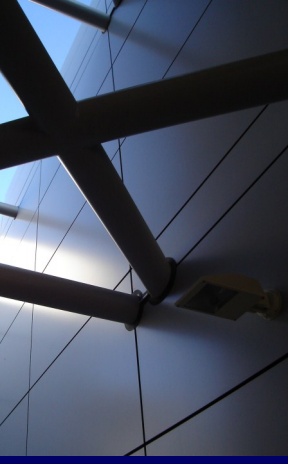

COLLOQUIUM
MECHANICAL ENGINEERING

The Department of Mechanical Engineering presents:

Dr. Yifang Zhu

Environmental Health Sciences Department
University of California at Los Angeles

Friday, November 5, 2010
11:10AM-12:00PM
Bourns Hall A265

Exposure Assessment of Vehicular Emitted Ultrafine Particles - Towards a Mechanistic Understanding

Abstract: Although increasing evidence has demonstrated toxic effects of vehicular emitted ultrafine particles (UFP, diameter < 0.1 mm), related epidemiological studies are limited mainly due to the complexity of UFP exposure assessment. Unlike fine particulate matter of diameter 2.5 mm and smaller (PM2.5) which has a relatively homogeneous distribution within an urban air shed, UFP concentration changes rapidly as the distance from the emission source increases. The highest human exposure to UFPs occurs on and near roadways. Their unique semi-volatile properties and fractal-like morphology make existing aerosol dynamic models derived from non volatile spherical particles of limited use in assessing UFP's environmental and public health impacts. It is very important and necessary to fill the knowledge gap in UFP quantitative exposure assessments by systematically study their transport and transform from emission sources, vehicle tailpipes, into microenvironments where high levels of human exposure occurs.

Bio: Dr. Yifang Zhu is an Assistant Professor of Environmental Health Sciences in UCLA School of Public Health. She received her Ph.D. in Environmental Health Sciences from UCLA in 2003 and worked as an Assistant Professor in Environmental Engineering Department at Texas A&M University-Kingsville before she was recruited back by UCLA in 2010. Dr. Zhu's research interest is primarily in the field of environmental exposure assessment and aerosol science and technology. Specifically, she is interested in determining the data necessary to fill the knowledge gap in quantitative exposure/risk assessments on vehicular emitted ultrafine particles that have shown higher toxicity than larger particles on a unit mass basis. Her current research focuses on identifying key factors that affect human exposure to ultrafine particles on and near roadways by measuring and modeling their emissions, transport, and transformation in the atmosphere as well as into the in-cabin and indoor environments. These research efforts are supported by two prestigious national awards, the National Science Foundation (NSF)'s Faculty Early Career Development (CAREER) Award and the Walter Rosenblith New Investigator Award from the Health Effects Institute.