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TA SD Spectrum

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Telescope Array (TA) is a large cosmic ray detector in the Northern hemisphere that measures cosmic rays of energies from PeV to 100 EeV and higher. Main TA consists of a surface detector (SD) of 507 plastic scintillation counters of 1200 m separation on a square grid that is overlooked by three fluorescence detector stations. We present the cosmic ray energy spectrum measured by the TA SD above 10^18.2 eV and discuss the TA SD measurement and reconstruction techniques that are based on a detailed Monte Carlo simulation of the detector. We will also demonstrate that two different analysis approaches, the constant intensity cuts method and the Monte-Carlo based energy estimation procedure produce the same answer in the energy domain where the TA SD acceptance is constant with energy.

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