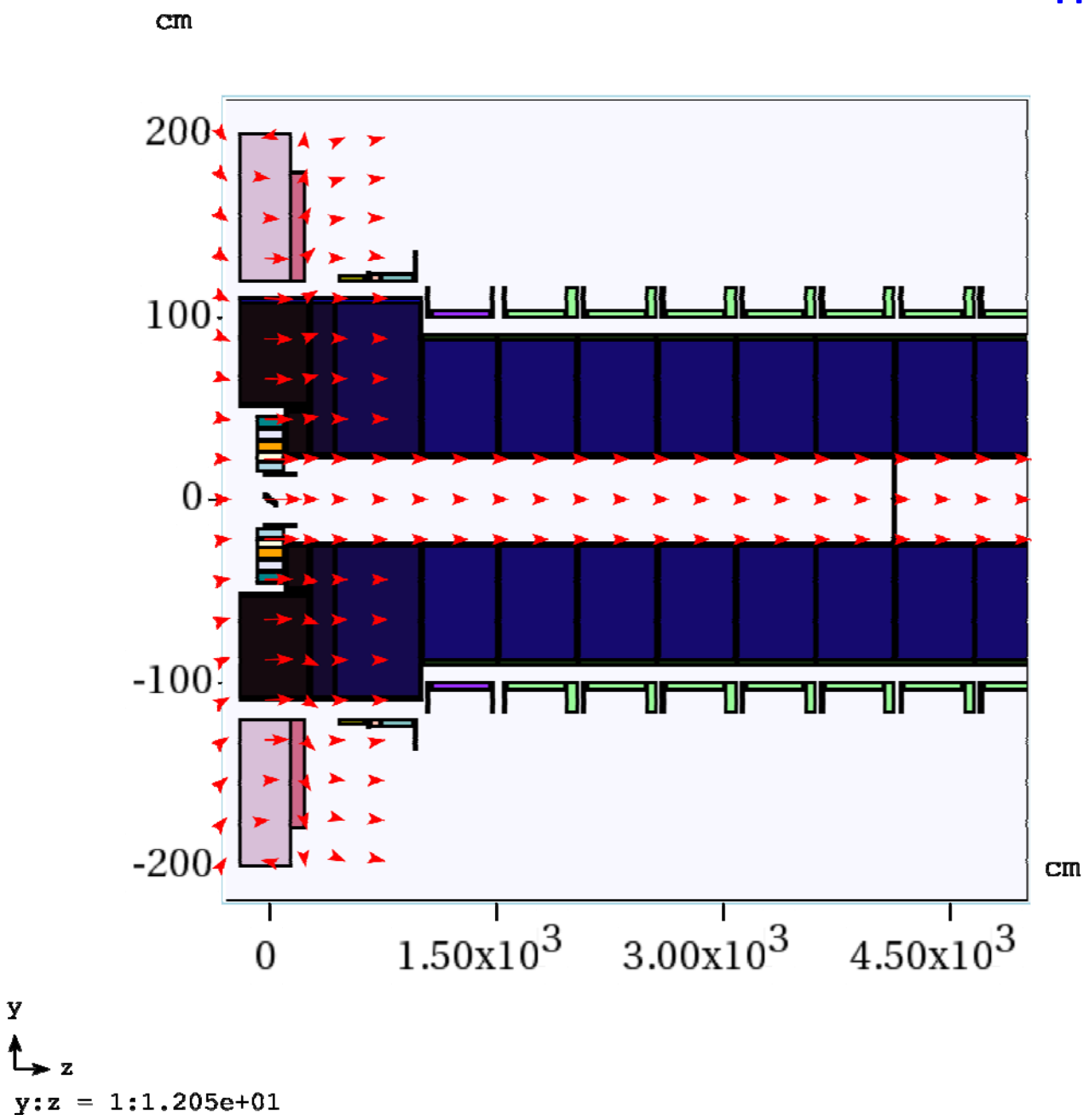
Preliminary Results from 20to4T5m Configuration

