

FACSS 2001 TECHNICAL PROGRAM

Sunday, 5:00 PM – 7:00 PM, Riverview Ballroom Cobo Convention Center

FACSS ALL-STARS POSTER SESSION

Presiding: David Butcher	Organized by: Matt Fender
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Your poster should be put up by 5:00 PM on Sunday and removed at 7:00 PM. Please leave your poster in place for the entire time. Actual presentation times are staggered. Check your presentation time on the following pages.

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| 5:00 | (1) A POSITIVE LYAPUNOV EXPONENT: FACSS AS A DYNAMICAL NONLINEAR SYSTEM , ALEXANDER SCHEELINE, University of Illinois at Urbana-Champaign, 600 S. Mathews Ave., Urbana, IL, USA | 5:00 | (14) ION/ION CHEMISTRY IN THE QUADRUPOLE ION TRAP: FROM FUNDAMENTALS TO BIOLOGY , JAMES STEPHENSON, JR., Nathan C. Verberkmoes, Jonathon Bundy, Benjamin J. Cargile, Oak Ridge National Laboratory, P.O. Box 2008; MS-6365, Oak Ridge, TN, USA |
| 6:00 | (2) THE PROS AND CONS OF HYPHENATED APPROACHES , NANCY J. MILLER-IHLI, USDA, Food Composition Lab, Rm. 1 Building 161 BARC-East, Beltsville, MD, USA | 6:00 | (15) AN ENVIRONMENTALLY FOCUSED UNDERGRADUATE CURRICULUM , DAVID J. BUTCHER, Cynthia A. Atterholt, J. Roger Bacon, Paul F. Brandt, William R. Kwochka, Gary L. Pool, Arthur Salido, Royce S. Woosley, Western Carolina University, Department of Chemistry and Physics, Cullowhee, NC, USA |
| 5:00 | (3) A GRAND UNIFYING THEORY FOR THE EDUCATION AND ENLIGHTENMENT OF THE NEXT GENERATION: A GUT FEELING FOR ANALYTICAL CHEMISTRY , JULIAN TYSON, University of Massachusetts, Department of Chemistry, 710 North Pleasant Street, Amherst, MA, USA | 5:00 | (15A) THE DESIGN, CARE, AND RACING OF VINTAGE Q-CLASS SLOOPS; OR 'IS THERE LIFE AFTER FACSS'? DAVID M. COLEMAN, Dept. of Chemistry-123, Wayne State University, Detroit, MI 48202 |
| 6:00 | (4) AEROSOLS, LIGHT SCATTERING AND CHEMICAL ANALYSIS: WHAT'S THE CONNECTION? , JOHN KOROPCHAK, Lars-Erik Magnusson, Qin Wang, Qi Lu and Wenjing Yang, Southern Illinois University, Department of Chemistry and Biochemistry, Carbondale, IL, USA | 6:00 | (16) SPECTROSCOPY, CHEMOMETRICS AND POLYMORPHS IN PHARMACEUTICAL CHARACTERIZATION , JIM RYDZAK, Teresa Head, Herold Shepard and Gary Zuber, GlaxoSmithKline, 709 Swedeland Road, MailStop UW2940, King Of Prussia, PA, USA |
| 5:00 | (5) WHAT I LEARNED IN SCHOOL FROM TIME-RESOLVED MEASUREMENTS , JOHN OLESIK, Ohio State University, 125 S. Oval Mall 275 Mendenhall Laboratory, Columbus, OH, USA | 5:00 | (16A) PIECE OF MIND FOR A MAD SCIENTIST , PATSY COLEMAN, Ford Motor Company, 2400 Village Rd, MD 68/AEC, Dearborn, MI, USA |
| 6:00 | (6) DETERMINATION OF STABLE ISOTOPES BY INFRARED ABSORPTION SPECTROMETRY , RON WILLIAMS, AASU, Department of Chemistry and Physics, Savannah, GA, USA | 6:00 | (17) LOWERING OF THE DETECTION LIMITS IN FLAME- AAS BY SAMPLE INTRODUCTION VIA A SIMPLE THERMOSPRAY OR BY A LIQUID JET INTO A FLAME-HEATED TUBE (FLAME FURNACE- AAS) , HARALD BERNDT, Attila Gaspar, Joanne Davies and Annelen Ratka, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany |
| 5:00 | (7) CHEMISTRY AND KIDS: SHARE THE FUN! , BARRY STREUSAND, Marie Streusand, Victoria Streusand(1), David Streusand(1), Applied Analytical, Inc., 9909 Burnet Rd., (1) Nyos Charter School, Austin, TX, USA | 5:00 | (18) CHARACTERIZATION OF THE AEROSOL TRANSPORT IN A CYCLON SPRAY CHAMBER USING COMPUTATIONAL FLUID DYNAMICS (CFD) , GERHARD SCHALDACH, Ludwig Berger and Harald Berndt, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, D- 44139 Dortmund, Germany |
| 6:00 | (8) CHEMICAL IMAGING: PAST, PRESENT & FUTURE , PATRICK TREADO, Matthew P. Nelson, ChemIcon Inc., 7301 Penn Avenue, Pittsburgh, PA, USA | 6:00 | (19) SE SPECIATION IN BIOLOGICAL FLUIDS: AN ANALYTICAL APPROACH TO A SUPPLEMENTATION STUDY , FADI ABOU-SHAKRA, J. Adair, N. I. Ward, Micromass UK Ltd, Floats Road, Wythenshaw, Manchester, United Kingdom |
| 5:00 | (10) ANALYTICAL CHEMISTRY POEM , DIANE BEAUCHEMIN, Queen's University, Department of Chemistry, Kingston, ON, Canada | 5:00 | (20) AN INNOVATIVE APPROACH TO MULTI-ELEMENT ANALYSIS IN ATOMIC ABSORPTION SPECTROSCOPY USING AN APPLICATION SOURCE LAMP , CHRISTINE FLAJNIK-RIVERA, Matthew McCrum, Jeff Greene, GBC Scientific Equipment, Inc., 3930 Ventura Dr, Suite 350, Arlington Heights, IL, USA |
| 6:00 | (11) CAPILLARY ELECTROPHORESIS AS A TOOL FOR PHYSICAL CHARACTERIZATION- MOLECULES TO MATERIALS , MITCHELL JOHNSON, Duquesne University, Department of Chemistry and Biochemistry, Pittsburgh, PA, USA | 6:00 | (21) SAMPLING AND ANALYSIS OF SEMICONDUCTOR DEIONIZED WATER AT THE PART-PER-QUADRILLION LEVEL: SUCCESS IN THE REAL WORLD , SCOTT ANDERSON, David Bollinger, Anthony Schleisman, Martin Haddix, Air Liquide America, 13546 North Central Expressway, MS 301, Dallas, TX, USA |
| 5:00 | (12) SHAPENING PUBLIC AWARENESS OF ANALYTICAL SCIENCE! , KAY NIEMAX, The Scientists Of The Institute Of Spectrochemistry and Applied Spectroscopy (isas), Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str.11, Dortmund, Germany | 5:00 | (22) DEVELOPMENT OF AN ANALYTICAL METHOD FOR ASSESSING ARSENIC DISTRIBUTIONS IN HUMAN URINE , JOSEF SIMEONSSON, David Thomas, US EPA, MD-74, NHEERL, Research Triangle Park, NC, USA |
| 6:00 | (13) A RAMAN DETECTOR FOR GAS CHROMATOGRAPHY , PETER CHEN, Candace Joyner, Sheena Patrick, and Rebecca Royster, Spelman College, 350 Spelman LN SW, Atlanta, GA, USA | | |

- 6:00 (23) **COMPARISON OF INFLUENCE OF OPERATING PARAMETERS OF A LOW-FLOW ICP TORCH TO A STANDARD ICP TORCH WITH PNEUMATIC AND ULTRASONIC NEBULIZATION**, ARTHUR VARNES, Mary Lenczewski, John Carroll University, Department of Chemistry, Cleveland, OH, USA
- 5:00 (24) **INFRARED DATABASES A CLASS ACT**, MICHAEL BORUTA, Bio-Rad Informatics Division Sadtler Databases & Software, 3316 Spring Garden Street, Philadelphia, PA, USA
- 6:00 (25) **A COMPARISON OF FT/ RAMAN AND DISPERSIVE RAMAN MICRO-ANALYSIS TECHNIQUES IN THE EXAMINATION OF NATURAL PRODUCTS AND IN LIFE SCIENCES APPLICATIONS**, LOWRY STEVEN, Forrest Weesner, Richard Wieboldt, Thermo Nicolet, 5225 Verno Road, Madison, WI, USA
- 5:00 (26) **INVESTIGATION OF RESIDUE AND COATING STOICHIOMETRY ON COMBUSTIBLE CARTRIDGE CASES**, WILLIAM LUM, Pauline Smith, Kestutis Chesonis, Army Research Laboratory, AMSRL-WM-MA, Bldg.4600, Deer Creek Loop, Aberdeen Proving Ground, MD,
- 6:00 (27) **COMPARISON OF VIBRATIONAL SPECTROSCOPIC TECHNIQUES FOR THE ANALYSIS OF KEY PARAMETERS IN POLYOL AND OTHER POLYMER SAMPLES**, MARK KEMPER, William J. McCarthy, Michael Garry and Michael L. Longmire, Thermo Nicolet Corporation, 5225 Verona Rd., Madison, WI, USA
- 5:00 (28) **CONSIDERATIONS IN ESTABLISHING AN ABSOLUTE QUANTITATIVE METHOD FOR POLYMER ANALYSIS USING 1H NMR SPECTROSCOPY**, CLAIRE CONBOY, Lisa Achten, Lamy Chopin, Jill Doiron, Gian Gobbi, Lonnie Hazlitt, Joyce Johnson, David Redwine, Janece Potter, Hein Schouweenars, Debra Lee Walker, Michelle Williamson, Dow, 2301 N Brazosport Blvd B-1219, Freeport, TX, USA
- 6:00 (29) **ANALYSIS OF ADDITIVES IN POLYMER BY HIGHLY SENSITIVE LIQUID CHROMATOGRAPHY-INFRARED SPECTROSCOPY USING SURFACE-ENHANCED INFRARED ABSORPTION SPECTROSCOPY**, EIICHI SUDO, Yasuo Esaki, Motoyasu Sugiura, TOYOTA CENTRAL R&D LABS.,INC., 41-1Nagakute-cho, Aichigun, Aichi-Ken, Japan (833)

**Monday, 8:00 AM – 8:50 AM, Room W2-62
FEATURED PRESENTATION:
MINIATURIZATION OF SPECTROCHEMICAL
METHODS AT ISAS**

Presiding: Kay Niemax Organized by: Kay Niemax

- 8:00 (30) **THE INSTITUTE OF SPECTROCHEMISTRY AND APPLIED SPECTROSCOPY (ISAS)-AN ANALYTICAL SCIENCE RESEARCH CENTER**, KAY NIEMAX, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany
- 8:10 (31) **MICROSTRUCTURED ION MOBILITY SPECTROMETER FOR VOLATILES IN WATER AND GAS ATMOSPHERE QUALITY SURVEILLANCE**, JORG INGO BAUMBACH, S. Sielemann, H. Schmidt, P. Pilzecker, M. Teepe, A. Neyer, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany

**Monday, 9:00AM – 11:40 AM, Room W2-62
MINIATURIZATION OF SPECTROCHEMICAL METHODS
AT ISAS**

Presiding: Kay Niemax Organized by: Kay Niemax

- 9:00 (32) **MICROSTRUCTURED ANALYTICAL INSTRUMENTATION FOR THE ANALYSIS OF LIQUIDS**, ROLAND HERGENROEDER, B. Grass, G. Weber, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany
- 9:40 (33) **FIBER-OPTIC SERS SENSORS**, ANTONY N. DAVIES, C. Viets, W. Hill, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany
- 10:00 (34) **THE DIELECTRIC BARRIER DISCHARGE - A POWERFUL MICROCHIP PLASMA FOR ANALYTICAL SPECTROMETRY**, JOACHIM FRANZKE, M. Miclea, K. Kunze, C. Vadla, G. Musa, K. Niemax, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany
- 10:20 **Coffee Break**
- 11:00 (35) **DIODE LASER BASED COMPACT SYSTEM FOR METAL SPECIATION BY HPLC AND ATOMIC ABSORPTION SPECTROMETRY IN A FLAME**, ALEXANDRE ZYBIN, Institute of Spectrochemistry and Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany
- 11:20 (36) **NOVEL DEVELOPMENTS IN FIBER-OPTIC INFRARED SPECTROSCOPY FOR ANALYTICAL APPLICATIONS**, H. MICHAEL HEISE, L. Kupper, L. N. Butvina, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany

**Monday, 9:00 AM – 12:20 PM, Room W2-66
NEW WAYS IN GLOW DISCHARGE ATOMIC
SPECTROMETRY FOR ELEMENTAL DETERMINATION
AND SPECIATION I**

Presiding: J.A.C. Broekaert Organized by: J.A.C. Broekaert

- 9:00 (37) **GLOW DISCHARGE ATOMIC SPECTROMETRY FOR THE ANALYSIS OF SOLIDS, LIQUIDS AND GASES**, JOSE A.C. BROEKAERT, University of Leipzig, Institute for Analytical Chemistry, Linnestrasse 3, Leipzig, Germany
- 9:40 (38) **RADIO FREQUENCY CAPACITIVELY-COUPLED MICROPLASMA'S-AN EFFICIENT ROUTE TO A PLASMA ON A CHIP**, MICHAEL BLADES, Conrad Chevalier, Adam Bass, University of British Columbia, Chemistry Department, Vancouver, BC, Canada
- 10:00 (39) **EXCITATION AND IONIZATION IN A MS PULSED GLOW DISCHARGE PLASMA: IMPLICATIONS FOR ATOMIC AND MOLECULAR DETERMINATIONS**, FRED KING, L. Lei, T. Millay, M. Moser, V. Majidi, C. Lewis, Department of Chemistry, West Virginia University, Box 6045, Morgantown, WV, USA
- 10:20 **Coffee Break**
- 10:40 (40) **RECENT DEVELOPMENTS IN IN-DEPTH PROFILING WITH GLOW DISCHARGES**, ARNE BENGTON, Sofia Haenstrom, Swedish Institute for Metals Research, Drottning Kristinas vaeg 48, Stockholm, Sweden
- 11:00 (41) **POSSIBILITIES AND LIMITATIONS OF MODELLING OF GLOW DISCHARGES FOR**

- ATOMIC SPECTROMETRY**, ANNEMIE BOGAERTS, Renaat Gijbels, University of Antwerp, Department of Chemistry, Universiteitsplein 1, Wilrijk-Antwerp, Belgium
- 11:20 (42) **GLOW DISCHARGE-OPTICAL EMISSION SPECTROMETRY AS CHROMATOGRAPHIC DETECTOR FOR METAL SPECIATION STUDIES**, ROSARIO PEREIRO, Nestor Orellana, Roberto Martinez, Alfredo Sanz-Medel, University of Oviedo, Department of Physical and Analytical Chemistry. Faculty of Chemistry, Julian Claveria, 6, Oviedo, Spain
- 11:40 (43) **NEW DEVELOPMENTS IN INSTRUMENTATION FOR GLOW DISCHARGE MASS SPECTROMETRY**, NORBERT JAKUBOWSKI, Institut für Spektrochemie und Angewandte Spektroskopie (ISAS), P.O.Box 101352, Dortmund, Germany
- 12:00 (44) **NEW SIMPLE GLOW DISCHARGE ION SOURCE COUPLED TO AN ON-AXIS TIME-OF-FLIGHT MASS SPECTROMETER**, NEREA BORDEL, Jorge Pisonero, Jose Manuel Costa, Rosario Pereiro, Alfredo Sanz-Medel, University of Oviedo, Avda. Calvo Sotelo s/n, Oviedo, Asturias, Spain

Monday, 9:00 AM – 12:20 PM, Room W2-58
DEVELOPMENT OF FLOW INJECTION TECHNIQUES FOR ATOMIC SPECTROMETRY

Presiding: Diane Beauchemin Organized by: Diane Beauchemin

- 9:00 (45) **SCOPE AND LIMITATIONS OF FLOW INJECTION ATOMIC SPECTROMETRY**, JULIAN TYSON, University of Massachusetts, Dept of Chemistry, 701 LGRT, 710 North Pleasant Street, Amherst, MA, USA
- 9:40 (46) **EXPLOITING FLOW INJECTION AND SEQUENTIAL INJECTION SCHEMES FOR TRACE METAL DETERMINATIONS BY ELECTROTHERMAL ATOMIC ABSORPTION SPECTROMETRY**, ELO H. HANSEN, Jianhua Wang, Technical University of Denmark, Department of Chemistry, Kemitorvet, Building 207, Kgs. Lyngby, Denmark
- 10:20 **Coffee Break**
- 11:00 (47) **FLOW INJECTION ON-LINE PRECONCENTRATION AND SEPARATION FOR GRAPHITE FURNACE ATOMIC ABSORPTION SPECTROMETRY**, BERNHARD WELZ, Universidade Federal de Santa Catarina, Departamento de Química, Florianópolis, SC, Brazil
- 11:40 (48) **FLOW INJECTION ATOMIC SPECTROMETRIC TECHNIQUES FOR SPECIATION**, MICHAEL SPERLING, PerkinElmer Bodenseewerk, P.O. Box 10 17 61, Ueberlingen, Germany

Monday, 9:00 AM – 12:20 PM, Room W2-65
MICRO AND NANO-NEBULIZATION: CONCEPTS, DEVICES, FUNDAMENTALS, AND NOVEL APPLICATIONS - I

Presiding: Akbar Montaser Organized by: Akbar Montaser

- 9:00 9:00 (49) **AEROSOL GENERATION, MODIFICATION, TRANSPORT AND SAMPLE-PLASMA INTERACTION AT MICROLITER TO MILLILITER SAMPLE UPTAKE RATES**, JOHN W. OLESIK, Ohio State University, 125 S. Oval Mall 275 Mendenhall Laboratory, Columbus, OH, USA.
- 9:40 9:40 (50) **CONSIDERATION OF DROPLET COALESCENCE ON THE FATE OF SAMPLE DROPLETS IN INDUCTIVELY COUPLED PLASMA**, CRAIG M. BENSON,¹ Sergey F. Gimelshein,¹ Deborah A. Levin,² and Akbar Montaser,¹ (1) George Washington University, 725 21st Street, NW, Washington, DC, USA

and (2) Department of Aerospace Engineering, Pennsylvania State University, 233 Hammond Building, University Park, PA 16802, USA.

- 10:00 10:00 (51) **EVALUATION OF MICRONEBULIZERS FOR IMPROVED ISOTOPE RATIO PRECISION USING MULTICollector INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY**, BILLY W. ACON,¹ Yann Lahaye,² Gerhard Brey,² Meike Hamester,³ John A. McLean,¹ and Akbar Montaser,¹ (1) George Washington University, 725 21st Street, NW, Washington, DC, USA, (2) Johann Wolfgang Goethe-Universität Frankfurt am Main, Institut fuer Mineralogie, Senckenberganlage 28, D-60054 Frankfurt, Germany, and (3) Thermo Finnigan MAT GmbH, Barkhausenstr. 2, 28197 Bremen, Germany.
- 10:20 **Coffee Break**
- 11:00 (52) **STRATEGIES FOR IMPROVING DETECTION LIMITS IN ORGANIC SOLVENTS FOR ICP-OES: APPLICATION OF SPECTRAL DECONVOLUTION AND MICROCONCENTRIC NEBULIZATION**, MICHELLE E. CREE, Steve Wall, Varian, Inc., 25 Hanover Road Building A, Florham Park, NJ, USA.
- 11:20 (53) **INVESTIGATION OF THE DIRECT INJECTION HIGH EFFICIENCY NEBULIZER IN AXIAL AND RADIAL INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPECTROMETRY**, JOSE R. CHIRINOS, Kaveh Kahen, Billy W. Acon, Su-Ann E. O'Brien, Kaveh Jorabchi, Akbar Montaser, George Washington University, 725, 21st Street, NW, Washington, DC, USA.
- 11:40 (54) **EFFECT OF ORGANIC SOLVENTS ON THE ICP-AES PERFORMANCE AT VERY LOW LIQUID FLOW RATES**, JOSE LUIS TODOLI,¹ Jean Michel Mermet,² (1) University of Alicante, P.O. Box 99, Alicante, Spain and (2) University Claude Bernard-Lyon 1, Laboratoire des Sciences Analytiques, F-69622 Villeurbanne, Cedex, France.
- 12:00 (55) **INVESTIGATION OF HEXAPOLE COLLISION CELL INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY FOR THE ATTENUATION OF SPECTRAL INTERFERENCES USING A DIRECT INJECTION HIGH EFFICIENCY NEBULIZER**, SU-ANN E. O'BRIEN,¹ Billy W. Acon,¹ Sergei F. Boulyga,² J. Sabine Becker,² and Akbar Montaser,¹ (1) Department of Chemistry, George Washington University, 725, 21st Street, NW, Washington, DC, USA and (2) Central Department of Analytical Chemistry, Research Centre Juelich, D-52425 Juelich, Germany.

Monday, 9:00 AM – 12:20 PM, Room W2-64
NEW INVESTIGATORS IN ANALYTICAL SCIENCE: INNOVATIVE LEADERS IN THE NEW MILLENNIUM I

Presiding: Doug Gilman Organized by: David Butcher

- 9:00 (56) **APPLYING LASERS TO MICROFLUIDICS AND BIOANALYSIS: MORE THAN FLUORESCENCE**, S. DOUGLAS GILMAN, University of Tennessee, Department of Chemistry, Knoxville, TN
- 9:20 (57) **SINGLE DNA MOLECULE HYBRIDIZATION DYNAMICS AT AN INTERFACE**, WEIHONG TAN, Gang Yao, Xiaohong Fang, University of Florida, Department of Chemistry and McKnight Brain Institute, Gainesville, FL, USA
- 9:40 (58) **INFORMATICS AND MULTIPLEXING OF INTACT PROTEIN IDENTIFICATION IN BACTERIA AND THE ARCHAEA**, NEIL KELLEHER, Fanyu Meng, Benjamin Cargile, Leah Miller, and Jeff

Johnson, University of Illinois at Urbana-Champaign, 600 S. Mathews Ave., Urbana, IL, USA

- 10:00 (59) **USE OF BOMB-PULSE CARBON-14 AND ACCELERATOR MASS SPECTROMETRY (AMS) TO AGE NEUROFIBRILLARY TANGLES AND SENILE PLAQUES IN ALZHEIMER'S DISEASE**, MARK LOVELL, J. D. Robertson, B. Buchholz, C. S. Xie and W. R. Markesbery, Dept. of Chemistry/Sanders-Brown Center on Aging, University of Kentucky, Lexington, KY, USA

10:20 **Coffee Break**

- 10:40 (60) **SPECTROSCOPIC STUDIES OF SEVERAL CHROMOPHORES IN HUMAN RETINAL LIPOFUSCIN**, ELIZABETH R. GAILLARD, Robert C. Heckathorn, Northern Illinois University, Department of Chemistry and Biochemistry, DeKalb, IL, USA
- 11:00 (61) **PROTEIN DETECTION USING LASERS IN CAPILLARY ELECTROPHORESIS**, CHRISTA COLYER, Elizabeth M. McCorquodale, Perti J. Viskari, Frank Welder, Wake Forest University, Department of Chemistry, Winston-Salem, NC, USA
- 11:20 (62) **UNRAVELING THE STRUCTURE OF SURFACE CONFINED PROTEINS BY NONLINEAR SPECTROSCOPY**, JOHN C. CONBOY, University of Utah, Department of Chemistry, 315 S. 1400 E. RM 2020, Salt Lake City, UT
- 11:40 (63) **FLOW-BASED MICROIMMUNOASSAY**, MARK HAYES, Allison Phayre, Jamie Lee, Nancy Lee, Antonio Garcia, Arizona State University, PO Box 871604, Tempe, AZ, USA
- 12:00 (63A) **FINGERPRINTING COMPLEX BIOLOGICAL AND ENVIRONMENTAL SAMPLES: BIOMARKER IDENTIFICATION WITH A HIGH PERFORMANCE MASS SPECTROMETER**, TOURADJ SOLOUKI, Jan E. Szulejko, Department of Chemistry, Aubert Hall # 134, University of Maine, Orono, ME 04473

**Monday, 9:00 AM – 12:20 PM, Room W2-70
REACTION OF GAS PHASE IONS**

Presiding: Vicki Wysocki Organized by: Vicki Wysocki

- 9:00 (64) **THE LATEST NEWS ON THE CONFORMATIONS AND ENERGETICS OF BIOPOLYMERS IN THE GAS PHASE: DNA, PROTEINS AND HYDRATION**, MICHAEL BOWERS, Jennifer Gidden and Thomas Wyttenbach, University of California at Santa Barbara, Department of Chemistry, Santa Barbara, CA, USA
- 9:40 (65) **REACTIONS OF HYDRATED IONS: BRIDGING THE GAP BETWEEN GAS-PHASE AND SOLUTION-PHASE STUDIES**, EVAN R. WILLIAMS, University of California, Berkeley, Department of Chemistry, 406 Latimer Hall #1460, Berkeley, CA, U S A
- 10:00 (66) **NONCOVALENT INTERACTIONS OF NUCLEIC ACID BASES WITH METAL IONS: THRESHOLD COLLISION-INDUCED DISSOCIATION AND THEORETICAL STUDIES**, MARY RODGERS, Wayne State University, 5101 Cass Avenue, 33 Chemistry, Detroit, MI, USA
- 10:20 **Coffee Break**
- 11:00 (67) **PROBING MOLECULAR RECOGNITION BY MASS SPECTROMETRY**, CARLITO LEBRILLA, University of California, Department of Chemistry, Davis, CA, USA
- 11:20 (68) **INFLUENCE OF PEPTIDE STRUCTURE ON H/D EXCHANGE REACTIONS AND UNIMOLECULAR DISSOCIATION MECHANISMS**, VICKI WYSOCKI, Linda Breci, Krishnamoorthy

Kuppannen, George Tsapraillis, University of Arizona, Box 21-0041, 1306 E. University Ave, Tucson, AZ, USA

- 11:40 (69) **FRAGMENTATION REACTIONS OF MULTIPLY-CHARGED BIOPOLYMER IONS**, SCOTT A. MCLUCKEY, Purdue University, 1393 Brown Laboratory, West Lafayette, IN, US

**Monday, 9:00 AM – Noon, Room W2-71
ENVIRONMENTAL ATOMIC SPECTROMETRY**
Presiding: Joe Simeonsson

- 9:00 (70) **WHAT DOES METAL SPECIATION MEAN ANYWAY?**, BRIAN BUCKLEY, Quaing Tu, Eric Fischer, Mark Heintz, Stu Nagourney and Willie Johnson, Rutgers University, 170 Frelinghuysen Road, Piscataway, NJ,
- 9:20 (71) **OVERCOMING THE PROBLEMS OF ISOTOPE INTERFERENCES IN SEAWATER ANALYSIS USING A NEW ICP/MS WITH AN OCTOPOLE REACTION CELL CELL**, RUDOLF PEPELNIK, Peter Leonhard, Andreas Prange, GKSS-Research Center Geesthacht, Max-Planck-Street, Geesthacht, D, Germany
- 9:40 (72) **ANALYSIS OF BIOGENIC CARBONATES BY FLOW INJECTION ON-LINE PRECONCENTRATION USING INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY**, ZIKRI ARSLAN, Anthony J. Paulson, Department of Commerce, National Oceanic and Atmospheric Administration, James J. Howard Marine Sciences Laboratory, Highlands, NJ, USA
- 10:00 (73) **INVESTIGATION OF RARE EARTH ELEMENT SIGNATURES IN FISH OTOLITHS BY ON-LINE PRECONCENTRATION ETV- ICP/MS**, ZIKRI ARSLAN, Anthony J. Paulson, Department of Commerce, National Oceanic and Atmospheric Administration, James J. Howard Marine Sciences Laboratory, Highlands, NJ, USA
- 10:20 **Coffee Break**
- 11:00 (74) **APPLICATION OF ULTRATRACE ANALYSIS METHODS TO THE INVESTIGATION OF A PHYTOREMEDIATION APPROACH FOR TREATING ENVIRONMENTAL CONTAMINATIONS OF ARSENIC**, JOSEF SIMEONSSON, Seth Elwood, Muhsin Ezer, Lawrence Pacquette, Man Zhang, University of Iowa, Department of Chemistry, Iowa City, IA, US
- 11:20 (75) **ACCURATE DETERMINATION OF CD AND PB IN CCQM-K13 MARINE SEDIMENT BY ID- ICP/MS**, LU YANG, Ralph Sturgeon, Chemical Metrology, INMS, National Research Council Canada, 1200 Montreal Road, Ottawa, Ontario, Canada
- 11:40 (76) **MEMBRANE-BASED SAMPLING DESIGNS FOR THE DETERMINATION OF DISSOLVED HEXAVALENT CHROMIUM IN NATURAL WATERS**, MELISSA A. SINGER PRESSMAN, Joseph H. Aldstadt, University of Wisconsin Milwaukee, Department of Chemistry, 3210 North Cramer Street, Milwaukee, WI, USA

Monday, 9:00 AM – 12:20 PM, Room W2-69
PROBLEM BASED LEARNING IN THE
UNDERGRADUATE LABORATORY

Presiding: Gary Long

Organized by: Gary Long

- 9:00 (77) **CONTINUING EDUCATIONAL INOVATIONS IN ANALYTICAL SCIENCE**, FRANK SETTLE, Washington & Lee University, Science Center, Lexington, VA, USA
- 9:20 (78) **CAN WE TEACH ANALYTICAL SCIENCE BY DESCRIBING ANALYTICAL TECHNIQUES?**, CHRIS ENKE, University of New Mexico, Department of Chemistry, Albuquerque, NM, USA
- 9:40 (79) **TEACHING STUDENTS TO THINK AS ANALYTICAL CHEMISTS**, DAVID HARVEY, DePauw University, 602 S. College Ave., Greencastle, IN, USA
- 10:00 (80) **100 JUNIORS: THE WRONG COURSE (INSTRUMENTAL METHODS OF CHEMICAL CHARACTERIZATION) AT THE WRONG TIME (8 AM)**, ALEXANDER SCHEELINE, University of Illinois at Urbana-Champaign, 600 S. Mathews Ave., Urbana, IL, USA
- 10:20 **Coffee Break**
- 10:40 (81) **TEACHING ANALYTICAL CHEMISTRY: LESSONS LEARNED FROM LARGE-LECTURE GENERAL CHEMISTRY**, JOEL GOLDBERG, University of Vermont, Chemistry Department, Burlington, VT, U S A
- 11:00 (82) **TEACHING ANALYTICAL CHEMISTRY TO THE MASSES: HOW WE WENT FROM 2 COURSES TO 7 COURSES IN 10 YEARS**, GARY LONG, Mark Anderson, Brian Tissue, John Morris, Virginia Tech, Department of Chemistry, Blacksburg, VA, USA
- 11:20 (83) **EXPERIENCE WITH MULTIMEDIA TECHNIQUES IN ANALYTICAL CHEMISTRY AND IN HIGH SCHOOLS**, ROBERT MICHEL, Peter Stchur, University of Connecticut, 55 North Eagleville Road, Storrs, CT, USA
- 11:40 (84) **INTERACTIVE MULTIMEDIA OVER THE INTERNET FOR TEACHING ANALYTICAL CHEMISTRY**, MARK ANDERSON, Virginia Tech, Department of Chemistry, Blacksburg, VA, USA
- 12:00 (85) **THEMES AS A TEACHING TOOL IN QUANTITATIVE ANALYSIS LABORATORY**, SALAH BLAIH, Kent State University - Trumbull, 4314 Mahoning Ave. NW, Warren, OH, USA

Monday, 9:00 AM – 12:20 PM, Room W2-67
ELECTROCHEMISTRY: IN SITU MONITORING

Presiding: Joseph Aldstadt

Organized by: Joseph Aldstadt

- 9:00 (86) **ELECTROCHEMICAL SENSORS FOR ENVIRONMENTAL MONITORING**, JOSEPH R. STETTER, William R. Penrose, Illinois Institute of Technology, BCPS Dept. of Chemistry, 3101 S. Dearborn St., Chicago, IL, USA
- 9:40 (87) **ELECTROANALYSIS IN EXTRATERRESTRIAL HABITATS AND ENVIRONMENTS**, SAMUEL P. KOUNAVES, Martin G. Buehler, Michael H. Hecht, and Steve West, Tufts University, Department of Chemistry, Medford, MA, USA
- 10:20 **Coffee Break**
- 10:40 (88) **IN SITU MEASUREMENTS OF REDOX CHEMISTRY IN AQUATIC SYSTEMS WITH VOLTAMMETRIC MICROELECTRODES**, MARTIAL TAILLEFERT, George W. Luther III, Donald

B. Nuzzio, Georgia Institute of Technology, Earth and Atmospheric Sciences - 221 Bobby Dodd Way, Atlanta, GA, USA

- 11:20 (89) **CHEMICAL SENSORS FOR CONTINUOUS IN VIVO MONITORING: ENHANCING BIOCOMPATIBILITY AND ANALYTICAL PERFORMANCE USING NITRIC OXIDE RELEASE POLYMERS**, MARK MEYERHOFF, M. Batchelor, H. Zhang, B. Oh, M. Frost, J. Wahr, J. Green, The University of Michigan, Department of Chemistry, Ann Arbor, MI, USA
- 12:00 (90) **CAN CHROMATOGRAPHIC KNOWLEDGE HELP IN THE DESIGN OF SELECTIVE AMPEROMETRIC SENSORS?** SHELLEY MINTTEER, Sam J. Brancato, Nicholas Torrence, Saint Louis University, Department of Chemistry, 221 North Grand Blvd., St. Louis, MO, US

Monday, 9:00 AM – 12:20 PM, Room O2-33
INFRARED SPECTROSCOPY

Presiding: John McClelland

- 9:00 (91) **MONITORING ADSORPTION OF MULTI-COMPONENT SYSTEMS BY AMINOPROPYLSILYL GROUPS BONDED TO SILICA GEL USING ULTRA-RAPID SCANNING INTERFEROMETRY**, BLAYNE HIRSCH, Husheng Yang, and Peter R. Griffiths, University of Idaho, Department of Chemistry, Moscow, ID, United States
- 9:20 (92) **LINE NARROWING IN DOUBLY VIBRATIONALLY ENHANCED FOUR WAVE MIXING (DOVE-FWM)**, DANIEL M. BESEMANN, John C. Wright, University of Wisconsin-Madison, 1101 University Avenue, Madison, WI, United States
- 9:40 (93) **BACKGROUND AND COHERENT ANTI-STOKES RAMAN SCATTERING SUPPRESSION IN DOUBLY VIBRATIONALLY ENHANCED FOUR-WAVE MIXING SPECTRA USING ULTRAFAST LASERS**, KENT MEYER, J. C. Wright, Department of Chemistry, University of Wisconsin-Madison, 1101 University Ave., Madison, WI, USA
- 10:00 (94) **DETECTION OF CELLULAR ACTIVATION USING MID INFRARED/ ATR SPECTROSCOPY**, KATHLEEN ALAM, Jerilyn Timlin, Laura Martin, Darryl Williams, David Haaland, Brian Hjelle, Rick Lyons, Kristin Garrison, Sandia National Laboratories, MS 0886, Albuquerque, NM, USA
- 10:20 **Coffee Break**
- 10:40 (95) **FT/ IR AND DISPERSIVE PHOTOACOUSTIC ANALYSIS OF POLYMERIC MATERIALS WITH WEATHERING-INDUCED OR SYNTHESIZED COMPOSITIONAL GRADIENTS**, JOHN MCCLELLAND, Roger W. Jones, Roscoe O. Carter III, Richard M. Fischer, Gilbert Pariente, Ames Laboratory, Iowa State University, 107 Spedding Hall, Ames, IA, USA
- 11:00 (96) **SURFACE-PLASMON-FOURIER TRANSFORM INFRARED SPECTROSCOPIC (SP/ FT/ IR) INVESTIGATION OF A PHASE TRANSITION IN CRYSTALLINE SELF-ASSEMBLED THIOL TERMINATED OLIGOMERS**, MICHAEL STRUNK, Thomas M. Niemczyk, University of New Mexico, UNM Chemistry Department, Clark Hall (103), Albuquerque, NM, USA
- 11:20 (97) **OPTICAL CONTACT IN ATR FT/ IR SPECTROSCOPY**, SANONG EKGASIT, Adchara Padermshoke, Chulalongkorn University, Dep. of Chemistry, Faculty of Science, Pratumwan Rd., Bangkok, Thailand

- 11:40 (98) **MODIFICATION OF FT/ IR SPECTRAL SUBTRACTION ALGORITHMS FOR MIXTURE ANALYSIS**, THOMAS BRUEGGEMEYER, Mark Witkowski, Jill Loeliger, Forensic Chemistry Center, U.S. Food & Drug Administration, 6751 Steger Dr., Cincinnati, OH, US
- 12:00 (99) **ORIENTATIONAL DYNAMICS IN FERROELECTRIC DISCOTICS AS MONITORED BY TIME-RESOLVED INFRARED SPECTROSCOPY**, SERGEY SHILOV, Mario Muller, Gerd Heppke, Bruker Optics, 19 Fortune Dr., Billerica, MA, USA

Monday, 9:00 AM – 12:20 PM, Room W1-54
BENEDETTI-PICHLER AWARD: CONTINUED SUCCESS OF PREVIOUS AWARDEES

Presiding: Joseph Sneddon Organized by: Joseph Sneddon

- 9:00 (100) **THE BENEDETTI-PICHLER AWARD**, JOSEPH SNEDDON, McNeese State University, Department of Chemistry, Lake Charles, LA, USA
- 9:20 (101) **RAMBLINGS AROUND MASS SPECTROMETRY**, DAVID HERCULES, Vanderbilt University, 7330 Stevenson Center VU Station B 351822, Nashville, TN, USA
- 10:00 (102) **POLAROGRAPHY IN SOLUTIONS OF SOME PROBLEMS IN ORGANIC CHEMISTRY**, PETR ZUMAN, Clarkson University, 8 Clarkson Ave, Box 5810, Potsdam, NY, USA
- 10:20 **Coffee Break**
- 11:00 (103) **SELENIUM CHEMISTRY AND BIOCHEMISTRY-ANALYTICAL CHALLENGES**, PETER C. UDEN, Julian F. Tyson, Paula Nolibos, Rameh Hafezi and Nigel Metcalfe, University of Massachusetts, Department of Chemistry, Amherst, MA, USA
- 11:40 (104) **COMMENTS ON ASBESTOS ANALYSIS**, PETER LOTT, Specialized Scientific Services, LLC, 5000 Oak Street, Twin Oaks, North Lobby, Box 151, Kansas City, MO, USA
- 12:00 (105) **DECREASED WATER-INCREASED SOLIDS-DISTORTED SERUM CONCENTRATIONS**, BENNIE ZAK, Joseph D. Artiss, Wayne State University School of Medicine, 540 E. Canfield Avenue, Detroit, MI, USA

Monday, 9:00 AM – 12:20 PM, Room O2-44
APPLICATIONS OF RAMAN MICROSCOPY

Presiding: Richard Bormett Organized by: Richard Bormett

- 9:00 (106) **EVANESCENT WAVE MICROSCOPY AND IMAGING**, ANDRE' J. SOMMER, Miami University, Molecular Microspectroscopy Laboratory, Oxford, OH,
- 9:40 (107) **IDENTIFYING HEAT STREAK DEFECTS ON COLD ROLLED STEEL USING RAMAN SPECTROMETRY AND OTHER ANALYTICAL TECHNIQUES**, CATHY STEWART, National Steel Technical Center, 1745 Fritz Drive, Trenton, MI, USA
- 10:00 (108) **SINGLE MOLECULE DETECTION OF DYES DISPERSED IN A FATTY ACID LANGMUIR-BLODGETT MONOLAYER USING SURFACE-ENHANCED RESONANCE RAMAN SCATTERING**, RICARDO AROCA, C. J. Constantino, University of Windsor, School of Physical Sciences, P. Antunez, Windsor, ON, Canada
- 10:20 **Coffee Break**
- 11:00 (109) **RAMAN MICROSCOPY-DEVELOPING A TOOL AND APPLICATIONS FOR INDUSTRY**, ANDREW WHITLEY, Fran Adar, Emmanuel Leroy, Jobin Yvon Inc., 3880 Park Avenue, Edison, NJ, US

- 11:20 (110) **INVERTED CONFOCAL RAMAN MICROSCOPY FOR SPATIALLY RESOLVED SPECTROSCOPY OF SINGLE OPTICALLY TRAPPED SUBMICRON PARTICLES**, MICHAEL HOULNE, Joel Harris, Chris Sjoström, Chemistry Department/University of Utah, 315 S. 1400 E., Salt Lake City, UT, U S
- 11:40 (111) **PHASE COMPOSITION OF PLASMA-SPRAYED YTTRIA-STABILIZED ZIRCONIA COATINGS DETERMINED BY MICRO-RAMAN ANALYSIS**, EDGAR ETZ, Jennifer Verkouteren, Ryna Marinenko, National Institute of Standards and Technology, Chemical Science and Technology Laboratory, 100 Bureau Drive, MS-8371, Gaithersburg, MD, USA
- 12:00 (111A) **ATOMIC FORCE MICROSCOPY AND MICRO-RAMAN IMAGING OF MIXED LANGMUIR-BLODGETT FILMS OF YTTERBIUM BISPHTHALOCYANINE AND STEARIC ACID**, CARLOS J. L. CONSTANTINO (1), L. Gaffo (2), W. C. Moreira (3), R. F. Aroca (1), O. N. Oliveira Jr. (2), (1) Materials and Surface Science Group, University of Windsor, Windsor, On. N9B 3P4 Canada, (2) Instituto de Física de São Carlos, Universidade de São Paulo, São Carlos, SP, Brazil, (3) Departamento de Química, Universidade Federal de São Carlos, São Carlos, SP, Brazil

