

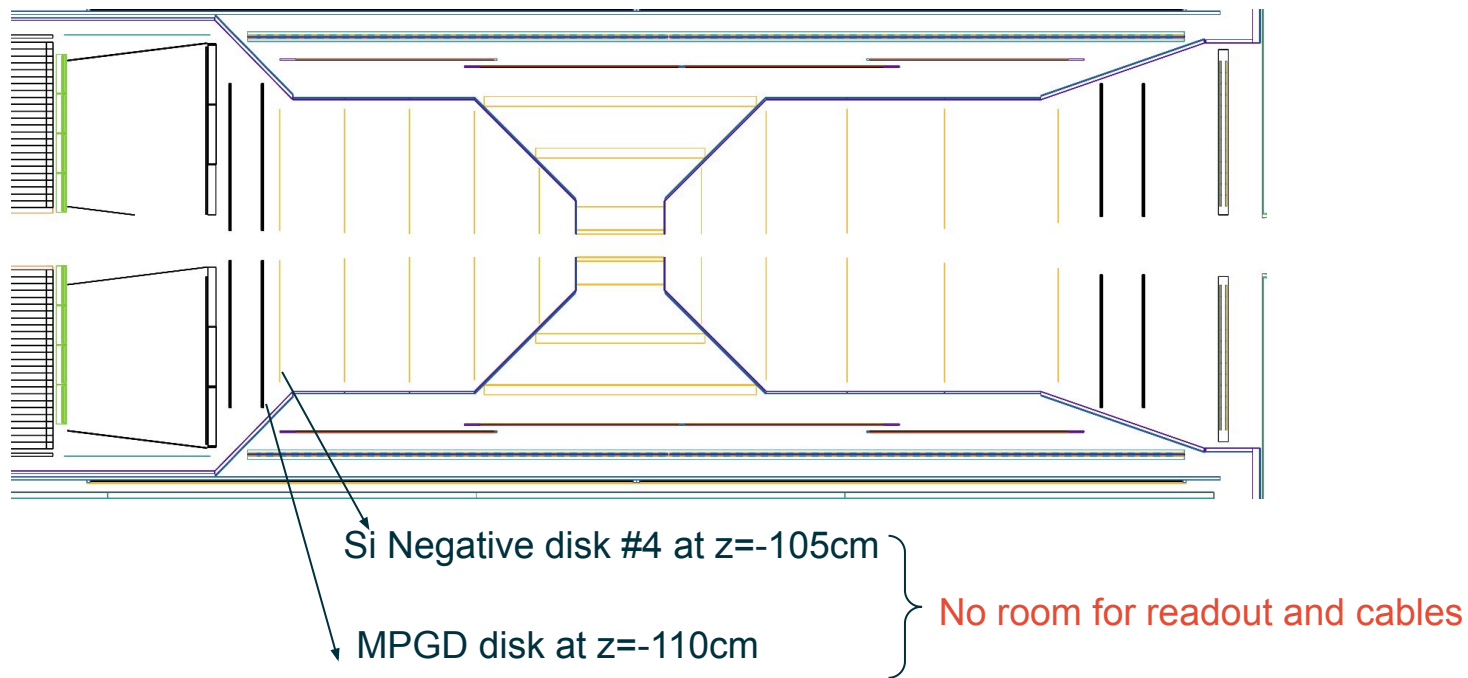
Negative Si Disk Re-position

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RNC-EIC meeting

Mar 14 18, 2025

Motivation



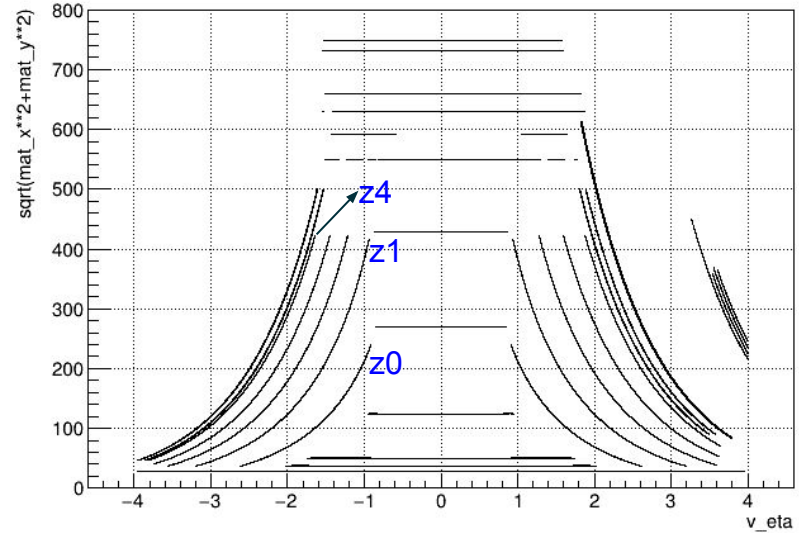
Plan

