Simulation of CMOS Camera Update

Cenk Turkoglu

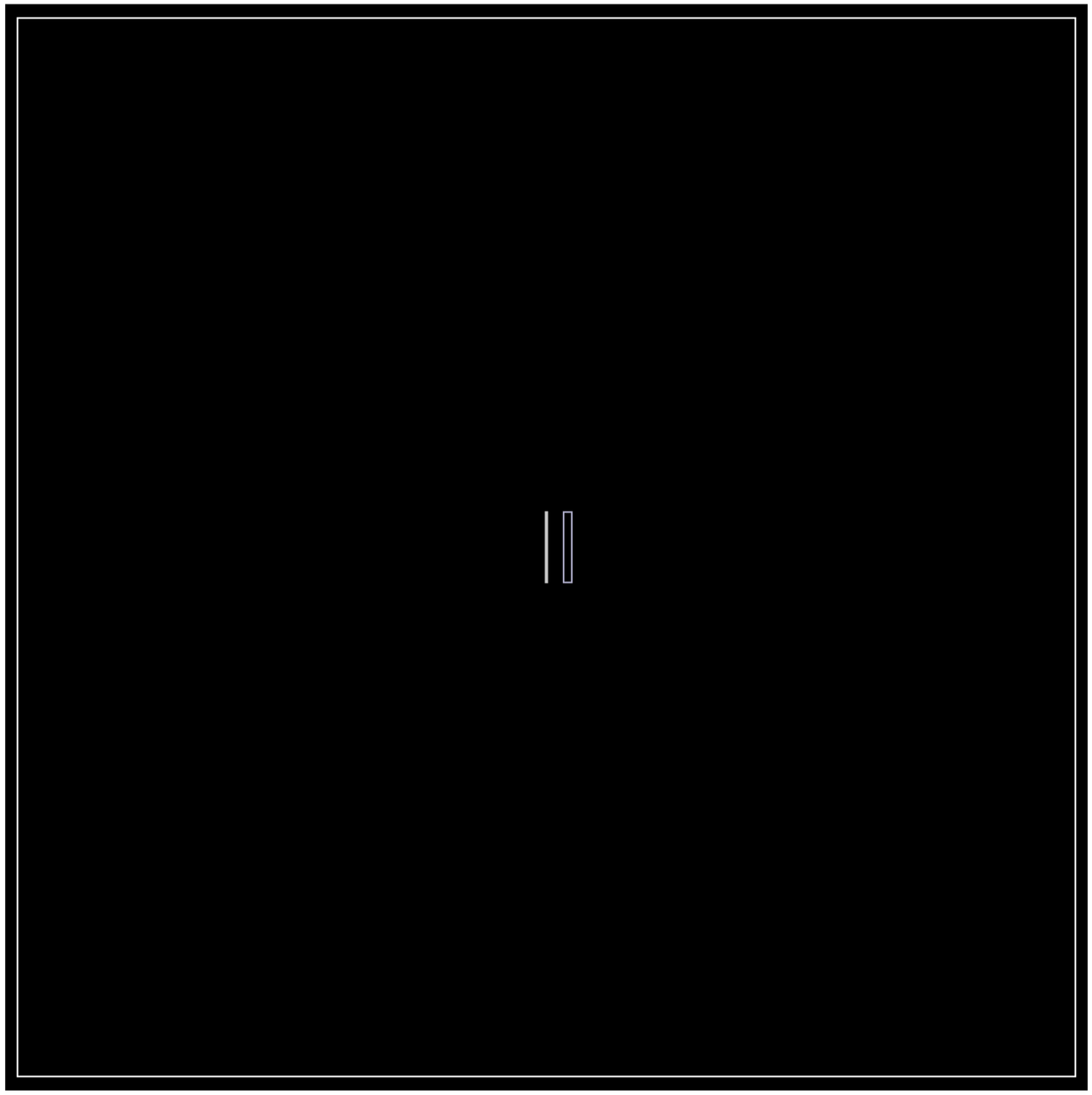
UNIVERSITY OF SUSSEX

Simulations

After a few discussions with Alexander and Adriana, we decided on a working geometry for the CMOS simulation:

