Purification of SWNTs Synthesized by an ACCVD Method

Hideyuki Igarashi¹, Hiroto Murakami¹, Yoichi Murakami², Shigeo Maruyama² and Naotoshi Nakashima¹

¹Department of Materials Science, Graduate School of Science and Technology, Nagasaki University
1-14 Bunkyo, Nagasaki 852-8521, Japan

²Department of Mechanical Engineering, The University of Tokyo
7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan

A catalytic CVD method from alcohol (ACCVD) has been reported to produce high quality single-walled carbon nanotubes (SWNTs) on zeolite¹,². Here we describe a purification procedure of the SWNTs synthesized by this method.

SWNTs were synthesized with Fe-Co zeolite (5 wt%) at 800 °C at 0.67 kPa (5 Torr) for 15 min in Ar atmosphere. Obtained raw SWNTs were ground and exposed in 20 % Ar/O₂ at 240 °C for 18 h. Thus obtained nanotubes were shaken in 1 % HF aqueous solution at for 30 min and then annealed at 350 °C for 1 h in air to obtain purified SWNTs (p-SWNTs).

As shown Figure 1, the Raman spectra of the p-SWNTs and the raw SWNTs were essentially the same (Figure 1), indicating that the chemical damage of the SWNTs in this purification procedure is almost none. Details will be reported in the meeting.


Corresponding Author: Naotoshi Nakashima
E-mail: nakasima@net.nagasaki-u.ac.jp Tel&Fax: 095-819-2675