

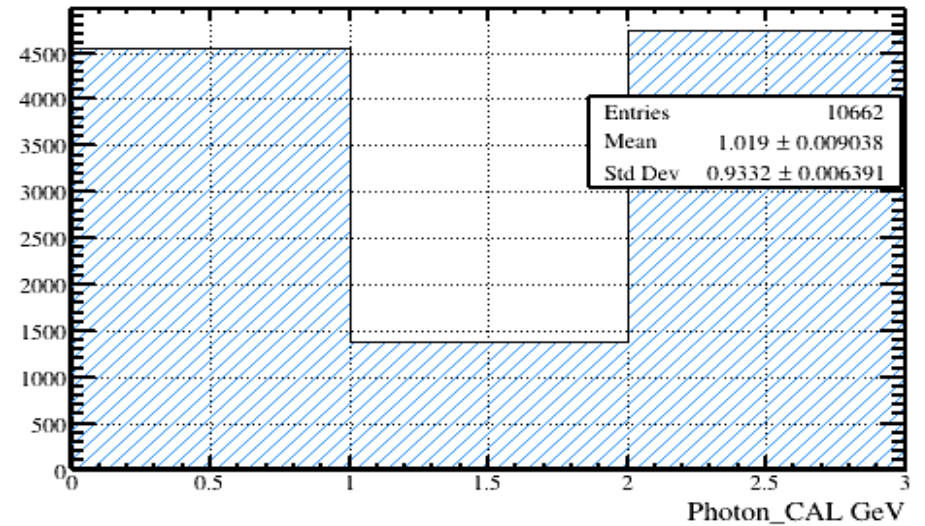
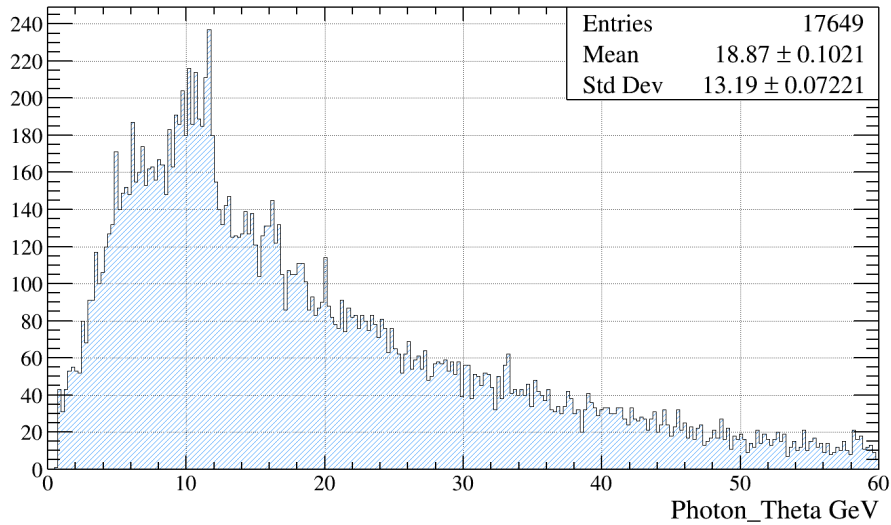
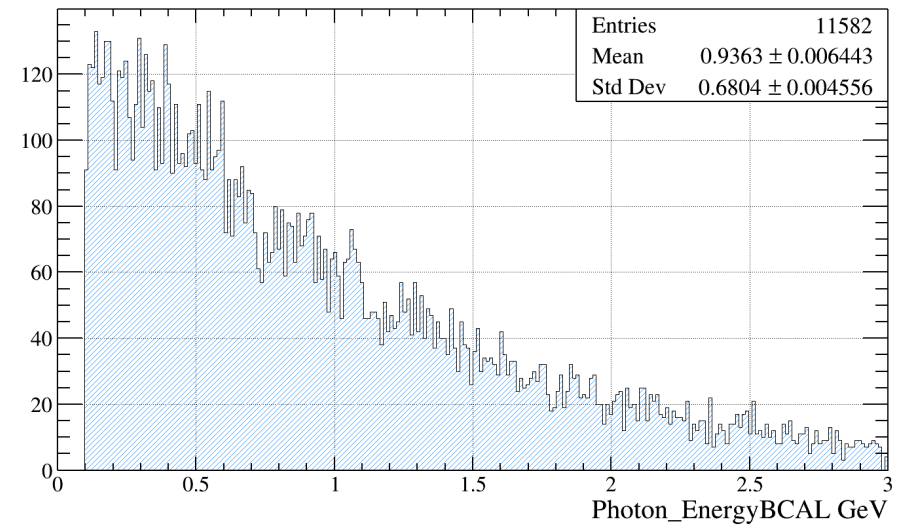
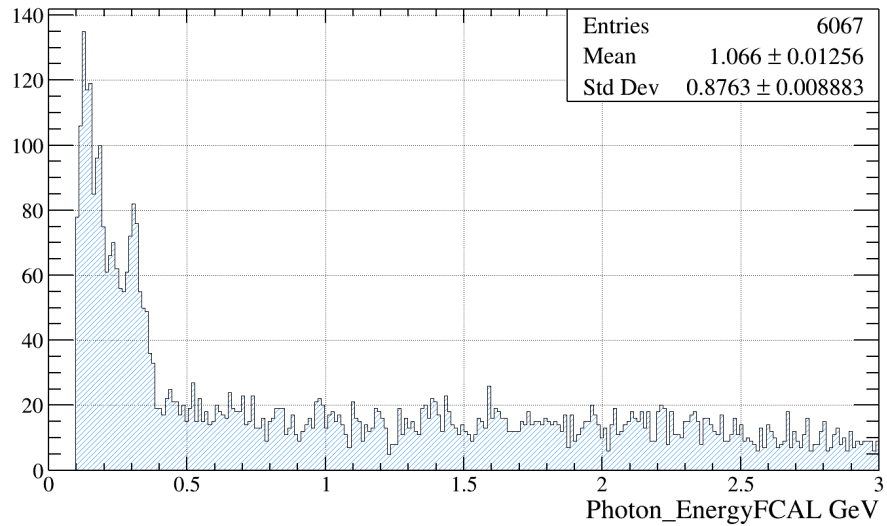
Update on
 $\gamma p \rightarrow p \phi \eta \rightarrow p K + K - \gamma \gamma$