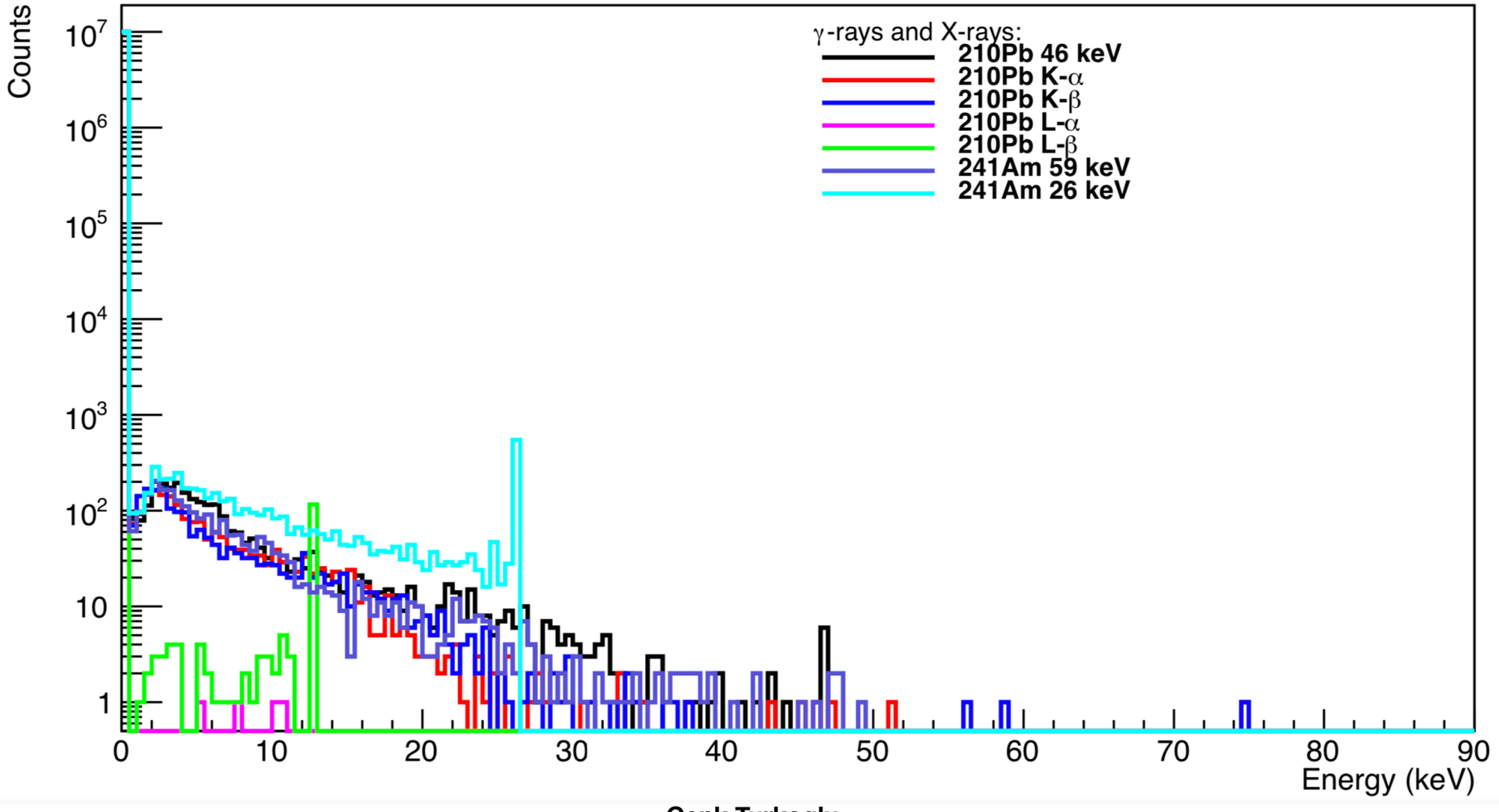
- 2 um active silicon layer
    - 10 nm distance
- 4 um micro lens (acrylic)
    - 5 mm distance
- 2 mm glass lens

These lengths will change in time according to the comparisons with background data from the camera but for now, I will work with this geometry and tweak it in time.