Monday, 9:00 AM – 12:20 PM, Room W2-68
ADVANCES IN LASER SPECTROSCOPY I

Presiding: Peter Chen Organized by: Peter Chen

- 9:00 (112) **REINVENTING COHERENT ANTI-STOKES RAMAN SPECTROSCOPY: MOVING FROM THE MACRO SCALE TO MICRO-IMAGING**, GARY HOLTOM, Brian Thrall, Pacific Northwest National Laboratory, Mail Stop K8-88, PO Box 999, Richland, WA, US
- 9:40 (113) **FEMTOSECOND COHERENT RAMAN SPECTROSCOPY**, WOLFGANG KIEFER, T. Chen, M. Heid, A. Materny, J. Popp, S. Schöcker, U. Schmitt, T. Siebert, A. Vierheilg, Institut für Physikalische Chemie, Universität Würzburg, Am Hubland, D-97074 Würzburg, Germany
- 10:20 **Coffee Break**
- 10:40 (114) **DOUBLY VIBRATIONALLY ENHANCED TWO DIMENSIONAL NONLINEAR SPECTROSCOPIES-WHAT ARE THEY AND WHAT IS THEIR FUTURE FOR THE ANALYTICAL SCIENCES?**, JOHN WRIGHT, University of Wisconsin-Madison, 1101 University Avenue, Madison, WI, USA
- 11:20 (115) **MULTIPLEX COHERENT RAMAN SPECTROSCOPY USING A BROADBAND OPO**, PETER CHEN, Candace C. Joyner, Sheena Patrick, and Kanika Benton, Spelman College, 350 Spelman LN SW Box 307, Atlanta, GA, US
- 12:00 (116) **MID IR QUANTUM CASCADE LASER: A POWERFUL LIGHT SOURCE FOR MOLECULAR SPECIFIC DETECTION IN CHROMATOGRAPHY (HPLC, CE)**, BERNHARD LENDL, Institut für Analytical Chemistry, Vienna University of Technology, Getreidemarkt 9-151, Wien, Austria

Monday, 9:00 AM – 12:20 PM, Room W2-63
IMMOBILIZATION OF FUNCTIONAL BIOMOLECULES AT INTERFACES I

Presiding: Ulrich Krull Organized by: Ulrich Krull

- 9:00 (117) **TAILORING MICROBEAD CHEMISTRY FOR BIOANALYTICAL SEPARATION AND DETECTION**, CYNTHIA BRUCKNER-LEA, Jay Grate,

Pacific Northwest National Lab, P.O. Box 999, Mailstop K8-93, Richland, WA, USA

- 9:20 (118) **ELECTROSTATICALLY-ASSISTED SPR FOR DNA DETECTION**, ROSINA GEORGIADIS, Richard Heaton, Alexander Peterson, Lauren Wolf, Boston University, 590 Commonwealth Avenue, Boston, MA
- 9:40 (119) **REVERSIBLE FIBER OPTIC DNA BIOSENSORS USING TETHERED INTERCALATING DYES**, ULRICH KRULL, Xiaofeng Wang, Meng Wu, Amer Almadidy, Paul Piuanno, Chris Kotoris, University of Toronto at Mississauga, Dept. of Chemistry, 3359 Mississauga Road North, Mississauga, ON, Canada
- 10:00 (120) **BIOSENSORS FOR NEUROTRANSMITTER AND DNA/ RNA STUDIES**, WEIHONG TAN, Monde Qhobosheane, Roverlyn Tapeç, Jane Lou and Lisa Hillard, University of Florida, department of Chemistry and McKnight Brain Institute, Gainesville, FL, USA
- 10:20 **Coffee Break**
- 11:00 (121) **SURFACE ACTIVITY OF EXONUCLEASE ON IMMOBILIZED OLIGONUCLEOTIDES**, MICHAEL THOMPSON, L. Michelle Furtado, University of Toronto, Department of Chemistry, 80 St. George St., Toronto, Ontario, Canada
- 11:20 (122) **DESIGNING NEW MATERIALS FOR THE ENTRAPMENT OF HIGHLY ACTIVE BIOMOLECULES**, JOHN BRENNAN, Department of Chemistry, McMaster University, 1280 Main St. West, Hamilton, ON, Canada
- 11:40 (123) **CHEMICAL SENSOR ARRAYS BASED ON XEROGEL PLATFORMS**, FRANK V. BRIGHT, Department of Chemistry, University at Buffalo, The State University of New York, Buffalo, NY, USA
- 12:00 (124) **SURFACE MODIFICATION OF POLYMERS USED IN MICROFLUIDIC APPLICATIONS**, STEVE SOPER, Robin McCarley, Bikas Viadya, Yun Wang, Alyssa Henry, Louisiana State University, 232 Choppin Hall (Dept. of Chemistry), Baton Rouge, LA, USA

**Monday, 9:00 AM – 12:20 PM, Room W2-61
SINGLE CELL ANALYSIS**

Presiding: Scott Shippy Organized by: Scott Shippy

- 9:00 (125) **DIRECT OBSERVATION OF CALCIUM-INDEPENDENT INTERCELLULAR ATP SIGNALING IN ASTROCYTES**, EDWARD S. YEUNG, Craig A. Aspinwall, Jason Gruenhagen, Ziqiang Wang, Iowa State University, Ames Laboratory-USDOE and Department of Chemistry, Ames, IA, USA
- 9:40 (126) **DRUG METABOLISM AND DISTRIBUTION IN MAMMALIAN SINGLE CELLS**, EDGAR ARRIAGA, Adrian Anderson, Jamie Gergen, Chanda Ciriacks, and Amir Abdalla, University of Minnesota, Department of Chemistry, U of M, 207 Pleasant St. SE, Minneapolis, MN, U S A
- 10:20 **Coffee Break**
- 10:40 (127) **PROFILING ENZYME ACTIVATION IN SINGLE CELLS**, NANCY ALLBRITTON, Christopher Sims, Huaina Li, Joe Soughayer. Gavin Meredith, University of California- Irvine, Dept. of Physiology and Biophysics, Irvine, CA, USA
- 11:20 (128) **MULTIPLEXED CAPILLARY ELECTROPHORESIS FOR MEASURING CELLULAR RELEASE**, SCOTT SHIPPY, Jennifer Barber-Singh, Jenny McReynolds, University of Illinois Chicago, 845 W Taylor St, M/C 111, Chicago, IL, US
- 12:00 (129) **DEVELOPMENT OF A RATIOMETRIC NANOSCALE MAGNESIUM OPTICAL SENSOR**

FOR MEASUREMENTS IN VIABLE CELLS, EDWIN J PARK, Jonathan Aylott, Murphy Brasuel, Raoul Kopelman, University of Michigan, 930 N. University Dr, Ann Arbor, MI, USA

**Monday, 1:10 PM – 2:00 PM, Room W1-54
FEATURED PRESENTATIONS:
APPLIED SPECTROSCOPY WILLIAM F. MEGGERS
AWARD SYMPOSIUM: INTRODUCTION AND AWARD
ADDRESS**

Presiding: Rina Dukor Organized by: Mark Hayes

- 1:10 (129A) **THE APPLIED SPECTROSCOPY WILLIAM F. MEGGERS AWARD**, RINA DUKOR, The Society for Applied Spectroscopy, 201B Broadway Street, Frederick, MD, USA
- 1:20 (130) **DUAL POLARIZATION MODULATION VIBRATIONAL CIRCULAR DICHROISM: CLOSING IN ON ZERO-ARTIFACT VCD MEASUREMENTS**, LAURENCE NAFIE, Syracuse University, Department of Chemistry, 1-014 CST, Syracuse, NY, USA

**Monday, 2:10 PM – 5:30 PM, Room W1-54
APPLIED SPECTROSCOPY WILLIAM F. MEGGERS
AWARDS SYMPOSIUM**

Presiding: Rina Dukor Organized by: Mark Hayes

- 2:10 (131) **THE SOLUTION OF THE OFFSET PROBLEM IN VIBRATIONAL RAMAN OPTICAL ACTIVITY MEASUREMENTS**, WERNER HUG, University of Fribourg, Fribourg, Switzerland, Switzerland
- 2:50 (132) **SIMULATIONS OF PEPTIDE IR AND VCD SPECTRA ROLE OF ISOTOPE SUBSTITUTION IN CONFORMATIONAL STUDIES OF PEPTIDES**, TIM KEIDERLING, Jan Kubelka, Joe Hilario, R. A. Gangani D. Silva, University of Illinois at Chicago, 845 W. Taylor St. (m/c 111), Department of Chemistry, Chicago, IL, USA
- 3:30 **Coffee Break**
- 4:10 (133) **ENHANCEMENT OF VIBRATIONAL CIRCULAR DICHROISM INTENSITY IN METAL COMPLEXES AND HEME PROTEINS**, TERESA FREEDMAN, Syracuse University, Department of Chemistry, Syracuse, NY, USA
- 4:50 (134) **PHARMACEUTICAL APPLICATIONS OF VIBRATIONAL CD**, EDWIN KELLENBACH, Organon, BP 140, Riom, 63203, France

**Monday, 2:10 PM – 5:30 PM, Room W2-66
NEW WAYS IN GLOW DISCHARGE ATOMIC
SPECTROMETRY FOR ELEMENTAL DETERMINATION
AND SPECIATION II**

Presiding: J.A.C. Broekaert Organized by: J.A.C. Broekaert

- 2:10 (135) **NEW GLOW DISCHARGE ATOMIC SPECTROMETRIES ON THE HORIZON**, GARY HIEFTJE, Jose Broekaert, William Wetzel, David Solyom, James Barnes, Ole Gron, Mao Huang, Scott Lehn, Gerardo Gamez, Indiana University, Dept. of Chemistry, Bloomington, IN, USA
- 2:50 (136) **FACTORS AFFECTING ION TRANSPORT AND TEMPORAL RESOLUTION FOR A PULSED MICROSECOND GLOW DISCHARGE COUPLED TO A TIME OF FLIGHT MASS SPECTROMETER**, WILLARD HARRISON, Eric Oxley, University of Florida, 354 Leigh Hall, Department of Chemistry, Gainesville, FL, USA

3:10 (137) **A UNIVERSAL DETECTOR FOR GAS CHROMATOGRAPHY BASED ON LOW PRESSURE PULSED-PLASMAS**, VAHID MAJIDI, M. Moser, C. Lewis, W. Hang, F. King, Christian Hassell, Los Alamos National Laboratory, Chemistry Division, MS G740, Los Alamos, NM, USA

3:30 **Coffee Break**

3:50 (138) **SPECIATION WITH GLOW DISCHARGE SPECTROMETRIES**, JOSEPH CARUSO, University of Cincinnati, P.O. 210172, Cincinnati, OH

4:10 (139) **ANALYSIS OF NUCLEAR MATERIAL WITH GLOW DISCHARGE SPECTROMETRY**, MARIA BETTI, Laura Aldave De Las Heras, European Commission, JRC, Institute for Transuranium Elements, P.O. Box 2340, Karlsruhe, Germany

4:30 (140) **CATHODE GLOW DISCHARGE ATOMIC EMISSION SPECTROMETRY**, HYO-JIN KIM, Mohammad Abdul Mottaleb, Dongduk Women's University, Department of Pharmacy, 23-1 Sungbuk-ku, Seoul, South Korea

4:50 (141) **CONSTRUCTIONAL DEVELOPMENTS FOR ANALYTICAL SPECTROMETRY WITH RF GLOW DISCHARGES**, VOLKER HOFFMANN, Roland Dorka, Ludger Wilken and Klaus Wetzig, IFW Dresden, P.O.Box 27 01 16, D-01171, Dresden, Germany

5:10 (142) **INTERFACING DIAGNOSTICS OF A PULSED MICROSECOND GRIMM GLOW DISCHARGE TIME-OF-FLIGHT MASS SPECTROMETER**, ERIC OXLEY, Chenglong Yang, W. W. Harrison, University of Florida, PO Box 117200, Gainesville, FL, USA

Monday, 2:10 PM – 5:30 PM, Room W2-58
ENVIRONMENTAL APPLICATIONS OF FLOW INJECTION SPECTROMETRY I

Presiding: Diane Beauchemin Organized by: Diane Beauchemin

2:10 (143) **ON-LINE FLOW INJECTION-ATOMIC SPECTROSCOPIC CONFIGURATIONS: ROAD TO PRACTICAL ENVIRONMENTAL ANALYSIS**, JOSE LUIS BURGUERA, Marcela Burguera, Los Andes University, IVAQUIM, Faculty of Sciences, La Hechicera, Merida, MRD, Venezuela

2:50 (144) **DEVELOPMENT OF NEW FI METHODS FOR THE DETERMINATION OF CHEMICAL OXYGEN DEMAND AND CARBON RELATED PARAMETERS IN WATERS BASED ON FAAS AND ICP/AES DETECTION**, JOSE L. TODOLI, Salvador Maestre, Juan Mora and Vicente Hernandis, University of Alicante, P.O. Box 99, Alicante, Spain

3:30 **Coffee Break**

3:50 (145) **EXTENSION OF THE CAPABILITIES OF ICP/MS USING FLOW INJECTION ANALYSIS**, DIANE BEAUCHEMIN, Kurt Kyser, Queen's University, Department of Chemistry, Kingston, ON, Canada

4:10 (146) **DETERMINATION OF LEAD IN NATURAL WATERS BY FLOW-INJECTION SOLID-PHASE EXTRACTION PRECONCENTRATION AND FLAME ATOMIC ABSORPTION SPECTROMETRY**, EMILY YOURD, Yasemin Bakircioglu, Julian F. Tyson, University of Massachusetts, 701 LGRT, 710 N. Pleasant St., Amherst, MA, USA

4:30 (147) **ON-LINE PRECIPITATION AND FILTRATION OF THE LEAD MATRIX IN BULLETS: A FLOW-INJECTION METHOD FOR THE DETERMINATION OF TRACE ELEMENTS BY ICP/MS**, BRIAN WEITZE, Emily R. Yourd, Julian F. Tyson, University of Massachusetts, 701 LGRT, 710 N. Pleasant St., Amherst, MA, USA

4:50 (148) **OPTIMIZATION OF A HIGH-THROUGHPUT MATRIX REMOVAL SYSTEM FOR THE DETERMINATION OF TRACE ELEMENTS IN BULLETS BY FLOW-INJECTION INDUCTIVELY-COUPLED PLASMA MASS SPECTROMETRY**, EMILY R. YOURD, Julian F. Tyson, Robert D. Koons, University of Massachusetts, 701 LGRT, 710 N. Pleasant St., Amherst, MA, USA

5:10 (148A) **ULTRA-SENSITIVE DETERMINATION OF FE(II) IN SEAWATER USING A LIQUID CORE WAVEGUIDE DETECTOR AND FLOW INJECTION ANALYSIS**, CHRISTOPHER K. HILTON, Stuart J. Chalk, University of North Florida, Department of Chemistry and Physics, 4567 St Johns Bluff Rd S, Jacksonville FL 32224 USA

Monday, 2:10 PM – 5:50 PM, Room W2-65
MICRO AND NANO-NEBULIZATION: CONCEPTS, DEVICES, FUNDAMENTALS, AND NOVEL APPLICATIONS - II

Presiding: Billy Acon Organized by: Akbar Montaser

2:10 (149) **SPECIES ANALYSIS OF METALLOTHIONEINE ISOFORMS IN HUMAN BRAIN CYTOSOLS USING CE-ICP-SFMS**, ANDREAS PRANGE, Dirk Schaumloeffel, Peter Braetter,, Andrea Richarz, Christian Wolf, GKSS Research Center, Max-Planck-Stasse, Geesthacht, Germany

2:50 (150) **ANALYZING NANO AND MICRO MATERIALS: FLOW FIELD-FLOW FRACTIONATION INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY TO THE RESCUE**, RAMON BARNES, Atitaya Siripinyanond, Dula Amarasiriwardena, University Research Institute for Analytical Chemistry, 85 N. Whitney Street, Amherst, MA, USA

3:10 (151) **ANALYSIS OF UNDERIVATIZED AMINO ACID MIXTURES USING HPLC/QUADRO NEBULIZER ATMOSPHERIC PRESSURE MICROWAVE INDUCED PLASMA IONIZATION-MASS SPECTROMETRY**, MEHDI MOINI, The University of Texas at Austin, Department of Chemistry and Biochemistry, Austin, Texas, USA

3:30 **Coffee Break**

4:10 (152) **PROGRESS IN DETERMINATION OF LONG-LIVED RADIONUCLIDES BY ICP/MS**, J. SABINE BECKER, S. F. Boulyga, Central Department of Analytical Chemistry, Research Centre Juelich, Germany, Juelich, D-52425 Juelich, Germany

4:50 (154) **DETERMINATION OF TRANSITION AND RARE EARTH ELEMENTS IN SEAWATER BY FLOW INJECTION ICP-TOF-MS**, SCOTT WILLIE, Ralph Sturgeon, National Research Council of Canada, Institute for National Measurement Standards, Ottawa, ON, Canada

5:10 (155) **SOURCES OF ERRORS IN THE MEASUREMENT OF TRANSIENT SIGNALS BY MICRO-SAMPLING ICP-MS**, DOUGLAS BAXTER,¹ Erik Bjorn,² Wolfgang Frech,² (1) Lulea University of Technology, Division of Inorganic Chemistry, Lulea, Sweden, and (2) Department of Chemistry Analytical Chemistry, Umea University, S-901 87 Umea, Sweden.

5:30 (156) **BIASED PERSPECTIVES ON THE MINIATURIZATION OF SAMPLE INTRODUCTION STRATEGIES**, GEORGE AGNES, Department of

Chemistry, Simon Fraser University, Burnaby, B. C,
Canada

**Monday, 2:10 PM – 5:30 PM, Room W2-70
RECENT ADVANCES IN UNDERSTANDING
ELECTROSPRAY FUNDAMENTALS**

Presiding: Bruce Thomson Organized by: Bruce Thomson

- 2:10 (157) **ELECTROCHEMICAL INFLUENCE ON GAS-PHASE ION FORMATION IN ELECTROSPRAY IONIZATION**, GARY VAN BERKEL, Oak Ridge National Laboratory, P.O. Box 2008/Bldg 5510, Oak Ridge, TN, USA
- 2:50 (158) **FUNDAMENTALS OF ANION ATTACHMENT IN NEGATIVE ION ELECTROSPRAY MASS SPECTROMETRY**, RICHARD B. COLE, Yang Cai, University of New Orleans, 2000 Lakeshore Dr., New Orleans, LA, USA
- 3:30 **Coffee Break**
- 4:10 (159) **FACTORS AFFECTING SELECTIVITY IN ELECTROSPRAY RESPONSE**, CHRIS ENKE, Nadja Cech, University of New Mexico, Clark Hall, Albuquerque, NM, USA
- 4:50 (160) **ACTIVATION ENERGIES FOR EVAPORATION OF TETRA-ALKYL AMMONIUM IONS FROM FORMAMIDE**, JUAN FERNANDEZ DE LA MORA, Danielle Kalitan, Yale University, Mechanical Engineering Department, P.O.Box 208286; 9 Hillhouse Ave, New Haven, CT, USA

**Monday, 2:10 PM – 5:30 PM, Room W2-69
CURRICULAR REFORM THROUGH THE NSF-CCLI
PROGRAM AND OTHER NOVEL APPROACHES**

Presiding: Gary Long Organized by: Cameron Dorey

- 2:10 (161) **PRESSURIZED FLUID EXTRACTION AS A TEACHING TOOL IN UNDERGRADUATE CHEMISTRY LABORATORY**, OMOWUNMI SADIK, Adam Wanekaya, Sunnie Myung, State University of New York-Binghamton, Department of Chemistry, PO Box 6016, Binghamton, NY, USA
- 2:30 (162) **INSTRUCTION IN FT/ NMR SPECTROSCOPY**, GREGORY A. MOEHRING, Shailendra Kumar, Governors State University, Division of Science, University Park, IL, USA
- 2:50 (163) **MODEL STUDENT ENVIRONMENTAL CONTRACT LABORATORY**, KAREN D'ARCY, Joseph Addison, John Yunger, Bosco Ramirez, Governors State University, College of Arts and Sciences, (1) Governors State University, (2) Governors State University, (3) Severn Trent Laboratories, University Park, IL, University Park, IL, USA
- 3:10 (164) **AN ANALYZED COMPLEX MATRIX IN THE QUANTITATIVE ANALYSIS LABORATORY**, JEFFREY A. DRAVES, R. Cameron Dorey, University of Central Arkansas, Department of Chemistry, Conway, AR,
- 3:30 **Coffee Break**
- 3:50 (165) **ANALYTICAL IMAGING WITH SCANNING PROBE MICROSCOPY: HANDS-ON AND DEMONSTRATION EXPERIMENTS FOR UNDERGRADUATE ANALYTICAL LABORATORIES**, CHUAN-JIAN ZHONG, Mathew M. Maye, Li Han, and Wayne E. Jones, Jr, Dept. of Chemistry, State University of New York at Binghamton, Dept. of Chemistry, State University of New York at Binghamton, Binghamton, NY, USA
- 4:10 (166) **UNDERGRADUATE, ENVIRONMENTALLY-FOCUSED, LAB EXPERIMENTS USING INDUCTIVELY COUPLED PLASMA SPECTROMETRY**, ARTHUR SALIDO, David J.

Butcher, Cindy Atterholt, Roger Bacon, Western Carolina University, Dept Chemistry and Physics, Natural Sciences Building, Cullowhee, NC, USA

- 4:30 (167) **INCORPORATING CAPILLARY ELECTROPHORESIS INTO THE UNDERGRADUATE ANALYTICAL CHEMISTRY CURRICULUM THROUGH COURSES THAT EMPHASIZE PHARMACEUTICAL AND BIOCHEMICAL APPLICATIONS**, MARK F. VITHA, Larhee Henderson, Nita Pandit, Drake University, Department of Chemistry, 2507 University Avenue, Des Moines, IA, USA
- 4:50 (168) **PROBLEM-BASED, COOPERATIVE LEARNING SITUATIONS IN THE ANALYTICAL CHEMISTRY TEACHING LABORATORY AND CLASSROOM: MAKING THE MOST EFFECTIVE USE OF CLASS TIME?** JULIAN TYSON, University of Massachusetts, Department of Chemistry, 710 North Pleasant Street, Amherst, MA, USA
- 5:10 (169) **TEACHING ANALYTICAL CHEMISTRY AS A PROBLEM-SOLVING SCIENCE-THE WAY FORWARD**, BRIAN WOODGET, Tina Overton, UK Analytical Partnership, 5 Meadow Close, Datchworth, Hertfordshire, United Kingdom

**Monday, 2:10 PM – 5:30 PM, Room W2-67
ELECTROCHEMICAL FRONTIERS: AN
UNDERGRADUATE PERSPECTIVE**

Presiding: Steven Petrovic Organized by: Steven Petrovic

- 2:10 (170) **APPLICATIONS OF NEW PROBES FOR SCANNING ELECTROCHEMICAL MICROSCOPY**, JOHN BAUR, Illinois State University, 4160 Department of Chemistry, Normal, IL, USA
- 2:50 (171) **ELECTROCHEMICAL CHARGE EXCHANGE**, KASEM KASEM, RYANNE HAZEN, Margaret Rosanne Spaulding, Indiana University Kokomo, 2300 S. Washington Street, Kokomo, IN, USA
- 3:30 **Coffee Break**
- 4:10 (172) **ELECTROCHEMICALLY MODULATED INTERFEROMETRIC SENSING: ENVIRONMENTAL APPLICATIONS**, BRIGITTE RAMOS, Denison University, Department of Biochemistry & Chemistry, Granville, OH, USA
- 4:50 (173) **ADVENTURES IN UNDERGRADUATE RESEARCH: INVESTIGATIONS OF CONDUCTIVE COLLOIDAL GOLD MULTILAYER FILMS**, JOHN RICHARDSON, Andrea Osisek, Armin Reindl, and Aubrey Dyer, Shippensburg University, Department of Chemistry, 1871 Old Main Drive, Shippensburg, PA, USA

**Monday, 2:10 PM – 5:30 PM, Room W2-62
NEW DEVELOPMENTS OF INSTRUMENTS AND
METHODS AT ISAS**

Presiding: Kay Nieman Organized by: Kay Nieman

- 2:10 (174) **CONTINUUM SOURCE AAS WITH GRAPHITE FURNACE AND WITH FLAME ATOMIZER**, HELMUT BECKER-ROSS, Stefan Florek, Uwe Heitmann, Institute of Spectrochemistry and Applied Spectroscopy, Albert-Einstein-Str. 9, Berlin, Germany
- 2:50 (175) **FLAME FURNACE ATOMIC ABSORPTION SPECTROMETRY: NEW WAYS BETWEEN CONVENTIONAL FLAME- AAS AND FURNACE AAS**, HARALD BERNDT, Attila Gaspar, Joanne Davies and Annelen Ratka, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany
- 3:10 (176) **TRACE ELEMENT DETERMINATION IN MICRO SAMPLES BY LA- ICP/ MS**, E. HOFFMANN,

Institute of Spectrochemistry and Applied Spectroscopy,
Albert-Einstein-Str. 9, Berlin, Germany

- 3:30 **Coffee Break**
- 4:10 (177) **ON-LINE CHARACTERIZATION OF GASEOUS AND PARTICULATE ORGANIC ANALYTES USING ATMOSPHERIC PRESSURE CHEMICAL IONIZATION MASS SPECTROMETRY**, THORSTEN HOFFMANN, Bettina Warscheid, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany
- 4:30 (178) **COMBINATION OF A GRIMM-TYPE GLOW DISCHARGE ION SOURCE WITH A FAST FLOW CONCEPT COUPLED TO AN ICP/ MS WITH HIGH MASS RESOLUTION**, NORBERT JAKUBOWSKI, Claus Beyer, Ingo Feldmann and Dave Gilmour, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany
- 4:50 (179) **TOTAL-REFLECTION X-RAY FLUORESCENCE APPLIED TO DEPTH-PROFILING OF SHALLOW LAYERS IN SI-WAFERS**, REINHOLD KLOCKENKAMPER, A. Von Bohlen, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany
- 5:10 (180) **COMPUTER SIMULATION AND EVOLUTION STRATEGIES FOR THE DESIGN OF ICP SPRAY CHAMBERS**, GERHARD SCHALDACH, L. Berger, I. Razilov and H. Berndt, Institute of Spectrochemistry and Applied Spectroscopy, Bunsen-Kirchhoff-Str. 11, Dortmund, Germany

**Monday, 2:10 PM – 5:30 PM, Room W2-64
MATERIALS ANALYSIS**

Presiding: Michael Myrick

- 2:10 (181) **THE ELECTROOXIDATION AND DETECTION OF ALIPHATIC POLYAMINES AT BORON-DOPED DIAMOND THIN FILMS**, MALGORZATA A. WITEK, Greg M. Swain, Michigan State University, Department of Chemistry, 320 Chemistry Bldg., East Lansing, MI, US
- 2:30 (182) **EFFECT OF MORPHOLOGY AND MICROSTRUCTURE ON THE ELECTROCHEMICAL RESPONSE OF DIAMOND THIN FILM ELECTRODES**, MATEUSZ HUPERT, Jian Wang, Greg M. Swain, Michigan State University, Chemistry Bldg. 320, East Lansing, MI, US
- 2:50 (183) **UNDERSTANDING LOCAL ORGANIZATION AND ITS EFFECTS ON THE ROTATIONAL DYNAMICS OF RHODAMINES IN POLAR APROTIC SOLVENTS**, JOHN DELACRUZ, Gary J. Blanchard, Michigan State University, Department of Chemistry, East Lansing, MI
- 3:10 (184) **RAPID POLYMER CHARACTERIZATION USING PYROLYSIS/FAST GAS CHROMATOGRAPHY/TIME-OF-FLIGHT MASS SPECTROMETRY**, NARENDRA K. MERUVA, Lori A. Grabill, Scott R. Goode, and Stephen L. Morgan, The University of South Carolina, 631, Sumter Street, GSRC, Columbia, SC, USA
- 3:30 **Coffee Break**
- 3:50 (185) **MEASURING TRANSLATIONAL DIFFUSION OF SMALL MOLECULES IN POLYMERS NEAR THE GLASS TRANSITION VIA SINGLE-MOLECULE SPECTROSCOPY: IMPACT OF NANOSCALE HETEROGENEITY**, JOHN TORKELSON, Jason Quirin, Andrew Bartko, Robert Dickson, Chem. Eng. Dept., Northwestern University,

Evanston IL 60208 and Chemistry Dept., Georgia Institute of Technology, Atlanta, GA 30332, USA

- 4:10 (186) **USING SPECTROSCOPIC PROBE TECHNIQUES TO COMPARE TRADITIONAL MICELLES TO DENDRIMERS, THE UNIMOLECULAR MICELLES**, SHERYL TUCKER, Chunfeng Mao, Deborah Wade, University of Missouri-Columbia, Department of Chemistry, 125 Chemistry Bldg., Columbia, MO, USA
- 4:30 (187) **MOLECULAR LEVEL STUDIES OF POLYMER SURFACES BY SUM FREQUENCY GENERATION VIBRATIONAL SPECTROSCOPY (SFG)**, ZHAN CHEN, Jie Wang, Chunyan Chen, Sarah M. Buck, University of Michigan, Department of Chemistry, 930 North University Ave., Ann Arbor, MI, USA
- 4:50 (188) **ELECTRON TRANSPORT IN CONJUGATED OLIGOMER SAMS**, MICHAEL DOESCHER, Michael L. Myrick, University of South Carolina, Department of Chemistry and Biochemistry, GSRC, 631 Sumter St, Columbia, SC, USA
- 5:10 (189) **SURFACE CHARACTERIZATION OF THIN-FILM AND SURFACE MODIFIED POLYMERIC MEMBRANES**, PATRICK LEVY, William Katz, Osmonics, 5951 Clearwater Drive, Minnetonka, MN, U S

**Monday, 2:10 PM – 5:30 PM, Room O2-33
BIOMEDICAL APPLICATIONS OF IR/NIR
SPECTROSCOPY**

Presiding: Kathleen Alam Organized by: Kathleen Alam

- 2:10 (190) **SPECTROSCOPY AND MEDICINE: OLD TECHNIQUES, NEW PARTNERS**, MIKE JACKSON, Institute for Biodiagnostics, NRCC, 435 Ellice Ave, Winnipeg, MB, Canada
- 2:50 (191) **MULTISPECTRAL NEAR-INFRARED TOMOGRAPHY FOR HEMOGLOBIN-BASED IMAGING OF CANCER IN VIVO**, BRIAN POGUE, Steven Poplack, Troy McBride, Shudong Jiang, Sandra Soho, Wendy Wells, Ulf Osterberg, Keith Paulsen, Dartmouth College, Thayer School of Engineering, Hanover, NH, USA
- 3:30 **Coffee Break**
- 3:50 (192) **BIOLOGICAL AND MEDICAL APPLICATIONS OF SYNCHROTRON INFRARED MICRO-SPECTROSCOPY**, LISA MILLER, Cathy Carlson, Laszlo Forro, Irit Sagi, Richard Gross, Jean-Luc Teillaud, Nadege Jamin, Brookhaven National Laboratory, NSLS, Bldg. 725 D, Upton, NY, USA
- 4:30 (193) **CERVICAL CANCER SCREENING USING FT/IR MICROSPECTROSCOPY**, EDWARD HULL, Craig Gardner, Howland Jones, Kristin A. Nixon, Zac Wilson, InLight Solutions, Inc. (formerly Rio Grande Medical Technologies, Inc.), 800 Bradbury SE, Suite 217, Albuquerque, NM, USA
- 5:10 (194) **OPTICAL REFINEMENTS ENABLE REDUCED ANALYTE LEVEL DETERMINATION IN EXPERIMENTATION ON MAMMALIAN TISSUE**, JEROD FINNEY, D. L. Wetzel, Kansas State University, Microbeam Molecular Spectroscopy Laboratory, Manhattan, KS

**Monday, 2:10 PM – 5:30 PM, Room O2-44
UV RAMAN SPECTROSCOPY**

Presiding: Richard Bormett Organized by: Richard Bormett

- 2:10 (195) **UV RAMAN SPECTROSCOPY-WHERE IS THE FOCUS NOW?**, ANDREW WHITLEY, Fran Adar, Jobin Yvon Inc, 3880 Park Avenue, Edison, NJ, US

- 2:30 (196) **α -HELIX PEPTIDE FOLDING AND UNFOLDING ACTIVATION BARRIERS: A NANOSECOND UV RESONANCE RAMAN STUDY**, SANFORD ASHER, Igor K. Lednev, Anton S. Karnoup and Mark C. Sparrow, University of Pittsburgh, Department of Chemistry, 219 Parkman Drive, Pittsburgh, PA, United States
- 3:10 (197) **UV RAMAN AND PHOTOLUMINESCENCE STUDIES OF III-V NITRIDES BASED SEMICONDUCTORS**, LEAH BERGMAN, University of Idaho, Dept. of Physics 0903, Moscow, ID, USA
- 3:30 **Coffee Break**
- 4:10 (198) **IN SITU UV RAMAN STUDY OF THE NO_x TRAPPING AND SULFUR POISONING BEHAVIOR OF PT/BA/ALUMINA CATALYSTS**, DAIRENE UY, Kelly Wiegand, Willes H. Weber, Ford Motor Company, MD 3028/SRL Building, PO Box 2053, Dearborn, MI, USA
- 4:30 (199) **UV RAMAN SPECTROSCOPY OF THYMINE AND MOLECULAR SPECIATION OF OILSANDS-DERIVED BITUMEN**, GLEN LOPPNOW, L. Shoute, J. Feist, S. L. Zhang, R. H. Hall, J. T. Bulmer, A. Savage, K. Schmidt, University of Alberta, Department of Chemistry, Syncrude Canada Ltd., Edmonton, AB T6N 1H4 CANADA, Edmonton, AB, Canada
- 4:50 (200) **DEVELOPMENT STATUS OF COMPACT DEEP UV LASERS FOR UV RAMAN SPECTROSCOPY**, WILLIAM HUG, Ray Reid, Michael Storrie-Lombardi, Photon Systems, 1512 Industrial Park St., Covina, CA, USA
- 5:10 (201) **APPLICATION OF FIBER-OPTIC-LINKED ULTRAVIOLET RESONANCE RAMAN SPECTROSCOPY FOR IN-VITRO BIOPHYSICAL MEASUREMENTS**, MICHAEL BLADES, Christopher Barbosa(1,2), Frederic Vaillancourt(3), Lindsay Eltis(3), Robin Turner(2,4), Tom Spiro(5), The University of British Columbia, Chemistry Department, (1) Department of Chemistry; (2) Biotechnology Laboratory; (3) Department of Microbiology; (4) Department of Electrical Engineering; The University of British Columbia, V; (5) Princeton Univer., Vancouver, BC, Canada

**Monday, 2:10 PM – 5:30 PM, Room W2-71
MOLECULAR SPECTROSCOPY**

Presiding: George Havrilla

- 2:10 (202) **ATTENUATED TOTAL REFLECTANCE INFRARED MICROSPECTROSCOPY AS A DETECTION TECHNIQUE FOR HIGH PERFORMANCE LIQUID CHROMATOGRAPHY**, BRIAN M. PATTERSON, Neil D. Danielson, Andre' J. Sommer, Molecular Microspectroscopy Laboratory, Miami University, Department of Chemistry and Biochemistry, Oxford, OH, USA
- 2:30 (203) **COMPARISONS BETWEEN THE NEW AUGMENTED CLASSICAL LEAST SQUARES AND THE TRADITIONAL PARTIAL LEAST SQUARES METHODS**, DAVID MELGAARD, David Haaland, Sandia National Laboratories, PO Box 5800, MS 1134, Albuquerque, NM, USA
- 2:50 (204) **A GLOBAL PHASE ANGLE DESCRIPTION OF GENERALIZED TWO-DIMENSIONAL CORRELATION SPECTROSCOPY**, SHIN-ICHI MORITA, Yukihiro Ozaki, Isao Noda, Kwansai Gakuin University, 1-1-155 Uegahara, Nishinomiya, Hyogo, Japan
- 3:10 (205) **A COMPARISON OF RAMAN VERSUS INFRARED SPECTROSCOPY FOR FORENSIC FIBER ANALYSIS**, EDWARD BARTICK, Richard Baltzersen (1), FBI Academy, Forensic Science Research and Training Center, (1) Virginia Polytechnic Institute and State University, Department of Chemistry, Blacksburg, VA, Quantico, VA, USA
- 3:30 **Coffee Break**
- 3:50 (206) **PDMS POLYMER AGING CHARACTERIZATION USING MICRO X-RAY FLUORESCENCE ELEMENTAL IMAGING AND IR SPECTROSCOPY**, GEORGE HAVRILLA, Jon Bridgewater, Mogan Patel, Los Alamos National Laboratory, MS G740, Los Alamos, NM, USA
- 4:10 (207) **THE BEHAVIOR OF POLY(DIMETHYLSILOXANE)-BASED JUNCTIONS DISSOLVED IN NEAT LIQUIDS, MOLTEN POLYMERS, AND SUPERCRITICAL CO₂**, CHASE MUNSON, Maureen A. Kane, Gary A. Baker, Sherryl A. Perez, Siddharth Pandey, Frank V. Bright, University at Buffalo, The State University of New York, Department of Chemistry, Natural Sciences Complex, P.O. Box 603000, Buffalo, NY, USA
- 4:30 (208) **MICROWAVE SPECTROSCOPY AND ITS APPLICATION TO MICROSTRUCTURE DETERMINATION**, DELLA GRICE, Paul D. I. Fletcher and Stephen J. Haswell, University of Hull, Cottingham Road, Hull, England
- 4:50 (209) **AN EVALUATION OF SUPERSONIC JET SPECTROSCOPY WITH THERMAL DESORPTION FOR DETAILED ANALYSIS OF COMPLEX SAMPLES**, STEVEN GOATES, Amber Johnstone-Gygi, Brent Horn, Brigham Young University, Dept. of Chemistry and Biochemistry, Provo, UT, USA
- 5:10 (210) **APPLICATIONS OF DIGITAL SIGNAL PROCESSING SOFTWARE FOR MULTIPLE MODULATION FT/ IR MEASUREMENTS**, DAVID DRAPCHO, Raul Curbelo, Richard Crocombe and Norman Wright, Digilab Division, Bio-Rad, 237 Putnam Avenue, Cambridge, MA, USA

**Monday, 2:10 PM – 5:30 PM, Room W2-68
ADVANCES IN LASER SPECTROSCOPY II**

Presiding: Peter Chen

Organized by Peter Chen

- 2:10 (211) **VIBRATIONAL SUM FREQUENCY SPECTROSCOPY: NEW ADVANCES AND OPPORTUNITIES**, GERALDINE RICHMOND, University of Oregon, Eugene, OR
- 2:50 (212) **NEAR-FIELD SCANNING OPTICAL MICROSCOPY STUDIES OF POLYMER/LIQUID-CRYSTAL AND POLYMER/SURFACTANT COMPOSITE FILMS**, DANIEL HIGGINS, Xiangmin Liao, Kansas State University, Department of Chemistry, Manhattan, KS, USA
- 3:30 **Coffee Break**
- 3:50 (213) **TWO-DIMENSIONAL FLUORESCENCE CORRELATION SPECTROSCOPY IN BIOMEDICAL ANALYSIS AND CHEMICAL SEPARATIONS**, LEI GENG, Yan He, Jason Cox, Gufeng Wang, Ed Crowell, University of Iowa, Department of Chemistry, Iowa City, IA, U S A
- 4:30 (214) **REAL-TIME DYNAMICS OF SINGLE- DNA MOLECULES UNDERGOING ADSORPTION AND DESORPTION AT LIQUID-SOLID INTERFACES**, EDWARD S. YEUNG, Seong Ho Kang, Michael R. Shortreed, Jinjian Zheng, Iowa State University, Ames Laboratory-USDOE and Department of Chemistry, Ames, IA, USA
- 4:50 (215) **REPRODUCIBILITY OF RESONANT LASER ABLATION SIGNALS**, ROBERT G. MICHEL, Peter

Stchur, University of Connecticut, Department of Chemistry, 55 North Eagleville Road, Storrs, CT, USA

- 5:10 (216) **APPLICATION OF LASER INDUCED BREAKDOWN SPECTROSCOPY TO A HYBRID ROCKET ENGINE MOTOR**, VIRENDRA RAI, F. Y. Yueh, J. P. Singh and R. L. Cook, Mississippi State University, 205 Research Boulevard, Starkville, MS, USA

**Monday, 2:10 PM – 5:30 PM, Room W2-63
IMMOBILIZATION OF FUNCTIONAL BIOMOLECULES AT INTERFACES II**

Presiding: Ulrich Krull

Organized by Ulrich Krull

- 2:10 (217) **ELECTRON PARAMAGNETIC RESONANCE SPIN LABEL TITRATION: A NOVEL METHOD TO INVESTIGATE RANDOM AND SITE-SPECIFIC IMMOBILIZATION OF ENZYMES ONTO POLYMERIC MEMBRANES WITH DIFFERENT PROPERTIES**, ALLAN BUTTERFIELD, Joshua Colvin, Jiangling Liu, Jianquan Wang, Leonidas Bachas, and Dibakar Bhattacharyya, University of Kentucky, Departments of Chemistry and Chemical Engineering and Center of Membrane Sciences, Lexington, KY, USA
- 2:30 (218) **SPECTROSCOPIC AND ELECTROCHEMICAL CHARACTERISATION OF CONDUCTING POLYMER INTERFACES DEVELOPED FOR BIOMOLECULE IMMOBILISATION**, ANDREW GLIDLE, Charlotte S. Hadyoon, Nathalie Anicet, Pierre-Yves Bolinger, Tomoyuki Yasukawa, Adrian P. Walmsley, Jon M. Cooper, Department of Electronics, Glasgow University, Rankine Building, Oakfield Avenue, Glasgow, UK
- 2:50 (219) **RAPID ANALYSIS OF CLINICAL AND ENVIRONMENTAL SAMPLES BY CHROMATOGRAPHIC IMMUNOASSAYS**, DAVID S. HAGE, University of Nebraska, Chemistry Department, 738 Hamilton Hall, Lincoln, NE, US
- 3:10 (220) **ASSESSMENT OF THE FIFTH LIGAND-BINDING REPEAT (LR5) OF THE LDL RECEPTOR AND SHORTER PEPTIDE UNITS AS IMMOBILISED ANALYTICAL REAGENTS FOR LDL BINDING IN ATHEROSCLEROSIS RISK MONITORING**, ELIZABETH (LISA) HALL, Katarina Gaus, Adam Gerrard, Institute of Biotechnology, University of Cambridge, tennis Court Road, Cambridge, UK
- 3:30 **Coffee Break**
- 4:10 (221) **STRATEGIES FOR PRESERVING AND OPTIMIZING IMMOBILIZED PROTEIN ACTIVITY**, DEBORAH LECKBAND, A. Kloss, R. Vijayendran, S. Sligar, University of Illinois, 600 S. Mathews Ave., MC 712, Urbana, IL, USA
- 4:30 (222) **MOLECULAR APPROACHES TO SITE-SPECIFIC IMMOBILIZATION OF BIOMOLECULES ON SURFACES**, ASHOK MULCHANDANI, Wilfred Chen, Richard Richins, Zhaohui Xu and Aijun Wang, University of California, Riverside, Department of Chemical and Environmental Engineering, Riverside, CA, USA
- 4:50 (223) **COVALENT IMMOBILIZATION OF GENETICALLY ENGINEERED MICROORGANISMS TO GLASS BEADS**, LISA SHRIVER-LAKE, Mehran Pazirandeh, Naval Research Laboratory, Code 6900, 4555 Overlook Ave., SW, Washington, DC, USA
- 5:10 (224) **STRATEGIES FOR THE CREATION AND READOUT OF MULTIANALYTE CHIP-SCALE PLATFORMS FOR USE IN MASSIVELY-PARALLEL BIOASSAYS**, MARC PORTER, Jeremy Kenseth, Janese O'Brien, Jing Ni, and Robert Lipert, Iowa State University,

