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**Thermal Conductance Measurements of Aromatic and Aliphatic Self-Assembled Monolayers** ROBERT WANG, SUNG-YEON JANG, R. A. SEGALMAN, ARUN MAJUMDAR, University of California Berkeley — Thermal conductance measurements of solid-solid junctions separated by an interfacial organic self-assembled monolayer (SAM) suggest that molecular heterostructures are a promising new class of thermoelectric materials. Au-SAM-GaAs junctions were fabricated by nanotransfer printing and their thermal conductance was measured by the  $3\omega$  technique. SAMS investigated in this study consisted of quaterphenyldithiol and alkanedithiols of varying length. This study explores two key aspects of thermal transport in molecules: 1) the effect of aromatic versus aliphatic molecular structure 2) the effect of molecular length in the aliphatic molecule. Measurements of thermal conductance using the  $3\omega$  method were very robust to processing history and no thermal dependence on alkane chain length was observed.

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