

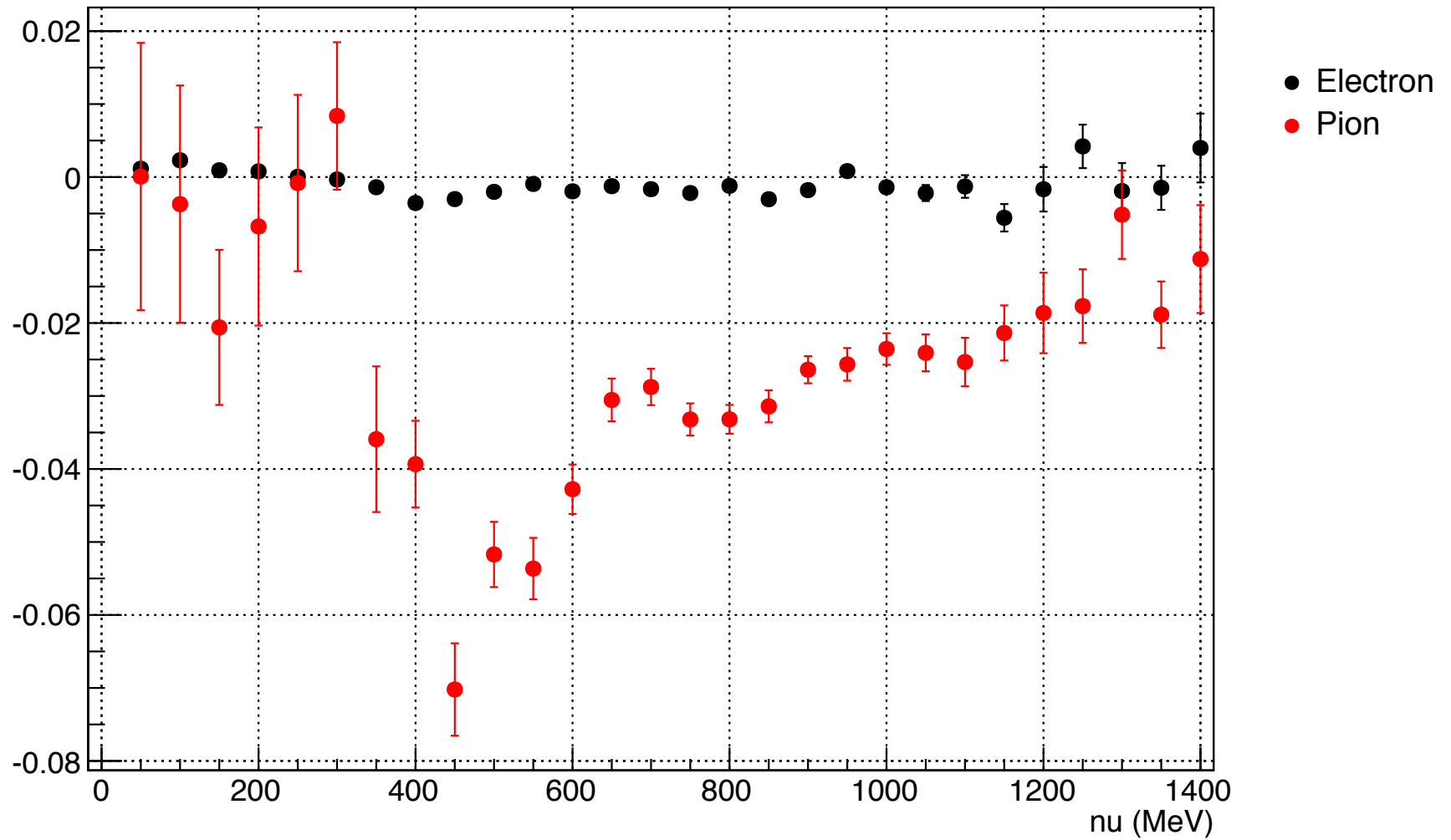
Pion Asymmetries

09/02/15

M. Cummings

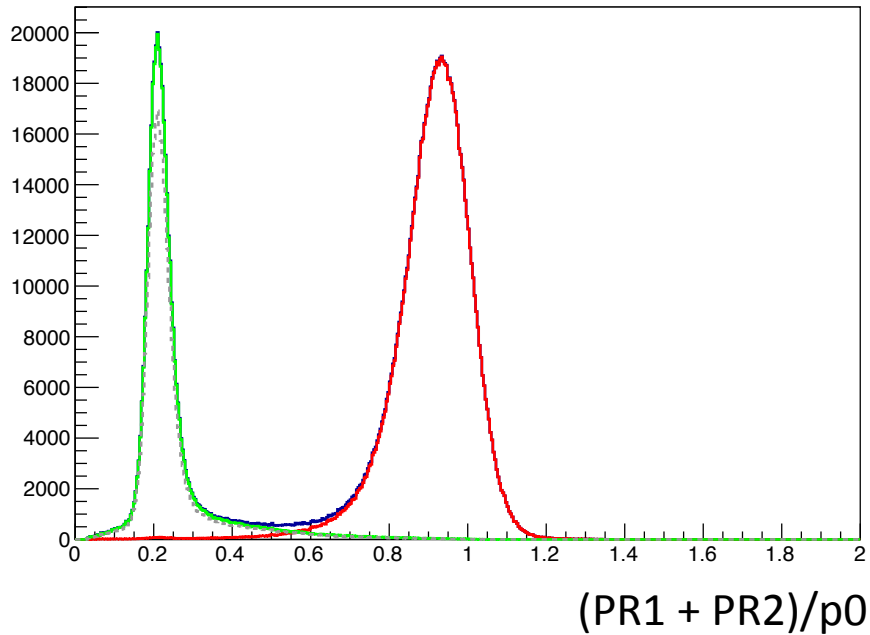
Size of Pion Asymmetry

Physics Asymmetries: 2.2 GeV, 5T Transverse

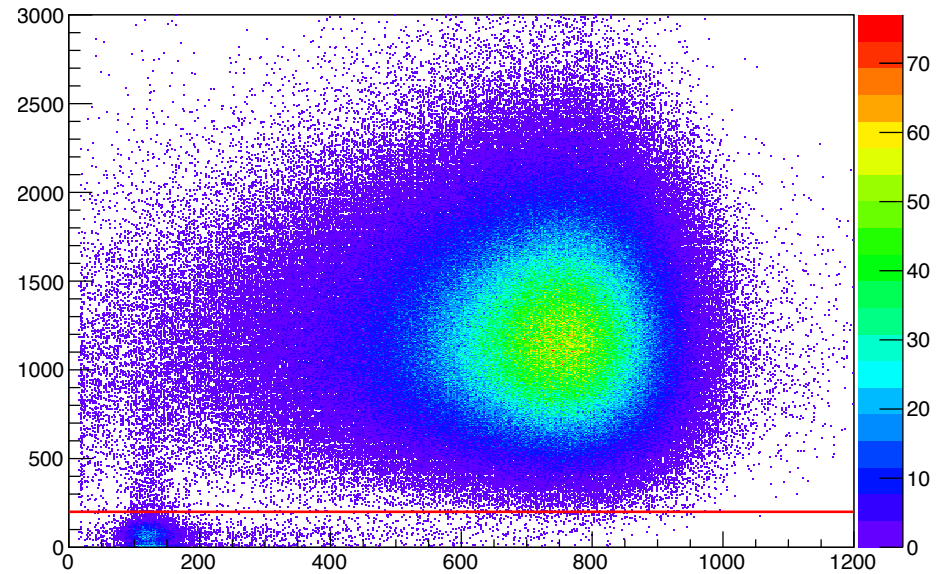


Identifying Pions/Electrons

E/p



Cherenkov Sum vs PR1 Energy



Electron:
cer>SPEpeak

Pion:
cer<SPEpeak

- E/p
- Electrons
- Pions
- - - Old Pion Cut

Old Pion Cut:
