

PROMOTION RECOMMENDATION
The University of Michigan
College of Literature, Science, and the Arts

Andrew P. Ault, assistant professor of chemistry, College of Literature, Science, and the Arts, is recommended for promotion to associate professor of chemistry, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	2010	University of California, San Diego
B.A.	2005	Carleton College

Professional Record:

2019 - present	Dow Corning Assistant Professor of Chemistry, University of Michigan
2013 - 2019	Assistant Professor of Environmental Health Sciences and of Chemistry, University of Michigan
2011 - 2013	Post-doctoral Scholar, University of Iowa
2010 - 2011	Post-doctoral Researcher, University of British Columbia

Summary of Evaluation:

Teaching: Professor Ault has taught 11 different classes between the School of Public Health (SPH) and the Department of Chemistry. Before shifting his appointment to chemistry, Professor Ault developed and/or taught several labs and professional development courses in SPH. Professor Ault has taught CHEM 241, a required introductory analytical chemistry course, twice. His student evaluations were above the 10-year average for the course and he has shown enthusiasm and a thoughtful approach to teaching this course that includes personal interactions and the incorporation of real world challenges. He has also designed and taught a graduate level course on environmental chemistry that is cross-listed between chemistry and environmental health sciences (CHEM/EHS 574) six times. He currently mentors five graduate students and previously graduated two others with good professional placements.

Research: Professor Ault uses Raman Spectroscopy and atomic-force microscopy-photothermal infrared spectroscopy to study the chemistry and physical properties of aerosols at the individual particle level. Knowledge of aerosol chemistry is critical to understanding aerosols' impact on health and climate. He has developed methods to measure the pH of aerosols, an important breakthrough that helps predict chemical reactions within aerosols. He has also developed spectroscopy methods to uncover the composition of aerosols. Finally, he is the first to measure lake spray aerosol and has demonstrated their potential to carry toxins from algal blooms. Professor Ault has been prolific, with 40 publications as the main author while at UM, and has published in the top journals in his field. He has been recognized with a Sloan and NSF Career Award.

Recent and Significant Publications:

Olson, N.E., Cooke, M.E., Shi, J., Birbeck, J.A., Westrick, J.A., Ault, A.P. (2020). Harmful Algal Bloom Toxins in Aerosol from Freshwater Lakes. *Environmental Science & Technology*, 54(8): 4769-4780.

Bondy, A.L., Kirpes, R.M., Merzel, R.L., Pratt, K.A., Banaszak, M.M., Ault, A.P. (2017). Atomic Force Microscopy-Infrared Spectroscopy of Individual Atmospheric Aerosol Particles: Sub-Diffraction Limit Vibrational Spectroscopy and Morphological Analysis. *Analytical Chemistry*, 89(17), 8594–8598.

Craig, R.L., Bondy, A.L., Ault, A.P. (2015). Surface Enhanced Raman Spectroscopy (SERS) of Atmospheric Aerosol Particles: Enhanced Detection of Organic and Inorganic Species in Individual Particles. *Analytical Chemistry*, 87(15), 7510–7514.

Rindelaub, J.D., Craig, R.L., Nandy, L., Bondy, A.L., Dutcher, C.S., Shepson, P.B., Ault, A.P. (2016). Direct Measurement of pH in Individual Particles via Raman Microspectroscopy and Variation in Acidity with Relative Humidity. *Journal of Physical Chemistry – A*, 120(6), 911–917.

Service: Professor Ault is a reliable and energetic departmental and community citizen whose attention to DEI aligns well with departmental goals. Professor Ault was a member of several substantial committees while in the School of Public Health and was active where assigned as a courtesy member of chemistry. He has maintained a good profile in his field with service on national-level committees involved in guiding aerosol research. His public engagement includes six interviews for radio and print media. Professor Ault and his group have been engaged in 40 community outreach events, a very high number, most of which were aimed at improving DEI in the sciences.

External Reviewers:

Reviewer (A): “Andy is collaborative and straddles research that is fundamental yet has a very strong emphasis in atmospheric and environmental sciences...his work is respected by the mainstream chemistry community and that of the atmospheric chemistry community.”

Reviewer (B): “I have a very positive impression of Professor Ault’s works as an independent researcher. He has published a good number of papers in high-quality journals, and received a solid base of research funding, including a CAREER award from NSF.”

Reviewer (C): “...Professor Ault has developed several new and creative techniques in analytical/atmospheric chemistry which are having an impact in the atmospheric science community which will continue to grow with time. The body of research Andy has performed since becoming an independent researcher represents an important, creative and unique contribution to the field...”

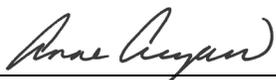
Reviewer (D): “Dr. Ault has performed pioneering work with three techniques to measure acidity [in aerosols] and shed new light on this important problem...His research activities are at the cutting edge of the field and are making significant impacts.”

Reviewer (E): “Ault’s approach to the problem of pH measurement is impressive because he has demonstrated versatility in the development of practical methods that are effective in very messy systems...Andrew Ault is clearly a rising star in atmospheric science, and one that is having the kind of impact we expect [in] tenure positions at top research universities like yours. He has the breadth of interests needed to sustain and evolve his program as new opportunities arise.”

Reviewer (F): “Professor Ault has established an extremely innovative, robust, and prolific research program at the intersection of analytical and physical chemistry with focus on the investigation of the reactivity and physicochemical properties of individual aerosols particles and their effect on the environment and health.”

Summary of Recommendation:

Professor Ault has developed a creative and impactful research program developing new approaches to measure the chemistry of aerosols. He has developed a range of classes in environmental chemistry and has been a strong advocate for diversity, equity, and inclusion in the sciences. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Andrew P. Ault be promoted to the rank of associate professor of chemistry, with tenure, College of Literature, Science, and the Arts.



Anne Curzan, Dean
Geneva Smitherman Collegiate Professor of
English Language and Literature, Linguistics,
and Education
Arthur F. Thurnau Professor
College of Literature, Science, and the Arts

May 2021