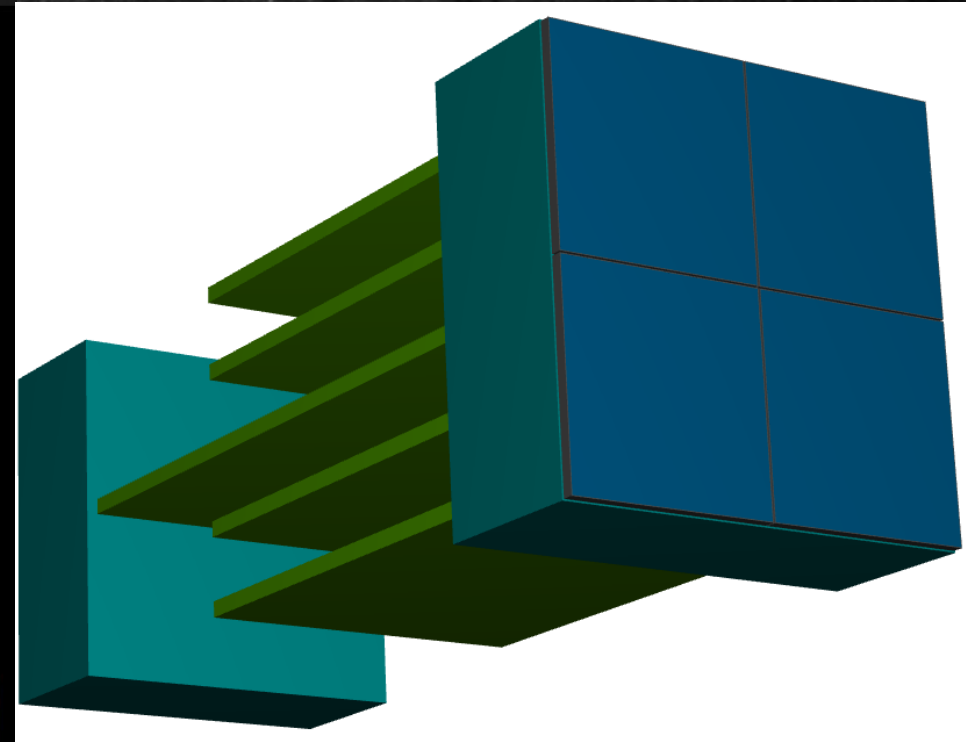
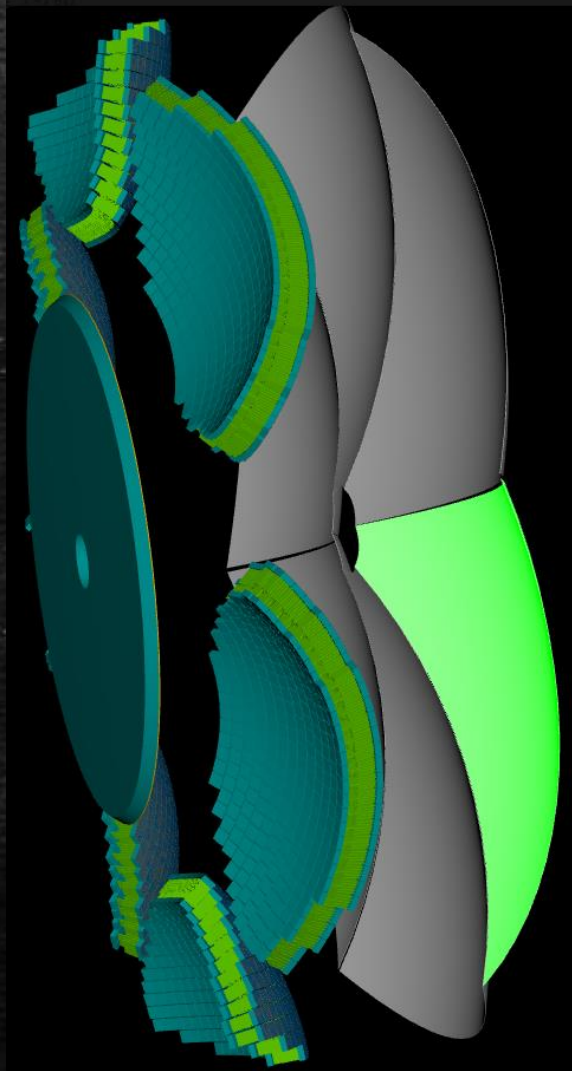