X. Ding

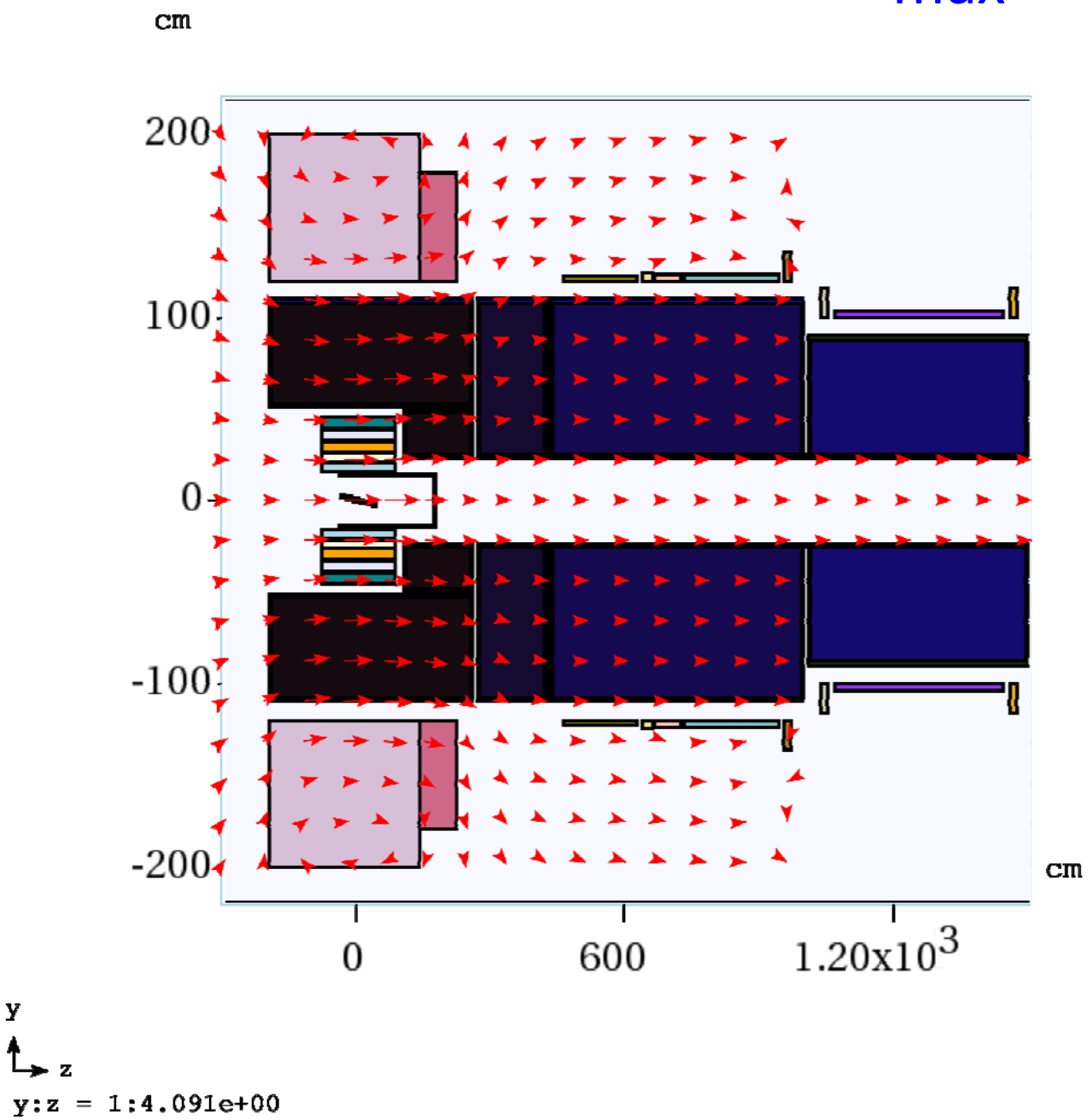
AAG meeting, BNL

June 18, 2015

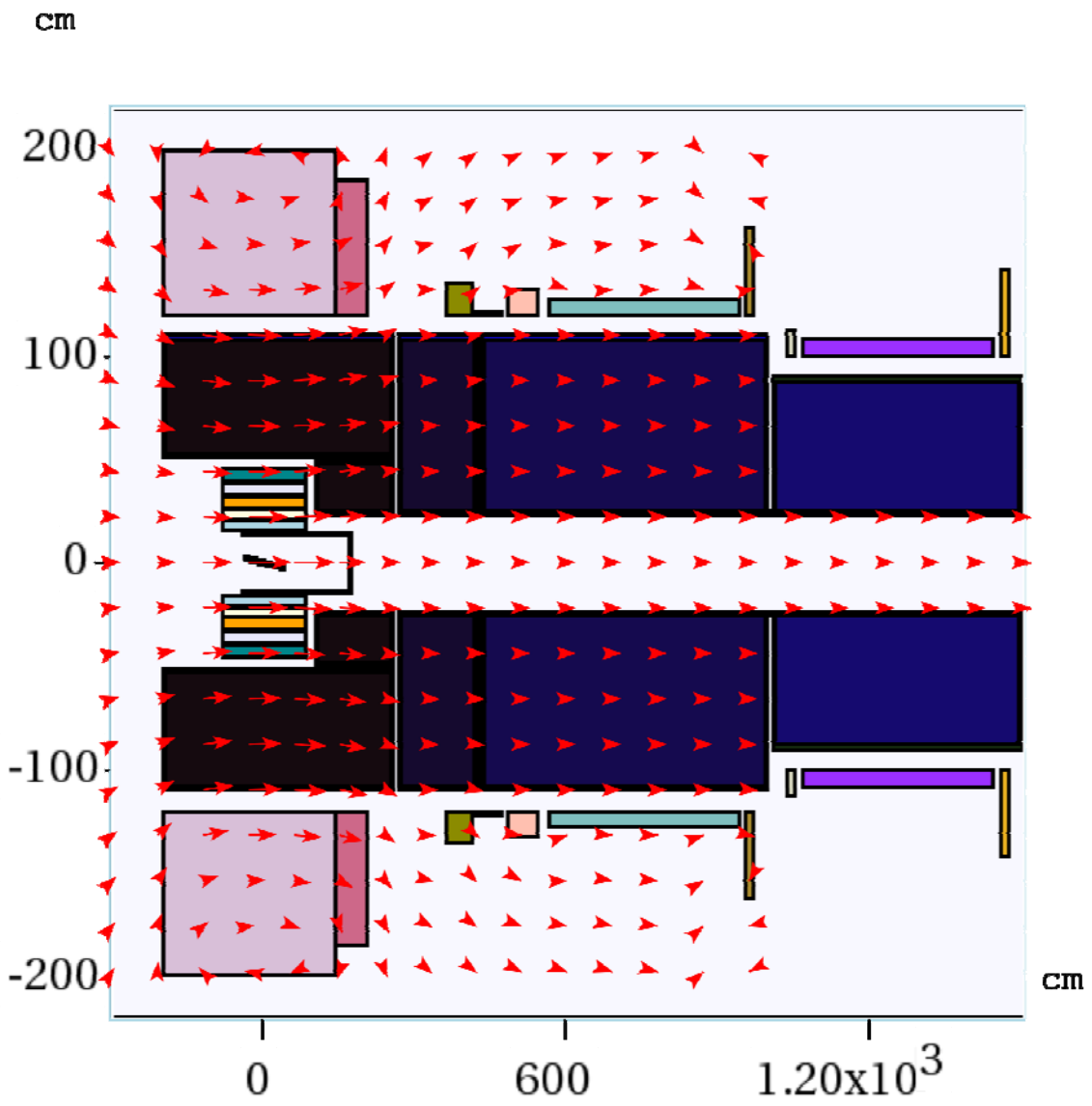
20to2T5m Configuration (z_{max} = 50 m)



20to2T5m Configuration(z_{max} = 15 m)

