

WELCOME TO FACSS '99

Dear Colleagues,

This is a unique year for FACSS. For the first time, we hold our annual meeting in a foreign land! We have always drawn 10% or more of our attendees, symposia and speakers from multitudinous countries, which has allowed us to claim a significant international flavor, but it is our delight this year to be hosted by another country. Canada is represented by The Spectroscopy Society of Canada, the Vancouver Convention and Exhibition Centre, and the City of Vancouver. I can even revert here to the English spelling of Centre! Hence, this is a joint meeting between FACSS and the International Conference on Analytical Sciences and Spectroscopy (ICASS). The latter is an illustrious meeting in its 45th year with a tradition of high quality scientific content, and this is the 26th year in which the FACSS organization has endeavored to maintain a tradition of cutting edge scientific presentations, posters, exhibits, and workshops. In many ways, the goals of the two meetings are very close, and it is a great pleasure for the members of the FACSS organization, which I represent, to work with the ICASS group. I am sure you will agree that the resultant scientific program is truly excellent, because of the FACSS/ICASS collaboration.

FACSS is always facing great changes, simply because science is dynamic. It is an important issue for us to work out how to deal with changes in the analytical sciences, and make sure that we do change. One way that we already do this is to give almost total autonomy to our Program Chair and General Chair of each meeting, so that the content and nature of the meeting is not hampered by outdated ideas that are no longer relevant. Another way is to ensure that our Governing Board remains representative of the analytical sciences. In this vein, I would like to appeal to our organizers of symposia, to our speakers, and to our attendees for suggestions of large and small organizations, societies, or divisions of societies, etc, that might like to affiliate with FACSS. Such an affiliation would allow such societies to take advantage of the organizational structure and reputation of FACSS, as it moves between places, and hold symposia and meetings in conjunction with FACSS to the extent that such societies feel is appropriate. If you would like to discuss these issues, or if you have suggestions that might further these aims, please don't hesitate to contact me, or any future Governing Board Chair. Contact by electronic mail is probably easiest in the first instance (michel@uconn.edu). I look forward to hearing from you!

Finally, I want to thank the legions of people who have worked very hard to ensure that this meeting, in this wonderful city of Vancouver, is successful in scientific and social terms. We all know the level of effort that is required to make FACSS successful, and accordingly, this year's organizers, including both ICASS and FACSS people, deserve our heartfelt thanks. I wish I could name everyone involved, including all our symposium organizers and speakers, but that would take too long! Sincere thanks to all those people, and to our attendees and exhibitors without whom all of this would be for naught.

Sincerely,

Robert G. Michel

FACSS Governing Board Chair

GENERAL INFORMATION

FACSS '99 LOCATION: All conference sessions and exhibits will be held at the Vancouver Convention Center, 999 Canada Place, Vancouver, Canada V6C 3C1 and Workshops will be conducted at the Waterfront Centre Hotel.

SPEAKERS. There will be a 35 mm slide projector and an overhead projector for each symposium. Speakers should appear with slides loaded in trays 15 minutes prior to the start of a session. Each speaker should carefully adhere to the time allotted for the talk.

SPEAKER READY ROOM. The Meeting Manager's Room is equipped with slide previewing equipment. Please use the masking tape in the room to mark your tray with your name and the time of your talk.

POSTER SESSION SCHEDULE. The posters will be on view 14:00 to 17:00 Wednesday in Exhibit Hall B. Posters should be put up between 10:00 and noon on Wednesday. Poster presenters will attend their posters on Wednesday according to the schedule in this program. All even numbered posters present at 14:15 and odd numbered posters present at 15:30.

Section 1: Applied Atomic Spectroscopy, Instrumentation, and Mass Spectrometry (508-562)

Section 2: Molecular Spectroscopy, Process Control, Electrochemistry, IR, Near-IR, and Raman (563-594)

Section 3: Chemometrics, Luminescence, Biomedical and Pharmaceutical Applications, Environmental Analytical Chemistry, Imaging and Miscellaneous (595-626)

Attention SAS students. Please be present at your poster at 14:00

WORKSHOPS. A list of workshops and descriptions is located on page _____. You must register for a workshop at the conference registration desk in the convention center. All workshops are held at the Waterfront Centre Hotel.

EMPLOYMENT BUREAU. The center will be located in the convention center, rooms 4, 5, and 6. The center will be open Monday through Thursday, 8:30 to 17:00. Forms are available at the employment bureau.

EXHIBITS. The exhibition is located in Exhibit Hall B and will be open as follows:

Monday (Opening Reception)	17:30-19:30
Tuesday – Wednesday	10:00-16:30
Thursday	10:00-14:00

BREAKS. All conference refreshments breaks will be located in the Exhibition, Exhibit Hall B with the exception of Monday morning and Thursday afternoon.

REGULATIONS. The following regulations are in the best interests of the conference.

1. There is no smoking in any session or conference event.
2. An official name badge is required for admission to any session or the Exhibit Hall.
3. No advertising may be placed in the conference area.
4. Only official exhibitors may display in the Exhibit Hall.

SPECIAL EVENTS.

SUNDAY

19:00 Welcome Mixer, Convention Center, Rooms 1, 2, and 3.

MONDAY

17:30 – 19:30 Reception for Exhibition Opening (wine, beer, snacks), *Exhibit Hall B*

TUESDAY

Noon Lunch for conferees, Exhibit Hall B

WEDNESDAY

13:00 Plenary Lecture, Dr. David Suzuki, Ballroom A

14:00 – 17:00 SAS/FACSS co-sponsored Poster Session, Exhibit Hall B
Refreshments

16:40 SAS and FACSS Awards Presentation

THURSDAY

Noon Farewell luncheon for exhibitors and guests. *Additional tickets can be purchased at the registration desk.*

COMPANION REGISTRATION. Companion registration is offered for persons accompanying conference registrants and includes a designated name badge and the activities listed below.

MONDAY

9:00 Introduction to Vancouver, Coffee and pastries, Burrard Room, Waterfront Centre Hotel

17:30 – 19:30 Reception for Exhibit Opening. Wine, beer, snacks.

9:00 – 11:00 Coffee and pastries, Burrard Room, Waterfront Centre Hotel

Cost: \$20 U.S. or \$30 Canadian for Companion Registration

FACSS ORGANIZATION

Sponsoring Affiliates of FACSS

American Chemical Society, Analytical Division
ANACHEM

Analysis Division of Instrument Society of America

Coblentz Society

Royal Society of Chemistry

Society for Applied Spectroscopy

1999 Chair Persons

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Atomic Spectroscopy **Dave Koppenaar**, Pacific Northwest National Laboratory
Awards **Michael Carrabba**, Chromex, Inc.
Biotechnology/Bioanalysis **Norm Dovishi**, University of Alberta
Chemometrics **Karl Booksh**, Arizona State University
Electrochemistry **Steve Creager**, Clemson University
Mass Spectrometry **Donald Douglas**, University of British Columbia
Robert Boyd, Institute for Marine Biosciences
Molecular Spectroscopy **Richard Palmer**, Duke University
Poster Session **Nancy Miller-Ihli**, USDA
Process Analytical **Mel Koch**, CPAC, University of Washington
Raman Spectroscopy **Michael M. Carrabba**, Chromex, Inc.
Separations **Joe Davis**, Southern Illinois University
Spectroscopy Society of Canada **Diane Beauchemin**, Queen's University
Teaching Analytical Chemistry **Frank Settle**, Washington & Lee University

FACSS CHAIRS

GOVERNING BOARD CHAIR

GENERAL CHAIR

Robert G. Michel

University of Connecticut

Bob Michel is Professor of Chemistry at the University of Connecticut. He received his B.Sc. (1971) and Ph.D. (1974) from Sheffield Hallam University in England. He was appointed Assistant Professor at the University of Connecticut in January, 1979, after postdoctoral fellowships at the University of Florida with Professor James D. Winefordner and at the University of Strathclyde Scotland with Professor John M. Ottaway

His research interests involve the development of sensitive and selective methods of analysis based on laser spectroscopy. His primary research efforts have been in atomic spectrometry using flames, furnaces and plasmas, and measurement of atomic emission, atomic absorption and atomic fluorescence. Recent work has concentrated on resonant laser ablation into a microwave plasma. Bob is also active in the development of the use of multimedia computers in teaching. Research in this area is centered on the use of digital video to illustrate topics in analytical and general chemistry teaching, and for teaching at High School and Middle School levels. A list of publications and presentations that have illustrated this scientific and pedagogical research can be accessed via his web page at <http://chemweb.chem.uconn.edu>

He is a member of the Society for Applied Spectroscopy, the American Chemical Society, the Royal Society of Chemistry, the American Microchemical Society, and the Spectroscopy Society of Canada. He was Society for Applied Spectroscopy Tour Speaker in 1986 and 1998. He was the recipient of a Senior Fulbright-Hays Award, 1974-1976, NIH Research Career Development Award, 1984-1989, and the Benedetti-Pichler Award of the American Microchemical Society in 1992. He was Program chair, at the XVI conference of the Federation of Analytical Chemistry and Spectroscopy Societies (FACSS), Chicago, 1989. He was a visiting Scholar at Western Carolina Univ. NC, in Jan. 1996

Michael Blades

University of British Columbia

Michael Blades was born in Barrington Passage, Nova Scotia, Canada. In 1971 he obtained a diploma in Electronic Engineering Technology from the Nova Scotia Institute of Technology and worked for two years as an electronic technician for the Defense Research Board. He received his B. Sc from St. Marys University (Halifax) in 1975 and his Ph. D. from the University of Alberta in 1980 under the supervision of Professor Gary Horlick. He subsequently went to Indiana University to work as a postdoctoral research associate in the laboratory of Dr. Gary Hieftje (1980-81). Blades is currently a professor in the Department of Chemistry at the University of British Columbia, a position he has held since 1981. His research interests are in the areas of plasma spectroscopy, in particular, the development of new plasma sources and the characterization of excitation conditions in plasmas, ion-trap mass and optical spectrometry, and UV-resonance Raman spectroscopy applied to biophysical problems. Professor Blades is the recipient of the 1987 McBryde Medal and the 1994 Fisher Lecture Award both awarded by the Canadian Society for Chemistry (CSC) and a 1996 Analytical Spectroscopy Award of the Royal Society of Chemistry. He is currently on the editorial boards of *Spectrochimica Acta* and *Applied Spectroscopy*. In addition to being a devoted father, Mike likes to play hockey, windsurf, snowboard, play guitar (which he does badly), and drink beer with his friends.

Mike has been attending FACSS conferences since 1981 and is currently the Chair of the Long Range Planning Committee.

PROGRAM CHAIR

Ron Williams

Armstrong Atlantic State University

Ron Williams received his BS in Chemistry from the University of South Carolina in 1977. He attended graduate school at the University of Georgia under the tutelage of Dr. Geoffery Norman Coleman, graduating in 1981 with a PhD in Analytical Chemistry. After a post doctoral fellowship with Dr. Gary Horlick at the University of Alberta working on applications of Fourier transform methods to atomic spectrometry he became an Assistant Professor of Chemistry at Ohio University in Athens Ohio. In 1988 he left OU for Clemson University where he remained until 1998 when he accepted the Departmental Headship in Chemistry and Physics at Armstrong Atlantic State University in Savannah Georgia. He is editor of the new on-line buyer's guide from the Society of Applied Spectroscopy.

EXHIBITS CHAIR

Scott W. McGeorge

Transition Technologies Inc.

Scott W. McGeorge is President of Transition Technologies Inc., a consulting firm engaged in laboratory productivity enhancements with an emphasis on sample introduction strategies for ICP atomic emission and mass spectrometry. The company has recently bifurcated to include molecular biology workstations for nucleic acid analysis. He received his B.Sc. degree in chemistry from the University of Waterloo with a minor in computer science in 1980. With an interest in digital networks, applied computer science and spectroscopy he enrolled in graduate studies at McGill University in Montreal where he studied with Dr. Eric D. Salin. He received his Ph.D. in 1985 and his dissertation pertained to the application of image sensor technology for ICP atomic emission spectrometry.

After graduate school, Scott worked for PRA International with funding from an Industrial Research Fellowship. He later joined Leco Corporation where he managed a group assigned to the development of a multiple dispersion ICP spectrometer system employing echelle optics and photodiode array detection. He had the good fortune to gain some business experience as Sales and Marketing Manager for Leco's Canadian subsidiary. Scott founded Transition Technologies in the summer of 1994 and currently enjoys serving a client base with wide ranging interests and problems. He has authored or co-authored 13 publications and is a member of the SAS and the SSC.

A full and active family life with spouse Antoinette and three children leaves little time for hobbies and sports. However, during those rare moments, sporting interests include soccer, the martial arts, sailing, several forms of skiing, and related activities to ameliorate and minimize injuries sustained by the former. His interest in music is broad and he actively seeks out suitable listening venues in the various conference cities he visits. An ongoing interest in collecting antique and unusual corkscrews is complemented by using them from time to time.

FACSS '99 SPONSORS

FACSS gratefully acknowledges the generous support of the following:

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FACSS AWARDS

FACSS STUDENT AWARD

TOMAS HIRSCHFELD AWARD

Renee JiJi

Arizona State University

Renee JiJi is currently a doctoral student in analytical chemistry at Arizona State University. She received her MS in analytical chemistry in 1998 from Arizona State University. She completed her undergraduate studies at San Diego State University in 1995, where she received a BA in chemistry. In 1999 she received both the John Kacoyannakis departmental award for the most outstanding graduate student in analytical chemistry and the International Society for Optical Engineering (SPIE) student award. For the past three years she has been working with Dr. Karl Booksh on developing novel instrumentation for environmental monitoring and multivariate calibration methods.

Ms. JiJi's research centers on pesticide detection and quantification using excitation-emission matrix (EEM) fluorescence and the multivariate calibration methods necessary to process the large amounts of data produced with higher order instrumentation. EEM fluorescence produces a two-dimensional fluorescence spectrum for each sample. Second-order calibration methods, such as parallel factor analysis (PARAFAC) may then be employed to deconvolve the excitation and emission profiles of compounds with overlapping spectra. She has shown that parts per billion detection limits in aqueous solutions may be achieved for the natively fluorescent carbamate pesticides and poly-nuclear aromatic hydrocarbons employing EEM fluorescence and PARAFAC. Currently, she is exploring techniques to extend this method to the non-natively fluorescent DDT type pesticides using solvatochromatic dyes.

Presently, she is researching how the degree of overlap, the number of replicate samples and the presence of interferences affect the predictive capabilities of the calibration models. The goal of this project is to develop an expert system that guides the analyst in tailoring the data analysis to the sample data. Ms. JiJi's future goals include the use of automated calibration methods, higher order calibration models and novel environmental sensors to study the interactions of environmental pollutants with the natural biota in a region.

Sara L. McIntosh

Duke University

Sara L. McIntosh received her B. S. in Chemistry with honors from Union College in Schenectady, New York in 1997. She received the Pelham Wilder, Jr. Fellowship for Excellence in Undergraduate Teaching at Duke University. Under the advisement of Linda B. McGown at Duke University, her graduate studies are concentrated on potential forensic science applications of on-the-fly fluorescence lifetime detection for capillary electrophoresis. The current focus of her research is the use of novel intercalating dyes as labels for DNA restriction fragments in multiplex DNA detection, where both a restriction digest and DNA ladder (size standard) can be run simultaneously in the same column and the fragments of different digest distinguished on the basis of the fluorescence lifetimes of the dyes used to label them. She is also developing a project that will use on-the-fly fluorescence lifetime detection for capillary electrophoresis to identify inks from different sources in document analyses. Upon completion of her degree, she would like to find employment at a state or federal crime laboratory, specializing in firearms/toolmark identification.

ANACHEM AWARD

Steve Stein

NIST

Steve works at the National Institute of Standards and Technology as a NIST Fellow, where he has been in charge of the NIST Mass Spectrometry Data Center since 1988. He was born on the lower east side of Manhattan, New York City on December 13, 1948 and grew up in mostly in the Bronx. He graduated from the University of Rochester in 1969 with a degree in Chemistry and earned a Ph.D. in Physical Chemistry from the University of Washington, Seattle in 1974, in the area of Gas Phase Kinetics. He spent two years in the Thermochemistry and Chemical Kinetics Division of SRI International in Menlo Park, California as a Research Associate/Staff Scientist and five years in the Chemistry Department of West Virginia University as an Assistant/Associate Professor, working mostly in the area of high temperature kinetics, especially in its application to coal chemistry. He came to NIST (then NBS) in 1980 where he continued work in kinetics for several years before becoming involved in computer applications of chemical reference data, assuming responsibility for the NIST/EPA/NIH Mass Spectral Library in 1988. Since then he has led the comprehensive evaluation of the library and been involved in the development of algorithms and software for evaluating data and extracting chemical information from this resource. He has also been involved in a number of other reference data projects, including the NIST Chemistry WebBook and several chemical thermodynamics data programs. He has received the Department of Commerce Gold Medal, the ACS Storch Award in Fuel Science, the ACS Patterson-Crane Award and NIST Applied Research and Schlichter Awards. He has published over 75 research papers and been a principal developer of several data products including the NIST Mass Spectral Search Program, the AMDIS GC/MS Deconvolution Program, the NIST Structures and Properties Program and the NIST/EPA Gas Phase Infrared Library.

SOCIETY FOR APPLIED SPECTROSCOPY

DISTINGUISHED SERVICE AWARD

Recognizing members for their long-time service to the Society.

he ran unsuccessfully for president twice and served on several committees including conference, nominations, project study and advisory, tellers and publications, and was course director for the SAS short course on Successful Atomic Spectrometric Measurements.

Michael S. Epstein

Dr. Michael S. Epstein received his B.S. in Chemistry (1969) and Ph.D. in Analytical Chemistry (1976) from the University of Maryland. In 1972, he was hired by Ted Rains as a summer student at the National Bureau of Standards (now NIST), beginning a 20-year collaboration that resulted in numerous publications and a lifelong friendship. During his 27 years at NIST, Epstein also did postdoctoral research with Jim Winefordner at the University of Florida (1978-79), served as a group leader of the atomic and molecular spectrometry group (1989-1990), and as a scientific advisor to the Director of the Chemical Science and Technology Laboratory at NIST (1991-92). In 1989 he was the recipient of the Department of Commerce Bronze Medal Award for Superior Federal Service. He has been involved in the certification of over 120 Standard Reference Materials, as well as coordinating the certification of several environmental SRMs.

Dr. Epstein has also maintained an interest in teaching general and analytical chemistry, having been an adjunct professor at Mount Saint Mary's College (1996-97) and assistant professor at Hood College (1998-99), as well as teaching a number of professional development short courses over the last several decades. He has published over 50 articles, including 4 book chapters and has served on the editorial boards of the *Journal of Analytical Atomic Spectroscopy*, *Talanta*, *Analytical Chemistry*, and *Progress in Analytical Atomic Spectroscopy*.

Epstein joined the Baltimore-Washington Section of SAS in 1973, while a graduate student at the University of Maryland. In subsequent years he served the local section as treasurer, secretary, and chairman, as well as chairing committees on science fair awards, professional development, and serving as newsletter editor, governing board delegate, and webmaster. In 1984 he was elected as National SAS treasurer, serving until 1986. During that period he developed a computer-based accounting system for the Society, established the videotape education program, and founded the first SAS computer bulletin board. From 1996 to 1998 he served as the SAS newsletter editor, renovating the format and content of the newsletter. He also compiled an SAS history CD-ROM that was distributed at several national conferences. During the interim (1986-96)

Truman C. Waugh

Truman C. Waugh is retired from the Kansas Geological Survey, Lawrence, Kansas where he held the position of Associate Scientist. Born in Iola, Kansas, Mr. Waugh enlisted in the United States Army after he finished all requirements of junior college. In the summer of 1957 he was hired as a research chemist for the Kansas Geological Survey.

After serving two years in the army, he attended the Kansas State Teachers College and the University of Kansas. He received his B.A. degree in chemistry and mathematics in 1963 from Washburn University in Topeka Kansas. Mr. Waugh was employed with the Kansas Department of Health in analytical chemistry and was an expert witness for the State of Kansas for 6 years. His retirement marked Mr. Waugh's 41st year with the State of Kansas and 34 years with the Kansas Geological Survey.

Mr. Waugh's interest is in analytical chemistry, specifically Atomic Emission Spectroscopy, and he has been involved in major, minor, and trace element determinations by Inductively Coupled Argon Plasma (ICAP). He has authored or co-authored 27 papers. Additionally, he has served the national Society for Applied Spectroscopy as Secretary (1985-1988); Chairman-Elect and Chairman of the Program Committee (1979-1980); member of the Budget Committee (1972); member of the Conference Committee (1976); member of the Local Section Affairs Committee (1978); Chairman-Elect and Chairman of the Publications Committee (1983-1985); member of the Constitution and Bylaws Committee (1990-1991); member of the Editorial Board of *Applied Spectroscopy* (1976-1993); Co-managing Editor of *Applied Spectroscopy* (1989-1993); and delegate to the National SAS Governing Board. He is also a charter member of the Kansas City Local Section of the Society for Applied Spectroscopy and has served as Secretary, President-elect, and President of that section.

SOCIETY FOR APPLIED SPECTROSCOPY

HONORARY MEMBERSHIP AWARD

Recognizing those individuals who have made exceptional contributions to spectroscopy.

Gary M. Hieftje

Gary M. Hieftje is Distinguished Professor and Chair of Chemistry at Indiana University in Bloomington, Indiana. He is also interim Director of the newly established Linda & Jack Gill Center for Instrumentation and Measurement Science. His research interests include the investigation of basic mechanisms in atomic emission, absorption, and fluorescence spectrometric analysis, and the development of atomic 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, near-infrared reflectance analysis, and the use of stochastic processes to extract basic and kinetic chemical information.

He was co-chairman of the 1979 Analytical Summer Symposium on Lasers in Analytical Chemistry, the chairman of the 1982 Gordon Research Conference on Analytical Chemistry, and General Chairman of the 1987 Analytical Summer Symposium on Biotechnology. He has served on the instrumentation advisory panel and editorial board of *Analytical Chemistry*. He currently serves on the editorial boards of various journals including *Analytica Chimica Acta*, *Journal of Analytical Atomic Spectroscopy*, *Journal of Mass Spectrometry*, *Laboratory Microcomputer*, *Spectrochimica Acta, Part B*, *Advances in Inorganic Mass Spectrometry*, the *Analytical Chemistry Bench Top Series from Springer Verlag*, *Talanta*, and *Spectroscopy and Spectral Analysis*. In 1983, he was the co-recipient of an IR-100 Award. In 1984, he was the recipient of the Meggers Award, the Lester W. Strock Award, and the Anachem Award. In 1985 he received the American Chemical Society Chemical Instrumentation Award, and in 1986 both the Pittsburgh Analytical Chemistry Award and the Theophilus Redwood Award from the Royal Society of Chemistry. He was also chairman (1985-86) of the Analytical Division of the American Chemical Society. In 1987 he received the American Chemical Society Award in Analytical Chemistry sponsored by the Fisher Scientific Company and the Tracy M. Sonneborn Teacher-Scholar Award from Indiana University. He was then also elected to Fellowship in the American Association for the Advancement of Science. In 1988 he received a second R&D 100 Award. In 1989 he received the Award in Spectrochemical Analysis from the Analytical Chemistry Division of the American Chemical Society and was co-recipient with one of his students of an award to recognize the best paper of 1988 published in the journal *Spectrochimica Acta, Part B*. In 1991, he served as President of the Society for Applied Spectroscopy, and received the gold medal of the Quality Control Academy of the Upjohn Company. In 1992, he received the Eastern Analytical Symposium Award for Outstanding Achievements in the Fields of Analytical Chemistry and was awarded a second Lester Strock Medal. In 1993, he was elected by students at Indiana University to Honorary Membership in the Golden Key National Honor Society and was the recipient of the 1993 Distinguished Faculty Award from the College of Arts and Sciences alumni of Indiana University. In 1996, he was elected as the recipient of a Humboldt Research Award for Senior U.S. Scientists and received the Meggers Award from the Society for Applied Spectroscopy. Most recently, he received the 1998 ACS-Analytical Division Award for Excellence in Teaching and Honorary Membership in the Society for Applied Spectroscopy in 1999. Dr. Hieftje is the author of approximately 380 scientific publications, 10 books and holds 13 patents.

SOCIETY FOR APPLIED SPECTROSCOPY

LESTER W. STROCK AWARD

Established by the SAS New England section to recognize an author(s) of an outstanding paper or series of papers.

Bruce Chase

Bruce Chase received his B.A. from Williams College in 1970 and his Ph.D. in physical chemistry from Princeton University in 1975, where he worked with Professor Donald S. McClure on studies of charge transfer excitation of transition metal ions in alkali fluorides. He then joined E. I. DuPont de Nemours as a research chemist in the Spectroscopy Division of the Central Research Department. Today, he is a senior research fellow in the Corporate Center for Analytical Sciences. Dr. Chase's primary area of research is in vibrational spectroscopy, FT-IR and Raman techniques, and applications to industrial analytical problems. Specific areas of FT-IR spectroscopy include infrared emission, diffuse reflectance and in situ studies of photo-induced reactions. In addition his work has dealt with the problems of phase correction in interferometry and the spectral artifacts associated with nonlinear detector response. In Raman spectroscopy his work has involved the development of a microRaman capability using a laser microscope. In collaboration with Dr. Tomas Hirschfeld (deceased) he developed an FT-Raman spectrometer which demonstrated the utility of near infrared excitation. This approach has provided a nearly universal solution to the problem of fluorescence in Raman spectroscopy. Dr. Chase and Dr. Hirschfeld were recognized with an IR-100 award for this work. His research has continued in this area and involves quantitating detector sensitivity, alternate sampling configurations, and improved filter design for low frequency response. Today, several instrument manufacturers are providing FT-Raman instruments based on this development. He has also worked extensively in the area of multichannel detection in Raman spectroscopy, using both silicon based CCD's and non silicon detectors such as PtSi, Ge, and InGaAs arrays. Current research programs involve in-situ determinations of fiber orientation using Raman scattering, and multichannel/multiplex approaches to detection in combinatorial chemistry.

Dr. Chase is currently a member of the Society for Applied Spectroscopy, Coblenz Society, and the American Chemical Society (Analytical and Polymer Divisions). He has been active as a speaker, organizer and chairman of the International Conference on Fourier Transform Spectroscopy. He was General Chairman of the 1984

FACSS Meeting and Chairman of the Analytical Gordon Conference in 1986. Dr. Chase served as President of the Coblenz Society during 1986 and 1987 (two years) and is currently treasurer of that organization. He served as Editor for molecular spectroscopy of Applied Spectroscopy from 1993 through 1997. He was the 1989 winner of the Williams-Wright award and was named the 1990 EAS New York Section Gold Medal awardee. He also received the 1991 Delaware Valley ACS Section Award. He has received the 1994 SSP Award from the Spectroscopy Society of Pittsburgh and is co-winner of the 1994 Bunsen-Kirchhoff Prize from the German Chemical Society. He also received the 1998 Bomem-Michelson Award. This year he is the 1999 recipient of the ACS Analytical Division Award in Spectrochemical Analysis.

GRADUATE STUDENT AWARD

Recognizing a graduate student for outstanding research in spectroscopy

Gary A. Baker

Gary A. Baker is currently pursuing a Ph.D. in Analytical Chemistry at the State University of New York at Buffalo under the direction of Professor Frank V. Bright. He received his B.S. in Chemistry from the State University of New York at Oswego in 1995. His research efforts focus on using fluorescence spectroscopy to investigate biomolecular dynamics and conformation, as well as the potential of hybrid organic/inorganic materials as sensory and catalytic platforms. Current interests also include multiphoton applications, polymer mass spectrometry, drug self-association, deep-UV spectroscopy, and novel micellar reaction media within supercritical fluids. Mr. Baker is a member of the Society for Applied Spectroscopy, the American Chemical Society, and the American Society for Mass Spectrometry.

SOCIETY FOR APPLIED SPECTROSCOPY

MEGGERS AWARD

Recognizing the author(s) of an outstanding paper appearing in Applied Spectroscopy

Presented to Katrin Kneipp for her paper entitled “Single-Molecule Detection of a Cyanine Dye in Silver Colloidal Solution Using Near-Infrared Surface-Enhanced Raman Scattering” which appeared in the journal, *Applied Spectroscopy*, volume 52, number 2, pages 175-178 (1998).

Katrin Kneipp received her Diploma, Ph.D. degree in Physics and habilitation from the Friedrich-Schiller University in Jena, Germany, and she received the *facultas docendi* in experimental physics from the Humboldt University in Berlin. After appointments at the universities in Jena and Berlin, in industry and at the Academy of Sciences of the former German Democratic Republic, where she worked in the fields of laser spectroscopy, nonlinear optics, solid state physics, and photochemistry, the Deutsche Forschungsgemeinschaft DFG awarded her a Heisenberg fellowship, which gave her the opportunity to come to the Massachusetts Institute of Technology as a visiting scientist.

Since the eighties Katrin started work in surface enhanced Raman spectroscopy (SERS), mainly because the effect seemed to her to be an exciting way to overcome low signal problems in Raman spectroscopy. The combination of highly sophisticated NIR-Raman techniques in the MIT Spectroscopy Laboratory and SERS experience turned out to be serendipitous. Together with her MIT colleagues, Katrin found unexpectedly large SERS enhancement factors at non-resonant NIR excitation for molecules attached to colloidal silver and gold clusters. Such large cross sections permitted the observation of interesting new effects related to the Raman process, such as population pumping of the first excited vibrational level due to a spontaneous Raman process and Raman spectroscopy of single molecules. The first single molecule Raman spectra were measured in the G.R.Harrison Spectroscopy Laboratory in the fall of '95.

At present, Katrin is an Oberingenieurin at the department of physics of the Technical University Berlin. She returns to the Spectroscopy Laboratory on a regular basis as a visiting scientist to continue collaborative work. Her current research interests include modern laser spectroscopic and non-linear optics methods and their broad interdisciplinary applications and, of course, single molecule detection and characterization.

SOCIETY AND COMMITTEE MEETINGS

FACSS

Wednesday, October 27

- 8:00 2000 Planning Committee
Terrace Suite, 3rd fl, Waterfront Centre Hotel
- 13:30 Budget and Finance Committee
Terrace Suite, 3rd fl, Waterfront Centre Hotel

Thursday, October 27

- 13:15 Executive Committee
Terrace Suite, 3rd fl, Waterfront Centre Hotel
- 17:30 Governing Board
Terrace Suite, 3rd fl, Waterfront Centre Hotel

ASTM

Tuesday, October 26

- 16:00-17:30 ASTM Raman Subcommittee
Board room, Waterfront Centre Hotel

Wednesday, October 27

- 18:00 Raman Reception
Ballroom C, Waterfront Centre Hotel

COBLENTZ

Monday, October 25

- 20:00 Board Meeting
Burrard Suite, Waterfront Centre Hotel

SOCIETY FOR APPLIED SPECTROSCOPY

Sunday, October 24

- 8:00-17:00 Executive Committee Meeting
Sechelt Room, Waterfront Centre Hotel
- 12:00-13:30 Executive Committee Luncheon
Terrace Suite, Waterfront Centre Hotel

Tuesday, October 26

- 12:00-13:30 Publications Committee Meeting/Lunch
Terrace Suite, Waterfront Centre Hotel
- 1800-20:00 SAS Wine and Cheese Awards Reception
(members only)
Ballroom C, Waterfront Centre Hotel
- 20:00-23:00 SAS Governing Board Meeting
Cheakamus Room, Waterfront Centre Hotel

FACSS EMPLOYMENT BUREAU

The FACSS Employment Bureau registration forms and information will be available in Room 4 with interview booths set up in Room 5 and 6 during the 1999 FACSS Conference to both job applicants and employer representatives. The Employment Bureau is a free service that provides job and applicant listings, message boards, and interviewing booths. Participants must be registered for the conference. Separate files will be available for job opportunities and applicant resumes. Registered participants may review these files during Employment Bureau hours. Either applicants or employers may request on-site interviews.

- **Applicants** should submit the FACSS Employment Bureau Applicant Form and a personal one page resume. The Applicant Form is designed to allow easy review by employer representatives. Applicants should also include a formal resume.
- **Employers** should submit the Employer Form. They should photocopy additional forms needed for pre-registration of more than one job opportunity.

ON-SITE REGISTRATION. Applicants and employer representatives need to sign in with the Employment Bureau upon arrival at the meeting. Applicant Resume forms and Job Specification forms will be available for review. Interview booths will be available during Employment Bureau hours. The Employment Bureau will schedule 30-minute interviews upon request from either employers or applicants. Interview notices and messages will be posted on message boards. It is recommended that Employment Bureau participants check the message boards at approximately two-hour intervals during the day.

ON-SITE EMPLOYMENT BUREAU. 8:30 AM – 5 PM, Monday – Thursday, Rooms 4, 5 and 6 of the Vancouver Convention Center

FACSS EXHIBITORS

Acton Research Corp.		GBC Scientific Equip Inc	403	Ocean Optics, Inc.	305/307
See Roper Scientific		Galactic Industries	117	P&P Optica Inc.	204
Advanced Chemistry Dev, Inc.	504	Hewlett-Packard	321/323	Perkin Elmer Corp	418/420/519/521
American Chemical Society	505	High Purity Standards, Inc.	405	Photon Systems	322
Andor Technology Limited	221	Hinds Instruments, Inc.	518	Photon Technology International	201
Aurora Instruments Ltd	402	ICP Information Newsletter, Inc.	121	Photonics Spectra/BiophotonicsI	115
Barr Associates	207	ISA Horiba	404	PixelVision, Inc.	501
Bio-Rad - Sadtler Div.	306	Infometrix, Inc.	516	Renishaw, Inc.	318/320
Bio-Rad - Spectroscopy Div.	304	Infrared Analysis, Inc.	100	Roper Scientific	508/510
Bomem Inc.	520	Instruments SA/JY Emission	120	Royal Society of Chemistry	525
Bruker Optics	514	JASCO, Inc.	218	SGE Inc.	119
Bulbtronics Inc.	203	John Wiley & Sons	401	SenIR Technologies	300
CETAC Technologies		Kaiser Optical Systems, Inc.	407	Society for Applied Spectroscopy	319
Div. of Transgenomic	419/421	LECO Corporation	220	Spectra-Tech Inc.	507
ChemIcon Inc.	206	Linos Photonics, Inc.	105	Spectro Analytical Instruments	102
Chromex, Inc.	301	MTEC Photoacoustics/HPDO	512	Spectron Inc.	303
Coblentz Society	424	Melles Griot	302	Spectroscopy/Advanstar	205
Continuum	104	Merchantek/New Wave Res	506	Thermo Jarrell Ash	109
Dionex Canada Ltd	324	Micromass Canada, Inc.	406	ThermoQuest Corporation	107
Eastern Analytical Symposium	503	Milestone Inc	325	Transition Technologies	423
Elemental Research Inc.	106	Nicolet Instrument Corp.	219	VG Elemental	111/113
Elsevier Science.	400	OPOTEK, Inc.	118	Varian Associates, Inc.	200/202
FACSS	425				

FACSS EXHIBITOR DESCRIPTIONS

Advanced Chemistry Development, Inc.
133 Richmond Street W, Suite 605
Toronto, ON M5H 2L3 Canada
Phone: 416 368 3435; Fax: 416 368 5596
E-mail: catherine@acd labs.com
Web address: www.acd labs.com

Booth 504

EXHIBITING: ACD Inc. develops high-end desktop software that assists discovery and analytical chemists in the interpretation and organization of their experimental data. The ACD toolset includes NMR Prediction and assigned databases (H-1, C-13, F-19, P-31), Spectral Processing and Management Software (NMR, MS, IR, UV-Vis), Combinatorial spectroscopy support, Chromatography processing and HPLC and GC Simulation and Systematic Naming software (IUPAC and CAS Index Name)

American Chemical Society
1155 16th St. NW
Washington, DC 20036
Phone: 202 872 4442; Fax: 202 833 7736

Booth 505

EXHIBITING: Featured publications will be: *Analytical Chemistry*, the foremost journal in its field, publishes the latest peer-reviewed research and applications in areas spanning chromatography/separations, spectroscopy, mass spectrometry, as well as electroanalytical and bioanalytical chemistry. Also displayed will be the highly read *Today's Chemist at Work*, the industrial chemist's personal magazine for on-the-job success.

Andor Technology Limited
435 Buckland Road
Rosewood Bldg
S. Windsor, CT 06074
Phone: 860 648 1085; Fax: 860 648 1088
E-mail: chris@andor-tech.com
Web address: www.andor-tech.com

Booth 221

EXHIBITING: Andor Technology is one of the world's leading manufacturers of scientific CCD and ICCD camera systems. Renowned for their compact size, powerful performance and ease of operation, Andor's systems are used for basic and applied research and process control in leading universities, government institutions and manufacturing organizations worldwide. The primary US Sales office is located in Connecticut, and further technical support is provided by regional offices in New Jersey and California.

Aurora Instruments Ltd
1001 East Pender Street
Vancouver, BC, V6A 1W2 CANADA
Phone: 604 215 8700; Fax: 604 215 9700
E-mail: aurora@intergate.bc.ca
Web address: www.aurora-instr.com

Booth 402

EXHIBITING: Products AI 1100/2100 atomic absorption/plasma emission spectrometer with flame, graphite furnace, plasma emission and vapor/hydride generation atomizers. Universal autosampler. AI 4000 automatic sample processing station: automated dilution, sample preparation, flow injection, ion exchange and solid phase extraction. AI 4100 on-line analyzer with sample processing station capabilities. UV/VIS spectrometers, ultrasonic nebulizers, microwave digesters, monochromators, and HCL's.

Barr Associates
2 Lyberty Way
Westford, MA 01886
Phone: 978 692 7513; Fax: 978 692 7443
E-mail: barr@barrassociates.com
Web address: http://www.barrassociates.com

Booth 207

EXHIBITING: Designs, develops, manufacturers and markets precision optical filters from 120 nanometers to >30 microm. The filters are used in analyzers, instruments and systems based on absorption, emission, fluorescence, Raman and imaging.

Bio-Rad Laboratories- Sadtler Div.
3316 Spring Garden St.
Philadelphia, PA 19104
Phone: 800 524 6723; Fax: 215 662 0585
E-mail: sadtler_usa_sales@bio-rad.com
Web address: www.sadtler.com

Booth 306

EXHIBITING: World leader in spectral data and chemistry software. Featuring Sadtler Suite to take you through analysis to the publication of results and from structure to spectra and back again. Includes ChemWindow, SearchMaster with 2500 compound database, C-13 NMR Prediction, IR and MS interpretation tools.

Bio-Rad – Spectroscopy Division
237 Putman Ave.
Cambridge, MA 02139
Phone: 617 234 7268; Fax: 617 234 7269
E-mail: michelle_fontaine@bio-rad.com
Web address: http://www.bio-rad.com

Booth 304

EXHIBITING: Bio-Rad, Spectroscopy Division will be exhibiting their premier microspectroscopy systems including the Stingray infrared imaging system and also the Shadow mapping system. The Stingray is the only commercial analytical spectroscopy system which can obtain full mid-infrared (2.5 to 10 microns) spectral images from both micro and macro samples.

Bomem Inc.
450 Ave. St. Jean Baptiste
Quebec G2E 5S5 Canada
Phone: 418 877 2944; Fax: 418 877 2834
E-mail: carl.n.mercier@ca.abb.com

Booth 520

EXHIBITING: ABB Bomem is presenting its MB series of FT-IR spectrometers for laboratory. The Hoval, reliable analysis of OH value by FT-NIR. The Chiralier, a FT-VCD Spectrometer for Chiral Molecule Analysis. The Prota, FT-IR Protein Analyzer.

Bruker Optics
19 Fortune Drive
Manning Park
Billerica, MA 01821
Phone: 978 667 9580; Fax: 978 663 9177
E-mail: heather.alvarez@bruker.ca
Web address: www.bruker.com/optics

Booth 514

EXHIBITING: Bruker Optics offers a complete line of high performance FT-IR, NIR and Raman spectrometers for QA/QC, process control and research applications. Bruker also manufactures a variety of external modules such as IR microscopes, and chromatographic interfaces in addition to NIR sampling modules and fiber optic sampling accessories for laboratory and process applications.

FACSS EXHIBITOR DESCRIPTIONS

Bulbtronics Inc.

45 Banfi Plaza
Farmingdale, NY 11735
Phone: 516 249 2272; Fax: 516 847 0694
E-mail: bulbs@bulbtronics.com
Web address: www.bulbtronics.com

EXHIBITING: Replacement bulbs for instrumentation. Distributor of UV, Visible, NIR and IR sources for scientific and specialty applications. UV lamps for instrumentation as single wavelength line sources; pre-aligned and standard deuterium sources for most instrument models. Hollow cathode & PID lamps for all instruments, xenon and mercury short-arc lamps, laser excitation flashlamps, halogen sources; all sizes and powers. Lamps for all microscopes and lamp for sample illumination in support of low power stereo microscopes. Batteries for all applications.

CETAC Technologies, Div of transgenomic Booth 419/421

2032 Concourse Drive
San Jose, CA 95131
Phone: 408 432 3230; Fax: 408 432 3231
E-mail: lsaufley@transgenomic.com
Web address: www.cetac.com

EXHIBITING: CETAC Technologies expands ICP and ICP-MS capabilities with the new SOLIS™ 500 Solids Introduction System for ICP and the ARIDUS™ Sample Introduction System. Also shown will be the new LSX-200 Plus Laser Ablation Accessory with an innovative user interface; the M-6000A Mercury Analyzer; the U-5000AT⁺/U-6000AT⁺ Ultrasonic Nebulizers; and ICsep high-performance ion chromatography columns.

ChemIcon Inc. Booth 206

7301 Penn Avenue
Pittsburgh, PA 15208
Phone: 412 241 7335; Fax: 412 241 7311
E-mail: chemicon@chemimage.com
Web address: www.chemimage.com

EXHIBITING: ChemIcon Inc. is an innovative manufacturer of high performance materials characterization instruments. ChemIcon offers a broad range of instrumentation and chemical imaging services. ChemIcon manufactures the Falcon™ Raman chemical Imaging Microscope that provides two dimensional molecular images detailing material morphology, composition and structure.

Chromex, Inc. Booth 301

2705-B Pan American Freeway NE
Albuquerque, NM 87107
Phone: 505 344 6270; Fax: 505 344 6095
E-mail: chromex@nmia.com
Web address: www.chromexinc.com

EXHIBITING: Chromex is a leading manufacturer and designer of state-of-the-art Raman Spectroscopy systems, special educational systems, Imaging spectrographs and Scanning Monochrometers. We will feature our new Raman 2000 with interchangeable attachments for both macro and micro analysis, highlighting True_Focus Video, plus our new Sentinel Process Raman system with Sure_Cal automated calibration.

Booth 203

Coblentz Society

102 Estabrook Hall
University of Tennessee
Knoxville, TN 37996-2350
Phone: 423 974 2375; Fax: 423 974 4995
E-mail: agarrison@utk.edu

EXHIBITING: The Coblentz Society is an association dedicated to fostering the understanding and application of vibrational spectrometry such as Fourier transform and dispersive infrared and Raman scattering. The Society was founded in 1954 to promote communication among spectroscopists. Information about awards and data collection will be available at the exhibit.

Continuum Booth 104

3150 Central Expressway
Santa Clara, CA 95051
Phone: 408 727 3240; Fax: 408 727 3550
E-mail: continuum@ceoi.com
Web address: www.continuumlasers.com

EXHIBITING: Continuum is a pioneer in the development and commercialization of high performance, solid-state, tunable laser systems. The company's product line include; Nd:YAG lasers, Optic Parametric Oscillator systems (OPO) and tunable dye lasers. Continuum lasers are a cost-effective, reliable and proven solution for today's scientists, OEM and industrial laser users.

Dionex Canada, Ltd Booth 324

586 Argus Road, Unit #4
Oakville, ON L6J 3J3, Canada
Phone: 905 844 9650; Fax: 905 844 6134
E-mail: alan_lipski@dionex.com
Web address: www.dionex.com

EXHIBITING: Innovative analytical and process systems for Ion Chromatography (IC), HPLC and Accelerated Solvent Extraction (ASE). An entirely new line-of HPLC products featuring high or low pressure gradient formation. PDA detection, and Chromeleon client-server chromatography software. The Dionex/Vydac line of silica-based reversed phase columns. New IC products include the AS50 AutoSelect Autosampler, the EG40 Eluent Generator, the IonPaac AS17 column for inorganic anions, and the new amino acid analysis system.

Eastern Analytical Symposium & Exposition (EAS) Booth 503

P.O. Box 633
Montchanin, DE 19710-0633
Phone: 302 738 6218; Fax: 302 738 5275
E-mail: easinfo@aol.com
Web address: <http://www.eas.org>

EXHIBITING: EAS '99 will celebrate its 38th annual meeting, 14-18 November 1999, at the Garden State Convention Center, Somerset, New Jersey. Analytical chemistry, applied spectroscopy, microscopy, and related fields will be presented in the Program Sessions (oral and Poster), EAS Short Courses, and EAS-Exhibitor workshops over this comprehensive, excellent 4 _ day 38th Fall Meeting dedicated to analytical sciences. 260 exhibiting companies will provide a 325-booth exposition of "what's new" in analytical instrumentation and supplies. Projected attendance of scientists at EAS '99, "Gateway to the Future of Analytical Technology," is projected to be 5,500.

FACSS EXHIBITOR DESCRIPTIONS

Elemental Research Inc.

309-267 West Esplanade
N. Vancouver, BC, Canada
Phone: 604 986 0445; Fax: 604 986 0071
E-mail: cdat@eri-ilpms.com
Web address: www.eri-ilpms.com

EXHIBITING: Elemental Research Inc. (ERI) provides advanced analytical services and contract research to the pharmaceutical, biotechnology, medical and material science sectors. ERI performs both method development and validation of unique and routine analysis of material science, pharmaceutical and biological samples using advanced inorganic mass spectrometry (ICP-MS), organic mass spectrometry (GC/LS-MS/MS), proprietary laser ablation ICP-MS (for direct solid analysis providing resolution down to 5 µm) and a wide variety of standard analytical methods.

Elsevier Science

655 Ave. of the Americas
New York, NY 10010
Phone: 212 633 3765; Fax: 212 633 3764

FACSS

1201 Don Diego Avenue
Santa Fe, NM 87505
Phone: 505 820-1648; Fax: 505 989-1073
E-mail: p.a.m@ix.netcom.com
Web address: <http://facss.org/info.html>

EXHIBITING: Next year FACSS XXVII will meet September 24-28, 2000 at the Opryland Hotel in Nashville, Tennessee. The meeting will focus on emerging technologies in analytical spectroscopic, chromatographic and materials sciences. Over 1000 papers will be presented. An excellent exhibit will be organized to complement the technical program.

GBC Scientific Equip Inc

3930 Ventura Dr., Ste. 355
Arlington Hts, IL 60004
Phone: 847 506 1900; Fax: 847 506 1901
E-mail: fplew@gbcsci-us.com
Web address: www.gbcsci.com

EXHIBITING: The world's most comprehensive Atomic Absorption instruments, including the Avanta series, sets the standard for analysis and automation. Cintra, the fastest-scanning UV-Visible Spectrophotometer, makes light work of any analysis. The modular Integra XL offers the highest precision available in any ICP. The new benchtop ICP-TOFMS provides the advantages of high speed and simultaneously analysis without compromising mass range, sensitivity or precision. Ease of use windows software completes every GBC product.

Galactic Industries

395 Main St.
Salem, NH 03079
Phone: 603 898 7600; Fax: 603 898 6228
E-mail: sales@galactic.com
Web address: <http://www.galactic.com>

EXHIBITING: Spectral Server, a client/server analytical information management system that provides archival data storage and searching capabilities for enterprise-wide management and distribution of spectroscopy and chromatography data. Also exhibiting a new client/server version of Spectral ID with Mass Spec library searching capabilities and spectral DB a new desktop data management tool.

Booth 106

Hewlett-Packard

2850 Centerville Road
Wilmington, DE 19808-1610
Phone: 302-633-7380; Fax: 302 633 8916
E-mail: dan_dauerty@hp.com
Web address: www.hp.com/go/chem

EXHIBITING: The Hewlett-Packard Company exhibit will highlight the HP 4500 Series ICP-MS, the latest in a family of hugely successful, true benchtop, Inductively Coupled Plasma Mass Spectrometry instruments from Hewlett-Packard. The HP 4500 Series ICP-MS sets the standard for routine determinations of trace metals for a variety of different applications and sample types.

High Purity Standards, Inc.

P.O. Box 80609
Charleston, SC 29416-0609
Phone: 843 556 3411; Fax: 843 769 7399
E-mail: tjw@gel.com
Web address: www.hps.net

EXHIBITING: Inorganic spectrometric standard solutions for calibrating, interference check, QC, CLP and TCLP for AAS, ICP, and ICP-MS prepared in subboiling Acids; IC standards in H₂O; custom made mixtures for AAS, ICP, ICP-MS and IC; single and multielement Metallo-Organic standards; Simulated Rainwater standards; Certified Reference Materials such as Soils, Sludge, Marine Sediment, Sugar, Corn Meal, Milk Powder and Baby Formula; Matrix Modifiers for GFAAS; and High Purity Metals, Salts and Oxides.

Hinds Instruments, Inc.

3175 NW Aloclek Drive
Hillsboro, OR 97124
Phone: 503 690 42000; Fax: 503 690 3000
E-mail: cwimmer@hindspem.com

EXHIBITING: Hinds Instruments manufactures photoelastic modulator (PEM) systems for a broad range of polarization modulation applications. These include birefringence measurements, polarization modulation, FTIR spectroscopy, VCD, IRAS, chopping a light beam, ellipsometry, and polarimetry. PEMs operate by changing or detecting the polarization state of light at a fixed frequency (20 kHz – 84 kHz)

ICP Information Newsletter, Inc.

Department of Chemistry
Box 34510, Lederle Graduate Res Ctr
Amherst, MA 01003-4510
Phone: 413 545 2294; Fax: 413 545 3757
E-mail: icpnews@chem.umass.edu

EXHIBITING: The goal of ICP information Newsletter, Inc. is to advance the study, research, teaching and dissemination of knowledge in plasma spectrochemistry, analytical chemistry, science education, and related areas. The corporation publishes the monthly ICP Information Newsletter and organizes the Winter Conference on Plasma Spectrochemistry to be held in Fort Lauderdale, Florida, January 10-15, 2000. These charitable, education, and scientific purposes are achieved, in part, by donations and fund raising.

