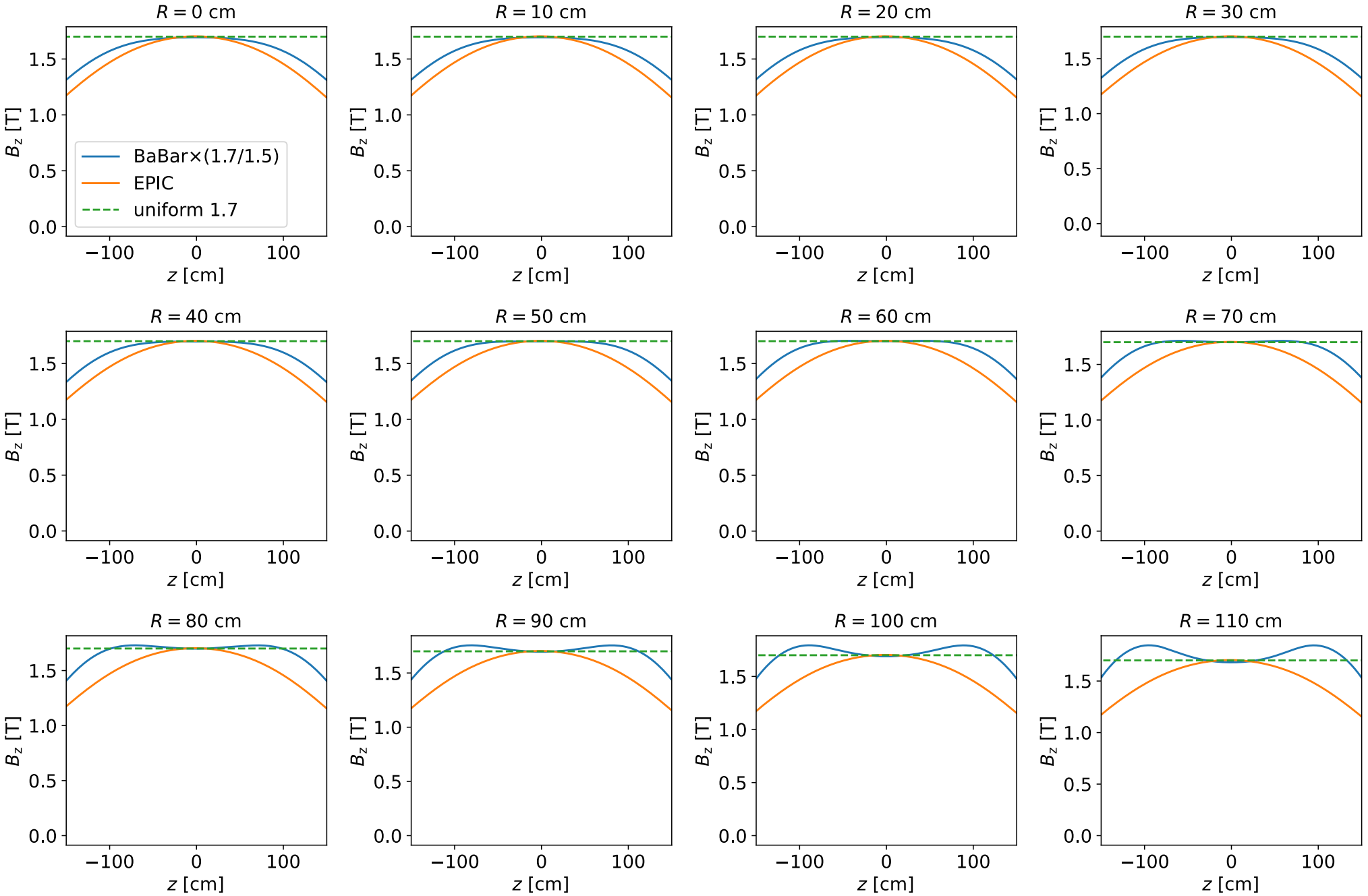
Field map comparison

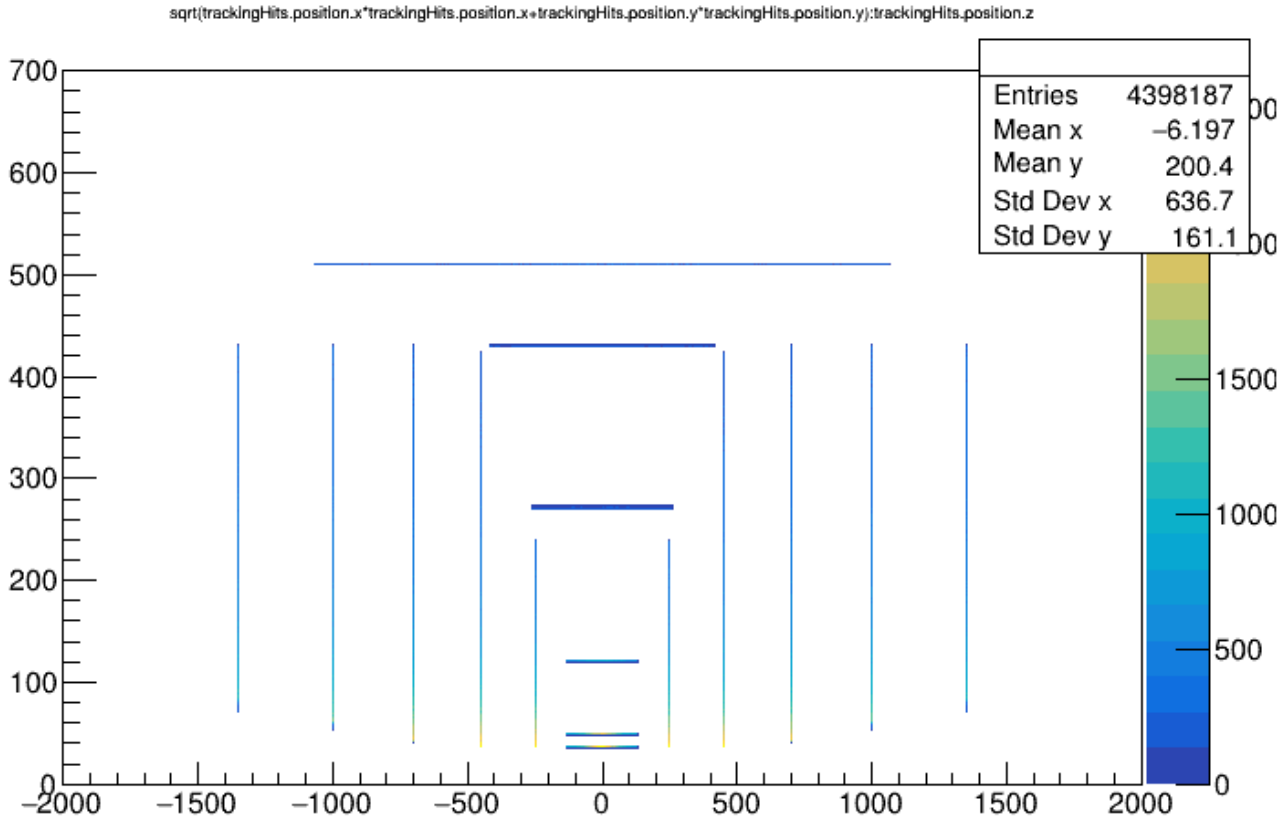
Figure credit: Rey



Effect of the different B field settings

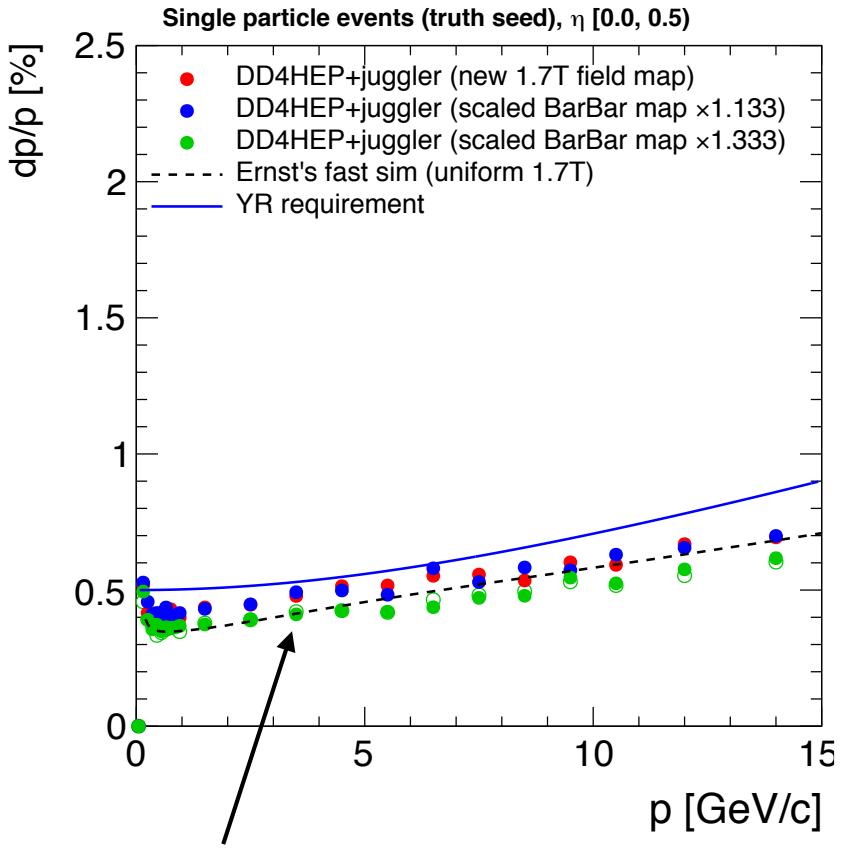
- Same (symmetric) geometry with different B field settings
  - Barrel MPGD: spatial resolution 150um, r= 51cm
  - Barrel silicon: spatial resolution 10um/sqrt(12), r= 3.6, 4.8, 12, 27, 42cm
  - Endcap silicon: spatial resolution 10um/sqrt(12), z = 25, 45, 70, 100, 135cm
  - Support cone included in full simulation

