Recent Results from the Auger@TA Cross-calibration Project

SEAN QUINN, Case Western Reserve Univ, PIERRE AUGER COLLABORATION COLLABORATION, TELESCOPE ARRAY COLLABORATION COLLABORATION — The Pierre Auger Observatory (Auger) and Telescope Array Project (TA) are hybrid cosmic ray observatories operating in the southern and northern hemisphere, respectively. In both experiments the majority of data are generated from the surface-detector (SD) array. Auger and TA have implemented different SD station designs, giving them different sensitivities to extensive air-shower components. We seek to understand and cross-validate these complementary detectors on a hardware level using an in-situ approach where co-located SD stations observe the same air showers. We present the technical details for installing the detectors, data acquisition, and the analysis of signals for this first phase of the program, in operation for over one year. Integrated signals are directly compared between the SD stations, and also examined as a function of zenith angle. For a subsample of events we compare a suite of reconstructed air-shower parameters to geometrically equivalent simulations of our setup in the field. Characterizing and understanding any differences between data and simulation will be important for taking full advantage of future planned upgrades to both experiments, especially in the context of composition measurements.

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