

**Angular Dispersion with
BT Gamma data
Update**

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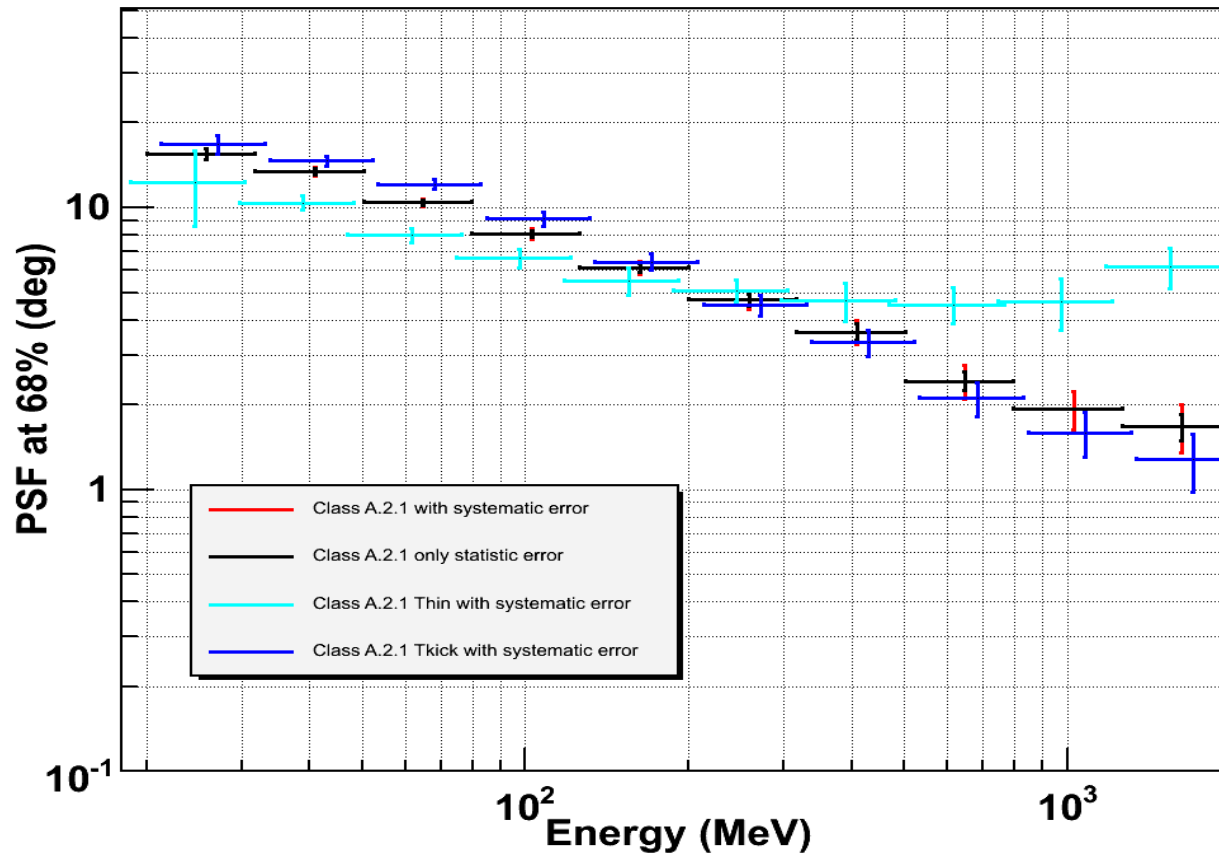
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Problem

The angular resolution in thin planes increases with the energy

Tower 2 - Angular Resolution Vs. Reconstructed Energy at Normal Incidence (2.5 GeV Electron beam)



Event display ...