N-sigma Separation (π/K) with updated PDU

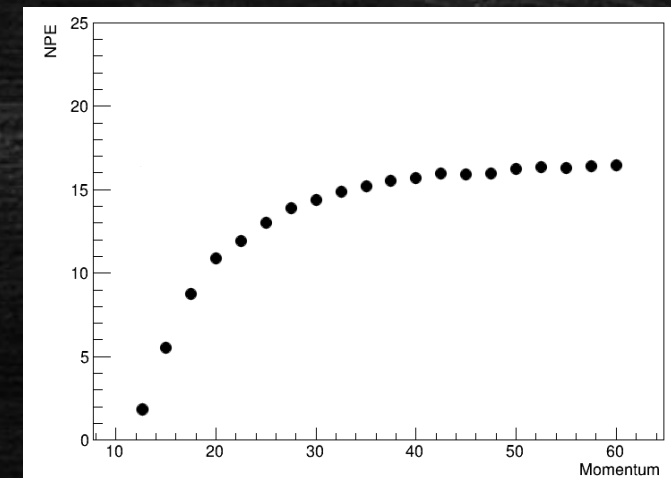
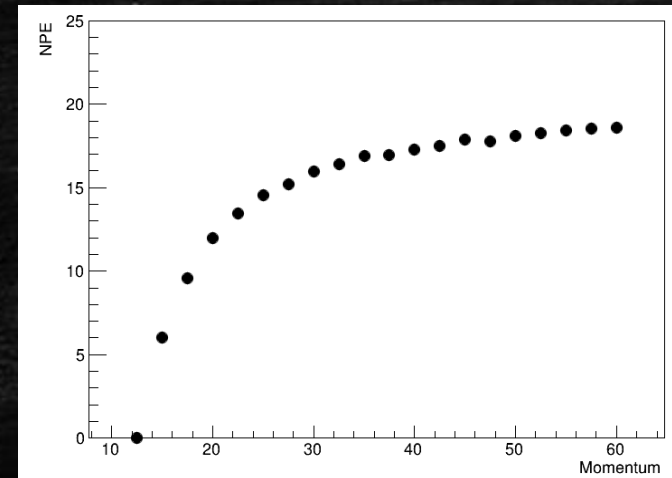
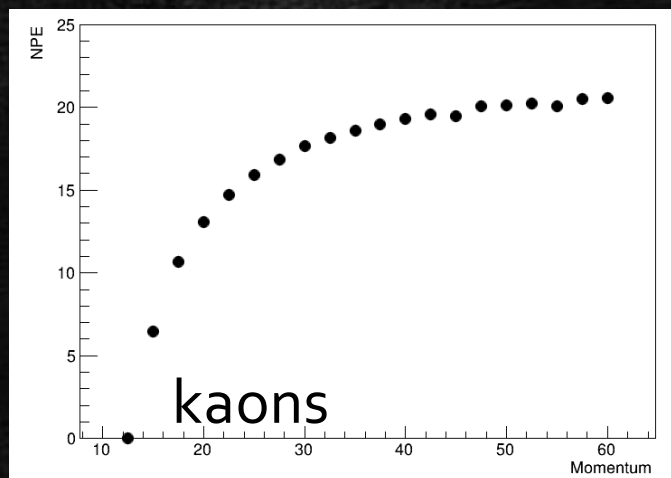
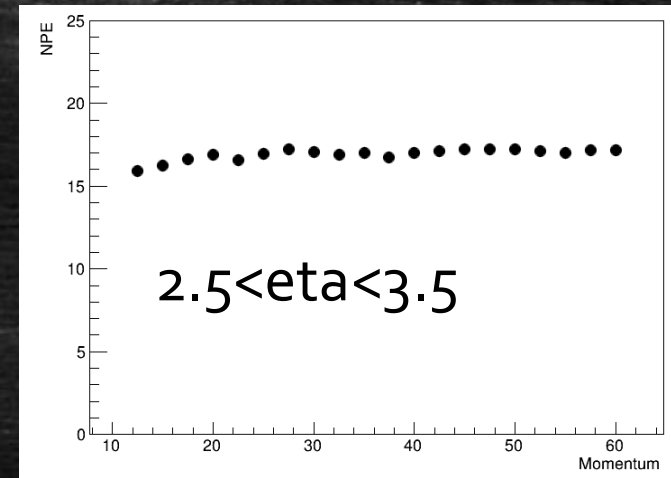
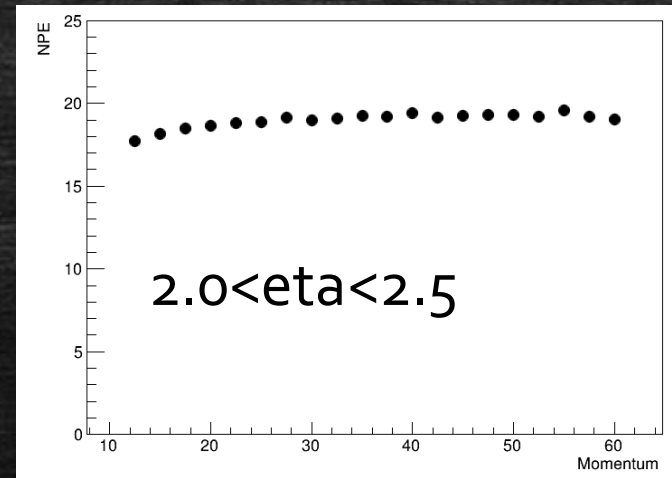
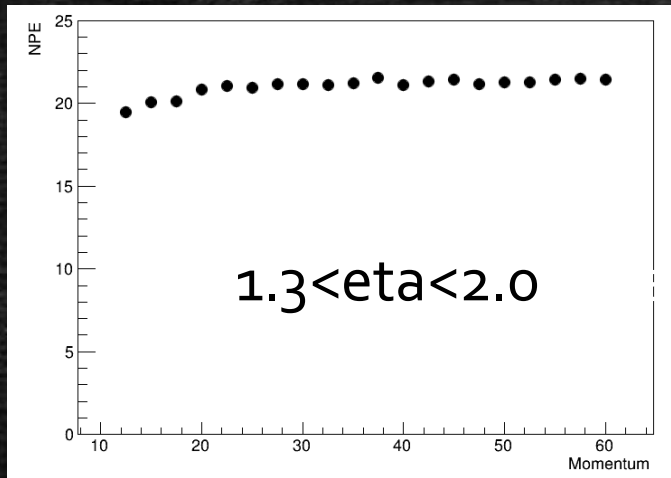
Luisa and Chandra

