# Department of Chemical Engineering Seminar Series

## A Chemical Engineer's View of Air Quality in the Mid-Atlantic

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**Abstract**

Over the past two decades, anthropogenic pollutants have been successfully reduced in the Mid Atlantic region of the United States, resulting in improved air quality. However, parts of the Mid-Atlantic still are considered non-attainment regions and ozone remains the main criteria pollutant of concern. Ozone is a secondary air pollutant, formed by reactions between volatile organic compounds and nitrogen oxides. Ozone precursors are mainly emitted by power plants, motor vehicles, industrial operations and biogenic sources. The role of transport versus local emissions in contributing to ozone exceedance is hotly debated. In the past several years, a new influx of emissions associated with hydraulic fracturing operations in the Marcellus shale play may be counteracting the benefits that have been gained. On the flip-side, low cost natural gas could replace coal as fuel for power plants, potentially reducing emissions. In this presentation, I will give an overview of our group's efforts to better understand Mid-Atlantic air quality, through analysis of ground level and airplane measurements of air pollution, and through simulation of emissions, chemistry and transport at a regional scale..

BIO

Sheryl Ehrman received her B.S. in Chemical Engineering from the University of California at Santa Barbara, and her doctorate from UCLA. She has worked as a visiting scientist at the National Institute of Standards and Technology, Gaithersburg, MD, and as a National Science Foundation sponsored post doctoral fellow at the Paul Scherrer Institute, in Villigen, Switzerland. Since August of 1998, she has been a faculty member in the Chemical and Biomolecular Engineering Department, at the University of Maryland, College Park. In 2006-2007, she was awarded a Fulbright Research Fellowship, supporting a sabbatical visit to the Indian Institute of Technology, Bombay, in Mumbai India. Additional significant distinctions include an NSF CAREER Award in 2001, the A. James Clark School of Engineering E. Robert Kent Outstanding Teaching Award for Junior Faculty in 2006, and most recently in 2015, she was inducted Omicron Delta Kappa National Leadership Honor Society. Since 2010, she has served as Keystone Professor and Chair of the Chemical and Biomolecular Engineering Department at the University of Maryland, College Park. She is an active member of the American Institute of Chemical Engineers, the American Association for Aerosol Research, currently serving as President, and the American Association for the Advancement of Science. Her current research interests include gas phase synthesis routes to micro and nanostructured materials for energy, microelectronics and biotech applications, aerosols and public health, and the formation, characterization and minimization of air pollutants.

# SEMINAR
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