

Bubble Chamber Simulation

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Introduction

bubble_chamber

- Updated a simulation started a few years ago to study different collimator materials.
- https://github.com/whit2333/bubble_chamber
- Straightforward Geant4 simulation
- Requires CADMesh library



Simulation

- Easy to add cad geometries.
- Calculates the photon flux at arbitrary surfaces
- Outputs root file with histograms



Photon Flux

Measured at increasing distance from radiator



Photon Flux

Measured transverse plane coordinate coming out of port window



16 particles are not photons

Future work

What is next?

- Add chamber volumes
- Add other important geometries (?)
- Investigate physics list dependencies
- Add upstream magnets (quads and dipole)?
- Simulate energy dispersion?

What aspects of the simulation output would be most important and useful?