

Update

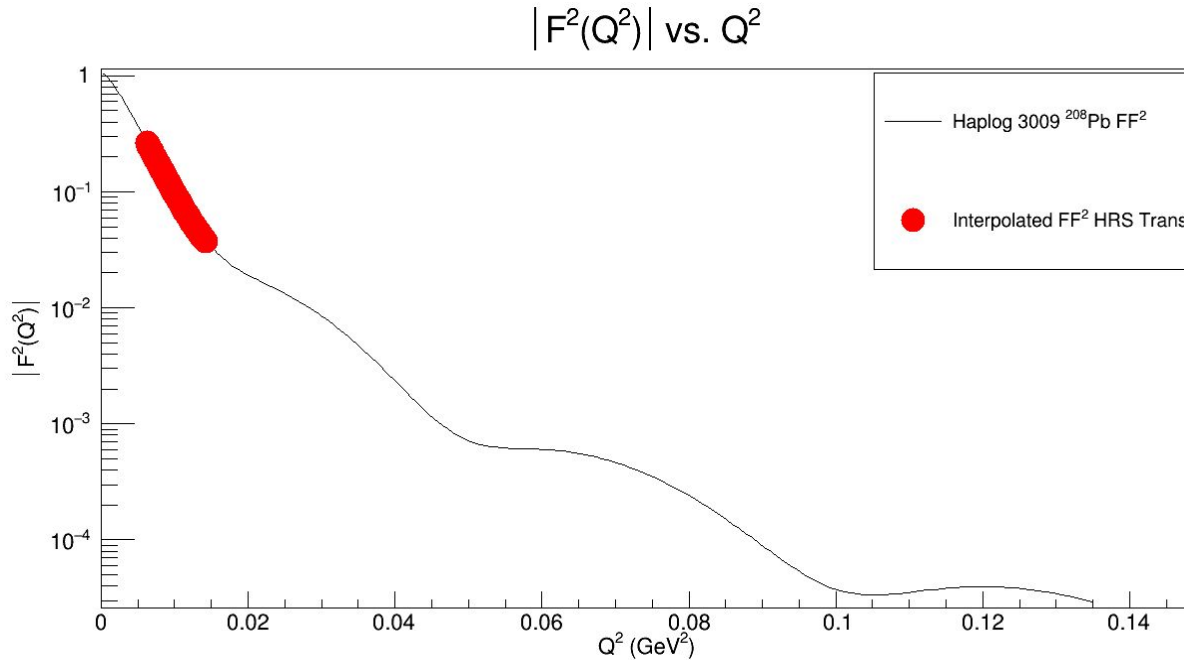
Currently in HRS Trans

- Flat sample target variables, x_{tg} , θ_{tg} , y_{tg} , φ_{tg} , δ
- Includes first and second order beam transport effects

What I have included

- PREX-I collimator
- Functions that relate transport variables to scattering angle Θ and azimuthal angle Φ
- Function that calculates the Mott cross section using expressions for Θ and Φ
- Function that calculates Q^2 : NEW!
- ^{208}Pb form factor squared : NEW!

