Status of low-energy data/MC disagreement

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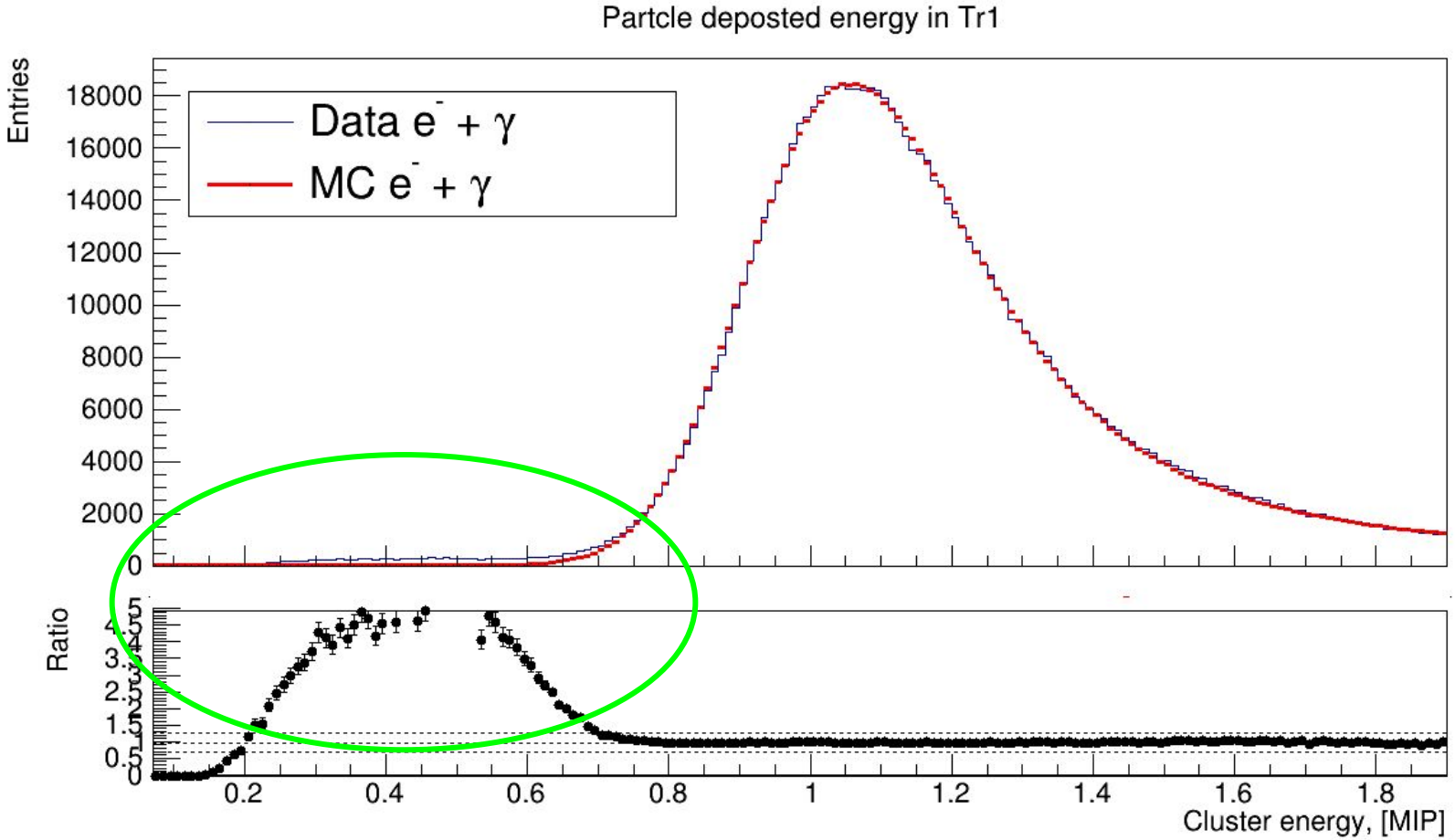
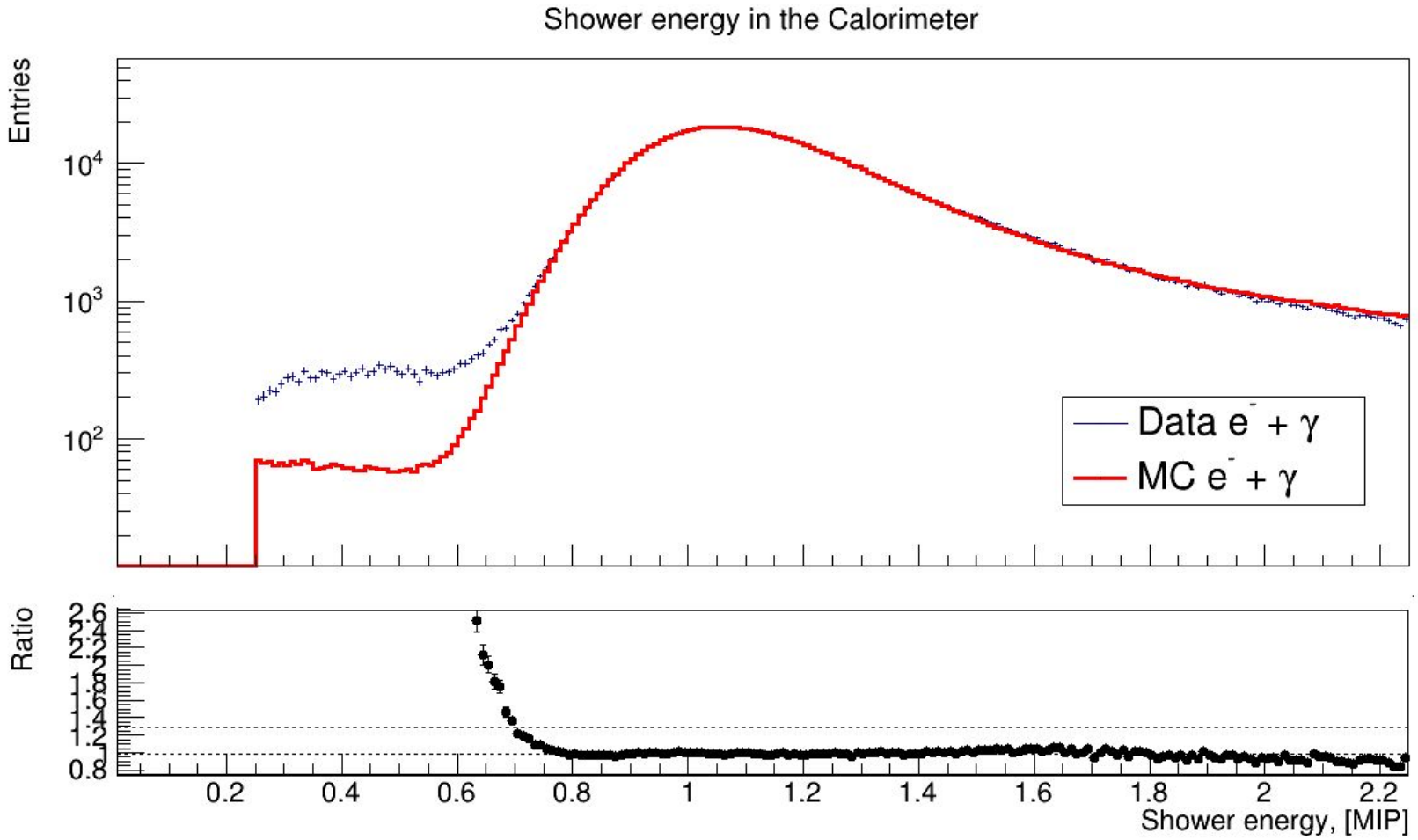
Deposited energy in the trackers is in disagreement

