

Optics Status Update

Chao Gu

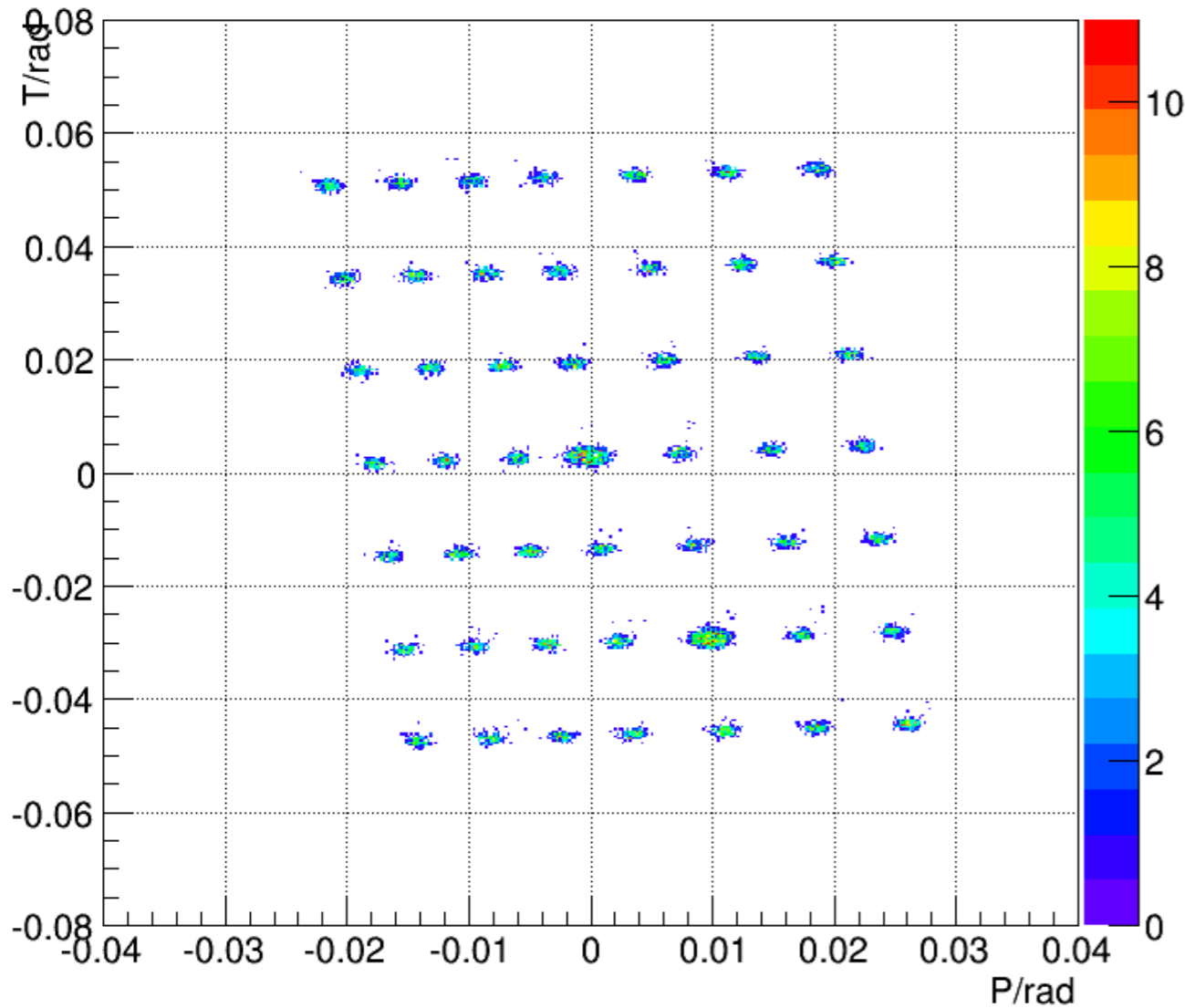
Longitudinal Optics

- 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

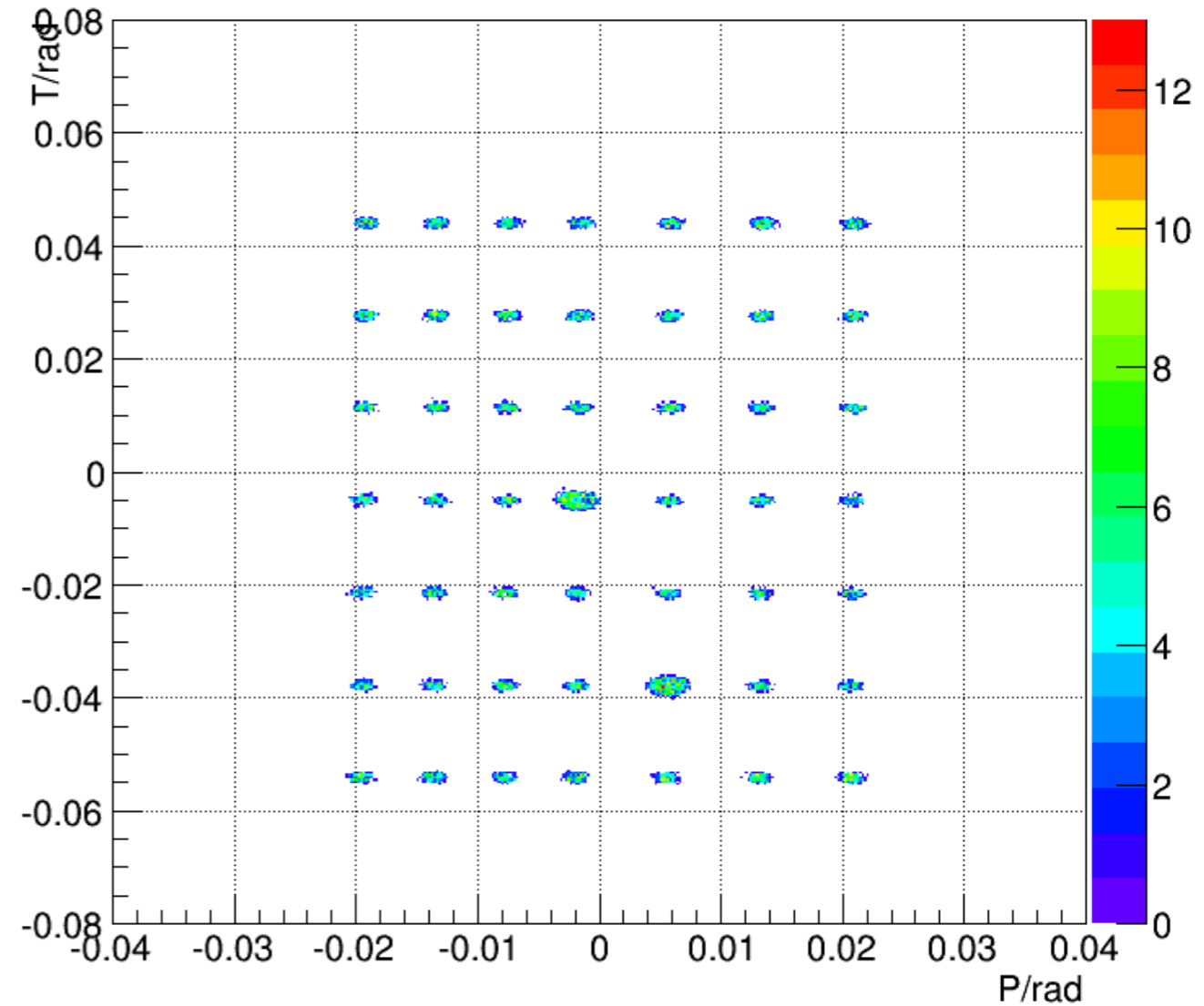
