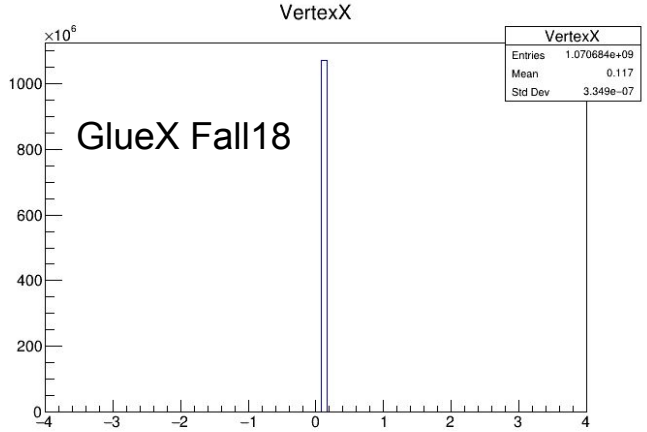
PrimEx calibration

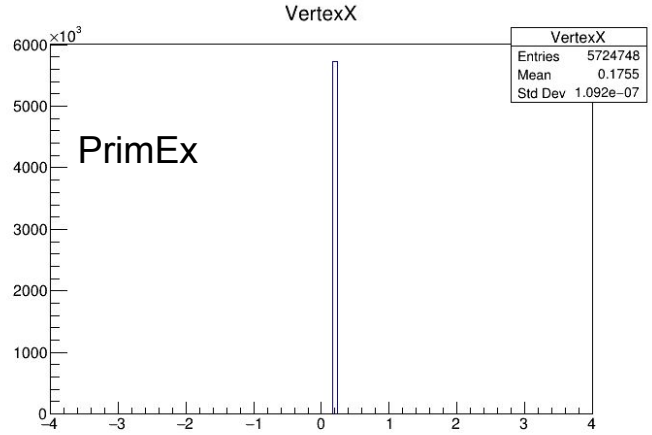
1st April 2020

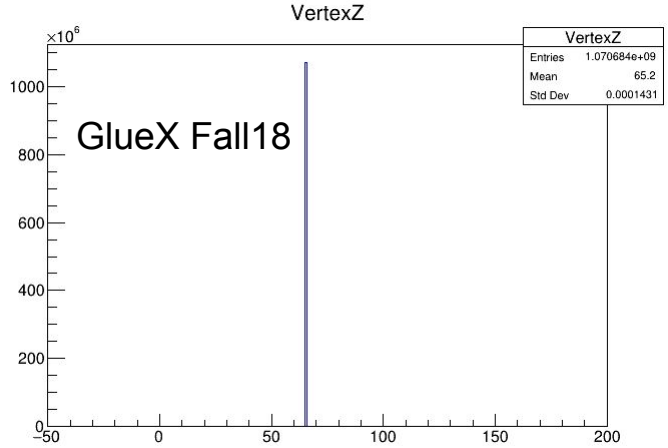
5 sets of runs, all of them having the vertexZ fixed to target center and VertexX and VertexY from beam position

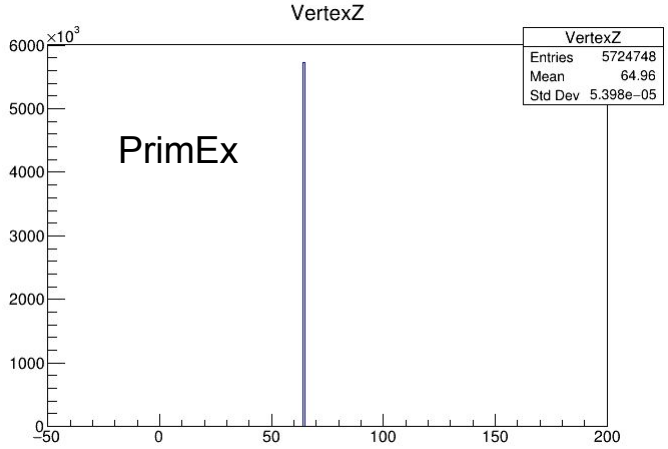
- Be target runs (CDC was OFF during these runs) - [61321,61344]
- He Target runs with CDC OFF - [61437, 61483), too low in statistics not showing in the plots below
- He Target runs with CDC ON - [61483, 61914)
- Spring 2018 GlueX runs [50638,51000]