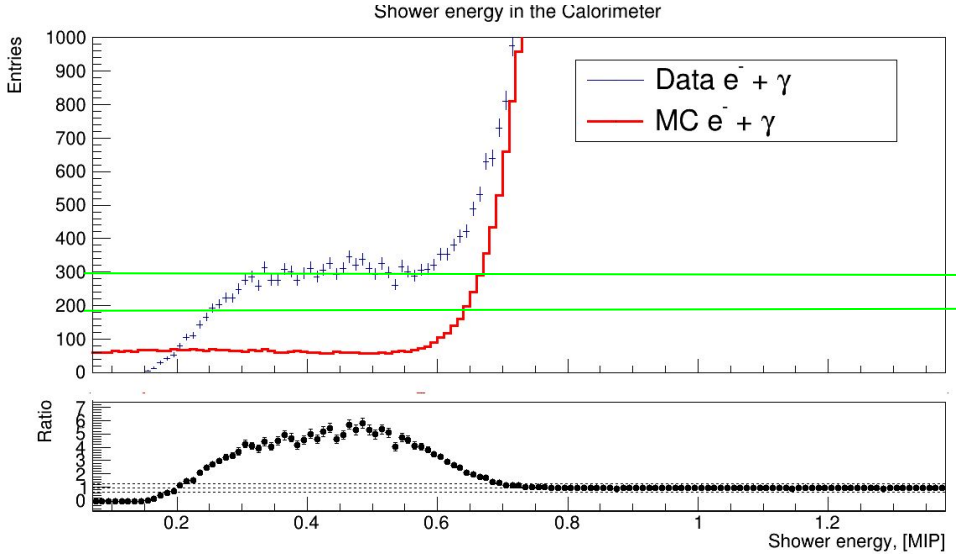


Renormalization without ZS hits doesn’t help

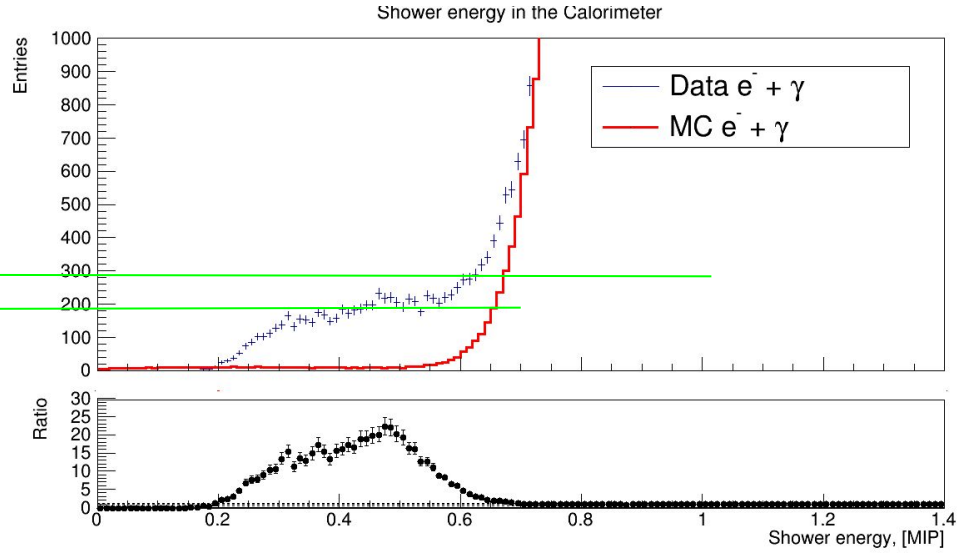


