

TECHNICAL PROGRAM

As of November 5, 2018

SUNDAY, MARCH 17, 2019
AFTERNOON

SYMPOSIUM

Session 10

Analytical Chemistry and ANYL: New Measurement Tools for Characterizing Individual Cells - arranged by Jonathan Sweedler, University of Illinois at Urbana Champaign

Sunday Afternoon, Room 120A

Jonathan Sweedler, University of Illinois at Urbana Champaign, Presiding

- 1:30 **Introductory Remarks - Jonathan Sweedler**
- 1:35 (10-1) **Single-Cell Proteomics and Metabolomics for Understanding the Developing Embryo and the Brain** PETER NEMES, University of Maryland, College Park, Camille Lombard-Banek, Erika P Portero, Sam B Choi, Chiara M Manzini, Abigail M Polter, Sally A Moody
- 2:10 (10-2) **An Integrated Analytical Platform for Studying Neurotransmission** MEI SHEN, University of Illinois at Urbana-Champaign
- 2:45 (10-3) **The N-glycome Development Plan during Vertebrate Embryogenesis** NORMAN DOVICH, University of Notre Dame, Zhenbin Zhang, Josh Coon, Alexander Hebert, Michael Westphall, Yanyan Qu, Paul Huber
- 3:20 **Recess**
- 3:35 (10-4) **Fluorescence Spectroscopy and MS Analysis in Multi-Droplet Arrays for Single-Cell Analysis and Bioassays** PETRA S DITTRICH, ETH Zurich
- 4:10 (10-5) **Visualization of Cell Typing at Single Cell Level by Mass Spectrometry** XINRONG ZHANG, Tsinghua University, Lesi Cai, Zhe Song, Zhanping Li, Sichun Zhang

SYMPOSIUM

Session 20

Clinical Biophotonics - arranged by Juergen Popp, Leibniz Institute of Photonic Technology and Igor K Lednev, University at Albany, SUNY

Sunday Afternoon, Room 115A

Juergen Popp, Leibniz Institute of Photonic Technology, Presiding

- 1:30 **Introductory Remarks - Juergen Popp and Igor K Lednev**
- 1:35 (20-1) **Clinical Cell and Tissue Diagnostics by Multimodal Molecular Spectroscopy** JUERGEN POPP, Leibniz Institute of Photonic Technology
- 2:10 (20-2) **Deep Learning-Enabled Computational Microscopy and Sensing** AYDOGAN OZCAN, University of California
- 2:45 (20-3) **Dynamic Optical Coherence Elastography: Emerging Tool for Noninvasive Quantification of Tissue Mechanical Properties** KIRILL LARIN, University of Houston
- 3:20 **Recess**
- 3:35 (20-4) **Raman Hyperspectroscopy and Advanced Statistical Analysis: A Novel Universal Method for Disease Diagnostics** NICOLE M RALBOVSKY, University at Albany, SUNY, Lenka Halamkova, Igor K Lednev
- 4:10 **Abstract Was Not Available At Time Of Print**

SYMPOSIUM

Session 30

Electroanalytical Chemistry on Inexpensive Substrates - arranged by Thiago Paixao, University of Sao Paulo and Charles Henry, Colorado State University

Sunday Afternoon, Room 115B

Thiago Paixao, University of Sao Paulo, Presiding

- 1:30 **Introductory Remarks - Thiago Paixao and Charles Henry**
- 1:35 (30-1) **Electrochemical Paper-Based Analytical Devices for Infectious Disease Detection** CHARLES HENRY, Colorado State University, Brian Geiss, David S Dandy
- 2:10 (30-2) **Hanging by a Thread: Sensors, Microfluidics and Drug Delivery** SAMEER SONKUSALE, Tufts University
- 2:45 (30-3) **Wearable and Implantable Electrochemical Paper-Based Electronics** RAMSES V MARTINEZ, Purdue University
- 3:20 **Recess**
- 3:35 (30-4) **Paper-Derived Carbon Electrodes** CARLOS D GARCIA, Clemson University
- 4:10 (30-5) **Laser Scribing to Fabricate Electrochemical Paper-Based Devices** THIAGO R PAIXAO, University of São Paulo

SYMPOSIUM

Session 40

High-Resolution Mass Spectrometry for the Analysis of Organic Contaminants - arranged by Imma Ferrer, University of Colorado

Sunday Afternoon, Room 115C

Imma Ferrer, University of Colorado, Presiding

- 1:30 **Introductory Remarks - Imma Ferrer**
- 1:35 (40-1) **Profiling and Identification of Poly- and Perfluoroalkyl Substances (PFAS) in Wastewater Treatment Plant (WWTP)** MIAOMIAO WANG, Department of Toxic Substances Control, Erika Houtz, Wendy Duong, June-Soo Park
- 2:10 (40-2) **The Role of High-Resolution Mass Spectrometry in Environmental Research: Developments and Challenges** LUBERTUS BIJLSMA, Jaume I University
- 2:45 (40-3) **What Lies Beneath: Untargeted UPLC-HRMS Screening of Cyanobacterial Harmful Algal Blooms** WENDY STRANGMAN, University of North Carolina at Wilmington
- 3:20 **Recess**
- 3:35 (40-4) **Suspect and Non-Target Screening of Organic Pollutants in Marine Water and Stormwater** ZHENYU TIAN, University of Washington Tacoma, Edward P Kolodziej, C Andrew James, Katherine T Peter, Fan Hou
- 4:10 (40-5) **Analysis of Opioids in Waters by LC/Q-TOF-MS** IMMA FERRER, University of Colorado, Marina Celia Campos-Manas, Ana Aguera, Michael Thurman

SYMPOSIUM

Session 50

IAEAC (International Association of Environmental Analytical Chemistry) - Thinking Outside of the Box - arranged by Antje J Baeumner, University of Regensburg

Sunday Afternoon, Room 116

Antje J Baeumner, University of Regensburg, Presiding

- 1:30 **Introductory Remarks - Antje J Baeumner**
- 1:35 (50-1) **High-Density Nanoarrays for Medical Diagnostics** DAVID R WALT, Harvard Medical School

- 2:10 (50-2) **A Pathway to Near-Patient Diagnostics in Low and Middle Income Countries** LISA HALL, University of Cambridge, Cassi Henderson, Dushanth Seevaratnam, Ronan Daly
- 2:45 (50-3) **Analytical Chemistry: Thinking of New Boxes** GEORGE M WHITESIDES, Harvard University
- 3:20 **Recess**
- 3:35 (50-4) **Tissue Engineering Meets the Lab-on-a-Chip** JENNY EMNÉUS, Technical University of Denmark
- 4:10 (50-5) **Can Clever Stuff Be Made Useful?** DAVID BELL, Intellectual Ventures

SYMPOSIUM

Session 60

Integrated Microfluidics for Quantitative Measurements of Biological Processes - arranged by R Scott Martin, Saint Louis University and Mike Roper, Florida State University

Sunday Afternoon, Room 117

R Scott Martin, Saint Louis University, Presiding

- 1:30 **Introductory Remarks - R Scott Martin and Mike Roper**
- 1:35 (60-1) **Microfluidic Delivery of Chemical Stimuli to Mimic Local Events in Live Tissue Explants** REBECCA R POMPANO, University of Virginia
- 2:10 (60-2) **Single-Cell Measurements of Stress Response on Microfluidic Devices** MICHELLE L KOVARIK, Trinity College
- 2:45 (60-3) **Microfluidic Bubble Perfusion for Hypothalamic Slice Culture and Temporal Profiling of Cellular Secretions** CHRISTOPHER A BAKER, University of Tennessee
- 3:20 **Recess**
- 3:35 (60-4) **Investigating Hyperglycemia Effects on Endothelial Cell Metabolism Using Microfluidics and Mass Spectrometry** JAMES EDWARDS, Saint Louis University
- 4:10 (60-5) **Integration of Dielectrophoretic Selective Single-Cell Capture at a Wireless Electrode Array with On-Chip Fluidic Isolation and Electrical Lysis for High-Throughput Analysis** ANAND KIMBERLY ROBBYN, Iowa State University, Min Li

SYMPOSIUM

Session 70

Microanalytical Systems and Microsensors for Environmental Sensing - arranged by Xiangqun Zeng, Oakland University and Peter J Hesketh, Georgia University of Technology

Sunday Afternoon, Room 118A

Xiangqun Zeng, Oakland University, Presiding

- 1:30 **Introductory Remarks - Xiangqun Zeng and Peter J Hesketh**
- 1:35 (70-1) **Smart Microanalytical Sensors for Smart Cities and e-Health Applications** JOSEPH ROBERT STETTER, KWJ Engineering Inc.
- 2:10 (70-2) **Ultra-Compact High-Performance Micro-GC for Rapid Vapor Analysis** XUDONG FAN, University of Michigan, Hongbo Zhu, Jinyan She, Menglian Zhu, Robert Nidetz, Katsuo Kurabayashi
- 2:45 (70-3) **Cell-Free Biomolecule and Extracellular Vesicle Detection for Point of Care** YUHWANG LO, University of California, San Diego, Wei Cai, YiHuan Tisa, Ping-Wei Chen, Lennart Langouche
- 3:20 **Recess**
- 3:35 (70-4) **Trace Vapor Testbed and Vapor Generators for Hazardous Chemicals, Explosives and Narcotics** SUSAN L ROSE-PEHRSSON, Naval Research Laboratory, Greg E Collins, Braden C Giordano, Mark H Hammond, Cy Tamanaha, Michael P Malito, Christopher J Katilie, Alison Simon
- 4:10 (70-5) **Ionic liquids and Gas Sensor Applications** XIANGQUN ZENG, Oakland University, Xiaojun Liu, Yongan Tang

SYMPOSIUM

Session 80

Raman Spectroscopy for Neuroscience - arranged by Bhavya Sharma, University of Tennessee

Sunday Afternoon, Room 118C

Bhavya Sharma, University of Tennessee, Presiding

- 1:30 **Introductory Remarks - Bhavya Sharma**
- 1:35 (80-1) **Label-Free Chemical Imaging of Brain Structure and Function at Subcellular Resolution** DAN FU, University of Washington
- 2:10 (80-2) **Raman Spectroscopy-Based Sensors and Non-Invasive Neurochemical Detection** BHAVYA SHARMA, University of Tennessee
- 2:45 (80-3) **SERS Optophysiology Analysis of Neuron Cultures** JEAN-FRANCOIS MASSON, University of Montreal
- 3:20 **Recess**
- 3:35 (80-4) **Stimulated Raman Scattering Microscopy for Enhanced Chemical Coverage in Brain Tissues and Populations of Individual Cells** ROHIT BHARGAVA, University of Illinois at Urbana-Champaign, Elizabeth Kathleen Neumann, Sanghamitra Deb, Troy Comi, Jennifer Mitchell, Stanislav S Rubakhin, Martha Gilette, Jonathan V Sweedler
- 4:10 **Abstract Was Not Available At Time Of Print**

WORKSHOPS

Session 90

CACA (Chinese American Chromatography Association) - How To Be Successful In Your Career? - arranged by Tao Jiang, Mallinckrodt Pharmaceuticals and Chuping Luo, Advanced Materials Technology

Sunday Afternoon, Room 120B

Tao Jiang, Mallinckrodt Pharmaceuticals, Presiding

- 1:30 **Introductory Remarks - Tao Jiang and Chuping Luo**
- 1:35 (90-1) **Excel in Your Career: Tips and Advice** MA MINGMING, Corteva Agrisciences
- 2:10 (90-2) **Careers for Analytical Chemist in Industry** JUDSON HAYNES, Procter & Gamble
- 2:45 (90-3) **How to Support Drug Discovery and Development While Enriching Your Career -Personal Experience of a Bioanalytical Scientist** WENYING JIAN, Johnson & Johnson
- 3:20 **Recess**
- 3:35 (90-4) **Understanding Your Transferable Skills for Early Career Development** FENGJIAN SHI, Biogen
- 4:10 (90-5) **Prepare for Unpredictable Careers** GUO YONG, Fairleigh Dickinson University

ORGANIZED CONTRIBUTED SESSIONS

Session 100

Ionophore-Based Chemical Sensors, Part I - arranged by Philippe Buhlmann, University of Minnesota

Sunday Afternoon, Room 122A

Philippe Buhlmann, University of Minnesota, Presiding

- 1:30 (100-1) **A Surface Study of Self-Assembled Monolayer (SAM)-Based Solid Contact (SC) Polymeric Ion Sensors** ROLAND DE MARCO, University of the Sunshine Coast, John Bradley, Gaston Crespo, Maria Cuartero Botia
- 1:50 (100-2) **Potentiometric Biosensors Based on Peptides** JIAWANG DING, Yantai Institute of Coastal Zone Research, CAS, Wei Qin, Lv Enguang, Qin Wei
- 2:10 (100-3) **Novel Electroanalytical Strategy to Address Pressing Challenges in Neurotransmitter Sensing** MEI SHEN, University of Illinois at Urbana-Champaign
- 2:30 (100-4) **Cytocompatible and Wearable All-Solid-State Potentiometric Microneedle Patch for Intradermal Potassium Detection** GASTON CRESPO, KTH Royal Institute of Technology
- 2:50 **Recess**
- 3:05 (100-5) **Nanoemulsions for Biomedical/Electrochemical Application: A Comprehensive Study on the Nanostructural Effect** JIYEON KIM, University of Rhode Island

3:25 (100-6) **Thread-Based and Paper-Based Potentiometric Sensors as Point of Care Diagnostics, Enzyme Assays, and Tools for Resource Limited Analyses** MARAL P.S. MOUSAVI, Harvard University, Mohamed K Abd El-Rahman, Jeffery G Bell, Alar Ainla, Edward K. W. Tan, Yumi Yoshida, Shervanthi Homer-Vanniasinkam, George M Whitesides

3:45 (100-7) **Flexible Ion-Selective Microelectrodes to Study Microbial Metabolism in Real-Time** DIPANKAR KOLEY, Oregon State University

4:05 (100-8) **Potentiometric Selectivities of Ionophore-Doped Ion-Selective Membranes: Concurrent Presence of Primary Ion or Interfering Ion Complexes of Different Stoichiometries** PHILIPPE BUHLMANN, University of Minnesota, Xin V Chen, Evan L Anderson, Ibrahim Yilmaz

ORAL SESSIONS

Session 110

Air Monitoring (Half Session)

Sunday Afternoon, Room 120C

1:30 (110-1) **Monitoring Trace Levels of Benzene in Ambient Air** ISMO KAUPPINEN, Gasera Ltd, Tuomas Hieta

1:50 (110-2) **Advanced Solutions for Comprehensive Ambient Air Monitoring** NICOLA WATSON, Markes International, Helen Martin, Massimo Santoro, David Wevill, Rui Li, Natasha Spadafora

2:10 (110-3) **Using Chlorofluorocarbons and Halocarbons for Sample Monitoring Compounds to Improve Confidence in the US EPA TO-15 Type Air Methods** WAYNE JOHN WHIPPLE, US Environmental Protection Agency Region 5 Chicago Regional Laboratory

2:30 (110-4) **How Human Presence and Activities of Daily Living Influence Indoor Air Quality** MANUEL THARIN, Philip Morris International R&D, Maya Mitova, Michel Rotach, Catherine Goujon-Ginglinger

ORAL SESSIONS

Session 120

Analytical Agricultural Applications (Half Session)

Sunday Afternoon, Room 120C

3:05 (120-1) **Fast GC PID & FUV Detectors for Measurement of Greenhouse Gases in Livestock Barns** JENNIFER MACLACHLAN, PID Analyzers LLC, Jack Driscoll

3:25 (120-2) **Direct Determination of Paraquat, Diquat, and Related Cationic Polar Pesticides in Homogenized Food Samples Using Ion Chromatography and High-Resolution Accurate Mass Spectrometry** TERRI T CHRISTISON, Thermo Fisher Scientific, John Edward Madden, Jeffrey Scott Rohrer

3:45 (120-3) **Liquid Chromatography Tandem Mass Spectrometry as a Tool for Monitoring Pharmaceuticals in Urine-Derived Fertilizer Products and Crops** REBECCA WOMBACHER, University at Buffalo, SUNY, Diana S Aga

4:05 (120-4) **Pesticide Detection Using a Self-Pumping Microfluidic Herringbone Mixer** RUTH F MENGER, Colorado State University, Wei Wang, Rob B Channon, Charles Henry, Arun K Kota