The screenshot displays a software interface for event analysis. On the left is a 'File Browser' window titled 'HepRep Instance Tree' showing a hierarchical tree structure. The tree includes 'Event-108', 'Header', 'Recon', 'AcdRecon', 'CalRecon', 'TkrRecon', 'TkrClusterCol', 'Tracks', 'Track', 'GammaVtxCol', 'GammaVtx', 'MC', and 'GLAST-LAT'. Below the tree is a table with the following data:

Name	Value
Type	Recon
Layer	Event
Sel	True

On the right are two 3D viewer windows, '3D Viewer 0' and '3D Viewer 1', both showing the same event ID: 700001176-146. Each viewer displays a 3D reconstruction of the detector's internal structure with tracks overlaid. A prominent yellow track is visible in both views, along with other tracks in blue and green. The bottom of each viewer shows a detailed view of the detector's internal components, with colored markers (red, blue, green) indicating specific features or tracks.

Some events (Class A) show a short track in the TKR with a large energy deposition in the CAL

Cut optimization for Class A.1.x and A.2.x events

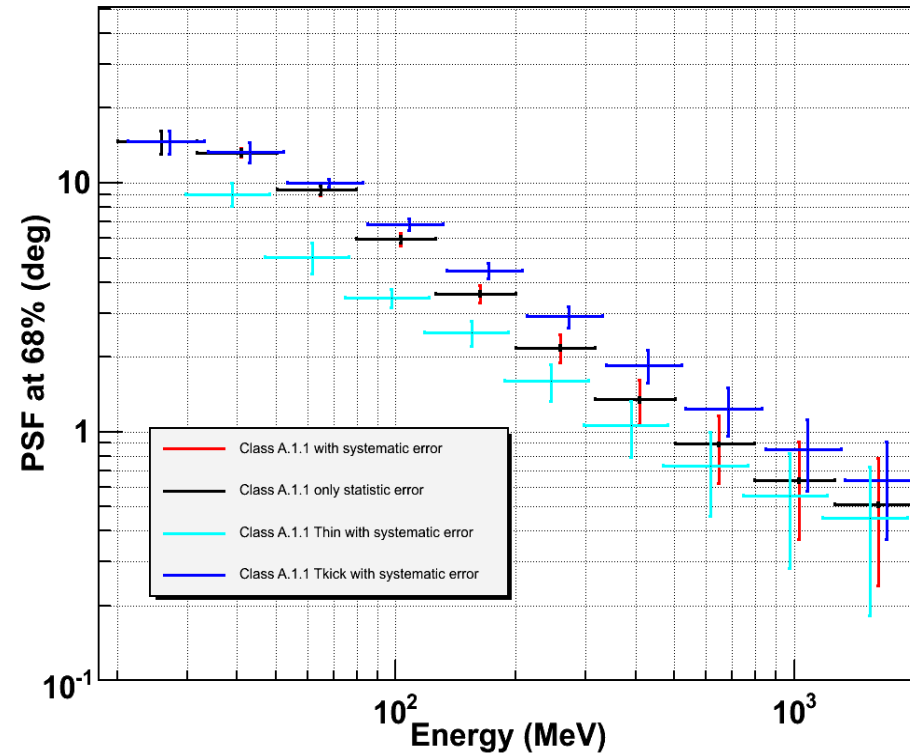
- Class A.1.x (single vertex and two tracks)
 - $\text{Tkr1LastLayer} == 0 \ \&\& \ \text{Tkr2LastLayer} == 0 \ \&\& \ \text{Tkr1FirstLayer} > 1 \ \&\& \ \text{Tkr2FirstLayer} > 1$
- Class A.2.x (single vertex and one track)
 - $\text{Tkr1LastLayer} == 0 \ \&\& \ \text{Tkr1FirstLayer} > 1$

