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Detail performance of FBK HD3 and HPK VUV4 SiPMs' crosstalks

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This report will include the internal and external crosstalk measurement and analysis results for two SiPM devices: FBK HD3 and HPK VUV4 SiPMs. They are the candidate photosensors of nEXO experiment. External crosstalk (ExCT) is generally difficult to measure. We employed a setup called the Microscope for the Injection and Emission of Light to characterize the single-avalanche light emission intensity and emission spectra of two SiPMs under vacuum and cryogenic conditions. In addition, by illuminating specific SiPMs with a laser, we measured the yield of ExCT in a liquid xenon detector and investigated its impact on the detector's performance.

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