ORAL SESSIONS

Session 130

Bioanalytical Neurochemistry

Sunday Afternoon, Room 121A

1:30 (130-1) **Co-Detection of Guanosine and Adenosine Using a Multi-Scan Rate Waveform with Fast-Scan Cyclic Voltammetry** MICHAEL T CRYAN, University of Cincinnati, Ashley E Ross

1:50 (130-2) **Sub-Second Neurotransmitter Measurements in Zebrafish** MICHAEL JOHNSON, University of Kansas, Chase Stucky, Eduardo Rosa-Molinari, Heather Shinogle, Noraida Martinez-Rivera

2:10 (130-3) **Integration of In Vivo FSCV with Optogenetic and Chemogenetic Techniques to Decode Catecholamine Neurocircuits** JINWOO PARK, University at Buffalo, SUNY, Rohan V Bhimani, Caroline Bass

2:30 (130-4) **Ultrafast Glutamate Biosensor Recordings in Brain Slices Reveal Single Exocytosis Transients** ANN-SOFIE CANS, Gothenburg University, Yuanmo Wang, Devesh Mishra, Jenny Bergman, Jacqueline Keighron, Karolina P Skibicka

2:50 **Recess**

3:05 (130-5) **Ca²⁺ Control of Vesicle Fusion Augments Neurotransmitter Release in Rat Pheochromocytoma Cells** SAMUEL T BARLOW, University of Washington, Bo Zhang

3:25 (130-6) **Evaluating the Separation of Highly Basic Neuropeptides Using Capillary Electrophoresis with Mass Spectrometric Detection** EMILY A KURFMAN, University of Kansas, Susan M Lunte

3:45 (130-7) **Detection of Optogenetically Stimulated Dopamine Release in Adult *Drosophila Melanogaster* Brain** MIMI SHIN, University of Virginia, B Jill Venton

4:05 (130-8) **Amperometric Measurements Reveal How Repetitive Stimulations Affect Exocytosis and the Content of Nanometer Vesicles** CHAOYI GU, University of Gothenburg, Andrew Ewing

ORAL SESSIONS

Session 140

Biomedical Sensors

Sunday Afternoon, Room 121B

1:30 (140-1) **Evaluation of Aptamer Technology for Detection of Quorum Sensing Molecules Using Three Biosensing Techniques** PRANALI BUCH, Northeastern University, Edgar Goluch

1:50 (140-2) **Protein Profiling of Matched Tumor and Adjacent Tissue Using G-Quadruplex DNA** KATHLEEN MORRISSEY, Rensselaer Polytechnic Institute, Hari Shah, Marissa Hull, Dylan DeWitt, Linda McGown

2:10 (140-3) **Combined Sensor Techniques to Examine the Ovarian Cancer Odor Signature** YOUNG EUN LEE, Monell Chemical Senses Center, Wesley Harkins, Elizabeth Labows, Jason Eades, Christopher Kehayias, Emilie Benson, Chaile Johnson, Jennifer L Essler, Cynthia M Otto, Janos L Tanyi, Jody Piltz-Seymour, George Preti

2:30 (140-4) **Efficient Solid-Phase Synthesis of Sgc8-T6-Combretastatin A-4 Conjugate Targets Colon Cancer Highly Expressing PTK7 In Vitro, in 3D Model and In Vivo** DAN WANG, Hunan University

2:50 **Recess**

3:05 (140-5) **An Implantable Passive Fluidic Sensor for Non-Invasive Detection of Tibial Plate Strain with Plain Radiography** APEKSHA C RAJAMANTHRILAGE, Clemson University, Mohammad Arifuzzaman, Paul W Millhouse, Nathan Carrington, John D DesJardins, Caleb J Behrend, Jeffrey N Anker

3:25 (140-6) **Two Readouts Sensor Using Europium-Complex Doped MEH-PPV Polymer Dots for Copper Ions Detection** XIAO LIU, University of North Dakota, Juan Han, Xu Wu, Xiaojun Zhao

3:45 (140-7) **Integrating Sequence-Specific DNA Hybridization with Single-Molecule Detection to Diagnose Drug Resistance for Treating Sepsis** ROBERT L HANSON, Brigham Young University, Adam T Woolley, William G Pitt, Richard Robison, Olivia Tateoka, Ryan Wood, David Hyrum Harris, Holger Schmidt, Gopikrishnan Meena

4:05 (140-8) **Sensors for Oral Fluid Analysis Aimed to the Prediction of the Recurrent Heart Failure Crises** ABDELHAMID ERRACHID, Claude Bernard University Lyon 1

ORAL SESSIONS

Session 150

Chromatographic and Mass Spectrometric Approaches for Biopharmaceuticals

Sunday Afternoon, Room 121C

1:30 (150-1) **Fast and High-Resolution Analysis of Therapeutic Proteins Using a Novel Weak Cation Exchange Stationary Phase** JULIA BAEK, Thermo Fisher Scientific, Shanhua Lin, Shane Bechler, Stacy Tremintin

1:50 (150-2) **A Comprehensive Workflow Solution for the U/HPLC Analysis of Biosimilars** ATIS CHAKRABARTI, Tosoh Bioscience LLC, Daniel Shollenberger, Stacy Shollenberger, Keegan Gike

2:10 (150-3) **Chemical Imaging of Bacteria Biofilms Cultivated on Mucin-Modified Patterns** JOSEPH F ELLIS, University of Illinois at Urbana-Champaign, Jin Jia, Nydia Morales-Soto, Elizabeth Kathleen Neumann, Joshua D ShROUT, Paul Bohn, Jonathan V Sweedler

2:30 (150-4) **Evaluation of IgG1 Aggregation in the Development of a Process Scale Purification Platform** WILLIAM E EVANS, Tosoh Bioscience LLC, Daniel Shollenberger, Jukka Kervinen, Atis Chakrabarti

2:50 **Recess**

3:05 (150-5) **Mass Spectrometry Imaging of Bacterially Infected Human Skin Tissue on Silicon Nanopost Arrays** JAROD FINCHER, George Washington University, Derek Jones, Jacqueline Dyer, Andrew Korte, Nicholas Morris, Russell Pirlo, Victoria Shanmugam, Akos Vertes

3:25 (150-6) **Relative Quantification of Metabolites in Fecal Samples Using Three Analytical Platforms and the Role of Cathelicidin-Related Antimicrobial Peptide in Alcoholic Liver Disease** LIQING HE, University of Louisville, Fengyuan Li, Fang Yuan, Xinmin Yin, Aminul Islam Prodhhan, Craig McClain, Wenke Feng, Xiang Zhang

3:45 (150-7) **Fast and Robust Separation of Immunoglobulin G (IgGs) from Various Species and Subtypes Using an Analytical Recombinant Protein A Affinity Column** ATIS CHAKRABARTI, Tosoh Bioscience LLC, Stacy Shollenberger, Keegan Gike

4:05 (150-8) **Integrating Comprehensive Two-Dimensional Gas Chromatography Mass Spectrometry and Two-Dimensional Liquid Chromatography Mass Spectrometry for Metabolomics** AMINUL ISLAM PRODHAN, University of Louisville, Ming Song, Liqing He, Shi Biyun, Fang Yuan, Yin Xinmin, Craig McClain, Xiang Zhang

ORAL SESSIONS

Session 160

LCMS - Environmental Analyses and Phases to Help

Sunday Afternoon, Room 123

1:30 (160-1) **Determination of Bromate in Drinking Water Using Ion Chromatography-Single Quadrupole Mass Spectrometry** JINGLI HU, Thermo Fisher Scientific, Jeffrey Scott Rohrer

1:50 (160-2) **Suspect Screening of Micropollutants in Wastewater and Receiving Surface Water** LUISA F ANGELES, University at Buffalo, SUNY, Diana S Aga

2:10 (160-3) **Cartridge Extraction of Perfluorinated Compounds in Drinking Water Beyond Those Outlined in EPA Method 537** MICHAEL EBITSON, Horizon Technology

2:30 (160-4) **Analysis of Cationic Quaternary Polar Pesticides Using Ion Chromatography coupled with Triple Quad Mass Spectrometry** JOHN EDWARD MADDEN, Thermo Fisher Scientific, Charanjit Saini, Christopher Pohl, Yan Liu

2:50 **Recess**

3:05 (160-5) **Improving Polar Analyte Analyses with Innovative HILIC Column Configurations and Methodology** ANNE MACK, Agilent Technologies, William Long, Adam Bivens, Jason Link, Lakshmi Subbarao, Sami Chanaa

3:25 (160-6) **HPLC Study of Amino-Phenyl Stationary Phases** MARTIN SEBASTIAN GARNERO, University at Buffalo, SUNY, Luis A Colon, Amaris C Borges-Munoz, Joseph R Ezzo

3:45 (160-7) **Mass Chromatogram Selection in Liquid Chromatography-Mass Spectrometry (LC-MS) Using Pattern Recognition and Cross Correlation Algorithms** MATTHEW R LINFORD, Brigham Young University, Shiladitya Chatterjee

4:05 (160-8) **Electron Ionization LC-MS and GC-MS with Cold EI in One System** AVIV AMIRAV, Tel Aviv University, Svetlana Tszin, Alexander Fialkov

ORAL SESSIONS

Session 170

Liquid Chromatography - Detection and Instrumentation

Sunday Afternoon, Room 124

1:30 (170-1) **Toward Universal Calibration with Liquid Chromatography: Factors Affecting the Response Uniformity of Charged Aerosol Detection** PAUL GAMACHE, Thermo Fisher Scientific, Katherine S Lovejoy, Frank Steiner

1:50 (170-2) **FID for (U)HPLC: Carbon Specific Detection and Unparalleled Linear Range** ANDREW JONES, Activated Research Company

2:10 (170-3) **Withdrawn**

2:30 (170-4) **Determination of Aminoglycoside Antibiotics by LC-PAD** JINGLI HU, Thermo Fisher Scientific, Jeffrey Scott Rohrer

2:50 **Recess**

3:05 (170-5) **Inert, Durable, and Reliable CVD Coating for Metal-Free HPLC from Pump to Detector** JESSE BISCHOF, SilcoTek Corporation, Luke Patterson, Gary Barone

3:25 (170-6) **Autosamplers for Dilution** SUE DANTONIO, Agilent Technologies, Greg Hunlen

3:45 (170-7) **Nano-Scale HPLC Pumps for Isocratic and Gradient Nano HPLC Systems** STANLEY D STEARNS, Valco Instruments Co. Inc., Martin Brisbin, Alex Plistol, Jennifer Copeland, Hal Barnett, Huamin Cai

4:05 (170-8) **New Suppression Technology for Ion Chromatography** RONG LIN, Thermo Fisher Scientific, Sheetal Bhardwaj, Mrinal Sengupta, Kannan Srinivasan, Christopher Pohl, Yan Liu

ORAL SESSIONS

Session 180

Problem-Solving in the Polymer Industry

Sunday Afternoon, Room 125

1:30 (180-1) **Ensemble and Single-Molecule Studies of Environmental Polarity in Solvent-Swollen Polymer Thin Films Using Solvatochromic Fluorescent Probes** HERMAN COCEANCIH, Kansas State University, Daniel A Higgins, Takashi Ito

1:50 (180-2) **Supramolecular Structures of Poly(ethylene oxide) Nanocomposites** PENG HE, North Carolina Agricultural and Technical State University

2:10 (180-3) **Raman Mapping Study of Degradation of Poly(lactic Acid)** SLOBODAN SASIC, Renishaw Inc., Richard Bormett, Tim Batten, Olga Miliukof, Mayumi Misawa

2:30 (180-4) **Confocal Raman and Microscopy Characterization of Waterborne Coatings** DANA GARCIA, Arkema Inc., Jeffrey Schneider, Wenjun Wu

2:50 **Recess**

3:05 (180-5) **Unknown Identification in an Industrial Analytical Laboratory Using Vibrational Spectroscopy and Spectral Search Software Coupled with Databases** DANA GARCIA, Arkema Inc., Farrel Borden

3:25 (180-6) **Utilizing Silicon Photonic Microring Resonators as a Gradient Elution Liquid Chromatography Detector for the Characterization of Industrial Polymers** EMILY HELEN MORDAN, University of Michigan, James Wade, Ryan C Bailey, David Meunier, Eric Pearce

3:45 (180-7) **FID Analysis of Polymers Using Size Exclusion Chromatography** ANDREW JONES, Activated Research Company

4:05 (180-8) **Withdrawn**

ORAL SESSIONS

Session 190

Process Analytical Techniques

Sunday Afternoon, Room 118B

1:30 (190-1) **Rapid Volume Verification Technologies Employed to Determine Tolerances and Minimize Systematic Errors Involved in qPCR Preparations Affecting Efficiency** PETAR STOJADINOVIC, GoodPipetting: A Division of Automation Trainer, Jason Dickman, John Collier, Arben Koshi, Laura Simdon, Ryan Hamilton

1:50 (190-2) **Siloxane Detection in BioGas by GC-FTIR** MARTIN L SPARTZ, Max Analytical Technologies, Kelly R McPartland, Kaitlyn V Bagley

2:10 (190-3) **Safe Scale Up of Chemical Processes: Integration of Safety Testing in Development Life Cycle of Cutting-Edge Technologies** MICHAEL CAROLAN, DEKRA Process Safety

2:30 (190-4) **Real-Time Attribute Monitoring of a Continuous Manufacturing Process Using In-Line IR Spectroscopy and On-Line UPLC** ELYSE TOWNS, GlaxoSmithKline, Robert Bondi, Christian Airiau

2:50 **Recess**

3:05 (190-5) **Multispectral Process Control - From R&D to IoT-Sensors** VIACHESLAV ARTYUSHENKO, Art Photonics GmbH

3:25 (190-6) **Strategies for Implementing NIR Spectroscopy in Bioprocessing** ADAM J HOPKINS, Metrohm USA, Elena Hagemann

3:45 (190-7) **Emulsion Characterization Study of Blended AH and AL Crude Oil Samples** ALAA AL-ALI, Saudi Aramco, Zakareya Al-Hamad, Norman Mateo

4:05 (190-8) **New Apparatus for Measurement of Supercritical CO₂ Liquid Phase Equilibria** ROLF SCHLAKE, Applied Separations, Alfred Kaziunas

Water Quality and Incidental Contamination**Sunday Afternoon, Room 122B**

- 1:30 (200-1) **Spectroscopic Techniques for Polymer Identification in Plastic Marine Debris** BRIDGET O'DONNELL, HORIBA Scientific, Ashok Deshpande, Jennifer Lynch, Kayla Brignac, Melissa Jung, Davielle Drayton, Dante Freeman, Nigel Lascelles
- 1:50 (200-2) **Of Fireworks and Tourism: GCxGC-HRMS Analysis of Summer Impacts on Lake Michigan Water Quality** CHRISTINA N KELLY, LECO Corporation, Joseph E Binkley, Lorne M Fell, Todd S Richards
- 2:10 (200-3) **Optimising the Workflow for the IR Microscopic Analysis of Microplastics** IAN ROBERTSON, PerkinElmer, Ariel Bohman, Robert Packer
- 2:30 (200-4) **Evaluation of Estrone Conversion in a Simulated Livestock Manure Runoff under Aerobic Conditions** MARY GRACE E GUARDIAN, University at Buffalo, SUNY, Diana S Aga
- 2:50 **Recess**
- 3:05 (200-5) **Development of Portable Electrochemical Instrumentation and Automated Analysis Software for On-Site, Low-Cost, and User-Friendly Measurement of Water-Borne Contaminants** DREW FARRELL, University of Arizona, Michael L Heien
- 3:25 (200-6) **Enhanced Confidence in Routine Monitoring of River Water Quality by Passive Sampling with GCxGC-TOF MS with Tandem Ionisation** LAURA MCGREGOR, SepSolve Analytical, Anthony Gravell, Graham Mills, Matthew Edwards, Rebecca Preston
- 3:45 (200-7) **Simple, Quick, Low Cost & High Throughput Sample Clean Up for Dioxin & PCBs Analysis** RUDOLF ADDINK, Fluid Management Systems, Tom Hall
- 4:05 (200-8) **Assessing Bioaccumulation of Emerging and Legacy Flame Retardants in Common Tern from the Niagara Migration Flyway Using Gas Chromatography Tandem Mass Spectrometry** STEVEN TRAVIS, University at Buffalo, SUNY, Diana S Aga, Alicia Pérez-Fuentetaja

