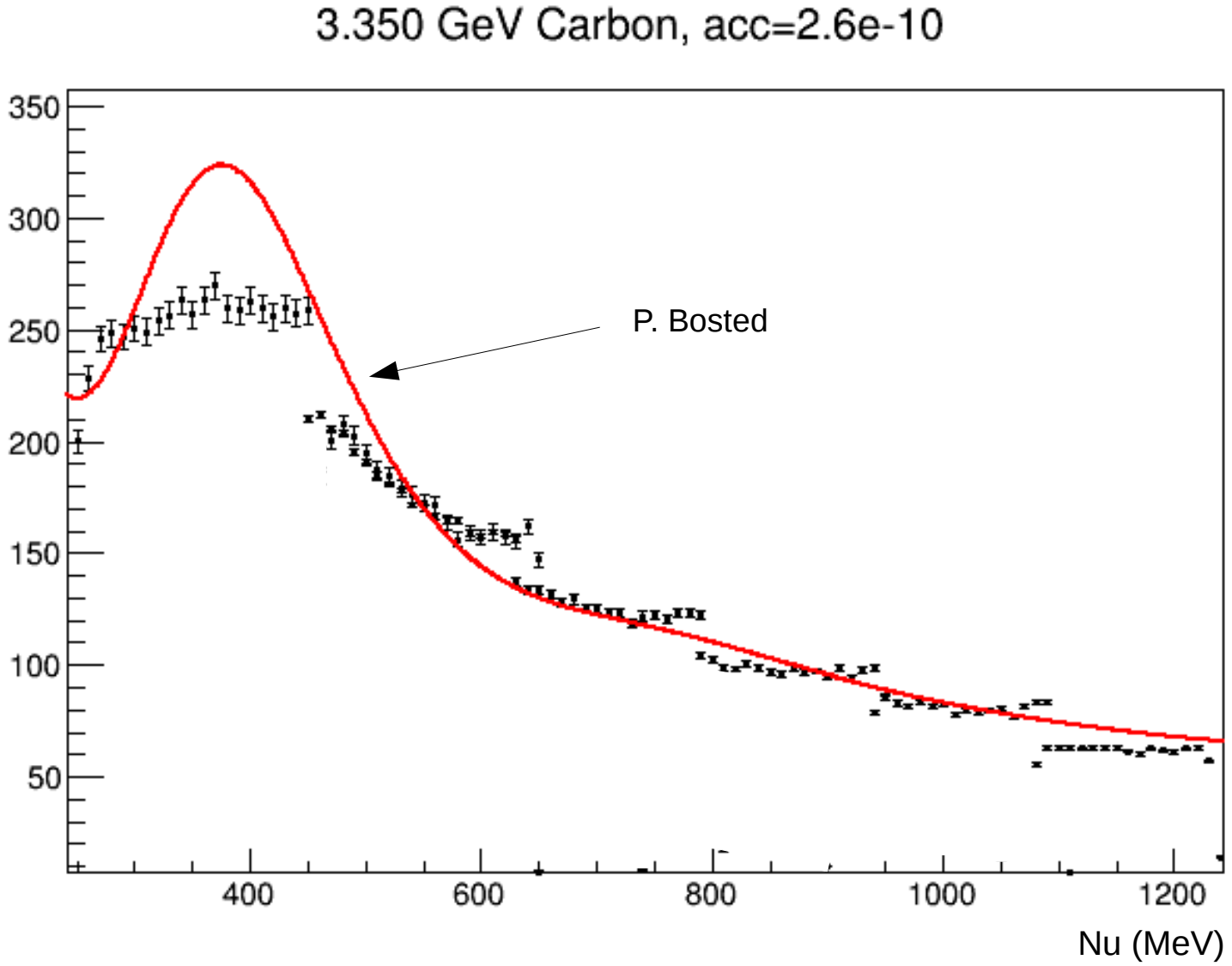
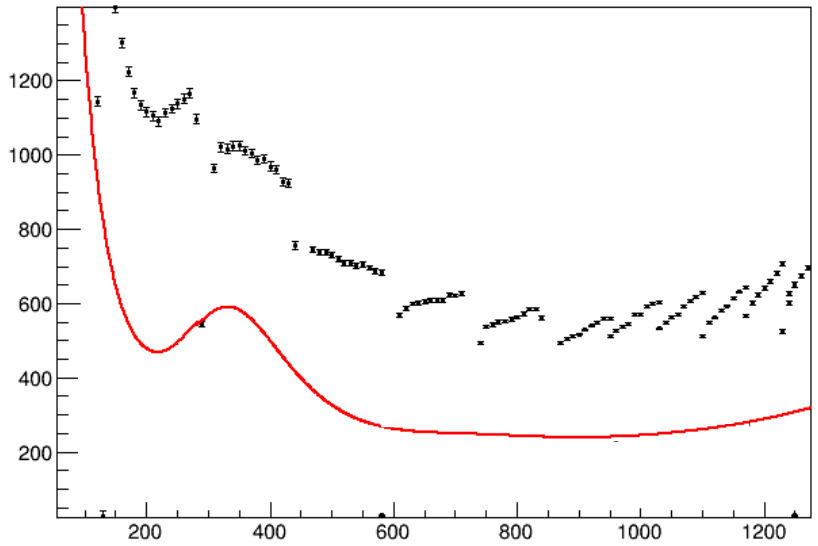
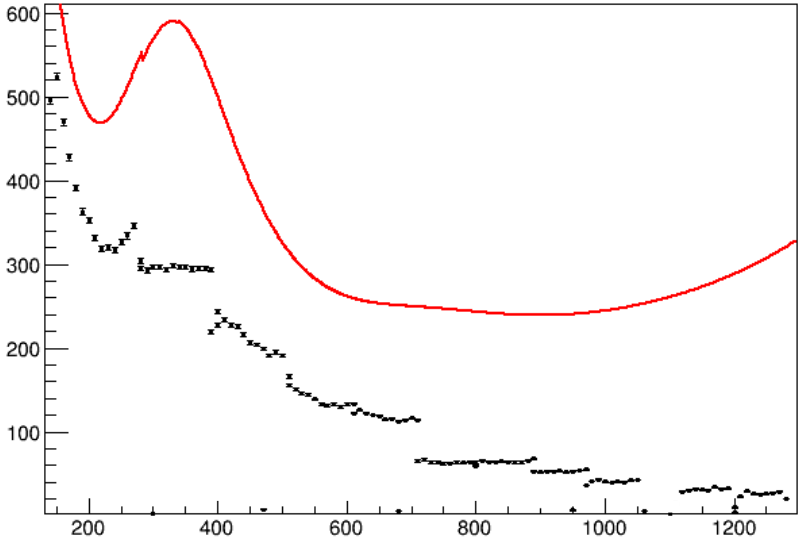
Dilution Analysis Update
7/30/14


