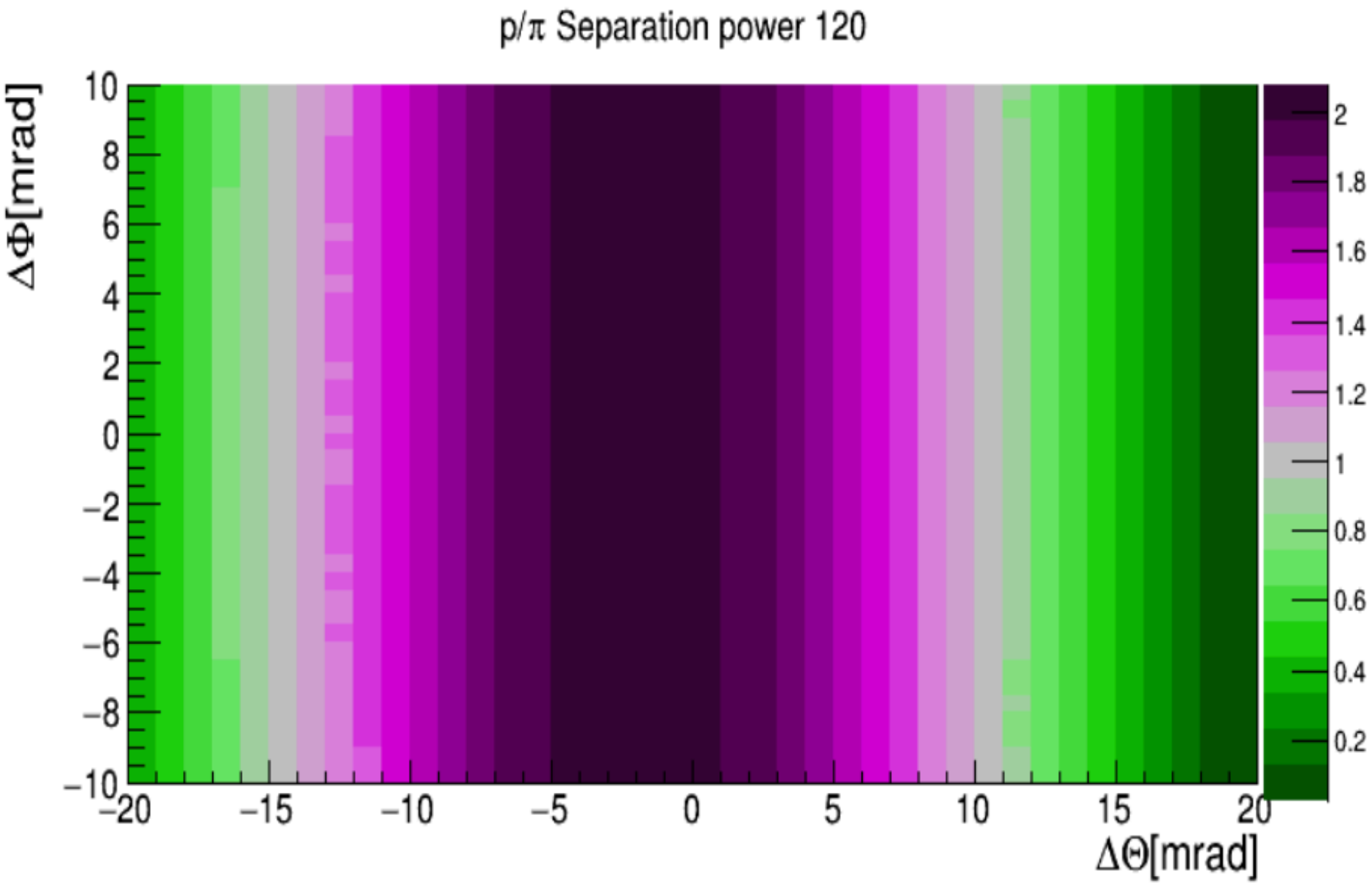
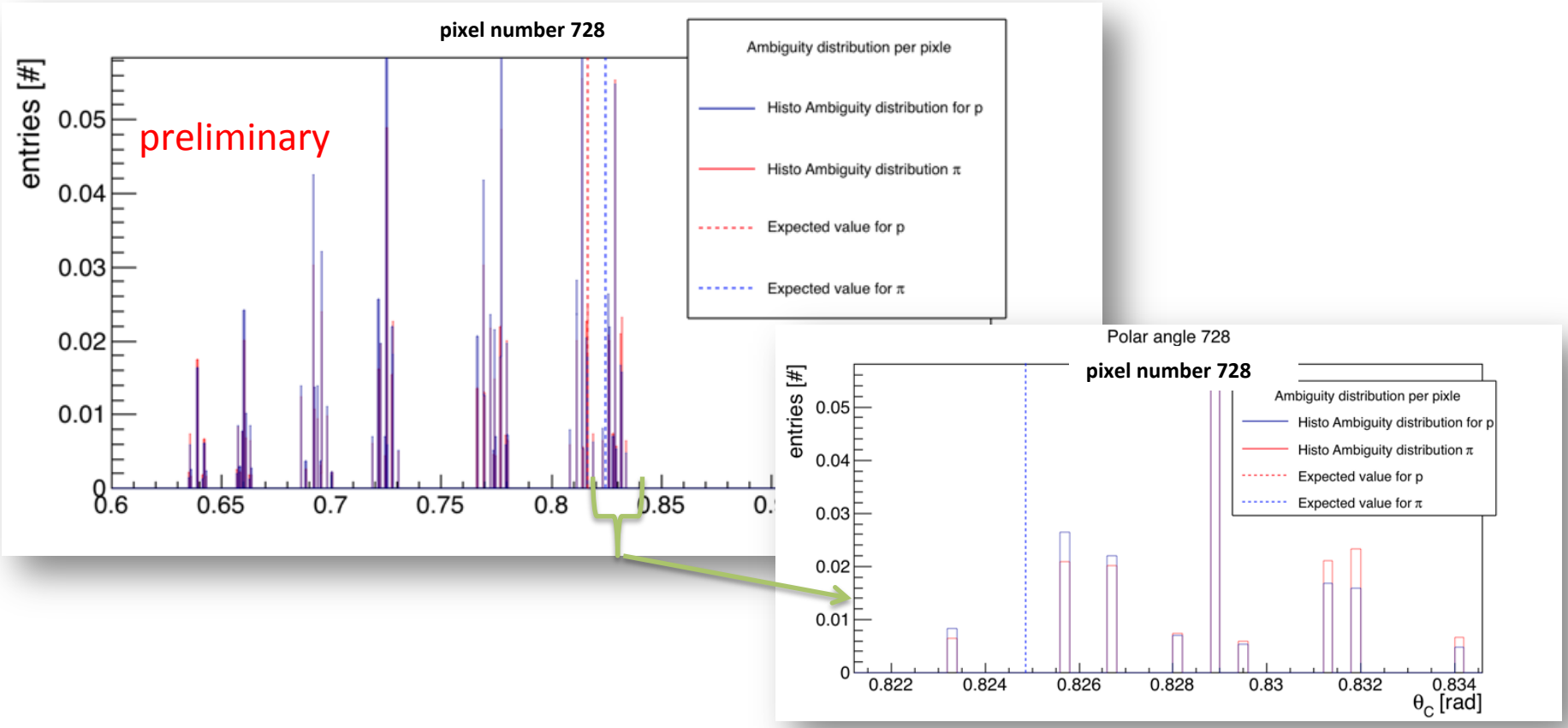
Cherenkov PDFs & particle beam corrections

