

Raphaël Dupré
Rachel Montgomery

DVCS

Deeply virtual Compton scattering

- Proton (Epic) & neutron (TOPEG)

Configurations

- All energies ep and ed
- Luminosity ?

Science

- The Origin of Mass
 - Imaging quarks and gluons
 - Proton DVCS
- The Origin of Spin
 - Orbital Angular Momentum
 - Proton and Neutron DVCS

Challenge to detectors

- Electron PID

Proton DVCS

- Calorimeters \rightarrow π^0 separation
- Roman pots \rightarrow t reconstruction

Neutron DVCS

- Calorimeters
- ZDC \rightarrow t reconstruction
- OMD \rightarrow Tagging

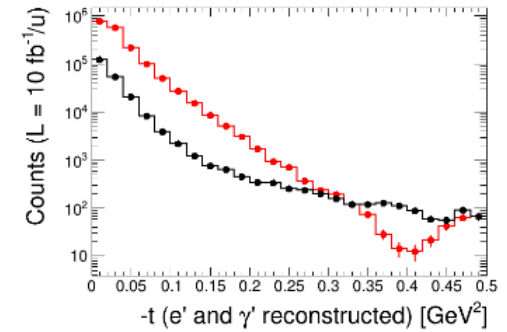
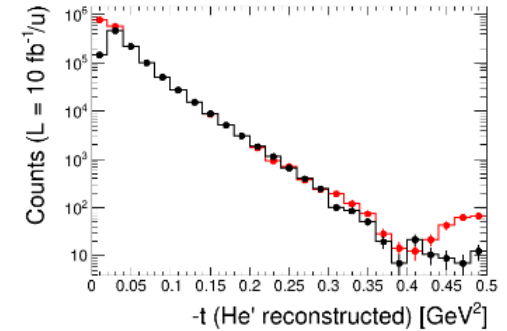


Figure 34: Reconstructed (black) and generated (red) for $-t$ distributions for $(e^4He, e^4He' \gamma')$, using different methods, as described in the body of text, and normalized to the EIC luminosity.



J/Psi and Upsilon

Exclusive production

- J/Psi : lAger
- Upsilon : lAger and eSTARLIGHT

Configuration

- Highest energy ep

Science

- Origin of the mass
 - Imaging Quarks and Gluons

Detectors

- Tracking
- Roman pots

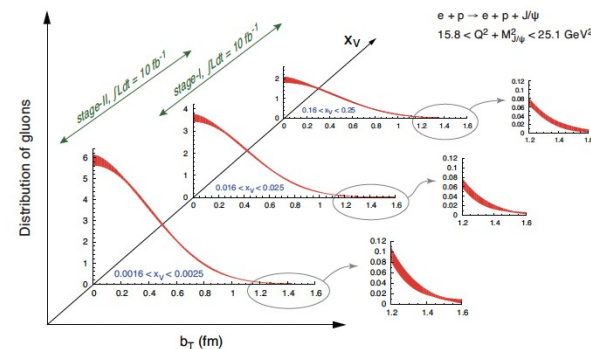
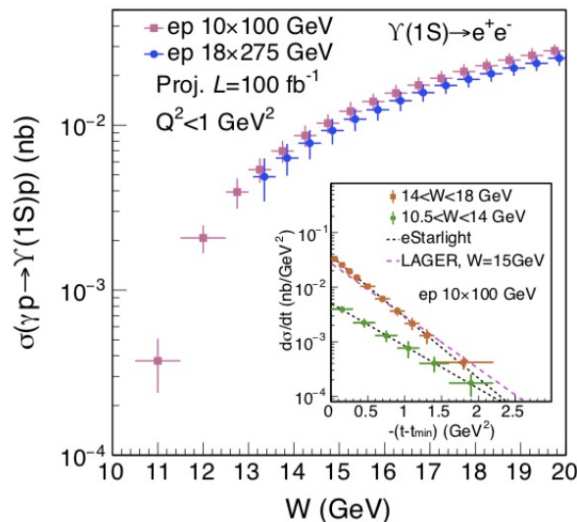
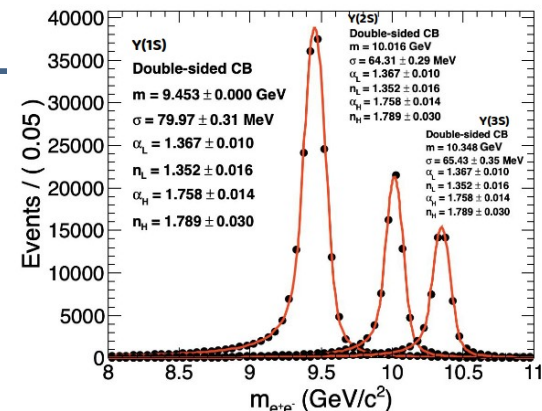


