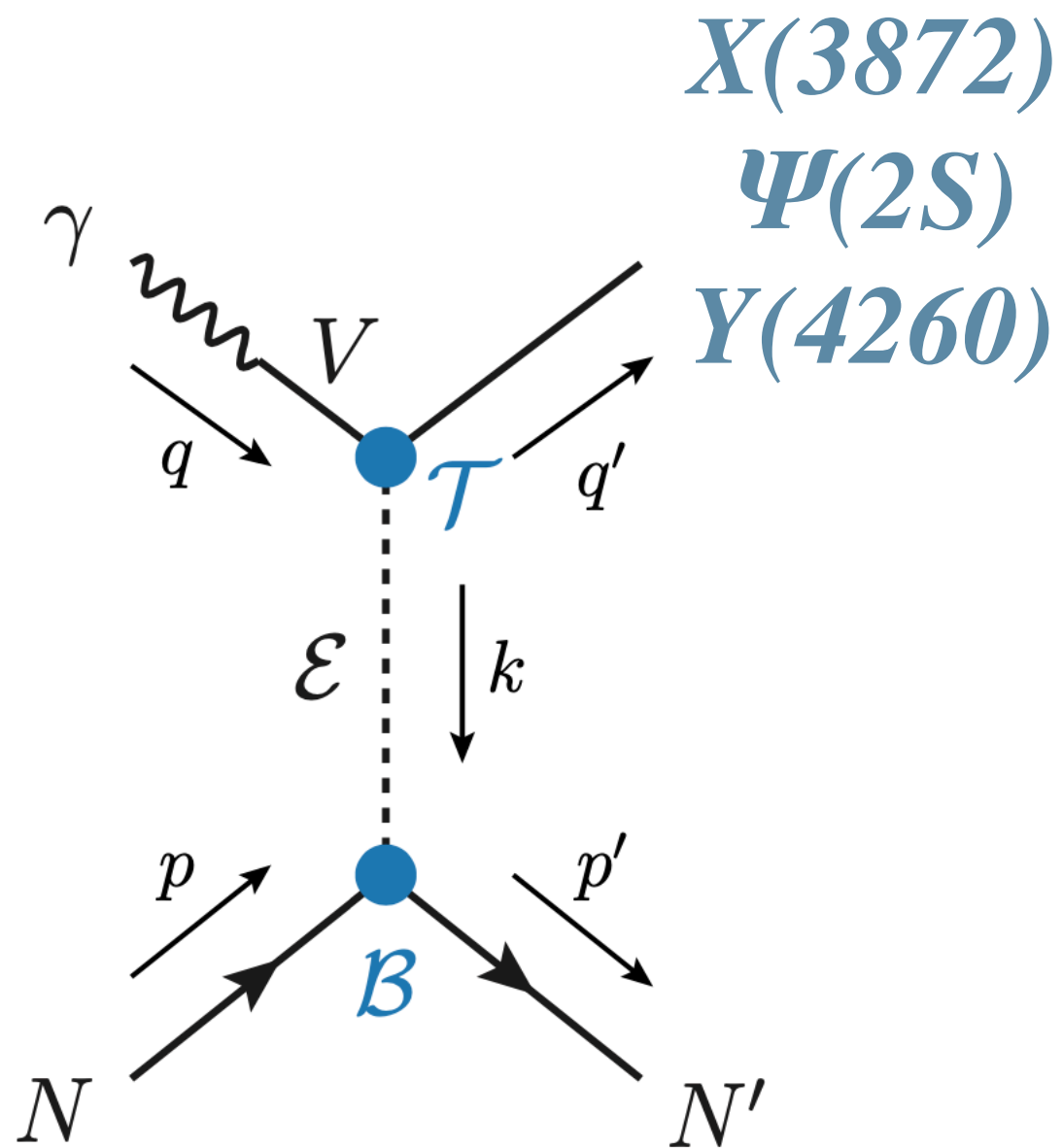# Initial studies of $J/\psi \pi^+ \pi^-$