Booth 321/323

Booth 400

Booth 425

Booth 403

Booth 117

Booth 405

Booth 518

Booth 121

FACSS EXHIBITOR DESCRIPTIONS

ISA Horiba

3880 Park Avenue
Edison, NJ 08820
Phone: 732 494 8660; Fax: 732 540 2571
E-mail: raman@isainc.com
Web address: www.isainc.com

Booth 404

Infometrix, Inc.

PO Box 1528
Woodinville, WA 98072
Phone: 425 402 1450; Fax: 425 402 1040
E-mail: info@infometrix.com
Web address: www.infometrix.com

Booth 516

EXHIBITING: See the Pirouette, Ein*Sight and InStep chemometrics software lineup. Preview future updates and new software products. Discuss custom installations and applications development with our analytical/chemometrics and software engineering staff. Review our chemometrics course outline and current schedule. Courses are available at Infometrix facilities or on-site by appointment.

Infrared Analysis, Inc.

1558 S. Anaheim Blvd, Ste B
Anaheim, CA 92805
Phone: 714 817 9303; Fax: 714 817 9304
E-mail: phanst5609@aol.com

Booth 100

EXHIBITING: Long path cells for gas measurement, with optical paths from one meter to one kilometer. Optics for open path gas measurements. Database of gas phase infrared reference spectra for quantitative analysis. Computer programs for automatic gas measurement. Complete systems for gas analysis using either open or closed path.

Instruments SA/Jobin Yvon Emission

3880 Park Avenue
Edison, NJ 08820
Phone: 732 494 8660; Fax: 732 494 8796
E-mail: Lisa_Goldstone@isainc.com
Web address: www.isainc.com

Booth 120

EXHIBITING: Jobin Yvon/Horiba provides a full line of ICP-AES products including sequential, simultaneous and combination spectrometers. The JY ULTIMA provides practical resolution of less than 0.005nm and ultra low sensitivity in all matrices through the use of a radial plasma. The JY 2000 Family of Benchtop Sequential ICPs offer high performance alternatives when space is limited. The JY Panorama offers simultaneous analysis of more than 40% of the emission spectrum.

JASCO, Inc.

8649 Commerce Drive
Easton, MD 21601
Phone: 410-822-1220; Fax: 410 822 7526
E-mail: inbox@jascoinc.com
Web address: http://www.jascoinc.com

Booth 218

EXHIBITING: A complete line of Spectroscopy instrumentation including UV/VIS/NIR/FTIR, Micro FTIR, FT-Raman, Raman, Circular Dichroism, Polarimeters and Fluorescence systems and accessories. Spectra Manager is a new 32bit Windows package for '95, '98 or NT that allows multiple instruments to be controlled from a single PC under a single, easy to use platform.

John Wiley & Sons

605 Third Ave.
New York, NY 10158-0012
Phone: 212-850-6000; Fax: (212)-850-6088
E-mail: dimus@wiley.com
Web address: http://www.wiley.com

Booth 401

EXHIBITING: John Wiley & Sons, Inc. is the leading analytical chemistry publisher, offering books and journals in print and electronic form covering all aspects of analytical chemistry, including spectroscopy, chromatography and chemometrics. Many recent publications will be on display during the conference as well as advance information on the forthcoming *Encyclopedia of Analytical Chemistry* <http://www.wiley.com>

Kaiser Optical Systems, Inc.

371 Parkland Plaza
P.O. Box 983
Ann Arbor, MI 48106-0983
Phone: 734 665 8083; Fax: 734 665 8199
E-mail: karen@kosi.com
Web address: www.kosi.com

Booth 407

EXHIBITING: The **HoloLab Series** of Raman instruments provides options for remote sampling for reaction monitoring, a Class 1 compartment for routine analysis, and a Raman microscope for contaminant analysis. The **HoloProbe** process Raman analyzer utilizes remote fiber-optic *in-situ* sampling for multi-channel real-time monitoring and control of industrial processes.

LECO Corporation

3000 Lakeview Avenue
St. Joseph, MI 49085-2396
Phone: 800 292 6141; Fax: 616 982 8977
E-mail: stuart_georgitis@leco.com
Web address: http://www.leco.com

Booth 220

EXHIBITING: LECO's Renaissance TOF-ICP-MS is a unique instrument for trace multi-element analysis. It simultaneously acquires up to 30,000 full profile, full mass range spectra per second for improved precision and superior isotopic ratios compared to quadrupole. Small sample volumes and transient signals can be analyzed without compromising sensitivity or elemental coverage.

Linus Photonics, Inc.

459 Fortune Blvd.
Milford, MA 01757
Phone: 508 478 6200; Fax: 508 478 5980
E-mail: lindasmith@mediaone.net
Web address: linus-photonics.de

Booth 105

EXHIBITING: LINOS Photonics manufactures optics, micropositioning systems and light sources for research and OEM applications. New piezoelectric products introduced: fiber switches, variable width slits and closed loop linear positioners. Stock products exhibited: CCD camera lenses, adapters and the new Tube Mounting System that positions stock lenses, filters, beamsplitters, mirrors, and irises within light tight modular tubes. Visit the booth to receive the latest 400-page catalog to discuss your custom OEM requirements with a sales engineer.

FACSS EXHIBITORS DESCRIPTIONS

MTEC Photoacoustics and High Pressure Diamond Optics

PO Box 1095
3507 Oakland Street
Ames, IA 50014
Phone: 515-292-7974; *Fax:* (512)-292-7125
E-mail: mtec@mtecpas.com
Web address: www.mtecpas.com

EXHIBITING: HPDO will exhibit diamond cells having a variety of applications for analytical and high pressure investigations and designed to work with FTIR and IR microscopes. MTEC Photoacoustics, Inc. will exhibit the model 300 FTIR photoacoustic detector accessory with capabilities for depth profiling, diffuse reflectance, absorbance, and transmittance of macro and microsamples.

Melles Griot Laser Group

2051 Palomar Airport Road, 200
Carlsbad, CA 92009
Phone: 760 438 2131; *Fax:* 760 438 5208
E-mail: sales@carlsbad.mellesgriot.com
Web address: www.mellesgriot.com

EXHIBITING: Melles Griot, worldwide laser, instruments and photonics components manufacturer, offers a broad spectrum of argon ion, krypton argon, helium, neon, helium cadmium, DPSS and diode lasers covering the UV to infrared range along with related instrumentation. Ideal for Raman spectroscopy, FTIR calibration, HPLC fluorescence detection, plasma physics and more.

Merchantek/New Wave Research

47613 Warm Springs Blvd.
Fremont, CA 94539
Phone: 858 350 1102; *Fax:* 858 350 1103
E-mail: info@merchantek.com
Web address: www.merchantek.com

EXHIBITING: New Wave Research, leaders in solid sample introduction systems and compact solid state lasers, will display their Merchantek Products including LUV266X UV laser ablation system. An applications specialists will be available to answer questions. New product releases include the DUV193 excimer laser ablation system.

Micromass Canada Inc.

100 Boul. St.-Jean, Suite 605
Pointe Claire, QC
Canada H9R 5P1
Phone: 514 694 1200; *Fax:* 514 694 6280
E-mail: info@mspeople.com
Web address: www.micromass.co.uk

EXHIBITING: Micromass has a broad portfolio of Mass Spec technologies based on quadrupole, TOF and magnetic sector mass analyzers. Ionization and inlet systems include GC-MS, API LC-MS, MALDI-TOF, ICP-MS and stable isotope ratio MS.

Booth 512

Milestone Inc

160 B Shelton Road
Monroe, CT 06468
Phone: 203 261 6175; *Fax:* 203 261 6592
E-mail: mware@milestonesci.com
Web address: www.milestonesci.com

EXHIBITING: Milestone will be introducing the Ethos PLUS Microwave Digestion Labstation with the powerful new Easy WAVE Software, for complete control of the heating process. Also displayed will be the DMA-80 Direct Mercury Analyzer for solid and liquid samples in 5 minutes with no wet chemistry sample preparation required.

Nicolet Instrument Corp.

5225 Verona Road
Madison, WI 53711
Phone: 800 201 8132; *Fax:* 608 273 5046
E-mail: nicinfo@nicolet.com
Web address: http://www.nicolet.com

EXHIBITING: Nicolet's Nexus FT-IR spectrometers are a completely new series of high performance, fully upgradeable spectrometers. Nexus is the ideal platform for complementary techniques including IR microscopy, GC/IR, LC/IR, TGA/IR, FT-Raman and offers the highest performance in the industry for advanced research experiments like step scan, rapid scan and time resolved spectroscopy.

OPOTEK, Inc.

2233 Faraday Avenue
Suite E
Carlsbad, CA 92008
Phone: 760 929 0770; *Fax:* 760 929 8782
E-mail: opotek@opotek.com
Web address: www.opotek.com

EXHIBITING: OPOTEK is a manufacturer of tunable solid-state laser systems operating in the ultraviolet, visible, and near-infrared spectral regions, based on patented optical parametric oscillator technology. These systems are compact, easy-to-use, and have computer-control and fiber-delivery options. Products are used in photochemistry, photobiology, medical diagnostics, remote sensing, and combustion research.

Ocean Optics, Inc.

380 Main Street
Dunedin, FL 34698
Phone: 727 733 2447; *Fax:* 727 733 3962
E-mail: nicks@oceanoptics.com
Web address: www.oceanoptics.com

EXHIBITING: Ocean Optics miniature fiber optic spectrometers couple a high performance CCD-array detector with an optical bench small enough to fit into the palm of your hand. Three spectrometer platforms, 14 diffraction gratings, and 200 spectrophotometric accessories are available to configure small-footprint spectrophotometric systems for a variety of absorbance, reflectance and emission applications.

Booth 325

Booth 219

Booth 118

Booth 305/307

FACSS EXHIBITOR DESCRIPTIONS

P&P Optica Inc.

840 Ste-Therese, Ste 312
Quebec, QC, G1N 1S7 CANADA
Phone: 418 686 0273; Fax: 418 686 0247
E-mail: jeffdup@ibm.net
Web address: www.ppo.ca

EXHIBITING: Designer and manufacturer of high quality fiber bundles, reflectance probes, dip probes and cable assemblies from deep UV to NIR range. Distributor of custom optical components. Supplier of contract services in opto-mechanical design, alignment and assembly of optical systems. Applications include spectroscopy, biomedical instrumentation, non-invasive testing, laser beam delivery, industrial process control and lighting.

Perkin Elmer Corporation

761 Main Avenue
Norwalk, CT 06859-0235
Phone: 800 762 4003; Fax: 203 762 4054
E-mail: info@perkin-elmer.com
Web address: http://www.perkin-elmer.com

EXHIBITING: Perkin Elmer provides a wide range of analytical instruments for AA, ICP, ICP-MS, FT-IR, UV, and UV/Vis spectrometry which includes the following systems; SIMAA 6000 and AAnalyst series of AAS, Optima Series of ICP-OES, and ELAN 6100 Series of ICP-MS, Spectrum ONE FT-IR Microscope, IdentiCheck FT-NIR, EZ150, EZ102, and EZ210 UV visible spectrometers.

Photon Systems

1518A Industrial Park Street
Covina, CA 91722
Phone: 626 967 6431; Fax: 626 967 5813
E-mail: whug@aol.com
Web address: www.photonsystems.com

EXHIBITING: Manufactures of family of deep-UV lasers that have the size, weight, and power consumption of a HeNe laser, but emit a variety of wavelengths between 224nm and 270nm. These lasers are used for UV resonance Raman spectroscopy and laser induced fluorescence. Lasers are provided in standard and custom configurations for OEM and special applications.

Photon Technology International, Inc.

1 Deerpark Dr. Suite F
Monmouth Junction, NJ 08852
Phone: 732 329 0910; Fax: 732 329 9069
E-mail: marketing@pti-nj.com
Web address: www.pti-nj.com

EXHIBITING: PTI is a leading manufacturer of fluorescence instrumentation for research, industry, and medicine. On display our TimeMaster Model C-72 cuvette-based fluorescence lifetime scanning spectrometer with laser excitation and TimMaster Pro software. Our QuantaMaster fluorometer option is also shown with of course our famous FeliX software. Another spectroscopy solution from PTI

Booth 204

Photonics Spectra Biophotonics International

2 South Street
Berkshire Common
Pittsfield, MA 01201
Phone: 413 499 0514; Fax: 413 442 3180
E-mail: photonics@laurin.com
Web address: www.PhotonicsNet.com

EXHIBITING: Biophotonics International is a magazine that explores photonic product and solutions for the medical and biotechnical industries. Photonics Spectra is the leading photonics magazine serving industries that use photonics technology: optics, lasers, fiber optics, electro-optics, imaging and optical computing. The Photonics Directory is a 4-book set that includes the Corporate Guide, Buyers' Guide, Handbook & Dictionary.

PixelVision, Inc.

14964 N. W. Greenbrier Parkway
Beaverton, OR 97006
Phone: 503 629 3210; Fax: 503 629 3211
E-mail: tylern@pvcinc.com
Web address: www.pv-inc.com

EXHIBITING: PixelVision manufactures a range of high performance, CCD-based digital imaging systems and accessories for the scientific, medical, and industrial markets, including the SpectraVideo camera. This camera system is available with a high quantum efficiency, 100% fill factor, back-illuminated CCD. Coatings are offered for optimized response in the visible, UV, and soft x-ray spectral regions.

Renishaw, Inc.

623 Cooper Court
Schaumburg, IL 60173
Phone: 847 843 3666; Fax: 847 843 1744
E-mail: renmktsvcs@aol.com
Web address: www.renishaw.com

EXHIBITING: Renishaw will demonstrate instrument developments in Raman microscopy and process spectroscopy. High instrument efficiency spectrometers allow demonstration of Raman microscopy applications- deep UV to the NIR – including direct 2-D Raman and photoluminescence imaging. New Process instruments for multiple fiber optic probes, rugged and high temperature probing applications will be displayed.

Roper Scientific

3440 East Britannia Drive
Tucson, AZ 85706
Phone: 520 889 9933; Fax: 520 573 1944
E-mail: info@roperscientific.com
Web address: www.roperscientific.com

EXHIBITING: Roper Scientific, Inc. is the world's foremost supplier of high-performance instruments for spectroscopy and digital imaging. Created by the union of Acton Research Corporation, Photometrics, Ltd., and Princeton Instruments, Inc., Roper Scientific provides intensified CCD detection systems, state-of-the-art spectrometers, and complete modular solutions for the toughest spectroscopy challenges.

Booth 115

Booth 501

Booth 318/320

Booth 508/510

FACSS EXHIBITOR DESCRIPTIONS

Royal Society of Chemistry

Publishing Division
Science Park, Milton Road
Cambridge, CB4 4WF United Kingdom
Phone: 44 1223432147; Fax: 44 1223420247
E-mail: analyst@rsc.org
Web: www.rsc.org/is/journals/current/analyst/links2.htm

EXHIBITING: The RSC is a not-for-profit organization whose Charter requires it to advance chemical science. Visit our booth and examine the wide variety of products in the field of analytical and environmental science and find out about the advantages of membership.

SGE, Inc.

2007 Kramer Lane
Austin, TX 78758
Phone: 800 945 6154; Fax: 512 836 9159
E-mail: usa@sge.com.au
Web address: www.etpsci.com

EXHIBITING: ETP **ACTIVE FILM Multipliers** for mass spectrometers and other analytical instruments. ETP Electron Multipliers are the most advanced ion/electron detectors available today. Models available for all major instruments for GC-MS, LC-MS, ICPMS and specialty applications. Expect the best – choose SGE!

SenIR Technologies

15 Great Pasture Road
Danbury, CT 06810
Phone: 203 207 9700; Fax: 203 207 9780
E-mail: info2sensir.com
Web address: www.sensir.com

EXHIBITING: FT-IR Made Simple – Diamond ATR with Video Imaging. Ever wish you could actually see your sample on the ATR crystal, either for positioning or to view contact? *Well now you can* with DuraVision - a system that provides video-magnified viewing **through** the diamond ATR window. This technology allows you to visually verify sample contact with the IRE for optimum, repeatable results.

Society for Applied Spectroscopy

201B Broadway Street
Frederick, MD 21701-6501
Phone: 301 694 8122; Fax: 301 694 6860
E-mail: exadsas@aol.com
Web address: <http://esther.la.asu.edu:80/sas/>

EXHIBITING: For 40 years, the Society for Applied Spectroscopy has been keeping spectroscopists up-to-date on the latest trends in the field. SAS offers quality member benefits, such as a subscription to the internationally recognized journal *Applied Spectroscopy*. Stop by our booth for more information on becoming a member.

Booth 525

Spectra-Tech Inc.

2 Research Drive
P.O. Box 869
Shelton, CT 06484
Phone: 203 926 8998; Fax: 203 926 8909
E-mail: desposito@spectra-tech.com

EXHIBITING: Sampling technology for FT-IR spectrometers, FT-IR microscopes, Reflecting objectives, grazing angle objective, ATR objectives, Video microscopy software, FT-IR Microscopy Software, Sample preparation equipment, ATR (Attenuated Total Reflectance) accessories, DRIFTS (Diffuse Reflectance Infrared Fourier Transform Spectroscopy) accessories, Grazing angle reflection accessory, Visible and Infrared Polarizers, HATR (Horizontal Attenuated Total Reflectance) accessories, FT-IR gas sampling accessories, Liquid and Solid Transmission sampling accessories, Specular reflectance accessory and Custom optics.

Spectro Analytical Instruments Inc.

160 Authority Dr
Fitchburg, MA 01420
Phone: 978 342 3400; Fax: 978 343 4714
E-mail: mmkunigonis@spectro-usa.com

EXHIBITING: SPECTRO introduces the new CIROS^{CCD} ICP spectrometer that provides complete analysis of more than 10,000 lines in 10 seconds. The spectrometer provides total wavelength coverage from 120-800 nm. Also, the SPECTRUMA GDA-150 glow discharge CCD bench-top spectrometer developed specifically for middle-sized heat treatment, plating, and coating companies.

Spectron, Inc.

2080 Sunset Drive
Ventura, CA 93001
Phone: 805 652 1992; Fax: 805 652 1994
E-mail: spectron@vcnet.com

EXHIBITING: Spectron Inc. manufactures cones for all makes of ICP-MS instruments. Spectron also distributes nebulizers, fully demountable torches and spray chambers from Glass Expansion Pty Ltd. as well as standard sample introduction glassware from OEM Specialty Glass. ETP Multipliers are also available from stock.

Spectroscopy/Advanstar

Raritan Plaza III
101 Fieldcrest Avenue
Edison, NJ 08837-3622
Phone: 732 225 9500; Fax: 732 225 0211
E-mail: chuha@advanstar.com

EXHIBITING: Spectroscopy magazine is the leading source of applications-oriented information about modern spectroscopic techniques. Peer-reviewed articles and regular columns deliver practical information about atomic (AA, ICP, ICP-MS, and X-ray) and molecular (UV/Vis, IR, Raman, fluorescence, NMR, and mass) spectrometry. Special sections provide hard-to-find information on sample handling, chemometrics, instrument design, and basic principles. Regular departments keep readers up to date on new products, literature, books, conferences, and spectroscopy-related news. Cards are available at the booth for those who want to receive a free subscription to Spectroscopy.

Booth 507

Booth 119

Booth 102

Booth 300

Booth 303

Booth 319

Booth 205

FACSS EXHIBITOR DESCRIPTIONS

Thermo Jarrell Ash

27 Forge Parkway
Franklin, MA 02038
Phone: 508 520 1880; *Fax:* 508 528 2127
E-mail: tjainfo@thermo.optek.com

Booth 109

EXHIBITING: Thermo Jarrell Ash is a leading manufacturer of optical instruments (e.g. IRIS Advantage ICAP Series, Atomscan Advantage ICP Sequential Spectrometers, Atomic Absorption (AAA), and TraceAir) that are used in the elemental analysis of liquids, solids and gases. TJA products and services provide trace and major element analyses in oils, water, wastewater, geologicals, chemicals, pharmaceuticals and stack gas emissions.

ThermoQuest Corporation

355 River Oaks Parkway
San Jose, CA 95134
Phone: 408 965 6800; *Fax:* 408 965 6119
E-mail: dbarnewitz@thermoquest.com
Web address: www.thermoquest.com

Booth 107

EXHIBITING: ThermoQuest Corporation and its subsidiaries, Finnigan, Thermo Separation Products and CE Instruments, develops, manufactures and sells mass spectrometers, liquid chromatographs and gas chromatographs for the pharmaceutical, environmental and industrial marketplaces. In addition, ThermoQuest manufactures and sells products for the preparation, processing and preservation of samples, as well as high quality chromatography media and columns.

Transition Technologies, Inc.

605 – 3044 Bloor Street West
Toronto, ON M8X 2Y8 Canada
Phone: 416 233 1551; *Fax:* 416 233 8822
E-mail: info@transition.on.ca
Web address: www.transition.on.ca

Booth 423

EXHIBITING: Transition Technologies Inc. is the Canadian distributor for Transgenomic Inc. and CETAC Technologies in Canada. The product mix is bifurcated between molecular biology workstations for nucleic acid analysis and sample introduction equipment for ICP optical and mass spectrometry. The company also supplies a range of consumables dedicated to these technology areas.

VG Elemental

27 Forge Parkway
Franklin, MA 02038
Phone: 508 553 1805; *Fax:* 508 553 1810
E-mail: vgeadmin@aol.com

Booth 111/113

EXHIBITING: VG elemental offers a range of ICP/MS products for the analysis of assorted materials that provide elemental composition and/or high precision isotope ratios. Two products are featured, the Axiom SC/MS, a Multi-collector High Resolution sector instrument and the PQ ExCell, a quadrupole instrument with collision cell technology (CCT) and a novel low noise lens design.

Varian Associates, Inc.

3045 Hanover Street H-111
Palo Alto, CA 94555
Phone: 650 424 5848; *Fax:* 650 858 0480
E-mail: Pag.grant@grc.varian.com
Web address: www.varian.com

Booth 200/202

EXHIBITING: Varian AA spectrometers combine award-winning software with reliable hardware for routine flame/furnace/vapor analyses. Varian's new Vista, featuring a CCD detector and full wavelength coverage, is the fastest simultaneous ICP-AES in the world. Varian also offers radial and axial sequential ICP-AES instruments in addition to an ICP-MS.

FACSS WORKSHOPS

Workshops are a valuable component of facss and are conducted by leading experts. There is an additional charge for workshops: two day workshop - \$220 U. S. or \$338 Canadian; full day workshop - \$120 U. S. or \$185 Canadian; half day workshop - \$80 U. S. or \$123 Canadian, unless indicated otherwise. Workshops are located at the Waterfront Centre Hotel

SOLID PHASE MICROEXTRACTION

J. Pawliszyn, University of Waterloo

*Two days, Saturday and Sunday, 9:00 – 17:00 both days;
Malaspina Room*

The course will cover both basic and advanced topics related to Solid Phase Microextraction (SPME). The principles of SPME will be presented in relation to practical problems. Thermodynamic and kinetic theory of direct and headspace SPME, as well as the effects of stirring, temperature and sample volume and matrix modification on the amount extracted will be discussed. A complete method development will be described and illustrated by real life examples. The following stages will be covered: selection of fiber coating, selection of sampling mode (direct vs. headspace), determination of the desorption time, selection of the calibration method, determination of the linear range of the method, as well as determination of method limit of detection, precision and accuracy. Practical aspects of SPME coupled with GC and HPLC will also be discussed. Demonstration of the automated Varian SPME system will be conducted by Varian Canada. Examples of SPME applications in various fields, including environmental analysis, food and beverage industry, industrial hygiene, drug analysis, clinical chemistry and on-site analysis will be discussed and illustrated by real life examples. New developments will be reviewed, and future directions will be discussed.

Who Should Attend: The course is targeted at both potential and current SPME users, who wish to gain a deeper insight into the method and thus increase their productivity. It will be of interest to chemists responsible for method development, analytical chemists, laboratory supervisors, scientists and industry regulators, in the environmental, food and beverage, pharmaceutical, clinical, cosmetic, industrial hygiene and many other fields.

INTERPRETATION OF MASS SPECTRA

David Sparkman, NIST

*Two days, Saturday and Sunday, 9:00 – 17:00 both days,
Cheakamus Room*

Program Agenda:

If you have technical questions about the course, call Mr. Sparkman at 1 (925) 754-5003.

- Introduction to Chemical Bonding in Organic Molecules as it Pertains to Mass Spectrometry
- How the EI Mass Spectrum Is Formed
- Naturally Occurring Stable Isotope Abundances
- Elements, Valence, and Rings-Plus-Double Bonds
- The Molecular Ion
- Odd- and Even-Electron Ions
- The Nitrogen Rule
- Logical Losses
- Fragmentation As It Relates to Structure
- Elemental Composition, and Compound Type
- Mass Spectra of High Molecular Weight Compounds
- Mass Spectra Resulting from MS/MS
- Fragmentation of Specific Compound Types
- Library Searches and Mixed Spectral Data
- Chemical Ionization Spectra

Who Should Attend: Researchers, technicians and others requiring the knowledge and skill of mass spectral interpretation. The course does not require expertise in advanced mathematics, physics, or theoretical chemistry. A basic knowledge of chemistry is required; course work in organic chemistry is desirable.

ANALYTICAL RAMAN SPECTROSCOPY

Richard McCreery, Ohio State University

Sunday evening, 18:00 – 21:00, Malaspina Room

The objective of this workshop is to provide a basis for applying Raman Spectroscopy for practical industrial analysis. Some topics to be discussed will be Raman fundamentals, signal and signal/noise considerations, spectrometer selection, noninvasive sampling, instrument calibration and validation, and library searching. The level of the course is intended for an audience experienced in analytical chemistry but possibly new to Raman spectroscopy. Some advanced topics of interest to the Raman practitioner will be discussed, such as CCD performance and recent developments in calibration.

PROFESSIONAL ANALYTICAL CHEMISTS IN INDUSTRY:

A SHORT COURSE FOR UNDERGRADUATE STUDENTS,

Diane Parry, Proctor & Gamble

Monday full day, 9:00 – 17:00. No Charge, Malaspina Room

The objective of this workshop is to provide insight into the work of industrial analytical chemists. In a highly interactive forum, participants will explore the role of analytical chemist as problem solver using real problems encountered at Proctor & Gamble. The course is targeted at third-year undergraduates who have had some exposure to instrumental analysis. Proctor & Gamble will present this.

AN INTRODUCTION TO INDUCTIVELY COUPLED PLASMA - ATOMIC EMISSION SPECTROMETRY,

Robert B. Myers, Myers & Associates and F. Monte Evens

Monday full day, 9:00 – 17:00, Cheakamus Room

This course has been specifically designed for entry level personnel who need to familiarize themselves in the basics of ICP-AES. It is particularly oriented toward the novice who has a limited knowledge of chemistry and/or spectrochemistry.

The course will begin with the basics of atomic spectra, the components of ICP spectrometers and the practical aspects of the hardware. The various sample introduction systems including the purpose of the components and their effect of system performance, classical monochromator and polychromator spectrometers as well as Echelle designs, and detection systems including the new advanced detector approaches will be reviewed.

Topics such as calibration curves, background correction, interelement effects, internal standardization, and strategies for enhancing the performance of ICP systems by using ultrasonic nebulization, direct injection nebulizers, instrumentation for sample preconcentration and matrix elimination, and laser and spark ablation accessories will be discussed.

The importance of ICP standards, the preparation of multielement standards, and the purity of water and acids are also considered.

Applications will be presented for a variety of inorganic metal analysis, including environmental, geological, agricultural, foods, chemicals, and solids, and for the determination of metals in organics. The determination of metals in lubricating oils will be used as an example of the factors to be considered when establishing a routine laboratory method for metals in organics. Topics to be discussed will include labware selection, cleaning labware, analytical standards, recommended solvents, sample manipulations, instrumental parameters, analytical calibration, and data validation.

FACSS WORKSHOPS

STATISTICS AND CHEMOMETRICS IN SPECTROSCOPY,

Howard Mark, Mark Electronics

Tuesday full day, 9:00 – 17:00, Malaspina Room

This course provides a working introduction to the basic techniques for dealing with random errors and developing valid instrumental calibrations. Basic statistics and calibration methodologies will be presented along with more advanced approaches such as MLR, PLS, PCA, and others.

SPREADSHEETS FOR SCIENTISTS

Edgar Paski, Analytical Innovations

Tuesday half day, 9:00 – 12:00, Cheakamus Room

This workshop will introduce the Visual Basic for Applications (VBA) macro language. You will be shown how to use it to rapidly create useful custom applications within the Excel (Windows, Macintosh) and StarCalc (Windows, Linux, Macintosh, Unix, Java, OS/2) environments. Topics covered: Introduction to objects and object oriented programming; The VBA object model; Accessing built in spreadsheet functions; Functions and subroutines, Creating new objects, properties, methods; Communicating directly with analytical instruments and other devices; How to create VBA modules to overcome limitations of built in spreadsheet functions; Creating custom user interfaces; Commercially available Excel add-ins. Sample applications illustrating the use of VBA include: a calculating pad for analysts, Grubbs test for outliers, control charts, deconvolution. A basic working knowledge of spreadsheets is assumed.

INDUCTIVELY COUPLED PLASMA - MASS SPECTROMETRY, R. Sam Houk, Iowa State University

Tuesday half day, 9:00 – 12:00, Nootka Room

The purpose of this workshop is to familiarize the spectroscopist with the principles, instrumentation, applications, advantages, and limitations include: attenuation of oxide ions and other polyatomic ions; micronebulizers (DIN and MDMI); cool plasmas and use of magnetic sector mass analyzers with the ICP.

HIGH QUALITY DATA IN INDUCTIVELY COUPLED PLASMA - ATOMIC EMISSION SPECTROMETRY,

J. M. Mermet, Laboratoire des Sciences Analytiques, Lyon

Tuesday half day, 13:00 – 17:00, Cheakamus Room

The purpose of this workshop is to provide a basis for the ICP-AES users on how to obtain the highest possible quality for the analytical results, i. e., accuracy, repeatability and uncertainty, and for the instrument, i. e. robustness (lack of matrix effects) and low levels of limits of detection. Besides, evaluation of other instrument qualities such as long-term stability, practical resolution, and linearity of the calibration graph will be described. Topics such as the influence of the operating parameters on the quality, and the optimization criteria and procedures will be discussed. The use of simple experiments for the evaluation of the figures of merit, the understanding of matrix effects, the proper utilization of internal standardization and the identification of possible malfunctions will also be discussed. Practical examples will be given, based on the use of various commercially available ICP-AES systems.

IS YOUR LAB READY FOR ICP-MS? A GUIDELINE FOR TRACE METALS DETERMINATION,

Elzbieta Bakowska, Hewlett Packard Company

Tuesday half day, 13:00 – 17:00, Nootka Room

The purchase of an ICP-MS instrument is usually a result of a need for the determination of trace and ultra-trace levels of elements. If this IS the first ICP-MS in the lab, or it replaces an older model, its detection capabilities are usually orders of magnitude below the levels the lab personnel is accustomed to.

Those new capabilities also present new challenges assure the best approach. Detailed examples will be provided.

The Hewlett-Packard Company, Millipore Corporation, and Milestone Corporation will present this workshop.

ELEMENT SELECTIVE DETECTION BY GAS CHROMATOGRAPHY WITH ATOMIC EMISSION DETECTION, Peter Uden, University of Massachusetts

Wednesday half day, 9:00 – 12:00, Malaspina Room

This workshop will address the use of atomic emission spectroscopic techniques as detectors for gas chromatography. The focus will be upon practical elemental speciation and quantitation. Topics will range from fundamental principles to state-of-the-art instrumentation and applications. This subject may be of particular interest to those in petroleum and petrochemical, environmental and trace analytical fields. **Enrollment is limited**

STANDARDS, GUIDES AND QUALITY IN THE LABORATORY INCLUDING ISO/IEC GUIDE 25 AND LABORATORY ACCREDITATION, J. Dupont, Standards Council of Canada.

Wednesday half day, 9:00 – 12:00, Cheakamus Room

Brief description of the evolution quality assurance in laboratories leading to full quality management systems. Brief summary of laboratory quality standards and their use. Description of the requirements of ISO/IEC Guide 25 "General Requirements for the Accreditation of Calibration and Testing Laboratories" and of the most significant proposed changes to its revision as ISO/IEC DIS 17025 "General Requirements for the Competence of Testing and Calibration Laboratories. ISO 9000 registration and ISO Guide 25 accreditation competing or complementary activities. Description of the Program for the Accreditation of Laboratories of the Standards Council of Canada including a review of program documents and the accreditation process. **Enrollment is limited**

ION CHROMATOGRAPHY:

PRINCIPLES, INSTRUMENTATION, APPLICATIONS, AND TROUBLESHOOTING, P.E. Jackson, Dionex.

Wednesday half day, 9:00 – 12:00, Nootka Room

This workshop will cover the theory and practice of ion chromatography (IC). The basic principles of IC, including instrumentation, separations and detection will be presented. Particular focus will be given to anion exchange separations, although methodology for organic acids, cations, and transition metals will be presented. Similarly, suppressed conductivity detection will be the primary detection mode discussed, although other possibilities, such as direct UV/VIS absorbance and amperometry, will be considered.

The key applications of IC, in diverse areas such as environmental, chem/petrochem, high purity water, food/beverage, and bio/pharmaceutical applications, will be presented. The workshop will include a troubleshooting and maintenance discussion to be conducted by a qualified customer service representative.

Who should attend: The workshop will be directed at prospective and current users of IC who are wishing to gain a better understanding of the basics and implementation of the technique. **Dionex Corporation will present this workshop**

FURNACE ATOMIC ABSORPTION SPECTROSCOPY, Walter Slavin, Bonaire Technology and D. Bradshaw, Atomic Spectroscopy Training and Consulting

Thursday full day, 9:00 – 17:00, Princess Louisa Room

This course is segmented into modules: (1) The stabilized temperature platform furnace concept, (2) Interferences and background correction, (3) Matrix modifiers, (4) Choosing analytical parameters, (5) Method development, (6) Fast furnace and solid sampling, (7) Maintenance and troubleshooting. Directed to those relatively new (<3-5 years experience) to graphite

FACSS WORKSHOPS

MODERN NEAR-INFRARED ANALYSIS, Donald Burns, NIR Resources

Thursday full day, 9:00 – 17:00, Cheakamus Room

In this workshop, the techniques and advantages of NIR analysis will be addressed. We will show you how the technique is being used today in many fields, who the contributors are, and how you may become a “hero” in your company by introducing the appropriate instrumentation into your analytical laboratory.

APPLICATIONS OF OPTICAL PARAMETRIC OSCILLATORS IN RESEARCH AND INDUSTRY,

Elizabeth Gaillard, Northern Illinois University

Thursday half day, 9:00 – 12:00, Nootka Room

Until recently, the most versatile and affordable choice for tunability in pulsed nanosecond laser systems were pumped dye lasers. However, several practical considerations such as dye

photostability, toxicity and limited tuning range for a single dye rendered them less than ideal. Optical parametric oscillators (OPOs) offer an alternative as tunable devices that are completely solid state. Depending on the nonlinear material incorporated in the OPO, wide wavelength ranges between 200 - 10,000 nm can be accessed. OPOs are becoming more widely available and, with improvements in cavity architecture and pump sources, have excellent beam quality, high energy output and narrow bandwidth ($< 0.1 \text{ cm}^{-1}$). An overview of the parametric conversion process and OPO design will be given during this workshop followed by presentations of applications of OPOs in several areas of spectroscopy. These will include coherent anti-Stokes Raman spectroscopy, photodissociation spectroscopy, time resolved absorption spectroscopy and studies on laser photoablation.

WEDNESDAY AFTERNOON SPECIAL EVENTS

PLENARY LECTURE, 13:00, Ballroom A, Convention Level

Dr. David Suzuki

Dr. David Suzuki, award-winning scientist, environmentalist and broadcaster, will present the Keynote Lecture - “Setting the Bottom Line for the Next Millennium; Science, Economics and the Environment” at the 1999 FACSS Conference. “As we approach the next millennium,” says Suzuki, “we have an opportunity to reflect on who we are, where we’ve come from, where we are heading.” Suzuki is familiar to television audiences as the host of CBC’s Planet for the Taking, Man Alive and the long-running The Nature of Things. His PBS eight-part series The Secret of Life was widely praised in the U. S. and internationally, as were his specials Cyberspace and his five-part series The Brain (seen on the Discovery Channel). Suzuki is currently a Professor of Zoology at the University of British Columbia and is a member of UBC’s Sustainable Development Research Institute (SDRI). He is the author of 28 books (including Introduction to Genetic Analysis, Genethics and 10 books for children. He is recognized as a world leader in sustainable ecology and is a recipient of the Kalinga Prize for Science and the United Nations Environment Medal. He has also received 12 honorary degrees in Canada, the United States, and Australia.

SAS/FACSS CO-SPONSORED POSTER SESSION, 14:00-17:00, Exhibit Hall B

SAS and FACSS AWARDS PRESENTATION, 16:40, Exhibit Hall B

Poster Session

Organized by: Nancy Miller-Ihli; Presiding: Winston Smith

The Poster Sessions will be in the Exhibition area with no concurrent talks. Actual presentation times will be staggered on an odd-even schedule so please consult the final program for your actual presentation time. This is a unique opportunity for informal, one-on-one discussions.

Student Awards for Outstanding Posters. SAS-member students who are presenting authors will be entered into a competition for the best poster presentation. Recognition for 4 outstanding posters will be given. Student awardees will receive a free 1-year SAS membership and a plaque highlighting their achievement. All student authors who are entered in the competition should be at their posters promptly at 14:00.

Poster Session Schedule. Posters describe the latest academic and industrial research and applications. The posters will be on view for the entire afternoon from 14:00 – 17:00. All even numbered posters will be presented at 14:15 and odd numbered posters will be presented at 15:30.

Poster Sessions.

Section 1: Applied Atomic Spectroscopy, Instrumentation, and Mass Spectrometry

Section 2: Molecular Spectroscopy, Process Control, Electrochemistry, IR, Near-IR, and Raman

Section 3: Chemometrics, Luminescence, Biomedical and Pharmaceutical Applications, Environmental

Analytical Chemistry, Imaging and Miscellaneous

Poster Numbers

508-562

563-594

595-626

Join us in the Exhibit area for the poster session. Light refreshments and beverages (including beer) will be served.

PROGRAM HIGHLIGHTS

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9:00-17:00 Workshops	8:20 – 10 Oral Symposia Workshops	8:20 – 10 Oral Symposia Workshops	8:20 – 10 Oral Symposia Workshops	8:20 – 10 Oral Symposia Workshops	8:20 – 10 Oral Symposia Workshops
	Break	Break: Coffee in Exhibit Hall	Break: Coffee in Exhibit Hall	Break: Coffee in Exhibit Hall	Break
	10:40 – 12 noon Oral Symposia Workshops	10:40 – 12 noon Oral Symposia Workshops	10:40 – 12 noon Oral Symposia Workshops	10:40 – 12 noon Oral Symposia Workshops	10:40 – 12 noon Oral Symposia Workshops
	Lunch Break	Lunch for Conferees Exhibit Hall	Lunch Break	Lunch Break	
	13:20 – 15:00 Oral Symposia Workshops	13:20 – 15:00 Oral Symposia Workshops	13:00 – 14:00 Plenary Lecture Dr. David Suzuki	13:20 – 15:00 Oral Symposia Workshops	
15:00 – 20:00 Registration	Break	Break: Coffee in Exhibit Hall	14:00 – 17:00 SAS/FACSS co-sponsored Poster Session Awards Presentaton Refreshments	Break	
17:00 Mixer	15:00 – 17:00 Oral Symposia Workshops	15:00 – 17:00 Oral Symposia Workshops		15:00 – 17:00 Oral Symposia Workshops	
18:00 Raman Workshop	17:30 – 19:30 Exhibit Opening Reception	18:00 SAS Reception (SAS members only)	18:00 Raman Reception		
19:00 Gerhard Herzberg Award					

PROGRAM OVERVIEW

SUNDAY EVENING

Gerhard Herzberg Award

MONDAY MORNING

SERRS in Biology, *Room 1*
 Chemometric Applications to Spectroscopic Imaging, *Room 2*
 New Frontiers in Raman Microscopy, *Room 3*
 Curriculum Developments in the Analytical Sciences – Past,
 Present, Future, *Room 7*
 ICP/AES, *Room 8*
 Micro-and Nano-Nebulization: Concepts, Devices, Fundamentals,
 and Novel Applications I, *Room 9*
 LC/MS, *Room 10*
 Collision and Reaction Cell Techniques in Atomic Spectroscopy,
Room 11
 Chemical Speciation I, *Room 12*
 Frontiers in Spectrochemical Analysis Honoring Dr. Bruce Chace,
Room 13
 Chemical Sensors, *Room 14*
 Bioelectrochemistry: Fundamentals and Analysis, *Room 15*
 Peating (of Peaks) is Such Sweet Pleasure I, *Room 16*
 Single-Molecule Detection for Biological Analysis, *Room 17*
 Proteomics, *Room 18*
 Analytical Laboratory - Challenges and Opportunites *Room 19*

MONDAY AFTERNOON

UV Raman Spectroscopy, *Room 1*
 Chemometric Applications in Multivariate Imaging, *Room 2*
 Novel Approaches for Ultrasensitive Bioanalysis, *Room 3*
 Best Practices in the Teaching of Analytical Chemistry, *Room 7*
 Developments in Direct Solids Analysis Using ICP-MS:
 Electrothermal Vaporization, *Room 8*
 Micro- and Nano-Nebulization: Concepts, Devices, Fundamentals
 and Novel Applications II, *Room 9*
 Paul Traps, *Room 10*
 Analysis of Nuclear Materials, *Room 11*
 Chemical Speciation II, *Room 12*
 Frontiers in Spectrochemical Analysis Honoring Dr. Bruce Chace,
Room 13
 Particles and Aerosols, *Room 14*
 Bioelectrochemistry: Fundamentals and Analysis, *Room 15*
 Parting (of Peaks) is Such Sweet Pleasure II, *Room 16*
 Characterization of Materials, *Room 17*
 Inorganic Synthetic Markers, *Room 18*
 Sample Preparation, *Room 19*

TUESDAY MORNING

Raman Spectroscopy in Industrial & Process Monitoring I, *Room 1*
 Biomedical Imaging, *Room 2*
 Static and Dynamic FT-IR of Polymers, *Room 3*
 Curriculum Development in the Analytical Sciences – Expanding
 Horizons, *Room 7*

Developments in Direct Solids Analysis Using ICP-MS: Laser Ablation Instrumentation and Nuclear Applications, *Room 8*
Pushing the Limits of Atomic Mass Spectrometry, *Room 9*
Ion Chemistry, *Room 10*
ICPMS Instrumentation, *Room 11*
Chemical Speciation III, *Room 12*
Analytical Oceanography I, *Room 13*
Advances in Methods for Chemical Measurements in the Atmosphere, *Room 14*
Electrochemistry and Material Science, *Room 15*
Capillary Electrochromatography: Establishing the Analytical Niche, *Room 16*
Ph.D.: Now You've got it. What Next? I, *Room 17*
Cavity Ringdown Spectroscopy, *Room 18*
Bruce Kowalski, A Celebration of 25+ Years of Chemometrics, *Room 19*

TUESDAY AFTERNOON

Raman Spectroscopy in Industrial and Process Monitoring II, *Room 1*
Biomedical Imaging, *Room 2*
Polymer Characterization Using Vibrational Spectroscopy, *Room 3*
New Applications of Furnace Atomization, *Room 7*
Developments in Direct Solids Analysis Using ICP-MS: Geo-Environmental Applications, *Room 8*
Pushing the Limits of Atomic Mass Spectrometry II, *Room 9*
Time-of-Flight Mass Spectrometry, *Room 10*
ICPMS Instrumentation, *Room 11*
Chemical Speciation IV, *Room 12*
Analytical Oceanography II, *Room 13*
Chemical Speciation V, *Room 14*
Time-Resolved Infrared Spectroscopy, *Room 15*
Extension of Atomic Spectroscopy Using Flow Injection Techniques, *Room 16*
Ph.D.: Now You've Got It. What Next? II, *Room 17*
Molecular Surface Spectroscopy, *Room 18*
Bruce Kowalski, A Celebration of 25+ Years of Chemometrics II, *Room 19*

WEDNESDAY MORNING

Applications of Modern Raman Spectroscopy, *Room 1*
Biological Applications of Spectroscopy, *Room 2*
Polymer Analysis and Characterization, *Room 3*
Gas Chromatography Applications, *Room 7*
Mass Spectrometry Sample Introduction, *Room 8*
Atomic Spectrometric Methods, *Room 9*
Ion Cyclotron Resonance, *Room 10*
Laser Ablation ICP-MS: Applications, *Room 11*
Chemical Speciation VI, *Room 12*
Analytical Oceanography III, *Room 13*
State of the Art Methods for Toxic Chemicals in Aquatic Systems, *Room 14*
Interferometers, Array Detectors and Imaging, *Room 15*
Extension of Atomic Spectroscopy Using Flow Injection Techniques, *Room 16*
Chemometric Applications in Environmental Chemistry, *Room 17*
Issues of Chirality in the Pharmaceutical Industry Focus on Chiroptical Spectroscopy, *Room 18*
Process Analytical Chemistry I, *Room 19*

WEDNESDAY AFTERNOON

Plenary Lecture, *Ballroom A*
Poster Session, *Exhibit Hall B*

THURSDAY MORNING

Practical Applications of Raman Spectroscopy, *Room 1*
Biological Applications of Spectroscopy, *Room 2*
FTIR Photoacoustic Spectroscopy I, *Room 3*
Surface Spectroscopy Applications, *Room 7*
Laser Ablation at the Edge of the Millennium I: Fundamental Studies of Chemical Analysis, *Room 8*
Low Pressure Plasmas for OES and MS, *Room 9*
Anachem Award Symposium, *Room 10*
ICPMS Applications, *Room 11*
Chemical Speciation VII, *Room 12*
Remote and Portable Sensing, *Room 13*
Environmental Analysis, *Room 14*
Molecular Emission Spectroscopy I, *Room 15*
Trace and Ultratrace Analysis, *Room 16*
Chemometrics I, *Room 17*
Markers of Biological Origin, *Room 18*
Process Analytical Chemistry II, *Room 19*

THURSDAY AFTERNOON

Enhanced Raman Spectroscopy, *Room 1*
Biological and Pharmaceutical Analysis, *Room 2*
FTIR Photoacoustic Spectroscopy II, *Room 3*
Surface Spectroscopy Instrumentation, *Room 7*
Laser Ablation at the Edge of the Millennium II: Fundamental Studies of Chemical Analysis, *Room 8*
ICP/AES, *Room 9*
Royal Society of Chemistry Analytical Division Symposium on Magnetic Sector ICP-MS, *Room 11*
Chemical Speciation VIII, *Room 12*
Trace and Ultratrace Analysis II, *Room 13*
Environmental Analysis, *Room 14*
Molecular Emission Spectroscopy II, *Room 15*
New Separation Techniques, *Room 16*
Chemometrics II, *Room 17*
Physical Applications of Spectroscopy, *Room 18*
Process Analytical Chemistry III, *Room 19*

FRIDAY MORNING

Atomic Spectrometric Methods, *Room 11*
Chemical Speciation IX, *Room 12*
Chemical Speciation X, *Room 13*
NIR Applications, *Room 14*

FACSS '99 TECHNICAL PROGRAM

Sunday, 19:00, Waterfront Hotel Ballroom A
GERHARD HERZBERG AWARD - SPONSORED BY THE
SPECTROSCOPY SOCIETY OF CANADA

Presiding: Mike Hinds Organized by: Mike Hinds (ICASS)

- 19:00 (1) **POLARIZATION MODULATION FTIR SPECTROSCOPY: FROM POLYMER ORIENTATION DYNAMICS TO MONOLAYERS AT THE AIR-WATER INTERFACE**, MICHEL PEZOLET, Laval University, Department of Chemistry, Quebec, Quebec, Canada

Monday, 8:40 - noon, Room 1
SERRS IN BIOLOGY

Presiding: Ewen Smith Organized by: Ewen Smith

- 8:40 (2) **ANALYTICAL METHODOLOGY TO USE SURFACE ENHANCED RESONANCE RAMAN SCATTERING (SERRS) FOR QUANTITATIVE ANALYSIS**, EWEN SMITH, Clare McLaughlin, Joanna Jones, Caroline Rodger, Duncan Graham, Daran Sadler, University of Strathclyde, 295 Cathedral Street, Glasgow, United Kingdom
- 9:00 (3) **SURFACE ENHANCED RAMAN FOR DNA DIAGNOSTICS**, TUAN VO-DINH, Oak Ridge National Laboratory, Oak Ridge, Tennessee
- 9:40 (4) **POROUS ALUMINA AS A NEW SUBSTRATE FOR SERS**, GEORGE CHUMANOV, W. E. Smith, Iowa State University
- 10:00 **Coffee Break**
- 10:40 (5) **THE USE OF CHEMICAL MODIFICATION IN NUCLEIC ACID ANALYSIS BY SERRS**, KASEM NITHIPATIKOM, W. E. Smith, Medical College of Wisconsin, 8701 Watertown Plank Road, Milwaukee, WI
- 11:00 (6) **THE USE OF CHEMICAL MODIFICATION IN NUCLEIC ACID ANALYSIS BY SERRS**, DUNCAN GRAHAM, B. Mallinder, R. Brown, W. E. Smith, University of Strathclyde, 295 Cathedral Street, Glasgow
- 11:20 (7) **ANALYSIS OF INK JET MEDIA BY SURFACE ENHANCED RESONANCE RAMAN SCATTERING (SERRS), NIR FT/ RAMAN AND SEM**, GEOFFREY DENT, W. E. Smith, C. Rodger, AVECIA, PO Box 42 Hexagon House, Manchester, England
- 11:40 (8) **RESONANCE AND SERRS OF PROTEINS AND ANTIBODIES**, LUCA QUARONI, G. Chumanov, University of Minnesota, Department of Chemistry, Minneapolis, MN

