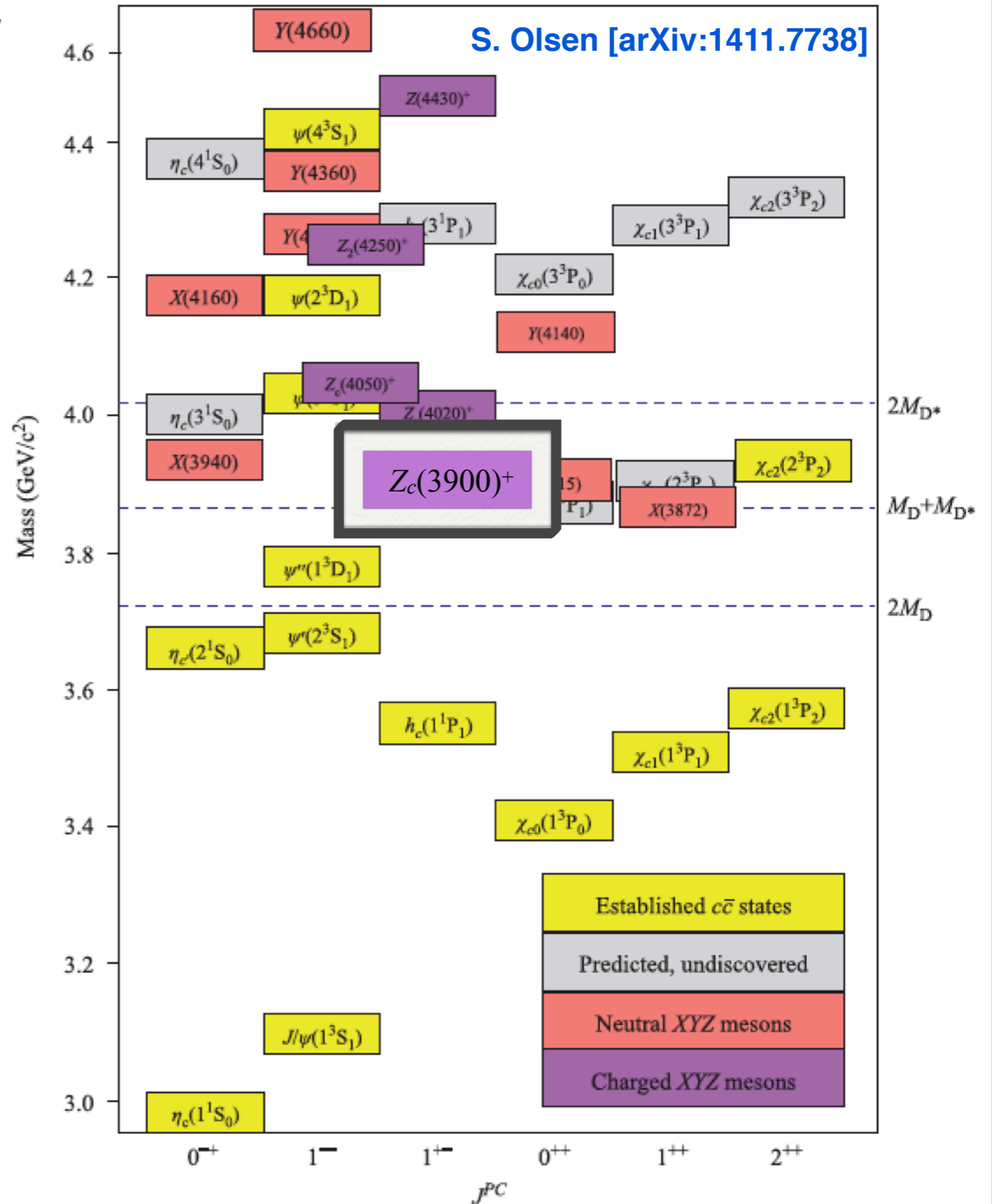
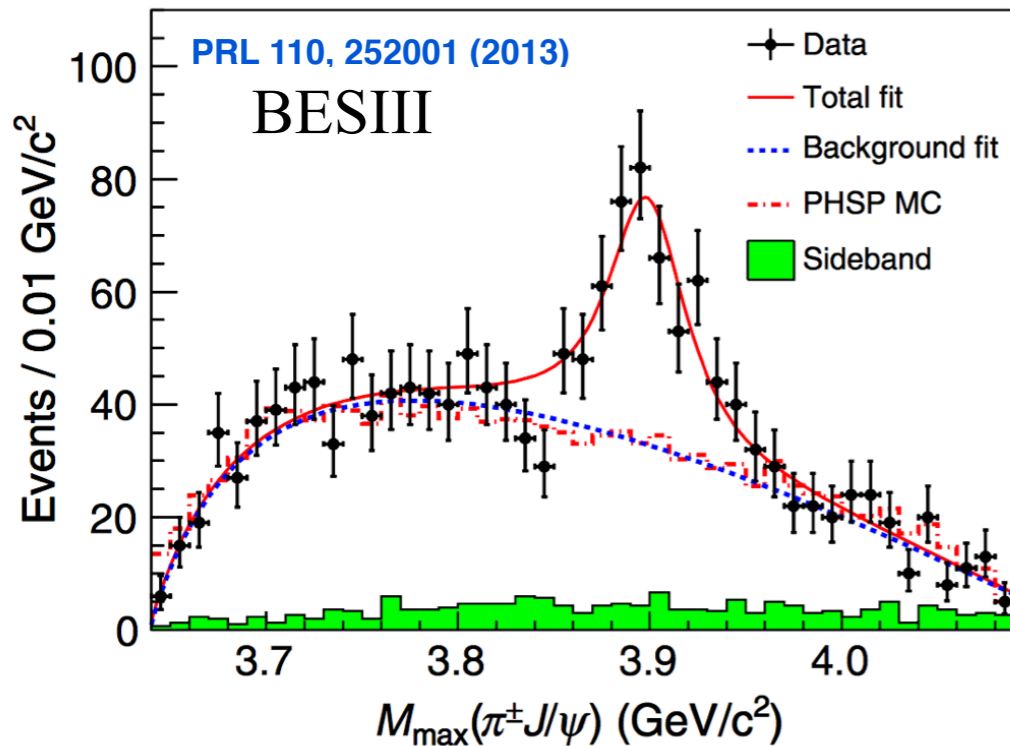


