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Preliminary Study on Timing Characteristics of Fast SiPMs

Silicon Photomultipliers (SiPMs) are new type of high-performance semiconductor detectors, which inherit most of the advantages of semiconductor detectors and have good performance in terms of gain, signal-to-noise ratio and response speed. SiPM also has high photon detection efficiency and excellent time resolution, which is comparable to high-performance PMT. In this paper, the timing characteristics of three types of SiPMs (Hamamatsu, SensL and NDL) have been measured. The rise time of SensL J-30035 fast output port can reach 500 ps, the limit time resolution is 22.2 ps. The rise time of DNL 11-3030C-S is 1[~]2 ns, and the limit time resolution is 21.8 ps. The rise time of Hamamatsu S13360-1325CS is 1[~]2 ns, and the limit time resolution is 193.6 ps. Based on the test, SensL J-series SiPMs have the best timing characteristics.

Minioral

Yes

IEEE Member

No

Are you a student?

No

Authors: AN, Dong; HU, Peng (Institute of High Energy Physics Chinese Academy of Sciences); YAN, Min; QIAN, Sen; MA, Lishuang

Presenter: HU, Peng (Institute of High Energy Physics Chinese Academy of Sciences)

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