Chroma Simulation
8Silicon35_87
newsurface

July 23, 2024

Pocar Lab
Lab 21
nEXO Collaboration

1) Experiment Details

- Experiment Name: 8Silicon35_87
- Number of Particles: 100
- Random Seed: 1042
- Run ID: 1
- Excluded Geometry: []
- PTE: 0 ± 0.

2) Material Properties

2.1) Bulk Materials

name	refractive_index	absorption_length	scattering_length	density
liquid xenon	1.69	350000000000.0	35000000000000	2.942
copper	0.9733	0.05	1000000	8.96
silicon	0.682	1000000.0	10000000	2.329
steel	1.29	100000000.0	1000000000	7.75
teflon	0.0	100000000.0	1000000000	7.75
silica	1.644	100000000.0	1000000000	2.202
aluminum	0.09216	1000000.0	10000000	2.7
killing material	1.0	100000000.0	1000000000	0.0

name	abs(r_i_error)	eta	k	abs(eta_error)	abs(k_error)
liquid xenon	0.0	0.0	0.0	0	0
copper	0.0	0.972	1.5004	0	0
silicon	0.0	0.83987	1.9019	0	0
steel	0.0	0.0	0.0	0	0
teflon	0.0	0.0	0.0	0	0
silica	0.0	0.0	0.0	0	0
aluminum	0.0	0.09216	1.9217	0	0
killing material	0.0	0.0	0.0	0	0

2.2) Surface Properties

name	outer_mat	inner_mat	model_id	reflect_specular	reflect_diffuse	reflect_lobed	backscatter	sigma_alpha
FBK HD3	liquid xenon	silicon	5	0	0	0	0	0.0
Cu-Xe	liquid xenon	copper	8	0	1	0	0	0.0
silicon-Xe	liquid xenon	silicon	6	0	0	1	0	0.2
killing surface	None	None	8	0	0	0	0	0.0

3) Results

3.1) Photon Transmission Efficiency

The Photon Transmission Efficiency (PTE) for this experiment was 0 ± 0.

3.2) Tallies

Tally	Count

4) Plots

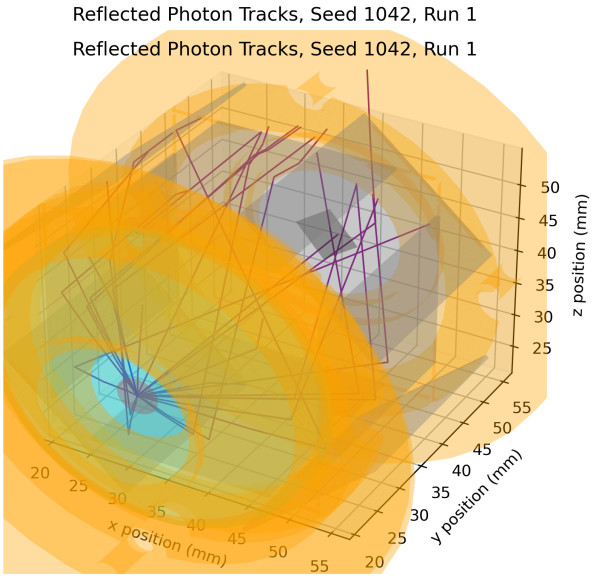

Figure 1: reflected photon tracks, seed 1042, run 1 seed 1042 run 1

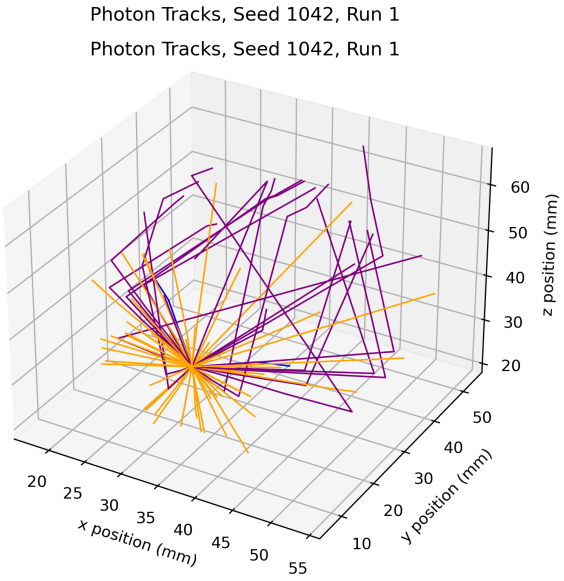

Figure 2: photon tracks, seed 1042, run 1 seed 1042 run 1