Move the negative disk z4 inward, and also shift z3,...,z0 accordingly if needed.

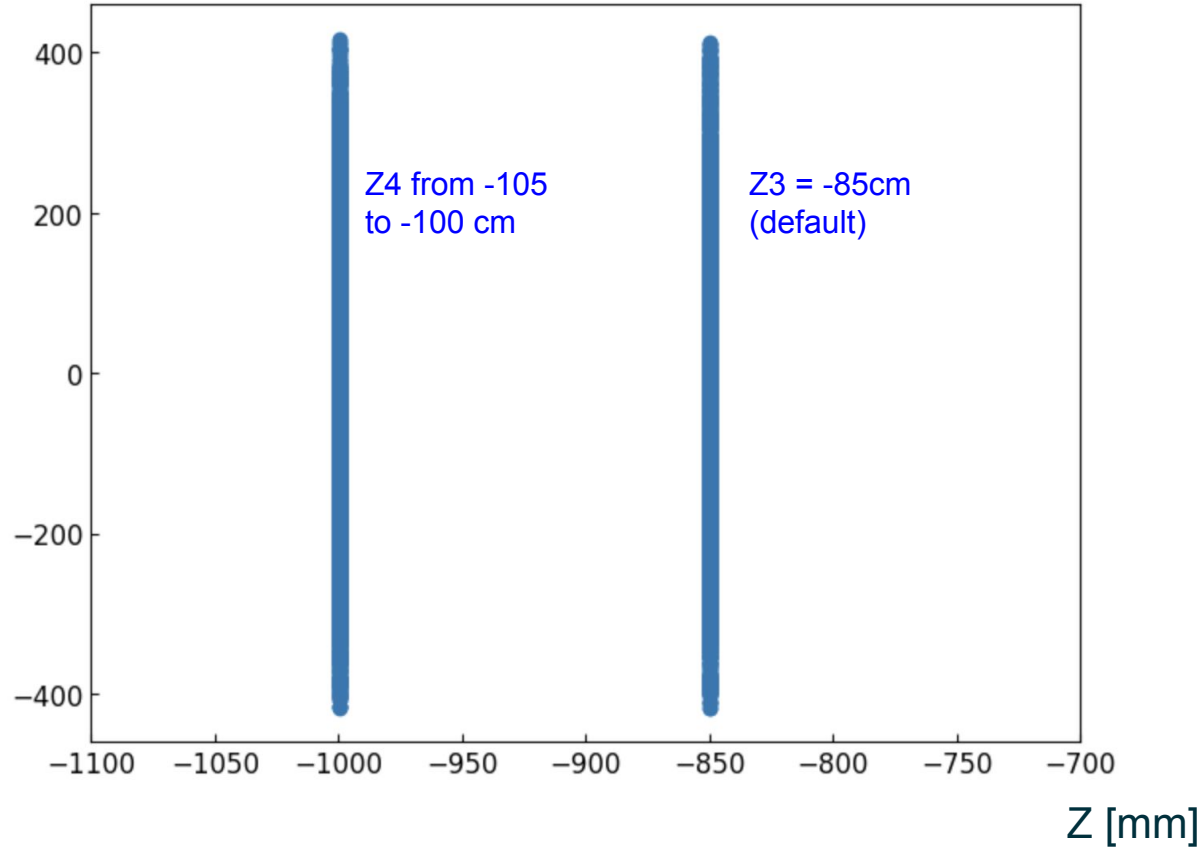
- First pass tests:
 - Default: z_4=-105, z_3=85, z_2=65cm
 - z_4=100, z_3=85 or $(z_4+z_2)/2$
 - z_4=95, z_3=85 or $(z_4+z_2)/2$