Title and Content Layout with List

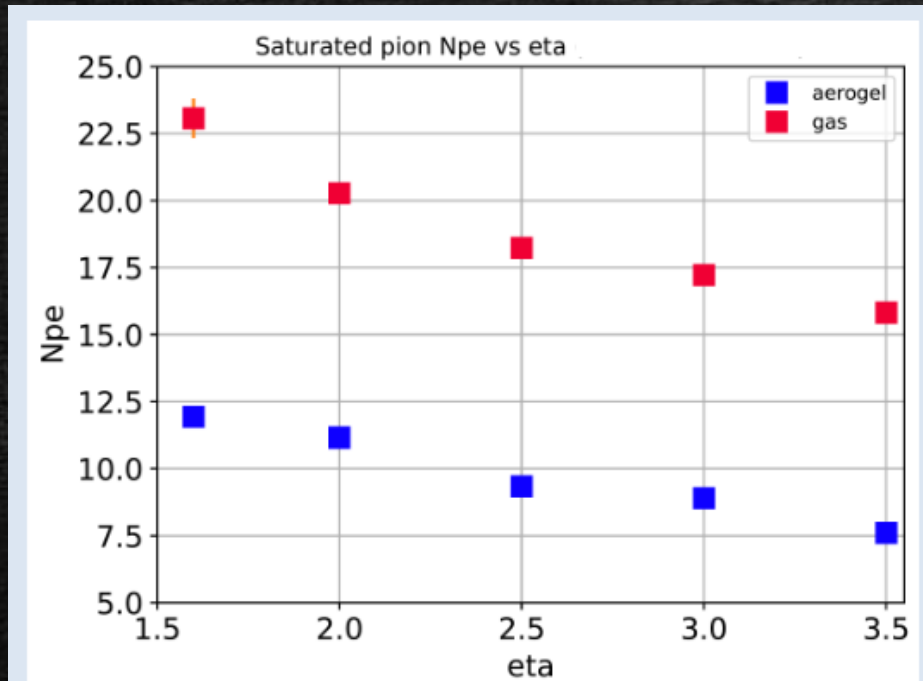
- We have the updated PDU
- The PDUs are set in an extruded box.
- Sensor parameters are unchanged only grouped in 2x2 with 0.2 mm clearance.
- gap between adjacent PDUs 3 mm.
- Added Resin Thickness is 1.35 mm.



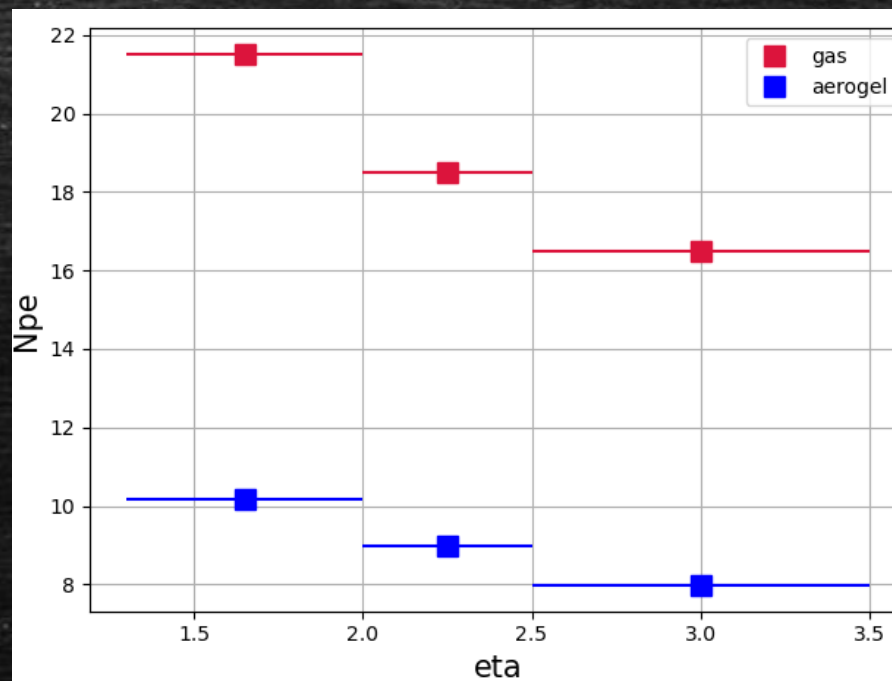
Performance (number of detected photons) (plots from Luisa)



Performance (number of detected photons)



