INSD NanoScience Seminar (No.6)

Title: **Utilization of Malaysia Natural Gas for the Production of Carbon Nanotubes**

Lecturer: Prof. Abdul Rahman Bin Mohamed (School of Chemical Engineering, Engineering Campus, Universiti Sains Malaysia)

Date and Time: Wednesday, June 27th, 2012, 15:00-16:00

Place: Graduate School of Engineering Science, Building G, Room G217

Abstract:

Ever since the discovery of CNTs in 1991, its synthesis methods have gone through a significant evolution. Most of the literature reports on CNTs formation are focusing on the utilization of high purity (>99%) carbon sources, such as methane, ethylene, acetylene, carbon monoxide and benzene. However, these purified gases are expensive, limited in supply and exhaustible. The present work aims to discuss the possibility to employ low cost carbon source, i.e. compressed natural gas (CNG) as the carbon source to produce CNTs via catalytic chemical vapor deposition (CCVD) method over CoO-MoO/Al_2O_3 catalyst. As regards to elucidate the feasibility of CNG as a substitutive carbon precursor in producing CNTs, the catalytic activity and the characteristic of as-produced CNTs were studied. The results were then compared with those obtained from CCVD of methane. It was found that using CNG as the carbon source success to produce CNTs, whilst carbon nanofibers (CNFs) were formed as side products. In addition, the catalytic activity and catalyst life time were found sustained and prolonged, compared to using high purity methane as carbon source. The present study suggests an alternative route to cost effectively produce CNTs and CNFs using low cost CNG.

Just after the seminar, there will be held a small tea party to stimulate mutual communication with Prof. Rahman. (16:10-17:00)

Reference: Prof. T. Itoh, Institute for NanoScience Design, E-mail: itoh@insd.osaka-u.ac.jp