Work Progress

ECCE Analysis Plots

Xinbai Li, Wangmei Zha
USTC ECCE HF working group
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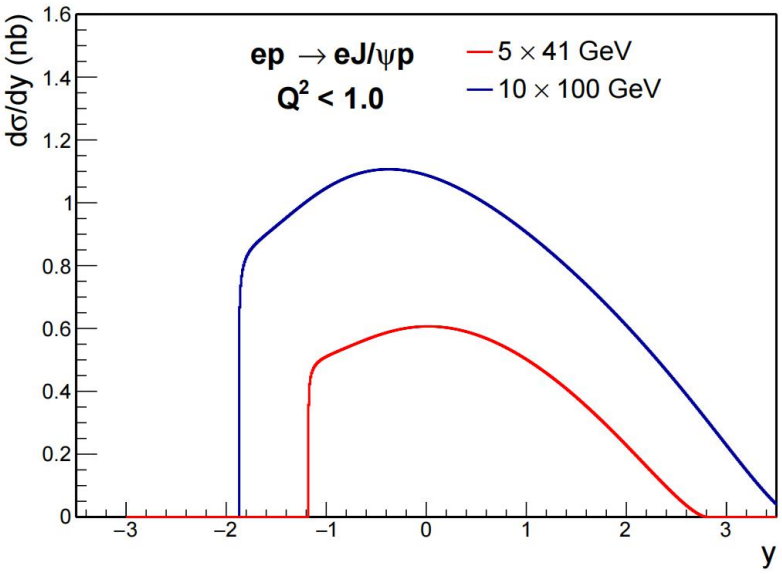
Analysis plots list

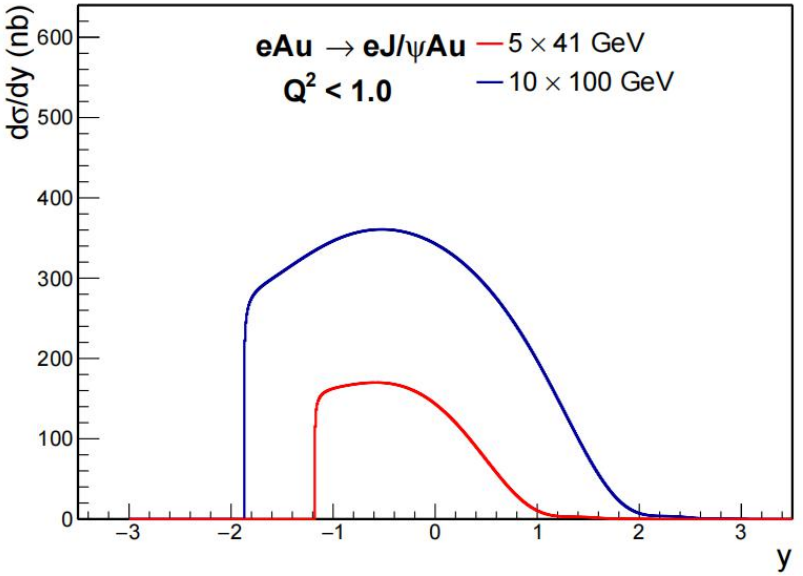
Files: 1st simulation campaign(June concept)
ep10×100 SIDIS output event evaluator files general Q2

Why not ReA vs z?
z is not well defined in most J/ψ production events(soft QCD process, mostly diffractive process, elastic scattering, double diffractive process...)

- $\frac{d\sigma}{dy}$ vs y : (ep / eAu) theoretical estimation
- $\frac{d\sigma}{dt}$ vs -t : (ep / eAu) theoretical estimation compare to simulation
- $\frac{dN}{dy}$ vs y : (ep / eAu) considering detector response and S/B
- R_g vs x : probing the gluon distribution