XYZ spectroscopy

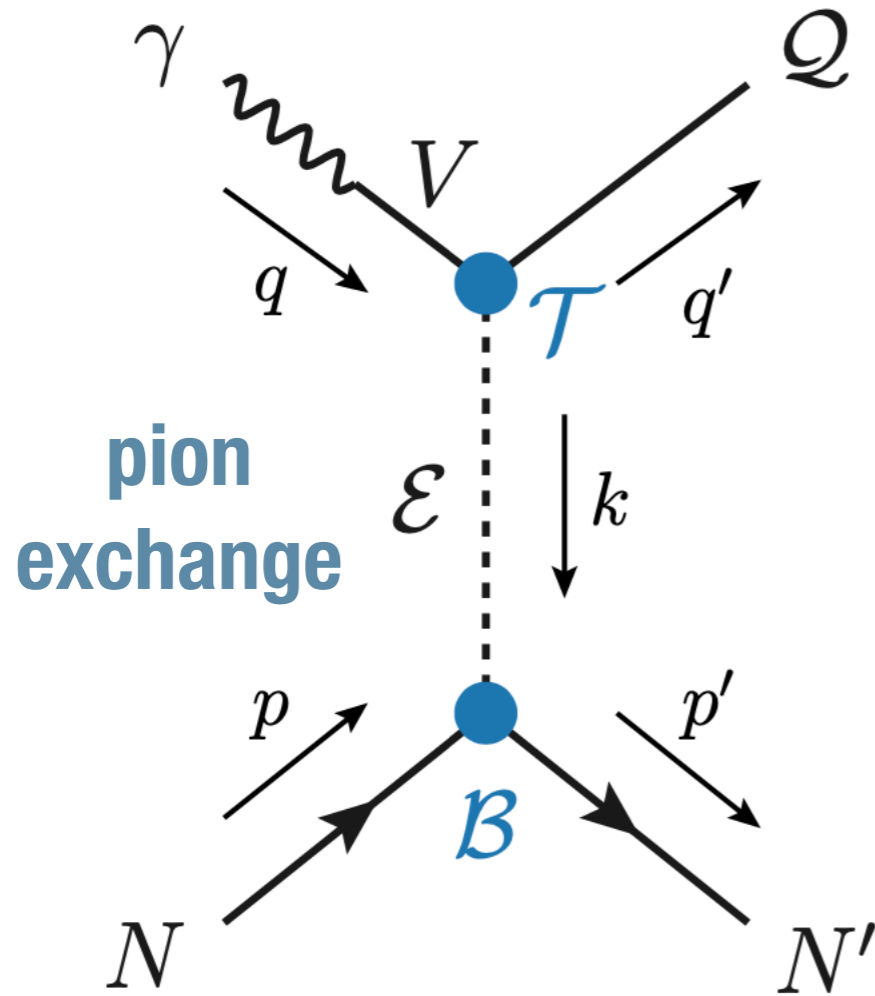
- * Many new states observed in the last ~decade
- * Not predicted by the standard charmonium models
- * Many models for interpretation: resonant states, meson molecules, re-scattering effects, etc.

