

# Fluorescence of SWNTs Catalytically Synthesized from Alcohol

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Visible and near infrared fluorescence and absorption of single-walled carbon nanotubes (SWNTs) catalytically synthesized from alcohol [1, 2] was studied. In addition to Raman scattering spectroscopy, the fluorescence spectroscopy would be a convenient and powerful method for the determination of the chirality distribution of SWNT sample [3]. The SWNT sample dispersed in aqueous SDS solution was sonicated in a cup-horn sonicator and centrifuged at 20,000 g for 24 hours so that each SWNT was isolated. The fluorescence spectra with variable excitation wavelengths were recorded to compose a 3-D map of emission intensity as functions of both excitation and emission wavelengths [3]. Fig.1 shows preliminary fluorescence 3-D maps of HiPco sample (batch #: HPR113.4) supplied from Rice University and alcohol CCVD sample (Fe/Co on Zeolite, Ethanol, 850 °C, 5 Torr, 0.5h, Ar/H<sub>2</sub>) [1, 2]. From 3-D maps, diameter and chiral angle distributions of SWNT samples with various generation conditions were compared.

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[3] S. M. Bachilo et al., *Science*, **298** (2002) 2361-2366.

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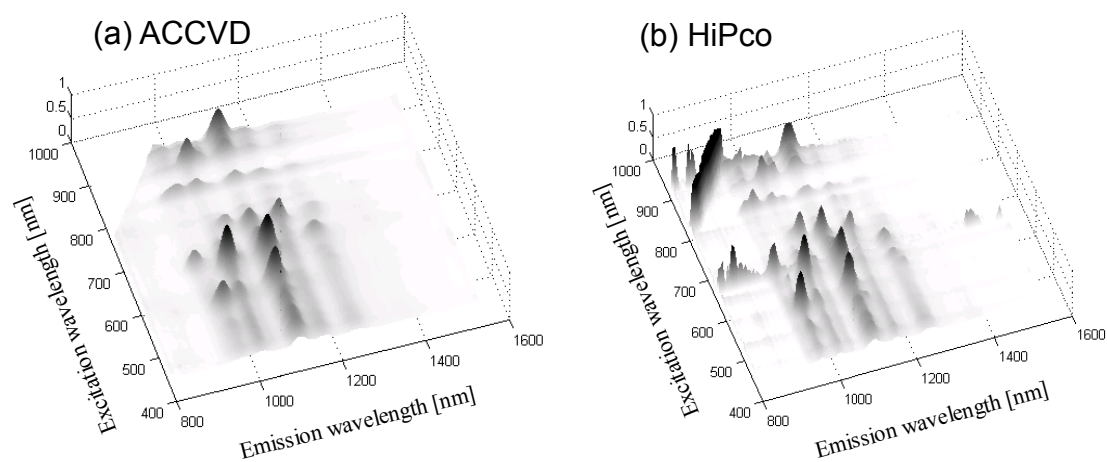


Fig.1 3-D maps of normalized fluorescence intensity versus excitation and emission wavelength for SWNTs synthesized by (a) alcohol CCVD technique (b) HiPco process.