Studying CASTOR detector

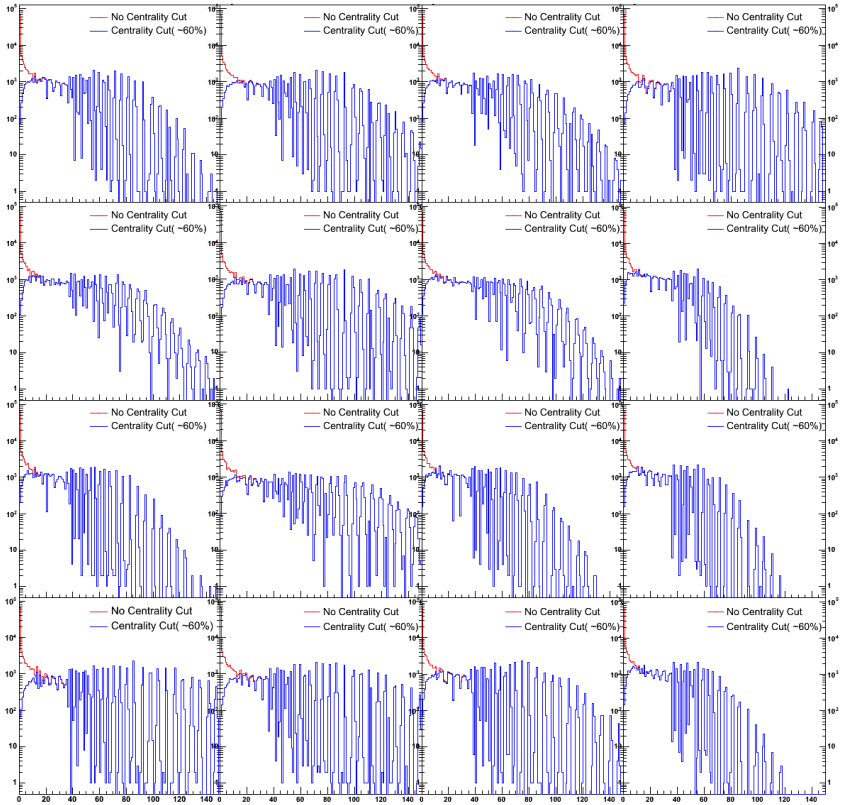
Inkyu Park, Hyun-Yong Jo

CASTOR hit energy distribution (module, sector) before/after centrality cuts

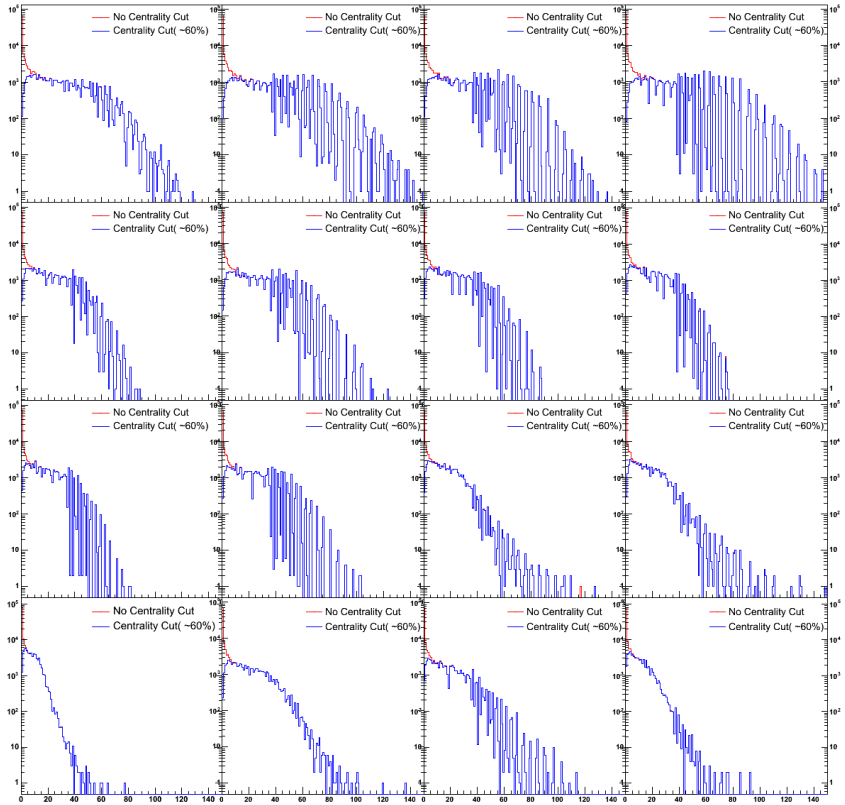
- Centrality Cut : 0 ~ 60%
- Blue line is centrality cut.
- Red line is no centrality cut.
- If centrality cut is used, energy peak around 0 GeV is vanished.