!cer>0

2.2 GeV, 5T Transverse
p0 = 0.919 GeV/c
(worst case scenario)

Correction for Pion Contamination

$$A_m = f_{e^-} A_{e^-} + f_{\pi} A_{\pi}$$

f_x = fraction of events of particle x

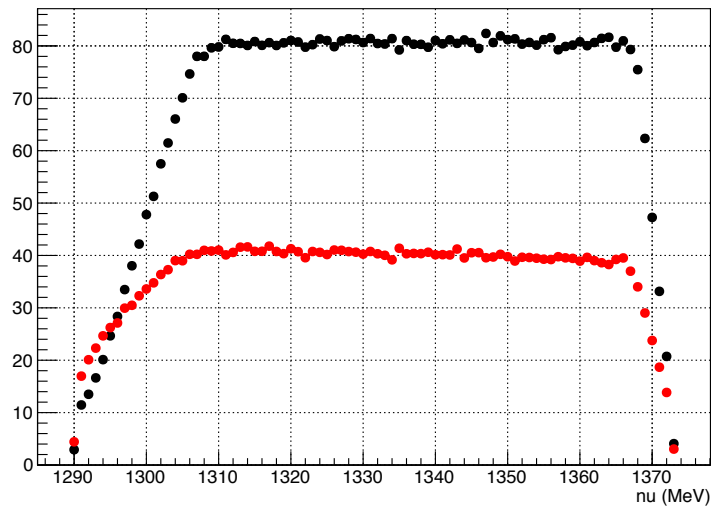


$$A_{e^-} = \frac{1}{f_{e^-}} A_m + \frac{f_{\pi}}{f_{e^-}} A_{\pi}$$

Electron & Pion Yields

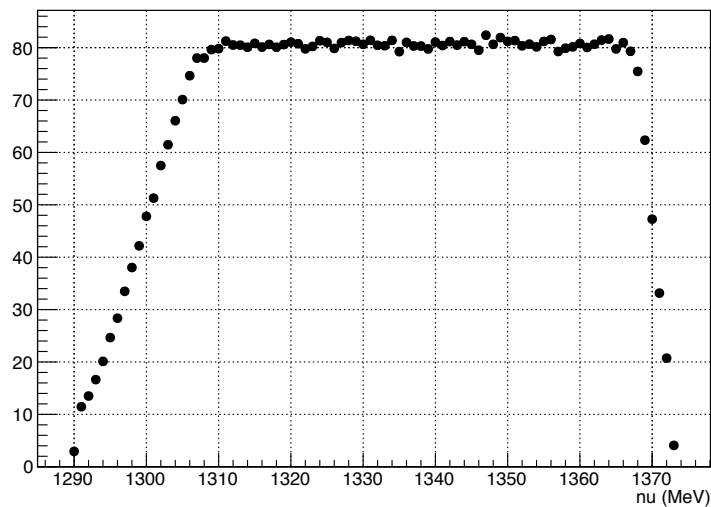
(No Cuts on Lead Glass)

