

# Lateral density distributions of muons and electrons in EAS from the KASCADE-Grande data for different zenith angle intervals

Monday, 22 November 2021 11:00 (0:15)

## Content

Using the data of the KASCADE-Grande experiment, we have estimated the mean radial density distributions of muon and electrons in EAS. KASCADE-Grande was a cosmic ray experiment located at the Karlsruhe Institute of technology (110 m a.s.l., 49°N, 8°E), Germany, and it was designed to study extended air showers (EAS) initiated by primary nuclei with energies between 10 PeV and 1 EeV. KASCADE-Grande was capable of measuring the local density of charged particles, muons and electrons of the EAS at ground level using different types of particle detectors. The study was done in the radial range from 150 m to 650 m and zenith angles from 0 to 40 degrees. The zenith angle interval was divided into three bins with the same acceptance:  $[0^\circ, 21.78^\circ]$ ,  $[21.78^\circ, 31.66^\circ]$  and  $[31.66^\circ, 40^\circ]$ . Moreover, the data was further subdivided into distinct intervals in the total number of charged particles. The measurements were confronted against expectations of Monte Carlo shower simulations for iron nuclei and protons as primaries using the hadronic interaction models SIBYLL 2.3, QGSJET-II-04, SIBYLL 2.3 c and EPOS-LHC.

## Summary

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**Session Classification :** Talks: Session 2