

# FCAL energy calibration QC

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Thomas Jefferson National Accelerator Facility

for the **GlueX** Collaboration

October 9, 2023

2022-08-period-45-iteration-2-method-2

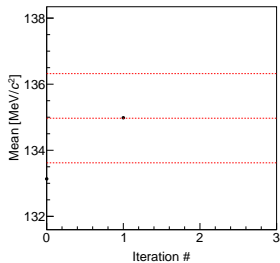


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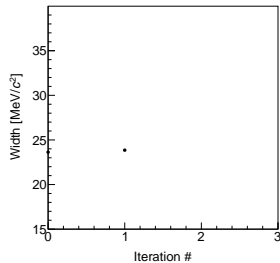
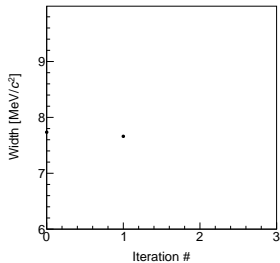
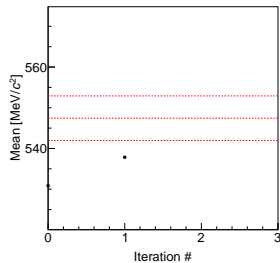
- 1 Overall QC
- 2 QC per rings

# Overall QC vs iteration

•  $\pi^0$

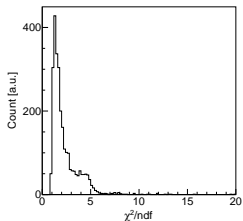


•  $\eta$

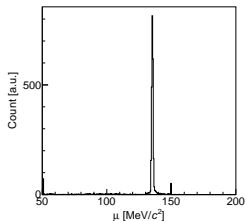


# Overall QC, summary distributions

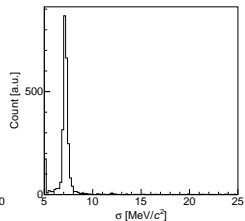
●  $\chi^2$  distribution



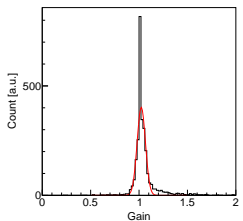
● Fitted peak distribution



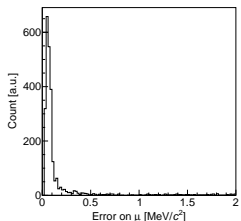
● Fitted width distribution



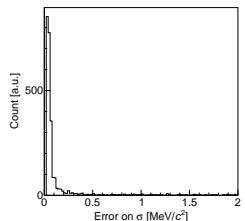
● Gain distribution



● Fitted peak error distribution

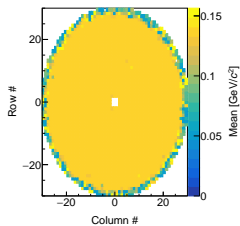


● Fitted width error distribution

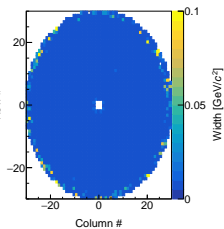


# Overall QC, summary maps

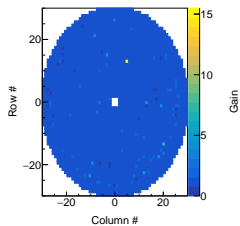
● Fitted peak map



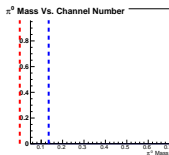
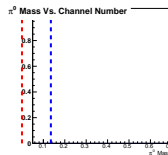
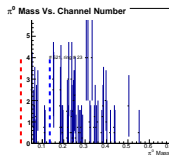
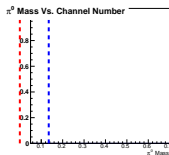
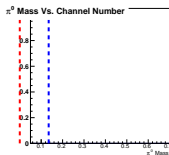
● Fitted width map



