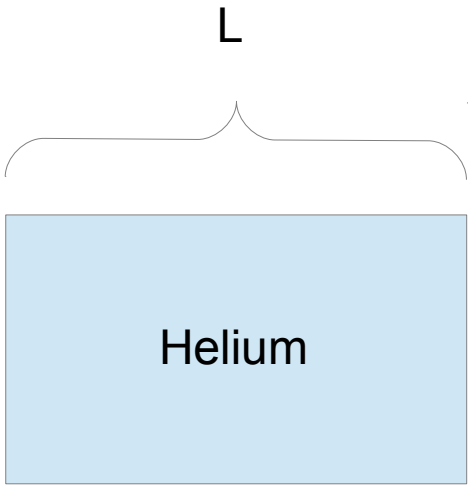
Dilution Parameterization and Scaling
6/18/14

Dilution run parameterization

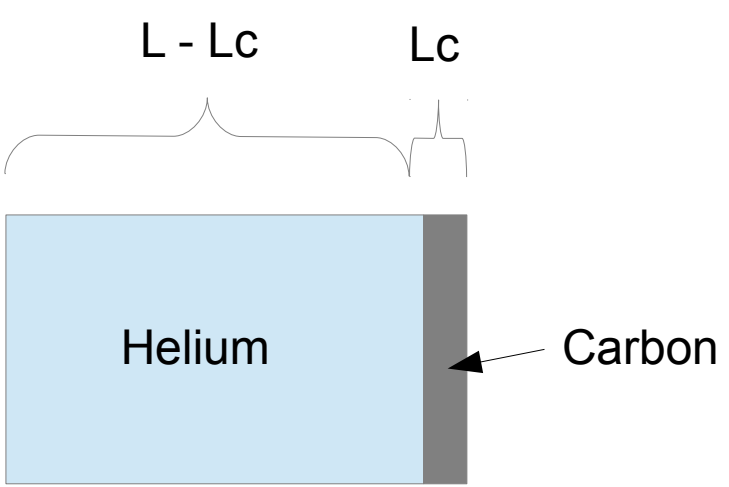
Empty Dilution Run



$$Y_{He} = \frac{1}{L} Y_{Empty}$$

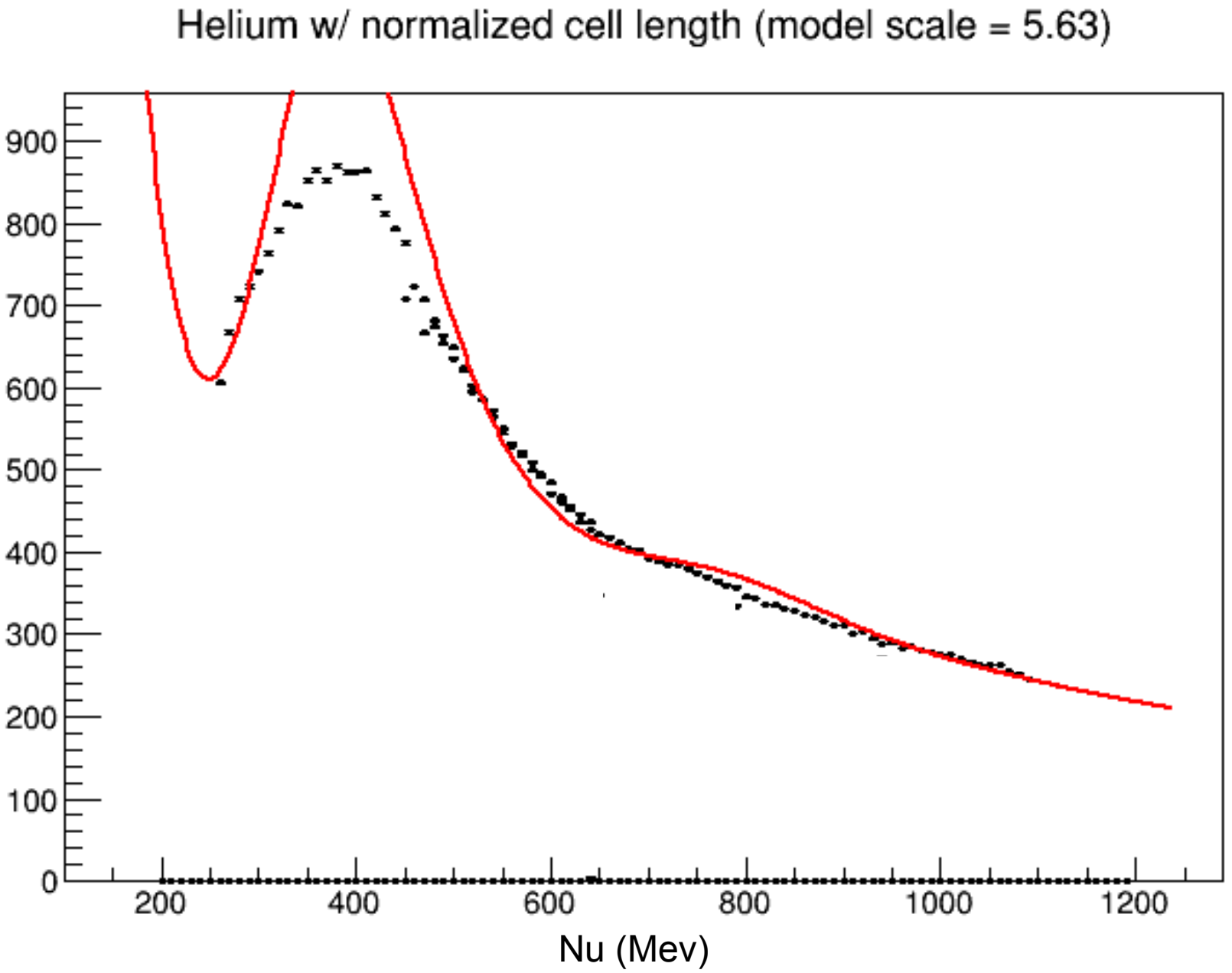
Helium yield per cm of helium.