Monday, 8:40 - 11:40, Room 2
CHEMOMETRIC APPLICATIONS TO SPECTROSCOPIC IMAGING

Presiding: Michael D. Morris Organized by: Michael D. Morris

- 8:40 (9) **MULTIVARIATE DATA TRANSFORMATIONS FOR RAMAN MICROSCOPIC IMAGING APPLICATIONS TO MINERALIZED TISSUE**, MICHAEL MORRIS, University of Michigan, University of Michigan, Ann Arbor, MI
- 9:20 (10) **IR MICROSCOPY AND SPECTROSCOPIC IMAGING OF NORMAL AND PATHOLOGICAL STATES OF BONE AND CARTILAGE**, RICHARD MENDELSON, Rutgers University, Department of Chemistry, 73 Warren St., Newark, NJ
- 10:00 **Coffee Break**
- 10:40 (11) **APPLICATIONS OF MULTIVARIATE**

STATISTICAL METHODS TO FT-IR SPECTRAL IMAGING DATA DERIVED FROM NORMAL AND CANCEROUS PROSTATE TISSUE SECTIONS, E. NEIL LEWIS, Abigail Haka, Ira Levin, Linda Kidder, National Institutes of Health, Laboratory of Chemical Physics, Bethesda, MD, USA

- 11:20 (12) **TOWARD REAL-TIME MULTIVARIATE IMAGING**, MICHAEL MYRICK, Matthew Nelson, University of South Carolina, Department of Chemistry, 730 S. Main St., Columbia, SC, USA

Monday, 8:40 - noon, Room 3
NEW FRONTIERS IN RAMAN MICROSCOPY

Presiding: David Batchelder Organized by: David Batchelder

- 8:40 (13) **CHEMICAL ANALYSIS USING NEAR-FIELD OPTICAL SPECTROSCOPY**, VOLKER DECKERT, ETH Zurich, Universitaetsstr. 16, Zurich, Switzerland
- 9:20 (14) **RAMAN SPECTROSCOPY COMBINED WITH SCANNING NEAR-FIELD OPTICAL MICROSCOPY USING ATTENUATED TOTAL REFLECTION**, SATOSHI TAKAHASHI, Masayuki Futamata, JRCAT-ATP, 1-1-4 Higashi, Tsukuba, Ibaraki
- 9:40 (15) **IMPROVING SENSITIVITY IN NEAR-FIELD RAMAN MICROSCOPY**, LEE RICHTER, Claire Jordan, Stephan Stranick, Richard Cavanagh, Bruce Chase, NIST, 100 Bureau Drive Stop 8372, Gaithersburg, MD
- 10:00 **Coffee Break**
- 10:40 (16) **THE NEAR-FIELD APERTURELESS RAMAN MICROSCOPE: A NEW TOOL FOR VIBRATIONAL SPECTROSCOPY WITH NANOMETER SPATIAL RESOLUTION**, BOB MARTINEZ
- 11:00 (17) **SCANNING NEAR-FIELD RAMAN MICROSCOPY WITH 244 NM EXCITATION**, DAVID BATCHELDER, Alan Buckley, Simon Webster, Alastair Smith, University of Leeds, Department of Physics and Astronomy, Leeds
- 11:20 (18) **NEAR-INFRARED RAMAN SPECTROSCOPY OF LASER-TRAPPED SINGLE MICROPARTICLES**, KATSUHIRO AJITO, Masao Morita, Keiichi Torimitsu, NTT Basic Research Laboratories, 3-1, Morinosato-Wakamiya, Atsugi, Kanagawa, JAPAN
- 11:40 (19) **RECENT ADVANCES IN OPOS AND COHERENT RAMAN SPECTROSCOPY**, PETER CHEN, Candace Joyner, Spelman College, 350 Spelman Ln. Box 307, Atlanta, GA, USA

Monday, 8:20 - 11:40, Room 7
CURRICULUM DEVELOPMENTS IN THE ANALYTICAL SCIENCES - PAST, PRESENT, FUTURE

Presiding: Frank Settle Organized by: Frank Settle

- 8:20 (20) **CURRICULAR DEVELOPMENTS IN THE ANALYTICAL SCIENCES-CURRENT STATUS AND FUTURE DIRECTIONS**, FRANK SETTLE, Washington & Lee University, Department of Chemistry, Lexington, VA
- 8:40 (21) **THE EVOLUTION OF ANALYTICAL SCIENCE: HOW WE GOT WHERE WE ARE**, GARY CHRISTIAN, University of Washington, Department of Chemistry - PO Box 351700, Seattle, WA
- 9:00 (22) **THE ACADEMIC PREPARATION OF INDUSTRIAL CHEMISTS, AS SEEN BY AN INDUSTRIAL/ACADEMIC CHEMIST**, PAUL BOUIS, Mallinckrodt Baker, Inc., 222 Red School Lane, Phillipsburg, NJ

- 9:20 (23) **INSTRUMENTATION AND EDUCATION-A VENDORS PERSPECTIVE**, JAMES SERUM, Hewlett-Packard Co., 2850 Centerville Rd., Wilmington, DE
- 9:40 (24) **EDUCATION IN THE ANALYTICAL SCIENCES-THE NSF PERSPECTIVE**, JANET OSTERYOUNG, National Science Foundation, 4201 Wilson Blvd. Ste 1055, Arlington, VA
- 10:00 **Coffee Break**
- 10:40 (25) **ROUNDING OUT THE MODERN ANALYTICAL CURRICULUM: THOUGHTS ON CREATIVE INTERDISCIPLINARY TRAINING**, M. BONNER DENTON, University of Arizona, Chemistry Dept., Tucson, AZ
- 11:00 (26) **IDENTIFYING THE SCIENCE OF CHEMICAL ANALYSIS AND TEACHING IT**, CHRISTIE ENKE, University of New Mexico, Dep't. of chemistry, Clark Hall, Albuquerque, NM, USA
- 11:20 (27) **PANEL DISCUSSION**, FRANK SETTLE

**Monday, 9:00 – noon, Room 8
ICP/AES**

Presiding: John Olesik

- 9:00 (28) **EFFECT OF THE SPRAY CAMBER DESIGN ON THE ICP/AES ANALYTICAL PARAMETERS FOR THE ANALYSIS OF VERY LOW LIQUID SAMPLE VOLUMES**, JOSE-LUIS TODOLI, Salvador Maestre, Juan Mora, Antonio Canals, Vicente Hernandez, Department of Analytical Chemistry, P.O. Box 99, Alicante, Spain
- 9:20 (29) **HIGH EFFICIENCY SAMPLE INTRODUCTION FOR ICP-OES AND ICP/MS NOT LIMITED TO SMALL SAMPLE UPTAKE RATES**, CARL HENSMAN, John Olesik, Savelas Rabb, The Ohio State University, 275 Mendenhall Lab., 125 South Oval Mall, Columbus, OH, USA
- 9:40 (30) **CHEMICAL MATRIX EFFECTS IN ICP-OES AND ICP/MS INVESTIGATED USING ISOLATED SAMPLE DROPLETS**, CARL HENSMAN, John Olesik, The Ohio State University, 275 Mendenhall Lab., 125 South Oval Mall, Columbus, OH, USA
- 10:00 **Coffee Break**
- 10:40 (31) **OPTIMIZATION OF SPECTROMETER AND DETECTOR PARAMETERS TO MAXIMIZE ANALYTICAL ACCURACY IN ICP-OES**, DENNIS YATES, Chuck Schneider, Paul Krampitz, Bernie Radziuk, Perkin-Elmer Corp, 761 Main Avenue, MS 215, Nowalk, CT, USA
- 11:00 (32) **ANALYSIS OF WATER: DEALING WITH INTERFERENCES, DYNAMIC RANGE AND LOW LEVEL RECOVERY**, PAUL KRAMPITZ, Dennis Yates, Chuck Schneider, Paul Krampitz, Perkin-Elmer Corp, 761 Main Avenue, MS 215, Nowalk, CT, USA
- 11:20 (33) **BENEFITS OF COMBINED RADIAL AND AXIAL ICP VIEWING FOR THE ANALYSIS OF ENVIRONMENTAL SAMPLES**, GEOFFREY COLEMAN, R.L. Stux, R.W. Foster, G.R. Dulude, Thermo Jarrell Ash Corp., 27 Forge Parkway, Franklin, MA, USA
- 11:40 (34) **UTILIZING THE FAR UV REGION IN ICP FOR HALOGENS & ALTERNATIVE WAVELENGTHS FOR OTHER ELEMENTS**, GEOFF TYLER, AgnÈs Cosnier, Nathalie Le Corre, Jobin Yvon Emission

**Monday, 8:40 – noon, Room 9
MICRO- AND NANO-NEBULIZATION: CONCEPTS, DEVICES, FUNDAMENTALS, AND NOVEL APPLICATIONS I**

Presiding: Akbar Montaser Organized by: Akbar Montaser

- 8:40 (35) **MICRONEBULIZERS IN ICP SPECTROCHEMISTRY: TOYS OR TOOLS?**, JEAN-MICHEL MERMET, J.L. Todoli, University of Lyon, Laboratoire des Sciences Analytiques, Bat-308, Villeurbanne
- 9:00 (36) **THREE-DIMENSIONAL AEROSOL DIAGNOSTICS BASED ON OPTICAL PATTERNATION**, JOHN MCLEAN, Michael Minnich, Akbar Montaser, George Washington University, 725 Twentyfirst St., NW, Washington, DC
- 9:20 (37) **HIGH EFFICIENCY SAMPLE INTRODUCTION FOR PLASMA SPECTROMETRY**, EBENEZER DEBRAH, Guy Legere, Perkin Elmer SCIEX Instruments, 71 Four Valley Drive, Concord, ON
- 9:40 (38) **HANDLING VERY LOW LIQUID SAMPLE VOLUMES IN ICP/AES: PNEUMATIC MICRONEBULIZERS AND SPRAY CHAMBERS**, JOSE-LUIS TODOLI, Jean-Michel MERMET(*), Department of Analytical Chemistry, P.O. Box 99, Alicante, Spain
- 10:00 **Coffee Break**
- 10:40 (39) **MULTIELEMENT ANALYSIS IN SMALL AMOUNTS OF ENVIRONMENTAL SAMPLES BY ICP/MS**, J. SABINE BECKER, Hans-Joachim Dietze, Central Department for Analytical Chemistry, Research Center Juelich, Juelich
- 11:00 (40) **INVESTIGATION OF THE 'COOL' PLASMA CONDITION FOR THE DIRECT INJECTION OF LIQUID SAMPLES IN INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY**, MICHAEL MINNICH, Akbar Montaser, George Washington University, Dept. of Chemistry, 725 21st Street NW, Washington, DC
- 11:20 (41) **RECENT ADVANCES IN THE OSCILLATING CAPILLARY NEBULIZER**, RICHARD BROWNER, Georgia Institute of Technology, Department of Chemistry and Biochemistry, Atlanta, GA
- 11:40 (42) **A NOVEL NEBULIZER FOR MICROWAVE INDUCED PLASMA MASS SPECTROMETRY (MIP-MS)**, MIN HUANG, K. Yamamoto, T. Shirasaki, A. Hirabayashi, H. Koizumi, Central Research Laboratory, Hitachi, Ltd.237, 1-280 Higashi-Koigakubo, Kokubunji City, Tokyo, Japan

**Monday, 8:40 – noon, Room 10
LC/MS**

Presiding: Tom Covey Organized by: Tom Covey

- 8:40 (43) **EFFICIENT COUPLING OF MICROFABRICATED DEVICES TO NANO-ELECTROSPRAY MASS SPECTROMETRY; APPLICATION TO THE ANALYSIS OF TRACE LEVEL PROTEINS**, JIANJUN LI, Jianjun Li, Cameron Skinner, Can Wang, Jed Harrison, Institute for Biological Sciences/National Research Council Canada, 100 Sussex Dr., Ottawa, ON
- 9:00 (44) **MICROSCALE LC FOR RAPID PROTEIN IDENTIFICATION IN CONJUNCTION WITH A NOVEL GEOMETRY QUADROPOLE-TIME OF FLIGHT MASS SPECTROMETER**, DEVANAND PINTO, D. Figeys, S. Locke, National Research Council & MDS-SCIEX, 1411 Oxford St., Halifax, NS, 12
- 9:20 (45) **ISOTOPE DISTRIBUTION ENCODED TAGS FOR PROTEIN ANALYSIS BY MASS SPECTROMETRY**, DAVID GOODLETT, Beate Rist, James Bruce, Ljiljana Pasa-Tolic, Oliver Fiehn, Gordon Anderson, Richard Smith, Ruedi Aebersold, University of Washington, HSB K327 Box 357730, Seattle, WA
- 9:40 (46) **APPLICATION OF FRONTAL**

CHROMATOGRAPHY/MASS SPECTROMETRY TO HIGH THROUGHPUT SCREENING FOR DRUG DISCOVERY, DAVID SCHRIEMER, Nora Chan, Darren Lewis, INH Technologies, 145-3353 31 Street N.W., Calgary, AB

10:00 **Coffee Break**

- 10:40 (47) **WHAT IS HIGH FIELD ASYMMETRIC WAVEFORM ION MOBILITY SPECTROMETRY?**, ROGER GUEVREMONT, Randy Purves, David Barnett, National Research Council of Canada, Inst. Nat. Measurement Standards, Bldg. M-12, Ottawa, Ont.
- 11:00 (48) **INVESTIGATION OF PROTEIN CONFORMERS USING ELECTROSPRAY-HIGH FIELD ASYMMETRIC WAVEFORM ION MOBILITY SPECTROMETRY-MASS SPECTROMETRY**, RANDY PURVES, Roger Guevremont, Dave Barnett, Sciex, 71 Four Valley Drive, Concord, Ont.
- 11:20 (49) **STRATEGIES FOR ULTRA-HIGH THROUGHPUT LC/MS/MS**, THOMAS COVEY, Sciex, 71 Four Valley Drive, Concord, ONT
- 11:40 (50) **A NEW IONIZATION TECHNIQUE FOR LC/MS**, DAMON ROBB, Andries Bruins, Thomas Covey, University of Groningen, Centre for Pharmacy, A. Deusinglaan 1, Groningen, The Netherlands

Monday, 8:20 – noon, Room 11
COLLISION AND REACTION CELL TECHNIQUES IN ATOMIC SPECTROSCOPY

Presiding: David Koppenaar Organized by: David Koppenaar

- 8:20 (51) **SELECTIVE CONTROL OF REACTION PROCESSES IN A REACTION CELL FOR ICP/MS**, SCOTT TANNER, V.I. Baranov, Perkin-Elmer Sciex Instruments, 71 Four Valley Drive, Concord, ON
- 9:00 (52) **ION-MOLECULE REACTIONS FOR INTERFERENCE REDUCTION IN ICP/MS**, GREGORY C EIDEN, DG Weir, CJ Barinaga, DW Koppenaar, Pacific Northwest National Laboratory, PO Box 999, Richland, WA
- 9:20 (53) **NEW DEVELOPMENTS IN COLLISION CELLS FOR REMOVING POLYATOMIC IONS IN ICP/MS**, R. S. HOUK, University of Iowa
- 9:40 (54) **USE OF A COLLISION CELL TO IMPROVE THE PERFORMANCE OF PLASMA-SOURCE TOFMS**, GARY HIEFTJE, J. P. Guzowski, Jr., A. M. Leach, J. Costa-Fernandez, Indiana University, Dept. of Chemistry, Bloomington, IN, USA
- 10:00 **Coffee Break**
- 10:40 (55) **INCORPORATING COLLISION CELL TECHNOLOGY INTO A QUADRUPOLE ICP/MS**, JONATHAN BATEY, VG Elemental, Ion Path, Road Three, Winsford
- 11:00 (56) **COLLISIONAL REDUCTION OF INTERFERENCES FOR THE ANALYSES OF REAL SAMPLES IN ICP/MS**, NORIYUKI YAMADA, Kenichi Sakata, Ryotaro Midorikawa, Michiko Yamanaka, 2-11-19 Nakacho, Musashino-shi, Tokyo, Japan
- 11:20 (57) **GAS-PHASE METAL ION CHEMISTRY INVESTIGATIONS USING QUADRUPOLE ION TRAPS: UNIMOLECULAR DISSOCIATION, ION/MOLECULE, AND ION/ION REACTIONS**, DOUGLAS DUCKWORTH, D.E. Goeringer, G.J. Van Berkel, S.A. McLuckey, Oak Ridge National Laboratory, P.O. Box 2008 MS-6375, Oak Ridge, TN
- 11:40 (58) **DEVELOPING ION-MOLECULE REACTION METHODS TO OVERCOME SPECTRAL OVERLAPS IN ICP/MS**, JOHN OLESIK, Deanna Rago, Carl Hensman, Susan Olesik, Ohio State University, 125 S. Oval Mall, 275 Mendenhall Laboratory, Columbus, OH,

USA

Monday, 8:40 – 11:40, Room 12
CHEMICAL SPECIATION I

Presiding: J. Caruso and V. Majidi
Organized by: C.L. Chakrabarti, M.M. Lamoureux, W.D. Marshall, J. Caruso (ICASS)

- 8:40 (59) **MODELING AND PREDICTION OF COPPER TOXICITY IN SAN DIEGO BAY-PART II**, ALBERTO ZIRINO, D. B. Chadwick, I. Rivera Duarte, Marine Environment Division, SSC-San Diego, Mail Code D 361, CA, USA
- 9:20 (60) **ADSORPTIVE CATHODIC STRIPPING VOLTAMMETRY INTO THE NEXT MILLENNIUM**, STAN VAN DEN BERG, Liverpool University, Oceanography Laboratories, Liverpool, Mers, England
- 10:00 **Coffee Break**
- 10:40 (61) **TRACE METAL COMPLEXATION TO MACROMOLECULAR ORGANIC MATTER IN SURFACE WATERS**, PETER SANTSCHI, Degui Tang, Mathew Quigley, Laodong Guo, Liang-Saw Wen, Texas A&M University, 5007 Ave U, Galveston, TX, USA
- 11:20 (62) **ENZYMATIC DIGESTION - HIGH PRESSURE HOMOGENIZATION PRIOR TO SLURRY INTRODUCTION GRAPHITE FURNACE ATOMIC ABSORPTION SPECTROMETRY FOR SELENIUM DETERMINATION IN PLANT AND ANIMAL TISSUES**, WILLIAM MARSHALL, Xi Chen, Macdonald Campus of McGill U, Dept Food Science & Agric Chem., 21,111 Lakeshore Road, Ste-Anne-de-Bellevue, QUE, Canada

Monday, 8:20 – 11:40, Room 13
FRONTIERS IN SPECTROCHEMICAL ANALYSIS HONORING DR. BRUCE CHASE

Presiding: Marc Porter Organized by: Marc Porter

- 8:20 (63) **VIBRATIONAL SPECTROSCOPY OF POLYMERIC MATERIALS UNDER DEFORMATION**, BRUCE CHASE, John Rabolt, Richard Ikeda, Cherish Lesko, Sophie Riou, DuPont, DuPont Experimental Station E328/163, Wilmington, DE
- 9:00 (64) **MOLECULAR ION TRANSPORT IN NANOMETER LIVING POLYMER FILMS**, MARY WIRTH, Sarah Romero, University of Delaware, Department of Chemistry & Biochemistry, Newark, DE
- 9:40 (65) **POLARIZED RAMAN MEASUREMENTS OF ANISOTROPIC SCATTERING IN UNIAXIALY ORIENTED NYLON 6 (POLY(CAPROLACTAM))**, JOHN RABOLT, Kigook Song, University of Delaware, Materials Science and Engineering, Newark, DE
- 10:00 **Coffee Break**
- 10:40 (66) **BIOMEMBRANE HETEROGENEITY: VIBRATIONAL SPECTROSCOPIC AND IMAGING STUDIES OF LIPID MICRODOMAINS**, IRA LEVIN, P. McCarthy, H. Wang, A. Menikh, E.N. Lewis, National Institutes of Health, Building 5; Room B1-32, Bethesda, MD
- 11:20 (67) **ADVANCES IN THE APPLICATION OF ARRAY DETECTORS FOR IMPROVED CHEMICAL ANALYSIS FROM X-RAY TO IR**, M. BONNER DENTON, University of Arizona, Chemistry Department, Tucson, AZ

Monday, 9:00 – 11:40, Room 14
CHEMICAL SENSORS

Presiding: Sergej Shilov

- 9:00 (68) **DEVELOPMENT OF ENVIRONMENTAL OPTICAL SENSORS FOR HEAVY METAL IONS BASED ON IMMOBILIZED LIGANDS ONTO POLYMERIC SUPPORTS**, PERIHAN CAGLAR, Nurgul Malcik, Ramaier Narayanaswamy, Hacettepe University, Department of Chemistry, Hacettepe University, Ankara, Beytepe, TURKEY
- 9:20 (69) **DEVELOPMENT OF A ATR-FT/IR SENSOR FOR MONITORING, MODELLING AND CONTROL AN ANAEROBIC DECHLORINATING BIOREACTOR**, VICTOR ACHA, S.N. Agathos, H. Naveau, M. Meurens, Catholic University of Louvain, Place Croix du Sud 2/19, Louvain-la-Neuve, -, Belgium
- 9:40 (70) **APPLYING UV/VIS/ SWNIR DIODE ARRAY SPECTROSCOPY TO PROCESS APPLICATIONS; THEORY AND PRATICE**, YOAV BARSHAD, Yael Barshad, Applied Analytics, Inc., PO Box 670129, Chestnut Hill, MA, USA
- 10:00 **Coffee Break**
- 10:40 (71) **INTERDIGITATED MICROELECTRODE ARRAY-A SENSOR FOR TRACE ELECTROANALYSIS**, DUSAN BUSTIN, Peter Tomcik, Miroslav Rievaj, Slovak University of Technology, Vazovova 5, 812 43 Bratislava, Slovak Republic, Bratislava, SK, Slovak Republic
- 11:00 (72) **MID-IR EVANESCENT-WAVE SENSORS BASED ON QUASI-PLANAR GE WAVEGUIDES**, SERGEJ SHILOV, Li-Zhi Mi, Mark Braiman, Syracuse University Chemistry Department, Center for Science and Technology, Room 1-014, Syracuse, NY, USA
- 11:20 (73) **A QUARTZ CRYSTAL MICROBALANCE SENSOR FOR DETERMINATION OF TOTAL NO₂ IN LANDFILL GAS**, TERESA ROCHA SANTOS, M. Teresa Gomes, Armando Costa Duarte, Joao Pereira Oliveira, University of Aveiro, Department of Chemistry, Aveiro, Portugal

**Monday, 9:00 – noon, Room 15
BIOELECTROCHEMISTRY:
FUNDAMENTALS AND ANALYSIS**

Presiding: James Rusling Organized by: James Rusling

- 9:00 (74) **FROM FLOW INJECTION TO BEAD INJECTION**, JAROMIR RUZICKA, University of Washington, Department of Chemistry, BG-10, Seattle 98115, WA
- 9:40 (75) **TOXICITY SCREENING BY VOLTAMMETRIC MEASUREMENTS OF DNA DAMAGE**, JAMES RUSLING, Jeremiah Mbindyo, Liping Zhou, University of Connecticut, Box U-60, 55 N. Eagleville Rd., Storrs, CT
- 10:00 **Coffee Break**
- 10:40 (76) **SPECTROSCOPIC AND ELECTROCHEMICAL STUDIES OF CYTOCHROME C IN MIXED SOLVENTS**, PATRICIA MABROUK, Sivashankar Sivakolundu, Northeastern University, Department of Chemistry, Boston, MA
- 11:20 (77) **ELECTROANALYTICAL CHEMISTRY USING A NOVEL DNA-BASED SELF-ASSEMBLED MONOLAYER SYSTEM**, STEPHEN CREAGER, C J Yu, Bob Terbruggen, Tanya MacLean, Eric Lam, Steve O'Connor, Clemson University, Department of Chemistry, Clemson, SC
- 11:40 (78) **SPECTROELECTROCHEMISTRY OF CROSSLINKED HEMOGLOBINS**, ALANAH FITCH, Simona Dragan, Chemsitry/Loyola University Chicago, 6525 N. Sheridan Rd., Chicago, IL, USA

**Monday, 8:40 – noon, Room 16
PARTING (OF PEAKS) IS SUCH SWEET PLEASURE I**

Presiding: Joe Davis Organized by: Joe Davis

- 8:40 (79) **WHOLE COLUMN IMAGING DETECTION IN CE**, JANUSZ PAWLISZYN, Qinglu Mao, Jiaqi Wu, Charalambos Tragas, Xiaohong Fang, University of Waterloo, Department of Chemistry, Waterloo, ON
- 9:20 (80) **INTERNAL-REFLECTION SPECTROSCOPY STUDIES OF CHROMATOGRAPHIC INTERFACES**, JOEL HARRIS, Dion Rivera, Karla McCain, University of Utah, Department of Chemistry, 315 South 1400 East, Salt Lake City, UT
- 9:40 (81) **BIOCHROMATOGRAPHY IN DRUG DISCOVERY AND DEVELOPMENT: GETTING PEAK PLEASURE AND PHARMACOLOGICAL INFORMATION ON IMMOBILIZED BIOPOLYMER-BASED LC STATIONARY PHASES**, IRVING WAINER, Georgetown University Medical Center-Med Dent Bldg C503, 3900 Reservoir Rd, Washington, DC
- 10:00 **Coffee Break**
- 10:40 (82) **SINGLE-MOLECULE SPECTROSCOPIC STUDY OF THE ORIGIN OF PEAK TAILING**, MARY WIRTH, Derrick Swinton, Melody Ludes, University of Delaware, Department of Chemistry, Newark, DE
- 11:00 (83) **CHIRAL POLYMERIC SURFACTANTS AS REAGENTS FOR CHIRAL SEPARATIONS**, ISIAH WARNER, Crystal Williams Harrell, Matthew McCarroll, Louisiana State University, Baton Rouge, 232 Choppin Hall, Baton Rouge, LA
- 11:20 (84) **DO WE REALLY UNDERSTAND ELECTROPHORETIC MOBILITIES?**, CHARLES LUCY, Dongmei Li, Shilin Fu, University of Alberta, Department of Chemistry, Edmonton, AB
- 11:40 (85) **ONE RESOLUTION EQUATION FOR ALL SEPARATION TECHNIQUES**, DAVID CHEN, Michael Bowser, University of British Columbia, Department of Chemistry, University of British Columbia, Vancouver, BC, Canada

**Monday, 8:40 – 11:40, Room 17
SINGLE-MOLECULE DETECTION FOR BIOLOGICAL ANALYSIS**

Presiding: Nancy Xu Organized by: Nancy Xu

- 8:40 (86) **BIOANALYTICAL APPLICATIONS OF SINGLE MOLECULE DETECTION**, RICHARD KELLER, Los Alamos National Laboratory, MS M888, Los Alamos National Laboratory, Los Alamos, NM
- 9:20 (87) **TOOLS FOR ANALYZING AND CONTROLLING BIOLOGICAL NANOENVIRONMENTS**, DANIEL CHIU, Owe Orwar, Richard Zare, Harvard University, 12 Oxford Street, Cambridge, MA, USA
- 10:00 **Coffee Break**
- 10:40 (88) **SINGLE MYOSIN MOLECULE MECHANICS**, MATTHIAS RIEF, Amit Mehta, Ronald Rock, Stanford University School of Medicine, Department of Biochemistry B400, Stanford, CA
- 11:20 (89) **DYNAMICS OF SINGLE NEUROTRANSMITTER AND PROTEIN MOLECULES**, X. NANCY XU, Jinsong Gao, Robert Jeffers, Old Dominion University, Department of Chemistry & Biochemistry, Norfolk, VA

**Monday, 8:40 – 11:40, Room 18
PROTEOMICS**

Presiding: Norm Dovichi

- 8:40 (90) **PROTEOMICS: NEW PLAYGROUND FOR BIOLOGICAL MASS SPECTROMETRY**, DANIEL FIGEYS, Steven Locke, National Research Council, 1411 Oxford Street, Halifax, NS, Canada
- 9:20 (91) **NOVEL APPROACHES TO QUANTITATIVE PROTEOME ANALYSIS**, BEATE RIST, Steven Gygi, Scott Gerber, Frantisek Turecek, Michael Gelb, Ruedi Aebersold, University of Washington, Department of Molecular Biotechnology, 1705 NE Pacific, Seattle, WA
- 10:00 **Coffee Break**
- 10:40 (92) **FABRICATION AND CHARACTERIZATION OF SOLID-PHASE DEVICES FOR PROTEIN DIGESTION AND CAPILLARY ELECTROPHORESIS-BASED PEPTIDE MAPPING**, KAREN WALDRON, Eric Bonneil, University of Montreal, Department of Chemistry, 2900 boul. Edouard-Montpetit, Montreal, QC
- 11:20 (93) **SINGLE CELL PROTEOME PROJECT**, NORMAN DOVICH, Zheru Zhang, Sergey Krylov, Edgar Arriaga, Shen Hu, Dawn Richards, University of Alberta, Department of Chemistry, Edmonton, Alberta, Canada

Monday, 8:20 – noon, Room 19
ANALYTICAL LABORATORY - CHALLENGES AND OPPORTUNITIES

Presiding: Brenda Caughlin Organized by: Brenda Caughlin

- 8:20 (94) **TOWARDS A UNIFIED THEORY OR ERRORS, CONCEPTS AND PRACTICE IN ANALYTICAL MEASUREMENT**, MICHAEL THOMPSON, Centre for Analytical Chemistry, Birkbeck College, Gordon House, 29 Gordon Square, London, UK
- 9:00 (95) **TRENDS IN THE ANALYTICAL INDUSTRY**, DON ENNS, CANTEST Ltd., 1523 W 3rd, Vancouver, BC
- 9:20 (96) **EFFECTS AND INFLUENCES OF LAB CERTIFICATION ON LAB PERFORMANCE**, JAMES DOWNIE, ASL Analytical Service Laboratories Ltd., 1988 Triumph Street, Vancouver, BC
- 9:40 (97) **A MODEL FOR QUANTIFYING QUALITY IN ANALYTICAL LABORATORIES**, ED PASKI, Analytical Innovations, P.O. Box 3337, Blaine, WA
- 10:00 **Coffee Break**
- 10:40 (98) **DNA? WHAT'S THAT? OR, THE CHALLENGE OF INTRODUCING NEW TECHNOLOGY TO THE MARKET**, TERRANCE OWEN, Helix Biotech, 215 - 7080 River Rd., Richmond, BC
- 11:00 (99) **ENHANCED INSTRUMENTATION THROUGH MULTIPURPOSE COLLABORATION**, LLOYD ALLEN, Stuart Georgitis, LECO Corporation, 3000 Lakeview Ave., St. Joseph, MI, US
- 11:20 (100) **VANADIUM ANALYSIS IN WHOLE BLOOD AND PLASMA BY ICP-MS**, CHARLES LEBLANC, David Gray, Bernie Denis, Wilson Chan, Elemental Research Inc., 309-267 West Esplanade, North Vancouver, BC
- 11:40 (101) **RAPID INTEGRATION OF BENCHTOP LC/MS INTO ROUTINE USE IN A COMMERCIAL ANALYTICAL LABORATORY**, RALPH HINDLE, Norwest Labs, 104 - 19575 55A Ave., Surrey, BC, Canada

Monday, 13:20 – 17:00, Room 1
UV RAMAN SPECTROSCOPY

Presiding: Richard Bormett Organized by: Richard Bormett

- 13:20 (102) **UV RESONANCE RAMAN STUDIES OF NSEC PROTEIN FOLDING**, SANFORD ASHER, I. Lednev, A. Karnoup, M. Sparrow, University of Pittsburgh, Chevron

- Science Center, 219 Parkman Avenue, Pittsburgh, PA
- 13:40 (103) **UV RAMAN SPECTROSCOPY AND PROTEIN DYNAMICS**, THOMAS SPIRO, Princeton University, Department of Chemistry, Princeton, NJ
- 14:00 (104) **UV-RESONANCE RAMAN STUDIES OF VIRUS STRUCTURE AND ASSEMBLY**, GEORGE THOMAS, JR., Zai-Qing Wen, Stacy Overman, University of Missouri-Kansas City, School of Biological Sciences, 5100 Rockhill Road, Kansas City, MO
- 14:20 (105) **UV RAMAN SPECTROSCOPY OF CATALYSTS AND LUBRICATED SLIDING CONTACTS**, PETER STAIR, Can Li, Yek-Tann Chua, Amanda Chuang, Vivian Sullivan, David Jackson, Northwestern University, Department of Chemistry 2145 Sheridan Road, Evanston, IL
- 15:00 **Coffee Break**
- 15:20 (106) **UV RAMAN MONITOR OF MARINE ALGAE TOXINS**, WILFRED NELSON, University of Rhode Island, Department of Chemistry, Pastore Hall, Kingston, RI
- 15:40 (107) **RECENT DEVELOPMENTS IN FIBER OPTIC PROBES FOR ULTRAVIOLET RESONANCE RAMAN SPECTROSCOPY**, CHRISTOPHER BARBOSA, Robin Turner, Charles Haynes, Georg Schulze, Shane Greek, University of British Columbia, 2036 Main Mall, Vancouver, BC
- 16:00 (108) **SIMPLIFYING COMPLEX SYSTEMS WITH UV RESONANCE RAMAN SPECTROSCOPY**, GLEN LOPPNOW, K. J. Schmidt, P. Arboleda, R. H. Hall, P. Abel, J. T. Bulmer, University of Alberta, Department of Chemistry, Edmonton, AB, Canada
- 16:20 (109) **UV RAMAN AND THE MISSION TO MARS**, MICHAEL STORRIE-LOMBARDI, JPL/California Institute of Technology, 4800 Oak Grove Drive, Pasadena, CA, USA
- 16:40 (110) **NEW UV LASER TECHNOLOGY FOR UV RAMAN SPECTROSCOPY**, WILLIAM HUG, Photon Systems, 1518A Industrial Park St., Covina, CA

Monday, 13:20 – 16:20, Room 2
CHEMOMETRIC APPLICATIONS IN MULTIVARIATE IMAGING

Presiding: Michael D. Morris Organized by: Michael D. Morris

- 13:20 (111) **NIR SPECTROSCOPIC IMAGING OF CHRONIC WOUNDS AND SURGICALLY RECONSTRUCTED TISSUES**, MICHAEL SOWA, National Research Council Canada, Institute for Biodiagnostics, 435 Ellice Ave., Winnipeg, Manitoba
- 14:00 (112) **ELECTRON PARAMAGNETIC RESONANCE IMAGING OF REDOX METABOLISM IN SKIN**, JAY ZWEIER, A. Samouilov, G. He, Mark Davies*, P. Kuppusamy, Johns Hopkins University School of Medicine, Johns Hopkins Asthma and Allergy Center, 5501 Hopkins Bayview Circle, Room LA.14, Baltimore, MD
- 15:00 **Coffee Break**
- 15:20 (113) **DATA ANALYSIS STRATEGY FOR MULTIVARIATE SPECTRAL IMAGING**, THOMAS HANCEWICZ, Jeremy Andrew(1), Shuliang Zhang(1), Philip Hopke(2), Ji-Hong Wang(2), Pentti Paatero(3), Unilever Reserch US - Edgewater Laboratory, 45 River Road, Edgewater, NJ
- 16:00 (114) **MULTIVARIATE ANALYSIS OF NMR AND IR SPECTRAL IMAGE DATA**, FRANK DELAGLIO, Abigail Haka, David Lester, Ira Levin, E. Neil Lewis, National Institutes of Health, Laboratory for Chemical Physics, NIDDK, Bethesda, MD, USA

Monday, 13:20 – 16:20, Room 3
**NOVEL APPROACHES FOR ULTRASENSITIVE
BIOANALYSIS**

Presiding: Nancy Xu

Organized by: Nancy Xu

- 13:20 (115) **SENSITIVE FLUORESCENCE DETECTION OF FLUOROPHORES AND QDOTS**, SHIMON WEISS, Lawrence Berkeley National Laboratory, MS 2-300 1 Cyclotron Rd., Berkeley, CA
- 14:00 (116) **ELECTROCHEMILUMINESCENCE STUDIES OF HIV RECEPTORS**, X. NANCY XU, Zhaoyang Wen, Old Dominion University, Department of Chemistry & Biochemistry, Norfolk, VA
- 15:00 **Coffee Break**
- 15:20 (117) **SINGLE MOLECULE DETECTION USING SPHERICAL MICROCONTAINERS**, MIKE RAMSEY, M. D. Barnes, K. C Ng*, N. Lermer, C-Y. Kung, Oak Ridge National Laboratory, Laser Spectroscopy and Microinstrumentation, P.O. Box 2008, Oak Ridge, TN
- 16:00 (118) **DNA POLYMORPHISM USING RESTRICTION FRAGMENT ENZYMES, CE AND FLUORESCENCE DETECTION**, LINDA MCGOWN, Sara McIntosh, Duke University, Department of Chemistry, Box 90346, Durham, NC

Monday, 13:40 – 16:40, Room 7
**BEST PRACTICES IN THE TEACHING OF
ANALYTICAL CHEMISTRY**

Presiding: Thomas Wenzel

Organized by: Thomas Wenzel

- 13:40 (119) **COMMUNITY-DERIVED PROBLEM-BASED LEARNING FOR INSTRUMENTAL ANALYSIS**, ALANAH FITCH, Loyola University of Chicago, Department of Chemistry, Chicago, IL
- 14:00 (120) **PROBLEM-ORIENTED LEARNING FOR CLASSROOM INSTRUCTION IN INSTRUMENTAL CHEMICAL ANALYSIS**, RICHARD CASSIDY, University of Saskatchewan, Chemistry Department, Saskatoon, SK
- 14:20 (121) **SIMULATING REAL-WORLD ANALYSES IN THE QUANTITATIVE ANALYSIS LABORATORY**, CAMERON DOREY, Jeffery Draves, Conrad Stanitski, University of Central Arkansas, Department of Chemistry, Conway, AR
- 15:00 **Coffee Break**
- 15:20 (122) **ACTIVE LEARNING TEACHING METHODS FOR ANALYTICAL CHEMISTRY-WHAT THEY ARE AND ARE THEY WORTH THE EFFORT**, JOHN WRIGHT, University of Wisconsin, Department of Chemistry, 1101 University Ave., Madison, WI
- 15:40 (123) **BIOANALYTICAL CHEMISTRY**, PATRICIA MABROUK, Northeastern University, Department of Chemistry, 360 Huntington Ave., Boston, MA
- 16:00 (124) **ANALYTICAL SCIENCE FOR THE NEXT GENERATION OF SCIENTISTS: THE IMPACT OF TWO NSF-FUNDED PROGRAMS AT THE UNIVERSITY OF MASSACHUSETTS**, JULIAN TYSON, University of Massachusetts at Amherst, Department of Chemistry, Amherst, MA
- 16:20 (125) **PANEL PRESENTATION: BEST PRACTICES IN ANALYTICAL CHEMISTRY**, THOMAS WENZEL, Richard Cassidy, Cameron Dorey, Alanah Fitch, Patricia Mabrouk, Julian Tyson, John Wright, Bates College, Department of Chemistry, Lewiston, ME

Monday, 13:20 – 17:20, Room 8
**DEVELOPMENTS IN DIRECT SOLIDS ANALYSIS USING
ICP-MS: ELECTROTHERMAL VAPORIZATION**

Presiding: Ralph Sturgeon

Organized by: I.B. Brenner

- 13:20 (126) **A CRITICAL EVALUATION OF ICP-OES AND ICP-MS FOR THE DIRECT ANALYSIS OF CERAMIC POWDERS WITH VARIOUS SAMPLING TECHNIQUES**, JOSÉ A.C. BROEKAERT, Martin Wende, University of Leipzig, Inst. for Anal. Chemistry, Linnéstrasse 3, Leipzig, D, Germany
- 14:00 (127) **JUST DO IT DIRECT: DSI-ICP-MS**, GARY HORLICK, University of Alberta, Department of Chemistry, Edmonton, AB
- 15:00 **Coffee Break**
- 15:20 (128) **MASS TRANSFER FROM AN ETV TO AN ICP: GET ON THE BUS, GUS!**, JAMES HOLCOMBE, Delony Langer, John Venable, Leticia Valadez, University of Texas at Austin, Dept. of Chemistry and Biochemistry, Austin, TX, USA
- 16:00 (129) **ELEMENTAL MICRO-CHARACTERIZATION OF QUALITY CONTROL MATERIALS USING SLURRY SAMPLING ETV-ICP/MS**, NANCY MILLER-IHLI, Scott Baker, USDA, Rm. 1 Bldg. 161 BARC-East, Beltsville, MD
- 16:20 (130) **MINIMIZING MATRIX EFFECTS WITH ETV-ICP/MS**, RALPH STURGEON, Joseph Lam, national Research Council of Canada, INMS, Bldg M-12, Montreal Road, Ottawa, ON, Canada
- 16:40 (131) **VAPORIZATION AND REMOVAL OF SILICA FOR THE DIRECT ANALYSIS OF GEOLOGICAL MATERIALS BY SLURRY SAMPLING ELECTROTHERMAL VAPORIZATION-INDUCTIVELY COUPLED PLASMA-MASS SPECTROMETRY**, MUFIDA BEN YOUNES, D. Conrad Gogoire, C.L. Chakrabarti, Carleton University, 1125 Colonel By Drive, Ottawa, Ontario, Canada
- 17:00 (132) **INJECTOR GAS FLOW AND THE BEHAVIOR OF PARTICLES IN THE INDUCTIVELY COUPLED PLASMA**, NIMAL DE SILVA, Carleton University, Department of Chemistry, Ottawa, ON

Monday, 13:20 – 16:40, Room 9
**MICRO- AND NANO-NEBULIZATION:
CONCEPTS, DEVICES, FUNDAMENTALS,
AND NOVEL APPLICATIONS II**

Presiding: Michael G. Minnich

Organized by: Akbar Montaser

- 13:20 (133) **THE IMPORTANCE OF SOLVENT LOADING IN DEVELOPING HIGH SENSITIVITY AND SMALL SAMPLE VOLUME SAMPLE INTRODUCTION SYSTEMS FOR ICP-OES AND ICP/MS**, JOHN OLESIK, Carl Hensman, Ohio State University, 125 S. Oval Mall, 275 Mendenhall Laboratory, Columbus, OH
- 13:40 (134) **NEW DESIGNS FOR DIRECT INJECTION HIGH EFFICIENCY NEBULIZERS (DIHENS) USING ICP/MS DETECTION**, BILLY ACON, John McLean, Su-Ann O'Brien, Michael Minnich, Akbar Montaser, The George Washington University, 725 21st Street, NW, Cor309, Washington, DC
- 14:00 (135) **PLASMA DIAGNOSTICS WITH INDIVIDUAL PARTICLE MEASUREMENT BY ICP/MS**, TSUTOMU NOMIZU, Hideo HAYASHI, Tomokazu TANAKA, Kuniyuki KITAGAWA, Nagoya University, Furo-cho, Chikusa-ku, Nagoya
- 14:20 (136) **MICRO-NEBULIZERS FOR CE APPLICATIONS WITH PLASMA MS**, JOSEPH CARUSO, Clayton B'Hymer, Jason Day, University of

Cincinnati, College of Arts and Sciences, Cincinnati, OH

- 15:00 **Coffee Break**
- 15:20 (137) **THE DIHEN AS AN INTERFACE FOR CE/ICP-MS: IMPROVED SENSITIVITY FOR ENVIRONMENTAL APPLICATIONS**, NANCY VANSTONE, R. Doublas Evans, Watershed Ecosystems Graduate Program, Trent, 1600 West Bank Drive, Peterborough, ON, Canada
- 15:40 (138) **ACHIEVING LOWER DETECTION LIMITS IN CE-ICP/MS: MULTI-CAPILLARIES BASED SEPARATION WITH A DIHEN NEBULIZER**, VAHID MAJIDI, Wolfgang Frech, Yngvar Thomassen, Johanna Qvarnstrom, Los Alamos National Laboratory, MS K484, Los Alamos, NM
- 16:00 (139) **DETERMINATION OF TOTAL MERCURY IN ORGANIC SOLUTIONS AT PPT LEVELS USING ISOTOPE DILUTION COMBINED WITH A DIHEN AND ICP/MS**, ERIK BJORN, James Snell, Wolfgang Frech, Analytical Chemistry, Umea University, Umea
- 16:20 (140) **ANALYSIS OF IODINE IN HUMAN MILK BY RNAA AND ICP/MS: A COMPARISON OF THE ANALYTICAL METHODOLOGY AND SPECIATION ANALYSIS**, VIRGINIA NEGRETTI DE BRAETTER, P. Braetter, M. Dermelj, A. Raab, V. Stibilj, Hahn-Meitner-Institut Berlin, Glienicke Str. 100, D-14109 Berlin

**Monday, 13:40 – 17:20, Room 10
PAUL TRAPS**

Presiding: George Agnes Organized by: George Agnes

- 13:40 (141) **QUADRUPOLE ION TRAP MASS SPECTROMETRY: A RETROSPECTIVE REVIEW**, RAYMOND MARCH, Trent University, Department of Chemistry, Peterborough, ON
- 14:20 (142) **INFRARED MALDI ION TRAP MASS SPECTROMETRY AND ITS APPLICATIONS**, VLADIMIR DOROSHENKO, Timothy Lippa, Coorg Prasad, Robert Cotter, Science and Engineering Services, Inc., 4032 Blackburn Lane, Burtonsville, MD
- 14:40 (143) **A COMPARISON OF GC/MS/MS VS. LC/MS FOR THE DETERMINATION OF ESTROGENS IN MEDAKA: A BRIDGING STUDY**, TIMOTHY CROLEY, Raymond March, Chris Metcalfe*, Richard Hughes*, Brenda Koenig*, Trent University, Department of Chemistry, Peterborough, ON
- 15:00 **Coffee Break**
- 15:40 (144) **A NOVEL LINEAR ION TRAP TIME OF FLIGHT MASS SPECTROMETER SYSTEM**, BRUCE COLLINGS, Don Douglas, Jennifer Campbell, UBC, 2036 Main Mall, Vancouver, B.C.
- 16:00 (145) **A NEW LINEAR QUADRUPOLE ION GUIDE INTERFACE FOR AN ELECTROSPRAY-ION TRAP MASS SPECTROMETER SYSTEM**, BYUNGCHUL CHA, Mike Blades, Don Douglas, University of British Columbia, Dept. of Chemistry, Vancouver, BC, Canada
- 16:20 (146) **SPECTROSCOPY OF TRAPPED MOLECULAR IONS**, KENNETH WRIGHT, Mike Blades, University of British Columbia, Department of Chemistry, 2036 Main Mall, Vancouver, BC, Canada
- 16:40 (147) **ALKALI METAL ION COMPLEXATION: COMPETITIVE UPTAKE AND THERMALIZED DISSOCIATION OF THE METAL ION LIGAND COMPLEXES**, MIKE BOGAN, George Agnes, Department of Chemistry, Simon Fraser University, Burnaby, B. C.
- 17:00 (148) **ION-MOLECULE REACTIONS IN A PAUL TRAP: HYDRATION REACTIONS?**, YUPING CHEN, George Agnes, Department of Chemistry, Simon Fraser University, Burnaby, B. C.

