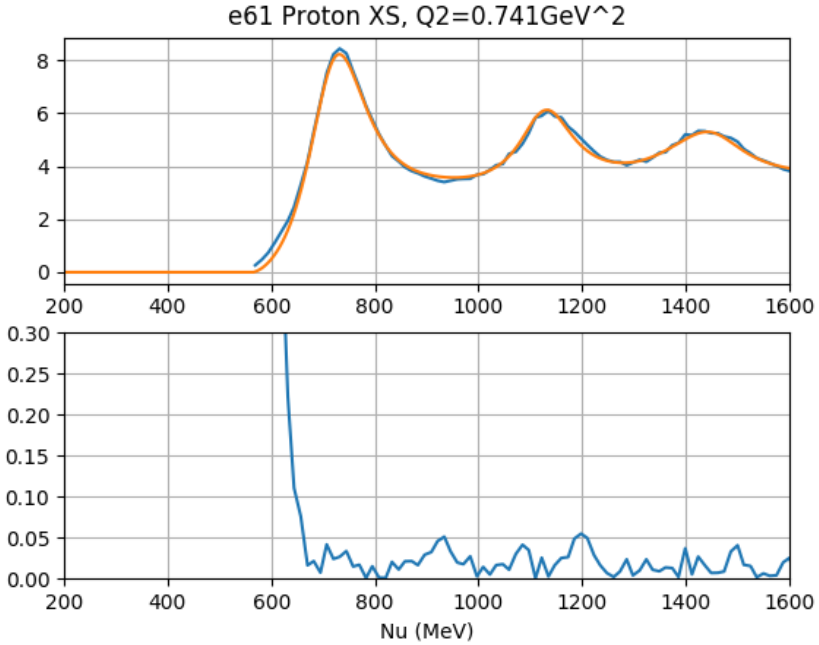
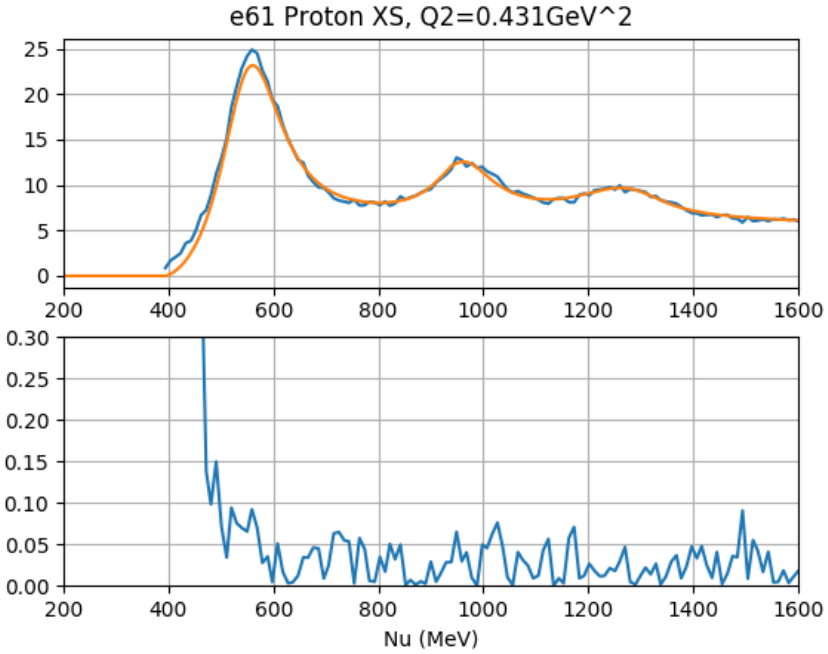
Proton XS Study