$$e^+e^- \rightarrow \pi^+\pi^- J/\psi \quad (4260 \text{ MeV})$$

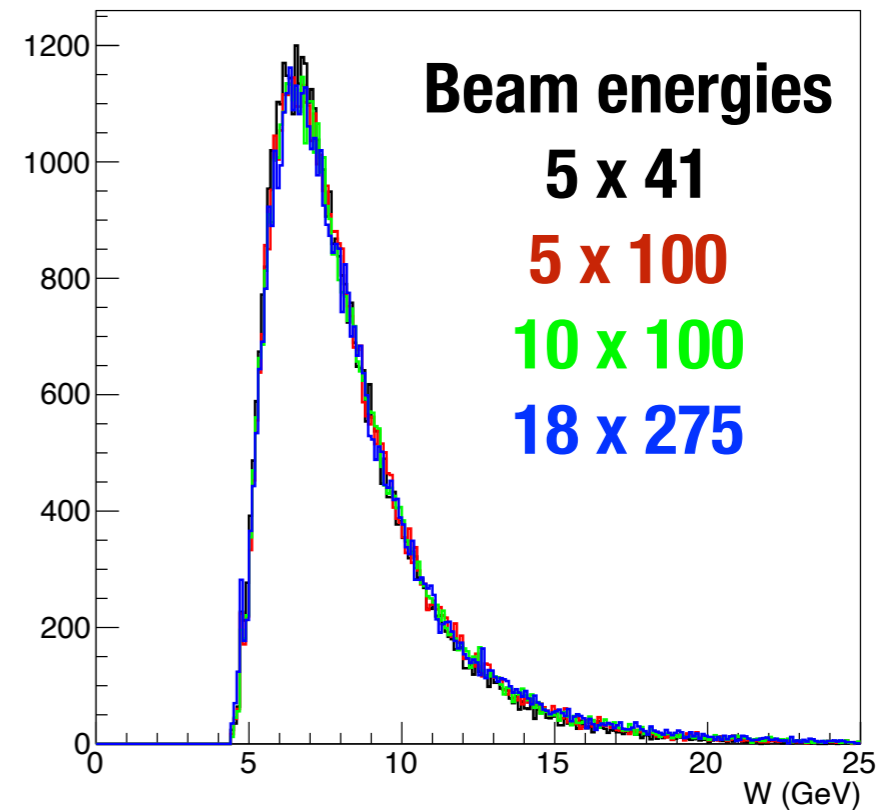
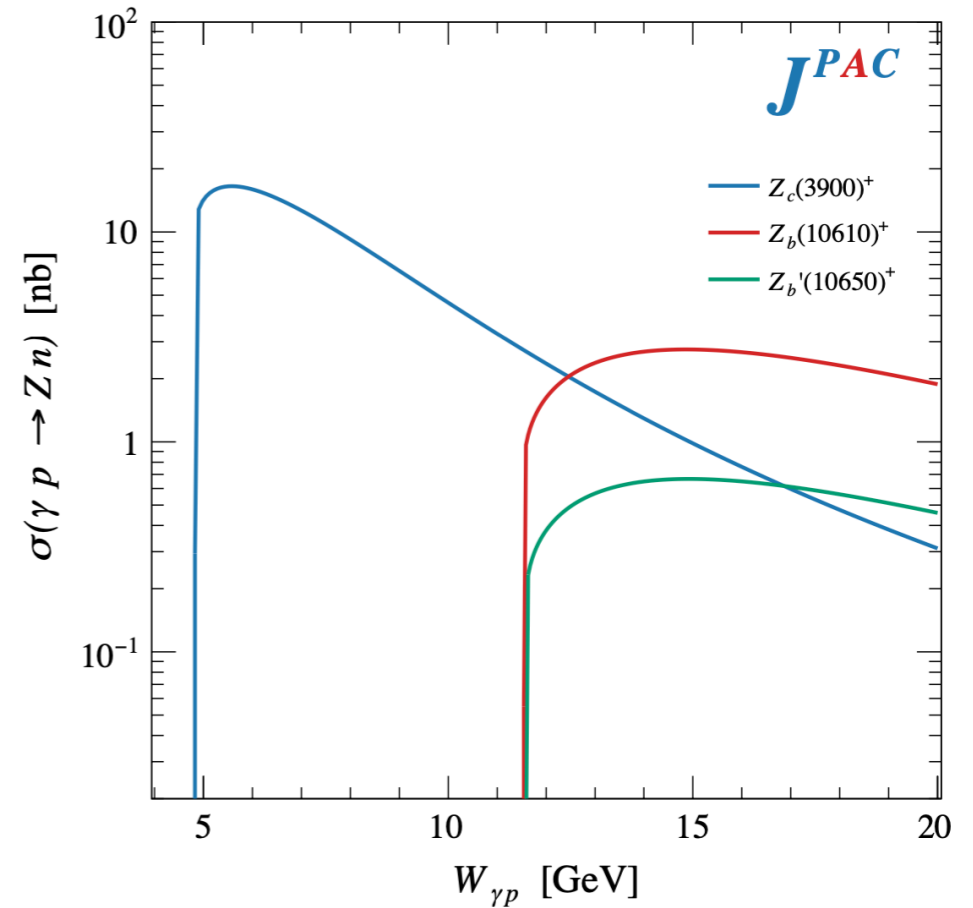