● Gain map



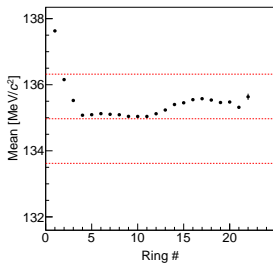
# Overall QC, bad channels



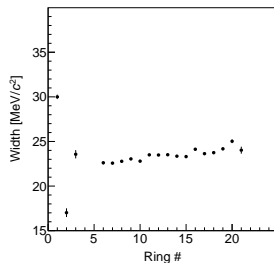
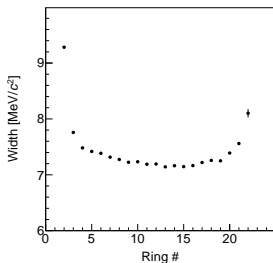
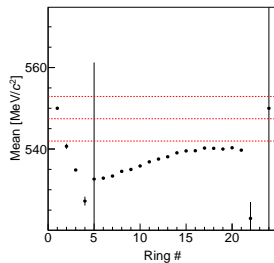
# QC per rings

If radius divided by 5 cm, there is 24 rings

●  $\pi^0$



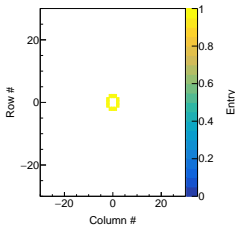
●  $\eta$



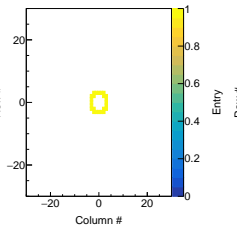
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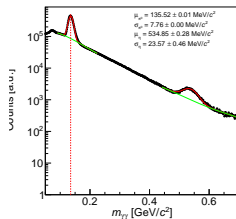
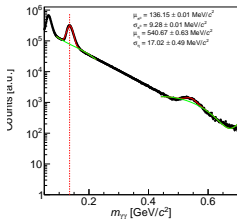
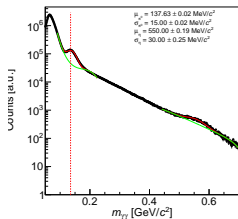
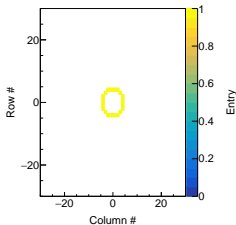
● Ring 1



● Ring 2



● Ring 3





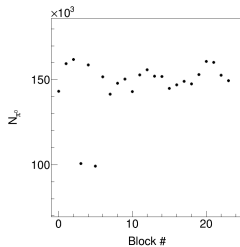
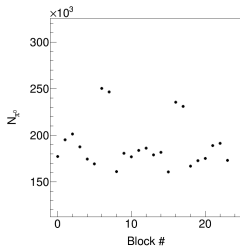
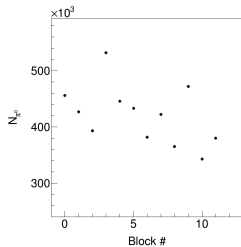
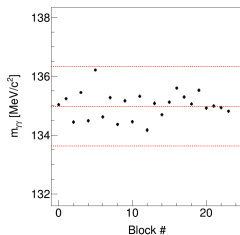
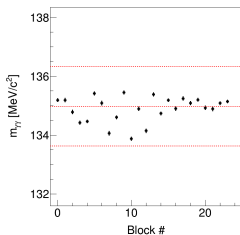
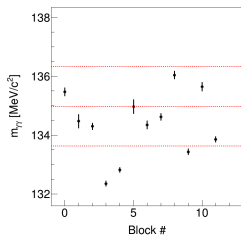
# QC per rings

If radius divided by 5 cm, there is 24 rings

● Ring 1

● Ring 2

● Ring 3



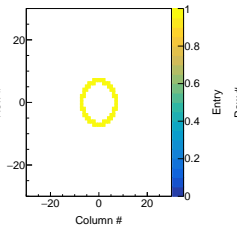
# QC per rings

If radius divided by 5 cm, there is 24 rings

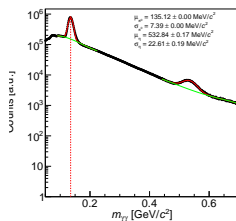
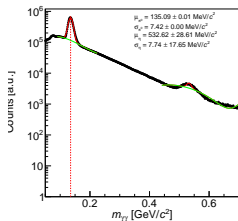
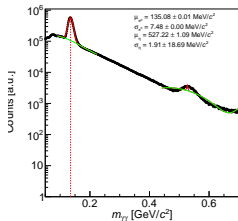
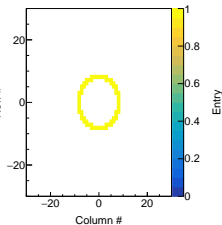
● Ring 4



