

Plots for the ePIC pre-TDR

Chandradoy Chatterjee
on behalf of the dRICH simulation team

Outline

- Workforce
- Plots and summary
- Discussion

Towards larger dRICH simulation community

- Current team:
- Central University of Karnataka, India
 - Deepak Samuel
 - A. Rajan
 - N. George
- Central Universtiy of Haryana, India
 - Ramandeep Kumar
 - Meenu Thakur
 - R. Jangid
 - Taniya
 - T.Tanvi
 - G.Laishram
- Ramaiah University of applied sciences, India
 - Tapasi Ghosh
 - Rohit Sigh
- INFN Trieste
 - Jinky Agarwala
 - Gabriele Furlani (Tirocino)
 - Chandradoy Chatterjee
- INFN Cosenza & University of Calabria
 - Luisa Occhiuto

Constant guidance and helps from Marco and Silvia.

In future new collaborations are foreseen.



GPU Facility @CUK



GPU Specifications

CPU	Intel(R) Xeon(R) Gold 6130 CPU @ 2.10GHz
CPU Max	3.7 GHz
CPUs	64
Phys. Mem	188 GB
Storage	1.8 TB x 2
GPU	Nvidia Tesla V100 with 32 GB memory

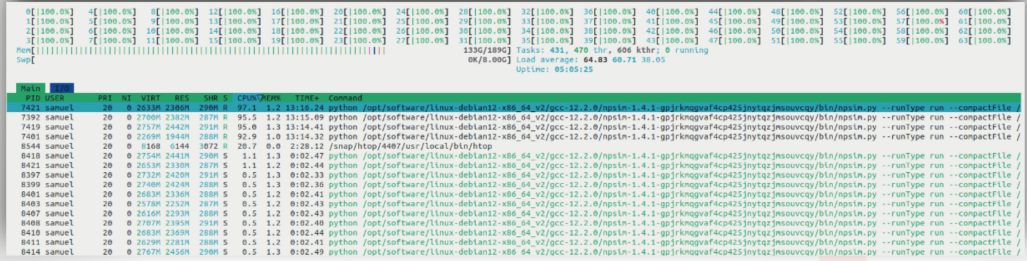
Availability

12h per day

for ePIC activities

Parallel processing of DRICH simulations



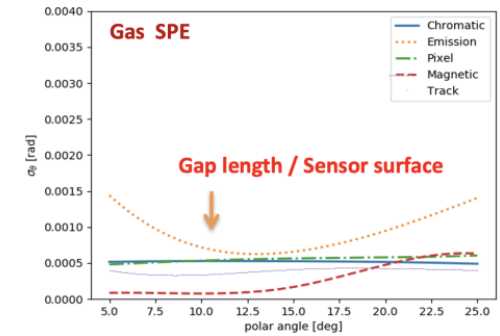
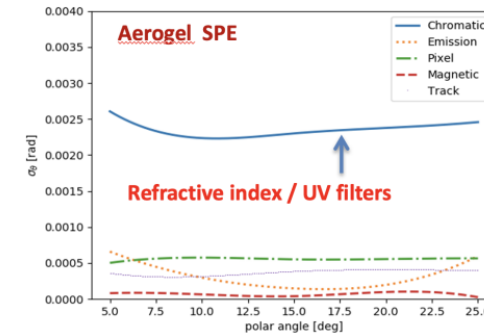
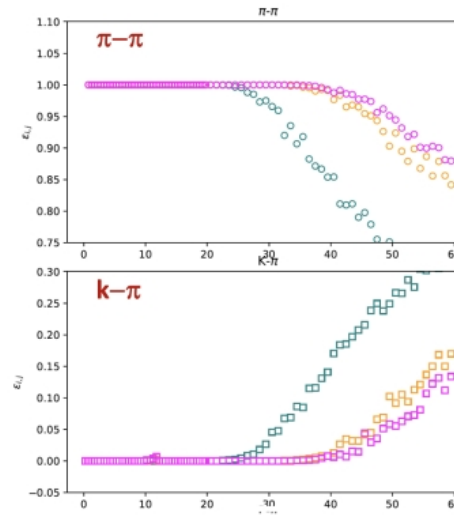
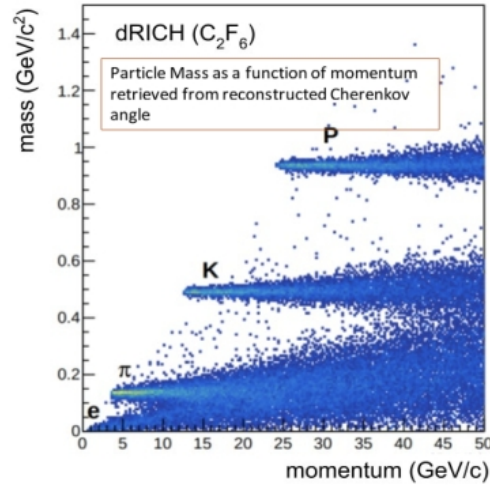
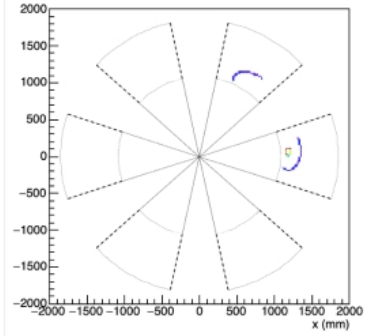


