Depolarization PT Study: Hannah Valenty

These programs can be used across the full set of kinematic variables. Some code may have functions which do not apply to your variable but do for others. Simply change the bins/cuts/axis range for the variable you desire and the rest should work itself out. Below are the in-order steps for acquiring the A\_LU (original) and F\_LU/F\_UU (depolarization adjusted) asymmetries along with plotting their outputs. Additionally, some extra code is present to supplement the main program chains.

Getting Original Asymmetries (A\_LU)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Linux Command** | **File** | **Output** | **Edit for Change of Variable** | **Calls** |
| root | ProtonTreePTRebin.C | Histograms for each bin of desired variable | Cuts and binning (Mxg1 & # of bins) | External file, (i.e., Total-Eloss.txt) |
| java | AsymmetryPTRebin.java | Bin text files for plotting | Number of bins must match that of ProtonTree | protonTree output |
| root | FitMethodFall2PTRebin.C | Sine fit asymmetries & protonAsymmetry.txt (points for final A\_LU plot) | Change protonAsymmetry name if need to save values | Java file output |
| root | AsymmetryCalcPTRebin.C | Final A\_LU asymmetry | SetRangeUser for x and y axis, aesthetics | fitMethod output |

Getting Depolarization Factors

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Linux Command** | **File** | **Output** | **Edit for Change of Variable** | **Calls** |
| root | Depolarizationfactor.C | Depolarization factors printed in terminal & into mean\_vs\_xF.txt | Cuts and binning (Mxg1 & # of bins) | External file, (i.e., …inbending\_Eloss  \_Depol.QA.txt)  ***[might have to run at JLab for full .txt file]*** |
| The original asymmetry y-values are divided by the depolarization factors to use for plotting and becomes the F\_LU/F\_UU asymmetry. (A\_LU / Depol factor = F\_LU/F\_UU) | | | | |
| root | FLUTotal.C | Asymmetry plot for F\_LU/F\_UU | Called .txt files | Depol and original asymmetry text files |
| root | FLUTotalComp.C | Asymmetry comparison plot for A\_LU and F\_LU/F\_UU & plot point .txt | Called .txt files | Depol and original asymmetry text files |

Other Programs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Linux Command** | **File** | **Output** | **Edit for Change of Variable** | **Calls** |
| root | DepolarizationfactorTFR.C  (Has the TFR cut in already) | Depolarization factors printed in terminal & into mean\_vs\_xF.txt | Cuts and binning (Mxg1 & # of bins) | External file, (i.e., …inbending\_Eloss  \_Depol.QA.txt)  ***[might have to run at JLab for full .txt file]*** |
| root | DepolarizationfactorCFR.C  (Has the CFR cut in already) | Depolarization factors printed in terminal & into mean\_vs\_xF.txt | Cuts and binning (Mxg1 & # of bins) | External file, (i.e., …inbending\_Eloss  \_Depol.QA.txt)  ***[might have to run at JLab for full .txt file]*** |
| root | TwoDPlotMaker.C | 2D histogram | outTree->Draw  ("pT:de>>mx2xf");  Line 110  pT – Y variable  de – X variable  (change to liking and axis titles) | External file, (i.e., …inbending\_Eloss  \_Depol.QA.txt)  ***[might have to run at JLab for full .txt file]*** |