Configurations

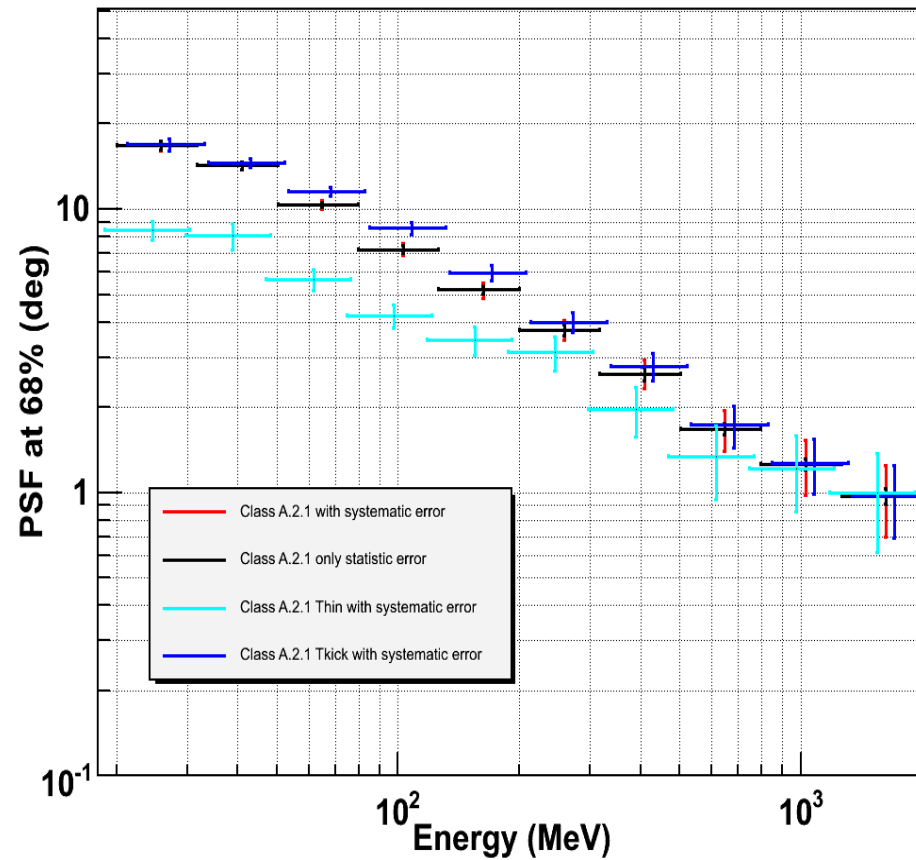
- **Normal incidence**
 - Tower 2: all gamma runs (both full brems. and tagged) have been used at 0° **with 2.5 GeV electron beam**. The pion contamination has been rejected by requiring the X Vertex position in Tower 2 ($V_{txX} < 350.$)
 - Tower 3: all gamma runs (both full brems. and tagged) have been used at 0° **with 2.5 GeV electron beam**
- **30°**: all gamma runs (both full brems. and tagged) have been used at 30° **with 2.5 GeV electron beam**
- **48°**: all gamma runs (both full brems. and tagged) have been used at 50° **with 2.5 GeV electron beam**
- **MC at normal incidence on Tower 3 with 2.5 GeV electron beam**

PSF at 68% - Tower 2 at 0 Deg

Tower 2 - Angular Resolution Vs. Reconstructed Energy at Normal Incidence (2.5 GeV Electron beam)

