

## Alcohol CVD growth of single-walled carbon nanotubes and their optical properties

### PRES 105

**Shigeo Maruyama**, maruyama@photon.t.u-tokyo.ac.jp, Department of Mechanical Engineering, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo, 113-8656, Japan

By using alcohol catalytic CVD (ACCVD) technique, high-purity single-walled carbon nanotubes (SWNTs) can be generated at relatively low CVD temperatures. In addition to the conventional metal particles supported on zeolite, we have developed a simple dip-coat method to directly disperse nano-particles on flat substrates such as quartz and silicon. The vertically aligned SWNTs film with about 30 micron meters is grown on quartz substrates by employing the most efficient activation of catalytic metals. On the other hand, the chirality distribution of SWNTs measured by the near infrared fluorescence spectroscopy is quite unique for low-temperature CVD condition. The near armchair nanotubes such as (6,5) and (7,5) are predominantly generated probably because of the stability of nanotube cap structure. The photoluminescence spectroscopy using this narrow chirality ACCVD sample demonstrates the existence of excitonic phonon-side band and cross-polarized absorption with relatively small exciton binding energy.

[SWNTs From Synthesis to Application, From the Lab to the Fab: In Memory of Dr. Richard Smalley](#)  
8:30 AM-12:00 PM, Tuesday, 12 September 2006 Moscone Center -- Room 306, Oral

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[The 232nd ACS National Meeting, San Francisco, CA, September 10-14, 2006](#)