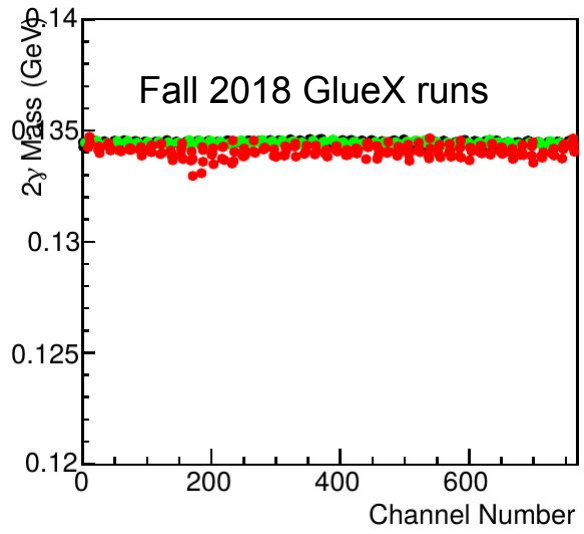
Vertex

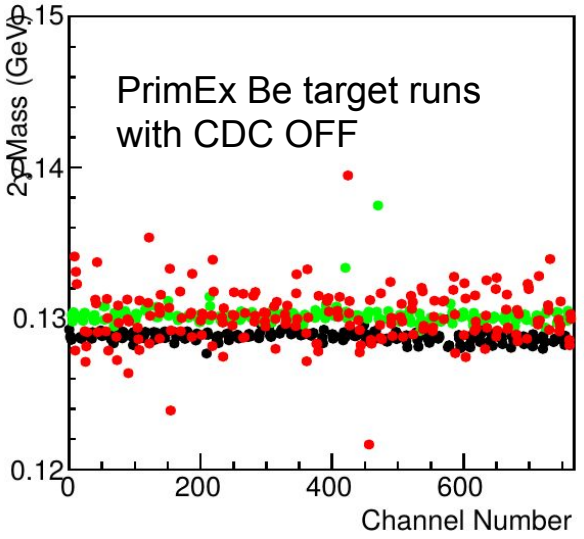

VertexX
VertexX
Entries 1.070684e+09
Mean 0.117
Std Dev 3.349e−07
GlueX Fall18


VertexX
VertexX
Entries 5724748
Mean 0.1755
Std Dev 1.092e−07
PrimEx


VertexZ
VertexZ
