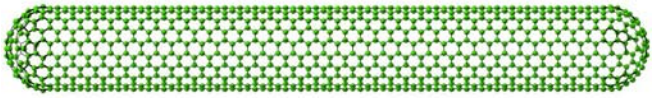
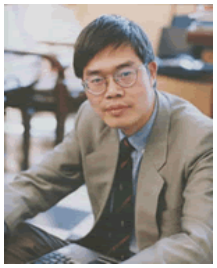
21COE Programme: Mechanical Systems Innovation Open Seminar

21COE Programme: The Mechanical System Innovation Open Seminar 2007 will be held as follows. Professor Hui-Ming Cheng leads several Chinese national projects in nano-materials, nanotechnology and new energy fields, in particular, in synthesis and applications of carbon nanotubes. His activity as editor of 'Carbon' is also well known. Do not miss this chance to hear her talk in Tokyo. Participants from any departments or outside of The University of Tokyo are welcome.





Professor Hui-Ming Cheng

Shenyang National Laboratory for Materials Science
Institute of Metal Research, Chinese Academy of Sciences

Title: **Floating Catalyst CVD Method for Controllable Synthesis of Carbon Nanotubes**

Date & Time: **February 19, 2008 (Tue.) 15:00-16:30**
Place: 7-3-1 Hongo, Bunkyo-ku, Tokyo
The University of Tokyo, Engineering Building II, Seminar Room 2-31B
Map: http://www.u-tokyo.ac.jp/campusmap/cam01_04_03_e.html

Abstract: Controllable synthesis of carbon nanotubes (CNTs) is the basis for their further experimental studies and potential applications. In 1998, we demonstrated that floating catalyst chemical vapor deposition (FCCVD) method can be used for the continuous synthesis of SWNTs with high quality, and in 2002 we synthesized DWNTs with this method. Furthermore, we studied the controllable synthesis of CNTs using this method, such as the diameter and shell number. Firstly, we found that sulfur, a commonly used growth promoter, plays an important role in the structural control and productivity of CNTs. Secondly, we investigated the effect of synthesis parameters on the structure of CNTs, By slightly changing the experimental conditions, the diameters of SWNTs can be selectively controlled in a very narrow range Thirdly, based on the experimental results and related theoretical analysis, a localized nucleation model was proposed for the formation of SWNTs and DWNTs. These findings are valuable for selective production of SWNTs and DWNTs.

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