

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Photoinduced transient mid-infrared absorption in single-walled carbon nanotubes YOICHI MURAKAMI, Rice University, University of Tokyo, WILLIAM RICE, JUNICHIRO KONO, Rice University — We have performed optical pump - mid-infrared (MIR) probe spectroscopy on single-walled carbon nanotubes (SWNTs). The second excitonic absorption band (E_{22}) of (6,5) SWNTs was resonantly excited and the resulting photoinduced absorption was monitored in the MIR range (3.5 – 5.5 μm) in a time range up to several hundred ps. Carrageenan films containing individualized CoMoCAT SWNTs formed on sapphire substrates were used for the measurement. This sample is optically transparent in the $\sim 3.5 - 6 \mu\text{m}$ region, where the transition of E_{11} excitons from the lowest dark state ($1g$) to the second bright state ($2u$) is expected to be observed. Our preliminary data shows the existence of photoinduced absorption in the investigated range. The origin of the observed transient absorption will be discussed.

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Date submitted: 17 Nov 2006

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