Calibration

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

Init TP T vs P



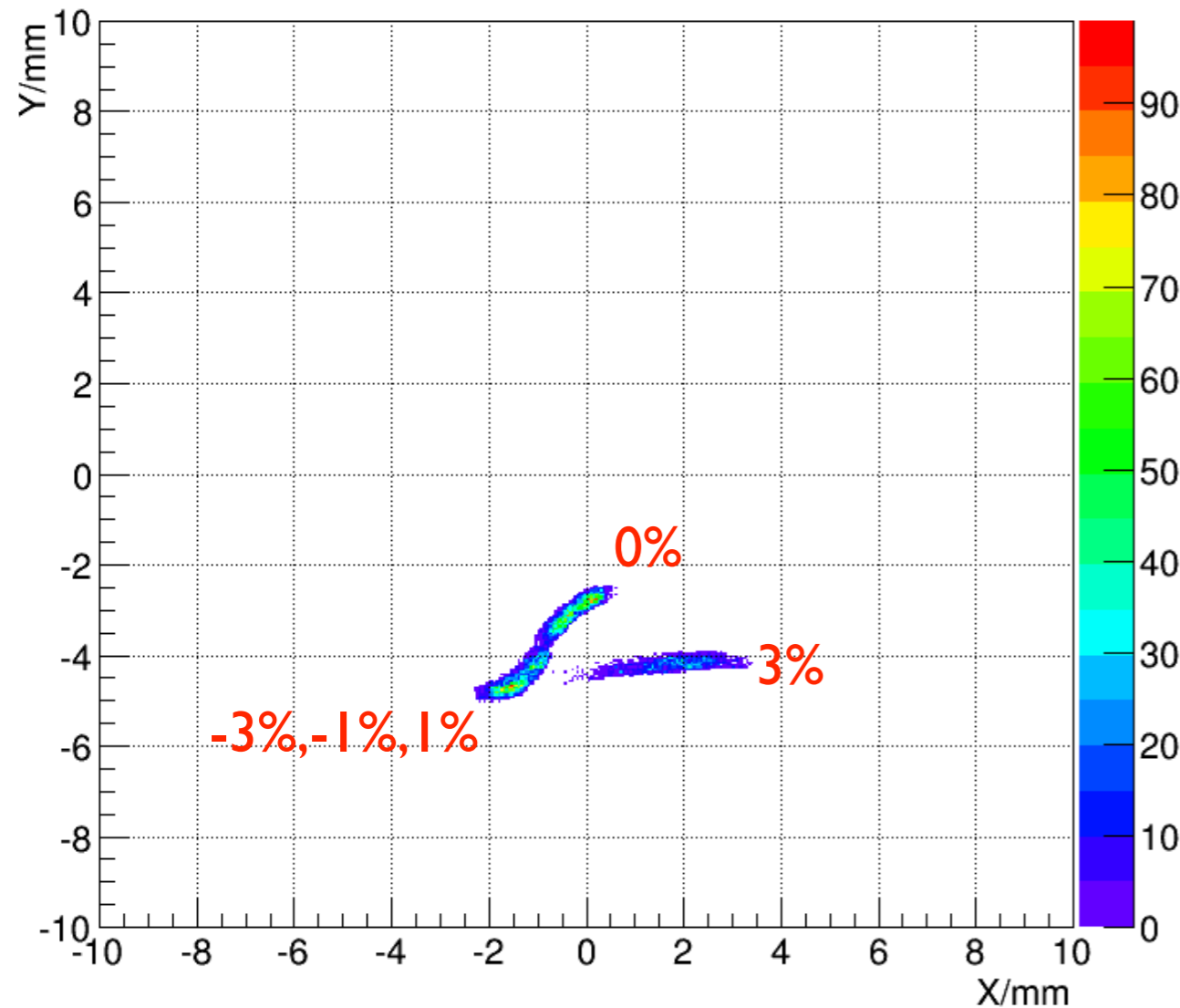
Effective Angle