Simulation workflow:

1. Update disk position
2. Re-generate material map
3. Run single pi+ simulation/reconstruction. 5000 events per bin of :
 - a. eta : -3.5 to -2, -2 to -1, -1 to 0 (bin size same as preTDR. z4 covers eta<-1.6)
 - b. Mom: 0.5, 1, 2, 5, 10, 20 GeV

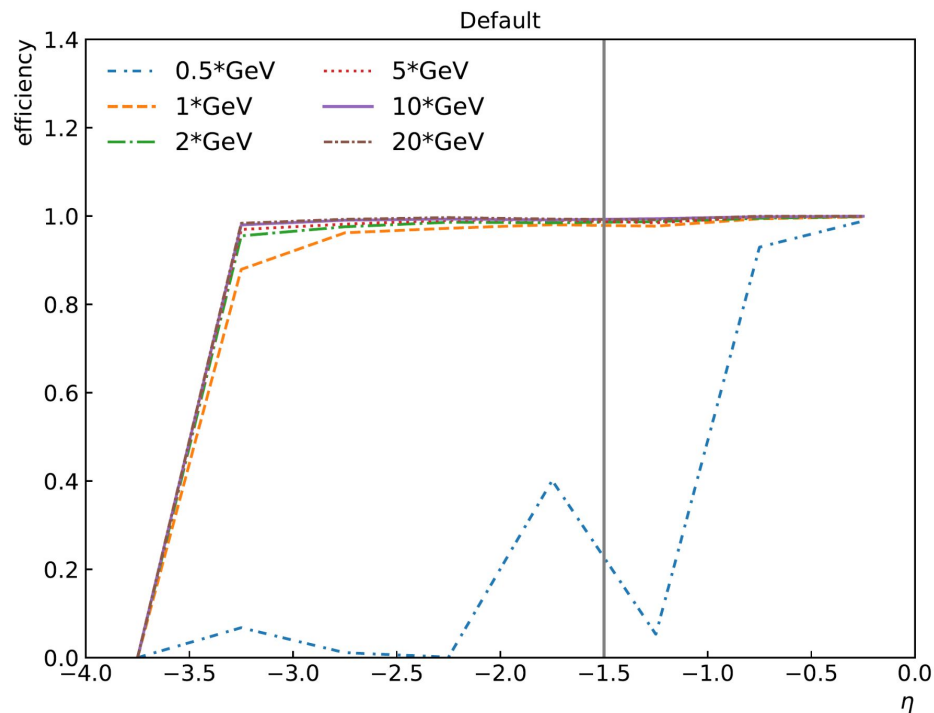


Modified disk Z position



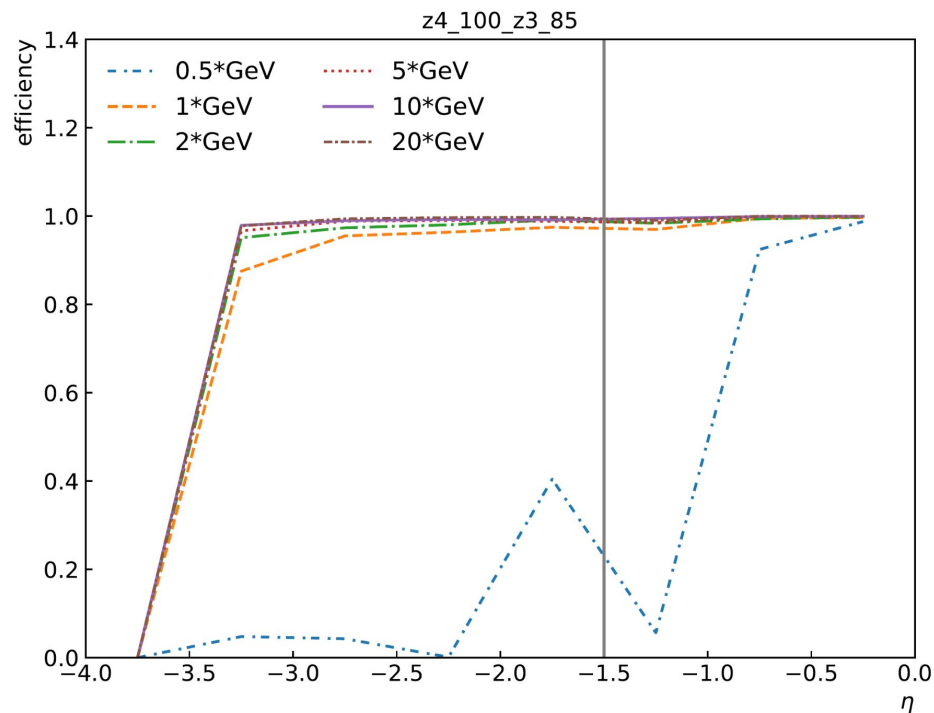
Efficiency:

Default: $z_4=-105\text{cm}$, $z_3=-85\text{cm}$



Efficiency

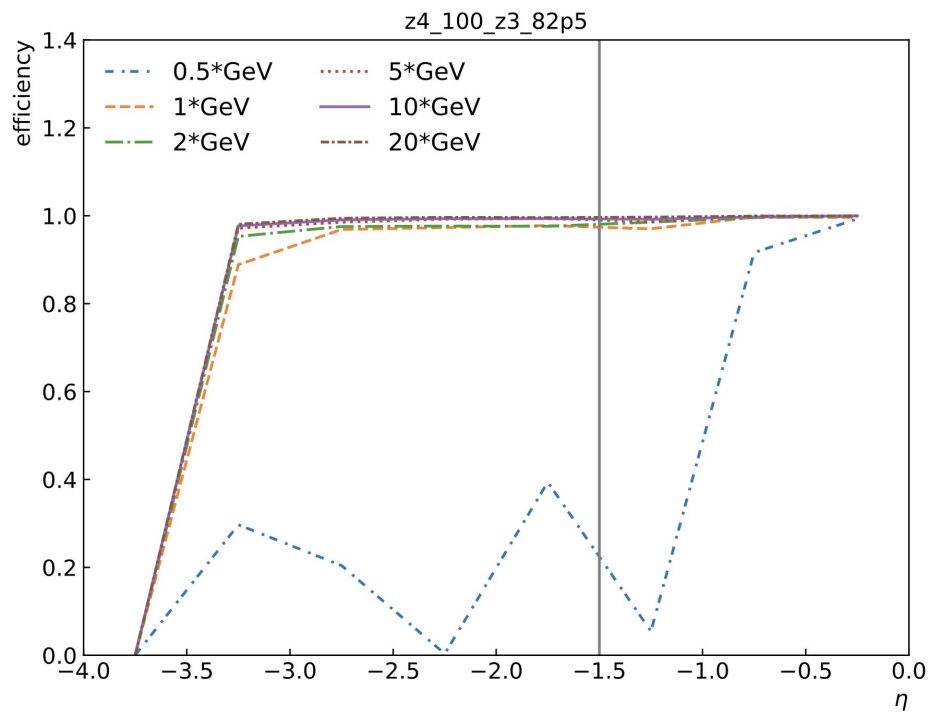
$z_4 = -100\text{cm}$, $z_3 = -85\text{cm}$



