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Development and testing of readout electronics for Stereoscopic Water Cherenkov Detector Array

Aiming to observe celestial gamma rays above 100 GeV, we have developed a new type of SWCDA (Stereoscopic Water Cherenkov Detector Array) for the EAS hybrid experiment. The first layer of each SWCDA unit is designed to observe the total energy and the direction of an air shower. The energy of primary cosmic rays can be inferred by measuring the total charge of secondary particles hitting the SWCDA. The arrival direction of primary cosmic rays can be determined by measuring the time signals of the arrival shower particles. Therefore, the ability of the readout electronics to accurately measure charge and time information is crucial to the overall performance of the detector. In this work, we present a detailed development and testing of the readout electronics for the SWCDA.

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