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Popcorn Noise and Timing Measurements on LGADs

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Popcorn noise has been observed as a detrimental effect in LGADs operation under certain biasing conditions and is manifested as a random charge fluctuation in the detector output signal. We present a systematical analysis of popcorn noise studied in 35 and 50 μm thick CNM LGADs measured via TCT (Transient Current Technique) and a Sr-90 beta setup. The findings are used to define optimal bias voltage conditions to avoid popcorn noise as well as to identify the origin of the effect. Additionally, timing studies measurements from both the TCT and beta setup are presented.

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