The Salinas Airshower Learning And Discovery Project (SALAD)[1] VICTOR HERNANDEZ, ROMMEL NIDUAZA, DANIEL RUIZ CASTRUITA, ADRIAN KNOX, DANIEL RAMOS, SEWAN FAN, LAURA FATUZZO, Hartnell College — The SALAD project partners community college and high school STEM students in order to develop and investigate cosmic ray detector telescopes and the physical concepts, using a new light sensor technology based on silicon photomultiplier (SiPM) detectors. Replacing the conventional photomultiplier with the SiPM, offers notable advantages in cost and facilitates more in depth, hands-on learning laboratory activities. The students in the SALAD project design, construct and extensively evaluate the SiPM detector modules. These SiPM modules, can be completed in a short time utilizing cost effective components. We describe our research to implement SiPM as read out light detectors for plastic scintillators in a cosmic ray detector telescope for use in high schools. In particular, we describe our work in the design, evaluation and the assembly of (1) a fast preamplifier, (2) a simple coincidence circuit using fast comparators, to discriminate the SiPM noise signal pulses, and (3) a monovibrator circuit to shape the singles plus the AND logic pulses for subsequent processing. To store the singles and coincidence counts data, an Arduino micro-controller with program sketches can be implemented. Results and findings from our work would be described and presented.

Sewan Fan
Hartnell College

Electronic form version 1.4