* $\psi(2S), X(3872), Y(4260) \rightarrow J/\psi\pi^+\pi^-$ with 10 x 100 GeV beams run through full simulation (August 27 https://dtn01.sdcc.bnl.gov:9000/minio/eictest/ATHENA/RECO/master/SPECTROSCOPY/)

  * Older sample where some jobs failed, so low statistics for *X* and *Y*: ready for new samples with different beam energies and updated (final?) detector model

* Working with Ankhi Roy, Neha Shah, Amal Sarkar and many students at IIT Indore, IIT Patna and RKMRC Narendrapur

  * Studying mass resolutions and efficiencies for individual tracks: sensitive to low-p_T threshold for charged pions, currently seems optimistic?
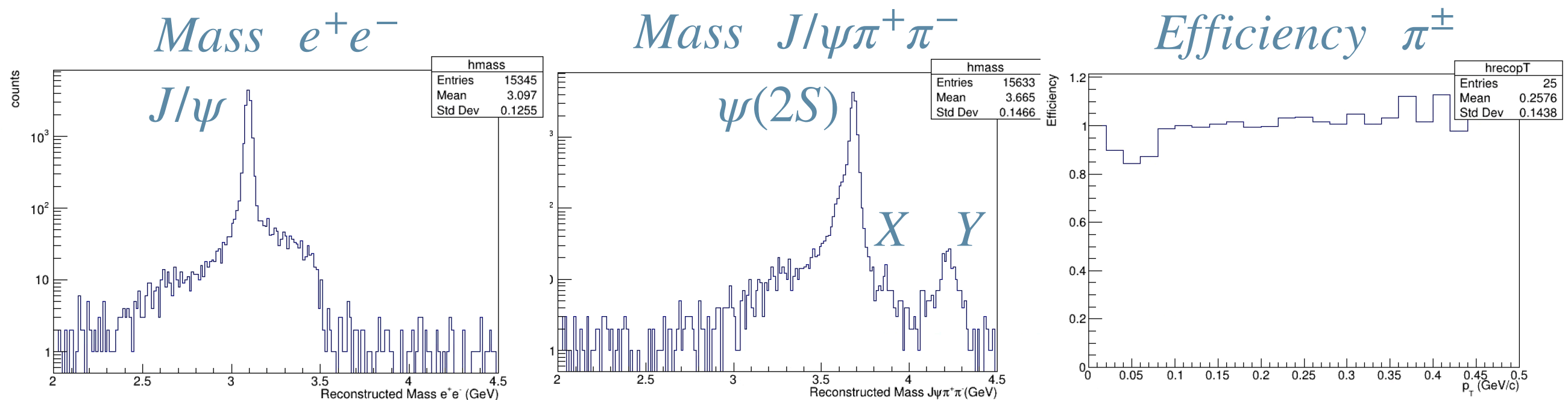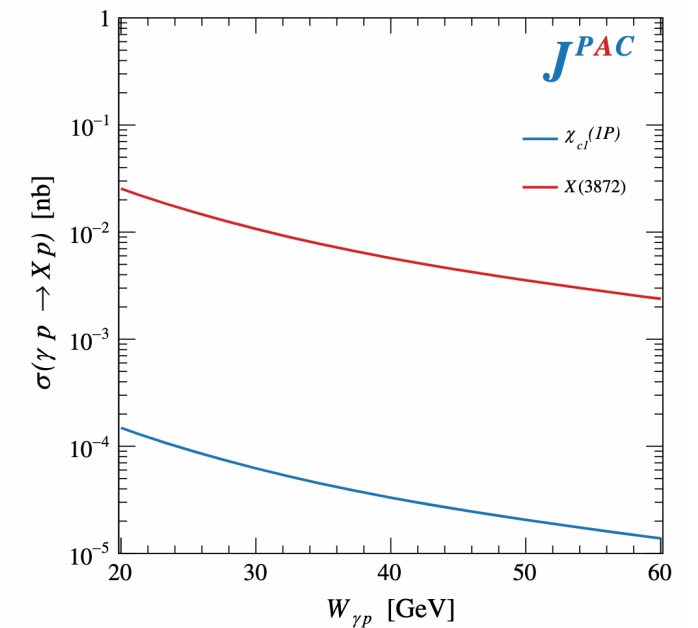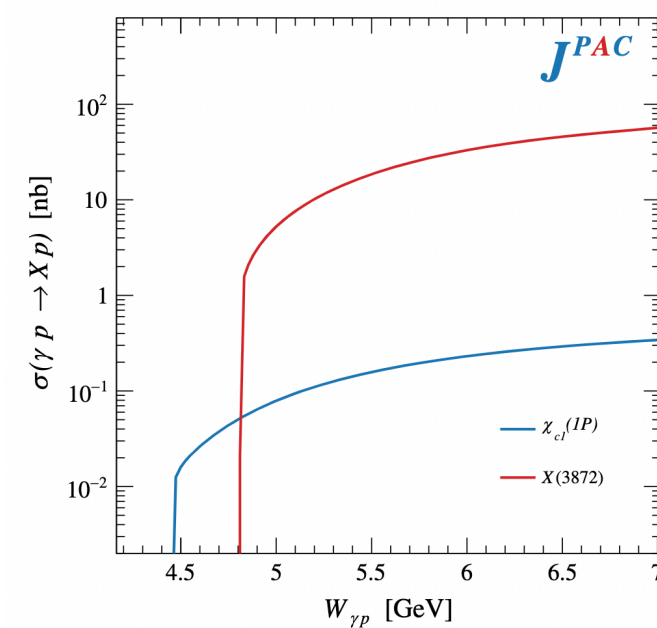

