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Electron and thermal neutron lateral distribution functions in EAS at high altitude

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PRISMA-YBJ is a novel type array to study Extensive Air Showers (EAS) in the range of 10^{14} - 10^{16} eV. The main feature of this type array is the simultaneous measurement of the electron and the neutron components of EAS on all area of array with the same scintillator detectors (en-detectors). This allows detailed studies of low-investigated hadronic component in the “knee” region. The simulation of lateral distribution of thermal neutrons from the parent hadron track was made with GEANT4. The independence of lateral distribution function shape from the parent hadron energy and particle type is demonstrated. The power law dependency for the number of thermal neutrons on parent hadron energy is obtained. Also the simulation of the PRISMA-YBJ experiment was made using CORSIKA and GEANT4. The results of the simulation are compared with experimental data and very good agreement is shown.

Collaboration

– not specified –

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