Update on tracker analysis

Choose your favorite MC configuration

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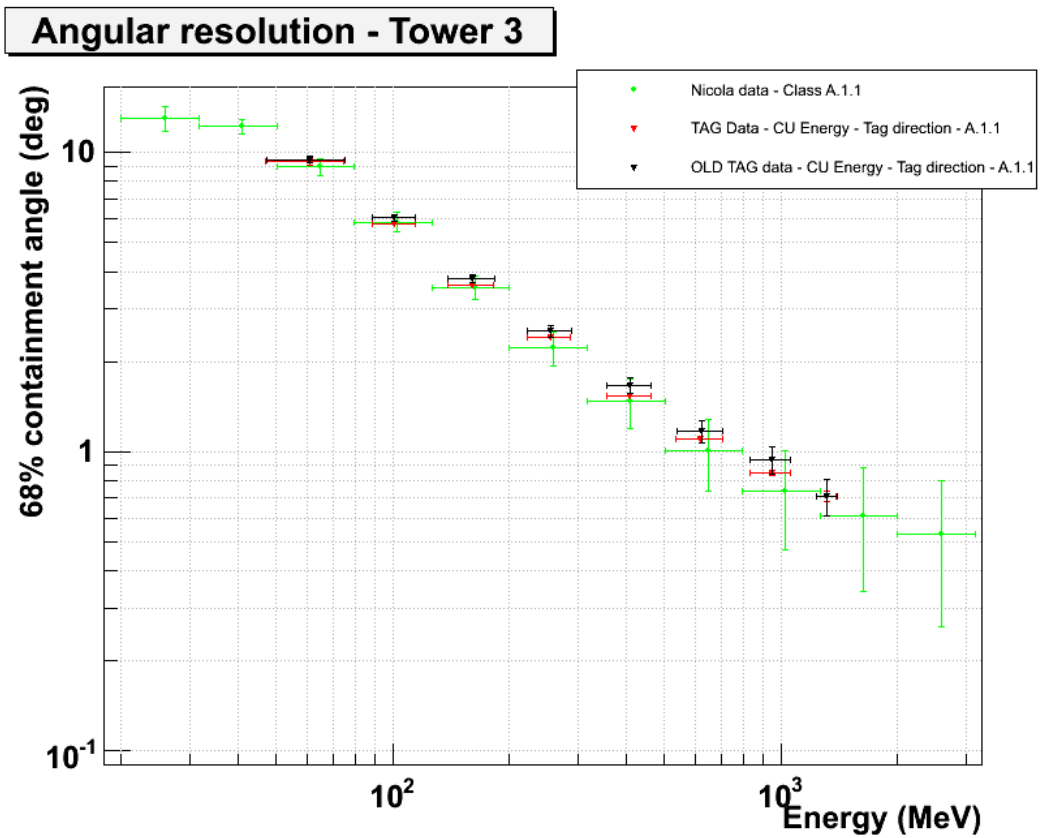
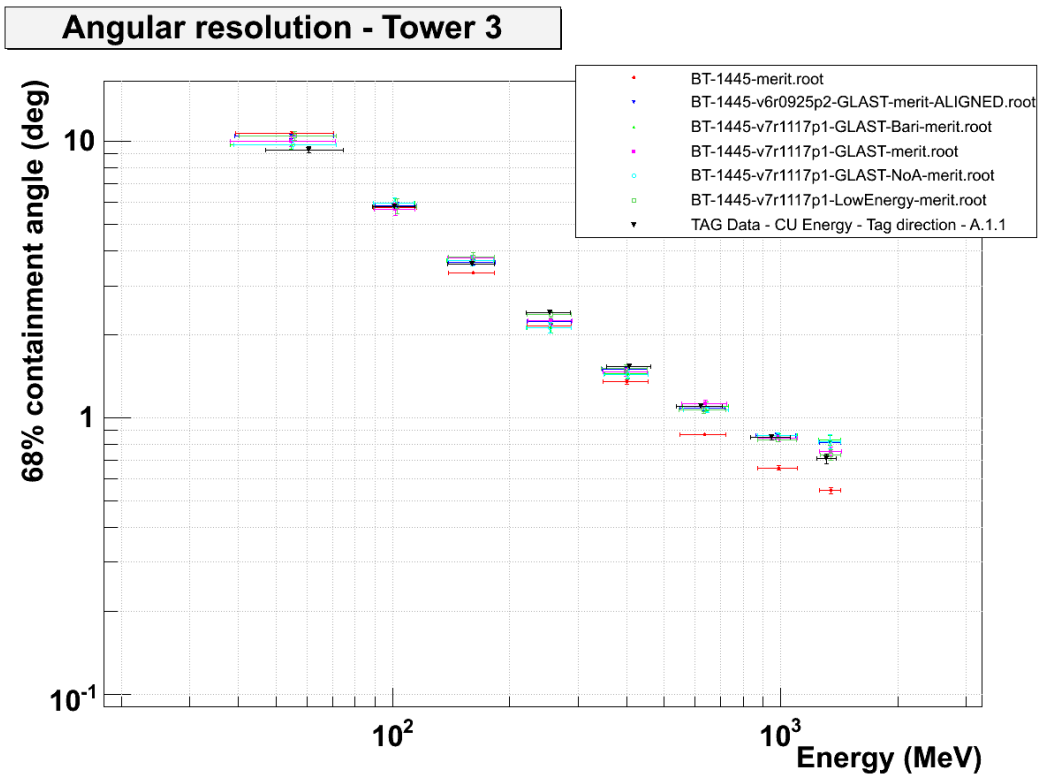
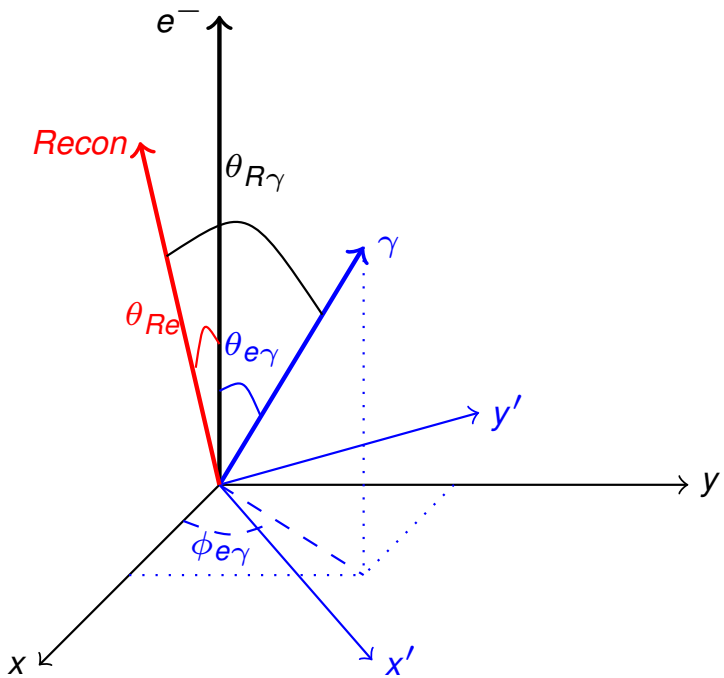


