

Light Detection with Large Area DUV Sensitive SiPMs in nEXO

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The Enriched Xenon Observatory (EXO) is aiming to search for $0\nu\beta\beta$ decays of Xe-136 by using liquid xenon TPC detector. nEXO is the second phase of EXO with 5 tons of liquid xenon TPC, requiring $\sim 4\text{m}^2$ of photo-detectors which have to be very efficient at 175nm and very radio-pure. SiPMs are ideally suitable for this application, however they have never been used in large area and detection efficiency at DUV region is relatively low. In the past a few years, lots of efforts have been made to develop photo-detector system for nEXO. In this talk, we will report on the requirements of photo-detector in nEXO, characterization of SiPMs manufactured by Fondazione Bruno Kessler (FBK), Hamamatsu Photonics and KETEK, analog readout technology for large area SiPMs, inter-connections, etc.

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