

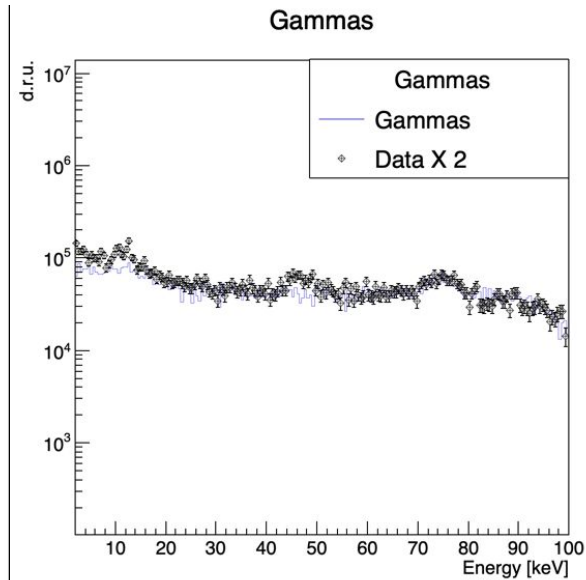
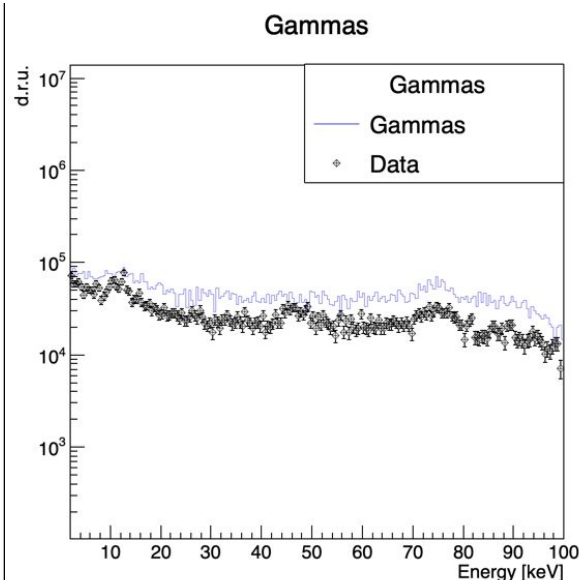
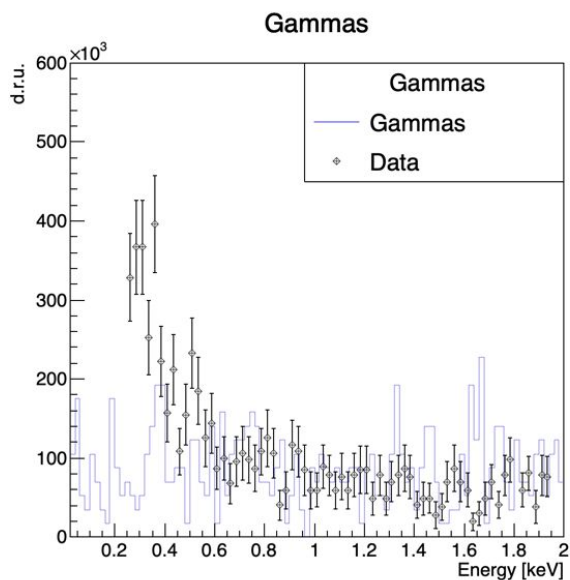
BULLKID