Yields: 2.2 GeV, 5T Transverse, 0.919 GeV/c

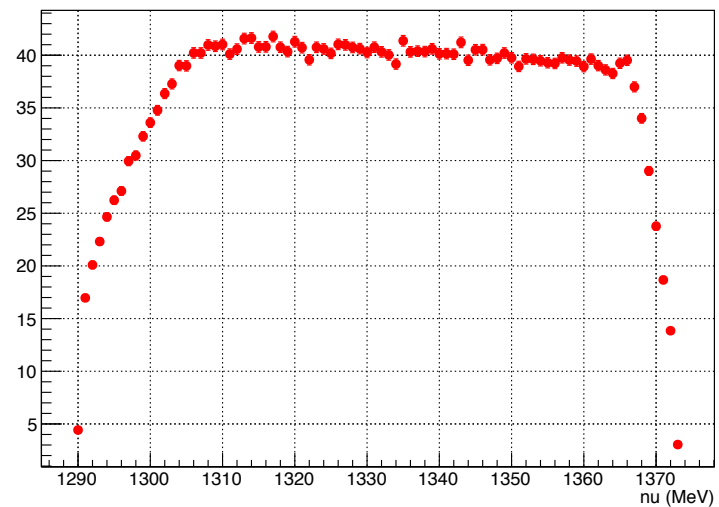


● Electron
● Pion

Yields: 2.2 GeV, 5T Transverse, 0.919 GeV/c



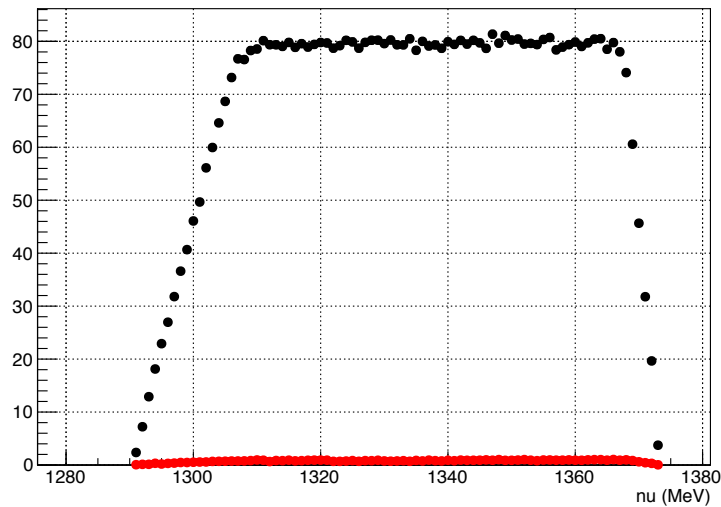
Yields: 2.2 GeV, 5T Transverse, 0.919 GeV/c



Electron & Pion Yields

(With Cuts on Lead Glass)

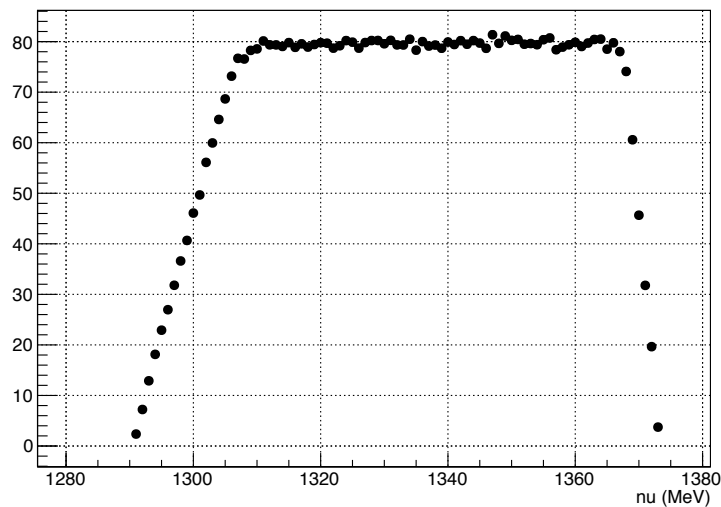
Yields: 2.2 GeV, 5T Transverse, 0.919 GeV/c



