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KASCADE-Grande results and future prospects for the transition energy range of Cosmic Rays

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Investigations of the energy spectrum as well as the mass composition of cosmic rays in the energy range of PeV to EeV are important for understanding both, the origin of the galactic and the extragalactic cosmic rays. The multi-detector arrangement of KASCADE and its extension KASCADE-Grande was designed for observations of cosmic ray air showers in this energy range. Most important result from KASCADE is the proof that the knee feature at several PeV is due to a decrease in the flux of light atomic nuclei of primary cosmic rays. Results of KASCADE-Grande have shown two more spectral features: a knee-like structure in the spectrum of heavy primaries at around 90 PeV and a hardening of the spectrum of light primaries at energies just above 100 PeV, meanwhile confirmed by other experiments. In this talk I summarize the scientific results of KASCADE-Grande under the light of using different hadronic interaction models for interpretion. In addition, the KASCADE Cosmic Ray Data Centre (KCDC) is discussed, which is a web-based platform to provide astroparticle physics data for the general public.

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