

Chroma Simulation of SiPM Stave Testing for nEXO

Tuesday, August 20, 2024 9:35 AM (10 minutes)

The nEXO experiment is investigating the fundamental nature of the neutrino by searching for neutrinoless double beta decay in xenon-136. Its inner detector will measure light in liquid xenon using silicon photomultipliers (SiPMs) arranged on staves, rectangular support structures that line the sides of the detector. Testing of these staves must occur prior to their implementation in nEXO, and the test chamber and procedure to do so are currently in development. To characterize the signal detected by SiPMs during testing, we set up a simulation of the stave testing chamber in Chroma, a GPU-accelerated photon transport simulation. This talk will discuss the setup of the simulation, as well as a study of the effect of the chamber's reflectivity on the number and distribution of photons hitting the stave, which informs whether the chamber's reflectivity should be modified to optimize the stave testing process.

What area of study best describes your talk?

Physics

If you answered 'Other', please provide the study area.

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Session Classification: Presentations