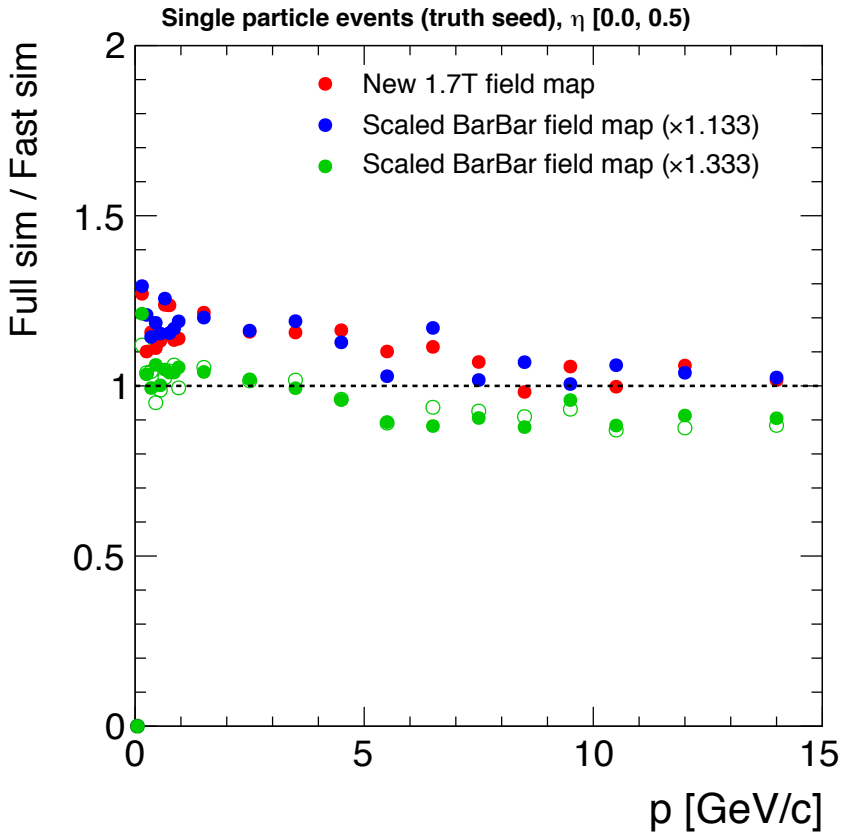
Symmetric geometry



Effect of the different B field settings

- Same geometry with different B field settings
  - New field map (1.7T)
  - Barbar field map (1.5T) scaled by 1.13333
  - Barbar field map (1.5T) scaled by 1.33333: 18% higher than 1.7T



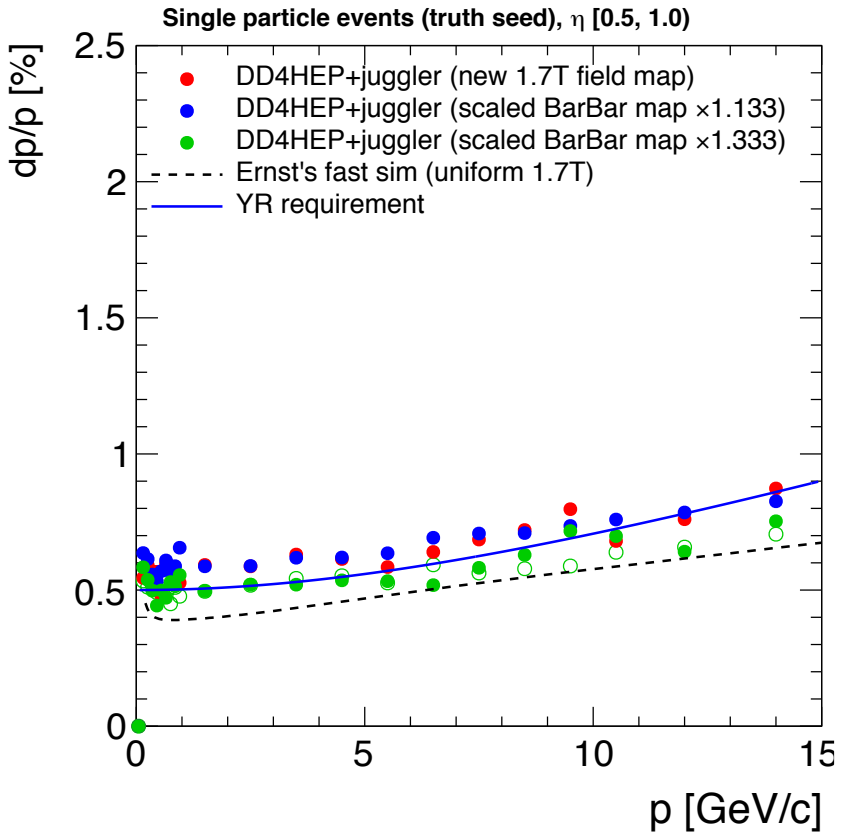


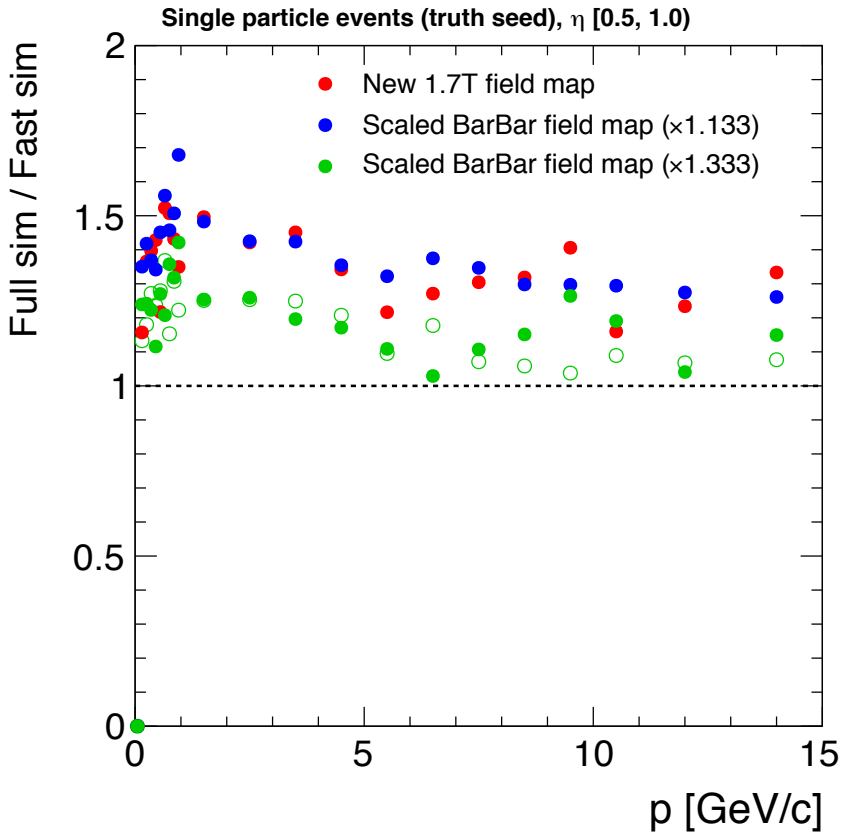
In the barrel region, the realistic B field ~ 1.7T

