Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Fabrication of Single-Wall Carbon Nanotubes in Catalyst-Dissolved Liquid Alcohols and Temperature-Dependent Raman Scattering DAISUKE HIRANO, NOBORU WADA, Fac. of Eng., Toyo Univ. — Uniform, well-aligned Single-Wall Carbon Nanotubes (SWNTs) were grown on Si substrates in catalyst-dissolved liquid alcohols. To fabricate SWNTs, cobalt acetate tetrahydrate was first dissolved in distilled water and mixed with alcohols. Si substrates were then ohmic-headed in the liquid up to ∼1000 K for a short time (up to 3 minutes). Raman spectra taken from the samples showed some radial breathing mode (RBM) of SWNTs, indicating that the samples consisted of SWNTs. In addition, TEM pictures showed bundles of SWNTs whose diameters centered around 1.7 nm. Raman spectra of our liquid-phase grown SWNTs and HiPco SWNTs were taken varying the sample temperature between RT and 6 K. Temperature dependence of the G, D and RBM modes in the samples will be discussed in terms of alcohol molecules confined in the nanotubes and phonon dynamics.

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Date submitted: 20 Nov 2006 Electronic form version 1.4