

SiPM at Cryogenic Temperatures for Dark Matter Searches

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DarkSide-20k is a proposed 20 tonne fiducial mass liquid argon TPC that will perform an instrumental background-free search for WIMP dark matter. The TPC will be outfitted with more than 125,000 silicon photomultipliers (SiPM) grouped into 5210 single-channel, 25 cm^2 photosensors that are sensitive to single photoelectrons. We will present the performance of the photosensor and associated low-noise electronics at liquid argon temperature and discuss the strategy for scaling up production for DarkSide-20k.

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