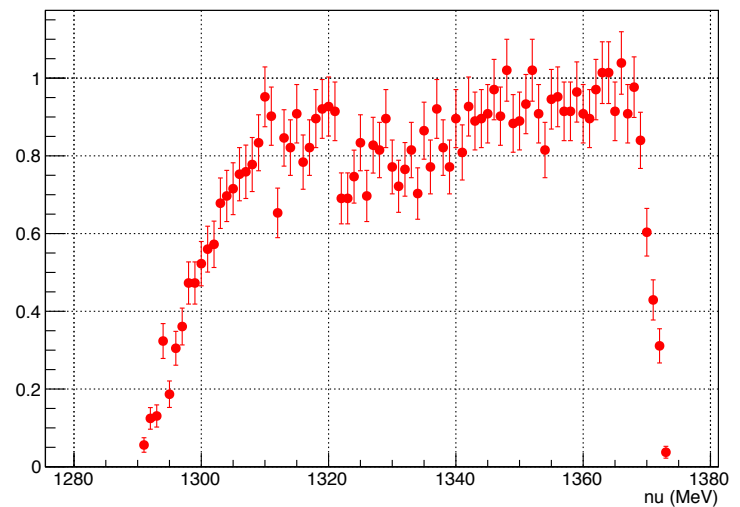
- Electron
- Pion

$$A_{e^-} = \frac{1}{f_{e^-}} A_m + \frac{f_\pi}{f_{e^-}} A_\pi$$

Yields: 2.2 GeV, 5T Transverse, 0.919 GeV/c

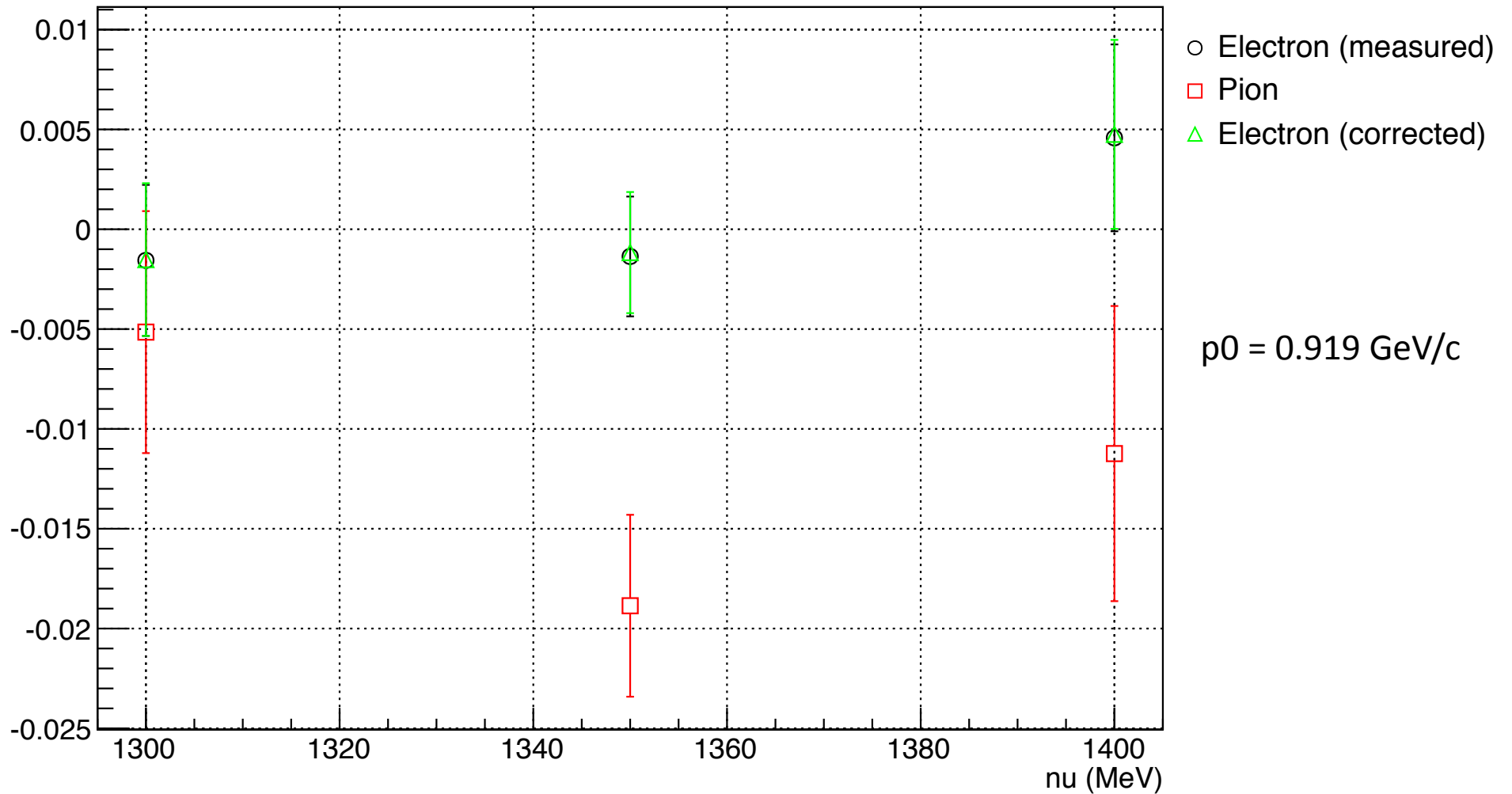


Yields: 2.2 GeV, 5T Transverse, 0.919 GeV/c



Correction to Asymmetry

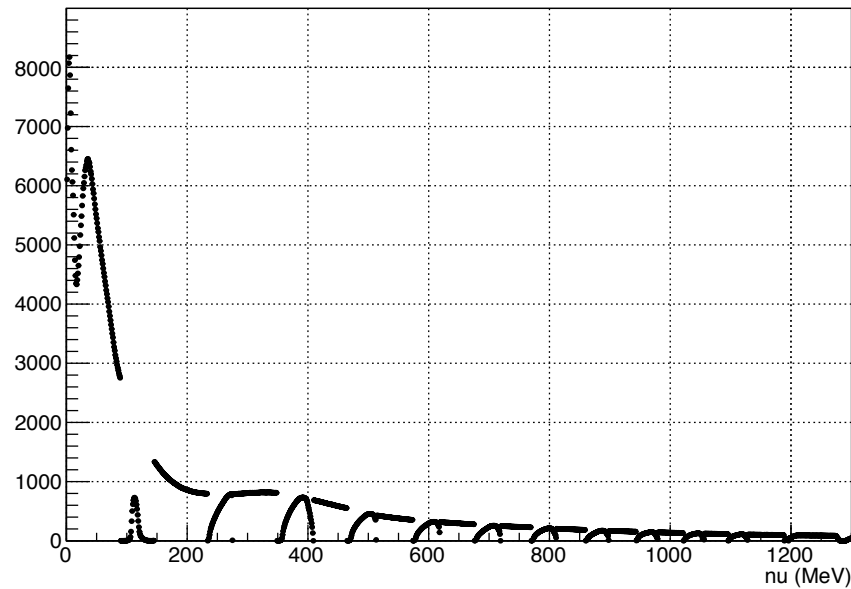
Physics Asymmetries: 2.2 GeV, 5T Transverse



