

Study of the sharp "knee" phenomenon of cosmic ray spectrum by using newly upgraded Tibet AS γ experiment

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Cosmic Ray (CR) spectrum in a certain energy region can not be expressed by a simple power-law as it has a structure. The all-particle energy spectrum of primary CRs observed in a wide range from 10^{14} eV to 10^{17} eV with the Tibet-III AS array clearly shows a 'sharp knee' at around 4 PeV. Based on the hardening structure of energy spectrum observed by AMS-02, CREAM and the (proton+helium) spectrum at 50 – 1000 TeV energy region observed by (YAC-I+Tibet-III), we will discuss the origin of 'shap knee' whether it is caused by nearby source or nonlinear acceleration.

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