

Light-Assisted Oxidation for Selective Removal and Remaining of Single-Wall Carbon Nanotubes

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We previously reported that irradiation of light on SWNTs during the oxidation has an effect of enhancing the oxidation-disappearing of SWNTs [1]. It was also found that the diameters of the disappearing SWNTs were predicted from the wavelength of the irradiated light by using the Kataura-plot, which, in turn, was useful to make SWNTs with certain diameters to remain. These results indicate that the light-assisted oxidation would be a basic technique for photo-engineering of SWNTs. We also clarified the chiral index of oxidation-disappearing or remaining SWNTs with supporting information from optical absorption-spectrum, however, the chiral index thus clarified did not coincide with those determined by the fluorescence spectra. In addition to this, we noticed several unusual phenomena, a part of which are supposed to be caused by the SWNT bundling or surfactant-SWNT interaction. The details will be presented in the talk.

[1] Yudasaka et al. Chem. Phys. Lett. 374(2003)132.

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