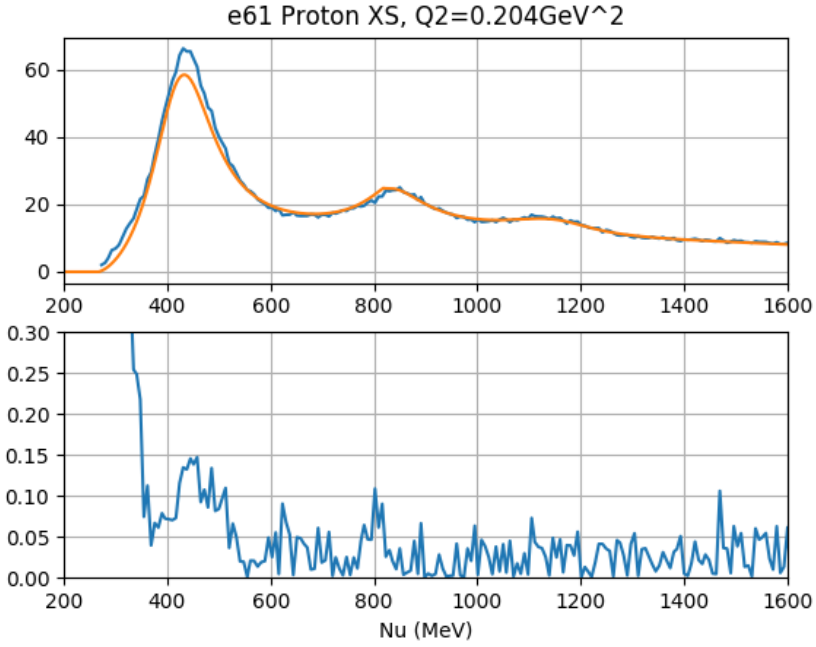
03/22/17

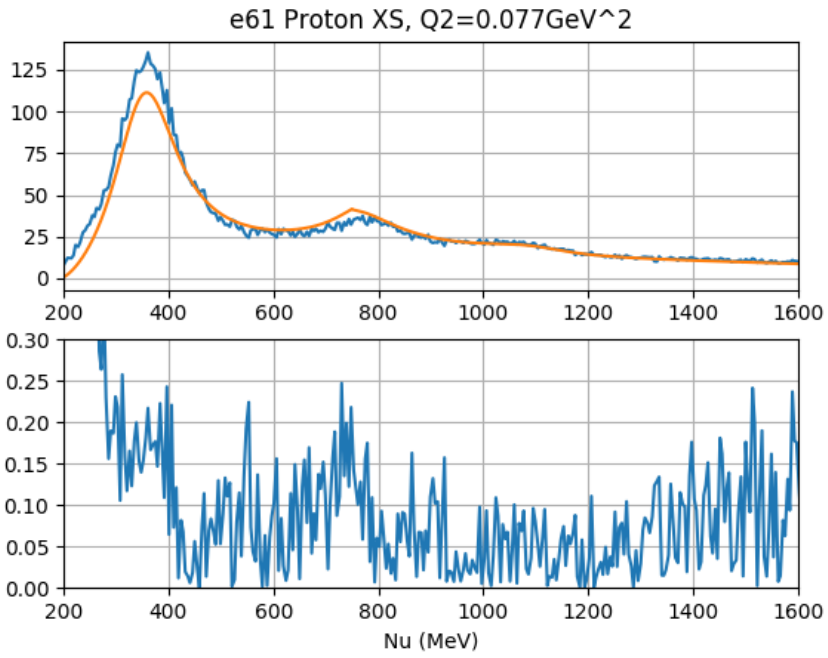
First set (next slide)

- SLAC E61 data
- $Q^2 = 0.077 - 0.741\ \mathrm{GeV}^2$
- $> 5\%$ uncertainty on data (not shown)
- Top plot is absolute born XS: $\left(\frac{\mathrm{nb}}{\mathrm{Sr}\times\mathrm{MeV}}\right)$
- Bottom plot is relative difference: $\left(\frac{\mathrm{XS_{data}}-\mathrm{XS_{model}}}{\mathrm{XS_{data}}}\right)$
- Model is P.Bosted


e61 Proton XS, Q2=0.741GeV^2
Nu (MeV)