CASTOR hit energy distribution (module, sector) before/after centrality cuts

Module 1

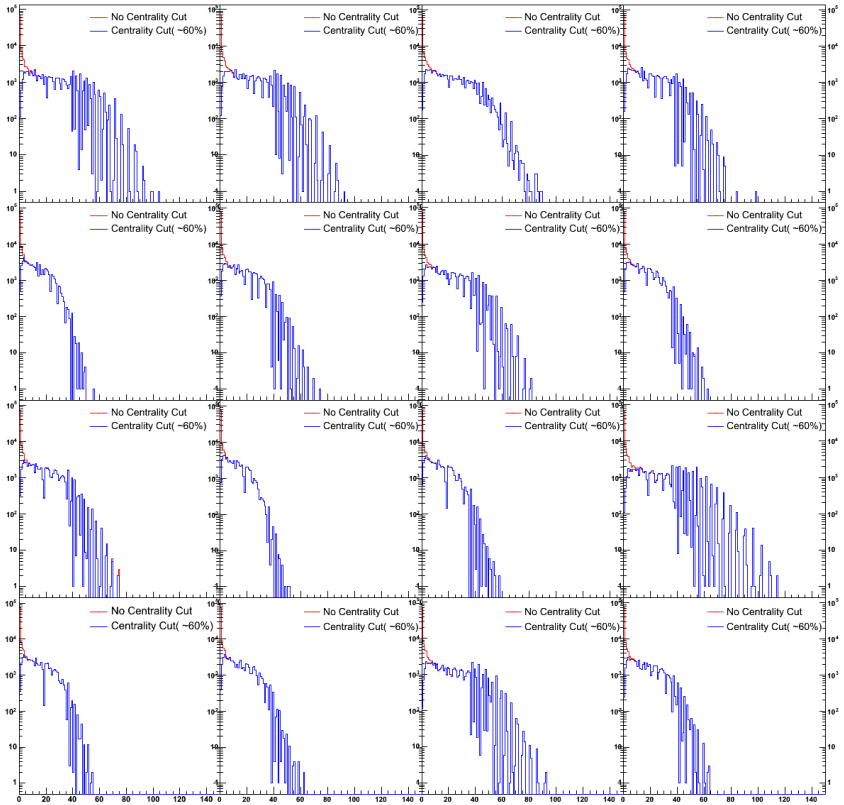


Module 2

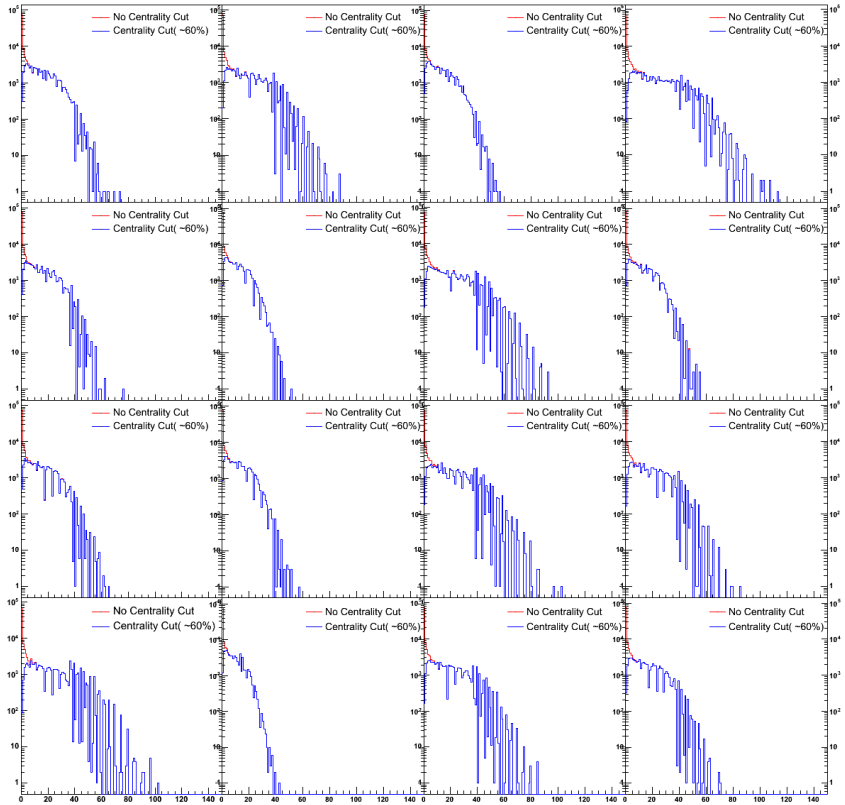


CASTOR hit energy distribution (module, sector) before/after centrality cuts

Module 3

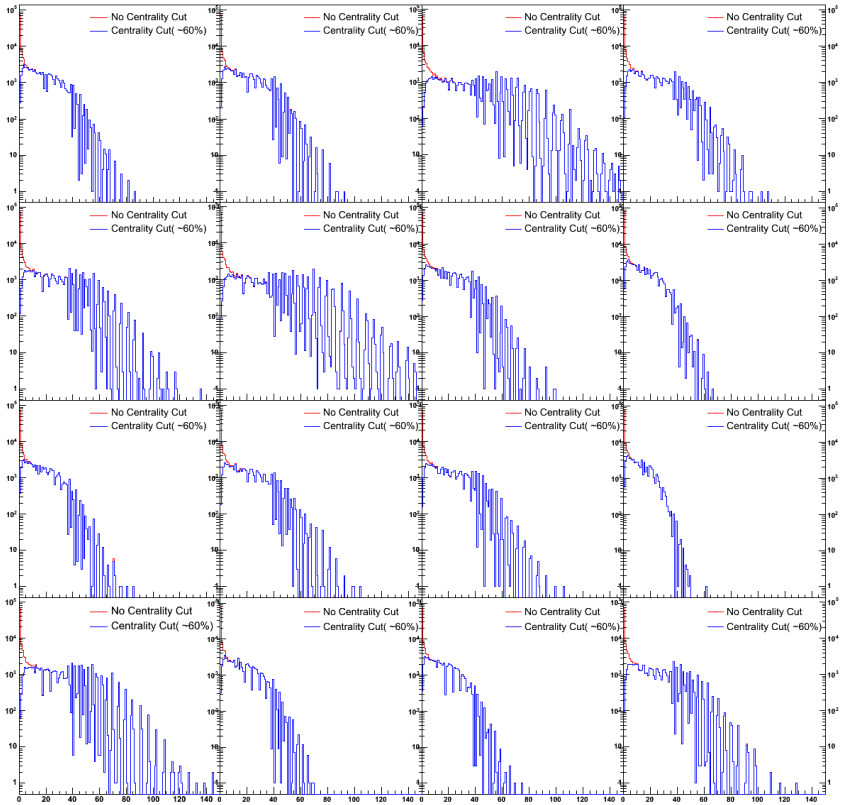


Module 4

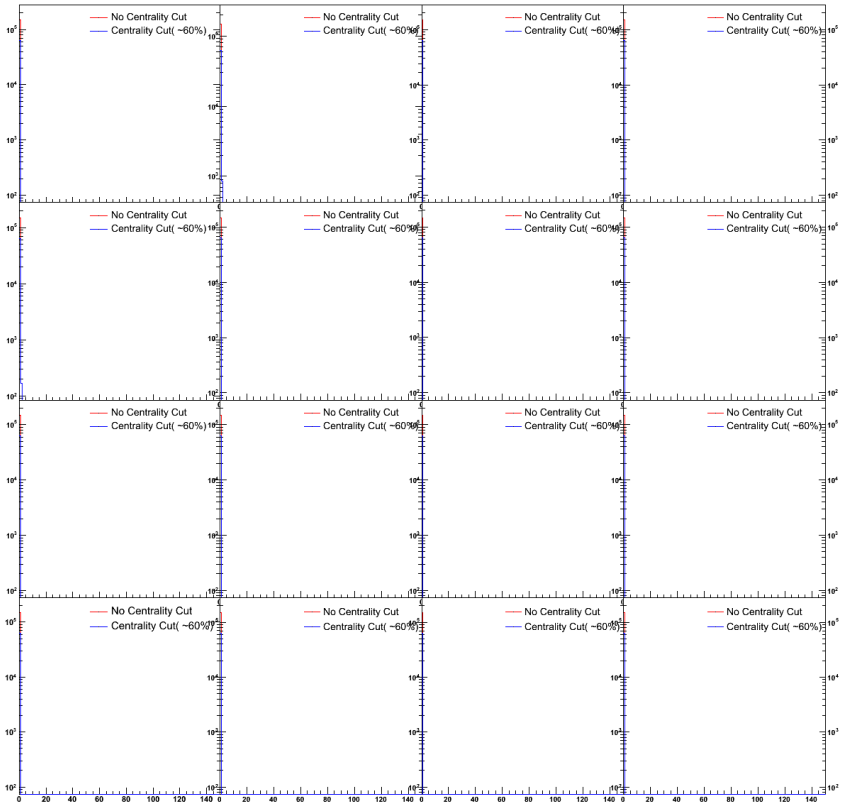


CASTOR hit energy distribution (module, sector) before/after centrality cuts

Module 5

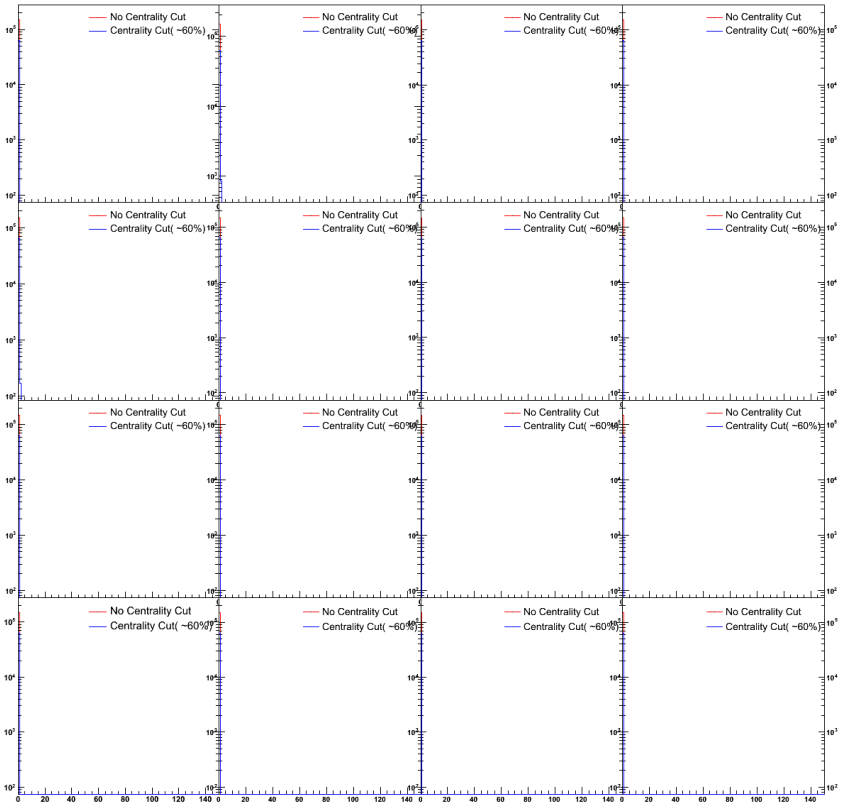


Module 6

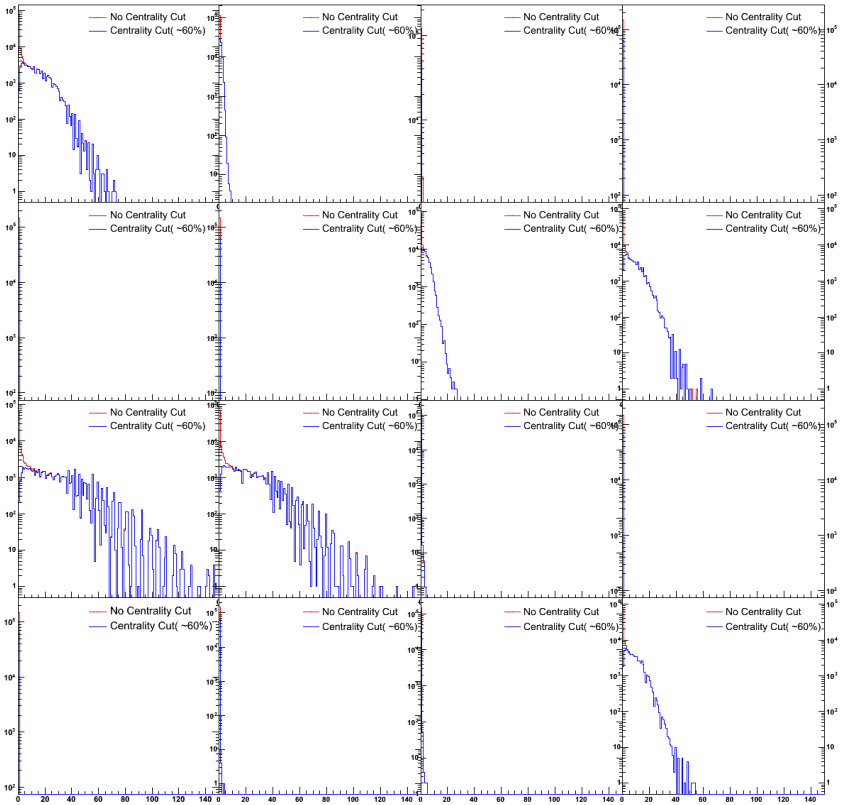


