STATUS OF SiPM DEVELOPMENTS

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This talk is devoted to consideration of the problem of suppression of the optical crosstalk and afterpulsing problem for SiPM,which is especially important for SiPM's with a large Photon Detection Efficiency(large pixel size) and large area for detection of extreamly low light fluxes. Such a problem has to be solved for instance in order to use the SiPM's for the detection of Cherenkov and fluorescent light by high energy atmospheric shower
detection(MAGIC,EUSO...).
The mechanism and methods of the optical crosstalk suppression are discussed for different optioms of SiPM.
The level of optical crosstalk ~ 2.5% is acieved and described for 5x5 mm2 SiPM with a gain of 2x10*7.The comparison of the features of such SiPM with SiPM's from other producers is considered.
The methods to achieve of of very fast response for large area SiPM's with a large number of pixels and timing performance of 5x5 mm2 SiPM are described.
Some examples of such a SiPM's application are considered.