

Abstract Submitted  
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**Reduction and Characterization of Error in Low Current Measurements** JUSTIN DEKANY, J.R. DENNISON, ALEC SIM, Utah State University — An apparatus has been developed to measure electron transport at a level low enough that radiation induced conductivity associated with the cosmic background radiation is of concern. To accurately measure such low currents, typically A, it is critical to eliminate noise in key components of the hardware setup. Improvements include highly filtered signals, ground isolation and stability, extensive shielding, vibration isolation, and signal averaging. Careful tracking of the error associated with each component in the system and examination of the limitations of each constituent part, allows for precise monitoring of error propagation as improvements are made to the system. Successful implementation of these techniques has pushed the lower current limit of a 25 year old Keithley 616 low level electrometer to these extreme limits. These methods have been employed to measure the conductivity of high resistivity polymers, commonly used in the construction of spacecraft.

Justin Dekany  
Utah State University

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