● Ring 5



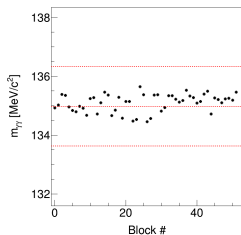
● Ring 6



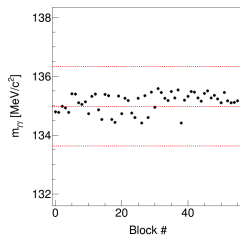
# QC per rings

If radius divided by 5 cm, there is 24 rings

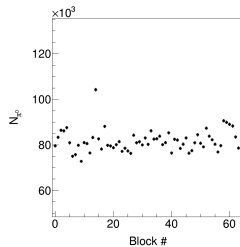
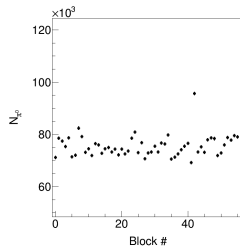
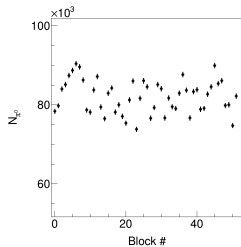
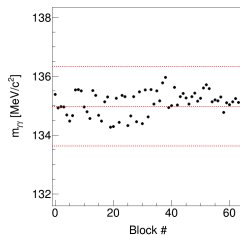
● Ring 4



● Ring 5



● Ring 6



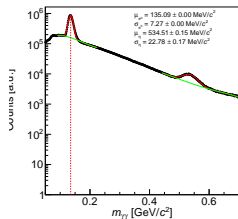
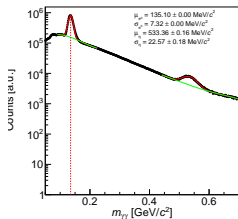
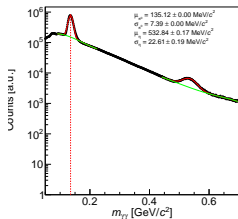
# QC per rings

If radius divided by 5 cm, there is 24 rings

● Ring 7

● Ring 8

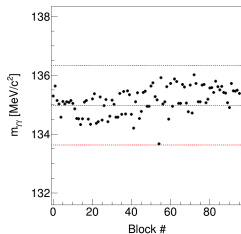
● Ring 9



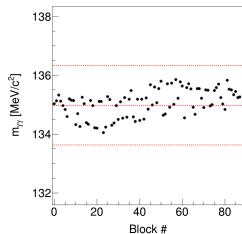
# QC per rings

If radius divided by 5 cm, there is 24 rings

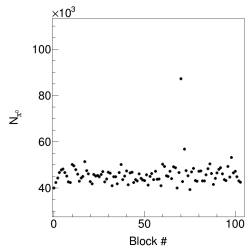
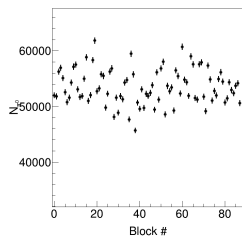
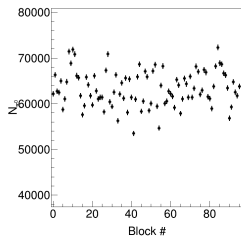
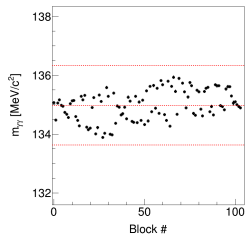
● Ring 7