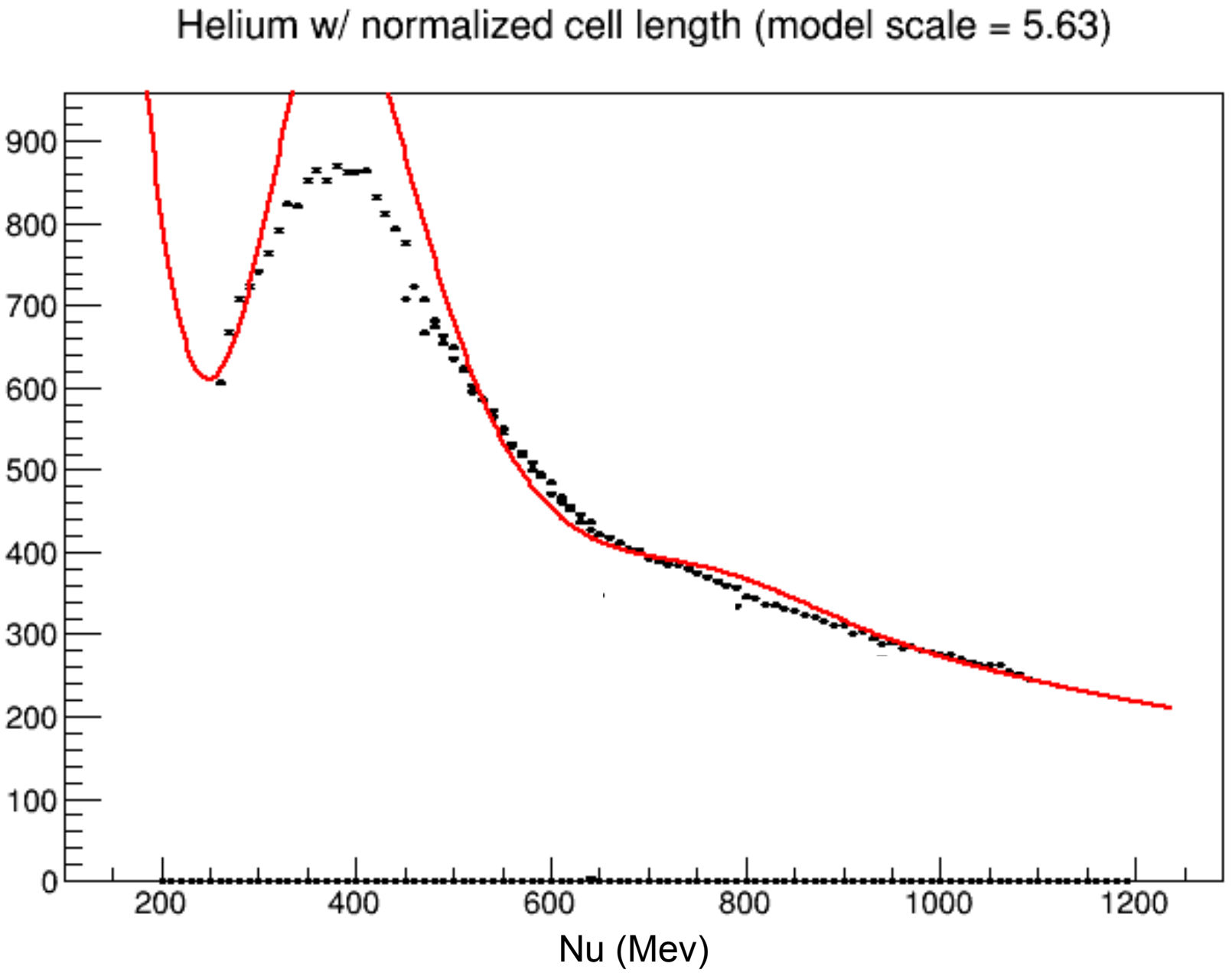
Carbon Dilution Run



$$Y_C = \frac{1}{Lc}\left(Y_{Carbon} - \left(L - Lc\right) Y_{He}\right)$$

Carbon yield per cm of Carbon.


