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Contribution ID: **416** Type: **Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)**

(G*) Integrated photon-sensor tests for nEXO

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nEXO is a next generation time projection chamber searching for neutrinoless double-beta decay in 5 tonnes of liquid xenon enriched in the isotope Xe-136. Interactions within LXe produce anti-correlated scintillation and ionization signals, which will be used to reconstruct the energy, position, and multiplicity of each event. Silicon photomultipliers (SiPMs) have been identified as the devices to detect the vacuum ultraviolet scintillation light for nEXO. SiPMs are silicon devices ˜ 1 cmˆ2 with single photon sensitivity, and have a quantum efficiency of ˜ 15% at 175 nm. A baseline characterization of the many SiPMs that will be distributed among the nEXO collaboration is necessary: the detector will employ tiles of SiPMs, organized into staves, yielding a photo-coverage area of ˜ 4.5 mˆ2. The development of integrated SiPM tiles is advanced within the collaboration, requiring precise testing in conditions similar to their deployment. I will present on the status and plans for SiPM mass testing using an environmental test stand capable of measuring ˜ 150 cmˆ2 of SiPMs at 168K with quick turnaround between tile deployment, facilitating both a high-rate of baseline SiPM characterization, and precision testing of integrated tiles.

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