Department of Chemistry and Microanalytical Instrumentation Center, Ames, IA, USA

**Monday, 2:10 PM – 5:30 PM, Room W2-61
SPECTROSCOPIC PROBING OF CHROMATOGRAPHIC INTERFACES AND INTERACTIONS**

Presiding: Vicki McGuffin

Organized by: Vicki McGuffin

- 2:10 (225) **WHAT DO PROTEINS DO AT/IN A SURFACE?**, FRANK V. BRIGHT, University at Buffalo, The State University of New York, 511 Natural Sciences Complex, Buffalo, NY, USA
- 2:50 (226) **RAMAN SPECTROSCOPY OF REVERSED-PHASE LIQUID CHROMATOGRAPHY STATIONARY PHASES**, JEANNE E. PEMBERTON, Christopher J. Orendorff, Michael W. Ducey, Jr, University of Arizona, Department of Chemistry, Tucson, AZ, USA
- 3:30 **Coffee Break**
- 3:50 (227) **SPECTROSCOPIC PROBING OF INTERACTIONS THAT LEAD TO TAILING OF CHROMATOGRAPHIC PEAKS**, MARY WIRTH, Derrick Swinton, Melody Ludes, University of Delaware, Department of Chemistry & Biochemistry, Newark, DE, USA
- 4:30 (228) **KINETIC AND THERMODYNAMIC CHARACTERIZATION OF REVERSED-PHASE LIQUID CHROMATOGRAPHY**, VICTORIA L. MCGUFFIN, Samuel B. Howerton, Michigan State University, Department of Chemistry, East Lansing, MI, USA
- 5:10 (229) **CONFOCAL IMAGING IN CAPILLARY ELECTROCHROMATOGRAPHY**, MARK LOWRY, Lei Geng, University of Iowa, 203 CB, Iowa City, IA, USA (696)

**Tuesday, 8:00 AM – 11:20 AM, Room W2-66
ETV SAMPLE INTRODUCTION: THE PLEASURE AND THE PAIN I**

Presiding: Nancy Miller-Ihli

Organized by: Nancy Miller-Ihli

- 8:00 (230) **THE LONG AND PERILOUS JOURNEY FROM ETV TO THE ICP**, JAMES HOLCOMBE, John Venable, Gulay Ertaş, University of Texas at Austin, Dept of Chem and Biochem, Austin, TX, USA
- 8:40 (231) **ETV SAMPLE INTRODUCTION FOR PLASMA OES AND MS VS GRAPHITE FURNACE AAS: A CRITICAL EVALUATION**, GREET DE LOOS, Delft University of Technology, Julianalaan 136, Delft, Netherlands
- 9:00 (232) **SLURRY ETV- ICP- MS FOR HOMOGENEITY ASSESSMENTS OF SOLIDS**, NANCY MILLER-IHLI, Scott Baker, USDA, Food Composition Lab, Rm. 1 Bldg. 161 BARC-East, Beltsville, MD, USA
- 9:20 (233) **THERMAL CAVITY ION SOURCE MASS SPECTROMETRY: ETV OR TIMS?**, VAHID MAJIDI, David Wayne, Wei Hang, Cris Lewis, Los Alamos National Laboratory, Chemistry Division, MS G740, Los Alamos, NM, USA
- 10:00 **Coffee Break**
- 10:40 (234) **ETV-TOOL OR TOY?**, BERNHARD WELZ, Sandra M. Maia, Adilson J. Curtius, Maria Goreti R. Vale, Universidade Federal de Santa Catarina, Departamento de Química, Florianópolis, SC, Brazil

Tuesday, 8:00 AM – 11:20 AM, Room W2-58
ENVIRONMENTAL APPLICATIONS OF FLOW
INJECTION SPECTROMETRY II

Presiding: Diane Beauchemin Organized by: Diane Beauchemin

- 8:00 (235) **ON-SITE SPECIATION OF ARSENIC IN WATER, IMPLICATIONS ON EXPOSURE AND HUMAN HEALTH**, X. CHRIS LE, Serife Yalcin, Mingsheng Ma, Xiufen Lu, Zhilong Gong, University of Alberta, 13-103 CSB, Department of Public Health Sciences, Edmonton, AB, Canada
- 8:40 (236) **DEVELOPMENTS IN SEQUENTIAL INJECTION TECHNIQUES FOR ATOMIC ABSORPTION SPECTROMETRY**, ZHAO-LUN FANG, Hong-Bing Ma, Zhang-Run Xu, Shukun Xu, Research Center for Analytical Sciences, Northeastern University, Box 332, Wenhua Rd. 3-11, 110006, Shenyang, Ln, China, China
- 9:20 (237) **FLOW INJECTION AUTOMATED SEPARATION AND PRECONCENTRATION FOR ATOMIC SPECTROMETRY**, EDGAR PASKI, Analytical Innovations, 1818 Riverside Drive, North Vancouver, BC, Canada
- 10:00 **Coffee Break**
- 10:40 (238) **DEVELOPMENT OF FLOW INJECTION ON-LINE PRECIPITATION COUPLED WITH ICP/MS FOR THE DETERMINATION OF TRACE ELEMENTS IN SALINE WATER**, HEIDI CHEN, Diane Beauchemin, Queen's University, Dept. of Chemistry, Kingston, ON, Canada

Tuesday, 8:00 AM – 11:20 AM, Room W2-65
HIGH RESOLUTION ICP-MS I

Presiding: Chuck Douthitt Organized by: Chuck Douthitt

- 8:00 (239) **MAGNETIC SECTOR ICP/MS, AN HISTORICAL PERSPECTIVE**, C.B. DOUTHITT, ThermoFinnigan, 9412 Rocky Branch Drive, Dallas, TX, USA
- 8:20 (240) **INVESTIGATION OF TECHNIQUES FOR IMPROVING ULTRATRACE SI ANALYSIS USING HRICPMS**, DAN WIEDERIN, Elemental Scientific, Inc., 2440 Cumming St., Omaha, NE, USA
- 8:40 (241) **MEASURING LOW LEVEL BORON IN ULTRAPURE WATER WITH A HIGH RESOLUTION INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER**, RAUL HERRERA, Steve Tweedy, Advanced Micro Devices, 5204 E. Ben White Blvd., Austin, TX, USA
- 9:00 (242) **HIGH RESOLUTION ICP/MS-VAPOR PHASE DECOMPOSITION OF THE WAFER SURFACE FOR TRACE METAL ANALYSIS**, DAVID PALSULICH, K. M. Coyle, L. B. Weston, Micron Technology, 8000 S. Federal Way, Boise, ID, USA
- 9:20 (243) **APPROACHES TO HIGH ACCURACY MULTI-ELEMENT TRACE AND ULTRATRACE ELEMENT DETERMINATIONS IN URINE AND BLOOD USING ID-HR- ICP/MS**, ROBERT VOCKE, M. E. Howard, S. E. Long, National Institute of Standards and Technology, 100 Bureau Drive, MS 8391, Gaithersburg, MD, USA
- 9:40 (244) **DETERMINATION OF SI BY HR- ICP/MS FOR THE CERTIFICATION OF A NEW SILICA ON FILTER REFERENCE MATERIAL**, LEE YU, Abigail P. Lindstrom, NIST, 100 Bureau Dr. MS 8391, Gaithersburg, MD, USA
- 10:00 **Coffee Break**
- 10:40 (245) **DETERMINATION OF TRACE ELEMENTS IN HIGH-PURITY MATERIALS BY DOUBLE-**

FOCUSING SECTOR FIELD ICP/MS, J. SABINE BECKER, Central Department of Analytical Chemistry, Research Centre Juelich, Juelich, Germany

- 11:00 (246) **SPECIATION OF INDICATOR ELEMENTS IN BIO-MOLECULES BY USE OF ICP/MS WITH LOW AND HIGH MASS RESOLUTION**, NORBERT JAKUBOWSKI, Michael Edler, Ingo Feldmann, Detlef Metze, Institut für Spektrochemie und Angewandte Spektroskopie (ISAS), P.O.Box 101352, Dortmund, Germany

Tuesday, 8:00 AM – 11:20 AM, Room W2-64
NEW INVESTIGATORS IN ANALYTICAL SCIENCE:
INNOVATIVE LEADERS IN THE NEW MILLENNIUM II

Presiding: Julie Stenken Organized by: David Butcher

- 8:00 (247) **PROBING THE DIRECT COVALENT COUPLING OF F(AB') ANTIBODY FRAGMENTS FOR IMMUNOSENSING APPLICATIONS**, MARK H. SCHOENFISCH, Kathryn L. Brogan, University of North Carolina, Department of Chemistry, CB#3290, Chapel Hill, NC, USA
- 8:20 (248) **SAMPLING AND ANALYSIS FOR NEUROCHEMICALS FROM THE CENTRAL NERVOUS SYSTEM**, SCOTT SHIPPY, University of Illinois at Chicago, 845 W Taylor St, M/C 111, Chicago, IL, US
- 8:40 (249) **HIGHLY SELECTIVE ION-TRANSPORT MEMBRANES PREPARED FROM LAYERED POLYELECTROLYTE FILMS**, MERLIN BRUENING, Jinhua Dai, Jeremy Harris, Daniel Sullivan, Michigan State University, Department of Chemistry, East Lansing, MI, USA
- 9:00 (250) **INVESTIGATING BIOCOMPATIBILITY AND SENSOR COMPATIBILITY OF IMPLANTED IN VIVO ANALYTICAL DEVICES**, JULIE STENKEN, Rui Chen and Li Sun, Rensselaer Polytechnic Institute, Department of Chemistry, 130 Cogswell Labs, 110 8th Street, Troy, NY, USA
- 9:20 (251) **DEVELOPING ANALYTICAL STRATEGIES FOR THE ANALYSIS OF SUBCELLULAR COMPARTMENTS**, EDGAR ARRIAGA, Nilhan Gunasekera, Ciaran Duffy, Kathryn Fuller, Abraham McEathron, Brent Seager, Dmitry Andreyev, University of Minnesota, 207 Pleasant St SE, Minneapolis, MN, U S A
- 9:40 (252) **CAPILLARY-BASED FLOW SYSTEMS THAT MODEL THE MICROCIRCULATION: HOW WELL DO THEY MIMIC PHYSIOLOGICAL CONDITIONS?**, DANA SPENCE, Randy Sprague, Robert Sprung, Damian Kotsis, Saint Louis University, 3501 Laclede, St. Louis, MO, USA
- 10:00 **Coffee Break**
- 10:40 (253) **ANALYSIS OF HETEROGENEOUS POPULATIONS OF CELLS**, SHERI LILLARD, University of California Riverside, Department of Chemistry, Riverside, CS
- 11:00 (254) **PROTEIN UNFOLDING AND FRAGMENTATION STUDIES USING A TANDEM ION TRAP / ION MOBILITY / TIME-OF-FLIGHT MASS SPECTROMETER**, ETHAN R. BADMAN, David E. Clemmer, Indiana University, Dept. of Chemistry, Box 234, Bloomington, IN, US

Tuesday, 8:00 AM – 11:20 AM, Room O2-33

VIBRATIONAL SPECTROSCOPIC IMAGING I

Presiding: David Haaland Organized by: David Haaland

- 8:00 (255) **MULTIVARIATE RAMAN MICROSCOPY AND IMAGING AS A TOOL FOR OPTIMIZATION OF FORMULATION AND PROCESSING CONDITIONS OF CONSUMER PRODUCTS**, SHULIANG ZHANG, Dane Drutis, Thomas M. Hancewicz and Dennis J. Palatini, Unilever Research, 45 River Rd, Edgewater, NJ, USA
- 8:40 (256) **INTERFACING FAST READOUT MCT FOCALPLANE ARRAYS TO FOURIER TRANSFORM INFRARED SPECTROMETERS**, RICHARD CROCOMBE, Norman Wright, Luther Barber, John Leonardi, Digilab, 68 Mazzeo Drive, Randolph, MA, USA.
- 9:20 (257) **EVANESCENT WAVE MICROSPECTROSCOPY AND IMAGING**, ANDRE' J. SOMMER, Miami University, Molecular Microspectroscopy Laboratory, Oxford, OH
- 10:00 **Coffee Break**
- 10:40 (258) **ISSUES IN THE APPLICATION OF MULTIVARIATE CURVE RESOLUTION FOR ANALYSIS OF INFRARED HYPERSPECTRAL IMAGES OF BIOLOGICAL TISSUE**, BOIANA BUDEVSKA, DuPont Crop Protection, Stine-Haskell Research Center, P.O. Box 30, Newark, DE, USA

Tuesday, 8:00 AM – 11:20 AM, Room W2-70

MASS SPECTROMETRY: OUT OF THIS WORLD

Presiding: Albert Viggiano Organized by: Albert Viggiano

- 8:00 (259) **TRACING CHEMICAL INJECTIONS IN THE STRATOSPHERE**, JOHN BALLENTIN, D. E. Hunton, A. A. Viggiano, T. M. Miller, W. F. Thorn, Air Force Research Laboratory/VSBXT, 29 Randolph Road, Hanscom Afb, MA, US
- 8:40 (260) **MEASUREMENT OF PERNITRIC ACID AT THE SOUTH POLE**, GREG HUEY, Darlene Slusher, David Tanner, Georgia Tech, 221 Bobby Dodd Way, Atlanta, GA, USA
- 9:20 (261) **A STUDY OF FULLERENE-ION CHEMISTRY WITHIN ASTROPHYSICAL ENVIRONMENTS USING SELECTED-ION FLOW TUBE MASS SPECTROMETRY**, DIETHARD BOHME, York University, 4700 Keele Street, Toronto, ON, Canada
- 10:00 **Coffee Break**
- 10:40 (262) **IN SITU MEASUREMENTS AND LABORATORY STUDIES OF METEORITIC MATERIAL IN STRATOSPHERIC AEROSOLS**, DANIEL CZICZO, Daniel Murphy, David Thomson, NOAA Aeronomy Lab, CIRES University of Colorado, 325 Broadway R/AL6, Boulder, CO, USA

Tuesday, 8:00 AM – 11:20 AM, Room W2-67

ELECTROCHEMICAL OSCILLATIONS AND NONLINEAR SYSTEMS

Presiding: Joseph Vitt Organized by: Joseph Vitt

- 8:00 (263) **ADAPTIVE CONTROL IN ELECTROCHEMICAL OSCILLATIONS OF COPPER**, HOWARD D. DEWALD, Marcus A. Rhode (1), Roger W. Rollins (1), Ohio University, Department of Chemistry and Biochemistry, (1) Department of Physics and Astronomy, Ohio Univeristy, Athens, OH
- 8:40 (264) **EFFECT OF ELECTRODE MATERIAL ON OSCILLATIONS DURING THE OXIDATION OF IODIDE**, JOSEPH VITT, Ling Ma, David S. Anderson,

University of South Dakota, 414 E. Clark St., Vermillion, SD, USA

- 9:20 (265) **PERTURBED EXCITABLE MEDIA**, KENNETH SHOWALTER, West Virginia University, Department of Chemistry, PO Box 6045, Morgantown, WV, USA
- 10:00 **Coffee Break**
- 10:40 (266) **OSCILLATORY OXIDATION OF ALUMINUM CATALYZED BY HEAVY METAL IONS IN NITRIC ACID: AN UNDERSTOOD PHENOMENON**, ALEXANDER SCHEELINE, Cathy Cobb, Elizabeth De Lucia, Jamal Josephs, Frank Onyemauwa, Michael McCutcheon, and In-Sil Kim, University of Illinois at Urbana-Champaign, 600 S. Mathews Ave., Urbana, IL, USA

Tuesday, 8:20 AM – 11:20 AM, Room W2-71

DEVELOPMENTS IN INDUCTIVELY COUPLED PLASMA INSTRUMENTATION I

Presiding: Simon Nelms

- 8:20 (267) **APPLICATION OF HR- ICP/ MS FOR CLINICAL SAMPLE ANALYSIS**, SIMON NELMS, Steve Guilfoyle, Karen Lee, Bill Spence, Thermo Elemental, Ion Path, Road Three, Winsford, Cheshire, England
- 8:40 (268) **SEMICONDUCTOR REAGENT ANALYSIS BY HR- ICP/ MS-HOW LOW CAN WE GO?**, SIMON NELMS, Steve Guilfoyle, Patrick Miller, Thermo Elemental, Ion Path, Road Three, Winsford, Cheshire, England
- 9:00 (269) **OPTICAL CONSIDERATIONS FOR PROPER UV LASER SAMPLING FOR ICP-SPECTROMETRY**, TED G. HOWE, J. Shkolnik, R. Fry, CETAC Technologies, 5600 South 42nd Street, Omaha, NE, USA
- 9:20 (270) **RADIALLY VIEWED SIMULTANEOUS ICP-OES THE COMPLETE SOLUTION FOR WEAR METALS ANALYSIS FOR HEAVY EQUIPMENT AND TRANSPORT COMPANIES**, FILIPPA MINNELLI, Michelle Cree, Glyn Russell, Varian Australia Pty. Ltd., 679 Springvale Rd, Mulgrave, VIC, Australia
- 9:40 (271) **ANALYSIS OF 32 ELEMENTS IN HIGH PURITY ACIDS WITH A COMBINATION ICP- OES**, PAMELA MUNDY, Albert Brennsteiner, Jobin Yvon/Horiba, 3880 Park Ave, Edison, NJ, USA
- 10:00 **Coffee Break**
- 10:40 (272) **ION DETECTION IN ICP/ MS: THE TRIALS AND TRIBULATIONS OF AN ELECTRON MULTIPLIER**, JONATHAN BATEY, Roger Fletcher, Jim Stringer, Thermo Elemental, Ion Path, Road Three, Winsford, Cheshire, England
- 11:00 (273) **PUMPING SYSTEM PERFORMANCE FOR ICP/ MS: ALL ARE NOT CREATED EQUAL**, JONATHAN BATEY, Tim Whitechurch, Thermo Elemental, Ion Path, Road Three, Winsford, Cheshire, England

Tuesday, 8:00 AM – 11:20 AM, Room W2-63

OAK RIDGE NATIONAL LABORATORY I

Presiding: Jim Stephenson Organized by: Jim Stephenson

- 8:00 (274) **ELECTROSPRAY IONIZATION MASS SPECTROMETRY COMBINED WITH ION/ION CHEMISTRY FOR PROTEOME ANALYSIS**, JONATHAN L. BUNDY, Nathan C. Verberkmoes, James L. Stephenson, Jr. and Scott A. McLuckey, Oak Ridge National Lab, Bldg 5510 MS 6365, PO Box 2008, Oak Ridge, TN
- 8:40 (275) **ANALYTICAL IMAGING**, T. GREGORY SCHAAFF, John M. McMahan, Peter J. Todd, Oak Ridge

National Laboratory, P.O. Box 2008, Oak Ridge, Oak Ridge, USA

- 9:20 (276) **LAB-ON-A-CHIP DEVICES FOR OBTAINING CHEMICAL INFORMATION**, STEPHEN C. JACOBSON, Christopher T. Culbertson, Maxine A. McClain, B. Scott Broyles, Jean Pierre Alarie, J. Michael Ramsey, Oak Ridge National Laboratory, PO Box 2008, MS 6142, Oak Ridge, TN, USA
- 10:00 **Coffee Break**
- 10:40 (277) **ELECTROCHEMICALLY-MODULATED CHEMICAL/MOLECULAR RECOGNITION ON-LINE WITH MASS SPECTROMETRIC DETECTION**, GARY VAN BERKEL, Oak Ridge National Laboratory, P.O. Box 2008/Bldg 5510, Oak Ridge, TN, USA

Tuesday, 8:00 AM– 11:20 AM, Room W2-69
ATOMIC SPECTROSCOPY IN THE PHARMACEUTICAL INDUSTRY

Presiding: Tiebang Wang Organized by: Tiebang Wang

- 8:00 (278) **ELEMENTAL SPECTROCHEMICAL ANALYSIS FROM THE 1960'S TO 2001**, RAMON BARNES, University Research Institute for Analytical Chemistry, 85 N. Whitney Street, Amherst, MA, USA
- 8:40 (279) **CONTAMINATION ISSUES IN TRACE ELEMENT ANALYSIS**, PAUL GAINES, Inorganic Ventures, Inc., 195 Lehigh Ave, Suit 4, Lakewood, NJ
- 9:20 (280) **DIRECT DETERMINATION OF METALS IN ORGANICS BY ICP /AES IN AQUEOUS MATRICES**, TIEBANG WANG, Xiujuan Jia and Jane Wu, Merck & Co., Inc., PO Box 2000, R80L-115, Rahway, NJ
- 10:00 **Coffee Break**
- 10:40 (281) **APPLICATION OF CCD BASED ICP WITH SPECTRAL RANGE UP TO 120 NM FOR PHARMACEUTICAL ANALYSIS**, SERGEI LEIKIN, SPECTRO Analytical Instruments, Inc., 160 Authority Dr., Fitchburg, MA
- 11:00 (282) **PANEL DISCUSSION: FUTURE DEVELOPMENTS IN ATOMIC SPECTROMETRY ANALYSIS IN THE PHARMACEUTICAL INDUSTRY**, JANE WU, Merck and Co., P.O. Box 2000, Tiebang Wang, Rahway, NJ

Tuesday, 8:00 AM– 11:20 AM, Room W2-68
LUMINESCENCE SPECTROSCOPY

Presiding: Jon Carnahan

- 8:00 (283) **IMAGING IN THE UV AND VIS REGIONS USING ACOUSTO-OPTIC TUNABLE FILTERS**, JON W. CARNAHAN, Kirk Duffin, Ling Bei, Thomas Spaine, Department of Chemistry and Biochemistry, Northern Illinois University, Dekalb, IL, USA
- 8:20 (284) **VISIBLE HYPERSPECTRAL IMAGING WITH ACOUSTO-OPTIC TUNABLE FILTERS**, LING BEI, Jon W. Carnahan, Kirk R. Duffin, Department of Chemistry and Biochemistry, Northern Illinois University, Dekalb, IL, USA
- 8:40 (285) **SUBCELLULAR CHEMICAL IMAGING FOR ZINC WITH AN OPTOCHEMICAL NANOSENSOR**, JAMES SUMNER, Hao Xu, Jon Aylott, Raoul Kopelman, University of Michigan, 900 N. Main, Ann Arbor, MI, USA
- 9:00 (286) **COVARIANCE MAPPING OF TISSUE FLUORESCENCE FOR CANCER DIAGNOSIS**, LEI GENG, Jason Cox, Ed Crowell, University of Iowa, Department of Chemistry, Iowa City, IA, USA
- 9:20 (287) **COSMIC SPIKE STRIPPING USING A NEW UPPER BOUND SPECTRUM ALGORITHM**, DOR BEN-AMOTZ, Dongmao Zhang, Purdue University, Department of Chemistry, West Lafayette, IN

- 9:40 (288) **TIME RESOLVED HIGH RESOLUTION PHOSPHORESCENCE SPECTROSCOPY OF ORGANOCHELORINATED POLLUTANTS IN SHPOL'SKII MATRICES WITH FIBER OPTIC PROBES**, ANDREA F. ARRUDA, Travis L. Martin, Andres D. Campiglia, North Dakota State University, NDSU Department of Chemistry, Fargo, ND, USA

10:00 **Coffee Break**

- 10:40 (289) **HIGH RESOLUTION LASER EXCITED TIME-RESOLVED SHPOLSKII SPECTROMETRY WITH CRYOGENIC FIBER OPTIC PROBES AT 42K**, ADAM BYSTOL, Travis L. Martin, Andres D. Campiglia, Gregory D. Gillispie, North Dakota State University, Department of Chemistry - Ladd Hall, Fargo, ND, USA
- 11:00 (290) **LASER-INDUCED ROOM-TEMPERATURE FLUORESCENCE DETECTION OF POLYCYCLIC AROMATIC HYDROCARBONS ON SOLID-LIQUID EXTRACTION MEMBRANES**, ANDRES D. CAMPIGLIA, Jennifer L. Whitcomb, Adam J. Bystol, , North Dakota State University, Chemistry Dept., Fargo, ND, USA

Tuesday, 8:00 AM – 11:20 AM, Room O2-44
INDUSTRIAL AND PROCESS APPLICATIONS OF RAMAN I

Presiding: Andrew Whitley

Organized by: Andrew Whitley, Fran Adar, and Ian Lewis

- 8:00 (291) **TUNABLE SERS SUBSTRATES**, WAYNE WEIMER, Mark Dyer, Zyvex Corporation, 1321 N. Plano Road, Richardson, TX, USA
- 8:20 (292) **DEVICE FABRICATION USING PEPTIDE NANOTUBES AS BUILDING BLOCKS AND THEIR RAMAN MICROSCOPIC ANALYSIS**, HIROSHI MATSUI, Su Pan, Gary E. Douberly Jr, University of Central Florida, Dept. of Chemistry, Orlando, FL, US
- 9:00 (293) **QUANTITATIVE FT/ RAMAN METHOD FOR THE ANALYSIS OF CRYSTALLINE DRUG IN AN AMORPHOUS DRUG IN CONSTITUTED DRUG PRODUCT**, RUTH TE, Pamela A. Martoglio-Smith, David E. Bugay, and Chris J. Rojewski, SSCI, Inc., 3065 Kent Avenue, West Lafayette, IN, USA
- 9:20 (294) **MICROSPECTROSCOPIC STUDY OF ORGANIC LIGHT-EMITTING DIODE (OLED) DISPLAYS: UNDERSTANDING MATERIAL AND DEVICE DEGRADATION**, DAVID TUSCHEL, Eastman Kodak, Kodak Research Laboratories, B82, Rochester, NY, USA
- 9:40 (295) **COMPOSITIONAL MAPPING OF PAPER COATINGS USING RAMAN SPECTROSCOPY**, CARL TRIPP, Pei He and Shivashankar Bitla, University of Maine, 5764 Sawyer Research Center, Orono, ME, USA
- 10:00 **Coffee Break**
- 10:40 (296) **SRM 2241: A RELATIVE INTENSITY CORRECTION STANDARD FOR RAMAN SPECTROSCOPY WITH 785 NM EXCITATION**, STEVEN CHOQUETTE, Edgar Etz, Wilbur Hurst, Douglas Blackburn, NIST, Chemistry MS 8394, Gaithersburg, MD, USA
- 11:00 (297) **MEASUREMENT OF SPATIAL AND KINETIC CURE PROFILES IN UV-CURABLE COATINGS USING CONFOCAL RAMAN MICROSCOPY AND RAPID-SCAN FT/ IR SPECTROSCOPY**, NEIL EVERALL, Robert Liversidge, ICI PLC, Wilton Research Centre, PO Box 90, Wilton, Middlesbrough, England, UK

**Tuesday, 8:00 AM – 11:00 AM, Room W2-61
ELECTIC EXERCISES IN BIOSEPARATIONS I**

Presiding: Apryll Stalcup Organized by: Apryll Stalcup

- 8:00 (298) **CAPILLARY ELECTROPHORESIS BASED METHODS FOR THE INVESTIGATION OF PEPTIDE TRANSPORT AND METABOLISM**, SUSAN LUNTE, Anita Freed, Josh Cooper, Andrew Gawron, Scott Martin and Malonne Davies, University of Kansas, 2095 Constant Avenue, Lawrence, KS, USA
- 8:40 (299) **INNOVATIVE OPERATION OF CAPILLARY ELECTROPHORESIS TO STUDY PEPTIDES**, LISA HOLLAND, Ping Liu, Amy M. Raber, Chemistry Department, Kent State University, Williams Hall, Kent, OH, USA
- 9:20 (300) **ENANTIOMERIC SEPARATION OF SELENO AMINO ACIDS IN NUTRITIONAL SUPPLEMENTS USING CHIRAL DERIVATIZATION AND ICP/MS DETECTION**, MARIA MONTES-BAYON, Jason A. Day, Enrique Yanes and Joseph A. Caruso, University of Cincinnati, Department of Chemistry, Mail Location 0172, Cincinnati, OH, USA
- 10:00 **Coffee Break**
- 10:40 (301) **CAPILLARY ELECTROCHROMATOGRAPHY OF PEPTIDES AND PROTEINS USING APTAMERS: A COMPARISON OF STATIONARY PHASE APPROACHES**, LINDA B. MCGOWN, Joseph A. M. Charles, Melanie A. Rehder, Michelle Viglietta, Rebecca L. Owen, Duke University, Department of Chemistry, Box 90346, Durham, NC, U S A

**Tuesday, 8:00 AM– 11:20 AM, Room W2-62
KOREAN ANALYTICAL CHEMISTRY: ATOMIC SPECTROSCOPY AND MASS SPECTROMETRY**

Presiding: Yong Ill-Lee & Sang Chun Lee
Organized by: Yong Ill-Lee & Sang Chun Lee

- 8:00 (302) **DETERMINATION OF LEAD IN STEEL AND DRINK SAMPLES BY INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY WITH SAMPLE INTRODUCTION BY HYDRIDE GENERATION**, CHANG PARK, Sunjin Song, Dongsoo Lee, Korea Research Institute of Standards and Science, P.O. Box 102, Yusong, Taejon, Korea
- 8:20 (303) **DETERMINATION OF METAL IMPURITIES IN WAFER AND METAL TARGET USED IN SEMICONDUCTOR MANUFACTURING PROCESS**, HEUNGBIN LIM, P. K. Chun, H. Y. Kim, Dankook University, Youngsan-Ku, Hannam-dong, Mt.#8, Seoul, Korea
- 8:40 (304) **LASER-INDUCED BREAKDOWN SPECTROMETRY AND ITS COUPLING WITH LOW PRESSURE ICP SYSTEM FOR QUANTITATIVE ELEMENTAL ANALYSIS**, YONG-ILL LEE, Changwon National University, 9 Sarim-dong, Department of Chemistry, Changwon, Kyungnam, Korea
- 9:00 (305) **THE STUDIES FOR AN EXTERNAL CALIBRATION METHOD FOR LASER ABLATION INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY**, GAE HO LEE, Mi Young Kim, Yoon Kyung Kim, Rae Suk Chung, Chungnam National University, Department of Chemistry, Taejon, Korea
- 9:20 (306) **ISOTOPE DILUTION MASS SPECTROMETRY OF ORGANIC COMPOUNDS FOR THE CERTIFICATION OF CRMS**, BYUNGGOO KIM, Hun-Young So, Korea Research Institute of Standards and

Science, Doryoung-Dong 1 Box 102, Yusong, Taejon, Korea

- 9:40 (307) **APPLICATION OF ION TRAP MASS SPECTROMETRY IN SOLID SAMPLE ANALYSIS**, KYUSEOK SONG, Hyungki Cha, Hyunkook Park, Sang Chun Lee, Korea Atomic Energy Research Institute, 150 Duckjin-dong, Yusong-ku, Taejon, Korea
- 10:00 **Coffee Break**
- 10:40 (308) **DEVELOPMENT OF NEW ION SOURCE FOR BIOLOGICAL COMPOUNDS**, SANGCHUN LEE, Hasuck Kim, Yongseong Kim, Hyunkook Park, Kyungnam University, 449 Wolyong-dong, Masan, Korea, Korea
- 11:00 (309) **SEQUENCING OF NOVEL PROTEIN FROM BACILLUS PUMILUS USING A HIGH RESOLUTION HYBRID TANDEM MASS SPECTROMETRY**, YOON-SEOK CHANG, Byung-Hoon Kim, Sung-Deuk Choi, Hyo-Bong Hong, Pohang University of Science and Technology, San 31 Hyojadong, Namku, Pohang, Korea

**Tuesday, 8:40 – 11:20, Room W1-54
ANACHEM AWARD SYMPOSIUM I**

Presiding: Jack Holland Organized by: Mike Inglehart

- 8:40 (310) **ADVANCES IN HIGH-SPEED GC AND GC/ MS: HARDWARE, METHODS AND MODELS**, RICHARD SACKS, Tincuta Veriotti, Megan McGuigan, Joshua Whiting, Edward Zellers, University of Michigan, Department of Chemistry, Ann Arbor, MI, USA
- 9:20 (311) **THE USE OF MASS SPECTROMETRY TO STUDY HUMAN PROTEOMES**, DOMINIC DESIDERIO, University of Tennessee Health Science Center, 847 Monroe Avenue Room 117, Memphis, TN, USA
- 10:00 **Coffee Break**
- 10:40 (312) **TIME-OF-FLIGHT MASS SPECTROMETRY WITH TIME ARRAY DETECTION: NEW HORIZONS FOR GC/ MS**, JACK HOLLAND, Ben Gardner, Michigan State University, Biochemistry Department, East Lansing, MI, USA

**Tuesday, 11:20 AM – 12:10 PM, Room W1-54
FEATURED PRESENTATIONS:
ANACHEM AWARD SYMPOSIUM I:
INTRODUCTION & AWARD ADDRESS**

Presiding: Jack Holland Organized by: Mike Inglehart

- 11:20 (312A) **THE ANACHEM AWARD**, PATSY COLEMAN, The Association of Analytical Chemists (ANACHEM), Detroit, MI.
- 11:30 (313) **PERSONAL RECOLLECTIONS ON THE ORIGIN OF SELECTED ION MONITORING**, CHARLES C. SWEELEY, Michigan State University, Department of Biochemistry, (831)

**Tuesday, 1:10 PM– 1:50 PM, Room W2-62
FEATURED PRESENTATION:
KOREAN ANALYTICAL CHEMISTRY**

Presiding: Geun Sig Cha Organized by: Geun Sig Cha

- 1:10 (314) **FAST IMPEDANCE MEASUREMENTS IN ELECTROANALYTICAL CHEMISTRY: A HOAX OR A BREAKTHROUGH?**, SU-MOON PARK, Jung-Suk Yoo, Department of Chemistry, Pohang University of Science & Technology, Hyojadong San 31, Namgu, Pohang, Kyungbuk, Korea

Tuesday, 2:00 PM – 5:20 PM, Room W2-62

KOREAN ANALYTICAL CHEMISTRY:

CHROMATOGRAPHY AND ELECTROCHEMISTRY

Presiding: Geun Sig Cha and Jung Hag Park

Organized by: Geun Sig Cha and Jung Hag Park

- 2:00 (315) **VOLTAMMETRIC ANALYSIS OF IONS WITH CALIXARENE-BASED HOST COMPOUNDS**, HASUCK KIM, Jandee Kim, Taek Dong Chung and Hyunchang Lim, Seoul National University, School of Chemistry and Molecular Engineering, Seoul, Korea
- 2:20 (316) **SELECTIVE DETERMINATION OF ALUMINIUM(III) IONS USING THE CATALYTIC CURRENT OF A CONDUCTIVE POLYMER**, YOON-BO SHIM, H. Seol, S. C. Shin, Pusan National University, Keumjung-Ku, Pusan, S Korea
- 2:40 (317) **PLANAR REFERENCE ELECTRODES BASED ON POLYMER MEMBRANES**, GEUN SIG CHA, Kwangwoon University, Department of Chemistry and CIMS (POSTECH), 447-1 Wolgye-Dong, Nowon-Ku, Seoul, Korea
- 3:00 (318) **ANALYSIS OF ENDOCRINE DISRUPTING CHEMICALS AND ITS APPLICATION TO RISK ASSESSMENT**, JONGSEI PARK, Shinae Choi, LabFrontier Co, Seoul, Korea
- 3:20 **Coffee Break**
- 4:00 (319) **PLASTIC MICROFLUIDIC DEVICES FOR BIO/CHEMICAL ANALYSIS**, JONG HOON HAHN, Department of Chemistry, Pohang University of Science and Technology, San 31 Hyoja-Dong, Pohang, 790-784, South Korea
- 4:20 (320) **FRIT-INLET ASYMMETRICAL FLOW FFF FOR THE SEPARATION OF NANOPARTICLES & MACROMOLECULES**, MYEONG HEE MOON, Pusan National University, Changjeon-Dong, Keumjeong-Gu, Pusan, Korea
- 4:40 (321) **RECENT ADVANCES IN THE SEPARATION SCIENCE LABORATORY: SOLUTION THERMODYNAMICS AND MICROSEPARATION BY HPLC**, WON JO CHEONG, Department of Chemistry and Center of Advanced Bioseparation Technology, Inha University, Nam-ku, Yonghyun-dong 253, Incheon, Korea
- 5:00 (322) **COMPARISON OF ENANTIOSELECTIVITY OF POLYSACCHARIDES-COATED ZIRCONIA IN HPLC**, JUNG HAG PARK, Clayton McNeff, Yoshio Okamoto, Chiyo Yamamoto, Yeungnam University, 214-1 Dae-dong, Kyongsan, Korea

Tuesday, 2:00 PM – 5:40 PM, Room W2-71

ADVANCES IN ATOMIC SPECTROSCOPY INSTRUMENTATION I

Presiding: Peter Brown

- 2:00 (323) **EMPLOYING TWO VAPOR PATHS AND DUAL ATOMIC FLUORESCENCE DETECTORS TO MEET THE DIFFERING DEMANDS OF METHODS 1631 AND 2457**, DAVID PFEIL, Mark Bruce, Leeman Labs, Inc., 6 Wentworth Drive, Hudson, NH, USA
- 2:20 (324) **NOVEL SAFETY AND CONTROL MECHANISMS FOR MICROWAVE DIGESTION**, JAY LEAZER, David Barclay, Leslie Rhodes, CEM Corp, 3100 Smith Farm Rd, Matthews, NC, US
- 2:40 (325) **IMPROVING SAMPLE PREPARATION PROCEDURES FOR ELEMENTAL ANALYSIS BY ATOMIC SPECTROMETRY**, PETER KAINRATH, Peter Kettisch, Markus Lafer, PerkinElmer Bodenseewerk, Alte Nussdorfer Strasse 21, Anton Paar GmbH, Kaerntner Strasse 322, A 8022 Graz, Austria, Ueberlingen, Germany

- 3:00 (326) **STRATEGIES FOR RAPID ANALYSIS OF ENVIRONMENTAL SAMPLES USING ICP/ MS**, JENNY GODFREY, Chris Rowland, Jennifer Cook, Jon Robinson, Kate Perkins, Simon Chenery, Thermo Elemental, Ion Path, Road Three, Winsford, Cheshire, England

3:20 **Coffee Break**

- 4:00 (327) **SOIL SEDIMENT FE SPECIES ISOTOPE RATIOS STUDIED BY ICP-MC- MS**, SUZANNE M. M. YOUNG, Steve Guilfoyle, Ole Larsen, Thermo Elemental, 15 Baker Bridge Road, Lincoln, MA, USA
- 4:20 (328) **ANALYTICAL APPLICATIONS OF RADIO-FREQUENCY GLOW DISCHARGE OPTICAL EMISSION SPECTROMETRY (RF-GD- OES): FERROUS AND NICKEL-BASED ALLOYS**, TINA HARVILLE, Patrick Chapon, Jobin Yvon Inc., 3880 Park Ave., Edison, NJ, USA
- 4:40 (329) **THE INFLUENCE OF LAMP CONTROL PARAMETERS AND MATRIX INTERFERENCES IN RF GLOW DISCHARGE OPTICAL EMISSION SPECTROSCOPY**, KIM A. MARSHALL, LECO Corporation, 3000 Lakeview Avenue, Saint Joseph, MI, United States
- 5:00 (330) **CARBON DETERMINATION IN IRON BASE MATERIALS USING A NEW GENERATION SOLID METAL ANALYZER**, PHIL BENNETT, Z. MacAllister, Leeman Labs, Inc., 6 Wentworth Drive, Hudson, NH, USA
- 5:20 (331) **DETERMINATION OF CHROMIUM(III) AND CHROMIUM(VI) IN WATERS BY ION CHROMATOGRAPHY - INDUCTIVELY COUPLED PLASMA - DYNAMIC REACTION CELL - MASS SPECTROMETRY**, HAKAN GURLEYUK, Frontier Geosciences Inc., 414 Pontius Ave. N., Seattle, WA, USA

Tuesday, 2:00 PM – 5:20 PM, Room W2-66

MIXED-GAS PLASMAS IN ICP SPECTROMETRY: ARE THEY NEEDED?

