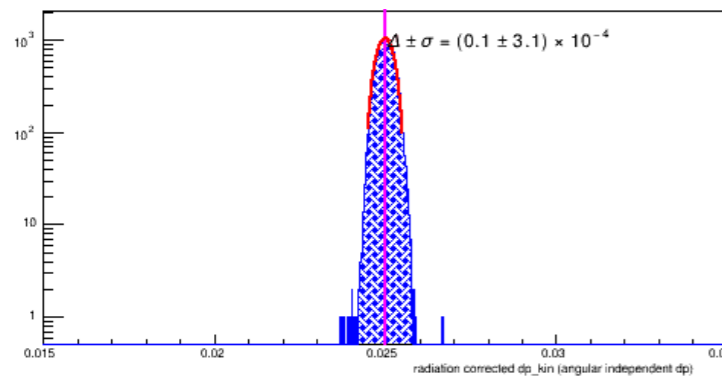
1%



2%



3%



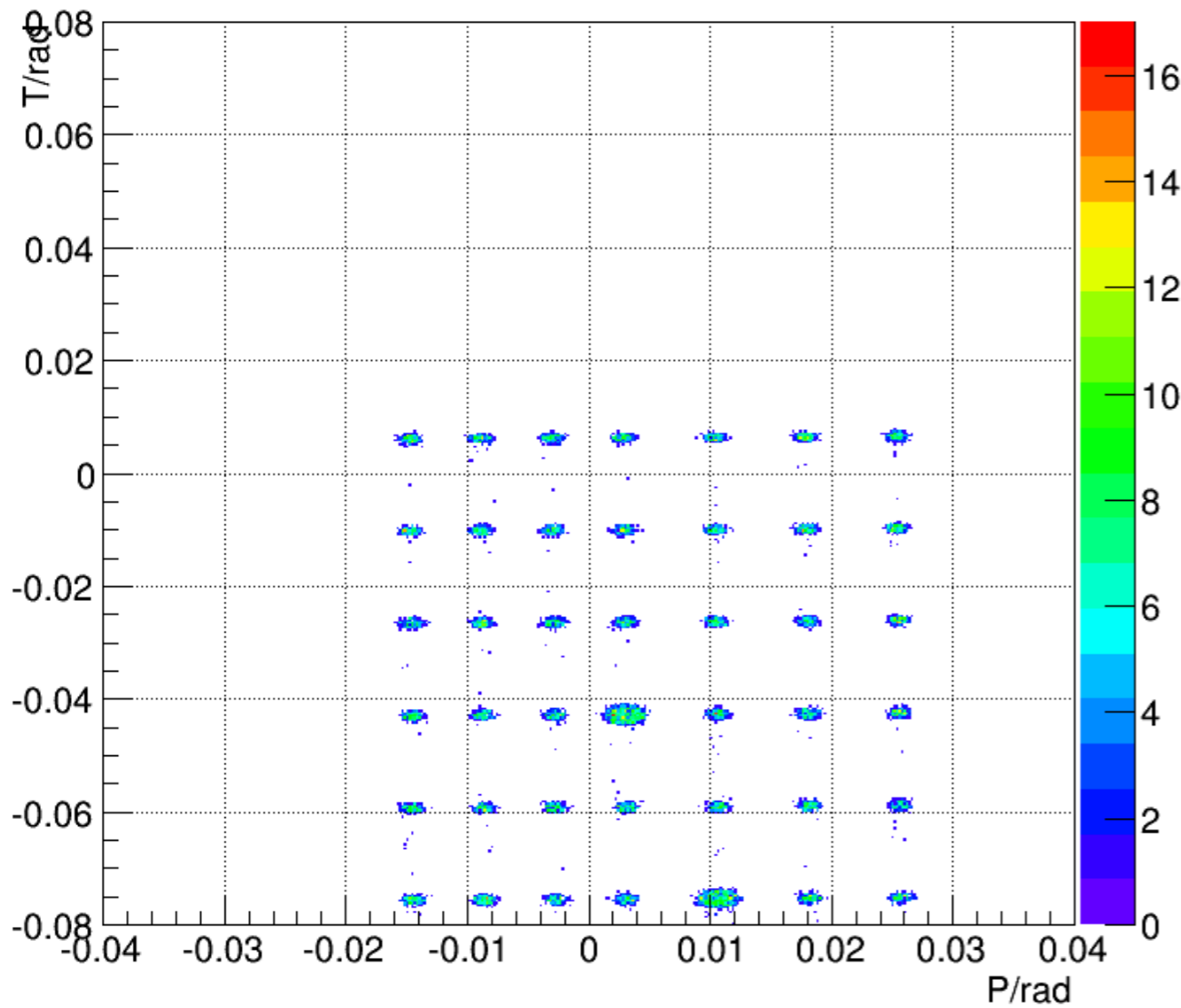
Calibration

- Settings:
 - Beam energy 2.253GeV
 - 2.5T Target Field at 90deg
 - Septum coil turns is 48-48-16
- Optics settings:
 - Full delta scan on left arm (-3%, 2%, -1%, 0%, 1%, 2%, 3%)

