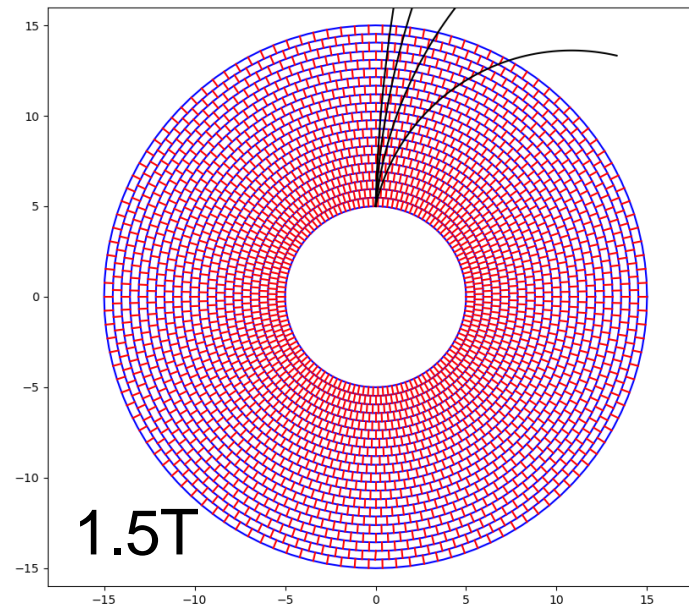
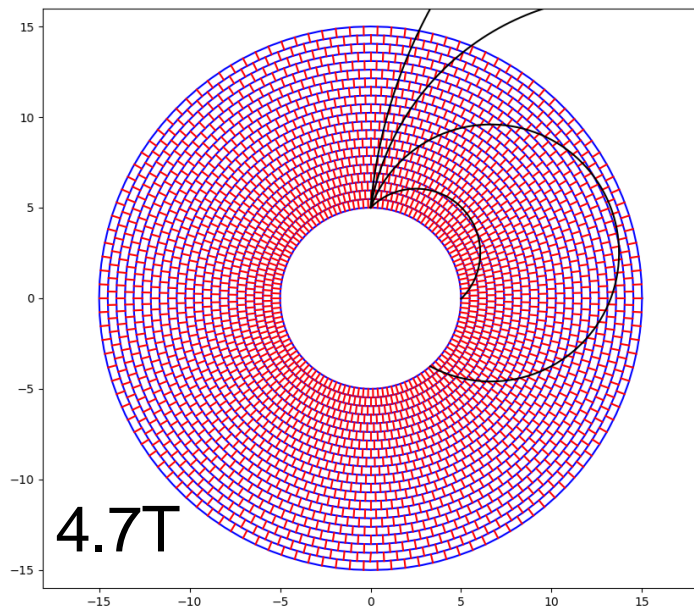