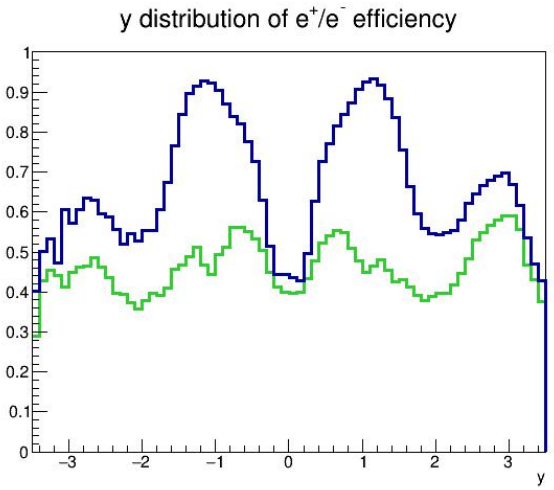
Analysis plots

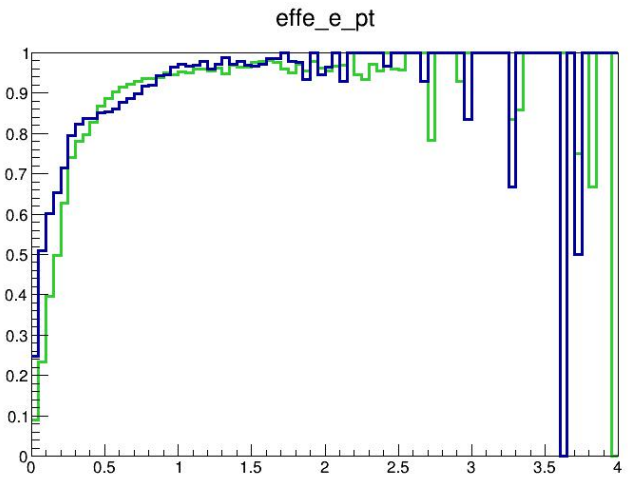


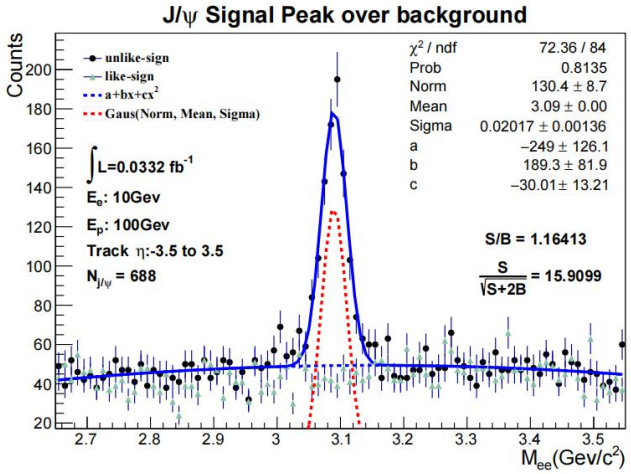


very low Q square
softQCD process (elastic scattering, diffractive process...)