**Monday, 13:40 – 16:00 Room 11
ANALYSIS OF NUCLEAR MATERIALS**

Presiding: Frank Pennebaker

- 13:40 (149) **TRACE ELEMENTAL ANALYSIS IN PLUTONIUM COMPOUNDS BY MCN-ICP/AES**, SANDRA BONCHIN, Wil Vigil, Daniel Gerth, Los Alamos National Laboratory, P.O. Box 1663, MS G740, Los Alamos, NM, USA
- 14:00 (150) **SPETROSCOPIC INVESTIGATION OF SILICON AND BORON IN PLUTONIUM SAMPLES USING INDUCTIVELY COUPLED PLASMA SPECTROMETRY**, BILLIE SHEPHERD, Sandra Bonchin, Deborah Figg, Los Alamos National Laboratory, MS G740, Los Alamos, NM, USA
- 14:20 (151) **EVALUATION OF INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY FOR AT-LINE MONITORING OF TECHNETIUM REMOVAL FROM RADIOACTIVE WASTE STREAMS**, FRANK PENNEBAKER, William Spencer, June Hart, Jennifer Olson, Laura Tovo, Matthew Nelson, Westinghouse Savannah River Company, Building 773-A, Aiken, SC, USA
- 15:00 **Coffee Break**
- 15:20 (152) **PRETREATMENT OF SAVANNAH RIVER SITE SAMPLES WITH HYDRATED ANTIMONY PENTOXIDE PRIOR TO ICP/MS ANALYSIS**, JENNIFER OLSON, L.L. Tovo, W.T. Boyce, C.J. Coleman, F.M. Pennebaker, Westinghouse Savannah River Company, Building 773-A, Aiken, SC, USA
- 15:40 (153) **SIGNAL SUPPRESSION AND ENHANCEMENT IN THE HIGH RESOLUTION INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRIC DETERMINATION OF TRACE METALS AND ACTINIDES IN BRINES**, CHRISTOPHER BRINK, Deborah Figg, Vahid Majidi, Jose' Olivares, Los Alamos National Laboratory, P.O. Box 1663 MS J514, Los Alamos, NM, USA

**Monday, 13:20 – 17:00, Room 12
CHEMICAL SPECIATION II**

Presiding: J. Murimboh and N.M. Hassan
Organized by: C.L. Chakrabarti, M.M. Lamoureux, W.D. Marshall, J. Caruso (ICASS)

- 13:20 (154) **CHEMICAL SPECIATION OF SOIL TRACE METALS : FROM THERMODYNAMICS TO KINETICS**, ALAIN BERMOND, Institut national agronomique, 16 rue Claude Bernard, PARIS, FRANCE
- 14:00 (155) **KINETIC STUDY OF THE HETEROGENEOUS PROPERTIES OF A WELL-CHARACTERIZED FULVIC ACID IN MODEL SOLUTIONS**, MARGARET BACK, Amina Sekaly, R. Mandal, C.L. Chakrabarti, D.C. Gregoire, W.H. Schroeder, Ottawa-Carleton Chemistry Institute, Department of Chemistry, Carleton University, 1125 Colonel By Drive, Ottawa, ON, CANADA
- 14:20 (156) **KINETICS OF NICKEL SPECIATION IN MODEL SOLUTIONS STUDIED BY ADSORPTIVE CATHODIC STRIPPING VOLTAMMETRY**, VALBONA CELO, Mohamed Salam, J. Murimboh, C.L. Chakrabarti, M.H. Back, D.C. Gregoire, Carleton University, Department of Chemistry, 1125 Colonel By Drive, ON, CANADA
- 15:00 **Coffee Break**
- 15:20 (157) **TESTING MODELS OF CHEMICAL SPECIATION IN FRESHWATERS**, STEPHEN

BRYAN, E. Tipping, J. Hamilton-Taylor, Institute of Freshwater Ecology, The Ferry House, Ambleside, Cumbria, UK

15:40 (158) **AVOIDING PERTURBING EFFECTS IN METAL ION SPECIATION MEASUREMENT BY MICRODROP SOLVENT EXTRACTION WITH ADDED LIGAND**, FREDERICK CANTWELL, Ying Wang, Manon Losier, University of Alberta, Department of Chemistry, Edmonton, AB, Canada

16:20 (159) **NICKEL SPECIATION IN FRESHWATERS FROM SUDBURY (CANADA) MINING AREA BY COMPETITIVE LIGAND EXCHANGE / ADSORPTIVE CATHODIC STRIPPING VOLTAMMETRY**, MOHAMED ABDEL-SALAM, V. Celo, J. Murimboh, C.L. Chakrabarti, M.H. Back, D.C. Gregoire, W.H. Schroeder, Carleton University, Department of Chemistry, 1125 Colonel By Drive, Ottawa, ON, CANADA

16:40 (160) **SPECIATION PARAMETER FOR NICKEL IN FRESHWATER SAMPLES FROM THE SUDBURY MINING AREA**, JEFF GUTHRIE, R. Mandal, Nouri Hassan, J. Murimboh, C.L. Chakrabarti, M.H. Back, D.C. Gregoire, W.H. Schroeder, Carleton University, 1125 Colonel By Drive, Ottawa, ON, CANADA

Monday, 13:20 – 16:20, Room 13
FRONTIERS IN SPECTROCHEMICAL ANALYSIS
HONORING DR. BRUCE CHASER

Presiding: Marc Porter Organized by: Marc Porter

13:20 (161) **TESTING THE PHOTOMETRIC ACCURACY OF FT/IR SPECTROMETERS: THE CHASE IS ON!**, PETER GRIFFITHS, Bryan Bowie, University of Idaho, Department of Chemistry, Moscow, ID, USA

14:00 (162) **MOLECULAR STRUCTURE AND BONDING AT LIQUID SURFACES AS STUDIED BY VIBRATIONAL SUM FREQUENCY SPECTROSCOPY**, GERI RICHMOND, University of Oregon, Department of Chemistry, Eugene, OR

15:00 **Coffee Break**

15:20 (163) **COMBINED INFRARED SPECTROSCOPIC AND ATOMIC FORCE MICROSCOPIC INVESTIGATION OF IMMOBILIZED ANTIGENIC ARRAYS FOR IMMUNOASSAYS**, MARC PORTER, Jeremy Kenseth, Sze-Shun Wong, Hajime Takano, Iowa State University, 42 Spedding Hall, Ames, IA

16:00 (164) **IF WE MUST TALK ABOUT MOLECULES, LET'S MAKE 'EM BIG: IMMOBILIZED BIOPOLYMERS FOR METAL CHELATION**, JAMES HOLCOMBE, Maury Howard, Thomasin Miller, University of Texas at Austin, Dept. of Chemistry and Biochemistry, Austin, TX

Monday, 13:40 – 16:00, Room 14
PARTICLES AND AEROSOLS

Presiding: Paul Farnsworth

13:40 (165) **TIME-RESOLVED PHOTOFRAGMENTATION SPECTROSCOPY OF SODIUM-CONTAINING AEROSOLS WITH LASER EXCITATION AT 193 NM**, NICOLO OMENETTO, M. Hidalgo Nunez, Paolo Cavalli, Giuseppe Petrucci, European Commission, Joint Research Center, Environment Institute, TP 290, Ispra, VA, Italy

14:00 (166) **A DIFFERENTIALLY PUMPED PARTICLE INLET FOR SAMPLING OF ATMOSPHERIC AEROSOLS INTO A TIME-OF-FLIGHT MASS SPECTROMETER: CHARACTERIZATION AND**

INITIAL RESULTS, GIUSEPPE PETRUCCI, Paul Farnsworth, Paolo Cavalli, Nicolo Omenetto, CCR, Joint Research Center, Environment Institute, TP 290, Ispra, VA, Italy

14:20 (167) **A SIMPLE MODEL FOR THE EFFECT OF FEEDSTOCK VARIATION ON THE PRODUCT PARTICLE SIZE DISTRIBUTION RESULTING FROM SIZE REDUCTION OR MILLING OPERATIONS**, STEVEN MACLEOD, Pharmacia & Upjohn, Unit 4851-41-162, Kalamazoo, MI

15:00 **Coffee Break**

15:20 (168) **THE EFFECTS OF SAMPLE PREPARATION STEPS ON PARTICLE SIZE DISTRIBUTION RESULTS FOR BULK PHARMACEUTICAL POWDERS: DEVELOPING MEANINGFUL METHODS**, STEVEN MACLEOD, Joseph Comiskey, Paul Rahn, Pharmacia & Upjohn, Unit 4851-41-162, Kalamazoo, MI

15:40 (169) **HYDRODYNAMIC RADIUS CHARACTERIZATION OF BIOMOLECULES AND NANOPARTICLES**, JOHN HELFRICH, Precision Detectors, Inc., 10 Forge Park, Franklin, MA, USA

Monday, 13:40 – 16:20, Room 15
BIOELECTROCHEMISTRY: FUNDAMENTALS AND ANALYSIS

Presiding: James Rusling Organized by: James Rusling

13:40 (170) **SCANNING ELECTROCHEMICAL MICROSCOPY AS A PROBE OF DIFFUSION IN BIOLOGICAL MATRICES: FROM MODEL MEMBRANES TO TISSUES**, PATRICK UNWIN, Anna Barker, Marylou Gonsalves, Nicola Gray, Claire Jones, Julie Macpherson, Christopher J. Slevin, University of Warwick, Department of Chemistry, COVENTRY, Wks., UK

14:20 (171) **ELECTROCHEMICAL RECEPTOR-LIGAND BINDING ASSAYS AND SENSORS**, DONAL LEECH, Patrick Nugent, Edna Williams, Keith Feerick, Yvonne Ferry, Robert Forster, National University of Ireland, Chemistry, Galway, Ireland

15:00 **Coffee Break**

15:20 (172) **KINETICS OF ELECTRON TUNNELING IN HG-HG JUNCTIONS, INVOLVING SIGMA-BONDED AND NON-BONDED, VAN DER WAALS MOLECULAR FRAGMENTS**, MARCIN MAJDA, Krzysztof Slowinski, University of California at Berkeley, Department of Chemistry, Berkeley, CA

16:00 (173) **ELECTRON TRANSFER INDUCED CONFORMATIONAL CHANGE IN REDOX PROTEINS PROBED BY ATOMIC FORCE MICROSCOPY AND SURFACE PLASMON RESONANCE**, NONGJIAN TAO, Florida International University, Department of Physics, Miami, FL

Monday, 13:20 – 16:40, Room 16
PARTING (OF PEAKS) IS SUCH SWEET PLEASURE II

Presiding: David Chen Organized by: David Chen

13:20 (174) **SEQUENCING THE HUMAN GENOME BY CAPILLARY ELECTROPHORESIS AND LASER-INDUCED FLUORESCENCE**, NORMAN DOVICH, JianZhong Zhang, Sue Bay, Karl Voss, H. John Crabtree, University of Alberta, Department of Chemistry, University of Alberta, Edmonton, AB, Canada

14:00 (175) **HIGH SPEED IMAGING OF LINEAR AND SUPERCOILED DNA DURING ELECTROPHORETIC MIGRATION**

IMPLICATIONS FOR HIGH RESOLUTION**SEPARATIONS**, MICHAEL MORRIS, University of Michigan, Department of Chemistry, Ann Arbor, MI

- 14:20 (176) **PROGRESS IN ON-THE-FLY FLUORESCENCE LIFETIME DETECTION FOR DNA ANALYSIS**, LINDA MCGOWN, Hui He, Lijuan Li, Samila Mihindukulasuriya, Duke University, Department of Chemistry, Box 90346, Durham, NC
- 15:00 **Coffee Break**
- 15:20 (177) **STUDIES OF AFFINITY INTERACTIONS USING CAPILLARY ELECTROPHORESIS WITH LASER-INDUCED FLUORESCENCE POLARIZATION DETECTION**, X. CHRIS LE, Qian-Hong Wan, James Xing, Michael Lam, Trevor Carnelley, Mingsheng Ma, University of Alberta, Department of Public Health Sciences, 13-103 CSB, Edmonton, AB
- 15:40 (178) **CHEMICAL INDICATIONS OF CANCER IN SINGLE CELLS BY CAPILLARY ELECTROPHORESIS**, SHERI LILLARD, Jennifer Zabzdyr, Shujun Chen, Christopher E. McCoy, Futian Han, University of California, Riverside, Department of Chemistry, University of California, Riverside, CA
- 16:00 (179) **FLUORESCENCE QUENCHING DETECTION FOR LIQUID CHROMATOGRAPHY**, VICTORIA MCGUFFIN, John Goodpaster, Michigan State University, Department of Chemistry, East Lansing, MI
- 16:20 (180) **WHY COLUMN-SWITCHING CHROMATOGRAPHY DOESN'T ALWAYS WORK: A ROLL OF THE DICE**, JOE DAVIS, Clint Samuel, Janice Stewart, Southern Illinois University, Department of Chemistry and Biochemistry, MC 4409, Carbondale, IL

Monday, 13:20 – 16:40, Room 17**CHARACTERIZATION OF MATERIALS**

Presiding: Jimmie Brasch

- 13:20 (181) **IMPROVEMENT IN LIGHT ELEMENT DETECTION FOR PIN DIODE EDXRF INSTRUMENTS**, LAURA OELOFSE, Jordan Valley AR, Inc., 2211 A Denton Drive, Austin, TX
- 13:40 (183) **QUANTIFYING THERMAL-STABILITY ADDITIVES IN AVIATION FUEL**, DONALD PHELPS, Christopher Bunker, James Gord, Air Force Research Laboratory, AFRL/PRSF Bldg 490, 1790 Loop Rd N, Wright-Patterson AFB, OH, USA
- 14:00 (184) **STRIPPING ANALYSIS FOR GUNSHOT RESIDUES**, CURT WOOLEVER, Dustin Starkey, Howard Dewald, Ohio University, Clipping Laboratories, Department of Chemistry and Biochemistry, Athens, OH, United States
- 15:00 **Coffee Break**
- 15:20 (185) **IR/RAMAN/FLUORESCENCE TECHNIQUES TO STUDY CRYSTAL GROWTH DYNAMICS**, JIMMIE BRASCH, JB LABS, 4842 NORTH HIGH STREET, COLUMBUS, OH, USA
- 15:40 (186) **TWO DIMENSIONAL DOVE-FWM SPECTROSCOPY**, JOHN WRIGHT, Wei Zhao, University of Wisconsin, 1101 University Avenue, Madison, WI, USA
- 16:00 (187) **LC-TRANSFORM ANALYSIS OF ADHESIVES, RUBBERS AND COATINGS**, RICHARD J. PAPEZ, Armstrong World Ind, 2500 Columbia Avenue, Lancaster, PA
- 16:20 (188) **MULTI-TECHNIQUE APPROACHES TO CHEMICAL IMAGING**, DENNIS WALLS, Katherine Lloyd, Gregory Blackman, Michael Duch, Nancy Tassi, John Wyre, DuPont, P.O. Box 80323, Wilmington, DE, US

Monday, 13:40 – 16:20, Room 18**INORGANIC SYNTHETIC MARKERS**

Presiding: D. Bornhop

Organized by: D. Bornhop

- 13:40 (189) **NOVEL LUMINESCENT MARKERS BASED ON INORGANIC MATERIALS**, CATHERINE MURPHY, University of South Carolina, Department of Chemistry and Biochemistry, Columbia, SC
- 15:00 **Coffee Break**
- 15:20 (190) **FUNCTIONAL LANTHANIDE-BASED ORGANIC COMPLEXES FOR SENSITIVE DIAGNOSTICS**, J.W. HOFSTRAAT, Martinus H.V. Werts, Jan Verhoeven, Philips Research Laboratories Eindhoven, Building: WB 6.41
- 16:00 (191) **SYNTHESIS OF LANTHANIDE CHELATES FOR BIOMEDICAL IMAGING**, JOHN GRIFFIN, Anna Skierawska, Darryl Bornhop, Texas Tech University, Department of Chemistry and Biochemistry, Lubbock, TX,

Monday, 13:20 – 16:40, Room 19**SAMPLE PREPARATION**

Presiding: Brian Buckley

- 13:20 (192) **NEW TECHNOLOGY FOR MONITORING AND CONTROLLING MICROWAVE DIGESTION REACTIONS**, KENNETH BOROWSKI, Mikhail Menshch, Milestone Inc., 160B Shelton Road, Monroe, CT, US
- 13:40 (193) **USING MICROWAVE EXTRACTION TECHNIQUES TO ATTACK ORGANOMETALLIC CONTAMINANTS IN ENVIRONMENTAL AND BIOLOGICAL SAMPLES; THE SPECIES BATTLES**, BRIAN BUCKLEY, Katarzyna Gorlaczkyk, Maria Haffer, Kevin Cashman, Eric Fisher, Rutgers University, 170 Frelinghuysen Road, Piscataway, NJ, USA
- 14:00 (194) **APPLICATION OF GC/MS WITH MICROWAVE ASSISTED EXTRACTION IN DETERMINATION OF RESVERATROL IN POLYGONUM CUSPIDATUM**, TING MA, Shichun Zou, Zhanxia Zhang, Jiangnan Petroleum Institute, Research Center of Organic Geochemistry, Jiangnan Petroleum Institute, Jingzhou, Hubei, PRChina
- 14:20 (195) **ON-LINE MICRO-EXTRACTION/CLEANUP TECHNIQUES APPLIED TO THE DETERMINATION OF PESTICIDE RESIDUES IN VARIOUS FRUIT AND VEGETABLE MATRICES**, LUIS SOJO, Gina Lum, ASL Analytical Service Laboratories, 1988 Triumph Street, Vancouver, BC, Canada
- 15:00 **Coffee Break**
- 15:20 (196) **SIMULTANEOUS FILTRATION-PLUS-LIQUID CHROMATOGRAPHIC MICRO-EXTRACTION WITH SUBSEQUENT GC/MS FOR THE STUDY OF RAPID SORPTION OF PESTICIDES IN SOILS**, LOURDES RAMOS, Luis Sojo, Rene Vreuls, Udo Brinkman, Vrije Universiteit, de Boelelaan 1083, Amsterdam, The Netherlands
- 15:40 (197) **ANALYSIS OF CELLULAR EXTRACTS FOR TRACE AMOUNTS OF PRIMARY FATTY ACID AMIDES**, ANDREW GEE, Lisa Groen, Jacquelyn West, Mitch Johnson, Duquesne University, Department of Chemistry, Pittsburgh, PA, USA
- 16:00 (198) **USING GOLD AND SILICA BASED MATERIALS FOR BIOMOLECULE IMMOBILIZATION**, THOMASIN MILLER, James Holcombe, University of Texas at Austin, Dept. of Chemistry and Biochemistry, Austin, TX, USA
- 16:20 (199) **DETERMINATION OF SPME DISTRIBUTION CONSTANTS USING A SUCCESSIVE EXTRACTION**

TECHNIQUE, BETSY BANNIER, David Tilotta, Dept. of Chemistry, University of North Dakota, P.O. Box 9024, Grand Forks, ND

Tuesday, 8:20 – 11:40, Room 1
RAMAN SPECTROSCOPY IN INDUSTRIAL AND PROCESS MONITORING I

Presiding: Steve Barnett Organized by: Steve Barnett

- 8:20 (200) **INVESTIGATION OF SEAMS IN THERMOPLASTICS POLYOLEFINS (TPO) ROOFING MEMBRANES BY FOURIER TRANSFORM INFRARED SPECTROSCOPY**, ANA DELGADO, Ralph Paroli, National Research Council, Institute for Research in Construction, M-20, Montreal Road, Ottawa, ON, Canada
- 8:40 (201) **RAMAN AND PHOTOLUMINESCENCE SPECTROSCOPY OF SELECTED URANIUM OXIDE STANDARDS**, DELYLE EASTWOOD, D. S. Rand, J. B. Martin, L. W. Burggraf, M. S. Zickafoose, R. Bormett, D. L. Perry, J. R. Reynolds, Dept. of Engineering Physics, Air Force Institute of Technology, 2950 P Street, Bldg. 640, Wright-Patterson AFB, OH
- 9:00 (202) **RAMAN MICROSPECTROSCOPY IN THE THERMAL INKJET PRINT CARTRIDGE INDUSTRY**, LOMA HAMMOND, Mary Tungol, Scott Roberts, Deb O'Donnell, Tony Fuller, Hewlett-Packard, 1000 NE Circle Blvd., mailstop 711B, Corvallis, OR, USA
- 9:20 (203) **A NOVEL RAMAN WAVEGUIDE CELL FOR ANALYZING FLOWING LIQUID SAMPLES AT LOW CONCENTRATION**, BRIAN MARQUARDT, Kevin Turney, Lloyd Burgess, Center for Process Analytical Chemistry, University of Washington, Box 351700, Seattle, WA, USA
- 9:40 (204) **RAMAN SPECTROSCOPY OF NITROGENATED DLC THIN FILMS: A COMPARISON OF UV AND VISIBLE RAMAN TECHNIQUES**, HUGH GOTTS, Analytical Services Group, 3010 Scott Blvd, Santa Clara, Ca, Usa
- 10:00 **Coffee Break**
- 10:40 (205) **ENHANCEMENT OF SCATTERING INTENSITY OF THIN POLYMER SMEARS ON CARBON-COATED ELECTRONIC COMPONENTS**, FREDERICK ENG, Mariano Garces, Charlene Shebib, International Business Machines Corporation, 5600 Cottle Road, E35/0282, San Jose, CA, USA
- 11:00 (206) **APPLICATIONS OF MICRO-RAMAN SPECTROSCOPY IN SEMICONDUCTOR MANUFACTURING**, LYNETTE BALLAST, Tim Hossain, Morgan Dawdy, Alan Campion, Advanced Micro Devices, 5204 E. Ben White Blvd., mail stop 613, Austin, TX, USA
- 11:20 (207) **HIGH SPATIAL RESOLUTION OPTICAL SPECTROSCOPY USING A SOLID IMMERSION LENS**, CHRISTIAN POWELEIT, J. Menendez, L. Shi, M. Canonico, V. Zwiller, M. Pistol, W. Seifert, A. Gunther, S. Goodnick, Arizona State University, Dept. of Physics and Astronomy PSF-470, Tempe, AZ, USA

Tuesday, 8:20 – 11:40, Room 2
BIOMEDICAL IMAGING

Presiding: H. Mantsch Organized by: H. Mantsch (ICASS)

- 8:20 (208) **BARRINGER LECTURE: WHAT A DIFFERENCE A DIFFERENCE MAKES IN TISSUE SPECTROSCOPY**, DAVID BURNS, McGill University, Department of Chemistry, 801 Sherbrooke St. W., Montreal, QC, Canada

- 9:20 (209) **INFRARED IMAGING OF SKIN BIOPSIES**, MIKE JACKSON, Laura McIntosh, A. Neil Crowson, Henry Mantsch, Institute for Biodiagnostics, 435 Ellice Ave., Winnipeg, MB, Canada

10:00 **Coffee Break**

- 10:40 (210) **NEAR-INFRARED OPTICAL MAMMOGRAPHY IN THE FREQUENCY-DOMAIN**, SERGIO FANTINI, Oliver Schütz, Julian Edler, Maria Angela Franceschini, Sylvia Heywang-Köbrunner, Linda Gutz, Anke Heinig, Horst Siebold, University of Illinois at Urbana-Champaign, Dept of Physics - 1110 West Green Street, Urbana, IL, USA
- 11:20 (211) **FUNCTIONAL NIR IMAGING**, JAMES MANSFIELD, Michael Sowa, R. Anthony Shaw, Valerian Kupriyanov, Henry Mantsch, Institute for Biodiagnostics, 435 Ellice Avenue, Winnipeg, MB, Canada

Tuesday, 8:40 – 11:40, Room 3
STATIC AND DYNAMIC FT-IR OF POLYMERS

Presiding: Vasilis G. Gregoriou Organized by: Vasilis G. Gregoriou

- 8:40 (212) **RHEO-OPTICAL FT/IR/FTNIR-SPECTROSCOPY: TOWARDS A BETTER UNDERSTANDING OF POLYMER DEFORMATION AND RELAXATION**, HEINZ SIESLER, Frank Pfeifer, Peiyi Wu, Department of Physical Chemistry, University of Essen, Schuetzenbahn 70, Essen, Germany
- 9:00 (213) **DYNAMICS OF ORIENTATION AND RELAXATION IN POLYMER BLENDS BY POLARIZATION MODULATION FTIR SPECTROSCOPY**, MICHEL PEZOLET, Christian Pellerin, Isabelle Pelletier, Robert Prud'homme, Laval University, Department of Chemistry, Pavillon Alexandre-Vachon, Quebec, Canada
- 9:20 (214) **TWO-DIMENSIONAL IR, RAMAN AND NIR CORRELATION SPECTROSCOPIC STUDIES OF THE INTERACTIONS IN POLYMER BLENDS**, YUKIHIRO OZAKI, Yanzhi Ren, Isao Noda, School of Science, Kwansei-Gakuin University, 1-1-155, Uegahara, Nishinomiya, Hyogo, Japan
- 9:40 (215) **ASSESSING ACCELERATED POLYMER AGING BY DICHROIC FT/IR SPECTROSCOPY**, JON SCHOONOVER, Darla Graff, Jill Osborn, Richard Palmer, Haochuan Wang, Los Alamos National Laboratory, Mail Stop J586, Los Alamos, NM
- 10:00 **Coffee Break**
- 10:40 (216) **TEMPERATURE DEPENDENT DYNAMIC MECHANICAL ANALYSIS/ FT/IR OF BLOCK COPOLYMERS**, RICHARD PALMER, Haochuan Wang, Jon Schoonover, Darla Graff, Duke University, Department of Chemistry, Box 90346, Durham, NC, USA
- 11:00 (217) **STATIC AND DYNAMIC FT/IR SPECTROSCOPY OF LIQUID CRYSTAL POLYURETHANES**, VASILIOS GREGORIOU, Bindu Nair, Paula Hammond, Polaroid Corporation, 1265 Main Street, W4-1D, Waltham, MA
- 11:20 (218) **DSP SOLUTIONS TO STEP-SCAN FT/IR MODULATION EXPERIMENTS USED IN STATIC AND DYNAMIC POLYMER CHARACTERIZATIONS**, ERIC JIANG, Dave Drapcho, Bio-Rad Laboratories, Inc, 237 Putnam Ave., Cambridge, MA

Tuesday, 8:40 – 11:40, Room 7
CURRICULUM DEVELOPMENT IN THE ANALYTICAL SCIENCES - EXPANDING HORIZONS

Presiding: Frank Settle Organized by: Frank Settle

- 8:40 (219) **ANALYTICAL CHEMISTRY IN UNDERGRADUATE CHEMICAL ENGINEERING EDUCATION STATUS AND TRENDS**, LARRY RICKER, University of Washington, Department of Chemical Engineering, Box 351750, Seattle, WA
- 9:00 (220) **TEACHING CHEMICAL ANALYSIS TO LIFE SCIENCE MAJORS IN A FRESHMAN CHEMISTRY LABORATORY COURSE**, KENT STEWART, J. J. Lagowski, M. J. Elliott, B. Arneson, University of Texas at Austin, Department of Chemistry & Biochemistry, Austin, TX
- 9:20 (221) **PROBLEM-BASED ANALYTICAL LABORATORY EXPERIENCES WITH AN ENVIRONMENTAL FOCUS**, CYNTHIA LARIVE, Department of Chemistry, University of Kansas, Lawrence, KS
- 9:40 (222) **EXPANDING THE HORIZONS TO THE REAL WORLD: TRAINING CHEMICAL TECHNICIANS**, JOHN KENKEL, Southeast Community College, 8800 O Street, Lincoln, NE
- 10:00 **Coffee Break**
- 10:40 (223) **INFORMATION MANAGEMENT IN ANALYTICAL SCIENCES**, SHARON NEAL, University of Delaware, Department of Chemistry and Biochemistry, Newark, DE
- 11:00 (224) **NEW ADVENTURES FROM MATERIALS SCIENCE IN TEACHING STRUCTURE AND SPECTROSCOPY**, GEORGE LISENSKY, Karen Nordell, Arthur Ellis, Beloit College, Department of Chemistry, Beloit, WI
- 11:20 (225) **PANEL DISCUSSION**, FRANK SETTLE

Tuesday, 8:00 – noon, Room 8

DEVELOPMENTS IN DIRECT SOLIDS ANALYSIS USING ICP-MS: LASER ABLATION INSTRUMENTATION AND NUCLEAR APPLICATIONS

Presiding: I.B. Brenner Organized by: I.B. Brenner

- 8:00 (226) **LASER ABLATION USING THE ICP; THE CUTTING EDGE OF MASS SPECTROMETRY**, JEAN MERMET, University of Lyon, Laboratoire des Sciences Analytiques, Villeurbanne
- 8:40 (227) **PERFORMANCE OF THE ELAN 6100 DRC (DYNAMIC REACTION CELL) FOR LASER ABLATION ICP/MS**, MICHAEL PAUL, Uwe Voellkopf, Ken Neubauer, Perkin Elmer Germany, Dept. IO-SUP, Ueberlingen, Germany
- 9:00 (228) **DIRECT MULTIELEMENT MICRO-CHARACTERIZATION OF SOLID SAMPLES BY LASER ABLATION TIME OF FLIGHT ICP/MS**, LLOYD ALLEN, Janos Fucsko, Stuart Georgitis, LECO Corporation
- 9:20 (229) **ADVANCES IN LASER ABLATION: NEW CONCEPTS, DESIGN AND APPLICATION FOR ICP SPECTROMETRY**, T. G. HOWE, F.G. Smith, C.L. Zimmerman, CETAC Technologies
- 9:40 (230) **DESIGN CONSIDERATIONS FOR A LASER ABLATION SYSTEM FOR THE DIRECT ANALYSIS OF SOLIDS BY ICP/MS**, STEVE SHUTTLEWORTH, Merchantek EO, 445 MARINE VIEW AVE, SUITE260G, DEL MAR, CA, USA
- 10:00 **Coffee Break**
- 10:40 (231) **DETERMINATION OF LONG-LIVED RADIONUCLIDES IN NONCONDUCTING RADIOACTIVE WASTE MATERIALS BY LA-ICP/MS**, J. SABINE BECKER, Hans-Joachim Dietze, Central Department for Analytical Chemistry, Research Center Juelich, D-52425 Juelich, Germany
- 11:20 (232) **LASER ABLATION ICP/MS ANALYSIS OF**

- PLUTONIUM OXIDE**, DEBBIE FIGG, Lawrence Drake, Los Alamos National Laboratory, G740, Los Alamos, NM
- 11:40 (233) **TRACE ELEMENT DETERMINATION IN WASTE DISPOSAL ZEOLITES BY LASER ABLATION ICP/MS**, I.B. BRENNER, C. Pickhardt, J. S. Becker, W. McGregor, H-J. Dietze, Environmental Analysis Laboratory

Tuesday, 8:20 – 11:40, Room 9

PUSHING THE LIMITS OF ATOMIC MASS SPECTROMETRY

Presiding: David Koppenaar Organized by: David Koppenaar

- 8:20 (234) **NEW DIRECTIONS IN TRACE ISOTOPE AND ELEMENT ANALYSIS WITH INDUCTIVELY COUPLED PLASMA SOURCES**, DON DOUGLAS, Zhaohui Du, Wei Chen, Terry Olney, Samir Al Moussalami, Bruce Collings, Nikolai Konenkov, UBC, 2036 Main Mall, Vancouver, B.C.
- 9:00 (235) **SAMPLE INTRODUCTION IN ANALYTICAL ATOMIC AND MASS SPECTROMETRY: BUS RIDES TO PROGRESS**, AKBAR MONTASER, George Washington University, 725 Twentyfirst St., NW, Washington, DC
- 9:20 (236) **SAMPLE PREPARATION FOR ELEMENTAL SPECIATION STUDIES**, JOSEPH CARUSO, Thompson Bhatu, University of Cincinnati, PO Box 210037, Cincinnati, OH
- 9:40 (237) **ANALYTICAL PERFORMANCE USING SPECTRAL INTERFERENCE REDUCTION BY DRC-ICP-MS**, UWE VOELLKOPF, VI Baranov, SD Tanner, Perkin-Elmer Sciex Instruments, 71 Four Valley Drive, Concord, ON
- 10:00 **Coffee Break**
- 10:40 (238) **ULTRA-LOW CONTINUUM BACKGROUND IN QUADRUPOLE ICP/MS**, JONATHAN BATEY, VG Elemental, Ion Path, Road Three, Winsford
- 11:00 (239) **MAKING MAXIMUM USE OF MODERN ICP/MS BY IMPROVING STABILITY AND REDUCING BACKGROUND CONTAMINATION**, DAN WIEDERIN, ESI, P.O. Box 31396, Omaha, NE, USA
- 11:20 (240) **FACTORS INFLUENCING MEASUREMENT PRECISION IN PLASMA-SOURCE TIME-OF-FLIGHT MASS SPECTROMETRY**, STEVEN RAY, Denise McClenathan, Andrew Leach, Gary Hieftje, Indiana University, Department of Chemistry, Bloomington, IN, USA

Tuesday, 8:20 – 11:40, Room 10

ION CHEMISTRY

Presiding: T. McMahon Organized by: T. McMahon

- 8:20 (241) **CHEMICAL IONIZATION REACTIONS WITH C₆₀N⁺ (N=1,2,3) CATIONS**, DIETHARD BOHME, York University, 4700 Keele St., Toronto, ON, Canada
- 8:40 (242) **THE REACTION OF O₂⁺ AT HIGH TEMPERATURE: VIBRATIONAL ENERGY PROMOTES NEW CHANNELS**, ALBERT VIGGIANO, I. Dotan, Air Force Research Laboratory, VSBP, Hanscom AFB, MA
- 9:00 (243) **SOLVATED IONS; THE GROUND-STATE SPECIES IN 'PROTON TRANSFER CATALYSIS**, JOHN HOLMES, Ya-Ping Tu, University of Ottawa; Chemistry Department, 10 Marie-Curie St. PO Box 450, Stn A, Ottawa, Canada
- 9:20 (244) **RECENT STUDIES OF THE ION CHEMISTRY OF PEPTIDES**, ALEX HARRISON, University of Toronto, Dep't of Chemistry, 80 St. George St., Toronto,

- ONT, Canada
- 9:40 (245) **SEPARATION AND CHARACTERIZATION OF PEPTIDE AND PROTEIN ION CONFORMATIONS IN THE GAS PHASE**, DAVID CLEMMER, Indiana University, Department of Chemistry, IN
- 10:00 **Coffee Break**
- 10:40 (246) **METAL ION M+ AND M++ SUCH AS CU+, MG++,CA++,ZN++ AND LIGAND L BINDING ENERGIES AND THEIR BIOCHEMICAL SIGNIFICANCE**, PAUL KEARLE, Michael Peschke, Arthur Blades, University of Alberta, Department of Chemistry, Edmonton, Alta
- 11:20 (247) **TRANSIENT INTERMEDIATES OF CHEMICAL REACTIONS**, FRANTISEK TURECEK, University of Washington, Chemistry, Bagley Hall, Box 351700, Seattle, WA

**Tuesday, 8:20 – 11:40, Room 11
ICPMS INSTRUMENTATION**

Presiding: Joel Goldberg

- 8:20 (248) **ACCURACY AND PRECISION OF ISOTOPE RATIO MEASUREMENTS BY INDUCTIVELY COUPLED PLASMA TIME OF FLIGHT MASS SPECTROMETRY, ICP-TOF-MS**, HAKAN EMTEBORG, Xiaodan Tian, Michael Berglund, Freddy Adams, Dept. of Chemistry, University of Antwerp, Universiteitsplein 1, Antwerp (Wilrijk), Belgium
- 8:40 (249) **SENSITIVITY IMPROVEMENTS IN ICP/MS USING A NOVEL APPROACH TO SAMPLE INTRODUCTION**, TRACEY JACKSIER, Reha Tepe, Air Liquide, 5230 S. East Ave., Countryside, IL, USA
- 9:00 (250) **DEVELOPMENT OF PRACTICAL AUTOTUNING FOR ICP/MS**, KOTA KUWAHARA, Kenich Sakata, 2-11-19 Nakacho, Musashino-shi, Tokyo, Japan
- 9:20 (251) **SPECTROSCOPIC STUDIES OF EMISSION FROM AN ELECTRODELESS PLASMA GUN DIRECT SOLID SAMPLING SOURCE**, EDWARD NAVARRE, Joel Goldberg, University of Vermont, Dept. of Chemistry, Burlington, VT, USA
- 9:40 (252) **A COMPACT LOW COST LASER ABLATION ACCESSORY FOR BULK MATERIAL ANALYSIS BY ICP SPECTROMETRY**, CATHLEEN ZIMMERMAN, Ted Howe, Jerry Shkolnik, CETAC Technologies, 5600 S. 42nd Street, Omaha, NE, USA
- 10:00 **Coffee Break**
- 10:40 (253) **ANALYSIS OF IMPURITIES IN COMPLEX MATRICES USING A SECTOR FIELD ICP/MS UNDER COLD AND HOT PLASMA CONDITIONS**, MEIKE HAMESTER, Julian Wills, Wolfgang Kerl, Finnigan MAT GmbH, 2 Barkhausenstrasse, Bremen, Germany
- 11:00 (254) **CHARACTERIZATION OF THE FIRST VACUUM STAGE EXPANSION IN AN INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER BY LASER INDUCED ATOMIC FLUORESCENCE**, PAUL FARNSWORTH, Dennis Gammon, Brigham Young University, Department of Chemistry and Biochemistry, Provo, UT, USA
- 11:20 (255) **CHARACTERIZATION OF A PULSED GLOW DISCHARGE LASER ABLATION SYSTEM FOR DIRECT CHEMICAL ANALYSIS OF SOLIDS**, STEPHEN DOORN, Cris Lewis, Wei Hang, Dave Wayne, Vahid Majidi, Fred King, Los Alamos National Laboratory, CST-9, MS-E518, Los Alamos, NM, USA

**Tuesday, 8:20 – noon, Room 12
CHEMICAL SPECIATION III**

Presiding: M. Filella and X.C. Le

Organized by: C.L. Chakrabarti, M.M. Lamoureux, W.D. Marshall, J. Caruso (ICASS)

- 8:20 (256) **THEORY AND APPLICATION OF CHEMICAL SPECIATION MODELS IN SOLVING ENVIRONMENTAL PROBLEMS**, LES EVANS, Muhammad Sadiq, University of Guelph, Land Resource Science, Guelph, ON, Canada
- 9:00 (257) **CHEMICAL SPECIATION: OPERATIONALLY-DEFINED SPECIES VERSUS SPECIATION PARAMETERS DEFINED BY PHYSICO-CHEMICAL PRINCIPLES**, CHUNI CHAKRABARTI, Amina Sekaly, Mufida Ben Younes, R. Mandal, J. Murimboh, Nouri Hassan, M.A. Salam, Valbona Celo, J.W. Guthrie, D.C. Gregoire, Ottawa-Carleton Chemistry Institute, Department of Chemistry, Carleton University, 1125 Colonel By Drive, Ottawa, ON, CANADA
- 10:00 **Coffee Break**
- 10:40 (258) **RECENT DEVELOPMENT OF TRACE METAL SPECIATION IN NATURAL FRESHWATER BY LIGAND-EXCHANGE TECHNIQUE**, HANBIN XUE, Laura Sigg, Swiss Federal Institute for Environmental Science and Technology (EAWAG), Limnological Research Center, EAWAG, Kastanienbaum, Lucerne, Switzerland
- 11:20 (259) **ANALYSIS OF THE DISSOCIATION RATE COEFFICIENTS OF FULVIC ACID COMPLEXES OF NI(II), CU(II), CO(II) AND PB(II) BY A CONTINUOUS SITE DISTRIBUTION MODEL**, AMINA SEKALY, C.L. Chakrabarti, M.H. Back, D.C. Grégoire, Carleton University, Department of Chemistry, 1125 Colonel By Drive, Ottawa, ON, CANADA
- 11:40 (260) **COMPETITIVE BINDING OF CA(II), MG(II) AND NI(II) IONS BY A WELL-CHARACTERIZED FULVIC ACID IN MODEL AQUEOUS SOLUTIONS: THE ROLE OF CALCIUM AND MAGNESIUM**, RUPASRI MANDAL, M.S.A. Salam, J. Murimboh, C.L. Chakrabarti, M.H. Back, D.C. Gregoire, Ottawa-Carleton Chemistry Institute, Department of Chemistry, Carleton University, 1125 Colonel By Drive, Ottawa, ON, CANADA

**Tuesday, 8:20 – noon, Room 13
ANALYTICAL OCEANOGRAPHY I**

Presiding: Kristin Orians and David Hastings

Organized by: Kristin Orians and David Hastings

- 8:20 (261) **APPLICATIONS OF HIGH-RESOLUTION INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY TO DIFFICULT PROBLEMS IN TRACE METAL MARINE GEOCHEMISTRY**, ROBERT SHERRELL, M. Paul Field, Yair Rosenthal, Jay Cullen, IMCS, Rutgers University, 71 Dudley Road, New Brunswick, NJ
- 9:00 (262) **THE NOVEL USE OF STABLE ISOTOPES AND ICP/MS TO TRACE ADSORPTION / DESORPTION EQUILIBRIUM AND KINETIC PARTITIONING OF NI, CU AND ZN WITH NATURAL PARTICLES FROM SOUTH SAN FRANCISCO BAY, CA**, ALISON GEE, Kenneth Bruland, Univ. of California at Santa Cruz, Dept. of Earth Sciences, 1156 High St., Santa Cruz, CA
- 9:20 (263) **USN-ICP/MS ANALYSIS OF TRACE ELEMENTS IN MUSSEL SHELLS USING STABLE ISOTOPE DILUTION**, DAVID GRAY, Jeff Thompson, Wilson Chan, Elemental Research Inc., 309-267 West Esplanade, North Vancouver, BC

- 10:00 **Coffee Break**
- 10:40 (264) **ANALYSIS OF LEAD AND DISSOLVED AND COLLOIDAL IRON IN SEAWATER BY MG(OH)₂ COPRECIPITATION AND ICP/MS ISOTOPE DILUTION ANALYSIS**, WU JINGFENG, Ed Boyle, MIT E34-258, 77 Mass Ave., Cambridge, MA
- 11:20 (265) **IDENTIFICATION OF METAL-COMPLEXING LIGANDS IN SEAWATER USING ELECTROSPRAY MASS SPECTROMETRY**, KRISTIN ORIAN, Andrew Ross, Michael Ikonou, NRC Plant Biotechnology Institute, 110 Gymnasium Place, Saskatoon, SK
- 11:40 (266) **MARINE ECOLOGICAL AND PALEOCLIMATIC APPROACHES USING CONTINUOUS FLOW-ISOTOPE RATIO MASS SPECTROMETRY (CF-IRMS)**, MICHAEL WHITICAR, Magnus Eek, Ruben Veefkind, Michael Kory, School of Earth and Ocean Sciences, UVic, P.O. Box 3050, Victoria, BC, Canada

Tuesday, 8:40 – 11:20, Room 14

ADVANCES IN METHODS FOR CHEMICAL MEASUREMENTS IN THE ATMOSPHERE

Presiding: Rob McLaren Organized by: Rob McLaren

- 8:40 (267) **RECENT DEVELOPMENTS IN THE APPLICATION OF TUNABLE DIODE LASER SPECTROSCOPY FOR ATMOSPHERIC MEASUREMENTS**, GEOFF HARRIS, Corinne Schiller, York University, 4700 Keele Street, Toronto, ON
- 9:00 (268) **COMPOUND SPECIFIC MEASUREMENTS OF THE STABLE ISOTOPE COMPOSITION OF ATMOSPHERIC VOLATILE ORGANIC COMPOUNDS**, JOCHEN RUDOLPH, Eva Czuba, Byron Kieser, Ann-Lise Norman, Deryl Ernst, York University, 4700 Keele St., Toronto, ON
- 9:40 (269) **METHODS FOR MEASURING OXYGENATED HYDROCARBONS IN THE ATMOSPHERE**, ROBERT MCLAREN, Jinpeng Zhou, John Liggio, York University, 4700 Keele St., Toronto, ON
- 10:00 **Coffee Break**
- 10:40 (270) **CHALLENGES IN AMBIENT MEASUREMENTS OF ORGANIC COMPOUNDS**, VALERIE YOUNG, Ohio University, Dept. of Chemical Engineering, 179 Stocker, Athens, OH
- 11:00 (271) **COMPACT INSTRUMENTATION FOR FAST GAS CHROMATOGRAPHY FROM AN AIRCRAFT PLATFORM**, PAUL GOLDAN, William Kuster, Fred Fehsenfeld, Aeronomy Laboratory, U. S. Dept. of Commerce, 325 Broadway, Boulder, CO

Tuesday, 8:40 – 11:20, Room 15

ELECTROCHEMISTRY AND MATERIAL SCIENCE

Presiding: Viola Birss Organized by: Viola Birss

- 8:40 (272) **NEW MATERIALS FOR ELECTROCHEMICAL POWER SOURCES IONIC CONDUCTIVITY AND FUEL CELL TEST STUDIES OF A NOVEL PERFLUORINATED PROTON-CONDUCTING IONOMER**, STEPHEN CREAGER, Scott Savett, James Sumner, Rosa Bailey, William Pennington, Brian Thomas, Darryl DesMarteau, Clemson University, Department of Chemistry, Clemson, SC
- 9:00 (273) **ELECTROANALYTICAL CHEMISTRY IN SOLID POLYMER ELECTROLYTES**, STEVEN HOLDCROFT, Vesna Basura, Paul Beattie, Simon Fraser University, 8888 University Drive, Burnaby, BC
- 9:20 (274) **CONTROLLING THE CHEMISTRY OF CARBON ELECTRODES**, MARK MCDERMOTT,

Michael Finot, James Kariuki, University of Alberta, Department of Chemistry, University of Alberta, Edmonton, AB, Canada

10:00 **Coffee Break**

- 10:40 (275) **ELECTROCHEMISTRY OF METAL-CONTAINING CONDUCTING POLYMERS**, MICHAEL WOLF, Yongbao Zhu, Olivier Clot, University of British Columbia, Department of Chemistry, Vancouver, BC
- 11:00 (276) **ELECTROCHEMISTRY OF REDOX-ACTIVE SOL-GEL FORMED FILMS**, VIOLA BIRSS, Heather Andreas, Hanna Elzanowska, Irina Serebrennikova, University of Calgary, Department of Chemistry, Calgary, Alberta

Tuesday, 8:20 – noon, Room 16

CAPILLARY ELECTROCHROMATOGRAPHY: ESTABLISHING THE ANALYTICAL NICHER

Presiding: Joe Davis

Organized by: Joe Davis

- 8:20 (277) **AN OPEN TUBULAR APPROACH TO CAPILLARY ELECTROCHROMATOGRAPHY**, JOE PESEK, Maria Matyska, San Jose State University, Department of Chemistry, One Washington Square, San Jose, California
- 9:00 (278) **CONDENSATION NUCLEATION LIGHT SCATTERING DETECTION: FUNDAMENTALS AND APPLICATION TO CEC**, JOHN KOROPCHAK, L. Magnusson, M. Heybroek, X. Yang, M. Anisimov, Southern Illinois University at Carbondale, Department of Chemistry and Biochemistry, Neckers Building, Mailcode 4409, Carbondale, Illinois
- 9:20 (279) **IMPORTANT EXPERIMENTAL CONSIDERATIONS IN THE PREPARATION OF BED-RETENTION FRITS AND PACKED CAPILLARIES IN CAPILLARY ELECTROCHROMATOGRAPHY**, RICHARD CASSIDY, Charlotte Chen, Tanya Tollifson, University of Saskatchewan, Department of Chemistry, 110 Science Place, Saskatoon, Saskatchewan
- 9:40 (280) **NANOSCALE LC AND CEC SEPARATIONS ON SORBENTS EXHIBITING MOLECULAR RECOGNITION**, VINCENT REMCHO, P.T. Vallano, G.S. Chirica, M.M. Degen, Oregon State University, Department of Chemistry, 153 Gilbert Hall, Corvallis, Oregon
- 10:00 **Coffee Break**
- 10:40 (281) **THEORETICAL ASPECTS ON MIGRATION OF IONIC SPECIES IN CEC**, JAN STAHLBERG, Stockholm University, Department of Analytical Chemistry, S-106 91, Stockholm
- 11:00 (282) **CAPILLARY ELECTROCHROMATOGRAPHY WITH AMPEROMETRIC AND TIME-OF-FLIGHT MASS SPECTROMETRIC DETECTION**, EDWARD LAI, Ewa Dabek-Zlotorzynska, Carleton University, Department of Chemistry, 1125 Colonel By Drive, Ottawa, Ontario, Canada
- 11:20 (283) **FLUORESCENT DYES FOR MULTIPLEX DETECTION OF DNA RESTRICTION FRAGMENTS IN CAPILLARY ELECTROCHROMATOGRAPHY**, SARA MCINTOSH, Ashlyn Nesbit, Linda McGown, Duke University, Department of Chemistry, Box 90346, Durham, NC, USA
- 11:40 (284) **CONFOCAL IMAGING OF MOLECULAR DISTRIBUTION IN SEPARATION CAPILLARIES**, LEI GENG, Mark Lowry, Yan He, Department of Chemistry, University of Iowa, Iowa City, IA

Tuesday, 8:20 – noon, Room 17

PH. D.: NOW YOU'VE GOT IT. WHAT NEXT? I

Presiding: Gretchen Potts

Organized by: Thomasin Miller, Gretchen Potts, and Jason Day

- 8:20 (285) **TRANSITION BETWEEN CAREERS: HOW TO MINIMIZE THE ACTIVATION ENERGY**, VAHID MAJIDI, Los Alamos National Laboratory, Los Alamos National Laboratory, CST9 Mail Stop K484, Los Alamos, NM
- 9:00 (286) **SCIENCE IN A GOVERNMENT LABORATORY: A CAREER IN TRACE ELEMENT SPECTROSCOPY (ALTERNATIVE TITLE: TRAVEL MEMOIRS OF AN ATOMIC SPECTROSCOPIST)**, NANCY MILLER-IHLI, USDA, U.S. Dept. of Agriculture, Nutrient Composition Lab, Beltsville, MD
- 9:40 (287) **PHD: PATH TO A CAREER OR TO A JOB?**, GARY HIEFTJE, Indiana University, Department of Chemistry, Bloomington, IN
- 10:00 **Coffee Break**
- 10:40 (288) **THE EVER CHANGING CAREER PATH OF AN FBI SCIENTIST**, DIANA GRANT, Federal Bureau of Investigation Laboratory, 935 Pennsylvania Avenue NW, Washington, D.C., USA
- 11:20 (289) **NEW TRENDS IN CAREERS FOR ANALYTICAL SPECTROSCOPISTS**, JOEL HARRIS, University of Utah, Department of Chemistry, 315 South 1400 East, Salt Lake City, UT
- 11:40 (290) **CHOOSING AN ACADEMIC CAREER IN CHEMISTRY AT A PRIMARILY UNDERGRADUATE INSTITUTION**, WENDY CLEVENGER, University of Tennessee at Chattanooga, Department of Chemistry, University of Tennessee at Chattanooga, 615 McCallie Ave., Chattanooga, TN

Tuesday, 8:20 – noon, Room 18

CAVITY RINGDOWN SPECTROSCOPY

Presiding: Thomas Spence

Organized by: Thomas Spence

- 8:20 (291) **CAVITY RING-DOWN SPECTROSCOPY: AN HISTORICAL OVERVIEW**, BARBARA PALDUS, C. C. Harb, T. G. Spence, J. S. Harris, J. Martin, R. N. Zare, Informed Diagnostics Inc, 1050 E Duane Ave, Suite I, Sunnyvale, CA, USA
- 9:00 (292) **THE POTENTIAL OF HETERODYNE DETECTED RING-DOWN SPECTROSCOPY**, MARC LEVENSON, B.A. Paldus, C.C. Harb, M.J. Lawrence*, T.G. Spence**, R.L. Byer*, R.N. Zare, Informed Diagnostics, Inc., 1050 E. Duane Ave., Suite I, Sunnyvale, CA
- 9:20 (293) **LASER-LOCKED CAVITY RING-DOWN SPECTROSCOPY WITH ANALOG DETECTION ELECTRONICS**, THOMAS SPENCE, Harb Charles, Paldus Barbara, Byer Robert, Richard Zare, Loyola University, Department of Chemistry, Box 5; 6363 St. Charles Ave., New Orleans, LA, USA
- 9:40 (294) **APPLICATION OF QUANTUM CASCADE LASERS IN CAVITY RING-DOWN SPECTROSCOPY**, CHARLES HARB, B. A. Paldus, T. G. Spence, R. N. Zare, Informed Diagnostics Inc., 1050 E Duane Ave, Suit I, Sunnyvale, CA, USA
- 10:00 **Coffee Break**
- 10:40 (295) **RECENT ADVANCES IN CAVITY RINGDOWN LASER ABSORPTION SPECTROSCOPY**, ANTHONY O'KEEFE, Los Gatos Research, 67 East Evelyn Ave., Suite 3, Mountain View, CA, USA
- 11:00 (296) **DETECTION OF RADICAL SPECIES IN THE CVD OF DIAMOND FILMS USING CAVITY RING-**

DOWN SPECTROSCOPY, UWE LOMMATZSCH, Edward Wahl, Dirk Aderhold, Charles Kruger, Richard Zare, Stanford University, Department of Chemistry, Stanford University, Stanford, CA