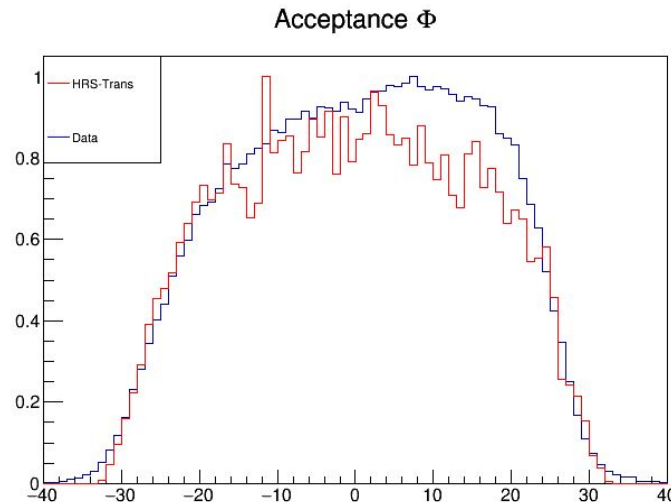
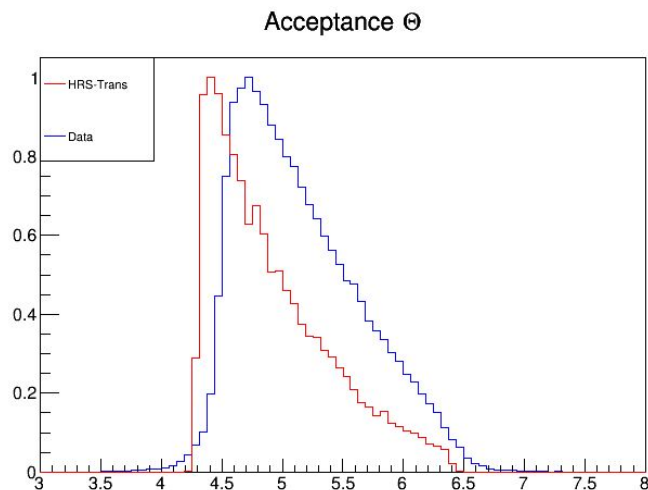
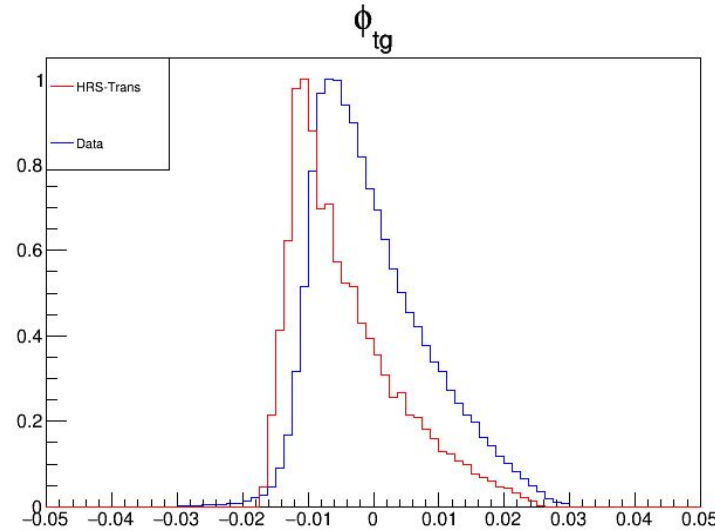
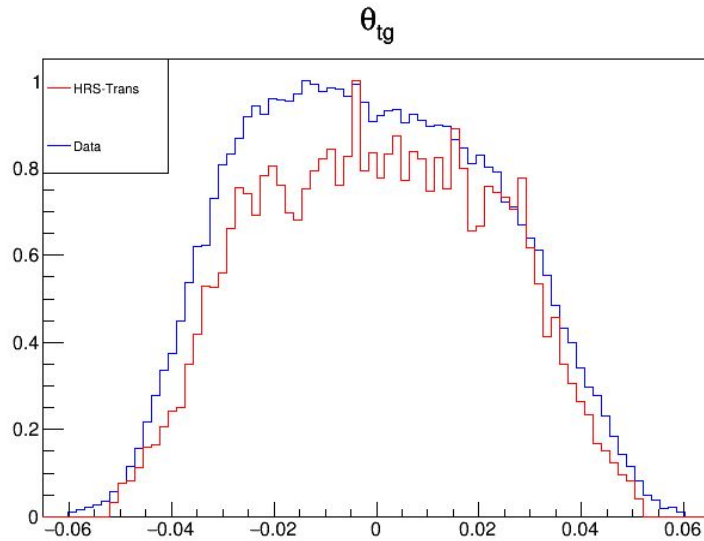
Form Factor



Red: Interpolated values of $|F^2|$

- Black line is the tabulated form factor squared from HAPLOG Entry 3009 for ^{208}Pb .
- Q is given in fm^{-1} which I converted to GeV and squared that
- Using my Q^2 function, I compute Q^2 for each track that passes through collimator cut.
- Take the Q^2 values and do a linear interpolation

Target Variables (Includes FF)



