Cerenkov Radiation of Cosmic Ray Extensive Air Showers.
Part 1. Lateral Distribution in the Energy Region of 10^{15} ¸ 10^{17} eV

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By the large number of experimental data the mean lateral distribution functions of EAS Cerenkov light (LDFCL) have been constructed. The showers are selected by the flux density of EAS Cerenkov light at a distance of 100 m of the shower core, which is proportional to the primary energy E_0. It is shown that a form of LDFCL changes when the energy is variable from ~ $10^{15} \div 10^{17}$ eV. The maximum depth X_{max} of EAS development in the energy region has been found by using the parameters:
P = lg(Q(50)/Q(150)), a mean square radius of LDFCL and a ratio of the total Cerenkov light flux F to the total number of particles at sea level N_s. The following values of X_{max} for $E_0 \cong 10^{15}$, 10^{16} and 10^{17} eV are found to be (530±16), (566±10) and (619±15) g/cm^2, respectively. The accuracy in determination of E_0 is 20 %. In the framework of the QGSJET model one can conclude that the mass composition of primary particles is the mixed one before a knee of the energy spectrum and it is close to the standard one as it is observed at the atmosphere boundary. After the knee a portion of the heavy nuclei increases.