

Nominations – International Committee

North America



Christopher (Chris) Anderton received his Bachelor of Science degree in chemistry at the University of Colorado at Colorado Springs in 2005. He attained his PhD in chemistry at the University of Illinois at Urbana–Champaign in 2011, under Mary L. Kraft, where his graduate work focused on using secondary ion mass spectrometry (ToF-SIMS and NanoSIMS) in conjunction with atomic force microscopy and scanning electron microscopy for multi-technique correlative analysis of supported lipid membranes. Afterward, he received a US National Research Council Postdoctoral Associateship to work at the National Institute of Standards and Technology under Anne L. Plant, where he studied how eukaryotic cells respond to changes in the physicochemical properties of their extracellular environment, using force microscopy, fluorescence microscopy, and ToF-SIMS. In 2013, he joined the Mass Spectrometry Group at the Environmental Molecular Sciences Laboratory, which is located on the Pacific Northwest National Laboratory campus. Currently, he focuses on developing new mass spectrometry imaging instrumentation and capabilities to elucidate chemical interactions occurring within microbial communities, soils, and the rhizosphere. These capabilities include NanoSIMS and FTICR-SIMS, as well as other molecular imaging mass spectrometry sources.



Gregory L. Fisher is a Principal Scientist at Physical Electronics specializing in TOF-SIMS applications and instrument development. Greg attended college at the University of Wisconsin - LaCrosse where he earned B.S. degrees in Chemistry and Physics. He went on to study at the Pennsylvania State University where he earned his Ph.D. in Chemistry. While at Penn State, Greg participated in the development of TOF-SIMS analytical instruments as well as research concerning the fundamental physics of ion-solid interactions. He was independently funded and used TOF-SIMS to probe the dynamics of metal atom reactions at functionalized surfaces, pushing the limits of detection at high mass resolution. His research made extensive use of XPS and RAIRS in addition to TOF-SIMS analysis. Greg was at the Los Alamos National Laboratory (LANL) for two years as a Post-Doctoral Researcher and for five years as a Staff Scientist. He was primarily engaged in thin film growth and surface characterization by XPS, AES and RAIRS for the development of reactive targets used in the high explosive reaction chemistry via ultrafast laser-excited spectroscopy (HERCULES) project. While at LANL, Greg was at the forefront of the use of cluster ion beams as analytical probes for TOF-SIMS analysis. He established the use of a C₆₀ analytical ion beam in high sensitivity measurements to understand the effects of ionizing radiation on the chemical properties of polymers. Since joining Physical Electronics, Greg's activities have included the application and optimization of cluster ion beams in TOF-SIMS analysis for 2D and 3D characterization of organic and inorganic materials, and the development of 3D imaging by FIB-TOF tomography. An underlying theme of Greg's work has been the development of TOF-SIMS as a practical and reliable tool for biological and bio-materials analysis. A hallmark has been the development and introduction of TOF-SIMS Parallel Imaging MS/MS. This tandem MS imaging capability enables unambiguous composition and structure elucidation of molecules without sacrificing speed or performance in TOF-SIMS or tandem MS imaging. Greg is one of four patent holders on this new TOF-SIMS technology.



Lara Gamble is a Research Associate Professor in the department of Bioengineering at the University of Washington and has been on the faculty at UW since 2004. She is also the Associate Director of the National ESCA and Surface Analysis Center for Biomedical Problems (NESAC/BIO) as well as Associate Director of the Molecular Analysis Facility (MAF) at the UW. She received her undergraduate degree in Chemistry from University of California, Santa Cruz in (1990) and a Ph.D. in Physical Chemistry from the University of Washington (1996). She did her postdoctoral research at NESAC/BIO (1997-2000) then worked at Zyomyx, Inc., a biotech startup in Fremont, CA. She returned to the University of Washington in 2003.

Dr. Gamble's scientific research interests include mass spectrometry imaging of tissues and cells in 2D and 3D. Current SIMS instruments in her lab include an ION-TOF ToF-SIMS 5 and Ionoptika J105 Chemical Imager. Lara has over 50 publications and has given many invited talks and tutorials on surface analysis including the American Vacuum Society (AVS) Peter M.A. Sherwood Mid Career Award in 2014 where she presented her work on chemical analysis of cells and tissues with imaging ToF-SIMS.

Professional Society Leadership:

AVS

Chair of the local arrangements committee for AVS in Seattle in 2007

Program Chair and Chair of the Biomaterials Interface Division

Executive committee Applied Surface Science Division

Currently on AVS Board of Directors.

World Biomaterials Congress (WBC)

Organized surface characterization sessions for WBC twice

Currently USA representative for IUVSTA Biointerfaces division.