08/31/2017

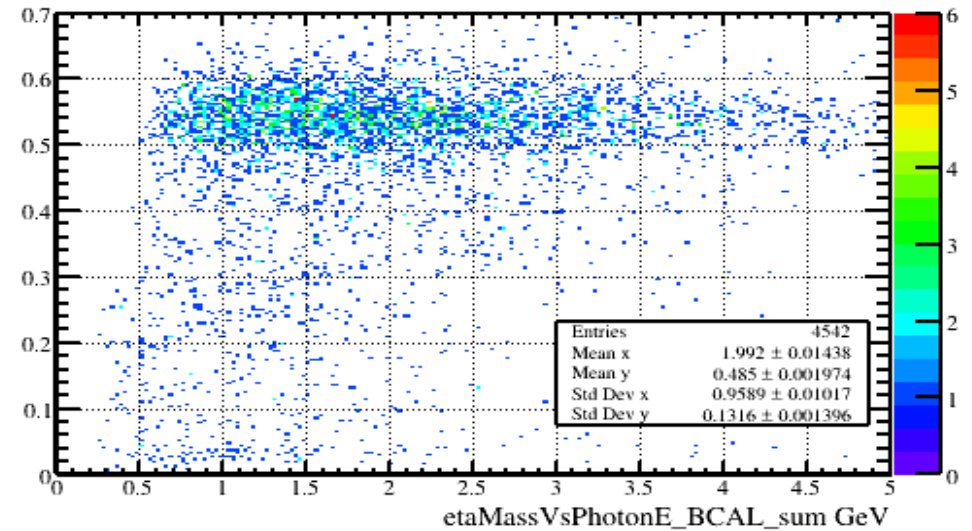
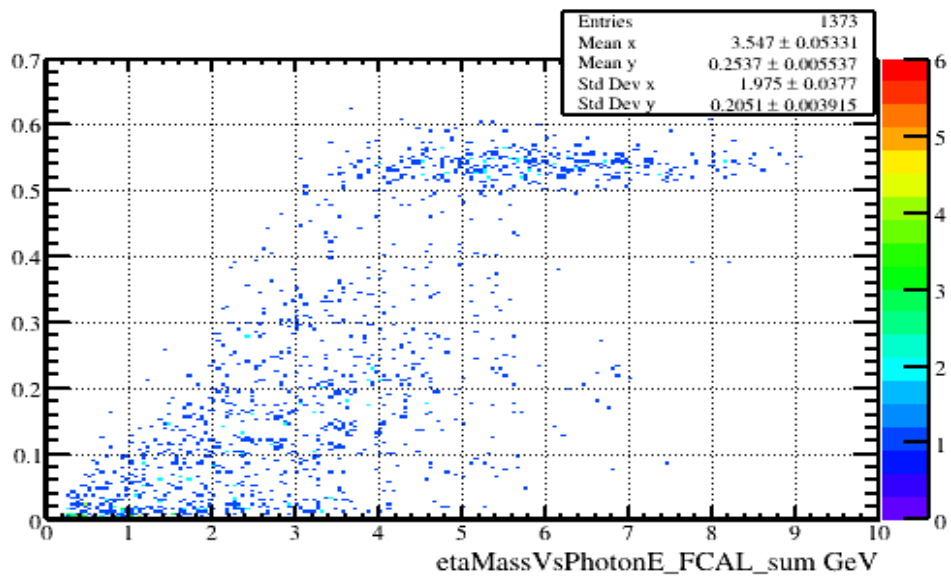
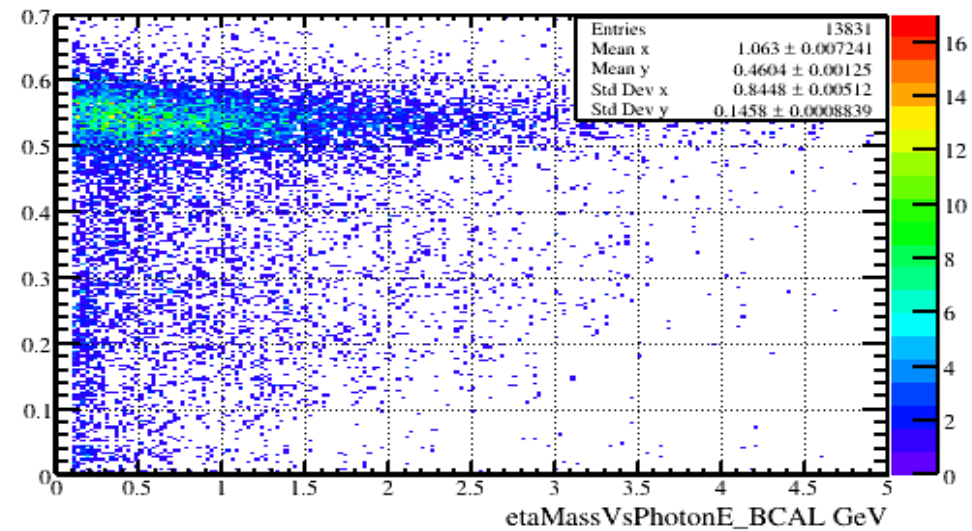
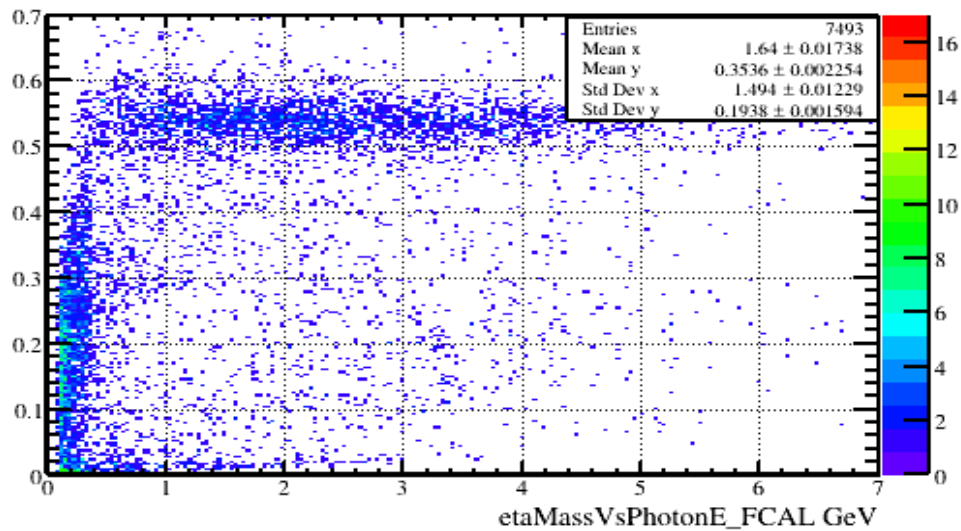
Bradford Cannon

- Purpose of this talk:
 - To study the photon cuts that were made in the previous talk on 08/24/2017.
- How this study was done:
 - Generate 100k Phi-Eta events
 - Study the energy thresholds of the FCAL and BCAL to see where signal and background cuts can be made