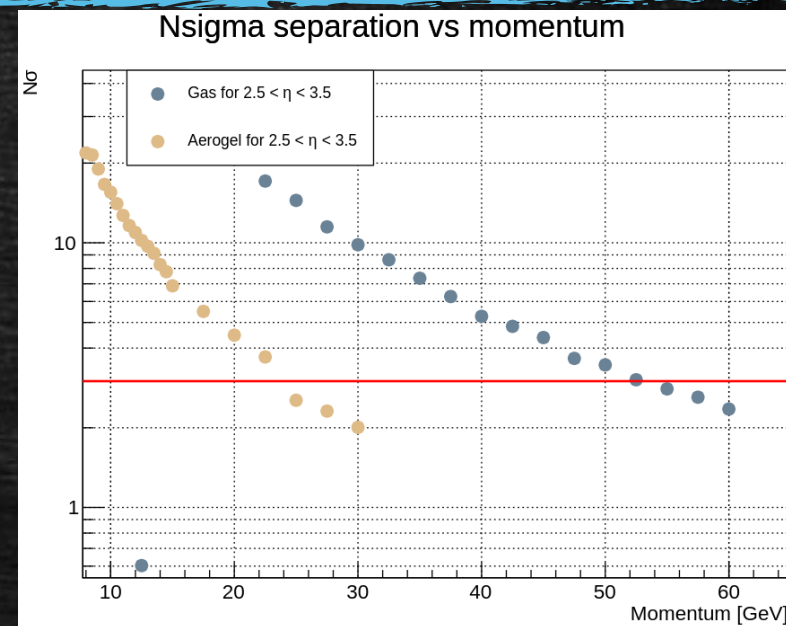
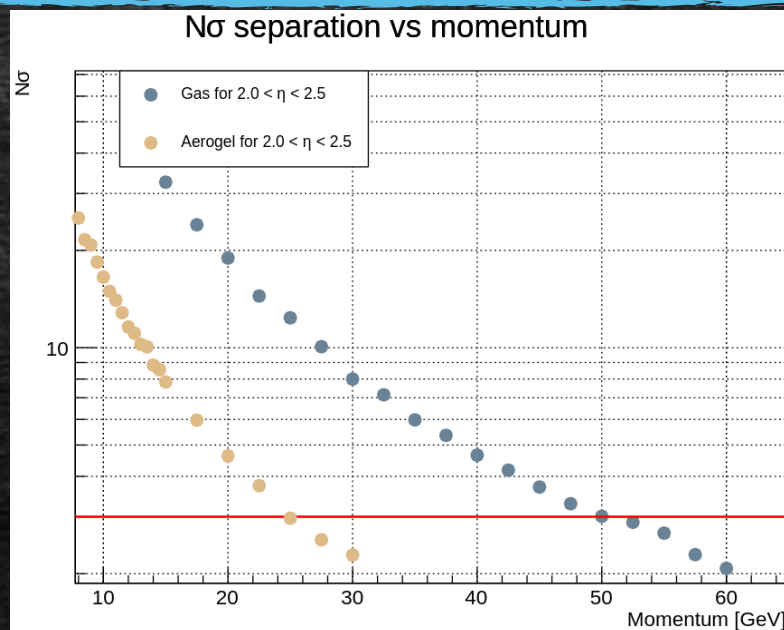
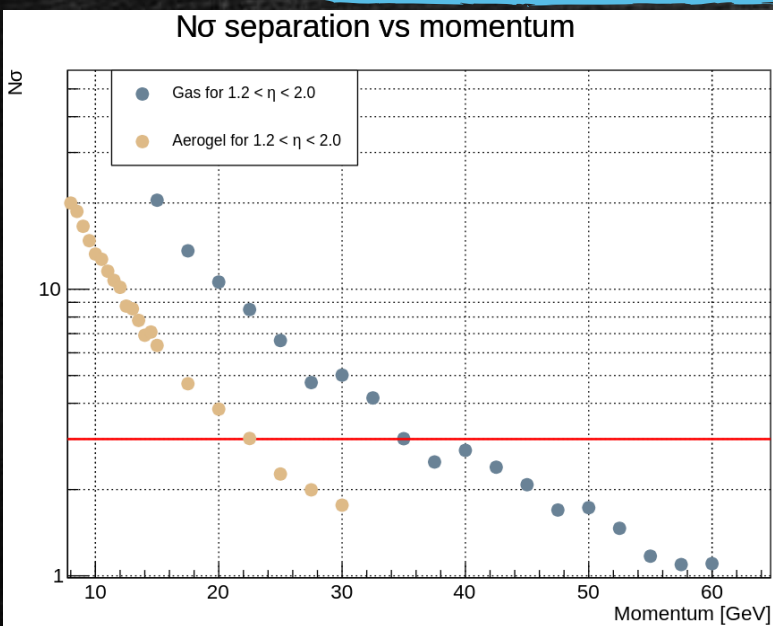
Plots shown in Review



Updated PDU

Pay attention: Below pseudo rapidity 1.5 we are close to the acceptance limit. The number of photons are reduced. The new one is an integrated plot and has this effect included.

Performance (plots from Luisa)

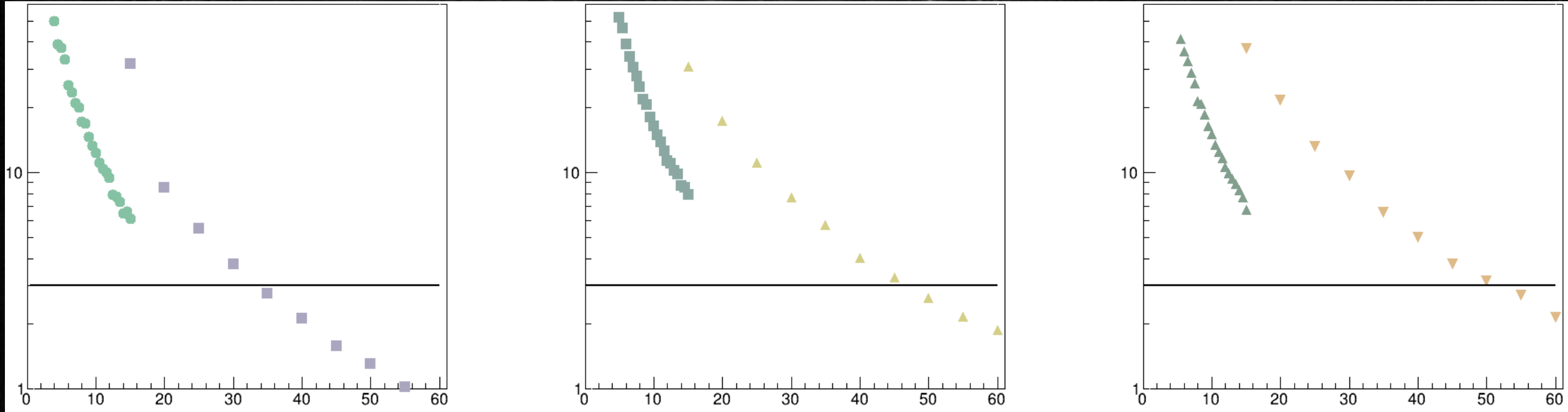


Below 2.0 the gas photons are suffering the spherical aberration. Fluctuations, some probable fitting issue? The 3-sigma limit can be ascribed to 35 GeV/c (from eta 1.3 to 2.0). Between pseudo rapidity 2.0-2.5; 3-sigma limit is around 50 GeV/c. Above 2.5; 3-sigma limit is around 52.5 GeV/c