● Ring 8



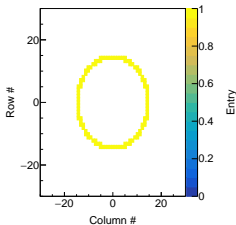
● Ring 9



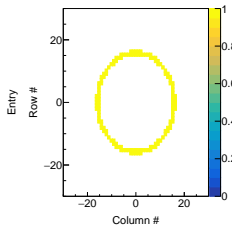
# QC per rings

If radius divided by 5 cm, there is 24 rings

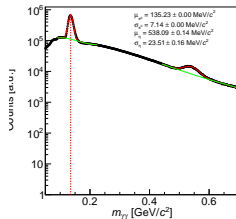
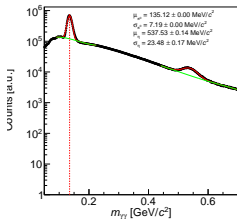
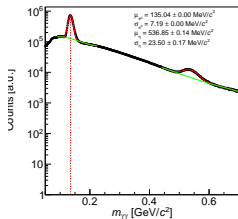
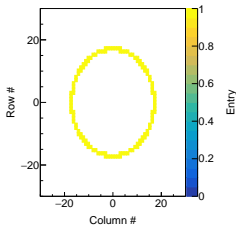
● Ring 11



● Ring 12



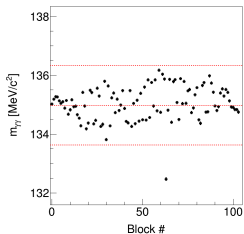
● Ring 13



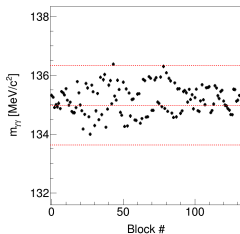
# QC per rings

If radius divided by 5 cm, there is 24 rings

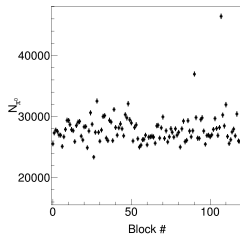
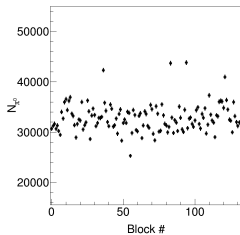
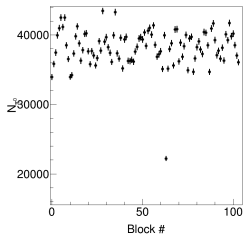
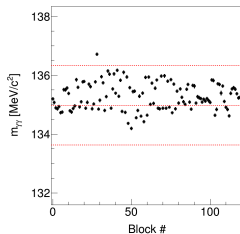
● Ring 11



● Ring 12



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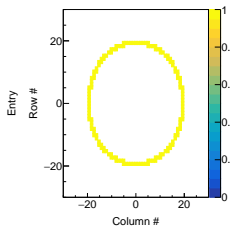
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If radius divided by 5 cm, there is 24 rings

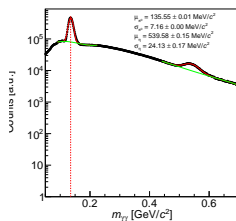
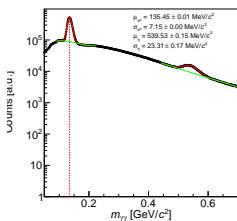
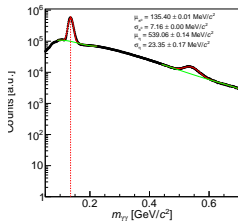
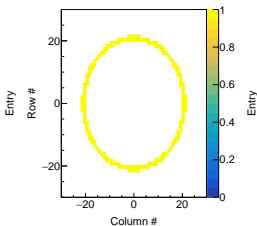
● Ring 14



● Ring 15



● Ring 16





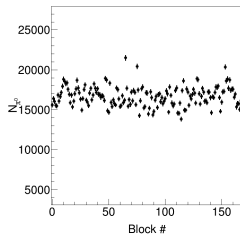
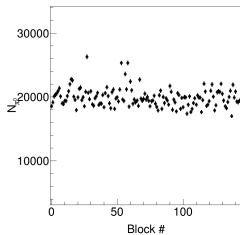
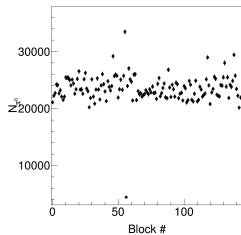
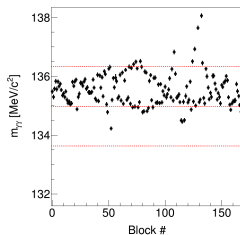
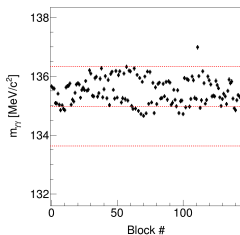
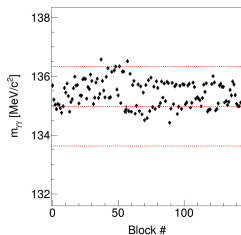
# QC per rings