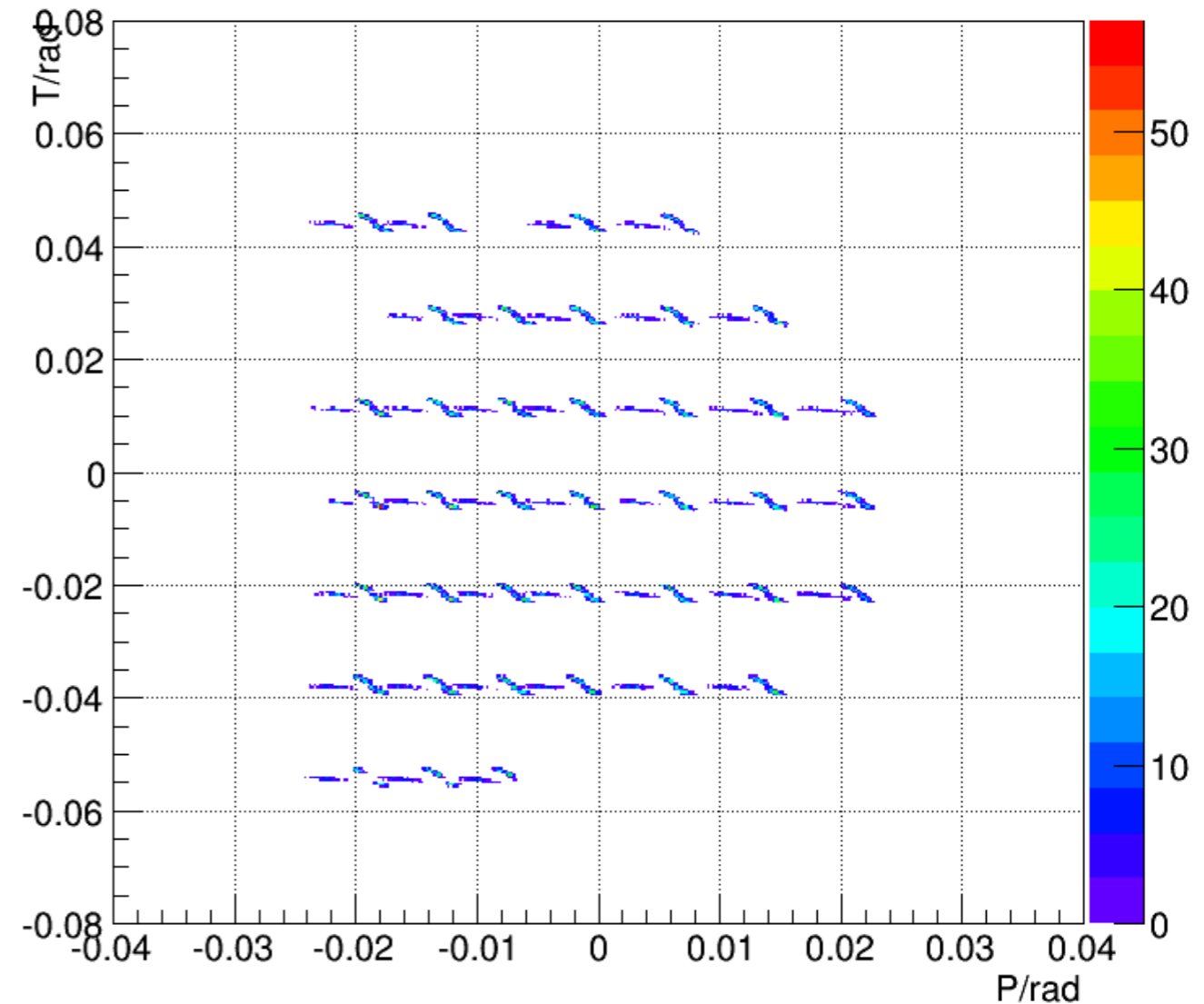
Calibration

- Beam positions are slightly different between different runs
- Use an event by event simulation to calculate the effective theta and phi angle

