

Abstract Submitted
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Cosmic Ray Physics at a Community College: Assembly, Detection and Measurement¹ SEWAN FAN, SCOTT DAVIS, LEO OSORNIO, BROOKE HAAG, Hartnell Community College — During an in-depth eight week summer research program at Hartnell Community College in Salinas, CA, we constructed two complementary experimental systems to measure cosmic rays. One system used NIM electronic modules configured for coincidence measurement. To detect the comic rays, two photomultiplier tubes each coupled to plastic scintillator paddles were assembled. The other system was build from a circuit board designed by the LBL Cosmic Ray Project. Extensive prototype and diagnosis for this board were done prior to final soldering of the parts. The dependence of the cosmic ray flux on the separation between scintillator paddles was measured and showed reasonable agreement with the accepted value. The flux dependence on the square of the cosine of the polar angle was also tested, and our result showed closely the expected cosine behavior using the NIM setup. As for the LBL Lab circuit board, it was difficult to obtain reliable coincidence counts for large polar angles probably due to the lack of an adjustable discriminator control. This was compensated for by operating the detectors at a lower high voltage which reduced the random counts, without affecting signals. This strategy gave a more reliable cosmic ray flux result using the Berkeley Lab circuit board.

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