If radius divided by 5 cm, there is 24 rings

● Ring 14

● Ring 15

● Ring 16



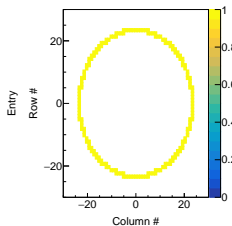
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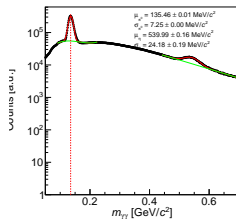
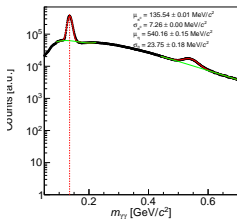
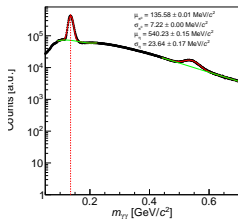
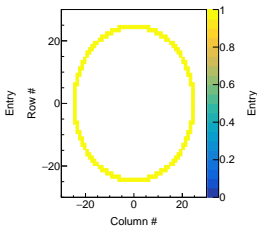
● Ring 17



● Ring 18



● Ring 19



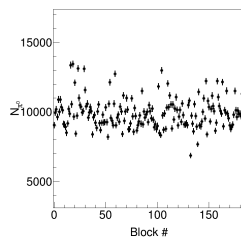
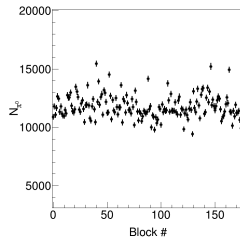
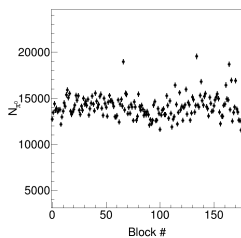
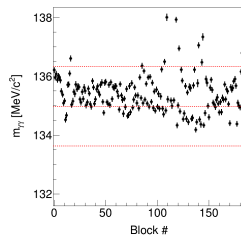
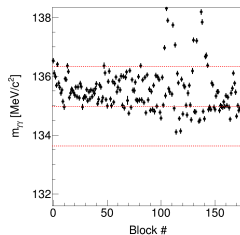
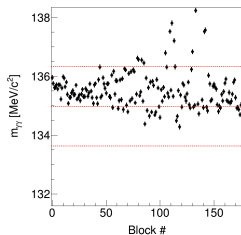
# QC per rings

If radius divided by 5 cm, there is 24 rings

● Ring 17

● Ring 18

● Ring 19



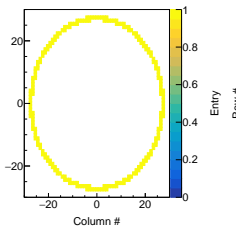
# QC per rings

If radius divided by 5 cm, there is 24 rings

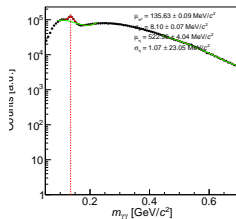
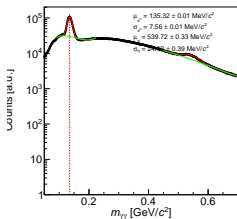
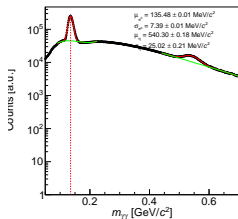
● Ring 20