Presiding: Diane Beauchemin Organized by: Diane Beauchemin

- 2:00 (332) **EFFECT OF MIXED-GAS PLASMAS ON THE DISTRIBUTION OF IONS IN ICP/ MS**, DIANE BEAUCHEMIN, Alison Holliday, Queen's University, Department of Chemistry, Kingston, ON, Canada
- 2:40 (333) **DIRECT NEBULIZATION MIXED-GAS PLASMAS SPECTROMETRY**, AKBAR MONTASER, The George Washington University, Department of Chemistry, Washington, DC, USA
- 3:20 **Coffee Break**
- 4:00 (334) **ANALYSIS OF ORGANIC SOLUTIONS USING THE AR/OXYGEN ICP**, ROBERT BOTTO, ExxonMobil Chemical, 4500 Bayway Dr., Baytown, TX, USA
- 4:40 (335) **MIXED GAS ICPS REVISITED- PERFORMANCE IN ATOMIC EMISSION AND MASS SPECTROMETRY IN COMMEMORATION OF THE CONTRIBUTION OF VERMER FASSEL, AMES, IOWA**, ISAAC (JOE) BRENNER, Environmental Analytical Laboratory, BGU, 9 Dishon Street, Malkha, Jerusalem, Israel

Tuesday, 2:00 PM – 5:20 PM, Room W2-65

HIGH RESOLUTION ICP-MS II

Presiding: Chuck Douthitt Organized by: Chuck Douthitt

- 2:00 (336) **THE USE OF GAS CHROMATOGRAPHY- DOUBLE FOCUSING ICP/ MS FOR THE MONITORING OF SULFUR COMPOUNDS IN HUMAN BREATH**, MARIA MONTES-BAYON, Julio Rodriguez-Fernandez, Rosario Pereiro and Alfredo Sanz-Medel, University of Oviedo, Department of Physical and

- Analytical Chemistry, C/Julian Claveria 8, Oviedo, Asturias, Spain
- 2:20 (337) **ADVANCED APPLICATIONS OF HR- ICP/ MS FOR THE STUDY OF NUCLEAR WASTE FORM CORROSION**, STEPHEN WOLF, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, IL, USA
- 2:40 (338) **LASER ABLATION AND LIQUID CHROMATOGRAPHY BY ICP/ MS WITH A MAGNETIC SECTOR MASS SPECTROMETER: WHO SAYS IT'S TOO SLOW?** R. S. HOUK, D. B. Aeschliman, Y. Hou, D. Baldwin, S. Bajic, Ames Laboratory USDOE, Iowa State University, Ames, IA, USA
- 3:00 (339) **INVESTIGATION OF CONCENTRATIONS AND ACCUMULATION RATES OF AS, PB, CD, HG, METHYLHG AND ZN IN INDIVIDUAL ZOOPLANKTON SPECIMENS BY MAGNETIC SECTOR ICP/ MS**, BJOERN KLAUE, Paul Pickhardt, Carol Folt, Joel D Blum, University of Michigan, Geological Sciences, 2534 CC Little Building, Ann Arbor, MI, USA
- 3:20 **Coffee Break**
- 4:00 (340) **IMPROVING THE S/N OF HR- ICP/ MS: DETERMINING THE ELEMENTAL COMPOSITION OF THE SOLAR WIND FROM NASAS GENESIS SPACECRAFT MISSION**, MUNIR HUMAYUN, A. J. Campbell, D. S. Burnett (1), A. Jurewicz (1), The University of Chicago, Dept. of Geophysical Sciences, 5734 S. Ellis Avenue, (1) California Institute of Technology, Pasadena, CA, USA
- 4:20 (341) **LASER ABLATION TRACE ELEMENT ANALYSIS OF BIOGENIC CARBONATES WITH ICP-SF- MS**, CHRISTOPHER LATKOCZY, Simon Thorrold, Detlef Guenther, ETH Zurich, Universitaetstrasse 6, Zurich, 8092, Switzerland
- 4:40 (342) **INVESTIGATION OF NATURAL FRACTIONATION OF STABLE MERCURY ISOTOPES BY SINGLE-AND MULTI-COLLECTOR ICP/ MS**, BJOERN KLAUE, Joel D Blum, University of Michigan, Geology, 2534 CC Little Building, Ann Arbor, MI, USA
- 5:00 (343) **ISOTOPE RATIO DETERMINATION WITH DOUBLE FOCUSING ICP/ MS FOR ARCHAEOMETRICAL, GEOCHRONOLOGICAL AND BIOCHEMICAL APPLICATIONS**, LUC MOENS, Frank Vanhaecke, Gunther De Wannemacker, Ghent University, Proeftuinstraat 86, Ghent, Belgium

Tuesday, 2:00 PM – 5:40 PM, Room W2-64

HYPHENATED TECHNIQUES FOR SPECIATION

Presiding: Olivier Donard Organized by: Olivier Donard

- 2:00 (344) **SPECIATION OF ARSENIC AND SELENIUM IN INDUSTRIAL WASTE WATERS BY IC-HG-AFS- MAKING THE BEST TREATMENT DECISIONS BASED ON SPECIATION INFORMATION**, DIRK WALLSCHLAEGER, Frontier Geosciences, 414 Pontius Ave N, Seattle, WA, USA
- 2:40 (345) **HYPHENATED TECHNIQUES TO STUDY ARSENIC SPECIATION AND METABOLISM**, X. CHRIS LE, Xiufen Lu, Zhilong Gong, Mingsheng Ma, University of Alberta, 13-103 CSB, Department of Public Health Sciences, Edmonton, AB, Canada
- 3:20 **Coffee Break**
- 3:40 (346) **ADVANCES IN BIOINORGANIC SPECIATION ANALYSIS**, JOANNA SZPUNAR, Group of Bio-inorganic Analytical Chemistry, CNRS UMR 5034, Helioparc, France
- 4:20 (347) **PROGRESS IN ELEMENTAL SPECIATION STUDIES: CHROMATOGRAPHIC SEPARATION-**

- PLASMA DETECTION**, JOSEPH A. CARUSO, M. Montes Bayon, J. Day and C. Ponce De Leon, University of Cincinnati, Department of Chemistry, Cincinnati, OH
- 5:00 (348) **A SPME GC METHOD FOR THE STUDY OF ARSENIC SPECIATION IN THE ENVIRONMENT: OPTIMIZATION AND APPLICATION**, JOSEPH H. ALSTADT, Daniel R. Killelea, Rebecca L. Johnson, University of Wisconsin Milwaukee, Department of Chemistry, 3210 North Cramer Street, Milwaukee, WI
- 5:20 (349) **THE DETERMINATION OF HEME AND NON-HEME IRON IN FOOD SAMPLES BY SEC- HPLC WITH FAAS DETECTION**, JAMES MURPHY, James M Harnly, USDA, ARS, BHNRC, Food Composition Laboratory, Bld 161 BARC-East, Powder Mill Road, Beltsville, MD, USA

Tuesday, 2:00 PM – 5:00 PM, Room W2-69

MASS SPECTROMETRY IN HARSH ENVIRONMENTS

Presiding: David Fries Organized by: David Fries

- 2:00 (350) **TINY TIME-OF-FLIGHT (TOF) MASS SPECTROMETER FOR BIODETECTION**, WAYNE BRYDEN, Applied Physics Laboratory, The Johns Hopkins University, 11100 Johns Hopkins Road, Laurel, MD, USA
- 2:20 (351) **CHALLENGES FOR THE QUANTITATIVE DETERMINATION OF ATMOSPHERIC TRACE LEVEL POLLUTANTS USING ION TRAP MASS SPECTROMETRY**, PAUL SHEPSON, Purdue University, 1393 Brown Building, West Lafayette, IN, USA
- 2:40 (352) **FIELD CHEMICAL PROFILING IN AQUEOUS SYSTEMS USING REMOTELY OPERATED MASS SPECTROMETERS**, R.T. SHORT, D. Fries, G. Kibelka, M. L. Kerr, J. Patten and L. Langebrake, University of South Florida, 140 7th Ave So, St. Petersburg, FL, USA
- 3:00 (353) **THE MINIATURE QUADRUPOLE MASS SPECTROMETER ARRAY: ITS USE IN STUDYING IONOSPHERIC MODIFICATION BY SATELLITES IN LEO**, MURRAY DARRACH, Ara Chutjian, Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Drive, Pasadena, CA, USA
- 3:20 **Coffee Break**
- 4:00 (354) **USE OF TANDEM MASS SPECTROMETRY FOR OBSERVATIONS OF BR₂, BRCL, AND OTHER TRACE GASES OF THE ARTIC**, ROBERT PLASTRIDGE, Chester Spicer, Krishna Foster, Paul Shepson, Jan Bottenheim, Barbara Finlayson-Pitts, Battelle Memorial Institute, 505 King Ave, Columbus, OH, USA
- 4:20 (355) **FIELD DETECTION OF CHEMICAL & BIOLOGICAL AGENTS USING ION TRAP MASS SPECTROMETRY**, KEVIN HART, Wayne Griest, Marcus Wise, Stephen Lammert, Cyril Thompson, Oak Ridge National Laboratory, PO Box 2008; MS 6120; Bethel Valley Rd; 4500S; E154, Oak Ridge, TN, USA
- 4:40 (356) **A SMALL MULTIPLE- PASS TIME-OF- FLIGHT MASS SPECTROMETER (MR- TOF- MS) FOR IN-SITU INVESTIGATIONS**, H. WOLLNIK, A. Casares, Oak Ridge National Laboratory, Oak Ridge, TN

Tuesday, 2:00 PM – 5:40 PM, Room W2-58

GRADUATE RESEARCH SYMPOSIUM: RISING STARS IN ANALYTICAL SCIENCE

Presiding: David Heaps Organized by: David Heaps

- 2:00 (357) **NIR SPECTRA OF ORGANOPHOSPHOROUS COMPOUNDS: MATERIALS AND OPTICAL CONSIDERATIONS FOR MULTIVARIATE OPTICAL COMPUTING OF OP COMPOUNDS ON SAND**, A.E. GREER, O. O. Soyemi, Norman E. Schmidt,

Joshua Farr, Ryan J. Priore, Una Evans, F. G. Haibach, M. L. Myrick, Department of Chemistry and Biochemistry, University of South Carolina, 631 Sumter Street, Columbia, SC, USA

- 2:20 (358) **DETERMINATION OF BIOCHEMICAL OXYGEN DEMAND IN MUNICIPAL WASTEWATER BY NEAR-INFRARED SPECTROSCOPY**, DENNIS RABBE, Marianna A. Busch, Kenneth W. Busch, Baylor University, Center for Analytical Spectroscopy, Waco, TX, USA
- 2:40 (359) **CONDENSATION NUCLEATION SQUARED (CN²) AND OTHER FUNDAMENTAL ADVANCES IN AEROSOL LIGHT SCATTERING DETECTION FOR SEPARATIONS**, LARS MAGNUSSON, Michael P. Anisimov, John A. Koropchak, Southern Illinois University, Department of Chemistry and Biochemistry, Mailcode 4409, Carbondale, IL, USA
- 3:00 (360) **FT/IR SPECTROMETRIC DETECTION FOR CAPILLARY ELECTROPHORESIS**, JESSICA JARMAN, James A. De Haseth, University of Georgia, Chemistry Department, Athens, GA, USA
- 3:20 **Coffee Break**
- 4:00 (361) **SPECTROSCOPIC INVESTIGATION OF COMPRESSIBLE MOBILE PHASE BEHAVIOR IN CHROMATOGRAPHY**, MARISA STARK, Brent A. Horn, Steven R. Goates, Brigham Young University, C100 BNSN, Provo, UT, US
- 4:20 (362) **INFRARED MICROSPECTROSCOPIC AND X-RAY ANALYSIS OF PAINTS REMOVED FROM A MEDIEVAL SCULPTURE**, JESSICA JUENEMANN, Chad D. Keefer and Patricia L. Lang, Ball State University, Department of Chemistry, Muncie, IN, USA
- 4:40 (363) **OPTIMIZATION OF FIBER OPTIC, SURFACE PLASMON RESONANCE SENSORS FOR IN SITU PROCESS MONITORING**, LOUIS A. OBANDO, Michelle L. Nahorniak, Karl S. Booksh, Arizona State University, Department of Chemistry, Tempe, AZ, USA
- 5:00 (364) **TEMPERATURE INFLUENCE ON THE SECONDARY STRUCTURE OF AVIDIN AND AVIDIN-BIOTIN COMPLEX: A VIBRATIONAL CIRCULAR DICHROISM STUDY**, FENG WANG, Prasad L. Polavarapu, Vanderbilt University, Department of Chemistry, Vanderbilt University, Nashville, TN, USA
- 5:20 (365) **STUDY ON HYDROGEN BONDING IN CONTROLLED-STRUCTURE BENZOXAZINE MODEL OLIGOMERS**, HO-DONG KIM, Hatsuo Ishida, Case Western Reserve University, 2100 Adelbert Rd., Cleveland, OH, USA

**Tuesday, 2:00 PM – 5:20 PM, Room W2-70
MASS SPECTROMETRY AND THE HUMAN GENOME PROJECT**

Presiding: Paul Heaney Organized by: Paul Heaney

- 2:00 (366) **ANALYSIS AND SEQUENCING OF OLIGONUCLEOTIDES BY MALDI MASS SPECTROMETRY**, FRANZ HILLENKAMP, University of Muenster, Institute for Medical Physics and Biophysics, Muenster, Germany
- 2:40 (367) **DEVELOPMENT OF MS INSTRUMENTATION FOR GENOME/PROTEOME ANALYSIS**, ROBERT J. COTTER, Mari Prieto, Susanne Moyer and Vadim Berkout, Johns Hopkins University School of Medicine, Department of Pharmacology and Molecular Sciences, Baltimore, MD
- 3:20 **Coffee Break**
- 4:00 (368) **GENETIC ANALYSIS BY MASS SPECTROMETRY**, LLOYD M. SMITH, University of Wisconsin, Department of Chemistry, Madison, WI

- 4:40 (369) **AUTOMATED GENOTYPING AND MUTATION DISCOVERY BY MALDI-TOF MASS SPECTROMETRY**, LAWRENCE A. HAFF, Laura R. Hall, Philip L. Ross and Igor P. Smirnov, Applied Biosystems, 500 Old Connecticut Path, Framingham, MA

**Tuesday, 2:00 PM – 5:20 PM, Room W2-67
ADVANCES IN ELECTROCHEMICAL DETECTION SCHEMES FOR CAPILLARY ELECTROPHORESIS**

Presiding: Jon Kirchhoff Organized by: Jon Kirchhoff

- 2:00 (370) **ANALYTE SPECIFIC ELECTROCHEMICAL DETECTORS FOR CE**, JON R. KIRCHHOFF, Takayo Inoue, Kasey D. Kovalcik, University of Toledo, Department of Chemistry, 2801 W. Bancroft St., Toledo, Ohio, USA
- 2:40 (371) **MULTIPLE AND MODIFIED ELECTRODES FOR MICROCHIP CE**, SUSAN LUNTE, R. S. Martin, N. A. Lacher, R. Kikura-Hanajiri, B. Fogarty and F. Regan, University of Kansas, 2095 Constant Avenue, Lawrence, KS
- 3:20 **Coffee Break**
- 4:00 (372) **INTEGRATED ELECTROCHEMICAL DETECTION IN A LAB-ON-A-CHIP FORMAT**, RICHARD P. BALDWIN, Thomas J. Roussel, Jr., Mark M. Crain, Douglas J. Jackson, Rekha S. Pai, Vijay Bathlagundu, Robert S. Keynton, John F. Naber, and Kevin M. Walsh, University of Louisville, Department of Chemistry, Louisville, KY
- 4:40 (373) **IMPROVED ELECTRICAL DECOUPLER DESIGNS FOR ELECTROCHEMICAL DETECTION WITH TUBULAR AND PLANAR CAPILLARY ELECTROPHORESIS SYSTEMS**, CRAIG E. LUNTE, Damon M. Osbourn, University of Kansas, Department of Chemistry, Lawrence, KS

**Tuesday, 2:00 PM – 4:20 PM, Room W2-63
OAK RIDGE NATIONAL LABORATORY II**

Presiding: Jim Stephenson Organized by: Jim Stephenson

- 2:00 (374) **PICOLITER TO NANOLITER FLUID HANDLING AND ARRAYING**, MITCHEL DOKTYCZ, Oak Ridge National Laboratory, PO Box 2008, MS 6123, Oak Ridge, TN, USA
- 2:40 (375) **THE REMARKABLE CHEMISTRY OF PRECURSOR SOOT**, PETER T. A. REILLY, William B. Whitten and J. Michael Ramsey, Oak Ridge National Laboratory, PO Box 2008, MS 6142, Oak Ridge, TN, USA
- 3:20 **Coffee Break**
- 4:00 (376) **CHEMICAL, PHYSICAL, BIOLOGICAL DETECTION USING MICROCANTILEVERS**, THOMAS THUNDAT, Oak Ridge National Lab., MS-6123, 4500S, G-148, Oak Ridge, TN, USA

**Tuesday, 2:00 PM – 5:20 PM, Room W1-54
ANACHEM AWARDS SYMPOSIUM II**

Presiding: Jack Holland Organized by: Mike Iglehart

- 2:00 (377) **STEALING NATURE'S SECRETS THROUGH SEPARATION SCIENCE AND MASS SPECTROMETRY: AN UPDATE**, MILOS V. NOVOTNY, Department of Chemistry, 800 E. Kirkwood Ave., Indiana University, Bloomington, IN, USA
- 2:40 (378) **INNOVATIVE CHEMICAL MODIFICATION OF CYSTINYL PROTEINS FOR MASS MAPPING THEIR DISULFIDE STRUCTURE**, JACK THROCK WATSON, Michigan State University, 401 Biochemistry Bldg, East Lansing, MI, USA

- 3:20 **Coffee Break**
 4:00 (379) **ELECTRON CAPTURE GAS CHROMATOGRAPHIC MASS SPECTROMETRY AND ENVIRONMENTAL CHEMISTRY**, RONALD HITES, Indiana University, SPEA 410 H, Bloomington, IN, USA
 4:40 (380) **EVOLUTION OF THE MASS SPECTROMETER'S BRAIN**, O. DAVID SPARKMAN, University of the Pacific, Stockton, CA, USA

**Tuesday, 2:00 PM – 5:20 PM, Room W2-68
 QUANTUM DOTS AND COLLOIDS**

Presiding: Mitch Johnson Organized by: Mitch Johnson

- 2:00 (381) **OPTICAL SENSING WITH QUANTUM DOTS**, CATHERINE MURPHY, University of South Carolina, Dept. of Chemistry and Biochemistry, 631 Sumter St., Columbia, SC, USA
 2:40 (382) **APPLICATIONS OF COLLOIDAL SEMICONDUCTOR NANOCRYSTALS TO BIOLOGICAL LABELING**, PAUL ALIVISATOS, University of California at Berkeley, College of Chemistry, B62 Hildebrand Hall, Berkeley, CA, U S A
 3:20 **Coffee Break**
 4:00 (383) **WET-CHEMICALLY PREPARED NANO STRUCTURES, NANOPARTICLES, NANO RODS, DOPING AND SELF-ASSEMBLY**, HORST WELLER, Institute of Physical Chemistry, University of Hamburg, Bundesstrasse 45, Hamburg, Germany
 4:40 (384) **FLUORESCENT NANOCRYSTALS FOR NEUROSCIENCE**, SANDRA ROSENTHAL, Ian Tomlinson, Jane Wright, Paul Gresch, James McBride, Randy Blakely, Elaine Sanders-Busch, Lou Defelice, Vanderbilt University, Box 1822 Station B, Nashville, TN, USA

**Tuesday, 2:00 PM– 5:40 PM, Room O2-44
 INDUSTRIAL AND PROCESS APPLICATIONS
 OF RAMAN II**

Presiding: Ian Lewis Organized by: Ian Lewis

- 2:00 (385) **CORRECTION OF INSTRUMENTAL ARTIFACTS IN RAMAN SPECTROSCOPY AND ITS EFFECT ON CHEMOMETRIC MODELS**, JEREMY SHAVER, Eigenvector Research, P.O. Box 561, Manson, WA
 2:20 (386) **CHARACTERIZATION OF A METALLOCENE/CO-CATALYST SYSTEM SUPPORTED ON SILICA BY FOURIER-TRANSFORM RAMAN SPECTROSCOPY**, ANDRE VAN DER POL, Sef P. C. Van Heel, Ramon H. A. M. Meyers, Robert J. Meier, Mirko Kranenburg, DSM Research, P.O. Box 18, Geleen, The Netherlands, The Netherlands
 2:40 (387) **QUANTITATIVE RAMAN SPECTROSCOPY OF HETEROGENEOUS SYSTEMS**, W. M. DOYLE, Axiom Analytical, Inc., 17751-B Sky Park Circle, Irvine, CA, USA
 3:00 (388) **DEMONSTRATION OF A HIGH PRECISION OPTICAL PROBE FOR EFFECTIVE SAMPLING OF SOLIDS, SLURRIES AND POWDERS BY RAMAN SPECTROSCOPY**, BRIAN J. MARQUARDT, Thao Le, Center for Process Analytical Chemistry, University of Washington, Seattle, WA, USA
 3:20 **Coffee Break**
 4:00 (389) **RAMAN SPECTROSCOPY FOR CHEMICAL REACTION MONITORING**, MIKE CARRABBA, Patrick M. Killough and Jun Zhao, Chromex, 2705B Pan American Freeway NE, Albuquerque, NM, USA

- 4:20 (390) **QUANTITATIVE ANALYSIS OF RAMAN SPECTRA CONTAINING STRONG FLUORESCENCE**, M. J. PELLETIER, C. C. Pelletier, Kaiser Optical Systems, Inc., P.O. Box 983, Ann Arbor, MI, USA
 4:40 (391) **ADVANCES IN FIBER OPTIC RAMAN PROBES**, NANCY T. KAWAI, Robert W. Forney, InPhotonics, Inc., 111 Downey St., Norwood, MA
 5:00 (392) **RAMAN MICROPROBE DESIGNED FOR HIGH THROUGHPUT SCREENING APPLICATIONS**, ADRIAN KNOWLES, Sophie Morel, Ruth Geiger, Fran Adar, Andrew Whitley, Jobin Yvon, Ltd., 2-4 Wigton Gardens, Middlesex, UK
 5:20 (393) **CHEMICAL PROCESS MONITORING OF PHARMACEUTICALS USING RAMAN SPECTROSCOPY**, MIKE CLAYBOURN, AstraZeneca, Silk Road Business Park, MacClesfield, UK

**Tuesday, 2:00 PM – 5:40 PM, Room O2-33
 VIBRATIONAL SPECTROSCOPIC IMAGING II**

Presiding: Richard Crocombe Organized by: Richard Crocombe

- 2:00 (394) **ANALYSIS OF BINARY SOLVENT DIFFUSION INTO CROSS-LINKED POLY (BUTADIENE) USING RAPID SCAN FT/ IR IMAGING SPECTROSCOPY**, EUN-MI SHIN, Jack L. Koenig, Case Western Reserve University, 10900 Euclid Ave., Cleveland, OH, USA
 2:20 (395) **MACROSCOPIC INFRARED IMAGING USING A 256 X 256 MCT FOCAL-PLANE ARRAY DETECTOR**, CURTIS MARCOTT, Gloria M. Story, The Procter & Gamble Company, Miami Valley Laboratories, Cincinnati, OH, USA
 2:40 (396) **THE APPLICATION OF FAST READOUT MCT ARRAYS IN FT/ IR IMAGING**, RICHARD CROCOMBE, Norman Wright, Digilab Division, Bio-Rad, 237 Putnam Avenue, Cambridge, MA, USA
 3:00 (397) **CHARACTERIZATION OF THE WATER SORPTION BEHAVIOR OF POLYVINYLAETATE USING FT/ IR IMAGING**, DENISE WADE RAFFERTY, Jack L. Koenig, Case Western Reserve University, 10900 Euclid Ave., Cleveland, OH, USA
 3:20 **Coffee Break**
 4:00 (398) **NEAR- IR SPECTROSCOPIC IMAGING: VISUALIZATION OF REGIONAL HEART OXYGENATION**, HENRY MANTSCH, V. Kupryianov, J. R. Mansfield, S. Rempel, R. A. Shaw, Institute for Biodiagnostics, 435 Ellice Avenue, Winnipeg, MB, Canada
 4:20 (399) **ORTHOPEDIC APPLICATIONS OF INFRARED SPECTROSCOPIC IMAGING**, ELEFTHERIOS PASCHALIS, Adele Boskey, Richard Mendelsohn, Hospital for Special Surgery, 535 East 70th Street, New York, NY, USA
 4:40 (400) **NEW INSIGHTS INTO OLD PROBLEMS USING FT/ IR IMAGING**, ROHIT BHARGAVA, Ira W. Levin, National Institutes of Health, Bldg. 5, Room B1-38, LCP, Bethesda, MD, USA
 5:00 (401) **HOW CAN WE EXTRACT USEFUL INFORMATION FROM INFRARED TISSUE IMAGES FOR CLINICAL DIAGNOSIS?** CHRISTIAN P. SCHULTZ, BRUKER Optics Inc, 19 Fortune Drive, Manning Park, Bld#1, Billerica, MA, USA
 5:20 (401A) **DEVELOPMENT OF A NO MOVING PARTS INFRARED SPECTROMETER**, DOUGLAS ELMORE, Mei-Wei Tsao, Simon Frisk, D. B. Chase and J. F. Rabolt, University of Delaware, Department of Materials Science and Engineering, Newark, DE, New Castle

**Tuesday, 2:00 PM – 5:20 PM, Room W2-61
ECLECTIC EXERCISES IN BIOSEPARATIONS II**

Presiding: Apryll Stalcup Organized by: Apryll Stalcup

- 2:00 (402) **SCREENING OF COMBINATORIAL LIBRARIES FOR CHIRAL SELECTORS**, TINGYU LI, Vanderbilt University, Station 1822-B, Department of Chemistry, Nashville, TN, USA
- 2:40 (403) **QUANTITATIVE BIOANALYSIS OF ENANTIOMERIC DRUGS USING CE AND ELECTROSPRAY MASS SPECTROMETRY**, DAVID ROSSI, Ek Kindt, Sm Kurzyniec, Sc Wang, G Kilby, Pfizer Global R&D, 2800 Plymouth Road, Ann Arbor, MI, USA
- 3:20 **Coffee Break**
- 4:00 (404) **THE IMPACT OF A MOBILE PHASE ON THE RESOLUTION OF PRIMARY AMINES ON AN (+)-18-CROWN-6-TETRACARBOXYLIC ACID-DERIVED CHIRAL STATIONARY PHASE**, JONG SUNG JIN, Apryll M. Stalcup and Myung Ho Hyun, University of Cincinnati, Department of Chemistry PO Box 210172, Cincinnati, OH, USA
- 4:20 (405) **LOW TEMPERATURE GLASSY CARBON FILMS IN SOLID PHASE MICROEXTRACTION**, SUSAN V. OLESIK, Matthew Giardina, Ohio State University, Dept. of Chemistry, Columbus, OH
- 5:00 (406) **PREPARATIVE ELECTROPHORETIC CHIRAL SEPARATIONS**, APRYLL STALCUP, Samuel R. Gratz and Eva Schneiderman, University of Cincinnati, Department of Chemistry, P.O. Box 210172, Cincinnati, OH, (180)

**Wednesday, 8:00 AM – 8:50 AM, Room W1-54
FEATURED PRESENTATIONS:
ELLIS R. LIPPINCOTT AWARD SYMPOSIUM:
INTRODUCTION & AWARD ADDRESS**

Presiding: Bruce Ault Organized by: Mark Hayes

- 8:00 (406A) **THE ELLIS R. LIPPINCOTT AWARD**, VASILIS GREGORIOU, The Society for Applied Spectroscopy, 201B Broadway Street, Frederick, MD, USA
- 8:10 (407) **2001 LIPPINCOTT AWARD ADDRESS: WHAT CAN BE LEARNED ABOUT NEW MOLECULES FROM MATRIX ISOLATION SPECTROSCOPY?**, LESTER ANDREWS, University of Virginia, Chemistry Department, McCormick Road, P. O. Box 400319, Charlottesville, VA, USA

**Wednesday, 9:00 AM – 11:40 AM, Room W1-54
ELLIS R. LIPPINCOTT AWARD SYMPOSIUM**

Presiding: Bruce Ault Organized by: Mark Hayes

- 9:00 (408) **MATRIX ISOLATION INFRARED SPECTROSCOPIC STUDIES OF INTERMEDIATES IN THE REACTIONS OF HIGH VALENT TRANSITION METAL OXO COMPOUNDS WITH ORGANIC SUBSTRATES**, BRUCE AULT, University of Cincinnati, Department of Chemistry, P.O. Box 210172, Cincinnati, OH, USA
- 9:40 (409) **QUANTITATIVE SPECTROSCOPY WITH DIODE LASERS: APPLICATIONS IN COMBUSTION AND ATMOSPHERIC CHEMISTRIES**, HOUSTON MILLER, George Washington University, Department of Chemistry, Washington, DC, USA
- 10:20 **Coffee Break**
- 11:00 (410) **INFRARED SPECTROSCOPIC STUDIES OF SOME TRANSITION METAL CARBONYL, NITROSYL AND OXIDES IN RARE GAS MATRICES-FORMATION MECHANISMS AND VIBRATIONAL SPECTRA**, LAURENT MANCERON,

Université Pierre et Marie Curie, CNRS – Université Pierre et Marie Curie, 4 Place Jussieu, Paris, France

**Wednesday, 9:00 AM – Noon, Room W2-65
COLLISIONS AND REACTION CELLS - FUNDAMENTALS**

Presiding: Joe Brenner Organized by: Joe Brenner

- 9:00 (411) **COLLISION/REACTION CELLS FOR THE DETERMINATION OF DIFFICULT ELEMENTS/ISOTOPES BY ICP/ MS**, BARRY SHARP, Abdulaziz S. Bashammakh, Matthew A. Dexter, Helen J. Reid, Christopher P. Ingle, Loughborough University, Loughborough, Leics, UK
- 9:40 (412) **ION-MOLECULE REACTIONS TO ASSIST ULTRAHIGH RESOLUTION ELEMENTAL MASS SPECTROMETRY**, JOHN EYLER, Keith Zientek, Department of Chemistry, University of Florida, P.O. Box 117200, Gainesville, FL, US
- 10:00 (413) **A NEW DATABASE OF METAL ION-MOLECULE REACTION COEFFICIENTS**, GREGORY KOYANAGI, V. V. Lavrov, D. Caraiman, V. Blagojevic and D. K. Bohme, Department of Chemistry, York University, 4700 Keele Street, Toronto, ON, Canada
- 10:20 **Coffee Break**
- 11:00 (414) **ION-MOLECULE REACTIONS TO OVERCOME SPECTRAL OVERLAPS IN ICP/ MS: CONTROL OF REACTION RATES AND ION REJECTION IN A QUADRUPOLE REACTION CELL**, JOHN OLESIK, Deanna R. Jones, Ohio State University, 125 S. Oval Mall 275 Mendenhall Laboratory, Columbus, OH, USA
- 11:40 (415) **DETERMINATION OF METALLIC IMPURITIES IN PHOTORESIST BY DYNAMIC REACTION CELL ICP/ MS**, KATSU KAWABATA, Yoko Kishi, PerkinElmer Instruments, 71 Four Valley Drive, Concord, ON, Canada

**Wednesday, 9:00 AM – 12:20 PM, Room W2-66
ETV SAMPLE INTRODUCTION:
THE PLEASURE AND THE PAIN II**

Presiding: Nancy Miller-Ilhi Organized by: Nancy Miller-Ilhi

- 9:00 (416) **PROGRESS IN SOLID SAMPLE ANALYSIS**, ERIC SALIN, Jan Hamier, Michael Rybak, Dept of Chemistry, McGill University, 801 Sherbrooke St. W., Montreal, QC, Canada
- 9:40 (417) **FILTER FURNACE ATOMIZER: DIRECT ANALYSIS OF ORGANIC LIQUIDS**, DMITRI KATSKOV, Technikon Pretoria, Department of Chemistry and Physics, private bag X680, Pretoria, South Africa
- 10:20 **Coffee Break**
- 10:40 (418) **CHARACTERIZATION AND IMPROVEMENT OF ETV INSTRUMENTATION BY MEANS OF ELECTROSTATIC PRECIPITATION**, GERD HERMANN, Justus Liebig University Giessen, Heinrich-Buff-Ring 16, Giessen, Germany
- 11:20 (419) **AEROSOL CARRIER EFFECTS WITH ELECTROTHERMAL VAPORIZATION SAMPLE INTRODUCTION METHOD USED IN ATOMIC SPECTROMETRY**, TIBOR KANTOR, L. Eotvos University Budapest, Department of General and Inorganic Chemistry, Budapest, H, Hungary
- 12:00 (420) **DETERMINATION OF ARSENIC IN URINE BY ETV- ICP/ MS WITH DYNAMIC REACTION CELL INTERFERENCE REDUCTION**, CHRISTOPHER D. PALMER, Patrick J. Parsons, New York State Dept of Health/The University at Albany, Wadsworth Center, PO Box 509, Albany, NY, USA

Wednesday, 9:00 AM – 12:20 PM, Room W2-62
**SPECIATION ANALYSIS: SAMPLING,
 STORAGE, AND CRMS**

Presiding: Olivier Donard Organized by: Olivier Donard

- 9:00 (421) **INORGANIC SPECIATION AT THE NRCC-
 QOU VADIS?** RALPH STURGEON, National Research
 Council of Canada, Institute for National Measurement
 Standards, Montreal Road, Ottawa, ONT, Canada
- 9:40 (422) **THE EU EXPERIENCE IN THE
 PREPARATION AND CERTIFICATION OF
 REFERENCE MATERIAL FOR SPECIATION
 ANALYSIS,** ROBERTO MORABITO, ENEA-
 TEIN/CHIM, Via Anguillarese 301, Rome, Italy
- 10:20 **Coffee Break**
- 10:40 (423) **MARINE TISSUE AND SEDIMENT STANDARD
 REFERENCE MATERIALS (SRMS) FOR THE
 DETERMINATION OF METHYLMERCURY AND
 ORGANOTINS,** STEPHEN WISE, Silke Tutschku and
 Michele Schantz, National Institute of Standards and
 Technology, Analytical Chemistry Division, 100 Bureau
 Drive Stop 8392, Gaithersburg, MD, USA
- 11:20 (424) **VOLATILE METAL SPECIES IN THE
 ATMOSPHERE: HOW STABLE ARE THEY?** JORG
 FELDMANN, Karsten Haas, University of Aberdeen, Dept.
 of Chemistry, Meston Walk, Aberdeen, UK, Scotland/uk
- 12:00 (425) **ORGANOTIN SPECIES DETERMINATION-
 ARE WE ADEQUATELY INFORMED TO AVOID
 PITFALLS,** JOSEPH LAM, Zoltan Mester, Ralph
 Sturgeon, Lu Yang, National Research Council of Canada,
 Montreal Road, Ottawa, ONT, Canada

Wednesday, 9:00 AM – 12:20 PM, Room W2-64
**NEW INVESTIGATORS IN ANALYTICAL SCIENCE:
 INNOVATIVE LEADERS IN THE NEW MILLENIUM III**

Presiding: Arthur Salido Organized by: David Butcher

- 9:00 (426) **LASER AEROSOL MASS SPECTROMETRY
 FOR THE ON-LINE ANALYSIS OF INDIVIDUAL
 FINE AND ULTRAFINE PARTICLES,** GIUSEPPE
 PETRUCCI, Brian W. Lafranchi, Mark C. Knight, A. Lewis
 Hunt, Bryan J. Holmes, University of Vermont, A218 Cook
 Phys Sci, Burlington, VT, USA
- 9:20 (427) **RAPID ANALYSIS AND MONITORING USING
 HSGC AND ITMS,** ANTHONY BORGERDING, Melissa
 Meyer, Mark Roberge, Travis Falconer, University of North
 Dakota, Box 9024, Grand Forks, ND, USA
- 9:40 (428) **COLLOIDS AND QUANTUM DOTS: NEW
 COLORIMETRIC REAGENTS TO DETECT
 MERCURY,** GREG SZULCZEWSKI, Todd Morris, Keith
 Tomich, and Scott Wilson, The University of Alabama, 6th
 Avenue Lloyd Hall Box 870336, Tuscaloosa, AL, USA
- 10:00 (429) **DESIGN AND CALIBRATION OF 'SMART'
 SENSORS FOR ENVIRONMENTAL MONITORING:
 PROSPECTS, PROBLEMS, AND POSSIBILITIES,**
 KARL BOOKSH, Darcy Gentleman, Michelle Nahorniak,
 Louis Obando, John Holloway, Arizona State University,
 Department of Chemistry, Tempe, AZ, USA
- 10:20 **Coffee Break**
- 11:00 (430) **EVALUATION OF MUSTARD, CORN, PEA
 AND BRAKE FERN PLANTS FOR THE
 PHYTOREMEDIATION OF PB/AS
 CONTAMINATED SOIL USING EDTA,** ARTHUR
 SALIDO, David J. Butcher, Kelly Hasty, Stephanie
 Hackney, Stephen Tignor, Derrick Powell, Western
 Carolina University, Natural Sciences Building, Cullowhee,
 NC, USA
- 11:20 (431) **CHEMICALLY DISTINCT SOLUTE
 PARAMETERS FOR LINEAR SOLVATION**

ENERGY RELATIONSHIPS, MARK VITHA, Joshua
 Sandquist, Sarah Ronnebaum, Drake University,
 Department of Chemistry, 2507 University Avenue, Des
 Moines, IA, USA

- 11:40 (432) **DETERMINING LABORATORY RELEASE
 RATES OF SYNTHETIC INSECT PHEROMONES
 USED AS PESTICIDE ALTERNATIVES FOR
 INSECT PEST MANAGEMENT,** CYNTHIA
 ATTERHOLT, James Walgenbach, Thomas Gore, Crystal
 Olson, Emily Lincoln, Western Carolina University,
 Department of Chemistry & Physics, Cullowhee, NC, US
- 12:00 (433) **USING ELECTROCHEMICAL TECHNIQUES
 TO ANALYZE SEROTONIN NEUROCHEMISTRY,**
 ANNE MILASINCIC ANDREWS, Pennsylvania State
 University, Department of Chemistry, 152 Davey
 Laboratory, University Park, PA, USA

Wednesday, 9:00 AM – 10:20 AM, Room W2-67
FAILURE ANALYSIS OF POLYMERIC MATERIALS

Presiding: David Smith Organized by: David Smith

- 9:00 (434) **THE USE OF SPECTROSCOPY IN MATERIAL
 FAILURE ANALYSIS,** DAVID R. SMITH, Raytheon
 Systems, 1151 East Hermans Road, Bldg. 807 G8, Tucson,
 AZ, USA
- 9:40 (435) **APPLICATION OF RAMAN SPECTROSCOPY
 TO POLYMER DEFECT ANALYSIS,** FORREST
 WEESENER, Thermo Nicolet, 5225 Verona Rd, Madison,
 WI, USA
- 10:20 **Coffee Break**

Wednesday, 9:00 AM – 12:20 PM, Room W2-70
MINIATURE MASS SPECTROMETERS

Presiding: Ethan Badman Organized by: Ethan Badman

- 9:00 (436) **DEVELOPMENT OF A LOW-COST,
 MINIATURE UNIVERSAL CHEMICAL/GAS
 SENSOR,** HENRY ROHRS, Phil Berger, Rajiv Chhatwal,
 Ronald Gentry, Mass Sensors, Inc., 1350 Baur Blvd., St.
 Louis, MO, USA
- 9:20 (437) **CONCEPT FOR A MINIATURIZED
 CONFOCAL PLANE MASS SPECTROMETER
 USING A MICROMACHINED DETECTOR ARRAY,**
 ADI SCHEIDEMANN, Bruce Darling (1), Frank
 Schumacher (1), Intelligent Ion Inc., 2815 Eastlake Ave. E.,
 Suite 330, (1) University of Washington, Department of
 Electrical Engineering, Seattle WA 98195, Seattle, WA
- 9:40 (438) **PORTABLE MASS SPECTROMETER
 DEVELOPMENT AT MKS INSTRUMENTS**
 STEPHEN HORNE, Don Smith, Matt Besen, Ron Collins,
 MKS Instruments, 4 Constitution Way, Woburn, MA, USA
- 10:00 (439) **MINIATURE CYLINDRICAL ION TRAP MASS
 SPECTROMETRY,** JEREMY MOXOM, William B.
 Whitten, Peter T. A. Reilly, J. Michael Ramsey, ORNL, MS
 6142 building 4500S, Oak Ridge, TN, USA
- 10:20 **Coffee Break**
- 11:00 (440) **FIELD-PORTABLE, HIGH-SPEED GC/ TOFMS,**
 JACK SYAGE, Brian Nies, Matthew Evans, Karl Hanold,
 Syagen Technology, Inc., 1411 Warner Avenue, Tustin,
 CA, USA
- 11:40 (441) **IN SITU TOF- MS ON PLANETARY AND
 SMALL BODY SURFACES,** WILLIAM
 BRINCKERHOFF, Johns Hopkins Applied Physics
 Laboratory
- 12:00 (442) **A COMPACT AND RUGGED MULTIPURPOSE
 TOF,** MARC GONIN, Katrin Fuhrer, John A. Schultz,
 Ionwerks Inc., 2472 Bolsover, Suite 255, Houston, TX, US

Wednesday, 9:00 AM – 12:20 PM, Room W2-71
DEVELOPMENTS IN INDUCTIVELY COUPLED PLASMA
INSTRUMENTATION II

Presiding: Jonathon Batey

- 9:00 (443) **ENHANCED DETECTION OF TRACE ELEMENTS USING ULTRASONIC NEBULIZATION WITH AXIAL-VIEWING ICP/AES**, FRED SMITH, CETAC Technologies, 5600 South 42nd Street, Omaha, NE, USA
- 9:20 (444) **AXIALLY VIEWED ICP- OES ABLE TO LEAP MAJOR ELEMENTS IN A SINGLE BOUND**, MICHELLE E. CREE, Michael Knowles, Tran Nham, Glyn Russell, Filippa Minelli, Ingrid Szikla, Jean Pierre Lener, Valerie Lecourbe, Varian Australia, 679 Springvale Rd, Mulgrave, VIC, Australia
- 9:40 (445) **DATA QUALITY OBSERVATIONS: USING A SEQUENTIAL ICP-OES TO ANALYZE DIFFICULT SAMPLES**, MELTON BRYANT, Peter G. Brown, Leeman Labs, Inc., 6 Wentworth Drive, Hudson, NH, USA
- 10:00 (446) **ELEMENTAL ANALYSIS OF AUTOMOTIVE GLASS FOR FORENSIC COMPARISON BY LA- ICP-TOFMS**, LLOYD ALLEN, Andrew R. Wolf, LECO Corporation, 3000 Lakeview Avenue, St. Joseph, MI, USA
- 10:20 **Coffee Break**
- 10:40 (447) **ICP/ MS CASE STUDIES: A NOVEL APPROACH TO SOLVING PROBLEMS**, BILL SPENCE, Karen Lee, Thermo Elemental, Ion Path, Road Three, Winsford, Cheshire, England
- 11:00 (448) **WHAT AN ICP/ MS MANUFACTURER CAN LEARN FROM FORD, IKEA AND OTHER UNLIKELY PLACES**, PHIL SHAW, Thermo Elemental, Ion Path, Road Three, Winsford, Cheshire, England
- 11:20 (449) **NOVEL APPROACHES TO ATTAINING WORLDWIDE ENVIRONMENTAL PROTOCOLS BY ICP/ MS**, JENNY GODFREY, Tom Rettberg, Thermo Elemental, Ion Path, Road Three, Winsford, Cheshire, England
- 11:40 (450) **LASER ABLATION MC- ICP/ MS AND MULTIPLE ION COUNTING-THE PERFECT COMBINATION FOR GEOCHRONOLOGY**, M. HORSTWOOD, Steve Guilfoyle, R Parrish, Patrick Miller, Simon Nelms, NIGL, Lab 4, Kingsley Dunham Centre, Nicker Hill, Nottingham, England
- 12:00 (451) **CHARACTERIZING ALTERNATIVE LENS SYSTEMS FOR ICP/ MS**, JONATHAN BATEY, Thermo Elemental, Ion Path, Road Three, Winsford, Cheshire, England