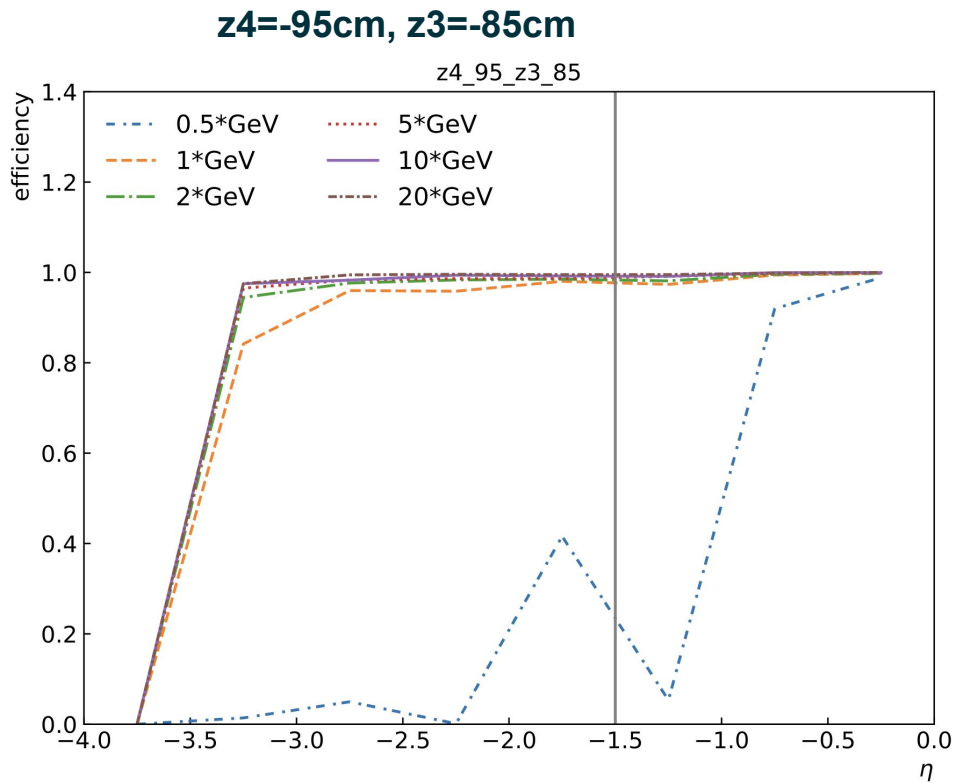
Q: why efficiency changed at $\eta \sim 1.5$ and 1 GeV?

