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**Thermal resistance of thin water films during phase-change** NITIN SHUKLA, NENAD MILJKOVIC, RYAN ENRIGHT, EVELYN N. WANG, Device Research Laboratory, Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, MA 02139 — The thermal resistance of a thin water film during phase-change processes is of interest for fundamental studies and of importance for various engineering systems. In particular, as the thickness of the water film approaches the nanoscale, the thermal resistance across the liquid-vapor interface can contribute significantly to the overall heat transport. In this work, we experimentally investigate the thermal resistance of thin water films during phase change on metallic substrates using transient thermoreflectance (TTR) spectroscopy. This technique offers a novel method to examine heat transport in evaporating liquid films less than a 100 nm in thickness. The understanding gained from this work will aid in the design of high performance phase-change based micro/nanoscale devices.

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