3.350 GeV Carbon, acc=2.6e-10
350
300
250
200
150
100
50
400
600
800
1000
1200
Nu (MeV)
P. Bosted

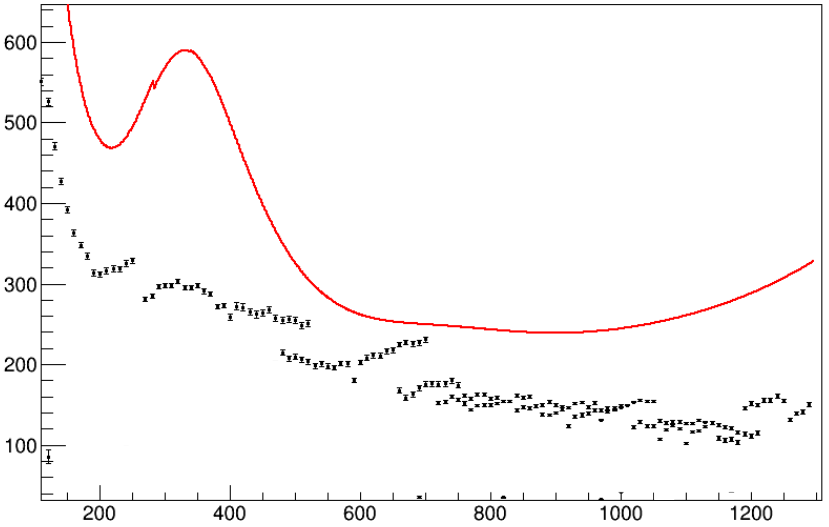
2.254 GeV 5T Longitudinal Carbon, acc=2.6e-10



