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Usage of Commercial Ultrasound ADCs for the Digitization of Silicon Photomultiplier Signals for the SBND Experiment

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Silicon Photomultipliers (SiPMs) have become popular devices for detecting light created in scintillators, due to their low cost and scalability. Inexpensive electronics for the digitization of SiPM signals currently lacks due to significant thermal noise inherent to the SiPMs. This poster presents a proposed readout configuration of the Short Baseline Near Detector (SBND) light bars based on commercial ultrasound analogue to digital converters (ADCs). We have tested these ADCs using a front end board designed for the Mu2e experiment, and have found them to be sufficient for distinguishing single PE signals for a variety of SiPM configurations.

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