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Modeling of New High NUV Sensitive Silicon Photomultiplier

In recent years, Silicon Photomultipliers (SiPMs) have proven to be very performing devices, especially for those applications where high sentivity to low intensity light and fast responses are required. A SiPM consists of a system of hundreds or even thousands of p-n junctions connected in parallel and operating in Geiger mode.
We performed a very detailed modeling of several devices from different producers, focusing on cell capacitance, quenching resistors and parasitic capacitances. We measured I-V and C-V responses, and carefully studied waveforms aquired from sensors conditioned by a simple trans-impedance amplifier, thus obtaining information on the microscopic characteristics of the device. Results regarding the modeling as a function of overvoltage will be presented and compared with simulations.

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