ACS DAC DIVISION NEWSLETTER
August 2012

Message from the Chair

The Analytical Division is doing well, although we are perhaps seeing effects of the economy with membership sagging somewhat (still 8500 strong though, and one of the larger ACS Divisions). I urge all current members to renew their memberships and also to help recruit new members. Recall our membership dues are only $16/year and membership in the Division does not require ACS membership as a prerequisite. Among benefits are the programming and sponsorships we do on behalf of the analytical community at major meetings, the sponsorship of division awards and support of national ACS awards, and the provision of valuable information and links via our website (http://www.analyticalsciences.org/).

Programming this year has been excellent, thanks to the hard work from 2012 Program Chair, Cindy Larive. We had another great slate of co-sponsored symposia at both PITTCON 2012 in Orlando (March) and the two national ACS meetings (San Diego, also March; and upcoming fall (August) meeting in Philadelphia). Members are reminded that we will continue the co-sponsoring arrangement with PITTCON for the next several years, and that this represents an 'extra' opportunity for members to organize and participate in PITTCON activities (with usual PITTCON support included). For the national meetings we focus most programming activity on the fall meeting but have found that members participate strongly at the spring meeting (PITTCON activities notwithstanding) too. As a member society, we were also present and participating at the Reno SCIX (FACSS) meeting last October.

Next year the Division will celebrate the 75th anniversary of its founding in 1938. Programming for 2013 is already underway, courtesy of new 2013 Program Chair Thom Rossi. Please plan to participate in these programs and help support the division. At the upcoming fall meeting, both division and national awards of relevance to our discipline will be presented (see this page and our website for details here). At this fall's SCIX/FACSS meeting, the analytical divisions of both the ACS and RSC will co-sponsor symposia for the first time; this is a trend we hope to continue in the future.

Analytical Chemistry Programming at the Philadelphia Meeting

Division Reception

The Division reception will be held at The College of Physicians of Philadelphia, 19 South 22nd St. on Tuesday, August 21st between 6 and 8:30 pm. Tickets can be purchased through ACS at www.acs.org or by calling 800-227-5558. Tickets are $10.

The Division of Analytical Chemistry has a great lineup of sessions for the 244th National Meeting in Philadelphia August 19-23, 2012. Most of the Analytical Chemistry sessions will be held in the Sheraton Philadelphia City Center (SPCC), with the exception of the Sunday evening posters which will

be in the Convention Center Hall D. The Division's program will feature more than 300 oral and poster presentations. The full program and abstracts are available to download from the Division's website www.analyticalsciences.org.

On Monday afternoon, David Koppenaal will present the 2012 Division of Analytical Chemistry awards followed by an address by the recipients.

- David Clemmer (Award in Chemical Instrumentation),
- George Wilson (J.Calvin Giddings Award for Excellence in Education),
- Sam Houk (Award in Spectrochemical Analysis),
- Joseph Hupp (Award in Electrochemistry), and
- Aaron Wheeler (Arthur F. Findeis Award for Achievements by a Young Analytical Scientist)

Special symposia will also highlight the accomplishments of three ACS National award winners:

- Wolfgang Lindner (ACS Award in Chromatography),
- Nick Winograd (ACS Award in Analytical Chemistry), and
- Scott McLuckey (Frank H. Field and Joe L. Franklin Award for Outstanding Achievements in Mass spectrometry).

The Division is sponsoring several cross-cutting sessions at the Philadelphia meeting in cooperation with other ACS Technical Divisions.

Monday will feature a symposium on chirality that is divided between the Analytical and Organic programs with the morning session "*Chirality: Analytical Chemistry Challenges and Innovations*" in the SPCC Liberty Ballroom B and the afternoon session "*Molecular and Supramolecular Chirality*" in the Convention Center room 201C.

On Tuesday, Catherine Hunt and Mamadou Diallo have organized a day-long session to be held in SPCC Liberty Ballroom B titled "*Ensuring the Sustainability of Critical Materials and Alternatives: Addressing the Fundamental Challenges in Separation Science and Engineering*". Those working in areas of materials science, catalysis and reaction engineering, or separation processes are especially encouraged to attend. Attendees with learn about new opportunities and approaches to current challenges in critical materials.