- 11:20 (297) **APPLICATION OF GRAPHITE FURNACE-CAVITY RINGDOWN SPECTROSCOPY TO TRACE ELEMENTAL ANALYSIS**, CHRISTOPHER WINSTEAD, Fabio Mazzotti, Jerzy Mierzwa, George Miller, Mississippi State University, 205 Research Boulevard, Starkville, MS, US
- 11:40 (298) **PROGRESS IN DEVELOPING ICP-CAVITY RINGDOWN SPECTROSCOPY FOR TRACE ELEMENTAL ANALYSIS OF METALS**, GEORGE MILLER, Fabio Mazzotti, Jerzy Mierzwa, Christopher Winstead, Mississippi State University, 205 Research Boulevard, Starkville, MS, US

Tuesday, 8:20 – 11:40, Room 19

BRUCE KOWALSKI, A CELEBRATION OF 25+ YEARS OF CHEMOMETRICS I

Presiding: Steven Brown

Organized by: Steven Brown

- 8:20 (299) **NON-TRILINEAR, NON CURVE RESOLUTION THREE-WAY ANALYSIS**, PAUL GELADI, UmeÅ University Dept. Organic Chemistry, UmeÅ, Sweden
- 9:00 (300) **A NEW CLS/ PLS HYBRID ALGORITHM FOR IMPROVED MULTIVARIATE CALIBRATION CAPABILITIES**, DAVID HAALAND, David Melgaard, Sandia National Laboratories, MS0342, Albuquerque, NM, USA
- 9:40 (301) **CHEMOMETRICS FOR SMART SENSORS**, KARL BOOKSH, Louis Obando, Marc Boysworth, Brian Dable, Renee JiJi, Arizona State University, Dept. of Chemistry, MailStop 1604, Tempe, AZ
- 10:00 **Coffee Break**
- 10:40 (302) **CONSTRAINED OPTIMIZATION OF FEASIBLE RANGES FOR SPECIES PROFILES OBTAINED BY MULTIVARIATE CURVE RESOLUTION**, ROMA TAULER, University of Barcelona, Diagonal 647, Barcelona
- 11:20 (303) **INTRODUCING CHEMOMETRICS IN THE UNDERGRADUATE INSTRUMENTAL ANALYSIS LABORATORY**, PAUL GEMPERLINE, East Carolina University, Department of Chemistry, Greenville, NC

Tuesday, 13:40 – 16:40, Room 1

RAMAN SPECTROSCOPY IN INDUSTRIAL AND PROCESS MONITORING II

Presiding: Mike Carrabba

Organized by: Steve Barnett and Mike Carrabba

- 13:40 (304) **INDUSTRIAL APPLICATIONS OF VIBRATIONAL SPECTROSCOPIC IMAGING**, LINDA H KIDDER, David Strachan, E. Neil Lewis, Spectral Dimensions, Inc., 3403 Olandwood Ct., Suite 102, Olney, MD
- 14:00 (305) **VISUALISATION OF PRODUCT CRITICAL PARAMETERS IN PHARMACEUTICAL FORMULATIONS BY RAMAN MAPPING/MICROSCOPY**, DON CLARK, Pfizer Central Research, Physical Sciences D265, Pfizer Central Research, Ramsgate Road, Sandwich, Kent, United Kingdom
- 14:20 (306) **CHALLENGES IN PROCESS RAMAN SPECTROSCOPY**, IAN LEWIS, Kaiser Optical Systems, Inc, PO Box 983, Ann Arbor, MI
- 15:00 **Coffee Break**
- 15:20 (307) **STATISTICS OF REPRODUCIBILITY TESTS**

- ON INDUSTRIAL QC RAMAN RESULTS**, RUTH GEIGER, Eva Urlaub, Dilor, GmbH, Wiesenstrasse 4, D-64625 Bensheim, Germany
- 15:40 (308) **STABILIZING MULTI-COMPONENT PROCESS MODELS-NEW APPROACHES USING RELATIVE INTENSITY**, JEREMY SHAVER, Kaiser Optical Systems, P.O. Box 983, Ann Arbor, MI
- 16:00 (309) **ON LINE ANALYSIS OF CONTINUOUS AND BATCH STILL CHLOROSILANE DISTILLATION PROCESSES BY MULTI-CHANNEL RAMAN SPECTROSCOPY**, SHIN-CHU (ROBERT) HSU, Ronda Grosse, Dow Corning, Carrollton Plant, 4770 Highway 42 East, Carrollton, KY, USA
- 16:20 (310) **GLOBAL, ON-LINE CALIBRATION IN THE PROCESS ANALYTICAL RAMAN SYSTEM**, FRITZ ALLEN, Jun Zhao, University of New Mexico/Chromex Inc., Chemistry Department, Albuquerque, NM

**Tuesday, 13:40 – 16:00, Room 2
BIOMEDICAL IMAGING**

Presiding: H. Mantsch Organized by: H. Mantsch (ICASS)

- 13:40 (311) **NEW CONCEPTS IN BIOMEDICAL INFRARED IMAGING FOR THE DIAGNOSIS OF CELL ABNORMALITIES AND CANCER**, CHRISTIAN SCHULTZ, Henry Mantsch, BRUKER Optics Inc., 19 Fortune Drive, Manning Park, Building #1, Billerica, MA, USA
- 14:20 (312) **FIBER OPTICAL FLUORESCENCE SPECTROSCOPY OF TISSUE PHANTOMS**, LEI GENG, Jason Cox, Department of Chemistry, University of Iowa, Iowa City, IA
- 15:00 **Coffee Break**
- 15:20 (313) **FT/IR MICROSCOPIC ANALYSIS OF ABERRANT CELLS IN THE BRAIN**, DAVID WETZEL, Steven LeVine, Kansas State University, Microbeam Molecular Spectroscopy Laboratory, Shellenberger Hall, Manhattan, KS, USA
- 15:40 (314) **COGNIZANT TARGET SELECTION WITHIN MICROSCOPIC BIOLOGICAL SPECIMENS FOR FT/IR MICROSPECTROSCOPIC ANALYSIS**, DAVID WETZEL, Steven LeVine, Kansas State University, Microbeam Molecular Spectroscopy Laboratory, Shellenberger Hall, Manhattan, KS, USA

Tuesday, 13:40 – 16:40, Room 3

POLYMER CHARACTERIZATION USING VIBRATIONAL SPECTROSCOPY

Presiding: Vasilis G. Gregoriou Organized by: Vasilis G. Gregoriou

- 13:40 (316) **THE POTENTIAL OF VIBRATIONAL SPECTROSCOPY IN SUPERCRITICAL ENHANCED POLYMER PROCESSING**, SERGEI KAZARIAN, Brian Briscoe*, Christopher Lawrence*, David Coombs**, Graham Poulter**, Imperial College, Dept. Chemical Engineering, Prince Consort Road, London, England
- 14:00 (317) **MOLECULAR ORIENTATION OF DRAWN POLYMERS USING RAMAN MICROSCOPY**, GEORGE VOYIATZIS, Amaia Soto, Kostas Andrikopoulos, ICE/HT - FORTH, P.O. Box 1414, Rio - Patras, Greece
- 14:20 (318) **CHARACTERIZATION OF CONCENTRATION VARYING HETEROGENEOUS POLYMER MATERIALS BY FOURIER TRANSFORM INFRARED MICROSPECTROSCOPY MAPPING AND IMAGING TECHNIQUES AND GENERALIZED 2D-CORRELATION SPECTROSCOPY**, MATTHEW SMITH, ERIC JIANG, KENNETH KEMPFERT, Nicolet

Instrument Corporation, 5225-5 Verona Road, Madison, WI

- 15:00 **Coffee Break**
- 15:20 (319) **MOLECULAR CONFORMATION OF PATTERNED SAMS USING INFRARED SPECTROSCOPY**, VASILIOS GREGORIOU, Sara Clark, Paula Hammond, Polaroid Corporation, 1265 Main Street, W4-1D, Waltham, MA
- 16:00 (320) **PROBING GAS SORPTION AT POLYMER COATINGS BY MOLECULAR SPECTROSCOPY**, MARC PORTER, Robert Brush, Matt Smith, Iowa State University, 42 Spedding Hall, Ames, IA
- 16:20 (321) **POLYMER AGING AND MORPHOLOGY CHANGES BY FT-IR SPECTROSCOPY**, DARLA GRAFF, Jon Schoonover, Edward Kober, Jill Osborn, Los Alamos National Laboratory, Chemical Science and Technology, CST-4, MS J586, Los Alamos, NM, USA

Tuesday, 13:20 – 17:00, Room 7

NEW APPLICATIONS OF FURNACE ATOMIZATION

Presiding: James Harnly Organized by: Nancy Miller-Ihli

- 13:20 (322) **HIGH-ACCURACY COMBINED GRAVIMETRIC AND INSTRUMENTAL DETERMINATION OF SILICON IN ZEOLITES**, THOMAS VETTER, Ma.Genoveva Moreno-Ramirez, NIST, 100 Bureau Drive, Mail Stop 8393, Gaithersburg, MD, USA
- 13:40 (323) **COMPARISON OF ANALYTICAL CHARACTERISTICS OF FURNACE ATOMIZATION PLASMA EMISSION SPECTROMETRY WITH MIXED HE AND AR PLASMAS**, FUSHENG SUN, Ralph Sturgeon, National Research Council of Canada, M-12 #G-10, Institute of National Measurement Standards, NRC, Ottawa, ON, Canada
- 14:00 (324) **RECENT ADVANCES IN THE DEVELOPMENT OF FURNACE ATOMIZATION MASS SPECTROMETRY**, IAN STEWART, Ralph Sturgeon, Roger Guevremont, National Research Council Canada, Building M-12, Rm G7, Montreal Road Campus, Ottawa, ON, Canada
- 14:20 (325) **GRAPHITE FURNACE AAS DETERMINATION OF LEAD AND CADMIUM EXTRACTED IN 1 TO 30 MINUTES FROM CERAMIC FOODWARE**, SUSAN HIGHT, US Food and Drug Administration, 200 C Street, SW, Washington, DC
- 15:00 **Coffee Break**
- 15:20 (326) **LASER INDUCED FLUORESCENCE STUDIES OF ZINC, CADMIUM AND CHROMIUM IN THE ELECTROTHERMAL ATOMIZER**, MUHSIN EZER, Lawrence Pacquette, University of Iowa, Department of Chemistry, Iowa City, IA, USA
- 15:40 (327) **HYDRIDE GENERATION, SEQUESTRATION GRAPHITE FURNACE AAS METHOD FOR ULTRATRACE DETERMINATIONS IN FOOD-AND ENVIRONMENTAL SAMPLES**, GERHARD SCHLEMMER, Michaela Feuerstein, Perkin Elmer Bodenseewerk, P.O.Box 101761, Ueberlingen, Germany
- 16:00 (328) **APPLICATION OF A PROTOTYPE ECHELLE/CCD SPECTROMETER FOR CONTINUUM SOURCE ATOMIC ABSORPTION SPECTROMETRY**, MARCUS SCHUETZ, James Harnly, U.S. Dept. of Agriculture, ARS, BHNRC, Food Composition Laboratory, Bldg. 161, BARC-East, Beltsville, MD, USA
- 16:20 (329) **EXAMINATION OF STRUCTURAL SPECTRAL INTERFERENCES FOR CONTINUUM SOURCE ATOMIC ABSORPTION SPECTROMETRY (CS-AAS)**, JAMES MURPHY, Samip Patel, Marcus Schuetz, James Harnly, U.S. Dept. of Agriculture, ARS,

BHNRC, Food Composition Laboratory, Bldg. 161, BARC-East, Beltsville, MD, USA

- 16:40 (330) **DETECTION AND CORRECTION OF SPECTRAL INTERFERENCES FOR CONTINUUM SOURCE-ATOMIC ABSORPTION SPECTROMETRY**, JAMES HARNLY, Marcus Schuetz, James Murphy, Samip Patel, U.S. Dept. of Agriculture, ARS, BHNRC, Food Composition Laboratory, Bldg. 161, BARC-East, Beltsville, MD, USA

Tuesday, 13:20 – 18:00, Room 8

DEVELOPMENTS IN DIRECT SOLIDS ANALYSIS USING ICP-MS: GEO-ENVIRONMENTAL APPLICATIONS

Presiding: I.B. Brenner Organized by: I.B. Brenner

- 13:20 (331) **ENVIRONMENTAL ANALYSIS USING LA/ICP/MS: FROM THE SAMPLE TO THE TORCH**, O.F.X. DONARD, M. Motelica, Universite de Pau et des Pays de l'Adour, Laboratoire de Chimie Analytique Bio-Inorganique et Environment, Pau
- 14:00 (332) **APPLICATION OF A NEW LASER ABLATION SYSTEM FOR GEOANALYSIS USING ICP/MS**, STEVE SHUTTLEWORTH, Merchantek EO, 445 Marine View Ave, Del Mar, CA, USA
- 14:20 (333) **DIRECT ANALYSIS OF TRACE ELEMENTS AND ISOTOPE RATIOS IN CALCIFIED BIOLOGICAL TISSUES**, PETER OUTRIDGE, R. A. Stern, D.C. Gregoire, Geological Survey of Canada, 601 Booth St., Ottawa, Ontario, Canada
- 15:00 **Coffee Break**
- 15:20 (334) **FRACTIONATION EFFECTS IN LA-ICP/MS FOR GOANALYSIS USING AN ENHANCED ION TRANSMISSION INTERFACE**, I.B. BRENNER, Environmental Analysis Laboratory
- 15:40 (335) **INNOVATIONS IN CALIBRATION, DIAGNOSIS OF FRACTIONATION, AND REDUCTION OF OXIDE IONS IN LASER ABLATION ICP/MS**, R. S. HOUK, D. Aeschliman, D. Baldwin, D. Zamzow, Ames Laboratory, Iowa State University, Ames, IA
- 16:20 (336) **NEW INSIGHTS INTO ELEMENTAL COMPOSITION OF FLUID INCLUSIONS USING LA-ICP/MS**, DETLEF GUENTHER, ETH Zurich, Laboratory of Inorganic Chemistry, Universitaetsstrasse 6, Zurich
- 17:00 (337) **NEW METHODOLOGIES FOR U-TH-PB GEOCHRONOLOGY USING LASER ABLATION MC-ICP/MS**, FERGUS KEENAN, Randall Parrish, Matt Horstwood, Geoff Nowel, Steve Noble, Hilke Timmerman, Ian Bowan, VG Elemental, Ion Path, Road Three, Winsford, Cheshire
- 17:20 (338) **LASER ABLATION ICP/MS: OPPORTUNITIES IN GEOLOGICAL AND ENVIRONMENTAL APPLICATIONS USING MULTI-COLLECTOR AND MULTI-POLE INSTRUMENTS**, SIMON CHENERY, Geoff Nowell, British Geological Survey, Kingsley Dunham Centre, Nicker Hill, Keyworth, Nottingham, UK
- 17:40 (339) **USE OF LASER ABLATION COUPLED WITH MAGNETIC SECTOR, MULTICOLLECTOR ICP/MS TO MEASURE IN-SITU ISOTOPE RATIOS**, SIMON MEFFAN-MAIN, Zenon Palacz, Patrick Turner, Micromass UK Ltd, Floats Road, Wythenshawe, Manchester, UK

Tuesday, 13:20 – 17:00, Room 9

PUSHING THE LIMITS OF ATOMIC MASS SPECTROMETRY II

Presiding: Gary Horlick Organized by: David W. Koppenaal

- 13:20 (340) **ACTINIDE DETECTION AND SPECIATION AT ATTOGRAM CONCENTRATIONS USING QUADRUPOLE ICP/MS**, MARTIN LIEZERS, OT Farmer III*, DW Koppenaal*, JW Grate*, VG Elemental, Ion Path, Road Three, Winsford, Cheshire
- 13:40 (341) **GLOW DISCHARGE MASS SPECTROMETRY: A PROSPECTIVE RETROSPECTIVE**, W. W. HARRISON, C Yang, M Mohill, K Ingeneri, University of Florida, Department of Chemistry, Gainesville, FL
- 14:00 (342) **A NEW MINIATURIZED HIGH-DENSITY MICROWAVE PLASMA TORCH FOR ATOMIC SPECTROMETRY**, JOSÉ A.C. BROEKAERT, Attila Bilgic (1), Ulrich Engel(2), Edgar Voges(1), University of Leipzig, Linnéstrasse 3, Leipzig, D
- 15:00 **Coffee Break**
- 15:20 (343) **CHEMOMETRIC APPROACHES FOR SOLVING DIFFICULT ICP ANALYSIS PROBLEMS**, RAMON BARNES, Assad Al-Ammar, Rajesh Gupta, University of Massachusetts, Chemistry Department, LGRC Tower, Box 34510, Amherst, MA
- 16:00 (344) **ULTRAHIGH RESOLUTION ELEMENTAL MASS SPECTROMETRY**, JOHN EYLER, University of Florida, Department of Chemistry, P.O. Box 117200, Gainesville, FL
- 16:20 (345) **PRECISE DETERMINATION OF CA ISOTOPE RATIOS BY HR-ICP/MS**, PAUL FIELD, Robert Sherrell, Sue Shapses, IMCS/Rutgers University, 71 Dudley Road, New Brunswick, NJ, USA
- 16:40 (346) **TAILORING THE ICP AND THE QUADRUPOLE MASS ANALYZER FOR ICP/MS**, R. S. HOUK, University of Iowa

Tuesday, 13:20 – 16:40, Room 10

TIME-OF-FLIGHT MASS SPECTROMETRY

Presiding: Liang Li Organized by: Liang Li

- 13:20 (347) **TIME-OF-FLIGHT MASS SPECTROMETRY: PAST, PRESENT, AND FUTURE**, KENNETH STANDING, University of Manitoba, Physics Department, University of Manitoba, Winnipeg, MB
- 14:00 (348) **TOFMS IN THE PROTEIN WORLD**, JOHN CHAKEL, Alex Apffel, Gargi Choudhary, *Xiaoyu Pan, *Meihao Hu, Xiaocheng Gu, **Liang Li, Bill Hancock, Hewlett-Packard Laboratories, 3500 Deer Creek Rd., MS 26U6, Palo Alto, CA
- 14:20 (349) **GENETIC MEASUREMENTS IN A HIGH THROUGHPUT MODE BY MASS SPECTROMETRY**, CHRISTOPHER BECKER, John Butler, Hua Lin, Joanna Hunter, GeneTrace Systems Inc., GeneTrace Systems Inc., 1401 Harbor Bay Parkway, Alameda, CA
- 15:00 **Coffee Break**
- 15:20 (350) **MINIATURIZED TOF MASS SPECTROMETERS FOR BIOLOGICAL RESEARCH AND BIOAGENT DETECTION**, ROBERT COTTER, Slava Kovtoun, Chuck Fancher, Maria Prieto#, Vladimir Doroshenko#, Coorg Prasad, Middle Atlantic Mass Spectrometry Laboratory, Johns Hopkins University School of Medicine, 725 N. Wolfe Street, Baltimore, MD
- 15:40 (351) **SEQUENCE IDENTIFICATION OF CANCER-RELATED PROTEINS FROM 2-D GELS USING CAPILLARY HPLC AND CAPILLARY ELECTROPHORESIS/ION TRAP-TOF TANDEM MASS SPECTROMETRY**, DAVID LUBMAN, X. Jin, Y. Chen, J. Kim, P. Huang, D. Wall, S. Hansh, University of Michigan, Department of Chemistry, University of Michigan, Ann Arbor, MI
- 16:00 (352) **STUDYING CELLS AND ENZYME REACTIONS BY MASS SPECTROMETRY**, JAMES REILLY, Randy Arnold, Jonathan Karty, Christopher

Houston, Indiana University, Department of Chemistry,
Indiana University, Bloomington, IN

- 16:20 (353) **A NEW HIGH PERFORMANCE QUADRUPOLE TIME-OF-FLIGHT MASS SPECTROMETER SYSTEM**, BRUCE THOMSON, Igor Chernushevich, George Scott, Jeff Plomley, Bill Pinchin, PE Sciex, 71 Four Valley Drive, Concord, ON

**Tuesday, 13:20 – 17:00, Room 11
ICPMS INSTRUMENTATION**

Presiding: Joel Goldberg

- 13:20 (354) **INITIAL EXPERIENCES WITH COMMERCIAL ICP-TIME-OF-FLIGHT MASS SPECTROMETRY**, RALPH STURGEON, Joseph Lam, National Research Council of Canada, INMS, Bldg M-12, Montreal Road, Ottawa, ON, Canada
- 13:40 (355) **PREDICTION OF ERROR IN ICP/MS USING THE TOTAL INTERFERENCE LEVEL MODEL**, ERIC SALIN, John Tromp, J-M Mermet, Chemistry, McGill University, 801 Sherbrooke St. W, Montreal, QC, Canada
- 14:00 (356) **DIAGNOSIS OF ICP/MS OPERATION FROM BLANK DATA**, ERIC SALIN, Jennifer Murphy, Hai Ying, J-M Mermet, Chemistry, McGill University, 801 Sherbrooke St. W., Montreal, QC, Canada
- 14:20 (357) **INVESTIGATION OF CHEMICAL MATRIX EFFECTS IN ICP/MS: EFFECTS OF LENS VOLTAGE, NEBULIZER OPERATING PARAMETERS AND USE OF A REACTION CELL**, SAVELAS RABB, John Olesik, Susan Olesik, The Ohio State University, 275 Mendenhall Laboratory, 125 S. Oval Mall, Columbus, OH, USA
- 15:00 **Coffee Break**
- 15:20 (358) **DIRECT ANALYSIS OF SOLID SAMPLES BY LASER ABLATION AND LASER-ENHANCED IONIZATION**, JEAN-FRANCOIS GRAVEL, Laval University, Dept. Chemistry, Quebec City, QC, Canada
- 15:40 (359) **FURTHER INVESTIGATIONS INTO THE ETV-ICP/MS INTERFACE: A LOOK AT PARTICLE TRANSPORT AND ABSOLUTE TRANSPORT EFFICIENCY**, DELONY LANGER, James Holcombe, University of Texas at Austin, Department of Chemistry and Biochemistry, Austin, TX, USA
- 16:00 (360) **CHARACTERIZATION OF GAS FLOW DYNAMICS IN ETV-ICP/MS**, JOHN VENABLE, James Holcombe, University of Texas at Austin, Dept. of Chemistry and Biochemistry, Austin, TX, USA
- 16:20 (361) **A STEP TOWARDS SIMULTANEITY IN QUADRUPOLE MASS SPECTROMETRY**, DMITRY BANDURA, Vladimir Baranov, Scott Tanner, PERKIN ELMER SCIECX, 71 Four Valley Drive, Concord, ONT, Canada
- 16:40 (362) **INVESTIGATION OF MATRIX INTERFERENCES IN AN INDUCTIVELY-COUPLED PLASMA TIME-OF-FLIGHT MASS ANALYZER**, STEVEN RAY, Denise McClenathan, Andrew Leach, Gary Hieftje, Indiana University, Department of Chemistry, Bloomington, IN, USA

**Tuesday, 13:20 – 16:40, Room 12
CHEMICAL SPECIATION IV**

Presiding: F. Cantwell and I.D. Brindle

Organized by: C.L. Chakrabarti, M.M. Lamoureux, W.D. Marshall, J. Caruso (ICASS)

- 13:20 (363) **NUMERICAL SPECIATION AND KINETIC FRACTIONATION METHODS FOR METALS IN**

ENVIRONMENTAL SYSTEMS, WITH PARTICULAR REFERENCE TO ALUMINIUM, KIP POWELL, University of Canterbury, P. Bag 4800, Chemistry Department, Christchurch, New Zealand

- 14:00 (364) **CHEMICAL SPECIATION OF IRON AND ZINC IN THE NORTH ATLANTIC**, STAN VAN DEN BERG, Marie Boye, Michael Ellwood, Annette Aldrich, Liverpool University, Oceanography Laboratories, Liverpool, Mers, United Kingdom
- 15:00 **Coffee Break**
- 15:20 (365) **MICROCOLUMN MULTICAPILLARY GAS CHROMATOGRAPHY WITH ICP/MS DETECTION**, RYSZARD LOBINSKI, Isaac Rodriguez, Sandra Mounicou, CNRS EP 132, Hélioparc, 2, av. Pr. Angot, Pau, France
- 15:40 (366) **BIOCHEMICAL SPECIATION ANALYSIS USING THE HPLC-ICP/MS COUPLING**, JOANNA SZPUNAR, Shona McSheehy, Kasia Polec, Luiza Fernandez Sanchez, CNRS EP 132, Hélioparc, 2, av. Pr. Angot, Pau, France
- 16:20 (367) **ELECTROSPRAY MASS SPECTROMETRY IN SPECIATION ANALYSIS**, RYSZARD LOBINSKI, Hubert Chassaing, Véronique Vacchina, CNRS EP 132, Hélioparc, 2, av. Pr. Angot, Pau, France

**Tuesday, 13:40 – 16:40, Room 13
ANALYTICAL OCEANOGRAPHY II**

Presiding: Kristin Orians and David Hastings

Organized by: Kristin Orians and David Hastings

- 13:40 (368) **TOWARDS IN SITU MEASUREMENT OF TRACE ELEMENT CONCENTRATION AND SPECIATION IN SEAWATER**, KENNETH JOHNSON, Monterey Bay Aquarium Research Institute, 7700 Sandholdt Road, Moss Landing, CA
- 14:20 (369) **CONTINUOUS, IN SITU DETERMINATION OF IRON (II+III) BY AN OSMOTICALLY PUMPED SUBMERSIBLE ANALYZER**, THOMAS CHAPIN, Hans Jannasch, Monterey Bay Aquarium Research Institute, PO Box 628, Moss Landing, CA
- 15:00 **Coffee Break**
- 15:20 (370) **THE POTENTIAL OF IN SITU FIBER OPTIC SPECTROMETERS: THEORY AND PRACTICE**, GARY KLINKHAMMER, Oregon State University, COAS 104 Ocean Admin Bldg, Corvallis, OR
- 15:40 (371) **RESOLVING SURFACE WATER TRACE ELEMENT GRADIENTS USING AUTOMATED SHIPBOARD DETERMINATIONS**, CHRIS MEASURES, S. Vink, University of Hawaii at Manoa, Dept of Oceanography, Honolulu, HI
- 16:00 (372) **ONBOARD DETERMINATION OF HEAVY METAL USING HIGH SPEED CATHODIC STRIPPING VOLTAMMETRY APPLICATION TO THE DETERMINATION OF AL IN THE ATLANTIC OCEAN**, HERNANDEZ-BRITO JOSE JOAQUIN, M.D. Gelado-Caballero, C. Collado-Sanchez, M.E. Torres-Padrón, University of Las Palmas de Gran Canaria, Campus Universitario de Tafira. Edificio de Ciencias B-sicas. Depto de Química, Las Palmas de Gran Canaria, Las Palmas
- 16:20 (373) **AN AUTOMATED HIGH PERFORMANCE, HIGH TEMPERATURE COMBUSTION TOC AND VOC ANALYZER FOR SHIPBOARD USE**, KENNETH MOPPER, Jian-guo Qian, Washington State University, Department of Chemistry, Pullman, WA

Tuesday, 13:20 – 16:40, Room 14
CHEMICAL SPECIATION V

Presiding: W. Cullen and W.D. Marshall

Organized by: C.L. Chakrabarti, M.M. Lamoureux, W.D. Marshall,
J. Caruso (ICASS)

- 13:20 (374) **ELEMENTAL SPECIATION: FROM SAMPLE PREPARATION TO DETECTION**, JOSEPH CARUSO, University of Cincinnati, College of Arts and Sciences, Cincinnati, OH
- 14:00 (375) **TOWARD COMPREHENSIVE SPECIATION IN HPLC ANALYSES VIA PARTICLE BEAM-GLOW DISCHARGE OPTICAL AND MASS SPECTROMETRIES**, R. KENNETH BUBBA MARCUS, Terri Gibeau, Melissa Dempster, Clemson University, Department of Chemistry, Clemson, SC
- 15:00 **Coffee Break**
- 15:20 (376) **COMPETING LIGAND EXCHANGE METHOD WITH GRAPHITE FURNACE ATOMIC ABSORPTION SPECTROMETRY, OR BY ADSORPTIVE CATHODIC STRIPPING VOLTAMMETRY FOR DETERMINING THE SPECIATION OF ALUMINUM, IRON, COPPER AND NICKEL IN ULTRAFILTERED FRACTIONS OF NATURAL WATER SAMPLES**, NOURI HASSAN, J.W. Guthrie, R. Mandal, J. Murimboh, M.A. Salam, C.L. Chakrabarti, M.H. Back, D.C. Gregoire, Carleton University, Department of Chemistry, 1125 Colonel By Drive, Ottawa, ON, Canada
- 15:40 (377) **INDUCTIVELY COUPLED PLASMA TIME-OF-FLIGHT MASS SPECTROMETRY FOR ELEMENTAL AND ULTRA-TRACE SPECIATION ANALYSIS**, FREDDY ADAMS, Hakan Emteberg, Xiaodan Tian, Monika Heisterkamp, University of Antwerp (UIA), Universiteitsplein 1, Wilrijk, A'pen, Belgium
- 16:20 (378) **CHEMICAL SPECIATION OF SOME METALS IN ATMOSPHERIC PARTICULATE MATTER**, MARC LAMOUREUX, Kathleen Duggan, Conrad Gregoire, Saint Mary's University, 923 Robie Street, Halifax, NS, Canada

Tuesday, 13:20 – 17:00, Room 15
TIME-RESOLVED INFRARED SPECTROSCOPY

Presiding: Richard Palmer

Organized by: Richard Palmer

- 13:20 (379) **NANOSECOND STEP-SCAN TIME-RESOLVED INFRARED SPECTROSCOPY OF REACTIVE INTERMEDIATES AND EXCITED STATES IN CONVENTIONAL AND SUPERCRITICAL FLUIDS**, MIKE GEORGE, University of Nottingham
- 14:00 (380) **TIME-RESOLVED FT/IR OF TRANSIENT PHOTO-EXCITED STATES**, RICHARD PALMER, Gregory Smith, Duke University, Department of Chemistry, Box 90346, Durham, NC, USA
- 14:20 (381) **PUMP-PROBE FT/IR SPECTROSCOPY APPROACHING 100PS TIME RESOLUTION AT THE NSLS***, G. L. CARR, R.P.S.M Lobo, J.D. LaVeigne, D.H. Reitze, D.B. Tanner+, Brookhaven National Laboratory, National Synchrotron Light Source - bldg 725D, Upton, NY, USA
- 15:00 **Coffee Break**
- 15:20 (382) **ULTRAFAST BROADBAND INFRARED SPECTROSCOPY OF SOLAR CELL AND PHOTOCHEMICAL PROCESSES**, EDWIN HEILWEIL, Todd Heimer¹, Valeria Kleiman², Theodore Burkey³, NIST, B208/221 MS 8441; Optical Technology Division; 100 Bureau Drive; National Institute of Standards and Technology, Gaithersburg, MD

15:40 (383) **STEP-SCAN TIME-RESOLVED FT/IR SPECTROSCOPY OVER BROAD TEMPORAL RANGES WITH A LOGARITHMIC TIME BASE**, MARK BRAIMAN, Sergej Shilov, M. Shane Hutson, Moonsub Shim, Philippe Guyot-Sionnest, Syracuse University, Chemistry Dept., CST Rm. 1-014, Syracuse, NY, USA

16:00 (384) **DETECTING TRANSIENT AND UNSTABLE MOLECULES THROUGH TIME-RESOLVED FT EMISSION SPECTROSCOPY**, HAI-LUNG DAI, Laura Letendre, Dean-Kuo Liu, Charles Pibel, Joshua Halpern, University of Pennsylvania, Department of Chemistry, Philadelphia, PA, USA

16:20 (385) **TIME-RESOLVED INFRARED STUDY OF THE EFFECT OF SOLVENT VISCOSITY ON PROTEIN DYNAMICS**, STEFAN FRANZEN, Derek Brown, Shelia Maness, North Carolina State University

16:40 (386) **TIME-RESOLVED FT/IR OF CO BINDING TO MYOGLOBIN**, FRIEDRICH SIEBERT, University of Freiburg, Institut fuer Biophysik und Strahlenbiologie, Albertstr. 23, Freiburg, Germany

Tuesday, 13:20 – 17:00, Room 16
EXTENSION OF ATOMIC SPECTROSCOPY USING FLOW INJECTION TECHNIQUES

Presiding: Diane Beauchemin

Organized by: Diane Beauchemin (ICASS)

13:20 (387) **CHALLENGES IN APPLYING AUTOMATED FLOW INJECTION-ATOMIC SPECTROMETRY TO THE ANALYSIS OF GEOLOGICAL AND ENVIRONMENTAL MATERIALS**, ED PASKI, Analytical Innovations, P.O. Box 3337, Blaine, WA

13:40 (388) **HG DETERMINATIONS USING THE COLD VAPOUR TECHNIQUE: METHODS, FIGURES OF MERIT, REGULATIONS, APPLICATIONS NOTE**, GERHARD SCHLEMMER, Manfred Leyrer, Perkin Elmer Bodenseewerk, P.O.Box 101761, Ueberlingen, Germany

15:00 **Coffee Break**

15:20 (389) **FLOW INJECTION TECHNIQUES FOR INCREASING SIGNAL TO NOISE RATIO IN ANALYTICAL ATOMIC SPECTROMETRY**, JULIAN TYSON, University of Massachusetts, Dept of Chemistry, Amherst, MA, USA

16:00 (390) **FLOW INJECTION APPROACHES TO FACILITATE CALIBRATION IN ICP/MS**, DIANE BEAUCHEMIN, Queen's University, Department of Chemistry, Kingston, Ontario, Canada

16:40 (391) **INVESTIGATION OF METAL BINDING BY SILICA-IMMOBILIZED CHELATORS USING FLOW INJECTION ANALYSIS**, MAURY HOWARD, James Holcombe, University of Texas at Austin, Dept. of Chemistry and Biochemistry, Austin, TX, USA

Tuesday, 13:20 – 16:40, Room 17
PH. D.: NOW YOU'VE GOT IT. WHAT NEXT? II

Presiding: Gretchen Potts

Organized by: Thomasin Miller, Gretchen Potts, and Jason Day

13:40 (392) **ANALYTICAL CHEMISTRY: FROM THE BOOM TO GENERATION X**, GARY HORLICK, University of Alberta, Department of Chemistry, Edmonton, AB

14:20 (393) **QUALITY RESEARCH AND A PROFESSIONAL APPROACH: THE KEY TO SUCCESS**, STEVE HILL, University of Plymouth, Dept. of Environmental Sciences, Drake Circus, Plymouth, Devon

- 15:00 **Coffee Break**
- 15:20 (394) **AFTER THE PHD-SEARCHING FOR THE PERFECT JOB**, MICHAEL EPSTEIN, National Institute of Standards and Technology, Stop 8391, ACSL, Room B360, Analytical Chemistry Division, Gaithersburg, MD
- 15:40 (395) **INDUSTRIAL CHEMISTRY CAREERS: EXCITING, CHALLENGING, AND REWARDING OPPORTUNITIES TO APPLY YOUR KNOWLEDGE**, DAVID PILOSOFF, Procter & Gamble, Beauty Care Division, The Procter & Gamble Company, 11511 Reed Hartman Hwy., Cincinnati, OH
- 16:20 (396) **PANEL DISCUSSION**, GRETCHEN POTTS, Jason Day, Thomasin Miller, University of Florida, Department of Chemistry, Gainesville, FL, USA

Tuesday, 13:20 – 17:00, Room 18

MOLECULAR SURFACE SPECTROSCOPY

Presiding: Jeanne Pemberton Organized by: Jeanne Pemberton

- 13:20 (397) **SUBSTRATE EFFECTS ON MOLECULAR ORIENTATION MEASUREMENTS AT SURFACES**, KATHY ROWLEN, Garth Simpson, University of Colorado, Boulder, C. B. 215 Department of Chemistry, Boulder, CO
- 14:00 (398) **CHEMICAL REACTIONS AT ORGANIC-THIN FILMS AT ELECTRODE SURFACES USING INFRARED AND RAMAN SPECTROSCOPIES AND SCANNING FORCE MICROSCOPY**, MARC PORTER, Jianhong Wang, Jeremy Kenseth, Vivian Jones, Iowa State University, 42 Spedding Hall, Ames, IA
- 15:00 **Coffee Break**
- 15:20 (399) **MOLECULAR SPECTROSCOPY OF IMPORTANT HETEROGENEOUS ATMOSPHERIC PROCESSES**, JEANNE PEMBERTON, University of Arizona
- 16:00 (400) **APPLICATIONS OF SURFACE-ENHANCED INFRARED ABSORPTION SPECTROMETRY**, PETER GRIFFITHS, David Heaps, Amy Bjerke, University of Idaho, Department of Chemistry, University of Idaho, Moscow, Idaho
- 16:40 (401) **ULTRAHIGH SENSITIVITY UNENHANCED RAMAN SPECTROSCOPY OF SUBMONOLAYERS ON CARBON ELECTRODES AND ALUMINUM ALLOYS**, R.L. MCCREERY, Tzu-Chi Kuo, Kenneth Ray, Jun Zhao, The Ohio State University, Department of Chemistry

Tuesday, 13:20 – 16:40, Room 19

BRUCE KOWALSKI, A CELEBRATION OF 25+ YEARS OF CHEMOMETRICS II

Presiding: Steven Brown Organized by: Steven Brown

- 13:20 (402) **SOME RECENT ADVANCES IN MULTI-, MEGA-AND GIGAVARIATE ANALYSIS OF CHEMICAL DATA FROM RESEARCH, DEVELOPMENT AND PRODUCTION**, SVANTE WOLD, Nouna Kettaneh, Umea Univ., Dept. of Chemistry, Umea, SE
- 13:40 (403) **RATIONALIZING MULTIVARIATE CALIBRATION THROUGH CHEMICAL MIXTURE MODELS**, PETER WENTZELL, Lorenzo Vega Montoto, Dalhousie University, Dept. of Chemistry, Dalhousie University, Halifax, NS
- 14:00 (404) **UNDERSTANDING THE COLLINEARITY PROBLEM IN CALIBRATION AND CLASSIFICATION**, TORMOD NAES, Bjorn Helge Mevik, MATFORSK, Oslovegen 1, Aas

- 15:00 **Coffee Break**
- 15:20 (405) **ENHANCED CLASSIFICATION USING HYBRID BAYESIAN BELIEF NETWORKS**, STEVEN BROWN, Kristen Mello, University of Delaware, 105 Brown Laboratories, Newark, DE
- 16:00 (406) **RANK IMPOSED LIMITATIONS AND OPPORTUNITIES IN ACOUSTIC WAVE SENSORS**, BARRY WISE, Neal Gallagher, Jay Grate, Eigenvector Research, Inc., 830 Wapato Lake Road, Manson, WA, USA
- 16:20 (407) **CHEMOMETRICS AND THE NEW SCIENTIFIC METHOD**, BRUCE KOWALSKI, University of Washington, Dept. of Chemistry, Seattle, WA

Wednesday, 8:40 – 11:20, Room 1

APPLICATIONS OF MODERN RAMAN SPECTROSCOPY

Presiding: Ian Lewis Organized by: Ian Lewis

- 8:40 (408) **RAMAN MICROSCOPY OF NATURAL, SYNTHETIC AND MODIFIED MINERALS**, RAY FROST, Theo Klopogge, Centre for Instrumental and Developmental Chemistry, QUT, PO Box 2434 GPO Brisbane, Brisbane, QLD, AUSTRALIA
- 9:00 (409) **OPTIMIZATION OF MODERN DISPERSIVE RAMAN SPECTROMETERS FOR MOLECULAR SPECIATION OF ORGANICS IN WATER**, TIM COLLETTE, Ted Williams, U.S. EPA, 960 College Station Rd, Athens, GA
- 9:20 (410) **ON-LINE RAMAN SPECTROSCOPY FOR AUTOMATED CONTROL OF TITANIUM DIOXIDE PRODUCTION INDUSTRY USING RAMAN SPECTROSCOPY**, NEIL EVERALL, PWB King, I. Clegg, ICI Technology, Wilton Research Centre, PO Box 90, Wilton, Middlesbrough, Cleveland, United Kingdom
- 9:40 (411) **NON-DESTRUCTIVE IN-SITU ANALYSES OF TRACE AMOUNTS OF COLOURANTS BY SURFACE ENHANCED RESONANCE RAMAN SCATTERING (SERRS) SPECTROSCOPY**, PETER WHITE, Caroline Rodger, Claire McLaughlin, Ewen Smith, University of Strathclyde, Forensic Science Unit, Royal College, 204 George Street, Glasgow
- 10:00 **Coffee Break**
- 10:40 (412) **RAMAN MICROSCOPY AND IMAGING METHODS FOR MATERIALS CHARACTERIZATION**, NEIL LEWIS, Pina Colarusso, Ira Levin, Michael Schaeberle, National Institutes of Health, Building 5, Room B1-38, Bethesda, MD, USA
- 11:00 (413) **CONFOCAL RAMAN CHEMICAL IMAGES OF HISTOLOGICAL SAMPLES AS AN AID TO AN UNDERSTANDING OF THE PATHOLOGY OF THE DISEASE STATE**, ADAR FRAN, Jose Centeno, Frank Johnson, Instruments SA, 3880 Park Ave., Edison, NJ

Wednesday, 8:40 – 11:40, Room 2

BIOLOGICAL APPLICATIONS OF SPECTROSCOPY

Presiding: Alex Scheeline

- 8:40 (414) **SIMULTANEOUS RATIO-METRIC FLUORESCENCE DETECTION OF OXYGEN AND CARBON DIOXIDE IN BIOLOGICAL SYSTEMS**, SUNIL DOURADO, Raoul Kopelman, University of Michigan, 930 N. University Ave., Ann Arbor, MI, USA
- 9:00 (415) **SINGLE MOLECULE FLUORESCENCE IMAGING FOR ULTRA-HIGH THROUGHPUT DNA FRAGMENT SIZE ANALYSIS IN FLOW CYTOMETRY**, ALAN VAN ORDEN, W. Patrick Ambrose, Richard Keller, Colorado State University, Department of Chemistry, Fort Collins, CO, USA
- 9:20 (416) **NAD DIMER--AN UNDERSTUDIED SPECIES,**

- ALEXANDER SCHEELINE, Ewa Kirkor, University of Illinois at Urbana-Champaign, 600 S. Mathews Ave., Urbana, IL, USA
- 9:40 (417) **REACTIVE NUCLEOTIDES, REDUCIBLE SUGARS, AND PEROXIDASE**, ALEXANDER SCHEELINE, Ewa Kirkor, Jason Hogan, University of Illinois at Urbana-Champaign, 600 S. Mathews Ave., Urbana, IL, USA
- 10:00 **Coffee Break**
- 10:40 (418) **MODEL-INDEPENDENT ANALYSIS OF PROBE/PROTEIN INTERACTIONS FROM DYNAMIC MULTIDIMENSIONAL FLUORESCENCE**, BRAD ROWE, Sharon Neal, University of Delaware, Department of Chemistry and Biochemistry, Newark, DE, USA
- 11:00 (419) **SURFACE PENETRATION DEPTH ANALYSIS OF NEAR-INFRARED RADIATION INTO LIVING TISSUE BY DETECTING BACK-SCATTERED LIGHT OF MARKER BANDS THROUGH BIFURCATED FIBER OPTIC BUNDLES**, BASIL DESOUSA, Christian Schultz, Bruker Optics Inc., 19 Fortune Drive., Manning Park., Building # 1, Billerica, MA, USA
- 11:20 (420) **OPTIMIZATION OF A CONFOCAL MICROSCOPE FOR DEPTH-RESOLVED IMAGING IN SCATTERING/ABSORBING MEDIA USING TIME-GATED MEASUREMENTS**, CLAUDIA GRIBUTS, William Long, David Burns, McGill University, 801 Sherbrooke St. W., Montreal, QC, Canada

Wednesday, 8:40 – 11:20, Room 3

POLYMER ANALYSIS AND CHARACTERIZATION

Presiding: K. Cole

- 8:40 (421) **PROBLEMS AND SOLUTIONS RELATED TO FRONT-SURFACE EXTERNAL REFLECTION INFRARED SPECTROSCOPY OF POLYMERS**, KENNETH COLE, Eric Pellerin, National Research Council Canada (IMI), 75 De Mortagne Blvd., Boucherville, QC, Canada
- 9:00 (422) **APPLICATION OF NEW FT/IR SPECTROSCOPIC TECHNIQUES TO MULTI-PHASE POLYMER SYSTEMS**, ROHIT BHARGAVA, Shi-Qing Wang, Jack Koenig, Case Western Reserve University, 2100 Adelbert Road, Cleveland, OH, USA
- 9:20 (423) **DEDICATED POLYMER ORIENTATION POLARIZATION RESPONSE GAUGE**, DAVID WETZEL, Joseph Sweat, Kansas State University, Shellenberger Hall, Manhattan, KS, USA
- 10:00 **Coffee Break**
- 10:40 (424) **ELECTRONICALLY CONDUCTING NANOCOMPOSITES BASED ON NATIVE CLAY SYSTEMS**, ALANAH FITCH, Susan Macha, Chemistry/Loyola University Chicago, 6525 N. Sheridan Rd., Chicago I, IL, USA
- 11:00 (425) **DYNAMIC OSCILLATORY POLYMER TESTING WITH AN AOTF SPECTROMETER**, JOSEPH SWEAT, David Wetzel, Kansas State University, Shellenberger Hall, Manhattan, KS, USA

Wednesday, 8:40 – 11:40, Room 7

GAS CHROMATOGRAPHY APPLICATIONS

Presiding: Anthony Andrews

- 8:40 (426) **SOLVENT MICROEXTRACTION-FAST GAS CHROMATOGRAPHY-PULSE DISCHARGE ELECTRON CAPTURE DETECTION OF CHLORINATED PESTICIDES**, LOWRI DE JAGER,

- Anthony Andrews, Ohio University, Chemistry Department, Clippenger Laboratory, Athens, OH, USA
- 9:00 (427) **QUANTITATIVE STRUCTURE RETENTION RELATIONSHIPS FOR GAS CHROMATOGRAPHY: USING AB INITIO CALCULATIONS TO MODEL CHROMATOGRAPHIC RETENTION**, HEATHER SMITH HOLMES, Maria Milletti, Udeni Yapa, Tom Horvath, Eastern Michigan University, 212 Mark Jefferson, Ypsilanti, MI, USA
- 9:20 (428) **MULTIVARIATE CALIBRATION FOR THE DETERMINATION OF LOW LEVEL COMPONENTS USING HIGH SPEED GAS CHROMATOGRAPHY**, HEATHER SMITH HOLMES, Jeff Driscoll, Dan Simmons, Tracy Wenzlick, Eastern Michigan University, 212 Mark Jefferson, Ypsilanti, MI, USA
- 9:40 (429) **A GAS CHROMATOGRAPHY-QUARTZ CRYSTAL MICROBALANCE FOR DETERMINATION OF SULPHUR COMPOUNDS IN LANDFILL GAS**, TERESA ROCHA SANTOS, M. Teresa Gomes, Armando Costa Duarte, Joao Pereira Oliveira, University of Aveiro, Department of Chemistry, Aveiro, Portugal
- 10:00 **Coffee Break**
- 10:40 (430) **THE DETERMINATION OF ALDEHYDIC LIPID PEROXIDATION PRODUCTS IN SUBCELLULAR FRACTIONS AND CULTURED CELLS BY DIRECT HEADSPACE SAMPLING FOR HIGH SPEED GAS CHROMATOGRAPHY**, HEATHER SMITH HOLMES, Steven Pernecky, Lori Gleason, Eastern Michigan University, 212 Mark Jefferson, Ypsilanti, MI, USA
- 11:00 (431) **SCREENING OF WATER FOR POLYCYCLIC AROMATIC HYDROCARBONS BY SME-GC**, ANTHONY ANDREWS, Hongyan Zhang, Ohio University, Clippinger Rm 179, Dept of Chemistry and Biochemistry, Athens, OH, USA
- 11:20 (432) **LARGE VOLUME ON-COLUMN INJECTION CAPILLARY GAS CHROMATOGRAPHY-MASS SPECTROMETRY (ULTRATRACE GC/MS): AN INNOVATIVE ANALYTICAL TOOL FOR TRACE ANALYSIS OF "EARTHY-MUSTY" SMELLING COMPOUNDS IN DRINKING WATER**, LAURE MALLERET, Auguste Bruchet, Lyonnaise des Eaux CIRSEE, 38, Rue du President Wilson, Le Pecq, France

Wednesday, 8:40 – 10:00, Room 8

MASS SPECTROSCOPY SAMPLE INTRODUCTION

Presiding: Roger Guevremont

- 8:40 (433) **ELECTROCHEMISTRY ON-LINE WITH ELECTROSPRAY-MASS SPECTROMETRY: PROBING METABOLIC REDOX CHEMISTRY**, GARY VAN BERKEL, Haiteng Deng, Oak Ridge National Laboratory, P.O. Box 2008/Building 5510, Oak Ridge, TN, USA
- 9:00 (434) **ELECTROCHEMICALLY-MODULATED SAMPLE HANDLING COUPLED ON-LINE WITH ELECTROSPRAY MASS SPECTROMETRY**, GARY VAN BERKEL, Haiteng Deng, Jack Pretty, Oak Ridge National Laboratory, P.O. Box 2008/Building 5510, Oak Ridge, TN, USA
- 9:20 (435) **ESI-FAIMS-MS ANALYSIS OF HALOACETIC ACIDS**, KENNETH FROESE, Barbara Ells, Dave Barnett*, Randy Purves*, Steve Hrudely, Roger Guevremont*, Public Health Sciences, 13-103 Clinical Sciences Bldg, Edmonton, AB, Canada
- 9:40 (436) **LASER DESORPTION MASS SPECTROMETRY OF NON-COVALENT CALIXARENE MULTIMERS (N=1-6)**, DONALD

RIEDERER, Fenglan He, William Orr, Jerry Atwood,
University of Missouri, 125 Chemistry Building, Columbia,
MO, USA

