

Abstract Submitted
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A Portable Classroom Cosmic Ray Detector HOWARD MATIS,
Lawrence Berkeley National Laboratory — Normally, one has to work at an accelerator to demonstrate the principles of particle physics. We have developed a portable cosmic ray detector, the Berkeley Lab Detector, that can bring high energy physics experimentation into the classroom. The detector, which is powered by either batteries or AC power, consists of two scintillator paddles with a printed circuit board. The printed circuit board takes the analog signals from the paddles, compares them, and determines whether the pulses arrived at the same time. It has a visual display and a computer output. The output is compatible with commonly found probes in high schools and colleges. A bright high school student can assemble it. Teachers and students have used a working detector on six of the world's continents. These activities have included cross country trips, science projects, and classroom demonstrations. A complete description can be found at the web site: cosmic.lbl.gov. Besides, basic particle physics, the detector can be used to teach statistics and also to provide an opportunity where students have to determine how much data are taken. In this presentation, we will demonstrate the detector and describe some of the projects that teachers and students have completed with it.

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