

STATISTICAL ANALYSIS OF THE SPECTRUM AT THE KNEE

R. Sina, E. S. Seo and J. Z. Wang

IPST, University of Maryland.

sina@pbar.umd.edu/Fax: 1-301 314 9363

A precise direct measurement of the energy spectrum of cosmic rays at high energies is hampered by low counting statistics as well as a significant energy spread due to finite energy resolution of the detector. Moreover, simulations have revealed that the resolution functions are energy dependent and may not always be Gaussian in shape. The measured spectrum of cosmic rays without taking these limitations into effect may therefore be distorted. In this paper we discuss unfolding and the effect of non-uniformity on the measured spectrum.