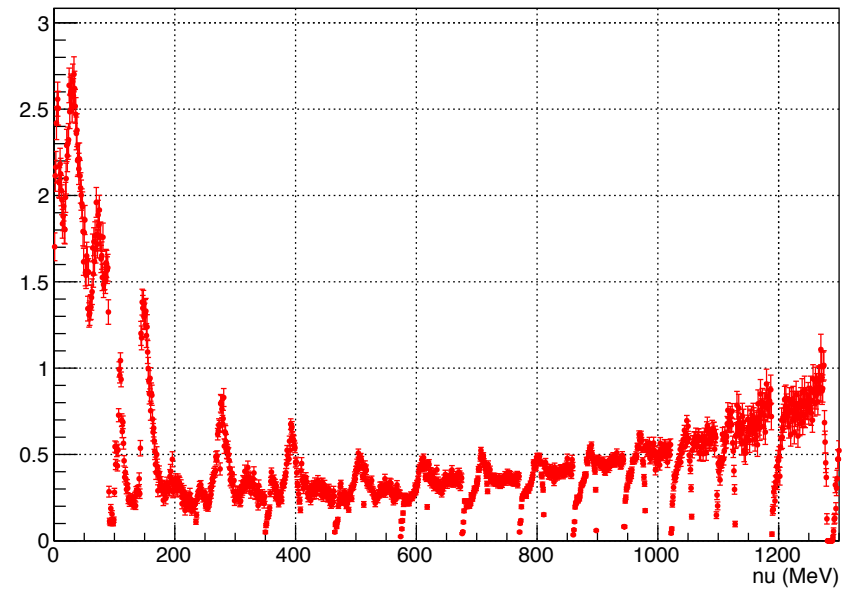
Electron & Pion Yields

2.2 GeV, 5T Transverse
(With Cuts on Lead Glass)

Electron Yield

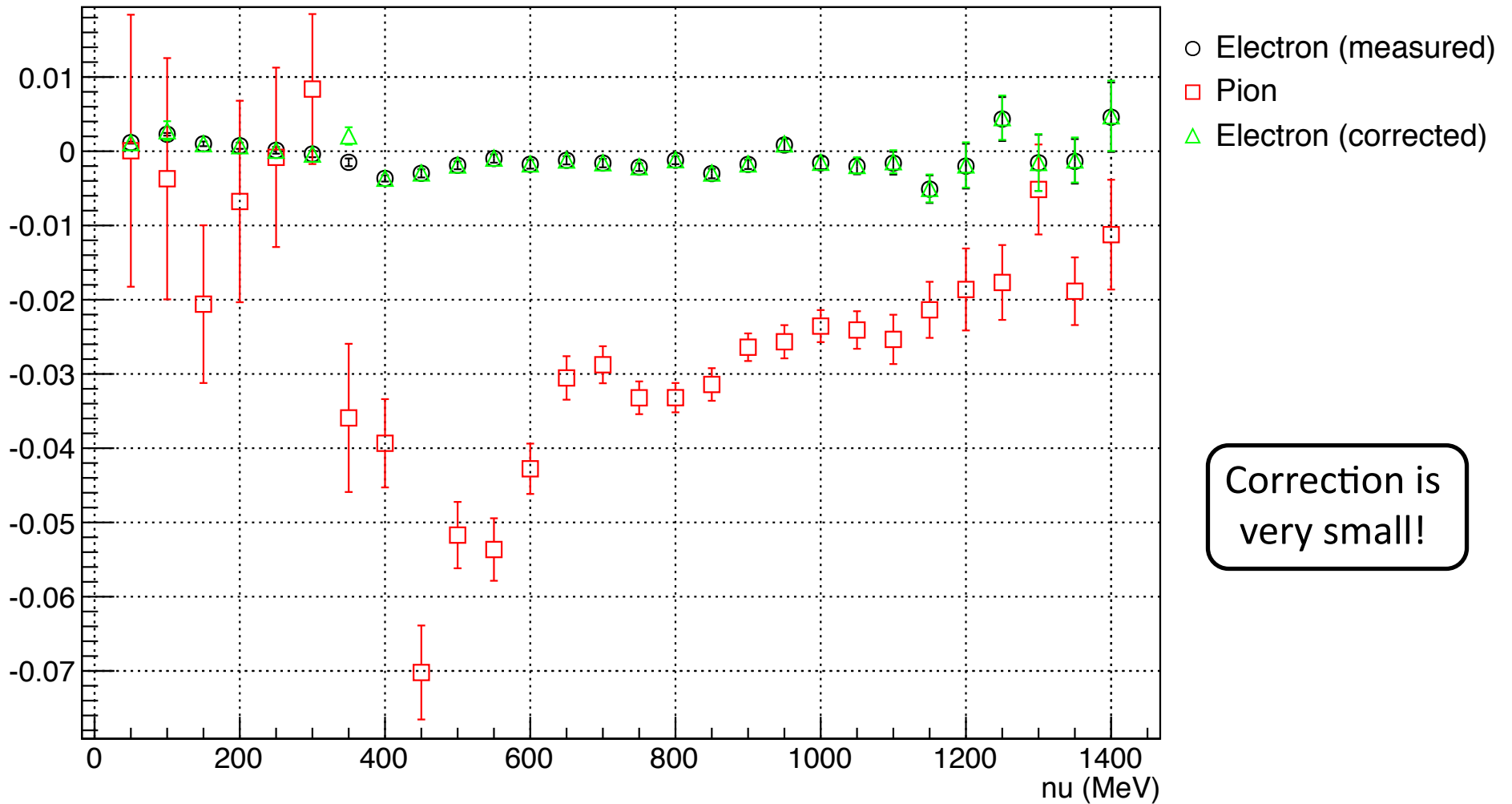


Residual Pion Yield



Correction to Asymmetry

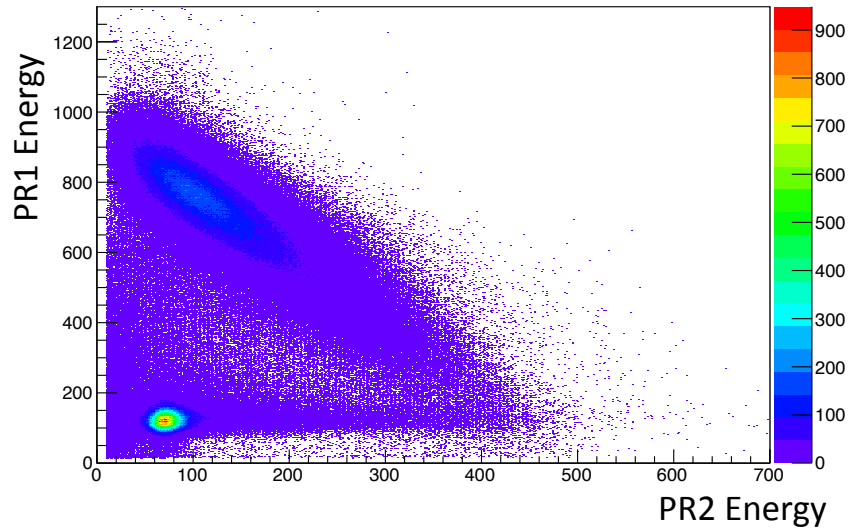
Physics Asymmetries: 2.2 GeV, 5T Transverse



