The boh peak

The other component



In the runs with high Radon contamination, in the plot E vs tfullRMS² two clusters of events appear

One that really seems, according to the analysis of Giorgio and Stefano, due to ²¹⁰Pb recoiling after the ²¹⁴Po alpha decay

It is not radon-related

It is present also in run with a low level of Radon (while the other almost deasapper)



It is not radon-related

It is present also in run with a low level of Radon (while the other almost disappears)



How they look like?



How Fe look like?



Not so different!

Why tFullRMS?



tfullRMS is the RMS of the hit pixel transversal distribution i.e. a good indicator of the diffusion effect

Closure test (55Fe)



The behaviors of the LY as a function of the measured and evaluated z are compatible

Why tFullRMS?



A quite poor resolution on the single cluster *z*, in particular for low *z* values;





Almost same distribution, we can assume at the first order that this curve works also for boh





Absorption length

By assuming the z resolution above the expected smeared distribution of the reconstructed z for an exponential behaviour with lambda = 50 cm was evaluated;



A reasonable agreement was found with experimental data, indicating an absorption length of the order of 50 cm;

47.91 cm is the absorption length for the 8 keV photons emitted by the Cu fluorescence

How much energy does boh have?

Light yield behaviour



- 28 Ni 7,47 29 Cu 8,04
- 30 Zn 8,638.86

α_1	К <i>а</i> 2
0.84	4,504.86
52.20	4,944.64
4.72	5,405.509
98.75	5,887.65
)3.84	6,390.84
30.32	6,915.30
8.15	7,460.89
17.78	8,027.83
38.86	8,615.78

From the comparison of the fit plateaux, we can expect about 7.5 keV for these events;

GEM



Conclusion

An X ray component is visible in LIME data:

- it is not correlated with the amount (presence) of Radon;
- It has an absorption length compatible with Cu fluorescence;
- A z distribution compatible with Cu emitted be the GEMs;
- If it is copper excited by external radioactivity, we should see it also on the copper-cathode side;
- To have it only from the GEM I see 2 possible explanations:
 - Due to the internal content of U of GEM (1e-3 Bq/GEM);
 - Due to camera+lens radioactivity (Bq of ⁴⁰K);

We have to look into the simulation results