R. Kumar

dRICH Simulation Meeting

21 November 2024

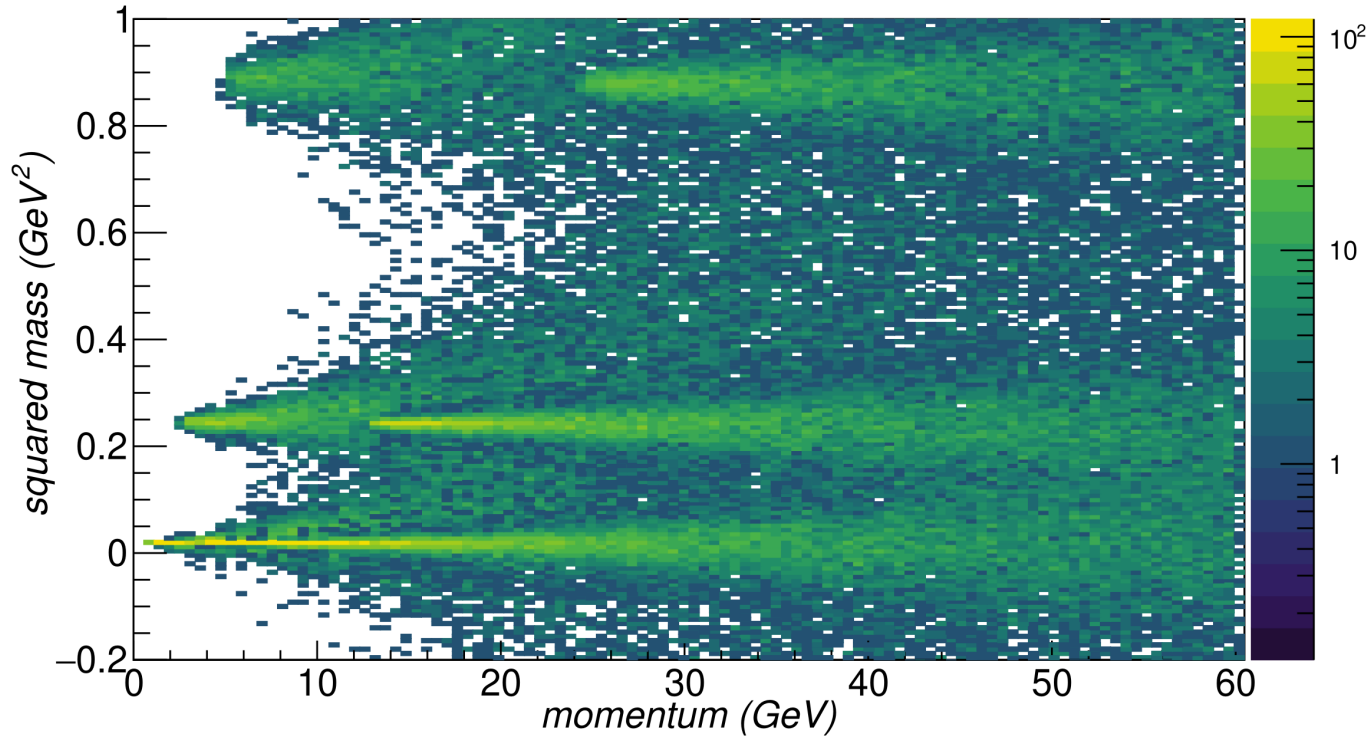
Existing plots



- 1) These are the existing plots for the pre-TDR, we have updates on each of these plots.
- 2) Tomorrow at our dRICH simulation meeting several contributions from different groups on their specific activities in details.