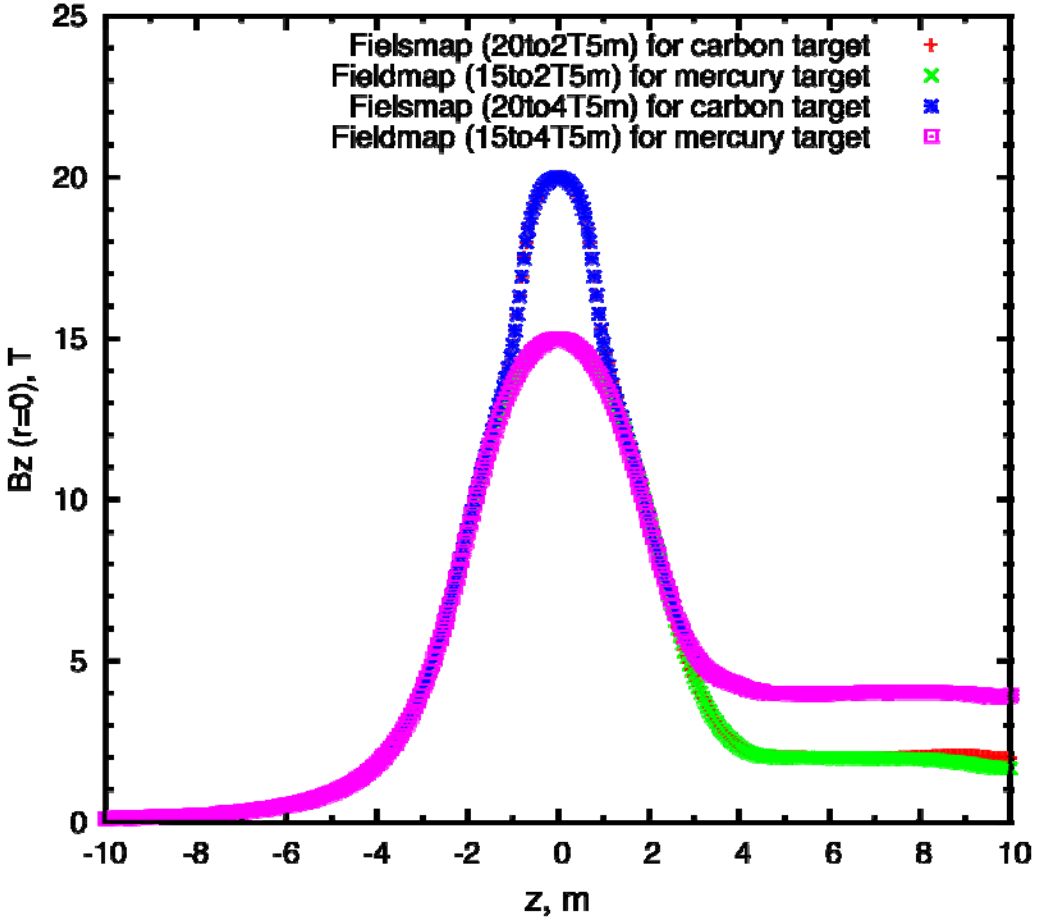


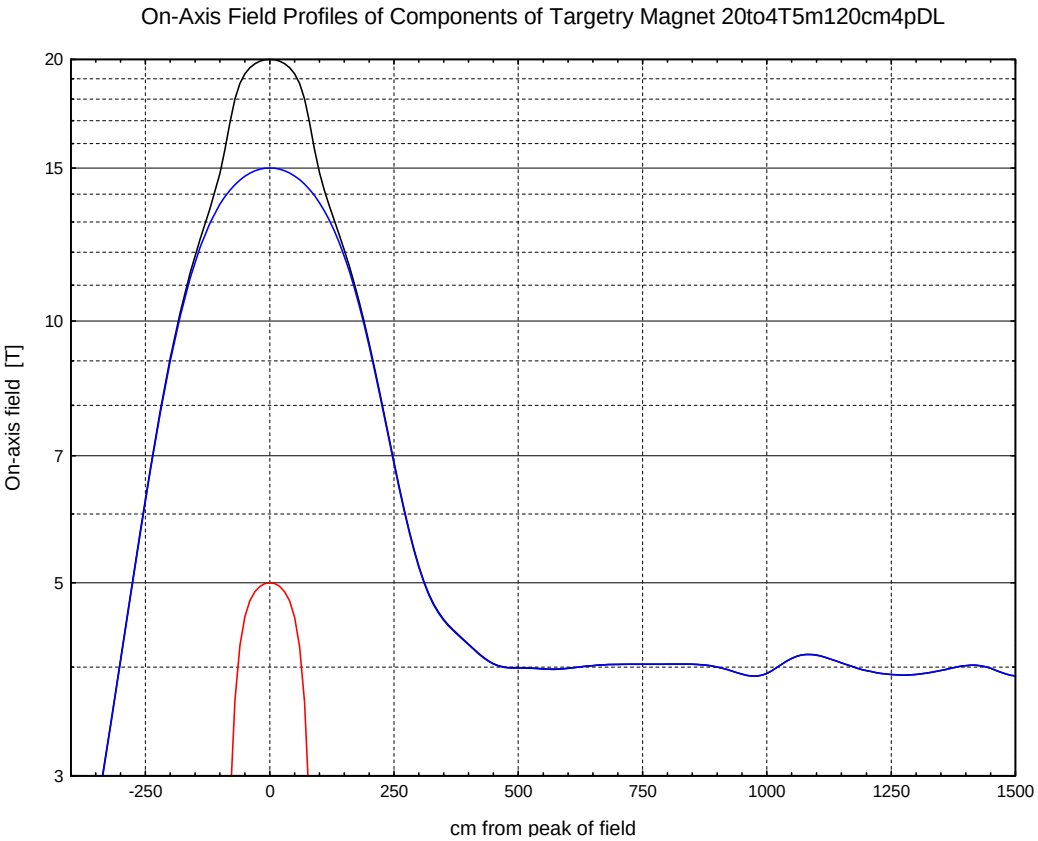
20to4T5m Configuration(z_{max} = 15 m)



Questions:
(1) Magnet module and tungsten shielding module for 15 m < z < 50 m (only 10 SC coils given by Bob Weggel for 20to4T5m rather than 13 SC coils for previous 20to2T5m)?
(2) Modification of tungsten Shielding modules for 3 m < z < 10 m to match the magnet modules?