Example code and some exercises for students: https://github.com/jrstevenjlab/eic_spect/blob/master/athena/README.md
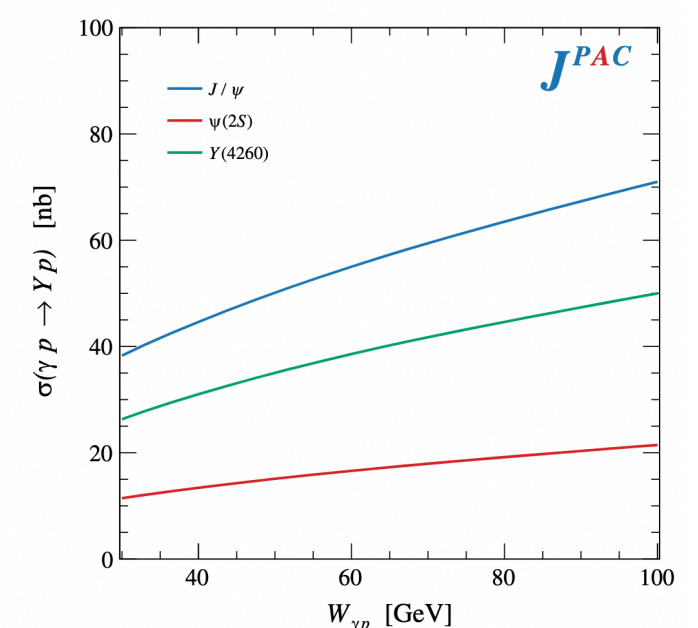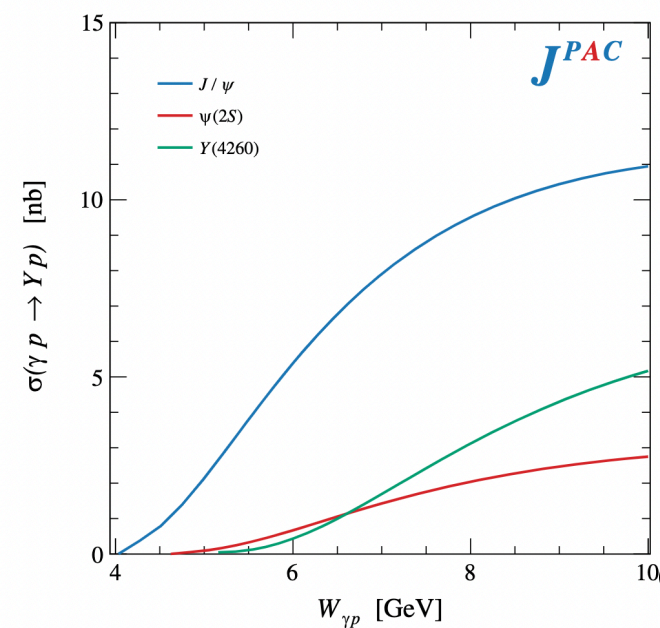
Reminder: model for X and Y → $J/\psi\pi^+\pi^-$

