WP2: Anlysis Updates

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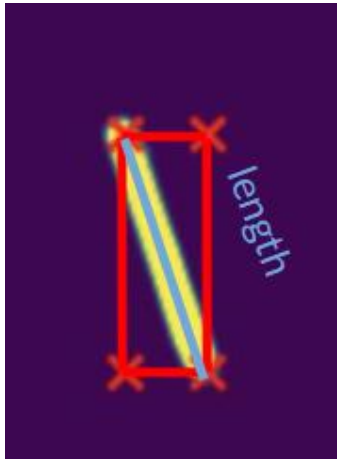
05/03/2024

Length Systematics on alphas (S. Piacentini)

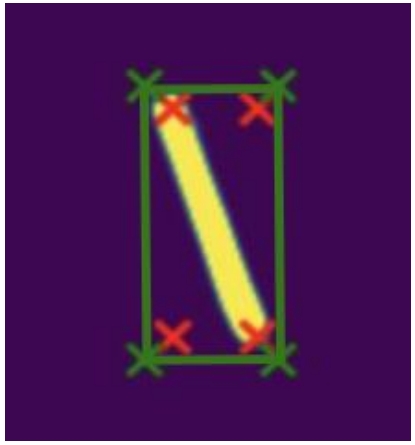
https://agenda.infn.it/event/45110/contributions/254108/attachments/130612/194415/Weekly%20report-3.pdf

- Following David's work on 3D length, beginning of a study on the minimum length definition
- First check comparing MC truth (Geant4) and digitization suggested about 7mm close to David estimation

Geant4



Digi

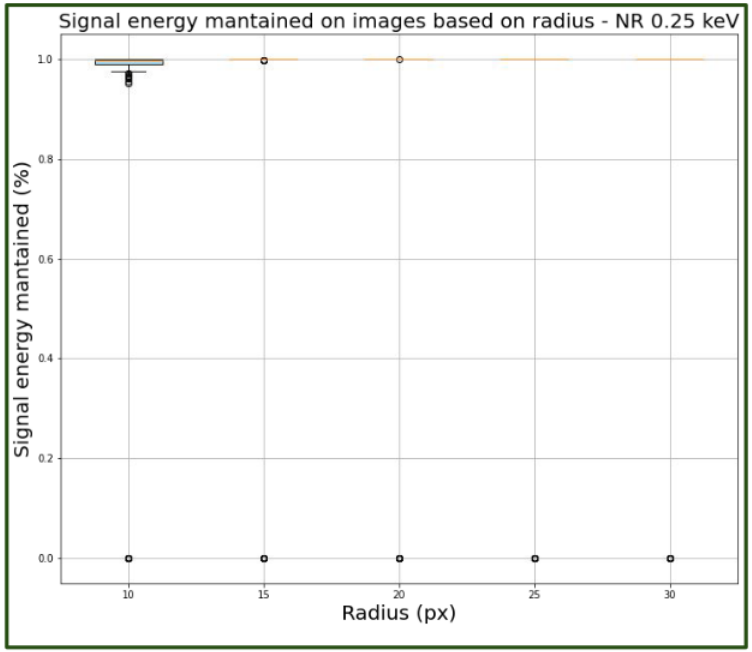


- Reconstruction contribution not included yet
- PMT simulation could help too
- Can we subtract measured length by measure width and remove systematics?
- To be continued..

Trigger (I. Pains)

https://agenda.infn.it/event/45633/contributions/256925/attachments/131753/196595/Trigger%20Proposal%20Status%20-%20Feb.pdf

- More performance tests on the centroid-based method
- Threshold selection based on previous machine learning methods
- With looser threshold and a radius per centroid of 20 pixels, all signal pixels could be selected at 0.25 NR (simulated)
- Run time of 10s of ms



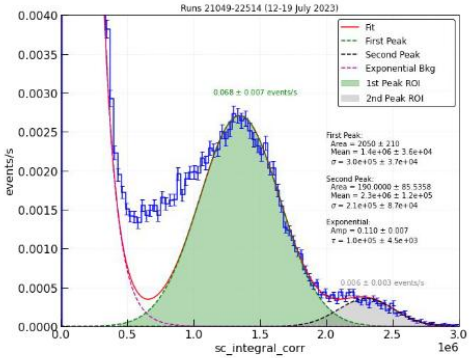
- For low energy tracks (below 1 keV) reduction in memory storage can reach factor 100 (overestimated for longer tracks, but saving structure can be improved
- First tests on Quest foreseen soon

