

Abstract Submitted  
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**Infrared-Active Vibrational Modes of Single-Walled Carbon Nanotubes** U. J. KIM, X. LIU, C. A. FURTADO, (Centro de Desenvolvimento da Tecnologia Nuclear CDTN/CNEN, Belo Horizonte, MG, Brazil), G. CHEN, R. SAITO, (Tohoku University and CREST JST, 980-8578, Sendai Japan), J. JIANG, (Tohoku University and CREST JST, 980-8578, Sendai Japan), M. S. DRESSELHAUS, (MIT), P. C. EKLUND, The Pennsylvania State University — We believe we have observed the IR-active vibrational modes of single-walled carbon nanotubes (SWNTs) for the first time. They were observed by optical transmission through thin films of bundled nanotubes. Because IR-active chemical functional groups, e.g., -COOH, -OH, might also be attached to the tube walls and contribute additional spectral features, we have also studied the effects of chemical purification and long-term high-temperature vacuum annealing on the IR spectrum. Through comparison with theory, we are able to assign much of the sharp structure observed in our SWNT IR spectra. †This work was supported, in part, by the NSF NIRT program (DMR-0304178).

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