- Red: HRS-Trans
- Blue: Lead data

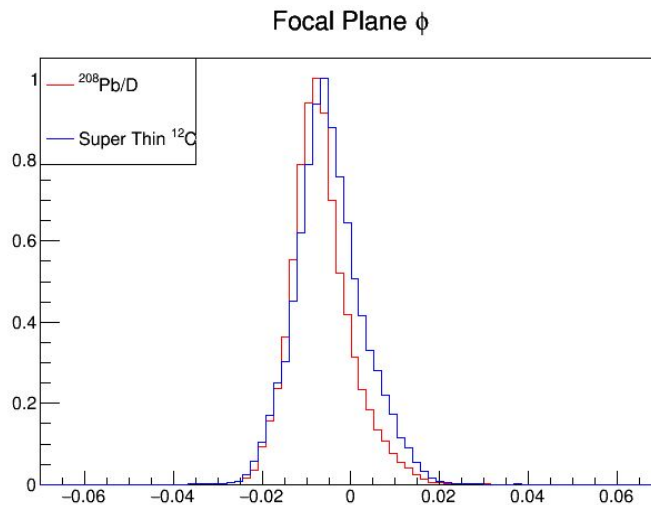
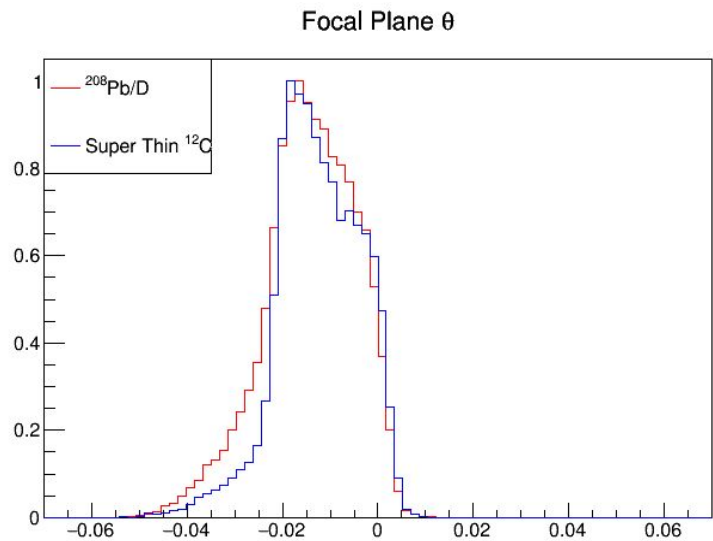
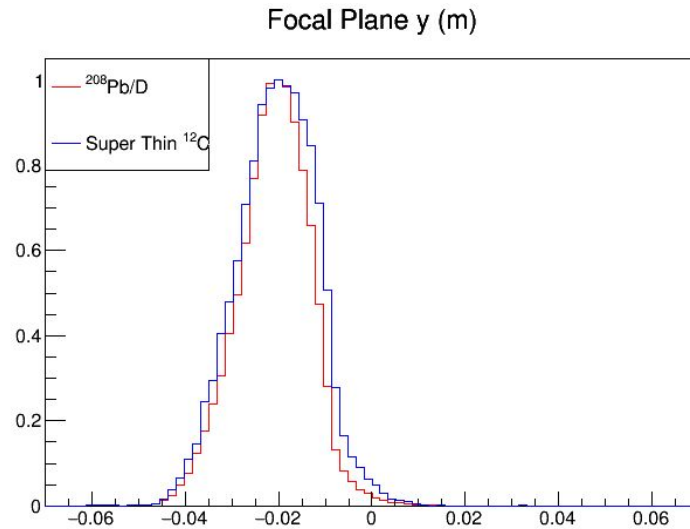
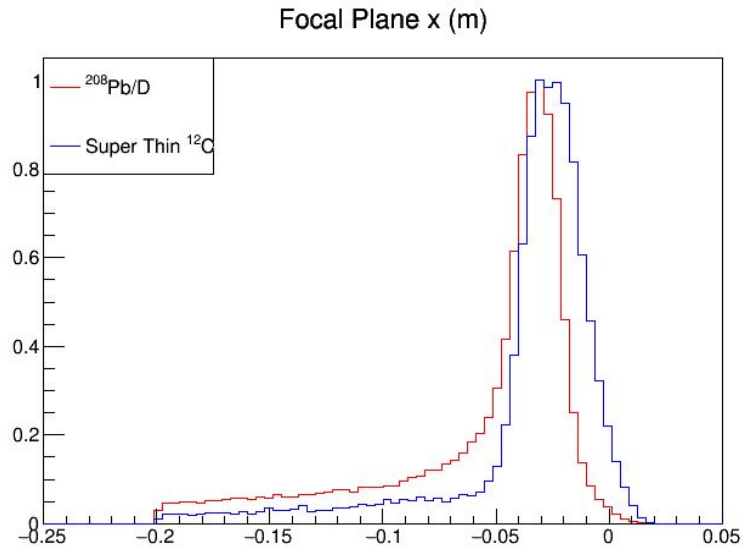
- For data

$$|\theta_{tg}| < 0.06, |\phi_{tg}| < 0.03$$

- For HRS- Trans, I enforce the collimator cut and the tracks that pass the cut are part of the ROOT tree that I created

- Using the transformations previous derived for Θ, Φ in terms of transport values give the bottom two plots

Focal Plane Distributions (Data)



- Red – $^{208}\text{Pb}/\text{D}$ Q^2 (Run 27427)
- Blue – ^{12}C Q^2 (Run 27418)

Both data sets have the beam raster on

There is a cut in the data

$$(x_{\text{fp}} + 0.05) < 0.15,$$

$$(y_{\text{fp}}) < 0.17$$

$$(\theta_{\text{tg}}) < 0.06$$

There is also a restriction looking at events from a single cluster plane