Wednesday features a symposium titled "*Harnessing Nanotechnology for Human Health and Environment*" cosponsored with TOXI that addresses issues related to nanotechnology and nanomaterials. Wednesday morning's ANYL session "*How to Exploit Physicochemical Properties of Engineered Nanomaterials for Health and Societal Applications*" will be held in SPCC Liberty Ballroom B. The afternoon session "*Toxicology and Potential Health Implications of Engineered Nanomaterials*" will be in the Convention Center, room 103B.

Other exciting Division symposia scheduled for the Philadelphia meeting include:

- Analytical Chemistry and Quality Management: Two Sides of the Same Coin, organized by Carolyn Ribes and John Simmons (Sunday am) C
- Conventional and Differential Ion Mobility Spectrometry, organized by Alexandre Shvartsburg (Sunday pm – Monday pm)
- *Emerging Quantitative Applications of Nonlinear Optical Measurements to Address Key Bottlenecks in Biological Science* organized by Garth Simpson and Ji-Xin Cheng (Monday pm – Wednesday am).

The Division has also organized contributed oral sessions on Analytical Separations, Bio and Pharmaceutical Analysis, Electrochemical Analysis and Sensors, Mass Spectrometry, and Spectroscopic Measurements.

2012 DAC Awards

The Division will be honoring a number of outstanding analytical chemists at the Fall meeting.

The ACS Division of Analytical Chemistry Award in Chemical Instrumentation Sponsored by the Dow Chemical Company will be presented to **David Clemmer**, Robert & Marjorie Mann Chair and Professor of Chemistry Professor, at Indiana University. David grew up in the southwest where he received a B.S. in Chemistry from Adams State College (1987) and a Ph.D. from the University of Utah (1992). He was a Japan Society for the Promotion of Science Fellow and did postdoctoral work at the Himeji Institute of Technology in Himeji Japan. He continued his postdoctoral work in Martin Jarrold's laboratory at Northwestern University before joining the Chemistry faculty at Indiana University in 1995.

From 2002 to 2006 he served as the chair of the Chemistry Department and he is currently the associate dean of Natural Sciences. Clemmer's research involves the development of analytical methods for studying the structures of complex low-symmetry systems. His group is especially interested in measurements that allow rapid characterization of complex mixtures of biological molecules. Some of the methods have been commercialized and now are being used to address a range of scientific problems, including: elucidation of fundamental issues associated with how proteins fold and aggregate; characterization of the human proteome; and, assessment of molecules that may be used as markers for following specific disease states. Professor Clemmer's research group has published more than 175 papers and their work has been recognized with awards from the Sloan, Dreyfus, and National Science Foundations, the American Chemical Society, and the American Society of Mass Spectrometry. He is an AAAS and FRSC fellow. He was also a member of the Defense Science Study Group.

This year's recipient of the ACS Division of Analytical Chemistry J. Calvin Giddings Award for Excellence in Education is **George Wilson**, University of Kansas. Professor Wilson is Distinguished Professor of Chemistry and Pharmaceutical Chemistry *Emeritus* at the University of Kansas. He received his Bachelor's degree at Princeton University and his Ph.D. at the University of Illinois. After an NIH post-doc at Illinois in Biochemistry, he joined the faculty of the Chemistry Department at the University of Arizona, where he remained for 20 years until his appointment as Distinguished Professor at Kansas in 1987. He served as Associate Vice Provost for Research and Graduate Studies for six years until his retirement in 2010. His research interests are in the area of biological electron transfer involving particularly heme peptides and proteins and in redox chemistry involving biologically-important thioethers such as methionine. These have