BPM Y vs X



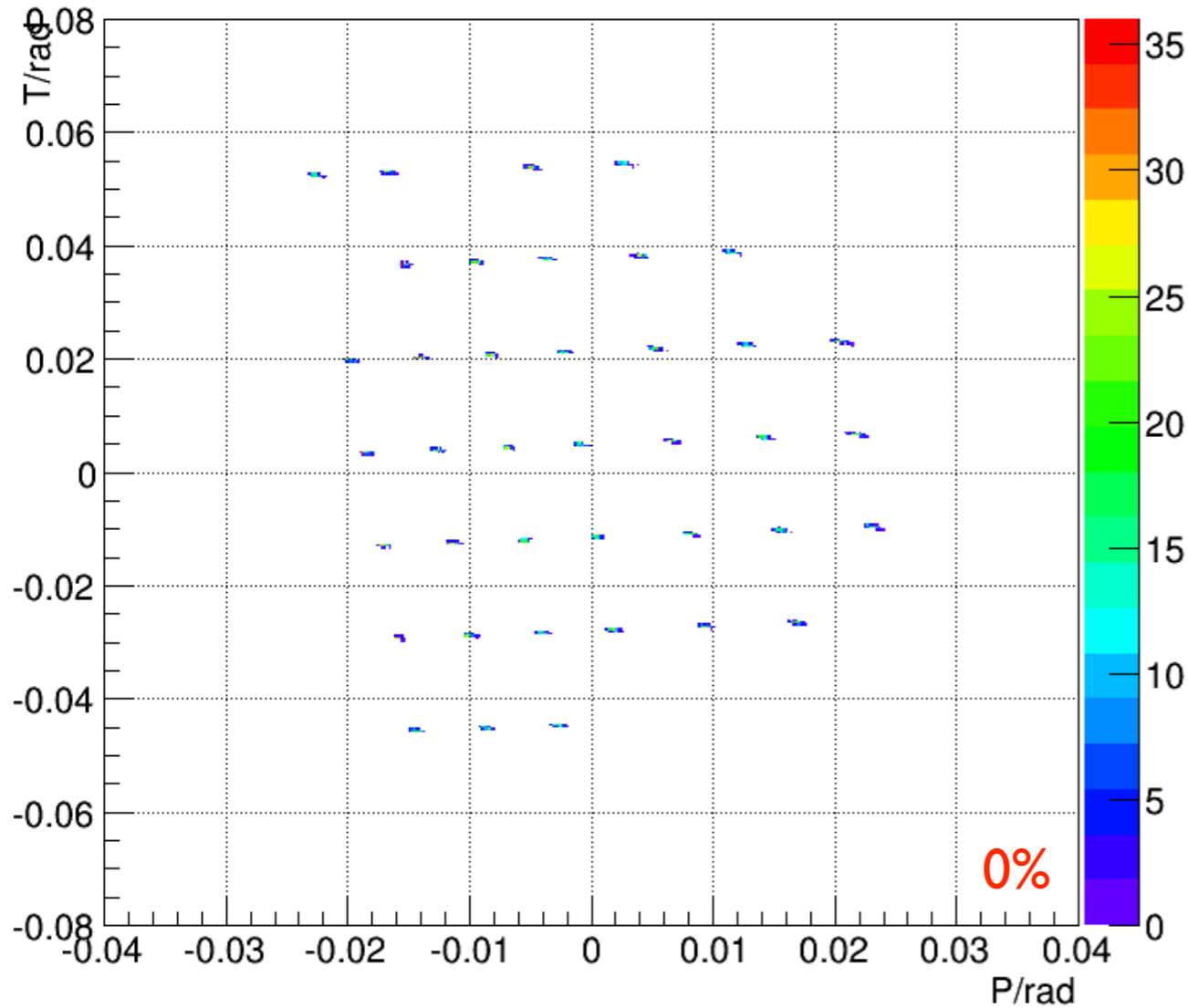
Effective Angle



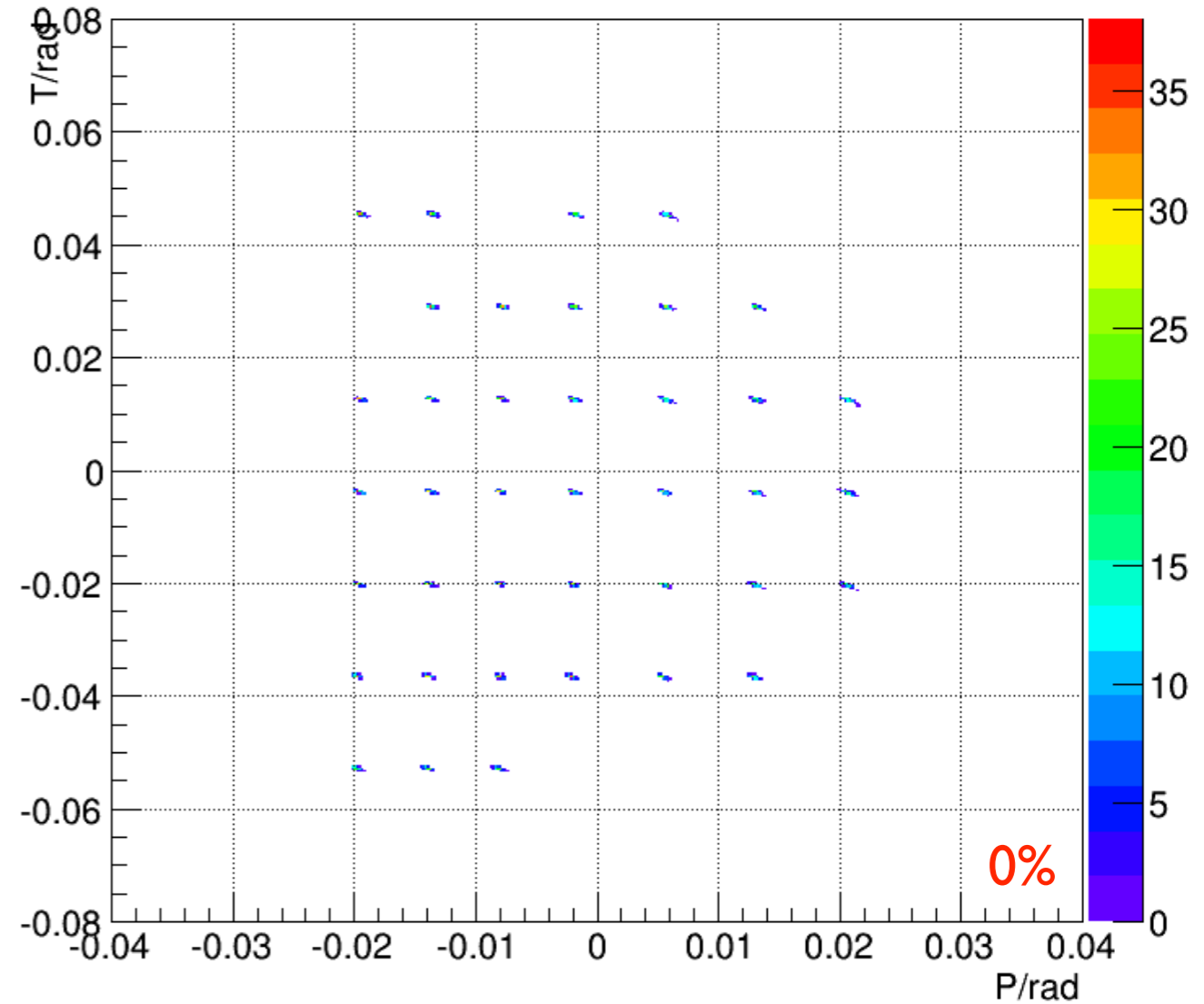
Calibration

- Beam positions are slightly different between different runs
- Use an event by event simulation to calculate the effective theta and phi angle