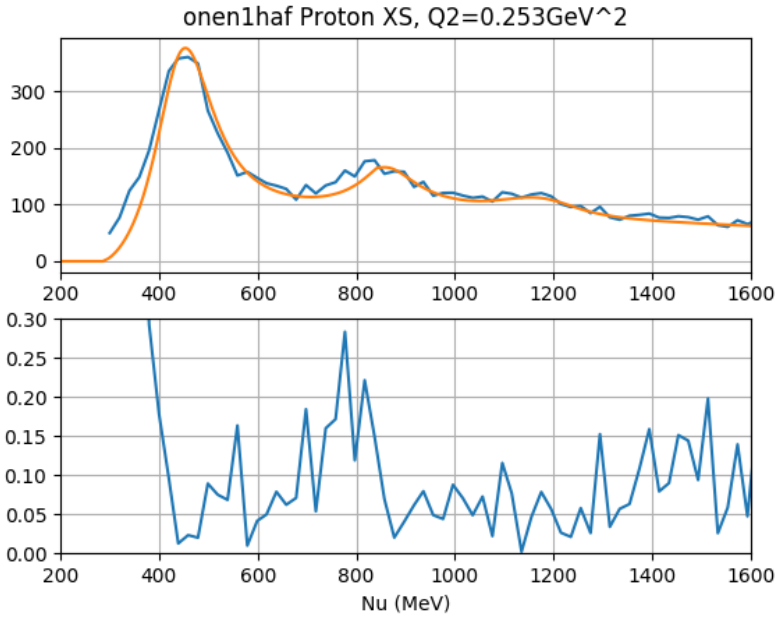

e61 Proton XS, Q2=0.431GeV^2
Nu (MeV)

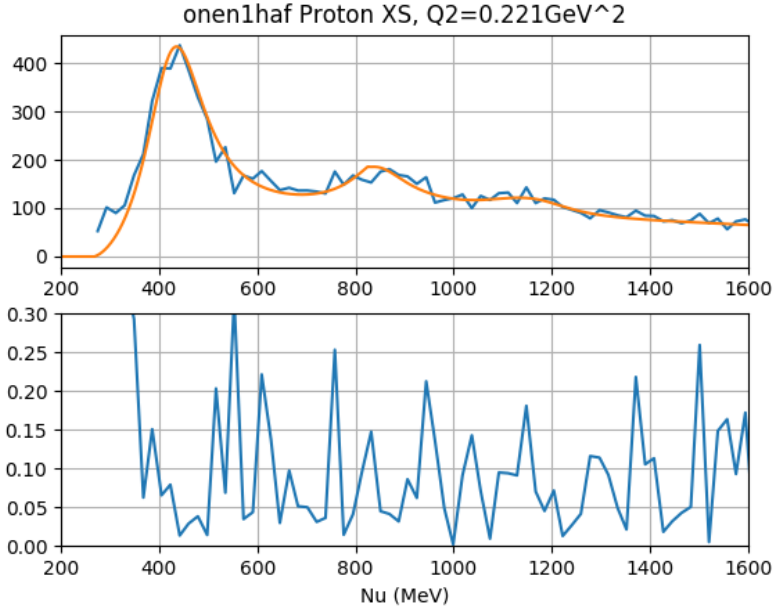

e61 Proton XS, Q2=0.204GeV^2
Nu (MeV)