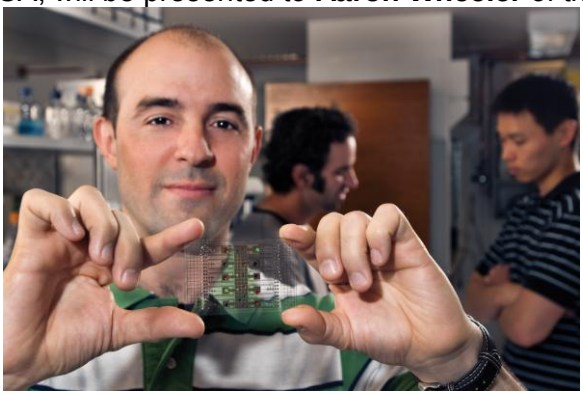
taken on increased importance in understanding protein damage under conditions of oxidative stress. He has also been active in the development of bioanalytical chemistry particularly as applied to enzyme-based biosensors for real-time in-vivo analysis and for flow injection immunoassays. Professor Wilson was elected chair of the Electrochemistry Commission and also as President of the Physical and Biophysical Chemistry Division of IUPAC and has been serving on the ACS Committee on Professional Training for the past ten years. He has received a number of other honors including the Higuchi Research Achievement Award (University of Kansas), the Charles N. Reilley Award in Electrochemistry and was elected a AAAS Fellow and Fellow of the International Society of Electrochemistry.

Sam Houk, Iowa State University and Ames Laboratory will receive the ACS Division of Analytical Chemistry Award in Spectrochemical Analysis: Sam was born in New Castle PA and received the B. S. degree in Secondary Education from Slippery Rock State College in 1974. He received the Ph.D. in Analytical Chemistry from Iowa State University in 1980, where he worked with V. A. Fassel and H. J. Svec. He has been on the faculty at Iowa State University since 1981 and has a concurrent appointment in the Ames Laboratory of the U. S. Dept. of Energy. His long term interests are in inorganic analysis by mass spectrometry, particularly ICP-MS, electrospray MS, and the combination of these methods with chromatographic and electrophoretic separations for measuring elemental speciation. Houk built the first ICP-MS device and has won the following awards: ACS Award in Chemical Instrumentation (1993) and the Lester W. Strock Award (Society for Applied Spectroscopy, 1986), Hasler Award (Soc. for Analytical Chemistry of Pittsburgh & Fisons, 1993), Wilkinson Teaching Award (Iowa State, 1993), the Research Excellence Award from the College of Liberal Arts and Sciences (Iowa State, 2000), the Anachem Award (ACS Detroit Section, 2000), the Innolec Lectureship from Masaryk University (Brno, Czech Republic, 2006), and the Margaret White Graduate Faculty Award (Iowa State, 2007). He has also been named a fellow of the Society for Applied Spectroscopy (2007). Houk has published 165 papers and has served on the editorial boards of the Journal of Analytical Atomic Spectrometry and Spectrochimica Acta Part B, the two major journals in atomic spectroscopy.

The 2012 recipient of the ACS Division of Analytical Chemistry Award in Electrochemistry is **Joseph Hupp**, Northwestern University. Joe is currently the Morrison Professor Chemistry and is a Senior Science Fellow in the Chemical Sciences and the Materials Science Divisions at Argonne National Lab. He received his BS from Houghton College in 1979 and his PhD at Michigan State University in 1983. After leaving MSU, he spend two years as a postdoctoral fellow at UNC before joining the faculty at Northwestern. Joe has received a number of awards including a Henry and Camille Dreyfus Teacher-Scholar Award, an NSF Presidential Young Investigator Award, and both the David C. Grahame

Award and the Carl Wagner Memorial Awards from the Electrochemical Society. Joe serves on the Editorial Board of Langmuir and an Associate Editor of Journal of the American Chemical Society.. His Research is highly interdisciplinary and revolves around a theme of studying materials for alternative energy applications and other environmental issues.

The ACS Division of Analytical Chemistry Arthur F. Findeis Award for Achievements by a Young Analytical Scientist, sponsored by Philip Morris USA, will be presented to **Aaron Wheeler** of the University of Toronto. Aaron completed his Ph.D. in Chemistry in 2003 at Stanford University and then spent two years as a postdoctoral fellow at UCLA. In 2005, he became the Canada Research Chair of Bioanalytical Chemistry at the University of Toronto. Wheeler's research interests are in the highly interdisciplinary area of microfluidics (i.e., the study and application of fluid flow in devices with 10^{-6} m-sized features that are useful for working with fluidic samples as small as 10^{-12} L). Wheeler applies microfluidics to solving problems in chemistry, biology, and medicine; recent projects in these areas include the development innovative schemes for combinatorial peptide synthesis, new techniques for long-term mammalian cell culture and analysis, and unique tools for quantifying disease markers in tiny tissue samples. In recognition for his contributions to analytical chemistry, Wheeler has received a number of international awards, including a Sloan Fellowship and the Eli Lilly and Co. Young Investigator Award in analytical chemistry.

