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Reconstruction of primary mass group energy spectra with KASCADE

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Abstract content

The KASCADE-Grande experiment, located at the area of the Forschungszentrum Karlsruhe, Germany, measures extensive air showers in the energy range between 10ˆ{14} and 10ˆ{18} eV, thus covering the first and the second knee of cosmic rays.
Former analyses of electron and muon data of the original KASCADE experiment revealed knee-like features in the energy spectra of light elements causing the knee in the all particle energy spectrum. Furthermore, these analyses showed the limited capability of the interaction models QGSJet 01 and SIBYLL 2.1 to consistently describe the whole measured data range.
An update of the continuation of the analysis is given, presenting results for different data sets and the use of the FLUKA model instead of the GHEISHA code in the simulations. In addition, features of improved and new interaction models (like QGSJet II and EPOS) and their impact on the analysis results will be discussed.

If this papers is presented for a collaboration, please specify the collaboration

KASCADE-Grande

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 4 (HE part 1), pages 87-90

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