Wednesday, 8:20 – 11:40, Room 9
ATOMIC SPECTROMETRIC METHODS

Presiding: Gary Rayson

- 8:20 (437) **FEASIBILITY OF USING PERMANENT CHEMICAL MODIFIERS IN GRAPHITE FURNACE ATOMIC ABSORPTION SPECTROMETRY**, BERNHARD WELZ, Jose Bento Borba de Silva*, Adilson Jose Curtius, Maria Goreti Vale**, Marcia Silva**, Universidade Federal de Santa Catarina, Departamento de Quimica, Florianopolis, S. C., Brazil
- 8:40 (438) **DIFFICULTIES ASSOCIATED WITH THE DETERMINATION OF LEAD IN URINE BY ELECTROTHERMAL ATOMIZATION AAS**, PATRICK PARSONS, Walter Slavin, New York State Department of Health, Wadsworth Center, D-144, PO Box 509, Albany, NY, USA
- 9:00 (439) **SIMULTANEOUS GFAAS DETERMINATIONS IN EDIBLE OIL**, GERHARD SCHLEMMER, M. Feuerstein, A. Asheim, Perkin Elmer Bodenseewerk, P.O.Box 101761, Ueberlingen, Germany
- 9:20 (440) **THE ROLE OF THERMOPHORESIS IN AEROSOL TRANSPORT IN ETV-ICP/MS**, LETICIA VALADEZ, James Holcombe, University of Texas, Department of Chemistry and Biochemistry, Austin, TX, USA
- 9:40 (441) **MEMBRANE DESOLVATION FOR HPLC-HELIUM MICROWAVE INDUCED PLASMA (HE-MIP) ATOMIC EMISSION SPECTROSCOPY**, DEBASHIS DAS, J. W. Carnahan, Northern Illinois University, Dept. of Chemistry, DeKalb, IL, USA
- 10:00 **Coffee Break**
- 10:40 (442) **ATMOSPHERIC PRESSURE HELIUM RF PLASMA FOR ATOMIC AND MOLECULAR MASS SPECTROMETRY**, RALPH STURGEON, Roger Guevremont, National Research Council of Canada, INMS, Bldg. M-12, Montreal Road, Ottawa, ON, Canada
- 11:00 (443) **RESONANT LASER ABLATION FOR DETERMINATION OF TRACE METALS IN SAMPLES**, PETER STCHUR, Xiandeng Hou, Chris Caporuscio, Robert Michel, University of Connecticut, 55 North Eagleville Rd., Storrs, CT, USA
- 11:20 (444) **A COMPARATIVE STUDY OF THE LAMP CONTROL PARAMETERS USED IN BULK AND DEPTH PROFILE ANALYSIS BY DC AND RF-GLOW DISCHARGE OPTICAL EMISSION SPECTROSCOPY**, KIM MARSHALL, Kevin Brushwyler, Joel Mitchell, LECO Corporation, 3000 Lakeview Avenue, St. Joseph, MI, USA

Wednesday, 8:20 – noon, Room 10
ION CYCLOTRON RESONANCE

Presiding: John Klassen

Organized by: John Klassen

- 8:20 (445) **CHEMISTRY IN NANODROPLETS: FT/ICR STUDIES OF THE SOLVATION OF ORGANIC, INORGANIC AND BIOLOGICAL IONS IN THE GAS PHASE**, J.L. BEAUCHAMP, Sang-Won Lee, Heather Cox, Caltech, Noyes Laboratory 127-72, Pasadena, CA
- 9:00 (446) **DISSOCIATION OF MULTIPLY DEPROTONATED PEPTIDES IN A FOURIER TRANSFORM ION CYCLOTRON RESONANCE MASS SPECTROMETER**, CAROLYN CASSADY, Nigel Ewing, Miami University, Department of Chemistry,

Oxford, OH

- 9:20 (447) **STRUCTURE OF BIOMOLECULES BY BLACKBODY INFRARED RADIATIVE DISSOCIATION**, EVAN WILLIAMS, Eric Strittmatter, Rebecca Jockusch, Richard Wong, University of California, Berkeley, Department of Chemistry, Berkeley, CA
- 9:40 (448) **CHIRAL MASS SPECTROMETRY VIA ION/MOLECULE REACTIONS**, CARLITO LEBRILLA, Javier Ramirez, Gabriela Grigorean, Seong He Ahn, Ben Garcia, University of California, Department of Chemistry, Davis, CA
- 10:00 **Coffee Break**
- 10:40 (449) **BRIDGING THE PRESSURE GAP: COUPLING OF A DRIFT CELL TO FT/ICR MS**, DAVID RUSSELL, Brian Bluhm, Laboratory for Biological Mass Spectrometry, Department of Chemistry, Texas A&M University, P.O. Box 30012, College Station, TX
- 11:00 (450) **FT/ICR MASS SPECTROMETRY IN THE STUDY OF ORGANIC BIRADICALS**, HILKKA KENTTAMAA, Purdue University, Department of Chemistry, Purdue University, West Lafayette, IN
- 11:20 (451) **THE SENSITIVITY' ADVANTAGE OF FOURIER METHODS**, MEL COMISAROW, University of British Columbia, 2036 Main Mall, Vancouver, BC, Canada
- 11:40 (452) **INFRARED PHOTODISSOCIATION OF GASEOUS CLUSTER IONS**, TERRY MCMAHON, D.S. Tonner, University of Waterloo, Department of Chemistry, Waterloo, Ontario, Canada

Wednesday, 8:40 – 11:40, Room 11
LASER ABLATION ICP-MS: APPLICATIONS

Presiding: Steve Shuttleworth Organized by: Steve Shuttleworth

- 8:40 (453) **LASER ABLATION ICP/MS: PRINCIPLES, PROBLEMS AND PROGRESS**, SIMON JACKSON, Macquarie University, Dept. of Earth and Planetary Sciences, Sydney, NSW
- 9:20 (454) **LASER INDUCED ELEMENTAL FRACTIONATION AND HOW TO CORRECT FOR IT IN GEOLOGICAL ANALYSIS**, INGO HORN, William McDonough, Roberta Rudnick, Harvard University, Dept of Earth Sciences, 20 Oxford Street, Cambridge, MA
- 9:40 (455) **CALIBRATION METHODOLOGY FOR GEOLOGICAL SAMPLE ANALYSIS BY LASER ABLATION-ICP-MS**, THOMAS RETTBERG, Dan Kremser, Steve Shuttleworth, VG Elemental, 27 Forge Pkwy, Franklin, MA
- 10:00 **Coffee Break**
- 10:40 (456) **APPLICATION OF LA-SECTOR FIELD ICP/MS TO THE ANALYSIS OF FISH OTOLITHS**, CHRISTOPHER LATKOCZY, Simon Thorrold, Steve Shuttleworth, Old Dominion University, Center for Isotope and Trace Element Research, Department of Chemistry and Biochemistry, Norfolk, VA
- 11:00 (457) **LASER ABLATION ICP/MS: AS APPLIED TO HIGHLY RADIOACTIVE HANFORD TANK WASTE MATERIALS (RAW SLUDGE TO PROCESSED GLASS)**, MONTY SMITH, Michael Alexander, John Hartman, Albert Mendoza, David Koppelaar, Harry Smith, Bev Crawford, William Winters, Pacific Northwest National Lab, Chemical Sciences Dept, PO Box 999, Richland, Washington
- 11:20 (458) **ANALYSIS OF THIN FILM MATERIALS BY LASER ABLATION AND ICP/MS**, STEVE WILBUR, Tom Gluodenis, Steve Shuttleworth, Hewlett Packard, 2850 Centerville Road, Wilmington, DE, USA

Wednesday, 8:00 – 11:40, Room 12
CHEMICAL SPECIATION VI

Presiding: C.M.G. van den Berg and M.H. Back Organized by:
C.L. Chakrabarti, M.M. Lamoureux, W.D. Marshall, J. Caruso
(ICASS)

- 8:00 (459) **THE INTERPRETATION OF TRACE METAL BINDING UNDER CONDITIONS RELEVANT TO NATURAL SYSTEMS REVISITED**, MONTSERRAT FILELLA, Raewyn Town, University of Geneva, Quai Ernest-Ansermet 30, Geneva, Switzerland
- 8:40 (460) **MODELLING THE INTERACTIONS OF METALS WITH HUMIC SUBSTANCES AND PARTICULATE MATTER IN THE NATURAL ENVIRONMENT**, STEPHEN LOFTS, Edward Tipping, Institute of Freshwater Ecology, The Ferry House, Far Sawrey, AMBLESIDE, Cumbria, United Kingdom
- 9:20 (461) **SOME ELECTROCHEMICAL TECHNIQUES FOR DETERMINATION OF SPECIATION PARAMETERS OF METAL SPECIES IN FRESHWATERS. PART 1: THEORETICAL**, JOHN MURIMBOH, Nouri Hassan, M.A. Salam, Valbona Celso, C.L. Chakrabarti, Ottawa-Carleton Chemistry Institute, Department of Chemistry, Carleton University, 1125 Colonel By Drive, Ottawa, ON, CANADA
- 9:40 (462) **SOME ELECTROCHEMICAL TECHNIQUES FOR DETERMINATION OF SPECIATION PARAMETERS OF METAL SPECIES IN FRESHWATERS. PART 2: EXPERIMENTAL**, JOHN MURIMBOH, Nouri Hassan, M.A. Salam, Valbona Celso, C.L. Chakrabarti, Ottawa-Carleton Chemistry Institute, Department of Chemistry, Carleton University, 1125 Colonel By Drive, Ottawa, ON, CANADA
- 10:00 **Coffee Break**
- 10:40 (463) **CONFORMATIONAL CHANGES OF NATURAL ORGANIC MATTER INDUCED BY METAL COMPLEXATION**, MICHAEL KUMKE, Fritz Frimmel, University of Karlsruhe, Division of Water Chemistry, Engler-Bunte-Ring 1, Karlsruhe, Germany
- 11:20 (464) **THE EFFECT OF PHYSICAL AND CHEMICAL HETEROGENEITY OF NATURAL COMPLEXANTS ON THE STUDY OF TRACE METAL BINDING BY ELECTROCHEMICAL TECHNIQUES**, MONTSERRAT FILELLA, Raewyn Town, University of Geneva, Quai Ernest-Ansermet 30, Geneva, Switzerland

Wednesday, 8:40 – 11:20, Room 13
ANALYTICAL OCEANOGRAPHY III

Presiding: Kristin Orians and David Hastings
Organized by: Kristin Orians and David Hastings

- 8:40 (465) **ANALYTICAL METHOD DEVELOPMENT FOR TRACE METALS IN FISH TISSUE USING ICP/MS**, MARK POWELL, Nada Gnanalingam, Lorraine Peters, Peter Grauds, Ontario Ministry of the Environment, 125 Resources Rd, Etobicoke, ONT, Canada
- 9:00 (466) **DETERMINATION OF TRACE ELEMENTS IN SEAWATER BY INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY WITH ON-LINE MATRIX ELIMINATION AND PRECONCENTRATION WITH CHROMOSORB 102 RESIN**, ZIKRI ARSLAN, Latif Elci, Julian Tyson, University of Massachusetts, Dept of Chemistry, Amherst, MA, USA
- 9:20 (467) **DETERMINATION OF TRACE ELEMENTS IN MARINE PLANKTON BY ICP/MS**, ZIKRI ARSLAN, N. Ertas, Julian Tyson, Peter Uden, University of Massachusetts, Dept of Chemistry, Amherst, MA, USA

- 9:40 (468) **ANALYSIS OF TRACE METALS IN SEA WATER USING INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY (ICP-MS)**, STEVEN WILBUR, Thomas Gluodenis, Hewlett-Packard Company, 2850 Centerville Road, Wilmington, DE, USA

10:00 **Coffee Break**

- 10:40 (469) **HIGH-RESOLUTION ICP-MS DIRECT ANALYSIS OF RARE EARTH ELEMENTS IN SEAWATER - WHERE ARE THE NEW LIMITATIONS?**, D. KOLLER, B. Wright, VG Elemental, Ion Path, Road Three, Winsford, Cheshire
- 11:00 (470) **SCLEROCHRONOLOGICAL INVESTIGATIONS OF BIVALVE MOLLUSCS BY LASER ABLATION ICP-MS AND STABLE ISOTOPE ANALYSES: A PALAEOENVIRONMENTAL RECORD**, HARRY TOLAND, B. Wright, Bill Perkins*, Nick Pearce*, Melanie Leng**, VG Elemental, Ion Path, Road Three, Winsford, Cheshire

Wednesday, 8:20 – 11:40, Room 14
STATE OF THE ART METHODS FOR TOXIC CHEMICALS IN AQUATIC SYSTEMS

Presiding: Rob McLaren Organized by: Rob McLaren

- 8:20 (471) **NEW METHODS DEVELOPMENT ACTIVITIES FOR SW-846**, BARRY LESNIK, US Environmental Protection Agency, Office of Solid Waste, Methods team (5307W), 401 M St., SW, Washington, DC
- 9:00 (472) **DETECTION OF POLYCYCLIC AROMATIC HYDROCARBONS IN WATER BY DIRECT MEASUREMENT OF FLUORESCENCE IN POLYMER FILMS ON OPTICAL FIBRES**, R. STEPHEN BROWN, Igor Kozin, Samir Tabash, Queen's University
- 9:20 (473) **ANALYSIS OF PERCHLORATE BY ELECTROSPRAY MASS SPECTROMETRY**, CAROLYN KOESTER, Harry Beller, Lawrence Livermore National Laboratory, 7000 East Avenue, Livermore, CA
- 9:40 (474) **¹⁹F NMR FOR INVESTIGATION INTO THE FATE OF FLUOROPESTICIDES IN THE AQUEOUS ENVIRONMENT**, SCOTT MABURY, University of Toronto, Department of Chemistry, 80 St. George St., Toronto, ON
- 10:00 **Coffee Break**
- 10:40 (475) **MICRODROP SOLVENT EXTRACTION FOR SAMPLE CLEAN-UP AND PRECONCENTRATION WITH AQUATIC SAMPLES**, FREDERICK CANTWELL, Minhui Ma, Manon Losier, University of Alberta, Department of Chemistry, Edmonton, AB
- 11:00 (476) **SAMPLING/SAMPLE PREPARATION STRATEGIES FOR ON-SITE MONITORING AND ANALYSIS**, JANUSZ PAWLISZYN, Heather Lord, Bryn Shurmer, University of Waterloo, Department of Chemistry, Waterloo, ON
- 11:20 (477) **COMPARISON OF EXTRACTION TECHNIQUES FOR THE DETERMINATION OF ORGANOCHLORINE COMPOUNDS IN MARINE REFERENCE MATERIALS**, GRAEME GARDNER, C.A. Fraser, R. Guevremont, M. A. McCooye, Chemical Metrology Group, INMS, National Research Council Canada, Room B10B, Building M-12, 1500 Montreal Road, Ottawa, ON

Wednesday, 8:20 – 11:40, Room 15
INTERFEROMETERS, ARRAY DETECTORS AND IMAGING

Presiding: Richard Crocombe Organized by: Richard Crocombe

- 8:20 (478) **WE FLY THROUGH THE SKIES WITH THE GREATEST OF EASE**, W.G. FATELEY, Kansas State University, Department of Chemistry
- 8:40 (479) **SPECTRAL IMAGE INFORMATION EXTRACTION WITH SUCCESSIVE AVERAGE ORTHOGONALIZATION FACTOR ANALYSIS**, JAMES DE HASETH, University of Georgia, Department of Chemistry, Athens, GA
- 9:00 (480) **HYPERSPECTRAL REMOTE SENSING ANALYSIS: TOOLS FOR ANALYTICAL CHEMISTRY?**, FRED KRUSE, Kathryn Kierein-Young, Joe Boardman, Analytical Imaging and Geophysics LLC, 4450 Arapahoe Ave. Ste. 100, Boulder, CO

Coffee Break

- 10:40 (481) **THE DREV FT/IR-EMISSION IMAGING SPECTROMETER**, TRACY SMITHSON, Department of National Defence Valcarier Canada, 2152 Parc Bourbonniere, Sillery, PQ, Canada
- 11:20 (482) **OPTIMIZING THE PERFORMANCE OF AN FPA-BASED INFRARED IMAGING SYSTEM**, NORMAN WRIGHT, Prashant Bhandare, Richard Crocombe, Bio-Rad Spectroscopy Division

Wednesday, 8:40 – 11:40, Room 16

EXTENSION OF ATOMIC SPECTROSCOPY USING FLOW INJECTION TECHNIQUES

Presiding: Diane Beauchemin

Organized by: Diane Beauchemin (ICASS)

- 8:40 (483) **USE OF FLOW INJECTION AND GEL ELECTROPHORESIS FOR SPECIATION OF PROTEIN BOUND METAL**, CAMERON MCLEOD, Renli Ma, Kerry Joyce, Centre for Analytical Sciences, Univ of Sheffield, Dainton Building, Brookhill, Sheffield, South Yorks, UK
- 9:20 (484) **FLOW INJECTION ATOMIC ABSORPTION SPECTROMETRIC TECHNIQUES FOR SPECIATION ANALYSIS**, MICHAEL SPERLING, Bodenseewerk Perkin-Elmer GmbH, P.O. Box 101761
- 10:00 **Coffee Break**
- 10:40 (485) **FLOW INJECTION ANALYSIS OF TRACE ELEMENT SPECIES USING SHORT CARTRIDGE SEPARATION WITH ATOMIC SPECTROMETRIC DETECTION**, X. CHRIS LE, Serife Yalcin, Bobby Sreenivasan, Mingsheng Ma, Xiufen Lu, University of Alberta, Department of Public Health Sciences, 13-103 CSB, Edmonton, AB, Canada
- 11:20 (486) **METHYLMERCURY AND MERCURY DETERMINATION IN WATERS: APPROACHES TO ROUTINE DETERMINATIONS AT ULTRA-TRACE LEVELS.THE USE OF DERIVITIZED MESOPOROUS SILICA FOR THE PRECONCENTRATION OF HEAVY METALS**, IAN BRINDLE, Wencan Chen, Chris Robertson, Brock University, 500 Glenridge Avenue, St. Catharines, ON, Canada

Wednesday, 8:20 – 11:40, Room 17
CHEMOMETRIC APPLICATIONS IN ENVIRONMENTAL CHEMISTRY

Presiding: Karl Booksh

Organized by: Karl Booksh

- 8:20 (487) **APPLICATIONS OF NEURAL NETWORKS TO ENVIRONMENTAL ANALYSES**, PETER HARRINGTON, Chunsheng Cai, Ohio University, Department of Chemistry and Biochemistry, Athens, OH, USA
- 9:00 (488) **SOFT MODELING STRATEGIES FOR THE**

- CHARACTERIZATION OF SOIL ORGANIC MATTER FRACTIONS**, JOAQUIM ESTEVES DA SILVA, Chemistry Department / Faculdade de Ciencias do Porto, R. Campo Alegre 687, Porto
- 9:40 (489) **MULTIWAY-WAY CALIBRATION OF TOTAL LUMINESCENCE BASED SENSORS FOR PESTICIDES, PAHS AND OTHER ENVIRONMENTAL POLLUTANTS**, KARL BOOKSH, Renee JiJi, Gary Cooper, Michele Nahorniak, Arizona state university, Department of Chemistry M.S. 1604, Tempe, AZ

10:00 **Coffee Break**

- 10:40 (490) **MITIGATION OF RAYLEIGH AND RAMAN SPECTRAL INTERFERENCES IN MULTI-WAY CALIBRATION OF EXCITATION-EMISSION MATRIX FLUORESCENCE SPECTRA**, RENEE JIJI, Karl Booksh, Arizona State University, Department of Chemistry and Biochemistry, Tempe, AZ, USA
- 11:00 (491) **PREDICTION-AUGMENTED CLASSICAL LEAST-SQUARES METHODS FOR MAINTAINING CALIBRATIONS ON A RAPIDLY DRIFTING SPECTROMETER**, DAVID HAALAND, David Melgaard, Sandia National Laboratories, MS0342, Albuquerque, NM
- 11:20 (492) **MULTIVARIATE CORRELATION BETWEEN THE CONCENTRATION OF SELECTED HERBICIDES AND DERIVATIVES FROM SELECTED US MIDWESTERN RESERVOIRS BY PRINCIPAL COMPONENT ANALYSIS AND MULTIVARIATE CURVE RESOLUTION**, ROMA TAULER, Damia Barcelo, Michael Thurman, University of Barcelona, Depart. of Analytical Chemistry, Diagonal, 647, Barcelona

Wednesday, 8:20 – 11:40, Room 18

ISSUES OF CHIRALITY IN THE PHARMACEUTICAL INDUSTRY FOCUS ON CHIROPTICAL SPECTROSCOPY

Presiding: Rina Dukor

Organized by: Laurence A. Nafie and Rina Dukor

- 8:20 (493) **VIBRATIONAL CIRCULAR DICHROISM SPECTROSCOPY: A NEW TECHNIQUE FOR THE DETERMINATION OF ABSOLUTE CONFIGURATION IN CHIRAL MOLECULES**, PHILIP STEPHENS, University of Southern California, Dept of Chemistry, Los Angeles, CA
- 9:00 (494) **APPLICATIONS OF CD AND POLARIMETRIC HPLC DETECTION FOR IN-PROCESS CONTROL OF STEREOSELECTIVE SYNTHESIS**, REKHA SHAH, R. W. Johnson Pharmaceutical Research Institute, Spring House, PA
- 9:20 (495) **ISSUES OF CHIRALITY IN THE PHARMACEUTICAL INDUSTRY FOCUS ON CHIROPTICAL SPECTROSCOPY**, DOUGLAS MINICK, Millard Lambert, Istvan Kaldor, Glaxo-Wellcome Research and Development, 5 Moore Drive, Research Triangle Park, NC
- 9:40 (496) **APPROACHES TO ABSOLUTE CHIRALITY DETERMINATIONS AT WYETH-AYERST RESEARCH**, DAVID COCHRAN, Wyeth-Ayerst Research
- 10:00 **Coffee Break**
- 10:40 (497) **DETERMINATION OF ABSOLUTE CONFIGURATION OF DRUG MOLECULES USING VCD**, ANDERS HOLMÉN, Rina Dukor, AstraZeneca R&D Mölndal, S-431 83 Mölndal., Sweden
- 11:00 (498) **DETERMINATION OF ENANTIOMERIC EXCESS IN CHIRAL PHARMACEUTICAL MOLECULES USING VIBRATIONAL CIRCULAR**

DICHROISM, LAURENCE NAFIE, Rina Dukor,
Syracuse University, Department of Chemistry, Syracuse,
New York

- 11:20 (499) **FDA PERSPECTIVE ON PRODUCTION OF SINGLE ENANTIOMER DRUGS**, STEVE MILLER, Food and Drug Administration, Division of Antiviral Drug Products, Rockville, MD

Wednesday, 8:20 – noon, Room 19

PROCESS ANALYTICAL CHEMISTRY I

Presiding: Mel Koch

Organized by: Mel Koch

- 8:20 (500) **DETECTION STRATEGIES FOR PLASTIC MICROCHIP ELECTROPHORESIS**, MICHAEL MORRIS, Shau-Chun Wang, University of Michigan, Department of Chemistry, Ann Arbor, MI
- 8:40 (501) **CHARACTERIZATION AND CHEMICAL MAPPING OF IMPRINTED PLASTIC MICROFLUID DEVICES**, SUSAN BARKER, Micheal Branham, William MacCrehan, National Institute for Standards and Technology, Chemical Science and Technology Laboratory, Gaithersburg, MD
- 9:00 (502) **DEVELOPMENT OF OPTICAL WAVEGUIDE GAS SENSORS FOR USE IN PROCESS ANALYSIS**, BRIAN MARQUARDT, Heather Edberg, Lloyd Burgess, Center for Process Analytical Chemistry, University of Washington, Box 351700, Seattle, WA
- 9:20 (503) **DISPOSABLE MICRO-COLUMN SEQUENTIAL-INJECTION CHROMATOGRAPHY**, ARMANDO HERBELIN, Gary Christian, Jarda Ruzicka, University of Washington, Box 351700, Seattle, WA
- 10:00 **Coffee Break**
- 10:40 (504) **THE SUCCESS OF THE INTERACTIVE PROGRAM AT THE CENTER FOR PROCESS ANALYTICAL CHEMISTRY**, MEL KOCH, University of Washington, Box 351700, Seattle, WA
- 11:20 (505) **DEVELOPMENT OF A RAPID METHOD FOR MICROBIAL VIABILITY**, LAURA VANDERBERG, Los Alamos National Laboratory, Mailstop E-529 Chemical Science and Technology Division, Los Alamos, NM
- 11:40 (506) **DYNAMIC SURFACE TENSION SENSOR FOR PROCESS MONITORING OF LIQUIDS**, KEITH MILLER, Marina Prezhdo, Rob Synovec, University of Washington, CPAC, Department of Chemistry, Box 351700, Seattle, WA

**Wednesday, 13:00, Ballroom A, convention level
FACSS PLENARY LECTURE**

Presiding: Michael Blades

Organized by: Michael Blades

- 13:00 (507) **SETTING THE BOTTOM LINE FOR THE NEXT MILLENNIUM; SCIENCE, ECONOMICS AND THE ENVIRONMENT**, DAVID SUZUKI, Suzuki Foundation, Vancouver, BC, Canada

**Wednesday, 14:00 – 17:00
SAS/FACSS CO-SPONSORED POSTER SESSION**

Your poster should be put up between 10:00 and noon on Wednesday and removed between 17:00-18:00. Please leave your poster in place for the entire time. Actual presentation times are staggered on an odd-even schedule.

**SECTION 1: APPLIED ATOMIC SPECTROSCOPY,
INSTRUMENTATION, AND MASS SPECTROMETRY
Exhibit Hall B**

Presiding: Winston Smith

Organized by: Nancy Miller-Ihli

- 14:15 (508) **ANTIMONY SPECIATION BY USING HIGH PERFORMANCE LIQUID CHROMATOGRAPHY COUPLED WITH ON-LINE REDUCTION HYDRIDE GENERATION ATOMIC FLUORESCENCE SPECTROMETRY**, MINGSHENG MA, X. Chris Le, University of Alberta, 13-103 Clinic Sciences Building, Edmonton, AB, Canada
- 15:30 (509) **DETERMINATION OF ARSENIC SPECIATION IN HAIR AND NAIL SAMPLES FROM INNER MONGOLIA**, MINGSHENG MA, Steven Ma, Xiufen Lu, Jodi Lockwell, X. Chris Le, University of Alberta, 13-103 Clinic Sciences Building, Edmonton, AB, Canada
- 14:15 (510) **ARSENIC SPECIATION IN URINE SAMPLES OF PEOPLE WITH HIGH ARSENIC EXPOSURE IN DRINKING WATER**, XIUFEN LU, Mingsheng Ma, X. Chris Le, University of Alberta, 13-103 Clinic Sciences Building, Edmonton, AB, Canada
- 15:30 (511) **DETERMINATION OF LOW LEVEL AS AND SE AND SE ISOTOPE RATIOS USING DYNAMIC REACTION CELL ICP-MS**, UWE VOELLKOPF, PERKIN-ELMER SCIEX, 71 Four Valley Drive, Concord, ON, Canada
- 14:15 (512) **FUNDAMENTAL ASPECTS OF CONDENSATION NUCLEATION LIGHT SCATTERING DETECTION (CNLSD)**, LARS-ERIK MAGNUSSON, John Koropchak, Michael Anisimov, Southern Illinois University at Carbondale, Department of Chemistry and Biochemistry M/S 4409, Carbondale, IL, USA
- 15:30 (513) **COMPARISON OF DIFFERENT SAMPLE INTRODUCTION SYSTEMS FOR MERCURY SPECIATION USING CAPILLARY ZONE ELECTROPHORESIS-ICP/MS**, QIANG TU, Johanna Qvarnström, Wolfgang Frech, Analytical Chemistry, Umea University, Umea
- 14:15 (514) **PRECISION IMPROVEMENTS OF LASER ABLATION ICP/MS BY USING EMISSION SIGNALS PRODUCED DURING ABLATION**, MASAKI OHATA, Hiroyuki Yasuda, Yoshimichi Namai, Naoki Furuta, Chuo university, 1-13-27, Kasuga, Bunkyo-Ku, Tokyo, Japan
- 15:30 (515) **LASER ABLATION SAMPLING OF SOLIDS WITH LASER ENHANCED IONIZATION SPECTROMETRY DETECTION**, SETH ELWOOD, University of Iowa, Department of Chemistry, Iowa City, IA, USA
- 14:15 (516) **INVESTIGATIONS OF SINGLE ISOLATED DROPLETS: A SOURCE OF IONS FOR MASS SPECTROMETRY AND AS AN INTERESTING CHEMICAL REACTION VESSEL**, XIAO FENG, Liz Chuah, George Agnes, Department of Chemistry, Simon Fraser University, Burnaby, BC, Canada
- 15:30 (517) **DEPTH ANALYSIS USING LASER ABLATION ICP/MS**, ARJAN MANK, Paul Mason, Philips CFT, Prof. Holstlaan 4 (WB71), Eindhoven, The Netherlands
- 14:15 (518) **PRELIMINARY INVESTIGATION OF ETV-ICP-TOFMS**, JOHN VENABLE, James Holcombe, Janos Fucsko, Lloyd Allen, Stuart Georgitis, University of Texas at Austin, Dept. of Chemistry and Biochemistry, Austin, TX, USA
- 15:30 (519) **EXCITATION AND IONIZATION CHARACTERISTICS OF BACKGROUND SPECIES IN A FURNACE ATOMIZATION PLASMA EMISSION SOURCE (FAPES)**, SHENYOUNG LU, Mike Blades, University of British Columbia, Chemistry Department, Vancouver, BC, Canada
- 14:15 (520) **TERTIARY AEROSOL SIZE DISTRIBUTIONS AND ATOMIC EMISSION CONTOUR MAPS FROM AN ICP AS A FUNCTION OF APPLIED VOLTAGE TO A MESH POSITIONED INSIDE A SCOTT-TYPE**

- SPRAY CHAMBER**, KENT VERGE, Qiang Xu, George Agnes, Department of Chemistry, Simon Fraser University, Burnaby, BC, Canada
- 15:30 (521) **DETECTION OF NONMETALS IN AQUEOUS SOLUTIONS BY A HIGH-POWER HELIUM MICROWAVE-INDUCED PLASMA**, OKAMOTO YUKIO, Toyo University, Faculty of Eng., Dept. Electrical and Electronics, 2100, Kujirai, Kawagoe, Saitama, Japan
- 14:15 (522) **DETERMINATION OF IODINE BY INDUCTIVELY COUPLED PLASMA SECTOR FIELD MASS SPECTROMETRY (ICP/SFMS)**, BERTRAND LANGLOIS, Jean-Luc Dautheribes, Jean-Michel Mermet, C.E.A. Valrho DCC/DRRV/SEMP, BP 181 - Bat 166, Bagnols sur Ceze Cedex, France
- 15:30 (523) **OPEN VESSEL MICROWAVE EXTRACTION OF METALS IN BIOLOGICAL AND BOTANICAL MATERIALS**, M. CRISTINA LOMBARDI, Leticia Costa, Joaquim Nobrega, Ana Rita Nogueira*, University Federal of Sao Carlos/Dept. of Chemistry, P.O. Box 676, Sao Carlos, SP, Brazil
- 14:15 (524) **USE OF BIOPOLYMERS FOR SELECTIVE METAL PRECONCENTRATION AND REMEDIATION**, THOMASIN MILLER, James Holcombe, University of Texas at Austin, Dept. of Chemistry and Biochemistry, Austin, TX, USA
- 15:30 (525) **ASSESSMENT OF ISOTOPE RATIO ANALYSIS FOR SPECTRALLY INTERFERED ISOTOPES WITH A SINGLE COLLECTOR HIGH RESOLUTION ICP/MS**, MEIKE HAMESTER, Wolfgang Kerl, Julian Wills, Finnigan MAT GmbH, 2 Barkhausenstrasse, Bremen, Germany
- 14:15 (526) **DIRECT ANALYSIS OF CRUDE OIL AND OTHER VISCOUS SAMPLES BY ETV-ICP/MS**, DELONY LANGER, James Holcombe, University of Texas at Austin, Department of Chemistry and Biochemistry, Austin, TX, USA
- 15:30 (527) **DETERMINATION OF ARSENIC SPECIES IN SEAWATER BY AAS. EVIDENCE OF BIOTRANSFORMATION**, JEAN YVES CABON, Nolwenn Cabon, UMR CNRS 6521- UBO, 6, avenue Le Gorgeu, Brest, France
- 14:15 (528) **RAPID DIRECT DETERMINATION OF TRACE METALS IN SOIL BY INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROMETRY (ICP-OES)**, MICHAEL RYBAK, Eric Salin, Chemistry, McGill University, 801 Sherbrooke St. W., Montreal, QC, Canada
- 15:30 (529) **CERTIFICATION OF A NATURAL AND AN ENRICHED HG SPIKE ISOTOPIC REFERENCE MATERIAL BY ID-ICP/MS**, JOCHEN VOGL, C. R. Quétel, A. Dobney, P. D. Taylor, European Commission, Joint Research Center, Institute for Reference Materials and Measurements, Isotope Measurements Unit, Retieseweg, Geel, Belgium
- 14:15 (530) **CHIRAL AND NON-CHIRAL SEPARATIONS OF SE-COMPOUNDS WITH ICP/MS DETECTION**, CLAUDIA PONCE DE LEON, Kathy Ackley, Karen Sutton, Joseph Caruso, University of Cincinnati, Dept. of Chemistry, Mail Location 0172, Cincinnati, OH, USA
- 15:30 (531) **SLURRY SAMPLING ELECTROTHERMAL VAPORIZATION MICROWAVE INDUCED PLASMA EMISSION SPECTROMETRY FOR THE DETERMINATION OF TRACE PHOSPHORUS**, JERZY MIERZWA, Department of Chemistry, Central Michigan University, Dow Science 268, Mount Pleasant, MI, USA
- 14:15 (532) **CERTIFICATION OF PB, CU, CD AND CR IN SEDIMENT AND FLY ASH SAMPLES USING ISOTOPE DILUTION ICPMS**, THOMAS PROHASKA, Christophe Quétel, Carmel Hennessy, Delia Liesegang, Philip Taylor, European Commission - Joint Research Center - Institute for Reference Materials and Measurements, Retieseweg, Geel, BELGIUM
- 15:30 (533) **QUANTITATIVE ANALYSIS OF SOLID MATERIALS BY LASER-PLASMA MASS-SPECTROMETRY**, GRIGORI KOUZNETSOV, Yurii Bikovskii, Vladimir Gladkov, Moscow State Engineering Physics Institute, Kashirskoe 31, Moscow, Russia
- 14:15 (534) **ANALYSIS OF TRACE METAL WITHIN GRAPHITE POWDER BY ATOMIC ABSORPTION SPECTROSCOPY USING SLURRY PREPARATION**, DONG LIANG, Joern Tinnemeyer, Aurora Instruments Ltd., 1001 East Pender St., Vancouver, BC, Canada
- 15:30 (535) **PERSPECTIVES ON SOLID SAMPLING-GRAPHITE FURNACE ATOMIC ABSORPTION SPECTROSCOPY**, JUAN CASTILLO, Martin Resano, Miguel Belarra, University of Zaragoza, Science Faculty. Ciudad Universitaria, Zaragoza, Spain
- 14:15 (536) **LASER-INDUCED BREAKDOWN SPECTROSCOPY FOR SINGLE PARTICLE IDENTIFICATION**, GRETCHEN POTTS, J. Anzano, I.B. Gornushkin, B.W. Smith, J.D. Winefordner, University of Florida, P.O. Box 117200, Gainesville, FL, USA
- 15:30 (537) **DIRECT CURRENT PLASMA ANALYSIS OF TUNGSTEN FOR TRACE ELEMENTS**, GEOFFREY COLEMAN, Rodger Starek, Thermo Jarrell Ash Corp., 27 Forge Parkway, Franklin, MA, USA
- 14:15 (538) **DIRECT ANALYSIS OF CONTAMINANTS IN GLASSES USING RESONANT LASER ABLATION MASS SPECTROMETRY**, MARY CISPER, Johnny Anderson, Charles Wilkerson, Jr., Bradley Edwards, Richard Epstein, Los Alamos National Laboratory, P.O. Box 1663, MS J569, Los Alamos, NM, US
- 15:30 (539) **EVALUATION OF PT AND RH FILMS ON STAINLESS STEEL SURFACES USING LASER ABLATION ICP/MS**, DENISE ANDERSON, Rodney Fonseca, Michael Burrell, General Electric Plastics, one lexan lane, Evansville, IN, USA
- 14:15 (540) **ION TRAP MASS SPECTROMETRY FOLLOWING GAS CHROMATOGRAPHY FOR FATTY ACID AMIDES**, ANDREW GEE, Mitch Johnson, Duquesne University, Department of Chemistry, Pittsburgh, PA, USA
- 15:30 (541) **DETERMINATION OF CHROMIUM-DNA ADDUCTS BY DOUBLE-FOCUSING SECTOR FIELD ICP/MS**, J. SABINE BECKER, H.-J. Dietze, J. A. McLean, A. Montaser, J. Singh, S. Patierno, Central Department for Analytical Chemistry, Research Center Juelich, D-52425 Juelich, Germany
- 14:15 (542) **MULTI-ELEMENT DETERMINATION BY ICP/MS IN HIGH TOTAL SOLID DISSOLVED SAMPLES**, JUAN CASTILLO, M.S. Jimenez, T. Gomez, F. Laborda, University of Zaragoza, Science Faculty. Ciudad Universitaria, Zaragoza, SPAIN
- 15:30 (543) **DETERMINATION OF ELEMENTAL DISTRIBUTION PATTERNS IN SOFT TISSUES USING A NEW CRYOGENIC LASER ABLATION CELL**, PETRA KRAUSE, Petra Krause1, Paul Ek2, Robert Hutton1, CETAC Technologies, A Division of Transgenomic, Crewe Hall, The Quadrangle, Weston Road, Crewe, Cheshire, United Kingdom
- 14:15 (544) **NONCOVALENT COMPLEXES OF BPTI AND ITS TARGET ENZYMES: GAS-PHASE STABILITY STUDIED BY NANO & ESI MS/MS**, VICTOR NESATI, Y.L. Chen, B.A. Collings, D. J. Douglas, University of British Columbia, 2036 Main Mall, Chemistry Department, Vancouver, BC, Canada
- 15:30 (545) **TEMPORALLY AND SPATIALLY RESOLVED**

- DIAGNOSTICS OF A PULSED GLOW DISCHARGE SOURCE**, STEPHEN DOORN, Glen Jackson, Cris Lewis, Dave Wayne, Vahid Majidi, Fred King, Los Alamos National Laboratory, CST-9, MS-E518, Los Alamos, NM, USA
- 14:15 (546) **ANALYTICAL PERFORMANCE OF A RADIO-FREQUENCY POWERED GLOW DISCHARGE SPECTROMETRY ASSOCIATED WITH BIAS VOLTAGE MODULATION**, KAZUAKI WAGATSUMA, The Institute for Materials Research, Tohoku University, Katahira 2-1-1, Aoba, Sendai, Japan
- 15:30 (547) **PRELIMINARY STUDY OF A MICROWAVE PLASMA SOURCE TIME-OF-FLIGHT MASS SPECTROMETER: PERFORMANCE CHARACTERISTICS**, YONGXUAN SU, Zhe Jin, Yixiang Duan, Vahid Majidi, Los Alamos National Laboratory, CST-9, MS K484, Los Alamos, NM, USA
- 14:15 (548) **A HIGH-POWER MICROWAVE PLASMA SOURCE FOR ELEMENTAL ANALYSIS**, JIN-CHUN WOO, Jongman Lee, Korea Research Institute of Standards and Science, P. O. Box 102, Yousong, Taejeon, Korea
- 15:30 (549) **IMPROVING DETECTION LIMITS FOR ELEMENTS SUFFERING FROM C POLYATOMIC INTERFERENCES USING DYNAMIC REACTION CELL ICP/MS**, UWE VOELLKOPF, Kenneth Neubauer, Michael Paul, PERKIN-ELMER SCIEX, 71 Four Valley Drive, Concord, ON, Canada
- 14:15 (550) **THE DETERMINATION OF MEMORY PRONE ELEMENTS USING A DIRECT INJECTION HIGH EFFICIENCY NEBULIZER WITH ICP/MS DETECTION**, SU-ANN O'BRIEN, John McLean, Akbar Montaser, The George Washington University, 725, 21st Street, N.W., Washington, DC, USA
- 15:30 (551) **AN EVALUATION OF SEVERAL NEBULIZERS AND SPRAY CHAMBERS COMBINATIONS FOR INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPECTROMETRY**, RONALD HOOPER, N.P. Buddin, III, LMES, 2009 Bear Creek Rd. M.S. 8189, Oak Ridge, TN, USA
- 14:15 (552) **AN IMPROVED MEMBRANE DESOLVATION SYSTEM WITH MICRONEBULIZATION FOR INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY**, FRED SMITH, Ted Howe, Bill Stein, CETAC Technologies, A Division of Transgenomic, 5600 South 42nd Street, Omaha, NE, USA
- 15:30 (553) **HOLLOW CATHODE LAMPS YESTERDAY, TODAY AND TOMORROW**, DOUG SHRADER, Jonathan Moffett, Graeme Plant, Barry Sturman, John Sullivan, Varian, Inc., 201 Hansen Court, Suite 108, Wood Dale, IL, USA
- 14:15 (554) **EFFECT OF ELECTRODE LENGTH ON FUNDAMENTAL AND ANALYTICAL CHARACTERISTICS OF ATMOSPHERIC PRESSURE CAPACITIVELY COUPLED PLASMAS**, MAHBUBUR RAHMAN, Mike Blades, University of British Columbia, Chemistry Department, Vancouver, BC, Canada
- 15:30 (555) **A NEW APPROACH FOR INTERFACING CAPILLARY ELECTROPHORESIS WITH ICP/MS**, TED HOWE, Dirk Schaumloeffel, Andreas Prange1, Ted Howe2, Fred Smith2, CETAC Technologies, A Division of Transgenomic, 5600 South 42nd Street, Omaha, NE, USA
- 14:15 (556) **EVALUATION OF THE DIRECT INJECTION HIGH EFFICIENCY NEBULIZER (DIHEN) FOR COUPLING MICROSCALE-HPLC WITH ICP/MS DETECTION**, BILLY ACON, John McLean, Akbar Montaser, The George Washington University, 725 21st Street, NW, Cor309, Washington, DC, USA
- 15:30 (557) **THE USE OF BAYESIAN METHODS TO**

STUDY AND ELIMINATE MOLECULAR ION INTERFERENCES AND THE EFFECTS OF MASS BIAS IN QUADRUPOLE ICP/MS, BARRY SHARP, Abdulaziz Bashammakh, Choon Mong Thung, Loughborough University, Department of Chemistry, Loughborough, Leicestershire, UK

- 14:15 (558) **ISOTOPE RATIO DETERMINATION OF RARE EARTH ELEMENTS USING CAPILLARY ELECTROPHORESIS COUPLED TO DOUBLE FOCUSING-SECTOR FIELD INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY**, JASON DAY, J. Sabine Becker, H. -J. Dietze, Joseph Caruso, University of Cincinnati, ML 0172 Department of Chemistry, Cincinnati, OH
- 15:30 (559) **EVALUATION OF DIFFERENT METHODS FOR DETECTOR DEAD TIME CORRECTION IN ICP/MS**, SIMON NELMS, Christophe Quérel, Jochen Vogl, Thomas Prohaska, European Commission Joint Research Centre - Institute for Reference Materials and Measurements, Retieseweg, Geel, BELGIUM
- 14:15 (560) **DIRECT CHROMIUM SPECIATION USING THERMOSPRAY COUPLED WITH ICP/MS**, XIAOHUA ZHANG, John Koropchak, Southern Illinois University at Carbondale, Chemistry Department, SIUC 4409, Carbondale, IL, USA
- 15:30 (561) **THERMAL EMISSION OF HEATED TOBACCO**, JIM LYONS-HART, Ken Shafer, Philip Morris USA, P.O. Box 26583, Richmond, VA
- 14:15 (562) **A DISCUSSION OF THE LOSS MECHANISMS THAT CAN OCCUR IN ANALYTICAL CAVITY RINGDOWN SPECTROSCOPY**, FABIO MAZZOTTI, Jerzy Mierzwa, Christopher Winstead, George Miller, Mississippi State University, 205 Research Boulevard, Starkville, MS, US

**SECTION 2: MOLECULAR SPECTROSCOPY,
PROCESS CONTROL, ELECTROCHEMISTRY, IR,
NEAR-IR, AND RAMAN
Exhibit Hall B**

Presiding: Winston Smith Organized by: Nancy Miller-Ihli

- 15:30 (563) **ON A CHEMICAL ANALYSIS OF SINGLE CRYSTALS OF SYSTEM RBCL-CUCL-CUI**, GENNADY OSTAPENKO, Lyudmila Veselova, Institute of Radio Engineering and Electronics of Russian Academy of Sciences, Ulyanovsk Branch, 48, Goncharov Str., Ulyanovsk, -, Russia
- 14:15 (564) **XPS SPECTROSCOPY ANALYSIS OF SULPHIDE LAYERS OBTAINED ON HGCDTE SUBSTRATE**, AGOUDJIL NOURIA, Michel Gendry, Jean Durand, Louis Cot, Institut de chimie, U.S.T.H.B
- 15:30 (565) **INTERDIGITATED MICROELECTRODE ARRAY DIFFUSION LAYER TITRATIONS WITH ELECTROGENERATED HYPOBROMITE**, DUSAN BUSTIN, Peter Tomcik, Miroslav Rievaj, Slovak University of Technology, Vazovova 5, 812 43 Bratislava, Slovak Republic, Bratislava, SK, Slovak Republic
- 14:15 (566) **EFFECT OF ELECTROLYTE CONCENTRATION ON THE ADSORPTION/DESORPTION OF OCTADECANOL ONTO AU(111)**, YANGUO YANG, The University of British Columbia, 2036 Main Mall, Vancouver, B.C., Canada
- 15:30 (567) **IODIMETRY IN THE DIFFUSION LAYER OF AN INTERDIGITATED MICROELECTRODE ARRAY**, DUSAN BUSTIN, Peter Tomcik, Miroslav Rievaj, Slovak University of Technology, Vazovova 5, 812 43 Bratislava, Slovak Republic, Bratislava, SK, Slovak Republic