Helium w/ normalized cell length (model scale = 5.63)
900
800
700
600
500
400
300
200
100
0
200
400
600
800
1000
1200
Nu (Mev)


Helium w/ normalized cell length (model scale = 5.63)
900
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600
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200
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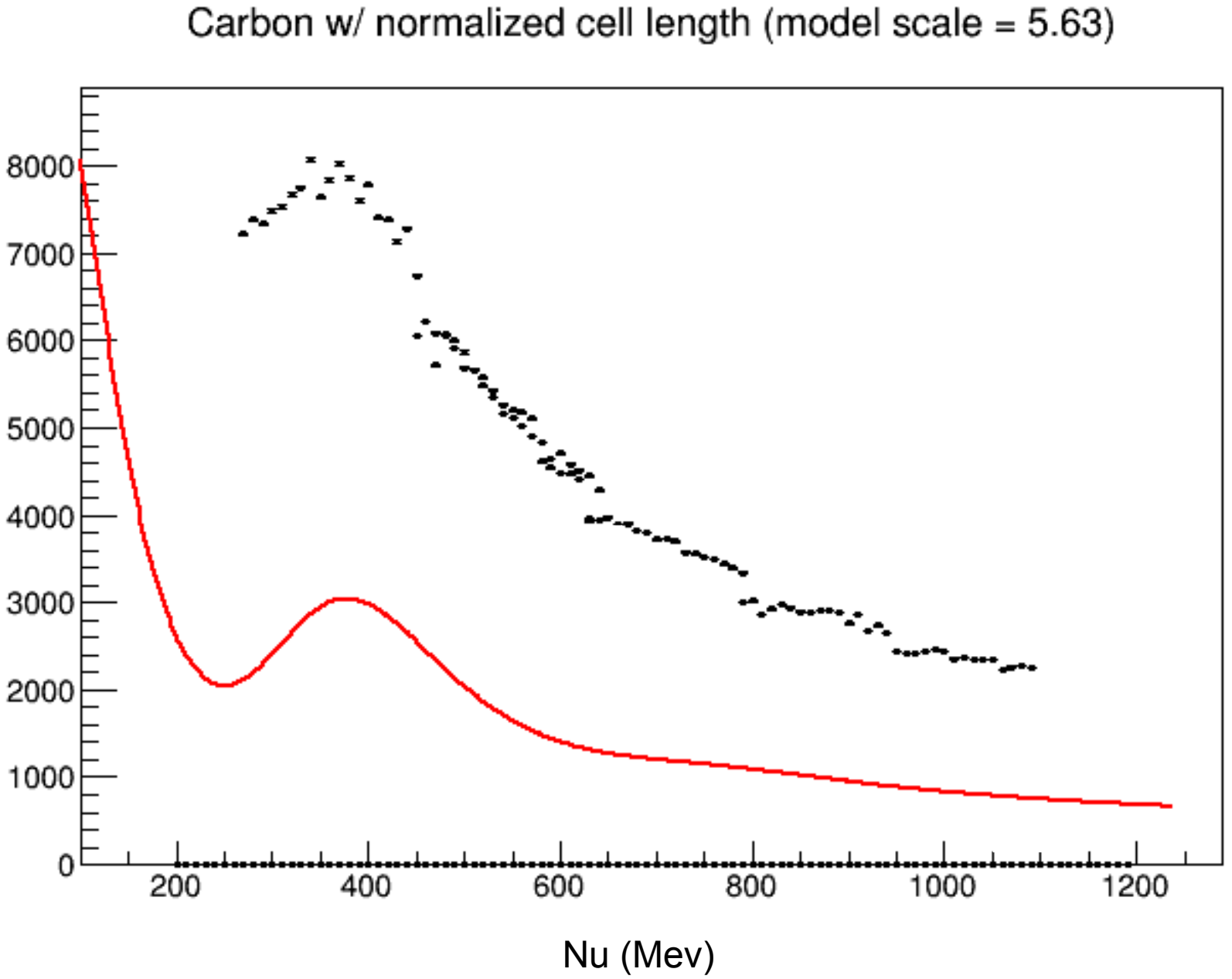
0
200
400
600
800
1000
1200
Nu (Mev)


Carbon w/ normalized cell length (model scale = 5.63)
8000
7000
6000
5000
4000
3000
2000
1000
0
200
400
600
800
1000
1200
Nu (Mev)

$$Y_C = Y_{Carbon} - (L - Lc)\, Y_{He}$$

- This yield is unnormalized by carbon disk length, so we are looking at scattering off 0.3175cm of carbon.
- The Helium yield in the above equation is scaled to match the radiation length of carbon in the first plot.
- No radiation length scaling in the second plot.