CHERENKOV LIGHT DISTRIBUTION PRODUCED BY SIMMULATION SHOWERS

Sun Luorui, Sun shaocong
Dept. of Physics, Zhengzhou University, China 450052
sunlr@mail.zzu.edu.cn

The density distribution of Cherenkov lights produced by primary cosmic rays of ¦Ã, p and Fe was simulated by Monte Carlo method. The results showed that the slope of the density distribution of Cherenkov lights produced by Fe was obviously flatter than those produced by ¦Ã and p, if energy of the primaries was in the range around the "knee" of the energy spectrum. Furthermore, a specific distance from the shower core was found, at which the densities of Cherenkov lights produced by the three kinds of primaries were equal. These features may be favourable for estimating the shower energy and may give some criteria to distinguish the light primaries from the heavy ones.