Wednesday, 9:00 AM – 12:20 PM, Room O2-33
VIBRATIONAL SPECTROSCOPIC IMAGING III

Presiding: Michael Schaeberle

- 9:00 (452) **RAPID SCAN FT/ IR IMAGING: DOES IT REALLY WORK?**, CHRISTOPHER SNIVELY, Jochen Lauterbach, Purdue University, 1283 Chemical Engineering, West Lafayette, IN, USA
- 9:20 (453) **CONFIGURATIONAL MODIFICATIONS FOR OPTIMIZING FPA DETECTION FOR FT/ IR IMAGING**, MICHAEL SCHAEBERLE, Rohit Bhargava, Daniel Fernandez and Ira W. Levin, National Institutes of Health, Bldg 5, Room B1-38, LCP, NIDDK, Bethesda, MD, USA
- 9:40 (454) **FT/ IR SPECTROSCOPIC IMAGING FOR HISTOPATHOLOGICAL ANALYSIS**, DANIEL FERNANDEZ, Rohit Bhargava, Michael D. Schaeberle, Ira W. Levin, National Institutes of Health, Building 5 Room B1-38w, Bethesda, MD

- 10:00 (455) **ENHANCED CANCER IMAGING USING FOLATE TARGETTED FLUORESCENCE**, DOR BEN-AMOTZ, Karim Jallad, Mike Kennedy, Phil Low and Dave Thompson, Purdue University, Department of Chemistry, West Lafayette, IN
- 10:20 **Coffee Break**
- 10:40 (456) **DIFFUSION AND DISSOLUTION STUDIES USING FT/ IR IMAGING**, BETH MILLER, Jack L. Koenig, Case Western Reserve University, Department of Macromolecular Science, 10900 Euclid Avenue, Cleveland, OH, USA
- 11:00 (457) **A NEW FAMILY OF INFRARED FOCALPLANE ARRAYS FOR SPECTROSCOPIC IMAGING**, ELLEN MISEO, Richard Crocombe and Norman Wright, Digilab Division, Bio-Rad, 237 Putnam Avenue, Cambridge, MA, USA
- 11:20 (458) **METHODS FOR ENHANCING FEATURE CONTRAST IN AN INFRARED IMAGING EXPERIMENT**, STEVE LOWRY, Bill McCarthy, Garry Ritter, Thermo Nicolet, 5225-4 Verona Rd, Madison, WI, USA
- 11:40 (459) **DESIGN CONSIDERATIONS FOR A NOVEL FT/ IR IMAGING SYSTEM**, ROBERT HOULT, Ralph Carter, Sara Rahlhf, Andy Turner, PerkinElmer Ltd, Chalfont Rd, Seer Green, Beaconsfield, Bucks, England
- 12:00 (460) **PERFORMANCE AND APPLICATIONS OF A NOVEL FT/ IR IMAGING SYSTEM**, RICHARD SPRAGG, Ralph Carter, David Clark, Robert Hoult, PerkinElmer Ltd, Chalfont Road, Seer Green, Beaconsfield, Bucks, England

Wednesday, 9:00 AM – 12:20 PM, Room W2-63
COHERENT TWO-DIMENSIONAL VIBRATIONAL
SPECTROSCOPY I

Presiding: David Blank

Organized by: John Wright

- 9:00 (461) **INTRODUCTION TO COHERENT 2D VIBRATIONAL SPECTROSCOPY**, JOHN WRIGHT, Wei Zhao, Keith Murdoch, Daniel Besemann, Nicholas Condon, and Kent Meyer, University of Wisconsin, 1101 University Avenue, Madison, WI, USA
- 9:40 (462) **COHERENT ODD-WAVE MIXING IN ISOTROPIC MEDIA: MULTIDIMENSIONAL SPECTRA WITH CHIRAL SPECIFICITY**, ANDREAS ALBRECHT, Peer Fischer, Cornell University, Department of Chemistry, Baker Laboratory, Ithaca, NY, USA
- 10:20 **Coffee Break**
- 11:00 (463) **INFRARED ANALOGUES OF COHERENT MULTIPLE PULSE NMR**, MARTIN ZANNI, Robin Hochstrasser, University of Pennsylvania, Department of Chemistry, 231 South 34th Street, Philadelphia, PA
- 11:40 (464) **TRANSIENT MOLECULAR STRUCTURE IN SOLUTION OBSERVED BY COHERENT 2D INFRARED VIBRATIONAL SPECTROSCOPY**, ANDREI TOKMAKOFF, MIT, Department of Chemistry, Room 6-225, 77 Massachusetts Ave., Cambridge, MA, USA

Wednesday, 9:00 AM – 12:20 PM, Room W2-68
SPECTROSCOPY AT INTERFACES

Presiding: John Conboy

Organized by: John Conboy

- 9:00 (465) **VIBRATIONAL SPECTROSCOPY OF EMERSED INTERFACES**, JEANNE E. PEMBERTON, Domenic J. Tiani, Adam M. Hawkrigde, University of Arizona, Department of Chemistry, Tucson, AZ, USA
- 9:40 (466) **SILICA-COATED INTERNAL-REFLECTION ELEMENTS FOR STUDIES OF MOLECULAR ADSORPTION, BINDING, AND INTERFACIAL**

TRANSPORT IN SOL-GEL MATERIALS, JOEL M. HARRIS, Karla McCain, David Hanley, University of Utah, Department of Chemistry, 315 South 1400 East, Salt Lake City, UT, USA

10:20 **Coffee Break**

10:40 (467) **PROBING MOLECULAR ORIENTATION IN ORGANIC THIN FILMS**, KATHY ROWLEN, Garth Simpson, Sarah Westerbuhr, Jessica Ekhoft, University of Colorado, Department of Chemistry and Biochemistry, Boulder, CO, USA

11:20 (468) **SURFACE PLASMON RESONANCE IMAGING MEASUREMENTS OF DNA AND PROTEIN MICROARRAYS**, EMILY SMITH, Greta Hurtt, Robert M. Corn, Chem. Dept., University of Wisconsin, 1101 University Ave., Madison, WI, USA

12:00 (469) **SPECTROSCOPIC CHARACTERIZATION OF SURFACES AND INTERFACES IN ORGANIC LIGHT EMITTING DIODES**, VASILIS GREGORIOU, Tzina Kandilioti, Stella Kennou, Elina Siokou, Vassiliki Papaauthimiou, ICEHT/FORTH, P.O. Box 1414, Patras, Greece

Wednesday, 9:00 AM – 12:20 PM, Room O2-44
ADVANCES IN RAMAN SPECTROSCOPIC TECHNIQUES
Presiding: Mike Carrabba Organized by: Mike Carrabba

9:00 (470) **ABSCISSA CALIBRATION: BASIS FOR DIRECT MIXTURE ANALYSIS**, CHARLES MANN, Thomas J. Vickers, Department of Chemistry, Florida State University, Tallahassee, FL, USA

9:20 (471) **DESIRABLE FEATURES IN DISPERSIVE RAMAN SYSTEMS**, FRITZ ALLEN, Jun Zhao, Michael Carrabba, Chromex / Univ. New Mexico, A&S Dean, UNM, Albuquerque, NM, USA

9:40 (472) **PRACTICAL FLUORESCENCE REJECTION WITH REAL-WORLD SAMPLES USING PICOSECOND TIME RESOLVED RAMAN SPECTROSCOPY**, NEIL EVERALL, Thomas Hahn, Anthony Parker, Pavel Matousek, Michael Towrie, ICI plc, ICI Wilton Research Centre, PO Box 90, Wilton, National Starch and Chemical, 10 Finnerne Avenue, Bridgewater, New Jersey USA (TH) Central Laser Facility, CLRC Rutherford Appleton Laboratory, Chilton, Didcot, Oxfordshire, OX1 0QX, UK (AP, PM, MT), Middlesbrough, Cleveland, England

10:00 (473) **FORENSIC APPLICATIONS OF RAMAN SPECTROSCOPIC TECHNIQUES**, PETER WHITE, University of Strathclyde, Forensic Science Unit, Royal College, 204 George Street, Glasgow, Scotland

10:20 **Coffee Break**

10:40 (474) **KNOWLEDGE GAINED FROM THE DEVELOPMENT OF MARS MICROBEAM RAMAN SPECTROMETER**, ALIAN WANG, Larry Haskin, Washington University, One Brooking Drive, St. Louis, MO, USA

11:00 (475) **COHERENT AND SQUEEZED PHONONS: CONTROLLING LATTICE MOTION WITH ULTRAFAST LIGHT PULSES**, ROBERTO MERLIN, University of Michigan, Department of Physics, Ann Arbor, MI, USA

11:20 (476) **SERRS-ADVANCES IN QUANTITATION AND UNDERSTANDING**, WILLIAM EWEN SMITH, Claire McLaughlin, Callum McHugh, University of Strathclyde, 295 Cathedral Street, Glasgow, Scotland

12:00 (477) **SINGLE MOLECULE DETECTION WITH SURFACE-ENHANCED RESONANCE RAMAN SCATTERING ON COLLOIDAL SILVER AND SILVER ISLAND FILMS**, TIBEBE LEMMA, Ricardo Aroca, Patricia Alexandra Antunes, Carlos Jose Leopoldo

Constantino, University of Windsor, Materials and Surface Science Group, Windsor, ON, Canada

Wednesday, 9:00 AM – 12:20 PM, Room W2-69
NEAR INFRARED SPECTROSCOPY
Presiding: Ken Busch

9:00 (478) **SINGLE MOLECULE DETECTION OF OLIGONUCLEOTIDE OF VARIOUS LENGTHS USING NIR FLUORESCENCE IN MICROCHIPS**, MUSUNDI WABUYELE, Robin McCarley, Steven A. Soper, Louisiana State University, Department of Chemistry, Baton Rouge, LA, USA

9:20 (479) **DNA SEQUENCING WITH NEAR-INFRARED HEAVY-ATOM-MODIFIED FLUORESCENT DYE LABELED DIDEOXYNUCLEOTIDE TERMINATORS**, YICHUAN XU, Steven A. Soper, Louisiana State University, Louisiana State University, Baton Rouge, LA, USA

9:40 (480) **DIRECT QUANTITATIVE ANALYSIS OF URINARY BILIRUBIN AND UROPORPHYRINS BY TWO-PHOTON EXCITED FLUORESCENCE**, ERIC J BUKOWSKI, Frank V. Bright, University at Buffalo, The State University of New York, Department of Chemistry, Natural Sciences Complex, Buffalo, NY, US

10:00 (481) **INTER-VENDOR TRANSFER OF MULTIVARIATE CALIBRATION MODELS BETWEEN ON-LINE FT/ NIR SPECTROMETERS**, CHRISTINE WEHLBURG, Rob Guenard, Randy Pell, David K. Melgaard, David M. Haaland, Sandia National Laboratories, PO Box 5800, Albuquerque, NM, USA

10:20 **Coffee Break**

10:40 (482) **COMPARISON OF MODELS FOR DATA TREATMENT IN NEAR-INFRARED DIFFUSE REFLECTANCE SPECTROSCOPY**, KENNETH BUSCH, Karalyn Humphrey, Dennis Rabbe, Sarah Wolf, Marianna A. Busch, Baylor University, Center for Analytical Spectroscopy, Waco, TX, USA

11:00 (483) **CONSTRUCTION OF A FAMILY OF TISSUE PHANTOMS FOR GLUCOSE DETERMINATION USING DIFFUSE REFLECTANCE NEAR- IR SPECTROSCOPY**, KEVIN H. HAZEN, Timothy L. Ruchti, Alexander D. Lorenz, Thomas B. Blank, Instrumentation Metrics, Inc., 7470 West Chandler Boulevard, Chandler, AZ, U S A

11:20 (484) **NEAR-INFRARED SPECTRAL IMAGING OF PHARMACEUTICALS**, E. NEIL LEWIS, Linda H. Kidder, Kenneth S. Haber, Spectral Dimensions, Inc., 3416 Olandwood Court, Olney, MD, USA

11:40 (485) **IMPROVING CALIBRATION TRANSFER IN SPECTROSCOPIC METHODS WITH ENHANCED CHEMOMETRIC TECHNIQUES**, STEPHEN R. LOWRY, McCarthy, Edgar J. Magnuson, Janine M. O'rourke, Garry L. Ritter, Thermo Nicolet, 5225 Verona Road, Madison, WI, USA

12:00 (486) **MACRO-SCALE HIGH THROUGHPUT SCREENING OF INDUSTRIAL PRODUCTS UTILIZING CHEMICAL IMAGING**, MATTHEW P. NELSON, David L. Exline, Julia M. Ribar, Patrick J. Treado, ChemIcon Inc., 7301 Penn Avenue, Pittsburgh, PA, USA

Wednesday, 9:00 AM – 12:20 PM, Room W2-58
SCANNING PROBE MICROSCOPY
Presiding: Paul Weiss Organized by: Paul Weiss

9:00 (487) **ADHESION STUDIES OF HETEROGENEOUS INTERFACES BY AFM**, JAMES BATTEAS, Chang Xu, James Helt, Marcus Weldon (1) and Krishnan Raghavachari

(1), CUNY-College of Staten Island and The Graduate Center, 2800 Victory Boulevard, (1) Bell Laboratories-Lucent Technologies, 600 Mountain Avenue, Murray Hill, NJ 07974, Staten Island, NY, USA

- 9:40 (488) **MECHANICAL PROPERTIES OF MOLECULAR FILMS AT THE NANO-SCALE**, JACK HOUSTON, Sandia National Laboratories, P. O.Box 5800, Albuquerque, NM, USA
- 10:20 **Coffee Break**
- 11:00 (489) **ULTRAHIGH SPATIAL RESOLUTION SCANNING PROBE SPECTROSCOPIES**, PAUL WEISS, The Pennsylvania State University, 152 Davey Laboratory, University Park, PA, USA
- 11:40 (490) **PROBING MOLECULAR ADHESION BONDS WITH DYNAMIC FORCE SPECTROSCOPY**, PIERRE NASSOY, A. Leung, K. Ritchie, E. Evans, Institut Curie, Laboratoire PCC - 11, rue P. et M. Curie, Paris, France
- 12:00 (491) **DYNAMIC FORCE SPECTROSCOPY FOR ANALYTICAL CHEMISTRY**, PHIL WILLIAMS, Evan Evans, The University of Nottingham, Pharmaceutical Sciences, University Park, Nottingham, Notts, United Kingdom

**Wednesday, 9:00 AM – 12:20 PM, Room W2-61
HIGH-SPEED SEPARATIONS**

Presiding: Heather Holmes Organized by: Heather Holmes

- 9:00 (492) **THE APPLICATION OF GC- TOFMS TECHNIQUES TO THE ANALYSIS OF COMPLEX MATRICES**, RITCHARD PARRY, Evaldo De Armas and Jack Cochran, LECO Corporation, 3000 Lakeview Avenue, St. Joseph, MI, USA
- 9:20 (493) **HIGH-SPEED GC- TOFMS ANALYSIS OF LIPID PEROXIDATION IN CELLS AND SUBCELLULAR FRACTIONS**, HEATHER L.S. HOLMES, Steven J. Pernecky, Harsha Jayatillake, Karthik Venkatachalam, Christine Pelletier, Hemamala Amunugama and Fumi Ebisu, Eastern Michigan University, 212 Mark Jefferson, Ypsilanti, MI, USA
- 9:40 (494) **HIGH-SPEED GC/ MS FOR AIR ANALYSIS**, RICHARD E. BERKLEY, Michael L. Akard, Karen D. Oliver, US EPA, MD-44, Rtp, NC, USA
- 10:00 (495) **INCREASING THE POWER OF HIGH-SPEED COMPREHENSIVE TWO-DIMENSIONAL SEPARATIONS WITH CHEMOMETRICS**, ROBERT SYNOVEC, Bryan Prazen, Kevin Johnson, Carlos Fraga, University of Washington, Department of Chemistry, Seattle, WA, USA
- 10:20 **Coffee Break**
- 11:00 (496) **MEMS AND WIMS: MICRO GC INSTRUMENTATION FOR THE 21ST CENTURY**, RICHARD SACKS, Joshua Whiting and Edward Zellers, University of Michigan, Department of Chemistry, Ann Arbor, MI, USA
- 11:20 (497) **MAKING PEAKS DANCE: HIGH-SPEED GC AND GC/ MS USING TUNABLE AND PROGRAMMABLE SELECTIVITY**, RICHARD SACKS, Megan McGuigan, Jeffery Driscoll, University of Michigan, Department of Chemistry, Ann Arbor, MI, USA
- 11:40 (498) **MICROFABRICATED GC COLUMNS: THEORY AND PRACTICE**, GLENN SPANGLER, Technispan LLC, 1133C Greenwood Road, Pikesville, MD, USA
- 12:00 (499) **THE USE OF FAST GC AND GCXGC COUPLED TO TIME-OF-FLIGHT AND HIGH RESOLUTION MASS SPECTROMETRY FOR HUMAN BIOMONITORING STUDIES**, DONALD G.

PATTERSON, JR., Jean-Marie Dimandja, James Grainger, John Barr, Centers for Disease Control and Prevention, Toxicology Branch, F-17, Atlanta, GA, USA (194)

**Wednesday, 2:00 PM – 5:00 PM, Wayne Exhibit Hall
Cobo Convention Center
SAS SPONSORED POSTER SESSION**

Your poster should be put up between 10:00 and 12:00 on Wednesday and removed between 5:00 – 6:00. Please leave your poster in place for the entire time. Actual presentation times are staggered. Check your presentation time on the following pages.

**SESSION I: ATOMIC SPECTROSCOPY,
CHROMATOGRAPHY, ELECTROCHEMISTRY, AND
MASS SPECTROMETRY**

Presiding: Nancy Miller-Ilhi & Bonnie Saylor
Organized by: Nancy Miller-Ilhi & Bonnie Saylor

- 2:15 (500) **CHEMICAL CHARACTERIZATION OF ATMOSPHERIC PARTICULATE MATTER IN THE URBAN AREA NEAR A LARGE PLANT**, DO-HYUNG LEE, Research Institute of Industrial Science and Technology, Chemical Analysis Team, RIST, P.O.Box 135, Pohang, Pohang, South Korea
- 3:30 (501) **DEVELOPMENT OF BORON ANALYSIS TECHNIQUE IN BORON-ADDED STEELS**, KI-JEONG HONG, D. H. Lee, J. J. Lee, S. W. Jung, K. S. Shin, RIST(Research Institute of Industrial Sci. & Tech), Hyoja-Dong San 32, Pohang, Kyungbook, Korea
- 2:15 (502) **DETERMINATION OF TOTAL MERCURY IN SOLID AND AQUEOUS SAMPLES WITHOUT SAMPLE PRETREATMENT**, ROBERT RICHTER, Milestone Inc., 160B Shelton Road, Monroe, CT, US
- 3:30 (503) **TOTAL AND MIGRATION ELEMENTAL ANALYSIS OF POLYVINYL CHLORIDE EMPLOYED IN TOYS INDUSTRY**, JOSE L. TODOLI, José M. Giménez, Juan Mora, Vicente Hernandis, University of Alicante, PO Box 99, Alicante, Spain
- 2:15 (504) **A FIELD PORTABLE INSTRUMENT FOR REAL-TIME AIR PARTICULATE MONITORING**, YIXIANG DUAN, Yongxuan Su, Zhe Jin, Chris Hassell, Martin Koby, and Cynthia Mahan, Los Alamos National Laboratory, C-ACS, MS K484, Los Alamos, NM, USA
- 3:30 (505) **STUDIES ON FLOW INJECTION CHEMICAL VAPOR GENERATION AAS FOR THE DETERMINATION OF GOLD**, SHUKUN XU, Hongbing Ma, Xiaoguang Du and Huanying Zhou, Northeastern University of China, Research Center for Analytical Sciences, Box 332, Northeastern University, Shenyang, Liaoning, China
- 2:15 (506) **DETERMINATION OF CADMIUM AND LEAD IN WATER SAMPLES BY FLAME ABSORPTION SPECTROMETRY AFTER CLOUD POINT EXTRACTION**, JIANRONG CHEN, Khay Chuan Teo, Nanyang Technological University, Division of Chemistry, Natural Sciences, National Institute of Education, Nanyang Technological University, 1 Nanyang Walk, Singapore, Singapore
- 3:30 (507) **GRAPHITE FURNACE ATOMIC ABSORPTION DETERMINATION OF NI, CO AND FE METALLIC IMPURITIES IN CARBON NANOTUBES AFTER OXIDIZATION WITH I2/ISO-PROPANOL**, SILVERA SCACCIA, Barbara Goszczynska, ENEA, Via Anguillarese 301, Rome, RM, Italy
- 2:15 (508) **DIRECT DETERMINATION OF SELENIUM IN WHOLE BLOOD BY ETAAS USING W-RH COATED PLATFORM**, RENATO ZANÃO, Fernando Barbosa, Samuel S. Souza, Adibe L. Abdalla, Francisco Krug, Centro

- de Energia Nuclear na Agricultura-Usp, Ave. Centen-rio
303 Sao Dimas, Piracicaba, SP, Brazil
- 3:30 (509) **DETECTION OF AQUEOUS FLUORIDE WITH A HIGH-POWER MICROWAVE-INDUCED HE PLASMA AT ATMOSPHERIC PRESSURE**, OKAMOTO YUKIO, Wake Seiji and Murohashi Hiroyuki, Faculty of Eng., and Bio-Nano Electronics Research Center, Toyo University, 2100 Kujirai, Kawagoe, Saitama, Japan
- 2:15 (510) **MEASUREMENT OF TIME-RESOLVED TWO-DIMENSIONAL DISTRIBUTION OF CU ATOMIC EMISSION IN A REDUCED PRESSURE LASER-INDUCED PLASMA**, HIDEYUKI MATSUTA, Kazuaki Wagatsuma, Kuniyuki Kitagawa, Institute for Materials Research, Tohoku University, Katahira 2-1-1, Sendai, Japan
- 3:30 (511) **MULTI-ELEMENT DETERMINATION OF WEAR METALS IN USED ENGINE OIL BY X-RAY FLUORESCENCE SPECTROMETRY**, ZHENG YANG, Xiandeng Hou, Bradley T. Jones, Wake Forest University, Salem Hall, Wake Forest University, Winston Salem, NC, USA
- 2:15 (512) **A TUNABLE RESONANCE FLUORESCENCE IMAGING MONOCHROMATOR WITH SUB-DOPPLER SPECTRAL RESOLUTION**, NATHAN PIXLEY, D. Pappas, T. L. Correll, B. W. Smith, J. D. Winefordner, University of Florida, PO BOX 117200, Gainesville, FL, USA
- 3:30 (513) **EFFECT OF ADDING HYDROGEN GAS TO A HELIUM INDUCTIVELY COUPLED PLASMA FOR ATOMIC EMISSION SPECTROMETRY**, HIDEKAZU MIYAHARA, Hironobu Yabuta, Akitoshi Okino, Yasushi Hayashi, Masato Watanabe, Eiki Hotta, Department of Energy Sciences Tokyo Institute of Technology, 4259 Nagatsuta, Midori-ku, Japan, Yokohama, Japan
- 2:15 (514) **REDUCING SPECTRAL INTERFERENCES IN QUADRUPOLE ICP/MS USING BAYESIAN DECONVOLUTION**, ABDULAZIZ BASHAMMAKH, Choon Mong Thung and Barry L. Sharp, Chemistry Department, Loughborough University, Loughborough, UK, UK
- 3:30 (515) **THE EXTRACTION AND SPECIATION OF ARSENIC FROM LOBSTER TISSUE USING INDUCTIVELY COUPLED PLASMA-MASS SPECTROMETRY DETECTION**, JUDITH A. BRISBIN, Joseph A. Caruso, University of Cincinnati, Department of Chemistry, ML-0172, Cincinnati, OH, USA
- 2:15 (516) **THE DETERMINATION OF ANALYTES FROM BIOLOGICAL AND ENVIRONMENTAL SAMPLES USING MICROWAVE ASSISTED EXTRACTION WITH INDUCTIVELY COUPLED PLASMA-MASS SPECTROMETRY DETECTION**, JUDITH A. BRISBIN, Joseph A. Caruso, University of Cincinnati, Department of Chemistry, ML-0172, Cincinnati, OH, USA
- 3:30 (517) **SOFT EXTRACTION OF ANTIMONY FROM SOILS AND ITS REDOX SPECIATION BY HYDRIDE GENERATION-ATOMIC FLUORESCENCE SPECTROMETRY (HG-AFS)**, IDA DE GREGORI, Edwar Fuentes, Hugo Pinochet, and ¹Martine Potin-Gautier, Chemical Institute, Catholic University of Valparaíso, Avenida Brasil 2950, PO BOX 4059, Valparaíso, Valparaíso, Chile (1) UMR 5034, Universite de Pau et des Pays de l'Adour, Avenue de l'Universite, 64000 Pau, France
- 2:15 (518) **USE OF EMUSLIONS FOR THE ANALYSIS OF MARGARINE BY ICP- OES**, ZULLY BENZO, E. Gomez, C. Ruiz, F. Salas, J. Quintal, M. Garaboto, A. Murillo, Centro de Quimica. IVIC, Km11. Carretera Panamericana., Caracas 1020-A, DF, Venezuela
- 3:30 (519) **DEVELOPMENT OF A NEW HYDRIDE GENERATION SYSTEM FOR THE DETERMINATION OF SELENIUM IN INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPECTROSCOPY**, NEREIDA CARRION, Miguel Murillo, Edie Montiel, Dorfe Diaz, Universidad Central de Venezuela, Ciudad Universitaria Av. los Ilustres Los Chaguaramos, Caracas, Venezuela
- 2:15 (520) **STATISTICAL OPTIMIZATION OF A NEW HYDRIDE GENERATION SYSTEM FOR INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPECTROMETRY**, MIGUEL MURILLO, Nereida Carrion, Edie Montiel, Dorfe Diaz, Centro de Quimica Analtica, Facultad de Ciencias, Universidad Central de Venezuela, Ciudad Universitaria, Av. Los Ilustres Los Chaguaramos, Caracas, Venezuela
- 3:30 (521) **A RADIOFREQUENCY GLOW DISCHARGE OPTICAL EMISSION SYSTEM DESIGNED FOR GLOVE BOX - APPLICATION TO LIGHT ELEMENTS ANALYSIS**, JEAN-CHARLES HUBINOIS, Vincent Lavoine, Herve Chollet, COMMISSARIAT A L'ENERGIE ATOMIQUE, CEA VALDUC - Département de Traitement des Matériaux Nucléaires / Service Analyses Déchets / Laboratoire de Chimie Analytique, Is Sur Tille, France
- 2:15 (522) **CHOOSING AN INTERNAL STANDARD FOR ICP EMISSION SPECTROSCOPY**, SCOTT GOODE, University of South Carolina, Department of Chemistry and Biochemistry, Columbia, SC, USA
- 3:30 (523) **ICP-MC- MS WITH A HEXAPOLE INTERFACE FOR HIGH PRECISION ISOTOPE RATIO MEASUREMENTS OF CALCIUM, IRON, CHROMIUM AND SELENIUM**, ZENON PALACZ, Simon Meffan-Main, Patrick Turner, Micromass Uk Ltd, Floats Road, Wythenshawe, Manchester, United Kingdom
- 2:15 (524) **ICP/ MS WITH HEXAPOLE COLLISION CELL FOR ISOTOPE RATIO MEASUREMENTS OF DIFFICULT-TO-ANALYSE ELEMENTS**, SERGEI F. BOULYGA, J. Sabine Becker, Central Department of Analytical Chemistry, Research Center Juelich, Juelich, Germany
- 3:30 (525) **MEASUREMENTS OF SPECTROSCOPIC PROPERTIES IN PULSE-OPERATED HELIUM INDUCTIVELY COUPLED PLASMA**, AKITOSHI OKINO, Hironobu Yabuta, Hidekazu Miyahara, Yasushi Hayashi, Masato Watanabe, Eiki Hotta, Dept. of Energy Sciences, Tokyo Institute of Technology, 4259 Nagatsuta, Midori-ku, Yokohama, Japan
- 2:15 (526) **STUDIES ON TRANSITORY MATRIX EFFECTS DUE TO INORGANIC SPECIES (EIE AND ACIDS) IN SAMPLE INTRODUCTION SYSTEMS EMPLOYED IN ICP /AES**, JOSE L. TODOLI, Salvador Maestre, Juan Mora, Vicente Hernandis, University of Alicante, PO Box 99, Alicante, Spain
- 3:30 (527) **NA, K AND CA INTERFERENCES IN ICP /AES WITH PNEUMATIC NEBULIZERS OPERATING AT LOW UPTAKE RATES SINGLE AND COMBINED EFFECTS**, JOSE L. TODOLI, Miguel Catusas, Luis Gras, Juan Mora, Vicente Hernandis, University of Alicante, PO Box 99, Alicante, Spain
- 2:15 (528) **ORGANIC SAMPLE ANALYSIS IN ICP /AES APPLICATION OF A MICROWAVE DESOLVATION SYSTEM**, JOSE L. TODOLI, Guillermo Grindlay, Luis Gras, Juan Mora, Vicente Hernandis, University of Alicante, PO Box 99, Alicante, Spain
- 3:30 (529) **THE KEY ROLE OF THE NEBULIZER ON THE EASILY IONIZABLE ELEMENTS INTERFERENT EFFECTS IN ICP /AES**, JOSE L.

- TODOLI, Jesus M. Cano, Luis Gras, Juan Mora, University of Alicante, PO Box 99, Alicante, Spain
- 2:15 (530) **MEMBRANE DESOLVATOR-PLASMA AES FOR REVERSE PHASE HPLC DETECTION**, GLENN I. DENNIS, Debashis Das, Jon W. Carnahan, Department of Chemistry and Biochemistry, Northern Illinois University, Dekalb, IL, USA
- 3:30 (531) **OPTIMIZATION AND APPLICATIONS OF ICP/AES WITH A QUARTZ ULTRA-VIOLET ACOUSTO-OPTIC TUNABLE FILTER**, THOMAS SPAINE, Jon W. Carnahan, Stacey Gillespie, Northern Illinois University, Department of Chemistry and Biochemistry, Dekalb, IL, US
- 2:15 (532) **AUTOMATED ACID REFLUX CLEANING METHOD FOR TEFLON, GLASS, AND QUARTZ ACCESSORIES USED IN TRACE ANALYSIS**, ROBERT RICHTER, Milestone Inc., 160B Shelton Rd., Monroe, CT, US
- 3:30 (533) **ISOTOPIC ABUNDANCE DETERMINATION OF URANIUM ATOM AND ION USING CAVITY RINGDOWN SPECTROSCOPY**, CHUJI WANG, Fabio J. Mazzotti, George P. Miller, Christopher B. Winstead, DIAL, Mississippi State University, 205 Research Blvd, Starkville, MS, USA
- 2:15 (534) **EVALUATION OF A COMPACT MERCURY RESONANCE IONIZATION IMAGING DETECTOR**, MICHAEL SHEPARD, Jamshid Temirov, Oleg Matveev, Benjamin Smith, James Winefordner, University of Florida, PO Box 117200, Gainesville, FL, USA
- 3:30 (535) **DISTRIBUTION OF GAS PHASE SPECIES WITHIN A GRAPHITE FURNACE ATOMIZER THROUGH DYNAMIC EQUILIBRIUM SIMULATIONS**, GARY RAYSON, Kowit Sae-Tueng, New Mexico State University, Box 30001 MSC 3C, Las Cruces, NM, USA
- 2:15 (536) **SOME EXPERIENCES IN DETERMINATION OF ²³⁶U IN ENVIRONMENTAL SAMPLES USING ICP/MS**, SERGEI F. BOULYGA, J. Sabine Becker, Central Department of Analytical Chemistry, Research Center Juelich, Juelich, Germany
- 3:30 (537) **HIGH SPEED GC WITH ATMOSPHERIC PRESSURE AIR AS CARRIER GAS AND HIGH SPEED TEMPERATURE CONTROL FOR ENVIRONMENTAL VAPOR MONITORING**, JOSHUA WHITING, Richard Sacks, University of Michigan, 930 N. University, Ann Arbor, MI, USA
- 2:15 (538) **SPREADSHEET MODEL STUDY OF HIGH SPEED TEMPERATURE PROGRAMMED GC SEPARATIONS USING A DUAL COLUMN ENSEMBLE WITH PRESSURE-PROGRAMMABLE SELECTIVITY**, MEGAN MCGUIGAN, Richard Sacks, University of Michigan, 930 N University Ave, Ann Arbor, MI, USA
- 3:30 (539) **ANALYSIS OF AQUEOUS VOCS USING RAPID EXTRACTION WITH HIGH SPEED GAS CHROMATOGRAPHY OR ION TRAP MASS SPECTROMETRY**, MELISSA MEYER, Anthony Borgerding, University of North Dakota, Box 9024, Grand Forks, ND, USA
- 2:15 (540) **ENSEMBLE CAPILLARY ELECTROPHORESIS VERSUS SINGLE PARTICLE ANALYSIS OF SUBMICRON PARTICLES**, JASON STOKES, Mitchell Johnson, Duquesne University, Department of Chemistry and Biochemistry, Pittsburgh, PA, USA
- 3:30 (541) **DESIGNING DYE AND SEPARATION SYSTEMS TOGETHER FOR NONAQUEOUS CAPILLARY ELECTROPHORESIS**, TARA CARPENTER, David Gallaher, Mitchell Johnson, Duquesne University, Department of Chemistry and Biochemistry, Pittsburgh, PA, USA
- 2:15 (542) **INFLUENCE OF NONAQUEOUS BUFFER ADDITIVE ON CNLSD DETECTION WITH CE**, WENJING YANG, Mari Heybroek, John A. Koropchak, Southern Illinois University, Carbondale, Dept. of Chem., Carbondale, IL, USA
- 3:30 (543) **CAPILLARY ELECTROPHORETIC SEPARATIONS OF METAL IONS**, ELENA HOFMAN, Subra Muralidharan, Western Michigan University, Department of Chemistry, 3120 Wood Hall, Kalamazoo, MI, U S A
- 2:15 (544) **LABELING REAGENT FOR CAPILLARY ELECTROPHORESIS WITH DIODE-LASER (VIOLET)-INDUCED FLUORESCENCE DETECTOR**, RIICHIRO NAKAJIMA, Keiichi Noda, Norikatsu Aoyama, Takeshi Takei, Itsuro Kawai (1), Masahito Nakagawa, Hiroyuki Ueda, and Kazuhiko Tsukagoshi, Faculty of Engineering, Doshisha University, (1) Fukui University of Technology, Fukui 910-0028 Japan, Kyotanabe, Kyoto, Japan
- 3:30 (545) **AN ION SPRAY INTERFACE FOR HPLC-CNLSD OF CARBOHYDRATES**, QIN WANG, John Koropchak, SIUC, Department of Chemistry, Southern Illinois University, Carbondale, IL, USA
- 2:15 (546) **DETERMINATION OF ARSENIC BY ION CHROMATOGRAPHY: OPTIMIZATION OF THE 'MOLYBDENUM BLUE' COMPLEX FORMATION REACTION**, REBECCA L. JOHNSON, Joseph H. Aldstadt, University of Wisconsin Milwaukee, Department of Chemistry, 3210 North Cramer Street, Milwaukee, WI, USA
- 3:30 (547) **DETECTION OF CATECHOLAMINES USING HPLC-CNLSD WITH NONVOLATILE RESIDUE MONITOR (NRM)**, QI LU, John A. Koropchak, Southern Illinois University, Department of Chemistry, Carbondale, IL
- 2:15 (548) **RESOLVING UNCERTAIN RESULTS IN A GC/MS LIBRARY SEARCH THROUGH HIGH SENSITIVITY INFRARED MEASUREMENTS**, GERALD REEDY, F. Keith Lalone, Reedy Scientific Instruments, Inc., 197 W. Harrison St., Bourbonnais, IL, USA
- 3:30 (549) **SEPARATION OF ENANTIOMERS WITH CHIRAL DENDRIMERS**, JIE ZHUANG, Subra Muralidharan, Western Michigan University, Department of Chemistry, 3120 Wood Hall, Kalamazoo, MI, U S A
- 2:15 (550) **METAL ION SEPARATION MEDIATED BY ORGANIZED MOLECULAR ASSEMBLIES**, HONG CAO, Subra Muralidharan, Western Michigan University, Department of Chemistry, 3120 Wood Hall, Kalamazoo, MI, U S A
- 3:30 (551) **NOVEL SYNTHETIC ROUTES TO SELF-ASSEMBLING SYSTEMS FOR MOLECULAR RECOGNITION**, JUN YANG, Subra Muralidharan, Western Michigan University, Department of Chemistry, 3120 Wood Hall, Kalamazoo, MI, U S A
- 2:15 (552) **METAL ION IMPRINTED POLYMERS FOR BIOMOLECULAR RECOGNITION**, LEN HARRIS, Subra Muralidharan, Western Michigan University, Department of Chemistry, 3120 Wood Hall, Kalamazoo, MI, U S A
- 3:30 (553) **ISOLATION AND CHARACTERIZATION OF SOME CHEMICAL COMPONENTS FROM EUCALYPTUS SP**, KANTA GILL, M. S. Malik, S. B. Kalidhar and O. P. Malik, CCS Haryana Agricultural

- University Hisar 125004, India, 597/40, Krishna Nagar, Hisar, Haryana, India
- 2:15 (554) **DETERMINATION OF BIOGENIC AMINES IN SOY SAUCE AND SOYBEAN PASTE BY HPLC WITH UV DETECTOR**, SUNHEE HAN, Youngjin Kim, Ockju Tu, Mison Hong, Seoul Metropolitan government Research Institute of Public Health and Environment, 202-3 Yangjae-dong, Seocho-gu, Seoul, Korea
- 3:30 (555) **APPLICATION OF STATIC LIQUID PHASE MICROEXTRACTION TO THE DETERMINATION OF POLYCYCLIC AROMATIC HYDROCARBON IN WATER**, LI HOU, Hian Kee Lee, National University of Singapore, Department of Chemistry, National University of Singapore, Singapore, Republic Of Singapore
- 2:15 (556) **FAST ANALYSIS OF VOLATILES BY GAS CHROMATOGRAPHY USING US EPA METHODS 5022 AND 8021**, FRANK DORMAN, Chris M. English, Mark Lawrence, Dinesh Patwardhan, & Rebecca E. Wittrig, Restek Corporation, 110 Benner Circle, Bellefonte, PA, USA
- 3:30 (557) **THE ANALYSIS OF GASOLINE OXYGENATES USING A NEW CAPILLARY COLUMN STATIONARY PHASE**, FRANK DORMAN, Chris M. English, Christopher Cox, Dinesh Patwardhan, & Rebecca E. Wittrig, Restek Corporation, 110 Benner Circle, Bellefonte, PA, USA
- 2:15 (558) **GAS CHROMATOGRAPHIC COLUMNS FOR THE ANALYSIS OF ORGANOPHOSPHORUS PESTICIDES**, FRANK DORMAN, Gary Stidsen, Lydia Nolan, & Rebecca Wittrig, Restek Corporation, 110 Benner Circle, Bellefonte, PA, USA
- 3:30 (559) **ARSENOSUGAR IDENTIFICATION IN SEAWEED EXTRACTS USING HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY-ELECTROSPRAY ION TRAP MASS SPECTROMETRY**, MARIA MIGUENS-RODRIGUEZ, Russell Pickford (1), Jane E. Thomas-Oates (1), Spiros A. Pergantis, School of Biological and Chemical Sciences, Birkbeck College, University of London, Gordon House, 29 Gordon Square, (1) Michael Barber Centre for Mass Spectrometry, Department of Chemistry, University of Manchester Institute of Science and Technology, P.O. Box 88, Manchester, M60 1QD, UK, London, UK
- 2:15 (560) **REVERSED PHASE HPLC OF POLAR COMPOUNDS**, REBECCA WITTRIG, Terrence S. Reid, C. Vernon Bartlett, Restek Corporation, 110 Benner Circle, Bellefonte, PA, USA
- 3:30 (560A) **HIGH-SENSITIVITY GC DETECTOR EMPLOYING A GOLD-THIOLATE NANOCUSTER-COATED CHEMIRESTOR ARRAY**, QING-YUN CAI (1), Edward T. Zellers (1,2), (1) Department of Environmental Health Sciences, (2) Department of Chemistry, University of Michigan, 109 S. Observatory St., Ann Arbor, MI 48109-2029
- 2:15 (560B) **EVALUATION OF A PERSONAL VAPOR MONITOR INSTRUMENT FOR RECOGNIZING, DIFFERENTIATING, AND QUANTIFYING MULTIPLE ORGANIC VAPORS**, M. -D. HSIEH (1), M. Huang (1), E. T. Zellers (1,2), (1) Department of Environmental Health Sciences, (2) Department of Chemistry, University of Michigan, 109 S. Observatory St., Ann Arbor, MI 48109-2029
- 3:30 (560C) **PORTABLE MICROSENSOR SYSTEM FOR ANALYZING COMPLEX ORGANIC VAPOR MIXTURES IN INDOOR ENVIRONMENTS**, CHIA-JUNG LU (1), Joshua Whiting (2), Richard Sacks (1) and Edward T. Zellers (1,2), (1) Department of Environmental Health Sciences, (2) Department of Chemistry, University of Michigan, 109 S. Observatory St., Ann Arbor, MI 48109-2029
- 2:15 (561) **SURFACE CHARACTERIZATION OF CAST AND CONSOLIDATED SILVER EXPOSED TO HUMAN SALIVA**, HERBERT MUELLER, Paffenbarger Research Center, NIST, 100 Bureau Dr Stop 8546, Gaithersburg, MD, USA
- 3:30 (562) **ELECTROCHEMICAL STUDIES OF MAGNETICALLY MODIFIED CHLOR-ALKALI CATHODES**, SARAH PASEK, Shelley D. Minter, Saint Louis University, Department of Chemistry, 221 North Grand Blvd., St. Louis, MO, US
- 2:15 (563) **ELECTROCHEMICAL STUDIES OF POLYVINYLPIRIDINE/SURFACE MODIFIED GLASS BEAD COMPOSITES**, NICHOLAS TORRENCE, Shelley D. Minter, Saint Louis University, Department of Chemistry, 221 North Grand Blvd., St. Louis, MO, US
- 3:30 (564) **THE USE OF DIAMOND ELECTRODES FOR THE DETECTION OF TRACE METAL IONS**, PRERNA SONTHALIA, Greg M Swain, Michigan State University, Dept of Chemistry, East Lansing, MI, USA
- 2:15 (565) **GLUCOSE BIOSENSORS BASED ON AZURE DYES AS REDOX MEDIATORS**, LUCY LIM, Liang Chen, Waldemar Gorski, University of Texas at San Antonio, 6900 N. Loop 1604 W., San Antonio, TX, USA
- 3:30 (566) **ELECTROCATALYTIC DIAMOND ELECTRODES CONTAINING PT AND PT/RU**, JIAN WANG, Greg M. Swain, Michigan State University, Department of Chemistry, East Lansing, MI
- 2:15 (567) **SELF-ASSEMBLED MONOLAYER OF QUINONE-DERIVATIZED CALIX[4]ARENE PREPARED FROM ITS METAL ION COMPLEX**, HYUNCHANG LIM, Hasuck Kim, Seoul National University, San 56-1, Shilim-dong, Kwanak-gu, Seoul, Korea
- 3:30 (568) **INFRARED LASER DESORPTION, ULTRAVIOLET LASER RESONANT, TWO-PHOTON PHOTOIONIZATION, ION-TRAP MASS SPECTROMETRY OF POLYCYCLIC AROMATIC HYDROCARBONS**, MICHAEL BLADES, August Specht, Department of Chemistry, University of British Columbia, Vancouver, BC, Canada
- 2:15 (569) **STRATEGIES FOR HIGH RESOLUTION ON THE QUADRUPOLE ION TRAP MASS SPECTROMETER**, DANIELLE DICKINSON, Richard A. Yost, James P. Murphy III, Joseph Mulholland, University of Florida, PO Box 117200 Mailbox 179, Gainesville, FL, USA
- 3:30 (570) **LASER MODIFICATION OF SILICON FOR USE IN DIOS- TOF MASS SPECTROMETRY**, DANIELLE ANDERSON, Qian Li, Michael R. Shepard, David H. Powell, Benjamin W. Smith, James D. Winefordner, Department of Chemistry, University of Florida, PO Box 117200, Gainesville, FL, US
- 2:15 (571) **THE DETERMINATION OF SULFUR, VANADIUM, AND NICKEL IN PETROLEUM PRODUCTS BY DOUBLE-FOCUSING SECTOR FIELD INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY USING A DIRECT INJECTION SOLUTION INTRODUCTION**, SU-ANN E. O'BRIEN, John A. McLean, J. Sabine Becker, Akbar Montaser, George Washington University, 725 Twenty-First Street NW, Washington, DC, USA
- 3:30 (572) **PLUME DIAGNOSTICS IN ALTERNATING CURRENT ELECTROSPRAYS**, YONG CHEN, Akos