mTPC 4.7T vs 1.5T

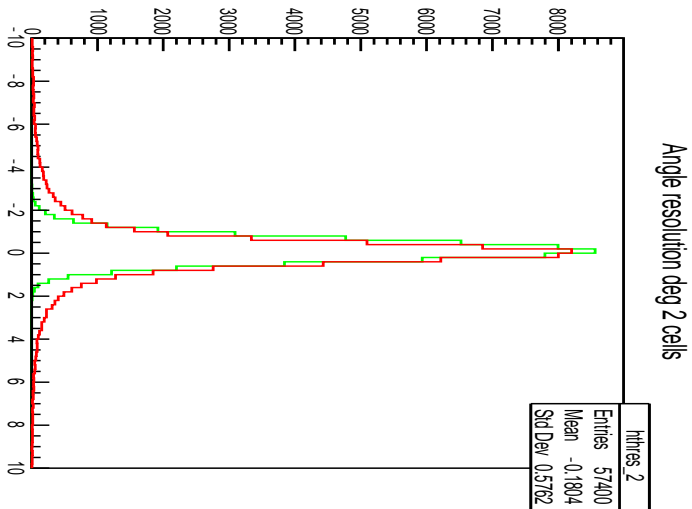
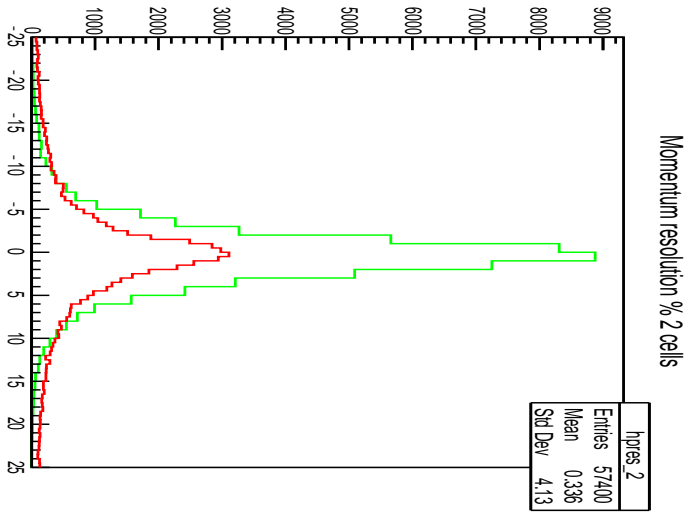
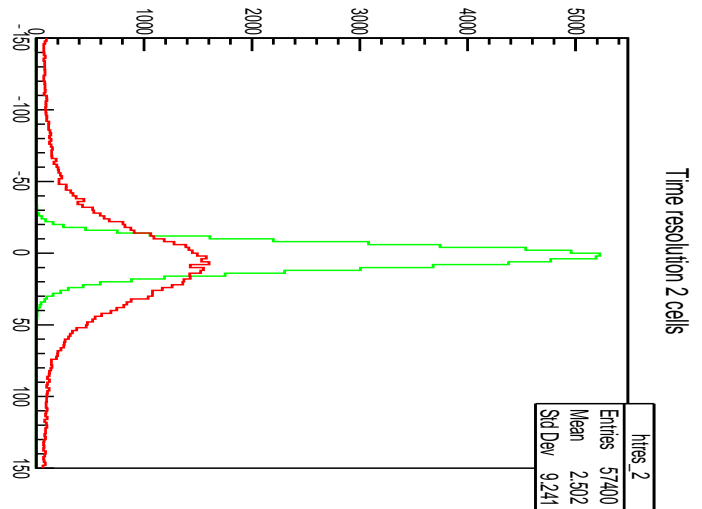
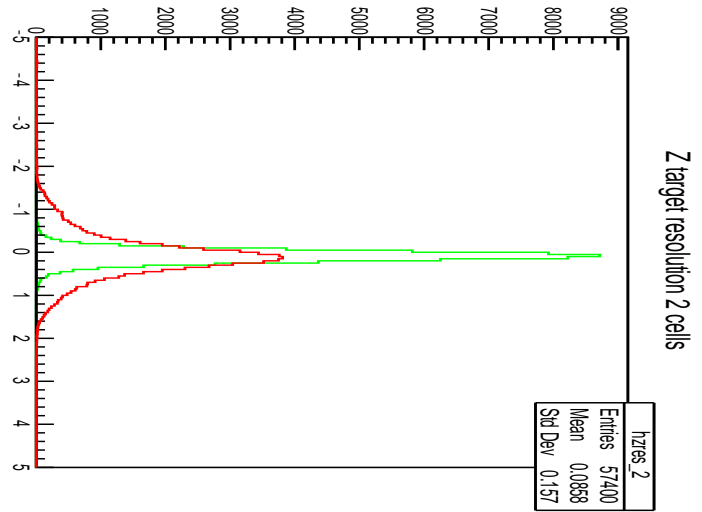
Use mTPC toy model to generate hits for ideal tracks. Fit hit lists with helixes.

Compare detector resolution and acceptance for two possible solenoid fields.