CASTOR hit energy distribution (module, sector) before/after centrality cuts

Module 7

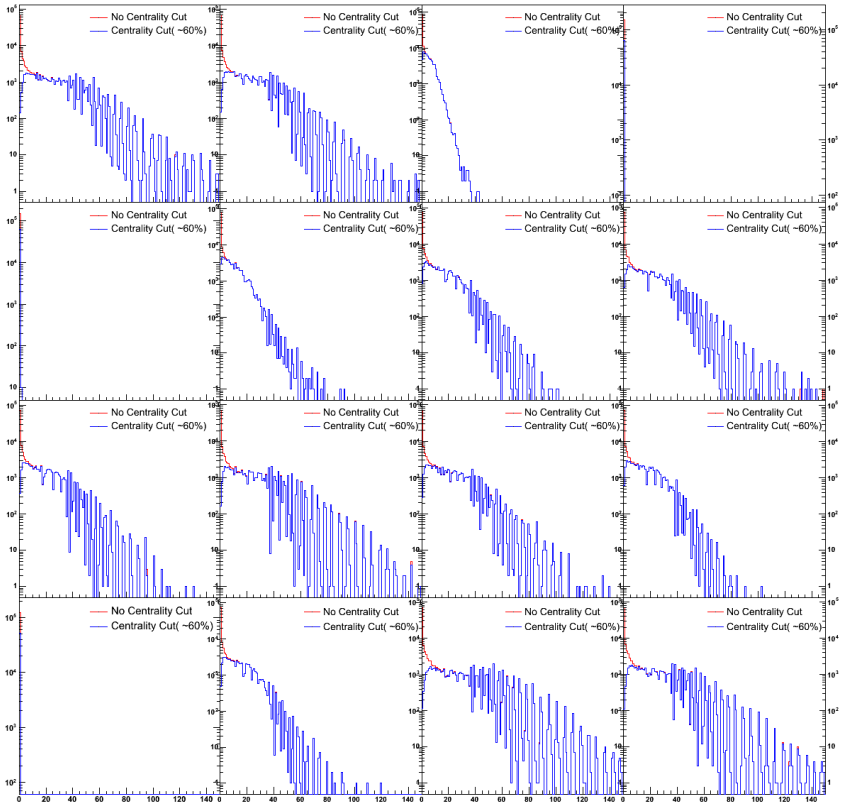


Module 8

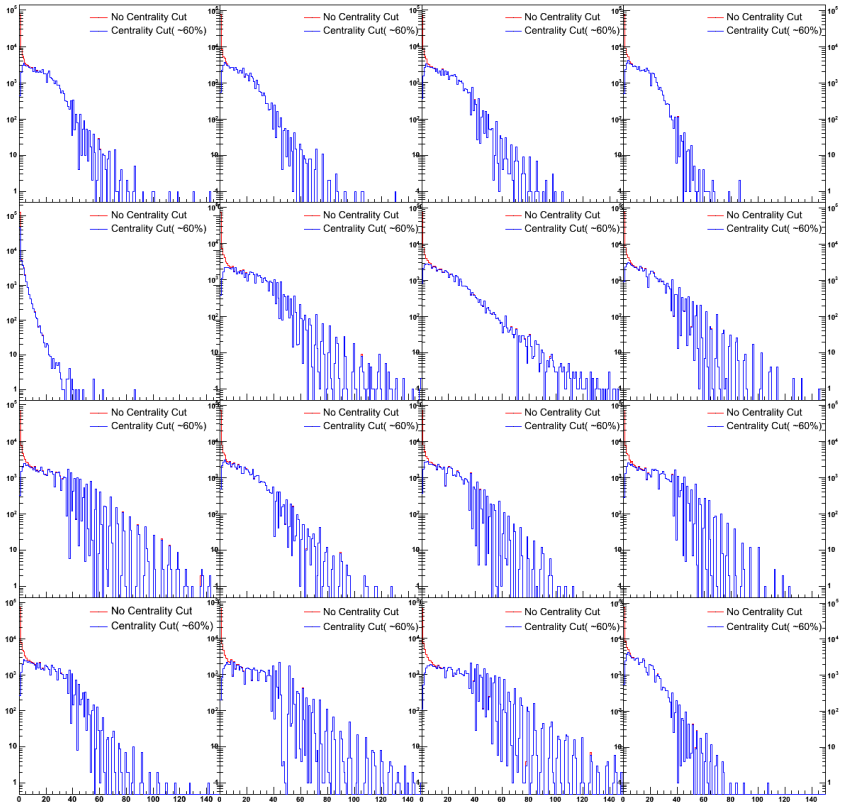


CASTOR hit energy distribution (module, sector) before/after centrality cuts

Module 9

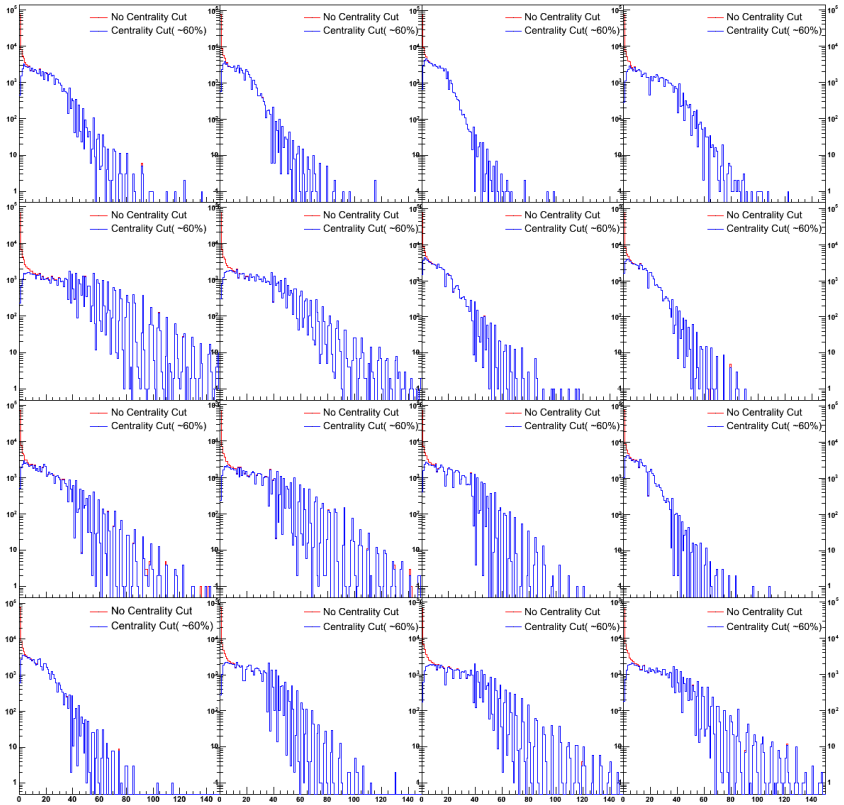


Module 10

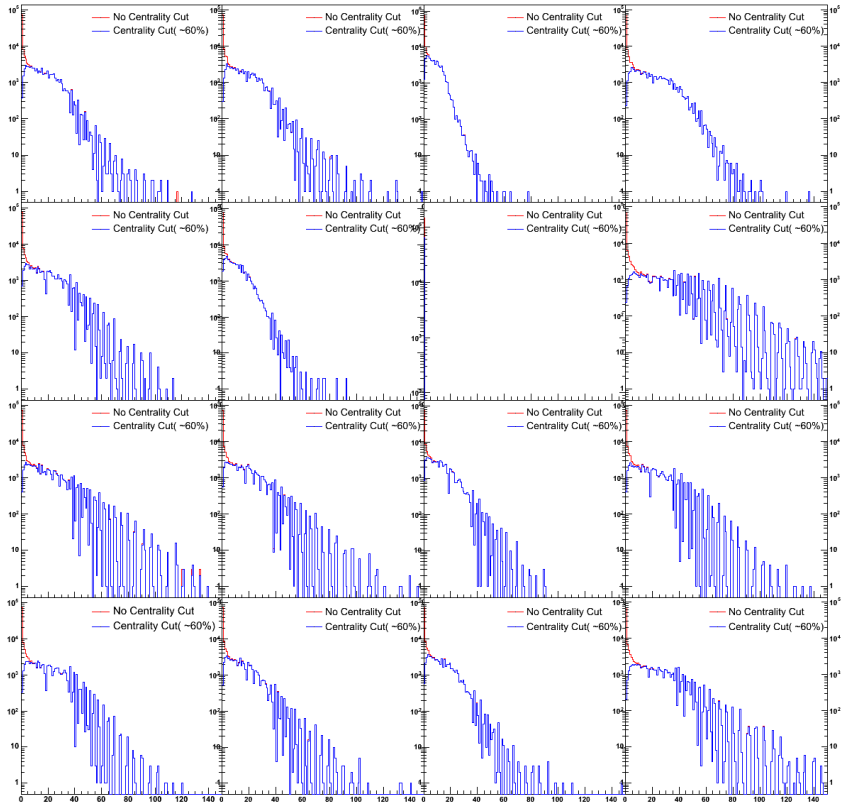


CASTOR hit energy distribution (module, sector) before/after centrality cuts

Module 11

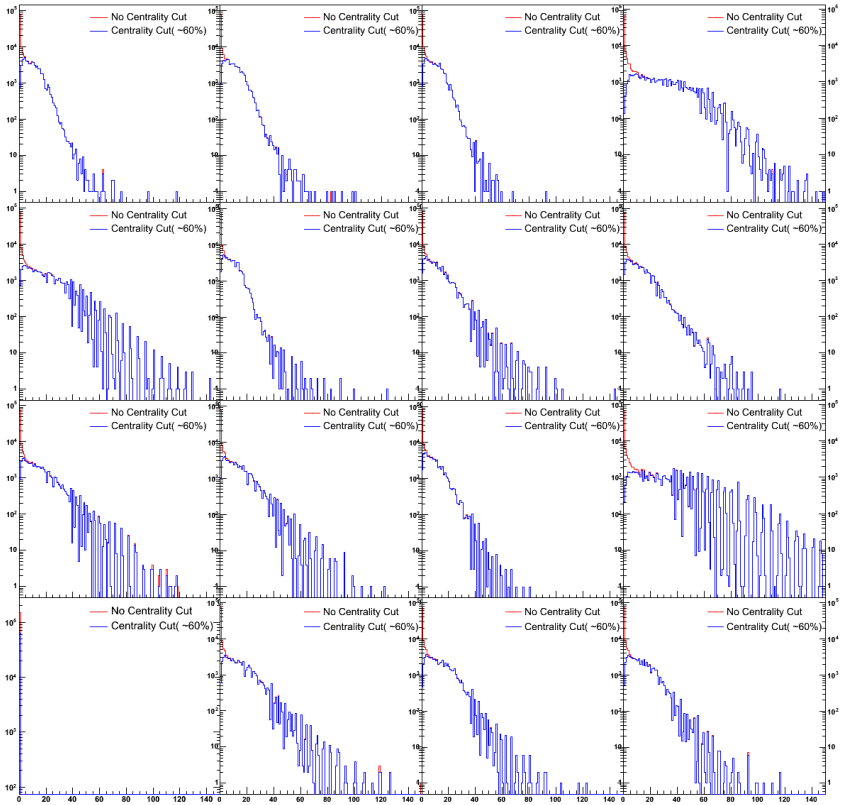


Module 12

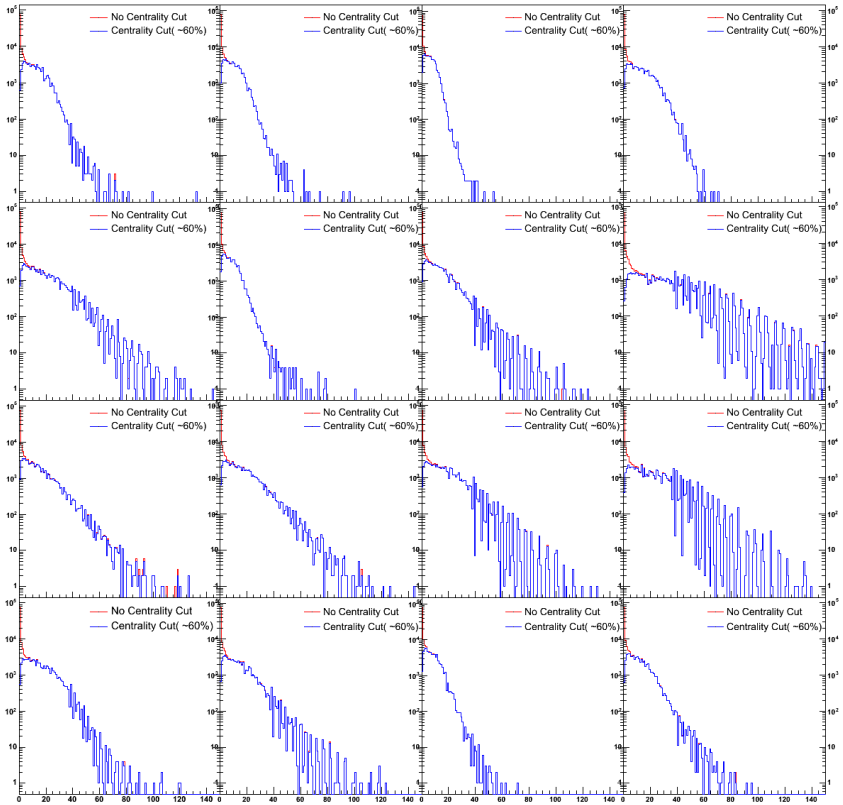


