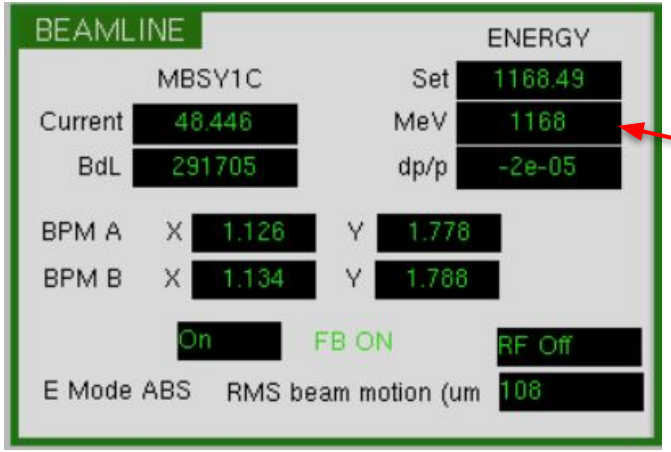
Energy Measurement

Nathaly

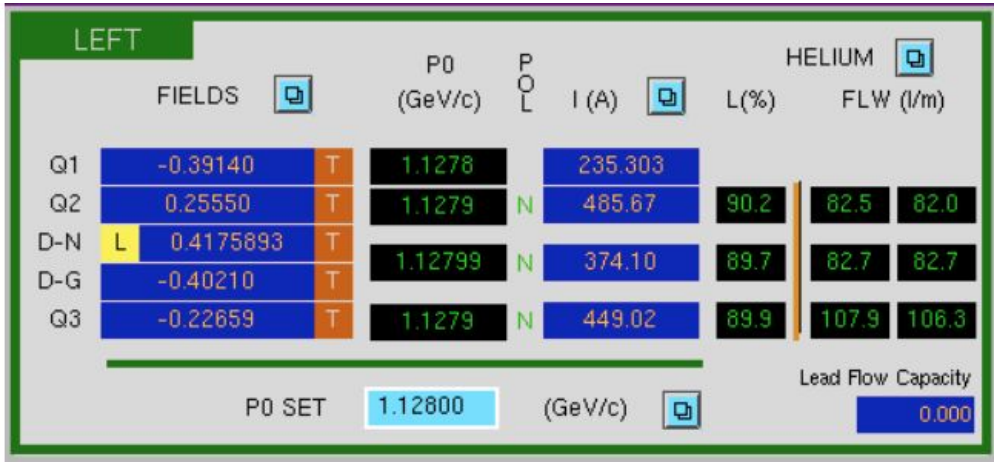
Goal

- Measure the beam energy using the elastic data of Tritium, Helium and Hydrogen.
- Compare the result with the Arc measurements.



Accelerator Reported Energy

LHRS Momentum



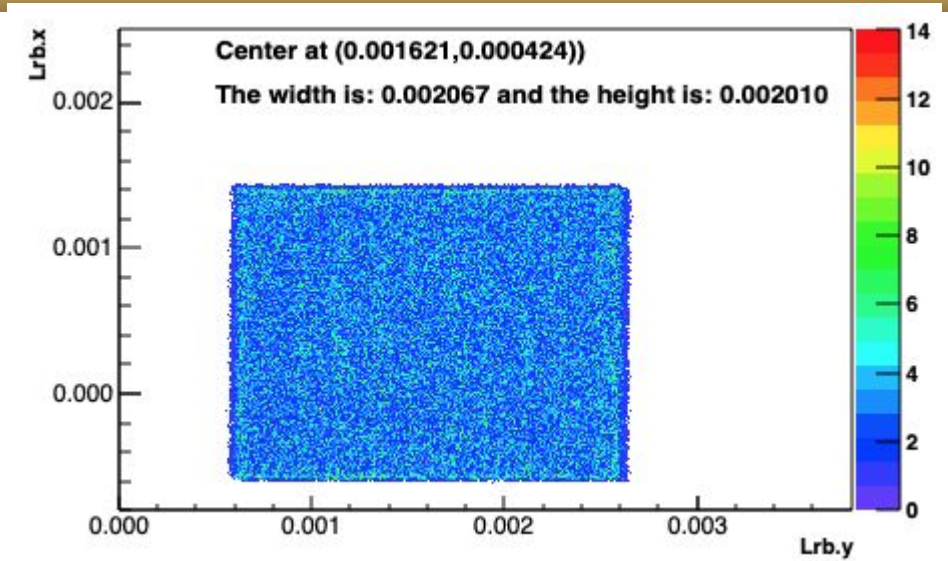
Using Nilanga's central LHRS momentum calculation. JLAB-TN-01-049