Entries 1.070684e+09
Mean 65.2
Std Dev 0.0001431
GlueX Fall18

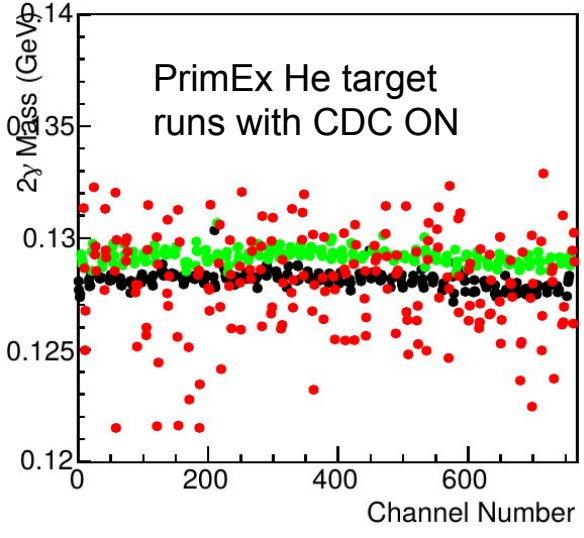

VertexZ
VertexZ
Entries 5724748
Mean 64.96
Std Dev 5.398e−05
PrimEx

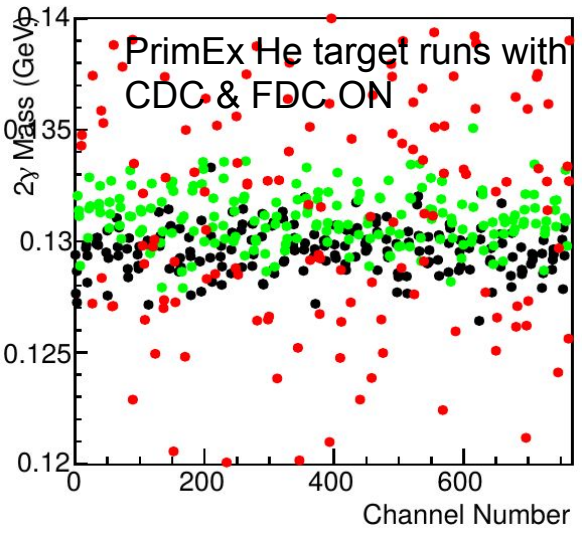


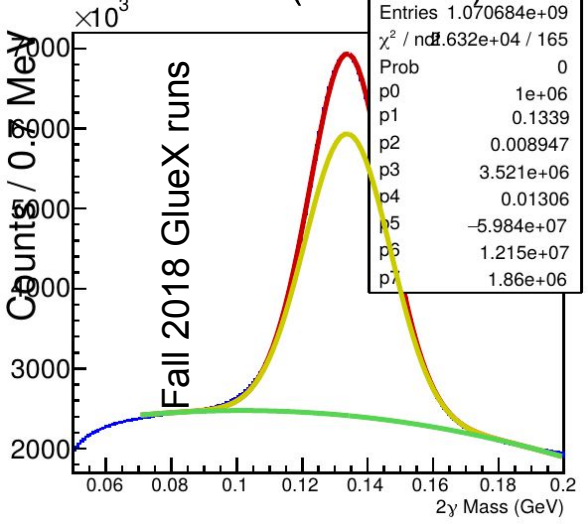