Christopher Szakal has been a research chemist in the Materials Measurement Science Division at NIST since 2006. He received his B.S. in Chemistry from Muhlenberg College (Allentown, PA) in 2001, and attained his Ph.D. in Chemistry from The Pennsylvania State University in 2006 while working with Nicholas Winograd and strongly collaborating with Barbara Garrison, Andreas Wucher, Zbigniew Postawa, John Vickerman, and Andrew Ewing. His SIMS background was augmented while at NIST with additional techniques within ambient ionization mass spectrometry (AI-MS), such as DESI, and his recent work has involved both ToF-SIMS and magnetic sector SIMS variants. His

research has covered a wide range of scientific disciplines, fundamental studies, and applications of SIMS, leading to more than 30 publications in a variety of high-quality journals. His current work at NIST is focused on three areas: 1) the surface chemistry of nanomaterials, including the use of precision inkjet printing to prepare suitable samples for SIMS, 2) approaches for quantitative and precise elemental measurements in microparticles and single biological cells as small as one micrometer, and 3) multi-technique-based measurement science development to support those aims, including the combination of ToF-SIMS and large geometry (LG)-SIMS to provide a more comprehensive data set than either method could provide alone.

Christopher served as a member of the AVS Applied Surface Science Division (ASSD) Executive Committee from 2010-2012 and is the current ASSD Chair, with both positions lending the appropriate type of conference leadership experience that would be required as a successful member of the SIMS International Committee (IC). Additionally, he has served in several program leadership positions within NIST, including those related to research and development dissemination and a separate undergraduate research fellowship program, allowing for the development of skills that would be useful in the endeavors before the IC.

Europe



Alain Brunelle is Research Director (1st rank) at the CNRS, France (Centre National de la Recherche Scientifique) and heads the Mass Spectrometry group at the Institute of Natural Substances Chemistry, located in Gif-sur-Yvette, France, in the south of Paris. He is a former student of the École Normale Supérieure de Saint-Cloud (former French “grande école” for training secondary school teachers, now located in Lyon) and got his PhD in Physics in 1990 under the supervision of Yvon Le Beyec, and his “Habilitation à Diriger des Recherches” (French post-doctoral degree allowing to supervise PhD students) in chemistry in 2002, both at the Paris-Sud University in Orsay.

From 1988 to 2002 at the Orsay Institute of Nuclear Physics, his main research subject was the study of the interactions of energetic particles (ions, clusters, molecules, photons) with matter. A first part of this work concerned the mechanisms of energy deposition and energy relaxation of incident particles in an inorganic or molecular target, with a particular focus on polyatomic projectiles. The second and complementary part concerned instrumental developments involving time-of-flight mass analyzers, new desorption-ionization probes, and detection systems.

Since 2002 he started at Gif-sur-Yvette a project of biological imaging by mass spectrometry, using cluster-TOF-SIMS and MALDI-TOF. This work is conducted in three directions: treatment and use of biological tissue sections, improvement of instrumental methods, and application to in situ studies, like of lipid disorders linked to human diseases or active metabolites in plants, but also, and increasingly, archeological and artwork samples.

Alain Brunelle is the author of about 150 publications and book chapters and his h-index is of 37, with more than 3700 citations.

He has been member of the scientific committee of several international conferences and workshops, Desorption 2010 (Seillac, France), SIMS XVIII (Riva-del-Garda, Italy, 2011), SIMS Europe 2012, 2014, 2016 (Münster, Germany), SIMS XIX (Jeju Island, South Korea, 2013), Desorption 2014 (Montreal, Canada), SIMS XX (Seattle, USA, 2015), and SIMS XXI (Kraków, Poland, 2017). He has been President between 2004 and 2006 and is actually again member of the board of the French mass spectrometry society, and has chaired the organization of the French mass spectrometry annual conference in 2001.

Alain Brunelle is also member of steering committee of the Laboratory of Excellence CEBA (Center Study of Amazonian Biodiversity) and has been representative member for France at the management committee of the past EU-COST action BM-1104 “Mass Spectrometry Imaging: New tools for healthcare research”. He his partner of the EU-FP7 consortium BIOMARGIN (2013-2017) and has been partner of the EU6-FP6 consortium COMPUTIS (2006-2010).



Paul van der Heide has been heavily involved in the field of Secondary Ion Mass Spectrometry (SIMS) since starting his PhD on Dynamic SIMS fundamentals and instrument design (completed in 1992). This experience ranges from hands-on operation and data interpretation relevant to the energy and semiconductor sectors whether it be on Quadrupole, Magnetic Sector and Time of Flight based instruments, technique development-deployment, through to facility setup, implementation and management. The knowledge garnered from these experiences culminated in the book: Secondary Ion Mass Spectrometry: An Introduction to Principles and Practices, by Wiley & Sons Inc. in 2014.