Substantial overlap with

Aerogel

Performance (X-check) (Not full aerogel range)



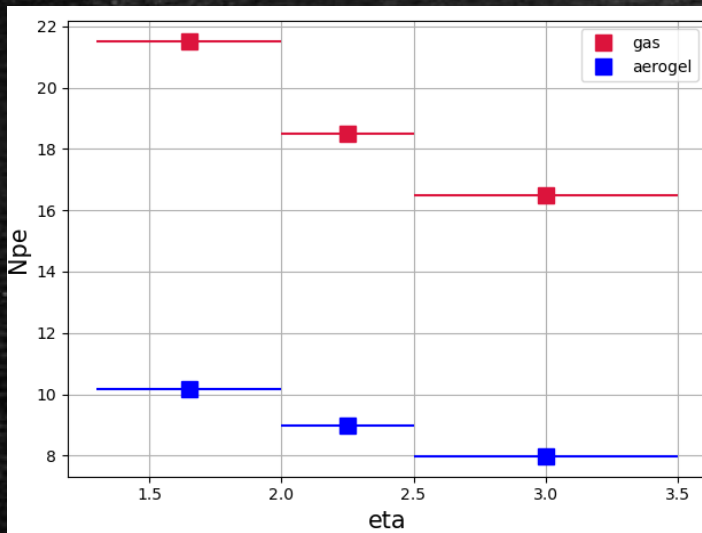
Iterative and robust fitting.

The 3-sigma limit can be slightly lower than 35 GeV/c (from eta 1.3 to 2.0).

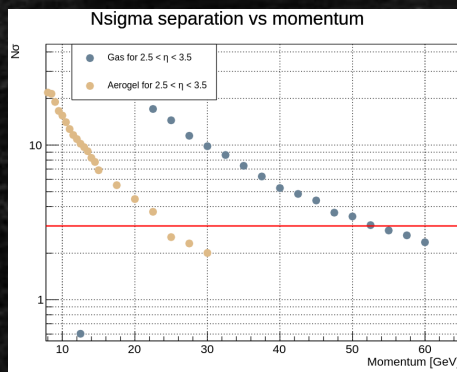
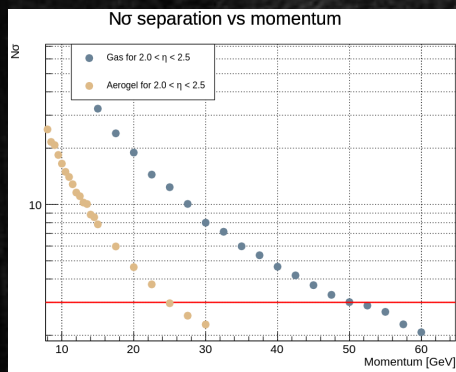
Between pseudo rapidity 2.0-2.5; 3-sigma limit is slightly lower than 50 GeV/c

