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Optimized Electronic Transport Measurements in Titanium Oxide JEFFREY LINDEMUTH, Lake Shore Cryotronics — Titanium Oxide is a material with applications in thermal electric and solar cell applications. Measurement of electronic transport properties by standard methods, for instance Hall effect are made difficult by the low mobility of the material and coupled with the thermal electric properties of the material. Measurements of the resistivity and Hall effect are optimized to reduce the thermal electric effects on the measurement. The Hall measurement is further optimized, by use of AC field Hall method, to obtain reliable mobility values and carrier type determination. Optimization of the measurement includes noise reduction and repeatability of the measurement. Both constant temperature and room temperature measurements are used in the optimization method.

Jeffrey Lindemuth
Lake Shore Cryotronics

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