



Society for Analytical Chemists of Pittsburgh Spectroscopy Society of Pittsburgh



February Meeting

Wednesday, February 13, 2019



DUQUESNE
UNIVERSITY



in Pittsburgh

5:30 PM Social Hour — Power Center Ballroom
5:30 PM SSP Technology Forum – Power Center Ballroom
6:30 PM Dinner – Power Center Ballroom
Student Affiliate Meeting – Shepperson Suite
7:45 PM Business Meeting – Power Center Ballroom
8:00 PM Technical Program – Power Center Ballroom

Deadline for Dinner Reservations: Monday, February 4, 2019 by NOON



SSP TECHNICAL PROGRAM

Dr. Kerri Pratt, University of Michigan “Novel Applications of Mass Spectrometry to Atmospheric Chemistry”

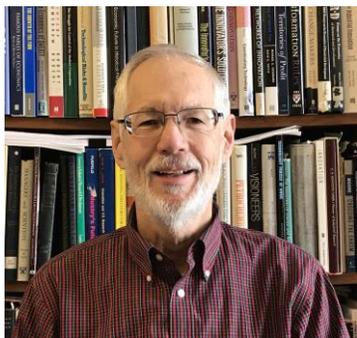
Recent developments in the field of mass spectrometry are leading to molecular-level understanding of environmental chemistry issues, particularly for air quality and climate change. Our efforts are focused on three main techniques: 1) chemical ionization mass spectrometry, for real-time identification and quantitation of trace atmospheric gases at ppt to ppq levels, 2) nano-desorption electrospray ionization mass spectrometry, for the determination of the molecular composition of atmospheric organic particles, and 3) aerosol time-of-flight mass spectrometry, for the measurement of the size and chemical composition of individual atmospheric nanoparticles in real-time using laser desorption/ionization coupled with dual-polarity reflectron time-of-flight mass spectrometry. I will discuss recent research findings, showing how my research group is applying these novel techniques to advance the field of atmospheric chemistry, particularly with respect to our understanding of the atmospheric compositions and reactions in the rapidly changing Arctic.

BIOGRAPHY: Kerri Pratt is the Seyhan N. Ege Assistant Professor of the Department of Chemistry and Department of Earth & Environmental Sciences at the University of Michigan in Ann Arbor, MI. She is recognized as a rising leader at the intersection of analytical and environmental chemistry, particularly the development and application of novel, field-based mass spectrometry to the critical study of Arctic change. Dr. Pratt received her B.S. in Chemistry from the Pennsylvania State University in 2004, having performed solid-state NMR and MALDI studies with Dr. A. Daniel Jones and Prof. Karl Mueller. She received her Ph.D. in Chemistry from the University of California, San Diego in 2009 with Prof. Kimberly Prather as a NSF Graduate Research Fellow and EPA STAR Graduate Fellow, studying atmospheric aerosols with single-particle mass spectrometry. She completed her postdoctoral research in chemical ionization mass spectrometry with Prof. Paul Shepson at Purdue University as a NOAA Climate & Global Change Postdoctoral Fellow and NSF Postdoctoral Fellow in Polar Regions Research. Dr. Pratt joined the faculty of the University of Michigan in 2013.

Dr. Pratt's research group is already making noteworthy contributions to atmospheric chemistry that are enabled by advancements in analytical chemistry, allowing her to tackle critical scientific questions in the Arctic where low analyte concentrations and logistically difficult conditions challenge traditional methods. For her innovative research, she has received numerous awards, including the American Society for Mass Spectrometry Research Award (2014), Society for Analytical Chemists of Pittsburgh Starter Grant Award (2014), National Academy of Sciences Gulf Research Program Early Career Fellowship (2016), Sloan Research Fellowship in Chemistry (2017), American Chemical Society James J. Morgan Environmental Science & Technology Early Career Lectureship (2018), Department of Energy Early Career

Award (2018), Analytical Scientist Top 40 under 40 Power List (2018), and Eastern Analytical Symposium Young Investigator Award (2018). She is a working group co-chair of the International Global Atmospheric Chemistry (IGAC) Project activity “air Pollution in the Arctic: Climate, Environment, and Societies” (PACES) and is the liaison between PACES and the IGAC activity “Cryosphere and Atmospheric Chemistry” (CATCH). In addition, she is on the National Center for Atmospheric Research Atmospheric Chemistry Observations & Modeling Laboratory Advisory Panel for Instrumentation and ACS *Earth & Space Chemistry* Editorial Advisory Board. She has also made significant contributions to teaching through her development of a novel introductory chemistry laboratory course involving a semester-long authentic research experience in snow chemistry, for which she was awarded the University of Michigan Chemistry Seyhan N. Ege Junior Faculty Award (2016) and College of Literature, Science, and the Arts Individual Award for Outstanding Contributions to Undergraduate Education (2017).

