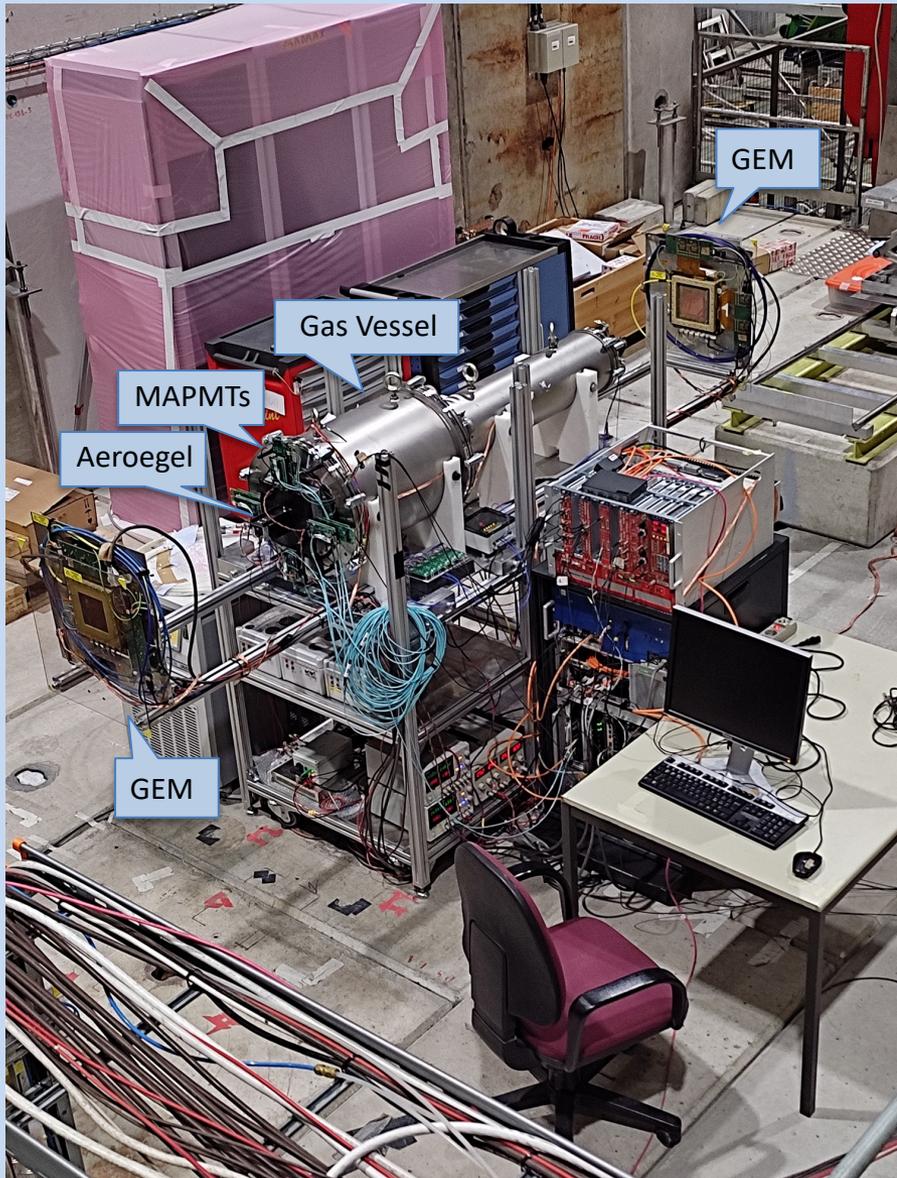


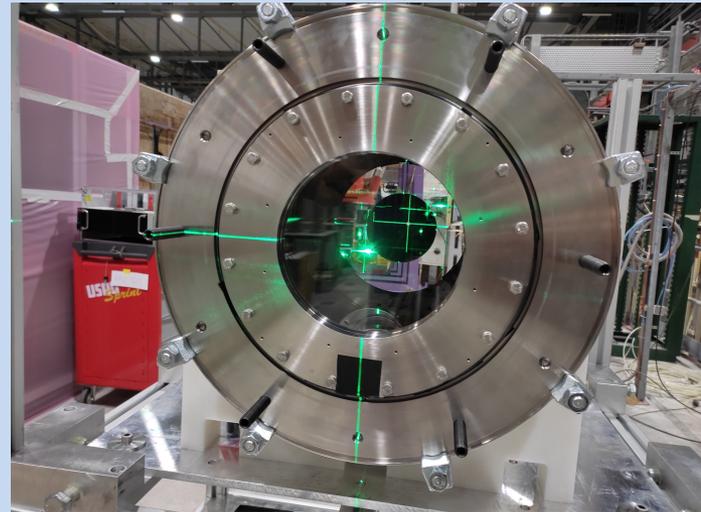
# dRICH Prototype

Test beam @ PPE158 - SPS

September 2022



Refined alignment tools and procedure