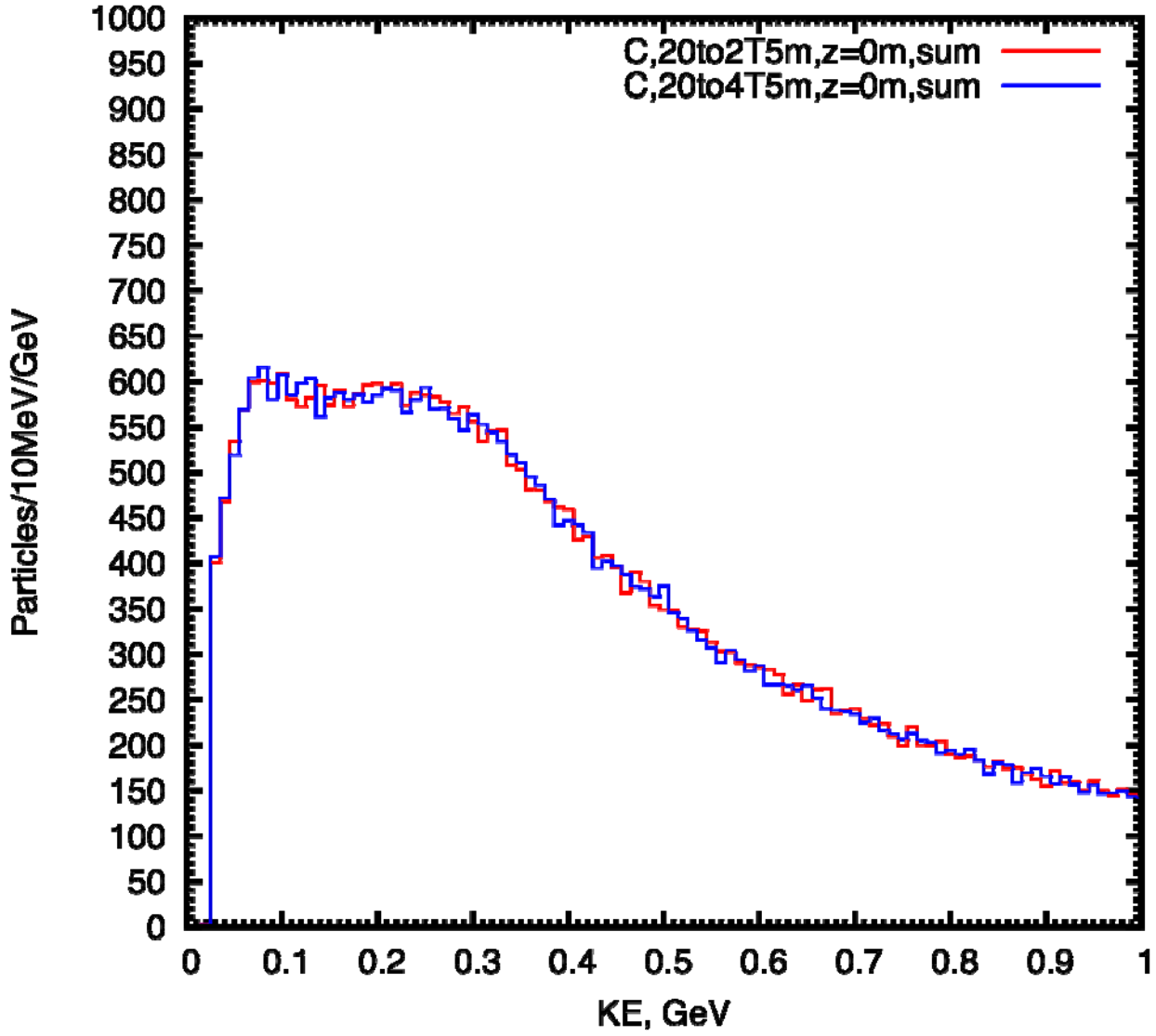
Fieldmap on SC axis





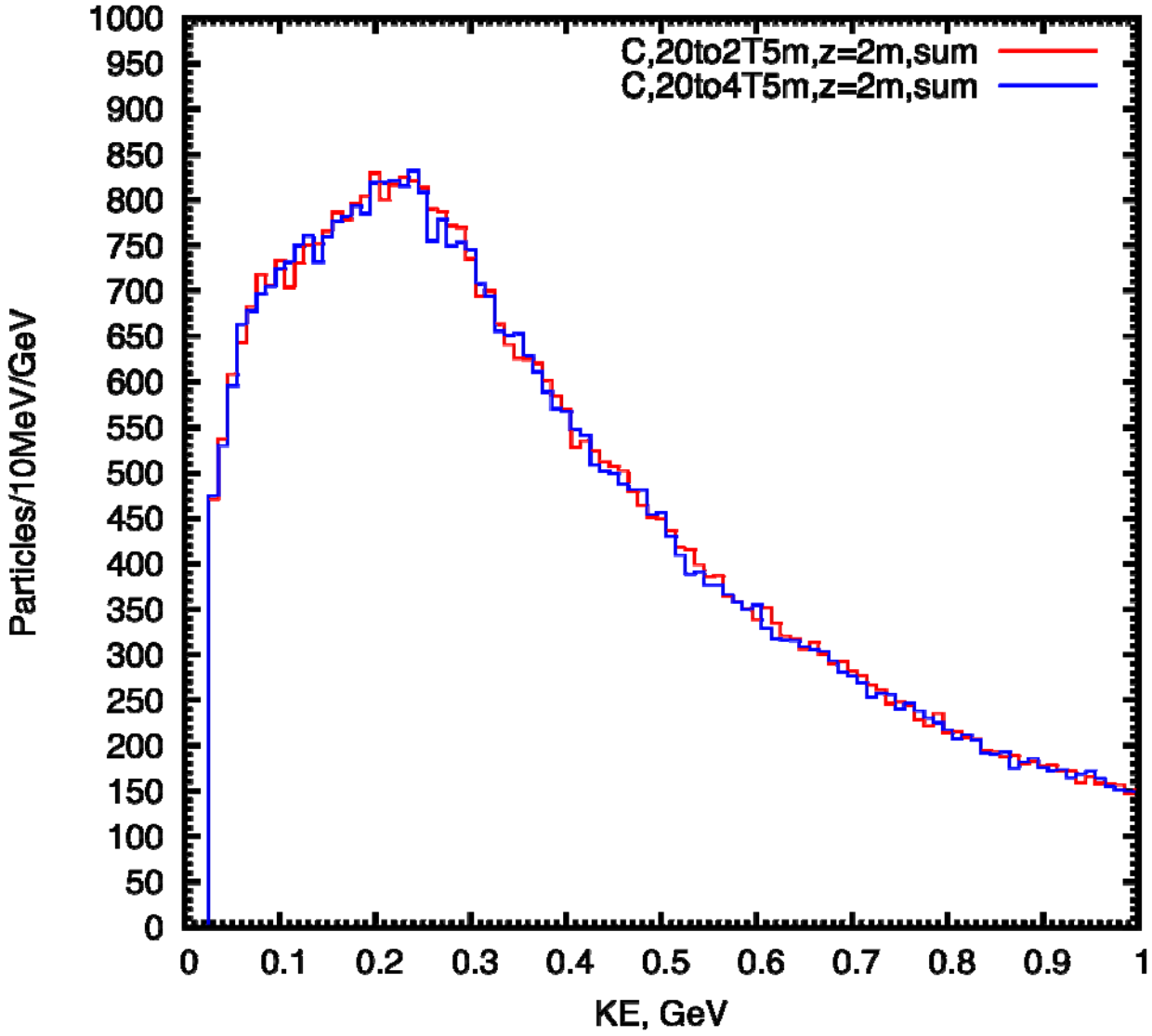
Comparison of Energy Spectra (z = 0 m)

sum of all positive and negative particles



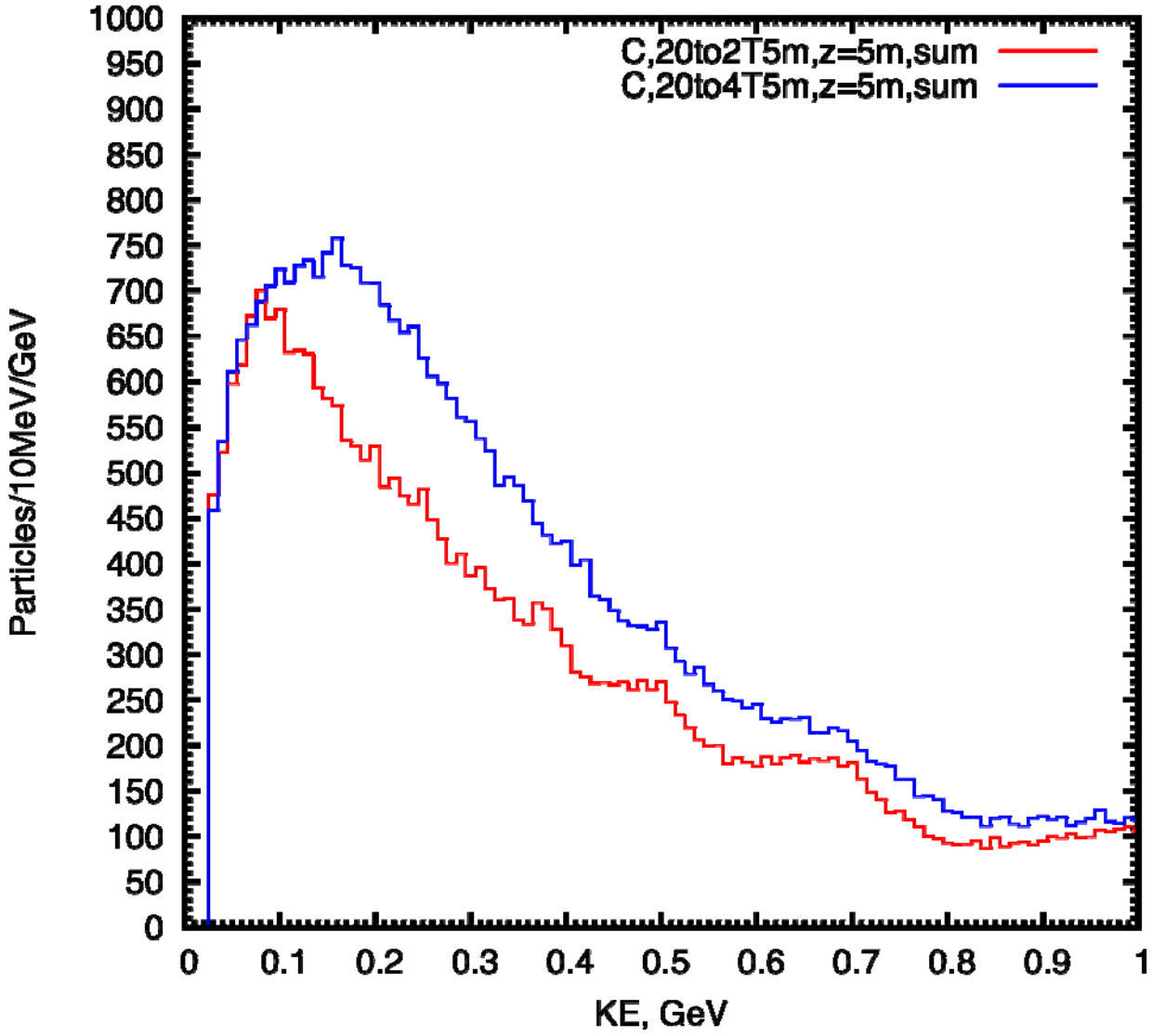
Comparison of Energy Spectra (z = 2 m)