CASTOR hit energy distribution (module, sector) before/after centrality cuts

Module 13



Module 14

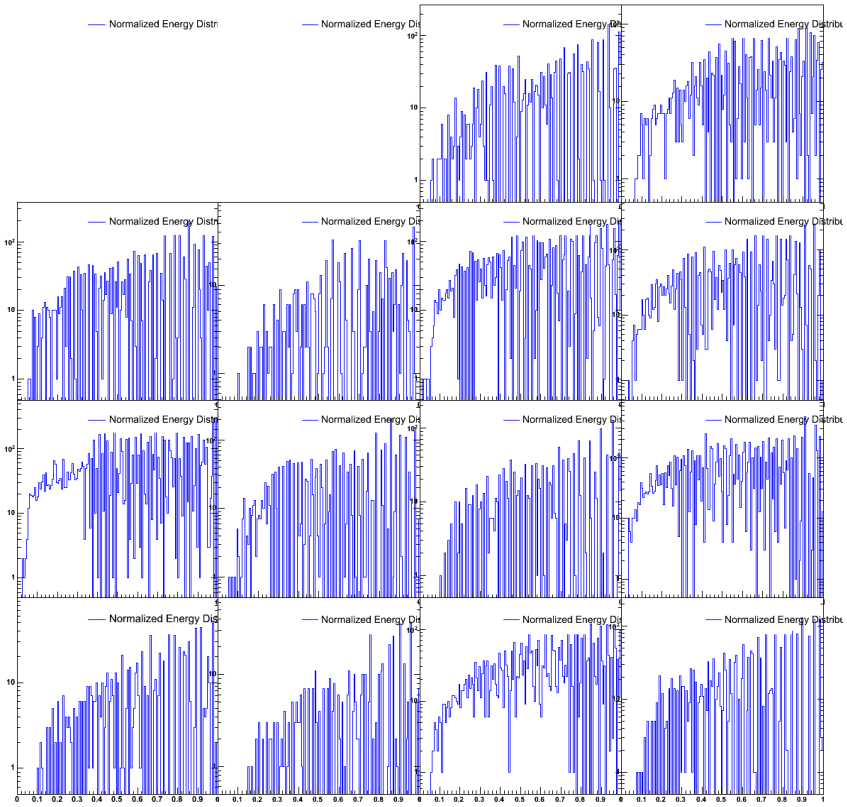


CASTOR hit distribution (dN/dphi) before/after the energy normalization

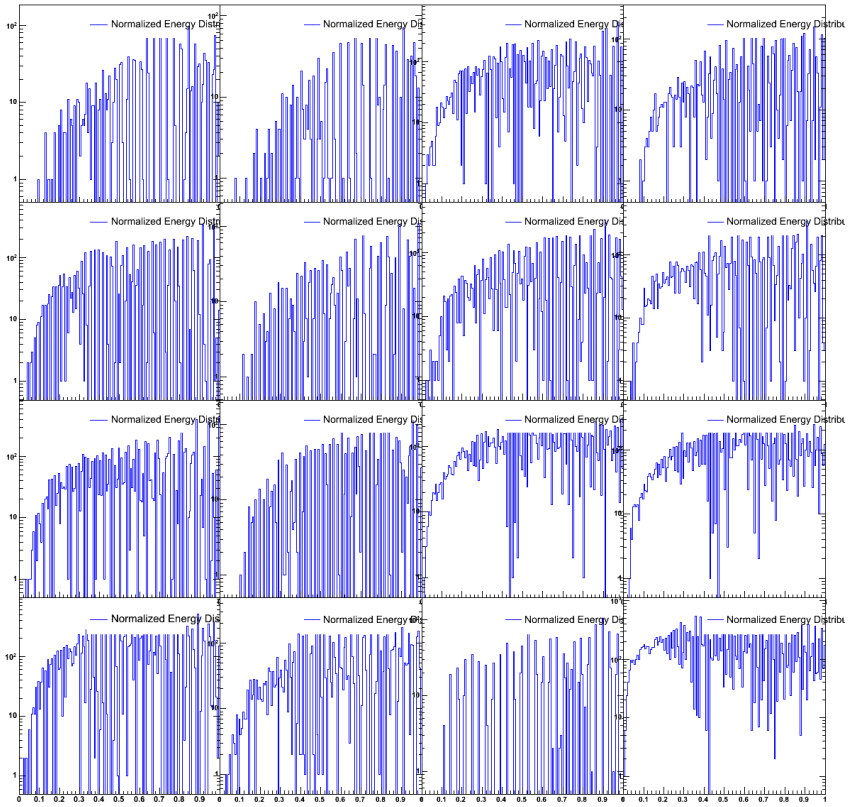
- Centrality Cut(0~60%)
- Fit function is Landau function.
- Normalized energy line is blue.
- Before normalized energy distribution plots are above slides.(blue line)
- Fitting is not perfect, then some sectors plots are disappeared or not same for other plots.