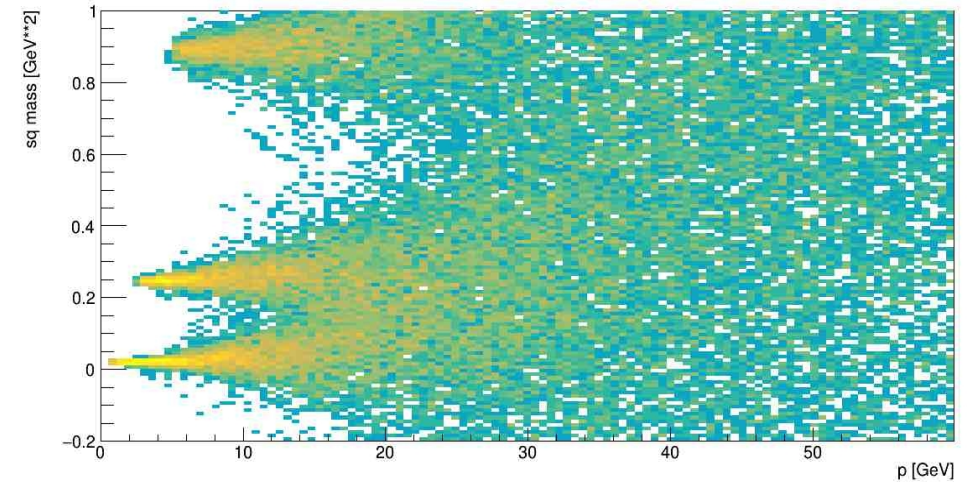
Squared Mass Evolution with momentum

$\pi/K/P$ squared mass evolution with momentum

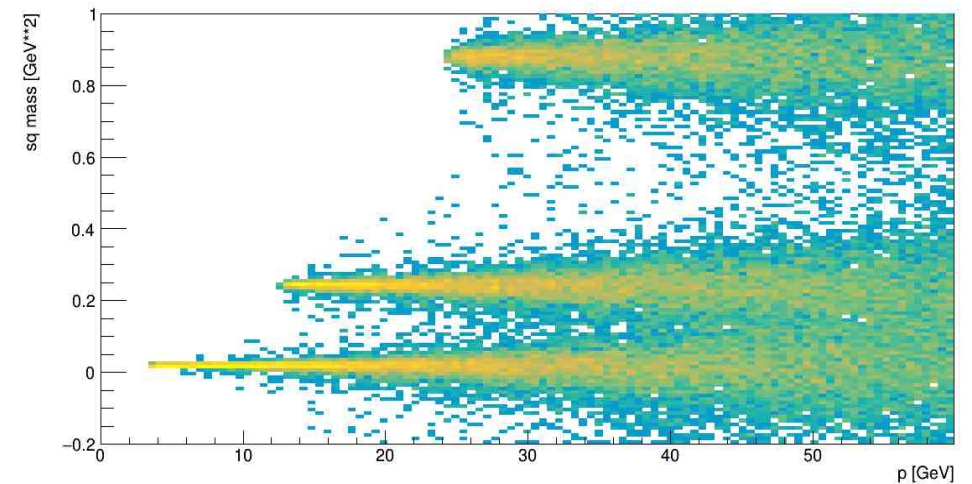


Aerogel and Gas has been overlay together

Reconstructed mass squared vs particle momentum for Aerogel

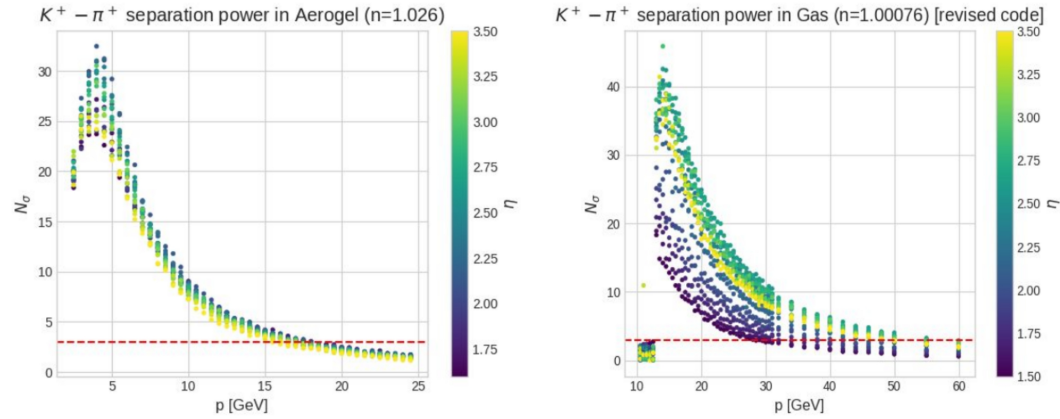


Reconstructed mass squared vs particle momentum for Gas

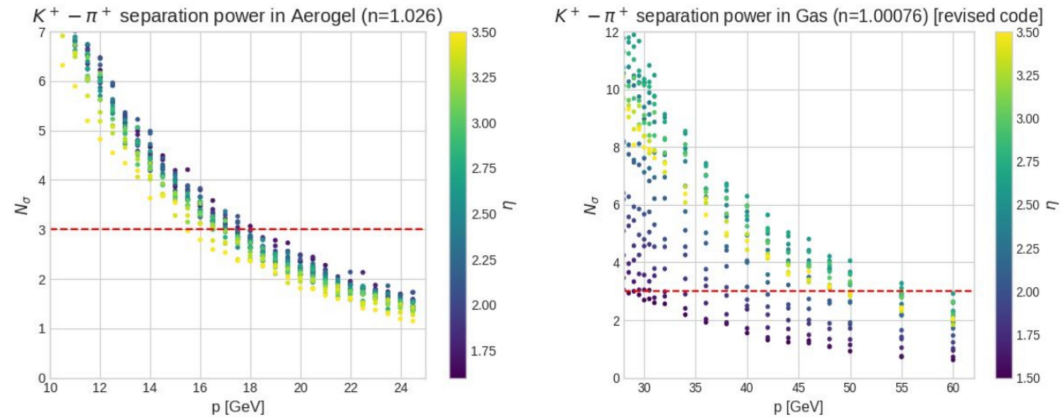


Studies by Gabriele Furlani (INFN-TS; tirocino)

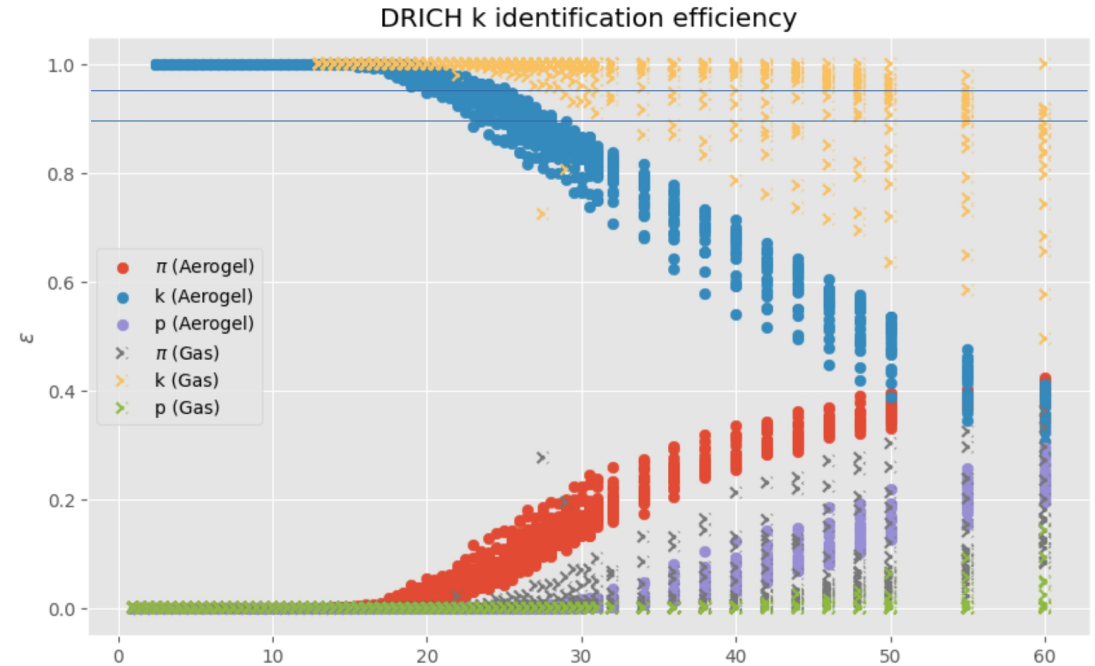
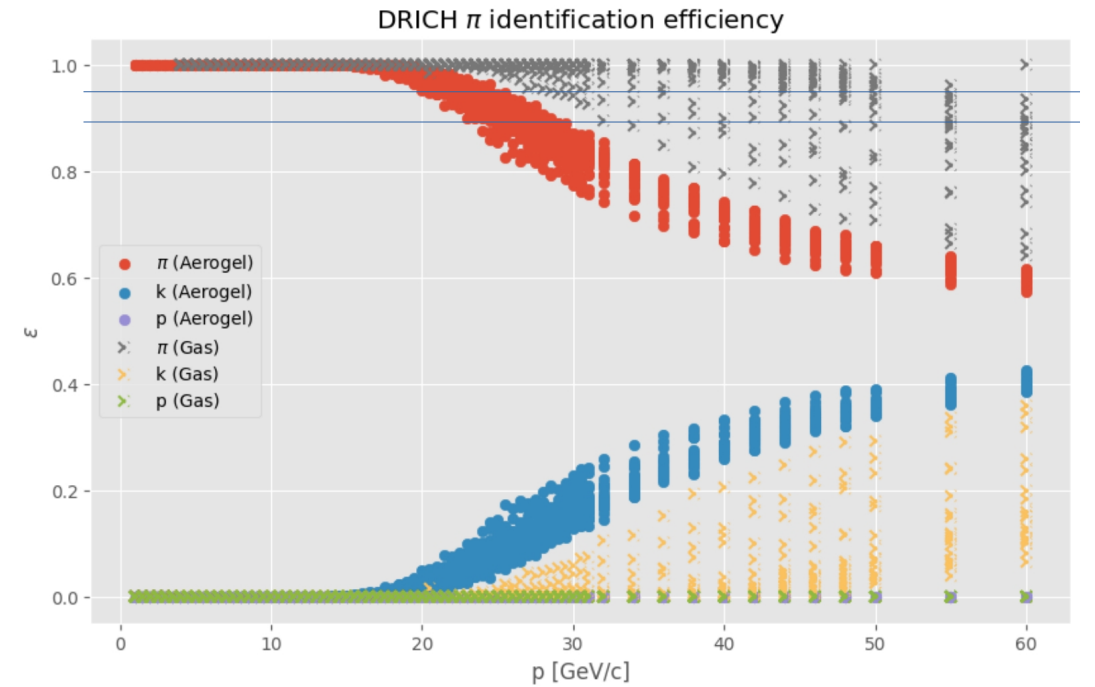
Nsigma separation and LUT