Efficiency

z4=-100cm, z3=-82.5cm

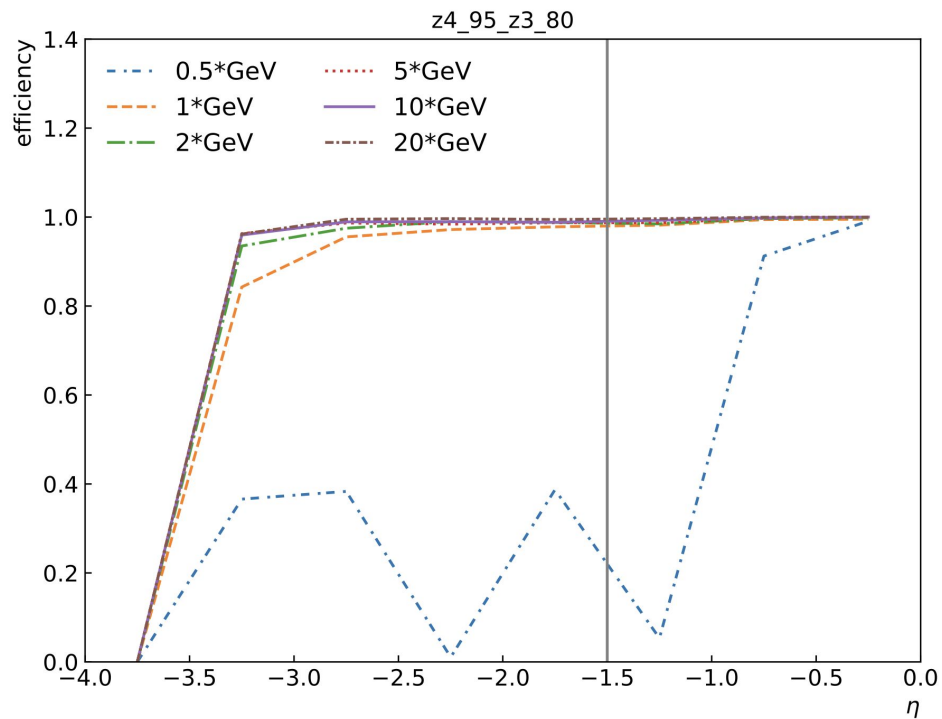


Efficiency

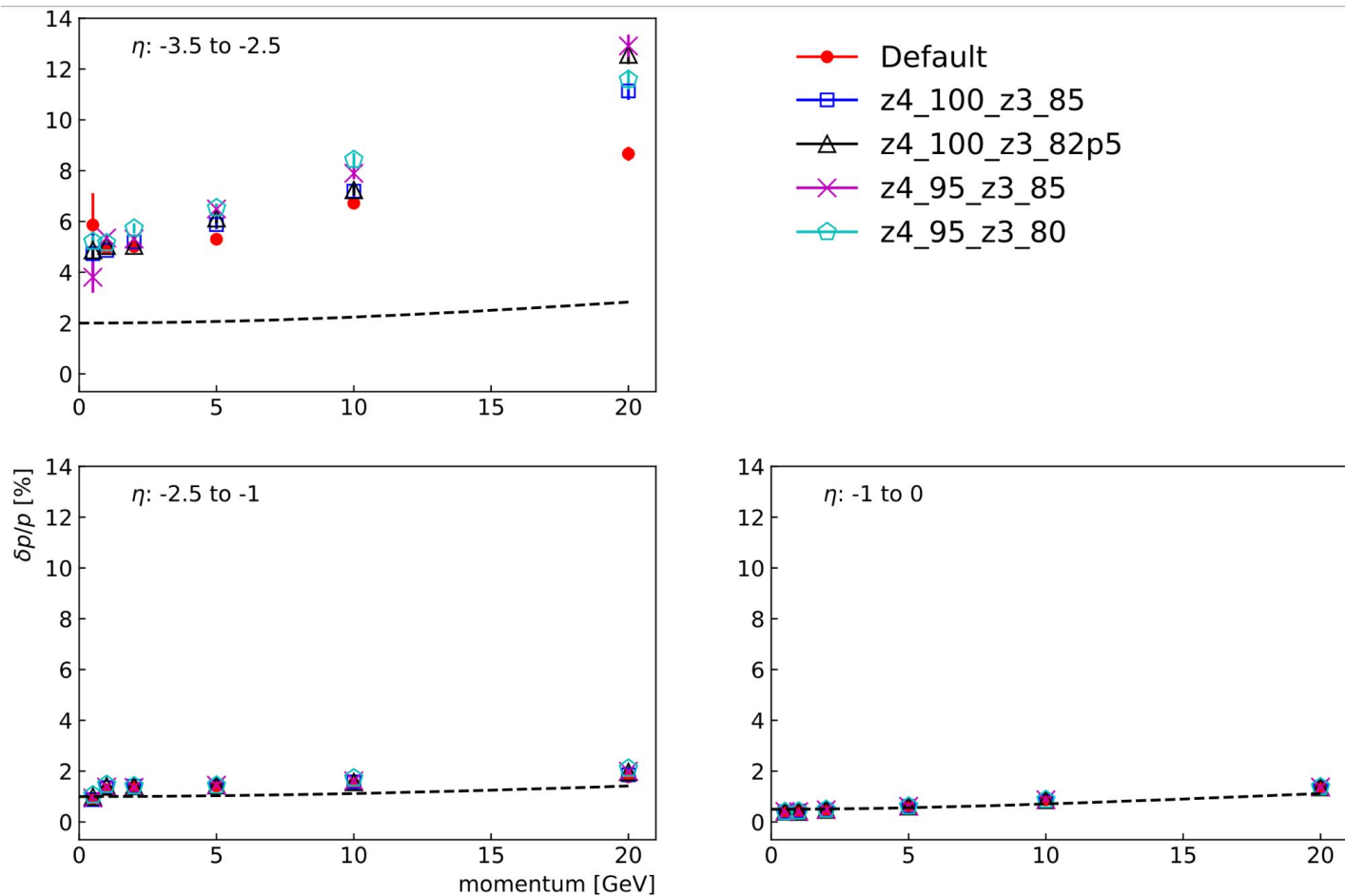


Efficiency