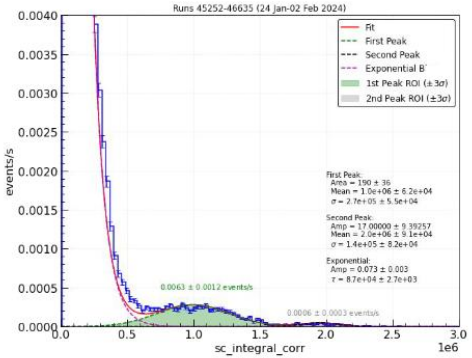
Rn at low energy (D. Mano)

https://agenda.infn.it/event/45902/contributions/258068/attachments/132093/197207/RnCuFiorina%20(NormGaussianMethod).pdf

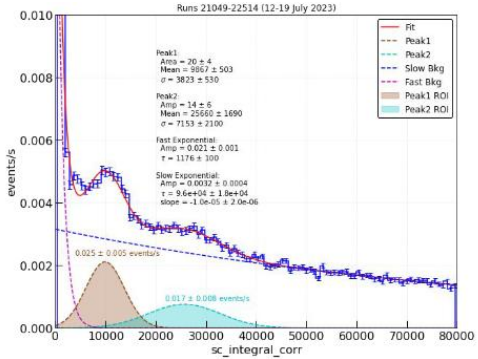
- Further analysis to correlate the high energy region of the spectrum (Rn alphas) to low energy part (ROI)
- Rate based analysis

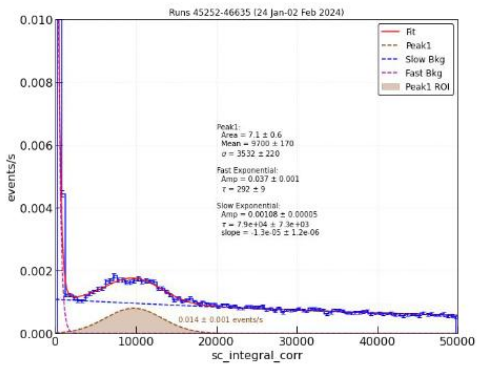
Peak1 and 2 (HE)



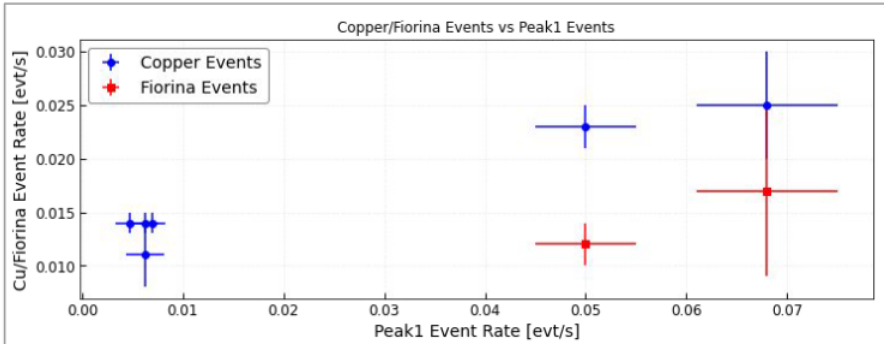


''Cu'' and ''Fiorina''





- Difference in rate looks correlated



- David's geometrical cut to select only Rn alphas is the next step

Small Updates on Cloud

- Effort is being put in these weeks to update software and structure for the Notebooks and Cloud
- You may have some issues with newer cloud images, but we are working to fix the bugs
- Now reconstruction can download and analyse data on Bari directly
- Bari disks are also visible from notebooks
- Updated software (python3.9 and 3.11) and ROOT with C++17 as baseline in cloud image 2.3
- VSCode available as service in image 2.3
- At the end of the works there will be no bugs (hopefully) and it wil be possible to send digitisation to the queues