

No fee is charged, but registration is required. Kindly RSVP by providing your details via email or fax, as indicated below.

Name: \_\_\_\_\_  
Designation: \_\_\_\_\_  
School/Dept: \_\_\_\_\_

Registration includes breakfast and lunch. Certificate of participation will be awarded upon workshop completion.

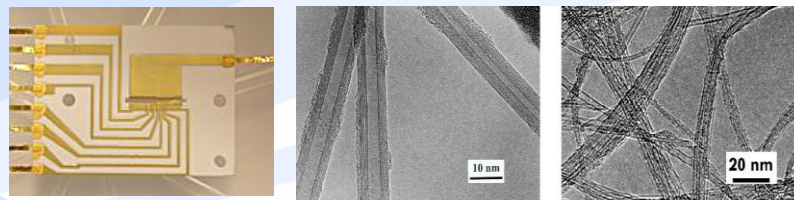
**INSTITUTE OF NANO ELECTRONIC ENGINEERING  
UNIVERSITI MALAYSIA PERLIS**  
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**A Research Initiative Workshop by**  
Institute of Nano Electronic Engineering

**WORKSHOP ON NANOTECHNOLOGY  
2011/2**  
**“CARBON NANOTUBE INTRODUCTION,  
CHARACTERISATION AND  
APPLICATION”**



**Date : 25<sup>th</sup> July 2011**

**Time: 8.30 am - 12.30 pm**

**Venue: Seminar Room Tun Za'ba,  
Unit Keselamatan dan Kesihatan Pekerja (UKKP),  
Seriab Campus.**

**Presenter:**

Prof. Dr. Abdul Rahman Mohamed  
Professor,  
School of Chemical Engineering,  
Universiti Sains Malaysia.

## Objective

This workshop covers the basic principles, introduction, characterization and latest advancement in the development of carbon nanotube (CNT). It is targeted for post graduates in Science and Engineering fields, and research community focusing on Nanotechnology devices for CNT applications. Participants will be exposed to fundamentals of CNT structures, synthesis and fabrication of CNT, basic analysis and characterization of CNT and development and application of CNT. Carbon nanotubes (CNTs) are allotropes of carbon with a cylindrical nanostructure. Carbon Nanotubes have been constructed with length-to-diameter ratio of up to 132,000,000:1, significantly larger than for any other material. These cylindrical carbon molecules have unusual properties, which are valuable for nanotechnology, microelectronic and optics and materials science and technology. In particular, owing to their extraordinary thermal, mechanical and electrical properties, carbon nanotubes may find applications as additives to various structural materials.

## Program Itinerary

0830 – 0900	Registration
0900 – 0910	Opening
0910 – 1010	Introduction to Carbon Nanotube analysis
1010 – 1030	Break
1030 – 1130	Carbon Nanotube Synthesis and Characterization
1130 – 1200	Carbon Nanotube Application
1200	Lunch & Closing

## ‘CARBON NANOTUBE INTRODUCTION, CHARACTERISATION AND APPLICATION’

**Carbon nanotubes are molecular-scale tubes of graphitic carbon with outstanding properties. They are among the stiffest and strongest fibres known, and have remarkable electronic properties and many other unique characteristics. For these reasons they have attracted huge academic and industrial interest, with thousands of papers on nanotubes being published every year. Commercial applications have been rather slow to develop, however, primarily because of the high production costs of the best quality nanotubes.**

### Profile:

Prof. Dr. Abdul Rahman Mohamed

Email : [chrahman@eng.usm.my](mailto:chrahman@eng.usm.my)

Senior Lecturer,  
School of Chemical Engineering,  
Universiti Sains Malaysia

### Qualifications

B.Sc. (Chem. Eng.) Univ. of Southern California, USA,

M.Sc. (Chem. Eng.), Univ. of Hampshire, USA, Ph.D.

(Chem. Eng.) Univ. of New Hampshire, USA

### Expertise

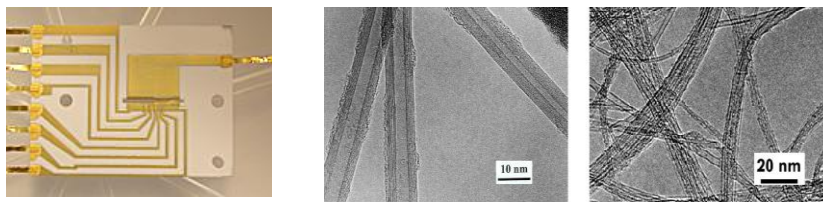
Reaction Engineering & Catalysis, Air Pollution Monitoring and Control, Fuel Technology, Nanotechnology.



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