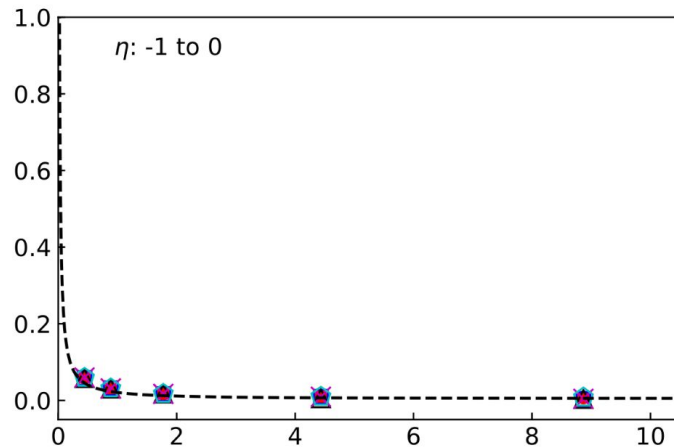
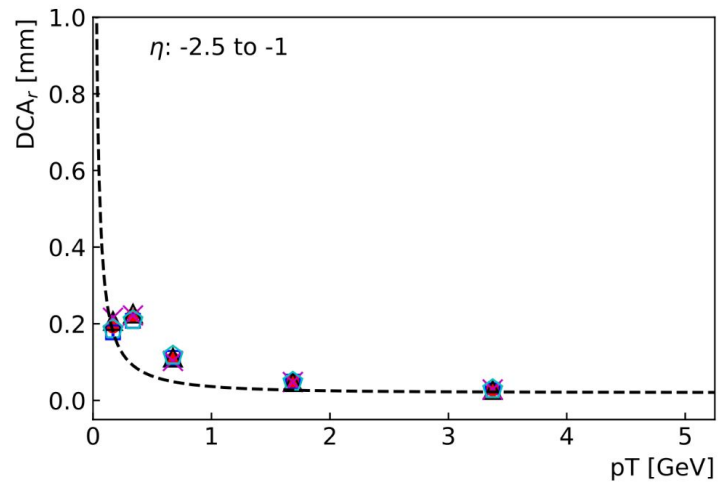
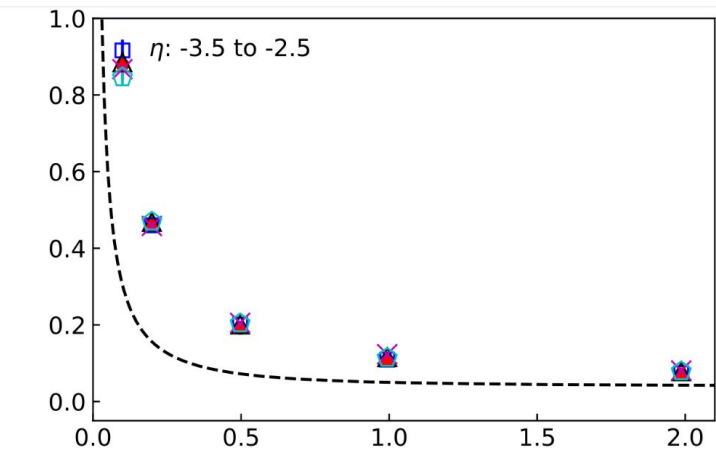
Default: $z_4=-95\text{cm}$, $z_3=-80\text{cm}$