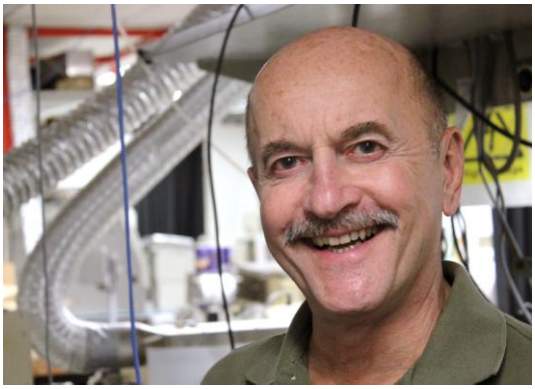


At Pittcon in March 2012 the Division presented the 2011 Award for Young Investigators in Separation Science, sponsored by Agilent Technologies to **Jared L. Anderson**, University of Toledo. Jared received his B.S. in chemistry from South Dakota State University in 2000 and his Ph.D. in analytical chemistry in 2005 from Iowa State University where he worked under the supervision of Daniel W. Armstrong. He accepted a faculty position as an assistant professor at The University of Toledo in August 2005. He was awarded tenure and promotion to associate professor in August 2009. In August 2011, he was promoted to the rank of full professor. He currently leads a research group of 10 Ph.D. students, 6 undergraduate students, several high school students, as well as numerous visiting professors and graduate students from other countries. He has been an active participant in the ACS Project SEED program where his research group has hosted 6 high school students from underprivileged backgrounds to expose them to the excitement of the chemical sciences. His research group explores the use of ionic liquids (ILs) and polymeric ionic liquids (PILs) in numerous areas of separation science. ILs and PILs can be custom-synthesized to contain various functional groups that can be advantageous when used as stationary phases in gas chromatography or as sorbent coatings in solid-phase microextraction (SPME). His group was the first to develop synthetic methods to incorporate PILs as highly selective extraction coatings in SPME. His group also develops new methodologies for the fabrication of membrane materials that can be

used for challenging water-based separations. He has authored or co-authored more than 65 peer-reviewed publications, 6 book chapters, and holds five patents. In 2008, he was awarded a Faculty Early Career Development Grant from the National Science Foundation. He currently serves on the editorial board of *LCGC*. In 2010, he was awarded the *Emerging Leader in Chromatography* Award given by *LCGC*.

Award for Distinguished Service in the Advancement of Analytical Chemistry,

The ACS Division of Analytical Chemistry will present the Award for Distinguished Service in the Advancement of Analytical Chemistry, sponsored by Waters Corporation, to **Gary Hieftje** during SciX in Kansas City this fall. Gary is the Distinguished Professor and Mann Chair of Chemistry at Indiana University in Bloomington, Indiana. His research interests include the investigation of basic mechanisms in atomic emission, absorption, fluorescence and mass spectrometric analysis, and the development of instrumentation and techniques for atomic and molecular methods of analysis. He is interested also in the on-line computer control of chemical instrumentation and experiments, the use of time-resolved luminescence processes for analysis, the application of information theory to analytical chemistry, analytical mass spectrometry, near-infrared reflectance analysis, metallomics, and the use of stochastic processes to extract basic and kinetic chemical information. He has won numerous awards in the fields of analytical chemistry, chemical instrumentation, and spectroscopy, has held major offices in several scientific societies, has delivered many named lectures, and has served on the editorial boards of many major journals. He is the author of over 550 publications, 10 books, and 18 patents. More than 65 students have received doctorates under his direction; many others have received M.S. degrees, and scores of undergraduates and visiting scientists have performed research in his laboratories.