SSP TECHNOLOGY FORUM



Dr. David A. Hounshell
David Roderick Professor, Emeritus, of Technology & Social
Change, Carnegie Mellon University

“Pittsburgh’s Industrial History Through the Lenses of Geography, Materials and Knowledge Production”

Almost from its founding in the late 18th century, Pittsburgh has occupied an important place in the USA’s industrial landscape. Pittsburgh’s location west of the Appalachian Mountains shaped its early patterns of industrialization, and with America’s western migration and innovations in transportation, the region came to rely more and more on its rich mix of natural resources, growing capital, and human capital to rise to national—and international—recognition as an industrial juggernaut. Fueled by its rich deposits of coal, Pittsburgh innovated in energy-intensive materials manufacture such as iron and steel, non-ferrous metals, and glass. Product and system innovations followed, and institutions of knowledge production were created to drive further the development of the region. Inventors, engineers, and entrepreneurs populated the region and became truly legendary figures in the larger story of American industrialization. Although Pittsburgh became known by such phrases as “Hell with the lid off” and “the Smokey City,” business cycles and structural changes in the national economy led to some tough times in the region. But continued investments in and growth of institutions of knowledge production and effective civic leadership proved to be key in the second half of the 20th century in transforming the region from its heavy dependence on “big steel” into a more diverse knowledge-based economy of specialty materials, science-based industries and services, and start-ups and young entrepreneurial firms. This illustrated lecture will end by arguing that geography, materials, and knowledge production remain key factors in the region’s evolving economy.

BIOGRAPHY: A native of New Mexico, David A. Hounshell received an undergraduate degree in electrical engineering in 1972 from Southern Methodist University in Dallas, Texas, and M.A. (1975) and Ph.D. (1978) degrees in history from the University of Delaware in Newark, Delaware. His research focuses at the intersection of science, technology, business, and government policy. He began his teaching career at Harvey Mudd College in Claremont, California, in 1977 and later taught at the University of Delaware for twelve years. Carnegie Mellon University named him Henry R. Luce Professor of Technology and Social Change in 1991. In 1999, he became the David Roderick Professor of Technology and Social Change at CMU and held this professorship until his “retirement” in 2017. Hounshell has also taught as a visiting professor at the Technical University of Munich (Germany) and Chalmers Technological University in Gothenburg, Sweden. In 1978, Hounshell won the Browder J. Thompson Prize of the Institute of Electrical and Electronics Engineers, of which he is now a Life Member. His 1984 book, *From the American System to Mass Production, 1800-1932* (Johns Hopkins University Press) received the Dexter Prize of the Society for the History of Technology in 1987. His 1988 book (with John Kenly Smith, Jr.), *Science and Corporate Strategy: DuPont R&D, 1902-1980*, (Cambridge University Press) received the Newcomen Book Award of the Business History Conference in 1992. Hounshell is the recipient of the Business History Conference’s Harold Williamson Medal (1992) and the Society for the History of Technology’s Leonardo da Vinci Medal (2007). He was named a Fellow of the American Association for the Advancement of Science in 2001 and served as President of the Society for the History of Technology, 2003-2004. Hounshell has also served as a Research Fellow at the Smithsonian Institution and was Marvin Bower Fellow at the Harvard Business School. Most recently, Hounshell chaired a panel of the National Academy of Sciences/National Research Council that commemorated the 100th anniversary of the NAS’s/NRC’s participation in World War I. Hounshell is currently at work on a history of industrial research, 1875-2015.

DINNER RESERVATIONS: Please complete the **Online Dinner Reservation Form** **NO LATER THAN Monday, February 4, 2019 at NOON.** The form is also located under the Meeting Notice on website www.sacp.org. & www.ssp-pgh.org. Should you not be able to access the form, please call 412-825-3220, ext. 212 the SACP & SSP Administrative Assistant to make your dinner reservation. The entrée choices for **February are Gorgonzola Crusted Filet Mignon with Cabernet Demi-glace and Stuffed Portabella Mushrooms.**

Please let us know if you have any dietary restrictions. Dinner will cost \$10 (\$5 for undergraduate students). Checks can be made payable to the SACP or the SSP, depending on membership.

PARKING: Duquesne University Parking Garage entrance is on Forbes Avenue. Upon entering the garage, you will need to get a parking ticket and drive to upper floors. Bring your parking ticket to the dinner or meeting for a validation sticker. Should any difficulties arise, please contact Duquesne University.