Analysis plots





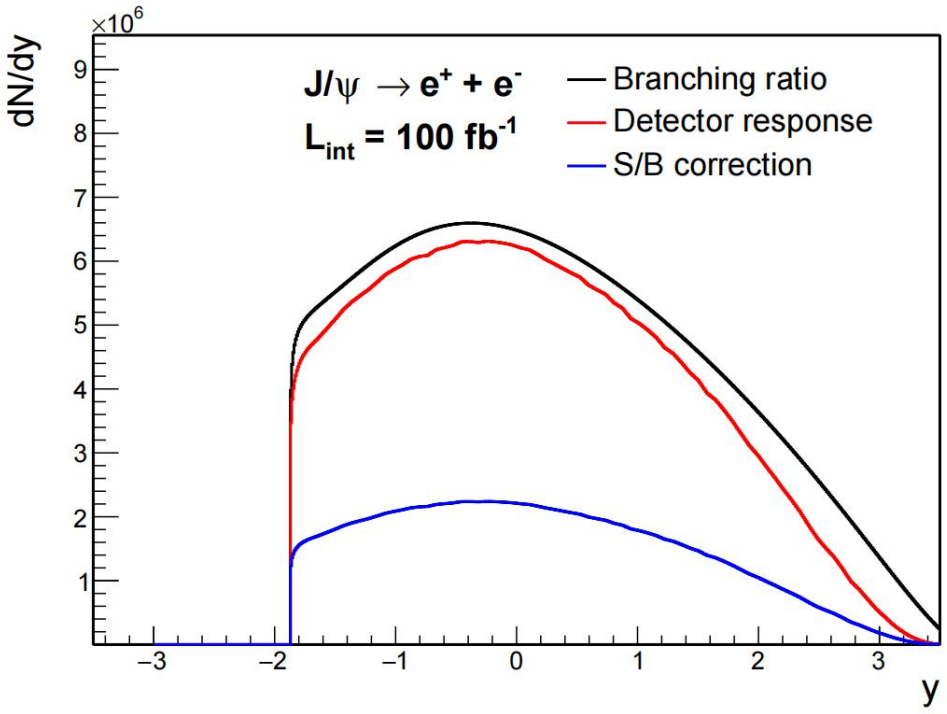


very low momentum, track performance different from e^+ to e^-

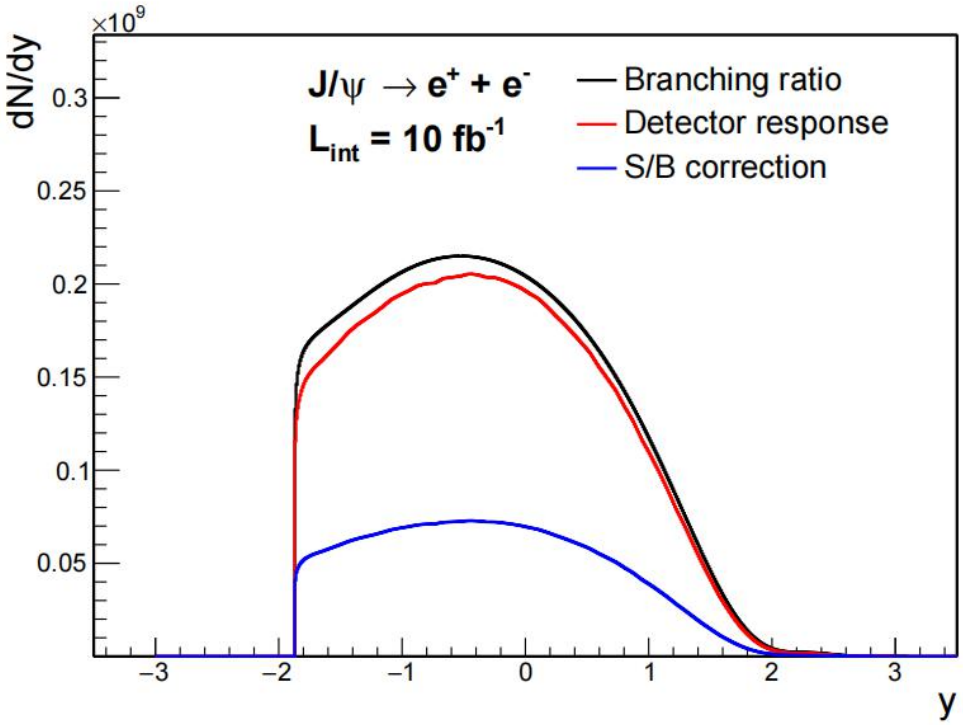
elastic scattering(exclude beam electron) e^-e^+

detector response caculated according to e^-e^+ efficiency
S/B thought as a constant for the whole region