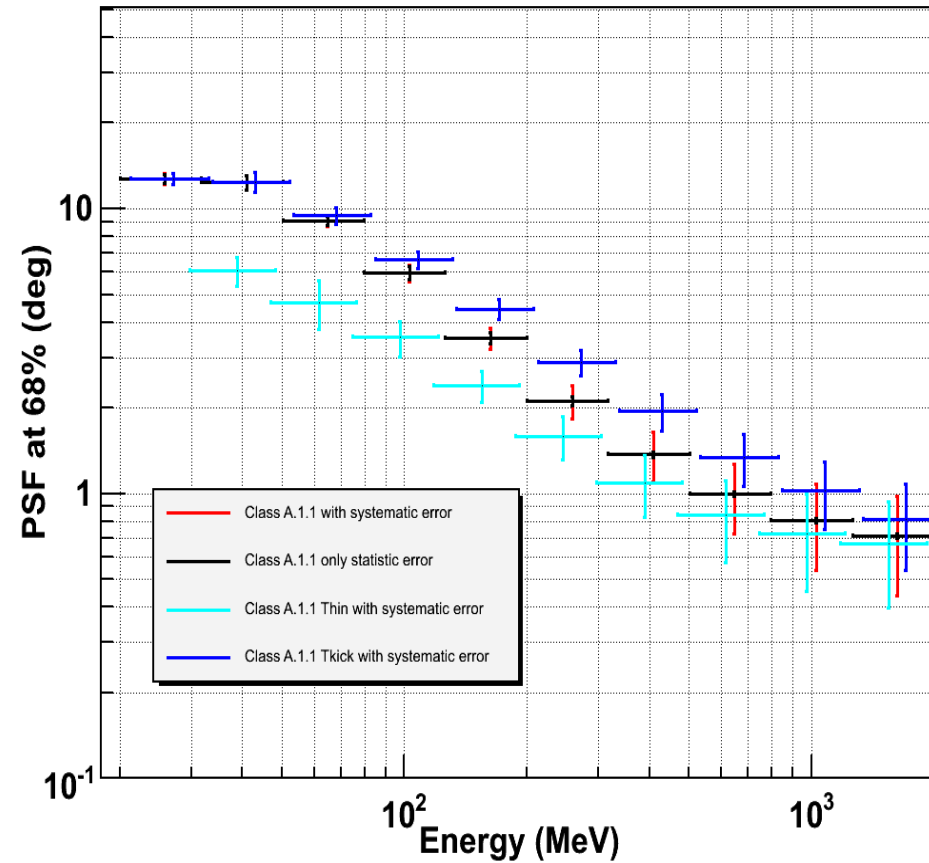


Tower 2 - Angular Resolution Vs. Reconstructed Energy at Normal Incidence (2.5 GeV Electron beam)

