

The KASCADE-Grande observatory and the composition of high-energy cosmic rays

Abstract content

KASCADE-Grande is an air-shower observatory, located in Karlsruhe, Germany, devoted to the detection of cosmic rays with energies in the range of 10¹⁵ and 10¹⁸ eV. This energy region is of particular interest for cosmic ray astrophysics, since it is the place where some clues about the origin and acceleration mechanism of galactic cosmic rays may be found and where several models predict the existence of a galactic- extragalactic transition in the cosmic ray spectrum. In order to test these hypotheses detailed and simultaneous measurements of the energy and composition of cosmic rays with sufficient statistics are required. These kind of studies are possible in KASCADE-Grande due to the accurate measurements of several air- shower observables, i.e., the number of charged particles, electrons and muons in the shower, using the different detector systems of the observatory, which are used in dedicated analyses based on detailed simulations to estimate the energy and composition of cosmic rays. In this contribution, the latest results of the KASCADE-Grande observatory on the chemical composition of 10¹⁶ – 10¹⁸ eV cosmic rays will be presented.

Summary

Primary author(s) : Dr. ARTEAGA VELAZQUEZ, Juan Carlos (Instituto de Física y Matemáticas, Universidad Michoacana)

Presenter(s) : Dr. ARTEAGA VELAZQUEZ, Juan Carlos (Instituto de Física y Matemáticas, Universidad Michoacana)