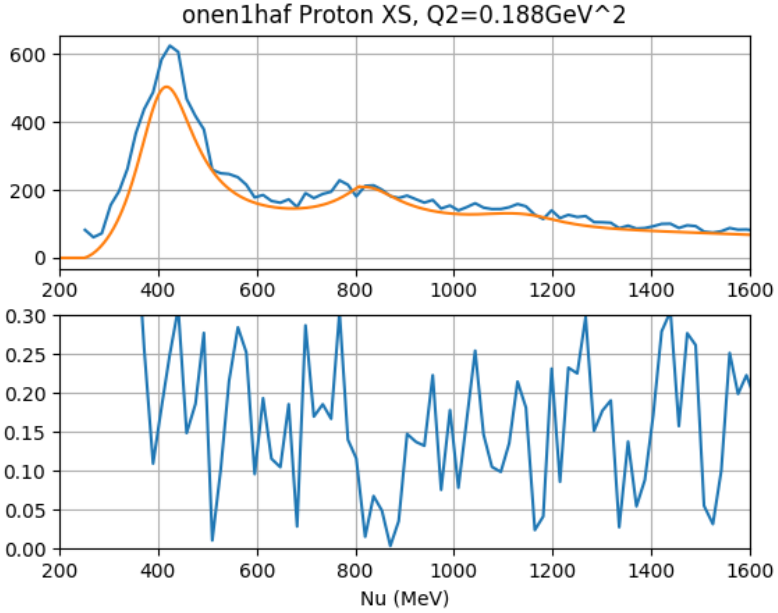

e61 Proton XS, Q2=0.077GeV^2
Nu (MeV)

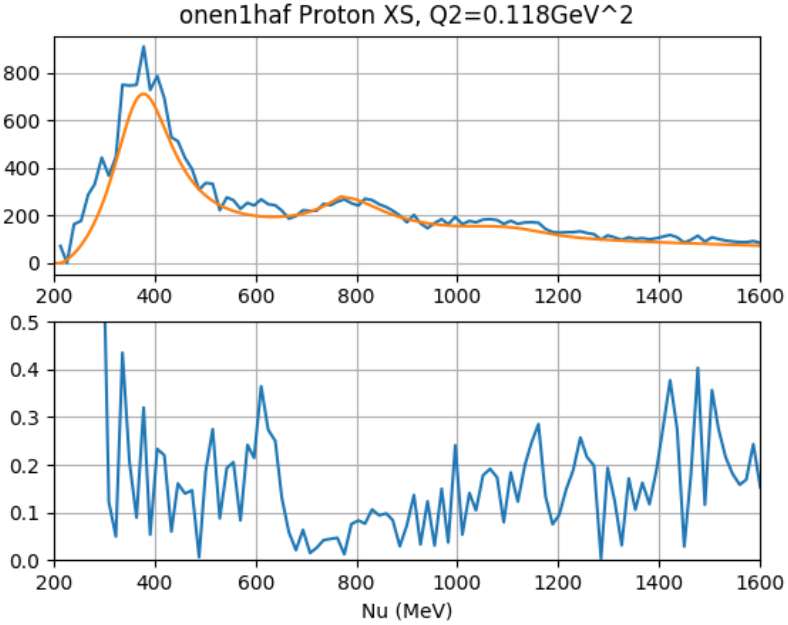
Second set (next two slides)

