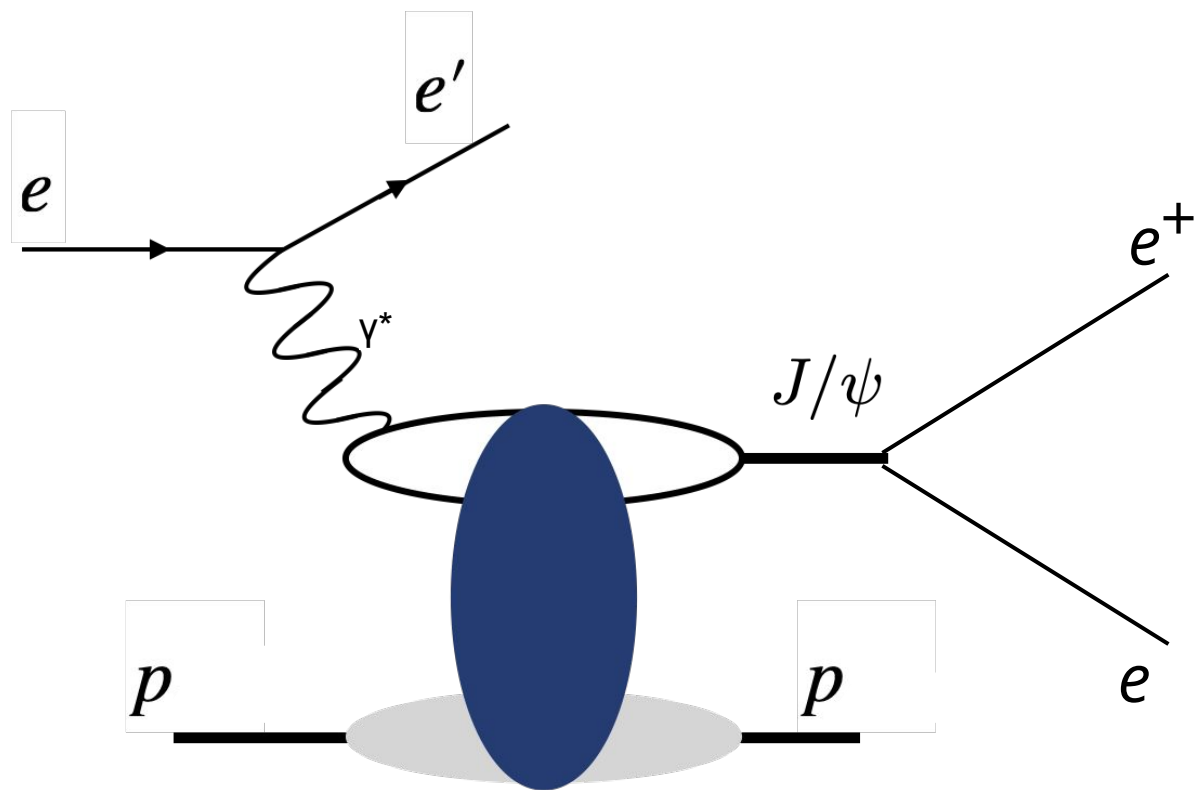

Analysis Progress on DVMP

$$ep \rightarrow e'p' J/\psi(ee^{\dagger})$$

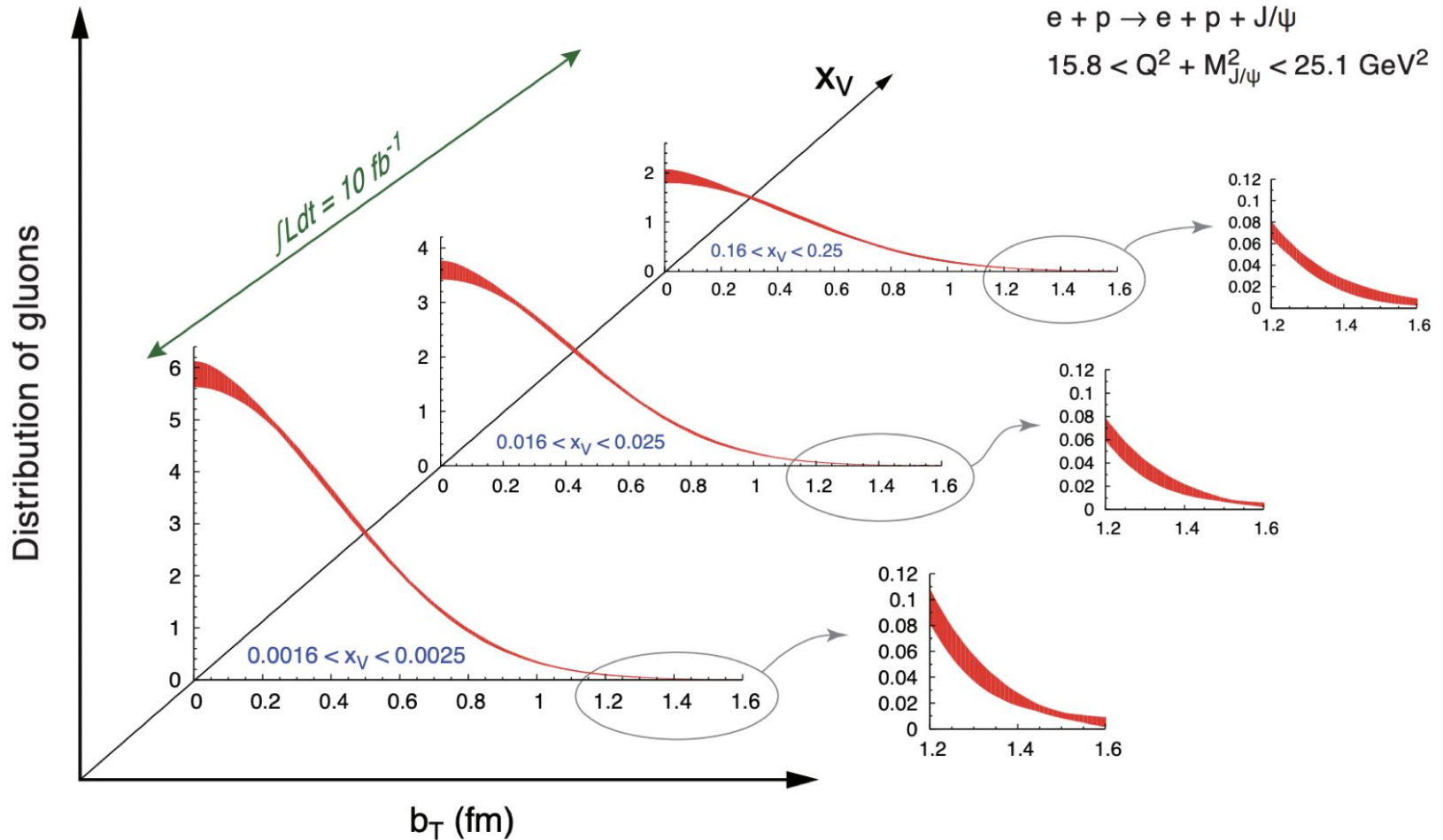
Olaiya Olokunboyo
UNH

Reaction of Study:



Target stays intact

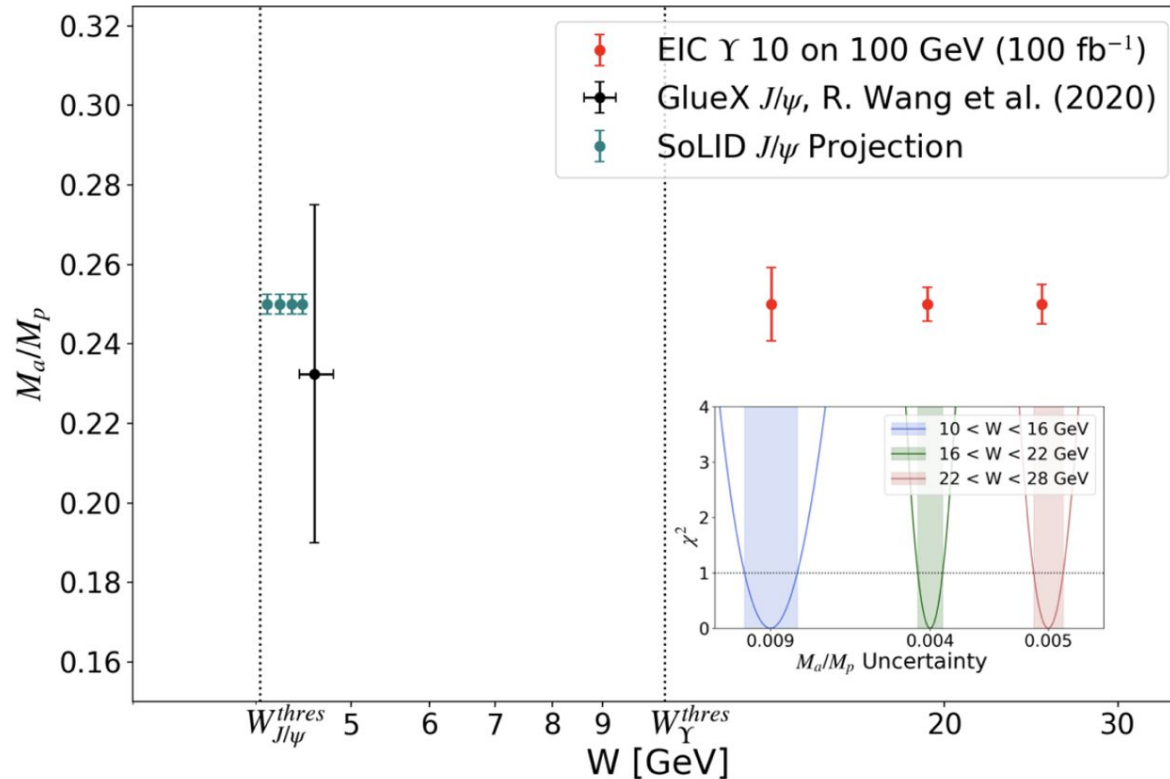
Motivation



J/ψ production: transverse spatial distribution of gluons

Eur. Phys. J., 6 vol. A52 (2016)

Motivation



$E_e = 10$ GeV
 $E_p = 100$ GeV