● Ring 21



● Ring 22



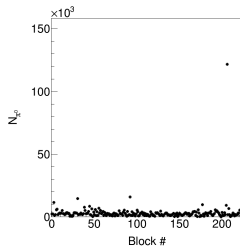
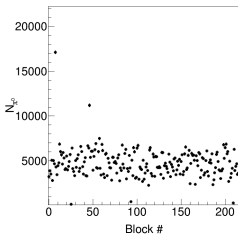
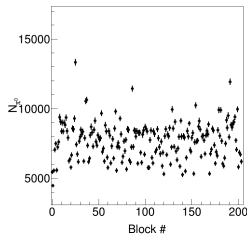
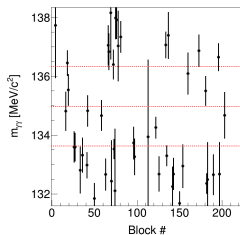
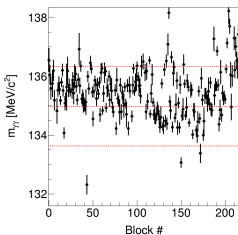
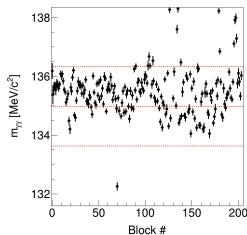
# QC per rings

If radius divided by 5 cm, there is 24 rings

● Ring 20

● Ring 21

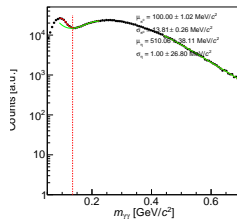
● Ring 22



# QC per rings

If radius divided by 5 cm, there is 24 rings

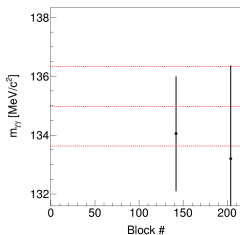
● Ring 23



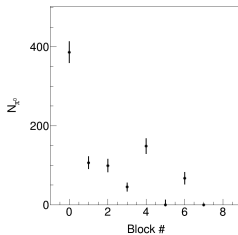
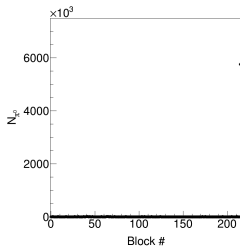
# QC per rings

