

# Update and Future Plan

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10/14/15

# Packing Fraction

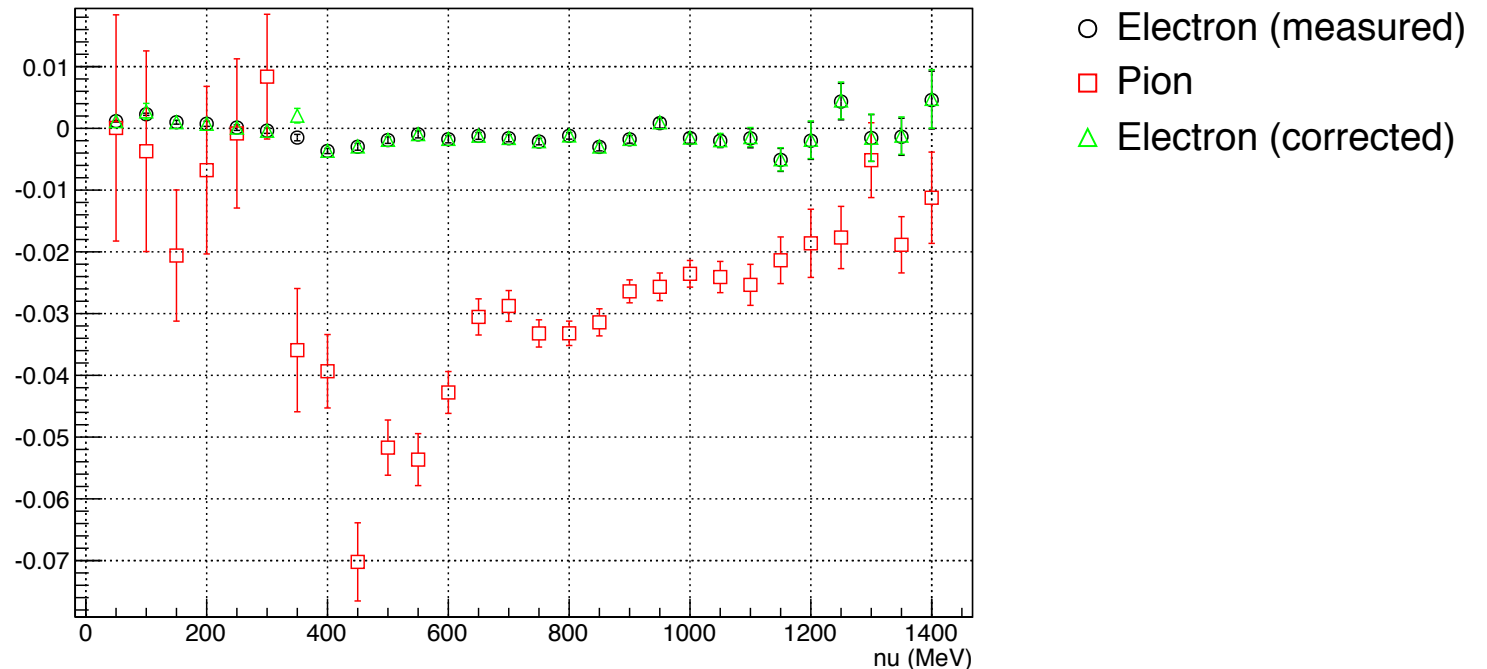
- Analysis is done\*
  - 5 total settings (10 materials)
  - 3 settings (2.2 GeV 5T (long. and trans.) & 1.7 GeV 2.5T) are reasonably stable with small drifts in yields
  - 2 settings have larger problems:
    - 2.2 GeV 2.5T, raster size was changed during this setting, large shifts in beam position (~4mm)
    - 1.1 GeV 2.5T, several runs taken at low currents (8-20 nA), beam position was not stable
- See technote for analysis details
  - [http://hallaweb.jlab.org/experiment/g2p/technotes/E08027\\_TN2015\\_17.pdf](http://hallaweb.jlab.org/experiment/g2p/technotes/E08027_TN2015_17.pdf)

\*Will update results when Jie has completed his beam position/yields study

# Pion Asymmetries

- Pion asymmetry is large compared to electron asymmetry,
  - But pion contamination after PID cuts is very small
- Probably not necessary to correct asymmetry, can include as a systematic

