

Associate Professor Sow Chorng Haur, National University of Singapore

Education

Bell Laboratories, Lucent Technologies, Postdoctoral Training	1999-2000
University of Chicago, Ph.D. in Physics	1993-1998
National University of Singapore, M.Sc.	1991-1993
National University of Singapore, (1 st Class) B.Sc.	1987-1991

Service

Vice Dean, Faculty of Science	2012
Assistant Dean, Faculty of Science	2008-2012
Dy Head of Physics Department	2007-2008
Asst Head of Physics Department	2006-2007

Research Interests

Colloid Interactions, Assembly and Phase Transitions

- Nanospheres Lithography, Invented Mirror-Image method for tracking 3D motion of suspended sub-micron particles; Developed single and multiple trap optical tweezers using focused laser beams; Demonstration of tweezers-assisted sphere assembly

Carbon Nanotubes

- Develop a laser pruning method to create unique 2D and 3D structure made of carbon nanotubes. Study of Field Emission properties of Unique Carbon Nanotube Arrays Large Area Patterning of Carbon Nanotube Arrays. MicroDevices made of Carbon Nanotubes.

Synthesis of Nanomaterials and Self-assembly and Assisted-Assembly of Nanomaterials

- Synthesis of a wide variety of nanoscale metallic oxide materials. Self-assembly and assisted assembly of nanowires and nanowalls. Assembly of nanospheres with 3D Si pillars; Alignment of nanowires via fluidic flow. Application of nanostructured metallic oxide as field emitter, photo-sensor. Studies of the electrical, optical and mechanical properties of nanostructured materials.

Research Awards

- Institute of Physics Singapore (IPS): *2006 IPS Nanotechnology Medal (Omicron Prize)* for outstanding research in Nanotechnology done in Singapore.
- NUS, Faculty of Science: Young Scientist Award 2007

Teaching Awards

- Faculty Teaching Excellence Award AY2002/2003, AY2003/2004, AY2004/2005, Honor Roll 2007, AY2008/2009.
- University Annual Teaching Excellence Award AY2002/2003, AY2003/2004, AY2004/2005, AY2005/2006, Honor Roll 2008
- University Award: Outstanding Educator Award 2008
- Fellow of the University Teaching Academy 2009-2012

Selected Publications:

- [1] "Laser pruning of carbon nanotubes as a route to static and movable structures", *ADV. MATER.* 2003 **15** 300-303, work highlighted on the coverpage of the journal.
- [2] "Controlled growth and field emission properties of cobalt oxide nanowalls", *ADV. MATER.* 2005 **17**, 1595
- [3] "Large-scale synthesis and field emission properties of vertically oriented CuO nanowire films", *NANOTECHNOLOGY* 2005 **16** 88-92. This work was featured by Frost and Sullivan (Tech Company)
- [4] "ZnO Nanoparticles Beaded Multiwalled Carbon Nanotubes For Ultrafast Nonlinear Optical Switching", *ADV. MATER.* 2006 **18**, 121-125, work highlighted by online magazine "Nanowerk.com"
- [5] "Co-synthesis of ZnO-CuO Nanostructures by Directly Heating Brass in Air", *ADV. FUNCT. MATER.* **16** 2415-2422 2006
- [6] "Substrate-Friendly Synthesis of Metal Oxide Nanostructures Using a Hotplate", *SMALL*, 2006, Vol **2**, Page 80-84
- [7] "Alpha-Fe₂O₃ nanoflakes as an anode material for Li-ion batteries", *ADV. FUNCT. MATER.* **17**: 2792-2799 2007
- [8] "Multi-colored CNT: Decorating Patterned CNT Microstructures with Quantum Dots", *ACS Nano* 2008. work highlighted by online magazine "Nanowerk.com"
- [9] Structure-Mechanical Property of Individual Cobalt Oxide Nanowires, Varghese B , Zhang YS, Dai L, Tan VBC, Lim CT, Sow CH, *NANO LETTERS* **V8** 3226-3232 OCT 2008
- [10] "Sustained laser induced incandescence in carbon nanotubes for rapid localized heating", ZH Lim, A. Lee, Y. Zhu, K.Y. Lim and C.H. Sow, *Applied Physics Letters* **94**, 073106 (2009)
- [11] "Probing the Size-Structure-Property Correlation of Individual Nanowires", B. Varghese, Y. Zhang, Y.P. Feng, C.T. Lim, C.H. Sow, *Phys Rev B* (2009)

[11] Numerical Investigations into the Tensile Behavior of TiO₂ Nanowires: Structural Deformation, Mechanical Properties, and Size Effects, Dai L, CH Sow, Lim CT, Cheong WCD, Tan VBC NANO LETTERS, Volume: 9, 576-582, 2009