



Contribution ID: 71

Type: **Oral**

Light collection and simulation for nEXO

Wednesday, 8 November 2023 16:40 (20 minutes)

nEXO is a next-generation 5-tonne liquid xenon time projection chamber that will search for neutrinoless double beta decay ($0\nu\beta\beta$) of ^{136}Xe with a projected half-life sensitivity of 1.35×10^{28} years in 10 years of livetime. To achieve this sensitivity, the design goal of nEXO is $\leq 1\%$ energy resolution at the $Q_{\beta\beta}$ endpoint value of 2.458 MeV. To reach this desired energy resolution, we require optimizing the collection of ionization electrons and scintillation photons resulting from energy deposits in liquid xenon. For light collection, nEXO will employ Silicon Photo-Multipliers (SiPMs) positioned around its barrel to detect 175 nm scintillation light of liquid xenon. In this talk I will describe current efforts of the collaboration to characterize candidate SiPMs for nEXO and simulate the light detection performance for the full detector.

Early Career

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Session Classification: RDC2

Track Classification: RDC Parallel Sessions: RDC2: Photodetectors