ACS POSTER

Session 210

All posters are to be mounted by 3:30 and remain on display until 7:30 PM. Authors must be at their posters from 5:30 – 7:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

ACS (American Chemical Society) Poster Session**Sunday Afternoon, Room Pub Pitcon**

- (210-1 P) **A Simple Tool for Fit for Purpose Commercial Method Optimization Applied within a Holistic Analytical Control Strategy** QINGGANG WANG, Bristol-Myers Squibb, Peter Tattersall, Brent Kleintop
- (210-2 P) **Spectroscopic Characterization of Dyes in Color Powders** CHONG NGEE-SING, Middle Tennessee State University
- (210-3 P) **Excel for Lab Automation** SCOT DAVID ABBOTT, Phoenix
- (210-4 P) **3-D Mapping of the Chemical Contents of Anthropogenic Soils by the Chemometric Analysis of Infrared and Visible Spectra** AFRIN LOPA, University of Akron, David Perry, Anthony Cava, Timothy Matney, Linda R Barrett, David Maki
- (210-5 P) **Biosorption of Methylene Blue from Aqueous Solutions Using Seagrass** RIYAD MAHFUD, International College of Engineering & Management, Nada Abd latif
- (210-6 P) **Hybrid Nanoflowers: A Newly Developed Nanobiocatalyst of L-Arabinose Isomerase for Equilibrium Level Isomerization of D-Galactose to D-Tagatose** SHUSHIL KUMAR RAI, Center of Innovative and Applied Bioprocessing, Sudesh K Yadav
- (210-7 P) **Computer Simulation Based Comparison of Tandem-Column U/HPLC and Conventional U/HPLC with a Single Column** ZHIYANG LIU, Drexel University, Joe P Foley
- (210-8 P) **Removal of Phenolic Compounds from Water with PES-UF Membrane** AMINE MNIF, Tunis University, Meral Mouelhi, Béchir Hamrouni
- (210-9 P) **Improving Microfluidic Electrophoresis-Based Affinity Assays Using In-Line Filters, Temperature Control, and Unbiased Injections** WEIJIA LENG, Florida State University, Michael G Roper, Kimberly Evans
- (210-10 P) **Direct Thermal Analysis of Solid and Liquid Samples** JOHN STUFF, Gerstel, Inc., Laurel A Vernarelli, Jacqueline A Whitecavage

(210-11 P) **Thermal Desorption Ambient Ionization Screening with High Throughput Mass Analysis** BRIAN MUSSELMAN, IonSense, Inc., Paul Liang, Adam Hill

(210-12 P) **GC Fingerprinting to Assist Oil Wells Downhole Corrosion** TALAL ALGHAMDI, Saudi Aramco

(210-13 P) **Metabolism of Masitinib, An Investigational Drug for Use in Amyotrophic Lateral Sclerosis Therapy** MATTHEW VERGNE, Lipscomb University, Spencer Oskin

(210-14 P) **Simultaneous Determination of Pioglitazone and Metformin in Combined Pharmaceutical Formulations by Hydrophilic Interaction Chromatography** YUEGANG ZUO, University of Massachusetts Dartmouth, Xiaofei Lu, Caroline Martin, Pari Samani, Zemen Berhe, Dominic Siaw, Yiwei Deng

(210-15 P) **Quality Control Problems in Commercially Available Essential Oils** TRANG NGUYEN, Mercyhurst University, Jack D Williams

(210-16 P) **Detection of Volatile Organic Compounds Using the Tin Oxide Electrochemical Sensor** NEIL D DANIELSON, Miami University, Luke A Miller

(210-17 P) **Investigating Surface Reactions in a Gas Containment System for a Comet Sample Return Mission** PATRICIA M TAKAHARA, Montgomery College, Evelyn M Gray, Mark M Hasegawa, Simon J Clemett, Jason P Dworkin, Daniel P Glavin

(210-18 P) **Fluorescence Quenching Effect of Gold Nanoparticles on Graphene Quantum Dots** YUWEI ZHANG, New Mexico Highland University, Jiao Chen

(210-19 P) **Forensic Analysis of Wire Insulation by Isotope Ratio Mass Spectrometry** DOUGLAS BEUSSMAN, St. Olaf College, Samantha Sierakowski, Timothy Kelly

(210-20 P) **SPME-APCI-MS: A Rapid and Simple Method for Detecting Controlled Substances** DOUGLAS BEUSSMAN, St. Olaf College, Andrew Sullivan, Xiaoping Zhang

(210-21 P) **Human Scent Differentiation via Gas Chromatography-Mass Spectrometry** DOUGLAS BEUSSMAN, St. Olaf College, Lydia Kostuch

(210-22 P) **Optimizing Nitrogen Concentrations to Maximize Lipid Yields for Algal Biodiesel Production** BARNABAS GIKONYO, Geneseo University, SUNY, Zoe Marr, Colleen Steward, Felicia Pascale

(210-23 P) **Quantitative Analysis of Amino Acids in Latent Fingerprints** SHOKOUH HADDADI, Oswego University, SUNY, Kate Bailie, Tyler Parkhurst, Nathaniel Stemmler, Sierra Plemenik, Joonwoo Park

(210-24 P) **Early Detection of Microbial Volatile Organic Compounds from Mold Samples** VADOU NIRI, Oswego University, SUNY, Christopher Pitts, Andrea Jemmot, Brianna Helfeld, Natasha LaFrance

(210-25 P) **An Improved Method for the Analysis of ppt Levels of Mercury in Ambient Air** JENNIFER MACLACHLAN, PID Analyzers LLC, Jack Driscoll

(210-26 P) **Synthesis and Evaluation of a Menthol-based Chiral Ionic Liquid for Enantiomeric Separations** IRENE KIMARU, St. John Fisher College, Leanne Maltese, Renuka Manchanayakage

(210-27 P) **The Chemistry of Crime: A Forensic Scientist Experience for Nonscience Majors** IRENE KIMARU, St. John Fisher College

(210-28 P) **Studies in Non-Invasive Blood Glucose Determination by Micro-Raman, FTIR-ATR Spectroscopy and Multivariate Statistics** GARY H NAISBITT, Utah Valley University

(210-29 P) **Using Time-Resolved Spectroscopy in the Undergraduate Chemistry Curriculum** MELISSA HILL, Vernier Software & Technology

(210-30 P) **Fractionation of Organosolv Lignin from Maple Wood** TSUNGHSUEH WU, University of Wisconsin-Platteville, Jamison Wallace

(210-31 P) **Edible Oils: Thermal Effect on the Stability and Quality Color and Chromatic Properties** GUILLERMO SALAMANCA GROSSO, University of Tolima, Mónica O Osorio Tangarife, Hector Andres Granada Diaz

(210-32 P) **Quantification of Warfarin in Human Plasma Using an Ultra High Pressure Liquid Chromatography-Mass Spectrometry** JIANG BO, Shimadzu (China) Co.,Ltd.

(210-33 P) **A Simple Setup to Monitor Multiphase Reactions in Real Time: Applications of Attenuated Total Reflection Infrared Spectroscopy** JENNIFER FAUST, College of Wooster, Cody Park, Kevin Wokosin, Shayna Vicker

(210-34 P) **Glyphosate Mediated Disruption on Lipid Organization of Stratum Corneum Skin Model** TIBEBE LEMMA, UNESP

(210-35 P) **Measurement of Lyophilized APIs by DSC and DMA Methods.** KEVIN MENARD, Mettler Toledo, Brian Turner, Benjamin Menard, Blaine Weddle

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Sunday Posters

Sunday Afternoon, Room Pub Pittcon

- (220-1 P) **Gold-Intercalated MoS₂@Carbon Nanofiber Composites as Highly Efficient and Flexible Substrates for Surface-Enhanced Raman Scattering** CHEN CHEN, North Carolina Central University, Martha Garcia Cervantes, Olabode Oladele, Yongan Tang, Fei Yan
- (220-2 P) **Conversion of Goethite to Hematite: The First Artificial Pigment?** WALTER J BOWYER, Hobart and William Smith Colleges, Stephen VanHoesen
- (220-3 P) **Integrating Clinical Analytical Research Projects into Chemistry Curriculum** YUEGANG ZUO, University of Massachusetts Dartmouth
- (220-4 P) **Simple and Effective Heavy Metals Analysis System for On-Site Measurement Using Homogeneous Liquid-Liquid Extraction (HoLLE) and Smart Device** TAKESHI KATO, Industrial Technology Innovation Center of Ibaraki, Yuki Nagashima, Atsushi Manaka
- (220-5 P) **Development of Original Attachment for Smart Device Color Analysis with Homogeneous Liquid-Liquid Extraction** ATSUSHI MANAKA, National Institute of Technology, Toyama College, Yuki Yokota, Takeshi Kato
- (220-6 P) **Simple Colorimetric Analysis for Determining Hexavalent Chromium with High Sensitivity Using Phase Separation Phenomenon** YUKI YOKOTA, National Institute of Technology, Toyama College, Atsushi Manaka, Takeshi Kato
- (220-7 P) **Karl Fischer Titration with an Azeotropic Distillation Method Using N-Octane for the Determination of Water in Lubricating Oils** AKIKO ONUKI, Hiranuma Sangyo Co., Ltd., Koji Kitanaka, Masaya Kurita, Shinya Yamashita, John MacFarlane
- (220-8 P) **Characterization of Aptamer Selectivity for a Glycopeptide Array Using Affinity Probe Capillary Electrophoresis** JOSEPH J ANDRY, Santa Clara University, Steven W Suljak
- (220-9 P) **Triple Functionalization of Titanium Aluminum Vanadium** ASHLEY BLYSTONE, Duquesne University, Ellen Gawalt
- (220-10 P) **Analysis of Vapor and Particulate Phases in Electronic Cigarette Emissions** CHONG NGE-SING, Middle Tennessee State University, Luke Philipose, Dibyendu Dutta, Kavya Kazipeta, Beng Guat Ooi
- (220-11 P) **What can be Improve in GC-MS and How Cold EI Achieves it** AVIV AMIRAV, Tel Aviv University, Alexander Fialkov, Uri Keshet, Tal Alon
- (220-12 P) **Microdevice Based on Centrifugal Effect and Bifurcation Law for Separation of Plasma from On-Line Diluted Whole Blood** MARIA PILAR CANIZARES-MACIAS, National Autonomous University of Mexico, Kenia Chavez-Ramos
- (220-13 P) **Limiting Factors in HPLC Determination of Pharmacokinetics of Drugs in the Body** HUBA KALASZ, Semmelweis University, Kornelia Tekes
- (220-14 P) **Comparison of UHPLC Column Characteristics for High-Throughput Analysis of Over-the-Counter Analgesics** GLENN A KRESGE, Rowan University, James P Grinias, Jenny-Marie T Wong, Mauro De Pra, Frank Steiner
- (220-15 P) **Evolving High-Affinity Aptamers for Cancer-linked Glycoforms of Thrombospondin-1** ATTICUS J MCCOY, Santa Clara University, Isabella T Whitworth
- (220-16 P) **Triple Quadrupole GC/MS/MS Analysis of Garden Variety Cactus from the Southwestern United States** CHRIS MCGUIRE, Shimadzu Scientific Instruments, Leyda Lugo-Morales, Nicole Lock, Andy Sandy, Alan Owens, Richard Karbowski
- (220-17 P) **Detection of Diallyldisulfide in Garlic Breath of Human Subjects Using Solid Phase Microextraction-Gas Chromatography-Mass Spectrometry** NORMAN E SCHMIDT, Tabor College, Haven Haas, Benjamin Loewen
- (220-18 P) **Labeling Peptides with Fluorescein Derivatives Using an Optimized Solid-Phase Synthesis** ELANA MARIA SHEPHERD STENNETT, Hobart and William Smith Colleges, Jack H Sherwood, Magdy N Gad, Heather Hartmann, Justin S Miller
- (220-19 P) **Accurate Mass Confirmation/Identification for Organic Synthesis with Single Quadrupole Mass Spec** YONGDONG WANG, Cerno Bioscience

MONDAY, MARCH 18, 2019 MORNING

AWARDS

Session 230

The Chromatography Forum of Delaware Valley Dal Nogare Award
 - arranged by Mary Ellen McNally, FMC Agricultural Solutions

Monday Morning, Room 125

Mary Ellen McNally, FMC Agricultural Solutions, Presiding

- 8:30 **Introductory Remarks - Mary Ellen McNally**
- 8:35 **Presentation of the 2019 Chromatography Forum of Delaware Valley Dal Nogare Award to Peter Schoenmakers, University of Amsterdam, by Mary Ellen McNally, FMC Agricultural Solutions**
- 8:40 (230-1) **Comprehensive Multi-Dimensional Liquid Chromatography** PETER SCHOENMAKERS, University of Amsterdam
- 9:15 (230-2) **Improved Methodologies for the Detailed Investigation of Individual Mass Transfer Phenomena in Liquid Chromatography** DEIRDRE CABOOTER, KU Leuven, Huiying Song, Devin Makey, Kim Vanderlinden, Yoachim Vanderheyden, Monika Dittmann, Dwight Stoll, Gert Desmet
- 9:50 (230-3) **The Second Dimension is a Strange Place - Recent Insights into the Performance of the Second Dimension in 2D-LC** DWIGHT STOLL, Gustavus Adolphus College, Hayley Lhotka, Eli Larson, Tyler Brau, Harrison Willenbring, David C Harnes, Ben Madigan, Gabriel Leme, Thomas Lauer, Monika Dittmann
- 10:25 **Recess**
- 10:40 (230-4) **Rapid and Effective Implementation of Comprehensive 2D-LC for "Impossible" Separations** BOB W J PIROK, University of Amsterdam, Noor Abdhussain, Bert Wouters, Ron A Peters, Peter Schoenmakers
- 11:15 (230-5) **Recent Advances in Multidimensional Liquid Chromatography for Pharmaceutical Analysis** KELLY ZHANG, Genentech Inc.

