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High-throughput resistivity apparatus for characterization of combinatorial libraries[1] KEVIN HEWITT, PHILIP CASEY, MANFRED JERICHO, RONG SUN, Dalhousie University, Department of Physics and Atmospheric Science, Halifax NS Canada B3H 3J5 — A combinatorial apparatus, capable of measuring the resistance versus temperature of 49 samples prepared by thin film deposition techniques has been designed and tested. Magnetron sputtering is used to deposit films through an aluminum mask consisting of 8 mm diameter holes cut on a 7 x 7 grid. Electrical contact to the thin film samples are made in a standard van der Paaw geometry using 196 spring-loaded, gold-coated pins - four pins for each of the 49 samples. The system is able to characterize the resistivity of any conductor, semiconductor or superconductor library from 32 K to 350 K. The resistivity of a highly conductive metal (silver) and semi-conductor (multi-layer film of Si-Ge) are presented to highlight the capabilities of the apparatus.

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