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Exploring the light and heavy composition of cosmic rays with KASCADE-Grande

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Abstract content

KASCADE-Grande is an air-shower observatory devoted to the detection of cosmic rays with energies in the range of 10^{16} and 10^{18} eV. This energy region is of particular interest for the cosmic ray astrophysics, since it is the place where several models predict the existence of a galactic- extragalactic transition in the cosmic ray spectrum and the presence of a break in the flux of its heavy component. The detection of these features requires detailed and simultaneous measurements of the energy and composition of cosmic rays with sufficient statistics. This kind of studies are possible for the first time in KASCADE-Grande due to the accurate measurements of several air-shower observables, i.e., the number of charged particle, electrons and muons in the shower, using the different detector systems of the observatory. In this contribution, a detailed look into the composition of $10^{16} - 10^{18}$ eV cosmic rays with KASCADE-Grande is presented.

Summary

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