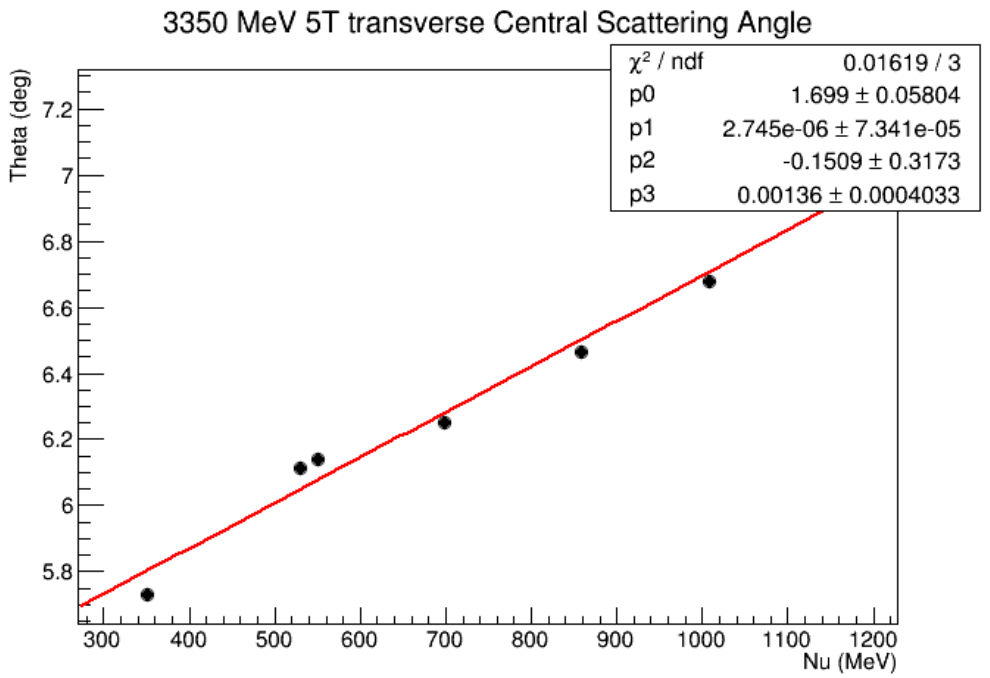
2.254 GeV 5T Transverse Carbon, acc=2.6e-10

