BigBite Analysis:

g_2^{WW}, 4.7GeV Kinematics

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Outline

g_2^{WW}

- We can parametrize our g_1 and g_2 data using a TSpline3 fit
- This allows us to compute $g_2^{WW} = -g_1(x, Q^2) + \int_x^1 \frac{g_1(y,Q^2)}{y} dy$
- I computed the integral over a large range of x, using Simpson integration ...

Preliminary g_2^{WW} Results

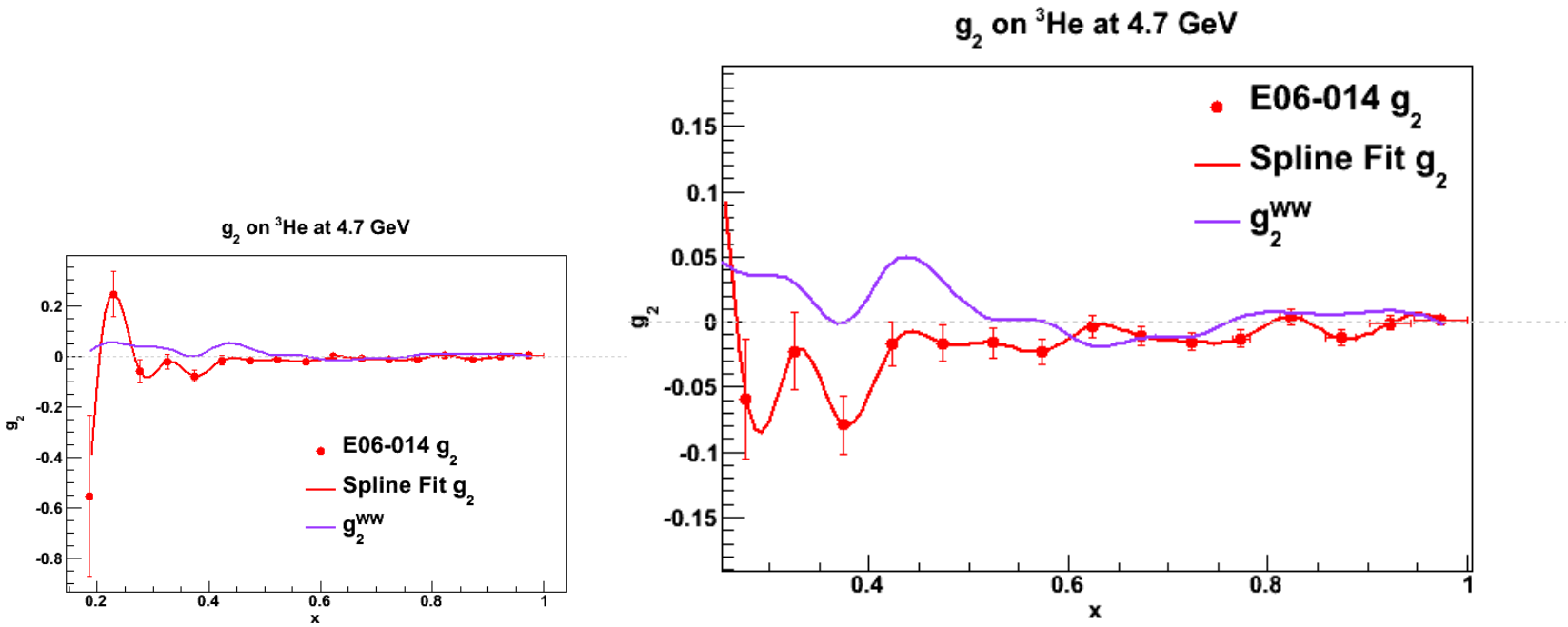
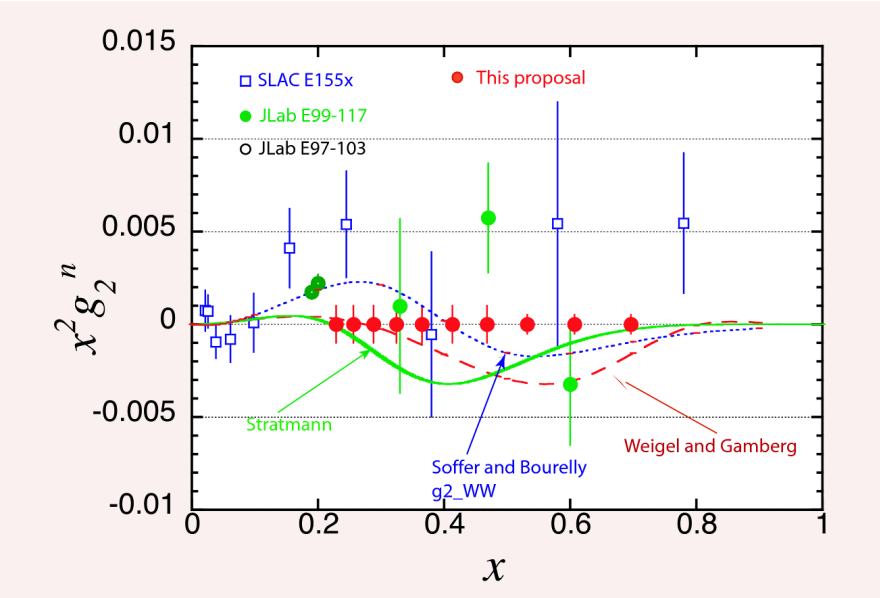


