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## Photoluminescence from SWNTs and DWNTs dispersed in saccharide solution

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Photoluminescence (PL) spectroscopy is a powerful tool to investigate the chirality distribution of CNTs in addition to Raman spectroscopy. Up to date, sodium dodecyl sulfate (SDS) and sodium dodecyl benzene sulfonate (SDBS) are often used for PL as suspender of CNTs in aqueous condition. Since these materials are well known to origin of water pollution, alternative materials are desired for particular applications. In this study, we have investigated PL spectra of SWNTs and DWNTs, which were dispersed in saccharide solutions. In terms of CNTs concentration, carboxyl methyl cellulose (CMC) is reported to be the best chemical [1, 2]. However, the CMC-dispersion tends to quench emission peaks due to too high density of CNTs, especially for HiPco-SWNT. Pectine extracted from apple and citrus also enable us to observe distinct PL peaks of CNTs. These saccharide/CNTs solutions show some red shift in compared to SDS/CNTs and SDBS/CNTs solutions. The environmental effect of PL peak shifts due to surfactants and outer nanotube for DWNTs is systematically studied.

[1] Takahashi et al., Jpn J. Appl. Phys. 43, 3636 (2004).

[2] Minami et al., 28th Fullerene-Nanotube Symposium 1-10 (January 7-9, 2005, Nagoya, Japan).

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