

**MECHANICAL ENGINEERING DEPARTMENT
ME/ISyE 8773-8774**

Nanoparticles and Occupational Health

by

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Wednesday, November 14, 2007

3:15 p.m. — Refreshments before the seminar

3:30 p.m. — Graduate Seminar

Room 1130 ME

ABSTRACT — Nanoparticle exposures pose a unique health risks in that can be deposited in the nasal region as well as well as the alveolar region of the respiratory tract, and due to their small size be translocated to other parts of the body with relative ease. There is a need to develop criteria curves that will direct the development of new sampling inlets for nanoparticle exposure monitoring. Translocation of the particles poses challenges in how tissue burden is defined and what the biologically relevant dose is. While the traditional metric for exposure to airborne particulates has been the mass concentration, research over the last several years has challenged this. There is evidence from animal toxicity studies that particle surface area or number concentrations may be more relevant to adverse health effects in some instances. However, these three exposure metrics are not always correlated with each other and selecting an exposure metric in an occupational setting may lead to serious misclassification errors. This talk will focus on issues relating to particle deposition in the respiratory tract, exposure misclassification, and issues relating to the estimation of dose or body burden.

BIO — Dr. Ramachandran is a Professor in the Division of Environmental Health Sciences, School of Public Health at the University of Minnesota. He received his PhD from the University of North Carolina. His research interests are in the area of occupational exposure assessment strategies, and nanoparticle exposures in particular. He has published papers on nanoparticle exposures and risk assessment. He also has interests in exposure reconstruction methodologies for epidemiological studies, statistical methods for assessing exposures, and nanotechnology policy.

Informal Faculty Luncheon: Wednesday, November 14, 2007, 12:00 noon. Meet in 1100 ME and walk to lunch with other faculty.