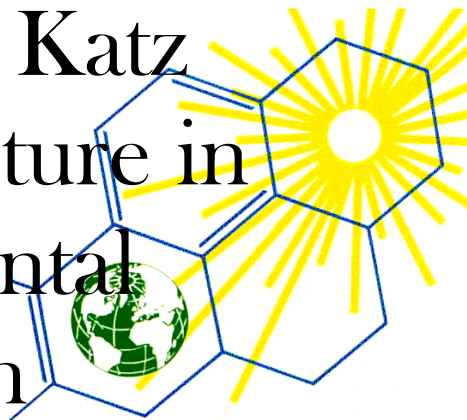


# 2014 Morris Katz Memorial Lecture in Environmental Research



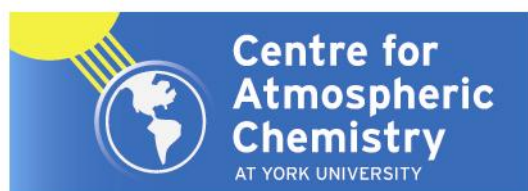
**Philip K. Hopke**

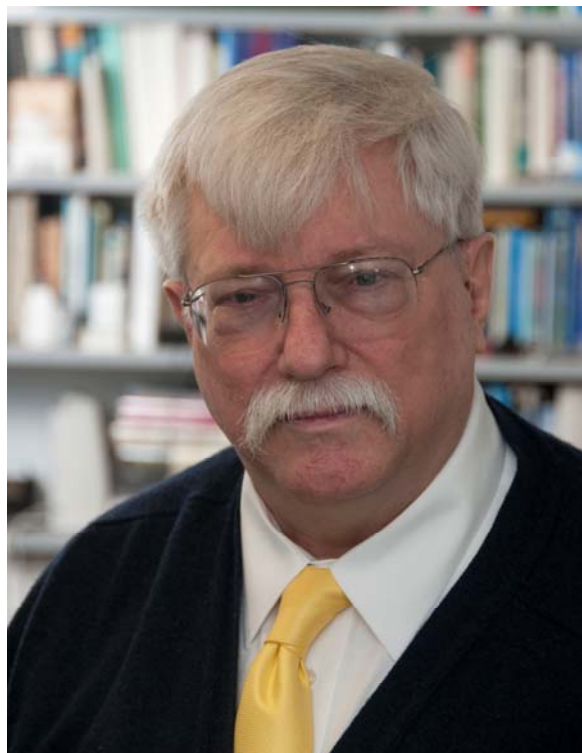
Bayard D. Clarkson Distinguished Professor  
Director of the Center for Air Resources Engineering and Science  
Founding Director of the Institute for a Sustainable Environment  
Clarkson University

**Forty+ Years of Development and Application of Receptor  
Modeling: Where are we now?**

Friday, May 16th  
2:30 p.m.

103 Life Science Building  
York University  
4700 Keele Street, Toronto





## Abstract

Initial efforts to use atmospheric composition data to identify and quantify pollution sources began more than 40 years ago. The development of these methods started about 40 years ago and they have continued to evolve up to the present. Initial efforts using factor analysis were published in 1968 while the chemical mass balance was first suggested in 1971. Initially there was little demand for these tools by the air quality management community because they were not initially recognized by the U.S. Environmental Protection Agency as an acceptable part of the planning process (SIP). Major developments occurred as part of the Portland Air Quality Study (PAQS) in which receptor models were an integral part of the effort and led to substantial corrections to the dispersion model used for air quality planning. A critical step occurred with the promulgation of the 1987 PM10 National Ambient Air Quality Standard (NAAQS) when one of the EPA's guidance documents indicated that receptor models could be used in SIP development. Subsequently, in the 1990s, the EPA supported the development and distribution of several receptor models. The application of these models has now become routine and their use in the context of air quality management in the US will be presented. The current state of the art in the application of receptor models will be presented with an application to data from St. Louis, MO.

## Biographical Sketch

[Philip K. Hopke](#) joined Clarkson University in 1989 as the first Robert A. Plane Professor. From July 1997 to June 1999, he served as Dean of the Graduate School and from July 1999 to June 2000, he was Chair of the Department of Chemistry and Head of the Division of Physical and Chemical Sciences. In July 2000 his principal appointment moved to the Department of Chemical Engineering while retaining appointment in Chemistry and Civil and Environmental Engineering. As of January 1, 2002, he

became the Bayard D. Clarkson Distinguished Professor and Director of the Center for Air Resources Engineering and Science. On July 1, 2010 he became the founding director of the Institute for a Sustainable Environment. His research interests are multivariate statistical methods for data analysis; chemical characterization of ambient aerosol samples; emissions and properties of solid biomass combustion systems; characterization of source/receptor relationships for ambient air pollutants; experimental studies of homogeneous, heterogeneous, and ion induced nucleation; Indoor air quality; exposure and risk assessment. Professor Hopke has authored or coauthored over 534 papers in scientific journals, more than 85 chapters in books and peer-reviewed proceedings, written 1 and edited 5 books, directed 54 Master of Science and 35 Doctor of Philosophy theses, and written numerous technical reports.

## The Lectureship Fund

The Morris Katz Lectureship was made possible by the establishment of an Endowment Fund created through contributions from his family, his friends, his colleagues, private companies, universities and government. It is intended that this lectureship become self sustaining. Major contributions in support of this year's lecture have been made by:

The Centre for Atmospheric Chemistry  
and  
The Ontario Ministry of the Environment

If you share in Morris Katz' enthusiasm and commitment to having a cleaner environment, please make a contribution to support this on-going educational activity. Send your contribution in care of: The Morris Katz Memorial Lectureship, Centre for Atmospheric Chemistry, York University, 4700 Keele Street, Toronto, Ontario, M3J 1P3 Canada.

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