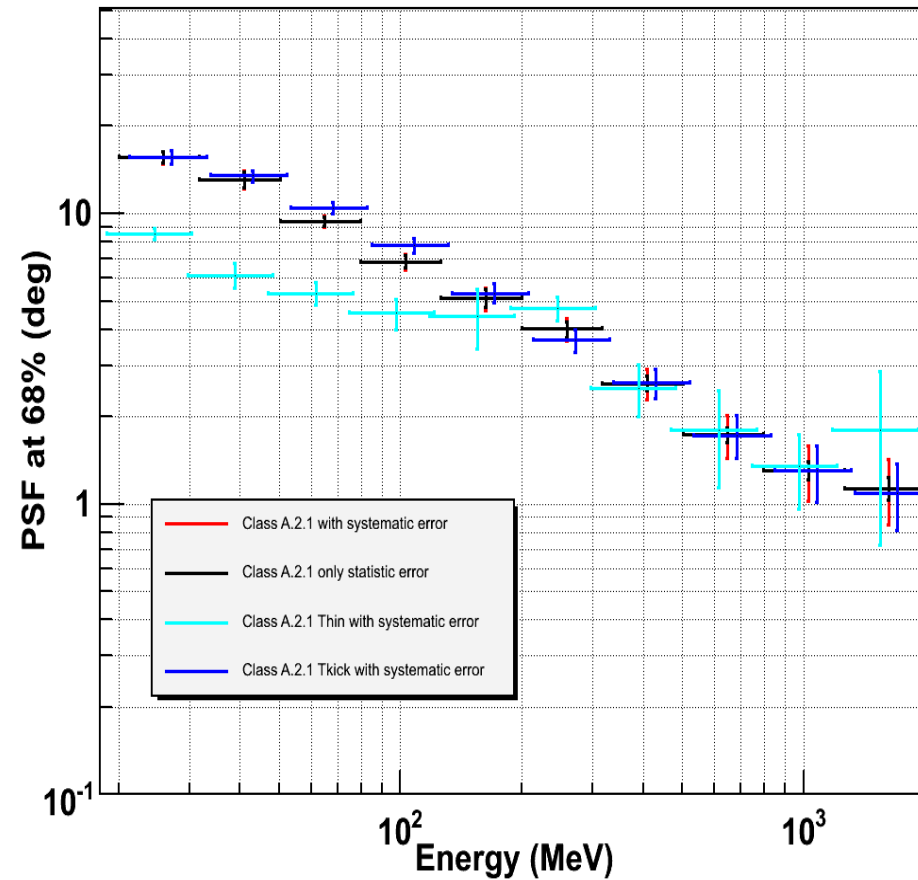


PSF at 68% - Tower 3 at 0 Deg

Tower 3 - Angular Resolution Vs. Reconstructed Energy at Normal Incidence (2.5 GeV Electron beam)

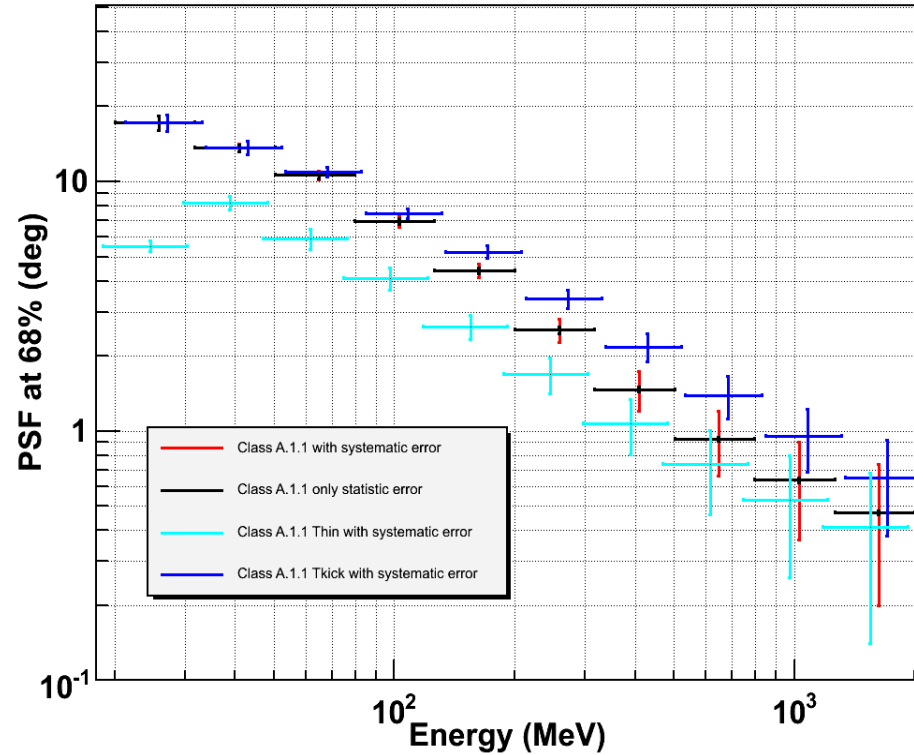


Tower 3 - Angular Resolution Vs. Reconstructed Energy at Normal Incidence (2.5 GeV Electron beam)

