Semiconductor Nanowires: Ideal Bridge between Macro and Microscopic Worlds

By
Prof. YU Dapeng
Department of Physics, Peking University, China

Date: 2 May 2013, Thursday
Time: 4.00pm to 5.00pm
Venue: Hilbert Space (SPMS-PAP-02-02)
Host: Asst. Prof. Xiong Qihua

Abstract

Nanowires have been a top-five focused research topics in physics, and stimulated intensive interests world-wide. This lecture composes of two major parts.

In the first part, I will give a brief summary of our contributions to the world-wide nanowire research. In the second part, I will extend to show the advantage of both high spatial and energy resolution cathodoluminescence (CL) in characterization of the fine structures of the nanomaterials. In particularly, I will demonstrate that the high special resolution of the CL at ~ 5.5 K enable us to address the significant strain modulation of the optical emission and electronic structures of semiconductor nano/micro wires. In contrast, the high energy resolution of the CL makes it possible to “see” directly the resonant SPP modes that are confined to the metal nanocavity.

Short Biography

Prof. YU Dapeng was promoted to full professor in 1999 in Peking University. He was then supported by the Outstanding Young Scientists Funding by NSFC in 2000. He was further sponsored by the Chang Kung Professorship in 2002 by Ministry of Education, China. Prof D. P. Yu is among the world leading positions in developing method to synthesize 1-dimensional semiconductor nanowires, and made important contributions to the investigations of nanowire materials.

His group has published more than 300 peer-reviewed papers in nanowire materials and physics in important journal such as Advanced Materials, Nano Letters, Phys. Rev B/Letters, Appl. Phys. Letters, and JACS. Those papers have important impact and been cited for more than 10000 times by colleagues worldwide. His work has been recognized by important awards such as the awards from the Ministry of Education for “1-D Nanostructured Materials and Physics”; 1st class, 2004, P. R. China, and the “National Natural Science Award” “1-D Nanostructured Materials and Physics”, 2nd class, P. R. China, 2007.

He has mentored more than 50 graduates and postdoctoral associates.

College of Science
Nanyang Technological University
SPMS-04-01, 21 Nanyang link, Singapore 637371
Fax: +65 6515 8229   Tel: +65 6513 8459