Analysis plots



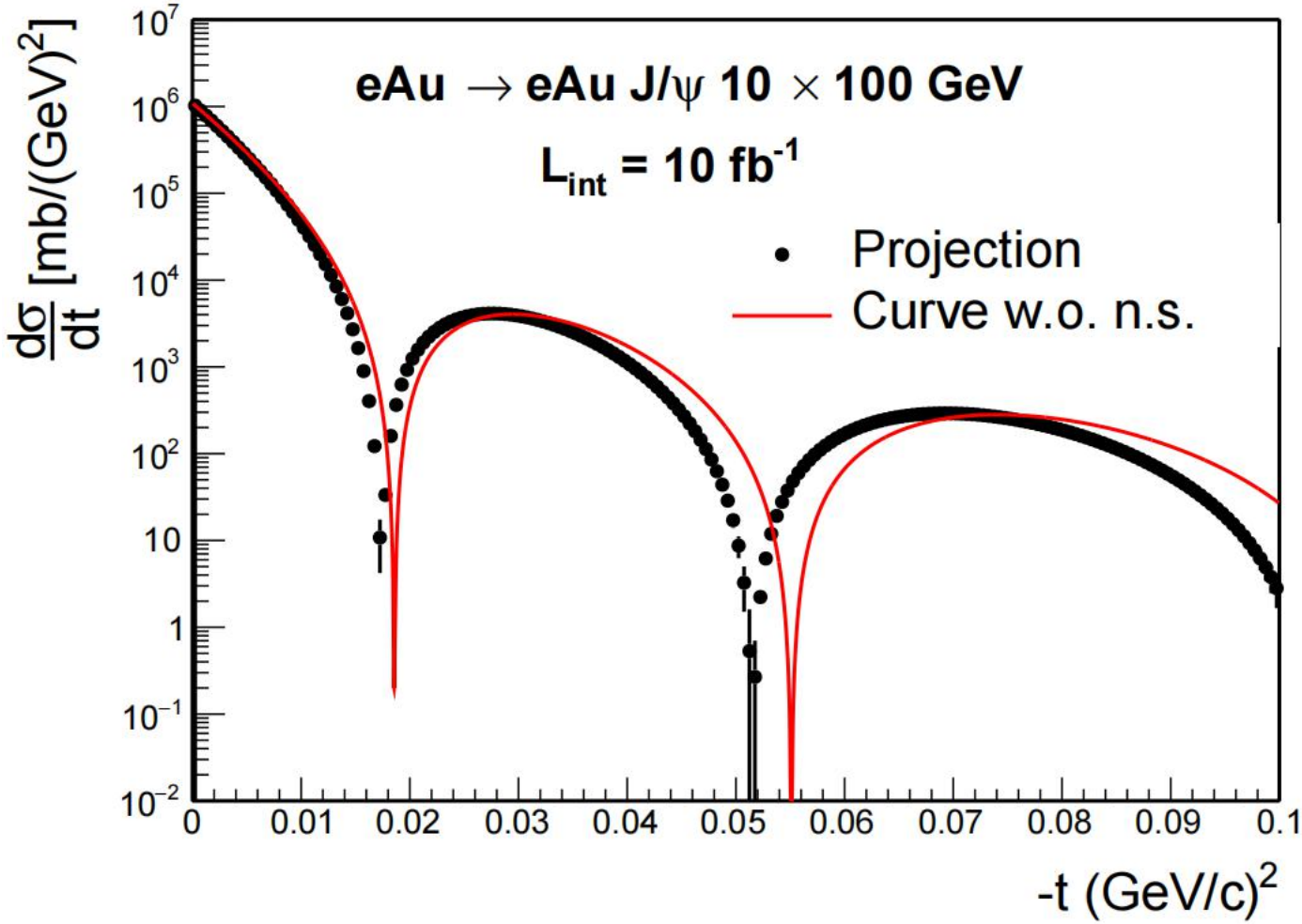
ep



eAu

Analysis plots

reflects gluon position distribution, where n.s. is neutron skin



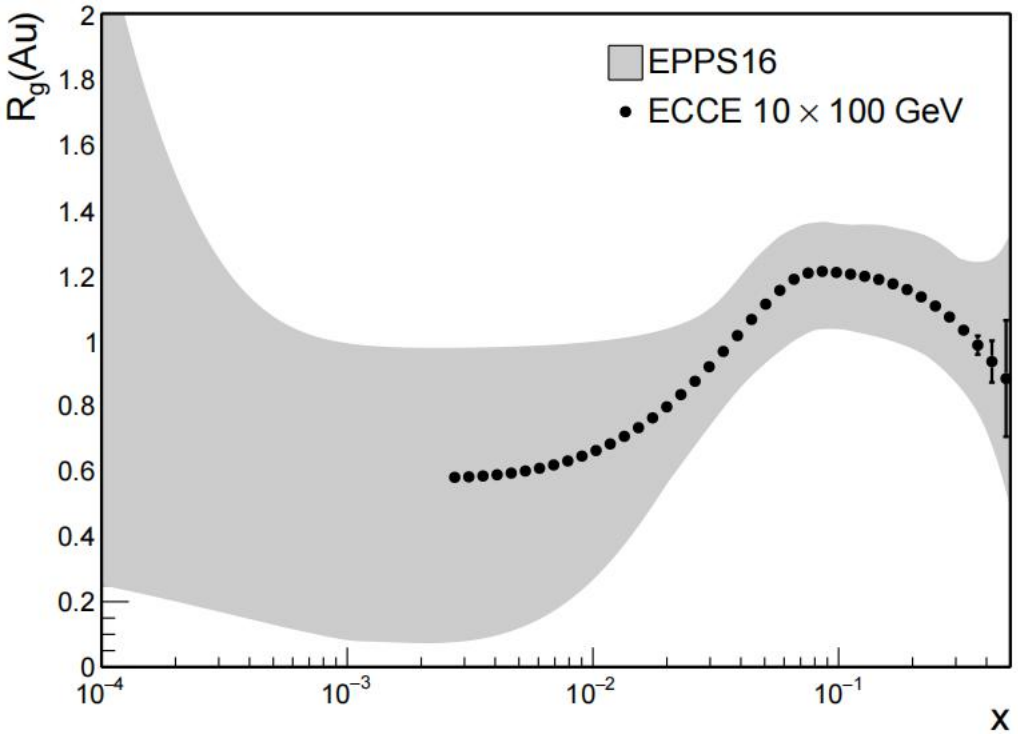
Analysis plots

$$R_g = \sqrt{\frac{\left.\frac{d\sigma}{dt}\right|_{t=0}^{eAu}}{\left.\frac{d\sigma}{dt}\right|_{t=0}^{ep}}}$$

reflects the shadowing effect of Au nuclear, related to the gluon distributio

$$x = \frac{0.5\, M_{j/\psi}\, e^{y}}{E_p}$$

shows the energy fraction of parton wrt proton energy.



Still need to do

need to do:

- Add ECCE style in plot and finish the note as soon as possible
- Discuss the track effeciency

- Do research on the prop.4 simulation data (compare with prop.2; analysis with afterburner code...)