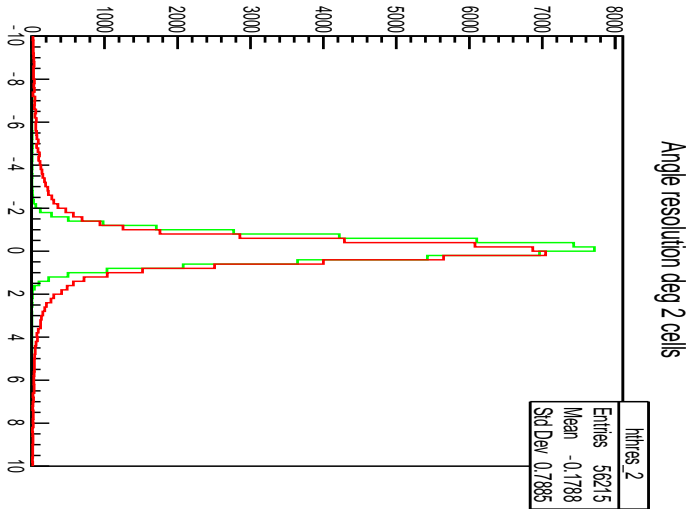
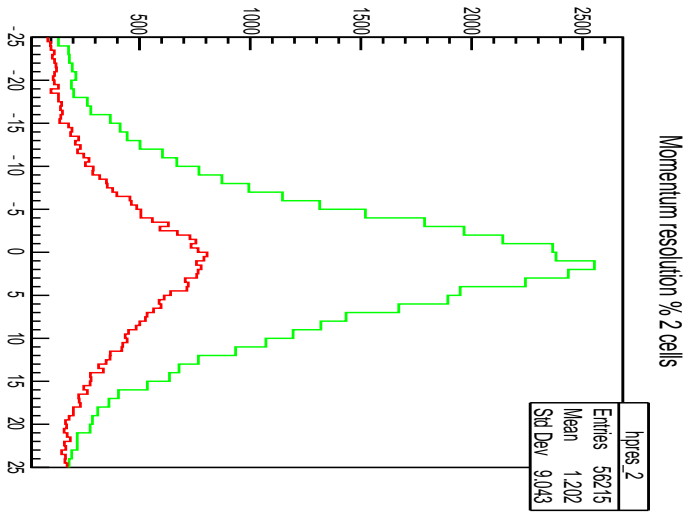
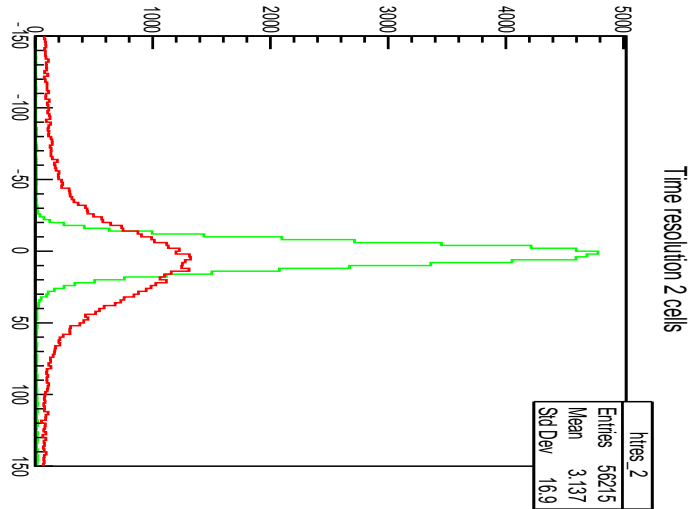
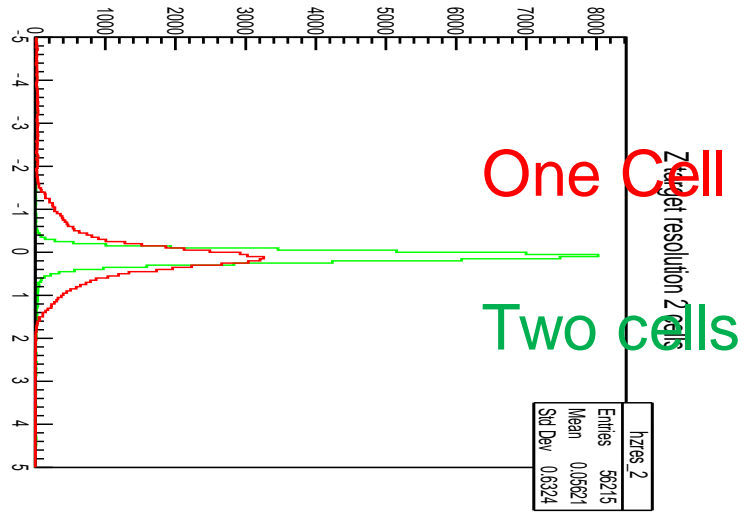


