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Reconstruction of parameters of extensive air showers registered by the NEVOD-EAS array

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The talk is devoted to the methods of reconstruction of parameters of extensive air showers based on the response of the NEVOD-EAS array. The NEVOD-EAS array is located in MEPhI and allows measuring deposited energy and arrival time of EAS particles. The development of reconstruction method is carried out using simulations produced by means of the CORSIKA program with the QGSJET-II-04 + FLUKA 2020.0.3 hadron interaction models. In total, we have analysed 1 200 000 showers initiated by primary protons and iron nuclei in the energy range 10ˆ15 - 10ˆ17 eV.
To reconstruct the parameters of the EAS, we have applyed two methods: least squares and maximum likelihood. The accuracy of reconstruction of the EAS core position, the age and the shower size is discussed. Results of estimation of the effective area of the array using various cuts are presented, and the accuracy of reconstruction of the shower size spectrum for different types of primary particle spectra is considered.

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