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Investigation of variations in the intensity of the muon flux in the time series of matrix data of the URAGAN hodoscope

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The study of variations in the muon flux intensity distribution functions (MFIDF) was carried out on the basis of digital processing of time series of matrix data of the URAGAN hodoscope (MEPhI). The definition of normalized variations of the MFIDF was introduced. An algorithm for calculating the normalized variations of the MFIDF is proposed. The calculated normalized MFIDF variations were tested on the model matrix data of the muon hodoscope; the test results were quite satisfactory. Calculations of the errors of the proposed algorithm for estimating variations are performed. The results of calculating the normalized variations of MFIDF on the experimental matrices of the URAGAN hodoscope are analyzed, which confirmed the effectiveness of the proposed algorithm. The research carried out and the developed algorithm for calculating the normalized variations of the MFIDF are intended to solve the problems of recognizing Forbush decreases in the time series of the angular matrices of the registered muon flux.

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