- In previously presented results the agreement with calculation with FullBrem data (from Nicola) was not satisfying
- We realized the we were using different cuts!
- After fixing the cut the agreement improves
- Notice the only statistical error is showed for tagged photons, some systematic effect will be discussed later.



- This plot shows the comparison between Tagged Photon Data and all the MC configurations produced for the Full Brem (run 1445) - (simulation for tagged photon still need some work...)
- With the exceptions of a 1.5 years old one (red dots), all shows similar behavior
- My favorite one is the LowEnergy, you can choose yours...

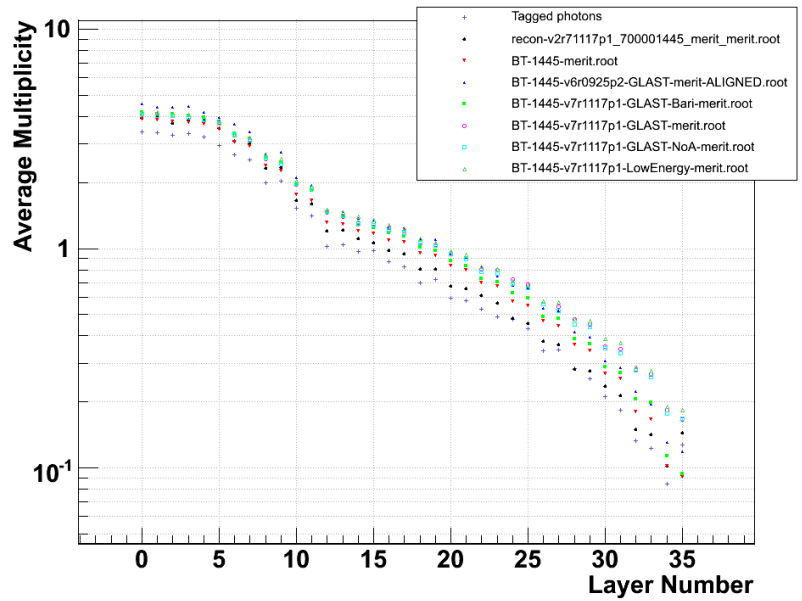


Energy (MeV)	Psf68 (deg)	Bias (deg)
60.9 ± 13.8	9.31 ± 0.23	0.057
101.2 ± 12.7	5.78 ± 0.10	0.019
160.3 ± 22.0	3.59 ± 0.06	0.019
254.6 ± 33.0	2.40 ± 0.04	0.010
407.8 ± 53.2	1.53 ± 0.02	0.010
622.5 ± 85.0	1.10 ± 0.01	0.010
946.0 ± 112.7	0.85 ± 0.02	0.010
1311.6 ± 78.2	0.71 ± 0.03	0.010