Plotting only 1st clusters vs all clusters

All clusters

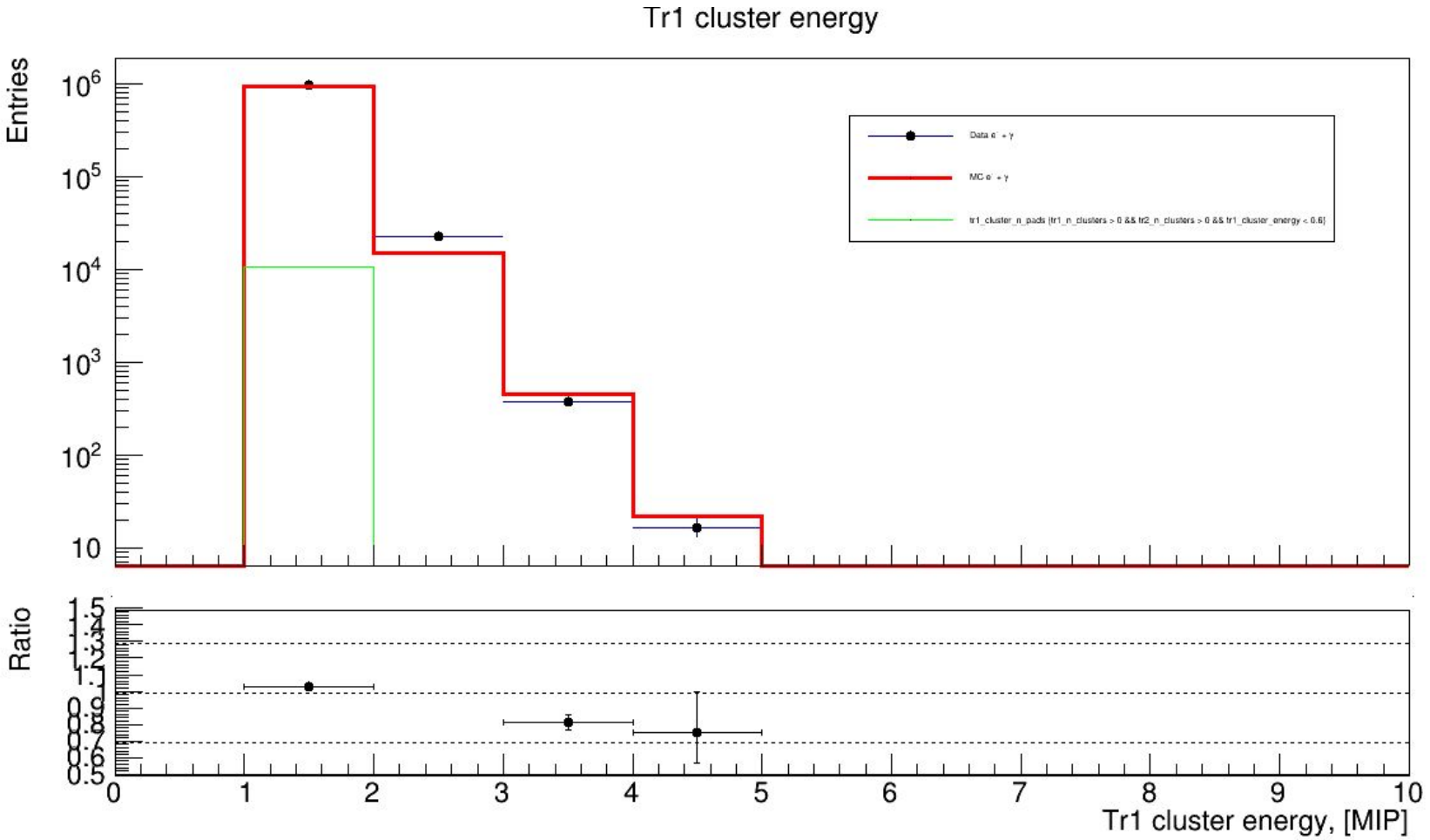


Only 1st clusters

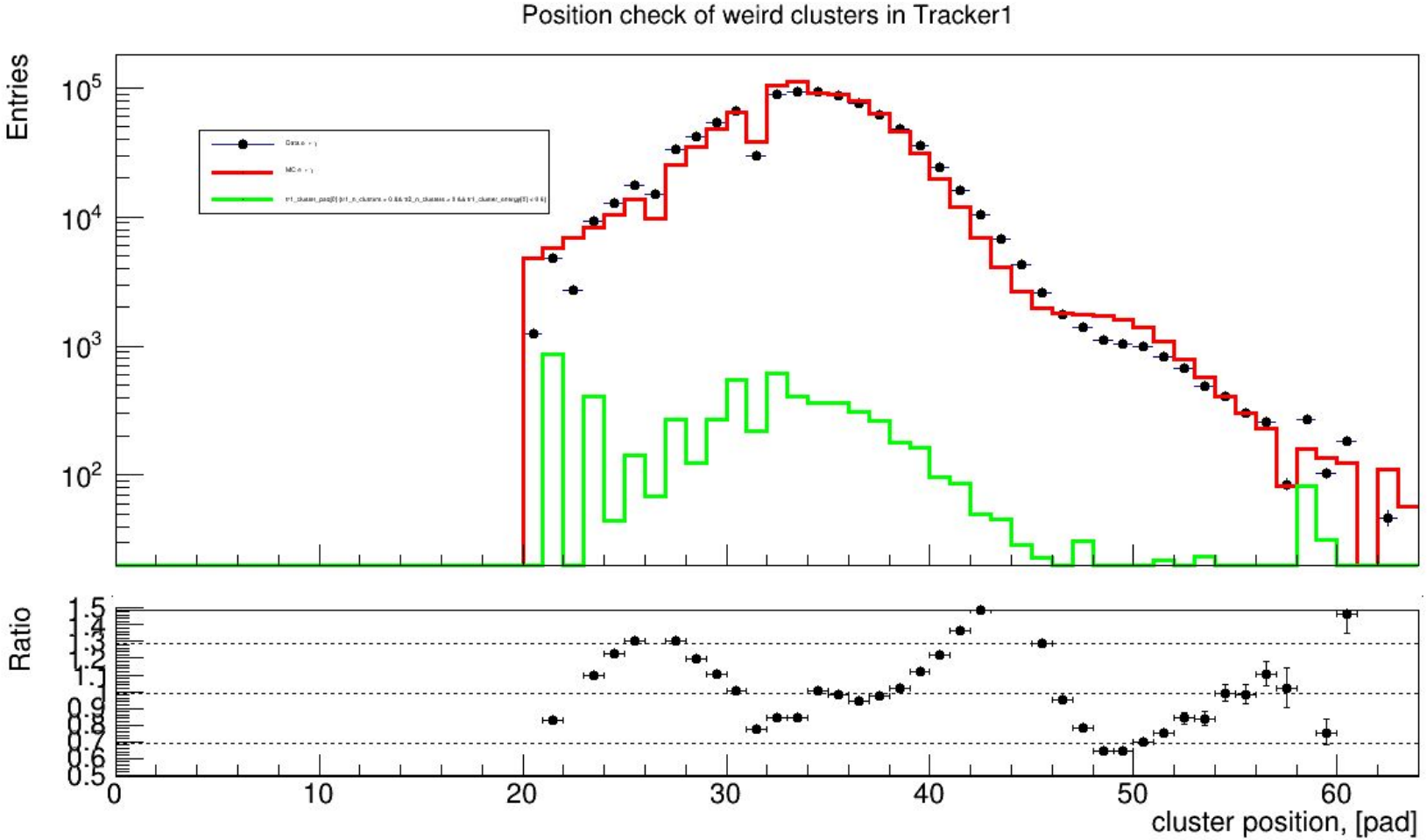


