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Larry Kleinman, Environmental Sciences Department

Trying to manage air pollution by regulating emissions from point sources like factories and cars is a complex task, particularly considering the large number of precursor chemicals and the complex chemical reactions within Earth's atmosphere. To simplify this chemistry with the aim of identifying ways to more effectively regulate the source pollutants, atmospheric chemist Larry Kleinman of the Environmental Sciences Department (ESD) has developed computer modeling programs based on observable data that consider classes of compounds, rather than focusing on specifics of particular reactions of particular compounds. This work has led to an important understanding of the roles played by nitrogen oxides and volatile organic compounds in the formation of air pollutants, including ozone.

Larry Kleinman

Roger Stoutenburgh D043102

For this work, and recently, its application in diagnosing the specific causes of excessive ozone in the Houston area as part of a large, multiagency study, Kleinman has received tenure. "Kleinman's use of observation-based modeling is highly complementary to theoretical approaches in that it gives understanding of the controlling processes and leads directly to the development of robust pollution-control strategies, such as those the state of Texas is now imposing on its industrial emitters as a direct result of this work," said ESD Department Chair Creighton Wirick. "His pragmatic and yet fundamental approach and his rare ability to interpret important chemical processes with great intuition make him a nationally and internationally recognized leader in his field."

Kleinman received his B.S. and Ph.D. in chemistry from City College of New York and Yale University, in 1967 and 1971, respectively. He held several postdoctoral fellowships, including one at the University of California at Irvine and one in BNL's Chemistry Department. He joined the Lab's Department of Applied Sciences as an associate scientist in 1978, and rose through the ranks to scientist in 1980, with a continuing appointment in 1983. — Karen McNulty Walsh