Open green cricules are the results I had before for the sysmetric geomtry and solid are as legend indicate

Effect of the different B field settings

- Same geometry with different B field settings
  - New field map (1.7T)
  - Barbar field map (1.5T) scaled by 1.13333
  - Barbar field map (1.5T) scaled by 1.33333: 18% higher than 1.7T

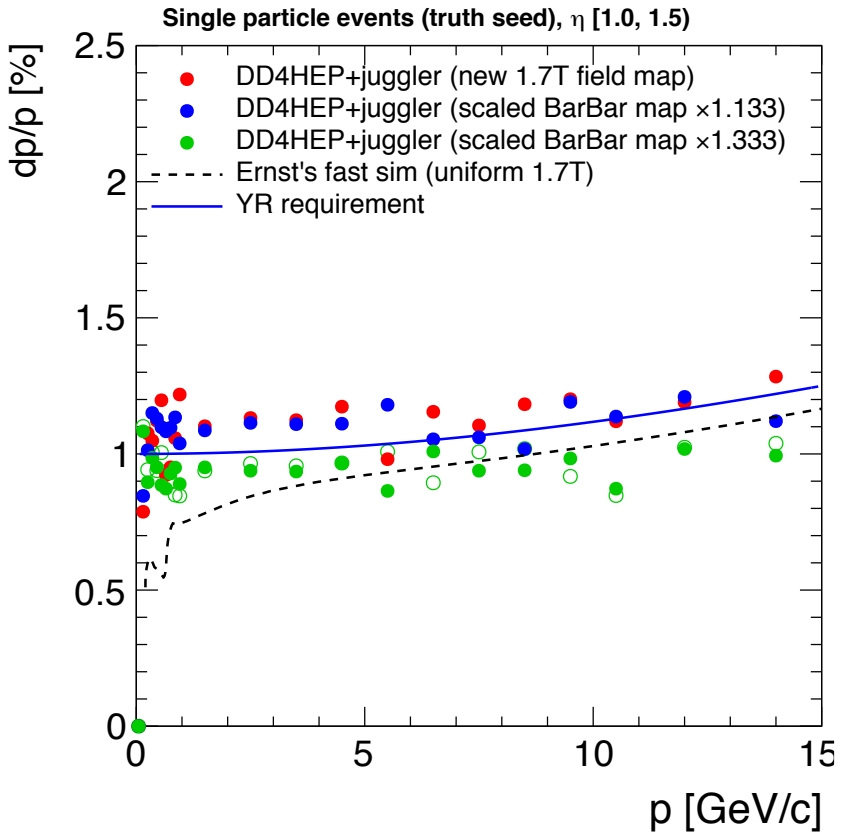


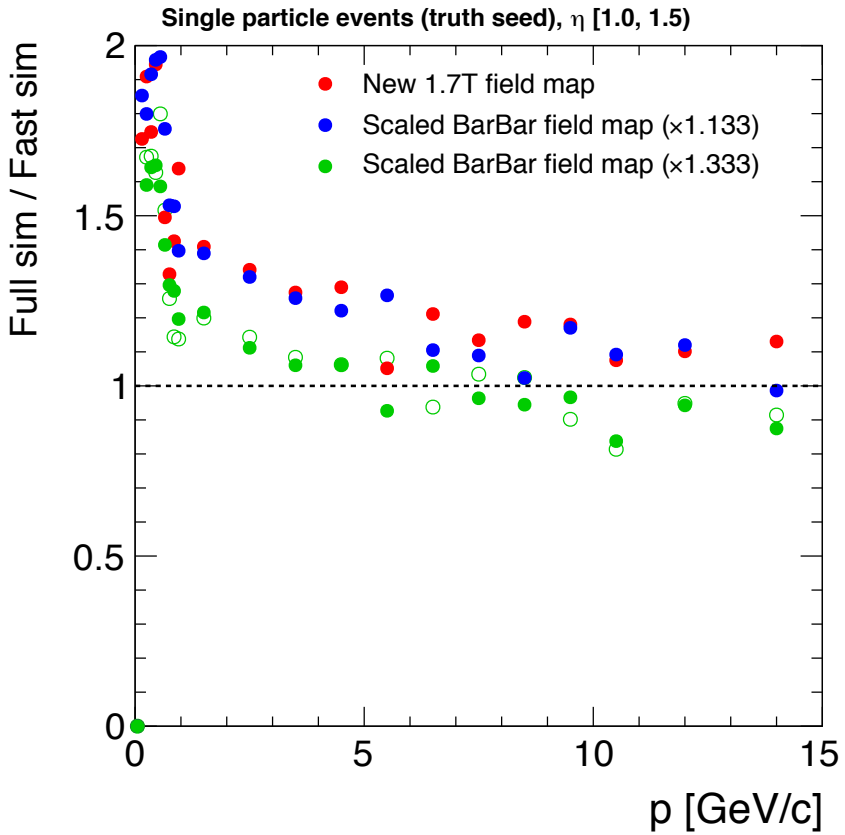


In the barrel region, the realistic B field ~ 1.7T

Effect of the different B field settings

- Same geometry with different B field settings
  - New field map (1.7T)
  - Barbar field map (1.5T) scaled by 1.13333
  - Barbar field map (1.5T) scaled by 1.33333: 18% higher than 1.7T