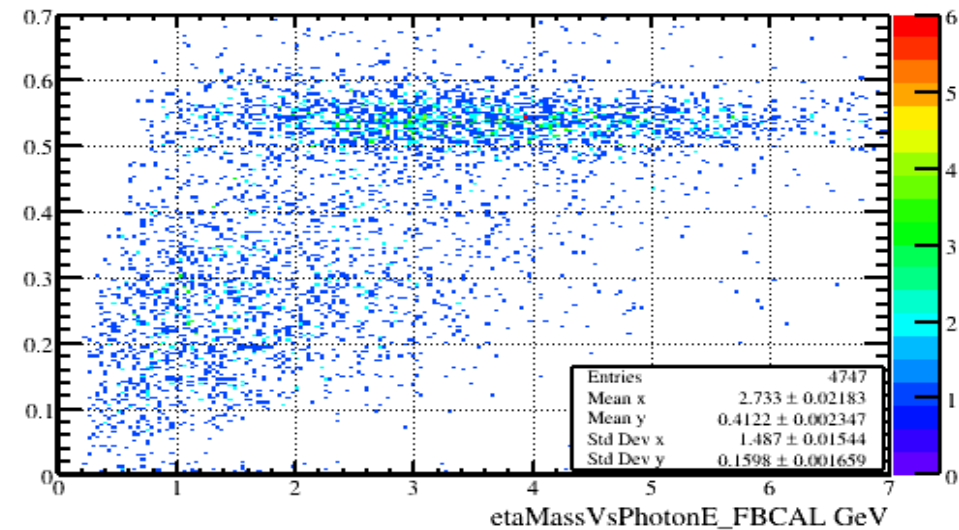
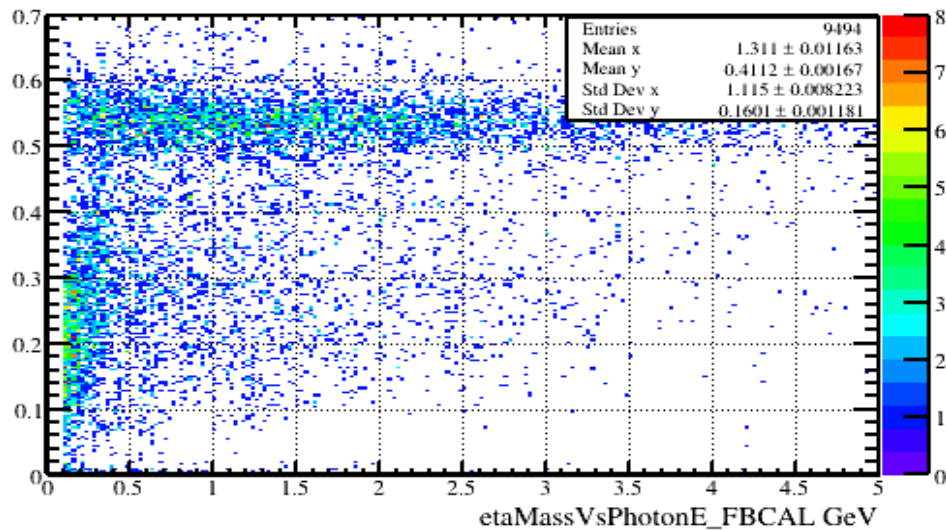
MC Results:



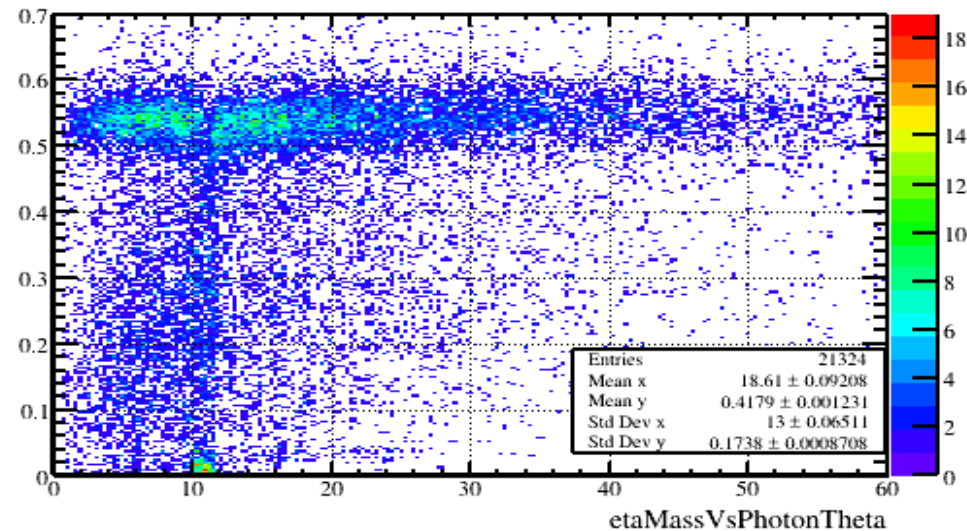
Two photon showers in BCAL/FCAL:



One photon shower in BCAL/FCAL:



Gamma Gamma Invariant Mass Distribution Vs Theta:



