

Abstract Submitted
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Probing the Phonon-Assisted Relaxation Process in DNA-wrapped Carbon Nanotubes Using Polarization Dependent Optical Spectroscopy SHIN GRACE CHOU, Chemistry, MIT, ANDREW WELSH, ECE, BU, GEORGII SAMSONIDZE, EECS, MIT, JIE JIANG, RIICHIRO SAITO, Physics, Tohoku Univ., Japan, FLAVIO PLENTZ, ADO JORIO, MARCOS PIMENTA, Physics, UFMG, Brazil, MING ZHENG, G. BIBIANA ONOA, ELLEN SEMKE, Experimental Station, Dupont, GENE DRESSELHAUS, Frances Bitter Magnet Lab, MIT, MILLIE DRESSELHAUS, Physics and EECS, MIT, ANNA SWAN, ECE, BU, BENNETT GOLDBERG, Physics, BU, SELIM UNLU, ECE, BU — In this study, polarization-dependent spectroscopy is carried out on DNA-wrapped single walled nanotube hybrids, deposited onto a Sapphire substrate. By using a nanotube sample highly enriched in one specific (n,m) species and an intense light source, the various phonon-assisted excitonic relaxation processes, in addition to the commonly observed electronic interband transitions, can be separately identified and studied in detail. The phonon-assisted relaxation processes involving different phonon branches is emphasized in this study. The MIT authors acknowledge supports under the Dupont-MIT Alliance, NSF Grants DMR 04-05538.

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