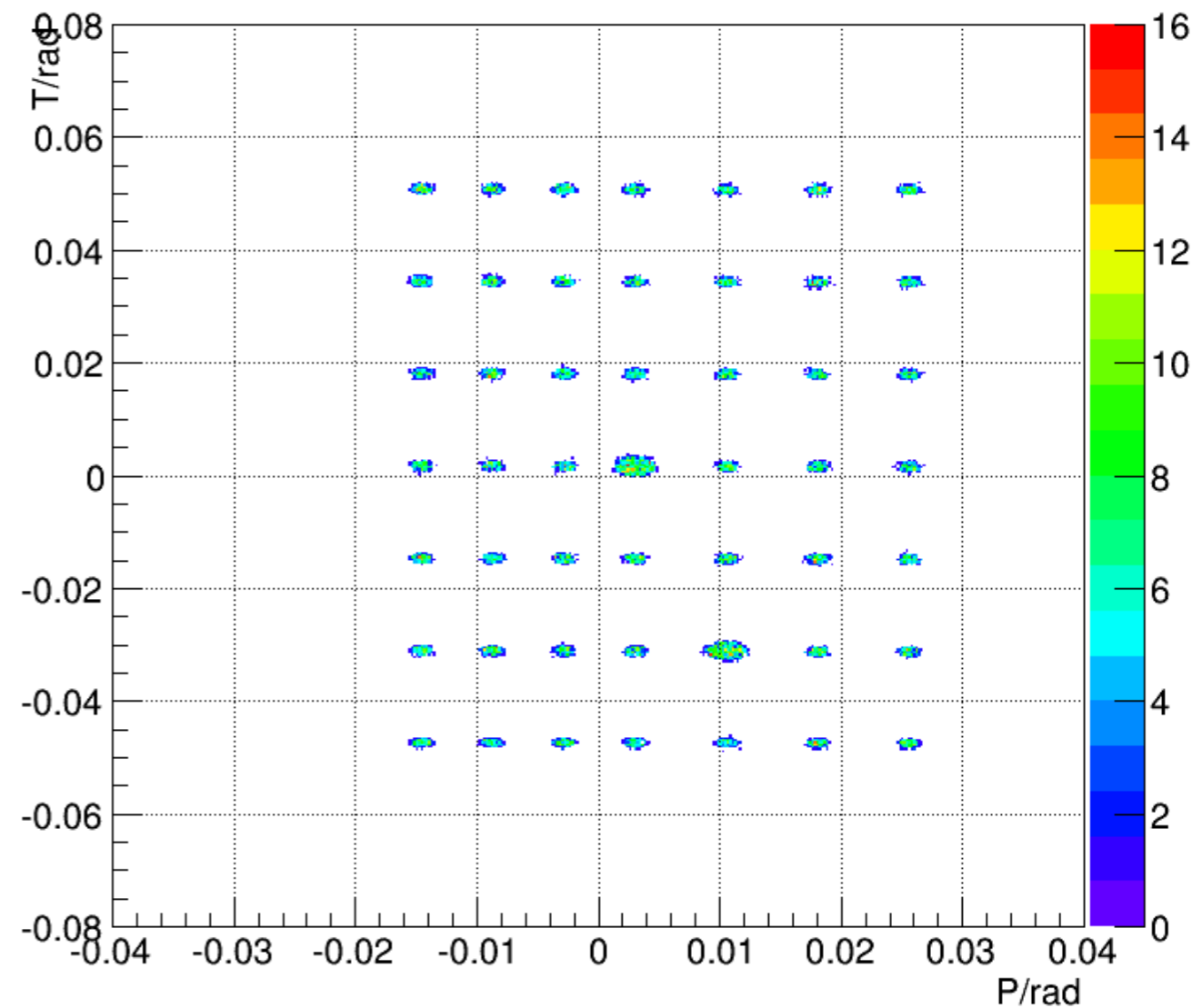
Calibration

- Simulation result to show the effect of the field
 - Assuming point beam, set to the average value of BPM readout