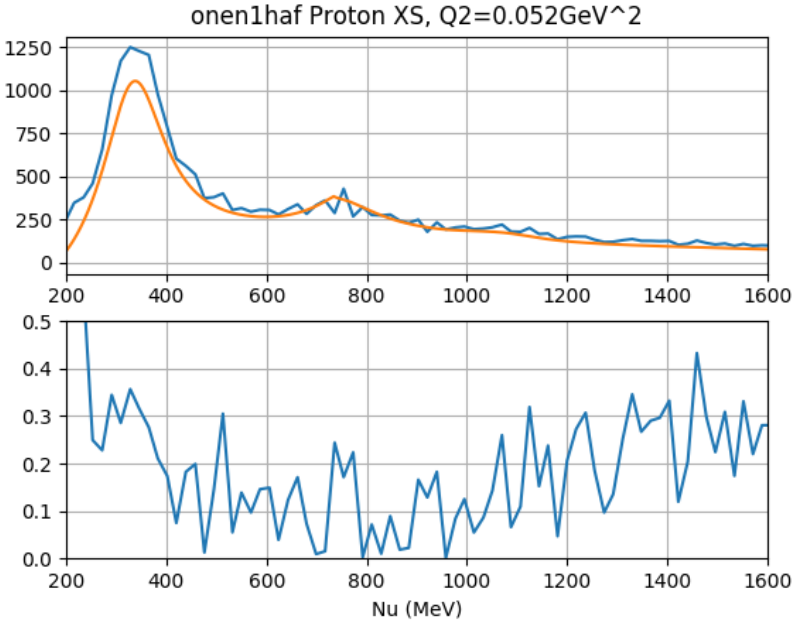
- SLAC onen1haf data
- $Q^2 = 0.013 - 0.253\ \mathrm{GeV}^2$
- $> 5\%$ uncertainty on data (not shown)
- Top plot is absolute born XS: $\left(\frac{\mathrm{nb}}{\mathrm{Sr}\times\mathrm{MeV}}\right)$
- Bottom plot is relative difference: $\left(\frac{\mathrm{XS_{data}}-\mathrm{XS_{model}}}{\mathrm{XS_{data}}}\right)$
- Model is P.Bosted

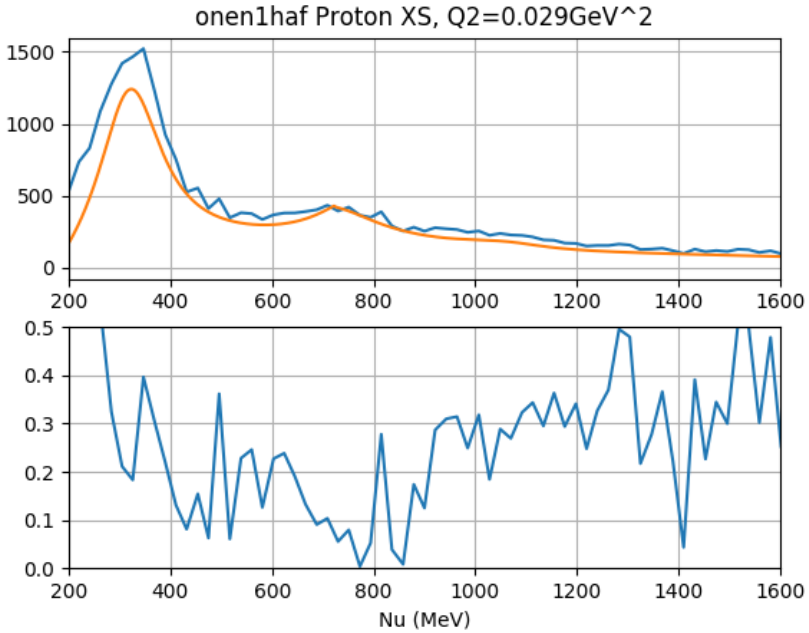

onen1haf Proton XS, Q2=0.253GeV^2
Nu (MeV)