Simulation meeting

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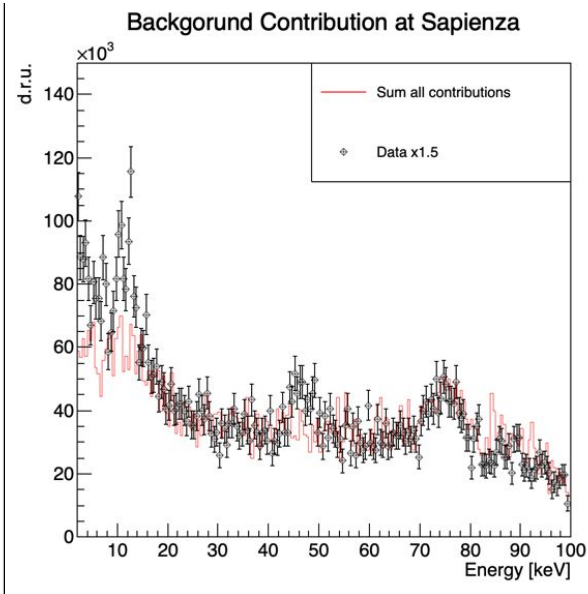
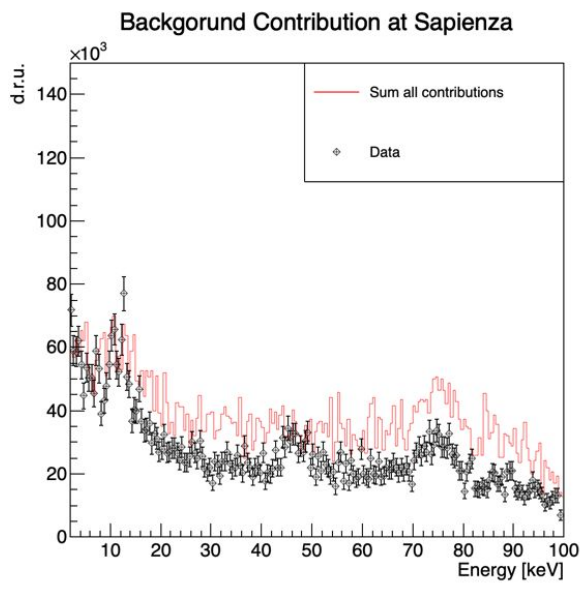
Simulation for BULLKID at Sapienza

- A factor of 2 between the simulations of gammas and the data from 2 to 100 keV was found



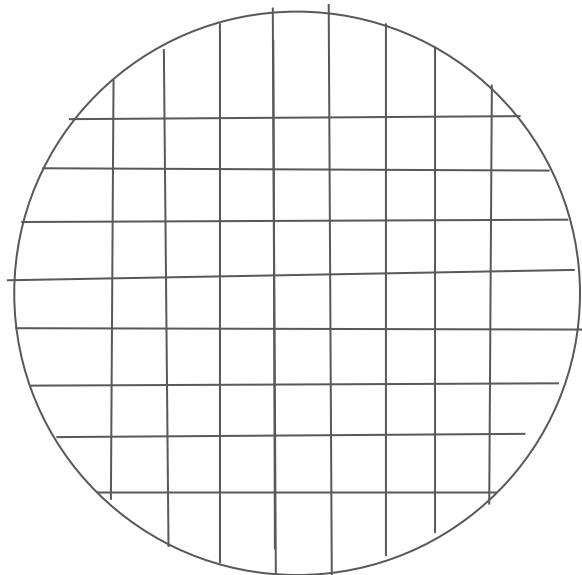
Simulation for BULLKID at Sapienza

- A new cut was added to the code for the analysis
 - the cut puts closer the simulations to the data, nevertheless there is still a difference (a factor around 1.5)