SYMPOSIUM

Session 240

A Next Generation for Advanced Ion-Battery Analytics - arranged by Joaquin Rodriguez-Lopez, University of Illinois at Urbana-Champaign and Anne Co, Ohio State University

Monday Morning, Room 115A

Joaquin Rodriguez-Lopez, University of Illinois at Urbana-Champaign, Presiding

- 8:30 **Introductory Remarks - Joaquin Rodriguez-Lopez**
- 8:35 (240-1) **The Design of Materials for High Rate Energy Storage** BRUCE DUNN, University of California, Los Angeles
- 9:10 (240-2) **Operando AFM as a Probe of Nanoscale Electrochemomechanics during Ion Intercalation in Transition Metal Oxides** VERONICA AUGUSTYN, North Carolina State University
- 9:45 (240-3) **Revealing Li Distribution and Transport in Battery Materials with Neutron Depth Profiling** ANNE CO, Ohio State University
- 10:20 **Recess**
- 10:35 (240-4) **In-Situ Imaging of Ionic Fluxes and Single-Site Reactivity on Heterogeneous Carbon Anodes via Scanning Electrochemical Microscopy** JOAQUIN RODRIGUEZ-LOPEZ, University of Illinois at Urbana-Champaign, Zachary J Barton, Zachary T Gossage
- 11:10 (240-5) **Advances in X-ray Microscopy for the Study of Battery Reactions in Single Particles** JORDI CABANA, University of Illinois at Chicago

SYMPOSIUM

Session 250

ACS Sensors: New Sensors and Signal Transduction Strategies for Health and Environmental Monitoring - arranged by Shana Kelley, University of Toronto

Monday Morning, Room 120A

Shana Kelley, University of Toronto, Presiding

- 8:30 **Introductory Remarks - Shana Kelley**
- 8:35 (250-1) **Chemical Mechanisms for Selectivity in Chemiresistors** TIMOTHY M SWAGER, Massachusetts Institute of Technology
- 9:10 (250-2) **Wearable Sweat Sensors** WEI GAO, California Institute of Technology
- 9:45 (250-3) **Continuous, Real-Time Molecular Measurements Directly in the Living Body** KEVIN W PLAXCO, University of California, Santa Barbara
- 10:20 **Recess**
- 10:35 (250-4) **Magnetic Nanoparticles as Dispersible Electrodes** J JUSTIN GOODING, University of New South Wales, Roya Tavallaie, Yanfang Wu, Kyloon Chuah
- 11:10 (250-5) **How Low Can We Go? Ultrasensitive Electrochemical Detection of Biomolecular Analytes** SHANA KELLEY, University of Toronto

SYMPOSIUM

Session 260

Advances in Non-Targeted and Suspect Screening to Identify Unknowns Using Mass Spectrometry - arranged by Ann Knolhoff, Food and Drug Administration

Monday Morning, Room 115B

Ann Knolhoff, Food and Drug Administration, Presiding

- 8:30 **Introductory Remarks - Ann Knolhoff**
- 8:35 (260-1) **Development and Optimization of Non-Targeted and Suspect Screening Workflows for Food Safety Applications Using LC/HR-MS** ANN M KNOLHOFF, Food and Drug Administration, Jacob H Premo, Christine M Fisher (O'Donnell)
- 9:10 (260-2) **Chemical Identification of Unknowns in High Resolution Mass Spectrometry** ANTONY JOHN WILLIAMS, National Center for Computational Toxicology, EPA, Andrew McEachran
- 9:45 (260-3) **Molecular Networking and Spatial Metabolomics Approaches to Decipher Community Interactions in an Infectious Disease** NEHA GARG, Georgia Institute of Technology
- 10:20 **Recess**
- 10:35 (260-4) **Computational Tools for the Identification of the Unknowns of the Exposure** DAVID S WISHART, University of Alberta
- 11:10 (260-5) **Results of an Interlaboratory Study to Evaluate the Variability of Instrumental Methods for Non-Targeted Analysis and the Development of Tools to Improve Comparability of Non-Targeted Analysis Results** BENJAMIN PLACE, National Institute of Standards and Technology, Catherine A Rimmer

SYMPOSIUM

Session 270

New Bioanalytical Approaches for Comprehensive Characterization of Biotherapeutic Drugs and Their Biosimilars - arranged by Andras Guttman, ScieX

Monday Morning, Room 115C

Andras Guttman, ScieX, Presiding

- 8:30 **Introductory Remarks - Andras Guttman**
- 8:35 (270-1) **Analysis of Intact Proteins and Protein Complexes Using Native Mass Spectrometric Analysis** SEAN MCCARTHY, ScieX, Fan Zhang, Zhang Zoe
- 9:10 (270-2) **Understanding Physicochemical and Biological Impact of Size Variants in an Antibody-Drug Conjugate by Product Characterization** SUNNIE KIM, Seattle Genetics
- 9:45 (270-3) **Comprehensive Analysis of Biosimilar Monoclonal Antibodies: Current Trends based on the Lately Approved Follow-On Products** AKOS SZEKRENYES, Glenmark Pharmaceuticals, Andras Guttman

10:20

Recess

- 10:35 (270-4) **Challenges of Bioassay Automation in Biosimilar mAb Analysis** BERNADETT KONDOR, Egis Pharmaceuticals Plc, Emese Timar, Judit Kalasz, Katalin Uri, Edit Bahidi, Angela Hugyeczne Szabo
- 11:10 (270-5) **Comparative Glycosylation Analysis of Biotherapeutics and Their Biosimilars** ANDRAS GUTTMAN, SCIEX, Akos Szekrenyes, Marton Szigeti

SYMPOSIUM

Session 280

New Trends in Environmental Testing and Protection of the Environment - arranged by Anne Jurek, EST Analytical

Monday Morning, Room 116

Anne Jurek, EST Analytical, Presiding

- 8:30 **Introductory Remarks - Anne Jurek**
- 8:35 (280-1) **Human Biomonitoring - The Link Between Environmental Exposures and Health Effects** JULIANNE NASSIF, Association of Public Health Laboratories
- 9:10 (280-2) **How Accreditation Ensures Competency in Laboratories** JERRY PARR, The NELAC Institute
- 9:45 (280-3) **ASTM International and Our Role in Supporting a Sustainable Environment** KATHARINE MORGAN, ASTM International
- 10:20 **Recess**
- 10:35 (280-4) **Wastewater, A Renewable Energy Source** ZONETTA E ENGLISH, Louisville MSD
- 11:10 (280-5) **How is Research Keeping-up with Environmental Trends?** LARA P PHELPS, US Environmental Protection Agency

SYMPOSIUM

Session 290

Pushing the Limits of In Vivo Neurotransmitter Detection - arranged by I Mitch Taylor, St. Vincent College

Monday Morning, Room 117

I Mitch Taylor, St. Vincent College, Presiding

- 8:30 **Introductory Remarks - I Mitch Taylor**
- 8:35 (290-1) **Expanding Fast-Scan Cyclic Voltammetry to New Molecular Targets: Novel Waveforms for Selective Measurements** LESLIE A SOMBERS, North Carolina State University, Samantha K Smith, Christie A Lee, Sarah Elizabeth Calhoun, Carl J Meunier, Greg S McCarty
- 9:10 (290-2) **Expanding the Tool Box for Neurochemical Measurements in Drosophila** B JILL VENTON, University of Virginia, Mimi Shin
- 9:45 (290-3) **Fast Scan Cyclic Voltammetry as a Versatile Tool for Mapping the Dynamics and Kinetics of Local Tissue Architecture** PARASTOO HASHEMI, University of South Carolina
- 10:20 **Recess**
- 10:35 (290-4) **Neurotransmitter Detection at Near the Theoretical Performance Limit of Electroenzymatic Sensors** HAROLD MONBOUQUETTE, University of California, Los Angeles, I-Wen Huang, Mackenzie Clay
- 11:10 (290-5) **Novel Electrode Coatings for Real-Time In Vivo Neurochemical Detection** I MITCH TAYLOR, Saint Vincent College, X Tracy Cui

SYMPOSIUM

Session 300

Tabletop MR - The Little Giants - Metabolites, Diagnostic Screening, Agriculture, Reaction Monitoring, Food and Supplements - arranged by Istvan Pelczer, Princeton University

Monday Morning, Room 118A

Istvan Pelczer, Princeton University, Presiding

- 8:30 **Introductory Remarks - Istvan Pelczer**
- 8:35 (300-1) **Making Hyperpolarized Magnetic Resonance Simple, Fast and Cheap** WARREN WARREN, Duke University

9:10 (300-2) **Compact NMR for Metabolic Health Screening and Diabetes Prevention** DAVID P CISTOLA, Paul L. Foster School of Medicine, Texas Tech University Health Sciences Center El Paso

9:45 (300-3) **Compact NMR: History and Recent Applications to Materials Testing and Chemical Analysis** BERNHARD BLUEMICH, RWTH Aachen University

10:20 **Recess**

10:35 (300-4) **Multi-Isotope NMR Sensor for Quantification and Characterization of Nutrients in Manure, Wastewater, Foods, and Solid Materials** MORTEN K SORENSEN, Aarhus University, Nicholas M Balsgart, Michael Beyer, Ole Jensen, Tavs Nyord, Thomas Vosegaard, Niels Chr. Nielsen

11:10 (300-5) **A Discovery Robot Able to Learn and Predict Chemical Reactivity** LEROY CRONON, University of Glasgow

ORGANIZED CONTRIBUTED SESSIONS Session 310

Ionophore-Based Chemical Sensors, Part II - arranged by Philippe Buhlmann, University of Minnesota and Eric Bakker, University of Geneva

Monday Morning, Room 122A

Philippe Buhlmann, University of Minnesota, Presiding

8:30 (310-1) **Potentiometry with Thin Layer Membranes** ERIC BAKKER, University of Geneva, Elena Zdrachek

8:50 (310-2) **Conductive Metal-Organic Frameworks as Sensors and Transducers in Portable Electroanalysis** KATHERINE MIRICA, Dartmouth College

9:10 (310-3) **Pattern Recognition Based Chemical Tongues for the Discrimination and Quantitation of Metal Ions** XIAOJIANG XIE, Southern University of Science and Technology

9:30 (310-4) **Fate of Poly(3-octylthiophene) Transducer in Solid Contact Ion-Selective Electrodes** AGATA MICHALSKA, University of Warsaw, Ewa Jaworska, Dawid Kałuza, Maciej Mazur, Krzysztof Maksymiuk

9:50 **Recess**

10:05 (310-5) **Upconversion Nanoparticles as pH Sensors** LISA HALL, University of Cambridge, Evaline Tsai, Sandy F Himmelstoß, Lisa M Wiesholler, Thomas Hirsch

10:25 (310-6) **Paper- and Thread-Based Immunoassay Devices with Colorimetric Bioluminescence Signaling** DANIEL CITTERIO, Keio University, Kosuke Tomimuro, Keisuke Tenda, Maarten Merckx, Yuki Hiruta

10:45 (310-7) **Paper-Based Ion Selective Electrodes Towards Self-Calibrated Sensor** KARIN Y CHUMBIMUNI-TORRES, University of Central Florida

11:05 (310-8) **Potential Reproducibility of Hydrophobic Conducting Polymer Solid-Contact Ion-Selective Electrodes** TOM LINDFORS, Åbo Akademi University, Soma Papp, Róbert E Gyurcsányi

ORGANIZED CONTRIBUTED SESSIONS Session 320

Specialty Gas - arranged by Tracey Jacksier, Air Liquide

Monday Morning, Room 121C

Tracey Jacksier, Air Liquide, Presiding

8:30 (320-1) **Process Monitoring of Specialty Gases Using Tunable Filter Spectroscopy** SYLVIE BOSCH-CHARPENAY, MKS Instruments, Roberto Bosco

8:50 (320-2) **Automated Installation for Complete Gas Analyzes** PIOTR CICHON, Orthodyne SA, Michel Rikir, Eric Streeel, Nicolas Collinet

9:10 (320-3) **The Challenge of Producing Trace Levels NO₂ Primary Gas Standards** ANNARITA BALDAN, VSL, Janneke Van Wijk, Stefan Persijn, Gerard Nieuwenkamp, Iris De Krom

9:30 (320-4) **Direct Analysis of Trace Impurities Using Ultra-High Resolution MRR Spectroscopy** ALEKSANDR V MIKHONIN, BrightSpec, Inc., Matthew T Muckle, Justin L Neill

9:50 **Recess**

10:05 (320-5) **Development of a Mid-Infrared, Extractive Gas Analyzer Based on Laser Dispersion Spectroscopy – A Single Platform for Trace and Higher Concentration Measurements** GRAHAM LEGGETT, MIRICO Ltd, Arun Kannath, Johnny Chu, Damien Weidmann, Annika Voss

10:25 (320-6) **Impurity Analysis and Process Monitoring in Pure CO₂ with Cavity Ring-Down Spectroscopy** YU CHEN, Tiger Optics, Tam Lieu, Florian Adler

10:45 (320-7) **Measured Degradation of Metal Carbonyls in Carbon Monoxide by GC-ICP-MS** JESUS ANGUIANO, Consolidated Sciences, Blake McElmurry, Bill Geiger

ORAL SESSIONS Session 330

Characterization of Metallic Nanoparticles and Nanomaterials with Unique Applications

Monday Morning, Room 118B

8:30 (330-1) **Raman, Resonance Raman and Photoluminescence Spectroscopic Imaging of Heterogeneous Transition Metal Dichalcogenide 2D Crystals** DAVID TUSCHEL, HORIBA Scientific

8:50 (330-2) **Photoluminescence Spectroscopy as a Probe of Ligand-Mediated Electronic Structure Effects in Small Diameter Coinage Metal Nanoparticles** SCOTT E CRAWFORD, University of Pittsburgh, Christopher Andolina, Ashley Smith, Jill E Millstone

9:10 (330-3) **The Separation of Hydrogen Adsorption and Evolution Across Single Platinum Nanoparticles** PETER A DEFNET, University of Washington, Bo Zhang

9:30 (330-4) **Innovations in Single Particle ICP-MS - Accurate Detection of Pure and Alloyed Nanoparticles** CHADY STEPHAN, PerkinElmer

9:50 **Recess**

10:05 (330-5) **Gold Nanofilm Fabricated from Liquid-Like Droplets for Use as a Plasmonic Sensor** SANTINO NICHOLAS VALIULIS, University of California, Riverside, Quan Cheng

10:25 (330-6) **Inverse Opal Self-Assembly for Deep UV Wavelength Filters for Trace Explosive Detection** DIPAK ROUT, University of Pittsburgh, Ivan G Pallares, Thomas J Deering, Sanford A Asher

10:45 (330-7) **Using Linear Sweep Stripping Voltammetry to Probe Silver Nanoparticle Dissolution** KATHRYN R RILEY, Swarthmore College, Zachary J O'Dell, Daniel J Boehmler

11:05 (330-8) **Characterization of the Photophysical Properties and Stability of Cesium Lead Halide Perovskite Nanocrystals** BRETT W BOOTE, Iowa State University, Himashi P Andaraarachchi, Kalyan Santra, Jingzhe Li, Jacob W Petrich, Javier Vela, Emily A Smith

ORAL SESSIONS Session 340

Detection of Illicit Drugs for Homeland Security/Forensics Fields

Monday Morning, Room 118C

8:30 (340-1) **Gradient Elution Moving Boundary Electrophoresis of Complex Fentanyl Mixtures** THOMAS P FORBES, National Institute of Standards and Technology, Shannon T Krauss, David Ross

8:50 (340-2) **A Comparison of Portable Infrared and Raman Spectrometers and the Narcotic Identification Kit (NIK) Field Test for the On-Scene Analysis of Cocaine HCl** BROOKE WEINGER KAMMRATH, University of New Haven, Dory Lieblein, Meghann E McMahon, Peter Massey, Pauline Leary

9:10 (340-3) **Combating the Opioid Crisis Using a Portable Mass Spectrometry Screening Technique** SARA KERN, US Food and Drug Administration, Valerie M Toomey, Frederick Li, Lisa M Lorenz, Sarah E Voelker, Travis M Falconer, Jonathan J Litzau

9:30 (340-4) **Forensic Drug Detection by Novel GC-FTIR** KELLY R MCPARTLAND, Max Analytical Technologies, Kaitlyn V Bagley, Martin L Spartz

9:50 **Recess**

10:05 (340-5) **Portable GC/MS Identification of Mitragynine in Kratom** BROOKE WEINGER KAMMRATH, University of New Haven, Zachary Lawton, Peter Massey, Sarah Goda

10:25 (340-6) **Development of Electrochemical Aptamer-Based Sensors for On-Site Synthetic Cathinone Detection** YINGZHU LIU, Florida International University, Obtin Alkhamis, Haixiang Yu, Yingping Luo, Yi Xiao

10:45 (340-7) **Evaporative Self-Assembly of Gold Triangular Nanoprisms for the Ultrasensitive SERS Based Drug Screening from Patient Plasma** THAKSHILA LIYANANAGE, Indiana University - Purdue University Indianapolis, Rajesh Sardar, Sheridan N Smith, Claire Berman

ORAL SESSIONS

Session 350

Gas Chromatography - Method Development Strategies

Monday Morning, Room 120B

8:30 (350-1) **Trace Analysis of Permanent Gases in Ethylene and Propylene Hydrocarbon Products, Capillary Gas Chromatography and Pulse Discharge Helium Ionization Detection, By ASTM D8098** SHANNON COLEMAN, Agilent Technologies

8:50 (350-2) **Influence of Temporally and Spatially Varying Temperature Profile in Thermal Gradient Gas Chromatography** AUSTIN R FOSTER, Brigham Young University, Abhijit Ghosh, H Dennis Tolley, Carlos Vilorio, Jacob C Johnson, Aaron R Hawkins, Milton L Lee, Brian D Iverson

9:10 (350-3) **Instant GCxGC Method Development: Optimizing Separations through Thermodynamic Modeling** ROMAN JARAMILLO, Penn State University, Frank Dorman

9:30 (350-4) **Improving Mass Spectrometer Analyses** RAJVI MEHTA, Activated Research Company

9:50 **Recess**

10:05 (350-5) **Ultra-High Thermal Stability Ionic Liquids as a New Class of Selective Gas Chromatographic Stationary Phases** GABRIEL A ODUGBESI, Iowa State University, He Nan, James H Davis, Jared L Anderson