Init TP T vs P

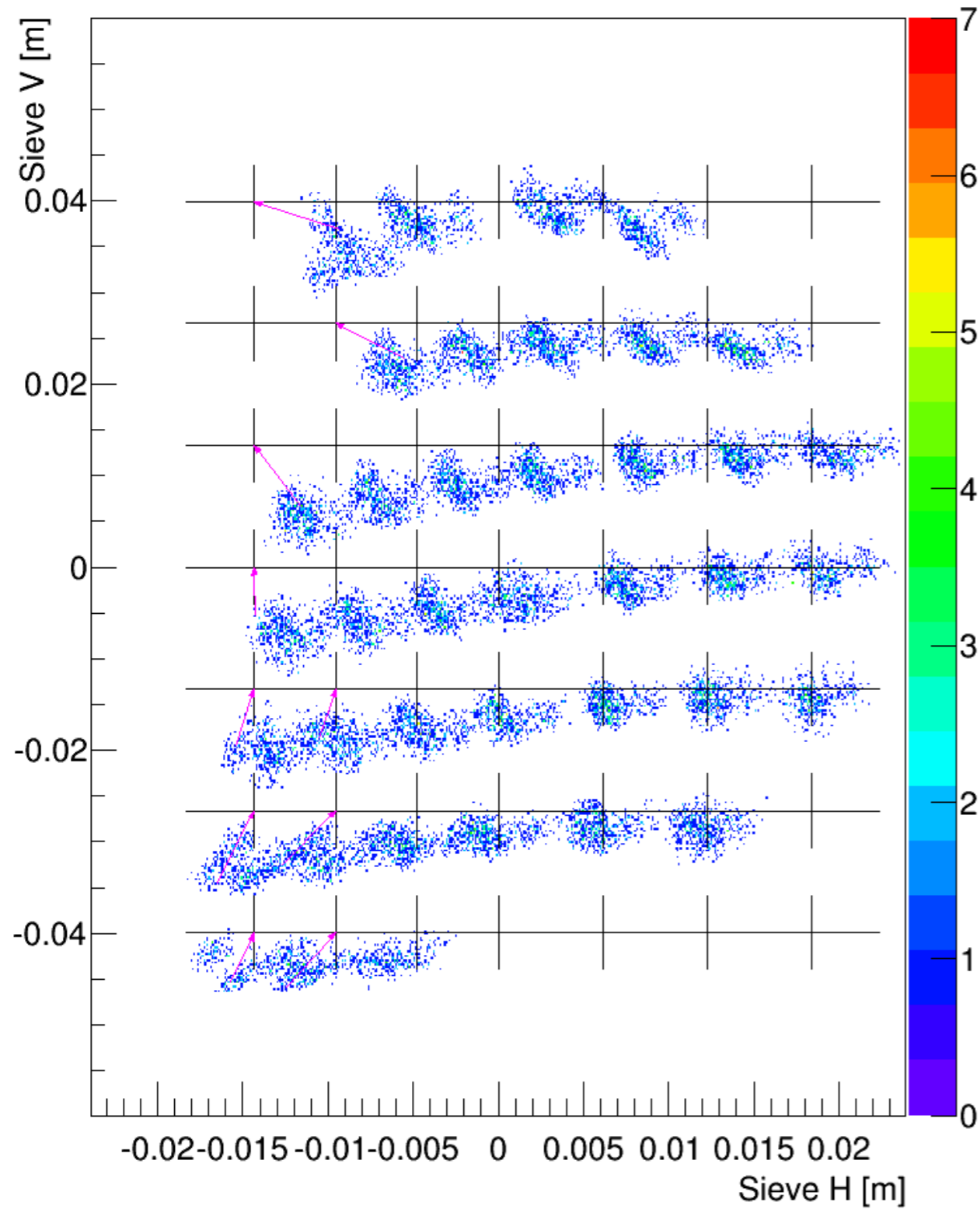


Effective Angle

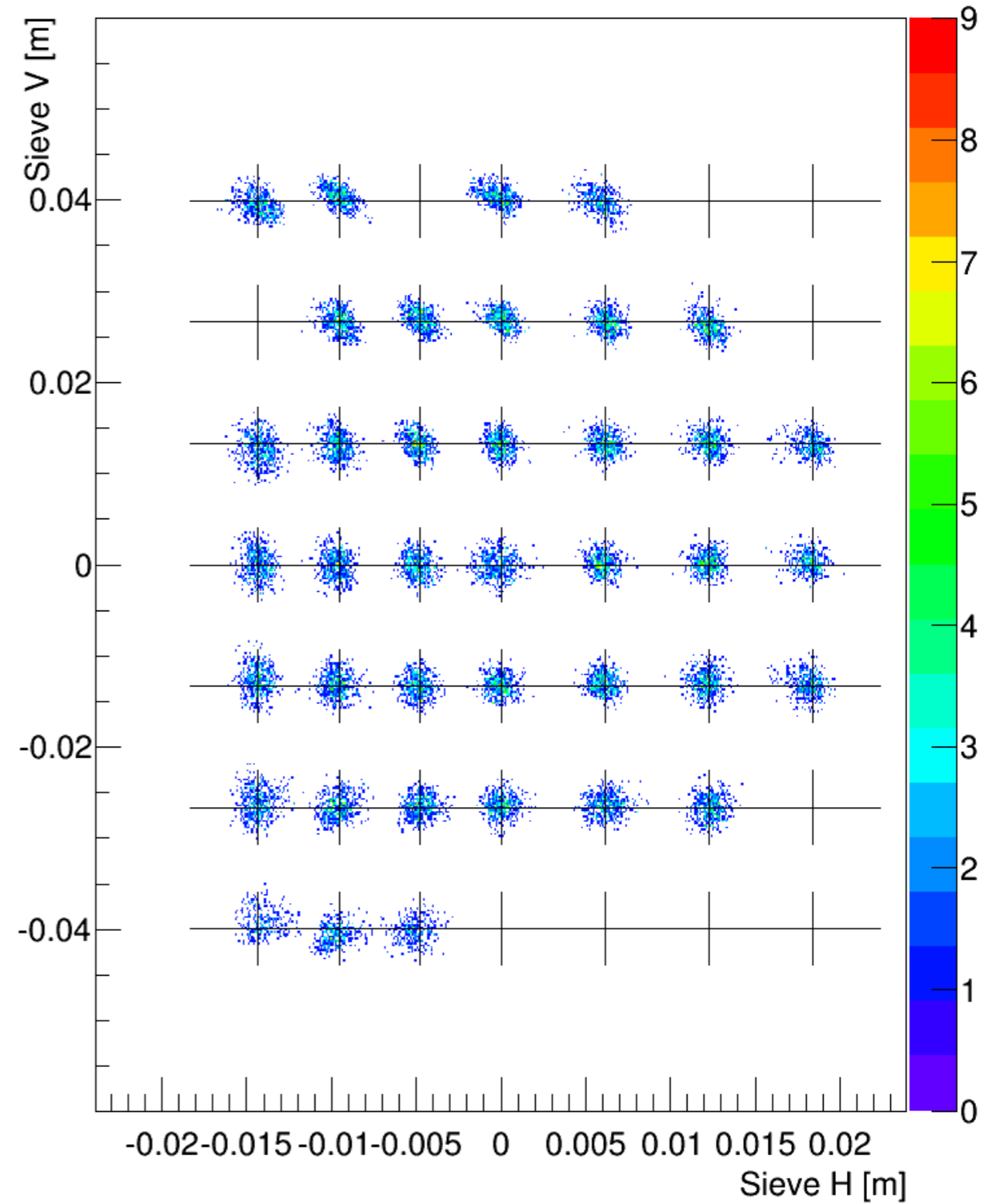


Calibration

Before Calibration

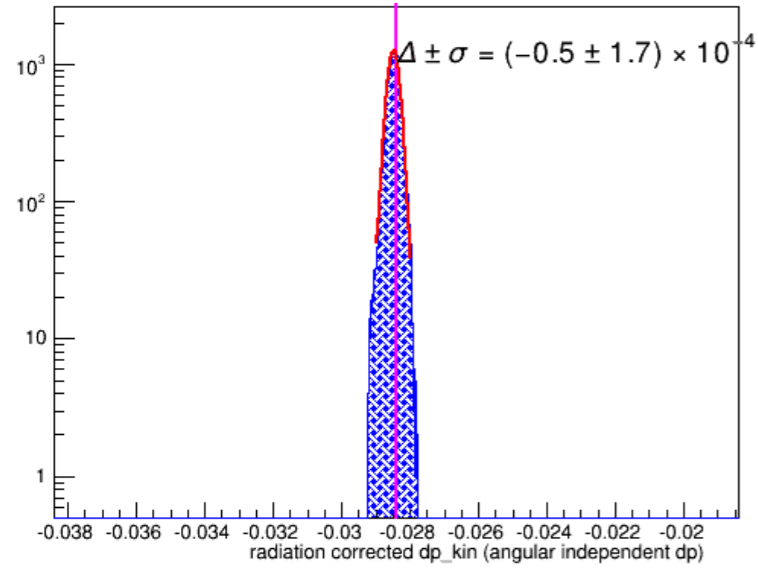


After Calibration