Init TP T vs P



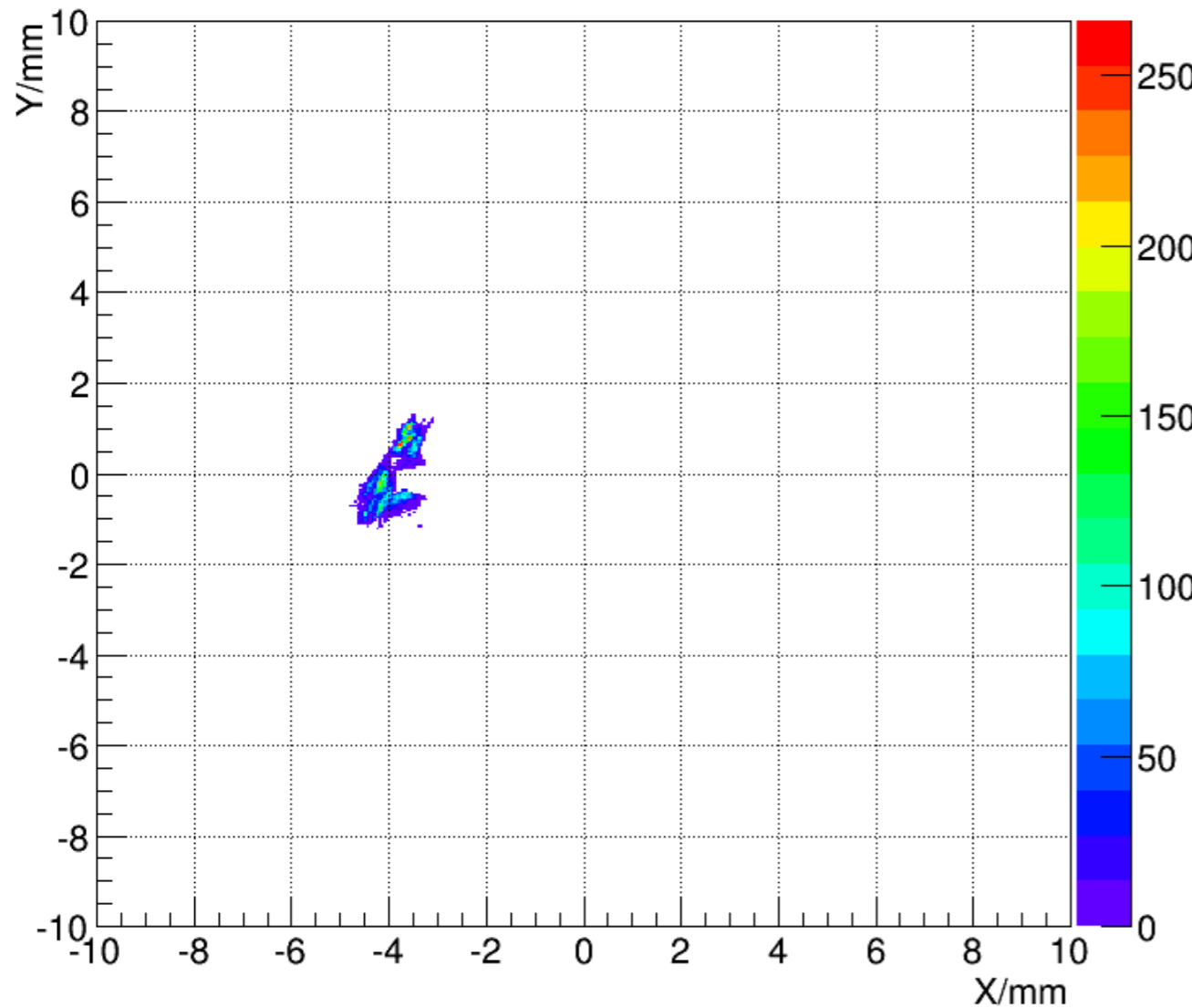
Effective Angle



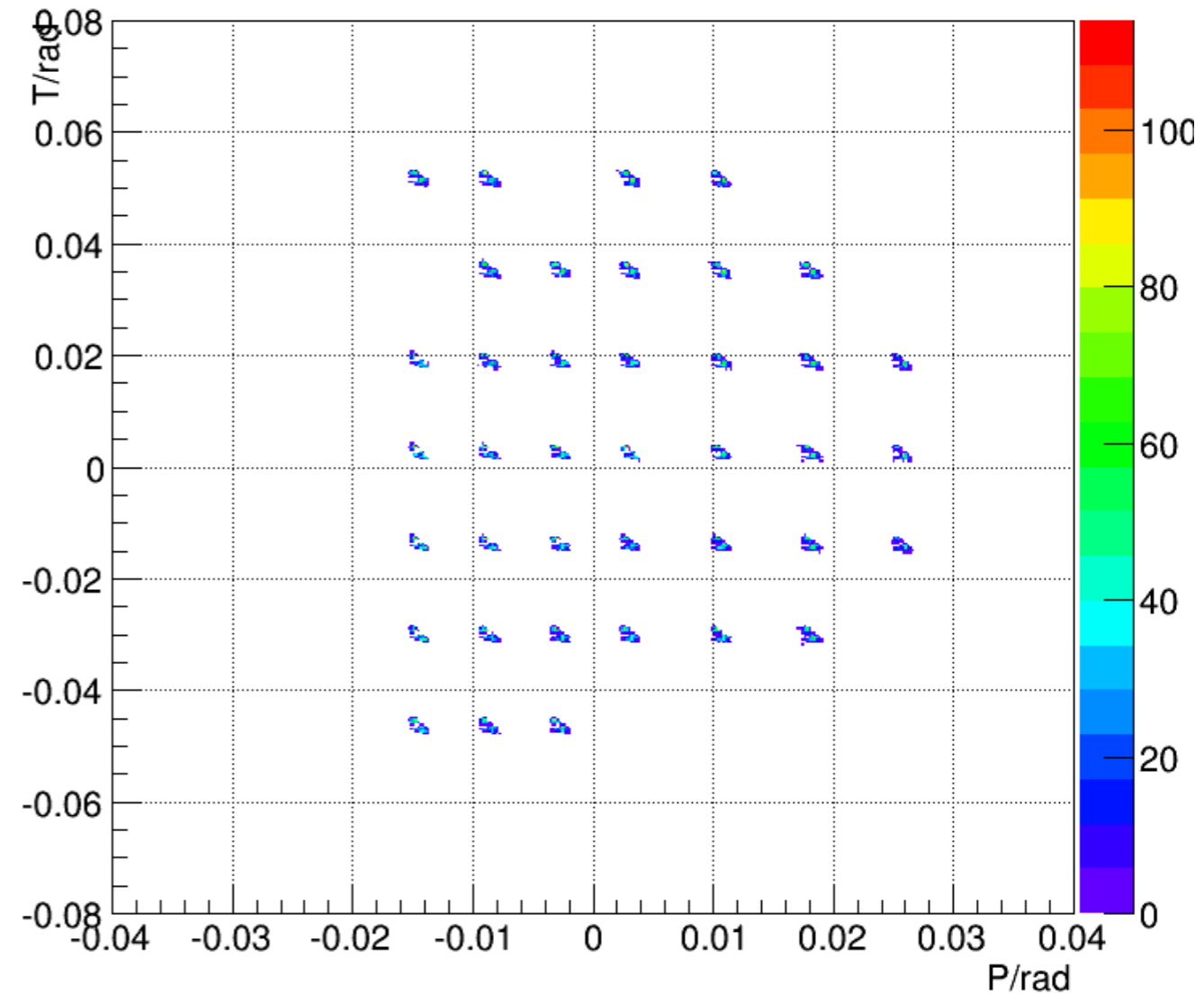
Calibration

- Use an event by event simulation to calculate the effective theta and phi angle
- Central hole has a small offset of the phi angle