Figure 1.4: The projected precision of the transverse spatial distribution of gluons as obtained from the cross-section of exclusive J/ψ production. It includes statistical and systematic uncertainties due to extrapolation into the unmeasured region of momentum transfer to the scattered proton. The distance of the gluon from the center of the proton is b_T in femtometers, and the kinematic quantity $x_V = x_B (1 + M_{J/\psi}^2/Q^2)$ determines the gluon's momentum fraction. The collision energies assumed for Stage-I and Stage-II are $E_e = 5, 20$ GeV and $E_p = 100, 250$ GeV, respectively.



Diffraction Processes

Diffraction processes

- Phi with Sartre, J/Psi with eStarlight
- Other generator to be determined for dPDF ?

Configuration

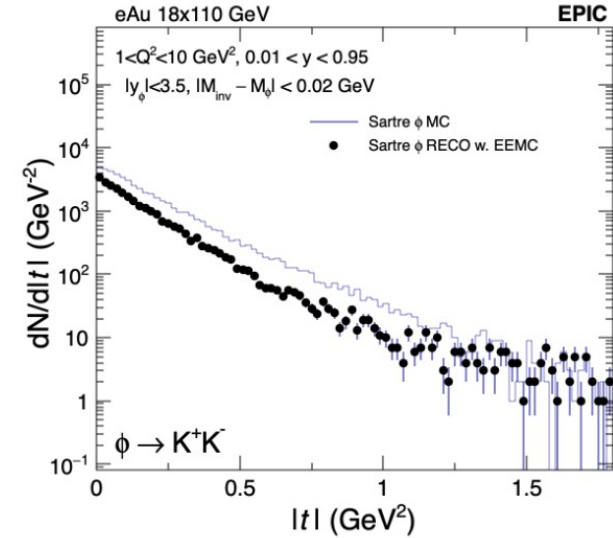
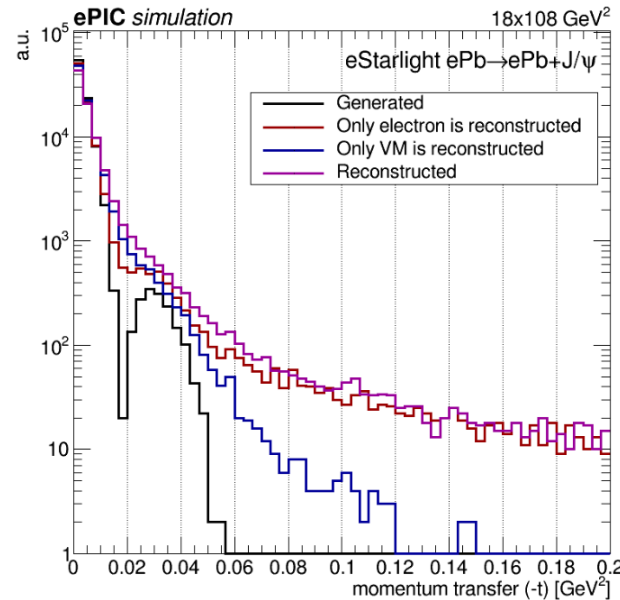
- Highest energy ep

Science

- High density gluons

Detectors

- t resolution
- Background suppression



Questions to Coordinators

What are the NAS topics ?

- All kind of different lists are out there...
- Should we use the 3 « questions » formulations ?
- Should we use the table of contents short forms ?
- Something else ?

What are the energies and luminosities ?

- We really need official setups for the simulations.
 - **Particularly for things not ep.**
- Particularly unclear what luminosity is reasonable for each setup.

Is the « 10 plots » really a thing ?

- In none of the previous documents channels were illustrated by a single figure.
- We had discussions of 30 to 50 pages, 10 plots sounds really small in this regard.
 - **10 topics, channels or sections seems much more reasonable.**
- Each channel need 2 or 3 plots at the minimum to show exactly what we are talking about.