10:25 (350-6) **Reducing Inlet Pressures in Micropacked Capillary Gas Chromatography** ASHUR RAEL, Indiana University - Purdue University Indianapolis, John V Goodpaster

10:45 (350-7) **Tuning Selectivities of Dicationic Ionic Liquid GC Stationary Phases** RAHUL A PATIL, University of Texas at Arlington, Daniel W Armstrong, Mohsen Talebi

11:05 (350-8) **Solid Phase Extraction for Drinking Water: A Fresh Spin on an Established Technique** MAURA RURY, Horizon Technology, Michael Ebitson, Marissa Bradley, Patrick Driscoll, Stephen Panos

ORAL SESSIONS

Session 360

Liquid Chromatography - Method Development Strategies

Monday Morning, Room 120C

8:30 (360-1) **Determination of Betadex (β -Cyclodextrin) According to the USP Betadex Sulfobutyl Ether Sodium Monograph** MANALI AGGRAWAL, Thermo Fisher Scientific, Jeffrey Scott Rohrer

8:50 (360-2) **An Evaluation of Method Equivalency Qualification Using a Multi-Channel Method Development High Performance Liquid Chromatography System for Technical Products** ERIN J ENNIS, FMC Corporation, Alexandra Czarnik, Mary-Ellen McNally

9:10 (360-3) **Development of Generic, First-Intent HPLC Method Sets for Small Molecule Pharmaceutical Assets** COLLEEN DUGAN, GlaxoSmithKline, Leon Zhou, Jun Chen, Elliot Hook

9:30 (360-4) **Taking Full Advantage of the New Allowances in USP General Chapter 621 by Transferring Methods to Small Superficially Porous Particle Columns** ANNE MACK, Agilent Technologies, William Long, Jason Link, Adam Bivens, Lakshmi Subbarao, Sami Chanaa

9:50 **Recess**

10:05 (360-5) **A Novel Affinity HPLC Stationary Phase for the Native Intact Analysis of IgG 1 Glycoforms** DANIEL SHOLLENBERGER, Tosoh Bioscience LLC, Stacy Shollenberger, Atis Chakrabarti, Egbert Mueller

10:25 (360-6) **New Developments on the Selectivity of Ionic Liquid Capillary Columns** LEONARD M SIDISKY, MilliporeSigma, James L Desorcie, Greg A Baney, Kathleen H Kiefer

10:45 (360-7) **The Power of Modeling Software in Method Development and Robustness Validation for Separation of Seven Pharmaceutical Active Ingredients Using Reversed-Phase Liquid Chromatography** JOHN S ALBAZI, Northeastern Illinois University, Ammar Albyati

11:05 (360-8) **Influence of Peak Detection Techniques and Virtual Resolution Enhancement in Quantitative Chromatographic Data Representation** RASANGI WIMALASINGHE, University of Texas at Arlington, M Farooq Wahab, Garrett Hellinghausen, Daniel W Armstrong

ORAL SESSIONS

Session 370

Neurochemistry: Electrode and Waveform Development

Monday Morning, Room 121A

8:30 (370-1) **Nanodiamond-Modified Carbon-Fiber Microelectrodes for Dopamine Detection** PUMIDECH PUTHONGKHAM, University of Virginia, B Jill Venton

8:50 (370-2) **Novel Electrode Materials for Neurotransmitter Metabolite Detection** ALEXANDER GEORGE ZESTOS, American University, Alexander Mendoza, Dilpreet Raju

9:10 (370-3) **Electrochemical Neurotransmitter Detection via Electrodeposited Enzymes for Improved Consistency in the Fabrication of Flexible Biosensors** ALLISON M YORITA, Lawrence Livermore National Laboratory, Anna Ivanovskaya, Jeanine Pebbles, Anna M Belle

9:30 (370-4) **Improving Electrochemical Detection for Dopamine Using Electrode Modification and Data Processing** YEJIN YANG, University of Pittsburgh, Stephen G Weber

9:50 **Recess**

10:05 (370-5) **AC-Coupled Fast-Scan Cyclic Voltammetry for Neurotransmitter Measurement** JAMES SIEGENTHALER, University of Arizona, Michael L Heien

10:25 (370-6) **3D-Printed Carbon Electrodes for Neurotransmitter Detection** QUN CAO, University of Virginia

10:45 (370-7) **Voltammetric Detection of Copper (II) *In Vivo*** ANNA MARIE BUCHANAN, University of South Carolina, Jordan Holmes, Colby Evan Witt, Amiridis Aspasia, Parastoo Hashemi

11:05 (370-8) **A Novel, Enzyme-Free Tool for Direct Glutamate Sensing via Fast-Scan Cyclic Voltammetry at Ionophore-Modified Carbon Fiber Microelectrodes** JORDAN HOLMES, University of South Carolina, Anna Marie Buchanan, Parastoo Hashemi

ORAL SESSIONS

Session 380

Quality Assurance, Regulatory, and Data Integrity

Monday Morning, Room 121B

8:30 (380-1) **Impurity Control Strategies Using Impurity Mapping with Dynamic Purge Factor Calculations** JOSEPH DIMARTINO, Advanced Chemistry Development, Inc., Andrew Anderson, Graham McGibbon, Sanjivanjit Bhal

8:50 (380-2) **When Every Peak Counts: A Practical Guide to Reducing Contamination and Eliminating Error in the Analytical Laboratory from a Trace Analysis Perspective** PATRICIA ATKINS, SPEX CertiPrep

9:10 (380-3) **Supporting ISO17025 Compliance with a Laboratory Information Management System** JAMES BRENNAN, LabWare, Inc., Kelly Michael

9:30 (380-4) **The Secret to Assuring Data Integrity and Building Efficiency in the Lab (Including Case Studies)** MATT BRAWNER, Sequence Inc., Scott Krieger

9:50 **Recess**

10:05 (380-5) **Improving CMC Development Through Improved Decision-Support Capabilities** JORDAN T STOBAUGH, AbbVie, Mathew Mulhern, Sarah Brooks, Joseph DiMartino, Andrew Anderson

10:25 (380-6) **Data Integrity: How It Will Affect Your Laboratory** MIKE BARKAN, CSols, Inc.

10:45 (380-7) **Improving Contract Laboratory Analytical Data Transfer Using the AnIML Data Standard** JAMES BRENNAN, LabWare, Inc., Burkhard Schaefer

11:05 (380-8) **ISO/IEC 17025 Accreditation of Laboratories in Manufacturing Facilities** MATT SICA, ANSI-ASQ National Accreditation Board, Melanie Mahaney

ORAL SESSIONS

Session 390

SFC and Process Control in Pharmaceuticals (Half Session)

Monday Morning, Room 123

8:30 (390-1) **Progress and Challenges for Low Dose Monitoring of Pharmaceutical Formulations** BENOIT IGNE, GlaxoSmithKline

8:50 (390-2) **Understanding the Role of Water as an Additive in the Mobile Phase for Chiral Supercritical Fluid Chromatography** DAIPAYAN ROY, University of Texas at Arlington, M Farooq Wahab, Daniel W Armstrong

9:10 (390-3) **Toward Better Chiral Separations with Bile Salts: The Interplay Between Micelle Growth and Chiral Recognition** TIM G STREIN, Bucknell University, David Rovnyak, Micheal R Krout, Maria Salari

9:30 (390-4) **Enantiomeric Separation of Controlled Substances with SFC Using Novel Core Shell Particles** DAIPAYAN ROY, University of Texas at Arlington, Garrett Hellinghausen, Daniel W Armstrong

ORAL SESSIONS

Session 400

Strategies for High Throughput Analysis (Half Session)

Monday Morning, Room 123

10:05 (400-1) **Segmented Column Technology for Nanoflow LC** LEENA MILIND PATIL, Brigham Young University, Xiaofeng Xie, Luke T Tolley, H Dennis Tolley, Paul B Farnsworth, Milton L Lee

10:25 (400-2) **Design to Decision—Enhancing the Value of High Throughput Chemistry in Drug Development while Minimizing the Risks and Bottlenecks Associated with Data Management.** MICHAEL BORUTA, Advanced Chemistry Development, Inc., Andrew Anderson

10:45 (400-3) **Utilizing Serially-Connected Columns, Unique Gradients and Selective Detectors for Positive Identification in Capillary LC** XIAOFENG XIE, Axcend Corporation, Thy X Truong, Luke T Tolley, Paul B Farnsworth, Leena Milind Patil, H Dennis Tolley, Milton L Lee

11:05 (400-4) **A Well-Plate Circular Dichroism Reader For High-Throughput Chiral Chemical Analysis** BAOLIANG (BOB) WANG, Hinds Instruments, Inc

ORAL SESSIONS

Session 410

The Quest to Identify Food Adulterants and Contaminants

Monday Morning, Room 122B

8:30 (410-1) **Enhancing Food Authentication with Data Fusion Processes** JOHN KALIVAS, Idaho State University, Tony Lemos

8:50 (410-2) **Contamination, Adulteration and Counterfeiting: An Examination of Sources and Concentrations of Heavy Metals Present in Food, Spices, Beverages and Drinking Water** PATRICIA ATKINS, SPEX CertiPrep

9:10 (410-3) **Gamma Irradiation of Polymer Antioxidants in Polyethylene Resin Used for Food Contact Materials** MARY DAWN CELIZ, Food and Drug Administration, Kim Morehouse, Lowri DeJager, Timothy H Begley

9:30 (410-4) **SERS Detection of Small Molecule Toxins via Substrates with Polymer Affinity Agents** REBECA SARAH RODRIGUEZ, University of Minnesota

9:50 **Recess**

10:05 (410-5) **Quantitative Determination of Multi-Class Multi-Residue Chemical Contaminants in Fatty Food Matrices by GC/MS/MS Using a Novel Lipids Cleanup** LIMIAN ZHAO, Agilent Technologies, Melissa Churley, Diana Wong

10:25 (410-6) **Method Validation for Cannabis Testing** MATT SICA, ANSI-ASQ National Accreditation Board, Melanie Mahaney

10:45 (410-7) **Semi-Automated Method for Analysis of 307 Pesticides and Environmental Contaminants in Fish by Fast Low-Pressure GC-MS/MS and UHPLC-MS/MS** YELENA SAPOZHNIKOVA, US Department of Agriculture, Lijun Han

11:05 (410-8) **Heavy Metal Exposure in Common Childhood Food Staples – The Peanut Butter & ‘Jelly’ Studies** PATRICIA ATKINS, SPEX CertiPrep, Elaine Hasty

ORAL SESSIONS

Session 420

Using Mass Spectrometry Techniques to Solve Real Problems

Monday Morning, Room 126A

8:30 (420-1) **Accurate Characterization of Biologics and Impurities by Quadrupole Mass Spectrometry and a Comparison to HiRes MS** YONGDONG WANG, Cerno Bioscience, Donald Kuehl

8:50 (420-2) **Simple, Rapid Chemical Modification and Analysis of n-Alkanes with Flowing Atmospheric-Pressure Afterglow (FAPA) Mass Spectrometry** BRIAN T MOLNAR, Rensselaer Polytechnic Institute, Sunil P Badal, Jacob T Shelley

9:10 (420-3) **Analysis, Characterization, and Deformulation of Apparently Similar Rubber Parts Using Multiple Modes of Pyrolysis-GC/MS** TERRY RAMUS, Frontier Laboratories, Rojin Belganeh, Itsuko Iwai, William Pipkin

9:30 (420-4) **A New Multiple-Ionization Single Particle Aerosol Mass Spectrometer: Rapid On-Line Analysis of Toxic Polycyclic Aromatic Hydrocarbons, Metal-Cations as well as Anionic Source Marker Compounds on Individual Airborne Aerosol Particles** RALF ZIMMERMANN, Helmholtz Zentrum München and University of Rostock, Johannes Passig, Julian Schade, Robert Irsing, Ehlert Sven

9:50 **Recess**

10:05 (420-5) **Controlled Radical Polymerization of Methacrylate-Based Statistical Copolymers and Sequence Determination Using Electrospray Ionization Mass Spectrometry (ESI-MS)** MICHAEL A NOVAK, Duquesne University, Stephanie J Wetzel

10:25 (420-6) **Detection and Characterization of [Ru(bpy)3]2+ -doped Silica Nanoparticles Using Single Particle Inductively Coupled Plasma Mass Spectrometry** JUAN HAN, University of North Dakota, Xu Wu, Julia Xiaojun Zhao, David T Pierce

10:45 (420-7) **Development of a High Pressure Time of Flight Mass Spectrometer (HiP-MS) for First Response Applications** BERT UNGETHUEM, Airsense Analytics, Andreas Walte, Falko Ziegert, Stefan Zimmermann, Florian Schlottmann

11:05 (420-8) **18O Isotope Labelling Mass Spectrometry to Investigate Photooxidation Mechanism of Spilled Oils** SUNGHWAN KIM, Kyungpook National University, Un Hyuk Yim, Kim Donghui

ORAL SESSIONS

Session 430

Water Quality Measurements

Monday Morning, Room 124

8:30 (430-1) **Analysis of Organochlorine Pesticides and Semi-Volatiles in Drinking Water with Semi-Automated Solid Phase Extraction (USEPA 508 and 525)** TOM HALL, Fluid Management Systems, Rudolf Addink

8:50 (430-2) **Sensitive Quantitative Optical Early Warning Detection of BTEX Aromatic Hydrocarbons for Surface Water Treatment** LINXI CHEN, Horiba Scientific, Adam Gilmore

9:10 (430-3) **Accurate and Efficient Measurement of Methane and Light Hydrocarbons in Waters** THOMAS RETTBERG, VHG Labs, Don Shelly, Ken Sukcharoenphon, Daniel Biggerstaff

9:30 (430-4) **A SPE-LC-MS/MS Method for the Analysis of Perfluorinated Alkyl Acids Specified in EPA M537 and Beyond in Environmental and Drinking Waters** BRAHM PRAKASH, Shimadzu Scientific, Jerry Byrne, Tairo Ogura

9:50 **Recess**

10:05 (430-5) **EPA Method Validation of Per-, and Polyfluorinated Compounds Using LC-MS/MS** RICHARD JACK, Thermo Fisher Scientific, Claudia Martins, Neloni Wijeratne

10:25 (430-6) **Analysis of Perfluorinated Compounds in Waste Water Using Automated Solid Phase Extraction** RUDOLF ADDINK, Fluid Management Systems, Tom Hall

10:45 (430-7) **A Dual Read Out Magnetic Nano Particle based Enzyme Assay for Sensitive Detection of Hg(II) Ions in Drinking Water** SUNIL BHAND, Birla Institute of Technology & Science, Pilani - Goa Campus, Krishna K Swain

11:05 (430-8) **Novel Green Photocatalysts Derived from Egg Yolk-based Biomass/ZnO for Photocatalytic Oxidation of Methylene Blue Dye in Aqueous Solutions** ALMAHDI ATTEYA ALHWAIGE, Elmergib University, Omar Al-Twerg, Wael Elhrrari, Mohamed Amer

MONDAY, MARCH 18, 2019 AFTERNOON

AWARDS

Session 440

SEAC - The Charles N Reilley and Royce W Murray Awards - arranged by Greg M Swain, Michigan State University

Monday Afternoon, Room 123

Greg M Swain, Michigan State University, Presiding

- 1:30 **Introductory Remarks** - Greg M Swain
- 1:35 **Presentation** of the 2019 SEAC Charles N Reilley Award to Joseph Wang, University of California, San Diego, by Philippe Buhmann, SEAC President
- 1:40 (440-1) **Wearable Electrochemical Sensors: From Beakers to the Skin and the Mouth** JOSEPH WANG, University of California, San Diego
- 2:15 (440-2) **Electrochemical Generation of Nitric Oxide (NO) from Inorganic Nitrite for Biomedical Applications** MARK E MEYERHOFF, University of Michigan
- 2:50 (440-3) **Electrode Arrays with only One Connecting Wire for the Capture, Electrochemical Interrogation and Release of Rare Cells** J JUSTIN GOODING, University of New South Wales, Ying Yang, Stephen Parker, Jiaxin Lian, Vinicius R Gonçalves, Richard D Tilley
- 3:25 **Recess**
- 3:40 **Presentation** of the 2019 Royce W Murray Award to Alex Martinson, Argonne National Laboratory, by Philippe Buhmann, SEAC President
- 3:45 (440-4) **Toward Solar Fuels Electrocatalysis via Size-Selected Few-Atom Clusters** ALEX MARTINSON, Argonne National Laboratory
- 4:20 (440-5) **Diamond and Diamond-Like Carbon: Next-Generation Electrodes for Electrochemical Sensors and Biosensors** GREG M SWAIN, Michigan State University, Kirti Bhardwaj, Serban M Petcu, Borys Hrinchenko