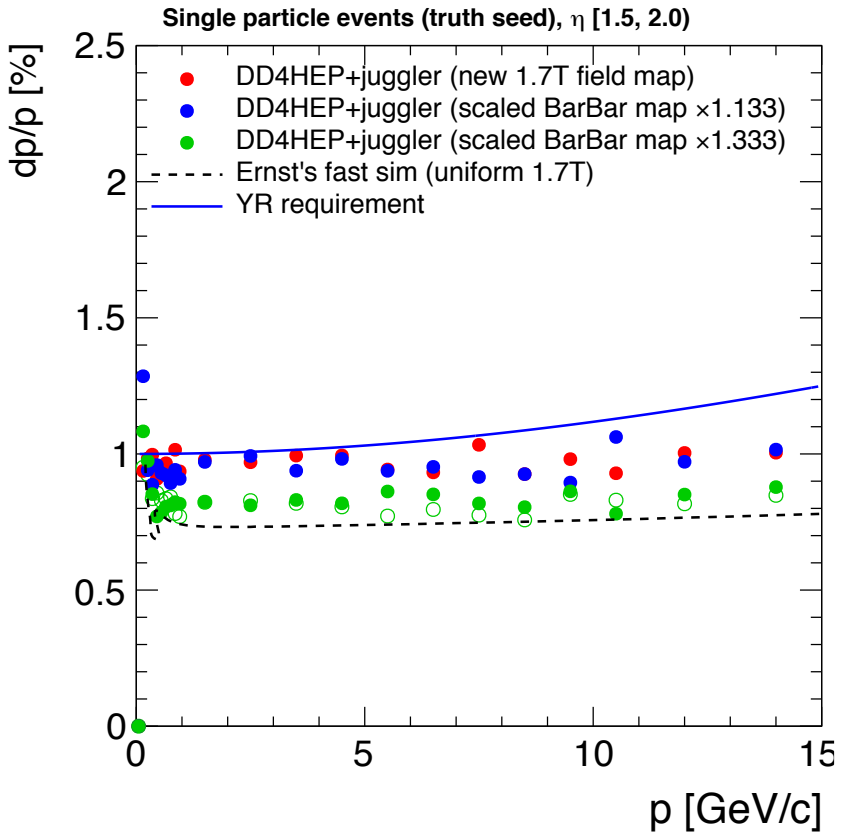


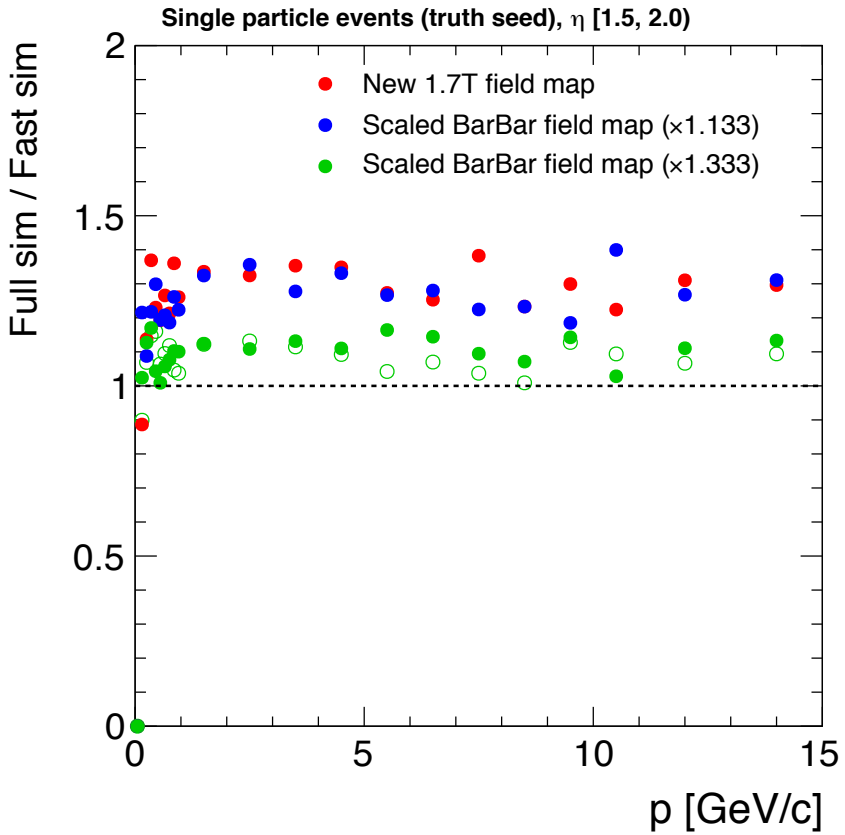
In the barrel region, the realistic B field ~ 1.7T

In the disks region, the realistic B field < 1.7T

Effect of the different B field settings

- Same geometry with different B field settings
  - New field map (1.7T)
  - Barbar field map (1.5T) scaled by 1.13333
  - Barbar field map (1.5T) scaled by 1.33333: 18% higher than 1.7T