- 14:15 (568) **SPECTROSCOPIC STUDIES OF POLY(DIMETHYLSILOXANE) (PDMS) USING AN INTEGRATED APPROACH**, JON BRIDGEWATER, Andrew Saab, George Havrilla, Jon Schoonover, Los Alamos National Laboratory, NMT-1/CST-4 MS J586, Los Alamos, NM, USA
- 15:30 (569) **PHOTOIONIZATION SPECTROMETRY STUDIES OF NO AND NO₂**, SETH ELWOOD, University of Iowa, Department of Chemistry, Iowa City, IA, USA
- 14:15 (570) **SURFACE PLASMON RESONANCE: DESIGN AND CALIBRATION OF MULTI-MODE, FIBER-OPTIC SENSORS**, LOUIS OBANDO, Louis Obando, Marc Boysworth, Karl Booksh, Arizona State University, Dept. of Chemistry M.S. 1604, Tempe, AZ, USA
- 15:30 (571) **FTIR AND FT RAMAN STUDY OF N,N-DIMETHYLPYPERAZINIUM(2+) HYDROGEN SELENITE**, IVAN NEMEC, Vit Chudoba, Department of Inorganic Chemistry, Charles University of Prague, Hlavova 2030, Prague 2, CZ, Czech Republic
- 14:15 (572) **CACO₃ IN LIMESTONE SLURRIES-AN FT/IR INVESTIGATION**, DANITA DE WAAL, Andries Legodi, Herman Potgieter
- 15:30 (573) **THE USE OF LOW COST DISPOSABLE INFRARED WINDOWS FOR BACTERIA IDENTIFICATION BY FTIR SPECTROSCOPY**, MARGARITA QUINTEIRO RODRIGUEZ, Ashraf Ismail, Janie Dubois, Quelab Laboratories, Inc., 2331 Rue Dandurand, Montreal, QUE, Canada
- 14:15 (574) **FT IR SPECTROSCOPIC INVESTIGATION OF THE MOLECULAR STRUCTURE OF SOME LANTHANIDE'S DITHIAZONE COMPLEXES**, A. A. SHABAKA, G. El-bahi, M. A. Ahmed, R. Seoudi, National Research Centre, Spectroscopy Department, Dokki, Cairo, Egypt
- 15:30 (575) **EVALUATION OF MODEL TRANSFERABILITY AMONG DISPERSIVE NEAR-INFRARED SPECTROMETERS**, MARK KEMPER, Robert Leasure, Foss NIRSystems, Inc., 12101 Tech Road, Silver Spring, MD
- 14:15 (576) **ASSESSMENT OF AN FT/IR SPECTROSCOPY-BASED AUTOMATED SYSTEM FOR THE IDENTIFICATION OF BACTERIA**, JANIE DUBOIS, Ashraf Ismail, Margarita Quinteiro Rodriguez, Quelab Laboratories, Inc., 2331 Rue Dandurand, Montreal, QUE, Canada
- 15:30 (577) **THE DEVELOPMENT OF A RAMAN SYSTEM FOR ATHENA ROVER PAYLOAD OF 2003 & 2005 MARS SURVEYOR MISSIONS**, ALIAN WANG, Lary Haskin, Washington Univ, Dept Earth & Planetary Sciences, One Brooking Drive, St. Louis, MO
- 14:15 (578) **MULTIVARIATE CALIBRATION WITH THE G-PROGRAMMING LANGUAGE**, OLUSOLA SOYEMI, Kenneth Busch, Marianna Busch, Baylor University, Center for Analytical Spectroscopy, Waco, TX, USA
- 15:30 (579) **NEW RAMAN UV MICROPROBE FOR CHARACTERIZING MATERIALS**, FRAN ADAR, Michel Leclercq, Hans-Juergen Reich, Bernard Roussel, Instruments SA/Horiba, 3880 Park Ave., Edison, NJ, USA
- 14:15 (580) **RAMAN SPECTROSCOPY FOR REAL-TIME DETERMINATION OF MOLECULAR STRUCTURE IN POLYMERIC FIBERS**, RAJESH PARADKAR, Subodh Sakhalkar, Michael Ellison, Clemson University, School of Textiles Fiber and Polymer Science, 161 Sirmine Hall, Clemson, SC, USA
- 15:30 Withdrawn
- 14:15 (582) **SURFACE-ENHANCED RAMAN SCATTERING OF AZOBENZENE-CONTAINING LONG CHAIN FATTY ACIDS ; COMPARISON BETWEEN SILVER AND GOLD COLLOID SYSTEMS**, YOUNG MEE JUNG, Hidetoshi Sato, Teruki Ikeda, Hideo Tashiro, Yukihiro Ozaki, School of Science, Kwansai Gakuin University, 1-1-155 Uegahara, Nishinomiya, Hyogo, Japan
- 15:30 (583) **PC BASED DENSITY FUNCTIONAL THEORY (DFT) CALCULATIONS FOR MODELING VIBRATIONAL SPECTRA**, DANIEL TACKLEY, Geoffrey Dent, W. Ewen Smith, University of Strathclyde, Department of Pure & Applied Chemistry, 295 Cathedral Street, Glasgow, Scotland
- 14:15 (584) **NON INTEGRAL EXPRESSION FOR THE RELATIVE INTENSITIES IN THE PURE ROTATIONAL INFRARED TRANSITION OF A DIATOMIC MOLECULE**, MAHMOUD EL-KOREK, Arab University, Faculty of Science, P.O.Box, 11-5020, Beirut, Lebanon
- 15:30 (585) **CYCLODEXTRIN-COATED SERS SUBSTRATES FOR THE DETECTION OF GASEOUS ORGANIC SUBSTANCES**, STEFAN KOSTREWA, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany
- 14:15 (586) **FIBER-OPTIC SERS SENSORS**, WIELAND HILL, Carmen Viets, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany
- 15:30 (587) **NOVEL SERS-ACTIVE FIBRE PROBES FOR SENSING APPLICATIONS**, EWAN POLWART, Daran Sadler, W. Ewen Smith, Ruth Keir, Christine Davidson, University of Strathclyde, Dept of Pure and Applied chemistry, 295 Cathedral Street, Glasgow, United Kingdom
- 14:15 (588) **PROMOTION OF BONE REPAIR BY LOW POWER LASER THERAPY: A RAMAN SPECTRAL INVESTIGATION**, SATHAIAH SOKKI, Renata Amadei Nicolau, Renato Amaro Zangaro, UNIVERSIDADE DO VALE DO PARAIBA -UNIVAP, Av. SHISHIMA HIFUMI, 2911; URBANOVA, SÃO JOSÉ DOS CAMPOS, SP, BRAZIL
- 15:30 (589) **THE DEVELOPMENT OF SURFACE ENHANCED RESONANCE RAMAN SPECTROSCOPY (SERS) AS AN IN SITU ANALYTICAL TECHNIQUE**, CAROLINE RODGER, W. Ewan Smith, P. C. White, Geoffrey Dent, University of Strathclyde, 295 Cathedral Street, Glasgow, United Kingdom
- 14:15 (590) **QUANTITATIVE ANALYSIS BY SURFACE-ENHANCED RESONANCE RAMAN SCATTERING (SERS)**, DARAN SADLER, Clare McLaughlin, Joanna Jones, W. Ewen Smith, University of Strathclyde, Dept of Pure and Applied Chemistry, 295 Cathedral Street, Glasgow, United Kingdom
- 15:30 (591) **3-D CHEMICAL IMAGING OF EMULSION SYSTEMS BY CONFOCAL RAMAN MICROSCOPY**, SHULIANG ZHANG, Dennis Palatini, Thomas Hancewicz, Jeremy Andrew, Unilever Research, 45 River Rd., Edgewater, NJ, USA
- 14:15 (592) **RAMAN AND INFRARED STUDIES OF LEAD(II) DIETHYLDITHIOCARBAMATE-1,10-PHENANTHROLINE**, DALE PERRY, Luis Feliu, Jose Centeno, James Garmon, Mail Stop 70A-1150, Lawrence Berkeley National Laboratory, Berkeley, CA, USA
- 15:30 (593) **VIBRATIONAL CHARACTERIZATION OF A SERIES OF NOVEL THIOL-DERIVATIVES OF PERYLENE TETRACARBOXYLIC ACID**, ALICIA KAM, Ricardo Aroca, James Duff, Univeristy of Windsor, 401 Sunset Ave., Windsor, ONT, Canada
- 14:15 (594) **HIGH EFFICIENCY SERS-SPECTROSCOPY OF ENVIRONMENTALLY HAZARDOUS CHEMICALS ON SILVER HALIDE DISPERSIONS**,

BERND SAEGMUELLER, Georg Brehm, Siegfried Schneider, University Erlangen-Nuremberg, Egerlandstrasse 3, 91058 Erlangen, Germany

SECTION 3: CHEMOMETRICS, LUMINESCENCE, BIOMEDICAL AND PHARMACEUTICAL APPLICATIONS, ENVIRONMENTAL ANALYTICAL CHEMISTRY, IMAGING, AND MISCELLANEOUS

Exhibit Hall B

Presiding: Winston Smith

Organized by: Nancy Miller-Ihli

- 15:30 (595) **SHAPE--AN IMPORTANT FACTOR IN THE PREDICTION OF ELECTROPHORETIC MOBILITY**, DONGMEI LI, Charles Lucy, Department of Chemistry, University of Calgary, 2500 University Drive NW, Calgary, AB, Canada
- 14:15 (596) **APPLICATION OF LIFTING SCHEME WAVELET TRANSFORM IN ANALYTICAL CHEMISTRY**, LUNJUN BAO, Huitang Zhou, Weida Liang, CCIB of Guangdong, P.R. China, B1302, CCIB of Guangdong, 66 Huacheng Av., Zhujiang New Town., Guangzhou, Guangdong, P R CHINA
- 15:30 (597) **APPLICATION OF SPLINE MODEL TO PREDICT A CHEMICAL CONCENTRATION BASED ON A FEW WAVELENGTHS**, SEONWOO KIM, Minji Kim, Yeon-Joo Kim, Jong-Won Kim, Gilwon Yoon, Samsung Biomedical Research Institute, 50 Ilwon-dong, Kangnam-ku, Seoul, Korea
- 14:15 (598) **CONCEPT OF GENERAL THEORY IN ANALYTICAL CHEMISTRY**, E.D. PRUDNIKOV, E.E. Prudnikov, Earth's Crust Institute, State University, Universitetskaya emb. 7/9, St. Petersburg, Russia
- 15:30 (599) **ASPECTS OF ERROR THEORY IN ANALYSIS**, E.D. PRUDNIKOV, E.E. Prudnikov, Earth's Crust Institute, State University, Universitetskaya emb. 7/9, St. Petersburg, Russia
- 14:15 (600) **WAVELET-LIKE TRANSFORMS FOR CONCENTRATION ESTIMATION IN CLUTTERED SPECTRAL DATA**, CHARLES STEVENS, Naresh Mehta, E. T. Scharlemann, Lawrence Livermore National Laboratory, P.O.Box 808, Livermore, CA, USA
- 15:30 (601) **THE COMPARISON OF ARTIFICIAL NEURAL NETWORKS AND THE CLASSICAL MATRIX CORRECTION MODEL**, LIQIANG LUO, National Research Center of Geoanalysis, Baiwanzhuang Street 26, Beijing, P R China
- 14:15 (602) **SMART SENSORS: CALIBRATION MODEL CHOICE AND VALIDATION**, BRIAN DABLE, Brian Dable, Marc Boysworth, R.D. JiJi, Karl Booksh, Arizona State University, Dept. of Chemistry M.S. 1604, Tempe, AZ, USA
- 15:30 (603) **DETERMINATION OF BROMATE BY FLOW INJECTION ANALYSIS USING A CHEMILUMINESCENCE DETECTION SYSTEM**, JESSICA SMITH, Anthony Andrews, William Fish, Ohio University, Clipping Lab, Athens, OH, USA
- 14:15 (604) **SYSTEMATIC ANALYSIS OF XAFS SPECTRA OF SUPPORTED-YTTERBIUM OXIDE CATALYST SAMPLES**, TSUNEHIRO TANAKA, Takashi Yamamoto, Takahiro Matsuyama, Satoshi Yoshida, Kyoto University, Department of Molecular Engineering, Kyoto, Japan
- 15:30 (605) **INFRARED SPECTROSCOPY AND ELECTRICAL PROPERTIES OF TERNARY POLY(ACRILIC ACID) COMPLEX**, MOHAMMED MOHARRAM, H.M. El-Gendy, National Research Center, Physics Dept., Cairo - Giza, Egypt
- 14:15 (606) **APPLICATIONS OF LEAD-207 AND CARBON-13 NMR TO THE STUDY OF BONDING OF LEAD COMPOUNDS AND THEIR ORGANIC COMPLEXES**, DALE PERRY, Margaret Blake, Cecil Dybowski, Alicia Glatfelter, Guenther Neue, Mail Stop 70A-1150, Lawrence Berkeley National Laboratory, Berkeley, CA, USA
- 15:30 (607) **SDS CAPILLARY GEL ELECTROPHORESIS SEPARATION OF HUMAN COLORECTAL CANCER PROTEINS**, DAWN RICHARDS, Kimberly Roy, Alison Skelley, Robert Polakowski, Lillian Cook, Norman Dovichi, University of Alberta, Department of Chemistry, University of Alberta, Edmonton, AB, Canada
- 14:15 (608) **TWO-TAILED CATIONIC SURFACTANTS FOR ELECTROSMOTIC FLOW REVERSAL IN CAPILLARY ELECTROPHORESIS**, JEREMY MELANSON, Charles Lucy, University of Alberta, Department of Chemistry, University of Alberta, Edmonton, AB, Canada
- 15:30 (609) **ON-LINE COUPLING OF FLOW INJECTION SEPARATION AND PRECONCENTRATION WITH INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY FOR NON-CHROMATOGRAPHIC SPECIATION OF DISSOLVED IRON(III) AND IRON(II) IN WATER**, XIU-PING YAN, M. Jim Hendry, Robert Kerrich, Department of Geological Sciences, University of Saskatchewan, 114 Science Place, Saskatoon, SK, Canada
- 14:15 (610) **INTRIGUING BEHAVIOR OF THE ELECTROSMOTIC FLOW IN CAPILLARY ELECTROPHORESIS IN THE PRESENCE OF ZWITTERIONIC SURFACTANTS**, NICOLE BARYLA, Charles Lucy, University of Alberta, Department of Chemistry, University of Alberta, Edmonton, AB, Canada
- 15:30 (611) **CAPILLARY ELECTROPHORETIC SEPARATION ENHANCED BY A MACROCYCLIC DIOXOPOLYAMINE ADDITIVE**, PAUL LI, Shen Hu, Enqin Fu, Simon Fraser University, 8888 University Dr., Burnaby, BC, Canada
- 14:15 (612) **SSDNA APTAMERS: AN APPROACH TOWARDS CHEMICAL SEPARATIONS**, RUCHI KOTIA, Lijuan Li, Linda McGown, Duke University, Box 90346, P.M. Gross Chemical Lab., Durham, NC, USA
- 15:30 (613) **DEVELOPMENT OF A CYCLODEXTRIN-MODIFIED CAPILLARY ELECTROPHORETIC SEPARATION USING LASER- INDUCED FLUORESCENT DETECTION FOR ANALYSIS OF FLUORESCENTLY LABELED RESIN ACIDS**, TRACEY RIGBY, S. Kermasha, John Luong, McGill University, Dept. Food Science and Agricultural Chemistry/National Research Council, Institute of Biotechnology, 6100 Royalmount Ave., Montreal, Quebec, Canada
- 14:15 (614) **A COMPARISON OF HPLC-ELECTROSPRAY AND GC/ION-TRAP MASS AND TANDEM MASS SPECTROMETRY IN TRACING TRIAZINES AND THEIR METABOLITES IN AN ENVIRONMENTAL MIMIC SYSTEM**, ILL YANG, MARIA HAFFER, KEVIN CASHMAN, BRIAN BUCKLEY, Rutgers University, 170 Frelinghuysen Road, Piscataway, NJ, USA
- 15:30 (615) **CAPILLARY ELECTROPHORESIS/LASER-INDUCED FLUORESCENCE POLARIZATION IN THE STUDY OF PROTEIN-DNA INTERACTIONS**, QIAN-HONG WAN, X. Chris Le, University of Alberta, 13-103 Clinic Sciences Building, Edmonton, AB, Canada
- 14:15 (616) **TESTING OF AN IN SITU MONITOR FOR CHEMICAL SPECIATION OF CHROMIUM IN LAKE MICHIGAN**, MELISSA SINGER PRESSMAN, Joseph Aldstadt, University of Wisconsin-Milwaukee, 3210 N. Cramer St., Milwaukee, WI, USA
- 15:30 (617) **APPLICATION OF AFFINITY PROBE CAPILLARY ELECTROPHORESIS TO**

CARCINOGEN-DNA DAMAGE AND REPAIR,

TREVOR CARNELLE, James Xing, Jane Lee, Michael Weinfeld, X. Chris Le, University of Alberta, 508 Newton Research Building, Edmonton, AB, Canada

- 14:15 (618) **EFFECT OF IONIC STRENGTH ON SOL-GEL GLASS PH SENSORS,** JIE LIN, Dong Liu, Trang Ho, Danijela Vukic, Portland State University, Department of Chemistry, Portland, OR, USA
- 15:30 (619) **THE ISOTOPIC COMPOSITION OF ATMOSPHERIC MOLECULAR HYDROGEN,** STEVE GERST, Paul Quay, University of Washington, Dept of Oceanography, Box 357940, Seattle, WA
- 14:15 (620) **EXCITATION-EMISSION MATRIX FLUORESCENCE: APPLICATIONS IN ENVIRONMENTAL ANALYSIS,** RENEE JIJI, Renee JiJi, Gary Cooper, Michele Nahorniak, Karl Booksh, Arizona State University, Dept. of Chemistry M.S. 1604, Tempe, AZ, USA
- 15:30 (621) **QUANTITATIVE DETERMINATION OF PHTHALATE ESTERS IN BIOTA AND SEDIMENT SAMPLES USING LC/ESI-MS AND LC/ESI-MS/MS,** ZHONGPING LIN, Michael Ikonomou, Frank Gobas, Institute of Ocean Sciences/DFO, 9860 West Saanich Road, P.O. Box 6000, Sidney, BC, Canada
- 14:15 (622) **REMOTE CHEMICAL IMAGING WITH RAMAN FIBERSCOPE TECHNOLOGY,** RYAN SMITH, Matthew Nelson, Patrick Treado, ChemIcon Inc., 7301 Penn Avenue, Pittsburgh, PA, USA
- 15:30 (623) **SIMULTANEOUS COLLECTION OF RAMAN CHEMICAL IMAGES AND DISPERSIVE SPECTRA IN REAL TIME,** CHRIS ZUGATES, Patrick Treado, ChemIcon Inc., 7301 Penn Avenue, Pittsburgh, PA, USA
- 14:15 (624) **RAPID ELUCIDATION OF SPATIAL AEROSOL CHARACTERISTICS VIA OPTICAL PATTERNATION,** MICHAEL MINNICH, John McLean, Akbar Montaser, George Washington University, Dept. of Chemistry, 725 21st Street NW, Washington, DC, USA
- 15:30 (625) **A STATISTICAL ANALYSIS OF TITLES FROM FACSS CONFERENCES,** RON WILLIAMS, Armstrong Atlantic State University, 11935 Abercorn St., Savannah, GA
- 14:15 (626) **STUDIES OF METAL COLLECTING PROPERTIES OF SILICA GEL-CHEMICALLY BONDED AND PHYSICALLY ADSORBED-DITHIZONE PHASES,** M. M. OSMAN, M. E. Mahmoud, Alexandria University and College of Engineering, Chemistry Department - Faculty of Science, Ibrahimia, Alexandria

**Thursday, 8:40 – 11:40, Room 1
PRACTICAL APPLICATIONS OF RAMAN
SPECTROSCOPY**

Presiding: Mike Carrabba Organized by: Michael Carrabba

- 8:40 (627) **CORRELATION OF THE RAMAN SPECTRA WITH THERMAL CONDUCTIVITY FOR A SET OF CVD DIAMOND WAFERS,** EDGAR ETZ, Wilbur Hurst, Albert Feldman, Nat'l Inst of Stds and Tech, 100 Bureau Drive, Stop 8371, Gaithersburg, MD, US
- 9:00 (628) **RAMAN SPECTRAL ANALYSIS OF PERCHLORATE CONTAMINATION IN COMMONLY-USED FERTILIZERS,** TED WILLIAMS, Timothy Collette, EPA, 960 College Station Rd., Athens, GA, USA
- 9:20 (629) **RAMAN SPECTROSCOPIC STUDIES OF BONE BIOMECHANICAL PROPERTIES,** ANGELA CARDEN, Michael Morris, University of Michigan, 930 N. University Ave., Ann Arbor, MI, USA
- 9:40 (630) **RAMAN ANALYSIS OF SINGLE FIBERS**

WHILE MOUNTED ON GLASS MICROSCOPE

SLIDES, EDWARD BARTICK, Jason Miller, FBI Academy, Forensic Science Research Unit, Quantico, VA, USA

- 10:00 **Coffee Break**
- 10:40 (631) **CHEMICAL SPECIATION OF PAPER, BOOKS AND OLD MANUSCRIPTS FOR SUSTAINABLE QUALITY CONTROL,** WERNER FAUBEL, Stefan Heissler, Vanessa Trouillet, Forschungszentrum Karlsruhe, POB 3640, Karlsruhe, Germany
- 11:00 (632) **RAMAN AND INFRARED SPECTROSCOPIC IMAGING OF TOMATO,** SHULIANG ZHANG, Thomas Hancewicz, Jeremy Andrew, Unilever Research, 45 River Rd., Edgewater, NJ, USA
- 11:20 (633) **DEVELOPMENT OF IN-SITU RAMAN SPECTROSCOPY TO MONITOR METAL-ION COMPLEXATION AT LIQUID/SOLID INTERFACES,** RORY UIBEL, Joel Harris, University of Utah, 315 So. 1400 E. RM Dock, Salt Lake City, UT, USA

**Thursday, 8:40 – 11:20, Room 2
BIOLOGICAL APPLICATIONS OF SPECTROSCOPY**

Presiding: Gary Rayson

- 8:40 (634) **MULTI-DIMENSIONAL FLUORESCENCE FOR THE INVESTIGATION OF DIETARY HABITS OF FREE RANGING HERBIVORES,** GARY RAYSON, Dean Anderson, Timothy Danielson, R. Estell, E. L. Fredrickson, K. M. Havstad, New Mexico State University, Box 30001 MSC 3C, Las Cruces, NM, USA
- 9:00 (635) **USE OF N-DODECYLAMINE FOR ENHANCING THE RELEASE OF DIPICOLINIC ACID FOR BACTERIAL ENDOSPORE DETECTION,** NICHOLAS FELL, JR., Lola Kelly, Paul Pellegrino, James Gillespie, U.S. Army Research Laboratory, ATTN: AMSRL-SE-EO, 2800 Powder Mill Road, Adelphi, MD, USA
- 9:20 (636) **BIOLOGICAL APPLICATION OF SITE-SPECIFIC FLUORESCENCE NANOSENSORS,** MICHAEL MILLER, Raoul Kopelman, University of Michigan, 930 N. University Ave., Ann Arbor, MI, USA
- 9:40 (637) **PH DEPENDENCE OF MYOGLOBIN CONFORMATION PROBED BY FLUORESCENCE SPECTROSCOPY,** LEI GENG, Gufeng Wang, Department of Chemistry, University of Iowa, Iowa City, IA
- 10:00 **Coffee Break**
- 10:40 (638) **TWO-DIMENSIONAL FLUORESCENCE CORRELATION SPECTROSCOPY OF NEUROTRANSMITTER SEROTONIN AND TRYPTOPHAN,** LEI GENG, Department of Chemistry, University of Iowa, Iowa City, IA
- 11:00 (639) **NANOSIZED PHOSPHOLIPID-COATED PARTICLES AS BIOLOGICAL SENSORS,** ZEEV ROSENZWEIG, Kerry McNamara, University of New Orleans, Department of Chemistry, New Orleans, LA, USA

**Thursday, 8:20 – 11:40, Room 3
FTIR PHOTOACOUSTIC SPECTROSCOPY I**

Presiding: John McClelland Organized by: John McClelland

- 8:20 (640) **DIRECT-ON-FILTER ANALYSIS OF CRYSTALLINE SILICA USING PHOTOACOUSTIC FT/IR SPECTROSCOPY,** DIANA SCHWERHA, C-S Orr, B. Chen, S. Soderholm, NIOSH, 1095 Willowdale Road, MS3030, Morgantown, WV
- 8:40 (641) **PHOTOACOUSTIC DETECTION OF FAST EVENTS IN PROTEIN FOLDING' AUTHORS:**

- ENOCH W SMALL***, THE PRESENTING AUTHOR IS, ENOCH SMALL, Cristiano Viappiani, Jeanne Small, Stefania Abbruzzetti, Yu Chen, Louis Libertini, Quantam Northwest, Inc., 9723 W. Sunset Highway, Spokane
- 9:00 (642) **HIGH AMPLITUDE PHASE-MODULATED PAS IN THE MID AND FAR-IR**, TIM JOHNSON, Guenter Zachmann, Bruker Optics, 19 Fortune Drive, Billerica, MA
- 9:20 (643) **OPTICAL ABSORPTION DEPTH PROFILING OF PHOTODEGRADED POLY(VINYLCHLORIDE) (PVC) FILMS BY QUANTITATIVE PHOTOTHERMAL DEFLECTION SPECTROSCOPY**, J. F. POWER, S. W. Fu, O. Nepotchatykh, Dept. of Chemistry, McGill University, 801 Sherbrooke St. W., Montreal, QC
- 9:40 (644) **IDENTIFICATION OF SURFACE SPECIES ON CARBON BLACK BY FT/IR PHOTOACOUSTIC DIFFERENCE SPECTROSCOPY**, RICHARD PALMER, Eric Phifer, John McClland, Duke University, Department of Chemistry, Box 90346, Durham, NC, USA
- 10:00 **Coffee Break**
- 10:40 (645) **INDUSTRIAL APPLICATIONS OF PHOTOACOUSTIC DEPTH PROFILING**, VASILIOS GREGORIOU, Sheila Rodman, Polaroid Corporation, 1265 Main Street, W4-1D, Waltham, MA
- 11:00 (646) **QUANTITATIVE ANALYSIS OF DRY ANIONIC POLYACRYLAMIDES BY FT/IR PAS AND RAMAN SPECTROSCOPY: TRANSFORMING ANALYSES IN BOTH THE RESEARCH AND PLANT ENVIRONMENT**, PETER LARKIN, Shirley Chen, Morris Lewellyn, Cytec Industries, 1937 West Main St, Stamford, CT
- 11:20 (647) **METHODS TO INTERPRET FT-IR PHOTOACOUSTIC SPECTRA OF SAMPLES WITH GRADIENT OR LAYERED COMPOSITIONS**, JOHN MCCLELLAND, Roger Jones, Stanley Bajic, Ames Laboratory-USDOE, 107 Spedding Hall, Iowa State University, Ames, IA

Thursday, 8:00 – noon, Room 7
SURFACE SPECTROSCOPY APPLICATIONS

Presiding: Pat Treado

- 8:00 (648) **SPECTROSCOPIC IMAGING CHARACTERIZATION OF TANTALUM CORROSION PRODUCTS**, GEORGE HAVRILLA, Jon Bridgewater, Andrew Saab, Jon Schoonover, Sandra Mecklenburg, Steve Chipera, Kristin Huchton, Patrick Treado, Los Alamos National Laboratory, MS G740, Los Alamos, NM, USA
- 8:20 (649) **QUANTITATIVE ELEMENTAL IMAGING OF URANIUM ALLOY**, GEORGE HAVRILLA, Christopher Worley, Paul Dunn, Los Alamos National Laboratory, MS G740, Los Alamos, NM, USA
- 8:40 (650) **IMAGING ELEMENTAL DISTRIBUTIONS FOR CORROSION CHARACTERIZATION IN DRUM VENT FILTERS**, GEORGE HAVRILLA, Jon Bridgewater, Kristin Huchton, Steve Chipera, Sandra Mecklenburg, Jon Schoonover, William Conner, Los Alamos National Laboratory, MS G740, Los Alamos, NM, USA
- 9:00 (651) **CHEMICAL IMAGING FOR SEMICONDUCTOR QUALITY ASSURANCE**, MATTHEW NELSON, Juliana Ribar, Scott Keitzer, Patrick Treado, ChemIcon Inc., 7301 Penn Avenue, Pittsburgh, PA, USA
- 9:20 (652) **THE ROLE OF CHEMOMETRIC ANALYSIS IN ELEMENTAL AND MOLECULAR CHEMICAL IMAGING**, ARJUN BANGALORE, Patrick Treado, Jon

Schoonover, George Havrilla, ChemIcon Inc., 7301 Penn Avenue, Pittsburgh, PA, USA

- 9:40 (653) **IR STUDIES OF NITROGLYCERINE ADSORPTION ON CHRYSOTILE**, DON CROPEK, Michelle Hanson, Roger Schneider, USA CERL, P.O. Box 9005, Champaign, IL, USA
- 10:00 **Coffee Break**
- 10:40 (654) **ATR FT/IR STUDIES OF CHLOROSILANE BINDING REACTIONS AT THE LIQUID/SILICA INTERFACE USING THIN SOL-GEL FILMS**, DION RIVERA, Joel Harris, University of Utah, Dept of Chemistry, 315 S. 1400 E. R.M. Dock, Salt Lake City, UT, USA
- 11:00 (655) **PROBING ADSORBED PROTEIN ORIENTATION WITH SCANNING FORCE MICROSCOPY**, MARK MCDERMOTT, Truong Ta, University of Alberta, Department of Chemistry, Edmonton, AB, Canada
- 11:20 (656) **THE INFRARED SPECTROSCOPIC STUDY OF A DITHIOL MONOLAYER**, PATRICIA LANG, Deborah Pinkstaff, Khoa Tran, Ball State University, Department of Chemistry, Muncie, IN, USA
- 11:40 (657) **CHARACTERIZATION OF LOW GLOSS POLYMER ALLOY COATINGS BY SYNCHROTRON AND CONVENTIONAL VIBRATIONAL MICRO-SPECTROSCOPY**, ANDREW VREUGDENHIL, Tom. Fabish, George Pacinda, Michael Donley, University of Dayton Research Institute, 300 College Park, Dayton, OH, USA

Thursday, 8:20 – noon, Room 8
LASER ABLATION AT THE EDGE
OF THE MILLENNIUM I: FUNDAMENTAL STUDIES OF
CHEMICAL ANALYSIS

Presiding: Rick Russo

Organized by: Rick Russo

- 8:20 (658) **MECHANISMS OF PARTICULATE FORMATION BY LASER ABLATION OF SOLID SAMPLES FOR CHEMICAL ANALYSIS BY ICP/MS**, MICHAEL ALEXANDER, A. Hedges, J.T. Dickinson, S.C. Langford, Pacific Northwest National Laboratory, PO Box 999 K8-93, Richland, WA, USA
- 8:40 (659) **BRASS: A CHALLENGING SAMPLE FOR LASER ABLATION**, JEAN-MICHEL MERMET, Université Claude Bernard - Lyon I, Laboratoire des Sciences Analytiques, Villeurbanne
- 9:00 (660) **ABLATIVE AND TRANSPORT FRACTIONATION AS A FUNCTION OF LASER ENERGY FLUX RATE**, PETER OUTRIDGE, Will Doherty, Mike Hinds*, Conrad Gregoire, Geological Survey of Canada, 601 Booth St., Ottawa, Ontario
- 9:20 (661) **ABLATION EFFICIENCY OF PURE METALS FOR SHARPLY FOCUSED FEMTO, PICO AND NANOSECOND LASER PULSES**, ALEXANDRE SEMEROK, Patrick Mauchien, Béatrice Salle, Catherine Chaleard, Jean-Luc Lacour, Guillaume Petite, CEA Saclay, CEA Saclay, DPE/SPCP/LSLA, Bat.391, Gif sur Yvette, France
- 9:40 (662) **MATRIX EFFECTS IN LASER ABLATION ICP/MS**, OLEG BORISOV, X.L. Mao, R.E. Russo, Lawrence Berkeley National Laboratory, Mail Stop 70-193A, Berkeley, CA
- 10:00 **Coffee Break**
- 10:40 (663) **OPTIMIZING LASER ABLATION PARAMETERS FOR PUO2 ANALYSIS USING ICP/MS**, DEBBIE FIGG, L. Drake, Los Alamos National Laboratory, Inorganic Trace Analysis Group, CST-9, MS G740, Los Alamos, NM
- 11:00 (664) **LASER ABLATION SAMPLING OF ION**

EXCHANGE POLYMER FILMS FOR ICP/AES ANALYSIS OF TRACE METALS IN SOLUTION,
WING-TAT CHAN, H.H.C. Yip, W.C.F. Chau, The University of Hong Kong, Department of Chemistry, Pokfulam Road

- 11:20 (665) **THE ORIGIN OF LASER INDUCED PLASMAS ON IONIC SINGLE CRYSTAL SURFACES,** J. TOM DICKINSON, S. C. Langford, M. L. Alexander, Washington State University, Department of Physics, Pullman, WA
- 11:40 (666) **ISOTOPE RATIO AND ELEMENTAL PROFILING OF HETEROGENEOUS SOLIDS BY LASER ABLATION MC/HR-ICP-MS,** IAN BOWEN, Fergus Keenan, VG Elemental, Ion Path, Road Three, Winsford, Cheshire

Thursday, 8:20 – noon, Room 9
LOW PRESSURE PLASMAS FOR OES AND MS

Presiding: Ken Marcus Organized by: Ken Marcus

- 8:20 (667) **CONCURRENT ELEMENTAL AND MOLECULAR INFORMATION FROM PULSED GLOW DISCHARGE PLASMAS: TRUE CHEMICAL SPECIATION FOR THE MASSES,** VAHID MAJIDI, Wei Hang, Cris Lewis, Los Alamos National Laboratory, MS K484, Los Alamos, NM
- 8:40 (668) **REAL-TIME PARTICLE INTRODUCTION AND ANALYSIS BY GLOW DISCHARGE ATOMIC EMISSION AND MASS SPECTROMETRIES,** R. KENNETH BUBBA MARCUS, Terri Gibeau, Melissa Dempster, W. Clay Davis, Clemson University, Department of Chemistry, Clemson, SC
- 9:00 (669) **LOW-POWER AND PRESSURE PLASMAS AS MASS SPECTROMETRY SOURCES,** JOSEPH CARUSO, Joe Waggoner, Lisa Milstein, Harry Fannin, University of Cincinnati, College of Arts and Sciences, Cincinnati, OH
- 9:20 (670) **LOW PRESSURE PLASMA MASS SPECTROMETRY FOR MONITORING VOLATILE ORGANIC COMPOUNDS IN FOODS,** E. HYWEL EVANS, Gavin O'Connor, Steve Rowland, University of Plymouth, Dept. of Environmental Sciences, Drake Circus, Plymouth
- 9:40 (671) **THE USE OF HOLLOW AND FLAT CATHODE GLOW DISCHARGES FOR THE ATOMIC SPECTROMETRIC DETECTION OF HALOGENS IN GAS CHROMATOGRAPHY,** JOSÉ A.C. BROEKAERT, University of Leipzig, Inst. for Anal. Chemistry, Linnéstrasse 3, Leipzig, D
- 10:00 **Coffee Break**
- 10:40 (672) **INVESTIGATIONS OF REACTIVE PLASMA GASES IN GLOW DISCHARGE DEVICES,** MELISSA TRAINER, Neetha Khan, Stephanos Tsirakoglou, Mark Rowland, Christopher Barshick, Kenneth Hess, Franklin and Marshall College, Department of Chemistry, Box 3003, Lancaster, PA, USA
- 11:00 (673) **QUANTITATIVE ANALYSIS USING GLOW DISCHARGE OPTICAL EMISSION SPECTROMETRY,** MICHAEL WINCHESTER, NIST, 100 Bureau Dr.; Stop 8391, Gaithersburg, MD
- 11:20 (674) **EXPANDING THE SCOPE OF APPLICABILITY OF RADIO FREQUENCY GLOW DISCHARGE ATOMIC EMISSION SPECTROSCOPY (RF-GD-AES),** R. KENNETH MARCUS, Alwyn Anfone, Clemson University, Department of Chemistry, Clemson, SC
- 11:40 (675) **THIN LAYER ANALYSIS WITH A PULSED GRIMM DISCHARGE FOR ATOMIC EMISSION AND MASS SPECTROMETRY,** WILLARD

HARRISON, Chenglong Yang, Eric Oxley, University of Florida, Department of Chemistry, Gainesville, FL

Thursday, 8:20 – 11:00 Room 10
ANACHEM AWARD SYMPOSIUM

Presiding: Steve Stein Organized by: Steve Stein

- 8:40 (676) **THE EARLY DEVELOPMENT, APPLICATIONS, AND IMPORTANCE OF THE NIST/EPA/NIH MASS SPECTRA DATABASE AND SEARCH PROGRAMS IN ENVIRONMENTAL SCIENCE AND PROTECTION,** WILLIAM BUDDE, U. S. Environmental Protection Agency, 26 W. MLK Drive, Cincinnati, OH
- 9:20 (677) **REFERENCE MATERIALS FOR TRACEABILITY IN MOLECULAR SPECTROMETRY,** STEVEN CHOQUETTE, John Travis, Gary Kramer, National Institute of Standards and Technology, 100 Bureau Drive Bldg 227 Mail Stop 8384, Gaithersburg, MD
- 9:40 (678) **FALSE POSITIVE IDENTIFICATIONS AND MASS SPECTRAL LIBRARIES,** GARY MALLARD, NIST, 100 Bureau Drive - Mail Stop 8380, Gaithersburg, MD, 12
- 10:00 **Coffee Break**
- 10:40 (679) **APPLICATION OF MASS SPECTRAL DECONVOLUTION TO IDENTIFY CHEMICAL CHANGES IN VEGETATIVE AND SPORE CELL TYPES OF A CYANOBACTERIUM,** JIM LYONS-HART, Robert Fisher, Philip Morris USA, P.O. Box 26583, Richmond, VA

Thursday, 8:20 – noon, Room 11
ICPMS APPLICATIONS

Presiding: E. Bakowska

- 8:20 (680) **THE REMOVAL OF DIAGENETIC MATERIAL FROM ARCHAEOLOGY TOOTH ENAMEL AS TRACKED BY LEAD ISOTOPE RATIOS,** ALANAH FITCH, Luke Augustine, Chemistry/Loyola University Chicago, 6525 N. Sheridan Rd., Chicago, IL, USA
- 8:40 (681) **AN EFFECTIVE ANALYTICAL METHOD FOR CHARACTERIZING ISOTOPIC LABELED CYCLIC DIMETHYLSILOXANES,** HENRY YUE, D. A. Mcntt, S. Varapath, Dow Corning, P. O. Box 994, Midland, MI
- 9:00 (682) **POSSIBILITIES AND APPLICATIONS OF PRECISE ISOTOPIC RATIO DETERMINATION WITH AN INDUCTIVELY COUPLED PLASMA SECTORFIELD MASS SPECTROMETER (HR-ICP-SMS),** CHRISTOPHER LATKOCZY, Thomas Prohaska^{2*}, Mark Watkins², Gerhard Stingeder², Maria Teschler-Nicola³, Old Dominion University, Center for Isotope and Trace Element Research, Department of Chemistry and Biochemistry, Norfolk, VA, USA
- 9:20 (683) **DETERMINATION OF HEAVY METALS IN CALCIUM AND HERBAL SUPPLEMENTS UTILIZING INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY (ICP-MS),** ELA BAKOWSKA, Thomas Gluodenis, Hewlett-Packard Company, 2850 Centerville Road, Wilmington, DE, USA
- 9:40 (684) **ELEMENTAL ANALYSIS BY ICP/MS AS A TOOL FOR THE DETERMINATION OF THE COUNTRY OF ORIGIN OF RED WINES,** ELA BAKOWSKA, Thomas Gluodenis, Jr., Steven Wilbur, Hewlett-Packard Company, 2850 Centerville Road, Wilmington, DE, USA
- 10:00 **Coffee Break**
- 10:40 (685) **DETERMINATION OF RARE EARTH**

ELEMENTS IN ENVIRONMENTAL SOLID

SAMPLES BY ICP/MS, XINBANG FENG, Shaole Wu, Angela Wharmby, Adolph Wittmeier, Alberta Research Council, Bag 4000, Vegreville, Alberta, Canada

- 11:00 (686) **COMPARISON OF DIFFERENT ANALYTICAL TECHNIQUES FOR THE DETERMINATION OF PT AND RH IN STAINLESS STEEL SUBSTRATES**, RODNEY FONSECA, Denise Anderson, General Electric Plastics, One Lexan Lane, Mt Vernon, IN, USA
- 11:20 (687) **DETERMINATION OF MERCURY IN SOIL AND SEDIMENT SAMPLES BY SLURRY/SOLID SAMPLING ELECTROTHERMAL VAPORIZATION INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY**, JERZY MIERZWA, Department of Chemistry Central Michigan University, Dow Science 268, Mount Pleasant, MI, USA
- 11:40 (688) **ANALYSIS OF SALINE WATER BY ICP/MS: 'SOLID PHASE EXTRACTION OR DILUTE AND SHOOT'**, ANNA BECALSKA, Doreen Cheng, Katherine Thomas, ASL Analytical Service Laboratories, 1988 Triumph Street, Vancouver, B.C., Canada

**Thursday, 8:40 – 11:40, Room 12
CHEMICAL SPECIATION VII**

Presiding: N. Miller-Ihli and M.M. Lamoureux
Organized by: C.L. Chakrabarti, M.M. Lamoureux, W.D. Marshall, J. Caruso (ICASS)

- 8:40 (689) **GEL ELECTROPHORESIS AND LASER ABLATION ICP-MASS SPECTROMETRY: TOWARDS NEW SPECIATION INFORMATION IN CLINICAL CHEMISTRY**, CAMERON MCLEOD, Kerry Joyce, Petra Krause, Alan Cox, University of Sheffield, Centre for Analytical Sciences, Dainton Building, Sheffield, South Yorkshire, UK
- 9:20 (690) **IMPORTANCE OF METAL SPECIES DETERMINATION FOR ENVIRONMENTAL ISSUES**, O.F.X. DONARD, Universite de Pau et des Pays de l'Adour, Laboratoire de Chimie Analytique Bio-Inorganique et Environment, Pau
- 10:00 **Coffee Break**
- 10:40 (691) **SPECIATION MEASUREMENTS FOR TRACE ELEMENTS USING ICP-MS DETECTION**, SCOTT BAKER, Nancy Miller-Ihli, USDA, ARS, FCL, Bldg. 161, BARC-East, Beltsville, MD, USA
- 11:20 (692) **CHEMICAL SPECIATION: WHERE ALTERNATIVE BECOMES THE MAINSTREAM**, VAHID MAJIDI, Juan Cuadrado, Kathy Lao, Los Alamos National Laboratory, MS K484, Los Alamos, NM

**Thursday, 8:00 – noon, Room 13
REMOTE AND PORTABLE SENSING**

Presiding: Kevin Ashley

- 8:00 (693) **DETERMINATION OF AQUEOUS PESTICIDES USING A FIELD PORTABLE EXCITATION-EMISSION MATRIX FLUOROMETER**, RENEE JIJI, Karl Booksh, Arizona State University, Department of Chemistry and Biochemistry, Tempe, AZ, USA
- 8:20 (694) **ONE-STEP DIRECT MERCURY ANALYSIS FOR LABORATORY AND FIELD APPLICATIONS**, KENNETH BOROWSKI, Mikhail Menshch, Milestone Inc., 160B Shelton Road, Monroe, CT, US
- 8:40 (695) **FIELD-PORTABLE METHODS FOR THE ON-SITE DETERMINATION OF METAL SPECIES**, KEVIN ASHLEY, CDC/NIOSH, 4676 Columbia Parkway (M.S. R-7), Cincinnati, OH, USA

- 9:00 (696) **GMS-2000, A TRACE GAS MEASUREMENT SYSTEM FOR THE 21ST CENTURY**, PHILIP HANST, Glen Williams, Infrared Analysis, Inc., 1558-B S. Anaheim Boulevard, Anaheim, CA, USA
- 9:20 (697) **LIQUID POLYMER NANO-OPTODES FOR MEASUREMENT OF ANALYTES POORLY DETECTED BY FLUORESCENT FREE DYE**, MURPHY BRASUEL, Heather Clark, Raoul Kopelman, The University of Michigan, 930 N University Ave, Ann Arbor, MI, USA
- 9:40 (698) **OPTIMIZATION OF SENSORS FOR SIMULTANEOUS RATIO-METRIC FLUORESCENCE MEASUREMENT OF OXYGEN AND CARBON DIOXIDE**, SUNIL DOURADO, Raoul Kopelman, University of Michigan, 930 N. University Ave., Ann Arbor, MI, USA
- 10:00 **Coffee Break**
- 10:40 (699) **NON DESTRUCTIVE MEASUREMENT OF SALT AND MOISTURE IN SALMON ROE BY SW-NIR**, ANNA CAVINATO, Todd Rogers, Melissa Wenz, Yiqun Huang, David Mayes, Glyen Bledsoe, Barbara Rasco, Eastern Oregon University, 1410 L Ave., La Grande, OR, USA
- 11:00 (700) **SURFACE PLASMON RESONANCE ON TAPERED OPTICAL FIBERS: A STUDY OF REPRODUCIBILITY AND SPECTRAL RESOLUTION**, LOUIS OBANDO, Marc Boysworth, Karl Booksh, Arizona State University, P.O. Box 871604, Tempe, AZ, USA
- 11:20 (701) **THE REMOTE OPTICAL DETECTION OF TEMPERATURE FROM LOW RESOLUTION GAS PHASE INFRARED SPECTRA OF CARBON DIOXIDE**, AUGUSTUS FOUNTAIN, United States Military Academy, Department of Chemistry, MADN-PRC, West Point, NY, USA
- 11:40 (702) **DEVELOPMENT OF A FIELD PORTABLE INSTRUMENT FOR ON-SITE, REAL-TIME AIR PARTICULATES MONITORING AND HAZARDOUS EXPOSURE ASSESSMENT**, YIXIANG DUAN, Yongxuan Su, Zhe Jin, Martin Koby, Jose Olivares, Los Alamos National Laboratory, CST-9, MS K484, Los Alamos, NM, USA

**Thursday, 8:20 – 11:40, Room 14
ENVIRONMENTAL ANALYSIS**

Presiding: Barry Sharp

- 8:20 (703) **CERTIFICATION OF ARSENIC IN LEAD CONTAMINATED SOIL**, LEE YU, Yong Pak, Michael Epstein, National Institute of Standards and Technology, 100 Bureau Dr. Stop 8391, Gaithersburg, MD, USA
- 8:40 (704) **CHEMICAL POLLUTANTS AND TOXICITIES IMPACTED BY COAL POWER PLANTS AND MINES**, VENGHUOT CHEAM, Trefor Reynoldson, George Garbai, Danielle Milani, National Water Research Institute, Box 5050, Burlington, ON, Canada
- 9:00 (705) **MODIFIED ION MOBILITY SPECTROMETER FOR ENHANCED SELECTIVITY**, TRICIA BUXTON, Peter Harrington, Ohio University, Clippinger Laboratories Chemistry Department, Athens, OH, USA
- 9:20 (706) **A NEW SCREENING TOOL FOR THE ANALYSIS OF ORGANIC POLLUTANTS IN WATER SAMPLES**, ANDRES CAMPIGLIA, Andrea Arruda, North Dakota State University, Department of Chemistry, Fargo, ND, USA
- 9:40 (707) **DETECTION OF CHLORINATED AND BROMINATED BY-PRODUCTS OF DRINKING WATER DISINFECTION USING ELECTROSPRAY IONIZATION-HIGH FIELD ASYMMETRIC**

**WAVEFORM ION MOBILITY SPECTROMETRY-
MASS SPECTROMETRY**, DAVID BARNETT, Barbara
Ells, Randy Purves, Roger Guevremont, National Research
Council, 1500 Montreal Road, Room B14, Bldg M12,
Ottawa, ON, CAN

10:00 **Coffee Break**

10:40 (708) **ION TRANSPORT IN PEG INTERCALATED
CLAYS: AN ABSORPTION SPECTROMETRY**

STUDY, ALANAH FITCH, J. Scott Baker,
Chemistry/Loyola University Chicago, 6525 N. Sheridan
Rd., Chicago, IL, USA

11:00 (709) **CHARACTERIZATION AND APPLICATION**

**OF A NOVEL ELECTROCHEMILUMINESCE
REACTION INVOLVING CADMIUM**, CHRISTIAN
WHITCHURCH, Anthony Andrews, Ohio University,
Clippinger Labs, OU, Athens, OH, USA

11:20 (710) **CE-ICP/MS FOR THE ELEMENTAL**

SPECIATION OF SE, BARRY SHARP, K.A. Taylor, J.
Lewis, H.M. Crews, Loughborough University, Department
of Chemistry, Loughborough, Leicestershire, UK

**Thursday, 8:20 – noon, Room 15
MOLECULAR EMISSION SPECTROSCOPY I**

Presiding: Johannes W. Hofstraat

Organized by: Johannes W. Hofstraat

8:20 (711) **ADVANCES IN SENSORS BASED ON
LUMINESCENT TRANSITION METAL**

COMPLEXES, JAMES DEMAS, Wenying Xu, Kristi
Kneas, Ammasi Periasamy, B. A. DeGraff, University of
Virginia, Chemistry Department, Charlottesville, VA

8:40 (712) **SPECTROSCOPIC STUDIES OF RARE EARTH
AND TRANSITION METAL IMIDAZOLATE**

COMPLEXES, DALE PERRY, F. Ragot*, P. Palvadeau*,
J. P. Buisson*, J. Wery*, E. Faulques*, Lawrence Berkeley
Laboratory, Berkeley, CA

9:00 (714) **NEW MATERIAL SYSTEMS FOR ORGANIC
ELECTROLUMINESCENT DEVICES**, HANS

HOFSTRAAT, Jan Verhoeven, Martijn Goes, Martijn
Werts, Philips Research and University of Amsterdam,
Prof. Holstlaan 4/Nieuwe Achtergracht 129,
Eindhoven/Amsterdam, The Netherlands

9:20 (715) **EARLY DISEASE DETECTION USING
LUMINESCENT PROBES AND TIME RESOLVED**

IMAGING, DARRYL BORNHOP, Padmaja Sattu, Steven
Roberts, Garry Kiefer#, Texas Tech University, Department
of Chemistry and Biochemistry, Lubbock, TX, USA

10:00 **Coffee Break**

10:40 (716) **THE USE OF FLUORESCENCE-DETECTED
CIRCULAR DICHROISM IN THE INVESTIGATION**

**OF NEAR INFRARED DYE-PROTEIN
INTERACTIONS**, GABOR PATONAY, F. Meadows, N.
Narayanan, Georgia State University, University Plaza,
Atlanta, GA, USA

11:00 (717) **PHOTO-SENSITIZED FLUORESCENCE AS A
TOOL FOR SENSITIVE ANALYSIS OF**

**(POLY)CHLORINATED BIPHENYLS IN
ENVIRONMENTAL MATRICES**, IGOR KOZIN, Wai
Chi Kwan, Christine Woodhouse, Stephen Regular, Samir
Tabash, R. Stephen Brown, Queen's University, Department
of Chemistry, Queen's University, Kingston, Ontario

11:20 (718) **UV/VISIBLE ABSORPTION AND
FLUORESCENCE SPECTROSCOPY STUDIES IN**

DENDRITIC MEDIA, SHERYL TUCKER, Dana Richter-
Egger, University of Missouri, Dept. of Chemistry, 125
Chemistry Bldg., Columbia, MO

11:40 (719) **RELATIONSHIPS BETWEEN TWO
DIMENSIONAL CONDENSED PHASE**

LUMINESCENCE AND MULTIRESONANT

NONLINEAR SPECTROSCOPIES, JOHN WRIGHT,
University of Wisconsin, 1101 University Ave., Madison,
WI

**Thursday, 8:40 – 11:00, Room 16
TRACE AND ULTRATRACE ANALYSIS**

Presiding: R.E. Sturgeon, M. Hinds

Organized by: C.L. Chakrabarti (ICASS)

8:40 (720) **COMPARISON OF ATOMIC ABSORPTION
AND ATOMIC FLUORESCENCE SPECTROMETRY**

FOR ULTRA-TRACE METAL ANALYSIS, JOERN
TINNEMEYER, Dong Liang, Aurora Instruments Ltd.,
1001 East Pender St., Vancouver, BC, Canada

9:00 (721) **CAPILLARY ELECTROPHORESIS-LASER
INDUCED FLUORESCENCE BASED**

IMMUNOSENSOR FOR TOXIN DETECTION,
MICHAEL LAM, Q.H. Wan, C.A. Boulet, X.C. Le,
University of Alberta, 508 Newton Research Building,
Edmonton, AB, Canada

9:20 (722) **APPLICATION OF COLD VAPOUR ATOMIC
FLUORESCENCE OF MERCURY TO**

**DETERMINATION OF-SH GROUPS IN NATIVE
PROTEINS AT NANOMOLAR LEVEL**,

ALESSANDRO D'ULIVO, Emilia Bramanti, Leonardo
Lampugnani, Giorgio Raspi, Roberto Zamboni*, C.N.R.,
Institute of Instrumental Analytical Chemistry, Via
Risorgimento, 35, Pisa, PI, Italy

9:40 (723) **INTERFERENCE EFFECTS IN HYDRIDE
GENERATION ATOMIC FLUORESCENCE**

**SPECTROMETRY OF SELENIUM AND
TELLURIUM**, ALESSANDRO D'ULIVO, Katia
Marcucci*, Leonardo Lampugnani, Marco Mascherpa,
Emilia Bramanti, Roberto Zamboni*, C.N.R., Institute of
Instrumental Analytical Chemistry, Via Risorgimento, 35,
Pisa, PI, Italy