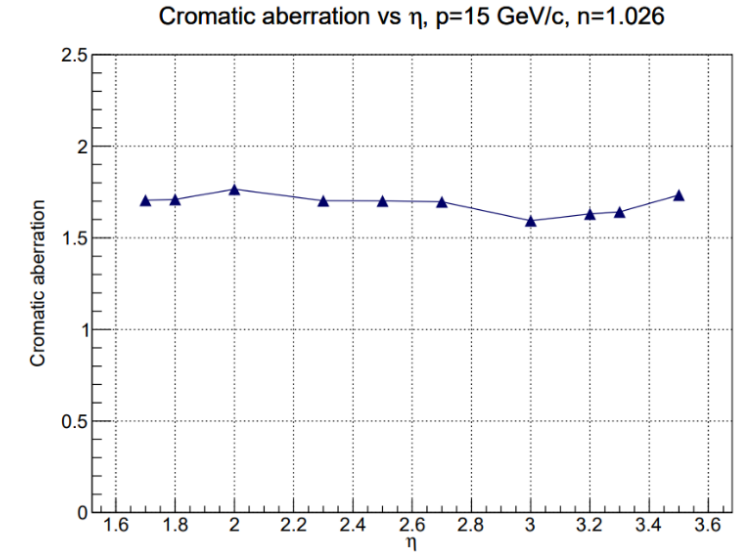
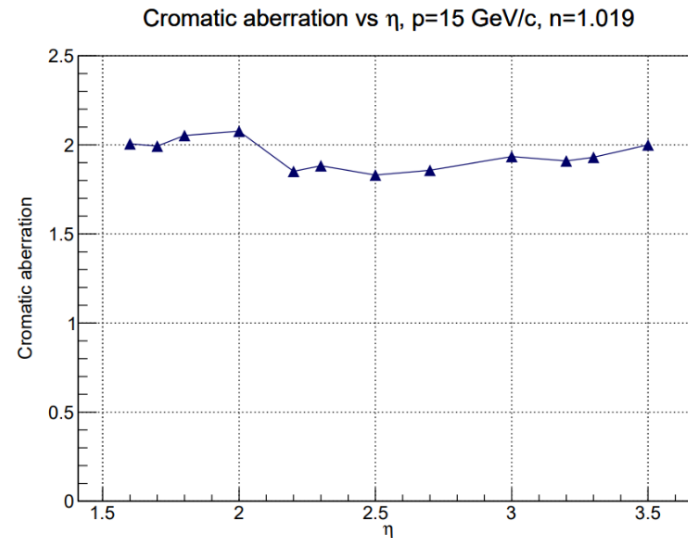
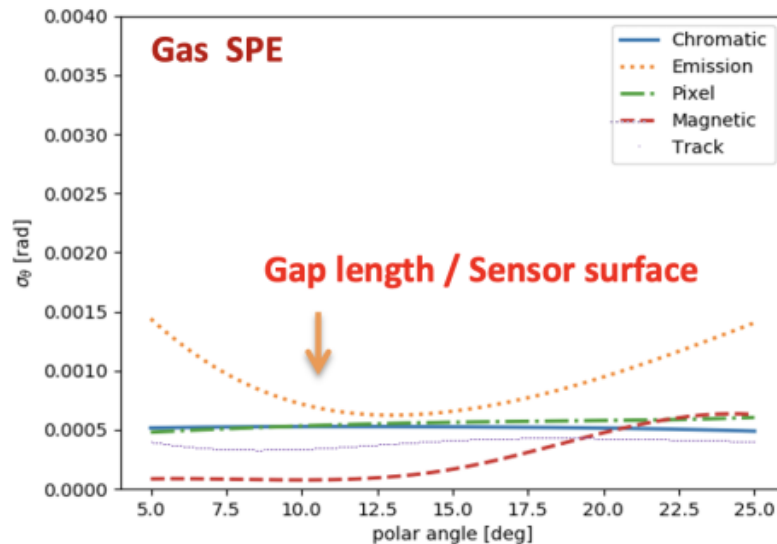
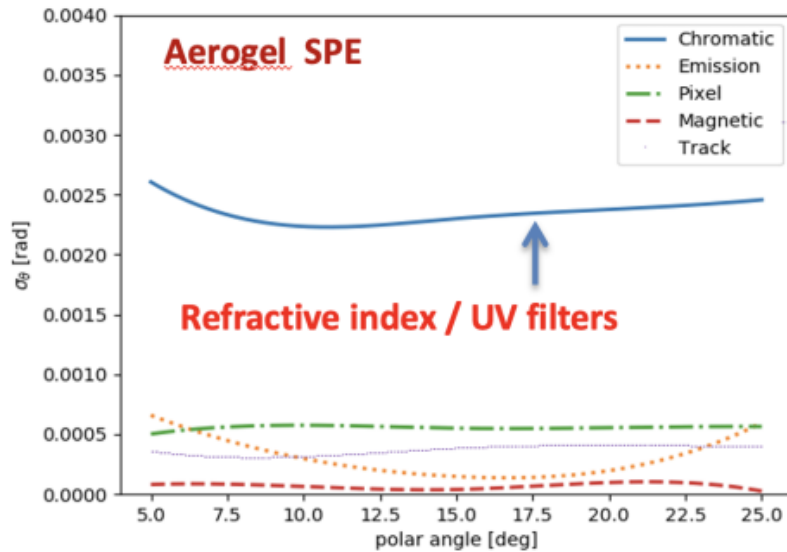
NB: bins 16 and 17 removed in gas analysis



Deepak Sammuell, Ramandeep Kumar, Meenu Thakur and many students! We are currently finalizing the LUT layout plot.

