

Internal background status

Simulation meeting

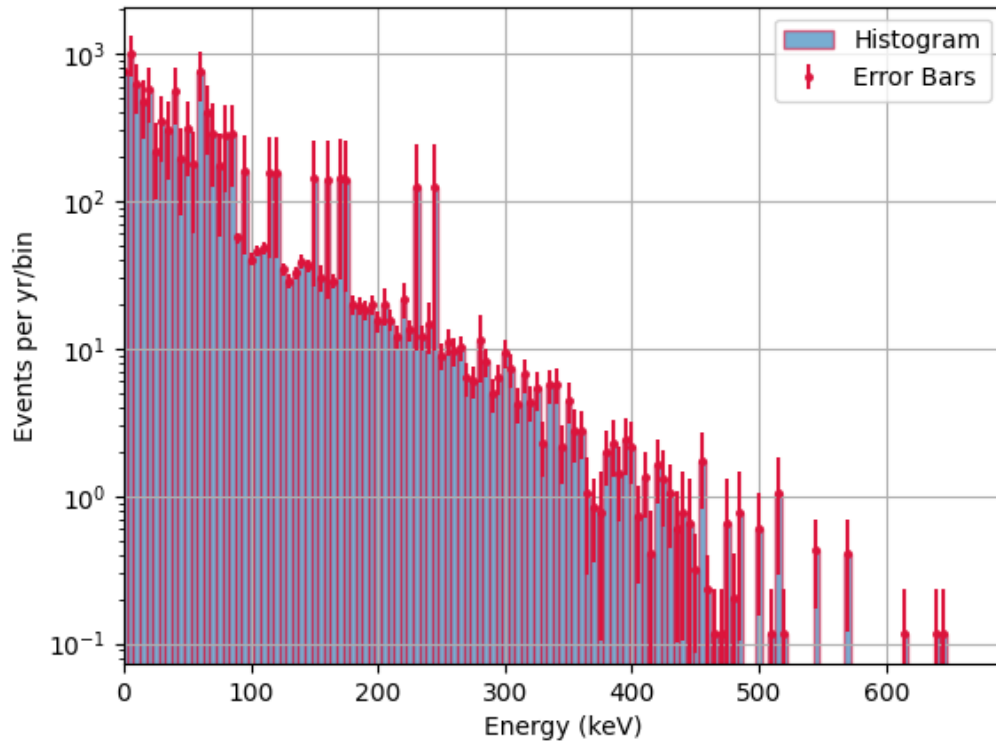
Melba D'Astolfo, 11/11/2024

CuLayer_2 - OPERA reference



2092.11 kg

Higher statistics (8×10^8 ^{210}Bi events)



ISOTOPE	ACTIVITY
$^{238}\text{U}_{top}$	1.90E-03
$^{238}\text{U}_{bottom}$	1.00E-04
^{235}U	5.10E-04
^{232}Th	7.30E-05
^{40}K	4.00E-04
^{137}Cs	2.80E-05
^{60}Co	3.10E-05
^{108m}Ag	2.50E-04
^{207}Bi	6.10E-04
^{210}Pb	7

Total Rate for events within the energy interval [1, 20] keV (**BEFORE**): 10588 ± 2671 events per year

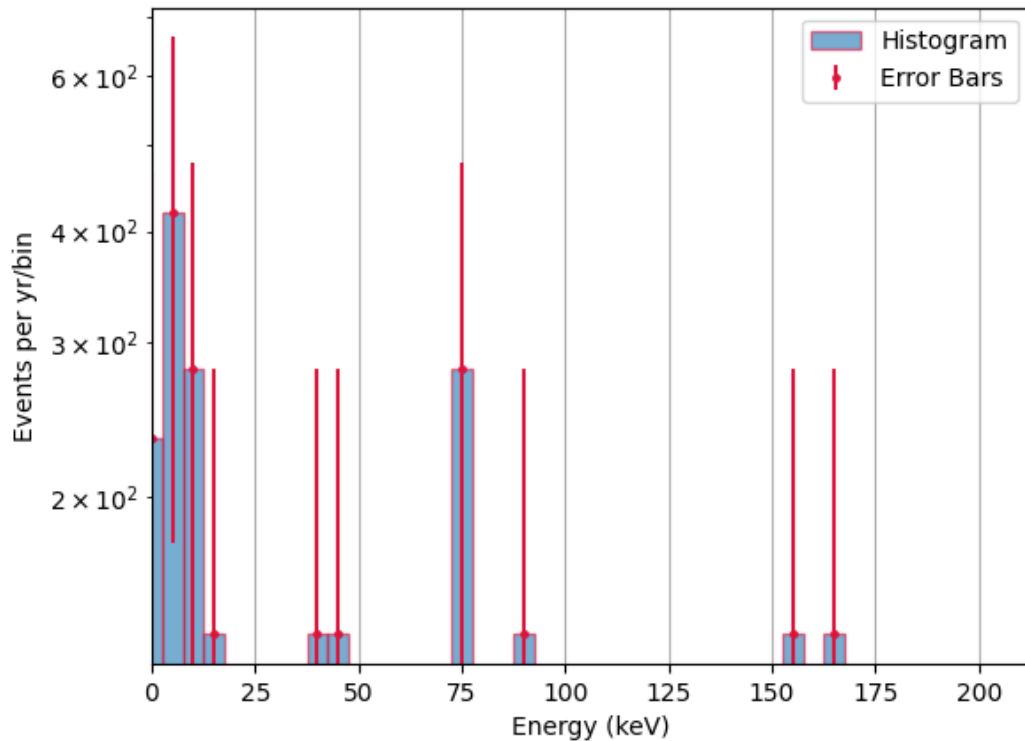
Total Rate for events within the energy interval [1, 20] keV (**AFTER**): 12926 ± 2400 events per year

CuLayer_3 - OPERA reference



2202.68 kg

Statistics (7×10^8 ^{210}Bi events)



ISOTOPE	ACTIVITY
$^{238}\text{U}_{top}$	1.90E-03
$^{238}\text{U}_{bottom}$	1.00E-04
^{235}U	5.10E-04
^{232}Th	7.30E-05
^{40}K	4.00E-04
^{137}Cs	2.80E-05
^{60}Co	3.10E-05
^{108m}Ag	2.50E-04
^{207}Bi	6.10E-04
^{210}Pb	7

Total Rate for events within the energy interval [1, 20] keV: 4902 ± 1853 events per year

NEXT STEPS



Increasing **CuLayer_2**
and **CuLayer_3** statistics



Simulating **CuLayer_4** with an
even higher statistics respect to
the previous layers



Simplified CAD design ready
→ simulating **Acrylic box**
and **Field cage**