Characterization of FBK SiPMs under illumination with very fast light pulses.



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Abstract - A characterization of the response of SiPMs and SPADs produced at FBK-irst Trento stimulated with fast laser pulses is presented. The tests were aimed at studying both the intrinsic timing proprieties (of SiPMs and SPADs) using time correlated single photon counting technique and the dynamic range (of SiPMs). Measurements were carried out on devices with different cell size, namely, from 40x40µm² to 100x100µm². Concerning the timing resolution, all the devices exhibit a value lower than 150psec FWHM. The dynamic range of SiPMs shows a response linearity which is in line with the theory describing these devices.



Dynamic Range

Measurement without amplifier

- Energy values were obtained from current measured by a calibrated photodiode using 3 different optical filters and 2 different laser intensities for a total of 8 combinations
- were measured for every energy value calculated

shows a linear trend of the