Beam information: time and Cherenkov tagging



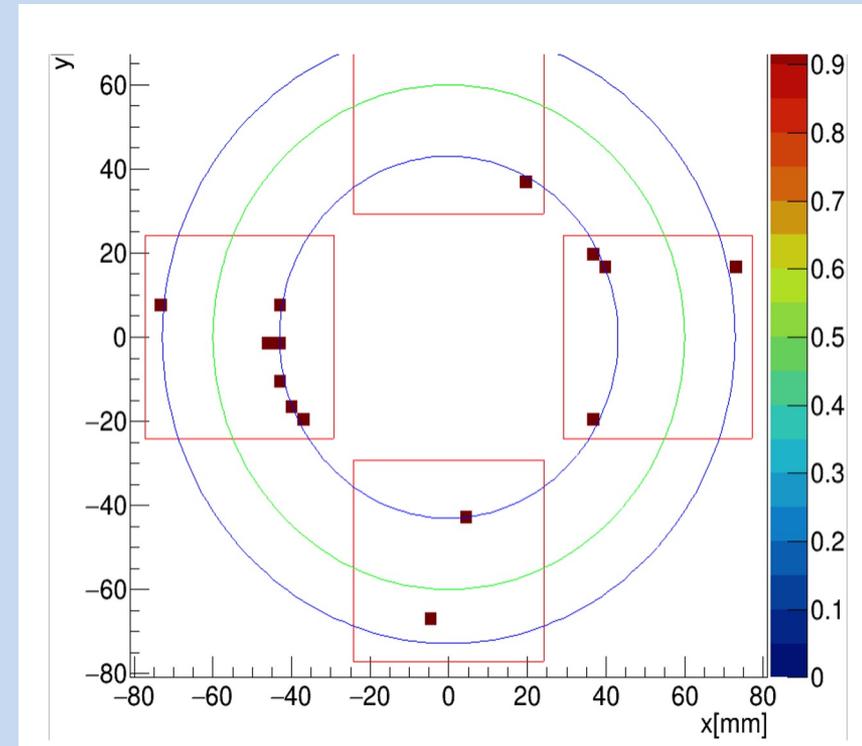
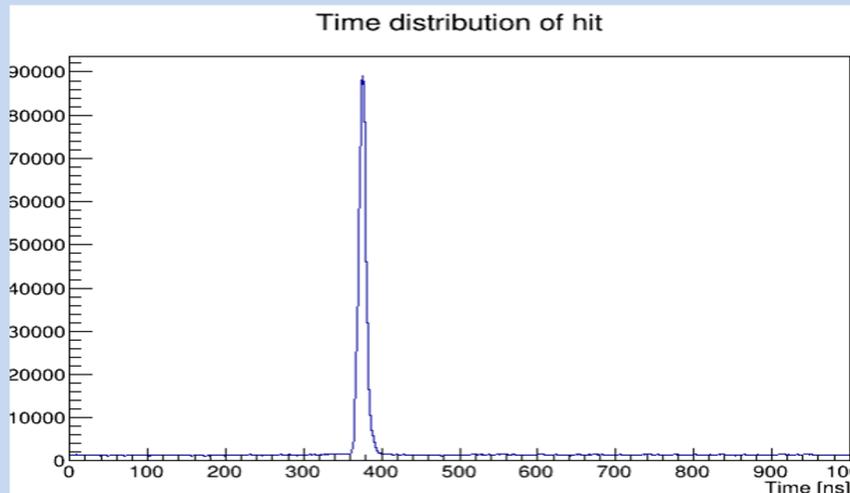
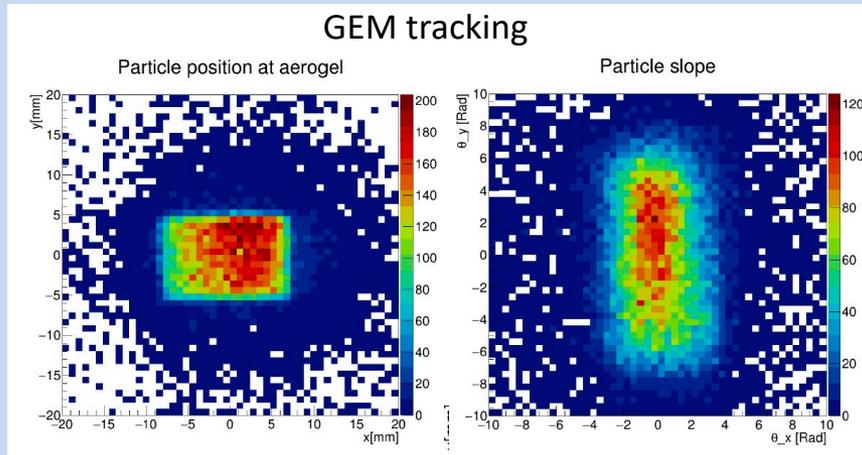
# Prototype Commissioning