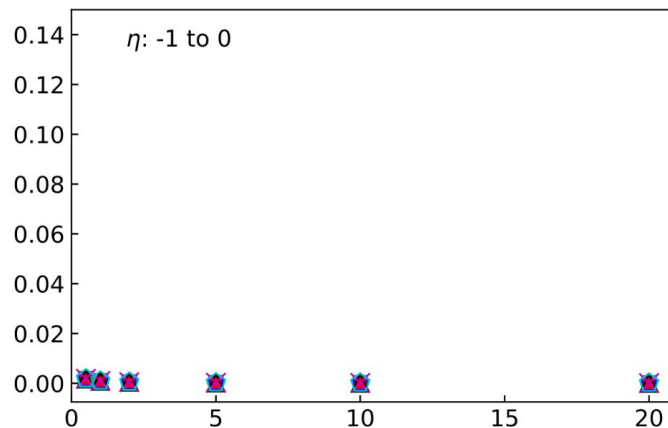
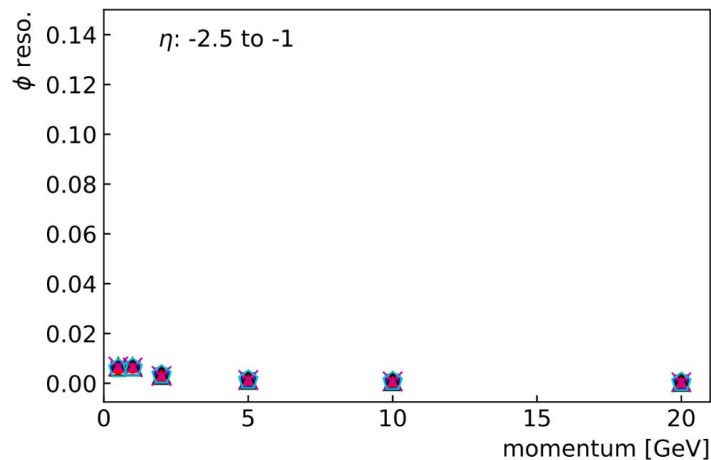
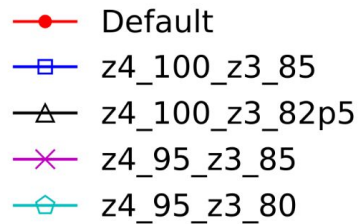
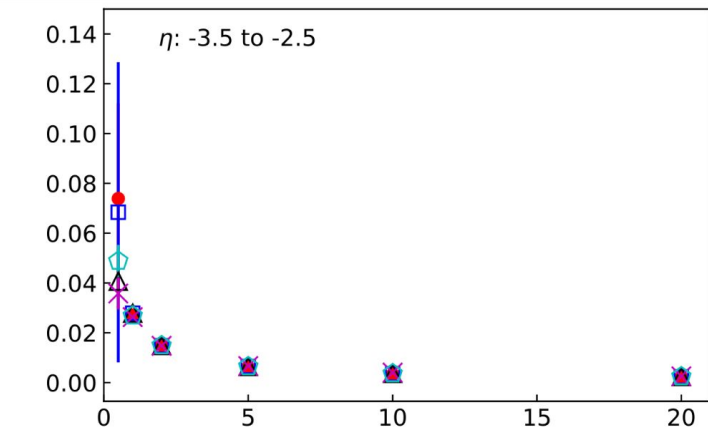
Resolutions, $\delta p/p$



Resolutions, DCA_r



Resolutions, phi



Resolutions, theta