If radius divided by 5 cm, there is 24 rings

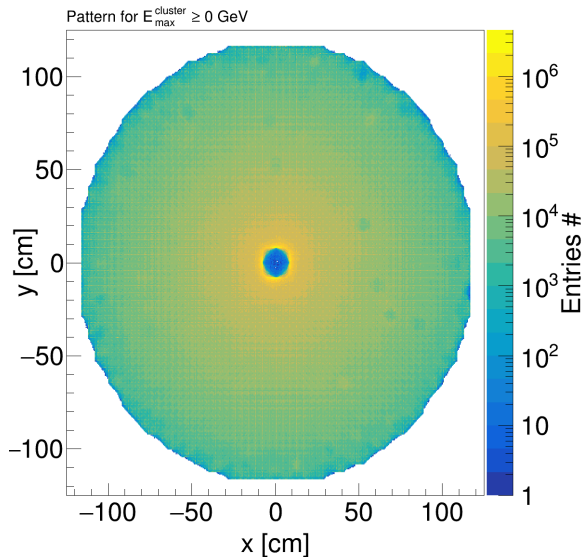
● Ring 23



● Ring 24

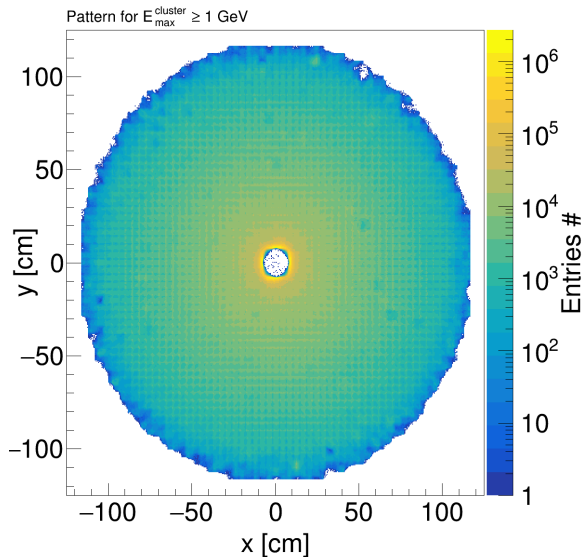


# FCAL pattern

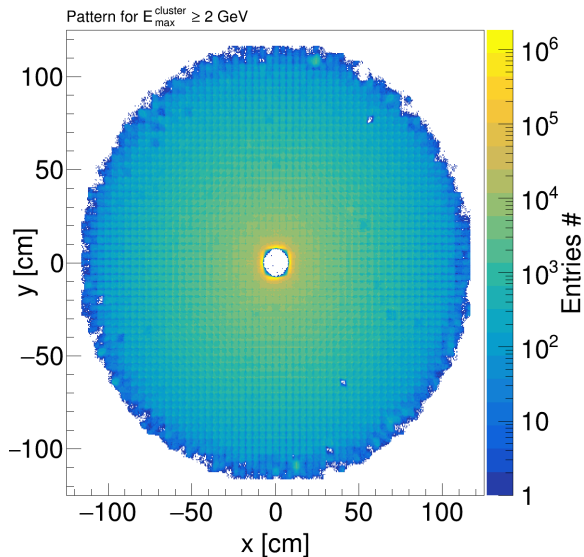




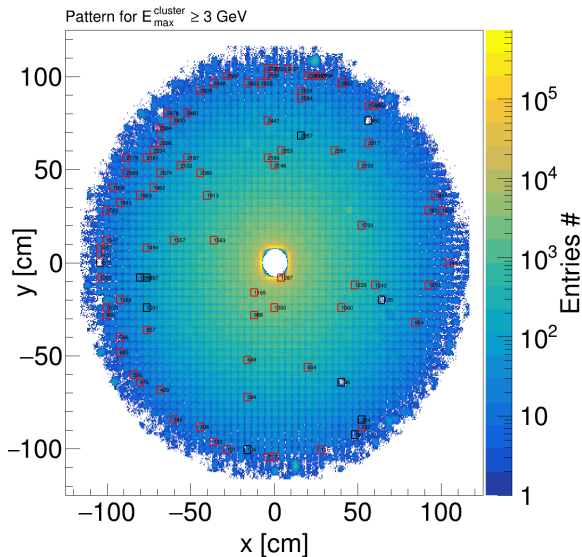
# FCAL pattern



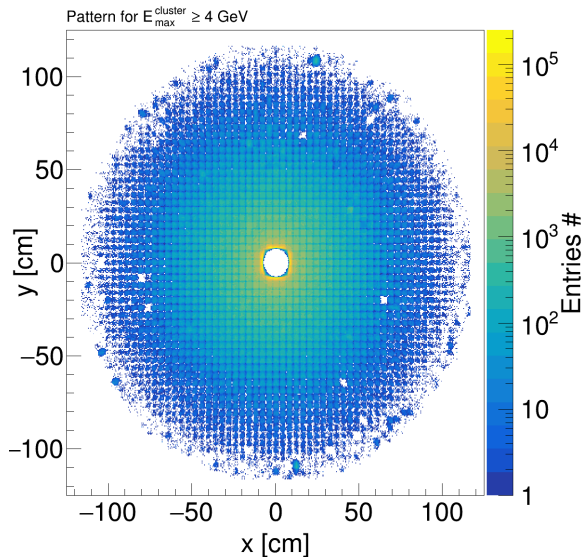
