

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Silicon Photomultipliers Characterization CHRISTOPHER BOWSER, MARIAN TZOLOV, Lock Haven Univ, NICK BARBI, PulseTor LLC — Low noise and high sensitivity photon detectors such as the Photomultiplier Tube (PMT) are very common instruments used in research and many other applications. The PMTs have drawbacks such as durability, size, and sensitivity to magnetic field which make them unsuitable for some tasks. Silicon Photomultipliers (SiPMs) are compact, solid state detectors with gain close to that of a PMT, which are a promising replacement of a PMT. We have studied two types of SiPMs designed for optimum response in the visible and near-UV spectral range. We have verified the basic electrical parameters of the devices using current-voltage characteristics and impedance spectroscopy in dark. The spectral response was measured in DC mode, which is very simple to realize and still delivers very good sensitivity. We have established the linearity of the photoresponse and the limits at high intensity illumination. The pairing of the SiPMs with several common scintillators was studied with the goal of optimum performance of the SiPM/scintillator pair.

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Date submitted: 03 Nov 2015

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