

Abstract Submitted
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Improving the Efficiency of Cosmic Radiation Detection JOSE OROZCO, JOSE GARCIA, Hartnell Comm Coll, STEFAN RITT, Paul Scherrer Institute in Switzerland — High energy cosmic radiation constantly surges through the universe. In order to accurately analyze cosmic radiation, precise coincidence measurements need to be made. We describe experiments to identify cosmic rays using two micro photomultiplier (PMT) detectors, plastic scintillators, and green wavelength shifting optic fibers. To demonstrate the authenticity of the electrical signals produced by the micro PMT detectors, several trigger settings were implemented including double, triple and quadruple coincidences. We made extensive testing and rearrangement in our experimental setup to improve both detector signal amplitude and the number of coincidence counts collected. Our research involved three main activities: 1) separation of the micro PMT detectors to limit the arrival directions of cosmic rays 2) determining the efficiency of detecting cosmic rays at selected areas on the scintillator sheets 3) improving the efficiency with an arrangement of embedded optical fibers based on findings from activities (1) and (2) above.

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