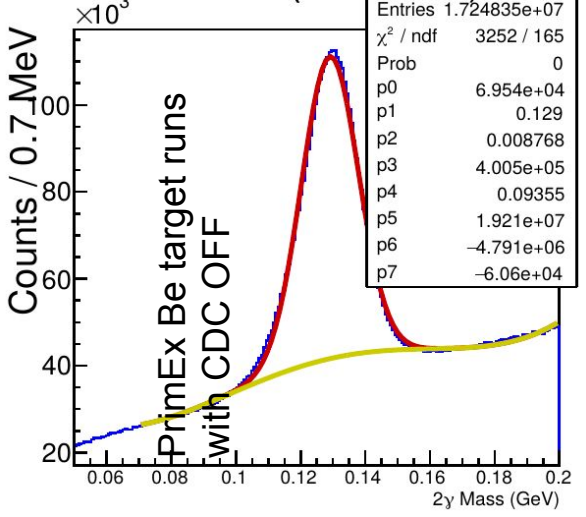
Pi0 mass as a function of channel

Layer 3
Layer 2
Layer 1



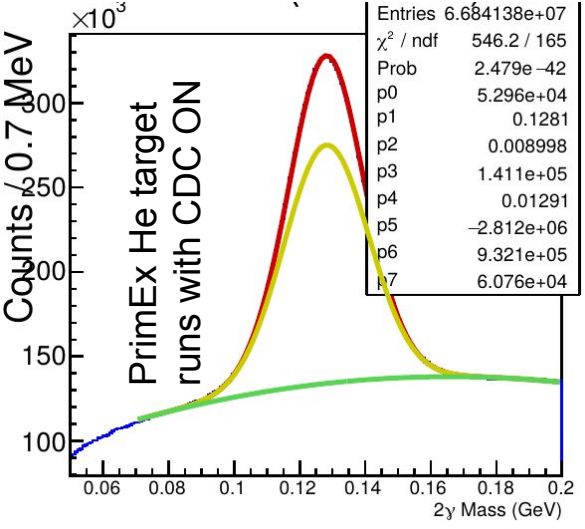


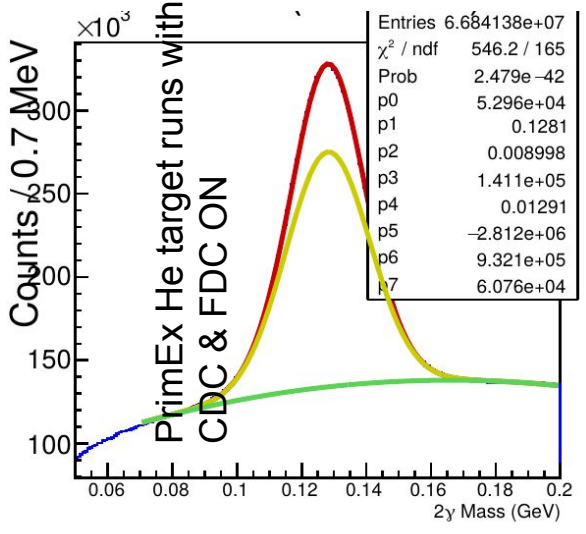


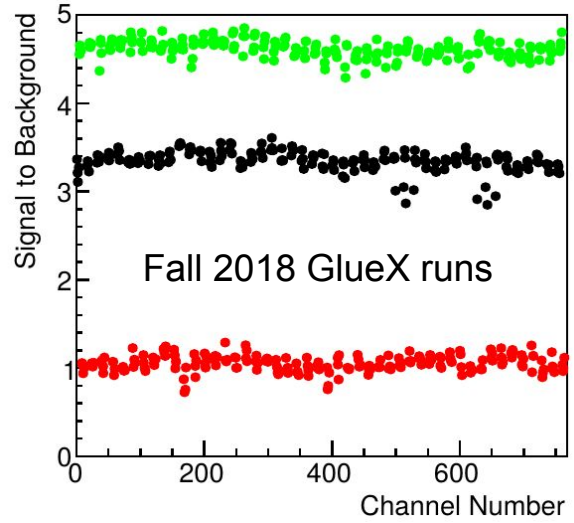


Pi0 mass distribution of all events