CASTOR hit distribution (dN/dphi) before/after the energy normalization

Module 1

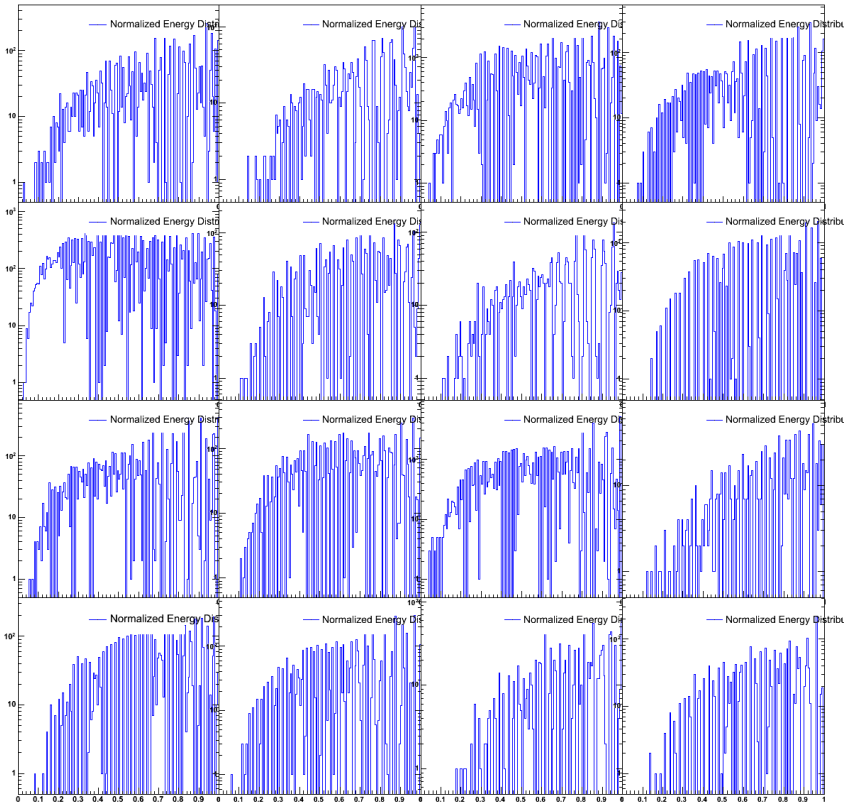


Module 2

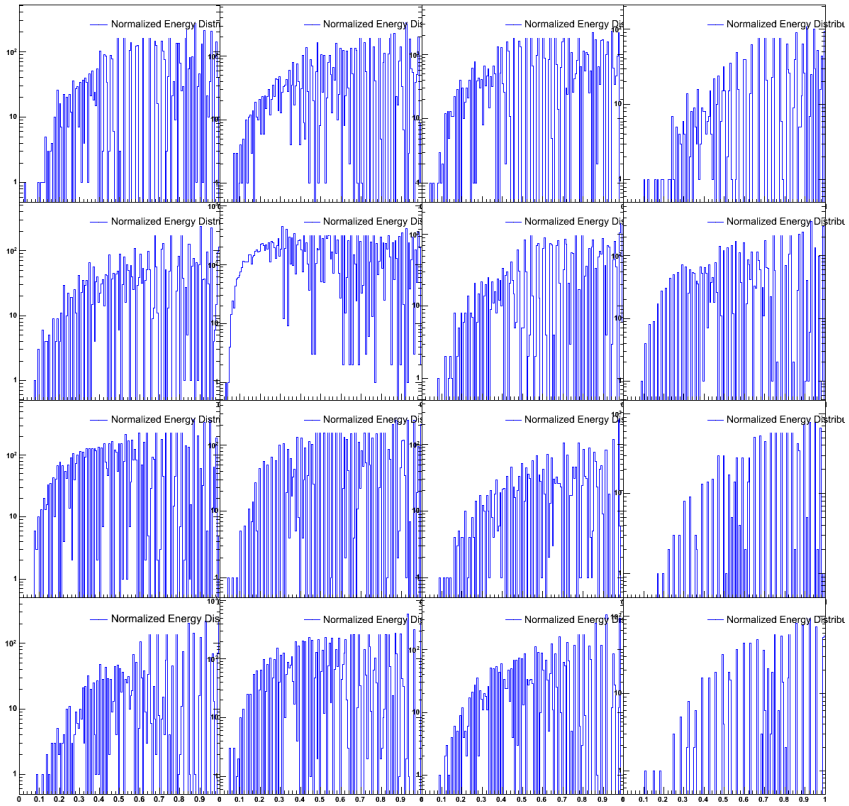


CASTOR hit distribution (dN/dphi) before/after the energy normalization

Module 3

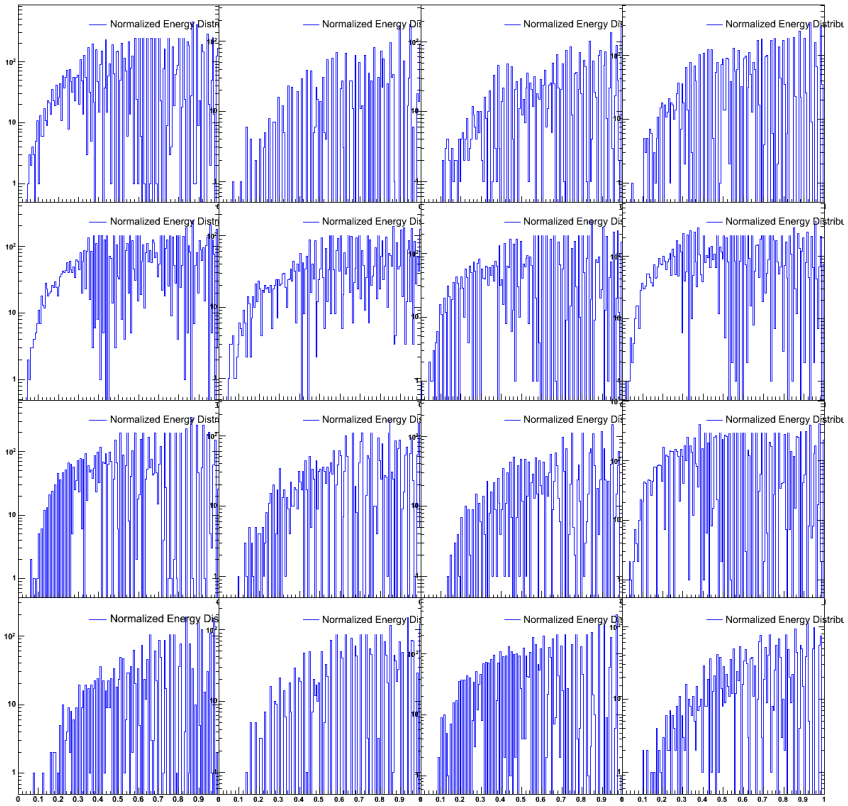


Module 4

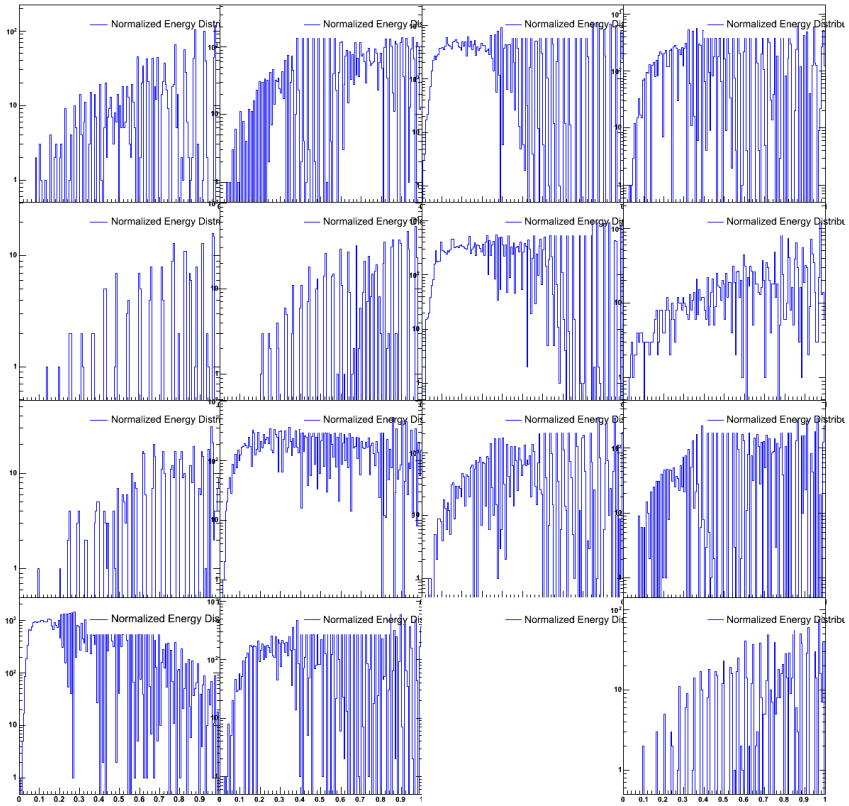


CASTOR hit distribution (dN/dphi) before/after the energy normalization

Module 5

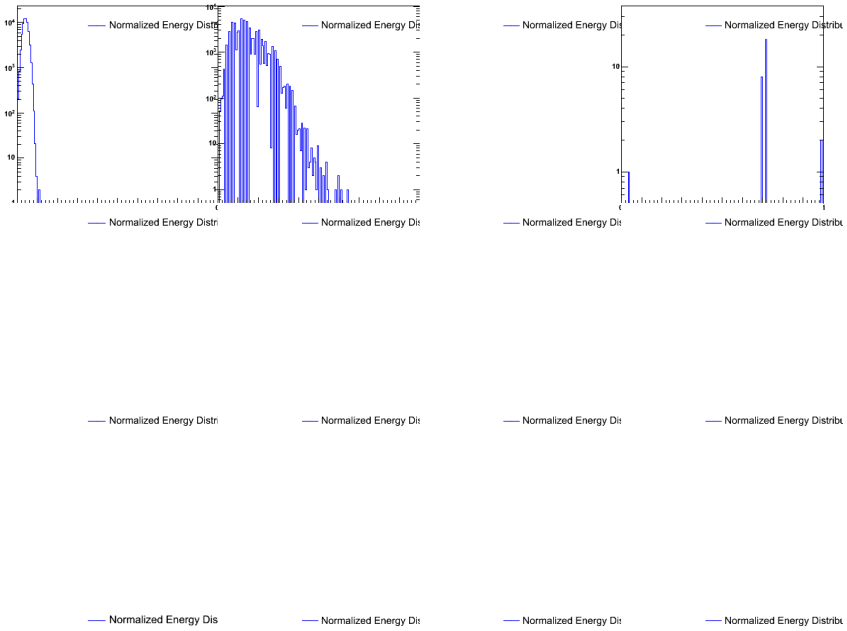


Module 6

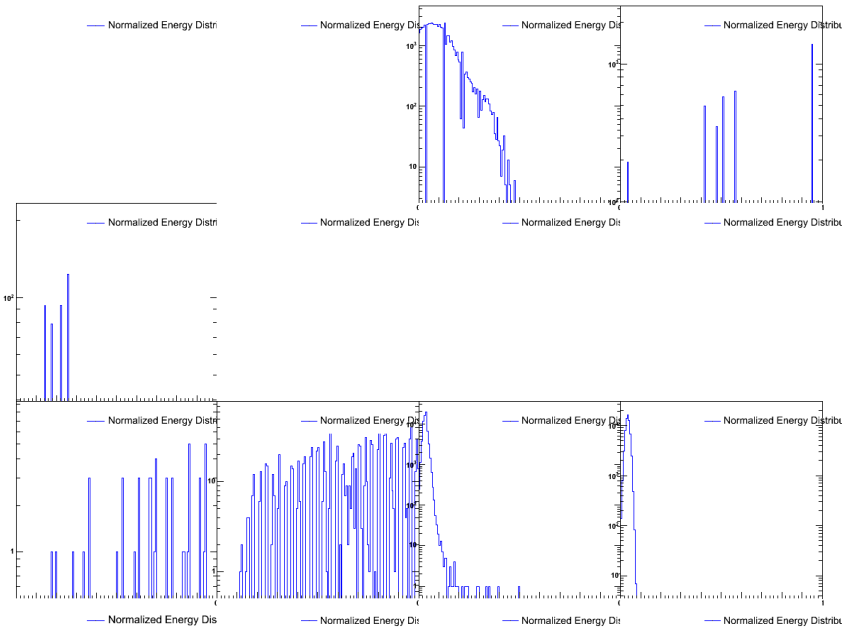