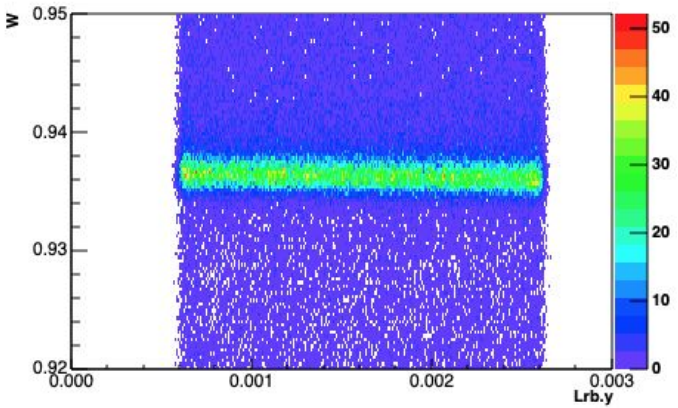
Run by Run check:

Hydrogen: P0 = 1.1283 GeV
Tritium: P0 = 1.1283 Gev
Helium: P0 = 1.1283 GeV

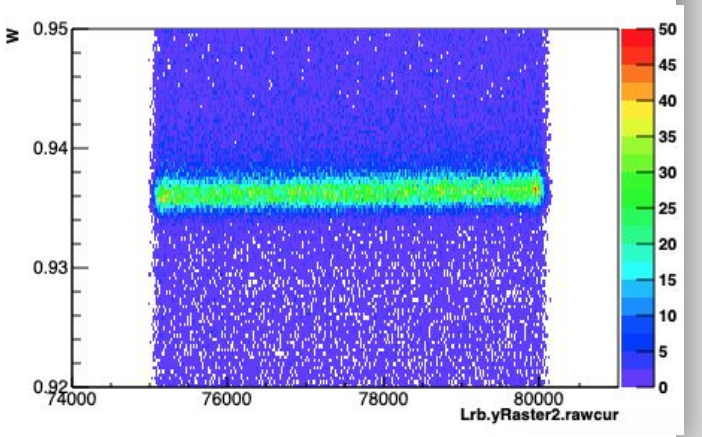
Raster Check

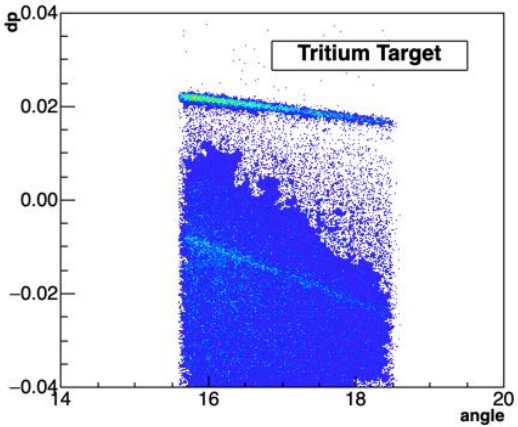
Using a preliminary raster calibration provided by Shujie.

