

OBITUARY

Joseph E. Campana (1952–2014)

Joe Campana passed away due to heart failure in his home in Madison, WI on August 10, 2014. He will be missed by the many people he influenced in his two careers, science and business. Connecting these two careers was Joe's great love of teaching.

Joe earned a B.S. degree in chemistry from Canisius College (Buffalo, NY) in 1974 and then entered chemistry graduate school at the Pennsylvania State University. He joined Terence Risby's group and performed doctoral thesis research focused on the development and analytical applications of a gas chromatograph/mass spectrometer (MS)/minicomputer data system. Joe designed, assembled, and optimized instrument control and data acquisition hardware and software for a BIOSPECT (Scientific Research Instruments Corporation) quadrupole mass spectrometer. The primary application was negative-ion chemical ionization mass spectrometric analysis of volatile transition metal chelates. In addition, Joe developed a computer program to calculate and simulate ion trajectories in an electric quadrupole field with the objective of enhancing quadrupole MS performance. Joe earned his Ph.D. in chemistry in 1979 and then accepted a post-doctoral position in Catherine Fenselau's group at Johns Hopkins University School of Medicine, where he expanded his skills and interests to biological MS applications. In 1980, he was awarded a National Research Council/National Academy of Sciences Associateship to work with Richard Colton at the Naval Research Laboratory (NRL) on the study of polymeric thin films using static (low primary ion bombardment current; v. dynamic) secondary ion mass spectrometry (SIMS).

In 1981, Joe obtained a permanent staff scientist position at NRL and joined an active mass spectrometry group that was initiated by Fred Saalfeld, and consisted of Jim DeCorpo, Jeff Wyatt, and Rich Colton. The group was able to work on a wide variety of projects owing to significant freedom to pursue basic research while applying new knowledge and technology to Navy needs. For the latter, Joe assisted with programs aimed at Navy challenges in submarine atmosphere control, including work with the mass spectrometer that is onboard submarines (CAMS, Central Atmosphere Monitoring System) and with oxygen generation devices. Joe also worked with Jim DeCorpo at the Naval Sea Systems Command and applied his scientific and technological knowledge to a wide variety of newly-



required environmental protection systems and procedures for ships and Navy facilities.

In the mass spectrometry community, Joe will be remembered primarily for his fundamental research work at NRL to expand the capabilities of mass spectrometry in the production and detection of high-mass ions. Joe and the NRL group converted a CEC 21-110 double-focusing mass spectrometer that had an atomic-ion spark discharge source and photoplate detection to a SIMS instrument with an ion bombardment ion source and electron multiplier detection. With this unique instrument, the group studied cluster ions of alkali halides (e.g., cesium iodide). In 1981, they published the first of several papers reporting the detection of "ultra-high mass" ions (to

$\sim m/z$ 20,000) and the observation of enhanced ion abundances for cluster compositions corresponding to closed cubic-like structures (“magic number” clusters). With Tom Barlak and Brett Dunlap, the nature of these novel species was studied in depth by using several experimental and theoretical methods to understand cluster-ion structures and stabilities.

These efforts laid the foundation for an extensive research program aimed at characterization of a wide variety of clusters, including those of inorganic salts, energetic material compounds, transition metals, and carbon. However, Joe’s interests spanned a broad range, and after he became the head of the NRL mass spectrometry group, he pursued studies of the fundamental aspects of gas-phase ion chemistry, metastable/collision-induced/and photo-dissociation of ions, and chemical-ionization reactions of sputtered species by using a VG ZAB-2F as the primary instrument. He recruited and mentored several superior post-doctoral scientists who recall his effective leadership, willingness to explore new approaches, and passion for high-quality science. During his time at NRL, Joe was very active in the mass spectrometry national and international communities and, in particular, in the Baltimore-Washington Area Mass Spectrometry Discussion Group including collaborations with several local colleagues.

In 1985, Joe left NRL to take the position of director of the Environmental Research Center at the University of Nevada, Las Vegas. There he developed and applied MS methods to support the environmental protection programs associated with the EPA Superfund Program. During this time, he became interested in the new developments in and the potential of Fourier transform MS (FT-MS). In 1987, Joe joined the Nicolet Instrument Corporation in Madison, WI, and served as the Director, Research and Development, Mass Spectrometry. In 1989, Joe assisted with the purchase of Nicolet’s FT-MS business unit by the Extrel Corporation and served as the president of Extrel FTMS. Joe became a strong advocate for the unique capabilities of FT-MS as evidenced by his work on applications to hydrocarbon, polymer, and biomolecule analysis, implementation of MALDI and ESI ion sources with a dual cell, demon-

stration of high resolution performance, as well as development of instrument control and data acquisition hardware and software (Odyssey workstation). An example of his many collaborations is a project with Hilikka Kenttämäa in which a relatively small FT-ICR MS was developed and characterized to investigate the feasibility of a bench-top FT-MS instrument. The instrument consisted of a 3-cm cell positioned in a 0.4 T permanent magnet and was shown to have suitable performance for ion-chemistry studies.

In 1998, Joe made a significant career change motivated by his interest to contribute to and assist more directly individuals and businesses in the Madison community. He assisted small businesses with financial challenges, worked with a non-profit organization to help home buyers with down payments and to create more affordable housing, and consulted, advised, and taught courses on identity-theft prevention, privacy and security compliance, and fraud prevention. Joe was a licensed private investigator, an author of regular print and Internet columns and a book, and a candidate for a local political office. Joe’s positive impact in the community resulted in his local title of “Dr. Privacy.”

Joe’s life consisted of a wide variety of interests, endeavors, and experiences with common elements of enhancing knowledge and abilities not only for himself but also for others. Joe was a fierce competitor in all fields with strongly-held opinions and ambitions and with no fear to try new approaches and challenge authority and long-held perspectives with reason and experimental evidence. A primary motivation was to help younger people and those less fortunate and, therefore, he dedicated a lot of his time and effort to teaching and mentoring.

Those of us who were fortunate to have known or worked with Joe will remember his intense passion for science and technology, his effective skills in problem solving, his strong desire to assist young scientists, and an infectious, positive attitude and perseverance in his work while having a lot of fun.

Mark M. Ross

US FDA

College Park, MD, USA