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Light Collection for the Scintillating Bubble Chamber (SBC)

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The ongoing search for dark matter continues to evolve, and the quest to reach lower cross-sections is leading to new technologies. One of the newer proposals involves the use of a bubble chamber which employs noble elements (such as argon and xenon) as the active mass. Combining recent developments of bubble chambers with liquid noble gases allows additional scintillation data to be collected. Scintillating bubble chamber (SBC) experiment plans to achieve a threshold as low as 100eV using this technology for the detection of dark matter. To maximize light collection, SBC is required to characterize 32 Hamamatsu VUV4 SiPMs (silicon photomultipliers). The characterization includes the dark noise rate, photo detection efficiency, and crosstalk as a function of temperature and breakdown voltage. This talk will show the current progress, and some preliminary results.

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