sum of all positive and negative particles



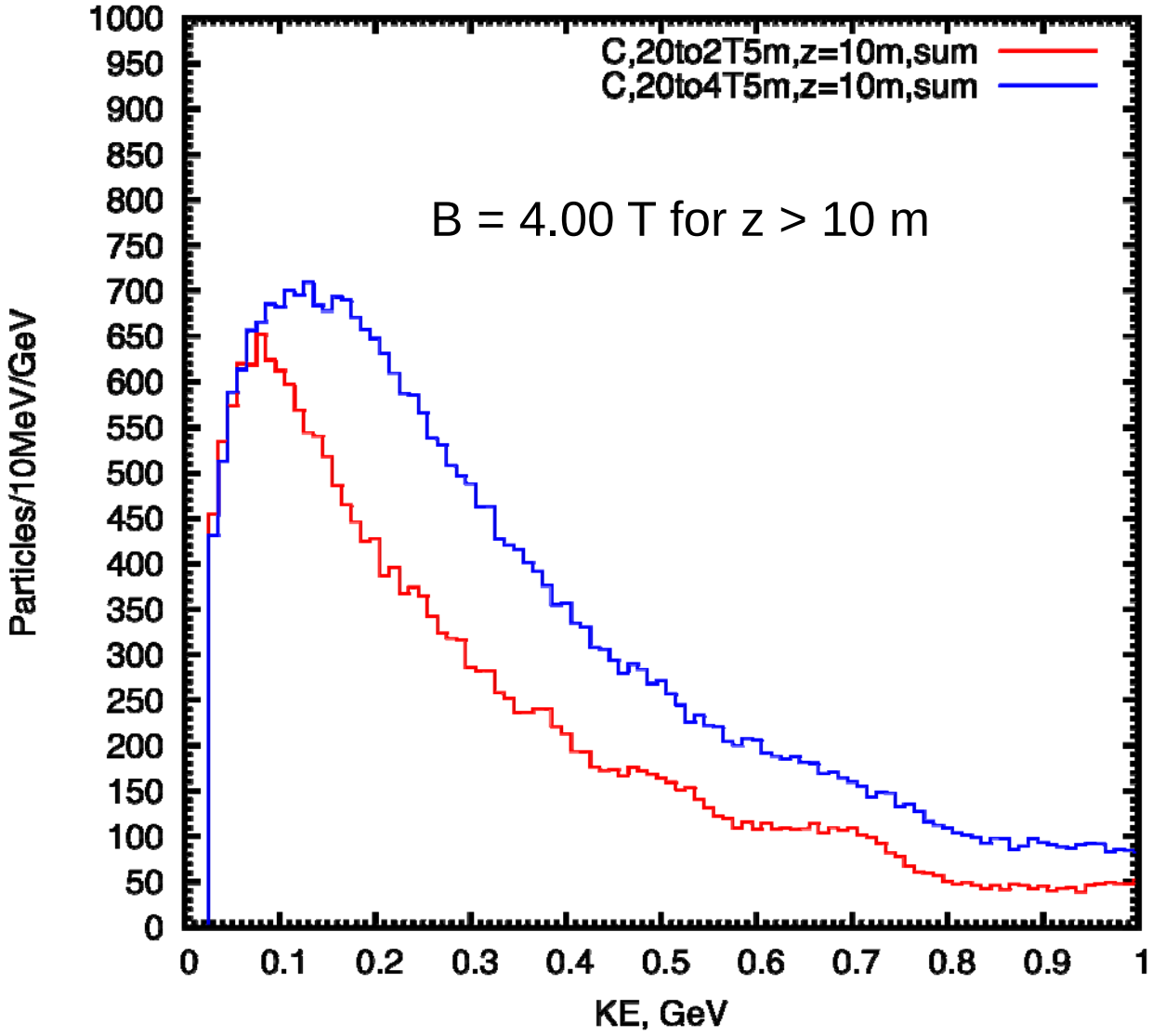
Comparison of Energy Spectra (z = 5 m)