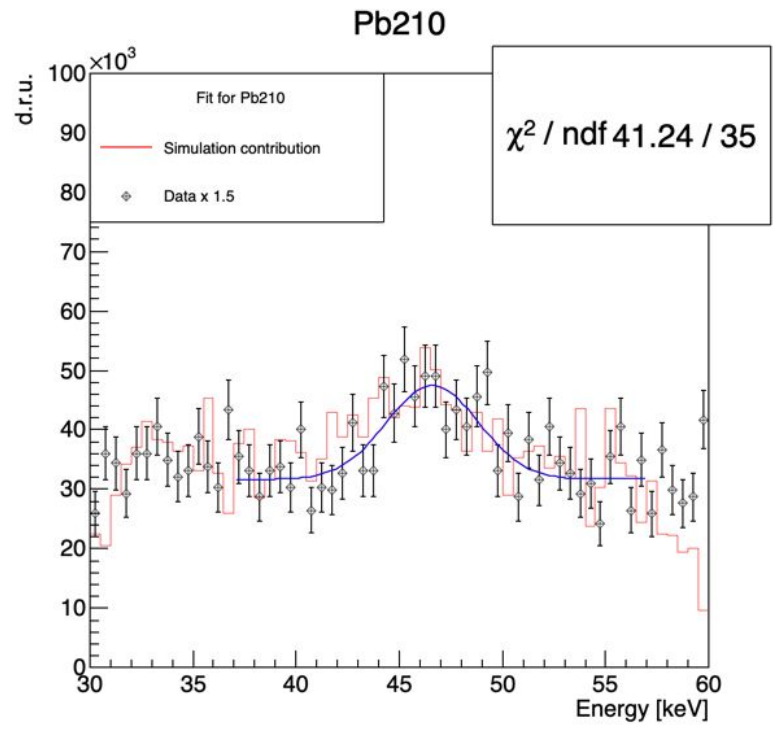
Simulation for BULLKID at Sapienza

- The cuts in the code
 - interactions inside a die are counted
 - to save the event, there must not be events in the 8 die around the central die
 - now we consider that there must not be events in the rest of the wafer
 - this is in a cycle for 49 sensitive die
 - the rest of the die are not sensitive and in the code are used to cut events



Simulation for BULLKID at Sapienza

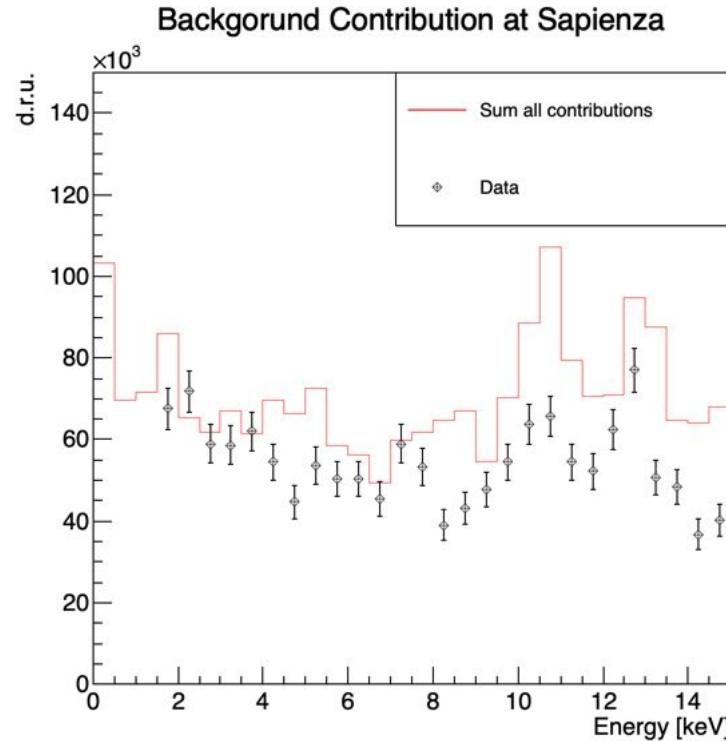
- Estimation for the purity of ^{210}Pb
 - A gauss + line fit
 - parameters from TMinut
 - $\mu = 46.605 \pm 0.376$
 - $\sigma = 2.228 \pm 0.379$
 - Compute integral from the gaussian
 - Convert units
 - **5.79 Bq/kg!!**



