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Thermal conductivity and specific heat of Ni nanowires DE-NIS MYASISHCHEV, NENAD STOJANOVIC, TROY MILLS, JORDAN BERG, MARK HOLTZ, Texas Tech — As dimensions of materials shrink, important physical properties deviate from their corresponding bulk values. A critical example is thermal conductivity, which drops dramatically at the nanoscale. Effective power dissipation is crucial for solid state devices, but thermal conductivity decreasing with size complicates miniaturization efforts. There have been very few direct measurements of thermal conductivity of nanoscale structures. The  $3\omega$  method is a technique for measuring thermal conductivity of a film- or rod-like specimen. The approach has been tested on a large (25  $\mu$ m diameter) Pt wire over a broad temperature range. The setup built may also be used for  $3\omega$  film measurement and is currently being tested on Pyrex glass. Results for 100 nm Ni nanowire specimens will be discussed.

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