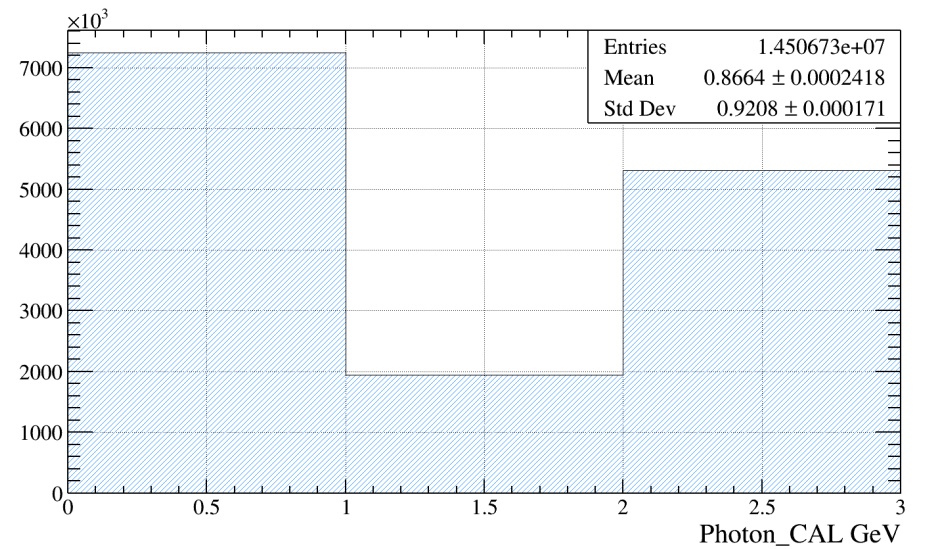
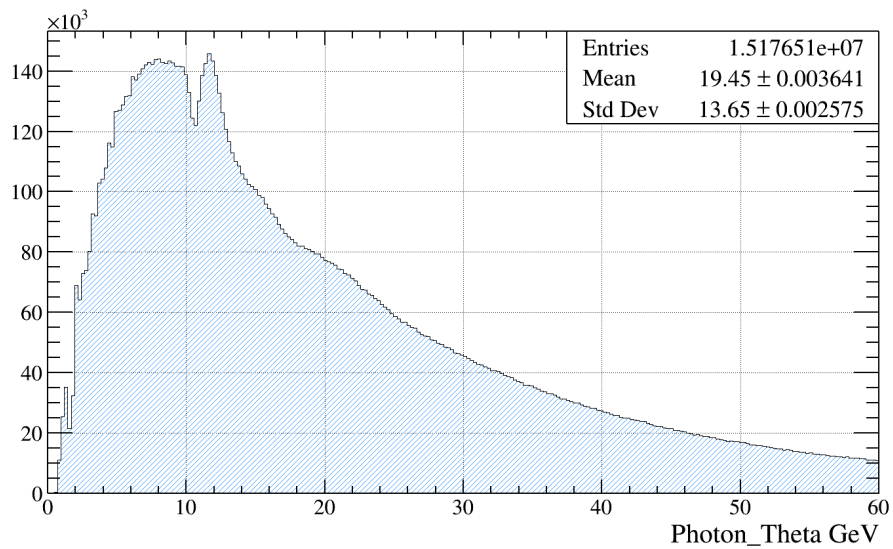
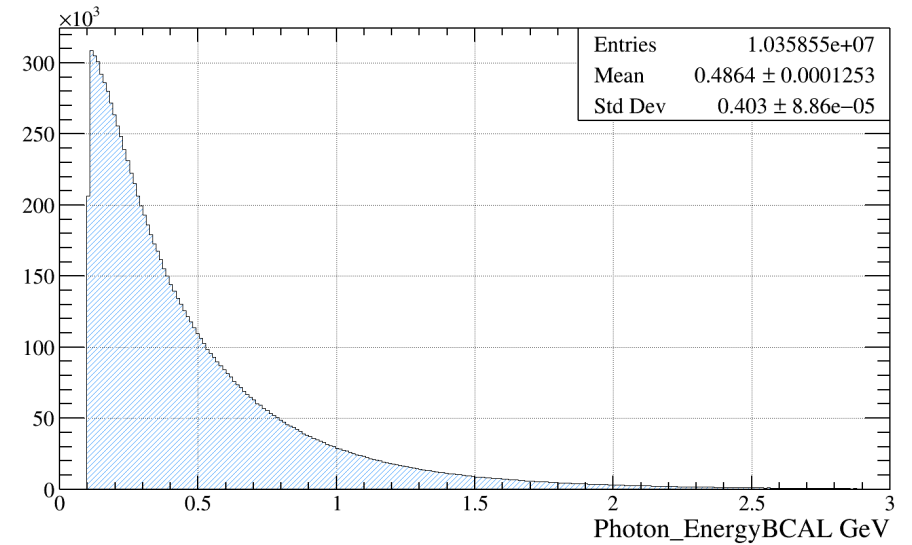
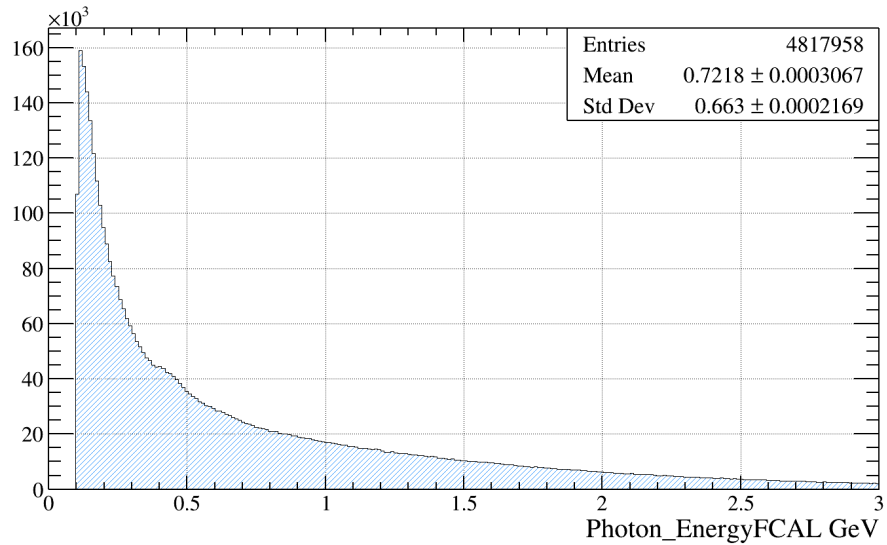
- Data:

- Spring 2017 data

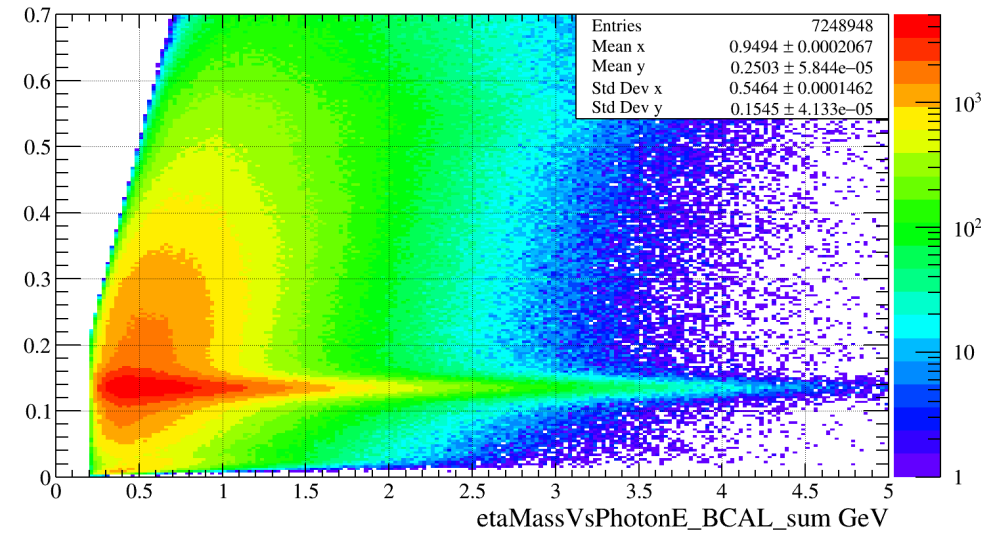
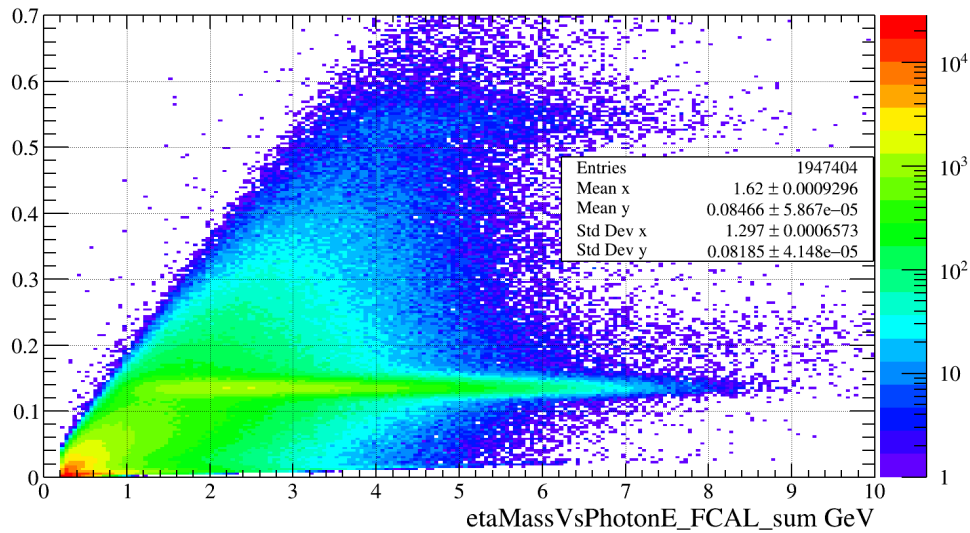
