

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

Alessandro Tarolli^a, Gian-Franco Dalla Betta^b, Mirko Melchiorri^a, Alessandro Piazza^a, Lucio Pancheri^a, Claudio Piemonte^a, Nicola Zorzi^a
^a FBK, Trento - Italy, ^b University of Trento - Italy

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.