Figure: 4.7GeV g_2^{WW} calculation from parametrized g_1 and g_2 data.

Preliminary $x^2 g_2^{WW}$ Comparison



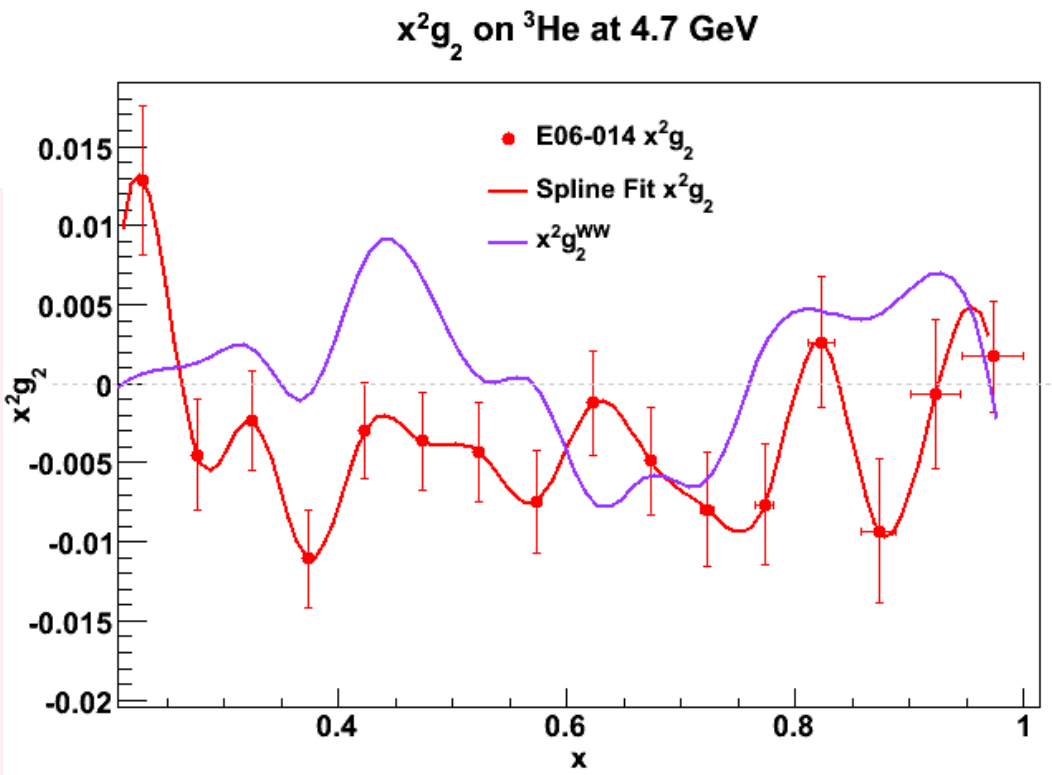


Figure: Right plot is plot of $x^2 g_2$, and g_2^{WW} curves. Left plot is 4.7GeV $x^2 g_2^{WW}$ calculation from paramaterized g_1 and g_2 data.

4.7GeV Kinematics

- The kinematic plots that I showed, have a significant change in the last few x-bins as compared to Diana's.
- There are a few differences between our analysis of the kinematics:
  - I have a different shower-track offset in my shower to track position cut (this is a very small difference)
  - I have mean Čerenkov TDC values for PMTs 9,10,19 and 20 based on positrons (this does not matter much, as these 4 PMTs were out of our acceptance at this energy.
  - I used runs 2024-2035 for my analysis and Diana used 2150,2156,2158,2161,2162 and 2163
- Plotting the kinematics with identical set-up to Diana, It appears the change in kinematics is from the two different run sets.