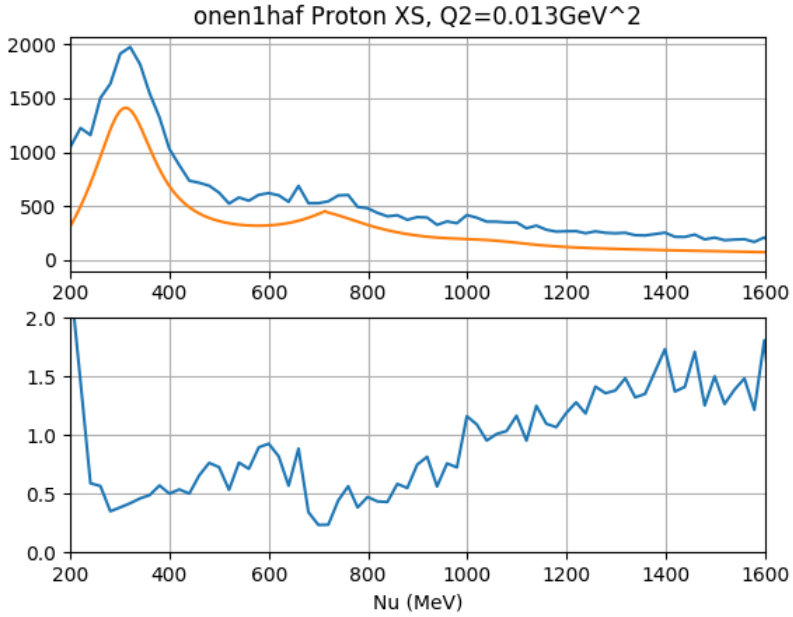

onen1haf Proton XS, Q2=0.221GeV^2
Nu (MeV)


onen1haf Proton XS, Q2=0.188GeV^2
Nu (MeV)


onen1haf Proton XS, Q2=0.118GeV^2
Nu (MeV)


onen1haf Proton XS, Q2=0.052GeV^2
Nu (MeV)

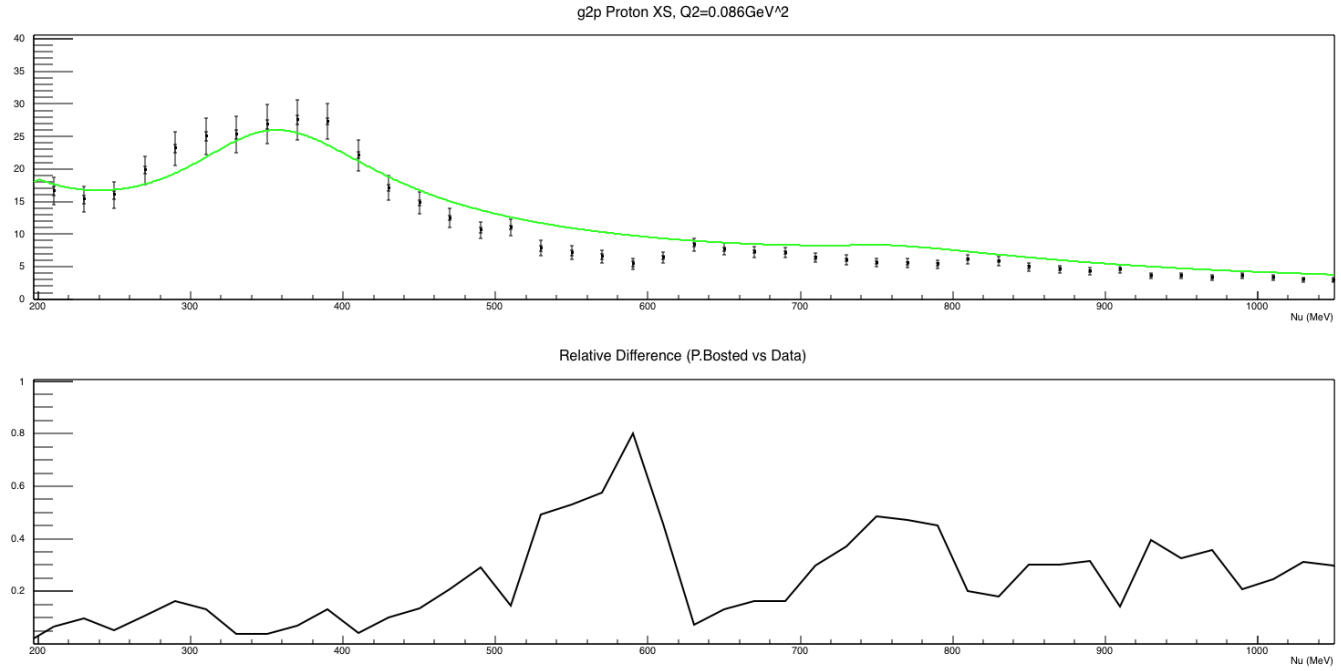

onen1haf Proton XS, Q2=0.029GeV^2
Nu (MeV)


onen1haf Proton XS, Q2=0.013GeV^2
Nu (MeV)