AWARDS

Session 655

The Pittcon Heritage Award - arranged by Sarah Reisert, Science History Institute

Monday Afternoon, Room Grand Hall Ballroom B

- 4:45 **Presentation** of the 2019 Pittcon Heritage Award to the founders of Supelco - Walter Supina and Nicholas Pelick. Dick Supina, son of Walter will receive the award presented by Robert G.W. Anderson, President, Science History Institute

AWARDS

Session 460

The Pittsburgh Conference Achievement Award - arranged by Michael Shatlock, The Pittsburgh Conference

Monday Afternoon, Room 125

Michael Shatlock, The Pittsburgh Conference, Presiding

- 1:30 **Introductory Remarks** - Amit Ghosh
- 1:35 **Presentation** of the 2019 Pittsburgh Conference Achievement Award to Wei Min, Columbia University, by Amit Ghosh, Chairman of the Society for Analytical Chemists of Pittsburgh (SACP)
- 1:40 (460-1) **Chemical Imaging for Biomedicine: The Next Frontier of Light Microscopy** WEI MIN, Columbia University
- 2:15 (460-2) **Highly Sensitive Chemical Microscopy via Sensing the Thermal Effect of Mid-infrared Absorption** JI-XIN CHENG, Boston University
- 2:50 (460-3) **SERS Nanoparticles in Medicine: From Single-Molecule Spectroscopy to Precision Cancer Surgery** SHUMING NIE, University of Illinois at Urbana-Champaign
- 3:25 **Recess**
- 3:40 (460-4) **Holographic Imaging and Manipulation of Neuronal Circuits** RAFAEL YUSTE, Columbia University

4:15 (460-5) **Ultrabright Probes for Highly Multiplexed Cellular Analysis** DANIEL T CHIU, University of Washington

AWARDS

Session 470

The Ralph N. Adams Award - arranged by Ralph N. Adams Committee The Pittsburgh Conference

Monday Afternoon, Room 124

Daniel Wilson, The Pittsburgh Conference, Presiding

- 1:30 **Introductory Remarks** - Daniel Wilson
- 1:35 **Presentation** of the 2019 Ralph N. Adams Award to Weihong Tan, University of Florida and Hunan University, by Charles W Gardner, 2019 Pittsburgh Conference President
- 1:40 (470-1) **DNA-Based Biomaterials and Functional Molecular Networks** WEIHONG TAN, University of Florida
- 2:15 (470-2) **Ultrasensitive Digital Measurements of Small Molecules** DAVID R WALT, Harvard Medical School, Xu Wang
- 2:50 (470-3) **Noncovalent Interactions Studied by Temperature-Programmed Native ESI-MS** RENATO ZENOBI, ETH Zurich
- 3:25 **Recess**
- 3:40 (470-4) **Quantitative Analysis of Protein Dynamics and Interactions in Living Cells at the Single-Molecule Level** XIAOHONG FANG, Chinese Academy of Sciences
- 4:15 (470-5) **Nanotechnology: From Single-Molecule Spectroscopy to Image-Guided Cancer Surgery** SHUMING NIE, University of Illinois at Urbana-Champaign

SYMPOSIUM

Session 480

Advances in Biological Mass Spectrometry - arranged by Ronghu Wu, Georgia Institute of Technology

Monday Afternoon, Room 115A

Ronghu Wu, Georgia Institute of Technology, Presiding

- 1:30 **Introductory Remarks** - Ronghu Wu
- 1:35 (480-1) **Machine Learning Meets Mass Spectrometry of Glycans: Seeking Out the Golden Signals in a Haystack of Noise** HEATHER DESAIRE, University of Kansas
- 2:10 (480-2) **New Strategies in Top-Down High-Resolution Mass Spectrometry-Based Proteomics** YING GE, University of Wisconsin-Madison
- 2:45 (480-3) **Ultra-Violet Photo-Dissociation (UVPD) for Top-Down High-Resolution Mass Spectrometry of Integral Membrane Proteins** JULIAN P WHITELEGGE, University of California, Los Angeles
- 3:20 **Recess**
- 3:35 (480-4) **High-Throughput Collision Induced Unfolding: Enabling Technology for Pharmaceutical Discovery and Development** BRANDON RUOTOLO, University of Michigan
- 4:10 (480-5) **Functional Proteomics for Mechanistic and Translational Insight** FOREST WHITE, Massachusetts Institute of Technology

SYMPOSIUM

Session 490

Bioanalytical Chemistry for Living Tissue - arranged by Rebecca R Pompano, University of Virginia and Robert T Kennedy, University of Michigan

Monday Afternoon, Room 115B

Rebecca R Pompano, University of Virginia, Presiding

- 1:30 **Introductory Remarks** - Rebecca R Pompano and Robert T Kennedy
- 1:35 (490-1) **Chemiluminescent Probes for Monitoring Reactive Sulfur, Oxygen, and Nitrogen Species in Living Cells and Animals** ALEX LIPPERT, Southern Methodist University
- 2:10 (490-2) **Applications of Vibrational Tags in Biological Imaging by Raman Microscopy** WEI MIN, Columbia University
- 2:45 (490-3) **New Assays for Spatially Resolved Fluorescent Imaging of Cellular Activity in Live Tissue** REBECCA R POMPANO, University of Virginia

3:20 Recess

3:35 (490-4) **Aptamer Field-Effect Transistor Microprobes for in Vivo Neurotransmitter Detection** ANNE M ANDREWS, University of California, Los Angeles, Chuanzhen Zhao, I-Wen Huang, Leonardo Scarabelli, Jason Belling, Paul S Weiss, Harold Monbouquette

4:10 (490-5) **Recent Advances in Monitoring Brain Chemistry Using New Sampling Probes, Droplet Microfluidics, and Mass Spectrometry** ROBERT T KENNEDY, University of Michigan

SYMPOSIUM

Session 500

Detection Limits in Environmental and Analytical Chemistry - arranged by Richard S Danchik, Consultant and Michael J Brisson, Savannah River National Laboratory

Monday Afternoon, Room 115C
Richard S Danchik, Consultant, Presiding

1:30 **Introductory Remarks - Richard S Danchik and Michael J Brisson**

1:35 (500-1) **Detecting the Detection Limit** THOMAS J BZIK, Versum Materials Inc., StatsOnTheGo Inc.

2:10 (500-2) **Fundamentals of a Standard Practice for Determination of the Detection Limit of a Well-Behaved Analytical Method** MICHAEL J BRISSON, Savannah River National Laboratory, Harry Lorenz Rook

2:45 (500-3) **The Application and Limitations of Detection Limits in Exposure and Risk Assessment** ROBERT J GILMORE, Keramida Inc., Martin D Barrie

3:20 Recess

3:35 (500-4) **Detection Limits for Radioactive Contaminants in Drinking Water** THOMAS SEMKOW, New York State Department of Health, Abdul Jabbar Khan, Miguel Torres, Umme-Farzana Syed, Douglas Haines, Traci Menia, Adil Khan, Abdul Bari, Nicole Freeman

4:10 (500-5) **Limits of Detection in Analytical Chemistry** HARRY LORENZ ROOK, NIST Retired

SYMPOSIUM

Session 510

Driving the Next Generation of Vibrational Spectroscopic Techniques: Challenges, Needs and Opportunities - arranged by John F Rabolt, University of Delaware

Monday Afternoon, Room 116
John F Rabolt, University of Delaware, Presiding

1:30 **Introductory Remarks - John F Rabolt**

1:35 (510-1) **High-Sensitivity Infrared Vibrational Photoexpansion Nanospectroscopy in Ambient and Aqueous Environments** MIKHAIL A BELKIN, University of Texas at Austin, Mingzhou Jin, Feng Lu

2:10 (510-2) **Vibrational Spectroscopy of Biological Molecules and Cells in sub-THz Frequency Range for Life-Science Related Applications** TATIANA GLOBUS, Vibratess, Alexei Bykhovski, Jerome Ferrance, Boris Gelmont, Igor Sizov, Aaron Moyer

2:45 (510-3) **Advanced Two-Dimensional Correlation Vibrational Spectroscopy in the Study of Bioplastics and Other Complicated Systems** ISAO NODA, University of Delaware, Bruce Chase, John F Rabolt

3:20 Recess

3:35 (510-4) **Pushing the Detection Limits of Resonance Photothermal IR (PTIR) Spectroscopy to Study Polymer Single Crystals and Films** JOHN F RABOLT, University of Delaware, Bruce Chase, Isao Noda

4:10 **Abstract Was Not Available At Time Of Print**

SYMPOSIUM

Session 520

Molecular Transport in Nanostructures - arranged by M Lei Geng, University of Iowa

Monday Afternoon, Room 117
M Lei Geng, University of Iowa, Presiding

1:30 **Introductory Remarks - M Lei Geng**

1:35 (520-1) **Size-Based CE Separation of MegaDalton Proteins** MARY J WIRTH, Purdue University

2:10 (520-2) **Confocal Raman Microscopy for Investigating Interfacial Chemistry within Individual Porous Silica Particles** JOEL M HARRIS, University of Utah, David A Bryce, Jay P Kitt, Maryam Zare

2:45 (520-3) **Diffusion in Water Nanofilms on Silica Surfaces** DANIEL SCHWARTZ, University of Colorado Boulder

3:20 Recess

3:35 (520-4) **Linking Protein Transport Mechanisms at Polymer Interfaces to Macroscale Elutions** CHRISTY LANDES, Rice University

4:10 (520-5) **Probing Heterogeneity in Nanoporous Silica Particles** LEI GENG, University of Iowa

SYMPOSIUM

Session 530

Nanomedicine: A Fight in Progress - arranged by Raoul Kopelman, University of Michigan and Weihong Tan, University of Florida and Hunan University

Monday Afternoon, Room 118C
Raoul Kopelman, University of Michigan, Presiding

1:30 **Introductory Remarks - Raoul Kopelman**

1:35 (530-1) **Rational Vaccinology: In Pursuit of the Perfect Vaccine** CHAD MIRKIN, Northwestern University

2:10 (530-2) **Nanomedicine: Chemical-Biological Effects of Nanomaterials and Nanosafety** YULIANG ZHAO, National Center for Nanoscience and Technology

2:45 (530-3) **Microchip Electrophoresis as a Tool for the Study of the Role of Oxidative Stress in Inflammatory Disease** SUSAN M LUNTE, University of Kansas

3:20 Recess

3:35 (530-4) **Nanomedicine Systems Based on AIEgens** BEN ZHONG TANG, Hong Kong University of Science and Technology

4:10 (530-5) **Theranostic Nanotechnology and In-Vivo Chemical Imaging for Subsurface Tumors**, RAOUL KOPELMAN, University of Michigan, Chang H Lee, V Folz, JWY Tan, J JO X Wang

SYMPOSIUM

Session 540

Novel Approaches to Undergraduate Chromatography Education - arranged by Bhavik Anil Patel, University of Brighton and Amber M Hupp, College of the Holy Cross

Monday Afternoon, Room 120B
Bhavik Anil Patel, University of Brighton, Presiding

1:30 **Introductory Remarks - Bhavik Anil Patel and Amber M Hupp**

1:35 (540-1) **Educating the Chemists of Tomorrow by Blending Science with Compliance Skills to Prepare Students for Careers in cGXP Industry** BOB WYLIE, GlaxoSmithKline, Matthew Hemberger

2:10 (540-2) **The Chromatography Curriculum in a Writing-Intensive Course** MICHELLE L KOVARIK, Trinity College

2:45 (540-3) **Online Learning Resource to Aid Confidence and Performance in an Analytical Chemistry Laboratory Class** BHAVIK ANIL PATEL, University of Brighton, Charlotte Sarmouk, Christopher A Baker

3:20 Recess

3:35 (540-4) **Redesign of the Four Year Chemistry Laboratory Curriculum for Majors to Emphasize Inquiry, Synthesis, and Analysis in a Longitudinally-Linked Community of Practice** KEVIN A SCHUG, University of Texas at Arlington, Frank W Foss

4:10 (540-5) **Successes and Challenges of a Student Designed Chromatography Lab** AMBER M HUPP, College of the Holy Cross

SYMPOSIUM

Session 550

Recent Advances in Biologic Analytics Using Liquid Chromatography, Electrophoresis, and Mass Spectrometry Techniques - arranged by Li Tao and Ming Zeng, Bristol-Myers Squibb

Monday Afternoon, Room 118A

Li Tao, Bristol-Myers Squibb, Presiding

- 1:30 **Introductory Remarks - Li Tao and Ming Zeng**
- 1:35 (550-1) **Applications of an Automated and Quantitative CE-based Size, Charge and Western Blot for Therapeutic Proteins and Vaccines Development** RICHARD RIAN TO RUSTANDI, Merck & Company, Inc., John Loughney
- 2:10 (550-2) **A Rapid Throughput Method for the Characterization of Glycosylation in Biologics Produced from Plants** CARLITO LEBRILLA, University of California
- 2:45 (550-3) **Evaluating Glycation in Antibodies by Heighted Characterization with Mass Spectrometry** MELLISA LY, Pfizer Inc., Lisa A Marzilli, Jason C Rouse, Elaine Stephens, Roger Theberge
- 3:20 **Recess**
- 3:35 (550-4) **Opportunities for New Biophysical Characterisation Techniques for Therapeutic Proteins** CHRISTOPHER ROBERTS, University of Delaware
- 4:10 (550-5) **Current Status of Analytical Development During Process Development for Biologics** LI TAO, Bristol-Myers Squibb

SYMPOSIUM

Session 560

The Thirtieth James L. Waters Symposium on Ultra High Pressure Liquid Chromatography (UHPLC) - arranged by Annette S Wilson and Stephen G Weber, University of Pittsburgh

Monday Afternoon, Room 118B

Annette S Wilson, University of Pittsburgh, Presiding

- 1:30 **Introductory Remarks - Annette S Wilson**
- 1:35 (560-1) **Origins of Ultra-High Pressure Liquid Chromatography** JAMES W JORGENSON, University of North Carolina
- 2:10 (560-2) **"If You Build It, They Will Come": The Birth of Acquity UPLC Technology** EDOUARD BOUVIER, Waters Corporation
- 2:45 (560-3) **A Tale of Two Technologies – UHPLC Instrument and Column Development Across the Atlantic** WILLIAM E BARBER, Agilent Technologies, Maureen Joseph, Monika Dittmann
- 3:20 **Recess**
- 3:35 (560-4) **Advances in Ultra-Stable LC Stationary Phases and Their Uses in Fast 2D-LC** PETER W CARR, University of Minnesota
- 4:10 (560-5) **Under Pressure to Perform: Impact of UHPLC Technology on Pharmaceutical Research and Development** CHRISTOPHER J WELCH, Indiana Consortium for Analytical Science & Engineering (ICASE)

ORGANIZED CONTRIBUTED SESSIONS

Session 570

PAI-NET (Professionals Network in Advances Instrumentation Society) - Analytical Chemistry of Nanoparticles and Nanostructures - arranged by Akihide Hibara, Tohoku University and Kenji Kojima, PAI-NET

Monday Afternoon, Room 120A

Akihide Hibara, Tohoku University, Presiding

- 1:30 (570-1) **Design and Synthesis of Fluorescent Peptide Probes for Exosome Analysis** SEIICHI NISHIZAWA, Tohoku University, Yusuke Sato
- 1:50 (570-2) **Precise Size Tuning of Lipid Nanoparticles Using Baffle Mixer Microfluidic Devices** MASATOSHI MAEKI, Hokkaido University
- 2:10 (570-3) **Electronic Properties Manipulation to Control the Structure of Plasmonic Metal Nanoparticles for Sensing and Diagnostics** DERRICK MOTT, Tohoku University

2:30 (570-4) **Single-Molecule Electrical Identification Method by Metal Nano-Gap Structures** OHSHIRO TAKAHITO, Osaka University

2:50 **Recess**

3:05 (570-5) **Arraying, Detection and Manipulation of Single Nanoparticles and Exosomes by a Nanofluidic aL-in-fL Array (aifA)** YAN XU, Osaka Prefecture University