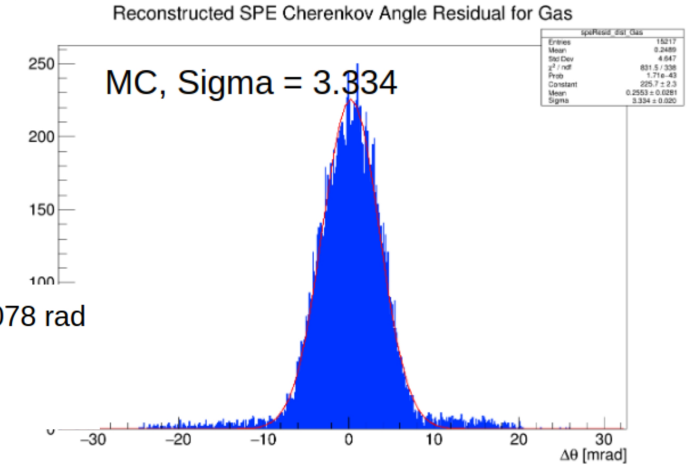
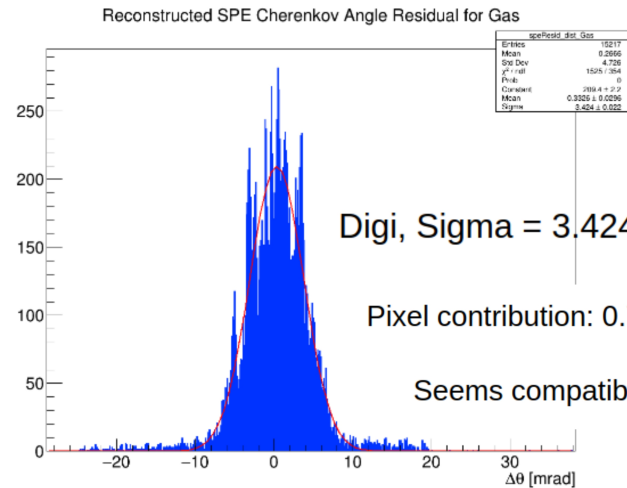
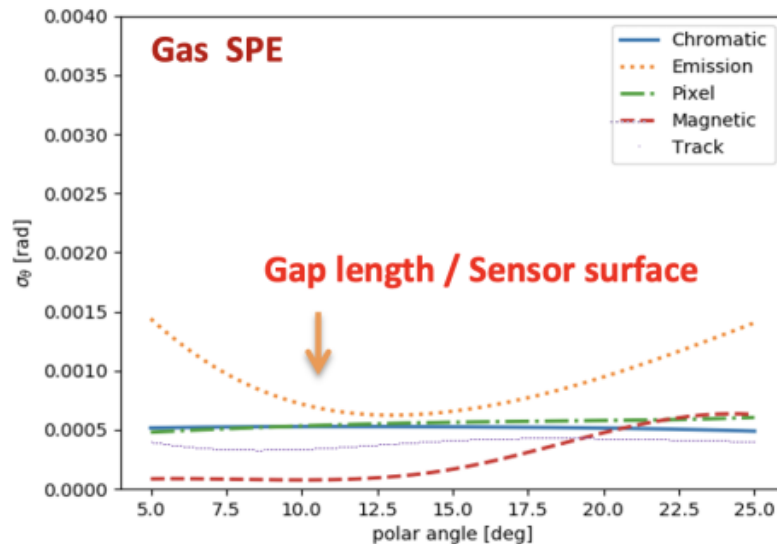
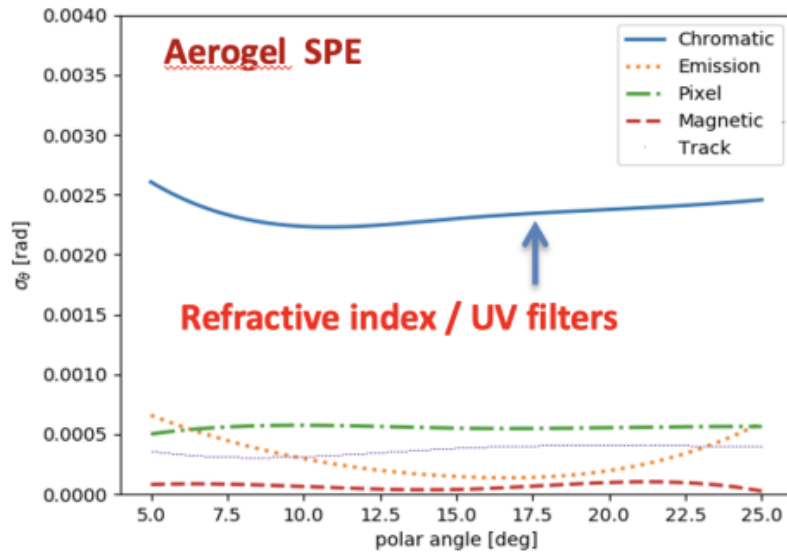


Contribution to the single photo-electron resolution



This study is made by Luisa O.
Similar studies on Pixel uncertainty...

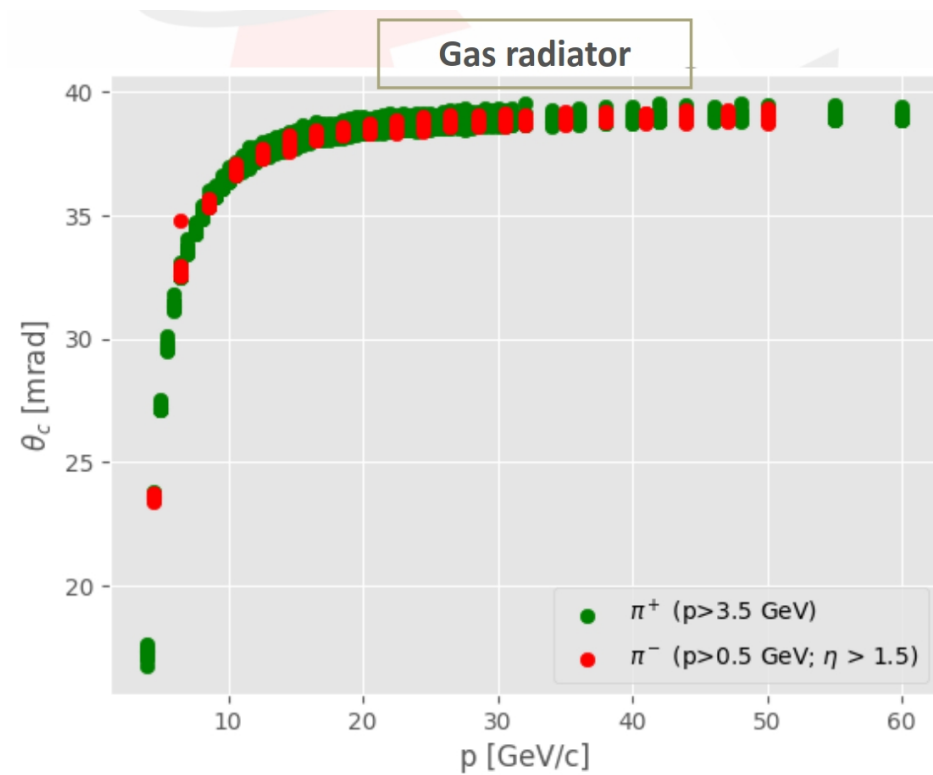
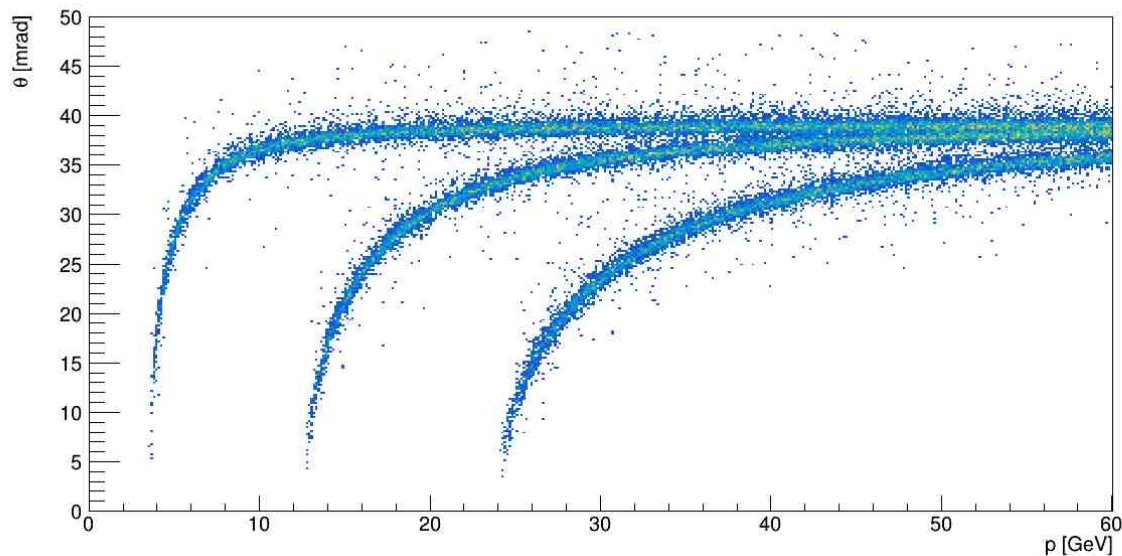
Contribution to the single photo-electron resolution



