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Tests of the SIBYLL 2.3 high-energy hadronic interaction model using the KASCADE-Grande muon data

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Content

The KASCADE-Grande observatory was a ground-based air shower array devoted to the study of the energy and composition of cosmic rays with energies from 1 PeV to 1 EeV. The experiment consisted of different detector systems which allowed the simultaneous measurement of distinct components of the air showers (EAS), such as the muon content. In this contribution, we study the total muon number and the lateral density distribution of muons in EAS detected by KASCADE-Grande. The data are analyzed as a function of the zenith angle and the total number of charged particles. The attenuation length of the muon content of EAS and the absorption coefficient of the LDF's of muons are measured. The results are compared with the predictions of the SIBYLL 2.3 hadronic interaction model.

Session

Cosmic ray and astroparticle physics

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