

The Department of Mechanical Engineering/College of Engineering and Applied Sciences
Stony Brook University

Mechanical Engineering Seminar



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**Lecture Title: Measurement of Fugitive Emissions in the Atmosphere:
Particulate Matter and Ammonia**

Wednesday, May 30, 2012, 2PM, Room 173 Light Engineering

Abstract

Effective air quality management requires reliable emission inventories and a good understanding of the physical and chemical processes that determine the fate of pollutants in the atmosphere. Emissions from stationary sources are relatively easy to measure unlike fugitive emissions that are not emitted from confined streams. Fugitive emissions come from a multitude of sources that vary widely in their spatial extent and distribution. They may have short or long duration, they can be aloft and their physical state and chemical composition are widely varying. Emission factors for fugitive sources are highly uncertain, introducing high uncertainty in air quality models and management decisions. Particulate matter is an air pollutant of concern because of effects on health, visibility, climate change, acidification. Ammonia is a form of reactive nitrogen and precursor for secondary particulate matter in the atmosphere. Novel methods are presented to quantify fugitive primary particulate matter emissions from different sources and fugitive ammonia emissions from fertilizer application. Implications for air quality management and environmental quality are discussed.

Biography

Dr. Koloutsou-Vakakis holds a Diploma from the National Technical University of Athens, Greece, in Geodetic Surveying Engineering, an M.A. from the University of California, Los Angeles, in Geography, and M.S. and Ph.D. degrees from the University of Illinois at Urbana-Champaign, in Environmental Engineering. She has worked on characterization of physical and chemical properties of ambient aerosol particles, as these relate to climate change and urban air pollution. She has also worked on the policy-making aspects of climate change and ozone layer protection by serving as delegate, expert and focal point to the respective international agreements. In 1997, she held a postdoctoral appointment at the University of Illinois at Urbana-Champaign and from 1998 to 1999, she was a National Science Foundation-NATO postdoctoral fellow at the University of Athens, Greece. From 2001 to 2008 she served, as a special scientist, on climate change and ozone layer issues, for the Greek Ministry of the Environment. She resumed her academic career in Illinois, in 2009.

Her research interests are in outdoor and indoor air quality:

- aerosol optical properties and their dependence on relative humidity, composition and particle size
- aerosol particle effects on climate
- aerosol monitoring techniques (in situ and remote sensing)
- bio-aerosols, characterization and sampling techniques
- quantification of aerosol particle emissions and aerosol particle precursor emissions and deposition

She teaches undergraduate and graduate courses on air quality modeling, uncertainty and risk analysis, and global environmental politics. She is a member of the American Chemical Society, the Air and Waste Management Association, the American Geophysical Union and the Hellenic Association for Aerosol Research.

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Check <http://me.eng.sunysb.edu> for any changes to location or time.