Kinematics For Two Different Run Sets (1)

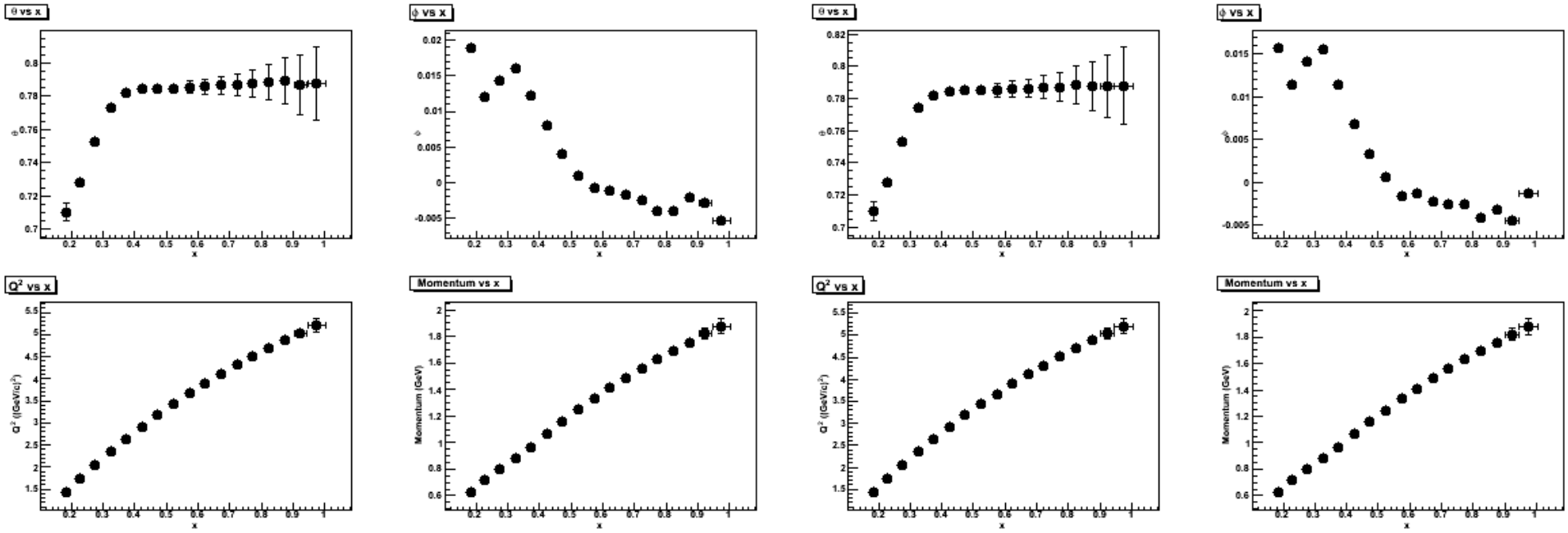


Figure: Right plot shows some kinematics for my run set. Left plot shows kinematics for Diana's run set.

Kinematics For Two Different Run Sets (2)