2021 beam time:

- Most of the time was parasitic
- Sensors + readout shared with eRD101
- Beam line still under commissioning

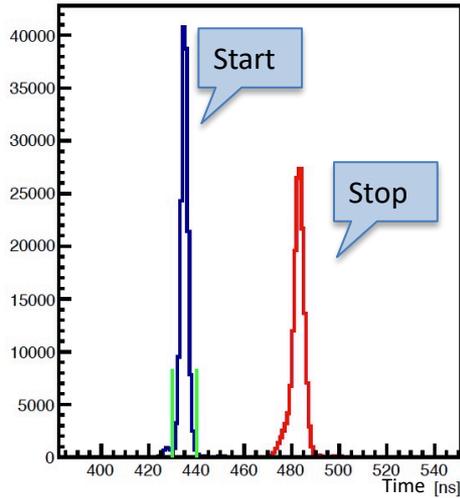
Example of event display

- Recorded hit
- Sensor
- Geometrical selection
- Gas and aerogel reconstructed rings

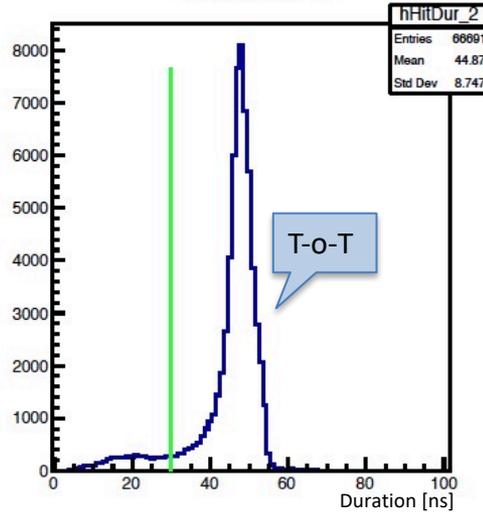


# Online Time Analysis

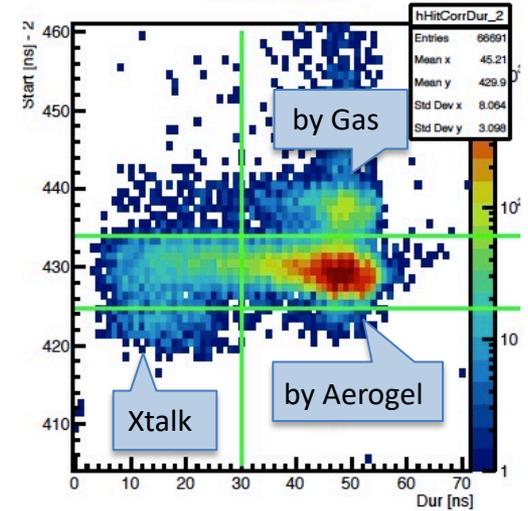
Hit start and End - Duration > 35



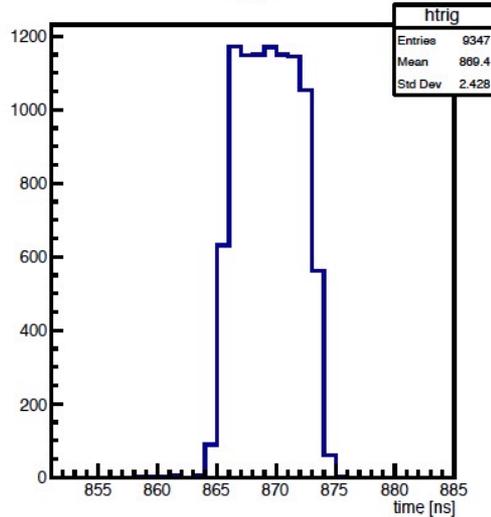