sum of all positive and negative particles



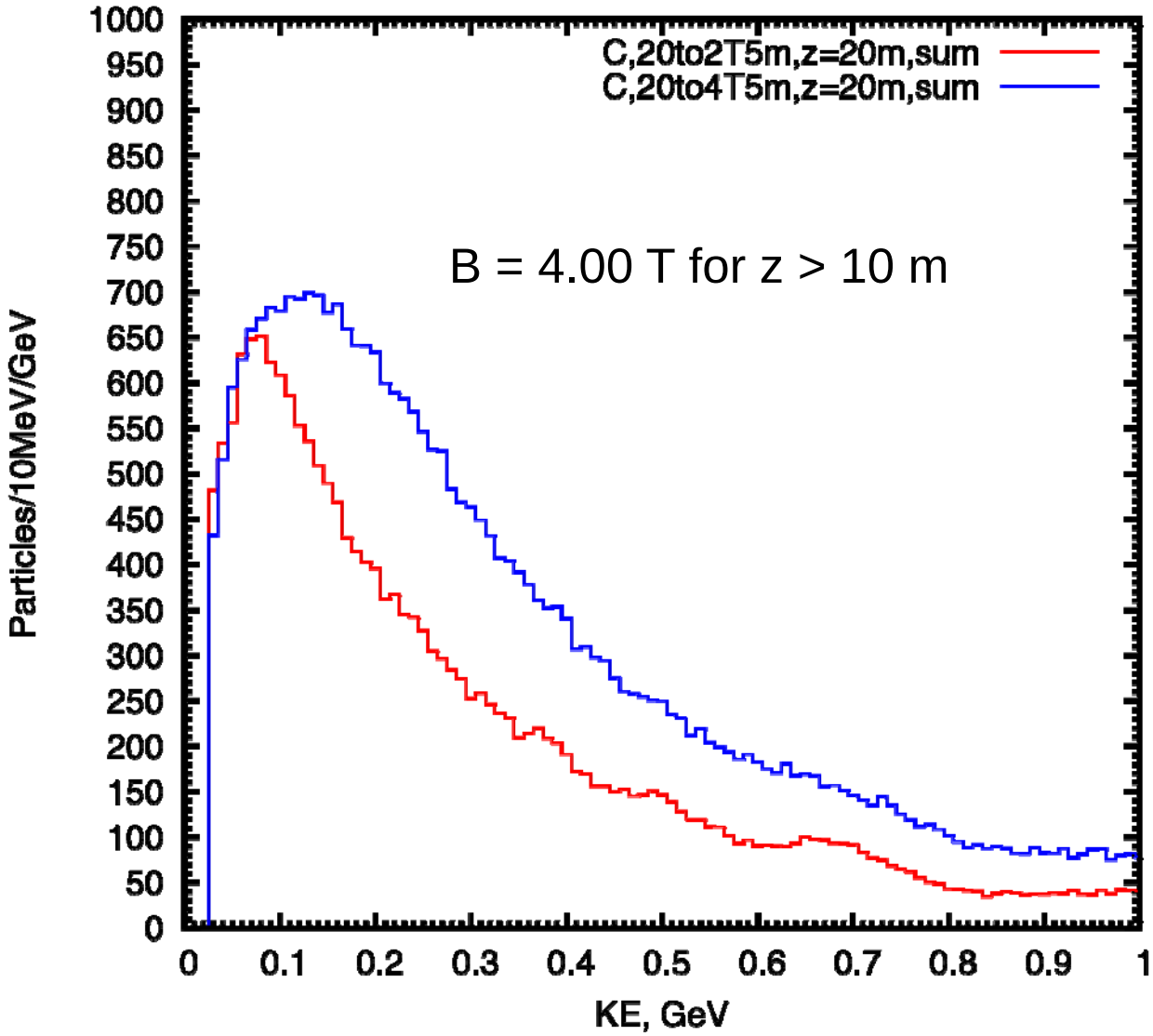
Comparison of Energy Spectra (z = 10 m)

sum of all positive and negative particles



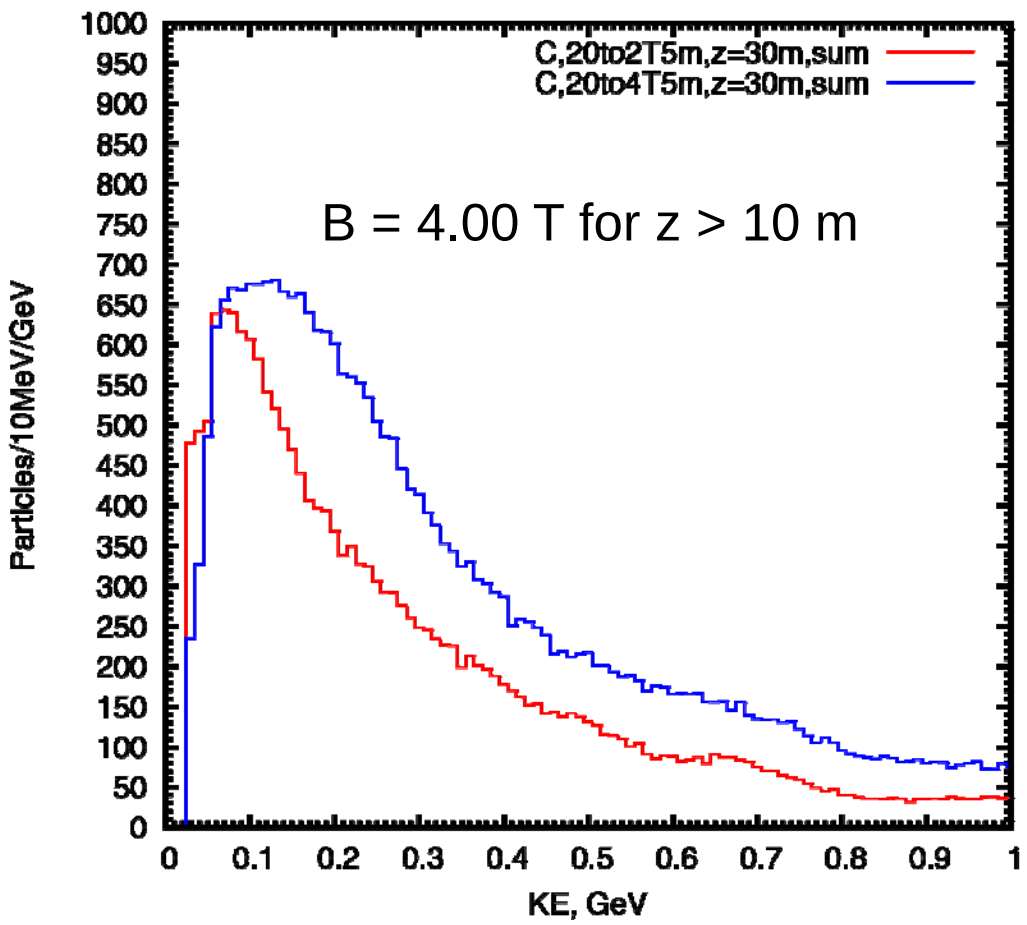
Comparison of Energy Spectra (z = 20 m)

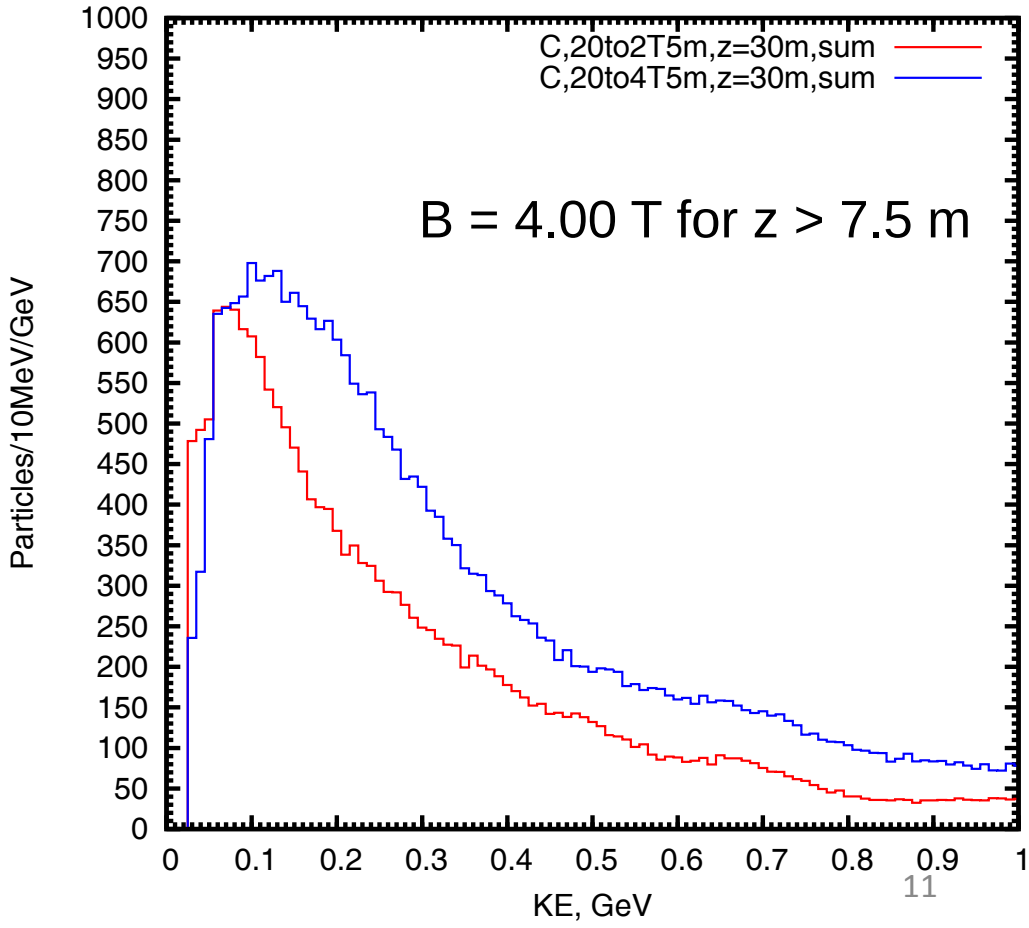
sum of all positive and negative particles



