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Breakdown of Fourier's law in nanotube thermal conductors CHIH-WEI CHANG, DAVID OKAWA, HENRY GARCIA, ARUNAVA MAJUM-DAR, ALEX ZETTL, Physics Department, University of California at Berkeley — We present experimental evidence that the room temperature thermal conductivity (κ) of individual multiwall carbon nanotubes and boron-nitride nanotubes does not obey Fourier's law as do ordinary thermal conductors. By varying the length (L) of the nanotube, we find that κ diverges as L^{0.6~0.9}. Our results show that Fourier's law is violated despite the fact that the ballistic phonon condition is not satisfied and large isotopic disorder is present.

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