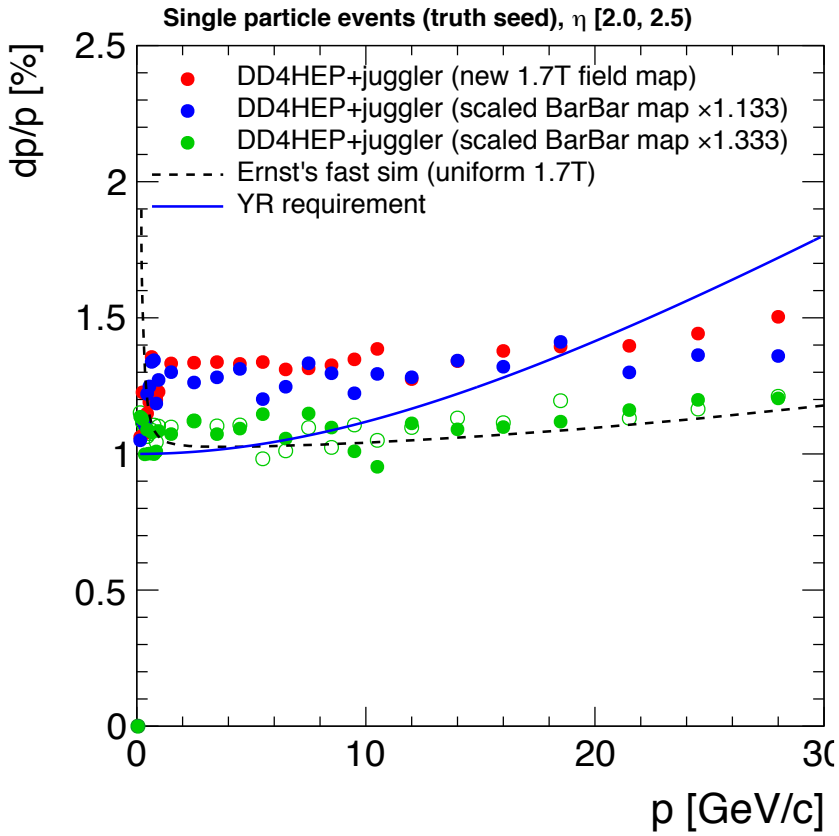


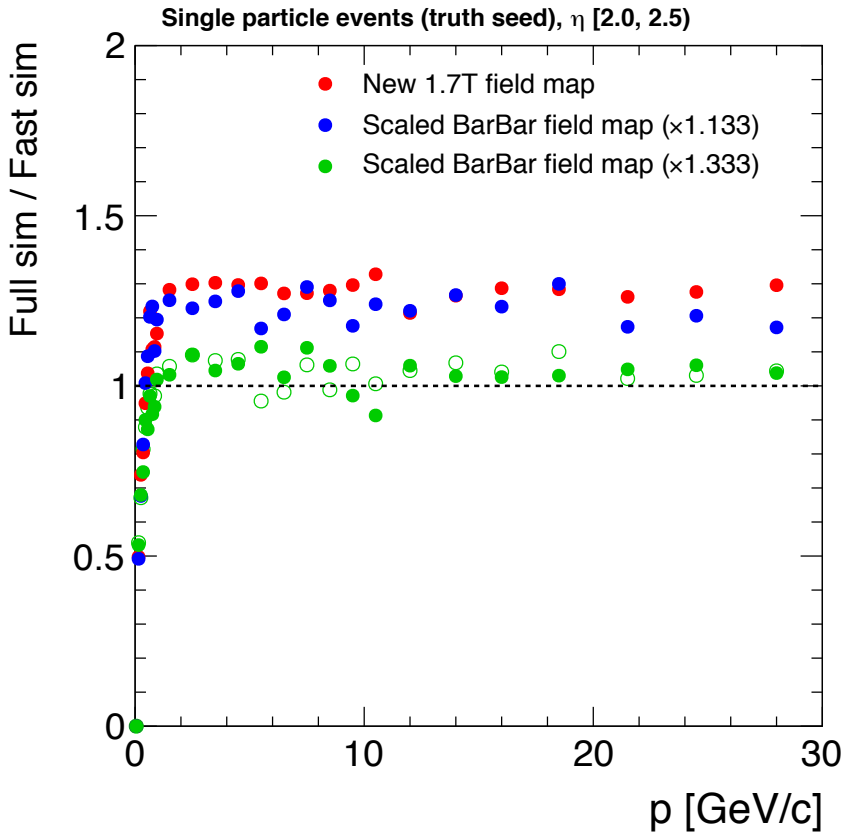
In the barrel region, the realistic B field ~ 1.7T

In the disks region, the realistic B field < 1.7T

Effect of the different B field settings

- Same geometry with different B field settings
  - New field map (1.7T)
  - Barbar field map (1.5T) scaled by 1.13333
  - Barbar field map (1.5T) scaled by 1.33333: 18% higher than 1.7T



