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**Readout Electronics of Cosmic Ray Muon Detector** GRACYN JEWETT, EMMA PEARSON , KATIE BISHOP , HANA WEINSTEIN , CHRISTIAN PEREZ , Kennesaw State Univ — The Society of Physics Students at Kennesaw State University are working on designing portable cosmic ray muon detectors. The detectors consist of a series of small parallel-plate capacitors which operate at low voltage to detect ionization currents in ambient air, in order to be robust enough for a variety of outdoor muography applications. The detectors have been tested in the laboratory and are able to observe the direct ionization currents from 0.9 microcurie alpha and beta sources without any additional amplification. The addition of amplification and noise reduction to the detector electronics will enable the detector to increase its sensitivity to be able to observe cosmic ray muons. To amplify the signal, the operational amplifier AD8099 is being used. The benefits of this op-amp are it operates at high frequencies that allow the clearest signal for detection, in addition to having a high gain. When the signal can be separated from the electronic background noise, then the circuit can be modified by narrowing the bandwidth to the signal frequency. This talk will focus on the design and performance of the detector electronics and amplification.

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