

Abstract Submitted
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Proximal heating by a current-carrying nanotube KAMAL H. BALOCH, NORVIK VOSKANIAN, MERIJNTJE S. BRONGEEST, JOHN CUMINGS, University of Maryland — The 1D nature of carbon nanotubes makes them an excellent candidate for thermal management and thermal logic devices. Using an established thermal measurement technique based on the melting of indium islands [1], we have studied the thermal characteristics of Joule-heated MWNTs. Our experimental observations contradict prevailing theoretical models for heat dissipation in CNT. Despite the high thermal contact resistance between the CNT and the substrate we observe that a current-carrying nanotube dissipates power readily into the substrate, suggesting an alternate mode of heat transport based on scattering of hot electrons in the CNT from the substrate phonons. Experimental results, simulations, and a review of the experimental technique will be presented in this talk.

[1] T. Brintlinger, et al., Nano Lett. **8**, 582 (2008).

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