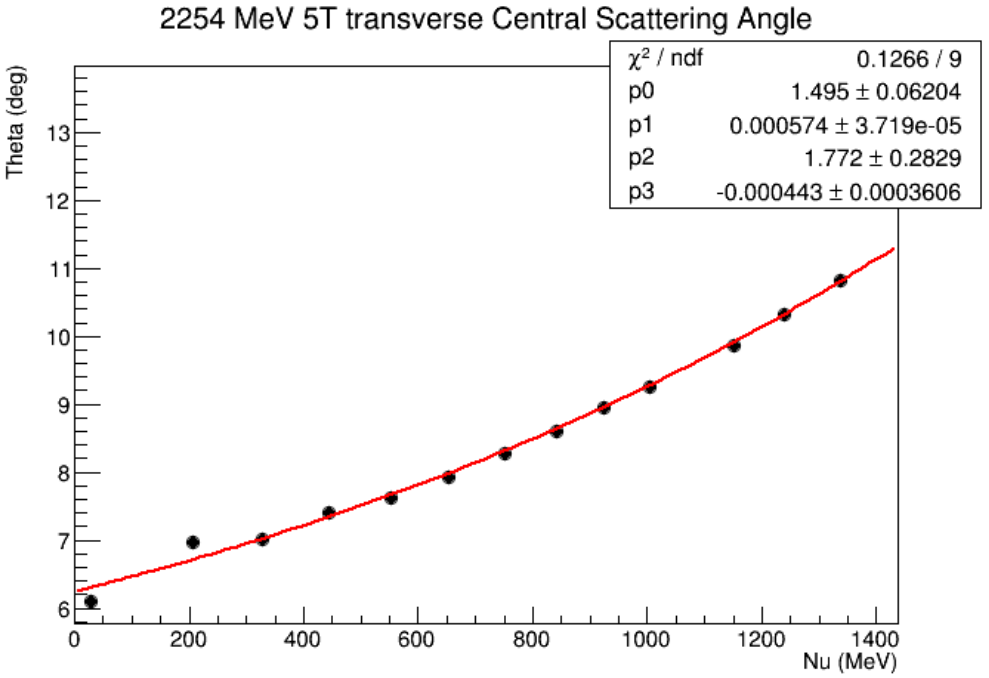


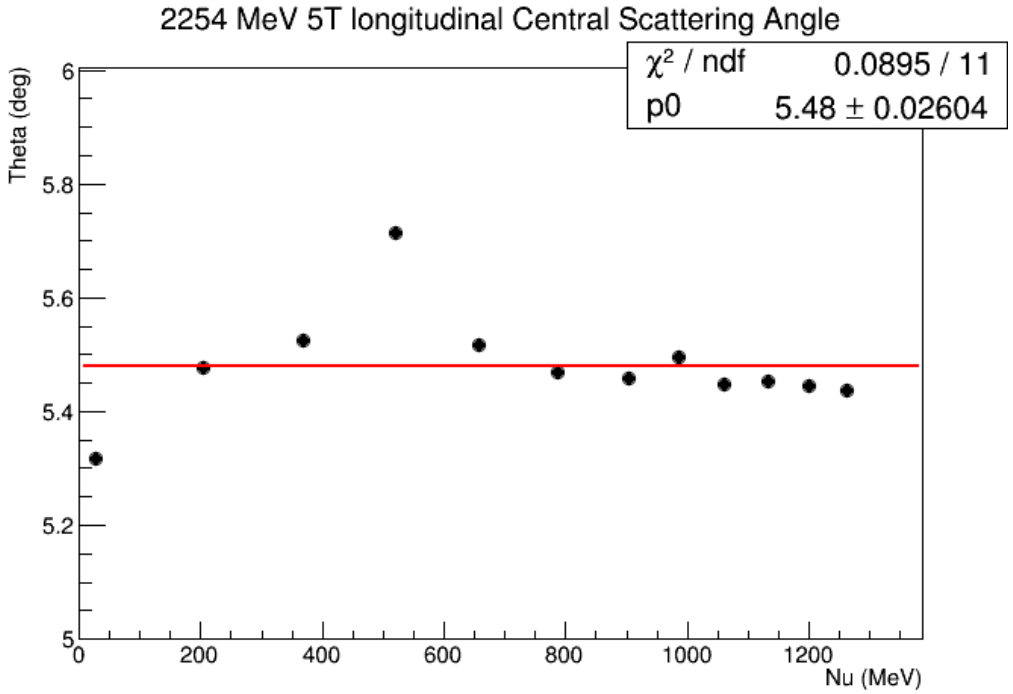
2.254 GeV 2.5T Carbon, acc=2.6e-10

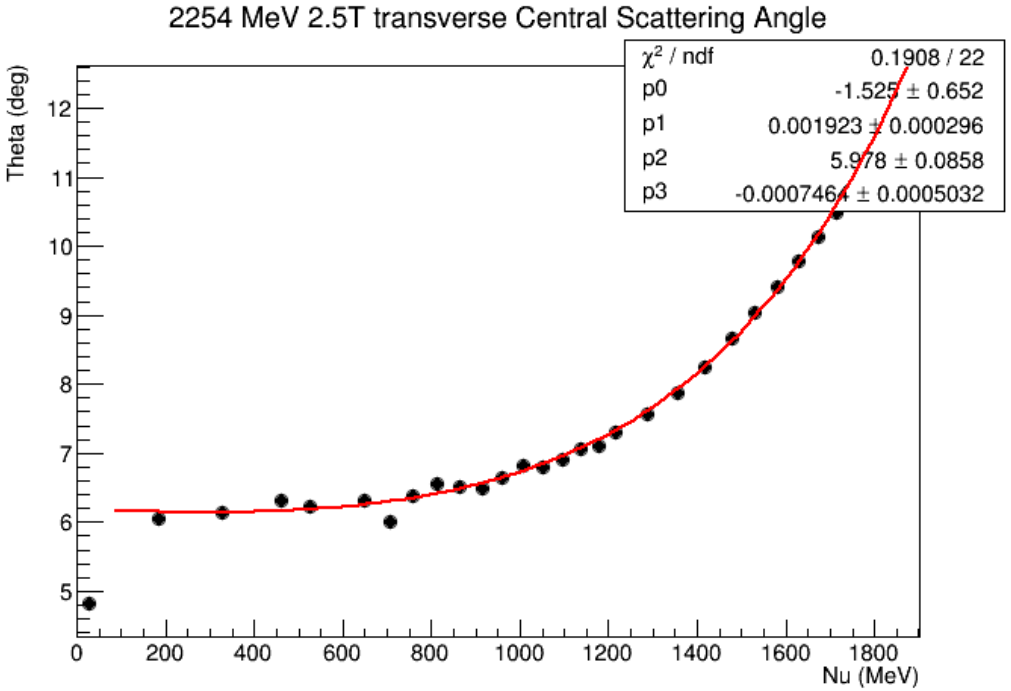


- Acceptance changes for each beam energy setting due to scattering angle difference.
- Scattering angle will also depend on Nu, so need to find a momentum dependant acceptance.


3350 MeV 5T transverse Central Scattering Angle
χ² / ndf 0.01619 / 3
p0 1.699 ± 0.05804
p1 2.745e-06 ± 7.341e-05
p2 -0.1509 ± 0.3173
p3 0.00136 ± 0.0004033
Theta (deg)
Nu (MeV)


2254 MeV 5T transverse Central Scattering Angle
χ² / ndf 0.1266 / 9
p0 1.495 ± 0.06204
p1 0.000574 ± 3.719e-05
p2 1.772 ± 0.2829
p3 -0.000443 ± 0.0003606
Theta (deg)
Nu (MeV)