- Fit curve
- Polynomial bkg
- Gauss + pol bkg

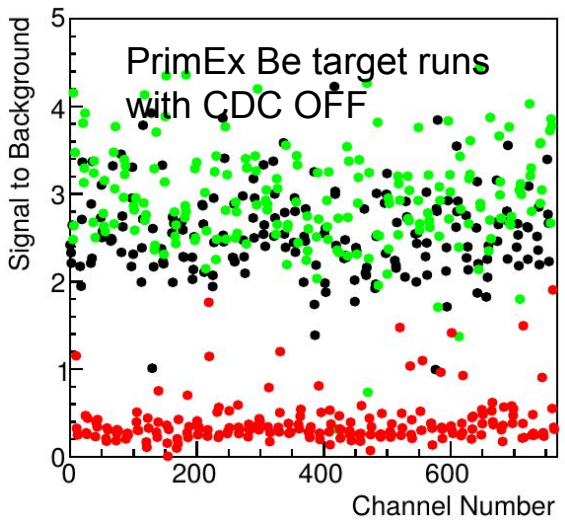


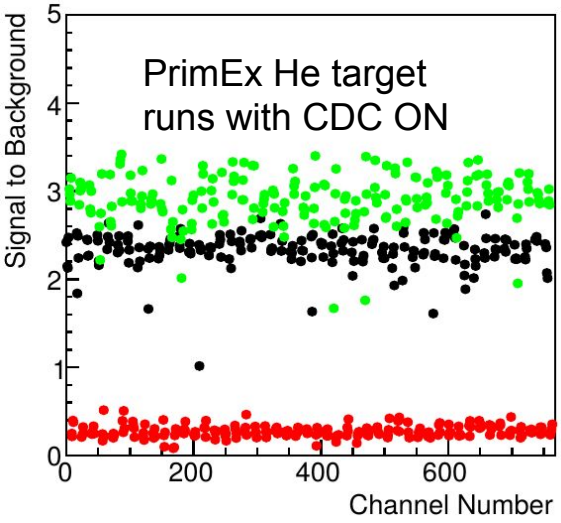


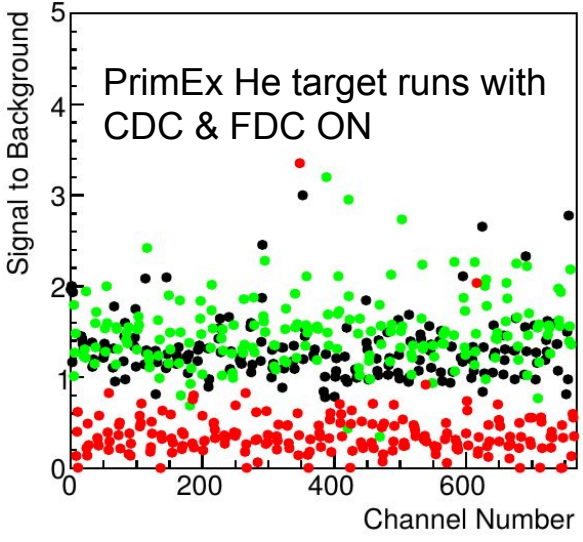


Signal to noise ratio for channels

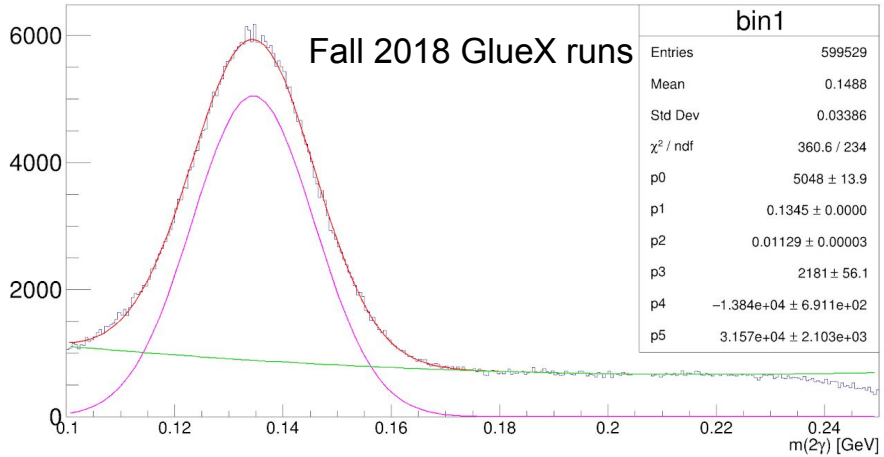