BPM Y vs X

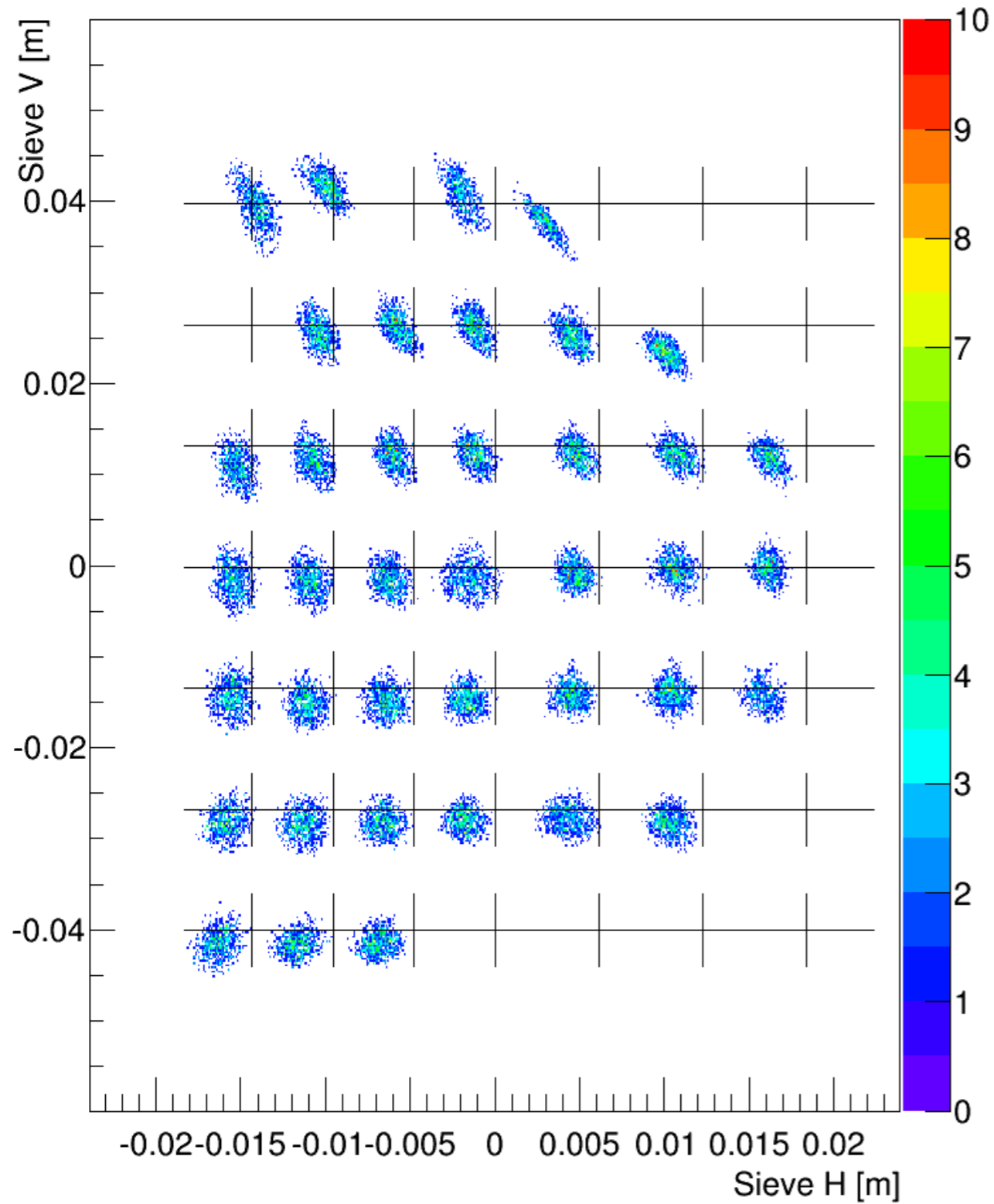


Effective Angle

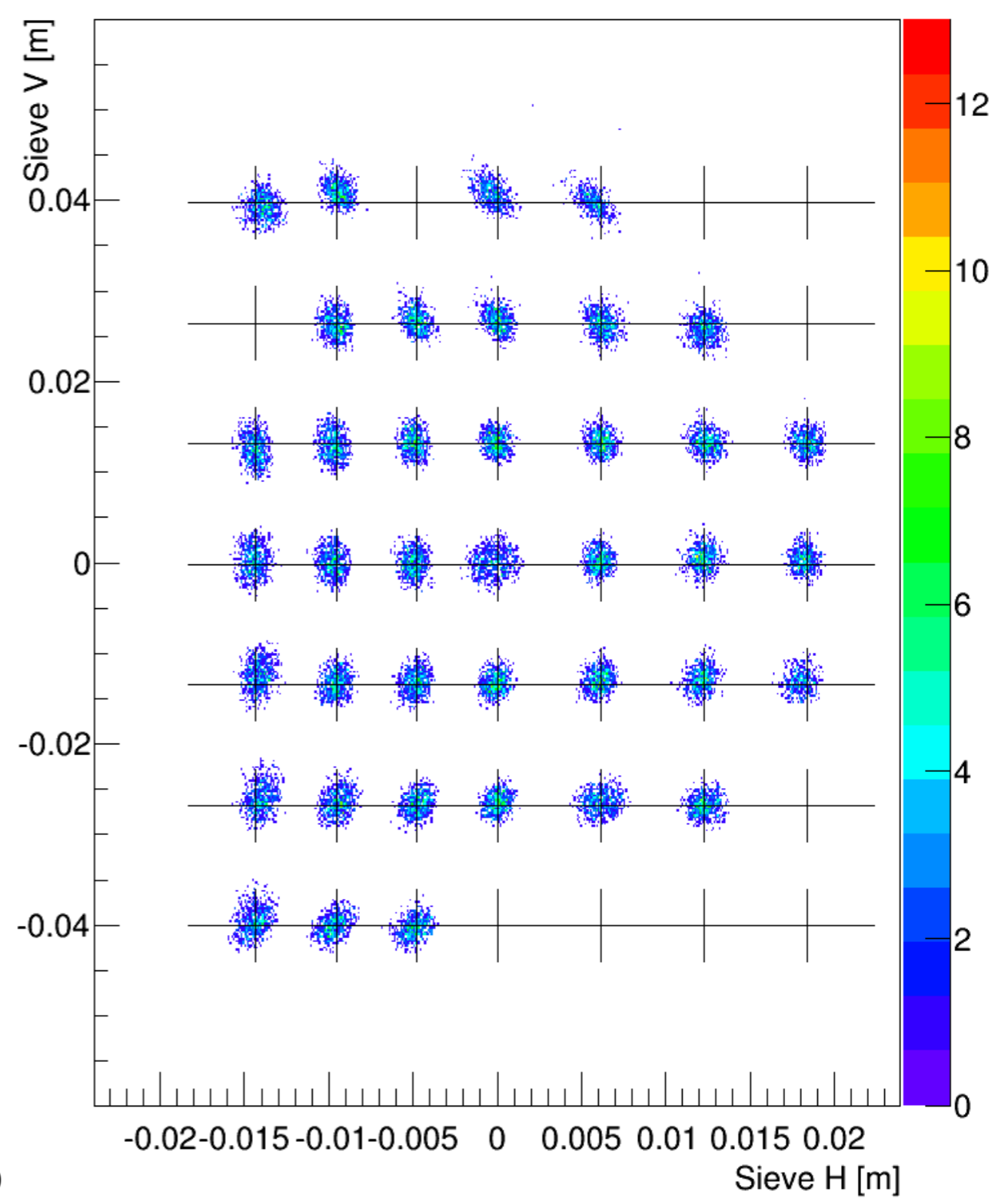


Calibration

Before Calibration

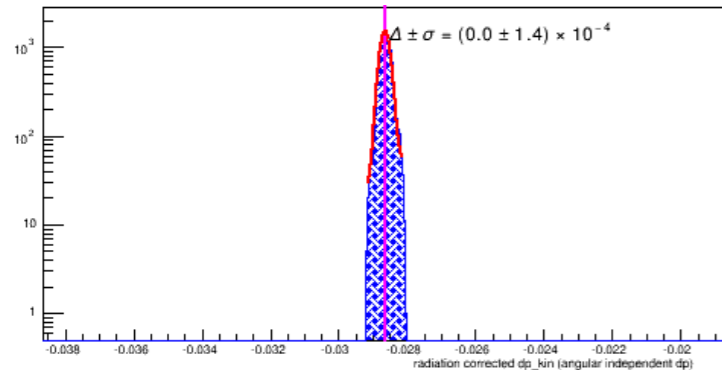


After Calibration

