

Abstract Submitted
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Using sub-Kelvin thermal transport to determine electron-phonon coupling in a metallic thin film ZACHARY STEGEN, DANIEL QUEEN, MATT LEGRO, JOHN PRYZBYZ, SUNNY BAGGA, SHAUN GOODWIN, Northrop Grumman Systems Corp. — Steady-state thermal transport was measured in a thin film of the alloy $\text{Ti}_{0.1}\text{W}_{0.9}$ for temperatures ranging from approximately 100 mK to 500 mK. The electron temperature was measured using two normal metal-insulator-superconductor (NIS) junction thermometers. The temperature of the normal metal electrons was measured while changing the power applied to the normal metal thin film. The data were compared to the theoretically expected relationship, $P_{ep} = \Sigma\Omega(T_e^n - T_p^n)$, where Σ depends on the electron-phonon coupling, and n is effected by the electron mean-free path and the thermal phonon wavevector.

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