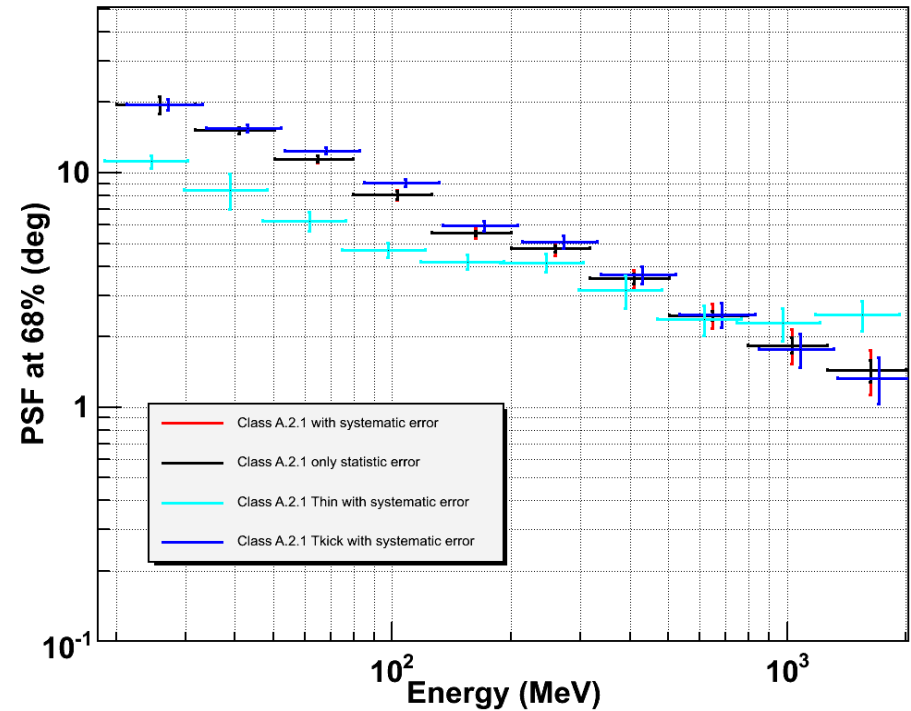


PSF at 68% - 30 Deg

Angular Resolution Vs. Reconstructed Energy at 30 Deg Incidence

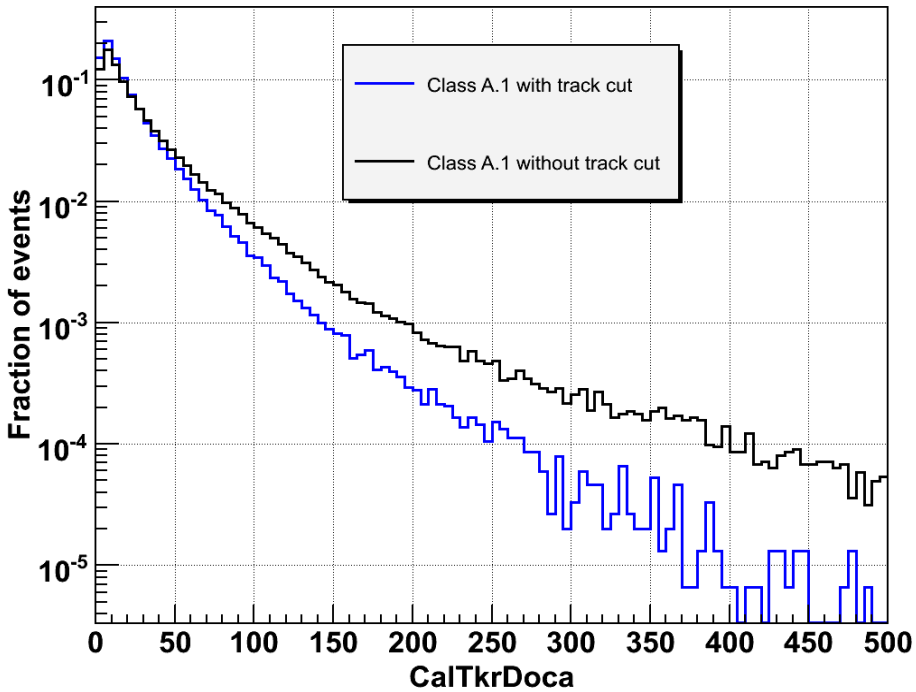