$p_T = 50, 100, 200, 400 \text{ MeV}/c$

Resolution 4.7T $50 < p < 1000 \text{ MeV}/c$, $30^\circ < \theta < 80^\circ$

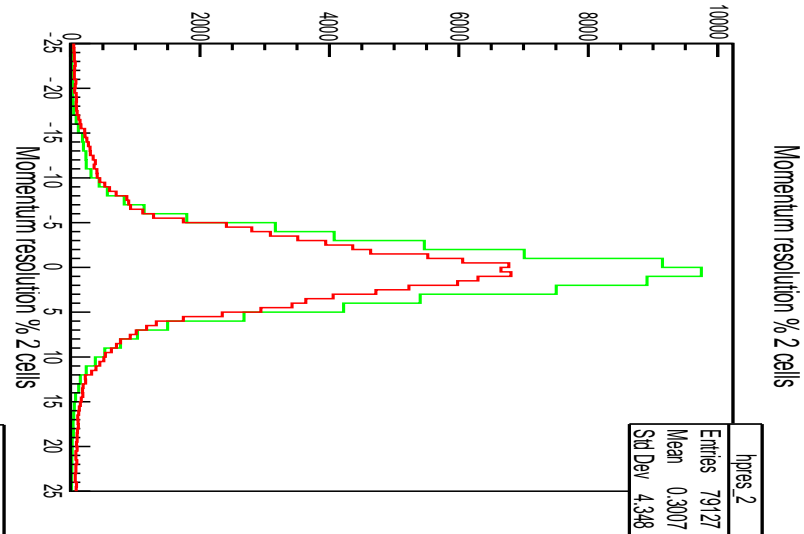
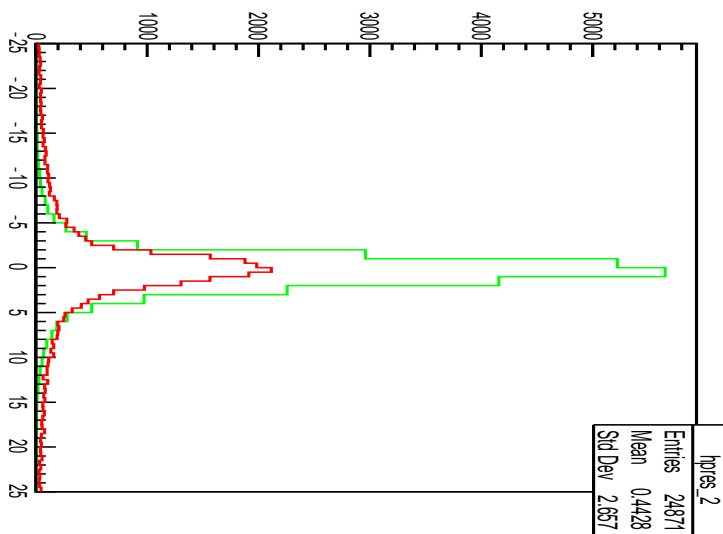