Particles of disagreement are the primary ones

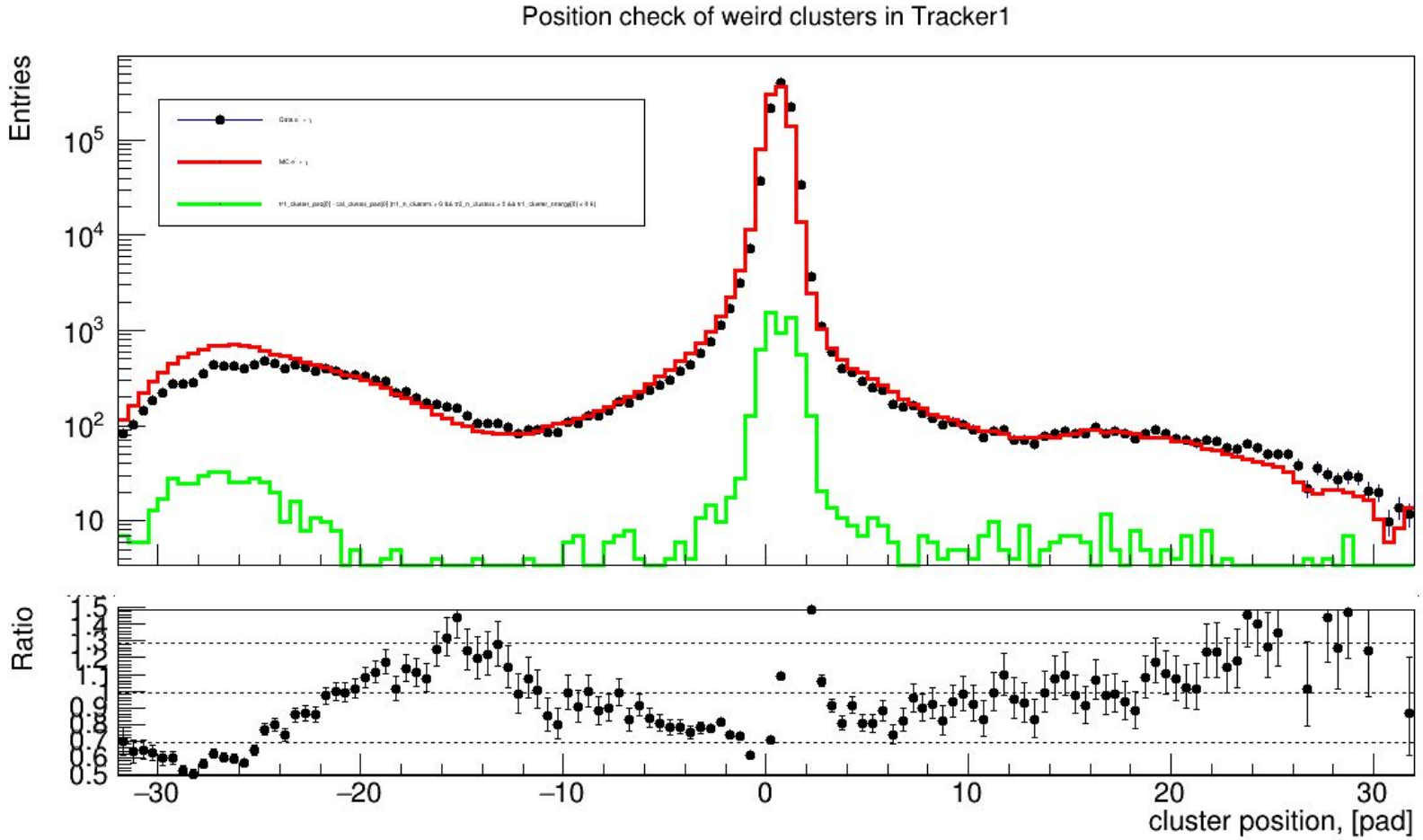
All bad hits consist of only 1 pad