3:25 (570-6) **Development of Micro/Extended-Nano Interface for Single Cell Analysis** KYOJIRO MORIKAWA, University of Tokyo, Shin-ichi Murata, Yutaka Kazoe, Kazuma Mawatari, Takehiko Kitamori

3:45 (570-7) **Designed Block Copolymers for Nanostructured Thin Films** TERUAKI HAYAKAWA, Tokyo Institute of Technology

4:05 (570-8) **Flow Control of Microfluidic Paper-Based Analytical Device Using Temperature Responsive Polymer** WATARU IWASAKI, National Institute of Advanced Industrial Science and Technology, Nobutomo Morita, Yuta Nakashima, Yoshitaka Nakanishi, Masaya Miyazaki

ORAL SESSIONS

Session 580

Advances in Spectroscopic Applications (Half Session)

Monday Afternoon, Room 120C

- 1:30 (580-1) **Dye Displacement Reagent for Saccharide Quantitation** JACQUELYN LYNNNE CUNNING, University of Maryland, Baltimore County, William LaCourse
- 1:50 (580-2) **Using NIR Spectroscopy to Improve Polyamide and Polyurethane Quality** ADAM J HOPKINS, Metrohm USA, Elena Hagemann
- 2:10 (580-3) **Monitoring Low Levels of Formaldehyde in Ambient Air** MICHAEL VECHT, Gasera Ltd, Ismo Kauppinen, Tuomas Hieta
- 2:30 (580-4) **Development of Fluorescent Molecular Probes for the Highly Sensitive Detection of Living Substances Using Magnetic Beads** YOSHIO SUZUKI, Advanced Industrial Science & Technology

ORAL SESSIONS

Session 590

Capillary Electrophoresis - Bioanalytical

Monday Afternoon, Room 121A

- 1:30 (590-1) **Nanophases in Capillary Electrophoresis Separations: New Tools to Advance Biotechnology** LISA A HOLLAND, West Virginia University, Cassandra Crihfield, Courtney Kristoff, Grace Lu, Lloyd Bwanali
- 1:50 (590-2) **Comparison of the Peak Capacity and Peak Capacity Per Unit Time of Dual-Opposite Injection Capillary and Microchip Electrophoresis with Conventional Capillary and Microchip Zone Electrophoresis** JOE P FOLEY, Drexel University
- 2:10 (590-3) **Analysis of Monoclonal Antibody Glycosylation Relevant to Biological Therapeutics** LLOYD BWANALI, West Virginia University, Grace Lu, Lisa A Holland
- 2:30 (590-4) **Neuropeptide Profiling by Capillary Electrophoresis-Taylor Dispersion Analysis Immunoassays** LAURA CASTO, University of Tennessee, Christopher A Baker
- 2:50 **Recess**
- 3:05 (590-5) **Characterization of Protein Glycosylation with Capillary Nanogel Electrophoresis** CASSANDRA CRIHFIELD, West Virginia University, Courtney Kristoff, Lisa A Holland
- 3:25 (590-6) **Micellar Electrokinetic Chromatography Method for Measurement of D-Serine and Other Primary Amines Secreted from Mouse Islet of Langerhans** KIMBERLY EVANS, Florida State University, Michael G Roper
- 3:45 (590-7) **Characterizing Carbon Dot Interactions with ssDNA Aptamers by Way of Capillary Transient Isotachopheresis cITP with Laser-Induced Fluorescence Detection** DEBASISH ROY, Wake Forest University, Kazuki Marumo, Shingo Saito, Christa L Colyer
- 4:05 (590-8) **Capillary Electrophoresis Separations of Anionic and Cationic Proteins with Replaceable Surface Coatings** COURTNEY KRISTOFF, Waynesburg University and West Virginia University, Cassandra Crihfield, Lisa A Holland

ORAL SESSIONS

Session 600

From Bits to Bytes: Data Processing in the 21st Century (Half Session)**Monday Afternoon, Room 120C**

- 3:05 (600-1) **Transforming the Data Landscape, Unlocking the Power of Data** DANA E VANDERWALL, Bristol-Myers Squibb
- 3:25 (600-2) **Improving Visualization of Overlapping Chromatographic Peaks for Quantification Using New Integration Protocols** GARRETT HELLINGHAUSEN, University of Texas at Arlington, M Farooq Wahab, Daniel W Armstrong
- 3:45 (600-3) **Getting Elemental Formula from Quadrupole GC-MS or LC-MS Data** AVIV AMIRAV, Tel Aviv University, Tal Alon
- 4:05 (600-4) **Evaluating the Performance of MS Compound Identification Algorithms** PIERRE WELLNER, INFICON, Sam Saloff-Coste, Shawn Briglin

ORAL SESSIONS

Session 610

Gas Chromatography and Its Many Applications**Monday Afternoon, Room 121B**

- 1:30 (610-1) **Stability-Indicating Method Development and Validation for Busulfan Drug Substance and Drug Product by Gas Chromatography** ASHRAF KHAN, US Pharmacopeia, Greg Winter, Shane Tan
- 1:50 (610-2) **Integrated FID Methanation of Carbon Monoxide and Carbon Dioxide Using Non-Toxic Catalysts Across Multiple Instrument Platforms** PETE ELLIS, Activated Research Company
- 2:10 (610-3) **Gas Chromatographic Computer Modeling Software for Optimized Method Development** JAAP DE ZEEUW, Restek Corporation, Jana Rousova, Chris Rattray, Kristi Sellers
- 2:30 (610-4) **Analyzing Live Crude: Complete C1 to C100. How Much Information Can We Get?** CHRIS RENE GOSS, InnoTech Alberta, Amanda R Prefontaine, Marotta D Lee
- 2:50 **Recess**
- 3:05 (610-5) **Rapid Fuel Stream Hydrocarbon Characterization Achieved Through Gas Chromatography-Vacuum Ultraviolet Spectroscopy** RYAN KENT SCHONERT, VUV Analytics, Inc., James A Diekmann, Jack Cochran
- 3:25 (610-6) **Experimental Designs for Analytical Method Validation Using a Statistical Approach** WILLIAM ZHU, Baxter Healthcare, Jamie Wasylenko, Yakov Genchanok
- 3:45 (610-7) **Trial, Tribulation and Triumph: A Success Story of Ionic Liquids in Gas Chromatography** MOHSEN TALEBI, University of Texas at Arlington
- 4:05 (610-8) **Metal-Containing Ionic Liquid-Based Stationary Phases for Gas Chromatographic Separations** HE NAN, Iowa State University, Amrit Venkatesh, Aaron J Rossini, Liese Peterson, Jared L Anderson

ORAL SESSIONS

Session 620

Mass Spectrometry - Bioanalysis, 'Omics and Pharmaceutical**Monday Afternoon, Room 121C**

- 1:30 (620-1) **Elucidating Carbohydrate Structures through Rapid Hydrogen/Deuterium Exchange-Mass Spectrometry** ELYSSIA S GALLAGHER, Baylor University, O Tara Liyanage, H Jamie Kim, Emvia I Calixte
- 1:50 (620-2) **Ultrasensitive Analysis of Angiotensinogen-Derived Peptides in Limited Brain Tissues** CAMILLE LOMBARD-BANEK, University of Maryland, College Park, Peter Nemes, Paul J Marvar
- 2:10 (620-3) **Deep Ultraviolet Laser Ablation Electrospray Ionization Mass Spectrometry** KERMIT K MURRAY, Louisiana State University, Fabrizio Donnarumma, Remilekun O Lawal
- 2:30 (620-4) **Fundamentals of Ionization and Fragmentation Within the Solution-Cathode Glow Discharge Ionization Source and the Application to Biomolecular Analyses** COURTNEY WALTON, Rensselaer Polytechnic Institute, Judy Wu, Jacob T Shelley
- 2:50 **Recess**

- 3:05 (620-5) **Measurement of Cortisol as a Biomarker in Tears Using Mass Spectrometry** ODED M YOGEV, University of Illinois at Chicago, Scott A Shippy
- 3:25 (620-6) **Mass Spectrometry-Based Proteomics of Single Dopaminergic Mouse Neurons Identified by Whole-Cell Electrophysiology** SAM B CHOI, University of Maryland, College Park, Abigail M Polter, Peter Nemes
- 3:45 (620-7) **Proteomics Analysis of 250 Histone Post-Translational Modifications in 2 Minutes with Flattened Batch Effect and Integrated Quality Control** SIMONE SIDOLI, University of Pennsylvania, Zuo-Fei Yuan, Mariana Lopes, Yekaterina Kori, Kevin Janssen, Laura Agosto, Benjamin A Garcia
- 4:05 (620-8) **Mass Spectrometry-Based Novel Methods for Systematic Analysis of Surface Glycoproteins in Human Cells** RONGHU WU, Georgia Institute of Technology

ORAL SESSIONS

Session 630

Methods Keeping Food Safe and Appealing**Monday Afternoon, Room 122A**

- 1:30 (630-1) **Terpenes Analysis of Essential Oils Using GC-VUV: An Automated, Speed-Based Approach** ALEX HODGSON, VUV Analytics, Inc., Jack Cochran
- 1:50 (630-2) **Analysis of Acylglycerols in Olive Oil by Gas Chromatography** COLTON MYERS, Restek Corporation, Shawn Reese, Jaap De Zeeuw, Linx K Waclaski, Kristi Sellers
- 2:10 (630-3) **Investigation of the Coffee Roasting Process, Aroma Profile and Antioxidant Capacity by Time-Resolved Vacuum Photoionization TOF-MS** SVEN EHLERT, Photonion GmbH, Ralf Zimmermann, Jan Heide, Hendryk Czech, Andreas Walte
- 2:30 (630-4) **Influence of Selenium Enrichment Source in Wheat Plants - Effects on the Spatial Distribution of Selenium Species in Plant and Wheat Grains** MANUEL VALIENTE, Autonomous University of Barcelona, Maria A Subirana, Mercè Llugany
- 2:50 **Recess**
- 3:05 (630-5) **LIBS: Detection of Coffee arabica Adulteration** BANU SEZER, Hacettepe University, Gonca Bilge, Ismail H Boyaci, Hakan Apaydin
- 3:25 (630-6) **Arsenic Speciation Focusing on Trimethylarsine Oxide Characterization in Dietary Supplements Using Orthogonal Chromatographic Separation and ICP-MS/ HRAM-MS Detection** TRACI A HANLEY, FDA Forensic Chemistry Center
- 3:45 (630-7) **Combination of Sensory and Chemical Analyses (GC-MS) for Evaluation of Beer's Shelf Life Stability Related to Storage Condition** ELIZABETH M HUMSTON-FULMER, LECO Corporation, Joseph E Binkley, Lorne M Fell
- 4:05 (630-8) **Protein Analysis in Foods by Calibration Free-LIBS Technique** GONCA BILGE, Konya Food and Agriculture University, Banu Sezer, Jörg Hermann, Ismail H Boyaci

ORAL SESSIONS

Session 640

Seeing the Unseen in Homeland Security and Forensics Applications**Monday Afternoon, Room 122B**

- 1:30 (640-1) **Characterization of Sexual Assault Lubricants: Lubricant Database Use in an Operational Setting** BROOKE BAUMGARTEN, University of Central Florida, Caterina Vadell-Orsini, Mark Maric, Candice M Bridge
- 1:50 (640-2) **Forensic Body Fluid Identification Using Microbiome Signature Attribution through 16S rDNA High-Throughput Sequencing** KATHLEEN BRIM, Virginia Commonwealth University, Denise Woflahrt, Raquel Green, Angela Brand, Eric Abshier, Bradley Najai, Francly Nogales, Paul Brooks, Baneshwar Singh, Sarah Seashols-Williams, Antonio Tan-Torres, Elena Martinez Planes
- 2:10 (640-3) **Microfluidic Processing of Sub-Inch Single Hair Segments Coupled to High-Resolution Liquid Chromatography-Mass Spectrometry for Protein-Based Human Identification** FANNY CHU, Lawrence Livermore National Laboratory, Christopher G Bailey, Katelyn E Mason, Deon S Anex, A Daniel Jones, Bradley R Hart

2:30 (640-4) **A Novel, Robust, and Compact Deep Ultraviolet Resonance Raman Hyperspectral Imaging Spectrometer** IVAN G PALLARES, University of Pittsburgh, Dipak Rout, Thomas J Deering, Sanford A Asher

2:50 **Recess**

3:05 (640-5) **Identification of Nitrate Ester Explosives and Their Thermal Decomposition Products by Gas Chromatography/Vacuum Ultraviolet Spectroscopy** COURTNEY CRUSE, Indiana University - Purdue University Indianapolis, John V Goodpaster

3:25 (640-6) **X-Ray Fluorescence and Raman Spectroscopy Data Fusion for the Analysis of Duct Tapes** SERGEY MAMEDOV, Horiba Scientific

3:45 (640-7) **Identification of Glitter and Shimmer Cosmetic Particles Using SEM-EDS** KANDYSS NAJJAR, University of Central Florida, Candice M Bridge

4:05 (640-8) **Fixing False Negatives, Using 2DGC-TOFMS to Correctly Identify Ignitable Liquid Residues in Wildfire Investigations** COURTNEY D SANDAU, Chemistry Matters Inc., Michelle Misselwitz, Lisa N Kates, Phil Richards

ORAL SESSIONS

Session 650

Using Microfluidics to Diagnose, Monitor, and Treat Diseases

Monday Afternoon, Room 126A

1:30 (650-1) **Polymer-Based Microfluidic Devices for On-Line Monitoring of Amino Acids in Brain Microdialysis Samples** GALINA BULGAKOVA, University of Kansas, Nathan Oborny, Susan M Lunte

1:50 (650-2) **Optimizing Conditions for the Capture, Enrichment, Labeling and Detection of DNA from Antibiotic Resistant Genes in Sepsis** DAVID HYRUM HARRIS, Brigham Young University, Robert L Hanson, Radim Knob, Adam T Woolley

2:10 (650-3) **High-Throughput Organ-on-Chip Analysis with Photopatterned Membranes** SAMUEL S HINMAN, University of North Carolina at Chapel Hill, Yuli Wang, Nancy L Allbritton

2:30 (650-4) **Mass-Activated Sorting of Nanoliter Droplets for Label Free Screening of Enzyme Libraries** DANIEL AARON HOLLAND-MORITZ, University of Michigan, Jeffery Moore, Robert T Kennedy, Michael K Wismer, Shuwen Sun, Benjamin Mann, Iman Farasat

2:50 **Recess**

3:05 (650-5) **Modular Approach to Microchip-Based Electrochemical Detection Using 3-D Printing Technology** AKASH S MUNSHI, Saint Louis University, R Scott Martin

3:25 (650-6) **A Point-of-Care PDMS/Paper Hybrid Microfluidic Biochip for Multiplexed Instrument-Free Respiratory Diseases Diagnosis** HAMED TAVAKOLI, University of Texas at El Paso, Xiujun (James) Li

3:45 (650-7) **Development of a 3D Paper-Based Breast Tumor Model to Assess the Impact of Hypoxic Tumor Gradients on Endocrine Sensitivity** NATHAN WHITMAN, University of North Carolina at Chapel Hill, Zhi-Wei Lin, Rachael Kenney, Matthew R Lockett

4:05 (650-8) **Rapid Quantitative Tuberculosis Diagnosis Using A Thermometer** WAN ZHOU, University of Texas at El Paso, Jianjun Sun, Xiujun (James) Li

THE WALLACE H. COULTER LECTURE

Session 660

The Wallace H. Coulter Lecture

Monday Afternoon, Room Grand Hall Ballroom B

5:00 **Serendipity Stokes Discovery: Disrupting Established Industries, FRASER STODDART, Northwestern University**

TUESDAY, MARCH 19, 2019 MORNING

AWARDS

Session 670

The Pittsburgh Analytical Chemistry Award - arranged by Amit Ghosh, The Pittsburgh Conference

Tuesday Morning, Room 123

Amit Ghosh, The Pittsburgh Conference, Presiding

8:30 **Introductory Remarks - Amit Ghosh**

8:35 **Presentation of the 2019 Pittsburgh Analytical Chemistry Award to Weihong Tan, University of Florida, and Hunan University, by Amit Ghosh, Chair of the Society of Analytical Chemists of Pittsburgh**

8:40 (670-1) **Molecular Foundation of Aptamers: Biomedical Applications and Challenges** WEIHONG TAN, University of Florida

9:15 (670-2) **Peering into Cells with Nanotechnology** CHAD MIRKIN, Northwestern University

9:50 (670-3) **Cell Imaging with Genetically Encoded RNA-Based Sensors** MINGXU YOU, University of Massachusetts Amherst

10:25 **Recess**

10:40 (670-4) **Increasing Chemical Information From Single Cell Measurements: Measuring Metabolites, Peptides and Transcripts From the Same Cell** JONATHAN V SWEEDLER, University of Illinois at Urbana-Champaign

11:15 **Abstract Was Not Available At Time Of Print**

SYMPOSIUM

Session 680

Global Challenges in Chemical Analysis for Food Safety - arranged by Lowri DeJager, US FDA

Tuesday Morning, Room 115A

Lowri DeJager, US FDA, Presiding

8:30 **Introductory Remarks - Lowri DeJager**

8:35 (680-1) **Analytical Challenges and Methods for the Direct/Analysis of Food & Food Contact Materials: Recent FDA-CFSAN Research** LUKE K ACKERMAN, Food and Drug Administration, Susan Genualdi, Jessica Beekman

9:10 (680-2) **What is in my Food? A Full Spectrum Holistic Analysis** VOLKER BORNEMANN, AVAZYME, INC.