Physics Asymmetries: 2.2 GeV, 5T Transverse

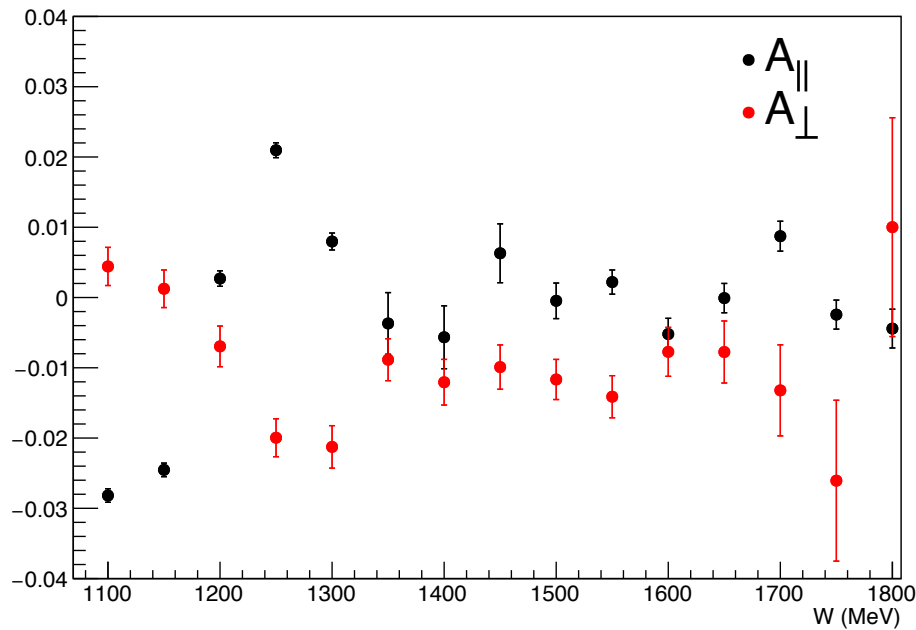


# Physics Asymmetries

Average kinematics  
for each bin

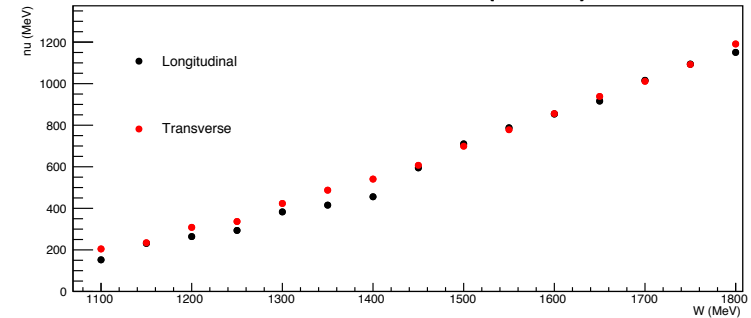


Physics Asymmetries,  $E = 2.2$  GeV, 5T Target Field

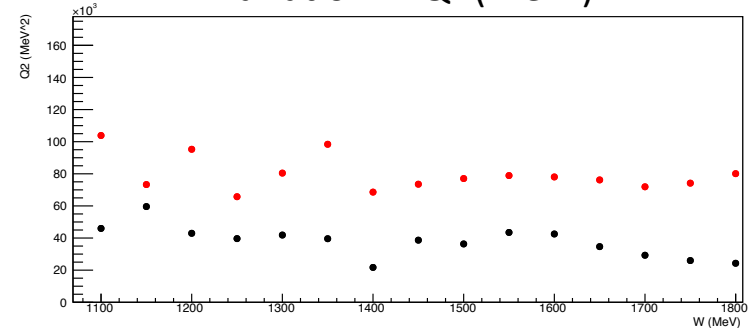


- Does not include radiative corrections
- Dilution factor set to 0.15
- Uncertainty is just statistical (LHRS runs only)

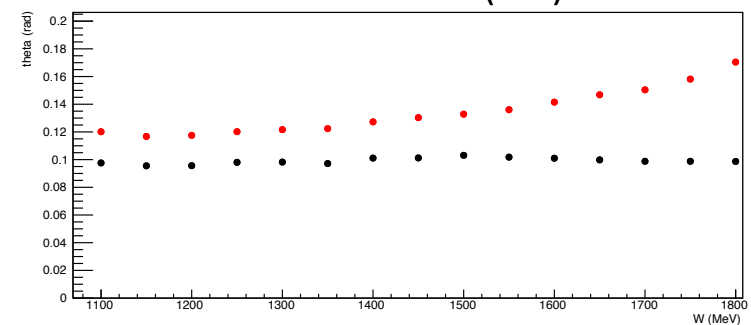
Variation in  $\nu$  (MeV)



Variation in  $Q^2$  ( $\text{MeV}^2$ )



Variation in  $\theta$  (rad)



# Graduation Plan

- Defense Set for Dec. 4<sup>th</sup>
  - Done:
    - 2/3rds of thesis written
    - Code in place to extract  $g_1/g_2$ 
      - Using 2.2 GeV 5T data (longitudinal and transverse) for asymmetry
      - Using P. Bosted Model for XS
  - To Do:
    - Working on systematics
    - To have fully corrected result in thesis, need to include radiative corrections & dilution factor (needs updated packing fraction)
- Currently interviewing for positions
  - Mix of post-doc and industry