- Vertes, The George Washington University, 725 21st Street, NW, Washington, DC, USA
- 2:15 (573) **RESOLUTION AND CHEMICAL IDENTIFICATION OF COMPONENTS IN PETROCHEMICALS BY FOURIER TRANSFORM ION CYCLOTRON RESONANCE MASS SPECTROMETRY**, CHRISTINE A. HUGHEY, Ryan P. Rodgers, Christopher L. Hendrickson, Alan G. Marshall, Kuangnan Qian (1) and Winston K. Robbins (1), Florida State University, Department of Chemistry, (1) ExxonMobil Research and Engineering, 1545 Route 22 East, Annandale, NJ 08801, Tallahassee, FL
- 3:30 (574) **THE THERMAL IONIZATION CAVITY (TIC) SOURCE: ENHANCED IONIZATION EFFICIENCY IN A LINEAR TIME-OF-FLIGHT MASS SPECTROMETER**, DAVID M. WAYNE, Wei Hang (1), Diane K. McDaniel (2), Robert E. Fields (3), Eddie Rios (4), Vahid Majidi (5), Nuclear Materials Technology Div., NMT-15, Los Alamos National Laboratory, MS K484, Los Alamos National Laboratory, (1) Chemistry Division, C-ACS, MS K-484, Los Alamos National Laboratory, Los Alamos, NM, USA 87545 (2) University of Maryland, Department of Geology, College Park, MD USA 20742-4211 (3) Pacific Microinstruments, Inc., Northwest Design Center, 2636 N, Los Alamos, NM, USA
- 2:15 (575) **LASER ABLATION ION-STORAGE REFLECTRON TIME-OF-FLIGHT MASS SPECTROMETRY**, GREG KLUNDER, Richard E. Russo (1), Patrick M. Grant, and Brian D. Andresen, Lawrence Livermore National Laboratory, P.O. Box 808 L-178, (1) Lawrence Berkeley National Laboratory, Berkeley, California 94720, USA., Livermore, CA, USA
- SESSION II: MOLECULAR SPECTROSCOPY, LUMINESCENCE, IR, NEAR-IR, RAMAN, BIOLOGICAL, PHARMACEUTICAL, ENVIRONMENTAL, SPECIATION, AND MATERIALS**

Presiding: Nancy Miller-Illi & Bonnie Saylor
Organized by: Nancy Miller-Illi & Bonnie Saylor
- 3:30 (576) **SPECTROSCOPICAL INVESTIGATION AND MAGNETIC PROPERTIES OF THERMALLY TRANSFORMED EGYPTIAN IRON ORE**, NADAR EL-SAKR, T. A. El-Dessouki, A. Shabaka, A. H. Wafik, H. M. Hosny, National Research Centre, 3 Zananiry St. Shoubra., Cairo, Egypt
- 2:15 (577) **USING 7-AZATRYPTOPHAN TO INVESTIGATE PROBE MICELLE INTERACTIONS**, LEE KELEPOURIS, Gary J. Blanchard, Michigan State University, 5523 Joshua #17, Lansing, MI, USA
- 3:30 (578) **DETERMINATION OF RESORCINOL USING FLOW INJECTION INHIBITORY CHEMILUMINESCENCE**, ZHENGHUA SONG, Lin Wang, Northwest University, Department of Chemistry, Xi'an, Shaanxi, P R China
- 2:15 (579) **BAICALIN CHEMOSENSOR BASED ON DETECTION OF CHEMILUMINESCENCE WITH IMMOBILIZED REAGENTS**, LIN WANG, Zhenghua Song, Northwest University, Taibai Bei Road, Xi'an, Shaanxi, China
- 3:30 (580) **DEVELOPMENT OF ROOM TEMPERATURE PHOSPHORESCENCE METHODOLOGIES BASED ON ENERGY TRANSFER EFFECT: APPLICATION TO SENSITIVE MERCURY DETERMINATIONS AND TO PH OPTOSENSING**, ROSARIO PEREIRO, Wei Jun Jin, Jose Manuel Costa, Blanca San Vicente, Alfredo Sanz-Medel, University of Oviedo, Department of Physical and Analytical Chemistry. Faculty of Chemistry, Julian Claveria, 6, Oviedo, OV, Spain
- 2:15 (581) **POLYMER MEMBRANE BASED OPTICAL SENSOR FOR AMMONIA SENSING**, ZHE JIN, Yongxuan Su, Yixiang Duan, Los Alamos National Laboratory, C-ACS, MS K484, Los Alamos, NM, USA
- 3:30 (582) **CHEMICAL IMAGING VIA MULTIVARIATE OPTICAL COMPUTING IN THE VISIBLE SPECTRAL REGION**, FREDERICK HAIBACH, M. L. Myrick, O. O. Soyemi, A. E. Greer, Ryan J. Priore, University of South Carolina, Department of Chemistry and Biochemistry, Columbia, SC, US
- 2:15 (583) **SCREENING OF METAL IONS IN LIQUID SAMPLES AND SEQUENTIAL DETERMINATION OF CD, CU, ZN, NI, CO AND FE BY SPECTROPHOTOMETRY DERIVATIVE IN SOLID PHASE**, M. INES TORAL, Nelson Lara, Jessica Narvez, Y. Pablo Richter (1), University of Chile, Faculty of Ciencias, Las Palmeras 3425, Chile (1) National Environmental Center (CENMA), Santiago, MR, Chile
- 2:15 (584) **SIMULTANEOUS DETERMINATION OF DAPSONE AND PYRIMETHAMINE IN PHARMACEUTICAL FORMULATIONS BY DERIVATIVE SPECTROPHOTOMETRY**, MARIA INES TORAL, A. Tassara and C. Soto, University of Chile, Laboratory of Analytical Chemistry, Department of Chemistry, Faculty of Sciences, Santiago, Chile
- 3:30 (584A) **SIMULTANEOUS DETERMINATION OF MERCURY AND COPPER BY FIRST DERIVATIVE SPECTROPHOTOMETRY IN SOLID PHASE**, M. INES TORAL, Bernardita Araya K, J. Fernando Piedra, Dept. of Chemistry, Fac. of Cs., University of Chile, P.O. Box: 653, Santiago, Chile.
- 2:15 (585) **KINETIC DETERMINATION OF ORGANO-SULPHUR LIGANDS BY INHIBITION: TRACE DETERMINATION OF CYSTEINE AND MALEONITRILEDITHIOLATE (MNDT)**, SURENDRA PRASAD, The University of the South Pacific, Department of Chemistry, School of Pure and Applied Sciences, Suva, FIJI
- 3:30 (586) **CHARACTERISATION AND MODELLING OF OPTICAL SENSING FILMS FOR THE ANALYSIS OF GAS POLLUTANTS**, J. ALBERTO MORALES, John F. Cassidy, Dublin Institute of Technology, Lower Kevin Street, Dublin, Ireland
- 2:15 (587) **DIRECT ENVIRONMENTAL NO₂ ANALYSIS BY DIFFERENTIAL OPTICAL ABSORPTION SPECTROSCOPY USING A PORTABLE FIBER-OPTIC SPECTROMETER**, J. ALBERTO MORALES, J. E. Walsh, J. Treacy, W. E. Garland, Dublin Institute of Technology, Facility for Optical Characterisation and Spectroscopy, Lower Kevin Street, Dublin, Ireland
- 3:30 (588) **SPECTROSCOPIC ANALYSIS OF BLOOD CONSTITUENTS USING MULTI-VARIATE ANALYSIS**, RICHARD WILLIAMS, Genise P. Fleming (1), Alvin P. Kennedy (1), Busolo Wa Wabuye (2), and Guillermo A. Casay (3), Morgan State University, Chemistry Department, (1) Morgan State University, Chemistry Department, Baltimore MD 21251 (2) Battelle, 505 King Avenue, Columbus, OH 43201 (3) USP, 12601 Twinbrook Parkway, Rockville, MD 20852, Baltimore, MD, USA
- 2:15 (589) **PHOTOSTABILITY OF DYES ENCAPSULATED INSIDE SOL-GEL FILMS**, JENNIFER GUTSHALL, Amanda Nichols (1), Dr. Wai Tak Yip (2), Ohio Northern University, 402 W. College Ave Unit 1130, (1) Amanda Nichols (2) Dr. Wai Tak Yip, Oklahoma Christian University University of Oklahoma,

- 13900 Benson Rd. #215 620 Parrington Oval, Edmond, Oklahoma USA 73013 Room 208, Norman, Oklahoma USA 73019, Ada, OH, USA
- 3:30 (590) **TAPERED GE WAVEGUIDES AS A CHEMICAL SENSING TOOL**, JITRAPORN VONGSVIVUT, Mark S. Braiman, Center for Science and Technology, Chemistry Department, Syracuse University, Syracuse, New York USA
- 2:15 (591) **ENHANCED VIBRATIONAL CIRCULAR DICHROISM OF LOW-SPIN AZIDE-AND CYANIDE-BOUND METMYOGLOBINS**, DAVID DUNMIRE, Xiaolin Cao, Teresa B. Freedman, and Laurence A. Nafie, Syracuse University, Department of Chemistry, Syracuse, NY, USA
- 3:30 (592) **ELECTRONIC STRUCTURE EFFECTS ON THE INFRARED VIBRATIONAL CIRCULAR DICHROISM SPECTRA OF TRANSITION METAL COMPLEXES**, YANAN HE, Teresa B. Freedman and Laurence A. Nafie, Syracuse University, Department of Chemistry, Syracuse, NY, USA
- 2:15 (593) **IMPROVED SENSITIVITY AND ARTIFACT REDUCTION OF VIBRATIONAL CIRCULAR DICHROISM MEASUREMENT USING DUAL POLARIZATION MODULATION**, XIAOLIN CAO, Teresa B. Freedman and Laurence A. Nafie, Syracuse University, Department of Chemistry, Syracuse, NY, USA
- 3:30 (594) **ENANTIOMERIC EXCESS DETERMINATION USING VIBRATIONAL CIRCULAR DICHROISM**, CHANGNING GUO, Rekha D. Shah, Rina K. Dukor, Teresa B. Freedman and Laurence A. Nafie, Department of Chemistry, Syracuse University, Syracuse, NY, USA
- 2:15 (595) **INFLUENCE OF THERMAL HISTORY ON THE ORIENTATION OF POLYMER BLENDS STUDIED BY POLARIZATION MODULATION INFRARED SPECTROSCOPY**, CHRISTIAN PELLERIN, Robert E. Prud'homme, Michel Pezolet, Laval University, CERSIM, Chemistry Department, Quebec, QC, Canada
- 3:30 (596) **ESTIMATING THE PROPORTIONS OF CROP PLANT TISSUE FRACTIONS BY USE OF SPECTROSCOPY AND IMAGE ANALYSIS**, DOUGLAS D. ARCHIBALD, W. Herbert Morrison, III, Penn State University, 116 ASI Building, University Park, PA, USA
- 2:15 (597) **A MINIATURE INTERFEROMETER FOR FOURIER TRANSFORM INFRARED SPECTROMETRY**, DAVID W. SCHIERING, Kenneth C. Schreiber, Robert V. Burch, Donald K. Wilks, and John A. Reffner, SensIR Technologies, 15 Great Pasture Rd., Danbury, CT, USA
- 3:30 (598) **OPTIMIZATION OF ATR IMAGING APPLICATIONS FOR INFRARED MICROSPECTROSCOPY**, KENNETH KEMPFERT, Koichi Nishikida, Thermo Nicolet, 5335-5 Verona Rd, Madison, WI, USA
- 2:15 (599) **2D CORRELATION SPECTROSCOPY STUDIES OF TEMPERATURE-PERTURBED FLUORINATED SINGLE-WALLED CARBON NANOTUBES**, CHUL-HO SONG, Bo Zheng, Jie Liu, David Lindquist, Tito Viswanathan, and Wei Zhao, Department of Chemistry, University of Arkansas, 2801 South University Ave., Little Rock, AR, USA
- 3:30 (601) **LASER SPOT SIZE AND SPECTRAL AVERAGING EFFECTS ON QUANTITATIVE RAMAN SPECTROSCOPY AND MAPPING RESULTS APPLICATIONS TO PHARMACEUTICAL TABLETS AND BEADS**, FORREST WEESNER, Brian Coel, Thermo Nicolet, 5225 Verona Rd, Madison, WI
- 2:15 (602) **SURFACE ENHANCED RAMAN SPECTROSCOPY OF PEPTIDES USING COMMERCIALY AVAILABLE GOLD COLLOIDS**, ANITA JONES, Andrew Bell, Chris Dyer, Chemistry, Detection and Instrumental Analysis, Chemical and Biological Sciences Sector, dstl Porton Down, Salisbury, Wilts, UK
- 3:30 (603) **RAMAN SPECTROSCOPY AND CORRELATION METHODS FOR THE IDENTIFICATION OF PLASTIC MATERIALS**, P. EAGAN, C. Stevenson, I. Gornushkin, D. Pappas, B. W. Smith, J. D. Winefordner, University of Florida, PO Box 117200, Gainesville, FL, USA
- 2:15 (604) **PHOTOLYTIC SUPPRESSION OF BONE FLUORESCENCE WITH GREEN LIGHT**, DANA SHEA, Michael D. Morris, University of Michigan, Department of Chemistry, 930 N. University, Ann Arbor, MI, US
- 3:30 (605) **RAMAN MICROSPECTROSCOPIC STUDIES OF MINERALIZATION IN MURINE CALVARIAL OSTEOBLASTIC CULTURES**, SHONA STEWART, Dian Wang, Renny Franceschi, Michael D. Morris, University of Michigan, 930 N. University Ave, Ann Arbor, MI, USA
- 2:15 (606) **IN-SITU RAMAN SPECTROSCOPY OF METAL-ION COMPLEXATION BY SILICA-IMMOBILIZED LIGANDS**, RORY H. UIBEL, Joel M. Harris, University of Utah, 315 South 1400 E., Salt Lake City, UT, USA
- 3:30 (607) **NEW FINDINGS ON CHROMOPHORES GROUPS RESULTED IN DELIGNIFICATION**, QING SHEN, Dong Hua University, 1882 W. Yan An Rd., Shanghai, China
- 2:15 (608) **A STUDY OF THE KINETICS AND SELECTIVITY OF METAL ION SEQUESTRATION BY MULTI-LAYER POLYMER ASSEMBLIES**, JAYCODA S. MAJOR, G. J. Blanchard, Michigan State University, Department of Chemistry, East Lansing, MI
- 3:30 (609) **PROTEIN STRUCTURE ANALYSIS AND FOLDING/UNFOLDING STUDIES BASED ON NEW MICRO ATR SYSTEM**, BOKKYOO JUN, Lazaro Padron, Joe Lucania, Milan Milosevic, Christian P. Schultz, Bruker Optics Inc, 19 Fortune Drive, Manning Park, Billerica, MA, US
- 2:15 (610) **NEW INDICATOR REACTIONS FOR RAPID DETECTION OF SOME PSYCHOTROPIC SUBSTANCES IN INITIAL PRODUCTS AND READY-MADE PHARMACEUTICAL DRUGS**, REVOLD PANTALER, O. V. Gayduk, L. V. Gudzenko, T. I. Ivkova, A. B. Blank, Institute for Single Crystals of National Academy of Sciences of Ukraine, 60 Lenin Ave., Kharkov, UA, Ukraine
- 3:30 (611) **ENDOTHELIAL CELL GROWTH IN FUSED SILICA CAPILLARY TUBING: CREATING PHYSIOLOGICALLY RELEVANT REACTORS FOR CAPILLARY FLOW INJECTION**, DAMIAN KOTSIS, Dana Spence, Saint Louis University, 3501 Laclede Ave, St Louis, MO, USA
- 2:15 (612) **NIR MICROSCOPY: WHERE DO THE SPECTRAL CONTRIBUTIONS ACTUALLY COME FROM?**, FIONA CLARKE, Stephen Hammond, Roger Jee and Anthony Moffat, Pfizer, Ramsgate Road, Sandwich, Kent, UK
- 3:30 (613) **THEOPHYLLINE METABOLISM: FROM THE RECONSTITUTION SYSTEM TO THE ORGANISM**, VYACHESLAV LYAKHOVICH, Valentin Vavilin, Intitute of Molecular Biology & Biophysics, Timakova str., 2, Novosibirsk, Siberia, Russia

- 2:15 (614) **CALCULATION OF THE PARTITION COEFFICIENT AND HYDROPHOBIC MOMENT OF LYSOZYME**, FRANCISCO TORRENS, Universitat de Valencia, Inst. Ciencia Molecular, Dept. Quimica Fisica, Dr. Moliner-50, Burjassot (valencia), Spain
- 3:30 (615) **DEVELOPMENT OF DETERMINATION METHOD FOR HUMAN SKIN MOISTURE USING NEW PORTABLE NIR SYSTEM**, YOUNG-AH WOO, Jhii-Weon Ahn, Hyo-Jin Kim, College of Pharmacy, Dongduk Women's University, 23-1 Wolgok-Dong, Sungbuk-Gu, Seoul, Korea
- 2:15 (616) **RECENT ADVANCES WITH A SMALL-VOLUME FLOW-BASED IMMUNOASSAY UTILIZING PARAMAGNETIC PARTICLES**, ALLISON PHAYRE, Antonio A. Garcia, James J. Lee, Mark A. Hayes, Arizona State University, Department of Chemistry & Biochemistry, Box 871604, (1) Department of Bioengineering, Box 879709, Arizona State University, Tempe, AZ 85287-9709, (2) Mayo Clinic Scottsdale, SC Johnson Medical Research Center, 13400 East Shea Boulevard, Scottsdale, AZ 85259, Tempe, AZ, U S A
- 3:30 (617) **MULTIVARIATE ANALYSIS AND CHEMICAL IMAGING IN THE INVESTIGATION OF TISSUE PATHOLOGIES**, JOHN TURNER II, Anne O'Connor, Jing Zhang, Cleveland State University, 1983 East 24th Street, Cleveland, OH, USA
- 2:15 (618) **STUDIES ON FLUORIDE-SELECTIVE MEMBRANES FOR POTENTIOMETRIC SENSORS**, KAMIL WOJCIECHOWSKI, W. Wroblewski, A. Sulejczak Z. Brzozka R. J. M. Egberink, B. H. M. Snellink-Ruel and D. N. Reinhoudt, Warsaw University of Technology, Noakowskiego 3, Warsaw, Poland
- 3:30 (619) **DETERMINATION OF TRACE TETRAMETHYLAMMONIUM HYDROXIDE IN WASTEWATER BY ION CHROMATOGRAPHY**, QIANTAO CAI, Wei Zhang and Zhaoguang Yang, Environmental Technology Institute, Innovation Centre (NTU), Blk 2, Unit 237, 18 Nanyang Drive, Singapore, 637723, Singapore
- 2:15 (620) **ON ANALYZING CROSS CONTAMINATION OF SMIF POD ARISING FROM CORROSIVE OUTGASSING OF POST DRY ETCH WAFERS**, HUI-AN CHANG, Ching Lee, Tings Wang, ProMOS, No. 19 Li Hsin Rd., Science-Based Industrial Park, Hsinchu, Taiwan, R O C
- 3:30 (621) **MICRO-FLUIDIC DEVICE FOR THE SPECTROSCOPIC DETECTION OF AIRBORNE AROMATIC VOC-GASES**, YUKO UENO, Tsutomu Horiuchi, Osamu Niwa, NTT Lifestyle and Environmental Technology Laboratories, 3-1 Morinosato Wakamiya, Atsugi, Kanagawa, Japan
- 2:15 (622) **ICP/ MS: ENVIRONMENTAL SAMPLE ANALYSIS FOR THE LONG HAUL**, THOMAS RETTBERG, Susan Woods, Rob Henry, Thermo Elemental, 27 Forge Parkway, Franklin, MA, USA
- 3:30 (623) **COMPARATIVE SOFT EXTRACTION OF ARSENIC AND ANTIMONY COMPOUNDS FROM SOILS AND VEGETABLES IMPACTED BY MINING ACTIVITIES**, MARIA GABRIELA LOBOS, Edwar Fuentes, Hugo Pinochet, Ida De Gregori, and Martine Potin Gautier, Universidad Catulica de Valparaiso, Laboratorio de Quimica Analitica y Ambiental, Instituto de Quimica, Valparaiso, Chile
- 2:15 (624) **THE CHEMICAL SPECIATION OF CADMIUM AND LEAD IN CONTAMINATED SOILS**, INAAM ALI ABDALLA SAAD, Abdul Kariem Arof (1), Andul Hamid Yahay (2), University of Malaya, Institite of Postgraduate Studies and Research, (1) Physics Department, University of Malaya, 50603 Kuala Lumpur, (2) Chemistry Department, University of Malaya, 50603 Kuala Lumpur, Kuala Lumpur, K. L, Malaysia
- 3:30 (625) **DETERMINATION OF SOME SELECTED ORGANIC AND INORGANIC ACIDS BY ION CHROMATOGRAPHY IN A PRISTINE REGION OF VENEZUELA**, MAYANTINO GARABOTO, Zully Benzo, Eugenio Sanhueza, Instituto Venezolano de Investigaciones Cientificas, Carretera Panamericana Km 11 Altos de Pipe, (1) Centro de Quimica, Laboratorio de Quimica Analitica y Laboratorio de Quimica Atmosferica. IVIC., (2) UNEXPO-VR Barquisimeto, Av. Corpahuaico entre Av. La Salle y Av. Rotaria, Barquisimeto Lara, Caracas, DF, Venezuela
- 2:15 (626) **ELECTROSPRAY MASS SPECTROMETRY AS A POWERFUL TECHNIQUE FOR SPECIATION IN THE NUCLEAR FUEL CYCLE**, DENIS DOIZI, F. Allain, B. Amekraz, C. Lamouroux, G. Plancque, V. Steiner, C. Moulin, CEA, CE Saclay, DPC/SCPA/LAS20, B,t 391, Gif Sur Yvette, France
- 3:30 (627) **MICRO-AND PULSED-PLASMAS: FINE TUNING PLASMA ENERGIES FOR CHEMICAL ANALYSIS**, MATT MOSER, Cris Lewis, Wei Hang, Fred King, Vahid Majidi, Los Alamos National Laboratory, Chemistry Division, MS K484, Los Alamos, NM, USA
- 2:15 (628) **PRE-CONCENTRATION OF METAL IONS USING POLYMER PLASTICIZER MEMBRANES**, ALEXANDER NAZARENKO, Oliver K. Levi, Department of Chemistry, SUNY, College at Buffalo, 1300 Elmwood Ave, Buffalo, NY, USA
- 3:30 (629) **SAMPLE LOSS DUE TO MATRIX ARTIFACTS DURING THE EXTRACTION OF BIOLOGICALLY ACTIVE ORGANOSELENIUM COMPOUNDS**, MARK ROBERGE, John Finley, Tony Borgerding, University of North Dakota, Box 9024, Grand Forks, ND, USA
- 2:15 (630) **BACTERIAL ENDOSPORE DETECTION USING CAPILLARY ELECTROPHORESIS**, CRIS LEWIS, Laura Vanderberg, Christian Hassell and Vahid Majidi, Los Alamos National Laboratory, Los Alamos, NM 87545, Los Alamos, NM, USA
- 3:30 (631) **MERCURY SPECIATION IN SOILS USING MICROWAVE ASSISTED SOLVENT EXTRACTION (MASE) WITH ION CHROMATOGRAPHY SEPARATION AND INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY DETECTION**, QIANG TU, Eric Fischer, Mark Heintz, Willie Johnson, Stu Nagourney, Randy England, Brian Buckley, EOHSI, Rutgers University, 170 Frelinghuysen Road, Piscataway, NJ, USA
- 2:15 (632) **MERCURY SPECIATION AT SUBPPT LEVELS USING PRECONCENTRATION AND AN AUTOMATED HPLC (IC)- ICP/ MS SYSTEM**, JONATHON TALBOT, Illinois Waste Management & Research Center, 1 E. Hazelwood Drive, Champaign, IL
- 3:30 (633) **SIMULTANEOUS DETERMINATION OF IRON AND COPPER ON SOLID PHASE IN THE PRESENCE OF SURFACTANT BY SECOND DERIVATIVE SPECTROPHOTOMETRY**, PATRICIO LEYTON, Maria Ines Toral, Department of Chemistry, Faculty of Sciences, University of Chile, Las Palmeras P.O. Box 653, Santiago, Chile, Chile
- 2:15 (634) **HPLC COUPLED ON-LINE WITH SEQUENTIAL HYDRIDE GENERATION / PNEUMATIC NEBULIZATION (HG/PN) ICP/ MS FOR MULTI-ELEMENT SPECIATION**, STACEY ANDERSON, Maria Miguens-Rodriguez and Spiros Pergantis, School of Biological and Chemical Sciences,

- University of London, Gordon House, 29 Gordon Square, London, UK
- 3:30 (635) **PRELIMINARY WORK ON A 5 MICROLITER/MINUTE BURGNER NEBULIZER AS A CE/ ICP/ MS INTERFACE**, JOHN BURGNER, Yakov Kapusta, Burgener Research Inc., 1680-2 Lakeshore Road West, Activation Laboratories Ltd., 1336 Sandhill Drive, Ancaster, ON, Canada, L9G 4V5, Mississauga, ON, Canada
- 2:15 (636) **MOLECULAR LEVEL SURFACE STUDIES OF MODEL POLYMER BLEND SYSTEMS BY SUM FREQUENCY GENERATION (SFG)**, CHUNYAN CHEN, Jie Wang, Zhan Chen, Department of Chemistry, University of Michigan, 1531 Chemistry building, 931 N. University, Ann Arbor, MI, USA
- 3:30 (637) **LIGHT TRANSMISSION PROPERTIES OF GOLD-NANOPARTICLE IN GLASSES**, TAESAM KIM, Kangsup Jung, Joonsoo Kim, KIGAM, 30 Kajung Yousung, Taejon, Korea
- 2:15 (638) **SURFACE MOLECULAR STRUCTURES OF POLYMETHACRYLATES AND POLYACRYLATES WITH DIFFERENT ESTER ALKYL CHAINS STUDIED BY SUM FREQUENCY GENERATION (SFG) VIBRATIONAL SPECTROSCOPY**, JIE WANG, Chunyan Chen, Zhan Chen, Department of Chemistry, University of Michigan, 930 North university Ave. University of Michigan, Ann Arbor, MI, U S A
- 3:30 (639) **UNDERSTANDING SURFACE COVERAGE USING SURFACE SECOND HARMONIC GENERATION**, STEVE B. BAKIAMOH, G. J. Blanchard, Michigan State University, Department of Chemistry, East Lansing, MI
- 2:15 (640) **DEPTH PROFILE ANALYSIS BY LASER ABLATION INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY (LA- ICP/ MS) A COMPARISON OF WAVELENGTHS**, JOHN ROY, A. Plotnikov, C. Vogt, K. Wetzig, K. Lee, New Wave Research / Merchantek Products, 47613 Warm Springs Blvd, Fremont, CA
- 3:30 (641) **CHARACTERIZATION OF RESORCINOL-FORMALDEHYDE ORGANIC AEROGEL**, FARNOOSH MEHRABI, Mohammad Edrisi, AmirKabir (Polytechnic), Faculty of Chemical Engineering, Hafez Street, Tehran, Iran, Tehran, IRAN
- 2:15 (642) **SURFACE MODIFIED MICROCHANNELS: MANIPULATION OF ELECTROSMOTIC FLOW AND SEPARATION IN POLYCARBONATE MICROCHANNELS**, BIKAS VAIDYA, Z. McCarley, Louisiana State University, Department of Chemistry, Baton Rouge, LA, USA
- 3:30 (643) **PIN-PRINTED CHEMICAL SENSOR ARRAYS (PPCSA)**, EUN JEONG CHO, Michael Faughn, Carl C. Churchill, and Frank V. Bright, University at Buffalo, The State University of New York at Buffalo, Department of Chemistry, Natural Sciences Complex, Buffalo, NY, U S A
- 2:15 (644) **THE EFFECTS OF SUB-ZERO TEMPERATURES ON THE AFFINITY OF POLYCLONAL ANTI-DANSYL ANTIBODIES CONFINED WITHIN AEROSOL-OT REVERSE MICELLES**, CHASE MUNSON, Gary A. Baker, Sheila N. Baker, Frank V. Bright, University at Buffalo, The State University of New York, Department of Chemistry, Natural Sciences Complex, P.O. Box 603000, Buffalo, NY, USA
- 3:30 (645) **DETECTION OF STRESS-INDUCED ATP RELEASE FROM RED BLOOD CELLS USING A CONTINUOUS SAMPLING METHOD**, ROBERT SPRUNG, Elizabeth Bowles, Randy Sprague, Dana Spence, Saint Louis University, 3501 Laclede, St Louis, MO, USA
- 2:15 (646) **A RELIABLE REAL-TIME RATIONOMETRIC METHOD FOR THE DETERMINATION OF MOLECULAR OXYGEN INSIDE LIVING CELLS USING SPHERICAL OPTICAL NANOSENSORS**, HAO XU, Jonathan Aylott, Raoul Kopelman, University of Michigan, 930 N. University Ave., Ann Arbor, Michigan, U S A
- 3:30 (647) **FLUORESCENCE POLARIZATION FOR RAPID NUCLEOTIDE IDENTIFICATION**, YUAN YAN, M. L. Myrick, University of South Carolina, 631 Sumter St., Columbia, SC, USA
- 2:15 (648) **MOLECULAR BEHAVIOR OF ORGANIC POLYMER IN ELECTROLUMINESCENCE DEVICES BASED ON POLY(P-PHENYLENEETHYNYLENE)**, HONG LI, U. Evans, M. Doescher, A. R. Marshall, U. H. F. Bunz, and M. L. Myrick, University of South Carolina, 631 Sumter St., Columbia, SC, USA
- 3:30 (649) **USE OF STEADY-STATE FLUORESCENCE ANISOTROPY WITH PEBBLE NANOSENSORS FOR CHEMICAL ANALYSIS**, THOMAS HORVATH, Eric Monson, James Sumner, Hao Xu, Raoul Kopelman, The University Of Michigan, 930 N. University, Ann Arbor, MI, USA
- 2:15 (650) **MULTIVARIATE, PHOTOCHEMICAL-SPECTROFLUOROMETRIC ANALYSIS OF NATURALLY NON-FLUORESCENT PESTICIDES**, MICHELLE NAHORNIAK, Karl Booksh, Arizona State University, Department of Chemistry, Tempe, AZ, USA
- 3:30 (651) **GADOLINIUM AND TERBIUM CHELATE-CONTAINING NANOSPHERES FOR MAGNETIC RESONANCE AND LUMINESCENCE IMAGING**, TERESA ROBERTS, Maria Moreno, Martin Philbert, Raoul Kopelman, The University of Michigan, 930 N. University Avenue, Ann Arbor, MI, USA
- 2:15 (652) **MOLECULAR FLUORESCENCE SPECTROSCOPY: A TOOL FOR THE ELUCIDATION OF THE DIET OF FREE-RANGING HERBIVORES**, GARY RAYSON, (1) Timothy L. Danielson, D. M. Anderson, R. Estell, E. L. Fredrickson, K. M. Havsta, New Mexico State University, Box 30001 MSC JER, (1) Box 30001 MSC 3C, Las Cruces, NM 88003, Las Cruces, NM, USA
- 3:30 (653) **SIMULTANEOUS DETERMINATION OF NAPROXENATE, SALICYLATE AND SALICYLURATE IN HUMAN URINE THROUGH CHEMOMETRICS ENHANCED BY CYCLODEXTRIN INCLUSION**, GRACIELA ESCANDAR, Juan Arancibia, Alejandro Olivieri, National University of Rosario, Argentina, Suipacha 531, Rosario, Santa Fe, Argentina

**Thursday, 8:00 AM – 8:40 AM, Room W2-62
FEATURED PRESENTATION:
ROYAL SOCIETY OF CHEMISTRY ANALYTICAL
DIVISION I**

Presiding: Steve Hill

Organized by: Steve Hill

- 8:00 (654) **IMPROVED METROLOGY IN ICP/ MS**, BARRY SHARP, Abdulaziz S. Bashammakh, Matthew A. Dexter, Christopher P. Ingle, Helen J. Reid, Department of Chemistry, Loughborough University, Loughborough, Leicestershire, UK

Thursday, 8:50 AM – 11:10 AM, Room W2-62
ROYAL SOCIETY OF CHEMISTRY ANALYTICAL
DIVISION I

Presiding: Steve Hill

Organized by: Steve Hill

- 8:50 (655) **SPECIATION ANALYSIS USING ISOTOPE DILUTION ICP/ MS**, BEN FAIRMAN, Raimund Wahlen, Laboratory of the Government Chemist, Queens Road, Teddington, Middlesex, UK
- 9:10 (656) **ATOMIC ABSORPTION SPECTROMETRY- PROGRESSING STEADILY INTO THE FUTURE**, IAN SHUTTLE, Frank Portala, Ulrich Trommer, and Glen R Carnrick, Perkin Elmer Ltd., Chalfont Road, Seer Green, Beaconsfield, Bucks, UK
- 9:30 (657) **THE SIMULTANEOUS DETERMINATION OF HYDRIDE FORMING ELEMENTS BY 'IN ATOMIZER TRAPPING' ELECTROTHERMAL ATOMIC ABSORPTION SPECTROMETRY**, JAMES MURPHY, Phil Jones and Steve J. Hill, USDA, ARS, BHNRC, Food Composition Laboratory, Food Composition Laboratory, Bld 161, BARC-East, Powder Mill Road, Department of Environmental Sciences, University of Plymouth, Drake Circus, Plymouth, Devon, United Kingdom. PL 4 8AA., Beltsville, Maryland, USA
- 9:50 (658) **CHROMATOGRAPHY COUPLED WITH SECTOR-FIELD ICP/ MS-A POWERFUL COMBINATION**, HYWEL EVANS, Jason Truscott, Robert Clough and Simon Belt, University of Plymouth, Department of Environmental Sciences, PERC, Drake Circus, Plymouth, Devon, UK
- 10:10 **Coffee Break**
- 10:50 (659) **NEW APPROACHES TO RADIOCHEMISTRY** PHILLIP GOODALL, British Nuclear Fuels Ltd, B170 BNFL Sellafield, Seascale, Cumbria, UK

Thursday, 8:50 AM – 12:10 AM, Room W2-67
CHEMOMETRICS IN ENVIRONMENTAL AND
BIOLOGICAL ANALYSIS

Presiding: Barry Lavine

Organized by: Barry Lavine

- 8:50 (660) **THE STATE OF MULTIVARIATE THINKING FOR SCIENTISTS IN A DISCOVERY AND NETWORKING ENVIRONMENT**, JEROME WORKMAN, Kimberly-Clark Corporation, 2100 Winchester Road, Neenah, WI, USA
- 9:10 (661) **ADVANCED ALGORITHMS FOR FACTOR ANALYSIS OF COMPLEX DATA**, PHILIP HOPKE, J. - H. Wang, T. Hancewicz, and P. Paatero, Clarkson University, Box 5705, Potsdam, NY, USA
- 9:30 (662) **ADAPTABLE/ROBUST MULTIVARIATE CALIBRATION MODELS FOR SPECTRAL APPLICATIONS**, EDWARD THOMAS, Sandia National Laboratories, Mail Stop 0829, P.O. Box 5800, Albuquerque, NM, USA
- 10:10 **Coffee Break**
- 10:30 (663) **OPEN-PATH FT/ IR: IS COMPLETELY UNATTENDED OPERATION POSSIBLE?**, PETER GRIFFITHS, Husheng Yang, University of Idaho, Department of Chemistry, Moscow, ID, USA
- 10:50 (664) **GENETIC ALGORITHMS FOR PATTERN RECOGNITION AND MULTIVARIATE CALIBRATION**, BARRY LAVINE, Charles E. Davidson, Clarkson University, Department of Chemistry, Potsdam, NY, USA
- 11:30 (665) **APPLICATION AND CALIBRATION OF A FIELD PORTABLE, EXCITATION-EMISSION MATRIX FLUOROMETER FOR ANALYSIS OF ENVIRONMENTAL CONTAMINANTS**, KARL

BOOKSH, Michelle Nahorniak, Gary Cooper, Arizona State University, Department of Chemistry, Tempe, AZ, USA

- 11:50 (666) **OPTIMIZATION AND CALIBRATION OF MICROHOTPLATE CONDUCTOMETRIC GAS SENSORS**, BRIAN DABLE, Richard Cavicchi, Steve Semancik, Karl Booksh, Arizona State University, Mail Stop 1604, Tempe, AZ, USA

Thursday, 8:50 AM – 12:10 PM, Room W2-71
QUALITY IN ANALYTICAL ATOMIC SPECTROMETRY

Presiding: J.M. Mermet

Organized by: J.M. Mermet

- 8:50 (667) **VALIDATION OF ANALYTICAL PROCEDURES AND MEASUREMENT UNCERTAINTY OF RESULTS IN ATOMIC SPECTROMETRY**, WOLFHARD WEGSCHEIDER, University of Leoben, Franz-Josef-Str 18, Leoben, Austria
- 9:30 (668) **PLASMA SPECTROCHEMICAL METHODS FOR ACCURATE CHEMICAL ANALYSIS**, FREDDY ADAMS, Annemie Bogaerts, University of Antwerp (UIA), Universiteitsplein 1, Wilrijk, Belgium
- 10:10 **Coffee Break**
- 10:30 (669) **STATISTICAL QUANTIFICATION OF UNCERTAINTY ASSOCIATED WITH SINGLE ELEMENT REFERENCE MATERIALS**, RALPH OBENAUF, Nimi Kocherlakota, SPEX CertiPrep, 203 Norcross Avenue, Metuchen, NJ, USA
- 10:50 (670) **FULL SPECTRUM UTILIZATION FOR ICP/MS DIAGNOSIS**, ERIC SALIN, Hai Ying, Margaret Antler, John Tromp, Department of Chemistry, McGill University, 801 Sherbrooke St. W., Montreal, QC, Canada
- 11:10 (671) **DESIGNING AN ICP-OES EXPERIMENT FROM THE UNCERTAINTY BUDGET BACK**, MARC SALIT, NIST, 100 Bureau Drive, Stop 8391, Gaithersburg, MD, USA
- 11:30 (672) **HIGH PRECISION AND ACCURACY: CORRELATED, DRIFT CORRECTED INTERNAL STANDARDIZATION FOR ICP- OES VS ISOTOPE DILUTION ICP/ MS**, SAVELAS RABB, John W. Olesik, Susan V. Olesik, The Ohio State University, 275 Mendenhall Lab, 125 S. Oval Mall, Columbus, OH, US
- 11:50 (673) **QUALITY CONTROL IN THE MULTI-ELEMENT ANALYSIS OF TOTAL DIET SAMPLES BY ICP/ MS**, ROBERT DABEKA, Health Canada, Food Research Division 2203D, Ottawa, ON, Canada

Thursday, 8:50 AM – 12:10 PM, Room W2-65
COLLISIONS AND REACTION CELLS - ADVANCES IN
INSTRUMENTATION AND APPLICATIONS

Presiding: Joe Brenner

Organized by: Joe Brenner

- 8:50 (674) **COLLISION/REACTION CELLS IN THE REAL WORLD**, FADI ABOU-SHAKRA, A. Entwistle, J. Speakman, Z. Palacz, A. Eaton, Micromass UK Ltd, Floats Road, Wythenshaw, Manchester, United Kingdom
- 9:10 (675) **CCT AND SECTOR FIELD ICP/ MS, THE ULTIMATE IN INTERFERENCE RESOLUTION?**, STEVE GUILFOYLE, Simon Nelms, Patrick Miller, Thermo Elemental, Ion Path, Road Three, Winsford, Cheshire, England
- 9:30 (676) **CHARACTERIZING COLLISION CELL TECHNOLOGY OF ELIMINATION OF MOLECULAR INTERFERENCES IN LASER ABLATION ICP/ MS**, FERGUS KEENAN, Thermo Elemental, 27 Forge Parkway, Franklin, MA, USA
- 9:50 (677) **EXPANDING THE CAPABILITIES OF LASER ABLATION ICP/ MS WITH COLLISION AND REACTION CELL TECHNOLOGY**, PAUL MASON,

Faculty of Earth Sciences, Utrecht University, Budapestlaan
4, Utrecht, The Netherlands

10:10 **Coffee Break**

10:50 (678) **COMPARISON OF PERFORMANCE BETWEEN AN ESTABLISHED COLLISION CELL TECHNOLOGY ICP/ MS AND A NEW CCT MACHINE**, BARRY SHARP, Phil Shaw, Loughborough University, Dept. Chemistry, Loughborough, England

11:10 (679) **DETERMINATION OF V, CR AND AS IN 20% HCL AND ZN IN 10% H_2SO_4 BY DYNAMIC REACTION CELL ICP/ MS**, YOKO KISHI, Katsu Kawabata, PerkinElmer Instruments, 71 Four Valley Drive, Concord, ON, Canada