$X(3872)$

$\Psi(2S)$

$Y(4260)$

$X(3872)$

JPAC: PRD 102, 114010

Vector States

Derek Glazier

Factorise 2 photon vertices

Virtual photon flux + form factor

JPAC photoproduction amplitudes

e^-

γ^*

XYZ

e^-

R, P

p

p, n
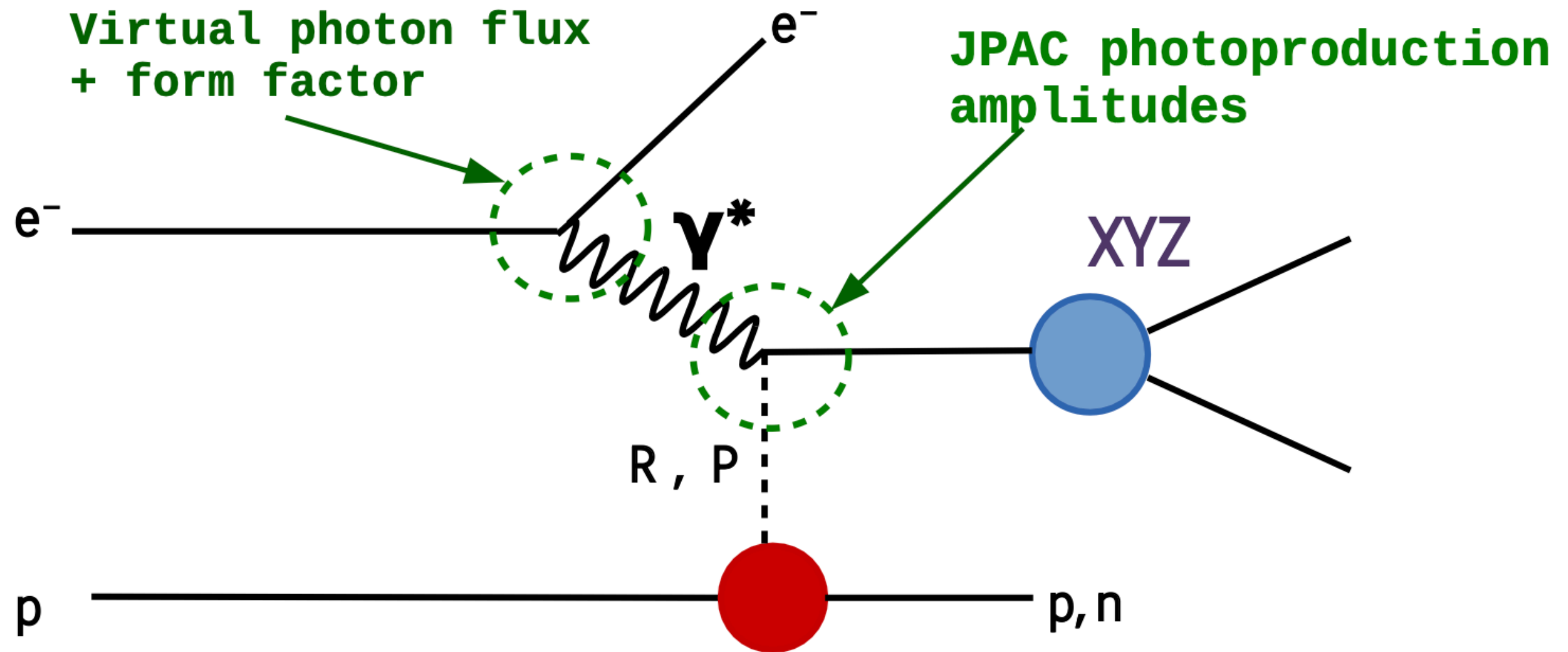
Generator available on GitHub: https://github.com/dglazier/elSpectro