CASTOR hit distribution (dN/dphi) before/after the energy normalization

Module 7

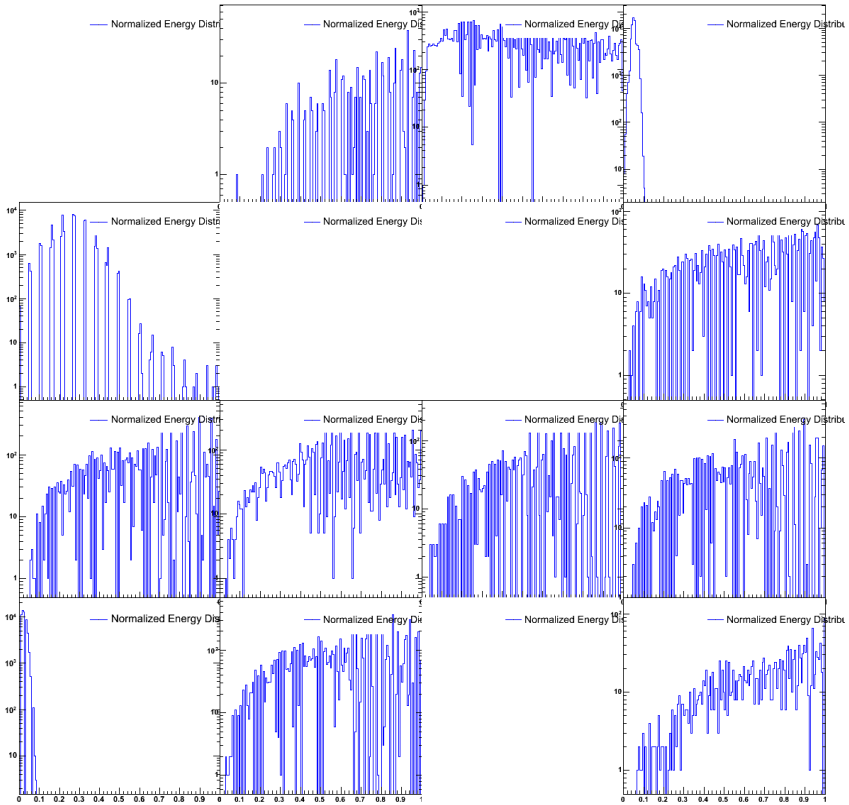


Module 8

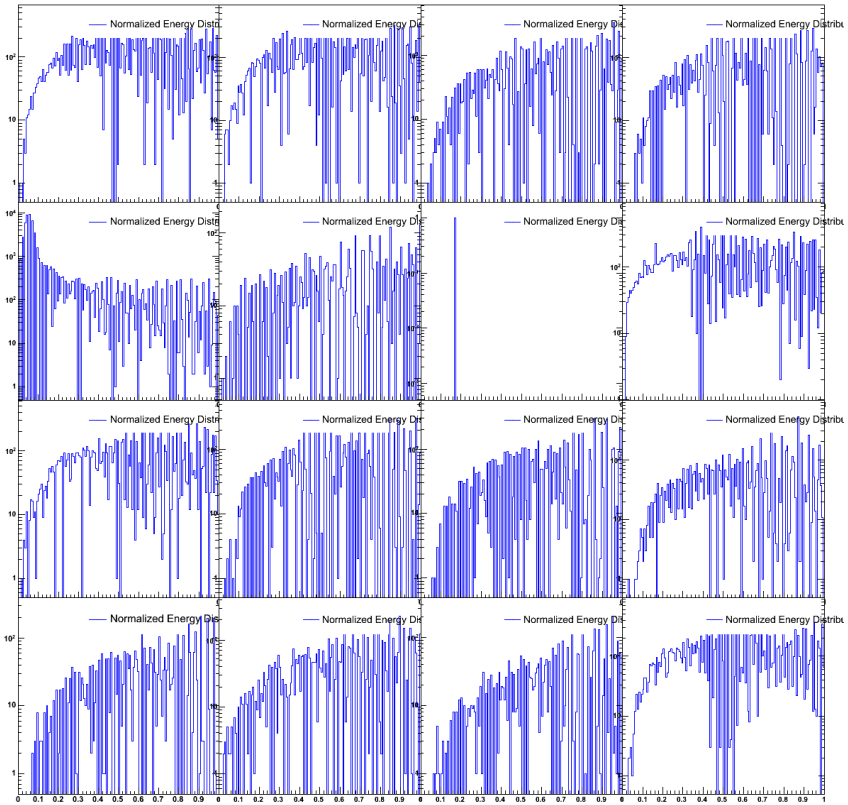


CASTOR hit distribution (dN/dphi) before/after the energy normalization

Module 9

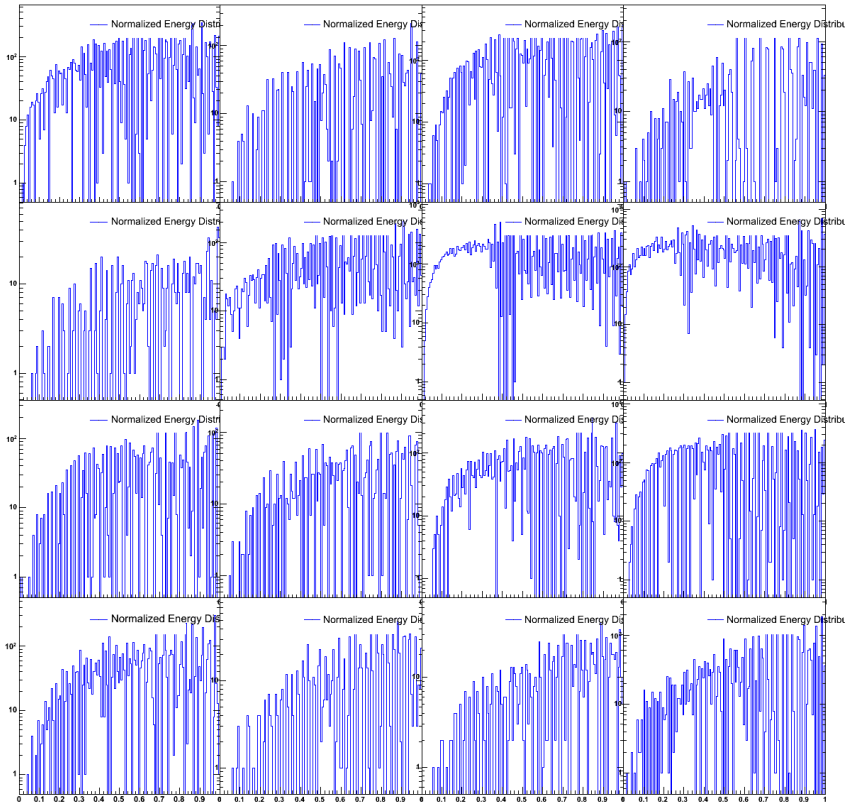


Module 10

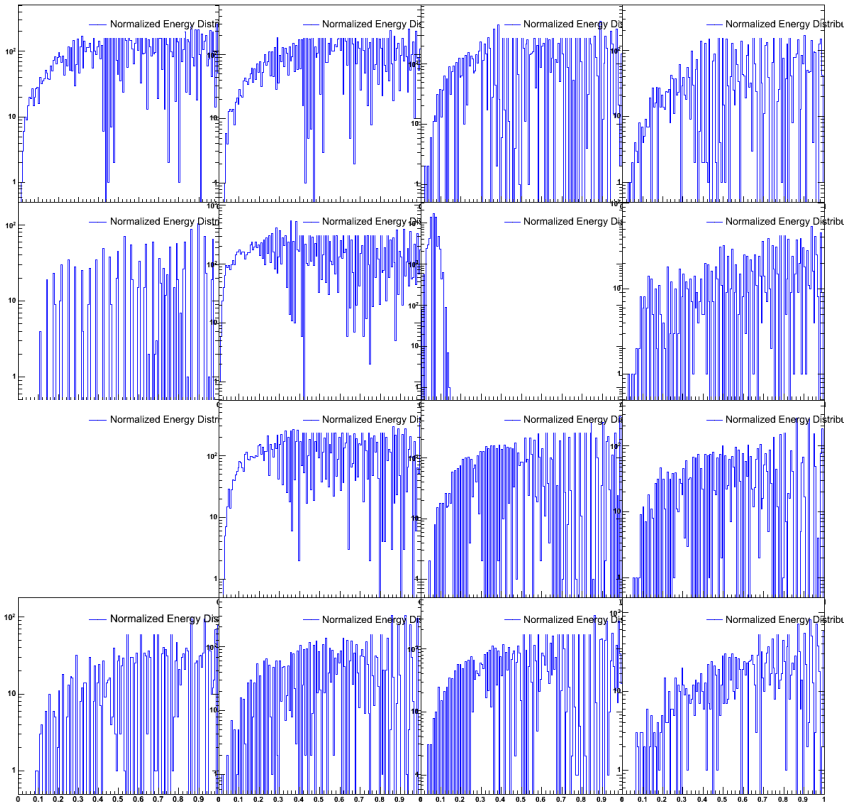


CASTOR hit distribution (dN/dphi) before/after the energy normalization

Module 11

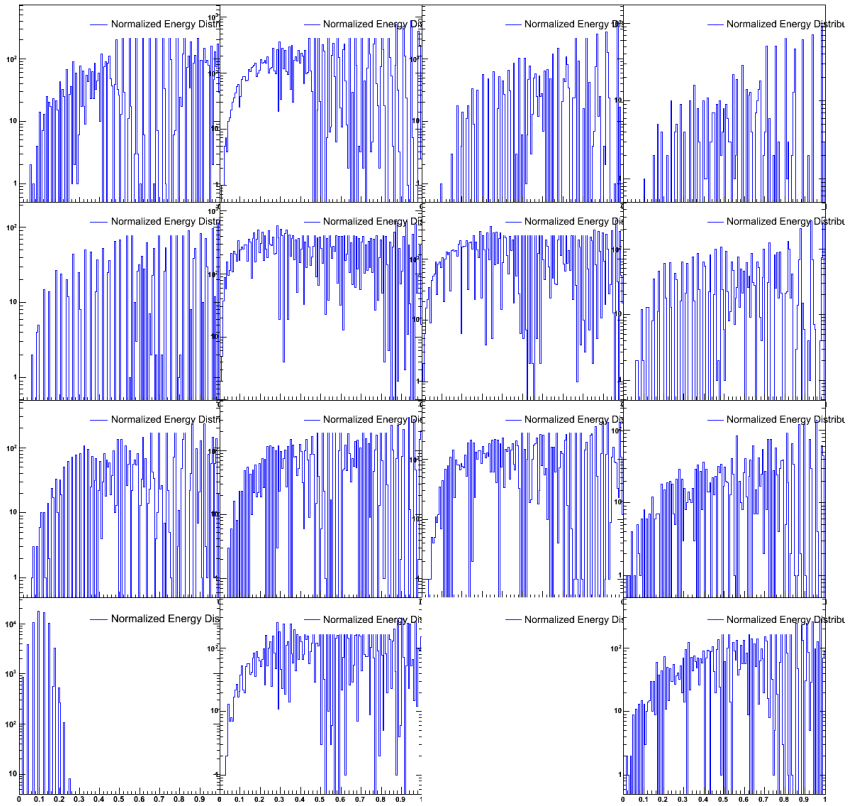


Module 12