Hit duration - 2



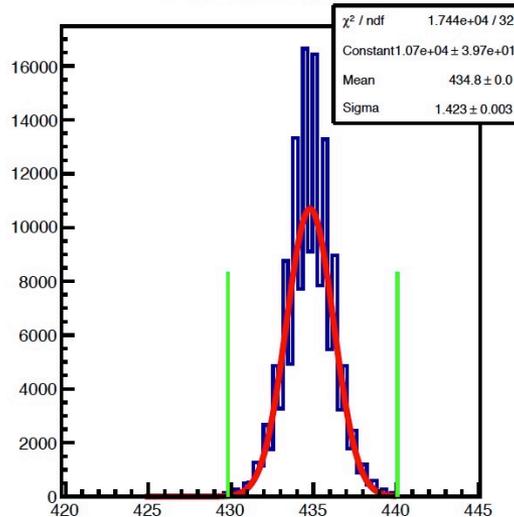
Hit correlation



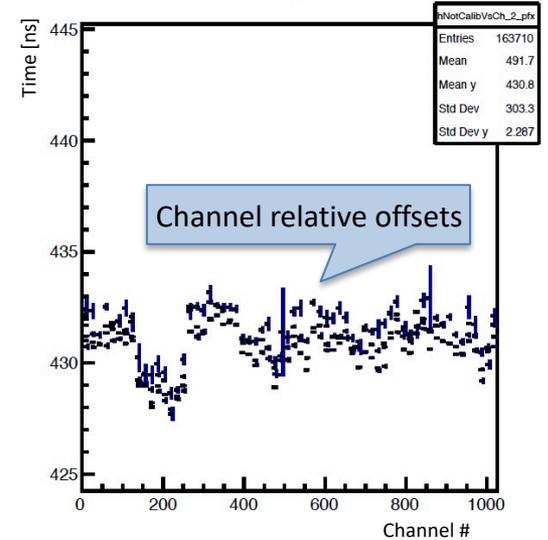
Trigger



Coincidence peak - 1

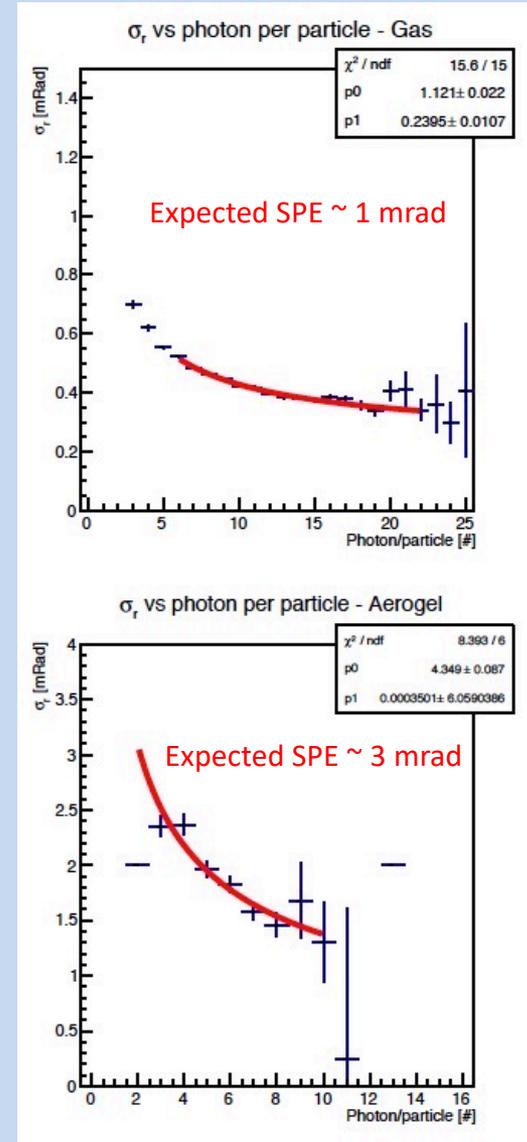
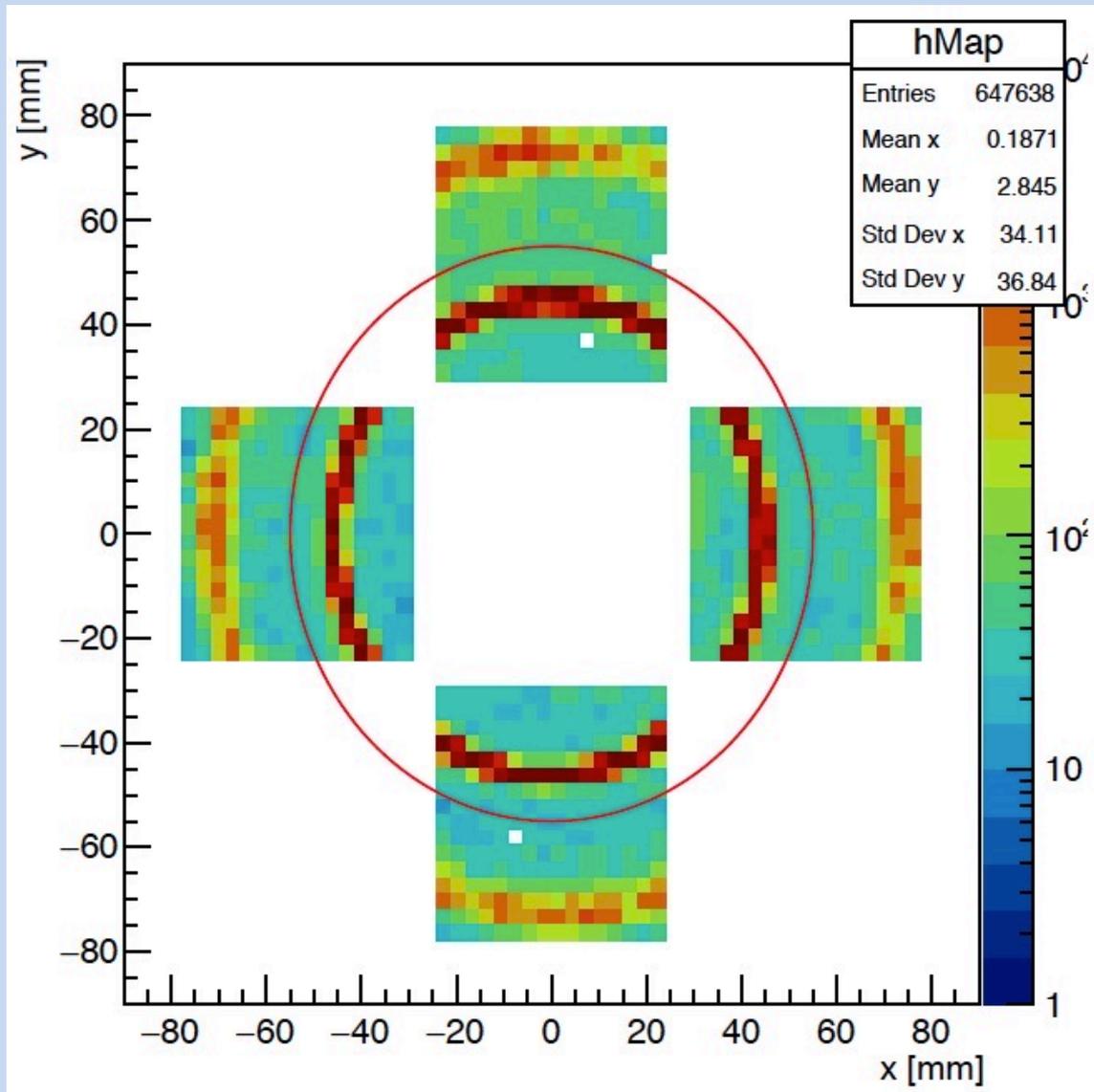