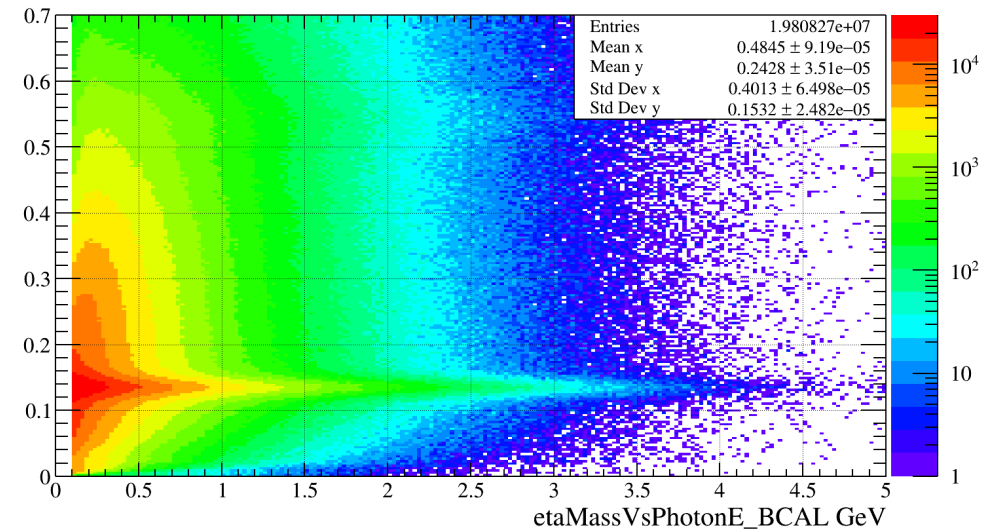
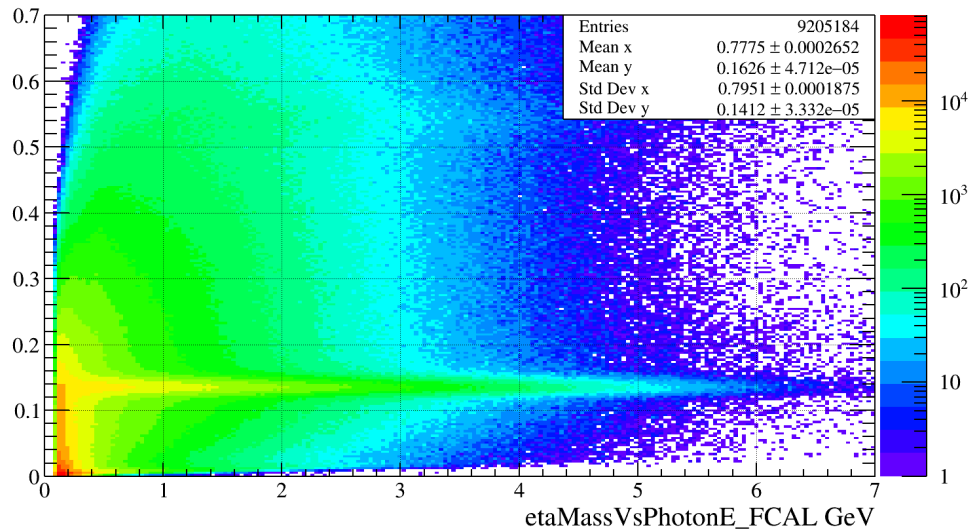
- Run over 5 files (~1.4%)