Paul is presently the Director of Materials and Component Analysis at imec, in Leuven, Belgium. This allows him to explore/maintain and drive synergies between cutting edge characterization capabilities, inclusive of SIMS, for supporting the present and future micro-electronics

industry. Before this, Paul held positions at GLOBALFOUNDRIES, Malta, NY, (where he headed the analytical labs end-to-end (chemical, physical, and electrical) support of CMOS manufacturing and R&D), Samsung, Austin, TX, (where he established and managed the surface analysis lab for supporting CMOS manufacturing), and the University of Houston, (where he lectured graduate and undergraduate courses in physical chemistry and surface analysis, and managed the MRSEC SIMS-XPS facility).

Paul has authored ~100 publications, two books, has presented numerous invited presentations dating back to 1995 (SIMS X), and has chaired/co-chaired and/or been a committee member at multiple international AVS and SIMS conferences/symposiums.



Manuela Killian is a research associate (Habilitation) in materials science at the Friedrich-Alexander University of Erlangen (FAU), Germany. She received her PhD from FAU in 2013 and held visiting research positions at the University of Cambridge, UK, and the University of Washington, Seattle, USA.

Manuela has nearly 10 years of experience in ToF-SIMS and actively took part in the international SIMS conferences since she started research in this field. Additionally, she worked extensively with XPS and other surface analytical techniques. Her expertise is located in nanoscale surface analysis and modification, ranging from investigation of organic monolayer adsorption on patterned or nanostructured metal oxide surfaces to controlled electrochemical production of the latter. A special focus of her research lies on implementation of organically modified complex nanostructured oxide materials for energy applications and biotechnology. She authored and co-authored 35 peer reviewed articles, teaches a graduate level course in materials characterization and nanoscale surface engineering and just recently established a junior research group that uses ToF-SIMS for characterization of complex nanostructured composite materials. Manuela is a member of the admission board to the graduate course “Advanced Materials and Processes” and actively participated in the preparation and organization of several symposia and workshops at FAU.



Antonino (Nino) Licciardello got his PhD in 1986 at University of Catania, where he is currently professor of Physical Chemistry. He has been the Coordinator of the PhD School in Materials Science at University of Catania (2006-2012) and is currently member of the board of the International Doctorate in Chemical Sciences. He served in the Italian Chemical Society at national level (member of the board of the Physical Chemistry division) and regional level (board of the Sicilian section).

His scientific interests are in physical chemistry of surfaces and thin films, with focus on physico-chemical processes in ion-matter interaction, development and application of surface techniques, surface engineering methods; on these topics he authored some 120 scientific papers, about 150 conference contributions, one patent. Some of his scientific results have been published on high-ranking journals such as Nature Materials and Advanced Materials, and in 2011 one of his papers received the Beynon Prize Award.

Nino joined the SIMS community since the late '80s. He is member, since its first edition in 1998, of the Advisory Board of the SIMS Europe workshop and served, as ex-officio member (2009-2013), in the SIMS IC. In 2011 he chaired the SIMS XVIII Conference in Riva del Garda. He also served as member of the scientific committees in several SIMS conferences, from SIMS 17 (Toronto 2009) to SIMS 21 (Krakow 2017).



Andreas Wucher is a Professor of Physics at the University of Duisburg-Essen. He received his habilitation (1986) and PhD (1984) from the University of Kaiserslautern. His main research interests are in the studies of particle-surface interactions in areas such as SNMS and giant gas cluster ion-surface interactions. To date he has published approximately 190 journal articles and book chapters. Andreas collaborates with many research groups around the world and is a regular visitor to the groups of Nick Winograd and Barbara Garrison at Pennsylvania State University.

Asia-Pacific

This year, the Chinese representative will retire and following consultation in China the following person has been selected: **Lu-Tao Weng**, Hong Kong University of Science and Technology (HKUST).



Lu-Tao Weng is currently an adjunct professor in the department of chemical and biological engineering and a senior scientific officer in the materials characterization and preparation facility of the Hong Kong University of Science and Technology (HKUST). He received his B.S. from East China University of Science and Technology in China, and completed his PhD in materials science at the Catholic University of Louvain in Belgium. He then joined Prof. Patrick Bertrand's group and started his postdoctoral work in SIMS research. Lu-Tao has been with HKUST for the past 22 years. His research interests include surface and interface analysis of advanced materials using XPS, ToF-SIMS, dynamic SIMS, AFM, contact angle measurements etc. Overall, Lu-Tao has published 3 book chapters, 7 review papers and over 110 articles in peer-reviewed journals.

Lu-Tao has been active in the SIMS community and has attended most of the biennial international SIMS conferences since 1990s. He has been invited to deliver keynote lectures in the 13th, 15th, 16th and 21st international SIMS conferences. He also contributed a chapter entitled "Characterization of polymeric materials" in "TOF-SIMS: Materials analysis by mass spectrometry" and edited a special issue "SIMS analysis of polymers" in Surface and Interface Analysis.