

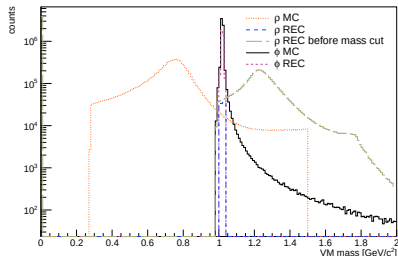
Diffractive ϕ Analysis Update

Maci Kesler

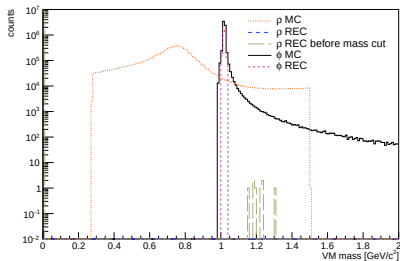
December 8, 2025

ρ Background $\rightarrow$ removed with PID

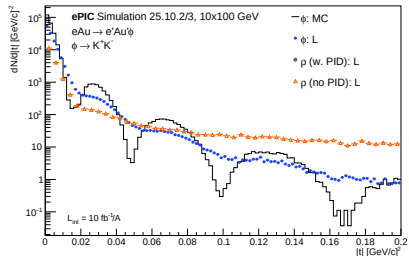
Mass Distribution (no PID)



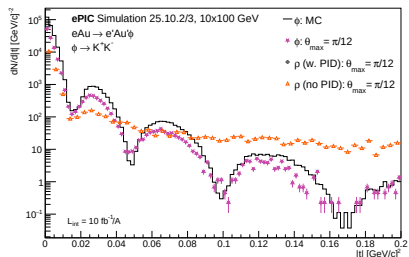
Mass Distribution (with PID)



Method L



Projection Method

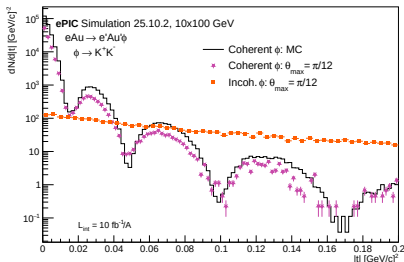
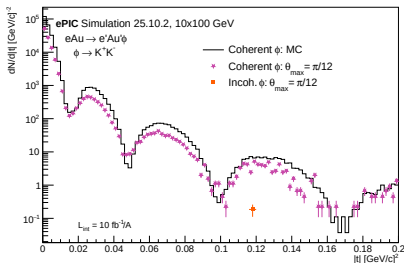


ZDC Vetoes

- Before: ZDC had only one point because I didn't have this code block where I was clearing after each event.

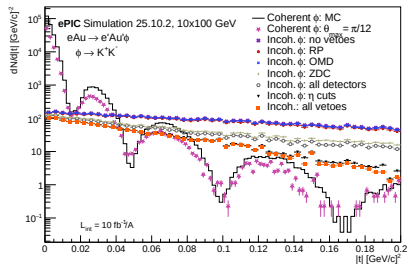
```
event.clusters_eemc.clear();  
event.clusters_zdc.clear();  
event.hit_rp.clear();  
event.hit_omd.clear();
```

- Now: I use this clearing method and the incoherent distribution is as expected.

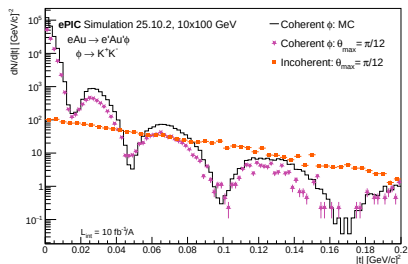


Corrected Incoherent Background

All Cuts and Vetoes



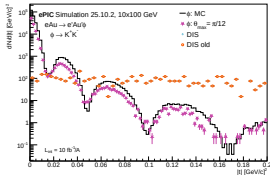
Final with Everything



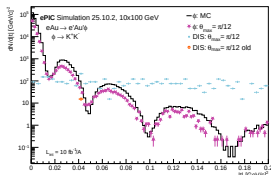
Note: All projected t distributions are normalized by $(\pi/2)/\theta_{max}$

DIS Background Revisited

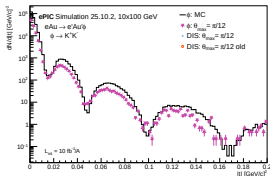
no vetoes



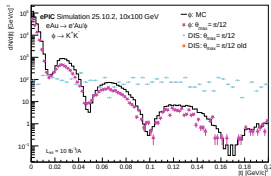
RP vetoes



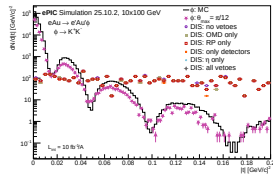
$\eta > 3.5$ cut



OMD vetoes



all cuts and vetoes



Outlook

Immediate Tasks:

- Give AN to Kong and Stephen by end of today
- Finish presentation by Wednesday?
 - ▶ Does this need to be sent out?

Following week:

- Inspect/Correct QA plots
- Implement Win's eFinder?

Longer Term:

- Use our proposed technique to remove incoherent background
- ML to do unfolding