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Heat Transport in Carbon Nanotubes Measured using Raman Spectroscopy I-KAI HSU, University of Southern California, MICHAEL PETTES, The University of Texas at Austin, RAJAY KUMAR, University of Southern California, LI SHI, The University of Texas at Austin, STEPHEN CRONIN, University of Southern California — We investigate thermal transport in suspended carbon nanotubes on micromachined heating devices using Raman spectroscopy. Individual carbon nanotubes suspended between two membranes with integrated heaters and thermometers are characterized using micro-Raman spectroscopy. The temperature dependent shifts of the Raman mode frequencies are used to quantify the heating along the length of the nanotube. We find that results vary depending on the number of defects in the nanotube. The results are understood on the basis of a diffusive thermal transport model.

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