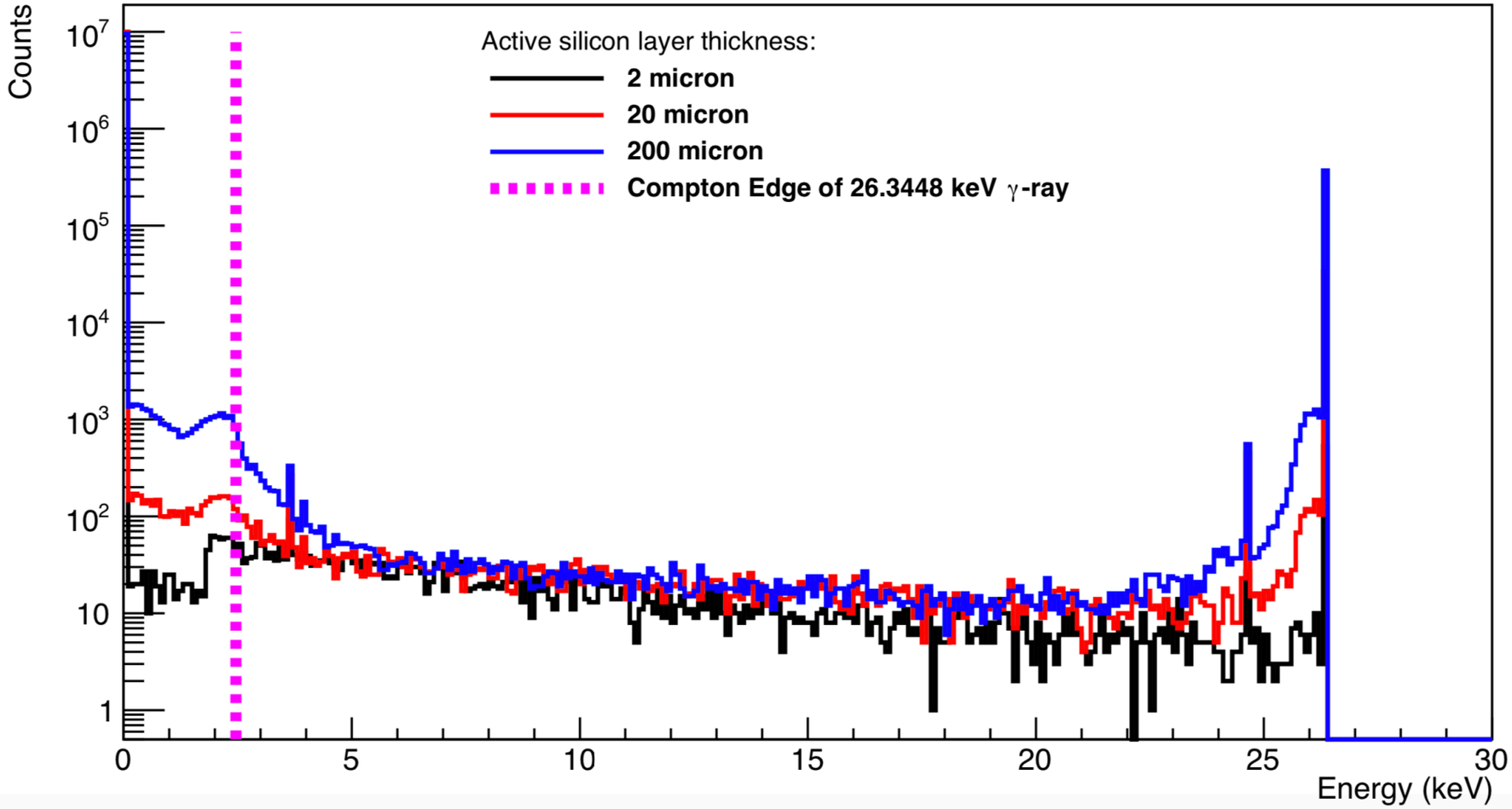
Gamma / X-rays

Isotope	210Pb	210Pb	210Pb	210Pb	210Pb	241Am	241Am
Energy (keV)	46	K-alpha (75)	K-beta (85)	L-alpha (10)	L-beta (12)	59	26
# events fully absorbed by silicon	6	1	0	2	116	0	548
Interaction Probability	0.0002586	0.0001842	0.0001791	4E-07	1.62E-05	0.000214	0.000466



241Am Gamma Ray

Thickness (um)	2	20	200
# events fully absorbed by silicon	548	33989	373273
Interaction Probability	0.000466	0.0041979	0.0399559



Future Work

- Will make the silicon target structured as pixels, i.e. there will be 6.5 um x 6.5 um silicon layers in the dimensions of the silicon target

- Will get the position of the hits; we will be able to see where these events are hitting