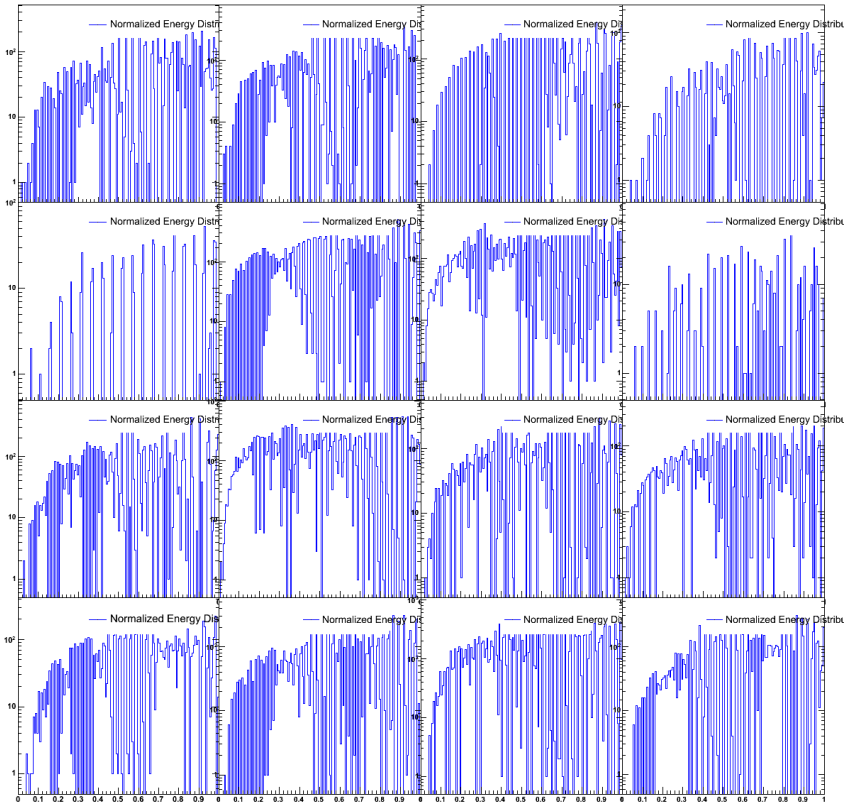


CASTOR hit distribution (dN/dphi) before/after the energy normalization

Module 13

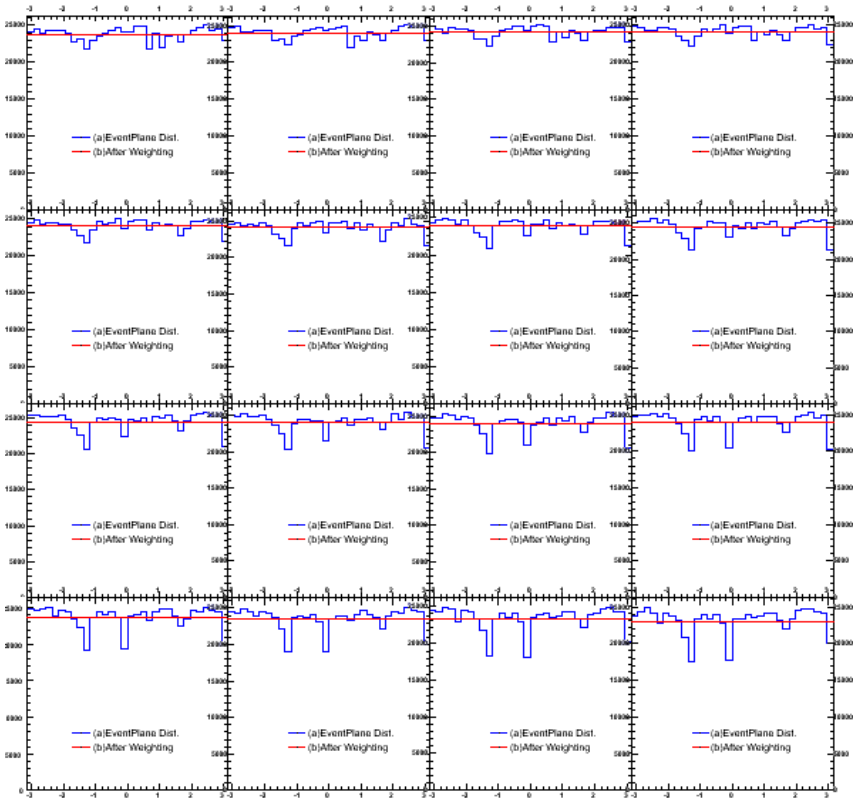


Module 14



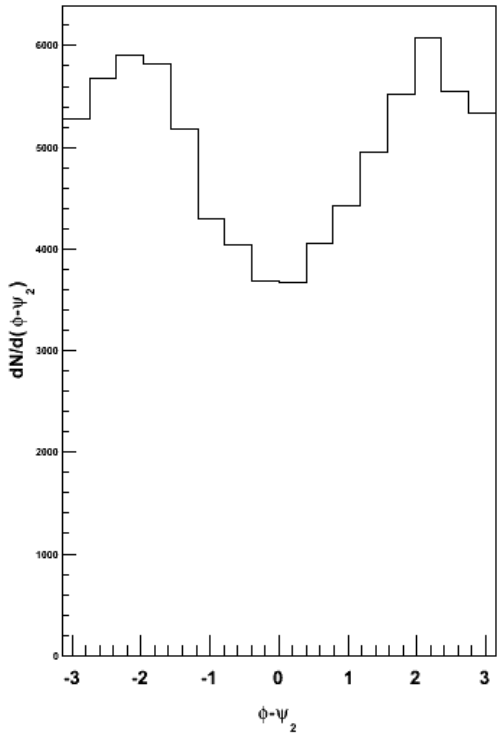
CASTOR hist distribution w.r.t. the Event plane (i.e. dN/d(phi-Psi2)), where EP is from track.

- CASTOR eta value is fixed (-5.9) so that, we can choice modules for flow feasibility at high eta reign.
- EM section is sum of Mod.1 and Mod.2
- Had1 section is sum of Mod.3, Mod.4 and Mod.5