Trace anomaly contribution to the proton mass.

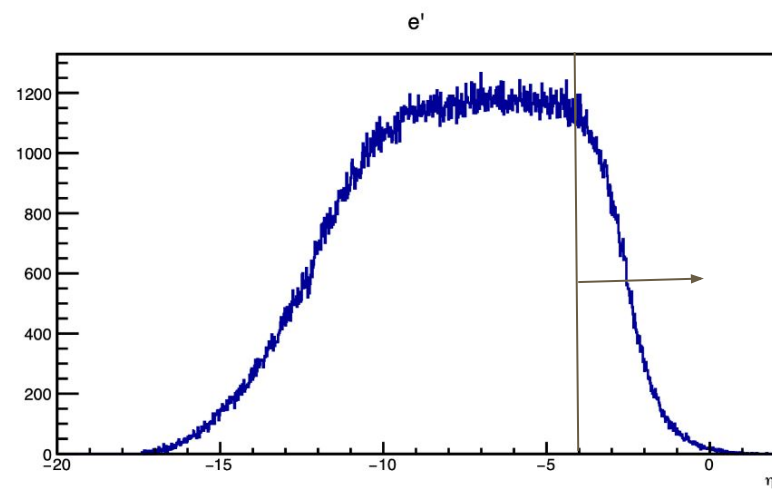
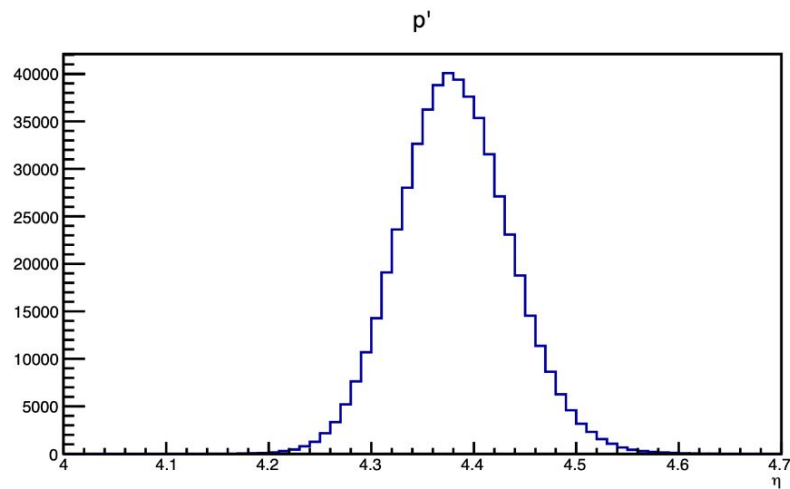
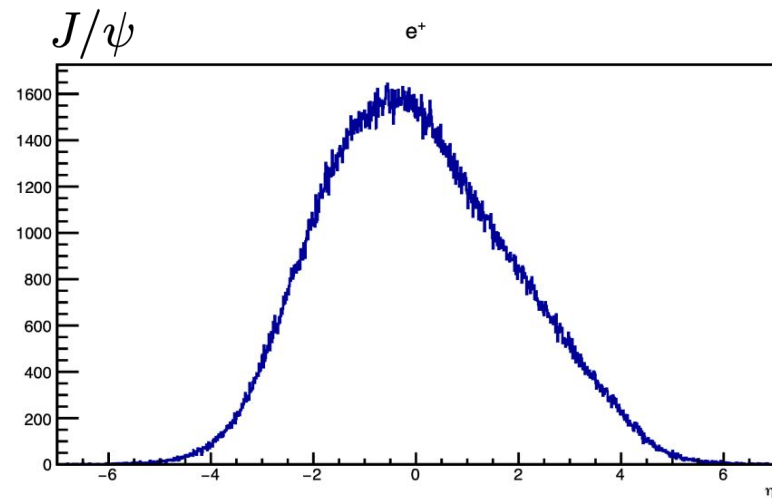
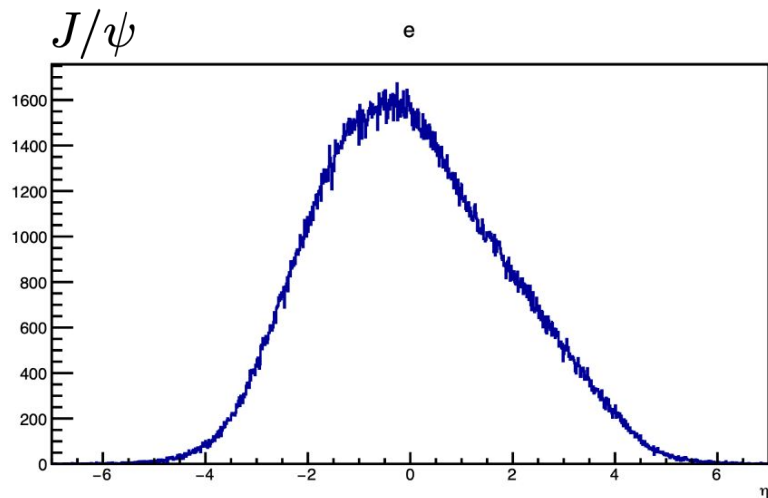
Nucl. Phys. A 1026 (2022)