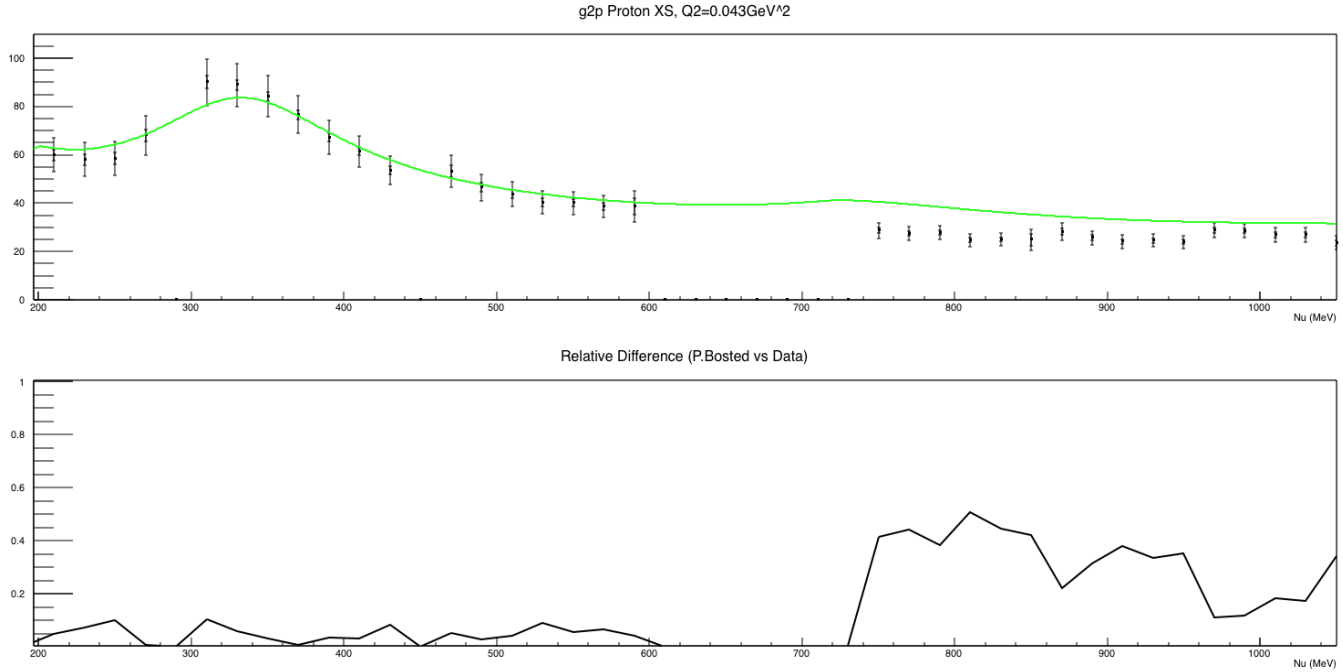
Third set (next slide)

- $\mathrm{G2P}$ data
- $Q^2 = 0.043 - 0.086\ \mathrm{GeV}^2$
- All uncertainties included in data ($\sim 5 - 8\%$ systematic)
  - PF
  - Dilution
  - Scattering Angle
- Top plot is absolute RADIATED XS: $\left(\frac{\mathrm{nb}}{\mathrm{Sr}\times\mathrm{MeV}}\right)$
- Bottom plot is relative difference: $\left(\frac{\mathrm{XS_{data}}-\mathrm{XS_{model}}}{\mathrm{XS_{data}}}\right)$
- Model is RADIATED P.Bosted

2.254GeV 5T Transverse



2.254GeV 5T Longitudinal



Comparison between similar Q^2