11:30 (680) **ION-MOLECULE REACTIONS TO ENHANCE ACCURACY AND DETECTION LIMITS IN ICP/ MS**, DEANNA JONES, John Olesik, Ohio State University, 125 S. Oval Mall 275 Mendenhall Laboratory, Columbus, OH, USA

11:50 (681) **DETERMINATION OF ALUMINUM, CHROMIUM, VANADIUM, AND MANGANESE IN SERUM**, DAVID NIXON, John A. Butz, Garry V. Austin, Steven J. Eckdahl, and Mary F. Burritt, Mayo Clinic, 200 First St SW, Rochester, MN, USA

Thursday, 8:50 AM – 12:10 PM, Room W1-54
ENVIRONMENTAL APPLICATIONS OF SPECIATION METHODS

Presiding: Olivier Donard Organized by: Olivier Donard

8:50 (682) **UNDERSTANDING THE BIOGEOCHEMISTRY OF ARSENIC AND MERCURY USING SPECIATION METHODS: TWO CASE STUDIES**, YONG CAI, Rudolf Jaffe, Lena Ma, Maria Sheils, Weihua Zhang, Ron Jones, Xiaoqiao Lu, and Kelsey Downum, Florida International University, Dept. Chem., University Park, Maimi, FL, USA

9:30 (683) **GC/ ICP/ MS FOR ORGANOTIN COMPOUNDS DETERMINATION IN OPEN OCEAN WATERS AND ITS APPLICATION TO VARIOUS MARINE ENVIRONMENTS**, HIROAKI TAO, Babu Rajendran Ramaswamy and Tetsuya Nakazato, National Institute of Advanced Science and Technology, 16-1 Onogawa, Tsukuba, Ibaraki, Japan

10:10 **Coffee Break**

10:50 (684) **NEW INSIGHTS IN MERCURY BIOGEOCHEMISTRY FROM STABLE ISOTOPE EXPERIMENTS**, HOLGER HINTELMANN, Vincent St. Louis, John Rudd, Carol Kelly, Steve Lindberg, Reed Harris, Dave Krabbenhoft, Jim Hurley, Trent University, 1600 West Bank Drive, Peterborough, ON, Canada

11:30 (685) **ISOTOPE FRACTIONATION IN THE BIOTIC ENVIRONMENT-HOW FAR CAN WE GO WITH SPECIATED ISOTOPE RATIO ANALYSIS?**, EVA M. KRUPP, LCABIE / CNRS UMR 5034, Helioparc, 2, Avenue P. Angot, 64053 Pau Cedex 9, France

Thursday, 8:50 AM – 12:10 PM, Room W2-64
NEW INVESTIGATORS IN ANALYTICAL SCIENCE: INNOVATIVE LEADERS IN THE NEW MILLENIUM IV

Presiding: Shane Street Organized by: David Butcher

8:50 (686) **ELECTROCHEMICALLY CONTROLLED SPACIAL SEPARATION BETWEEN AN ORGANIC LAYER AND A METAL SURFACE RESULTING IN UNUSUAL FLUORESCENCE CHARACTERISTICS**, DAN BIZZOTTO, Jeff Shepherd, Yanguo Yang, Robin Stoodley, Univ. of British Columbia, 2036 Main Mall, Vancouver, BC, Canada

9:10 (687) **SCANNING ELECTROCHEMICAL MICROSCOPY OF MONOLAYER PROTECTED**

METAL CLUSTERS, DAVID CLIFFEL, Rachel Peterson, Vanderbilt University, VU Station B 351822, Nashville, TN, USA

9:30 (688) **EXPLORING NANOSTRUCTURED FUNCTIONAL MATERIALS AS NOVEL ANALYTICAL PLATFORMS**, CHUAN-JIAN ZHONG, State University of New York at Binghamton, Department of Chemistry, Binghamton, NY, USA

9:50 (689) **APPLICATION OF SILVER NANOPARTICLES IN MULTIANALYTE IMMUNOASSAYS**, GEORGE CHUMANOV, Anselm Omoike, Clemson University, Department of Chemistry, Clemson, SC, USA

10:10 **Coffee Break**

10:30 (690) **MICROVISUALIZATION OF HETEROGENEOUS ION/CHARGE TRANSFER REACTIVITY IN METAL OXIDE THIN FILMS**, KEITH STEVENSON, Todd McEvoy, Department of Chemistry and Biochemistry, University of Texas at Austin, Mail Code A5300, Austin, TX, USA

10:50 (691) **SURFACE SCIENCE STUDY OF QUINONE STRUCTURES ON IRON**, SHANE STREET, A. B. Helms, The University of Alabama, Box 870336, Tuscaloosa, AL, USA

11:10 (692) **INVESTIGATING ORDER IN GUEST-HOST SYSTEMS USING SOLID-STATE NMR**, LARRY BECK, University of Michigan, Department of Chemistry, Ann Arbor, MI

11:30 (693) **APPLICATION OF CAVITY RING-DOWN LASER ABSORPTION SPECTROSCOPY IN GAS-PHASE TRACE SPECIES ANALYSIS**, JINGSONG ZHANG, Liming Wang, Department of Chemistry, University of California, Riverside, CA, USA

11:50 (693A) **MELTING POINT DEPRESSIONS IN SUPERCRITICAL CO₂**, SCOTT WALLEN, P. Raveendran, M. A. Blatchford, E. D. Dawson, University of North Carolina, Venable and Kenan Laboratories, Chemistry, CB#3290, Chapel Hill, NC, USA

Thursday, 8:50 AM – 12:10 PM, Room W2-70
NEW CHALLENGES FOR MEMBRANE INTRODUCTION MASS SPECTROMETRY

Presiding: Philip Hemberger Organized by: Philip Hemberger

8:50 (694) **EMERGING CONTAMINANTS: WHAT ARE THE CURRENT 'HOT' ENVIRONMENTAL POLLUTANTS AND WHAT IS NEXT?**, SUSAN D. RICHARDSON, Edward T. Furlong, U.S. Environmental Protection Agency, National Exposure Research Laboratory, 960 College Station Rd., Athens, GA, USA

9:30 (695) **TECHNIQUES AND APPLICATIONS OF MEMBRANE INTRODUCTION MASS SPECTROMETRY**, TODD ALLEN, Isotag Technology, Inc., 113 Longview Drive, Los Alamos, NM, USA

10:10 **Coffee Break**

10:50 (696) **MEMBRANE INTRODUCTION MASS SPECTROMETRY ON UNMANNED UNDERWATER VEHICLES**, GOTTFRIED KIBELKA, R. T. Short, D. P. Fries and R. H. Byrne, Center for Ocean Technology/ University of South Florida, 140 Seventh Avenue South, St. Petersburg, FL, USA

11:10 (697) **EVALUATION OF ZEOLITE MEMBRANE INLET MASS SPECTROMETRY FOR INDUSTRIAL PROCESS MONITORING**, KEVIN H. BENNETT (1), Kelsey D. Cook(2), (1) Hood College, 401 Rosemont Ave, (2) Department of Chemistry, University of Tennessee, Knoxville, TN, USA, Frederick, MD, USA

- 11:30 (698) **DEVELOPMENT OF NOVEL MEMBRANE INTERFACES FOR ON-LINE MONITORING OF TRACE LEVEL ENVIRONMENTALLY SIGNIFICANT ORGANIC COMPOUNDS IN AIR AND WATER MATRICES**, LEAH RITER, Zoltan Takats, and R. Graham Cooks, Purdue University, 1393 Brown Building, Box 624, West Lafayette, IN, USA
- 11:50 (699) **THE CONVOLUTED PATH TO REGULATORY ACCEPTANCE OF ANALYTICAL TECHNOLOGIES: A CASE STUDY-DIRECT SAMPLING ION TRAP MASS SPECTROMETRY**, CYRIL V. THOMPSON, Marcus B. Wise, Rob R. Smith, William M. Davis, Roosevelt Meriweather, Kevin J. Hart, and Michael R. Guerin, Oak Ridge National Laboratory, P. O. Box 2008, Bldg. 4500-S, MS-6120, Oak Ridge, TN, USA

**Thursday, 8:50 AM – 12:10 PM, Room W2-69
NIR-FTIR-RAMAN AT THE OK CORRAL**

Presiding: Bruce McIntosh Organized by: Ernie Baughman

- 8:50 (700) **CLOSED LOOP CONTROL OF TITANIUM DIOXIDE PRODUCTION WITH PROCESS RAMAN ANALYSIS**, NEIL EVERALL, Ian Clegg, Bert King, ICI PLC, Wilton Research Centre, Wilton, Middlesbrough, England UK
- 9:10 (701) **WHY RAMAN? BENEFITS AND LIMITATIONS COMPARED TO OTHER MEASUREMENT TECHNOLOGIES**, MICHAEL PELLETIER, Kaiser Optical Systems, Inc., P.O. Box 983, Ann Arbor, MI, USA
- 9:30 (702) **ON-LINE DRYER END POINT DETERMINATION WITH PROCESS FTNIR DIFFUSE REFLECTANCE SPECTROSCOPY**, STEVEN SWITALSKI, Todd Colin, Neil Redden, Vijay Parthasarathy, Alan Conine, Eastman Kodak Company, Bldg. 82 Floor 1 MC-02136, Rochester, NY, US
- 9:50 (703) **PROCESS FT/IR APPLICATIONS USING NEW SAMPLING TECHNOLOGIES**, BRUCE MCINTOSH, W. M. Doyle Phd, Orbital Sciences Corp. Applied Instrument Technologies, 2771 N. Garey Ave., Pomona, CA, USA
- 10:10 **Coffee Break**
- 10:50 (704) **USING NIR SPECTROSCOPY FOR ON-LINE CHEMICAL ANALYSIS USED FOR PROCESS CONTROL IN A REFINERY**, TIMOTHY M. DAVIDSON, BP Laboratory Carson Refinery, 1801 E Sepulveda Blvd., Carson, CA, USA
- 11:10 (705) **IN SITU GAS-PHASE OPTICAL MEASUREMENTS OF SILANE DECOMPOSITION IN A THERMAL CHEMICAL VAPOR DEPOSITION REACTOR**, WILBUR HURST, J. E. Maslar, D. M. Kremer, and S. H. Ehrman, Nat'l Inst. of Standards and Technology, 100 Bureau Drive Stop 8360, Gaithersburg, MD, USA
- 11:30 (706) **COMPARISON OF MOLECULAR SPECTROMETRY TECHNIQUES FOR 'ON-LINE' MONITORING OF A HETEROGENEOUS REACTION**, COLIN A. MCGILL, Alison Nordon, David Littlejohn, University of Strathclyde, Dept. P&A Chemistry, 295 Cathedral Street, Glasgow, United Kingdom
- 11:50 (707) **WHY THE PIONIR 1024 WAS BORN**, ERNIE BAUGHMAN, Orbital, 2771 N. Garey, Pomona, CA, USA

**Thursday, 8:50 AM – 12:10 PM, Room O2-33
TRANSIENT VIBRATIONAL SPECTROSCOPY**

Presiding: James Brozik Organized by: James Brozik

- 8:50 (708) **TRANSIENT VIBRATIONAL SPECTROSCOPIC STUDIES OF CHARGE TRANSFER PROCESSES IN INORGANIC SYSTEMS**, ANDREW SHREVE, Los Alamos National Laboratory, MS G755, Los Alamos, NM, US
- 9:30 (709) **APPLICATIONS OF TIME-RESOLVED RESONANCE RAMAN SPECTROSCOPY IN ENVIRONMENTAL CHEMISTRY**, PHILIP REID, Univ. of Washington, Box 351700, Dept. of Chemistry, Seattle, WA, USA
- 10:10 **Coffee Break**
- 10:50 (710) **INITIAL COMMISSIONING OF A TIME-RESOLVED FT/IR BEAMLINE AT THE DUKE FREE ELECTRON LASER LABORATORY**, M. SHANE HUTSON, Richard A. Palmer and Glenn Edwards, Department of Chemistry, Duke University, Box 90354, Durham, NC, USA
- 11:30 (711) **STEP-SCAN TRIR IN LOW TEMPERATURE GLASSES AND PLASTICS**, JAMES BROZIK, The University of New Mexico, The Department of Chemistry, Clark Hall Room 103, Albuquerque, NM, USA

**Thursday, 8:50 AM – 12:10 PM, Room W2-63
COHERENT TWO-DIMENSIONAL VIBRATIONAL SPECTROSCOPY II**

Presiding: David Jonas Organized by: John Wright

- 8:50 (712) **ULTRAFAST THREE DIMENSIONAL SPECTROSCOPY OF VIBRATIONAL ENERGY RELAXATION IN LIQUIDS**, DANA DLOTT, University of Illinois at Urbana-Champaign, Box 01-6 CLSL, 600 S. Goodwin Ave., Urbana, IL, USA
- 9:30 (713) **ULTRAFAST INFRARED 2D VIBRATIONAL ECHO SPECTROSCOPY: DYNAMICS AND INTERMOLECULAR INTERACTIONS IN MOLECULAR SYSTEMS**, MICHAEL D. FAYER, Kusai A. Mechant, David E. Thompson, Stanford University, Department of Chemistry, Stanford University, Stanford, CA, USA
- 10:10 **Coffee Break**
- 10:30 (714) **TIME DOMAIN TWO-DIMENSIONAL RESONANT PUMP-NONRESONANT PROBE SPECTROSCOPY**, DAVID BLANK, Sarah Schmitke, David Underwood, Department of Chemistry, University of Minnesota, 207 Pleasant St. SE, Minneapolis, MN, USA
- 11:10 (715) **MULTIDIMENSIONAL INFRARED SPECTROSCOPY OF STRUCTURAL FLUCTUATIONS AND FOLDING OF BETA-PEPTIDES**, SHAUL MUKAMEL, S. Scheurer and A. Piryatinski, University of Rochester, P. O. RC Box 270216, Rochester, NY, USA
- 11:50 (716) **NEW DEVELOPMENTS ON COHERENT ANTI-STOKES RAMAN SCATTERING (CARS) MICROSCOPY VIBRATIONAL IMAGING AND SPECTROSCOPY WITH HIGH SENSITIVITY**, ANDREAS VOLKMER, Ji-Xin Cheng, Lewis D. Book, X. Sunney Xie, Harvard University, Department of Chemistry and Chemical Biology, Cambridge, MA

**Thursday, 8:50 AM – 12:10 PM, Room W2-68
MULTIPHOTON SPECTROSCOPY AND IMAGING**

Presiding: Dan Higgins Organized by: Dan Higgins

- 8:50 (717) **MULTIPHOTON SPECTROSCOPY IN ZEPTOLITER VOLUMES USING OPTICAL ENHANCEMENT**, DANIEL LARSON, Michael Levene, Stephen Turner, Harold Craighead, Watt Webb, Cornell University, 212 Clark Hall, Applied and Engineering Physics, Ithaca, NY, USA

9:30 (718) **HIGH-SPEED ELECTROPHORETIC ANALYSIS OF MULTIPHOTON-EXCITED PHOTOCHEMICAL REACTIONS**, JASON SHEAR, Mary Jane Gordon, Eric Okerberg, Michael Gostkowski, University of Texas, Dept. of Chemistry & Biochemistry, The University of Texas, Austin, TX, USA

10:10 **Coffee Break**

10:30 (719) **USING MULTIPHOTON EXCITATION STRATEGIES FOR CHEMICAL ANALYSIS OF THINGS AS THEY ARE**, FRANK V. BRIGHT, University at Buffalo, The State University at New York, 511 Natural Sciences Complex, Buffalo, NY, USA

11:10 (720) **MULTIPHOTON EXCITED FLUORESCENCE IMAGING, SPECTROSCOPY AND DYNAMICS IN MESOSTRUCTURED COMPOSITE THIN FILM MATERIALS**, DANIEL HIGGINS, Gerald H. Springer, Brenda J. Luther, Kansas State University, Department of Chemistry, Manhattan, KS, USA

11:50 (721) **OPTICAL SENSOR ARRAY AND INTEGRATED LIGHT SOURCE (OSALS)**, EUN JEONG CHO, Frank V. Bright, University at Buffalo, Department of Chemistry, Natural Sciences Complex, Buffalo, NY, U S A

**Thursday, 8:50 AM – 11:30 AM, Room W2-58
ANALYSIS IN THE AUTO INDUSTRY I**

Presiding: Patsy Coleman Organized by: Patsy Coleman

8:50 (722) **ANALYTICAL METHODS FOR SAMPLING AND CHARACTERIZING PARTICLE EMISSIONS FROM CURRENT AND FUTURE TECHNOLOGY VEHICLES**, MATTI MARICQ, Ford Motor Co., P.O. Box 2053, Mail Drop 3083, Dearborn, MI, USA

9:30 (723) **RAPID SPECIATION OF HYDROCARBONS IN AUTOMOBILE EXHAUST USING HIGH SPEED, HIGH RESOLUTION GAS CHROMATOGRAPHY**, KEITH L. OLSON, Jeffrey F. Loo, Patricia A. Mulawa, Joaquin A. Lubkowitz (1), GM R&D and Planning, 30500 Mound Rd. / Mail Code: 480-106-320, (1) Separation Systems, Inc., Warren, MI, USA

9:50 (724) **EVAPORATIVE EMISSIONS FROM MOTOR VEHICLES - USING HYDROCARBON SPECIATION AS A DIAGNOSTIC TOOL**, WALTER SIEGL, Edward W. Kaiser, Ford Motor Co., 1560 Beaver Street, Dearborn, MI, USA

10:10 **Coffee Break**

10:50 (725) **RADIATIVE FORCING OF GLOBAL CLIMATE BY CFC REPLACEMENTS**, TIM WALLINGTON, M. D. Hurley, K. Sihra, K. P. Shine, Ford Motor Company, 20000 Rotunda Drive, Mail Drop SRL3083, Dearborn, MI, USA

11:10 (726) **MULTIELEMENTAL/MULTIDIMENSIONAL CHEMICAL DESCRIPTION OF MAJOR CONSTITUENTS AND POISONOUS ELEMENTS IN THREE-WAY AUTOMOBILE CONVERTERS BY IMAGING MODE LASER-INDUCED PLASMA SPECTROSCOPY**, JOSE M. VADILLO, Patricia Lucena, J. Javier Laserna, Universidad de Melaga, Departamento de Quimica Analitica, Facultad de Ciencias, Melaga, Spain

**Thursday, 8:50 AM – 11:50 PM, Room O2-44
APPLICATIONS OF ENHANCED RAMAN SPECTROSCOPIC TECHNIQUES**

Presiding: Ewen Smith

8:50 (727) **CONVENTIONAL RAMAN AND RESONANCE RAMAN SPECTROSCOPY AS NOVEL IDENTIFICATION TOOLS IN COLUMN LIQUID CHROMATOGRAPHY**, REYER DIJKSTRA, Freek

Ariese, Udo A. Th. Brinkman, Cees Gooijer, Free University Amsterdam, De Boelelaan 1083, Amsterdam, The Netherlands

9:10 (728) **CAPILLARY ELECTROPHORESIS IN A WAVEGUIDING CHANNEL: CONTROL OF SURFACE AND THERMAL PROBLEMS OF TEFLON AF 2400**, OBIANUJU INYA-AGHA, Shona Stewart, M. D. Morris, University of Michigan Ann Arbor, 930 N University Drive, Ann Arbor, MI, USA

9:30 (729) **DETECTION OF DRUGS OF ABUSE BY SURFACE ENHANCED RAMAN SCATTERING (SERS)**, KAREN FAULDS, Duncan Graham, Richard Lacey and W. E. Smith, University of Strathclyde, Dept. of Pure and Applied Chemistry, 295 Cathedral St., Glasgow, Scotland, UK

9:50 (730) **THE DETERMINATION OF TRIAZINE PESTICIDES USING SERS SUBSTRATES**, YVONNE CARELLA, Christine M. Davidson, W. Ewen Smith, University of Strathclyde, Department of Pure & Applied Chemistry, 295 Cathedral Street, Glasgow, Scotland

10:10 **Coffee Break**

10:50 (731) **REMOTE DETECTION USING SURFACE ENHANCED RESONANCE RAMAN SCATTERING**, ALLIE MCCABE, Grant Thompson, Geoff Ashcroft, Brian F. Foulger, W. Ewen Smith, University Of Strathclyde, 295 Cathedral Street, Glasgow, United Kingdom

11:10 (732) **ELECTROCHEMICAL SURFACE ENHANCED RESONANCE RAMAN SCATTERING OF DYES**, RACHAEL LITTLEFORD, Geoffrey Dent, W. Ewen Smith, University of Strathclyde, Department of Pure and Applied Chemistry, Thomas Graham Building, 295 Cathedral Street, Glasgow, Scotland

11:30 (733) **SURFACE ENHANCED RESONANCE RAMAN SCATTERING FROM IMMOBILISED SILVER COLLOIDAL SURFACES**, IMRAN KHAN, W. E. Smith, Strathclyde University, 295 Cathedral Street, Glasgow, Scotland

**Thursday, 8:50 AM – 12:10 PM, Room W2-61
NOVEL SORBENTS AND OTHER ADVANCES IN MICROSCALE SEPARATIONS**

Presiding: Vincent Remcho Organized by: Vincent Remcho

8:50 (734) **EVALUATION OF THE ORIGINS OF THE SELECTIVITY OF POLYMERS IMPRINTED WITH A HIV PROTEASE INHIBITOR USING INFRARED SPECTROSCOPY AND HIGH PERFORMANCE LIQUID CHROMATOGRAPHY**, THOMAS O'BRIEN, Nelu Grinberg, Nicholas H. Snow, Gary Bicker, Jean Wyratt, Merck and Co., PO Box 2000 RY818-C208, Rahway, NJ, USA

9:30 (735) **HARNESSING MICROSCALE SEPARATIONS TO STUDY CARDIOVASCULAR DISEASE**, LISA HOLLAND, P. Liu, A. M. Raber, Chemistry Department, Kent State University, Williams Hall, Kent, OH, USA

10:10 **Coffee Break**

10:30 (736) **LIQUID CHROMATOGRAPHY AND ELECTROCHROMATOGRAPHY: HOW TO HANG RETENTIVE LIGANDS TO ACHIEVE SEPARATION**, MARK SCHURE, Rohm and Haas Company, 727 Norristown Road, Springhouse, PA, USA

11:10 (737) **DYNAMICS OF MICRO-AND NANOCONFINED LIQUIDS: PROBING THE LIMITS OF EFFICIENCY IN LIQUID CHROMATOGRAPHY**, VINCENT T REMCHO, Patrick T. Vallano, Gabriela S. Chirica, and Angela Doneanu, Oregon State University, Department of Chemistry, Corvallis, OR

11:50 (738) **QUANTITATIVE ANALYSIS OF CONFOCAL IMAGES OF SEPARATIONS IN CAPILLARY ELECTROCHROMATOGRAPHY**, MARK LOWRY, Lei Geng, University of Iowa, 203 CB, Iowa City, IA, USA

**Thursday, 8:50 AM – 12:10 PM, Room W2-66
ANALYTICAL CHEMISTRY AT NATIONAL
LABORATORIES: EXTREME ANALYSIS UNDER
EXTREME CONDITIONS I**

Presiding: Vahid Majidi Organized by: Vahid Majidi

8:50 (739) **DEFINING EXTREME CONDITIONS: WHAT DOES IT TAKE TO WORK AT A NATIONAL LABORATORY**, VAHID MAJIDI, Los Alamos National Laboratory, Chemistry Division, MS G740, Los Alamos, NM, US

9:10 (740) **AUTOMATED ANALYSIS OF ENERGY DISPERSIVE X-RAY SPECTRUM IMAGES**, MICHAEL R. KEENAN, Paul G. Kotula, Sandia National Laboratories, MS0886, P.O. Box 5800, Albuquerque, NM, USA

9:50 (741) **MATERIAL CHARACTERIZATION OF HOT AND COLD SAMPLES USING MICRO X-RAY FLUORESCENCE**, GEORGE HAVRILLA, Los Alamos National Laboratory, MS G740, Los Alamos, NM, USA

10:10 **Coffee Break**

10:50 (742) **ELECTROCHEMISTRY COUPLED ON-LINE WITH MASS SPECTROMETRY**, GARY VAN BERKEL, Oak Ridge National Laboratory, P.O. Box 2008/Bldg 5510, Oak Ridge, TN, USA

11:30 (743) **MOLECULAR SIGNATURE BY SITE-SPECIFIC MASS TAGGING FOR THE ANALYSES OF BIOMOLECULAR COMPLEXES**, XIAN CHEN, Vahid Majidi, Tom Hunter, Los Alamos National Lab, Bioscience Division, MS M888, Los Alamos, NM, USA (80)

**Thursday, 1:20 PM – 4:40 PM, Room W2-71
ADVANCES IN ATOMIC SPECTROSCOPY
INSTRUMENTATION II**

Presiding: Doug Shrader

1:20 (744) **SAMPLE PREPARATION AND INTRODUCTION CONSIDERATIONS FOR CLINICAL ANALYSIS BY ICP/MS**, BILL SPENCE, Karen Lee, Thermo Elemental, Ion Path, Road Three, Winsford, Cheshire, England

1:40 (745) **'DILUTE-AND-SHOOT' ANALYSIS OF SALINE WATERS BY ICP/MS**, BILL SPENCE, Karen Lee, Thermo Elemental, Ion Path, Road Three, Winsford, Cheshire, England

2:00 (746) **DETERMINATION OF MAJOR CONSTITUENTS IN MILK POWDER UTILIZING FAST SEQUENTIAL ATOMIC ABSORPTION SPECTROMETRY**, DOUG SHRADER, John Sanders, Eric Vanclay, Varian, Inc., 201 Hansen Court, Suite 108, Wood Dale, IL, USA

2:20 (747) **SINGLE STANDARD CALIBRATION AND ON-LINE OVER RANGE DILUTION OF ORGANIC BASED SAMPLES USING AN INNOVATIVE DILUTION SYSTEM FOR FLAME ATOMIC ABSORPTION SPECTROMETRY**, DOUG SHRADER, John Sanders, Eric Vanclay, Varian, Inc., 201 Hansen Court, Suite 108, Wood Dale, IL, USA

2:40 **Coffee Break**

3:20 (748) **SIMPLE ANALYSIS OF ORGANIC PHOTORESISTS AND OTHER COMPLEX LIQUIDS BY HIGH RESOLUTION ICP/MS**, THOMAS RETTBERG, Thermo Elemental, 27 Forge Parkway, Franklin, MA, USA

3:40 (749) **TAKING MICROWAVE ASSISTED CLOSED VESSEL SAMPLE DIGESTION PROCEDURES INTO THE ROUTINE LAB V FACTS AND FICTION**, PETER KAINRATH, Peter Kettisch, Markus Lafer, PerkinElmer Bodenseewerk, Alte Nussdorfer Strasse 21, Anton Paar GmbH, Kaerntner Strasse 322, A 8022 Graz, Austria, Ueberlingen, Germany

4:00 (750) **ADVANCEMENTS IN MICROWAVE VESSEL TECHNOLOGY FOR THE DIGESTION OF LARGE SAMPLE SIZES IN INDUSTRIAL HYGIENE APPLICATIONS**, JAY LEAZER, Elaine Hasty, CEM Corp, 3100 Smith Farm Rd, Matthews, NC, US

4:20 (751) **ADVANCED CLEAN CHEMISTRY TECHNIQUES FOR CONTROLLING THE ANALYTICAL BLANK IN TRACE ANALYSIS**, ROBERT RICHTER, Milestone Inc., 160B Shelton Road, Monroe, CT, US

**Thursday, 1:20 PM – 4:40 PM, Room W2-67
CHEMOMETRICS IN INDUSTRY**

Presiding: Randy Pell Organized by: Randy Pell

1:20 (752) **A FILTER PHOTOMETER WITH CHEMOMETRIC CAPABILITIES: DEVELOPING SOLUTIONS FOR ON-LINE PROBLEMS**, NELSON LYTTLE, Don S. Goldman (1), Dow Corning, Mail # 500, (1) Optical Solutions, Inc., Midland, MI, USA

2:00 (753) **AUGMENTED CLASSICAL LEAST SQUARES METHODS FOR IMPROVED QUANTITATIVE SPECTRAL ANALYSES**, DAVID M. HAALAND, David K. Melgaard, Christine M. Wehlburg, and Laura E. Martin, Sandia National Laboratories, MS0886, Albuquerque, NM, USA

2:40 **Coffee Break**

3:00 (754) **K NEAREST NEIGHBOR CLASSIFICATION COUPLED WITH A PREDICTION DIAGNOSTIC TOOL**, BRYANT LAFRENIERE, Mary Beth Seasholtz, Ken Beebe, and Rob Guenard, The Dow Chemical Company, 1897 S Building, Midland, MI, USA

3:20 (755) **AUTOMATED VARIABLE SELECTION FOR MULTIVARIATE CALIBRATION**, MARY BETH SEASHOLTZ, Riccardo Leardi, Randy Pell, The Dow Chemical Company, 1897 Building, Midland, MI, USA

3:40 (756) **MULTIPLE OUTLIER DETECTION FOR MULTIVARIATE CALIBRATION USING ROBUST STATISTICAL TECHNIQUES**, RANDY PELL, Mary Beth Seasholtz, The Dow Chemical Company, Analytical Science Laboratory 1897S Building, Midland, MI, USA

4:00 (757) **THINKING OUTSIDE THE BOX- ALTERNATIVES FOR STABLE MODEL DESIGN**, JEREMY SHAVER, Barry Wise, Neal Gallagher, Eigenvector Research, Inc., PO Box 561, Manson, WA

4:20 (758) **CHANGING THE WAY A REFINERY LABORATORY DOES BUSINESS USING FOURIER TRANSFORM INFRARED ANALYSIS**, DANIEL MERTENS, Ultramar, Incorporated, 150 Solano Way, Martinez, CA, USA

**Thursday, 1:20 PM – 4:40 PM, Room W2-61
GAS AND LIQUID CHROMATOGRAPHY**

Presiding: Subra Muralidharan

1:20 (759) **A SUBPROTEOMIC APPROACH FOR THE CHARACTERIZATION OF HYDROPHOBIC PROTEINS IN CANCER CELL LINES USING RP-HPLC WITH ESI-OATOF-MS AND MALDI-MS**, KIMBERLY O'NEIL, David M. Lubman, University of Michigan, 930 N. University, Ann Arbor, MI, USA

- 1:40 (760) **DETERMINATION OF HYALURONAN AND CHONDROITIN SULFATES EXTRACTED FROM SHARK CARTILAGE BY HPLC**, BAO LUNJUN, Liang Weida, Wu Hongzhong, CIQ of Guangzhou, 66 Huacheng Ave., Zhujiang New Town, Guangzhou, Guangdong, P R China
- 2:00 (762) **DISTRIBUTION OF PYRENE DERIVATIVE MOLECULES IN THE C₁₈ STATIONARY PHASE IN CAPILLARY ELECTROCHROMATOGRAPHY PROBED BY IN SITU TIME-RESOLVED FLUORESCENCE SPECTROSCOPY IN THE FREQUENCY DOMAIN**, LEI GENG, Yan He, The University of Iowa, Department of Chemistry, Iowa City, IA, USA
- 2:20 (763) **USE OF SUPERCRITICAL FLUID EXTRACTION IN THE QUANTITATIVE DETERMINATION OF ORGANOSULFUR COMPOUNDS IN ALLIUM VEGETABLES**, MICHAEL E. RYBAK, Elizabeth M. Calvey, James M. Harnly, USDA, Agricultural Research Service, Beltsville Human Nutrition Research Center, Food Composition Laboratory, Building 161-East, Beltsville, MD, USA
- 2:40 **Coffee Break**
- 3:20 (764) **HIGH-SPEED GC ANALYSIS OF ESSENTIAL OILS USING STOP FLOW OPERATION OF A TANDEM COLUMN ENSEMBLE AND TOF- MS DETECTION**, TINCUTA VERIOTTI, Richard Sacks, University of Michigan, 930 N. University, Ann Arbor, MI, USA
- 3:40 (765) **MULTIRESIDUE ANALYSIS OF 4 PESTICIDES IN LYCHEES BY CAPILLARY GAS CHROMATOGRAPHY**, CHENG FALIANG, Ruan Xiangyuan, Appl Chem Dept, Dongguan Polytech University, 139 Xueyuan Road, Dongguan, Guangdong, P R China
- 4:00 (766) **ORGANIZED MOLECULAR SELF-ASSEMBLIES FOR METAL ION RECOGNITION**, SUBRA MURALIDHARAN, Hong Cao, Elena Hofman, Jun Yang, and Hengli Ma, Western Michigan University, Department of Chemistry, 3120 Wood Hall, Kalamazoo, MI, USA
- 4:20 (767) **USING COMPUTER MODELING TECHNIQUES FOR THE DEVELOPMENT OF GAS CHROMATOGRAPHIC STATIONARY PHASES AND COLUMNS**, FRANK DORMAN, Paul D. Schettler (1), Chris M. English, Restek Corporation, 110 Benner Circle, (1) Department of Chemistry, Juniata College, 1700 Moore St., Huntingdon, PA 16652, Bellefonte, PA, USA
- 2:20 (771) **SOLVING SOME DIFFICULT PROBLEMS IN THE ANALYSIS OF TRACE METALS IN MARINE SEDIMENTS**, STEVE WILBUR, Johan Schijf, Agilent Technologies, 3380 146th Place SE, Suite 300, Bellevue, WA
- 2:40 **Coffee Break**
- 3:00 (772) **ISOTOPE RATIO MEASUREMENTS OF LONG-LIVED RADIONUCLIDES IN CHERNOBYL SAMPLES BY ICP/ MS WITH COLLISION CELL**, J. SABINE BECKER, S. F. Boulyga, Central Department of Analytical Chemistry, Research Centre Juelich, Juelich, Germany
- 3:20 (773) **DETERMINATION OF SE BY USING A COLLISION CELL-BASED ICP/ MS**, JEAN-MICHEL MERMET, S. Mazan, G. Cretier, N. Gilon, E. Poussel, J. L. Rocca, University of Lyon I - Claude Bernard, B-308, Villeurbanne, France
- 3:40 (774) **ONLINE-COUPLED IC- ICP/ MS UTILIZING A COLLISION CELL AND ISOTOPE DILUTION FOR THE DETERMINATION OF TRANSITION METALS IN SALINE SAMPLES**, ANDREAS SEUBERT, Thomas Eickhorst, Hans Peters, Philipps-University Marburg, Department of Chemistry, Analytical Chemistry, Hans-Meerwein-Str, Marburg, Germany
- 4:00 (775) **HOW CAN COLLISION CELL TECHNOLOGY ENHANCE THE ANALYSIS OF ORGANIC SOLVENTS?**, BILL SPENCE, Karen Lee, Thermo Elemental, Ion Path, Road Three, Winsford, Cheshire, England
- 4:20 (776) **MULTIELEMENT DETERMINATION OF TRACE ELEMENTS IN SEAWATER BY INDUCTIVELY COUPLED PLASMA DYNAMIC REACTION CELL MASS SPECTROMETRY**, HAKAN GURLEYUK, Frontier Geosciences Inc., 414 Pontius Ave. N., Seattle, WA, USA

**Thursday, 1:20 PM – 4:40 PM, Room W2-70
MASS SPECTROMETRY AND ENVIRONMENTAL
APPLICATIONS**

Presiding: Susan Richardson Organized by: Susan Richardson

- 1:20 (777) **MASS SPECTROMETRIC ANALYSIS OF BROMINATED DIPHENYL ETHERS (FLAME RETARDANTS) IN BABIES AND IN AIR AND OF TOXAPHENE IN BIRDS**, RONALD HITES, Jeffery McDonald, Bo Strandberg, Indiana University, SPEA 410 H, Bloomington, IN, USA
- 1:40 (778) **DETERMINATION OF HALOGENATED CHEMICALS FROM BIOLOGICAL SAMPLES**, MICHAEL BARTLETT, Stacy Brown, Amy Dixon, James Bruckner and David Delinsky, University of Georgia, College of Pharmacy, Athens, GA, USA
- 2:00 (779) **THE DETERMINATION OF ESTROGENIC STEROIDS IN DRINKING WATERS, RIVERS AND TREATED SEWAGE EFFLUENTS AT SUB NG/L LEVELS**, HUW JAMES, WRc-NSF, Henley Road, Medmenham, Marlow, Bucks, UK
- 2:20 (780) **ANALYSIS AND RESULTS FOR EMERGING CONTAMINANTS OF ENVIRONMENTAL CONCERN: PHARMACEUTICALS AND OTHER HUMAN HEALTH RELATED COMPOUNDS**, EDWARD T. FURLONG, Jeffery D. Cahill, Dana W. Kolpin, and Stephen D. Zaugg, National Water Quality Laboratory, U.S. Geological Survey, PO Box 25046, MS 407, Building 95, Denver Federal Center, Denver, CO, United States

**Thursday, 1:20 PM – 4:40 PM, Room W2-65
COLLISIONS AND REACTION CELLS - APPLICATIONS**

Presiding: Joe Brenner Organized by: Joe Brenner

- 1:20 (768) **DYNAMIC REACTION CELLS: A TOOL FOR MULTI-ELEMENT ICP/ MS ANALYSIS**, DETLEF GUNTHER, Bodo Hattendorf, ETH Zurich, Laboratory of Inorganic Chemistry, Universitatstrasse 6, Zurich, Switzerland
- 1:40 (769) **REACTION CELL TECHNOLOGY AGAINST ISOBARIC INTERFERENCES HAMPERING THE USE OF ICP/ MS FOR GEOCHRONOLOGICAL APPLICATIONS**, LUC MOENS, Frank Vanhaecke, Scott Tanner, Dmitry Bandera, Ghent University, Proeftuinstraat 86, Ghent, Belgium
- 2:00 (770) **ROUTINE ANALYSIS OF TRACE METALS IN CLINICAL SAMPLES USING AN OCTOPOLE REACTION SYSTEM**, ELA BAKOWSKA, Ed McCurdy,

- 2:40 **Coffee Break**
- 3:00 (781) **USING THE POTENTIAL: HPLC/ELECTROCHEMISTRY/ MS IN ENVIRONMENTAL ANALYSIS**, UWE KARST, Georg Diehl, Heiko Hayen, University of Muenster, Wilhelm-Klemm-Str. 8, 48149 Muenster, Germany, Germany
- 3:20 (782) **A NATIONWIDE DRINKING WATER DISINFECTION BY-PRODUCT OCCURRENCE STUDY--IDENTIFICATION OF NEW AND TOXICOLOGICALLY SIGNIFICANT COMPOUNDS WITH MASS SPECTROMETRY**, SUSAN D. RICHARDSON, Alfred D. Thruston, Jr., Howard S. Weinberg, Stuart W. Krasner, U.S. Environmental Protection Agency, National Exposure Research Laboratory, 960 College Station Rd., Athens, GA, USA
- 3:40 (783) **INVESTIGATION OF TOXINS FROM CYANOBACTERIA BY LC/ MS**, WILLIAM BUDDE, Mila Maizels, U. S. Environmental Protection Agency, 26 W. MLK Drive, Cincinnati, OH, USA
- 4:00 (784) **ARSENIC SPECIATION IN WATER AND DIETARY SAMPLES BY IC- ICP/ MS WITH STRUCTURAL VERIFICATION VIA IC-ESI- MS/ MS**, JOHN T. CREED, Patricia A. Gallagher, Bryan M. Gamble, Amy N. Heck and Carol A. Schwegel, US EPA, 26 W. Martin Luther King Drive, Cincinnati, OH, USA
- 4:20 (785) **A COMBINED GC/EL-ITMS & CI-ITMS AS A TOOL FOR IDENTIFYING UNKNOWN IN DRINKING WATER ANALYSIS**, ILL YANG, Brian Buckley, Environmental and Occupational Health Sciences Institute, Rutgers University, 170 Frelinghuysen Road, Piscataway, NJ

**Thursday, 1:20 PM – 4:40 PM, Room W2-69
INSTRUMENTS FOR PROCESS ANALYSIS**

Presiding: Brian Marquardt Organized by: Ernie Baughman

- 1:20 (786) **OPTICAL COMPUTATION OF PREDICTIVE MULTIVARIATE CALIBRATION MODELS WITH SCANNING AND STATIC FILTER SPECTROMETERS**, KARL BOOKSH, Marc K. Boysworth, Arizona State University, Department of Chemistry, Tempe, AZ, USA
- 1:40 (787) **MULTIVARIATE OPTICAL ELEMENTS FOR CHEMICAL MEASUREMENT**, MICHAEL MYRICK, O. O. Soyemi, A. E. Greer, F. G. Haibach, University of South Carolina, Department of Chemistry and Biochemistry, Columbia, SC, USA
- 2:00 (788) **A COMPARISON OF NIR AND PROTON NMR FOR THE ONLINE ANALYSIS OF TERPENE RESIN DISTILLATE FRACTIONS**, MARK SULLIVAN, Hercules Incorporated, Research Center, 500 Hercules Rd., Wilmington, DE, USA
- 2:20 (789) **NOVEL APPLICATIONS OF RAMAN SPECTROSCOPY TO PROCESS MONITORING AND MATERIALS CHARACTERIZATION**, BRIAN J. MARQUARDT, Thao Le, Lloyd W. Burgess and Robert S. Synovec, Center for Process Analytical Chemistry, Seattle, WA, USA
- 2:40 **Coffee Break**
- 3:20 (790) **UTILIZING INFORMATION TECHNOLOGY DEVELOPMENTS FOR PROCESS SPECTROSCOPY**, CHARLES E. MILLER, John C. Steichen, Barbara A. Kirsch, Dave Russell, DuPont, Process Sensors and Analyzers Group, 140 Cypress Station Drive, Houston, TX, USA
- 3:40 (791) **LOW-RESOLUTION FT/ IR ANALYSIS, PART II**, J.D. TATE, Pekka Saarinen, Matti Haapala and Petri

Jaakkola, Dow Chemical, 2301 N. Brazosport Blvd., B-1463, Freeport, TX, USA

- 4:00 (792) **ON-LINE MONITORING OF INDUSTRIAL ELECTROLESS PLATING USING EQCM SENSORS**, OMOWUNMI SADIK, Hongwu Xu, Nicholas Pierre-Louis, State University of New York-Binghamton, Department of Chemistry, POB 6016, Binghamton, NY, USA
- 4:20 (793) **MINIATURE MODULAR TECHNOLOGY IMPROVES PROCESS ANALYZER SAMPLE SYSTEMS**, DAVID SIMKO, Swagelok Company, 31400 Aurora Road, Solon, OH, USA