Generator

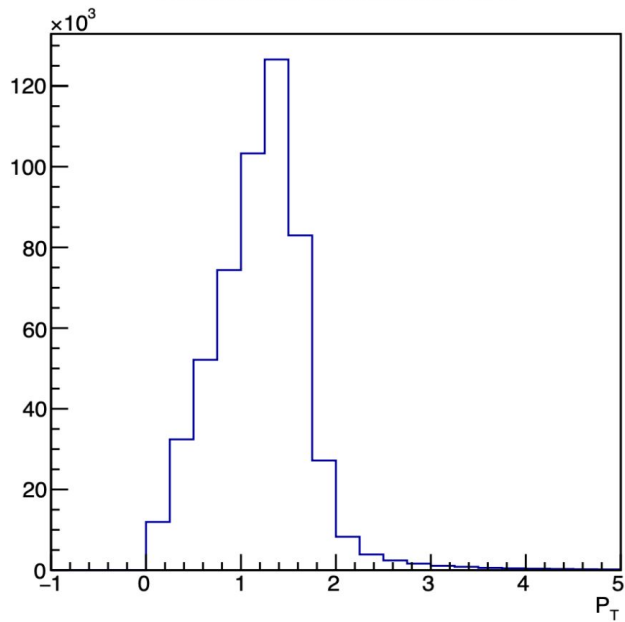
IAger - Argonne generic I/A-event generator (S. Joosten)

The LAGER generator was used to produce event samples for the studies presented.
Modular accept-reject generator, capable of simulating both fixed target and collider kinematics