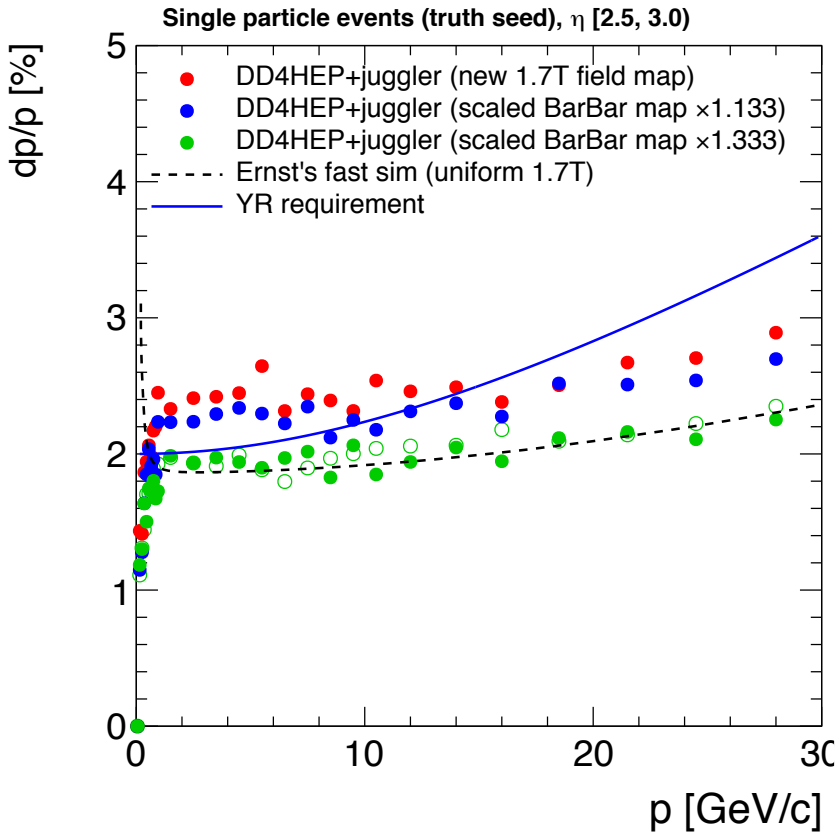


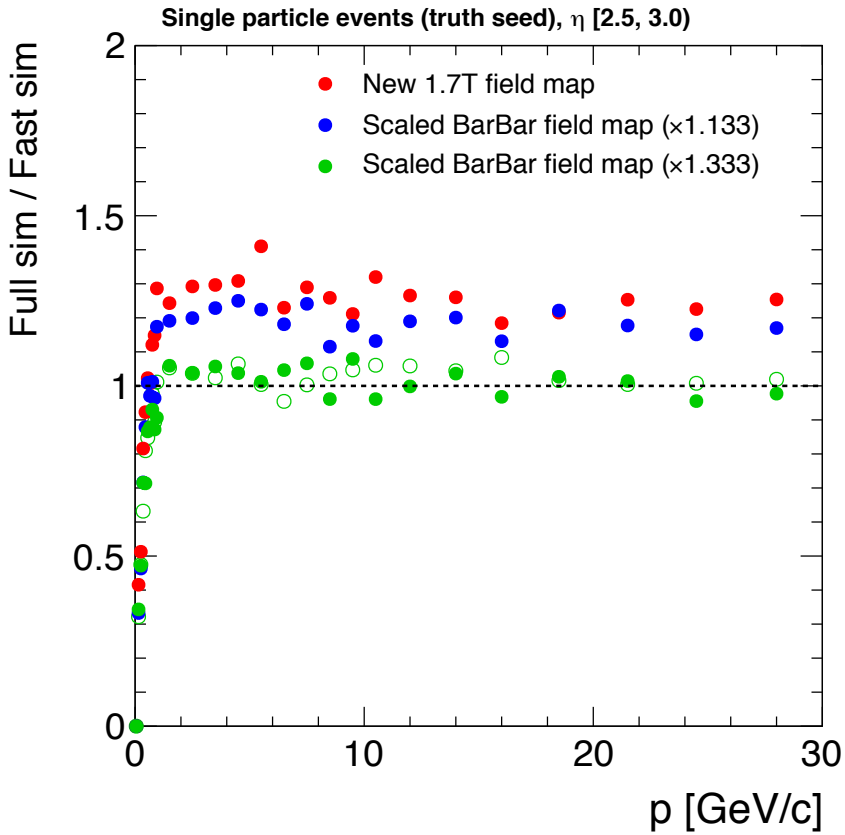
In the barrel region, the realistic B field ~ 1.7T

In the disks region, the realistic B field < 1.7T

Effect of the different B field settings

- Same geometry with different B field settings
  - New field map (1.7T)
  - Barbar field map (1.5T) scaled by 1.13333
  - Barbar field map (1.5T) scaled by 1.33333: 18% higher than 1.7T





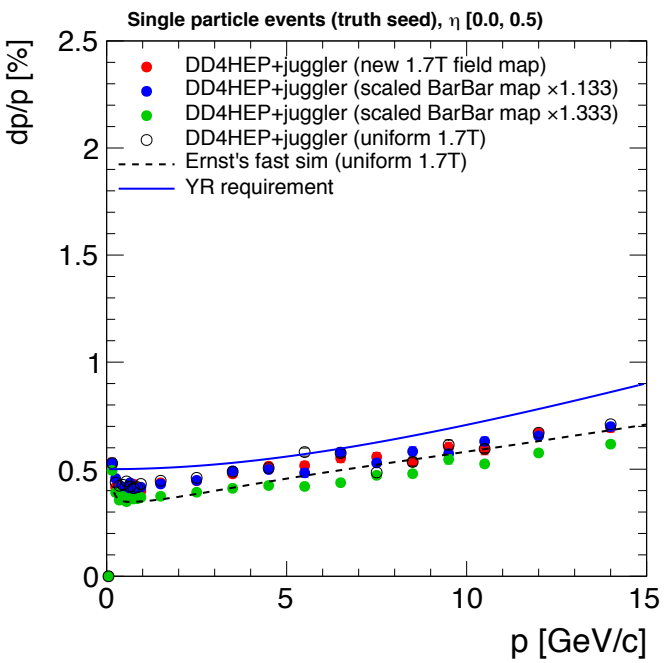
In the barrel region, the realistic B field ~ 1.7T

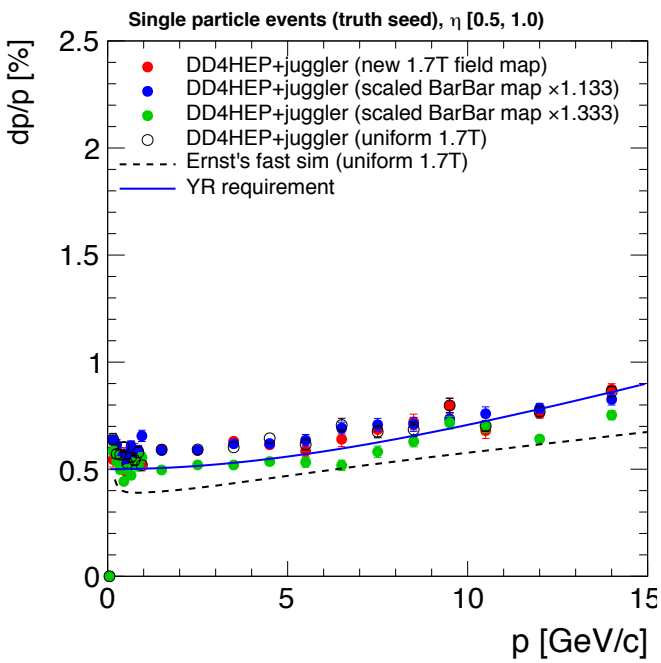
In the disks region, the realistic B field < 1.7T

