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Investigations of extensive air showers in the Experimental complex NEVOD

The main information about high-energy cosmic rays (above 10^15 eV) is provided by the extensive air showers (EAS), which are formed as a result of interaction of primary cosmic rays (PCR) with nuclei of atmospheric atoms. In the energy range from 10^15 to 10^17 eV, the PCR energy spectrum reconstructed by the data of EAS experiments has features which cannot be explained within the frameworks of existing models of cosmic ray origin.

Studies of air-showers in the energy range of 10^15–10^17 eV are carried out in the Experimental complex NEVOD. The NEVOD-EAS array allows detection of the electron-photon component, the Calibration Telescope System ensures selection of the EAS muon component, and the URAN array measures the air-showers hadronic component.

The lateral distributions of the electron-photon, muon, and hadronic components of the air-showers obtained by the data from these facilities are presented. The technique for reconstructing EAS parameters and PCR energy spectrum based on the NEVOD-EAS array response is described.

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