

MEASUREMENT OF THE COSMIC RAY ENERGY SPECTRUM AND COMPOSITION FROM 10^{17} TO 10^{19} EV USING HIRES PROTOTYPE DETECTOR

HiRes Collaboration

We study the spectrum and average mass composition of cosmic rays with primary energies between 10^{17} eV and 10^{19} eV using High Resolution Fly's Eye (HiRes) prototype detector. A monocular timing fitting is used to obtain shower geometries. Measurements have been made of the energy spectrum and shower elongation. The spectrum is consistent with earlier Fly's Eye and HiRes/MIA measurements. A comparisons between measured and simulated shower elongation also support the conclusion that the cosmic ray intensity is changing from a heavier to a lighter composition in this energy range.