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A novel technique for the study of pile-up events in cryogenic bolometers

Tuesday, 23 February 2021 12:20 (5 minutes)

In this talk, I will briefly describe the technique we developed to study the pile-up rejection capability of cryogenic bolometers. The precise characterization of the detector time resolution is indeed of crucial importance for next-generation cryogenic-bolometer experiments searching for neutrinoless double-beta decay, such as CUPID, in order to discriminate against the pile-up of two-neutrino double decay events, which will represent a non-negligible contribution to the background. Our approach consists in producing artificial pile-up events with a programmable waveform generator, thus allowing for a complete control of the time separation and relative energy of the individual components of the generated pile-up events. I will present the results we obtained by applying this technique to a small array of detectors at the Laboratori Nazionali del Gran Sasso, in Italy.

Collaboration name

CUPID

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