**Thursday, 1:20 PM – 4:40 PM, Room W2-63
COHERENT TWO-DIMENSIONAL VIBRATIONAL SPECTROSCOPY III**

Presiding: Dana Dlott Organized by: John Wright

- 1:20 (794) **DIFFRACTIVE OPTICS BASED NONLINEAR SPECTROSCOPY: FOUR-WAVE, SIX-WAVE, NEW-WAVE SPECTROSCOPY**, R. J. DWAYNE MILLER, University of Toronto, Departments of Chemistry and Physics, 60 St. George Street, Toronto, ONT, Canada
- 2:00 (795) **APPLICATIONS OF HIGH-SPEED PULSE SHAPING TO COHERENT SPECTROSCOPY**, WARREN WARREN, Dorine Keusters, Wolfgang Wagner, Peifang Tian, Princeton University, Dept of Chemistry, Princeton, NJ, USA
- 2:40 **Coffee Break**
- 3:00 (796) **NEW MECHANISMS OF VIBRATIONAL DEPHASING IN LIQUIDS AND PROTEINS**, MARK A. BERG, Hugh H. Hubble, Tianshu Lai, Jianwen Jiang, University of South Carolina, Department of Chemistry and Biochemistry, Columbia, SC, USA
- 3:40 (797) **TWO-DIMENSIONAL FOURIER TRANSFORM ELECTRONIC SPECTROSCOPY**, DAVID JONAS, University of Colorado, 215 UCB, Boulder, CO, USA
- 4:20 (798) **PANEL DISCUSSION OF THE FUTURE OF COHERENT 2D VIBRATIONAL SPECTROSCOPY FOR CHEMICAL MEASUREMENTS**, JOHN WRIGHT, Andreas Albrecht, Martin Zanni, Andre Tokmakoff, Dana Dlott, Michael Fayer, David Blank, Shaul Mukamel, Dwayne Miller, Warren Warren, Mark Berg, David Jonas, University of Wisconsin- Madison, 1101 University Avenue, Madison, WI, USA

**Thursday, 1:20 PM – 4:40 PM, Room W2-68
SINGLE MOLECULE SPECTROSCOPY I**

Presiding: Peter Goodwin Organized by: Peter Goodwin

- 1:20 (799) **SINGLE MOLECULE METHODS FOR SEQUENCING AND GENETIC ANALYSIS**, JOHN J. MACKLIN, Praelux, 17 A Princess Road, Lawrenceville, NJ
- 2:00 (800) **RAPID DISCRIMINATION AMONG INDIVIDUAL DNA HAIRPIN MOLECULES AT SINGLE NUCLEOTIDE RESOLUTION USING AN ION CHANNEL**, MARK AKESON, Wenonah Vercoutere, Stephen Winters-Hilt, David Deamer, Hugh Olsen, David Haussler, Department of Chemistry & Biochemistry, University of California, Santa Cruz, CA, USA
- 2:40 **Coffee Break**

- 3:20 (801) **CHARACTERIZATION OF DNA-PROTEIN COMPLEXES BY CAPILLARY ELECTROPHORESIS/ SINGLE MOLECULE FLUORESCENCE CORRELATION SPECTROSCOPY**, ALAN VAN ORDEN, Dale Lecaptain, Colorado State University, Department of Chemistry, Ft. Collins, CO, USA
- 4:00 (802) **SINGLE MOLECULE SPECTROSCOPIC METHODS FOR BIOMEDICAL APPLICATIONS**, PETER GOODWIN, Hong Cai, Rhiannon Nolan, Bioscience Division, Los Alamos National Laboratory, Mail Stop M888, Los Alamos, NM, USA

**Thursday, 1:20 PM – 4:40 PM, Room O2-44
RAMAN IMAGING**

Presiding: Pat Treado

Organized by: Pat Treado

- 1:20 (803) **DIAGNOSTIC VALUE OF DISPERSIVE RAMAN IMAGING, FT/ RAMAN MAPPING AND FIBER OPTIC PROBE SPECTROSCOPY IN CLINICAL ENVIRONMENT**, CHRISTIAN P. SCHULTZ, BRUKER Optics Inc, 19 Fortune Drive, Manning Park, Billerica, MA, US
- 1:40 (804) **IN-SITU AND STAND-OFF RAMAN IMAGING USING FIBER OPTIC IMAGE GUIDES AND DIMENSION REDUCTION FIBER ARRAYS**, S. MICHAEL ANGEL, J. Chance Carter, M. L. Myrick and Shiv K. Sharma, Dept of Chem. & Biochem., University of South Carolina, 631 Sumter St. GSRC R205, Columbia, SC, USA
- 2:00 (805) **IMAGING VERSUS NON-IMAGING MEASUREMENT IN RAMAN-DETECTED SEPARATIONS IN WAVEGUIDING CHANNELS**, MICHAEL D. MORRIS, Shona Stewart, University of Michigan, Department of Chemistry, Ann Arbor, MI, USA
- 2:40 **Coffee Break**
- 3:20 (806) **RAMAN MAPPING AND IMAGING OF PHARMACEUTICAL PRODUCTS**, CLARE ANDERTON, David Lee, GlaxoSmithKline, New Frontiers Science Park (North), Third Avenue, Harlow, Essex, UK
- 4:00 (807) **ULTRA RESOLUTION RAMAN CHEMICAL IMAGING IN TWO AND THREE DIMENSIONS**, PATRICK J. TREADO, Matthew P. Nelson, Ryan D. Smith, ChemIcon Inc., 7301 Penn Avenue, Pittsburgh, PA, USA

**Thursday, 1:40 PM – 4:40 PM, Room W2-58
ANALYSIS IN THE AUTO INDUSTRY II**

Presiding: Stephen Gaarenstroom

Organized by: Patsy Coleman

- 1:40 (808) **OXYGEN QUENCHING OF LUMINESCENCE FOR AERODYNAMIC MEASUREMENTS-PRESSURE SENSITIVE PAINT**, PATRICIA COLEMAN, Ford Motor Company, 2400 Village Rd, MD 68/AEC, Dearborn, MI, USA
- 2:20 (809) **LOW-SPEED APPLICATIONS OF PRESSURE SENSITIVE PAINT**, LARRY GOSS, Innovative Scientific Solutions, Inc., 2766 Indian Ripple Rd., Dayton, OH, USA
- 2:40 **Coffee Break**
- 3:20 (810) **PERFORMANCE PREDICTION AND TEST OF A NEW AERO-ACOUSTIC WIND TUNNEL DESIGNED FOR AUTOMOTIVE TESTING**, MARK WALTER, Sverdrup Technology Inc., 25650 Eleven Mile Road Suite 100, Southfield, MI, USA
- 3:40 (811) **AUTOMOTIVE APPLICATIONS OF PARTICLE IMAGE VELOCIMETRY**, LARRY GOSS,

Innovative Scientific Solutions, Inc., 2766 Indian Ripple Rd., Dayton, OH, USA

- 4:00 (812) **HIGH EFFICIENCY STRUCTURAL OLEFINIC FOAM FOR AUTOMOTIVE ENERGY ABSORBING (EA) COUNTERMEASURE APPLICATIONS**, MYRON MAURER, Marty Tusim, The Dow Chemical Company, Michigan Division; 433 Building, Midland, MI

**Thursday, 1:40 PM – 4:40 PM, Room W2-64
PLASMA SPECTROSCOPY I**

Presiding: Joel Goldberg

- 1:40 (813) **NEW FEATURES IN PLASMA SOURCE SPECTROMETRY**, YIXIANG DUAN, Los Alamos National Laboratory, C-ACS, MS K484, Los Alamos, NM, USA
- 2:00 (814) **THE THETA-PINCH PLASMA GUN: SAMPLING STRATEGIES FOR DIRECT SOLID SAMPLING AES**, JOEL GOLDBERG, Ed Navarre, University of Vermont, Chemistry Department, Burlington, VT, U S A
- 2:20 (815) **INVESTIGATION OF THE PHYSICAL MECHANISMS OCCURING IN ATOMIC SPECTROMETRY LIQUID SAMPLE INTRODUCTION SYSTEMS BY NUMERICAL ANALYSIS**, NEIL FITZGERALD, Kevin Douglass, Bradley Ingebretsen, Marist College, School of Science, North Road, Poughkeepsie, NY, USA
- 2:40 **Coffee Break**
- 3:20 (816) **ACOUSTO-OPTIC DEFLECTOR BACKGROUND CORRECTION FOR ICP /AES**, HEATHER M. MILLER, Jon W. Carnahan, Department of Chemistry and Biochemistry, Northern Illinois University, Dekalb, IL, USA
- 3:40 (817) **ANALYZING METALLIC CONTAMINATION IN THE EDGE EXCLUSION AREA OF SILICON WAFERS**, CHRIS SPARKS, International SEMATECH, 2706 Montopolis Drive, Austin, TX, USA
- 4:00 (818) **AN INDUCTIVELY COUPLED PLASMA CARBON EMISSION DETECTOR FOR UNIVERSAL DETERMINATION OF ORGANIC COMPOUNDS FOLLOWING SEPARATION BY HPLC**, HEATHER PETERS, Xiandeng Hou, Bradley Jones, Wake Forest University, PO Box 7486, Winston-Salem, NC, USA
- 4:20 (819) **EFFECT OF APPLIED RADIOFREQUENCY POWER ON THE FUNDAMENTAL PROPERTIES OF AN ICP FITTED WITH A MASS-SPECTROMETRIC SAMPLING INTERFACE**, GERARDO GAMEZ, Scott A. Lehn, Mao Huang, Gary M. Hieftje, Indiana University, Department of Chemistry, Bloomington, IN, United States

**Thursday, 1:20 PM – 4:40 PM, Room O2-33
SURFACE ENHANCED VIBRATIONAL SPECTROSCOPY**

Presiding: Peter Griffiths

Organized by: Peter Griffiths

- 1:20 (820) **EFFECTIVE MEDIUM THEORIES IN SURFACE ENHANCED VIBRATIONAL SPECTROSCOPY**, RICARDO AROCA, University of Windsor, Materials & Surface Science Group, School of Physical Sciences, Windsor, ON, Canada
- 2:00 (821) **ANOMALOUS BAND SHAPES IN SURFACE-ENHANCED INFRARED TRANSMISSION AND ATR SPECTRA**, PETER GRIFFITHS, David Heaps, University of Idaho, Department of Chemistry, Moscow, ID, USA

- 2:20 (822) **APPLICATION OF SURFACE-ENHANCED ABSORPTION SPECTROSCOPY TO THE CHROMATOGRAPHY/ FT/ IR INTERFACE**, DAVID HEAPS, Peter Griffiths, University of Idaho, Department of Chemistry, Moscow, ID, USA
- 2:40 **Coffee Break**
- 3:00 (823) **SERS MEASUREMENT OF NITRILE STARK TUNING: ELECTRIC FIELD EFFECTS IN SELF-ASSEMBLED MONOLAYERS**, VANESSA OKLEJAS, Joel M. Harris, University of Utah, 315 South 1400 East Rm. # 2020, Salt Lake City, UT, USA
- 3:20 (824) **(BARELY) SURFACE ENHANCED RAMAN AND INFRARED REFLECTION-ABSORPTION SPECTROSCOPES ON EMERSED ELECTROCHEMICAL INTERFACES**, JEANNE E. PEMBERTON, Domenic J. Tiani, Joseph W. Robertson, Adam M. Hawkrige, University of Arizona, Department of Chemistry, Tucson, AZ, USA
- 3:40 (825) **NANOMETRIC ARRAYS OF SILVER: STRUCTURE AND OPTICAL PROPERTIES**, KATHY ROWLEN, Peter Andersen, University of Colorado, Department of Chemistry, Boulder, CO
- 4:00 (826) **REPRODUCIBLE, REVERSIBLE SERS: APPLICATIONS ABOUND**, STUART FARQUHARSON, Yuan-Hsiang Lee and Lloyd Burgess, Real-Time Analyzers, 87 Church Street, East Hartford, CT, USA
- 4:20 (827) **DETECTION OF BIOLOGICAL AGENTS THROUGH SURFACE ENHANCED RAMAN SPECTROSCOPY**, AUGUSTUS FOUNTAIN III, Nicholas F. Fell, Jr., Alicia G. B. Smith, Kevin Taylor, Dylan MacK, United States Military Academy, Photonics Research Center, West Point, NY, USA

**Thursday, 2:00 PM – 4:40 PM, Room W2-62
ROYAL SOCIETY OF CHEMISTRY ANALYTICAL
DIVISION II**

Presiding: Steve Hill Organized by: Steve Hill

- 2:00 (828) **FLOW INJECTION WITH CHEMILUMINESCENCE DETECTION FOR THE SHIPBOARD MONITORING OF IRON, COBALT, COPPER AND MANGANESE IN OCEANIC WATERS**, PAUL WORSFOLD, Andrew R Bowie, Eric P Achterberg, Vincenzo Cannizzaro, Richard Sandford, Simon Ussher, R Fauzi, C Mantoura, University of Plymouth, Plymouth Environmental Research Centre, Drake Circus, Plymouth, Devon, UK
- 2:40 **Coffee Break**
- 3:20 (829) **PROGRESS IN ELEMENTAL SPECIATION OF SELENIUM ENRICHED YEAST**, KAREN L. SUTTON, Joseph A. Caruso, Procter and Gamble Ltd., Whitehall Lane, Egham, Surrey, UK
- 3:40 (830) **ATOMIC SPECTROMETRIC METHODS USED FOR SCREENING IN SPECIATION ANALYSIS**, MICHAEL E. FOULKES, Sarah Fitzpatrick, Andrew Fisher and Les Ebdon, University of Plymouth, Plymouth Environmental Research Centre, Department of Environmental Science, Plymouth, Devon, UK
- 4:00 (831) **ANTIMONY SPECIATION: ADVANCES IN HPLC- ICP/ MS TECHNIQUES FOR THE SIMULTANEOUS DETERMINATION OF INORGANIC AND ORGANOANTIMONY SPECIES**, STEVE J. HILL, Martin J. Nash and John Maskall, University of Plymouth, Plymouth Environmental Research Centre, Department of Environmental Science, Plymouth, Devon, UK

- 4:20 (832) **INVESTIGATION OF ANTIMONY MOBILISATION FROM CONTAMINATED SOILS AT A FORMER MINING SITE IN SOUTH WEST ENGLAND**, MARTIN J. NASH, John E. Maskall and Steve J. Hill, University of Plymouth, Plymouth Environmental Research Centre, Department of Environmental Science, Plymouth, Devon, UK

**Thursday, 1:20 PM – 4:40 PM, Room W2-66
ANALYTICAL CHEMISTRY AT NATIONAL
LABORATORIES: EXTREME ANALYSIS UNDER
EXTREME CONDITIONS II**

Presiding: Vahid Majidi Organized by: Vahid Majidi

- 1:20 (833) **MATERIALS CHARACTERIZATION AT SANDIA NATIONAL LABORATORIES**, JAMES WANG, Raymond P. Goehner, Sandia National Laboratories, MS9403, 7011 East Avenue, Livermore, CA, USA
- 2:00 (834) **IN SITU REDOX SPECIATION OF REACTIVE IONS IN SOLUTION**, MARK ANTONIO, L. Soderholm and C. Williams, Argonne National Laboratory, Chemistry Division, 9700 S. Cass Avenue, Argonne, IL, USA
- 2:40 **Coffee Break**
- 3:20 (835) **BREAKING UP AND MAKING UP: GAS-PHASE HEAVY METAL ION CHEMISTRY IN QUADRUPOLE ION TRAPS**, DOUGLAS C. DUCKWORTH, Douglas E. Goeringer, Glen Jackson, and Fred L. King, Oak Ridge National Laboratory, POB 2008 MS-6375, Oak Ridge, TN, USA
- 3:40 (836) **EXTREME LASER ABLATION: FROM FEMTOSECONDS TO MICROSECONDS**, RICK RUSSO, LLB.,
- 4:20 (837) **PROCESS ANALYTICAL CHEMISTRY IN NATIONAL LABORATORY APPLICATIONS**, CHRISTIAN HASSELL, Cris Lewis, Robert Fields, Matthew Moser, Vahid Majidi, Los Alamos National Laboratory, MS K484, Los Alamos, NM, USA

**Thursday, 2:00 PM – 4:40 PM, Room W1-54
LESTER K. STROCK AWARDS SYMPOSIUM**

Presiding: Ian Stewart Organized by: Ian Stewart

- 2:00 (838) **THE TWO SIDES OF JOHN OLESIK**, GARY HIEFTJE, Indiana University, Dept. of Chemistry, Bloomington, IN, USA
- 2:20 (839) **THE INFLUENCE OF MATRIX ON ANALYTE TEMPERATURE AND VELOCITY DISTRIBUTIONS IN THE FIRST VACUUM STAGE OF AN INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER**, PAUL FARNSWORTH, Jeffery MacEdone, Rebecca Vanwagoner, Brigham Young University, Department of Chemistry and Biochemistry, Provo, UT, USA
- 2:40 **Coffee Break**
- 3:20 (840) **STUDIES OF ANALYTE AND NOVEL HPLC STATIONARY PHASE INTERACTIONS**, ERIC J. WILLIAMSEN, Jami Wilson, Matthew Bigert, Jon Crooker, Andrew Vincent, Ursinus College, Department of Chemistry, 601 E Main St, Collegetown, PA
- 3:40 (841) **TOWARD INTELLIGENT INSTRUMENTS**, ERIC SALIN, John Tromp, Hai Ying, Margaret Antler, Dept of Chemistry, McGill University, 801 Sherbrooke St. W., Montreal, QC, Canada
- 4:00 (842) **ENABLING THE MEASUREMENT OF CHEMISTRY IN SINGLE PARTICLES**, GEORGE AGNES, Mike Bogan, Department of Chemistry, Simon Fraser University, Burnaby, B. C., Canada

4:20 (843) **MICROFLUIDICS, A KEY PART OF TOMORROW'S LAB**, STEVE HOBBS, Nanostream, 2275 East Foothill Blvd., Pasadena, CA, US

**Thursday, 4:40-5:25 PM Room W1-54
FEATURED PRESENTATIONS:
LESTER K. STROCK AWARDS SYMPOSIUM:
INTRODUCTION AND AWARD ADDRESS**

Presiding: Ian Stewart

Organized by: Ian Stewart

4:40 (843A) **THE LESTER W. STROCK AWARD**, BRIAN C. SMITH, New England Section of the Society for Applied Spectroscopy.

4:45 (844) **ISOLATED DROPLETS, PARTICLES AND TIME-RESOLVED MEASUREMENTS: STILL PRODUCING NEW INSIGHTS**, JOHN OLESIK, Ohio State University, 125 S. Oval Mall, Columbus, OH, USA

**Friday, 8:00 AM – 8:40 AM, Room W2-63
FEATURED PRESENTATION:
HONORING BILL FATELEY**

Presiding: Clara Craver

Organized by: Rachael Barbour and John Graham

8:00 (845) **A NEW MODULATED IMAGING SPECTROGRAPH**, W. G. FATELEY, R. M. Hammaker, R. A. Deverse, R. R. Coifman, F. B. Geshwind, Kansas State University, Department of Chemistry, Manhattan, KS, USA

**Friday, 8:50 – 11:40 AM, Room W2-63
HONORING BILL FATELEY**

Presiding: Clara Craver

Organized by: Rachael Barbour and John Graham

8:50 (846) **DISSOLUTION AND DIFFUSION STUDIES USING FT/ IR IMAGING**, JACK KOENIG, Beth Miller, Case Western Reserve University, 10900 Euclid Avenue, Cleveland, OH, USA

9:30 (847) **MENTORING THE MENTORS**, GARY HIEFTJE, Indiana University, Dept. of Chemistry, Bloomington, IN, USA

10:10 **Coffee Break**

10:40 (848) **FAST FT/ IR IMAGING OF DRUG DELIVERY SYSTEMS**, CARRIE COUTTS, Jack L. Koenig, Case Western Reserve University, 2100 Adelbert Rd. Kent Hale Smith Bldg., Cleveland, OH, USA

11:00 (849) **TRICLINIC P1 CRYSTALS AND FATELEY: PERSISTENCE PAYS OFF**, J. W. BRASCH, J.B. Labs, 4842 N. High Street, Columbus, OH, USA

11:20 (850) **MENTORING WORLD WIDE AFTER RETIREMENT**, CLARA CRAVER, P.O. Box 265, French Village, MO, USA

**Friday, 8:50 AM – Noon, Room W2-71
ATOMIC ABSORPTION SPECTROMETRY**

Presiding: Patrick Parsons

8:50 (851) **DETERMINATION OF THALLIUM IN SEDIMENT USING SOLID SAMPLING GRAPHITE FURNACE ATOMIC ABSORPTION SPECTROMETRY**, BERNHARD WELZ, Maria Goreti R. Vale, Marcia M. Silva, Universidade Federal de Santa Catarina, Departamento de Quimica, Campus Trindade, Florianopolis, SC, Brazil

9:10 (852) **PERMANENT CHEMICAL MODIFIERS FOR SOLID SAMPLING GRAPHITE FURNACE ATOMIC ABSORPTION SPECTROMETRY**, BERNHARD WELZ, Maria Goreti R. Vale, Marcia M. Silva, Sandra M.

Maia, Universidade Federal de Santa Catarina, Departamento de Quimica, Campus Trindade, Florianopolis, SC, Brazil

9:30 (853) **DETERMINATION OF LEAD IN URINE MATRICES: DISCREPANCY BETWEEN ETAAS AND ICP/MS RESULTS**, PATRICK J. PARSONS, Christopher D. Palmer, Ciaran Geraghty, Mary Frances Verostek, New York State Dept of Health/The University at Albany, Wadsworth Center, PO Box 509, Albany, NY, USA

9:50 (854) **AN EVALUATION OF RHODIUM AS A PERMANENT MODIFIER FOR THE ATOMIZATION OF LEAD IN W-FILAMENT ATOMIC ABSORPTION SPECTROMETRY**, YING ZHOU, Patrick Parsons, Kenneth Aldous, Paul Brockman, and Walter Slavin, New York State Department of Health/The University at Albany, Wadsworth Center, P.O. Box 509, Albany, NY, USA

10:10 **Coffee Break**

10:40 (855) **SIMULTANEOUS HYDRIDE GENERATION DETERMINATION OF AS, SB, AND SE: STUDY OF THE POSSIBILITIES OF BROMIDE AND BROMATE FOR ADJUSTING OXIDATION STATES**, DAVID J. SCOTT, Julian F. Tyson, University of Massachusetts, 710 N. Pleasant St, Box 34510, Amherst, MA, United States

11:00 (856) **NEW DIRECTION IN THE DETERMINATION OF ELEMENTS BY VAPOUR GENERATION**, IAN BRINDLE, Xuchuan Duan and April Conn, Brock University, 500 Glenridge Avenue, St. Catharines, ON, Canada

11:20 (857) **DETERMINATION OF MERCURY IN MILERAL COAL USING ET AAS AFTER SLURRY COLD VAPOR GENERATION AND SEQUESTRATION**, BERNHARD WELZ, Erico M. M. Flores, Adilson J. Curtius, Universidade Federal de Santa Catarina, Departamento de Quimica, Campus Trindade, Florianopolis, SC, Brazil

11:40 (858) **THE PRACTICAL USE OF A VARIABLE ZEEMAN EFFECT BACKGROUND CORRECTION TECHNIQUE WHEN APPLIED TO SPECTRAL INTERFERENCE STUDIES IN GRAPHITE FURNACE ATOMIC ABSORPTION SPECTROMETRY**, CHRISTINE FLAJNIK-RIVERA, Matthew McCrum, Kylie Stevenson, GBC Scientific Equipment, Inc, 3930 Ventura Dr, St. 350, Arlington Heights, IL, USA

**Friday, 8:50 AM – Noon, Room W2-66
ANALYSIS OF BIOLOGICAL SYSTEMS**

Presiding: Mike Bowser

8:50 (859) **A VIRTUAL 2-D PROTEIN MAP GENERATED BY LIQUID SEPARATIONS INTERFACED TO ELECTROSPRAY-MASS SPECTROMETRY**, DAVID LUBMAN, Fang Yan and Kan Zhu, The University of Michigan, Department of Chemistry, Ann Arbor, MI, USA

9:10 (860) **'SOFT-IONISATION' MASS SPECTROMETRY OF WHOLE CELLS FOR THE RAPID CHARACTERISATION OF MICROORGANISMS**, SEETHARAMAN VAIDYANATHAN, D. B. Kell, Royston Goodacre, University of Wales at Aberystwyth, Cledwyn Building, Institute of Biological Sciences, Aberystwyth, Ceredigion, Wales, United Kingdom

9:30 (861) **CE/ MS/ MS ANALYSES OF PROTEIN DIGESTS OF HUMAN MYELIN BASIC PROTEINS**, JEONGKWON KIM, Robert Zand, David M. Lubman, University of Michigan, 930 N. University Ave., Ann Arbor, MI, USA

- 9:50 (862) **A TWO-DIMENSIONAL PROTEIN MAPPING: CHROMATOFOCUSING-NOPOROUS-REVERSE-PHASE- HPLC-ESI-OATOF MASS SPECTROMETRY OF A WHOLE CELL LYSATE**, FANG YAN, Prof. Lubman, University of Michigan, Department of Chemistry, Ann Arbor, MI
- 10:10 **Coffee Break**
- 10:40 (863) **MONITORING ZINC DYNAMICS IN VIVO USING ONLINE MICRODIALYSIS**, MICHAEL BOWSER, Kylie O'Brien, University of Minnesota, 207 Pleasant Street SE, Minneapolis, MN, USA
- 11:00 (864) **COOPERATIVITY OF PH UNFOLDING OF THE APOMYOGLOBIN AND MOLTEN GLOBULE CHARACTERISTICS OF THE FOLDING INTERMEDIATE I-1**, GUFENG WANG, Lei Geng, University of Iowa, 203 CB, Iowa City, IA, USA
- 11:20 (865) **STRUCTURAL CHARACTERIZATION OF MULTIPLE FOLDING INTERMEDIATES OF APOMYOGLOBIN AND IMPLICATION OF MULTIPLE FOLDING PATHWAYS**, GUFENG WANG, Lei Geng, University of Iowa, 203 CB, Iowa City, IA, USA
- 11:40 (866) **REVERSIBLE SITE-DIRECTED IMMOBILIZATION OF AN ORGANOPHOSPHATE ESTER-DEGRADING ENZYME VIA A CALMODULIN FUSION TAIL**, KALVIN GREGORY, L. G. Bachas, S. Daunert, University of Kentucky, Dept. of Chemistry, Rose Street, Lexington, KY, USA

**Friday, 8:50 AM – Noon, Room W2-67
CHEMOMETRICS IN IMAGE ANALYSIS**

Presiding: Tom Hancewicz Organized by: Tom Hancewicz

- 8:50 (867) **NEW METHODS IN MULTIVARIATE SPECTROSCOPIC IMAGE ANALYSIS I**, BARRY LAVINE, Jason Ritter, and Charles Davidson, Clarkson University, Department of Chemistry, Potsdam, NY, USA
- 9:10 (868) **CHANGE DETECTION SCHEMES FOR THE ANALYSIS OF MULTITEMPORAL CLINICAL NIR SPECTROSCOPIC IMAGES**, MICHAEL SOWA, National Research Council Canada, 435 Ellice Ave., Winnipeg, MB, Canada
- 9:30 (869) **IMPROVED RESOLUTION OF RAMAN SPECTROSCOPIC IMAGES USING EVOLVING FACTOR ANALYSIS AND WAVELETS COMPRESSION TOOLS**, ROMA TAULER, Anna De Juan, Barcelona, Diagonal 647, Barcelona, Spain
- 10:10 **Coffee Break**
- 10:40 (870) **NEW METHODS IN MULTIVARIATE SPECTROSCOPIC IMAGE ANALYSIS**, THOMAS HANCEWICZ, Shuliang Zhang, Philip K. Hopke, Ji-Hong Wang, Unilever Reseach US, 45 River Road, Edgewater, NJ, USA
- 11:00 (871) **DATA REDUCTION AND VISUALIZATION FOR RAMAN IMAGING OF TISSUE PROPERTIES**, MICHAEL D. MORRIS, Angela Carden, Catherine Tarnowski, Shona Stewart and Dana Shea, University of Michigan, Department of Chemistry, Ann Arbor, MI
- 11:20 (872) **IMPROVED MULTIVARIATE ANALYSIS OF HYPERSPECTRAL IMAGES WITH THE USE OF THE ERROR COVARIANCE**, DAVID M. HAALAND, Frederick W. Koehler and Christine M. Wehlburg, Sandia National Laboratories, MS0886, Albuquerque, NM, USA

**Friday, 8:50 AM – Noon, Room W2-70
LASER-BASED ANALYTICAL ATOMIC SPECTROMETRY**

Presiding: J.M. Mermet Organized by: J.M. Mermet

- 8:50 (873) **EMISSION, FLUORESCENCE AND IONIZATION SPECTROSCOPY FOLLOWING LASER INTERACTION WITH SOLID, LIQUID AND GASEOUS SAMPLES: EXPECTATIONS AND REALITIES OF THE RESULTING ANALYTICAL TOOLS**, NICOLO' OMENETTO, European Commission - Joint Research Centre, Environment Institute, Ispra, VA, Italy
- 9:30 (874) **15 YEARS LIVING WITH ELEMENTAL FRACTIONATION IN LA- ICP/ MS? KNOWN, STUDIED, UNDERSTOOD?**, DETLEF GUENTHER, Ingo Horn, ETH Zurich, Laboratory of Inorganic Chemistry, Universitaetstrasse 6, Zurich, Switzerland
- 10:10 **Coffee Break**
- 10:40 (875) **A CESIUM RESONANCE FLUORESCENCE IMAGING MONOCHROMATOR FOR SPECTRALLY SELECTIVE IMAGING OF TURBID MEDIA**, DIMITRI PAPPAS, Nathan C. Pixley, Tiffany L. Correll, Oleg I. Matveev, Benjamin W. Smith, James D. Winefordner, University of Florida, P.O. Box 117200, Gainesville, FL, USA
- 11:00 (876) **DETERMINATION OF TRACE METALS BY GRAPHITE FURNACE COUPLED TO LASER-ENHANCED IONIZATION SPECTROMETRY**, PHILLIPE NOBERT, Karine Herreyre, Denis Boudreau, Laval University, Department of Chemistry, Quebec City, QC, Canada
- 11:20 (877) **LASER ABLATION OF SOLID SAMPLES WITH DETECTION BY LASER-ENHANCED IONIZATION SPECTROMETRY**, DENIS BOUDREAU, Jean-Francois Gravel, Laval University, Department of Chemistry, Quebec City, QC, Canada
- 11:40 (878) **EFFECT OF SAMPLE GEOMETRY ON LASER INDUCE BREAKDOWN SPECTROSCOPY OF ALUMINUM ALLOY**, AWADHESH KUMAR RAI, J. P. Singh and F. Y. Yueh, Mississippi State University, 205 Research Boulevard, Starkville, MS, USA

**Friday, 8:50 AM – Noon, Room W2-69
ENVIRONMENTAL ANALYSIS**

Presiding: Tom Niemczyk

- 8:50 (879) **DEVELOPMENT AND OPTIMIZATION OF A CONTINUOUS FLOW-SOLID PHASE EXTRACTION TO TREAT LARGE AND MULTIPLE DRINKING WATER SAMPLES**, ILL YANG, Wilson Rodriguez, Eileen Murphy, Lee Lippincott, Brian Buckley, Environmental and Occupational Health Sciences Institute, Rutgers University, 170 Frelinghuysen Road, Piscataway, NJ
- 9:10 (880) **CHARACTERIZATION OF BACKGROUND ORGANIC COMPOUNDS (BOCS) RESULTING FROM SOLID-PHASE EXTRACTATION**, ROBERT STILES, Ill Yang, Eileen Murphy, Lee Lippincott, Brian Buckley, EOHSI/Rutgers University, 170 Frelinghuysen Road, Piscataway, NJ, United States
- 9:30 (881) **REDUCTION OF MULTICOMPONENT BACKGROUND IN PHASE-RESOLVED FLUORESCENCE SPECTROSCOPY FOR QUANTITATIVE ANALYSIS IN COMPLEX MATRICES**, ED CROWELL, Lei Geng, University of Iowa, 203 Chemistry Building, Iowa City, IA, United States

- 9:50 (882) **SINGLE FIBER-OPTIC DISTRIBUTED SENSORS FOR MULTIPLE ANALYTE DETERMINATIONS**, ANDREW W. SZUMLAS, Gary M. Hieftje, Indiana University, Department of Chemistry, Bloomington, IN, USA
- 10:10 **Coffee Break**
- 10:40 (883) **ADVANCED CHEMICAL ANALYSIS USING MOLECULARLY IMPRINTED POLYMERS ARRAYS WITH OPTICAL DETECTION**, RENEE JIJI, Sean J. Hart, Naval Research Laboratory, 4555 Overlook Ave., S.W., Washington, D. C, USA
- 11:00 (884) **TRACE ANALYSIS OF HNO₃ BY LASER PHOTOFRAGMENTATION AT 281 AND 226 NM WITH SUBSEQUENT DETECTION OF OH AND NO BY LASER-INDUCED FLUORESCENCE**, ROSARIO C. SAUSA, Robert L. Pastel (1), U.S. Army Research Laboratory, AMSRL-WM-BD, (1) Department of Physics, Michigan Technical University, Houghton, Michigan 49931., Aberdeen Proving Ground, MD, USA
- 11:20 (885) **EXTENDED SPECTRAL RANGE SURFACE MODIFIED SOL-GEL COATED INFRARED WAVEGUIDE SENSORS**, FREDERICK HAIBACH, Thomas M. Niemczyk, Arturo Sanchez, University of New Mexico, Dept. of Chemistry, Albuquerque, NM, USA
- 11:40 (886) **UTILISATION OF SURFACE PLASMON RESONANCE IN DEEP OCEAN AND HYDROTHERMAL ENVIRONMENTS**, DARCY GENTLEMAN, Louis Obando, Karl Booksh, John Holloway, Arizona State University, Department of Chemistry & Biochemistry, Arizona State University, Tempe, AZ, USA

**Friday, 8:50 AM – Noon, Room W2-68
SINGLE MOLECULE SPECTROSCOPY II**

Presiding: Peter Goodwin Organized by: Peter Goodwin

- 8:50 (887) **IT'S THE WATER, AND A LOT MORE**, WILLIAM PATRICK AMBROSE, Los Alamos National Laboratory, Mail Stop M888, Los Alamos, NM, USA
- 9:30 (888) **SINGLE MOLECULE CHARACTERIZATION OF POLYNUCLEOTIDES USING A TRANSMEMBRANE CHANNEL**, AMIT MELLER, Lucas Nivon, Mark Bates, Chandran Sabanayagam, The Rowland Institute for Science, 100 Edwin H. Land Blvd., Cambridge, MA, USA
- 10:10 **Coffee Break**
- 10:40 (889) **RECENT ADVANCES IN SINGLE MOLECULE FLUORESCENCE SPECTROSCOPY: FROM LIVE-CELL IMAGING TO MONITORING SINGLE ENZYMATIC EVENTS**, MATT PAIGE, W. E. Moerner, Stanford University, Department of Chemistry, Stanford, CA, USA
- 11:20 (890) **SINGLE-MOLECULE SURFACE-ENHANCED RAMAN SPECTROSCOPY**, STEVEN R. EMORY, Richard A. Keller, Los Alamos National Laboratory, MS M888, Los Alamos, NM, USA

**Friday, 8:50 AM – 11:20 AM, Room W2-58
ANALYSIS IN THE AUTO INDUSTRY III**

Presiding: Keith Olson Organized by: Patsy Coleman

- 8:50 (891) **CURRENT PRACTICE IN ³¹P NMR ANALYSIS OF USED DRAIN OILS**, DENISE BAYUS, Kurt Wollenberg, Lubrizol Corporation, 29400 Lakeland Blvd, Wickliffe, OH, USA
- 9:10 (892) **ANALYSIS OF ACCELERATED TESTING OF ELECTRIC MOTORS**, GREGORY FARREY, Kevin Fischbach, Mark Ma, Kevin Boutell, and David Olson,

Visteon Corporation, GTC RM 4110, Textile & McKean Rds., Ypsilanti, MI, USA

- 9:30 (893) **ANALYTICAL METHODOLOGY FOR THE ASSESSMENT OF THE EFFICIENCY OF HINDERED AMINE LIGHT STABILIZERS (HALS) IN AUTOMOTIVE COATINGS**, PATRICIA OBERG, D. Calimente, BASF Corporation, 26701 Telegraph Rd., Southfield, MI, USA
- 9:50 (894) **CHARACTERIZING THICK THIN FILMS AND THIN THICK COATINGS**, STEPHEN GAARENSTROOM, General Motors R&D Center, 30500 Mound Road, 480-106-320, Warren, MI, USA
- 10:10 **Coffee Break**
- 10:40 (895) **COUPLING GPC WITH OTHER ANALYTICAL TECHNIQUES FOR THE ANALYSIS OF COPOLYMERS AND COATINGS FORMULATIONS**, CHRISTINA JASIECZEK, Alice Scott, Albert Tse, Sue Campbell, Beth Kirol and Joseph Benga, PPG Industries Inc., Coatings Research Center, 4325 Rosanna Drive, Allison Park, PA, USA
- 11:00 (896) **USE OF RAMAN SPECTROSCOPY TO IDENTIFY AUTOMOTIVE POLYMERS IN RECYCLING OPERATIONS**, CLAUDIA DURANCEAU, S. Kumar (1), E. Grant (2), Ford Motor Company, 17255 Federal Drive; FBP4; Suite 140; Cube 95, (1) Computer-Aided Engineering Technology, (2) Purdue University, Allen Park, MI, USA

**Friday, 8:50 – 11:40 AM, Room W2-61
PLASMA SPECTROSCOPY II**

Presiding: Yixiang Duan

- 8:50 (897) **A NEW APPROACH TO THE ANALYSIS OF COMPLEX LIQUID SAMPLES USING LASER ABLATION ICP /AES AND ICP/ MS**, I.B. BRENNER, T. G. Howe, Environmental Analytical Laboratory, BGU, 9 Dishon Street, Malkha, Jerusalem, Israel
- 9:10 (898) **AN INEXPENSIVE APPROACH TO A FULLY AUTOMATED HPLC(IC)- ICP/ MS SYSTEM FOR**, JONATHAN TALBOTT, Illinois Waste Management & Research Center, 1 E. Hazelwood Drive, Champaign, IL, USA
- 9:30 (900) **DETECTION OF ISOTOPIC URANIUM IN AN ICP: A LASER-INDUCED FLUORESCENCE AND SPECTRAL IMAGING STUDY**, YI SU, William Dunsford, David L. Monts, Mississippi State University, 205 Research Blvd., Research & Technology Park, Starkville, MS, USA
- 9:50 (901) **DETERMINATION OF TOTAL IODINE IN THYROID TISSUES FROM THYROID CANCER PATIENTS BY ICP /AES**, VICTOR J. BOYKO, Joseph W. H. Lam, Ralph E. Sturgeon, National Research Council Canada, 1500 Montreal Road, Ottawa, ON, Canada
- 10:10 **Coffee Break**
- 10:40 (902) **MICROPLASMA SOURCE BASED HANDHELD DEVICE**, YIXIANG DUAN, Zhe Jin, and Yongxuan Su, Los Alamos National Laboratory, C-ACS, MS K484, Los Alamos, NM, USA
- 11:00 (903) **CHARACTERIZING THE RF-PLASMA SOURCE IN GD-OES**, PATRICK CHAPON, R. Payling, P. Belenguer, Jobin Yvon S.A./HORIBA Group, 16-18 rue du Canal, Longjumeau Cedex, France
- 11:20 (904) **MOLECULAR ENERGETICS IN PULSED GLOW DISCHARGE PLASMAS**, LEI LI, John T. Millay III, Glen P. Jackson, Matthew A. Moser, Fred L. King, Department of Chemistry/West Virginia University, Box 6045, Morgantown, WV, USA (544)

Friday, 8:50 AM – Noon, Room W2-64
RAMAN SPECTROSCOPY

Presiding: Angela Carden

- 8:50 (905) **RAMAN SPECTROSCOPIC STUDIES OF BONE DEFORMATION AND FRACTURE**, ANGELA CARDEN, Michael D. Morris, Rupak M. Rajachar, David H. Kohn, University of Michigan, 930 N. University Avenue, Ann Arbor, MI, USA
- 9:10 (906) **INTERPRETING THE RAMAN SPECTRA OF BONE TISSUE: VIBRATIONS OF MODEL APATITES BY RAMAN SPECTROSCOPY AND DFT CALCULATIONS**, MARY M. J. TECKLENBURG, Robert Buckland, Amy Schwerin, Central Michigan University, Dept. of Chemistry, Mt. Pleasant, MI, USA
- 9:30 (907) **MINERALIZATION IN MURINE CALVARIAL TISSUE: A RAMAN MICROSCOPY STUDY**, CATHERINE P. TARNOWSKI, Nicole J. Crane, Michael A. Ignelzi, Jr., Michael D. Morris, University of Michigan, 930 N. University Ave., Ann Arbor, MI, USA
- 9:50 (908) **THE SEARCH FOR MOLECULAR SIGNATURES IN CANCER CELLS: RAMAN SPECTROSCOPY, PCA, AND FACTOR ANALYSIS OF M1 AND M11 RAT FIBROBLAST CELLS**, JON R. SCHOONOVER, Kristin Omberg, James Freyer, Shuliang Zhang, Los Alamos National Laboratory, Mail Stop E549, Los Alamos, NM
- 10:10 **Coffee Break**
- 10:40 (909) **RAMAN SPECTROSCOPY FOR COMPOSITION PROFILING**, STEVEN BELL, Andrew Dennis, Lindsay Barrett, James Speers, Queen's University, Malone Road, Belfast, United Kingdom
- 11:00 (910) **DEVELOPMENT OF A PHASE STATE DIAGRAM FOR POLYMER CURE FROM SIMULTANEOUS RAMAN AND RHEOLOGY MEASUREMENTS**, STUART FARQUHARSON, Wayne Smith, Jennifer Rose, Montgomery Shaw, Real-Time Analyzers, 87 Church Street, East Hartford, CT, USA
- 11:20 (911) **RAMAN ANALYSIS OF POLYMER LEDS**, ARJAN MANK, Philips, Prof. Holstlaan 4 (WB71), Eindhoven, The Netherlands
- 11:40 (912) **AUTOMATIC CORRECTION OF PEAK SHIFTS IN RAMAN SPECTRA BEFORE PLS REGRESSION**, HAN WITJES, Mark Van Den Brink, Lutgarde Buydens (1), Akzo Nobel, Velperweg 76, (1) Technical University of Eindhoven, The Netherlands, Arnhem, The Netherland

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