

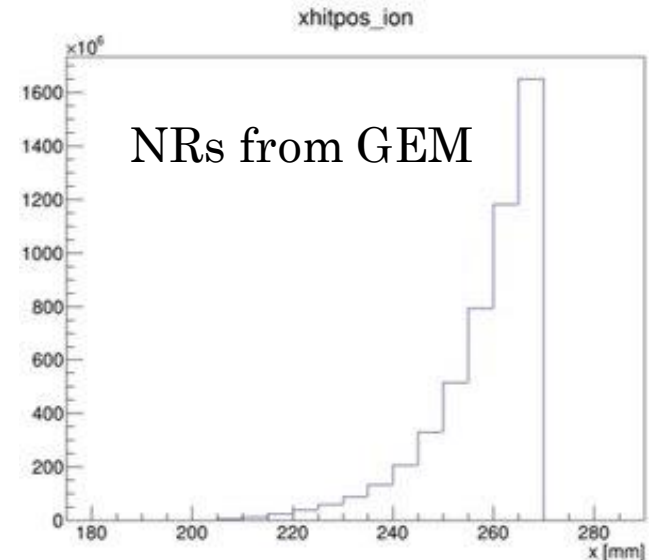
LIME background simulation

CYGNO simulation meeting – 04/10/2021

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Simulation tasks – background

- **LIME internal background**
 - GEM – done and analysed
 - Acrylic box – done and analysed
 - Field cage – ongoing (almost done)
 - Resistors – to do (~200 hr)
 - Cathode – to do (~200 hr)
 - PMT, GEM supports, internal structure... – to do (?)
 - Copper and resistors activity is being measured by M.Laubenstein



Contribution	10 ⁵ ER/yr (0-20 keV)	10 ⁵ ER/yr (all)	NR/yr (0-20 keV)	NR/yr (all)
GEMs	0.69129	3.83753	311.62	17573.0
Acrylic Box	0.5245	2.7054	0	0

Note: for the acrylic box Po212 is missing because the simulation stopped (alpha 8.8 MeV)

Simulation tasks

- For the camera body+lens simulation I need the CAD design of the shielding
- **SRIM ion simulation**
 - Carbon and fluorine ions simulation for 12, 14, 16, 18, 20, 22, 24, 26, 28, 35, 40, 45, 50, 55 keV (to match the simulated He energies) - ongoing
 - About 8 days are needed (while we are not working at the labs – so max in 2 weeks they should be ready)
- **Digitization NR tracks** – 1000 ions, random drift, random direction
 - Already partially done for 1,3,6,10,30,60,100 keV for He, C and F
 - Reconstruction ongoing - the queue on LNGS cluster is quite crowded
 - Energies between 12 and 55 keV still to be digitized (actual time won't exceed 10 hr)