

Results from KASCADE-Grande

Executive Summary PoS (ICRC2021) 313

Donghwa Kang for the KASCADE-Grande Collaboration

Email: donghwa.kang@kit.edu

What is this contribution about?

This contribution is about the validity test of the new hadronic interaction model Sibyll 2.3d with full data sets of KASCADE-Grande.

Why is it relevant / interesting?

The energy spectrum and mass composition rely on simulations of the interaction model, since it describes the hadronic cascade in the atmosphere. So, even if the data accumulation by the KASCADE-Grande experiment was completed the data, we can do persistent analysis such as test of the new interaction model.

What have we done?

We investigated the shower size and the muon number of the new model Sibyll 2.3d. In addition, we have reconstructed energy spectra of different mass groups based on Sibyll 2.3d and compared them with other post-LHC models.

What is the result?

The energy spectra show a similar structure of the energy spectrum observed before. One remarkable feature is that the concave structure at about 10^{16} eV is more visible in the spectrum of heavy primary. In the light primary spectrum, the spectral slope changes more smoothly and it starts at energies below 10^{17} eV.