Δ time not calibrated - trigger time Vs Channel - 2



# Online Cherenkov Analysis

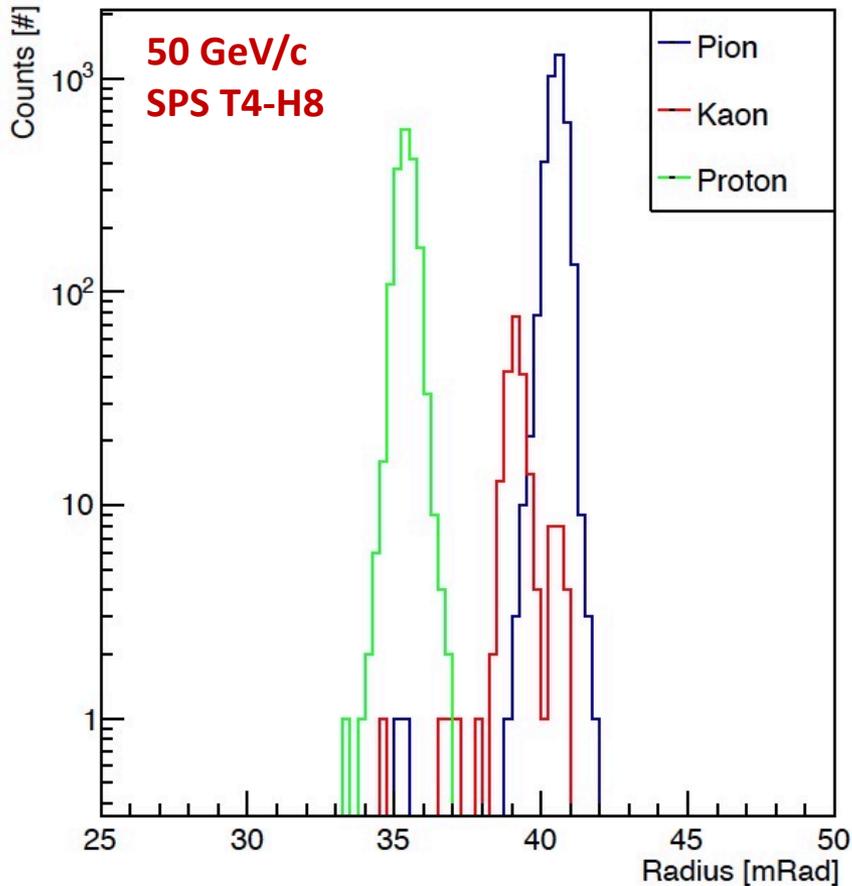
2022 Preliminary results: Two radiators with 180 hadron beam with reference readout



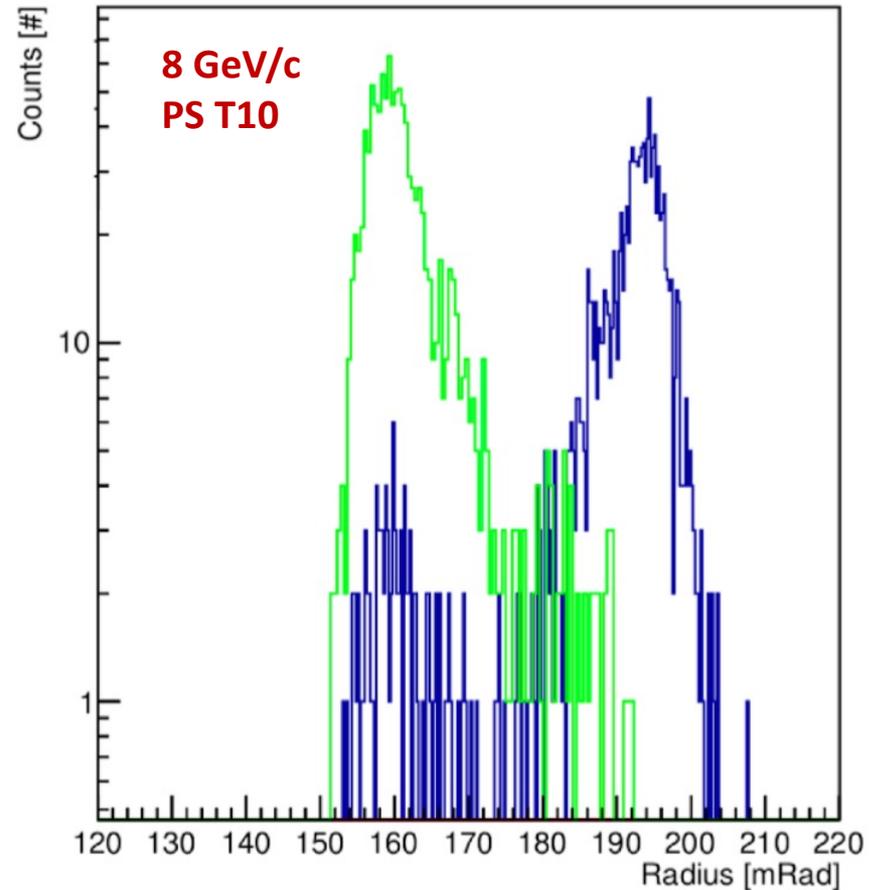
# Prototype Radiator Interplay

Test at 50 GeV mixed hadron beam with tagging by beam instrumentation (3x gas Cherenkov)