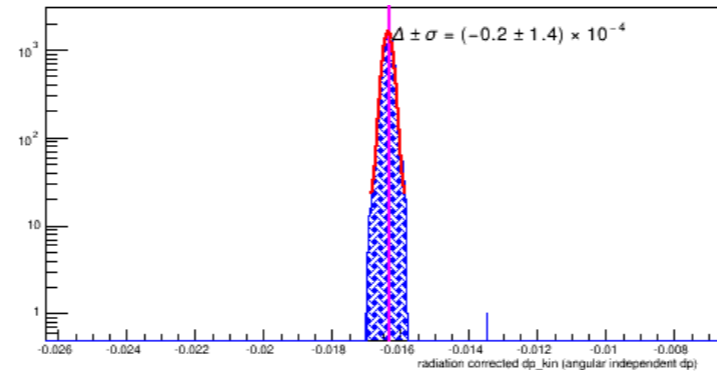


Calibration

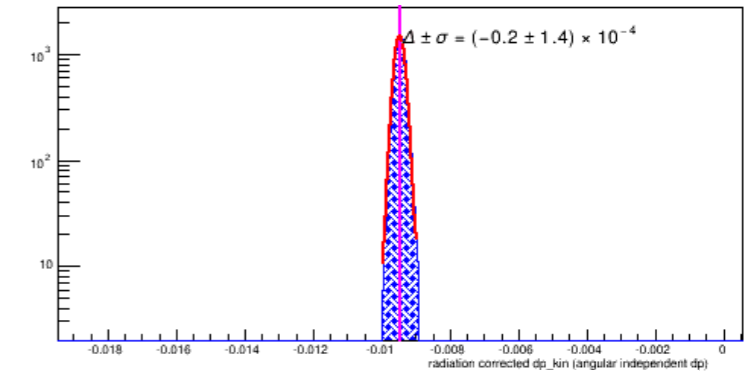
-3%



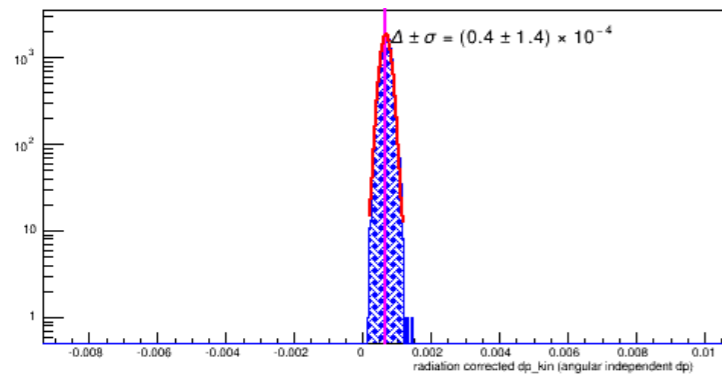
-2%



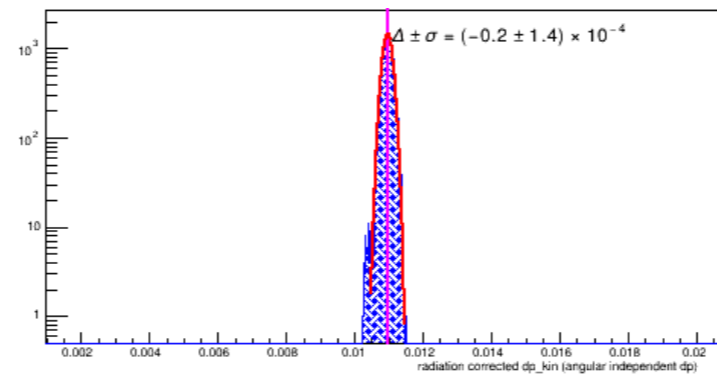
-1%