FACSS/SAS Awards

The Society for Applied Spectroscopy (SAS) and the Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) have announced that **Drs S. Michael Angel**, Nathaniel R. Gomer, Christopher M. Gordon, Paul Lucey, Shiv K. Sharma, and J. Chance Carter have been awarded the 2012 William F. Meggers Award for their paper entitled:

"Raman Spectroscopy Using a Spatial Heterodyne Spectrometer: Proof of Concept" Volume 65, Issue 8, (August 2011), pp. 849-857

This award is given annually to the author(s) of an outstanding paper appearing in the SAS's journal *Applied Spectroscopy*. Professor Angel, University of South Carolina, Columbia will accept the 2012 William F. Meggers award on behalf of his coauthors at SciX 2012.

Michael Angel received his PhD in analytical chemistry from North Carolina State University in 1985. Following graduation he went to Lawrence Livermore National Laboratory where he was a post-doc in the group of Tomas Hirschfeld, then an Environmental scientist (1986-1989), and subsequently held the position of Group leader –

Advanced Measurement Science Group – Environmental Sciences Division (1989-1993). In August of 1993, he took up a position as an associate professor of chemistry at the University of South Carolina. In 2001 he was promoted to full professor and in 2005 became the Fred M. Weissman Palmetto Chair in Chemical Ecology (the position he currently holds). Professor Angel's recent honors and awards include, a Lawrence Livermore National Laboratory – Physics and Advanced Technologies Directorate Award (2006), a University of South Carolina Education Foundation Research Award for Science, Mathematics, and Engineering (2009), voted South Carolina Chemist of the Year by the South Carolina Section of the American Chemical Society, a 2011 FACSS Innovation Award, and election as a Fellow to the American Association for the Advancement of Science (AAAS). His current research interests include optical instrumentation for remote and in-situ measurements, and remote and in-situ spectroscopic measurements in extreme environments.

This years recipient of the New England Section of the SAS's 2012 Strock Award is Professor **Ralph Sturgeon**, National Research Council, Canada. This award has been established by the New England Section and is given annually to an author or authors *in recognition of a selected publication of substantive research in/or application of analytical atomic spectrochemistry in the fields of earth science, life sciences, or stellar and cosmic sciences.* The selection committee give particular attention to the scientific interests of Lester W. Strock in the geological and life sciences, as exemplified by his publications when making a selection. Nomination for the award may be made by any member of the Society. The award comprises a medal. Ralph received his BSc (1973) and PhD (1977) in analytical chemistry from Carleton University, Ottawa Canada. Following graduation he immediately accepted a position as Research Associate in the Analytical Chemistry Group, Division of Chemistry at the National Research Council, Ottawa. Although primarily tasked with the development of Certified Reference Materials, he was given the latitude to pursue interest in fundamental studies in analytical spectroscopy. In1998 he became a Principal Research Officer and in 2000 was appointed Group Leader for Chemical Metrology in the Institute for National Measurement Standards, NRC, a position he held until 2010. His interests lie in inorganic analytical chemistry, comprising trace element analysis, vapor generation, instrument development, organometallic speciation and production of Certified Reference Materials with a focus on atomic and mass spectrometric detection. He currently serves on the advisory boards of a number of international analytical chemistry journals and holds an Adjunct Research professor position with the Department of Chemistry, Carleton University. Since 2000, he has represented Canada on the Comité consultatif pour la quantité de matière (CCQM) under the auspices of the International Committee of Weights and Measures, participating in the working groups for both Inorganic Analysis as well as the Joint Committee on Traceability in Laboratory Medicine. Sturgeon's ongoing research activities are in the areas of vapor generation for sample introduction, mass bias fractionation in inorganic mass spectrometry and traceability of chemical measurements. His contributions to analytical atomic spectroscopy have been recognized through a number of awards, including Fellowship in the Chemical Institute of Canada (1990), the Barringer (1986) and Herzberg (2002) awards of the Spectroscopy Society of Canada, the McBryde Medal (1990) and Maxxam Award (2007) from the Chemical Institute of Canada, the Ioannes Marcus Marci award (1998) of the Czech Spectroscopic Society and an NRC Outstanding Achievement Award for 2009.