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Background rejection in ECal detector MPD experiment cosmic test data

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The MPD detector at the NICA facility is under construction. One of the key subsystems of the MPD experiment is the electromagnetic calorimeter ECal. The ECal modules are calibrated using cosmic muons. Signal from SiPM of each tower is digitized by the ADC in a 640 ns window. The purpose of the calibration procedure is to establish a correct relation between the measured signal and real energy deposition of the muon in the tower material. But there are many processes that can deteriorate this correlation. Among them are random cosmic particles, large noise pulses, crosstalk in SiPM cells, etc. In this contribution, we present a simple and fast method for suppressing such background. It is based on the analysis of the ratio of the signal integral to the maximal amplitude. For good events, a good parametrization of the dependence of the ratio on the signal amplitude was found. The compatibility of the parametrizations evaluated for 768 towers of one half-sector is discussed. Selection criteria for background rejection and their efficiency as well as contribution of the crosstalk to the backgrounds are presented and analyzed. The contribution of the crosstalk to the background was estimated.

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