Layer 3
Layer 2
Layer 1

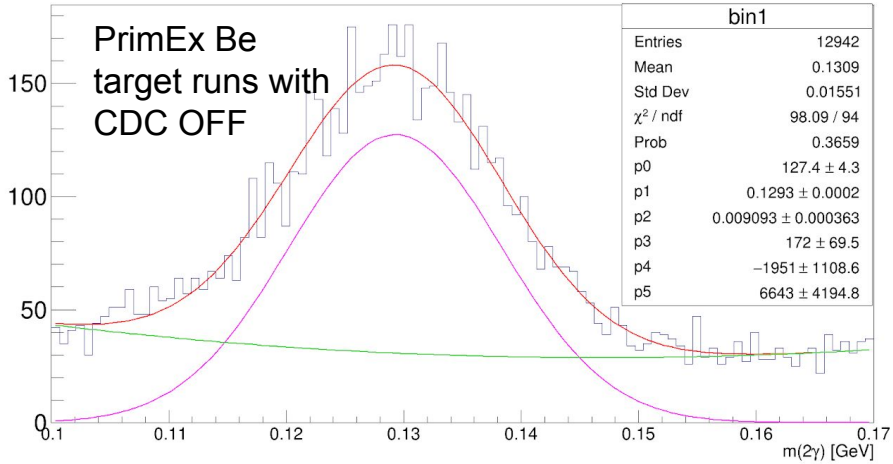


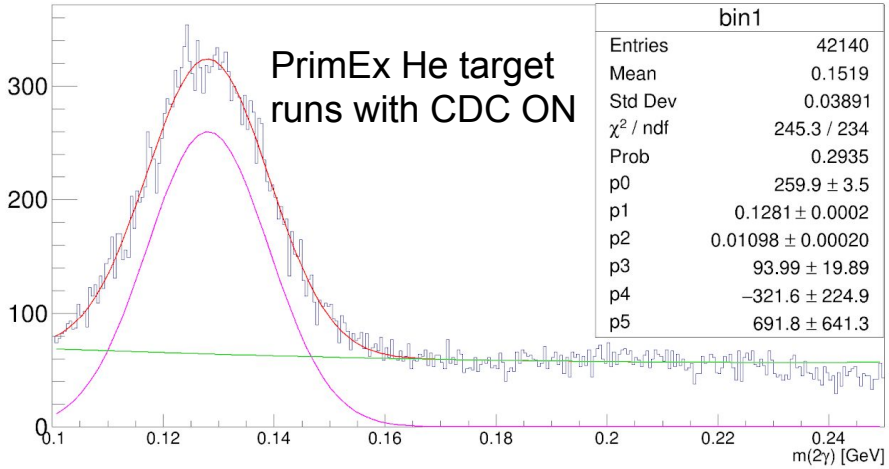


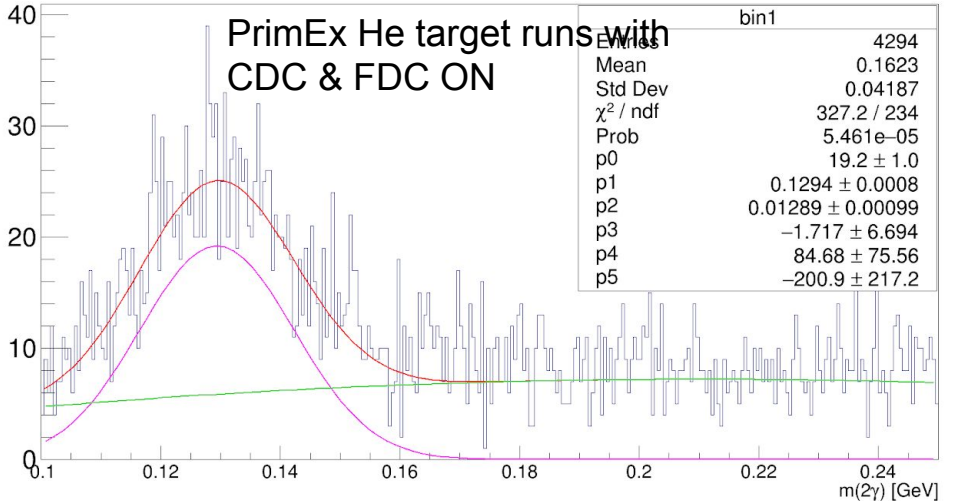


Module 1 Sector 1 Layer 1

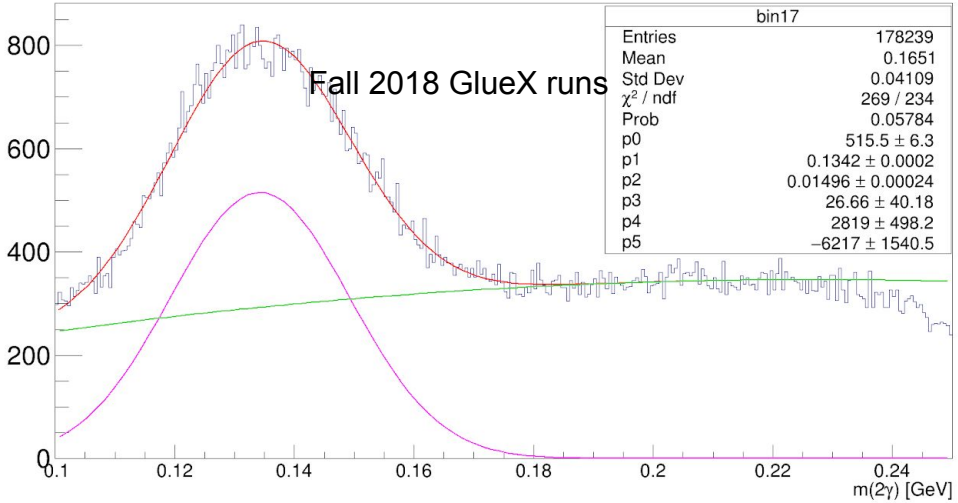


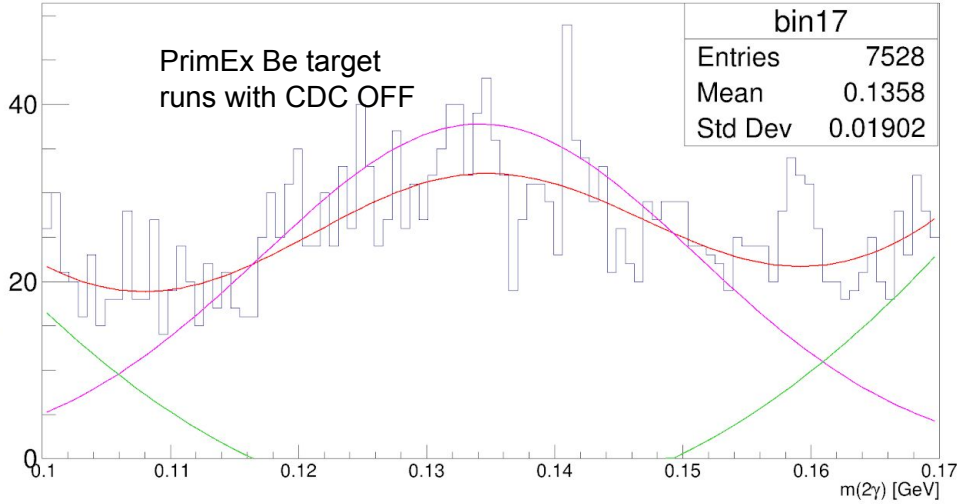