10:00 **Coffee Break**

10:40 (724) **SOLUBILIZATION OF BIOLOGICAL TISSUES
WITH TETRAMETHYLAMMONIUM HYDROXIDE**

FOR TRACE ELEMENT ANALYSIS, SCOTT WILLIE,
Rodrigo Silva, Ralph Sturgeon, Christine Scriver, National
Research Council of Canada, INMS, Bldg. M-12, Montreal
Road, Ottawa, ON, Canada

**Thursday, 8:20 – 11:40, Room 17
CHEMOMETRICS I**

Presiding: David Haaland

8:20 (725) **QUANTIFYING HIGHLY CONVOLUTED
PROCESS AND KINETICALLY ACQUIRED
SPECTROSCOPIC DATA WITHOUT MIXTURE**

CALIBRATION, JOHN TETTEH, Ed Metcalfe,
University of Greenwich, School of Chemical and Life
Sciences, Wellington Street, Woolwich, London, UK

8:40 (726) **EVALUATION OF REPRODUCIBILITY FOR
OROS (OXYBUTYNIN HCL) RELEASE RATE**

METHOD, CHRISTINE YE, June Liu, Ngozi Okafo,
Clark Allphin, Alza Corp., 1015 Joaquin Rd, Mountain
View, CA, USA

9:00 (727) **CHEMOMETRIC ANALYSIS OF TWO
DIMENSIONAL DECAY DATA: APPLICATION TO**

170 NMR RELAXATION MATRICES, TODD ALAM,
M. Kathleen Alam, Sandia National Laboratories, Org.
1811, MS 1407, Albuquerque, NM, USA

9:20 (728) **DETERMINATION OF DISSOLVED
POLYCYCLIC AROMATIC HYDROCARBONS VIA**

**SINGLE MEASUREMENT, FIBER OPTIC
EXCITATION-EMISSION MATRIX
FLUOROMETER**, GARY COOPER, Karl Booksh,

Itzkan, Ramachandra Dasari, Michael Feld, TU-Berlin and Spectrosc.Lab. MIT, Cambridge, MA, Weidenweg 27, Berlin, D, Germany

- 16:20 (751) **RESOLUTION OF TRANSIENT EXCITED-STATE RESONANCE-ENHANCED RAMAN SPECTRA OF INTERMEDIATES IN PHOTOINITIATED CHEMICAL REACTIONS**, JAMES KLEIMEYER, Joel Harris, University of Utah, 315 S. 1400 E. RM DOCK, SLC, UT, United States
- 16:40 (752) **APPLICATION OF TIME-RESOLVED UV RAMAN SPECTROSCOPY FOR CHARACTERIZING TRANSIENT INTERMEDIATES DURING THERMAL DENATURATION OF AN ALPHA-HELICAL PEPTIDE**, IGOR LEDNEV, Sanford Asher, University of Pittsburgh, Department of Chemistry, Chevron Science Center, Box #39, Pittsburgh, PA, USA

Thursday, 13:40 – 16:20, Room 2

BIOLOGICAL AND PHARMACEUTICAL ANALYSIS

Presiding: Julie Horner

- 13:40 (753) **PARALLEL LC/MS FOR THE HIGH THROUGHPUT ANALYSIS OF COMBINATORIAL LIBRARIES**, STEFAN KROLIK, Ashley Sage, Kevin Giles, Robert Bateman, Steve Preece, Micromass UK Ltd, 3, Tudor Road, Atrincham, Cheshire, United Kingdom
- 14:00 (754) **DEVELOPMENT AND CHARACTERIZATION OF RECEPTOR BASED STATIONARY PHASES FOR CAPILLARY AFFINITY ELECTROCHROMATOGRAPHY**, VICTORIA VANDERNOOT, JoAnne Volponi, Scott Hebring, Joseph Schoeniger, Sandia National Labs, MS 9671, P.O. Box 969, Livermore, CA, USA
- 15:00 **Coffee Break**
- 15:20 (756) **BIO-MONITORING OF TAMOXIFEN AND ITS METABOLITES USING NONAQUEOUS CAPILLARY ELECTROPHORESIS/ELECTROSPRAY MASS SPECTROMETRY**, XING-FANG LI, Spencer Carter, Lillian Cook, John Mackey, Shanu Modi, Carl Cerniglia, Norm J. Dovichi, University of Alberta, Department of Chemistry, U. of A., Edmonton, AB, Canada
- 15:40 (757) **RAPID ULTRA SENSITIVE CHARACTERIZATION OF MICROORGANISMS USING ESI-MS/MS**, JULIE HORNER, Kim Peden, A. Peter Snyder, Richard Smith, Pacific Northwest National Laboratory, Mail Stop K8-98, P.O. Box 999, Richland, WA, USA
- 16:00 (758) **FAST HPLC ANALYSIS FOR DEVELOPMENT OF TRANSDERMAL DRUG DELIVERY SYSTEMS**, XIN (JASON) ZHANG, Steve Fields, ALZA Corporation, 950 Page Mill Road, Palo Alto, CA, USA

Thursday, 13:20 – 16:40, Room 3

FTIR PHOTOACOUSTIC SPECTROSCOPY II

Presiding: John McClelland Organized by: John McClelland

- 13:20 (759) **SURFACE PROFILING OF POLYMERS USING STEP-SCAN PHOTOACOUSTIC FT/IR**, MAREK URBAN, North Dakota State University
- 13:40 (760) **ANALYSIS OF PHOTOACOUSTIC DEPTH PROFILING RESULTS USING THE GENERALIZED 2D-IR METHOD**, MATTHEW SMITH, Eric Jiang, William McCarthy, Nicolet Instrument Corporation, 5225 Verona Road, Madison, WI
- 14:00 (761) **DETERMINATION OF MATERIAL POROSITY USING FT/IR-PAS**, KYOSTI KARTTUNEN, Pirjo Kyyronen, University of Oulu, Measurement and Sensor

Laboratory, Technology Park 127, Kajaani, Finland

- 14:20 (762) **REDUCTION OF PHOTOACOUSTIC SIGNAL SATURATION EFFECTS IN THE UV-VISIBLE SPECTRA**, S.J. BAJIC, R.W. Jones, J.F. McClelland, Ames Laboratory, 105 Spedding Hall, Iowa State University, Ames, IA
- 15:00 **Coffee Break**
- 15:20 (763) **THEORETICAL ANALYSIS OF HARMONIC SPECTRAL ENERGY PROFILE IN SQUARE-WAVE PHASE MODULATION STEP-SCAN FT/IR PAS**, ERIC JIANG, Dave Drapcho, BioRad Instruments, 237 Putnam Avenue, Cambridge, MA
- 15:40 (764) **PHOTOACOUSTIC SPECTROSCOPY OF TISSUES, OPPORTUNITIES AND CHALLENGES**, MICHAEL SOWA, Henry Mantsch, NRCC Inst. for Biodiagnostics, 435 Ellice Avenue, Winnipeg, MB
- 16:00 (765) **THE USE OF PHOTOACOUSTIC FOURIER TRANSFORM INFRARED SPECTROSCOPY IN THE ANALYSIS OF CONSTRUCTION MATERIALS**, ANA DELGADO, Ralph Paroli, National Research Council of Canada, Bldg. M20, Materials Lab, Ottawa, ON
- 16:20 (766) **TRACE MOISTURE DETECTION USING WAVELENGTH MODULATED PHOTOACOUSTIC SPECTROSCOPY**, DAVID BOMSE, Jeffrey Pilgrim, Southwest Sciences, Inc., 1570 Pacheco Street; Suite E-11, Santa Fe, NM, US

Thursday, 13:40 – 16:40, Room 7

SURFACE SPECTROSCOPY INSTRUMENTATION

Presiding: Gary Leach

- 13:40 (767) **NONLINEAR OPTICAL PROBES OF STRUCTURE AND DYNAMICS IN ULTRATHIN ORGANIC FILMS**, GARY LEACH, Tanya Kikteva, Dmitry Star, Simon Fraser University, 8888 University Dr., Burnaby, B.C., Canada
- 14:00 (768) **HIGH SPATIAL RESOLUTION FOR IR IMAGING USING AN IR DIODE LASER**, JAMES BAILEY, Darla Graff, Jon Schoonover, R. Brian Dyer, Los Alamos National Laboratory, CST-4 MS J586, Los Alamos, NM
- 14:20 (769) **INSTRUMENTAL CONSIDERATIONS FOR INFRARED SPECTROSCOPIC IMAGING USING MCT FOCAL PLANE ARRAYS**, DAVID SCHIERING, Robert Messerschmidt, Spectra-Tech, Inc., 2 Research Dr., Shelton, CT, USA
- 15:00 **Coffee Break**
- 15:20 (770) **INVESTIGATION OF IN-VIVO SURFACTANT DEPOSITION USING FT/IR SPECTROSCOPY AND ADVANCED CHEMOMETRIC TECHNIQUES**, ARCHANA SAH, Thomas Hancewicz, Unilever Research, 45 River Road, Edgewater, NJ, US
- 15:40 (771) **A NEW IMAGE-BASED FT/IR SAMPLING TECHNOLOGY FOR THE RAPID CHARACTERIZATION OF SOLID MATERIALS**, JOHN REFFNER, John Coates, Coates Consulting, 12 North Branch Road, Newtown, CT, USA
- 16:00 (772) **OPTICAL DESIGN CONSIDERATIONS FOR IMAGING FT-IR MICROSCOPY**, ROBERT MESSERSCHMIDT, David Schiering, Steven Vogel, E. Neil Lewis, Linda Kidder, Spectra-Tech, Inc., 2 Research Drive, Shelton, CT
- 16:20 (773) **DESIGN AND PERFORMANCE OF A NEAR-INFRARED RAMAN IMAGING MICROSCOPE BASED ON FIBER-BUNDLE IMAGE COMPRESSION**, ALAN GIFT, Jiaying Ma, Kenneth Haber, B.L. McClain, Dor Ben-Amotz, Purdue University, Department of Chemistry 1393 Brown Building, West Lafayette, IN, USA

Thursday, 13:20 – 16:40, Room 8
LASER ABLATION AT THE EDGE OF THE
MILLENNIUM II: FUNDAMENTAL STUDIES OF
CHEMICAL ANALYSIS

Presiding: Rick Russo Organized by: Rick Russo

- 13:20 (774) **SPECTRAL LINE SHAPES IN THE LASER INDUCED PLASMA**, I. B. GORNUSHKIN, B.W. Smith, J.D. Winefordner, University of Florida, Department of Chemistry, Gainesville, FL
- 13:40 (775) **EARLY PHASE PLASMA DIAGNOSTICS AND MASS REMOVAL DURING LASER ABLATION OF SILICON**, HAICHEN LIU, X.L. Mao, R.E. Russo, Lawrence Berkeley National Laboratory, Mail Stop 70-193A, Berkeley, CA
- 14:00 (776) **EMISSION SPECTROSCOPY OF LASER-ABLATION PLASMAS**, CARLOS ARAGÓN, José Antonio Aguilera, Universidad P'blica de Navarra, Departamento de Física, Campus de Arrosadia, Pamplona
- 14:20 (777) **FUNDAMENTAL STUDIES OF LASER INDUCED BREAKDOWN SPECTROSCOPY**, SCOTT GOODE, University of South Carolina, Department of Chemistry, Columbia, SC
- 15:00 **Coffee Break**
- 15:20 (778) **LASER ABLATION-MICROWAVE INDUCED PLASMA ATOMIC EMISSION SPECTROMETRY WITH ECHELLE/ICCD DETECTION APPLIED TO SYNTHETIC MATERIALS AND GLASS SAMPLES**, FRANZ LEIS, K. Niemax, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Strasse 11, Dortmund, Germany
- 15:40 (779) **PULSED LASER ABLATION INTO A MICROSECOND PULSED GLOW DISCHARGE**, W. W. HARRISON, K. Ingeneri, University of Florida, 2014 Turlington Hall, Gainesville, FL
- 16:00 (780) **A MICROSCOPIC LASER INDUCED PLASMA SPECTROMETER FOR RAPID IDENTIFICATION OF PARTICLES**, BEN SMITH, I.B. Gornushkin, J.D. Winefordner, University of Florida, Department of Chemistry, Gainesville, FL
- 16:20 (781) **LASER ABLATION ION STORAGE TIME-OF-FLIGHT MASS SPECTROMETRY**, GREG KLUNDER, B.D. Andresen, P. Grant, R.E. Russo, Lawrence Livermore National Laboratory, Livermore, CA

Thursday, 13:20 – 16:40, Room 9
ICP/AES

Presiding: Tina Harville

- 13:20 (782) **MULTIVARIATE CALIBRATION FOR INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPECTROMETRY**, E. HYWEL EVANS, Mike Griffiths, Dan Svozil, Sue Denham, Paul Worsfold, University of Plymouth, Dept. of Environmental Sciences, Drake Circus, Plymouth, UK
- 13:40 (783) **THE USE OF MULTIPLE EMISSION LINES AND PRINCIPAL COMPONENT REGRESSION FOR QUANTITATIVE ANALYSIS IN ICP/AES**, GARY KING, Daran Sadler, David Littlejohn, University of Strathclyde, Dept of Pure and Applied Chemistry, 295 Cathedral Street, Glasgow, United Kingdom
- 14:00 (784) **UNCERTAINTY BUDGETING IN THE MEASUREMENTS OF WASTEWATER WITH ICP/ES**, JIN-CHUN WOO, Myungsub Han, Eujin Whang, Korea Research Institute of Standards and Science, P. O. Box 102, Yousong, Taejeon, Korea
- 14:20 (785) **ETV SAMPLE INTRODUCTION IN ICP**

OPTICAL EMISSION SPECTROMETRY:
POSSIBILITIES AND LIMITATIONS, GREET DE LOOS, Salvador Maestre, Delft University of Technology, Rotterdamseweg 137, Delft, The Netherlands

15:00 Coffee Break

- 15:20 (786) **A NOVEL MEANS OF CONCOMITANT HYDRIDE GENERATION FOR ICP/AES**, TINA HARVILLE, Lisa Goldstone, JY Emission/HORIBA Group, 3880 Park Avenue, Edison, NJ, USA
- 15:40 (787) **AUTO OPTIMIZATION FOR SIMULTANEOUS ICP-AES SPECTROMETRY**, DOUG SHRADER, Filippa Minelli, Glyn Russell, Philip Wilson, Varian, Inc., 201 Hansen Court, Suite 108, Wood Dale, IL, USA
- 16:00 (788) **DETERMINATION OF CONSTITUENTS IN STEEL USING A NEW CCD SIMULTANEOUS ICP-AES SPECTROMETER**, DOUG SHRADER, Christine Rivera, John Lewzey, Varian, Inc., 201 Hansen Court, Suite 108, Wood Dale, IL, USA
- 16:20 (789) **DIRECT SOLID SAMPLING METHODS USING A PLASMA GUN DEVICE FOR SAMPLE INTRODUCTION INTO AN ICP**, JOEL GOLDBERG, Kerri Many, Ed Navarre, University of Vermont, Dept. of Chemistry, Burlington, VT, USA

Thursday, 13:20 – 16:40, Room 11
ROYAL SOCIETY OF CHEMISTRY ANALYTICAL
DIVISION SYMPOSIUM ON MAGNETIC SECTOR ICP-MS
Presiding: Ben Fairman
Organized by: Ben Fairman and David Koppenaal

- 13:20 (790) **EVALUATION OF A HIGH RESOLUTION-ICP/MS WITH MULTI-COLLECTOR FACILITY FOR CU, ZN AND FE IN FOODS AND CLINICAL SAMPLES**, HELEN CREWS, Malcolm Baxter, John Lewis, Dagmar Koller, Ian Bowen, Central Science Laboratory, Sand Hutton, York, Yorkshire, UK
- 13:40 (791) **COMPARISON OF ISOTOPIC RATIO MEASUREMENTS USING QUADRUPOLE, MAGNETIC SECTOR SINGLE COLLECTOR AND MAGNETIC SECTOR MULTI-COLLECTOR ICPMS INSTRUMENTATION**, CHRISTOPHE QUÉTEL, Thomas Prohaska, Philip Taylor, Jochen Vogl, Simon Nelms, European Commission - Joint Research Centre - Institute for Reference Materials and Measurements, Retieseweg, Geel, Belgium
- 14:00 (792) **HIGH RESOLUTION AND MULTI-COLLECTOR ICP/MS FOR SOLVING OLD AND CREATING NEW PROBLEMS**, SIMON CHENERY, Jennifer Cook, Geoff Nowell, British Geological Survey, Kingsley Dunham Centre, Nicker Hill, Keyworth, Nottingham, UK
- 14:20 (793) **THE POTENTIAL OF HR-ICP/MS FOR THE SCREENING OF ACTINIDES IN THE ENVIRONMENT**, HYWEL EVANS, Jason Truscott, Phil Jones, Ben Fairman, University of Plymouth, Dept. of Environmental Sciences, Drake Circus, Plymouth
- 15:00 **Coffee Break**
- 15:20 (794) **QUANTITATIVE ANALYSIS OF IRON SPECIATION IN MEAT BY SIZE EXCLUSION CHROMATOGRAPHY COUPLED TO A SECTOR FIELD INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER (HPLC-SF-ICP/MS)**, CHRIS HARRINGTON, S. Elahi, S. A. Merson, P. Ponnampalavanar, LGC (Teddington) Ltd., Queens Road, Teddington, Middlesex
- 15:40 (795) **HIGH RESOLUTION ICP-MS: HISTORICAL PERSPECTIVES AND NEW USES FOR MULTIELEMENT ANALYSIS, SPECIATION, LASER ABLATION, AND NUCLEAR**

- APPLICATIONS, MEIKE HAMESTER, C. B. Douthitt, Finnigan MAT, 9412 Rocky Branch Dr., Dallas, TX, USA**
- 16:00 (796) **IMPACT OF PLASMA ADDITIONS ON PERFORMANCE AND POLYATOMICS IN HIGH RESOLUTION ICP/MS, THOMAS RETTBERG, Susan Carpenter-Woods, VG Elemental, 27 Forge Pkwy, Franklin, MA, USA**
- 16:20 (797) **PROGRESS IN COUPLING A LINEAR DETECTOR ARRAY WITH A PLASMA-SOURCE MASS SPECTROGRAPH, GARY HIEFTJE, David Solyom, Indiana University, Department of Chemistry, Bloomington, IN**

**Thursday, 13:20 – 16:40, Room 12
CHEMICAL SPECIATION VIII**

Presiding: H. Hintlemann and D. Amarasiriwardena
Organized by: C.L. Chakrabarti, M.M. Lamoureux, W.D. Marshall, J. Caruso (ICASS)

- 13:20 (798) **FLUORESCENCE CHARACTERIZATION OF AGGREGATES AND FRACTIONS OF HUMIC AND FULVIC ACIDS, LINDA MCGOWN, Joseph Hewitt, Charles Sharpless, Duke University, Department of Chemistry, Box 90346, Durham, NC, USA**
- 14:00 (799) **SPECIATION OF CHROMIUM AND MERCURY BY COUPLING ATOMIC SPECTROMETRY TO LIQUID CHROMATOGRAPHY, JOSÉ A.C. BROEKAERT, University of Leipzig, Inst. for Anal. Chemistry, Linnéstrasse 3, Leipzig, D, Germany**
- 15:00 **Coffee Break**
- 15:20 (800) **INVESTIGATION OF DYNAMIC REACTION CELL (DRC) TECHNOLOGY FOR LOW-LEVEL DETERMINATION OF ARSENIC AND SELENIUM AND IMPLICATIONS FOR SPECIATION ANALYSIS, RUTH WOLF, Kenneth Neubauer, Perkin Elmer, 50 Danbury Road, MS 219, Wilton, CT**
- 15:40 (801) **THE IMPORTANCE OF CHEMICAL SPECIATION TO UNDERSTAND THE GEOCHEMICAL BEHAVIOUR OF TOXIC TRACE ELEMENTS IN AQUATIC SYSTEMS, NELSON BELZILE, Yu-Wei Chen, Laurentian University, Department of Chemistry & Biochemistry, Sudbury, ON, Canada**
- 16:20 (802) **OPTICALLY ACTIVE SELENIUM SPECIES IN NUTRITIONAL SUPPLEMENTS, KAREN SUTTON, Richard Sutton, Apryll Stalcup, Joseph Caruso, University of Cincinnati, P.O. Box 172, Cincinnati, OH, USA**

**Thursday, 13:40 – 16:20, Room 13
TRACE AND ULTRATRACE ANALYSIS II**

Presiding: R.E. Sturgeon, M. Hinds
Organized by: C.L. Chakrabarti (ICASS)

- 13:40 (803) **TRACE ELEMENT DETERMINATION IN PRECIOUS METAL SAMPLES BY X-RAY FLUORESCENCE SPECTROMETRY, MICHAEL HINDS, Arm Jonkers, Royal Canadian Mint, 320 Sussex Dr., Ottawa, ON, Canada**
- 14:00 (804) **INTERNATIONAL COLLABORATIVE ANALYSIS OF TWO POLISH SOIL REFERENCE MATERIALS BY ICP/MS, V. BALARAM, K.V. Anjaiah, National Geophysical Research Institute, Hyderabad**
- 15:00 **Coffee Break**
- 15:20 (806) **DETERMINATION OF TRACE ALUMINUM IN ENVIRONMENTAL SOLUTIONS BY GRAPHITE FURNACE AAS AND ICP/MS, REGINA**

KARWOWSKA, Marc Chenier, Mining and Mineral Sciences Laboratories/CANMET, 555 Booth Str., Ottawa, ON, Canada

- 15:40 (807) **DETERMINATION OF CADMIUM BY FLOW INJECTION-CHEMICAL VAPOR GENERATION WITH IN-SITU TRAPPING ETAAS, CESAR VARGAS, Gerhard Schlemmer, Julian Tyson, University of Massachusetts, Amherst, Department of Chemistry, BOX 34510, Univ. of Massachusetts, Amherst, MA, USA**
- 16:00 (808) **TRACE ELEMENTS MONITORING AND LEAD ISOTOPE RATIOS IN AIRBORNE PARTICULATE MATTERS COLLECTED IN TOKYO, NAOKI FURUTA, Noriaki Yoshinaga, Sumika Hagino, Akihiko Iijima, Chuo University, 1-13-27, Kasuga, Bunkyo-Ku, Tokyo, Japan**

**Thursday, 13:20 – 16:40, Room 14
ENVIRONMENTAL ANALYSIS**

Presiding: Barry Sharp

- 13:20 (809) **SELENIUM HYDRIDE ATOMIZATION, FATE OF FREE ATOMS, AND SPECTROSCOPIC TEMPERATURE IN ARGON SHIELDED, HIGHLY FUEL RICH, HYDROGEN-OXYGEN DIFFUSION MICRO FLAME ATOMIZERS STUDIED BY ATOMIC ABSORPTION SPECTROMETRY, LEONARDO LAMPUGNANI, Alessandro D'Ulivo, Jiri Dedina*, Thomas Matousek*, C.N.R., Institute of Instrumental Analytical Chemistry, Via Risorgimento, 35, Pisa, PI, Italy**
- 13:40 (810) **QUANTITATIVE APPLICATIONS WITH HEADSPACE MASS SPECTROMETRY, MARLANA BLACKBURN, Infometrix, Inc., P.O. Box 1528, Woodinville, WA, USA**
- 14:00 (811) **CHARACTERIZATION OF HUMIC MATERIAL-METAL INTERACTIONS AND DETERMINATION OF PESTICIDE FORMULATIONS USING TOTAL LUMINESCENCE SPECTROSCOPY IN CONJUNCTION WITH MULTI-WAY SPECTRAL DECONVOLUTION METHODS, MICHELLE NAHORNIAK, Karl Booksh, Arizona State University, Department of Chemistry and Biochemistry, Tempe, AZ, USA**
- 14:20 (812) **HUMIC ACID AS EXTRACTING AGENT OF CHROMIUM FROM KAOLIN, MASAHIKO KAN, Satoe Kuwahara, Makiko Yoshida, Fumitoshi Kaziwara, Shunitz Tanaka, Hokkaido University of Education Sapporo, Ainosato 5-3, Sapporo, Japan**
- 15:00 **Coffee Break**
- 15:20 (813) **OPTICAL CHARACTERIZATION OF A GAS TURBINE SPARK IGNITER, JAMES GORD, Keith Grinstead, Jr., Gregory Fiechtner, Michael Cochran, John Frus, Air Force Research Laboratory, AFRL/PRSC Bldg 490, 1790 Loop Rd N, Wright-Patterson Air Force Base, OH, USA**
- 15:40 (814) **DETERMINATION OF SELENIUM IN ENVIRONMENTAL REFERENCE MATERIALS: APPROACHES AND LIMITATIONS, JOSEPH LAM, Ralph Sturgeon, National Research Council of Canada, Institute for National Measurement Standards, Ottawa, ONT, Canada**
- 16:00 (815) **8-{{BIS(2-SULFANYLETHYL)AMINO}METHYL}-7-HYDROXY-4MTHYL-2H-CHROMEN-2-ONE, A NEW LEAD ION CHELATE WITH POTENTIAL FLUORESCENT ACTIVITY, ALANAH FITCH, Audrius Zhukas, Chemistry, Loyola University Chicago, 6525 N. Sheridan Rd., Chicago, IL, USA**
- 16:20 (816) **MORE COST-EFFECTIVE ELEMENTAL**

ANALYSIS OF AMBIENT WATER USING AN ENHANCED QUADRUPOLE ICP-MS, JENNY GODFREY, Fergus Keenan, Rob Henry, VG Elemental, Ion Path, Road Three, Winsford, Cheshire

**Thursday, 13:20 – 17:00, Room 15
MOLECULAR EMISSION SPECTROSCOPY II**

Presiding: Johannes W. Hofstraat
Organized by: Johannes W. Hofstraat

- 13:20 (817) **ADVANCED TECHNIQUES FOR MONITORING BP-6-N7GUA AND BP-6-N7ADE ADDUCTS IN HUMAN URINE EXTRACTS**, RYSZARD JANKOWIAK, Ken Roberts(1), Scott Duhachek(1), Jeremy Kenseth Marc (1), D. Porter(1), George Casale (2), Gerald Small (1), Ames Laboratory - USDOE and Department of Chemistry, Iowa State University, 706 Gilman Hall, Ames, Iowa
- 13:40 (818) **FLUORESCENCE STUDIES OF FULVIC ACIDS**, FREEK ARIESE, Sander van Assema, Cees Gooijer, Cooper Langford, Free University Amsterdam, Dept of Analytical Chemistry and Applied Spectroscopy, de Boelelaan 1083, Amsterdam, Netherlands
- 14:00 (819) **INTERACTION OF PAH AND HUMIC SUBSTANCES - NEW ASPECTS**, MICHAEL KUMKE, Fritz Frimmel, Cees Gooijer, Freek Ariese, Universität Karlsruhe, Engler-Bunte-Ring 1, Karlsruhe, Germany
- 14:20 (820) **POTENTIAL OF MOLECULAR LASER SPECTROSCOPY FOR TRACE ANALYSIS**, NEL VELTHORST, Igor Kozin, Steven Kok, Gerard Stroomberg, Freek Ariese, Cees Gooijer, Free University, Department of Analytical Chemistry and Applied Spectroscopy, Amsterdam, The Netherlands
- 15:00 **Coffee Break**
- 15:20 (821) **PHOTOCHEMISTRY OF PYRENE IN SOLID N-ALKANES AND POLYETHYLENE FILMS. IS PYRENE INERT IN HYDROCARBON MEDIA?**, OSCAR ZIMMERMAN, Richard Weiss, Georgetown University, 37th and O streets, NW, Washington, DC
- 15:40 (822) **SMALL-MOLECULE PROBE DIFFUSION IN POLYMERIC THIN FILMS: A NOVEL FLUORESCENCE NONRADIATIVE ENERGY TRANSFER STUDY OF RELAXATION DYNAMICS NEAR THE GLASS TRANSITION**, JOHN TORKELESON, Ali Dhinojwala, Denise Deppe, David Hall, Northwestern University, Depts. of Chemical Eng. and of Materials Sci. and Eng., Evanston, IL, USA
- 16:00 (823) **COMPOSITE THIN FILMS OF CDSE AND CDSE-ZNS CORE-SHELL NANOCRYSTALS DISPERSED IN ORGANIC AND INORGANIC MATRICES: MICROSTRUCTURE AND LUMINESCENT PROPERTIES**, HEDI MATTOUSSI, L.H. Radzilowski#, a J. Rodriguez-Viejo#, b B.O. Dabbousi#, D.E. Fogg#, M.G. Bawendi, Naval Research Laboratory, Optical Sciences Division, Code 5611, Washington, DC
- 16:20 (824) **FLUORESCENCE INVESTIGATIONS OF NOVEL, 'SMART', POLYMER SYSTEMS**, LINDA SWANSON, University of Lancaster, School of Physics and Chemistry, Faraday Building, Lancaster, Lancs.
- 16:40 (825) **ENERGY TRANSFER AND EMISSION ANISOTROPY STUDIES OF POLYMER SYSTEMS WITH COMPLEX MORPHOLOGIES**, IAN SOUTAR, University of Lancaster, School of Physics and Chemistry, Lancaster University, Lancaster, UK

**Thursday, 13:20 – 17:00, Room 16
NEW SEPARATION TECHNIQUES**

Presiding: Mitch Johnson

- 13:20 (826) **IMMUNO-AFFINITY PROBE CAPILLARY ELECTROPHORESIS FOR DETECTION OF THYMINE GLYCOL AND BENZO[A]PYRENE ADDUCTS IN CELLULAR DNA**, JAMES XING, Trevor Carnelley, X. Chris Le, University of Alberta, Rm 508, Newton Research Building, Edmonton, AB, Canada
- 13:40 (827) **APPLICATION OF SURFACTANT MODIFIED SOLID PHASE MICROEXTRACTION (SPME) TECHNIQUES TO THE DETERMINATION OF PESTICIDE RESIDUES IN FRUITS AND VEGETABLES**, IRENE DING, Luis Sojo, ASL Analytical Service Laboratories, 1988 Triumph Street, Vancouver, BC, Canada
- 14:00 (828) **MULTIDIMENSIONAL LIQUID CHROMATOGRAPHY FOR THE CHARACTERIZATION OF PAHS IN LIGHT GAS OILS**, MICHAEL POTVIN, Robert Guy, Dalhousie University, Dept. of Chemistry, Dalhousie University, Halifax, NS, CANADA
- 15:00 **Coffee Break**
- 15:20 (829) **INTERFACING THE CAPILLARY WITH THE LASER-INDUCED FLUORESCENCE MICROSCOPE**, MITCH JOHNSON, Duquesne University, Department of Chemistry, Pittsburgh, PA, USA
- 16:00 (830) **SPECIATION OF METHYLCYCLOPENTADIENYL MANGANESE TRICARBONYL BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY-DIODE LASER ATOMIC ABSORPTION SPECTROMETRY**, DAVID BUTCHER, A. Zybin, M. Bolshov, K. Niemax, Western Carolina University, Dept of Chemistry, Cullowhee, NC, USA
- 16:20 (831) **DETERMINATION OF COBALAMINS IN FOOD USING CE-ICP-MS**, SCOTT BAKER, Nancy Miller-Ihli, USDA, ARS, BHNRC, FCL, Bldg. 161, BARC-East, Beltsville, MD, USA
- 16:40 (832) **INTERFACING OF LIQUID CHROMATOGRAPHY (LC) WITH INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY (ICP-MS) FOR ARSENIC SPECIATION**, ELA BAKOWSKA, Peter Harrsch, Hewlett-Packard Company, 2850 Centerville Road, Wilmington, DE, USA

**Thursday, 13:40 – 16:40, Room 17
CHEMOMETRICS II**

Presiding: David Haaland

- 13:40 (833) **IMPROVING MULTIVARIATE SPECTRAL CALIBRATION WITH THE USE OF A NEW CLS/ PLS HYBRID ALGORITHM APPLIED TO THE ANALYSIS OF NIR SPECTRA OF DILUTE AQUEOUS SOLUTIONS**, CHRISTINE WEHLBURG, David Haaland, David Melgaard, Sandia National Laboratories*, 1515 Eubank SE, Albuquerque, NM, United States
- 14:00 (834) **THE USE OF A NEW CLS/ PLS HYBRID ALGORITHM FOR TRANSFERRING SPECTRAL CALIBRATIONS**, CHRISTINE WEHLBURG, David Haaland, David Melgaard, Sandia National Laboratories*, 1515 Eubank SE Dept. 1834 MS 0342, Albuquerque, NM, United States
- 14:20 (835) **OPTIMIZATION OF ALTERNATING CONDITIONAL EXPECTATION METHOD FOR QUANTITATIVE CALIBRATION**, MARC BOYSWORTH, Karl Booksh, Department of Chemistry and Biochemistry, Arizona State University, Tempe, AZ, USA
- 15:00 **Coffee Break**
- 15:20 (836) **ACCOUNTING FOR UNMODELED SPECTRAL**

INTERFERENCES IN THE QUANTITATIVE PREDICTION OF UNKNOWN SAMPLES USING A NEW CLS/ PLS HYBRID MULTIVARIATE CALIBRATION METHOD, DAVID HAALAND, David Melgaard, Sandia National Laboratories, MS0342, Albuquerque, NM, USA

- 15:40 (837) **DETERMINATION OF CHEMICALLY SIGNIFICANT PRINCIPAL COMPONENTS BY THE NOISE ADDITION METHOD**, BRIAN DABLE, Karl Booksh, Arizona State University, Department of Chemistry, Tempe, AZ, United States
- 16:00 (838) **A COMBINED CLUSTER AND PRINCIPAL COMPONENT ANALYSIS APPROACH TO DEPTH-RESOLVED QUANTIFICATION IN SCATTERING MEDIA USING PHOTON TIME-OF-FLIGHT MEASUREMENTS**, WILLIAM LONG, David Burns, McGill University, 801 Sherbrooke St. W., Montreal, QC, Canada
- 16:20 (839) **DERIVATIVE FILTERS IN MULTIVARIATE CALIBRATION: LOOKING UNDER THE HOOD**, CHRISTOPHER BROWN, Peter Wentzell, Lorenzo Vega-Montoto, Dalhousie University, 5237 Coburg Road, Halifax, NS, Canada

**Thursday, 13:20 – 17:20, Room 18
PHYSICAL APPLICATIONS OF SPECTROSCOPY**

Presiding: Tom Niemczyk

- 13:20 (840) **TIME-RESOLVED STEP-SCAN FT/IR/ ATR-SPECTROSCOPY OF THE REORIENTATION DYNAMICS OF LIQUID CRYSTALS IN AN ELECTRIC FIELD**, HEINZ SIESLER, Markus Fuelleborn, Sanong Ekgasit, Sergei Shilov, Department of Physical Chemistry, University of Essen, Schuetzenbahn 70, Essen, -, Germany
- 13:40 (841) **COMPONENT SELECTION IN MIXTURES USING DOVE-FWM**, JOHN WRIGHT, Wei Zhao, University of Wisconsin, 1101 University Avenue, Madison, WI, USA
- 14:00 (842) **MEASUREMENT OF INTERMOLECULAR FORCES IN LIQUIDS USING VIBRATIONAL SPECTROSCOPY**, YANIRA MELENDEZ-PAGAN, Dor Ben-Amotz, Purdue University, Dept. of Chemistry 1393 Brown Bldg., West Lafayette, IN, USA
- 14:20 (843) **CONTINUING DEVELOPMENT, CHARACTERIZATION, AND APPLICATION OF AN ASYNCHRONOUS OPTICAL SAMPLER**, KEITH GRINSTEAD, JR., Gregory Fiechtner, Christopher Bunker, Donald Phelps, James Gord, Innovative Scientific Solutions, Inc., 2766 Indian Ripple Rd, Dayton, OH, USA
- 15:00 **Coffee Break**
- 15:20 (844) **MODE SELECTION AND THE ELIMINATION OF SPECTRAL CONGESTION IN VIBRATIONAL SPECTRA USING DOVE-FWM**, JOHN WRIGHT, Wei Zhao, University of Wisconsin, 1101 University Avenue, Madison, WI, USA
- 15:40 (845) **SPECTRAL INFRARED HOLE BURNING AND CONFORMATIONAL CHANGE OF AMINO ACID SALTS**, HUNG-WEN LI, Herbert Strauss, University of California, Department of Chemistry, Berkeley, CA, USA
- 16:00 (846) **VORTEX-INITIATED CHEMICAL REACTIONS IN COMBUSTING FLOWFIELDS**, KEITH GRINSTEAD, JR., Gregory Fiechtner, Campbell Carter, James Gord, Paul-Henri Renard, Juan Carlos Rolon, Innovative Scientific Solutions, Inc., 2766 Indian Ripple Rd, Dayton, OH, USA
- 16:20 (847) **IR CHARACTERIZATION OF H₂O AND CO₂ ADSORPTION IN ZEOLITES**, THOMAS M NIEMCZYK, Wenxiang Zeng, David M Haaland,

University of New Mexico, Department of Chemistry, Albuquerque, NM, USA

- 16:40 (848) **ELECTRONIC ABSORPTION AND LASER-INDUCED FLUORESCENCE STUDIES OF METHYLSUBSTITUTED PHENANTHRENES OF ASTROPHYSICAL INTEREST**, ZAHID KHAN, Mudassir Husain, Centre for Information Technology, Jamia Millia Islamia
- 17:00 (849) **ON THE CORRELATION AMONG ELECTRONIC SINGLET, DOUBLET AND TRIPLET STATE ENERGIES OF CONDENSED-RING AROMATIC HYDROCARBONS**, ZAHID KHAN, Centre for Information Technology, Jamia Millia Islamia

Thursday, 13:20 – 17:00, Room 19

PROCESS ANALYTICAL CHEMISTRY III

Presiding: Mel Koch Organized by: Mel Koch

- 13:20 (850) **MICROBIAL IDENTIFICATION AND ENUMERATION USING SPECTROSCOPY METHODS**, LUIS GARCIA-RUBIO, University of South Florida, Department of Chemical Engineering - ENB 118, Tampa, FL
- 13:40 (851) **TRENDS IN PROCESS ANALYTICAL CHEMISTRY AT DOW**, TED MILLER, J. Paul Chauvel, Walter Henslee, Dow Chemical, Process Analytical, 1712 Building, Midland, MI
- 14:00 (852) **OPTICAL LOW COHERENCE REFLECTOMETRY FOR ON-LINE ANALYSIS OF HIGHLY SCATTERING MATERIALS**, SIMONIDA THURBER, Anatol Brodsky, Lloyd Burgess, University of Washington, Box 351700, Seattle, WA
- 14:20 (853) **MOLECULAR FLOW CYTOMETRY**, JAMES JETT, H. Cai, R. C. Habbersett, E. Larson, B. L. Marrone, J. P. Nolan, P. S. White, R. A. Keller, Los Alamos National Laboratory, Life Sciences Division Division, Los Alamos, NM
- 15:00 **Coffee Break**
- 15:20 (854) **PROBLEM SOLVING WITH PROCESS ANALYTICAL CHEMISTRY**, LARRY WRIGHT, Dow Chemical, Process Analytic Department/Analytical Sciences, Midland, MI
- 16:00 (855) **THERMAL MODULATION OF MICROCALORIMETRIC SENSORS FOR CHEMICAL ANALYSIS**, BENTON FREE, Robert Synovec, Lloyd Burgess, University of Washington, Box 351700, Seattle, WA
- 16:20 (856) **BATCH REACTION MONITORING WITH A NEW NIR PROCESS ANALYZER**, FRANK DETHOMAS, Ken von Bergen, Richard Stascavage, FOSS NIRSystems, 12101 Tech Road, Silver Spring, MD, USA
- 16:40 (858) **APPLICATIONS OF ON-LINE NMR IN PROCESS ANALYSIS**, COLIN MCGILL, Alison Nordon, David Littlejohn, University of Strathclyde/CPACT, Dept. Pure and Applied Chemistry, 295 Cathedral Street, Glasgow, United Kingdom

Friday, 8:20 – 11:40, Room 11

ATOMIC SPECTROMETRIC METHODS

Presiding: Gary Rayson

- 8:20 (859) **IDENTIFICATION AND REMOVAL OF FLUORIDE INTERFERENCES IN MULTI-ELEMENT ANALYSIS OF ZIRCON USING INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY (ICP-MS)**, JINESH JAIN, Clive Neal, John Hanchar, Notre Dame, Dept Civil Engineering & Geological Sciences, Notre Dame, IN, USA

- 8:40 (860) **A NEW BURNER DESIGN FOR FLAME ATOMIC ABSORPTION SPECTROMETRY**, DOUG SHRADER, Jonathan Moffett, Vanessa McCallum, Harry Howarth, Varian, Inc., 201 Hansen Court, Suite 108, Wood Dale, IL, USA
- 9:00 (861) **SIMULATIONS OF GAS PHASE SPECIES IN A GRAPHITE FURNACE ATOMIZER**, GARY RAYSON, Kowit Sae-tueng, New Mexico State University, Box 30001 MSC 3C, Las Cruces, NM, USA
- 9:20 (862) **APPLICATION OF A QUARTZ ACOUSTO-OPTIC TUNABLE FILTER AS A MINI-MONOCROMATOR FOR ATOMIC SPECTROMETRY**, STACEY GILLESPIE, Jon Carnahan, Northern Illinois University, Department of Chemistry, DeKalb, IL, USA
- 9:40 (863) **3D COMPUTER MODELLING OF THE TRANSVERSALLY HEATED GRAPHITE-TUBE ATOMIZER (THGA)-A NEW WAY OF GAINING INSIGHTS INTO ITS FUNCTIONING AND IMPROVING ITS DESIGN**, MICHAEL SPERLING, Albert Kh. Gilmudtinov, Chamil Araslanov, Perkin Elmer Bodenseewerk GmbH, P.O. Box 10 17 61, Ueberlingen, Germany
- 10:00 **Coffee Break**
- 10:40 (864) **ON-LINE WAVELENGTH CALIBRATION AND STABILIZATION FOR ECHELLE SPECTROMETERS**, BERNARD RADZIUK, Helmut Becker-Ross, Stefan Florek, Helmut Franken, Bodenseewerk Perkin-Elmer GmbH, P.O. Box 10 17 61, Ueberlingen, Germany
- 11:00 (865) **HELIUM MICROWAVE INDUCED PLASMA TIME OF FLIGHT MASS SPECTROMETRY**, PAMELA KEATING, J. W. Carnahan, L. S. Sunderlin, Northern Illinois University, 410 Faraday West, DeKalb, IL, USA
- 11:20 (866) **ANALYSIS OF ALUMINUM IN PHOTORESIST SAMPLES BY GFAA**, JASON CLOUTIER, Arch Chemicals

**Friday, 8:20 – noon, Room 12
CHEMICAL SPECIATION IX**

Presiding: M.M. Lamoureux and N. Belzile
Organized by: C.L. Chakrabarti, M.M. Lamoureux, W.D. Marshall, J. Caruso (ICASS)

- 8:20 (867) **ELIMINATION OF MEMORY EFFECTS FROM MERCURY, GOLD AND SILVER IN THEIR DETERMINATION BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPECTROMETRY**, IAN BRINDLE, Wencan (Wendy) Chen, Chris Robertson, Pamela Wee*, Brock University, 500 Glenridge Avenue, St. Catharines, ON, Canada
- 9:00 (868) **ELEMENTAL SPECIATION BY CAPILLARY ELECTROPHORESIS-ICP, IONSpray AND NANOSpray MASS SPECTROMETRY: METAL-LIGAND COMPLEXATION IN ENVIRONMENTAL AND BIOLOGICAL SYSTEMS**, XIAODONG BU, Susan Olesik, John Olesik, Ohio State University, 125 S. Oval Mall, 275 Mendenhall Laboratory, Columbus, OH, USA
- 9:20 (869) **IDENTIFICATION OF ARSENOSUGARS AT THE PG-LEVEL USING NANO-ELECTROSPRAY QUADRUPOLE TIME-OF-FLIGHT MASS SPECTROMETRY**, SPIROS PERGANTIS, Sunanta Wangkarn, K. Francesconi, J. E. Thomas-Oates, Birkbeck College, University of London, Dept. of Chemistry, Gordon House, 29 Gordon Square, London, United Kingdom
- 9:40 (870) **ANTICARCINOGENIC ORGANOSELENIUM COMPOUNDS-CHROMATOGRAPHIC AND MASS**

SPECTRAL SPECIATION, PETER UDEN, Julian Tyson, Mihaly Kotrebai, Eric Block, University of Massachusetts, Department of Chemistry, Lederle GR Tower A, Amherst, MA, USA

- 10:00 **Coffee Break**
- 10:40 (871) **ANALYSIS OF COMPLEX MATRIX SAMPLES WITH NEW CONCENTRIC PNEUMATIC NEBULIZERS BY ICP/AES**, JOSE-LUIS TODOLI, Jesus-Manuel Cano, Juan Mora, Antonio Canals, Vicente Hernandez, Department of Analytical Chemistry, P.O. Box 99, Alicante, Spain
- 11:00 (872) **SPECIATION OF ARSENIC COMPOUNDS IN RAT URINE USING ION CHROMATOGRAPHY INTERFACED TO INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY**, THOMAS GLUODENIS, Yoshinori Inoue, Hewlett-Packard Company, 2850 Centerville Road, Wilmington, DE, USA
- 11:20 (873) **ATOMIC ABSORPTION DETERMINATION OF MERCURY USING A TRANSVERSE FILTER ATOMIZER**, PIETER MARAIS, Dmitri Katskov, Nicolai Panichev, Technikon Pretoria, Faculty of Natural Science, Private bag X680, Pretoria, South Africa
- 11:40 (874) **HYDRIDE GENERATION OF ARSENIC AND SELENIUM WITH LASER INDUCED FLUORESCENCE AND LASER ENHANCED IONIZATION DETECTION**, LAWRENCE PACQUETTE, Seth Elwood, University of Iowa, Department of Chemistry, Iowa City, IA, USA

**Friday, 8:40 – 11:40, Room 13
CHEMICAL SPECIATION X**

Presiding: M. Kumke and M. Filella
Organized by: C.L. Chakrabarti, M.M. Lamoureux, W.D. Marshall, J. Caruso (ICASS)

- 8:40 (875) **ARSENIC AND ANTIMONY SPECIATION PROBLEMS AND SUCCESSES**, WILLIAM CULLEN, University of British Columbia, 2036 Main Mall, Vancouver, B. C., Canada
- 9:20 (876) **ARSENIC: CHEMICAL SPECIATION AND HEALTH EFFECTS**, X. CHRIS LE, Mingsheng Ma, Xiufen Lu, Jodi Luckwell, Steven Ma, Alfonso Montilla, Serife Yalcin, University of Alberta, Department of Public Health Sciences, 13-103 CSB, Edmonton, AB, Canada
- 10:00 **Coffee Break**
- 10:40 (877) **DETERMINATION OF METHYLMERCURY IN THE NATURAL ENVIRONMENT**, HOLGER HINTELMANN, Elizabeth Haack, Doug Simmons, Katherine Keppel-Jones, Doug Evans, Trent University, PO Box 4800, Peterborough, ON, Canada
- 11:20 (878) **INVESTIGATION OF TRACE METAL BOUND SOIL HUMIC ACID MOLECULAR WEIGHT FRACTIONS: PERSPECTIVES AND CHALLENGES**, DULA AMARASIRIWARDENA, Hampshire College, School of Natural Science, Amherst, MA, USA

**Friday, 8:20 – noon, Room 14
NIR APPLICATIONS**

Presiding: Gabor Patonay

- 8:20 (879) **DESIGN AND EVALUATION OF A DOUBLE-BEAM, SCANNING, NEAR-INFRARED SPECTROMETER AND THE USE OF TRICHLOROMETHANE AS A STANDARD FOR WAVELENGTH AND PHOTOMETRIC CALIBRATION**, KENNETH BUSCH, Olusola Soyemi, Dennis Rabbe, Marianna Busch, Baylor University, Center for Analytical Spectroscopy, BU Box 97348, Waco, TX,

- USA
- 8:40 (880) **NEAR-INFRARED CHROMOPHORES IN BIOANALYSES: WHAT WAVELENGTH TO USE?**, GABOR PATONAY, A. Swamy, C. Mason, L. Strekowski, Georgia State University, University Plaza, Atlanta, GA, USA
- 9:00 (881) **CHARACTERIZATION OF TYPE 3A DESICCANT USING TG-FT/IR**, M. KATHLEEN ALAM, Sandia National Laboratory, MS 0342, Albuquerque, NM, USA
- 9:20 (882) **VISUALIZING CHEMICAL COMPOSITION AND REACTION KINETICS BY NEAR INFARED MULTISPECTRAL IMAGING TECHNIQUE**, CHIEU TRAN, marc fischer, marquette university, department of chemistry, p. o. box 1881, milwaukee, WI, USA
- 9:40 (883) **EVALUATION OF A SEARCH AND RETRIEVAL SYSTEM WITH FT-NIR SPECTRAL DATA**, STEPHEN LOWRY, Garry Ritter, Bill McCarthy, Nicolet Instrument Corporation, 5225-4 Verona Rd., Madison, WI, USA
- 10:00 **Coffee Break**
- 10:40 (884) **ENVIRONMENTAL AND PROCESS ANALYTICAL APPLICATIONS OF NIR EVANESCENT WAVE SENSING TECHNIQUES**, JOCHEN BUERCK, Karl Kraemer, Siegmur Roth, Forschungszentrum Karlsruhe, IFIA, P.O. Box 3640, Karlsruhe, Germany
- 11:00 (885) **NIR RAMAN IMAGING: A PROBE FOR BONE MINERAL MICROSTRUCTURE**, JERILYN TIMLIN, Catherine Perso, Michael Morris, University of Michigan, 930 N. University Ave., Ann Arbor, MI, USA
- 11:20 (886) **REAGENTLESS BLOOD ANALYSIS BY NEAR-INFRARED RAMAN SPECTROSCOPY WITH HYBRID LINEAR ANALYSIS**, TAE-WOONG KOO, Andrew Berger, Irving Itzkan, Gary Horowitz, Michael Feld, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Room 6-014, Cambridge, MA, USA
- 11:40 (887) **ON-LINE NIR MONITORING OF A POLMER PROCESS**, EDWARD ORR, Brian Wittkamp, Foss NIRSystems, Inc., 17131 Grey Mist Drive, Friendswood, TX, USA