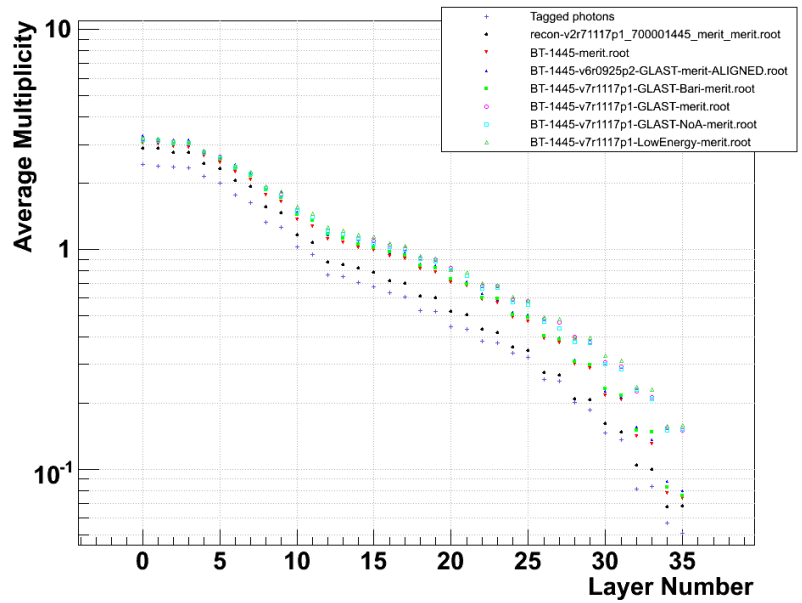
We want to discuss the effect of using the e^- direction (θ_{Re} in figure) instead of the (unknown) γ direction ($\theta_{R\gamma}$) for studying the angular resoulution

- We use a value of 0.1° as maximum error for FB (based on bremsstrahlung production angular dist.)
  - This lead to a 0.5° error for a low energy (500 MeV) beam!
  - This is an upper limit, can we calculate the real effect using known distributions?
- I used a small simulation to study this effect and quote a reasonable bias:
  - $\theta_{e\gamma}$ and $\phi_{e\gamma}$ are extracted according to bremsstrahlung production angular dist. and scaled for beam energy
  - $\theta_{R\gamma}$ and $\phi_{R\gamma}$ are extracted according to a Landau dist. to emulate the actual θ dist. for PSF calculation
  - θ_{Re} is calculated rotating the reference frame
  - the "bias" is computed as the difference in the 68% containement angle for $\theta_{R\gamma}$ and θ_{Re}

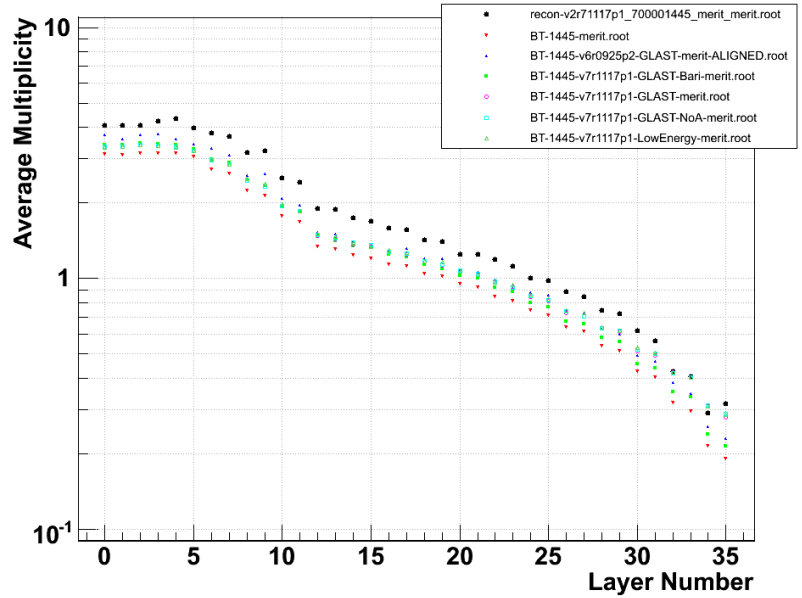
Average Layer Hit multiplicity for Tower 3 - A.1.1



Average Layer Cluster multiplicity for Tower 3 - A.1.1



Average Layer hit multiplicity for Tower 3



- The average number of hits/cluster per layer is compared with the available MC configuration (run 1445)
- Differences between MCs are more evident in layers close to top.
- Selecting the class A.1.1 the MC has more hits/cluster.

- Angular resolution calculated using tagged photons is in agreement with MC prediction
- Systematic effect due to $e^- - \gamma$ angle seems small
- No big news on number of hits comparisons:
  - MC models differ in the layers close to the top
  - MC shows an excess of hit for A.1.1 event class, but using all the events the MC has fewer hits
- We selected event based on simple track topology (class A.1.1: 1 vertex with 2 tracks), it would be interesting to select events using Pass5 classification: Michel is working on a new BtRelease.