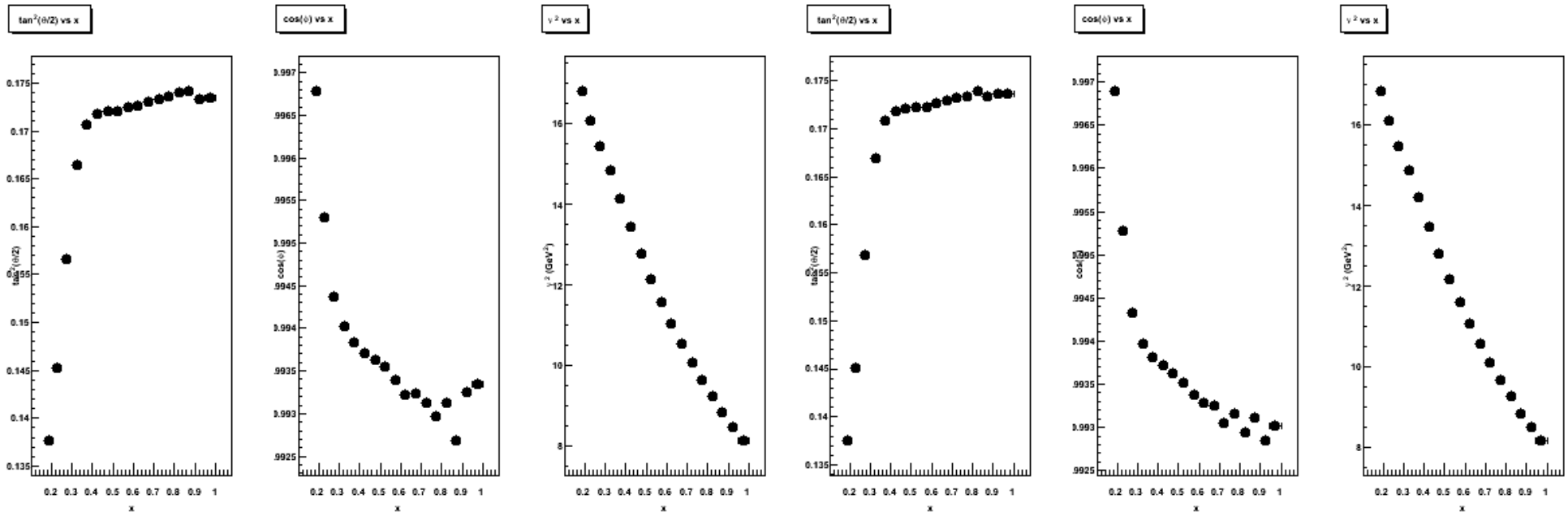


Figure: Right plot shows some kinematics for my run set. Left plot shows kinematics for Diana's run set.

Kinematics For Two Different Run Sets (3)

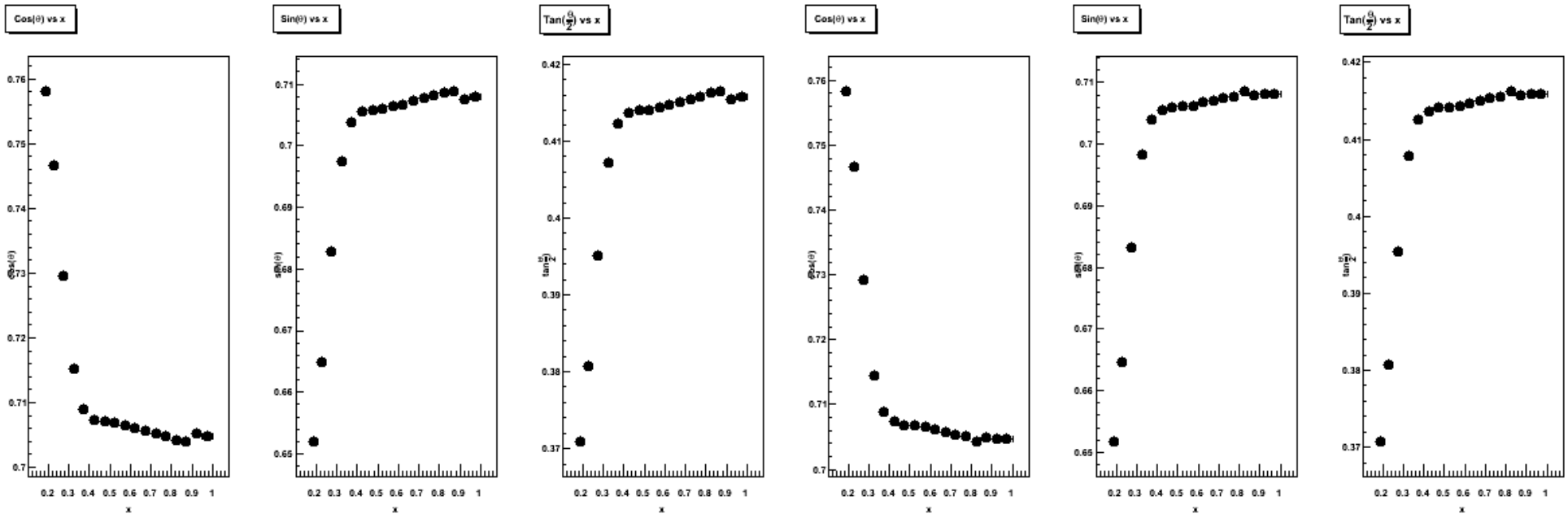


Figure: Right plot shows some kinematics for my run set. Left plot shows kinematics for Diana's run set.

4.7GeV Data Move to Tape

- Moved a couple root files to the tape and tested recalling using jcache and processing the ROOT files, all seems good.
- Wrote some scripts to easily move current 4.7GeV Root files to the tape
- I am now moving all 4-pass skimmed root files to tape at /mss/halla/e06014/analysis/4pass/SkimROOTfiles/
- Are we also putting the raw Root files on the tape?

What's Next...

- Look at asymmetries(g_1,g_2) binned in LHRS bins
- Start processing at 5.9GeV data
  - At least get data quality running
  - First half may be a little involved since a summing mod. was down
  - Pion asymmetry
- Radiative Corrections on Asymmetries(A_1,A_2), using POLRAD (waiting for JLab to be up so I can grab the program from the website)
- Compute systematic errors on kinematic variables/factors (in progress)