Abstract Submitted
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Measurement of the low energy cosmic ray spectrum with IceTop-81[1] RAMESH KOIRALA, THOMAS GAISSER, Univ of Delaware, ICECUBE COLLABORATION — IceTop, the surface component of the IceCube Neutrino Observatory which consists of 81 stations and two ice Cherenkov tanks at each station, can measure the cosmic ray energy spectrum. The cosmic ray energy spectrum is a key observable to study cosmic ray production and mass composition. The IceTop spectrum thus far covers only an energy region from 2 PeV to 1 EeV. The goal is to lower the energy threshold to make contact with direct measurements of the primary spectrum made with detectors on balloons. The standard IceTop reconstruction requires a minimum of five stations. To lower the energy threshold, we have to use the more closely spaced inner stations and require only two of those stations to be hit. So we developed and deployed a new trigger that can select events with two or more stations hit. Here we will discuss the new IceTop trigger and an ongoing effort to lower the energy threshold, possibly to 100 TeV. We will also discuss measures to implement the measured spectrum to possibly get mass composition.

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