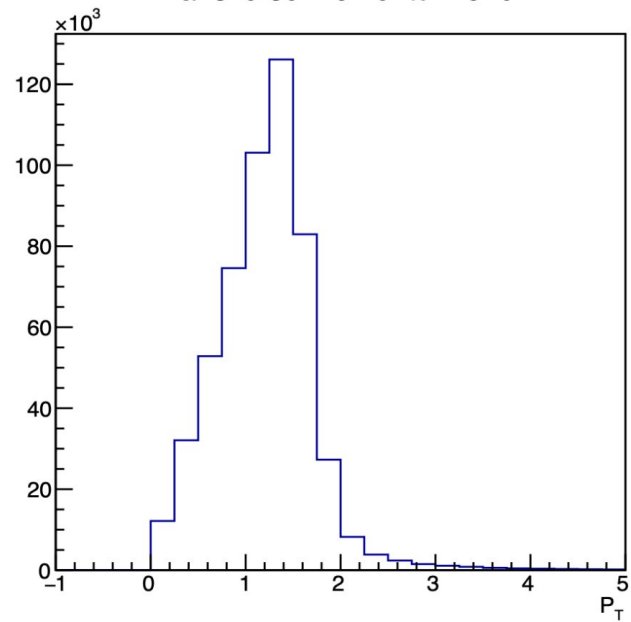
Energy for the electron - 18 GeV
Energy for the proton - 275 GeV