# FCAL pattern



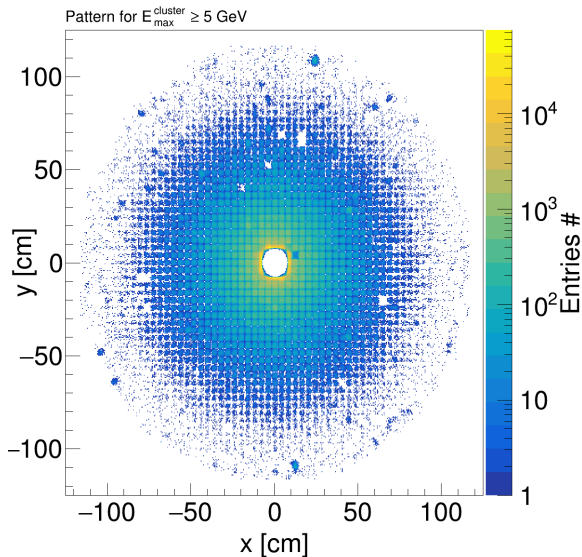
# FCAL pattern



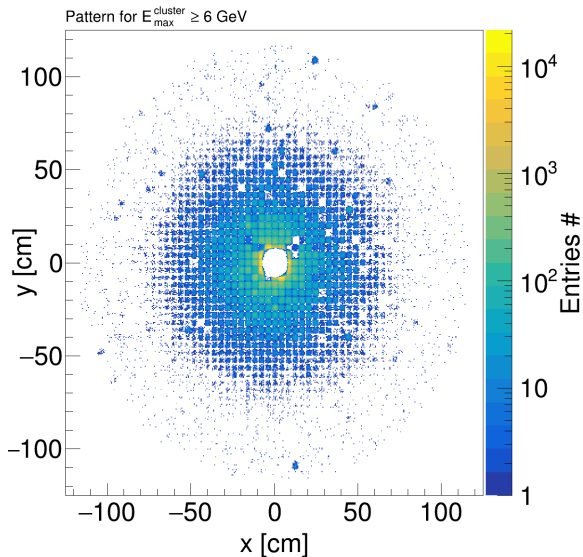
# FCAL pattern



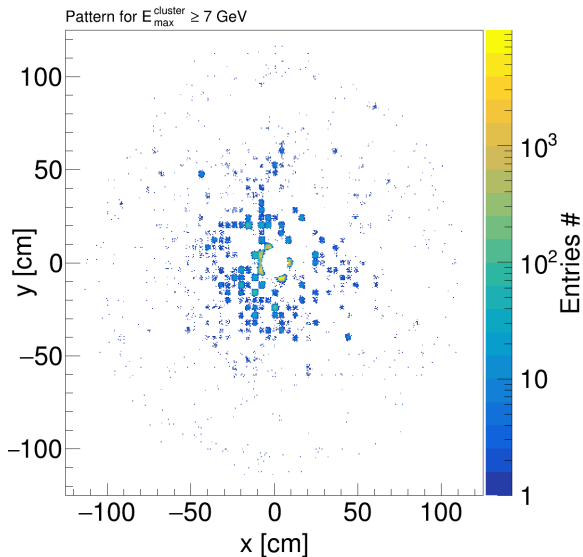
# FCAL pattern



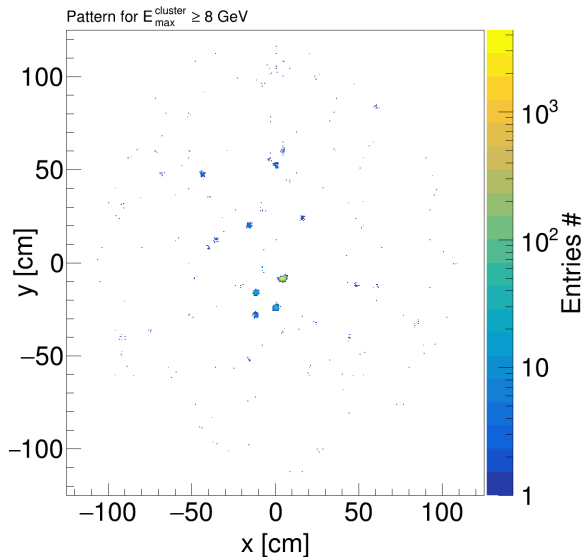
# FCAL pattern



# FCAL pattern

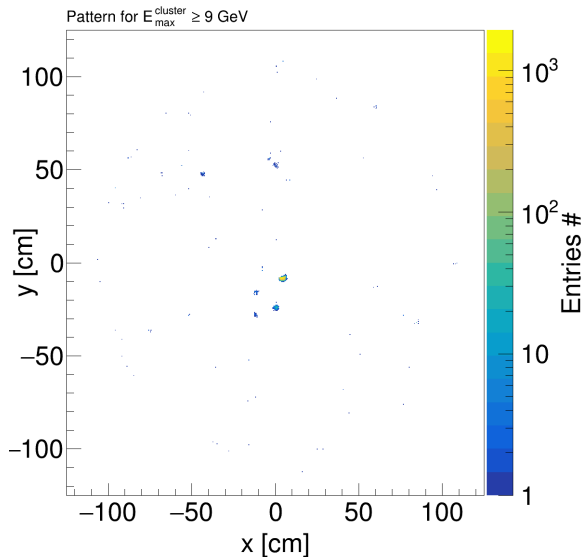


# FCAL pattern





# FCAL pattern



# FCAL pattern