- Make cuts and show how they effect invariant mass plots

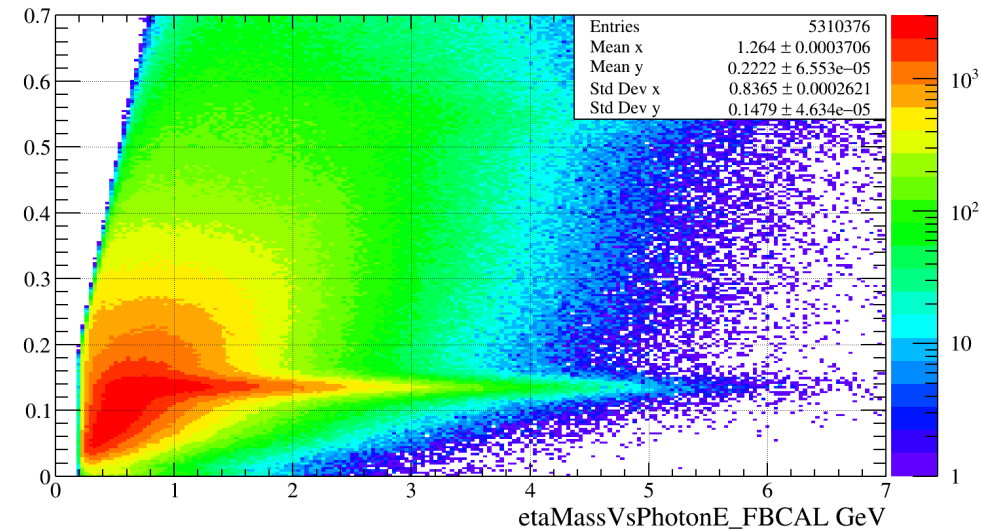
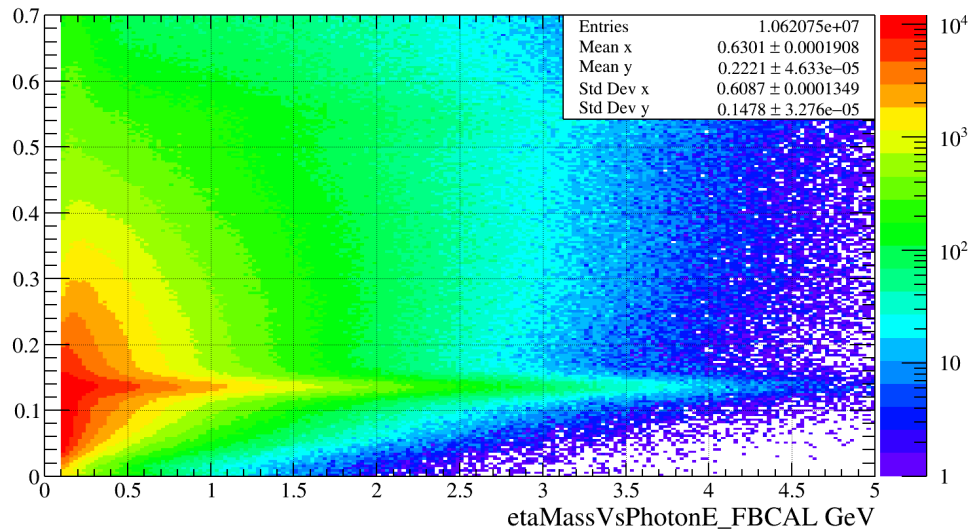
Data Results:



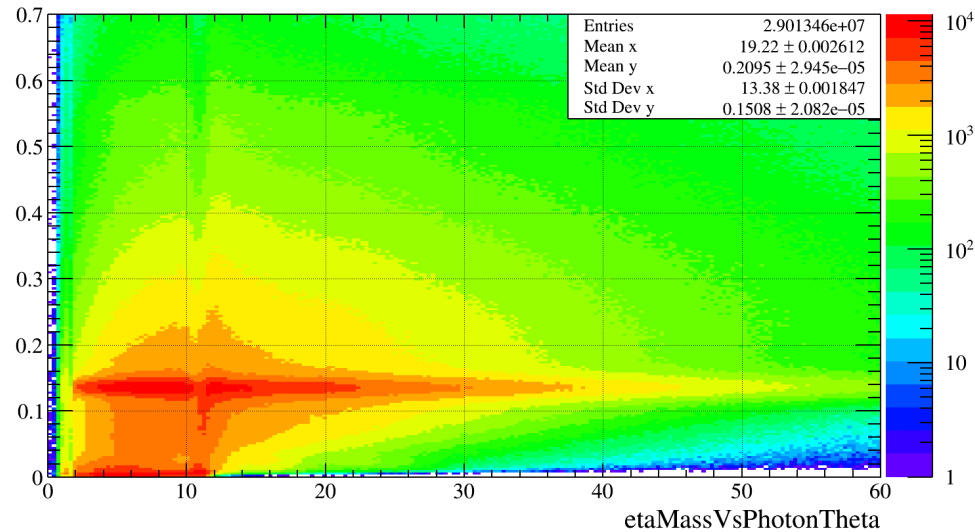
Two photon showers in BCAL/FCAL:



One photon shower in BCAL/FCAL:



Gamma Gamma Invariant Mass Distribution Vs Theta:



- Cuts:

- Photon FCAL Energy < 200 MeV
- 2 Photon FCAL Showers < 3 GeV
- 2 Photon BCAL Showers < 500 MeV
- 1 Photon FCAL + BCAL Shower < 600 MeV
- Photon Theta Cut: $\text{Theta} < 2$ degrees
- Photon Theta Cut: $12 > \text{Theta} > 10$ degrees