

Single hadrons in Milagro and the Spectrum of Cosmic Ray Protons

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Single unaccompanied hadrons can be used to probe the shape and intensity of the primary cosmic ray proton spectrum. The Milagro detector is a very large calorimeter with an effective area for the detection of unaccompanied hadrons of 2000 m^2 and a thickness of 7 meters (7 interaction lengths and 15 radiation lengths) to sample primary protons which survive to Milagro level without interacting in the atmosphere. The response of the shower layer (PMTs located below about 1 meter of water) is used to establish calorimeter penetration by single hadrons without accompanying shower particles and the hadron energy is estimated from the response of the PMTs located below 7 meters of water.

Criteria developed to select candidate single hadrons will be described and preliminary results on the single hadron flux based upon an unbiased trigger sample of events will be discussed.