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DRS4 based SiPM readout system for the cosmic muon veto detector

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A cosmic muon veto detector (CMVD), using extruded plastic scintillator (EPS) strips, is being built around the mini-ICAL detector which is operational at IICHEP, Madurai. CMVD will study the feasibility of building a shallow depth neutrino detector. Muon interactions in the EPS are detected by SiPMs mounted at both ends of two wavelength shifting fibres that are inserted in the EPS strips.

The muon detection efficiency of CMVD is required to be more than 99.99%. Faithful detection of muons also requires charge measurement. Current signals of SIPMs are converted into voltage pulses using trans-impedance amplifiers. A DRS4 based readout system is being designed to sample the signals at 1 GS/s. The samples are digitised on receiving a mini-ICAL trigger and the zero suppressed data are transmitted to the back-end server. An FPGA based DAQ board consisting of five DRS4 ASICs and a network interface is being designed. The paper will discuss the prototype design of the SiPM readout system.

Alternate track

I read the instructions above

Yes

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