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Latest Results on Cosmic Ray Spectrum and Composition from Three Years of IceTop and IceCube

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With the IceTop detector at the South Pole, a spectrum of cosmic ray air shower size S_{125} can be unfolded into an energy spectrum of primary cosmic rays. When the IceTop data is analyzed in coincidence with high-energy muon energy loss information from the deep IceCube detector, both the spectrum and mass composition of primary cosmic rays can be extracted using a neural network. Both of these analyses have been applied to three years of IceTop and IceCube data: from mid-2010 to mid-2013, using the 73-station/79-string and 81-station/86-string detectors. Both analyses are now sensitive to energies of up to 500 PeV. The performance and relative advantages of the two analyses will be discussed, and both all-particle spectra as well as individual spectra for elemental groups will be presented.

Collaboration

IceCube

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