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## APPLICATION OF UNIVERSALITY IN DEVELOPMENT OF CASCADE PROCESSES FOR STUDYING HIGH-ENERGY COSMIC PARTICLES IN SPACE EXPERIMENTS

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In this paper, we propose a method that makes it possible to use an ultrathin calorimeter for direct measurements of cosmic rays with energies of TeV and higher. The problems of determining the primary energy with a thin calorimeter, due to large fluctuations in shower development, the low statistics of analyzed events and the large size required for the calorimeter, are considered in detail. A solution to these problems is proposed on the basis of a lessening fluctuation method. This method is based on the assumption of the universality of the development of cascades initiated by particles of the same energy and mass. For energy reconstruction, so-called correlation curves are used. The main analyzed quantities are the size of the cascade and the rate of its development. The method was tested using a heterogeneous calorimeter consisting of 22 layers of tungsten absorber and silicon detector. Based on simulations, it is shown that the primary energy can be determined on the ascending branch of the cascade curve. This fact solves the problems associated with the need to increase the calorimeter thickness with an increase in primary energy and with the limitation of the analyzed events. The proposed technique is universal for different energies and different nuclei. The study was carried out with the financial support of the Ministry of Education and Science of the Republic of Kazakhstan (grant No. AP22785312).

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