Weekly DIRC meeting 26th Apr 2018

A.Ali

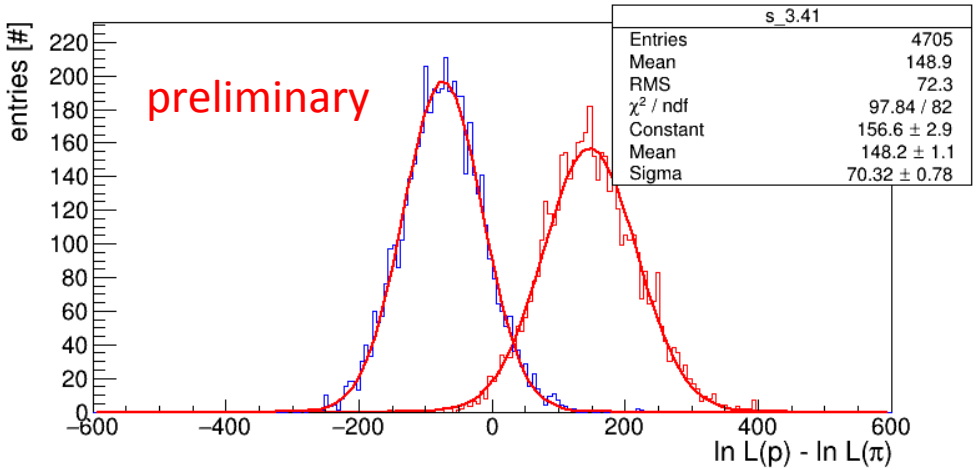

p/π Separation power 120
ΔΦ[mrad]
10
8
6
4
2
0
−2
−4
−6
−8
−10
−20
−15
−10
−5
0
5
10
15
20
ΔΘ[mrad]
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2

Geometrical reconstruction (Cherenkov PDF)

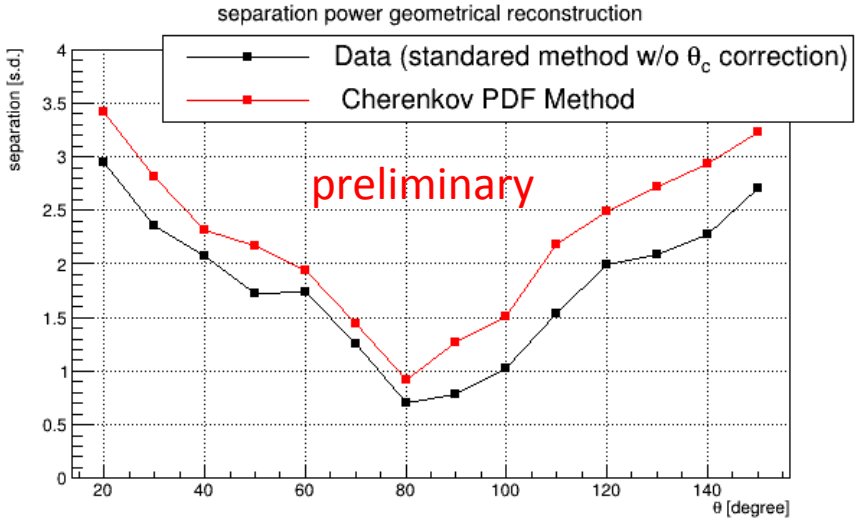


Creation of Cherenkov PDFs for proton-tagged and pion-tagged beam data for each prototype polar angle. The Cherenkov PDF Histograms were normalized based on number of photons

Separation power (Cherenkov PDF)



Proton-pion log-likelihood difference distributions 20˚



Separation power vs prototype polar angle

Next steps

Cherenkov PDF:

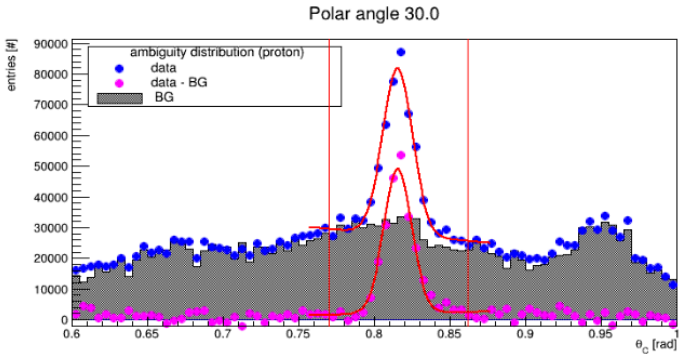
Create PDFs using different number of bins

Create PDFs using different number of tagged events

Cherenkov Range Optimization

Compare separation power using PDFs per: pixel, MCP by MCP, All MCPs

Think about background subtraction !



Corrections:

Apply LUT step X & Y corrections

Apply MCP by MCP Cherenkov angle corrections

Apply beam polar & azimuthal angles corrections