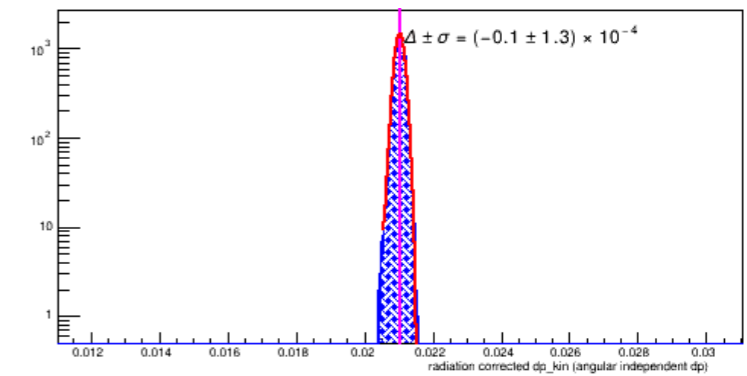
0%



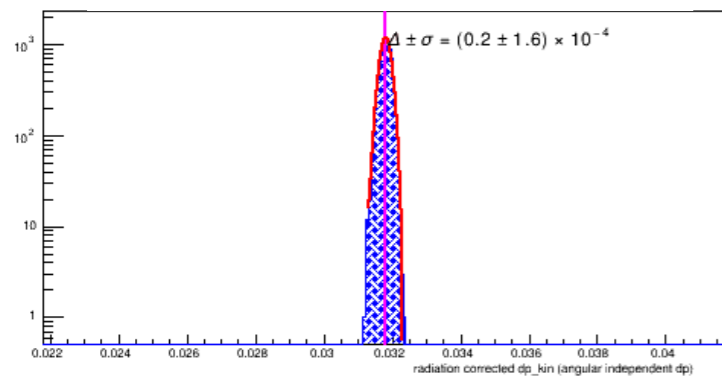
1%



2%



3%



Optics Status

- LHRS Optics Status:

Beam Energy (GeV)	Field (T)	Field Angle (deg)	Septum	Backup
2.253	0.0	90	484816	Straight through
2.253	0.0	6	484816	Straight through
2.253	5.0	0	400016	Straight through
2.253	2.5	90	484816	
2.253	2.5	90	483216	
1.706	2.5	90	400016	
1.158	2.5	90	400016	
2.253	5.0	90	400016	No full dp scan