Comparison of Energy Spectra (z = 30 m)

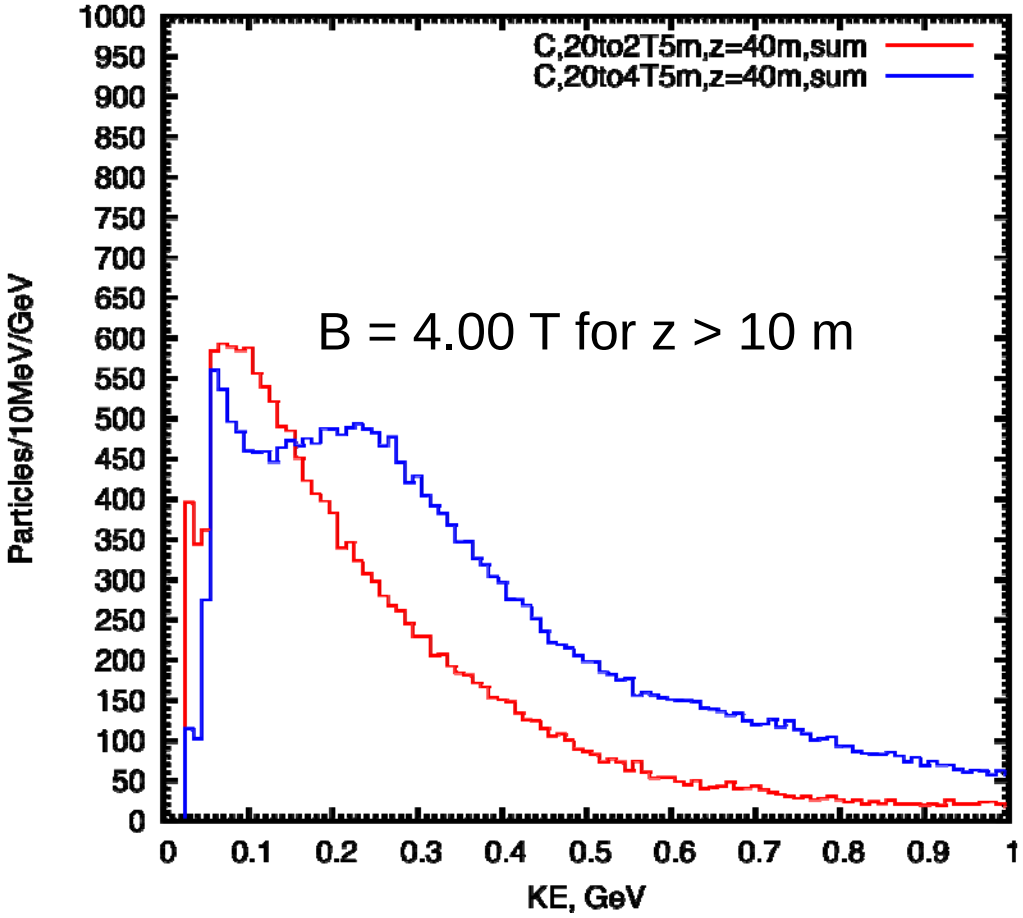
sum of all positive and negative particles

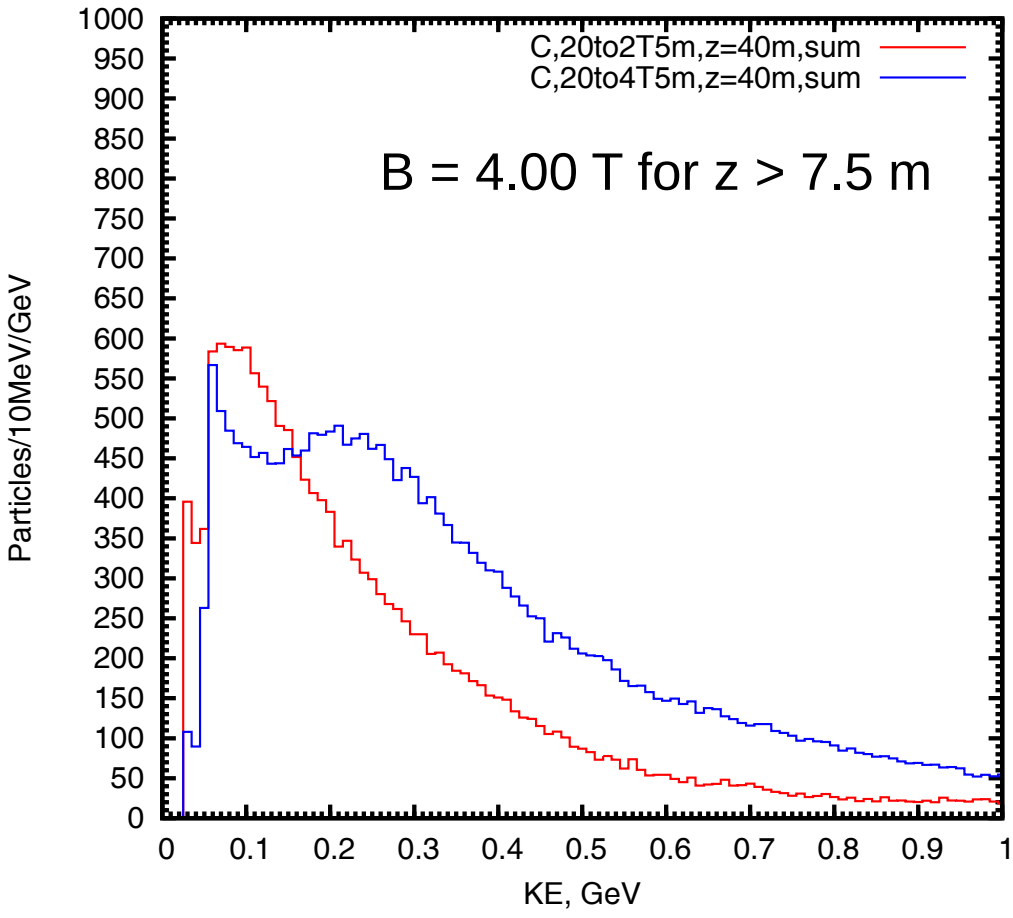




Comparison of Energy Spectra (z = 40 m)