Extra

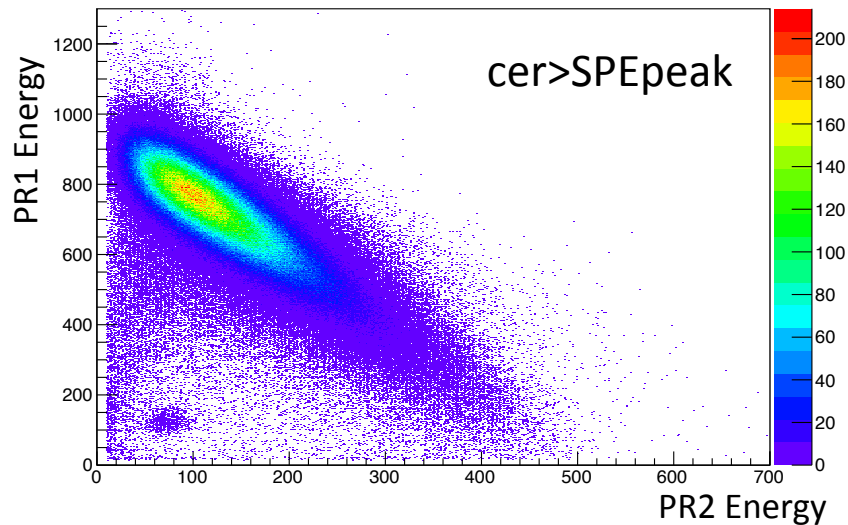
Electron and Pion Events

All Events

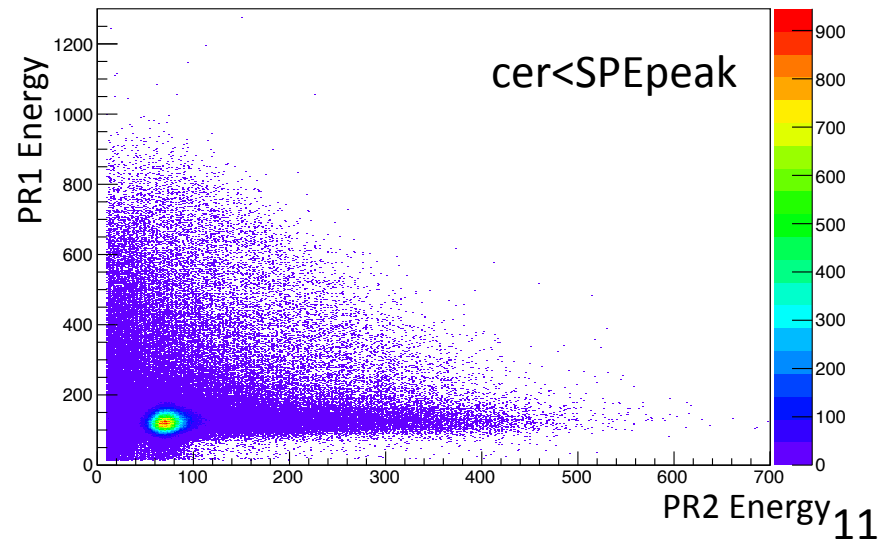


Run 6085
2.2 GeV, 5T, Transverse
 $p_0 = 0.919 \text{ GeV}/c$

Electron Events

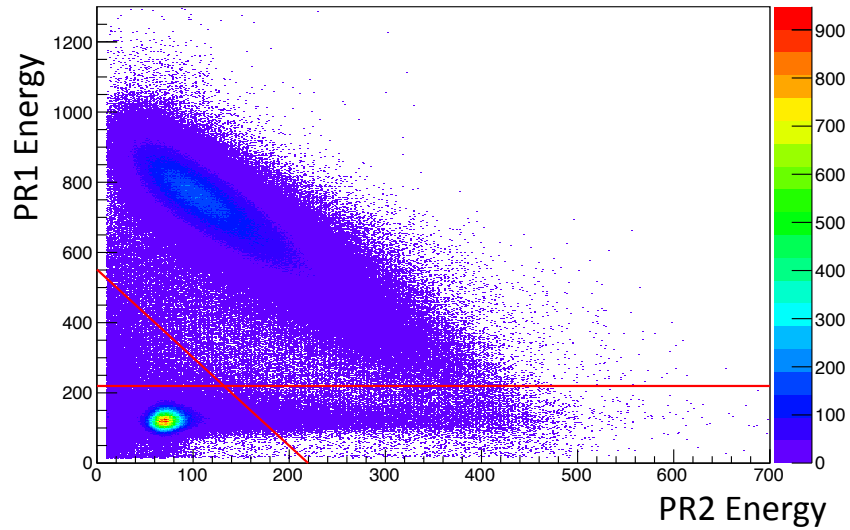


Pion Events

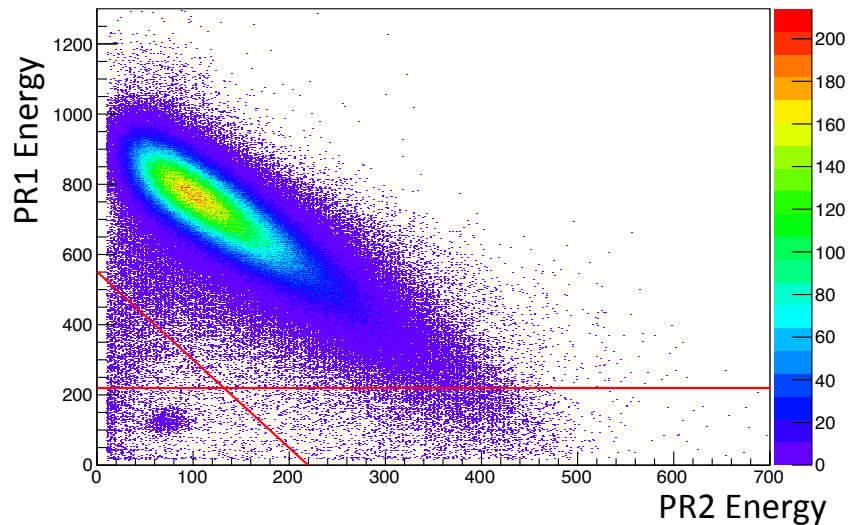


Electron and Pion Events

All Events



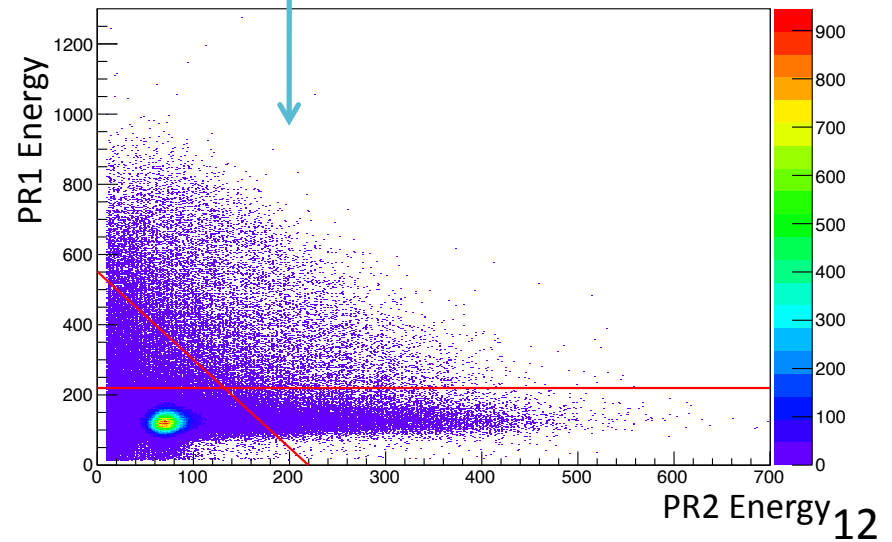
Electron Events ()



