

CHEMISTRY DEPARTMENT

SEMINAR

Dropping Acid in the Atmosphere: Is It Just a Phase?

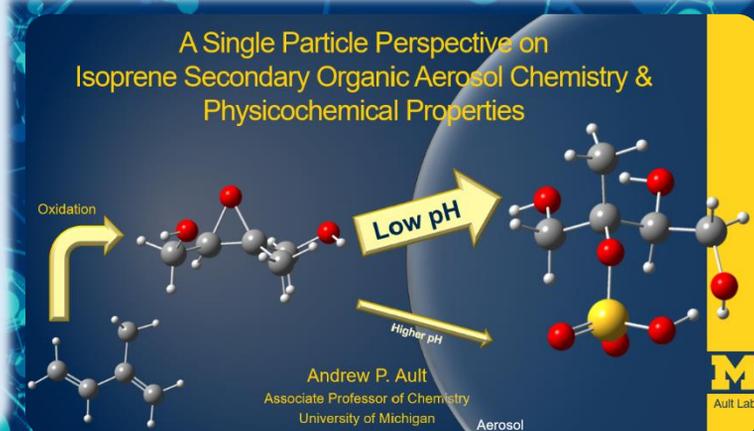
Dr. Andrew P. Ault

Department of Chemistry, University of Michigan



Atmospheric aerosols are incredibly complex chemical systems with thousands of species present in yoctoliter to attoliter volumes, which makes measuring their chemical and physical properties an analytical challenge. Despite these instrumental demands, measuring aerosol properties is essential, as air pollution leads to 10% of global deaths annually, primarily due to the effects of atmospheric particles. These aerosols are also the most uncertain aspect of radiative balance leading to climate change. The Ault Laboratory is focused on understanding the complex heterogeneous and multiphase chemistry occurring within aerosols through systematic physical chemistry studies, the development of new analytical methods and sensors, and

measurements of complex systems in that atmosphere. We conduct these studies through a combination of spectroscopy, microscopy, and mass spectrometry techniques. This seminar will focus on the acidity, phase, and morphology of mixed organic-inorganic atmospheric particles. Specifically, we will focus on the acid-catalyzed ring opening reaction of isoprene epoxydiols (IEPOX), formation of organosulfates and polyols, and subsequent changes to diffusion in viscous materials. From this we can predict future properties and amounts of secondary organic aerosol (SOA). With our novel analytical methodologies and physical chemistry studies, the Ault Laboratory is providing fundamental molecular insights into the chemistry occurring within atmospheric aerosols that have significant consequences for human health and global climate..



September 23rd @12 pm – Lopez 106

Meeting ID: 951 3765 0274

<https://zoom.us/j/95137650274>