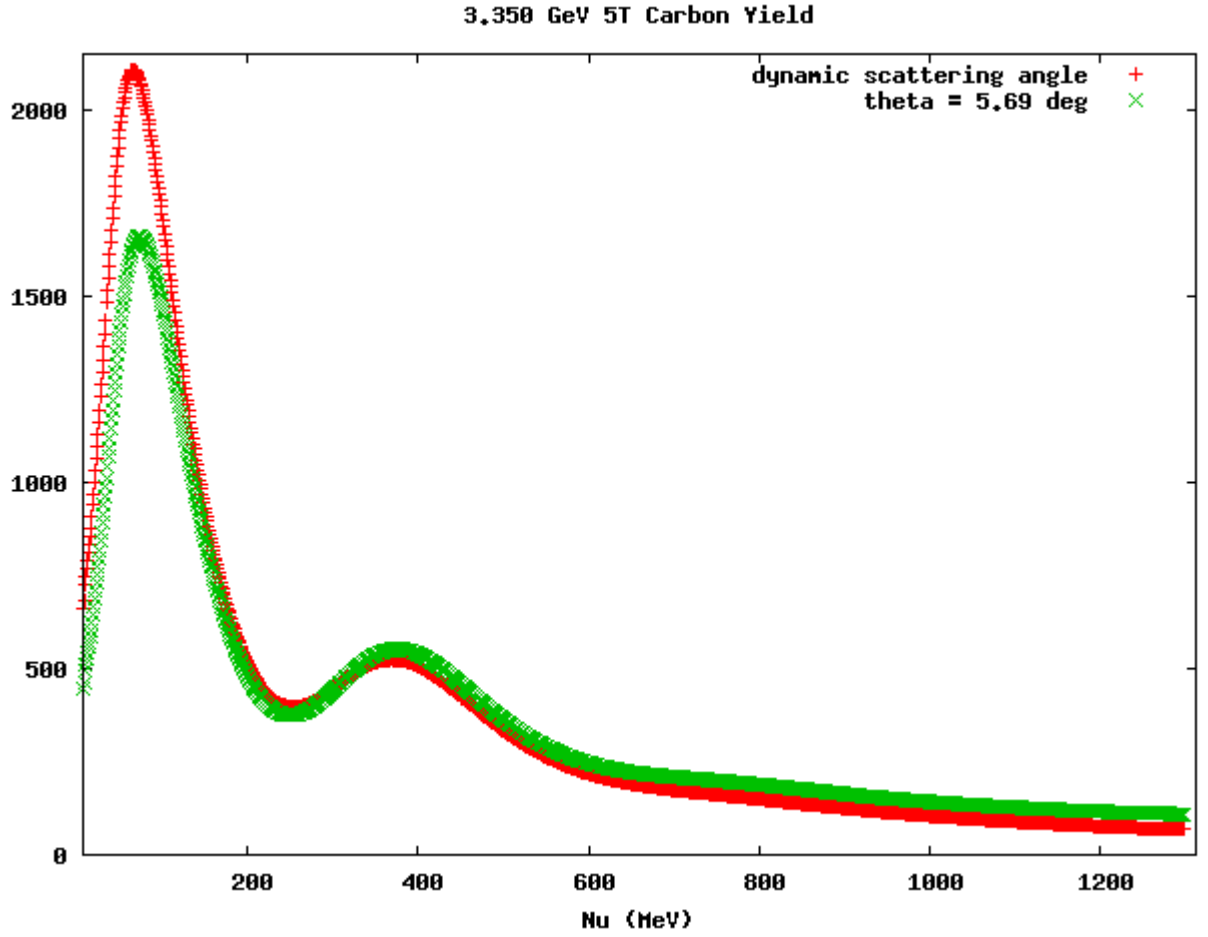

2254 MeV 5T longitudinal Central Scattering Angle
χ² / ndf 0.0895 / 11
p0 5.48 ± 0.02604
Theta (deg)
Nu (MeV)


2254 MeV 2.5T transverse Central Scattering Angle
χ² / ndf 0.1908 / 22
p0 -1.525 ± 0.652
p1 0.001923 ± 0.000296
p2 5.978 ± 0.0858
p3 -0.0007464 ± 0.0005032
Theta (deg)
Nu (MeV)

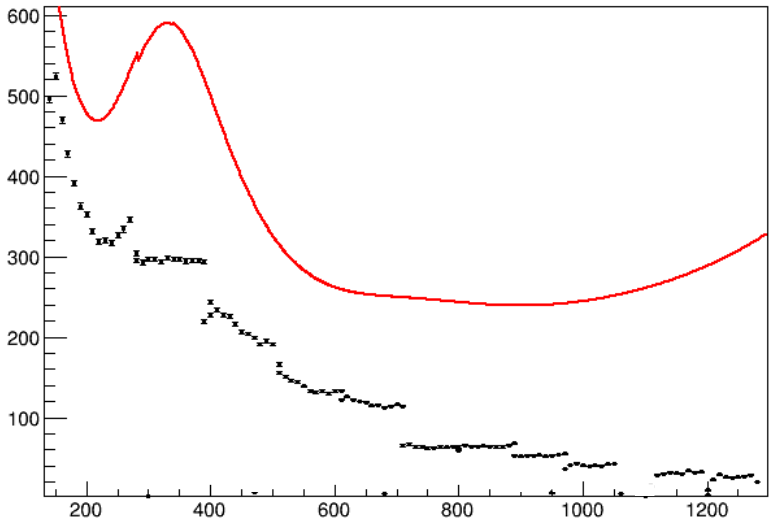
Using the following fit to scattering angle data

$$f(x) = e^{p_0 + p_1 x} + p_2 + p_3 x$$ (Jixie elog entry 49)

