Evidence of Coulomb Drag between Anderson Insulators KA-
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report observations of Coulomb drag between 200 Angstrom thick co-sputtered insu-
lating amorphous silicon-niobium alloy films, separated by a thin silicon-oxide bar-
rier. An apparent linear-response regime for the transresistance is found to only exist
over a narrow range of layer separations (∼100 Angstroms) and material parameters
(niobium concentrations ∼ 7%) at low driving currents (∼1nA) and temperatures
below ∼20 Kelvin. The temperature dependence, as well as the magnitude, of the
transresistance in this regime is consistent with predictions for that between An-
derson insulators with long ranged intra-layer Coulomb interactions, provided that
the density of states of the silicon-niobium layers are taken to be that of effectively
3-dimensional systems. This is in contrast with measurements of the temperature
dependence of the dc layer-conductivity in such bilayer systems, which suggest that
transport should be effectively 2-dimensional at these energies. We will discuss the
fabrication and characterization of bilayer samples, as well as possible explanations
for the observed magnitude and temperature dependence of the transresistance.

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