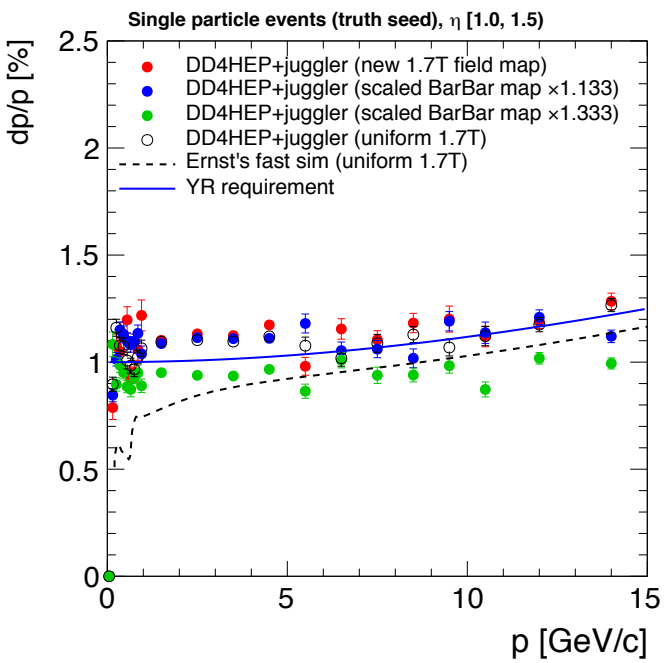
Summary

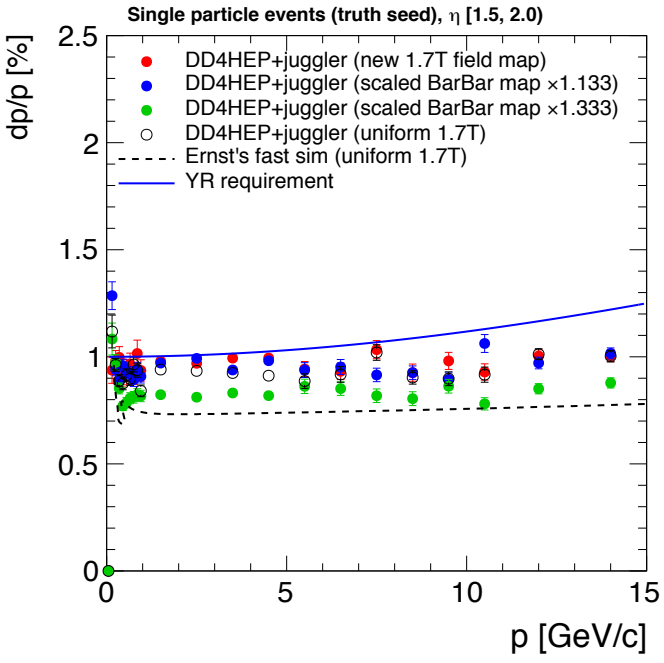
- Check uniform field setup in the full simulation
  - Most jobs are finished, will have results soon
  - The discrepancy between 1.7T full simulation and fast simulation in the barrel region: the material of the support cone not included in the fast simulation
- Switch to tagged geometry (+ more statistics)
- Cross check the material in the disks region in full and fast simulation

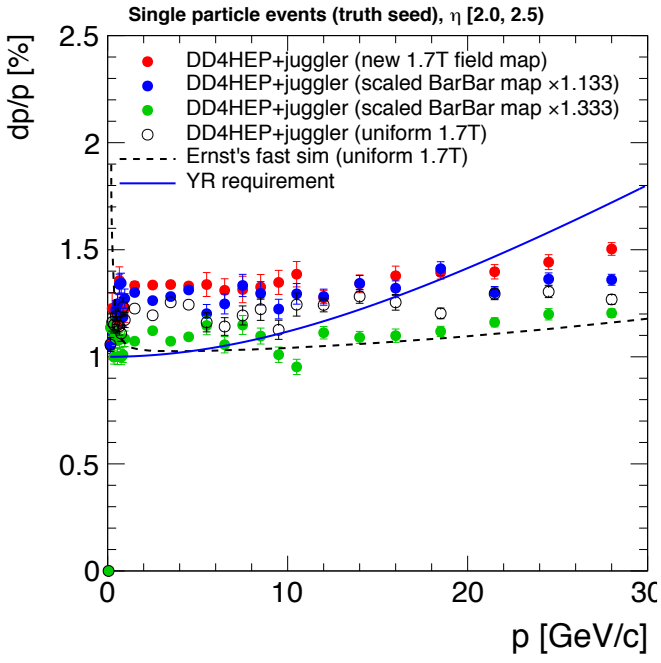
Comparison with uniform field (dp/p)

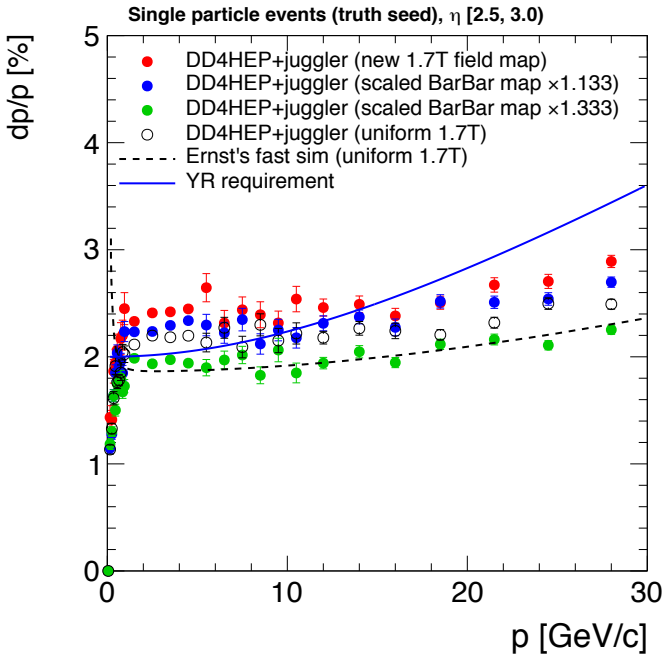












Comparison with uniform field (ratio)