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A ground parameter for energy reconstruction of gamma rays with the HAWC Observatory KELLY MALONE, Pennsylvania State Univ, HAWC COLLABORATION — Measuring the energy spectra of sources up to 100 TeV is critical to understanding the nature of cosmic accelerators. The High Altitude Water Cherenkov (HAWC) Observatory, located at an altitude of 4100m near Pico de Orizaba in Mexico, was designed to observe TeV gamma rays from air showers. It consists of a large array of 300 water Cherenkov detectors, each of which is equipped with 4 PMTs. On an event-by-event basis, measuring the energy density at some optimum distance from the air shower axis can be used to determine the energy of the primary gamma ray. I will present this method for reconstructing energy based on the determination of the lateral distribution function. This method greatly improves upon the current energy estimation technique employed by the HAWC Collaboration. The improvement is especially remarkable at energies above 10 TeV.

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