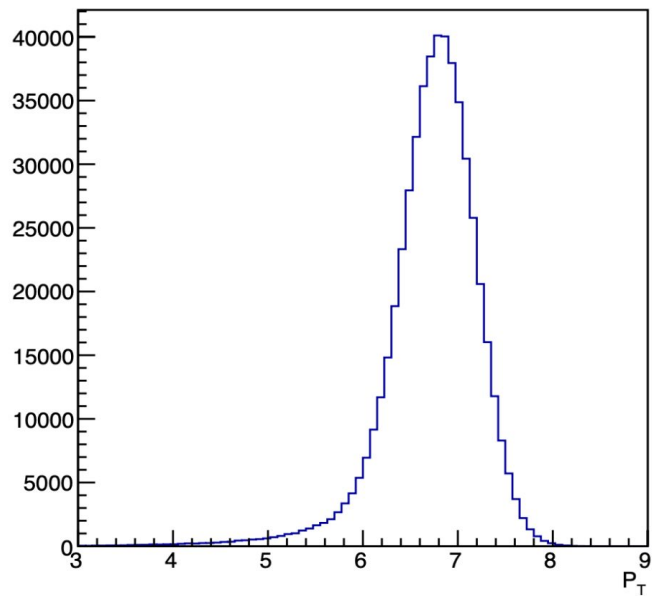
Transverse Momentum of e



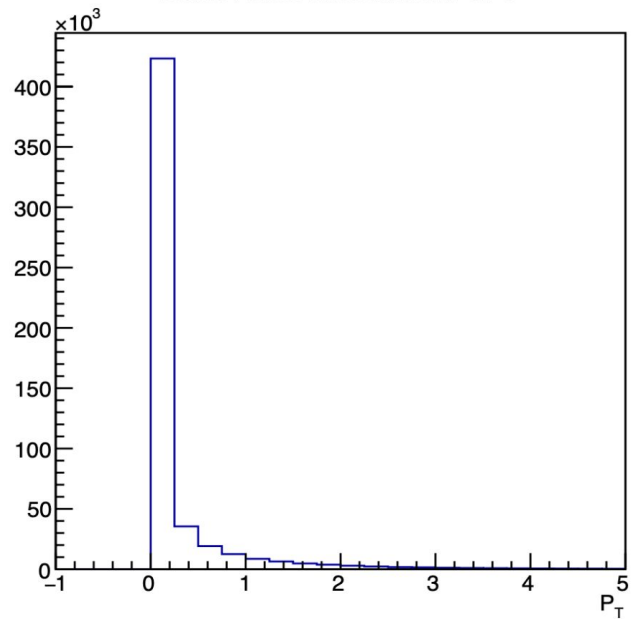
Transverse Momentum of e^+



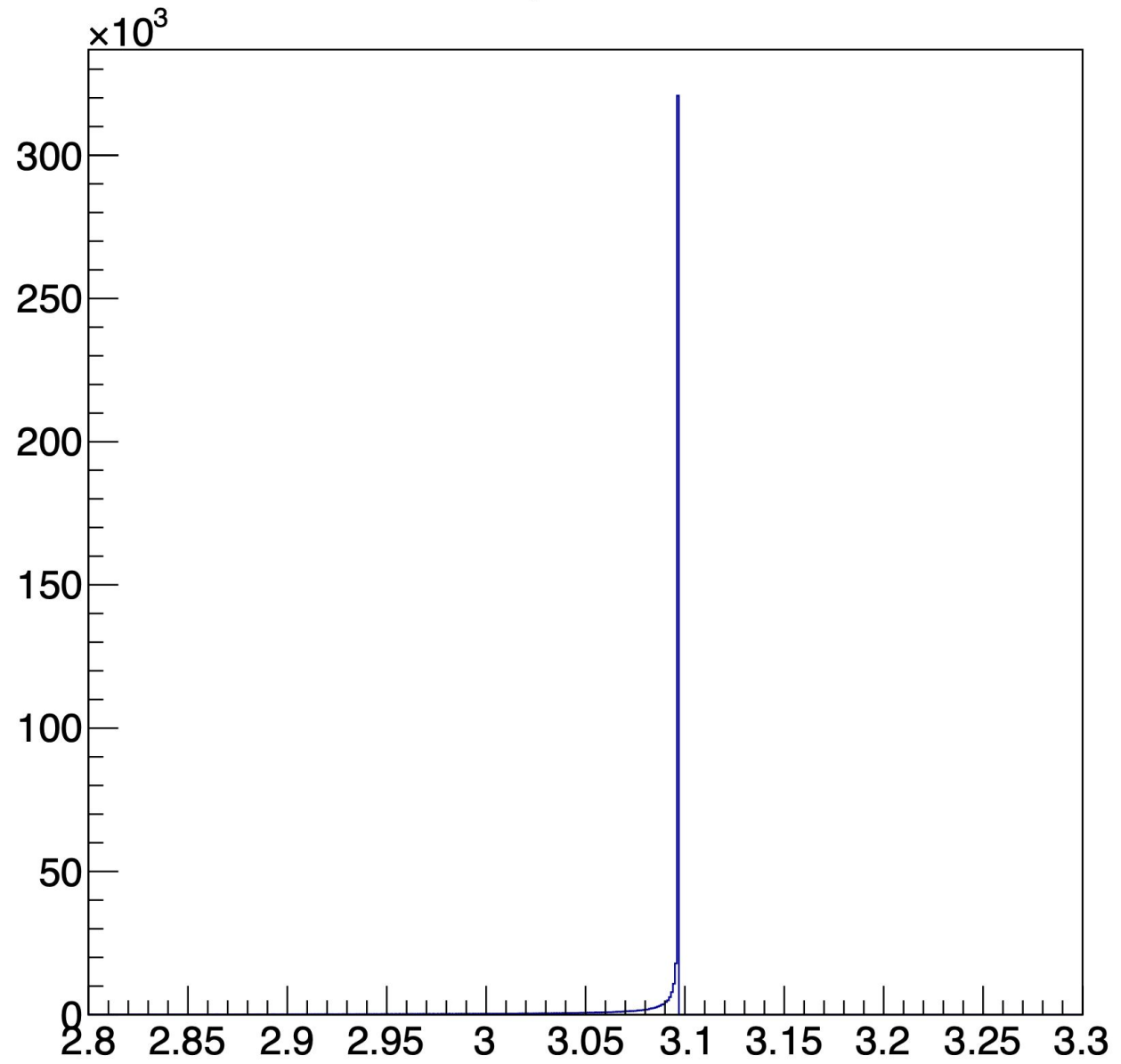
Transverse Momentum of p'