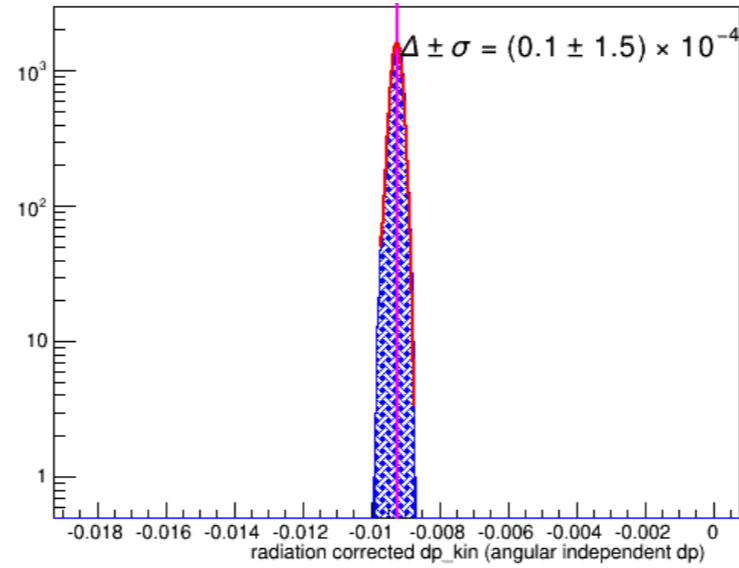


Calibration

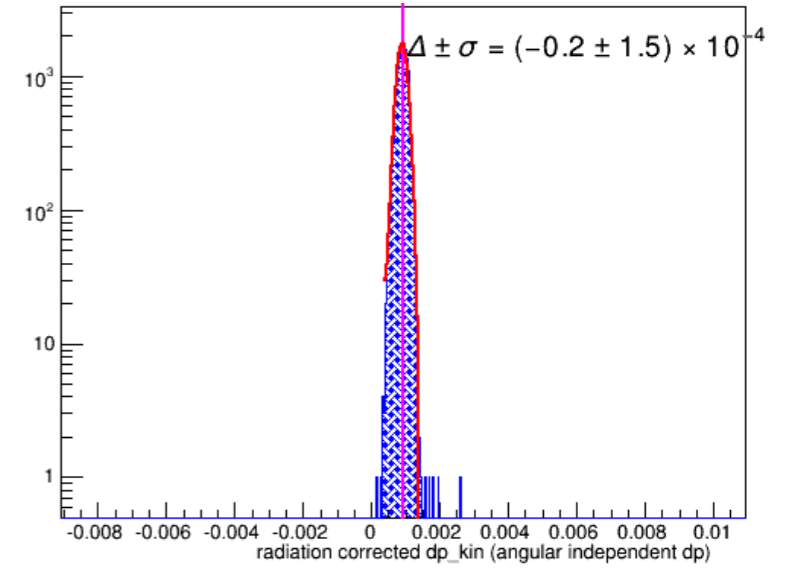
-3%



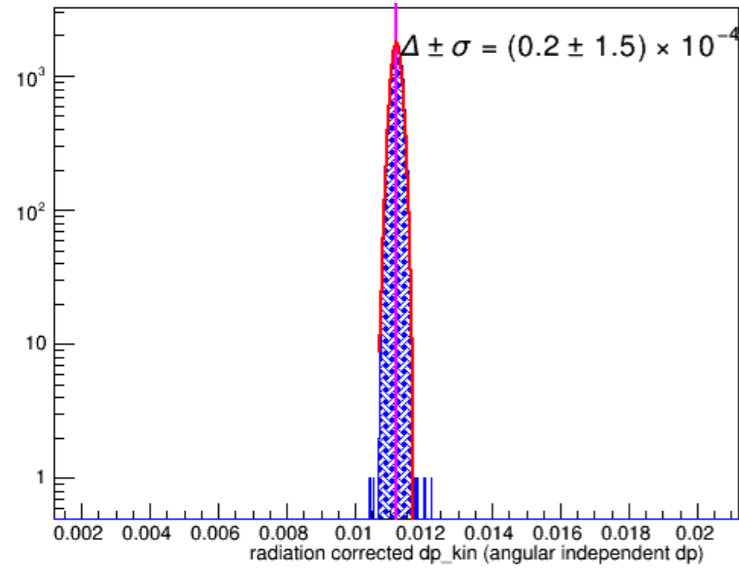
-1%



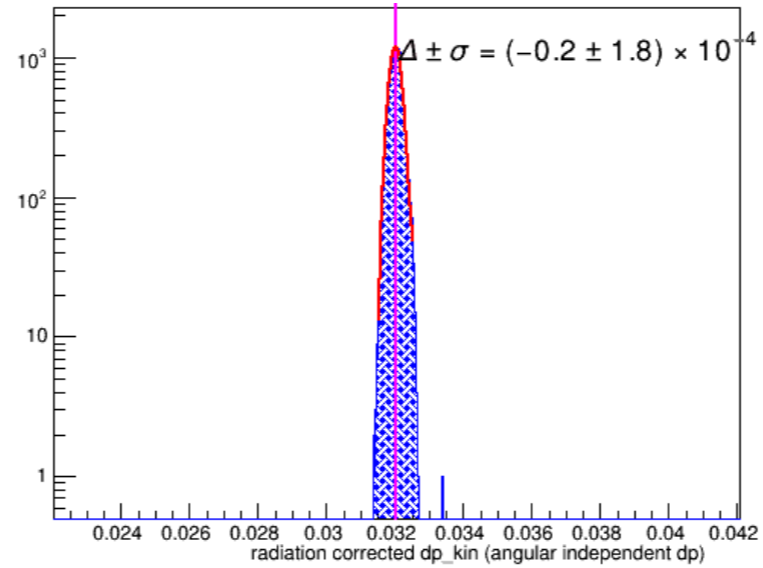
0%



1%



3%



Optics Status

- Calibration tool kit is almost finalized (combine optimizer and the simulation)
- Reconstruction script need to be updated with the simulation to calculate the kinematic variables (working on this)
- TODO:
 - Several different optics settings to go
 - Bad septum