

Test of high-energy hadronic interaction models using the KASCADE-Grande data

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Content

KASCADE-Grande was a cosmic rays experiment that was located at the Karlsruhe Institute of technology (110 m a.s.l., 49°N, 8°E). In this work, we present densities of muons and electrons in extended air showers (EAS) initiated by cosmic rays using the experimental data, the energy range of the primaries is between 10 PeV and 1 EeV. Expectations of Monte Carlo showers simulations with iron and proton as primaries are compared to the data, the simulations were performed using hadronic models SIBYLL 2.3, QGSJET-II-04, SIBYLL 2.3 c and EPOS-LHC. The study was made for a radial range from the 150 m to 650 m, finally the zenith angle goes from 0 to 40 degrees, and it is subdivided in three intervals with the same acceptance $[0^\circ, 21.78^\circ]$, $[21.78^\circ, 31.66^\circ]$ and $[31.66^\circ, 40^\circ]$. Tests are relevant because they restrict the range of reliability of the models.

Summary

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