This also confirms with their position



And their relative position to the shower



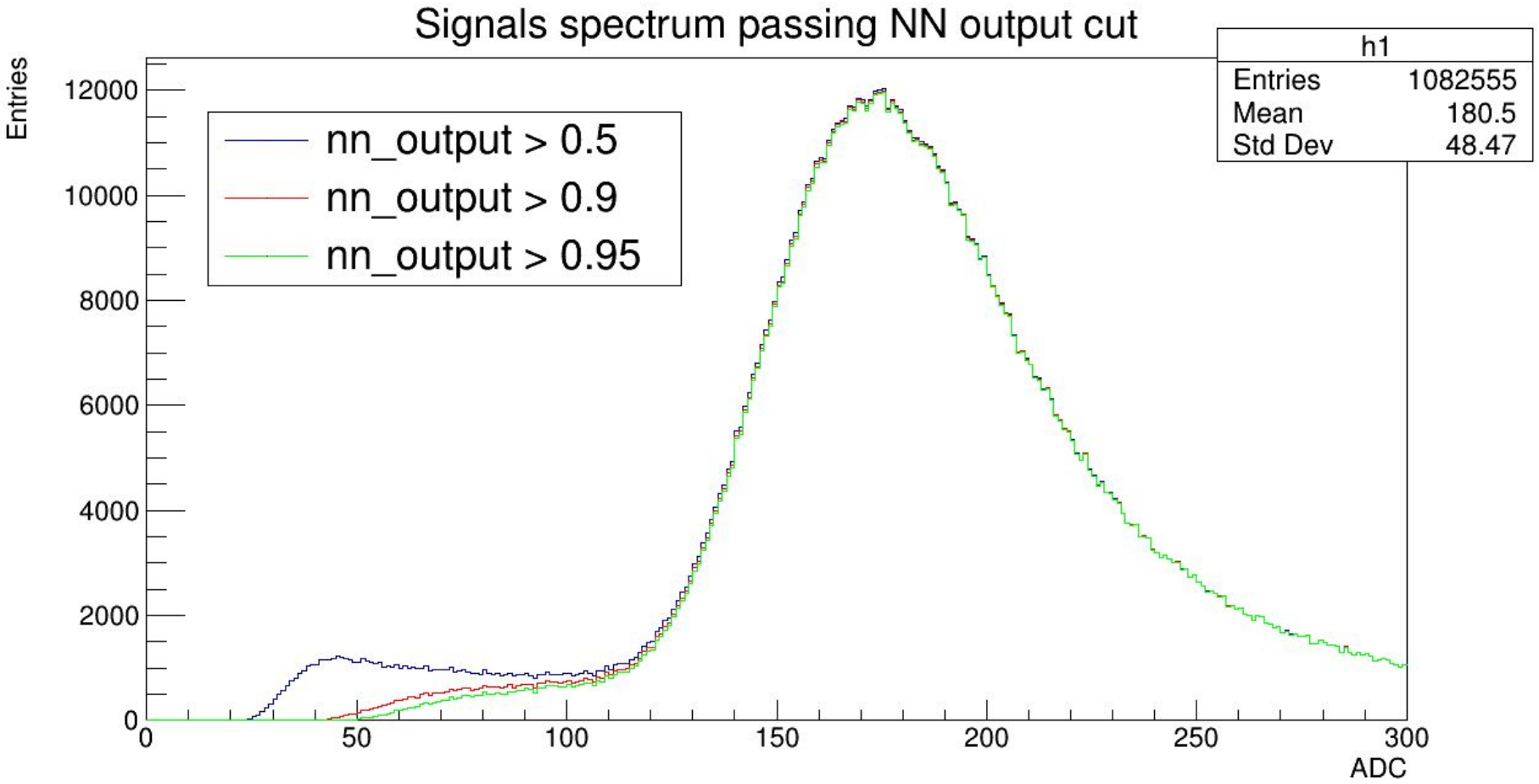
Conclusion

Low-energetic energy deposits:

- Are particles (correlation with a shower)
- Consist only of 1 pad (no signal sharing)
- Appear in events with only 1 cluster

