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**Thermal Conductance of Nanoscale $VO_x$ Epitaxial Layers** DONG-WOOK OH, IVAN PETROV, DAVID CAHILL — We use time-domain thermoreflectance to measure the thermal conductance of $VO_x$ layers in epitaxial $Pt/VO_x/Pt$ structures. In particular, the metal-insulator-transition of $VO_2$ at ≈70°C allows us to systematically explore channels for heat transport between metals and correlated-electron systems. $Pt/VO_x/Pt$ layers are deposited on a sapphire substrates by reactive DC sputtering with O2 partial pressure varied from 0% to 13%. The thermal conductance has a strong dependence on thickness, 3-50 nm, and oxygen content, pure V to $V_2O_5$. The thermal conductance of ∼10 nm thick layers of V in series with the two Pt/V interfaces is 1 GW/m$^2$-K, comparable to what is expected based on the diffuse-mismatch model for electron transport at interfaces. The conductance of ∼10 nm thick layers of $VO_2$ at room temperatures is remarkably high, 0.5 GW/m$^2$-K, for the series conductance of two metal-dielectric interfaces. At the metal-insulator-transition, the conductance of $VO_2$ layers increases by only 10%, indicating that electrons in Pt and electrons in metallic $VO_2$ are not strongly coupled.

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