Certain contribution can not be studied within this week.
 Overlay simulation points on these analytical estimates and to make comment on them!

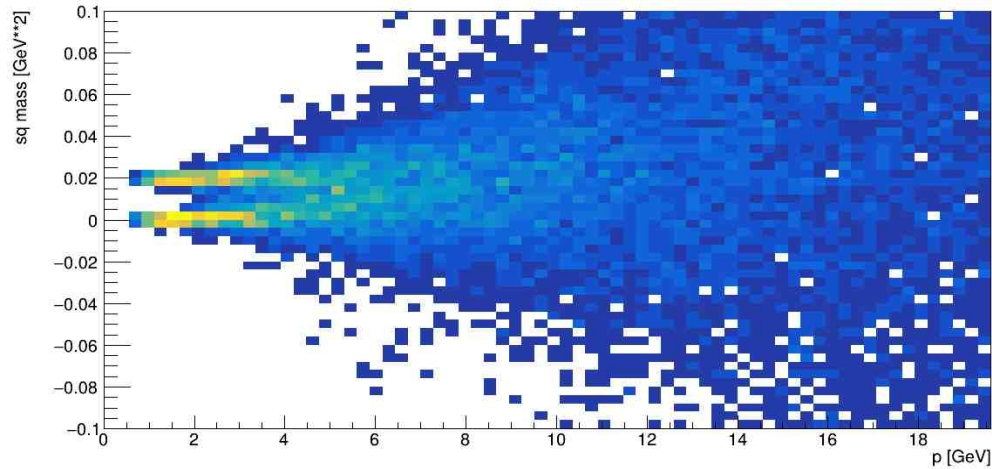
Plots for the backup materials

Estimated Cherenkov Angle vs. Particle Momentum for Gas

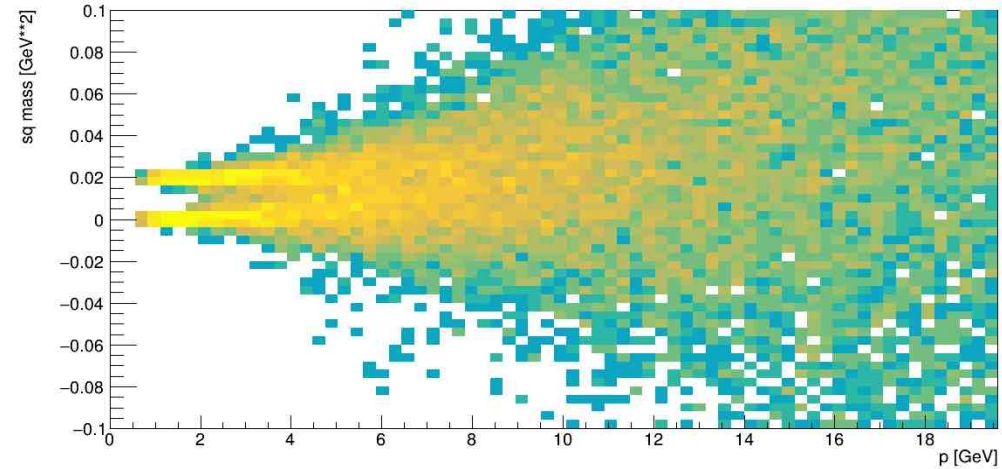


Plots for the backup materials

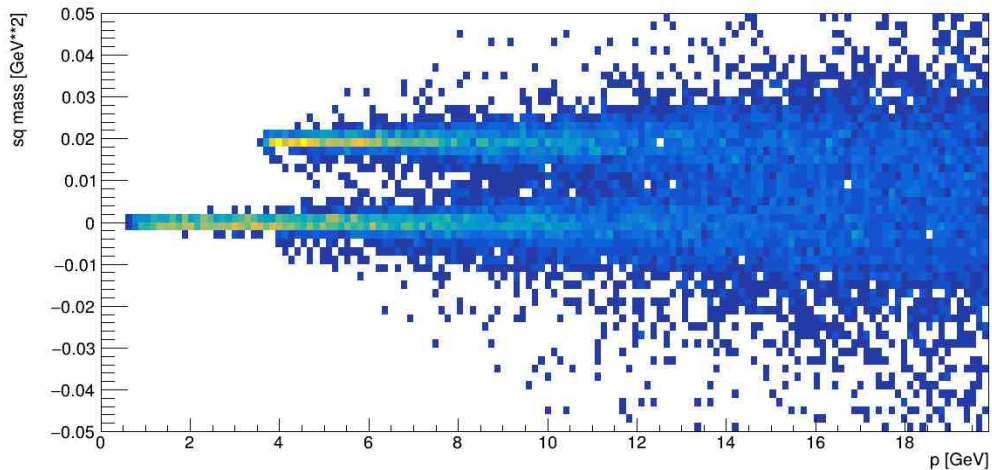
Reconstructed mass squared vs particle momentum for Aerogel