Some pion events do survive lead glass cuts

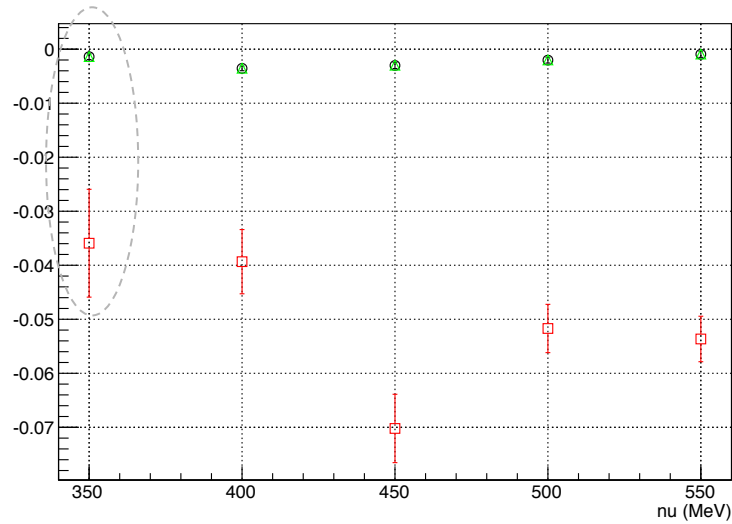


Pion Events



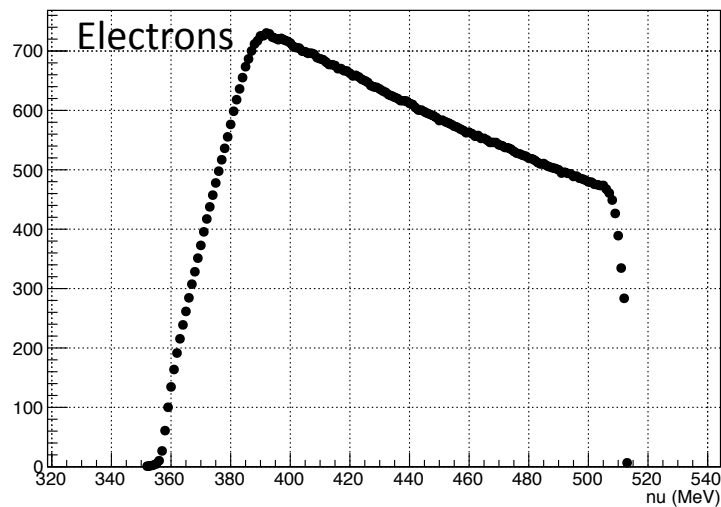
Electron & Pion Yields

Physics Asymmetries: 2.2 GeV, 5T Transverse, 1.811 GeV/c

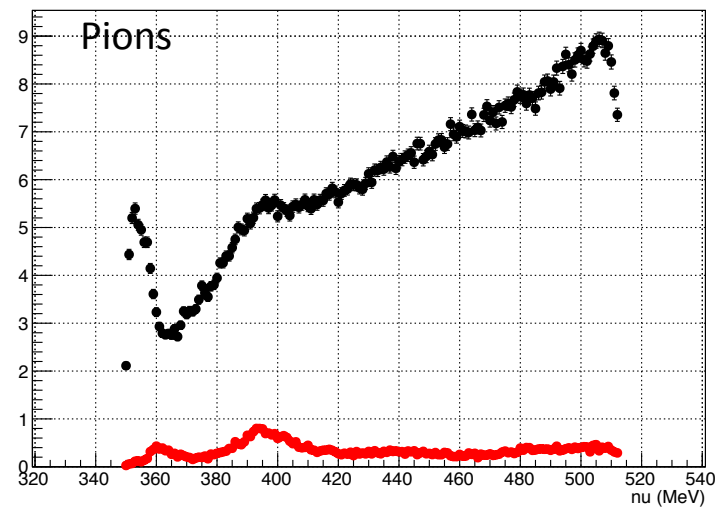


- w/out LG Cuts
- w/ LG cuts

Yields: 2.2 GeV, 5T Transverse, 1.811 GeV/c

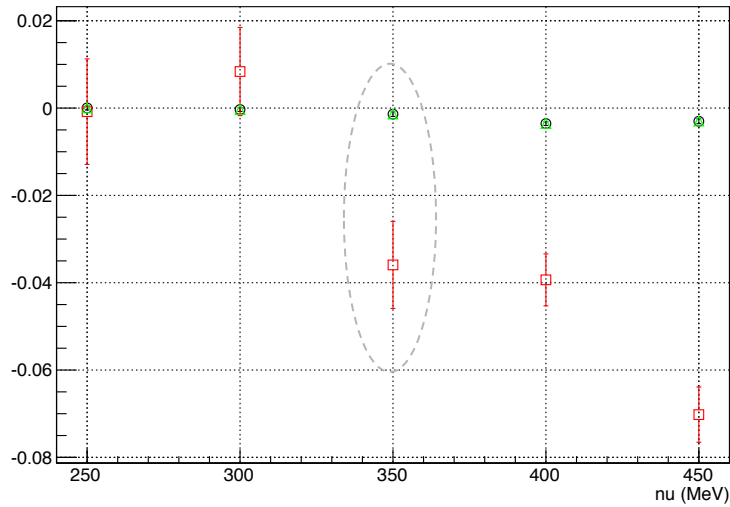


Yields: 2.2 GeV, 5T Transverse, 1.811 GeV/c