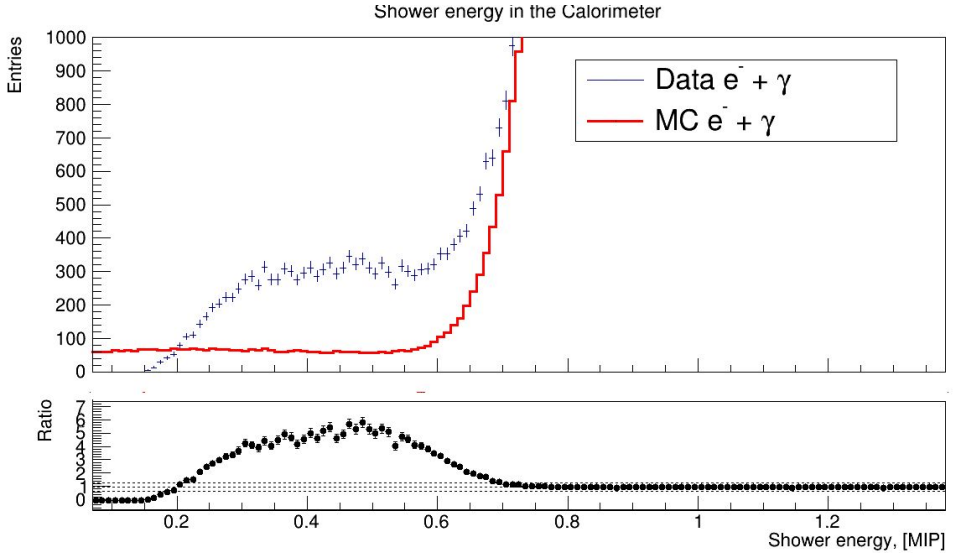
Why doesn’t it simulated by MC?

Checking correlation with NN_output

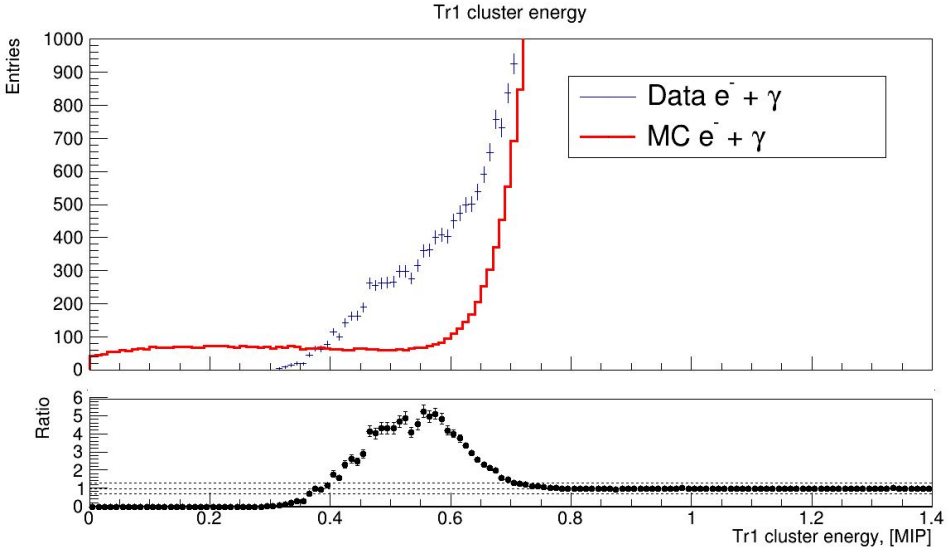


After making data with NN_output>0.95

NN > 0.5



NN > 0.95



2 possibilities:

1) Energies of the hits are being wrongly reconstructed/measured by the electronics due to the large relative noise.

2) Simulation of full apvNoise instead of 0.6*apvNoise will cover the region of disagreement, but then there will be much larger disagreement of the peak shape. Maybe it is solvable by reducing cut to NN_output > 0.3?

TODO:

Still have a lot to do.
I reinstalled old Scienfic Linux 7 to the new CentOs 8 yesterday, so in process of installing Geant4 and root.

Also need to try copy files from a TAU cluster it got harder