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Thermal conductivity of B-C-N and BN nanotubes CHIH-WEI CHANG, WEI-QIANG HAN, ALEX ZETTL, Physics department, University of California at Berkeley — We have measured the temperature-dependent thermal conductivity $\kappa(T)$ of boron-carbon-nitride (B-C-N) and boron nitride (BN) nanotube mats between room temperature and 20K. For both materials, $\kappa(T)$ increases with increasing temperature, with no sign of saturation. We employ a new analysis method to estimate the intrinsic $\kappa(T)$ of BN nanotubes converted from B-C-N nanotubes, and find that at room temperature $\kappa(T)$ of a multi-walled BN nanotube is comparable to that of a multi-walled carbon nanotube. At low temperature, the functional form of $\kappa(T)$ reflects dimensional confinement.

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