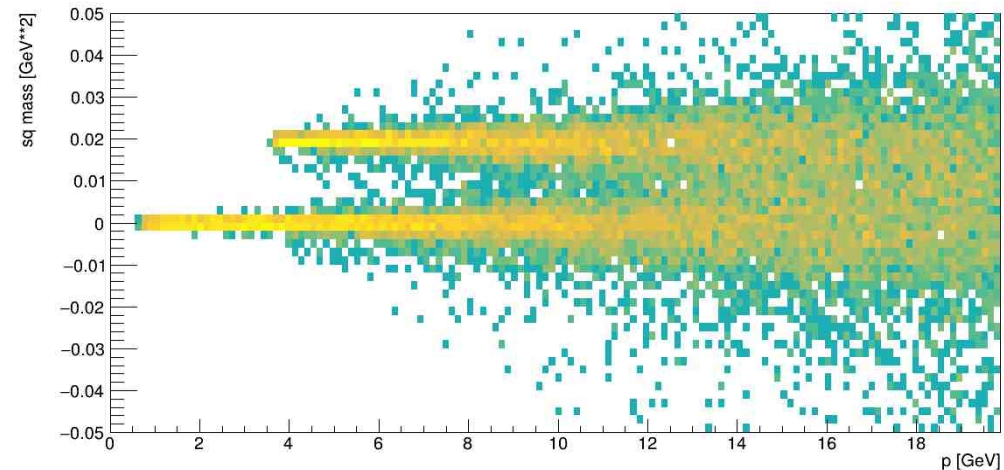
Reconstructed mass squared vs particle momentum for Aerogel