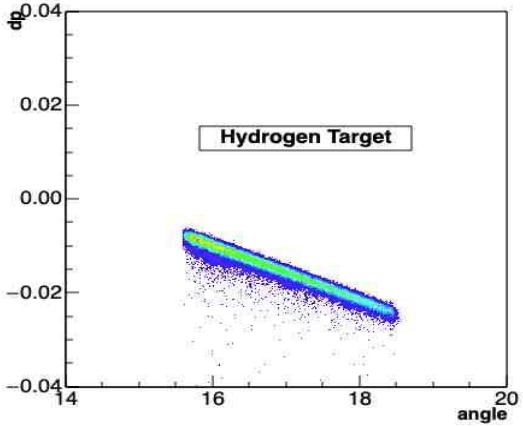


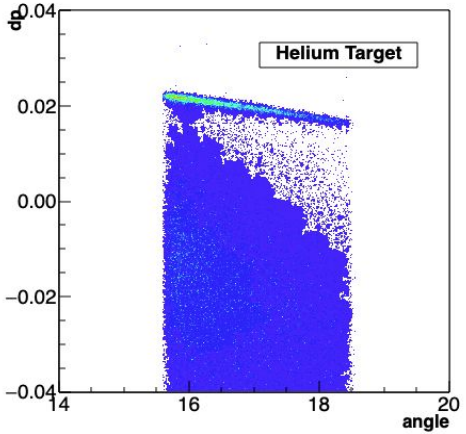


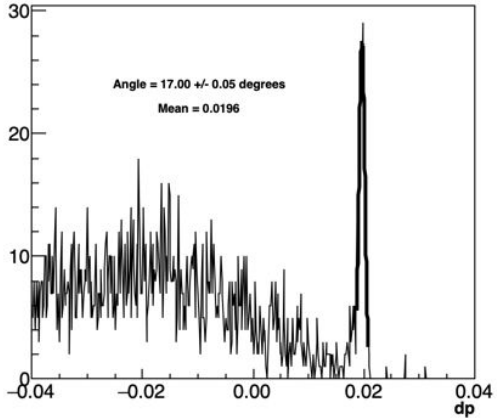
Courtesy of Shujie Li

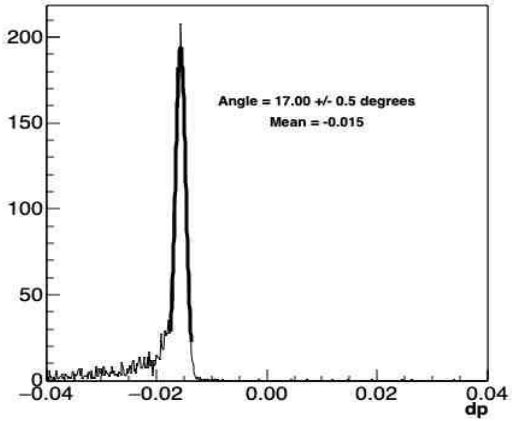


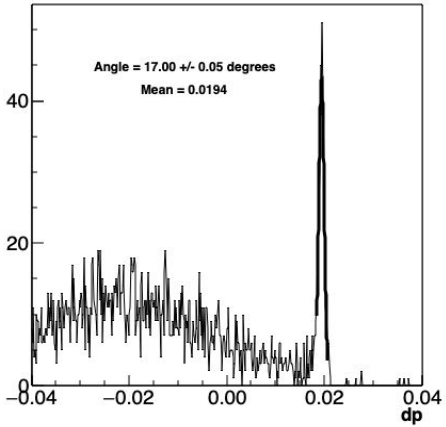

Tritium Target
dp
angle
0.04
0.02
0.00
−0.02
−0.04
14
16
18
20


Hydrogen Target
dp
angle
0.04
0.02
0.00
−0.02
−0.04
14
16
18
20

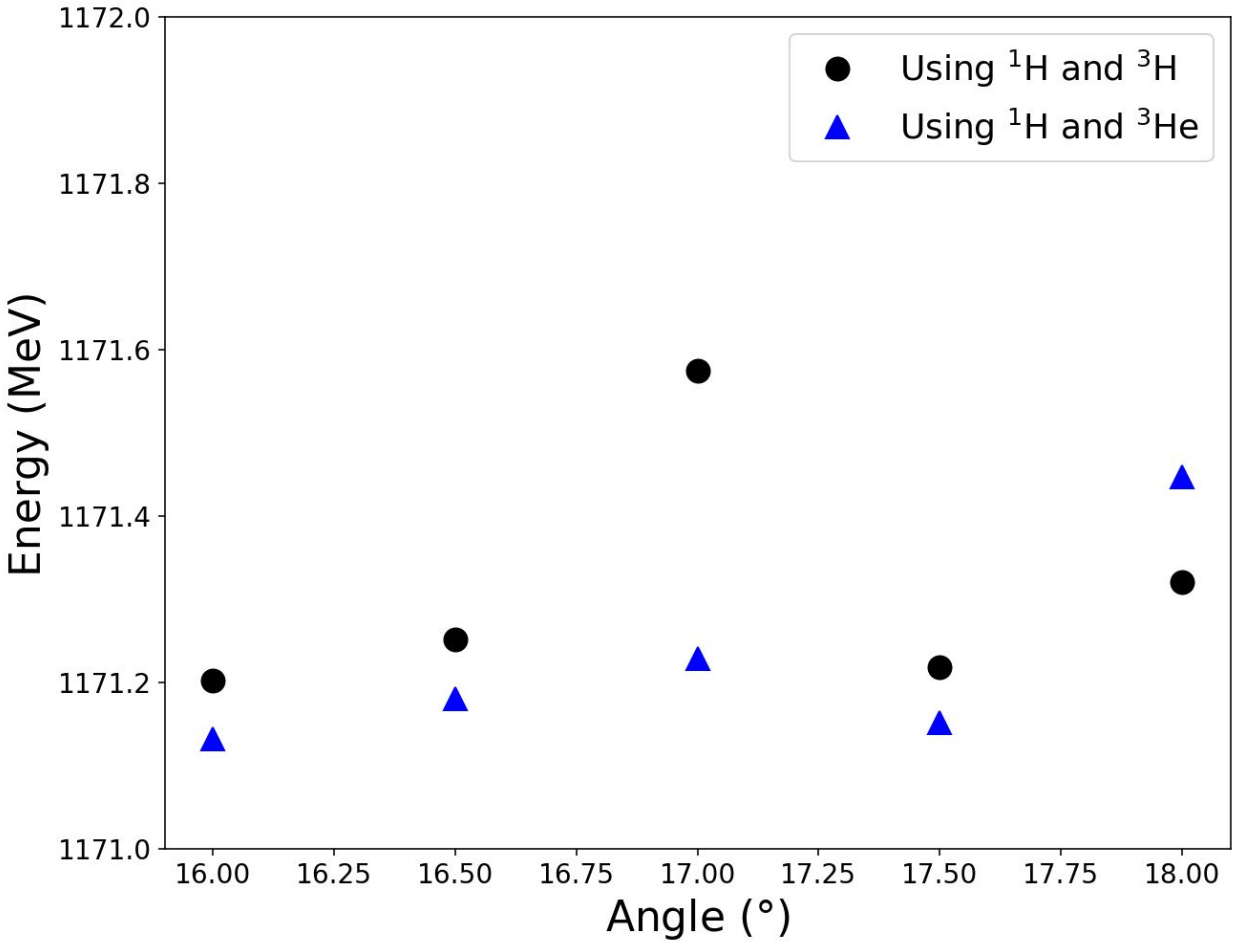

Helium Target
dp
angle
0.04
0.02
0.00
−0.02
−0.04
14
16
18
20


Angle = 17.00 +/- 0.05 degrees
Mean = 0.0196
dp
30
20
10
0
−0.04
−0.02
0.00
0.02
0.04


Angle = 17.00 +/- 0.5 degrees
Mean = -0.015
dp
200
150
100
50
0
−0.04
−0.02
0.00
0.02
0.04


Angle = 17.00 +/- 0.05 degrees
Mean = 0.0194
dp
40
20
0
−0.04
−0.02
0.00
0.02
0.04

Beam Energy



No Energy Loss considered

Next…

Implement the energy loss corrections.

Any suggestions?