Coherent photoproduction of VM

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Analysis goals:

- Looking to collaborate on coherent VM studies

- Working with eStarlight[1] MC simulation (production of hepmc output)

- The goal is to study the effect of resolution (The plan to use the AfterBurner output)

- Further studies – improving resolution effects to identify maxima and minima

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[1] https://github.com/eic/estarlight

Simulation details (steering card)

TARGET_BEAM_Z = 82   #Z of target
TARGET_BEAM_A = 208   #A of target
ELECTRON_BEAM_GAMMA = 35295 #18 GeV electrons from eRHIC
TARGET_BEAM_GAMMA = 115.8 #275*82/208 GeV/n Pb from eRHIC
W_MAX = -1   #Max value of w from HERA
W_MIN = -1   #Min value of w from HERA
W_N_BINS = 50   #Bins i w
EGA_N_BINS = 400
CUT_PT = 0 #Cut in pT? 0 = (no, 1 = yes)
PROD_MODE = 12   # coherent vector meson (narrow)
PROD_PID = 443013 # J/psi production
RND_SEED = 1 #Random number seed, change when producing multiple output files
BREAKUP_MODE = 5   #Controls the nuclear breakup; a 5 here makes no requirement on the breakup of the ions
PYTHIA_FULL_EVENTRECORD = 1 # Write full pythia information to output (vertex, parents, daughter etc).
MIN_GAMMA_Q2 = Q2MIN #change this parameter
MAX_GAMMA_Q2 = Q2MAX #change this parameter
QUANTUM_GLAUBER = 1 # Do a quantum Glauber calculation instead of a classical one
SELECT_IMPULSE_VM = 0   # Impulse VM parameter
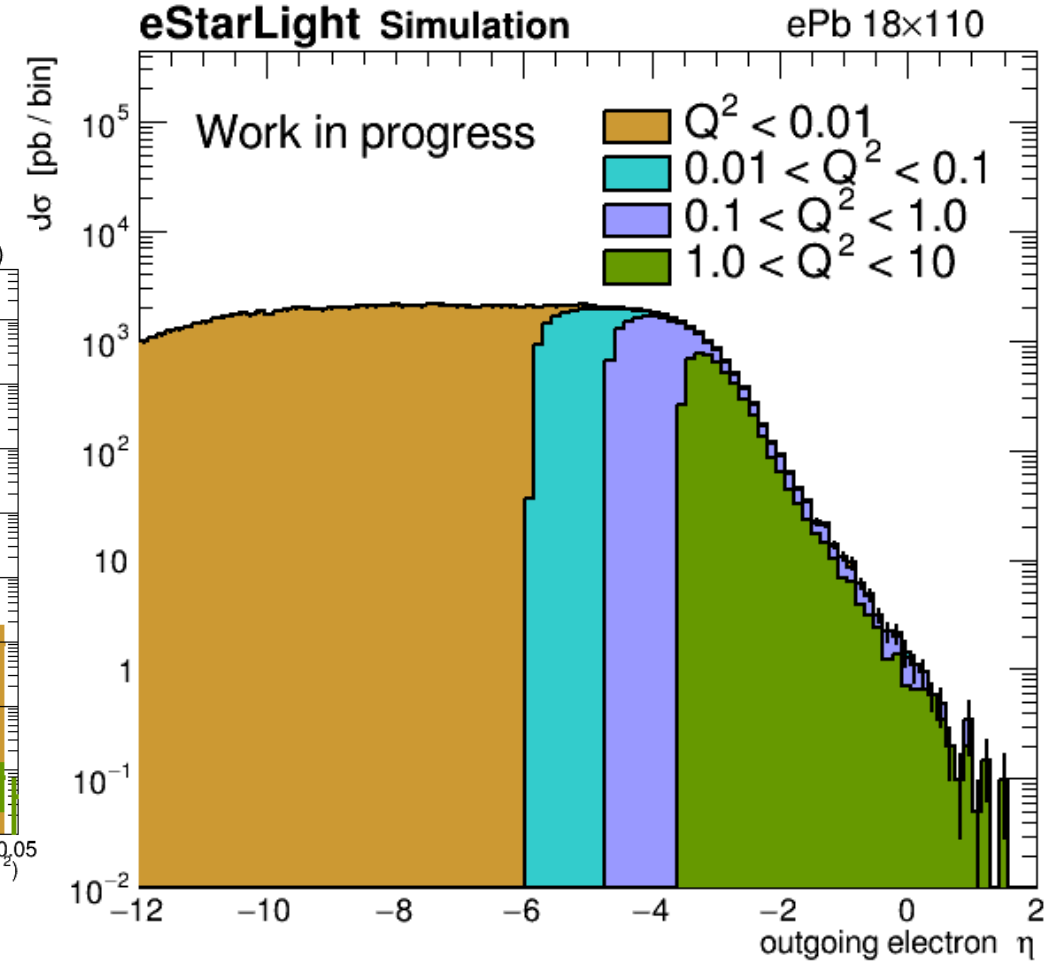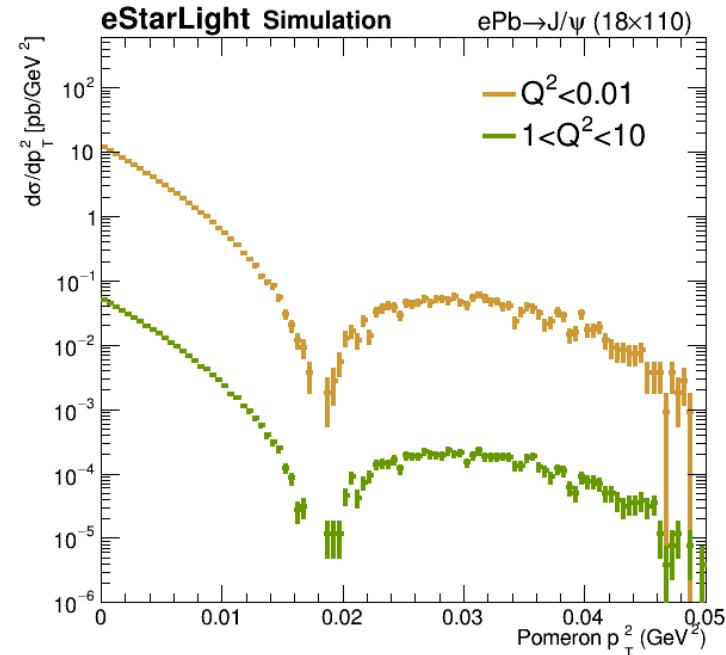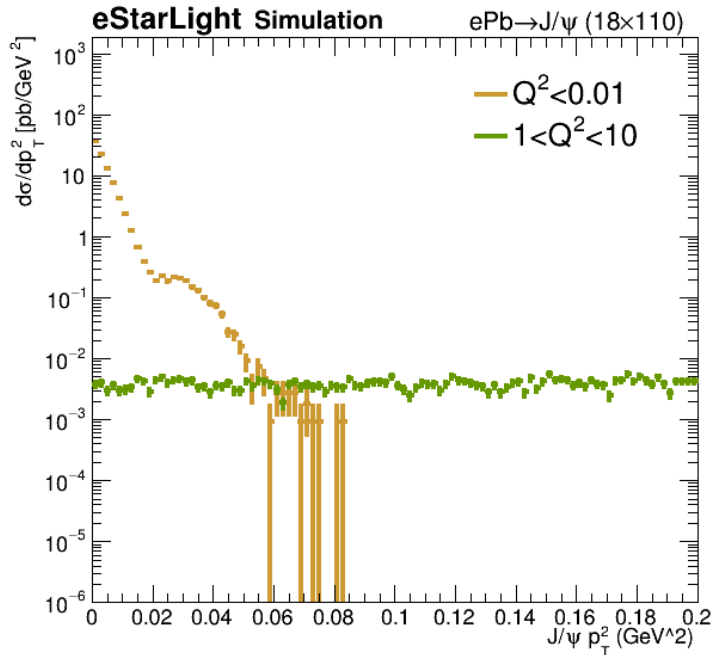OUTPUT_FORMAT = 0 # 0 – Standard, 1 - Pythia, 2 - HEPMC

Modified parameters

Phasespace

Q2 dependence:

- Q2 is correlated with outgoing electron eta.
- Only for low Q, VM pT is correlated with pomeron pT
- **Can we veto backward electron to reach a low Q?**

t dependence:

- **Can (should) we make slices in t?**