

Abstract Submitted
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Optical and Ionization Basic Cosmic Ray Detector¹ JULIAN FELIX, DIEGO A. ANDRADE, AURORA C. ARAUJO, LUIS ARCEO, CARLOS A. CERVANTES, JORGE A. MOLINA, LUZ R. PALACIOS, Universidad de Guanajuato — There are drift tubes, operating in the Geiger mode, to detect ionization radiation and there are Cerenkov radiation detectors based on photomultiplier tubes. Here is the design, the construction, the operation and the characterization of a hybrid detector that combines both a drift tube and a Cerenkov detector, used mainly so far to detect cosmic rays. The basic cell is a structural Aluminum 101.6 cm-long, 2.54 cm X 2.54 cm-cross section, 0.1 cm-thick tube, interiorly polished to mirror and slightly covered with TiCO_2 , and filed with air, and Methane-Ar at different concentrations. There is a coaxial 1 mil Tungsten wire Au-coated at +700 to +1200 Volts electronically instrumented to read out in both ends; and there is in each end of the Aluminum tube a S10362-11-100U Hamamatsu avalanche photodiode electronically instrumented to be read out simultaneously with the Tungsten wire signal. This report is about the technical operation and construction details, the characterization results and potential applications of this hybrid device as a cosmic ray detector element.

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