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S E M I N A R

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Sources and Health Effects of PM Pollutants

by

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Abstract

Air pollution, including particulate matters (PM) and co-pollutants, is ubiquitous component in the atmosphere exerting important impacts on human health and global climate. Current air quality standard across different regions is based on PM_{10} and/or $PM_{2.5}$ mass concentration, however, PM is a highly heterogeneous mixture with particle size ranging from a few nanometers to a few tens of micrometers, and chemical compositions including carbonaceous compounds, inorganic ions, heavy metals and trace elements etc. A better understanding of the physicochemical properties of PM from different sources is vital in assessing their impact on the environment and devising emission control and mitigation strategies. In addition, numerous epidemiological and toxicological studies have documented robust associations between PM mass and adverse health outcomes. However, in considering plausible biological mechanisms of injury, prevailing scientific opinion contends that PM mass, as regulated in air quality standards, is only a surrogate measure of other physical or chemical properties of PM that are the actual cause of the observed health outcomes. A shift in the paradigm for monitoring air quality from the current focus of atmospheric pollutant concentrations toward identifying the most harmful toxicity drivers is needed to improve our understanding of the source specific adverse health effect and to inform policy makers to better protect the public health. This presentation covers a series of case studies of characterizing PM from heavy duty diesel vehicle emissions retrofitted with newest control devices and source identification of ambient coarse PM in southern California, as well as their potential implication to public health.

Bio of Dr. Zhi Ning recently joined the School of Energy and Environment in City University of Hong Kong as an Assistant Professor. He has been a Research Assistant Professor in University of Southern California and Aerosol Research Manager of the Southern California Particle Center since 2009 after he received his Ph.D degree in the Environmental Engineering from University of Southern California. His achievements in the doctoral research work have been recognized by honoring him as the very first recipient of the Outstanding Research Assistant Award at USC in 2007. Dr. Ning has published about 30 peer-reviewed publications in the field of environmental engineering with a focus on aerosol related research. His main research interests include the aerosol sources characterization and identification, instrumentation for pollution control and measurement and personal exposure assessment.

Date: 5 September 2011 (Monday)

Time: 3:00pm

Venue: Room 1003, IENV (Lift 4)

~ All are welcome ~~