

η Decay Particle Gun

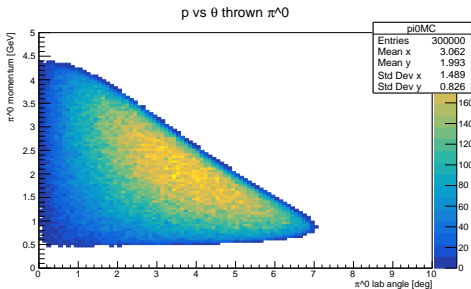
Benedikt Zihlmann

June 3, 2020

η MC Particle gun 100k events

run Geant4 particle gun with 6 GeV/c zero degree $\eta \rightarrow \pi^0 \pi^0 \pi^0$

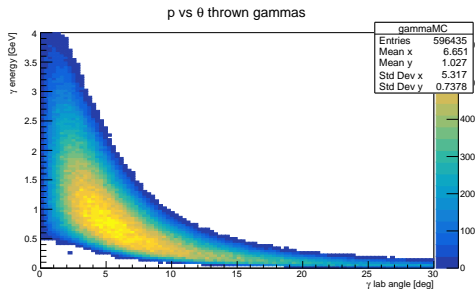
1. MC π^0 : p vs θ distribution



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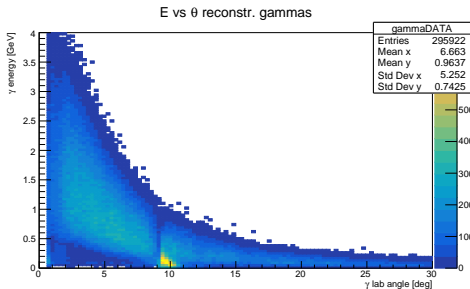
1. MC π^0 : p vs θ distribution
2. MC γ 's: E vs θ distribution



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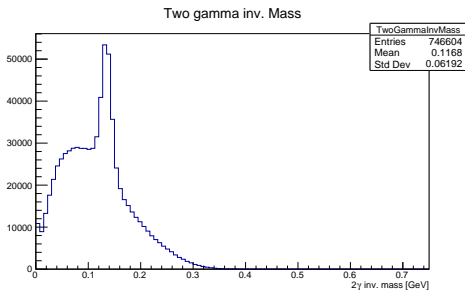
1. MC π^0 : p vs θ distribution
2. MC γ 's: E vs θ distribution
3. DATA reconstructed γ 's E vs θ distribution



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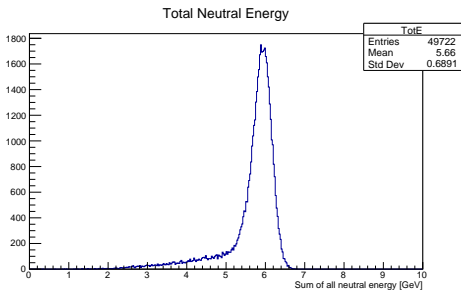
1. MC π^0 : p vs θ distribution
2. MC γ 's: E vs θ distribution
3. DATA reconstructed γ 's E vs θ distribution
4. DATA reconstructed π^0 's, huge multiplicity!!!



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run Gean4 particle gun with 6 GeV/c zero degree $\eta \rightarrow \pi^0 \pi^0 \pi^0$

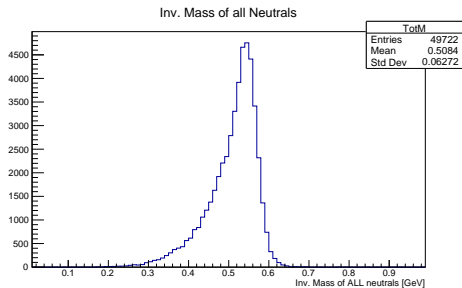
1. MC π^0 : p vs θ distribution
2. MC γ 's: E vs θ distribution
3. DATA reconstructed γ 's E vs θ distribution
4. DATA reconstructed π^0 's, huge multiplicity!!!
5. DATA reconstructed just sum up all Energy



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run Gean4 paricle gun with 6 GeV/c zero degree $\eta \rightarrow \pi^0 \pi^0 \pi^0$

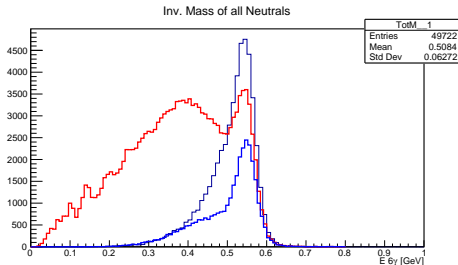
1. MC π^0 : p vs θ distribution
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5. DATA reconstructed just sum up all Energy
6. DATA reconstructed just sum of all Inv. Mass



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run Gean4 paricle gun with 6 GeV/c zero degree $\eta^- \rightarrow \pi^0 \pi^0 \pi^0$

1. MC π^0 : p vs θ distribution
2. MC γ 's: E vs θ distribution
3. DATA reconstructed γ 's E vs θ distribution
4. DATA reconstructed π^0 's, huge multiplicity!!!
5. DATA reconstructed just sum up all Energy
6. DATA reconstructed just sum of all Inv. Mass
7. Comparison: Sum of All, all 6γ combos, all 6γ combos with fid. cut



All neutrals:49722

6 γ 's all combos: 153289

6 γ 's all combos w. fid. cut: 32584