

A time-resolution study with a plastic scintillator read out by a Geiger-mode Avalanche Photodiode

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(Submitted on 13 Jul 2011)

In this work we attempt to establish the best time resolution attainable with a scintillation counter consisting of a plastic scintillator read out by a Geiger-mode Avalanche Photodiode. The measured time resolution is inversely proportional to the square root of the energy deposited in the scintillator, and scales to 18ps (sigma) at 1MeV. This result competes with the best ones reported for photomultiplier tubes.

Comments: 8 pages, 8 figures

Subjects: **Instrumentation and Detectors (physics.ins-det)**

Cite as: **arXiv:1107.2545 [physics.ins-det]**

(or **arXiv:1107.2545v1 [physics.ins-det]** for this version)

Submission history

From: Alexey Stoykov [[view email](#)]

[v1] Wed, 13 Jul 2011 13:30:32 GMT (263kb)

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