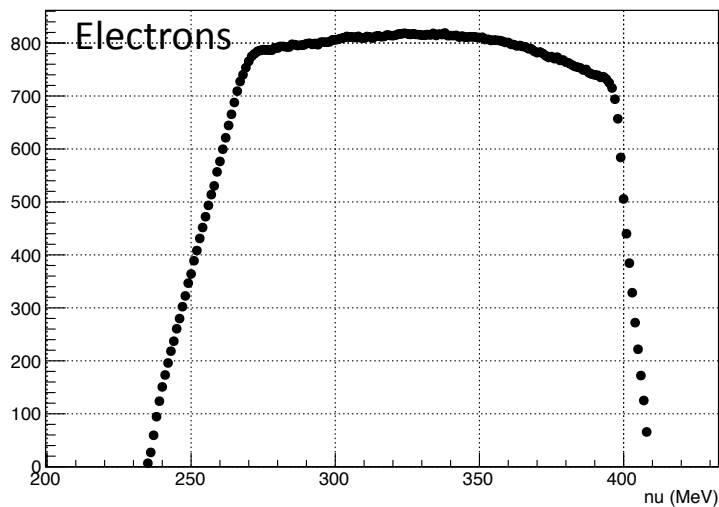
Electron & Pion Yields

Physics Asymmetries: 2.2 GeV, 5T Transverse, 1.927 GeV/c

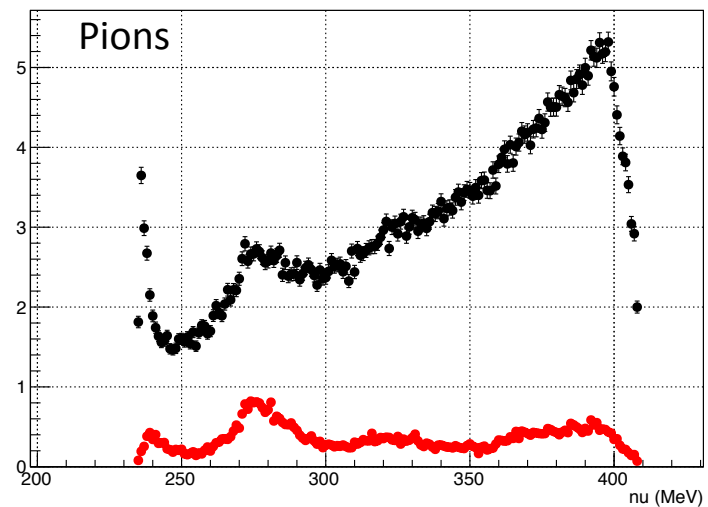


- w/out LG Cuts
- w/ LG cuts

Yields: 2.2 GeV, 5T Transverse, 1.927 GeV/c



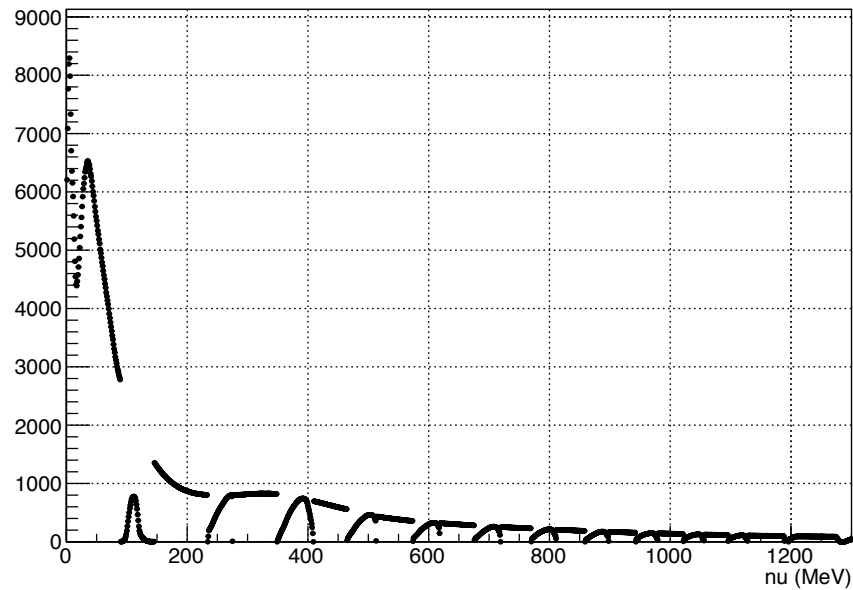
Yields: 2.2 GeV, 5T Transverse, 1.927 GeV/c



Electron & Pion Yields

2.2 GeV, 5T Transverse
(No Cuts on Lead Glass)

Electron Yield



Pion Yield

