

Geant4 radio-purity simulation for SBND & DUNE

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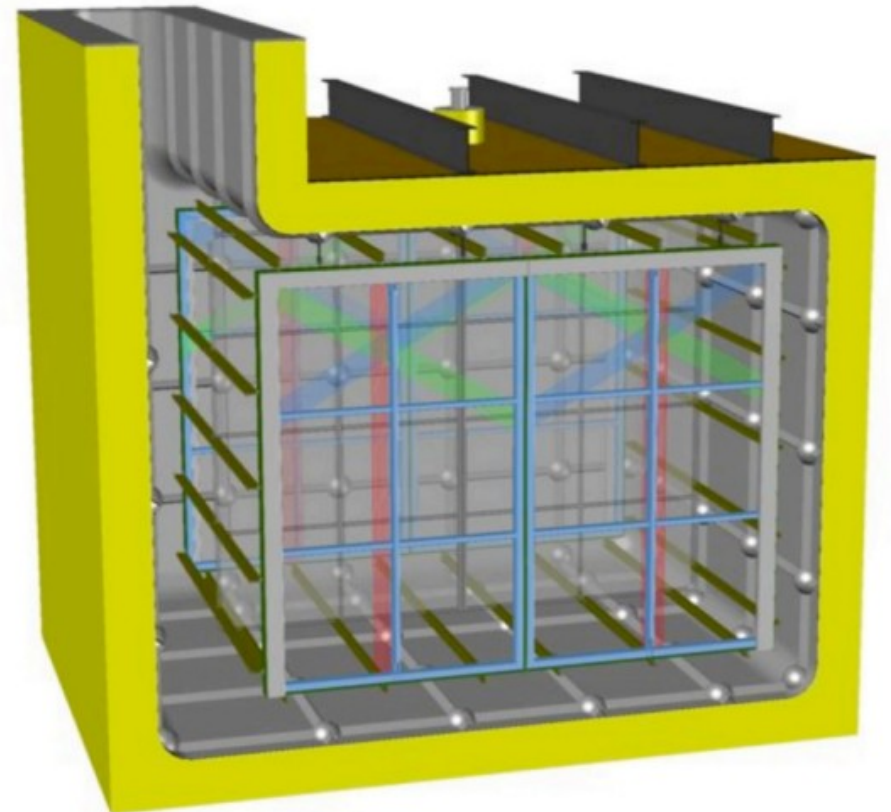
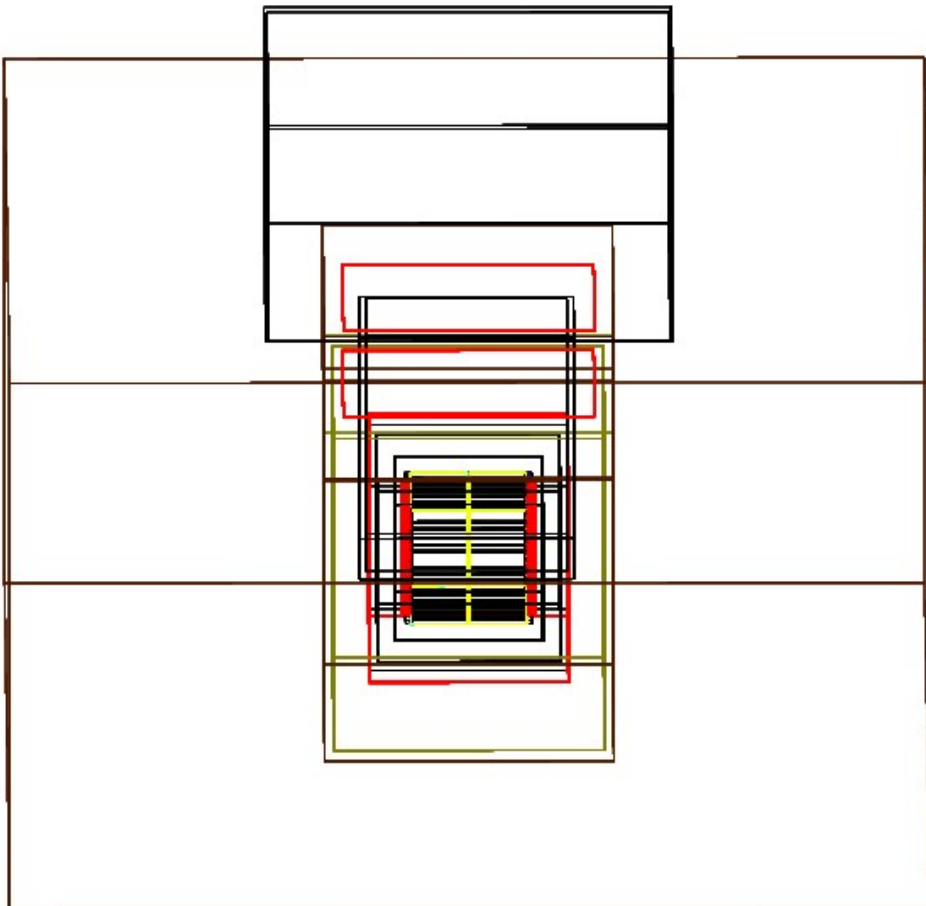
DUNE SNB Meeting - October 14th 2015