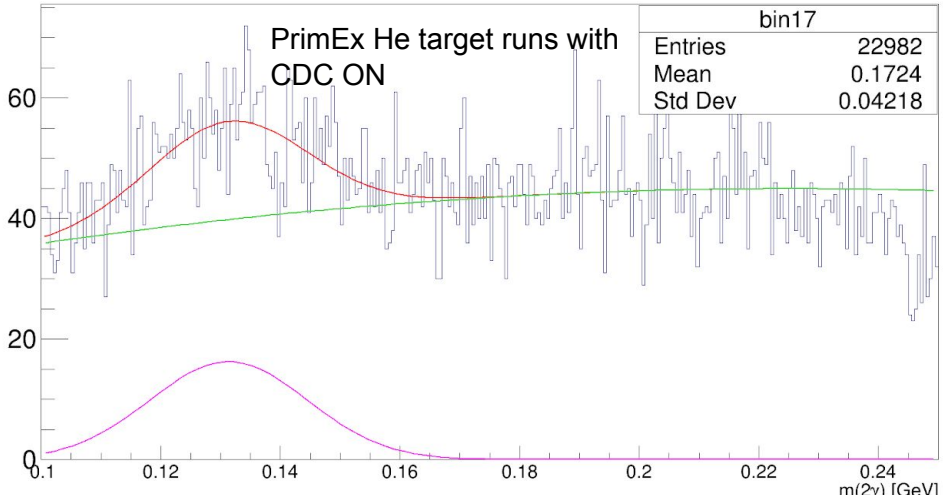


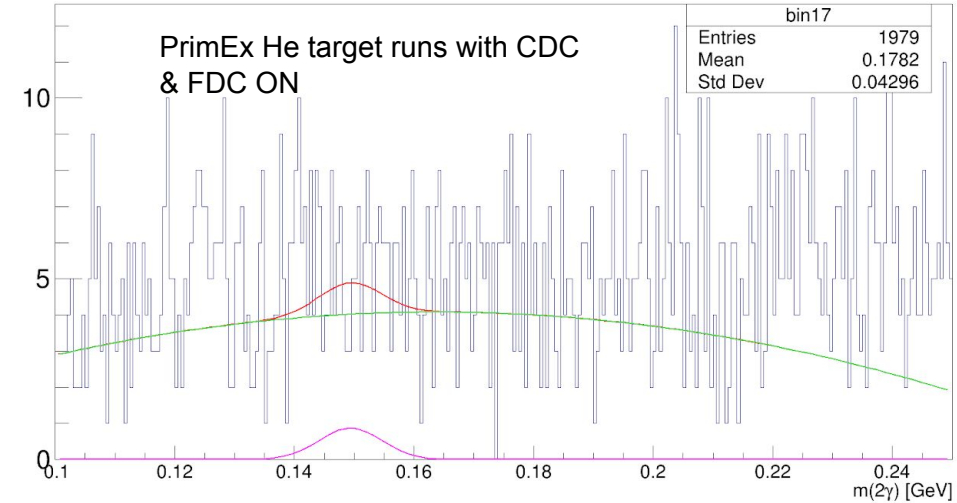


Module 1 Sector 1 Layer 3









Conclusions

- The layer 3 looks without any clear pi0 events.
- There is a shift in the pi0 mass for the PrimEx runs.