Above 2.5; 3-sigma limit is slightly lower than 55 GeV/c

PDU validation

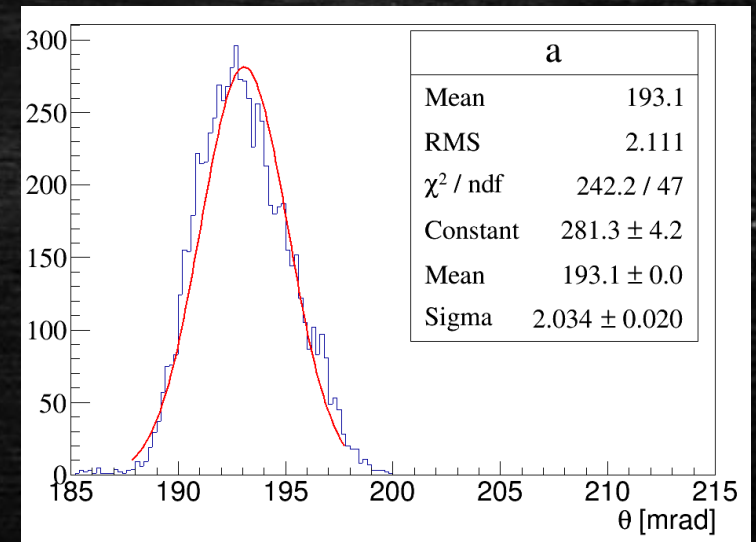
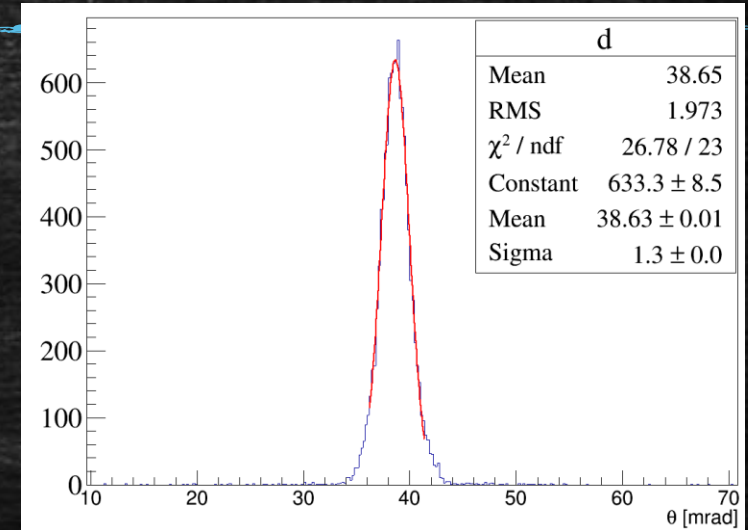
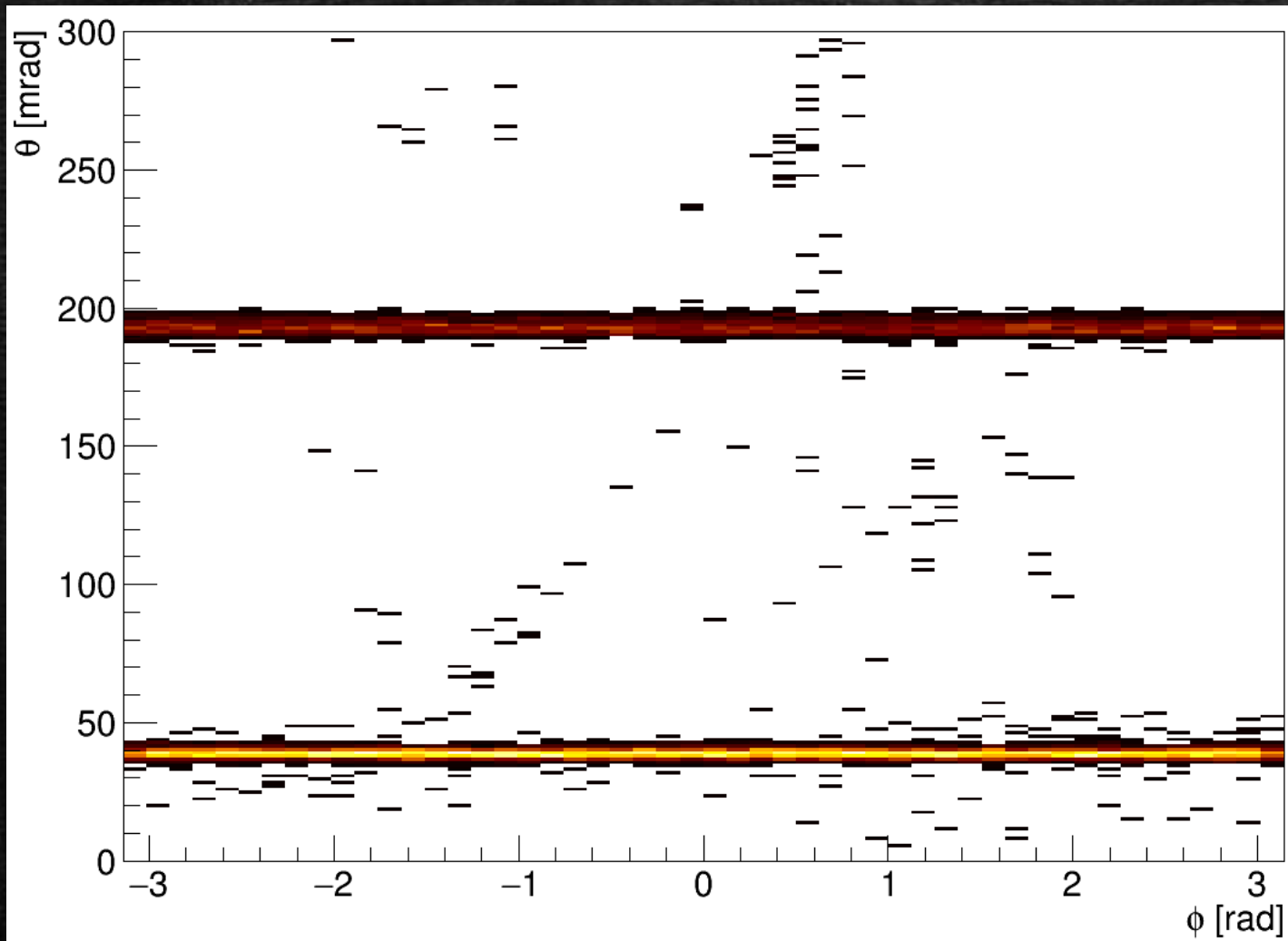


- PDU geometry is validated and x-checked.
- The Npe above pseudo rapidity 2.0 is consistent with July studies. Slightly lower for large angle tracks (acceptance limit is contributing)
- N-sigma separation is estimated. From 2.0-3.5 eta, 50 GeV/c separation can be achieved. (No noise hits).
- Will be restudied with added noise.



Single photo-electron resolution (With added noise to be studied)