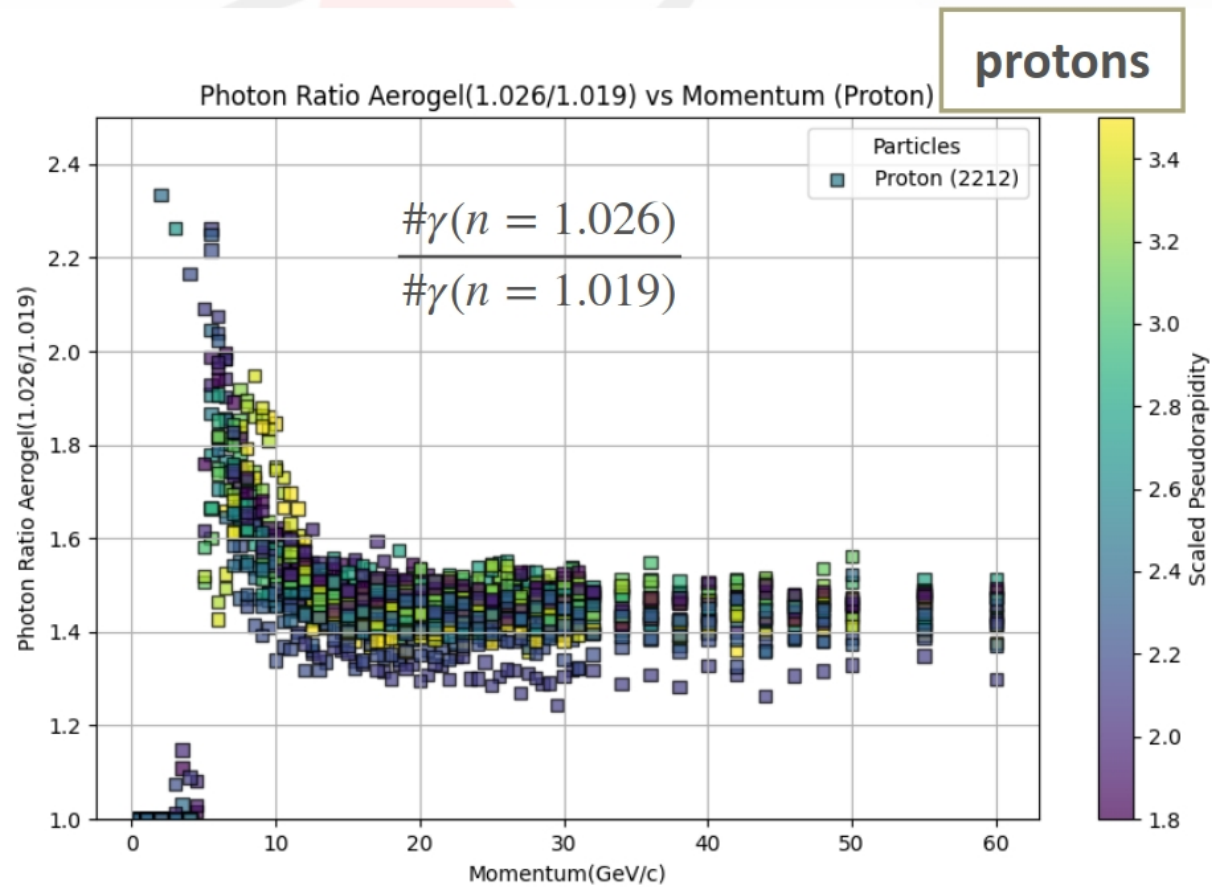
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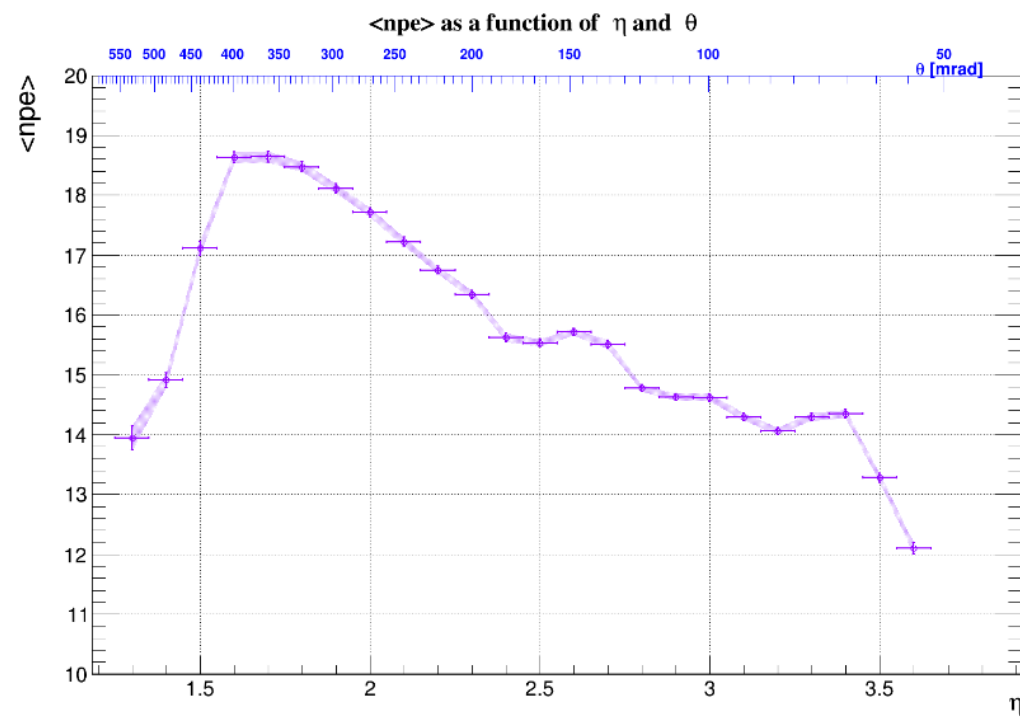
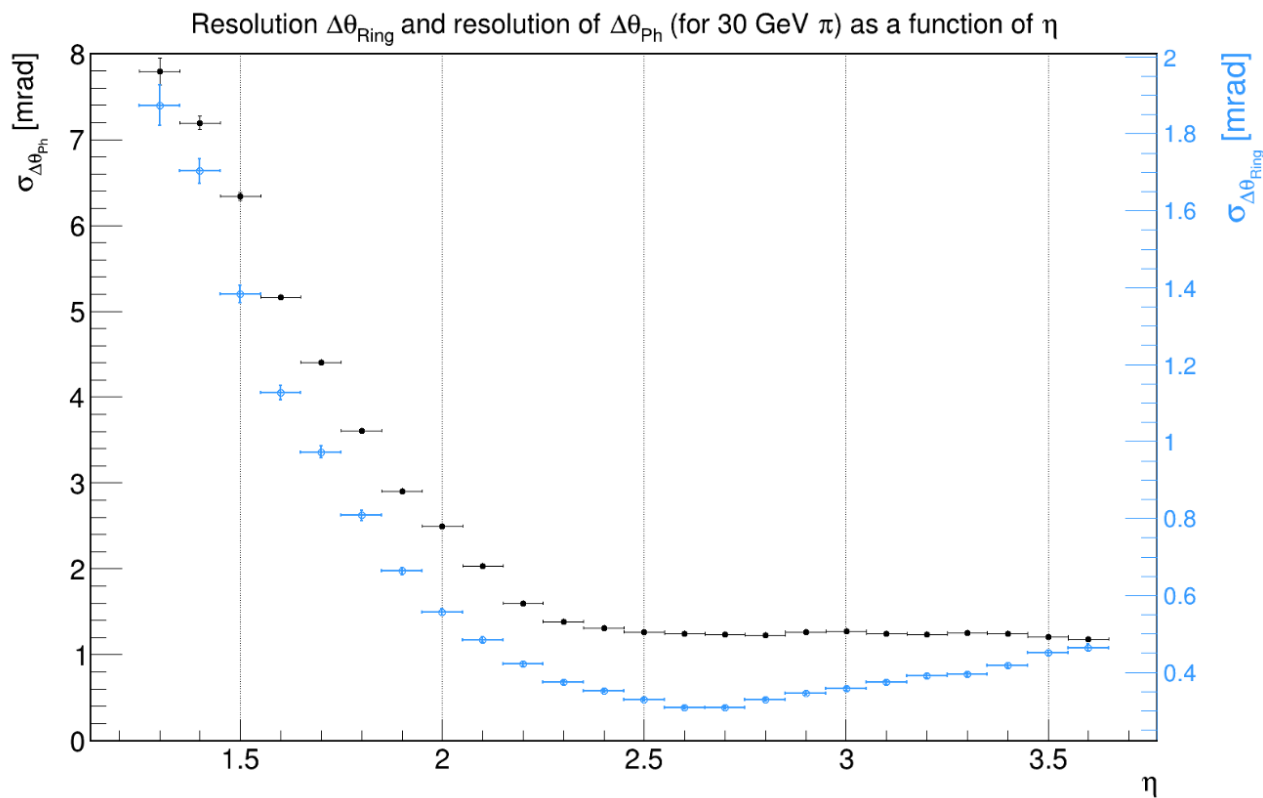
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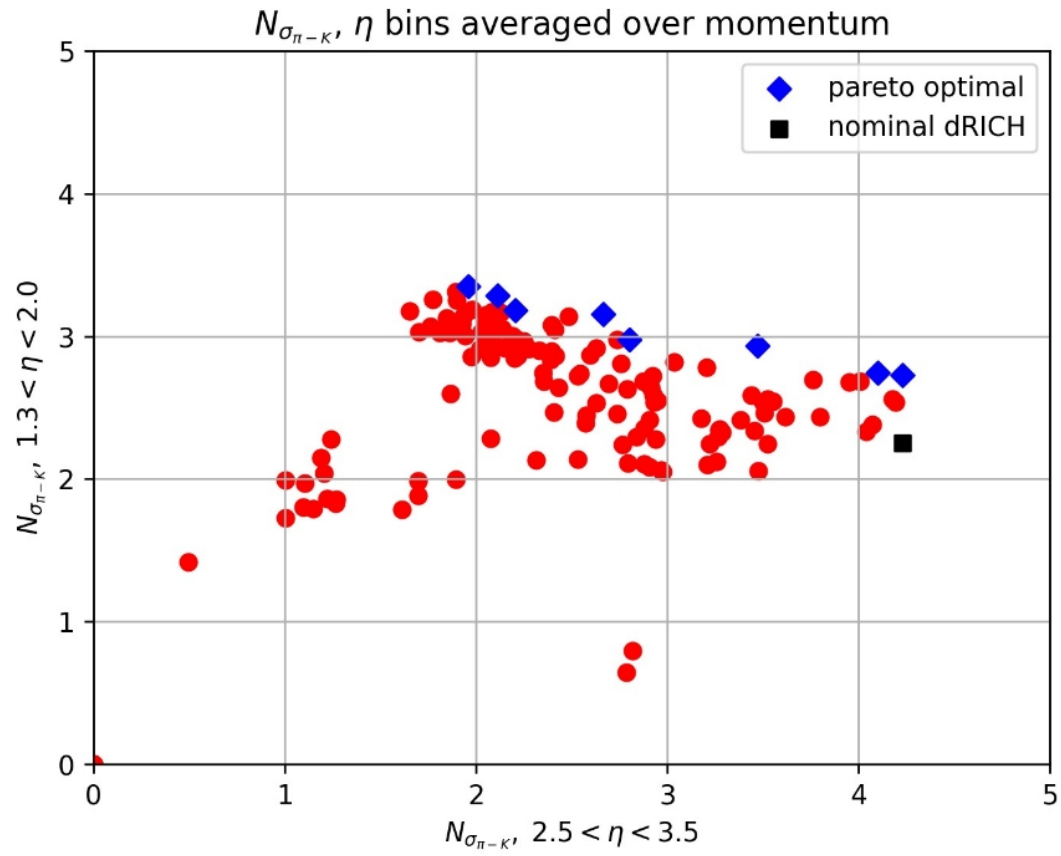
Plots for the backup materials



Plots for the backup materials



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Single mirror trade of pseudorapidity region.

Plots for the backup materials

