

Tools for Improved Delivery of Nanoparticles on Functional Surfaces

Speaker: Prof. David Y.H. Pui, University of Minnesota, USA
Venue: (Blk EA, #06-04, Faculty of Engineering)
Date: 1st August 2006 (Tuesday)
Time: 2.15pm – 3.15pm

Abstract:

Tools have enabled the rapid development of nanotechnology. A new area of applications is in nanobiotechnology. New U.S. National Institutes of Health (NIH) initiatives focus on nanomedicine as a highly specific medical intervention at the molecular scale for curing disease or repairing tissue. This talk will address several examples of tools for delivering nanoparticles on functional surfaces developed at the Particle Technology Laboratory, University of Minnesota. They include methods for the delivery of genes to cells – the gene gun, the delivery of growth factor for directional growth of neurons, the delivery of SWCNT for *in-vitro* or *in-vivo* nanotoxicological studies, collection of nanoparticles on filter surfaces in personal protection equipment, methods for applying polymers and drugs to medical devices, and the production and formulation of nanoparticle drugs for enhanced therapeutic delivery. An example of “preventing” nanoparticle deposition is also given in the development of protection schemes for the extreme ultraviolet lithography (EUVL) systems, considered to be the next generation chip manufacturing technology. These nanoparticle delivery tools will help in the advancement of nanotechnology and nanomedicines.

Biography:

David Y.H. Pui, a Distinguished McKnight University Professor, is the L.M. Fingerson/TSI Inc. Chair in Mechanical Engineering and the Director of the Particle Technology Laboratory, University of Minnesota. He has a broad range of research experience in aerosol science and technology and has more than 250 publications and 15 patents. He has developed/co-developed several widely used aerosol and nanoparticle instruments. His recent professional activities include serving as President of the American Association for Aerosol Research (AAAR, 2000) and organizing several international nanoparticle symposia to promote research collaboration especially among young scientists. (See website for International Aerosol Conference, September 10-15, 2006 in St. Paul, Minnesota, USA: <http://www.aaar.org/IAC2006/>). Dr. Pui is a fellow of the American Society of Mechanical Engineers (ASME), and is a recipient of the GAeF Smoluchowski Award (1992), the Max Planck Research Award (1993), the International Aerosol Fellow Award (1998), the Humboldt Research Award for Senior U.S. Scientists (2000), and the AAAR David Sinclair Award (2002).

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