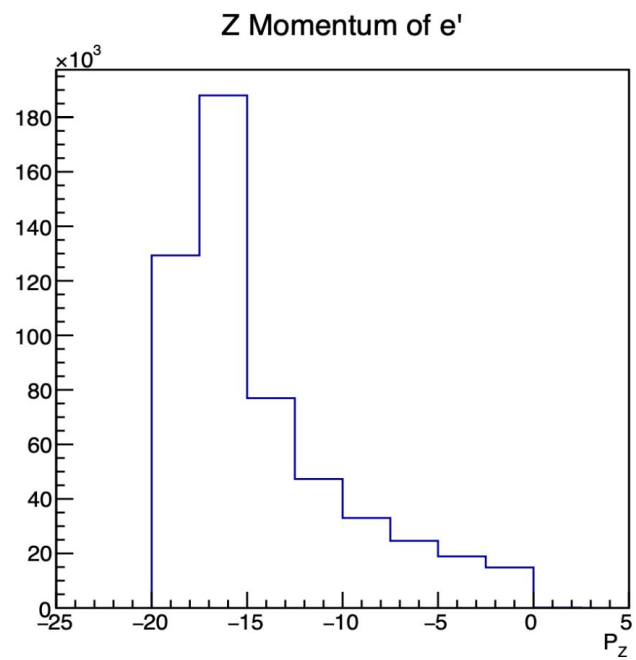
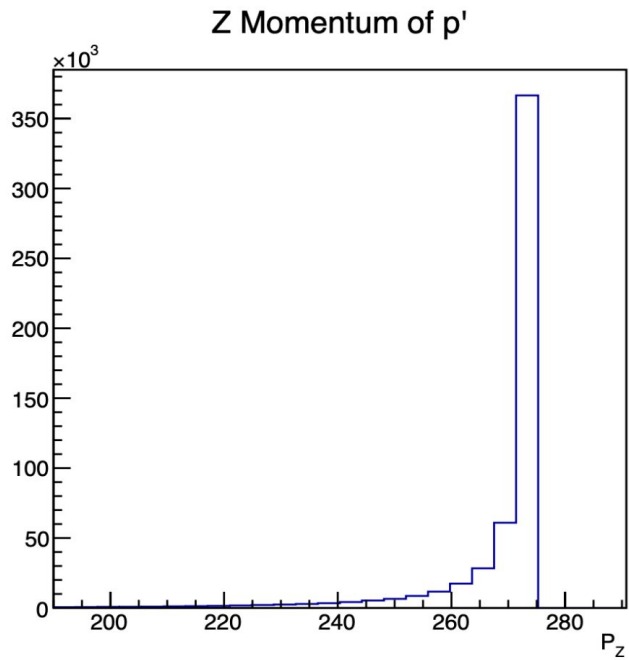
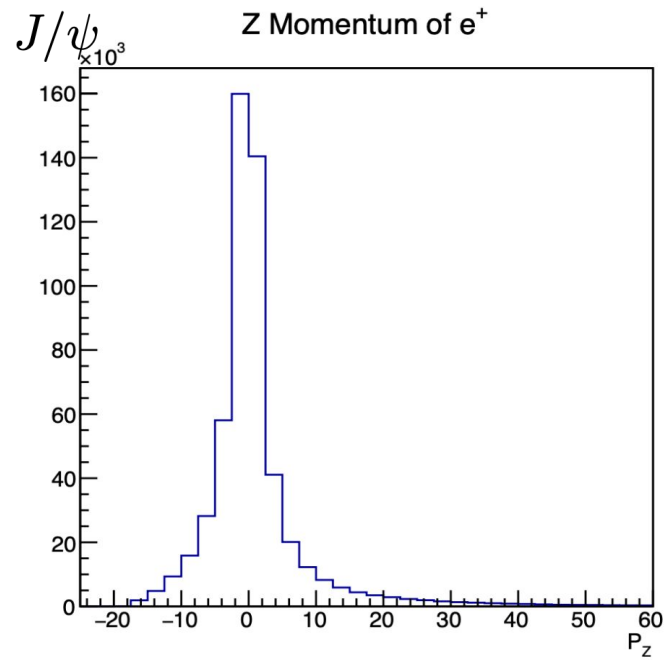
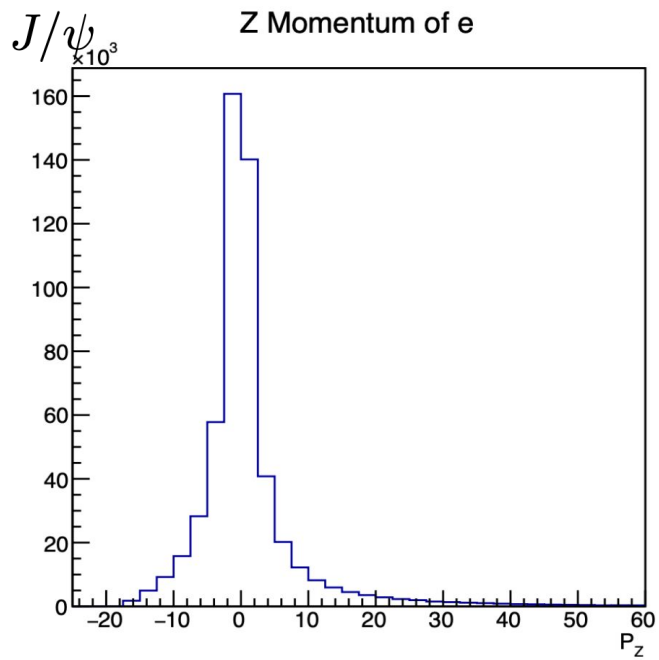