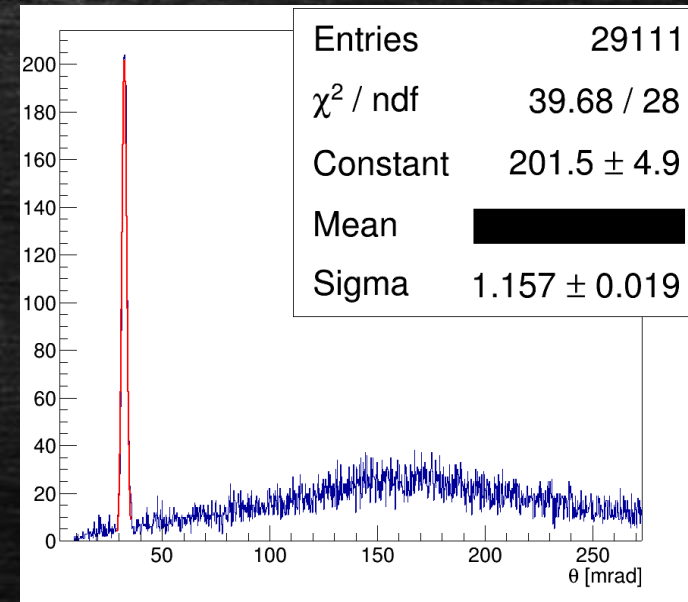
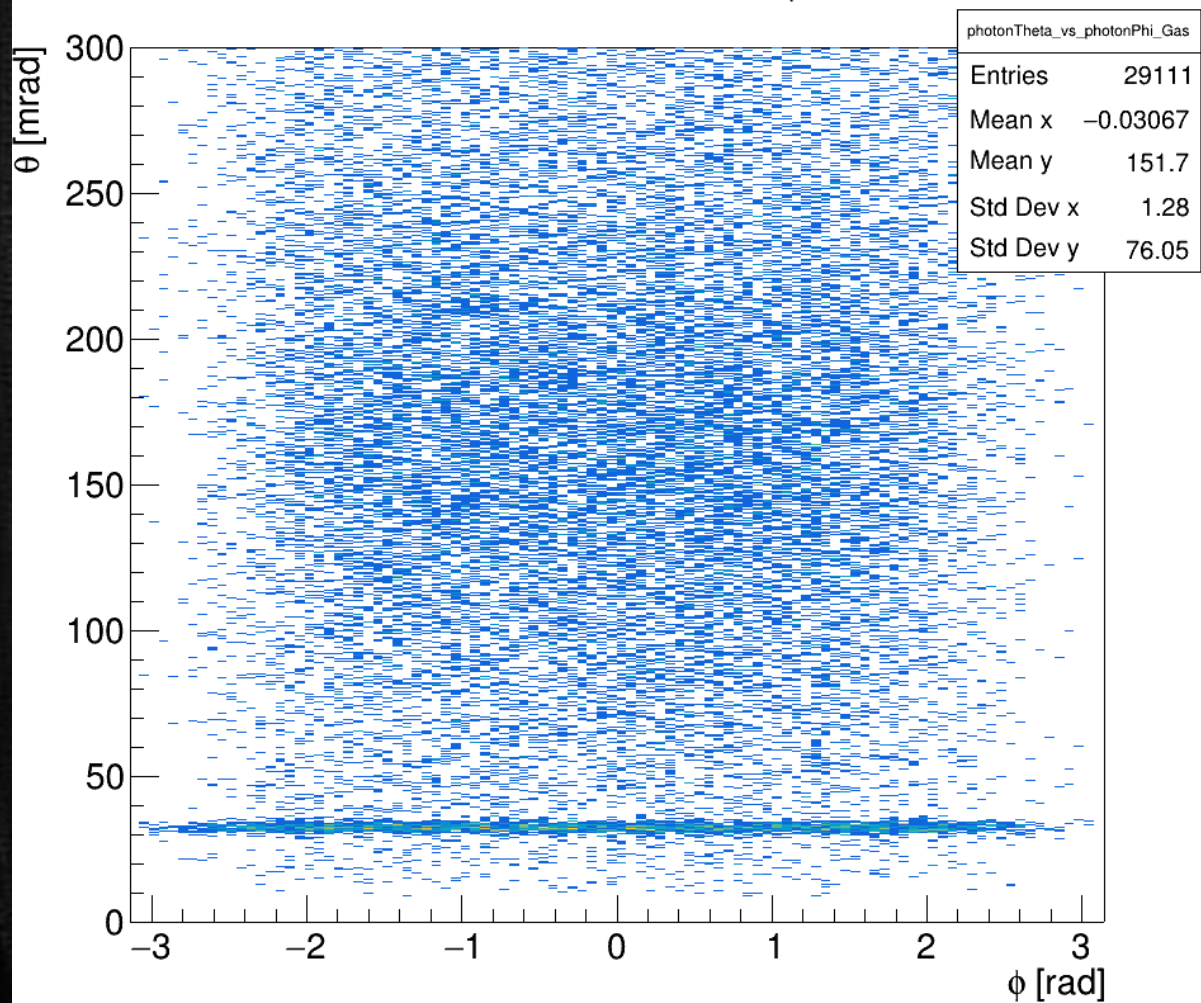
NO NOISE/ PDU units



Single photo-electron resolution (With added noise to be studied)