Theory predictions for XYZ states

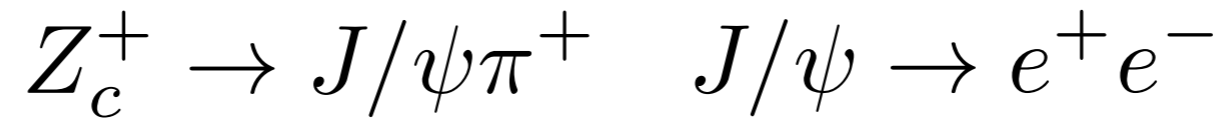
JPAC arXiv:2008.01001



Both cross section and modeled virtual photon flux dominated near threshold for $Z_c(3900)$

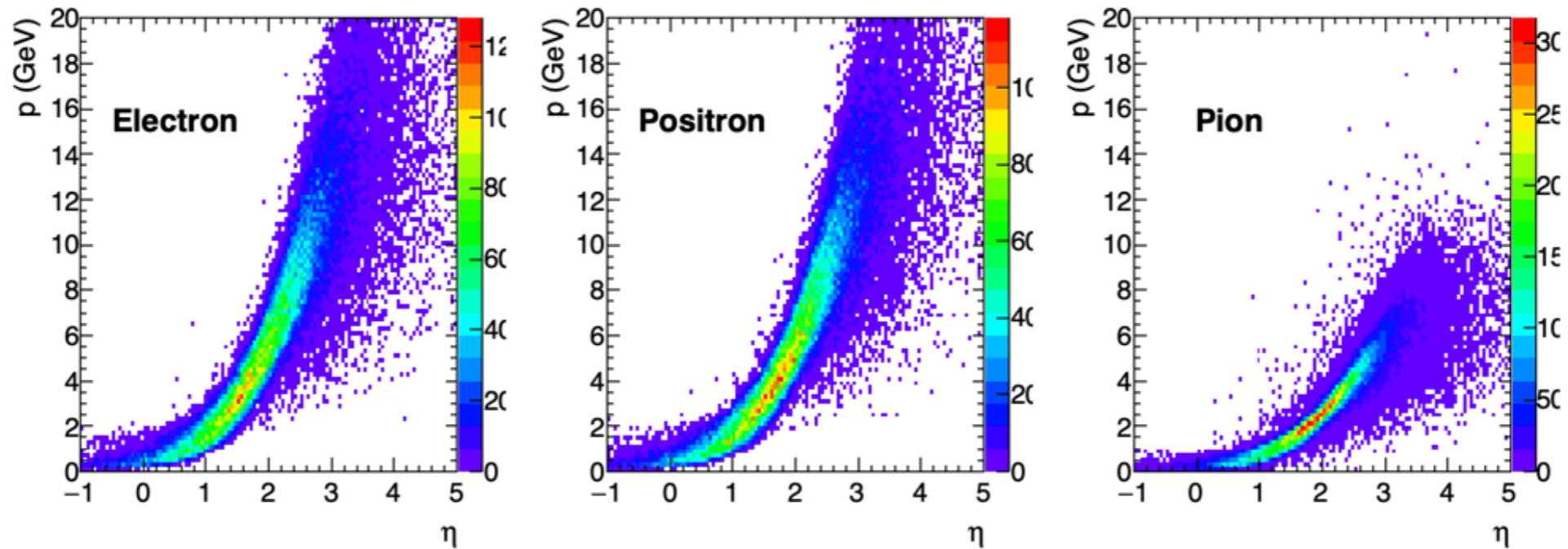