- Had2 section is sum of Mod.10, Mod.11, Mod.12, Mod.13 and Mod.14.
- Using Weighting Method

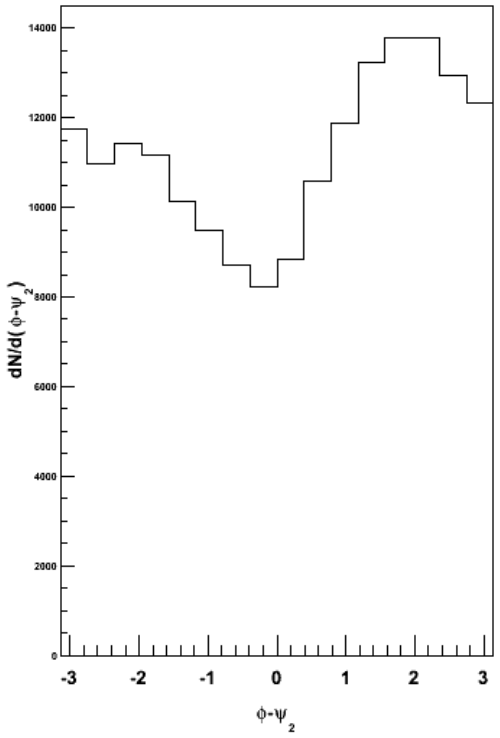


CASTOR hist distribution w.r.t. the Event plane (i.e. dN/d(phi-Psi2)), where EP is from track.

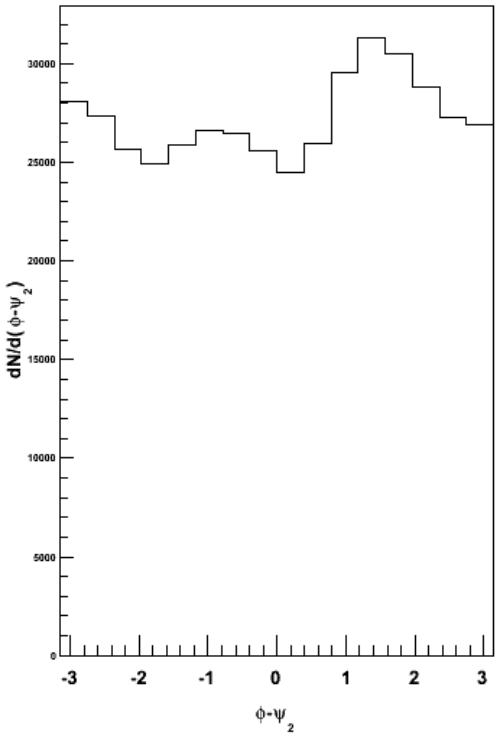
EM Section



Had1 Section



Had2 Section



Conclusion

- EM section is good shape for flow measurement.
- Had1 section is also good shape but not useful.
- We can use Had2 section for flow measurement.
- If we can choice modules, CASTOR detector is useful for flow measurement.