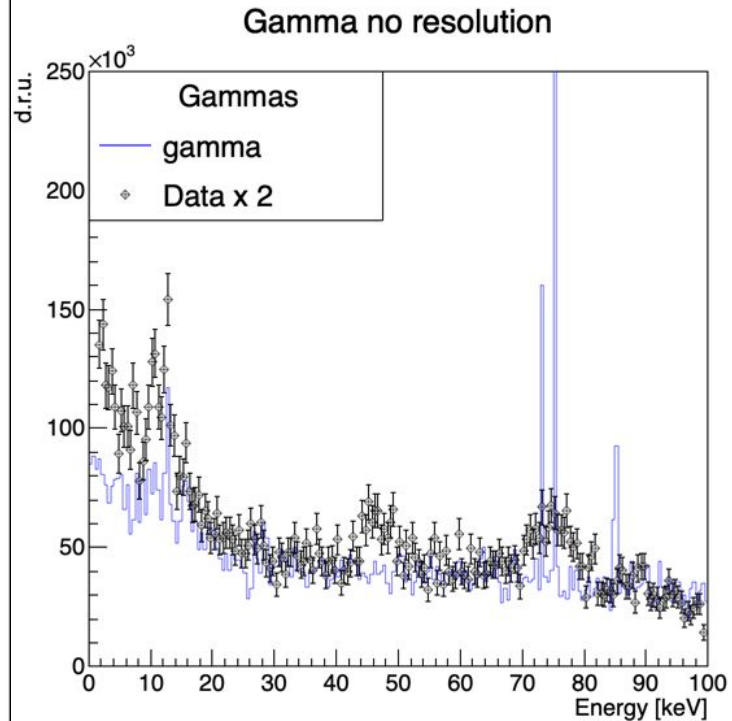
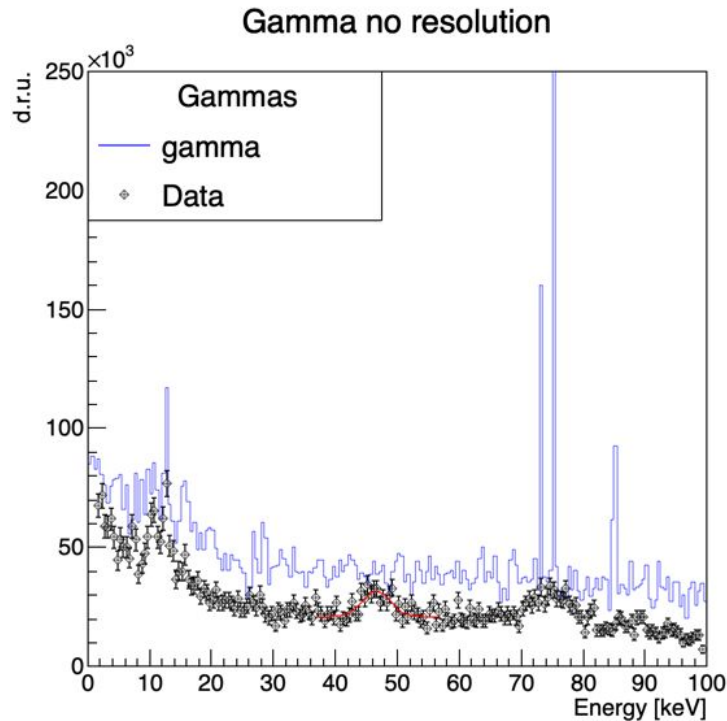
Summary

- Adding a cut for the simulations does not equal the data yet
 - another cut might be missing, or there is something else that has not been checked
- The difference from 2 to 8 keV is still present
- An estimation of radiopurity for ^{210}Pb has been done, it is a low value for standard lead

- Below 2 keV there is no resolution applied, could it be there be a sept in the simulation from this difference?



- The difference between the simulation and data is present if not resolution is applied?
Yes



- The changes done in the simulations were
 - only one wafer
 - wafer moved from the middle of the holder to the top
 - modification on the position of the lead shielding
- This was done to resemble the experimental setup at Sapienza