Resolution 1.5T $50 < p < 1000 \text{ MeV}/c, 30^\circ < \theta < 80^\circ$

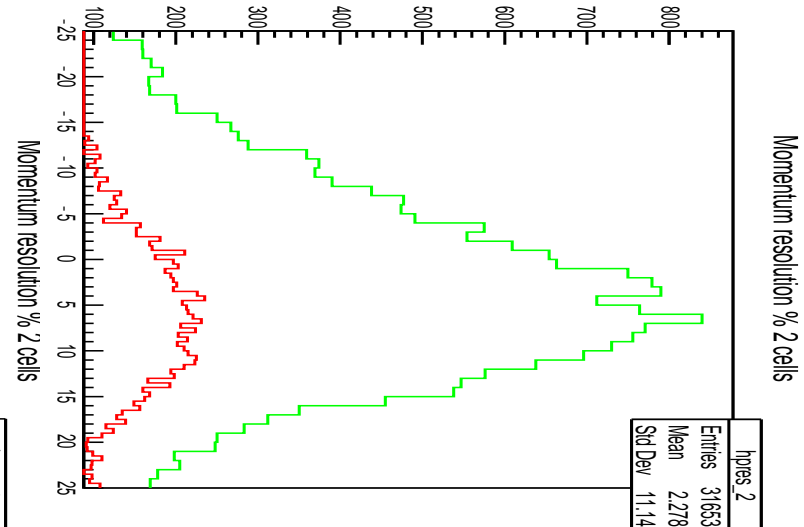
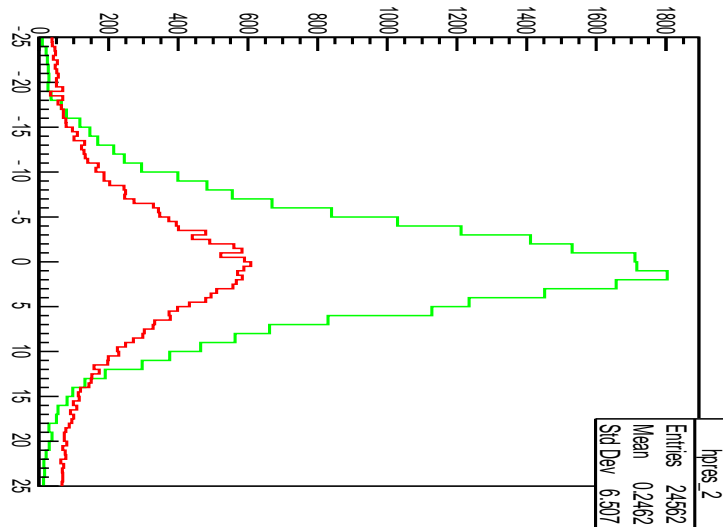


Momentum Resolution

4.7T



1.5T

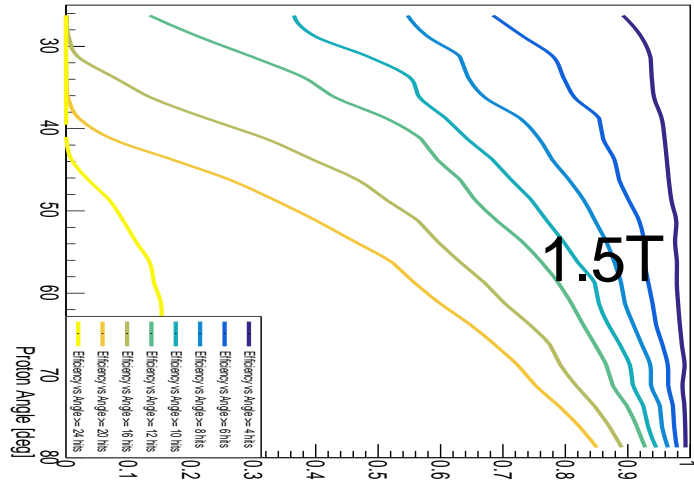


$50 < p < 400 \text{ MeV/c}$

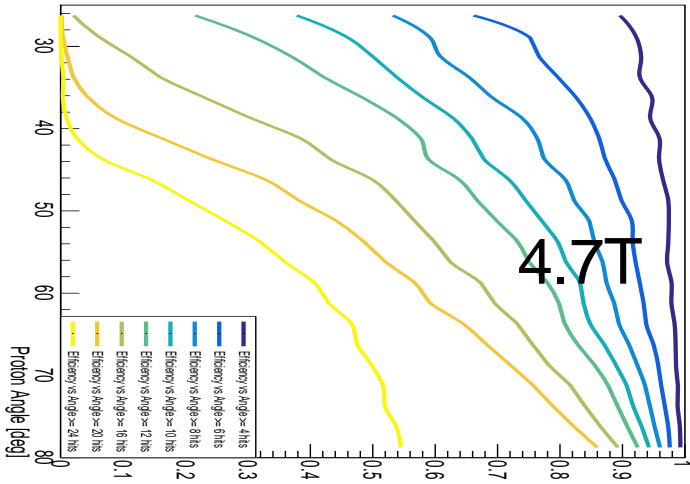
$400 < p < 1000 \text{ MeV/c}$

Acceptance

Efficiency vs Angle ≥ 4 hits



Efficiency vs Angle ≥ 4 hits



Little dependence of mTPC acceptance on field.

Comments

mTPC measures p_T . Momentum resolution worse at small angles.
(Bad for us)

Momentum resolution worse at high momenta.
(Good for us)

What flexibility is there in mTPC size?

Larger radius detector?

Higher pad density at large R?