

Abstract Submitted  
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**Thermal Conductance of metal-metal interfaces** BRYAN GUNDRUM, DAVID CAHILL, ROBERT AVERBACK, University of Illinois — The first quantitative measurement of a metal-metal interface thermal conductance has been carried out using time-domain transient reflectivity in the temperature range  $78 < T < 278$  K. The thermal conductance, at room temperature, for the as deposited Al-Cu interface was measured to be  $4 \text{ GW m}^{-2} \text{ K}^{-1}$ . This is an order of magnitude larger than the largest phonon-mediated interface transport measured to date. It is shown that an extension of the diffusive mismatch model to electrons reproduces the magnitude and temperature dependence accurately. The chemical abruptness of the Al-Cu interface is systematically varied by ion-beam mixing using 1 MeV Kr ions. These results combined with the interface form of the Wiedemann-Franz law could provide a powerful tool for investigating the thermal and electrical transport across metal interfaces.

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