Angular Resolution Vs. Reconstructed Energy at 30 Deg Incidence

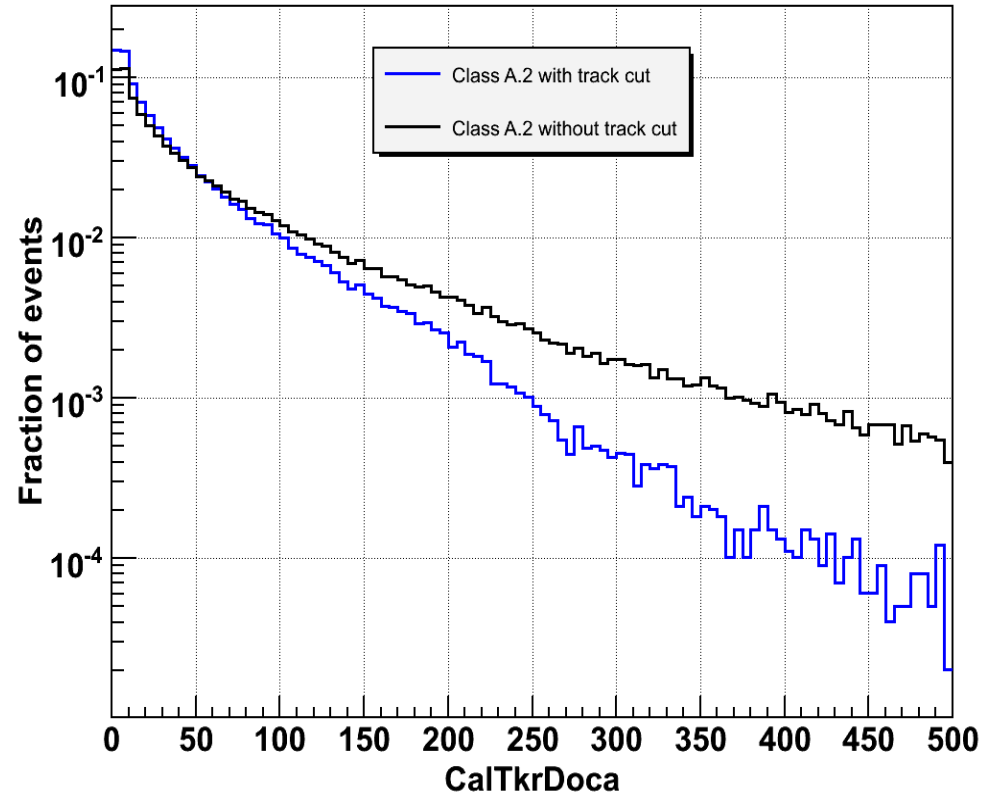


Tower 2, 0 deg - CalTkrDoca distribution

Tower 2 - Normal Incidence (2.5 GeV Electron beam)