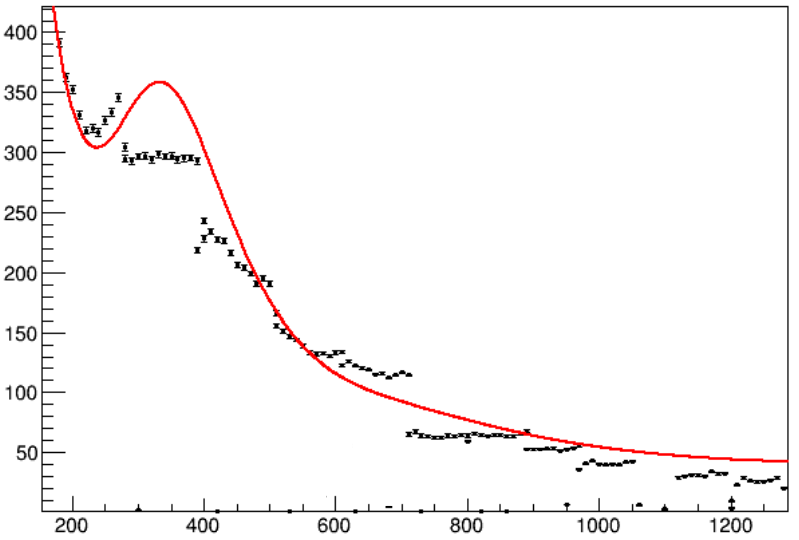
parameters from fit can be used to calculate scattering angle at each momentum value in P.Bosted model.



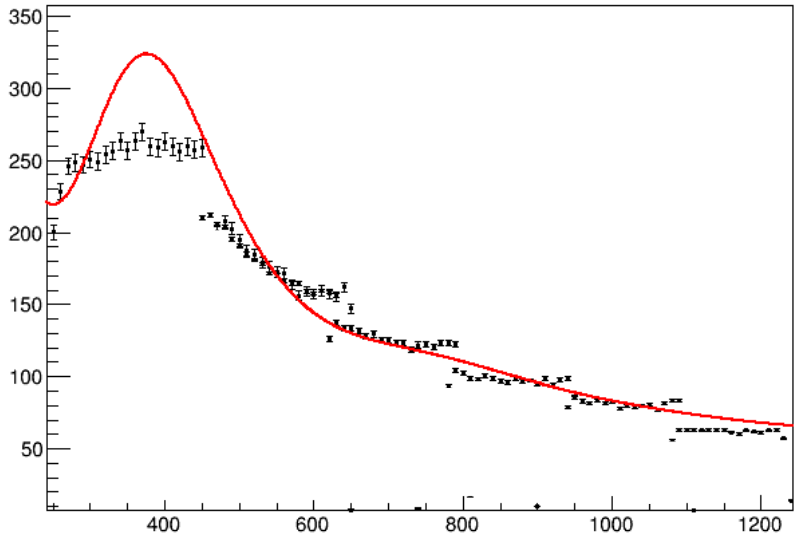
2.254 GeV 5T Transverse Carbon, acc=2.6e-10



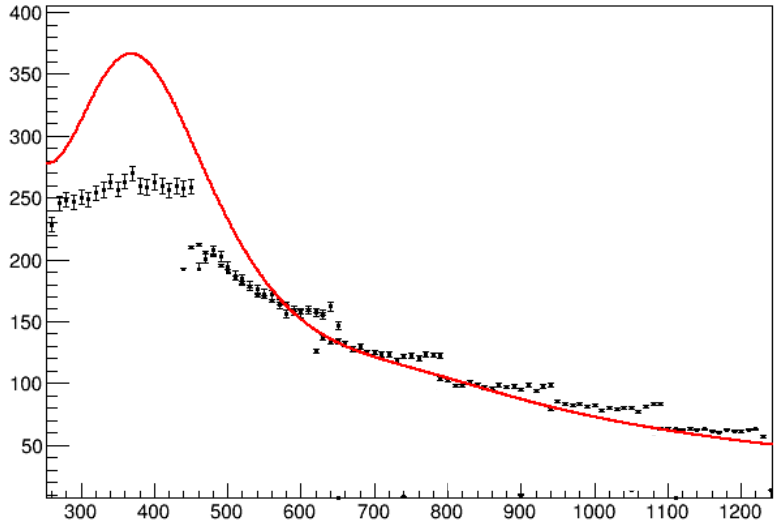
2.254 GeV 5T transverse Carbon, acc=3.1e-10



3.350 GeV Carbon, acc=2.6e-10



3.350 GeV 5T Carbon, acc=3.1e-10



-Need to look at other settings/materials, but looks promising!
-There still seems to be an issue with a supressed delta at all settings.