Added NOISE/ xPDU/ July

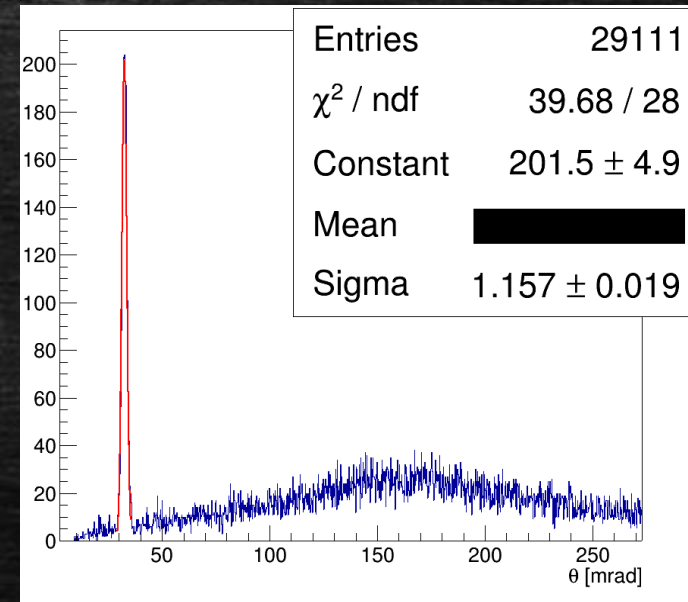
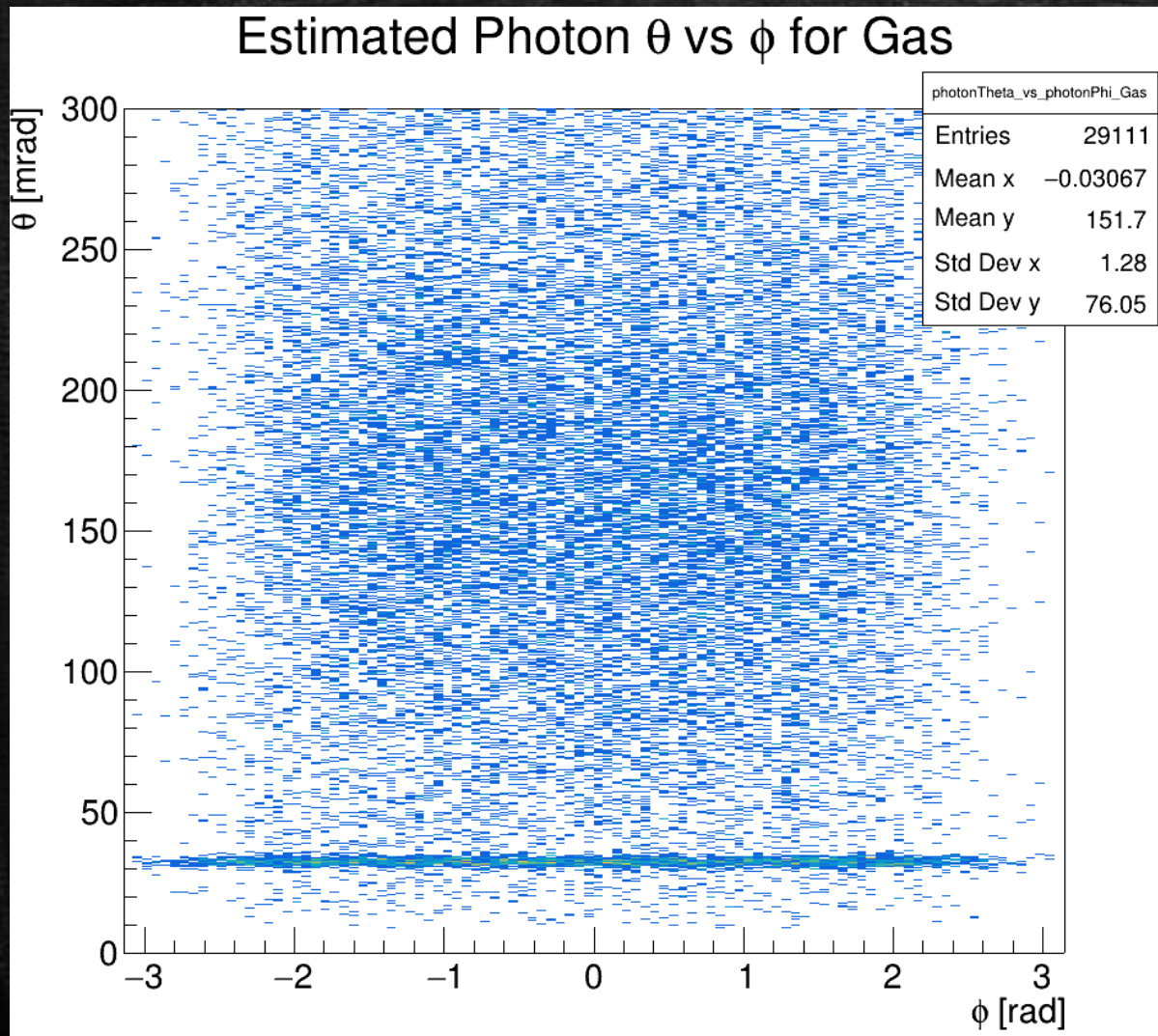
Estimated Photon θ vs ϕ for Gas



Consequence: ring angle is distorted. As currently the ring angle is just an average of photon angles.
Working on a better angle definition. (Possible part of thesis for Luisa?).

Single photo-electron resolution (With added noise to be studied)

Added NOISE/ xPDU/ July



A redefined angle is needed for N-sigma separation. We can redefine the N-sigma separation and use photon -theta. But this requires photon count. Which has to be redefined.

Updates on IRT and ePIC(dd4hep)

ePIC (dd4hep)

- Updated PDU is in main.
- No mirror/aerogel ribs added. I have a preliminary version of the mirror-rib in draft P.R., the mirror ribbings are hardcoded. I will put them in the xml user defined parameter and ask for a final review.
- The final parameters can be added later.
- The pfRICH aerogels are placed in ribs. As it is already in place. We can take this part of the pfRICH code and use them.

IRT

- dRICH IRT is in production.

Hi Marco and Chandra,

Good news! dRICH PID is fully merged into production. In the output data (prod 23.09), we will have

- raw hits (and their associated MC photons); noise is not enabled for this production
- propagated track points
- Cherenkov PID
- reconstructed particles will have links to final dRICH PID (for charged particles which passed through the dRICH radiators)

Since practically all my PRs are merged, please work on the 'main' branches for everything from now on (I will be removing our private irt-algo and irt-algo-stable branches soon). See the open issues on our project page...

Depending on CLAS experimental status, I may or may not be able to make it to the meeting this week, but that's pretty much all I had to say.

Cheers,

Chris

Photon impinging angle and Effects on PID due to error on track angle

1. Best method to extract the photon impinging angle, is via jana plugins. I have never worked on it, I followed the tutorials and working on it.
2. In contact with Annalisa and we have a meeting after Sif, to understand how to add additional smearing in the track angles.
3. For dRICH in ATHENA times this was added in quadrature to extract the Delphes parameters.

Revisiting the dRICH parameters and work to be done

Discussion