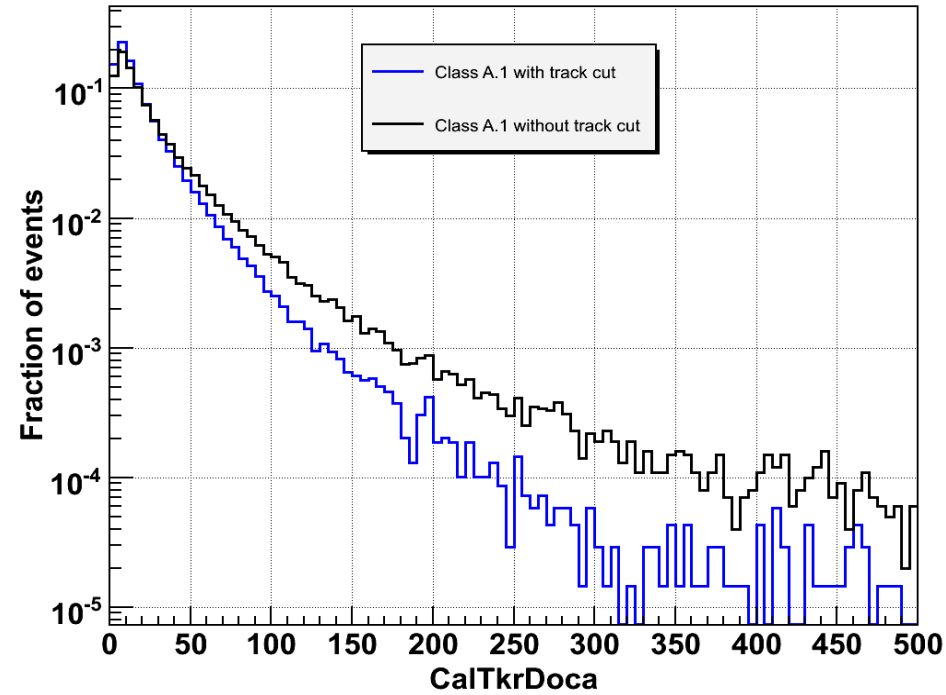


Tower 2 - Normal Incidence (2.5 GeV Electron beam)

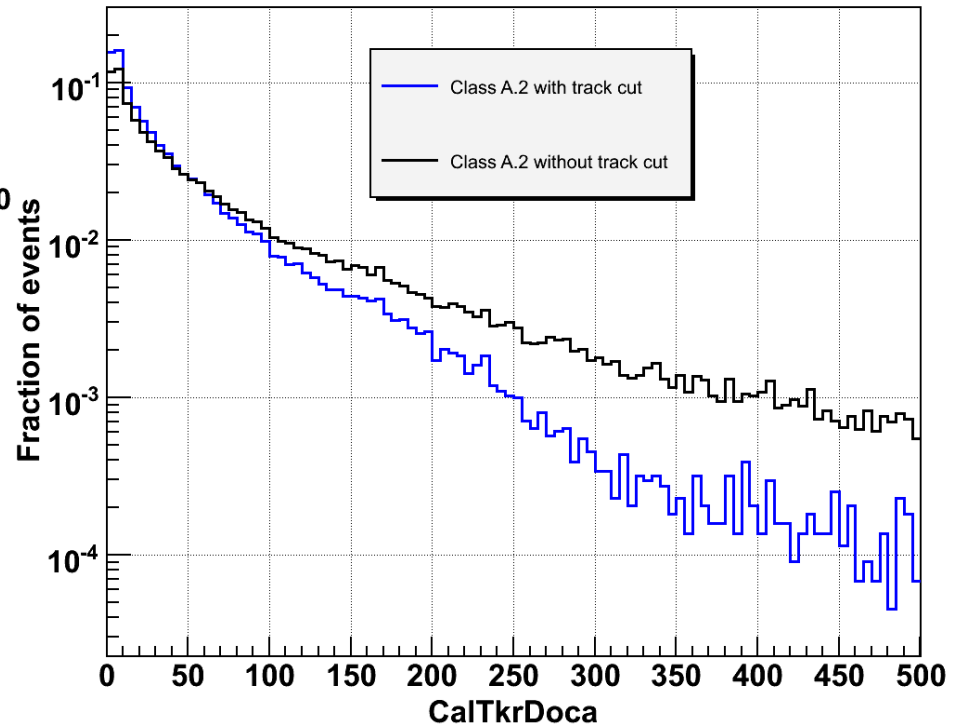


Tower 3, 0 deg - CalTkrDoca distribution

Tower 3 - Normal Incidence (2.5 GeV Electron beam)



Tower 3 - Normal Incidence (2.5 GeV Electron beam)



Conclusion

- It is hard to tag eventual double photons with one that converts in the TKR and the other in the Cal, since they are very close due to the small beam divergence at 2.5 GeV
- The crucial issues for this analysis are the tracking algorithm and the Cal energy response
 - It would be nice if the tracking people could check the algorithm
 - The final results have to be checked when the Cal calibration is fixed