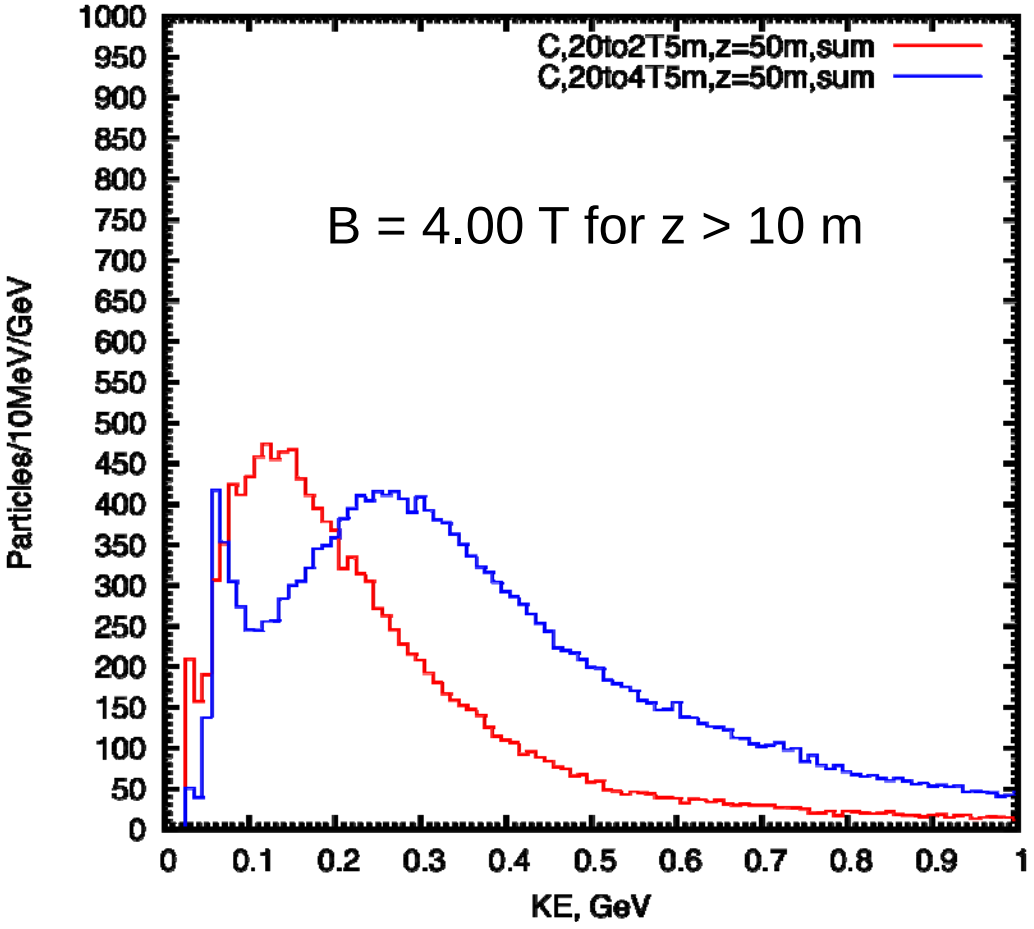
sum of all positive and negative particles

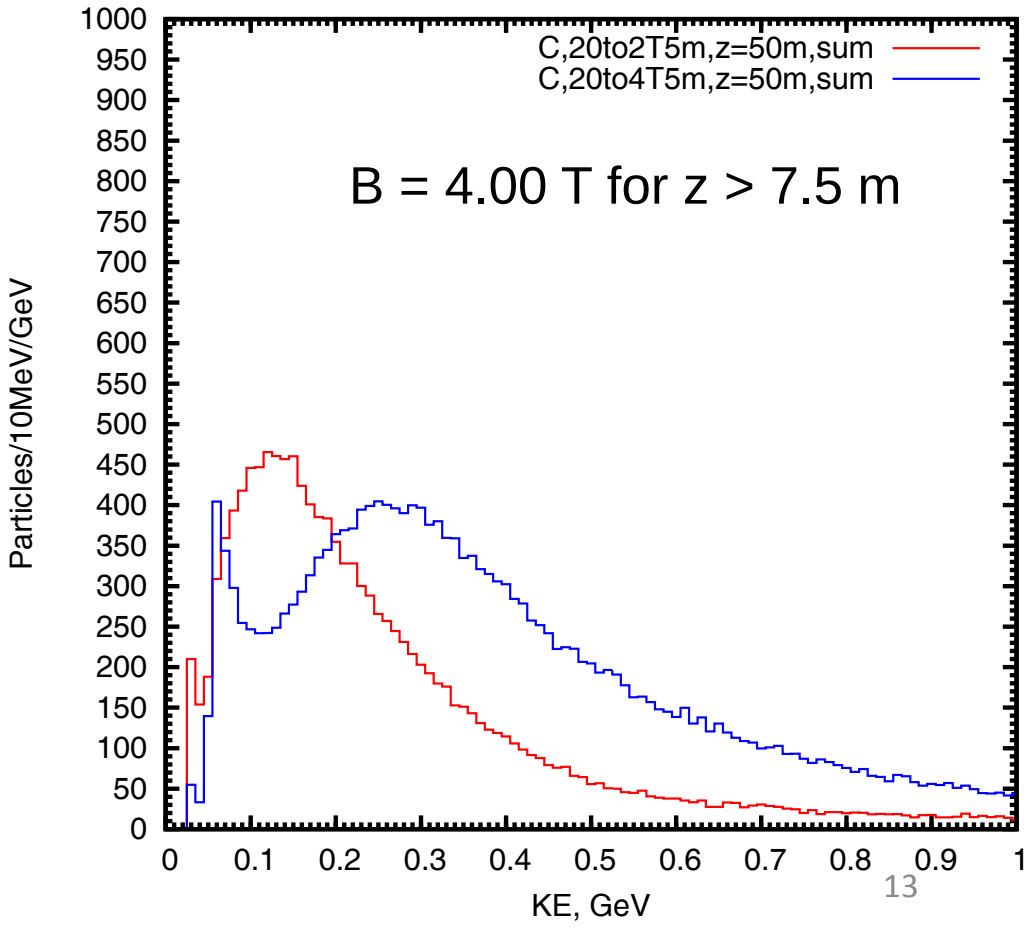




Comparison of Energy Spectra (z = 50 m)

sum of all positive and negative particles





Summary

Comparing 20to4T5m with 20to2T5m, we found 30% decrease in particle production at z = 50 m with KE selection of 40 MeV < KE < 180 MeV.

Questions:

(1) Is a dent between 0.07 < KE < 2.4 GeV real (or a spike around KE = 0.06 GeV real)?

(2) If the peak is around 0.28 GeV, do we need use different KE selection?

(1) More spectra comparison at z = 5,15,20,30,40,45 m will come soon.