Objectives:

- Do background simulations from the radioactivity from detector components for SBND
- Do similar simulations for DUNE

Geometry – SBND

- Imported from CAD drawing
- Include PMTs, Read-out wires, structural frame, etc...

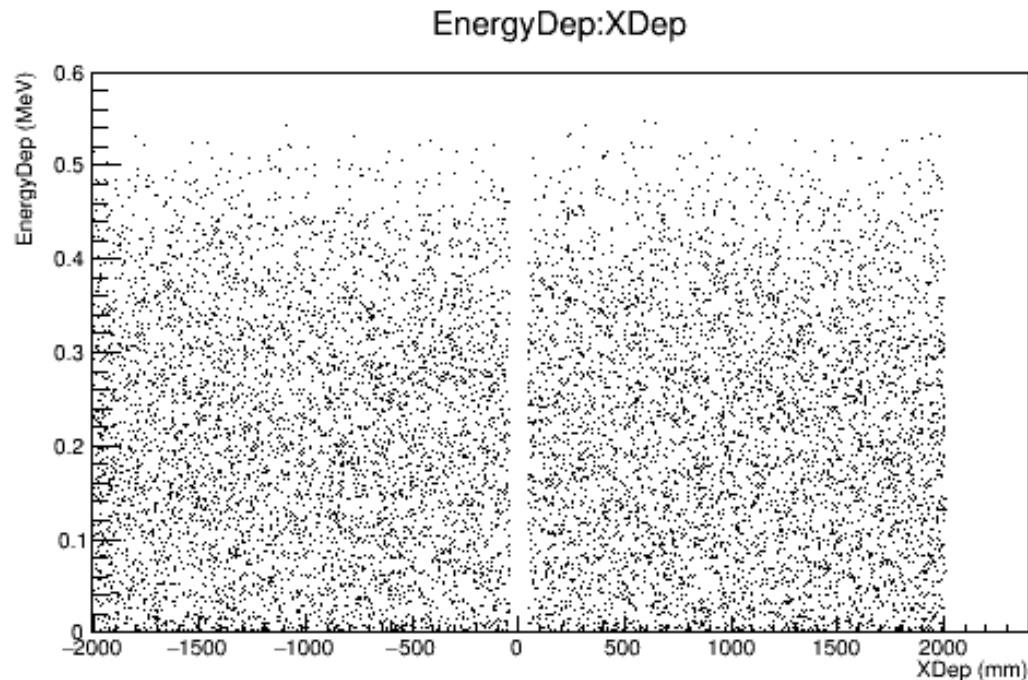


Argon 39 decay

- First look at Ar39 contamination
- Analysis done in ROOT
- Mainly from a similar simulation for NaI crystals so the analysis is likely to evolve

Analysis: Example

- Energy deposited along the x axis (perpendicular to the cathode)
- Gap at $x=0$ is the cathode
- Argon39 has $Q = 565$ keV



Analysis: Example 2

- Neutrino and Beta Energy spectra show conservation of energy

