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The development of Silicon Geiger Hybrid Tube (SiGHT), and the first prototype.

Tuesday 26 May 2020 09:18 (18 minutes)

The Silicon Geiger Hybrid Tube (SiGHT) is a novel photosensor designed for future generations of rare event search experiments using noble liquids. The idea is to replace conventional multi-dynode photomultiplier tubes (PMTs) with a hybrid technology, consisting of a low temperature sensitive bi-alkali photocathode for conversion of photons into photoelectrons and a low dark count Silicon Photomultiplier (SiPM) for photo-electron signal amplification. SiGHT can achieve ultra low internal radioactivity, high quantum efficiency and stable performance at low temperatures, which are required features for direct dark matter detection and neutrinoless double beta decay experiments. The R&D work of SiGHT, as well as the fabrication and test of the first prototype, will be presented.

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