Transverse Momentum of e'

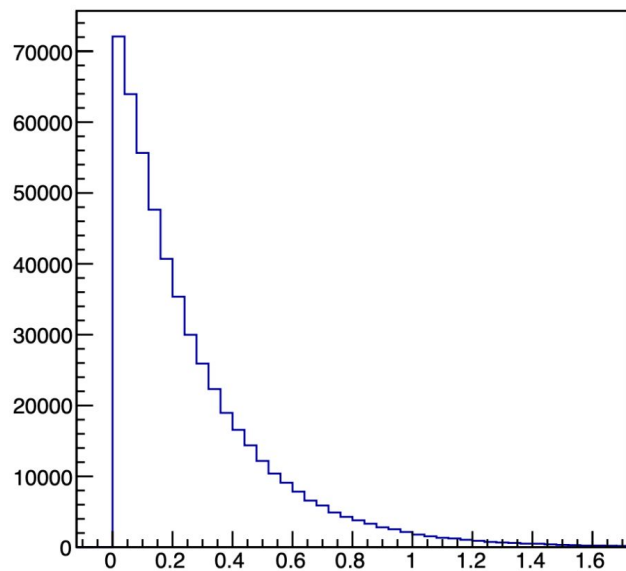


J/ ψ -Mass

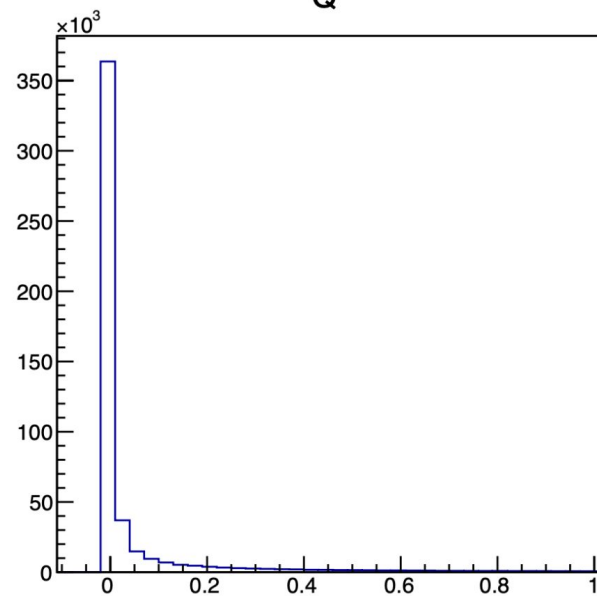




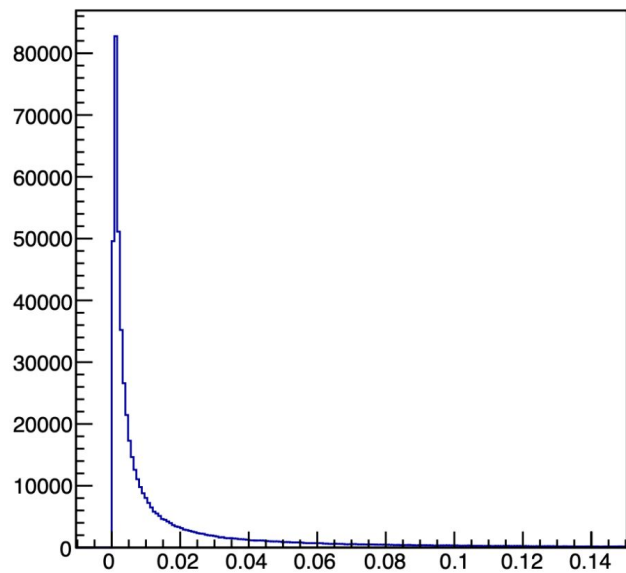
-t



Q^2



x_V



Next Step

- Generator files will go through full ePIC framework (Sylvester Jones)
- Benchmark plots will be generated by Sylvester
- I will study the detection resolution of all particles (ee', e and proton) in the calorimeters with tracking capabilities.
- I will study the resolution of t, Q2, W and xv.