elSpectro generator: Z_c , π exchange

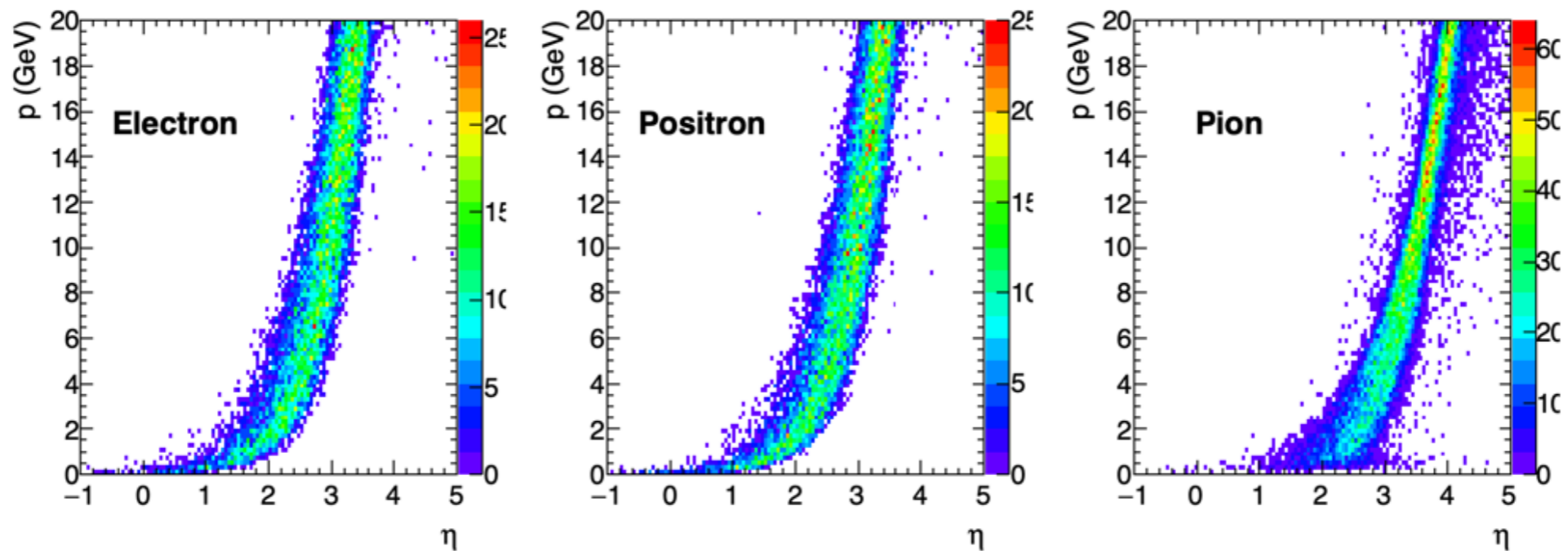


**Beam
energies**

5 x 41



18 x 275



**Decays boosted to forward η (lower acceptance, degraded mass resolution)
lower energy proton beam energies beneficial**