Single particle radius - Gas

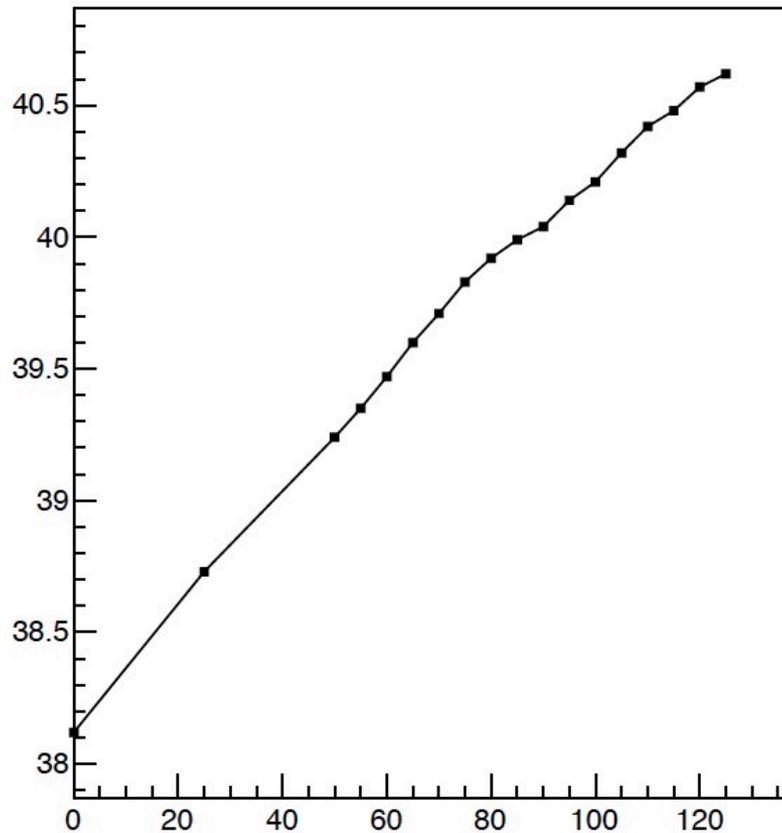


Single particle radius - Aerogel

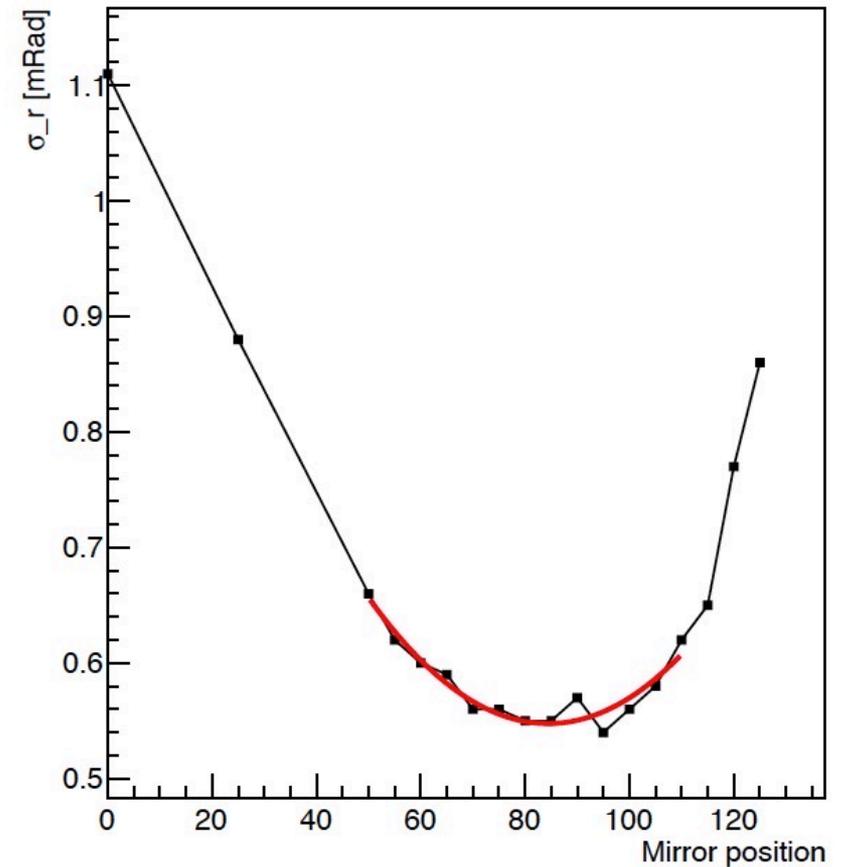


Scan the mirror position to align the focal plane on the sensor surface

Radius - Gas

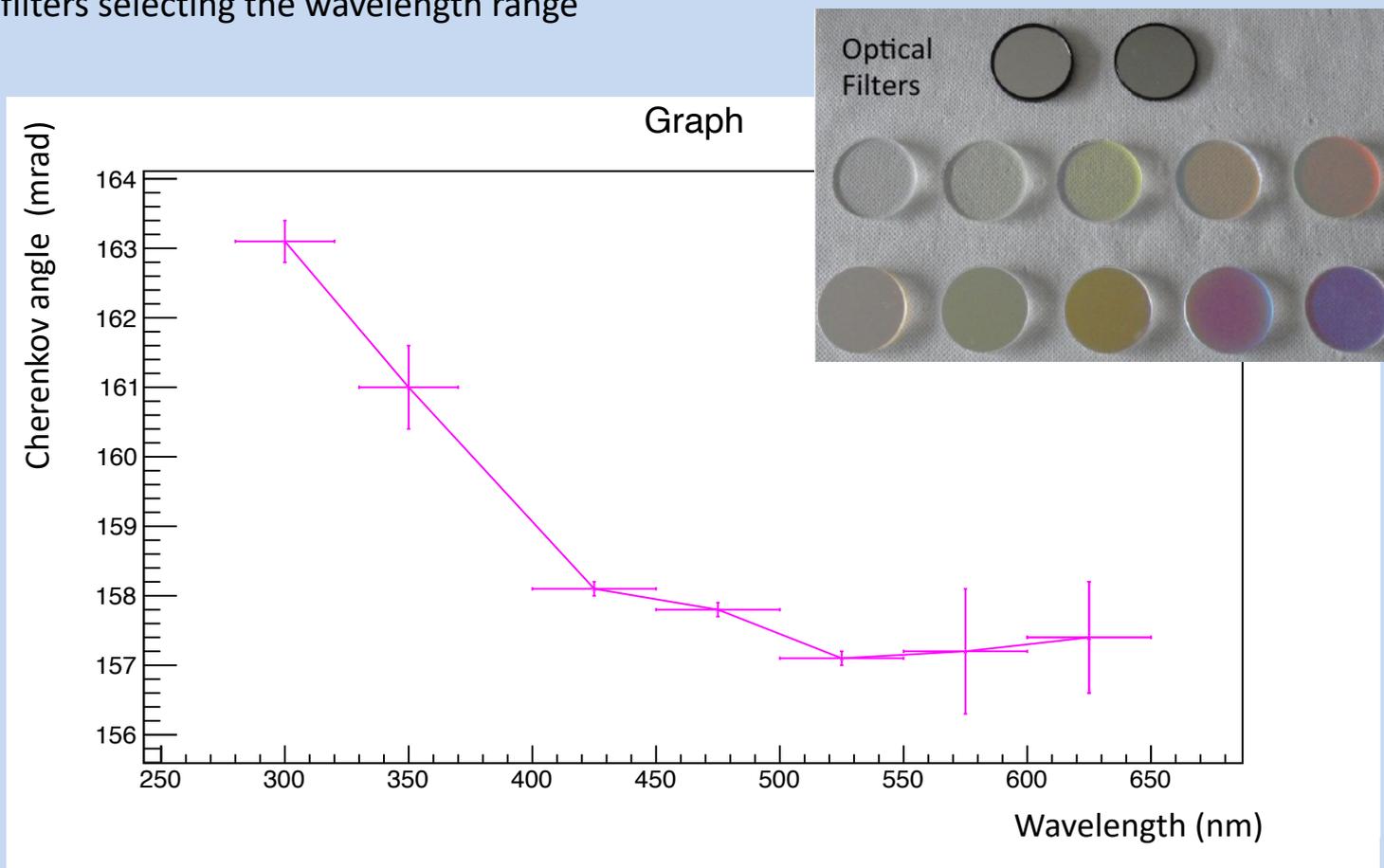


Sigma - Gas :  $z_{\min} = 84.42$



# dRICH Aerogel

Chromatic dispersion measured with the dRICH prototype and optical filters selecting the wavelength range



Quantify the largest expected contribution to the Cherenkov angle resolution

Can be used to derive a general relationship with aerogel density based on a quartz+air mix model