9:45 (680-3) **A Field Portable and User Friend Method to Measure Inorganic Arsenic in Rice** PATRICK J GRAY, US Food and Drug Administration

10:20 **Recess**

10:35 (680-4) **Challenges Associated with Ingredient and Food Authentication and the Development of Testing Methodologies** MICHAEL DZIEWATKOSKI, Eurofins

11:10 (680-5) **Can We Analyze Food Quality by Gas Chromatography?** ERICH LEITNER, Graz University of Technology

SYMPOSIUM

Session 690

Human Exhaled Breath Aerosol (EBA) Sampling and Analysis: Applications for Clinical Diagnostics and Environmental Exposure Studies - arranged by Joachim D Pleil, US EPA and Jens Herbig, Ionicon Analytik GmbH

Tuesday Morning, Room 115B

Joachim D Pleil, US EPA, Presiding

8:30 **Introductory Remarks - Joachim D Pleil and Jens Herbig**

8:35 (690-1) **Real-Time Aerosol Analysis** JENS HERBIG, IONICON Analytik, Markus Müller, Rene Gutmann

9:10 (690-2) **Human Exhaled Breath Aerosol Collection in the Clinical Setting - Techniques, Concerns, and Considerations** MICHAEL D DAVIS, Children's Hospital of Richmond at VCU

9:45 (690-3) **Non-Targeted Case-Control Analysis of Exhaled Breath Aerosol Using High-Resolution Orbitrap Mass Spectrometry** M ARIEL WALLACE, US Environmental Protection Agency, Joachim D Pleil, Michael Madden, Mark J Strynar, James McCord, Glenn Ferguson

10:20 **Recess**

10:35 (690-4) **The Application of Comprehensive Two-Dimensional Gas Chromatography to Breath Biomarker Discovery** HEATHER BEAN, Arizona State University

11:10 **Abstract Was Not Available At Time Of Print**

SYMPOSIUM

Session 700

IAEAC (International Association of Environmental Analytical Chemistry) - Nanobiosensors for Food Safety - arranged by Antje J Baeumner, University of Regensburg and Sam Rasmussen Nugen, Cornell University

Tuesday Morning, Room 116

Antje J Baeumner, University of Regensburg, Presiding

8:30 **Introductory Remarks - Antje J Baeumner and Sam Rasmussen Nugen**

8:35 (700-1) **Biological Sensing with a Droplet Lens** TIMOTHY M SWAGER, Massachusetts Institute of Technology

9:10 (700-2) **Can Nanobiotechnology Fulfill Diagnostic Challenges in Food Safety?** M PILAR MARCO, Spanish National Research Council

9:45 (700-3) **Nanofiber-Enabled Miniaturized Biosensors for Electrochemical and Optical Detection Strategies** ANTJE J BAEUMNER, University of Regensburg

10:20 **Recess**

10:35 (700-4) **Phage-Based Assays for Detecting *E. Coli* in Agricultural and Drinking Water Samples** SAM RASMUSSEN NUGEN, Cornell University, Troy C Hinkley, Joey N Talbert, Sangita Singh, Kevin P Nichols, Spencer Garing, Anne-Laure Le Ny

11:10 (700-5) **In-Shift Salmonella Quantitation Using a Platform for Microbial Risk Monitoring** MAHARSHI TRIVEDI, Ancera

SYMPOSIUM

Session 710

JAIMA (Japan Analytical Instruments Manufacturers Association) I - Analytical Solutions for Biopharma & Biotherapeutics: Drying Technologies & Analytical Methods - arranged by Kouhei Tsumoto, The University of Tokyo and Satoshi Nomura, Horiba, Ltd.

Tuesday Morning, Room 126A

Kouhei Tsumoto, The University of Tokyo, Presiding

8:30 **Introductory Remarks - Kouhei Tsumoto and Satoshi Nomura**

8:35 (710-1) **Rational Design of Stable Lyophilized Protein Formulations: Mechanistic Insights and Key Analytical Methods** JOHN F CARPENTER, University of Colorado

9:10 (710-2) **Synergy Between Development of Novel Processing Technology and PAT: Opportunities and Challenges** SATOSHI OHTAKE, Pfizer Inc.

9:45 (710-3) **Application of Thermal Analysis in Formulation Design and Process Optimization of Freeze-Dried Pharmaceutical Products** KEN-ICHI IZUTSU, National Institute of Health Sciences

10:20 **Recess**

10:35 (710-4) **Enhanced Protein Structural Characterization Using Microfluidic Modulation Spectroscopy (MMS)** JEFF ZONDERMAN, RedshiftBio

11:10 (710-5) **Different Modes of Analytical Chromatography Techniques for the Characterization of Biomolecules** ATIS CHAKRABARTI, Tosoh Bioscience LLC

SYMPOSIUM

Session 720

Molecular Catalysis of Carbon Dioxide Reduction from Renewable Energy - arranged by Charles W Machan, University of Virginia

Tuesday Morning, Room 115C

Charles W Machan, University of Virginia, Presiding

8:30 **Introductory Remarks - Charles W Machan**

8:35 (720-1) **Using Free Energies for H⁺ and H⁻ Transfers to Design Catalysts for the Reduction of CO₂** AARON APPEL, Pacific Northwest National Laboratory, John Linehan, Eric Wiedner

9:10 (720-2) **Selective Electrocatalytic H⁺ or CO₂ Reduction** JENNY YANG, University of California, Irvine, Bianca M Ceballos, Drew Cunningham, Charlene Tsay

9:45 (720-3) **Improving the Activity of Molecular Electrocatalysts for Reactions Relevant to Solar Fuels** CHARLES W MACHAN, University of Virginia

10:20 **Recess**

10:35 (720-4) **Versatile Mechanisms of Carbon Dioxide Reduction by Iridium(III) Phenyl-Pyridine Photo- and Electro-Catalysts** GERALD MANBECK, Brookhaven National Laboratory, Etsuko Fujita, Dmitry Polyansky, Mehmed Ertem

11:10 (720-5) **Fe and Co Molecular Complexes for Efficient and Selective Catalytic Reduction of CO₂ into CO, HCOO⁻ and CH₄ - A Combined Electrochemical and Photochemical Approach** MARC ROBERT, University Paris Diderot

SYMPOSIUM

Session 730

NIJ (National Institute of Justice) - Innovations and Trends in Forensic Examination of Seized Drugs and Forensic Toxicology - arranged by Frances Scott, National Institute of Justice

Tuesday Morning, Room 118A

Frances Scott, National Institute of Justice, Presiding

8:30 **Introductory Remarks - Frances Scott**

8:35 (730-1) **The Efficacy of Electronic Cigarettes - The Public Health Challenge Became a Criminal Justice Problem** MICHELLE R PEACE, Virginia Commonwealth University, Justin Poklis, Joseph Turner

9:10 (730-2) **The Application Surface Enhanced Raman Spectroscopy for the Rapid Screening of Cannabinoids and Other Drugs in Toxicological Matrices** BRUCE MCCORD, Florida International University

9:45 (730-3) **Development and Validation of a Blood Protein Modification Assay for Retrospective Detection of Abused Drug Exposure** ANTHONY DECAPRIO, Florida International University, Richard Gilliland, Ludmyla Tavares, William Morrison

10:20 **Recess**

10:35 (730-4) **Derivatization and Identification of Controlled Substances Via Total Vaporization Solid Phase Microextraction (TV-SPME) and Gas Chromatography/Mass Spectrometry (GC/MS)** JOHN V GOODPASTER, Indiana University - Purdue University Indianapolis

11:10 (730-5) **Towards On-Site, High-Throughput Drug Evidence Confirmation Using Ambient Sampling, Portable Mass Spectrometry** CHRISTOPHER C MULLIGAN, Illinois State University, William L Fatigante, Shahnaz Mukta, Ashley R Stelmack, Zachary E Lawton, Jamie R Wieland, Michael C Gizzi

SYMPOSIUM

Session 740

Recent Advances in Two-Dimensional Liquid Chromatography - Theory and Practice - arranged by Dwight Stoll, Gustavus Adolphus College

Tuesday Morning, Room 118B

Dwight Stoll, Gustavus Adolphus College, Presiding

8:30 **Introductory Remarks - Dwight Stoll**

8:35 (740-1) **Investigation and Implementation of Online 2D-LC Technologies for Impurity Isolation and Analysis of Complex Mixtures in the Development and Manufacture of Drug Substances** ERIK L REGALADO, Merck & Company, Inc., Imad Haidar Ahmad, Alexey A Makarov, Ian A Mangion

9:10 (740-2) **Benefits and Limitations of the Use of Active Solvent Modulation in Two-Dimensional Liquid Chromatography** DWIGHT STOLL, Gustavus Adolphus College, Hayley Lhotka, Eli Larson, Tyler Brau, Sarah C Rutan

9:45 (740-3) **Comprehensive 3-Dimensional LCxLCx Ion Mobility Spectrometry Separation Combined with High Resolution MS for the Analysis of Complex Samples** ANDRE DE VILLIERS, Stellenbosch University

10:20 **Recess**

10:35 (740-4) **Comprehensive Two Dimensional Liquid Chromatography for Routine Analysis of Synthetic Polymers – Practical Considerations and Case Studies** PEILIN YANG, Dow Chemical Company, Wei Gao, Lu Bai, Tianlan Zhang, Matthias Pursch

SYMPOSIUM

Session 750

SAS (Society for Applied Spectroscopy) – New Frontiers and Challenges in Clinical Spectroscopy - arranged by Ji-Xin Cheng, Boston University

Tuesday Morning, Room 118C

Ji-Xin Cheng, Boston University, Presiding

8:30 **Introductory Remarks - Ji-Xin Cheng**

8:35 (750-1) **Pharmacokinetic Tomography** CONOR EVANS, Wellman Center

9:10 (750-2) **Autonomous Dynamic Sampling for Hyperspectral Raman Image Reconstruction** GARTH J SIMPSON, Purdue University, Shijie Zhang, Zhengtian Song, G M Dilshan P Godaliyadda, Dong-Hye Ye, Gregory T Buzzard, Charles A Bouman

9:45 (750-3) **Biomedical Spectroscopic Tools for Rapid Analysis of Disease Specific Changes Using Novel Raman and IR Techniques** NICK STONE, University of Exeter

10:20 **Recess**

10:35 (750-4) **Co-Registered Photoacoustic and Ultrasound Tomography for Non-Invasive Diagnosis of Ovarian Cancer** QUING ZHU, Washington University in St Louis

11:10 (750-5) **High-Speed Label-Free Vibrational Microscopy Allows Signature Discovery and Signature-Based Precision Diagnosis of Human Diseases** JI-XIN CHENG, Boston University

SYMPOSIUM

Session 760

Strategies for Uncovering and Tracing Biomarkers in Complex Biomedical Systems - arranged by Edgar A Arriaga, University of Minnesota and Matthew R Lockett, University of North Carolina, Chapel Hill

Tuesday Morning, Room 120A

Edgar A Arriaga, University of Minnesota, Presiding

8:30 **Introductory Remarks - Edgar A Arriaga and Matthew R Lockett**

8:35 (760-1) **Uncovering Cellular Senescence in Aging Models via Mass Cytometry** EDGAR A ARRIAGA, University of Minnesota, Daniel Roncancio, Mark Nitz, Rahul Rana

9:10 (760-2) **Comprehensive Proteomics and Lipidomics Strategies to Advance Alzheimer's Disease Research** RENÁ A.S. ROBINSON, Vanderbilt University

9:45 (760-3) **Micellar Electrokinetic Focusing Driven by Ion Concentration Polarization** ROBBYN K ANAND, Iowa State University, Beatrise Berzina

10:20 **Recess**

10:35 (760-4) **Functionalized Aptamers for On-Site Small-Molecule Detection** YI XIAO, Florida International University

11:10 (760-5) **3D Cultures to Evaluate Estrogen Signaling in Tissue and Tumor Environments** MATTHEW R LOCKETT, University of North Carolina at Chapel Hill

ORGANIZED CONTRIBUTED SESSIONS

Session 770

Emerging Leaders in Separation Science

Tuesday Morning, Room 120B

Lisa Holland, West Virginia University, Presiding

8:30 (770-1) **Increasing Throughput for Pharmacopeial Monographs with Ultra-High Pressure Liquid Chromatography** JAMES P GRINIAS, Rowan University

8:50 (770-2) **Bridging the Gap Between Novel Comprehensive Separations, Applied Tools, and Broader Impacts in the Forensic Sciences** KATELYNN A PERRAULT, Chaminate University of Honolulu

9:10 (770-3) **Separations Based on Lipid Bilayer Nanophases Involving Molecular Affinity** WILLIAM M PENNY, West Virginia University, William M Penny, Christopher P Palmer, Lisa A Holland

9:30 (770-4) **Targeted Analysis of Nucleic Acid Modifications Using Sequence-Specific Sample Preparation and Mass Spectrometry** KEVIN DAVID CLARK, Beckman Institute

9:50 **Recess**

10:05 (770-5) **Advanced Separations to Address the Needs for Discovery and Production of Biological Therapeutics** GRACE LU, West Virginia University, Lisa A Holland

10:25 (770-6) **Design and Development of an Online-Liquid Chromatography Mass Spectrometry Workflow to Enable Manufacturing of Synthetic Peptides** STEPHEN R GROSKREUTZ, Eli Lilly and Company, Gordon R Lambertus, Jon A Dieringer, Martin D Johnson, Todd D Maloney

10:45 (770-7) **The Role of Chromatography in Non-Targeted Analysis** BENJAMIN PLACE, National Institute of Standards and Technology, Jacolin A Murray, Paulina Piotrowski, Catherine A Rimmer

11:05 (770-8) **Development of a 2D-LC-MS/MS Lipidomics Platform for Biomarker Discovery** JONATHAN B THACKER, University of Michigan, Subramaniam Pennathur, Stefanie Wernisch

ORGANIZED CONTRIBUTED SESSIONS

Session 780

Extractables and Leachables Analysis - arranged by Dujuan Lu, SGS and Christopher Jones, Baxter Healthcare

Tuesday Morning, Room 120C

Dujuan Lu, SGS, Presiding

8:30 (780-1) **Withdrawn**

8:50 (780-2) **Effect of Mass Spectrometry and Chromatography Parameters on Extractable Profile by LC-MS Analysis** MEGAN BERGAUFF, SGS, Dujuan Lu, Xiaoran Zhang, Danny Hower, Fred Brill, Nichole Brown

9:10 (780-3) **Future Directions of E/L Analysis from Automated Sample Preparation to Enhanced Compound Identification** DAVID A WEIL, Agilent Technologies, Mike Woodman

9:30 (780-4) **Extractables and Leachables in Continuous Processing System** BENBEN SONG, PALL Corporation

9:50 **Recess**

10:05 (780-5) **Chemical Characterization of Implantable, Resorbable Medical Devices** CHRISTOPHER M JONES, Baxter Healthcare

10:25 (780-6) **Extraction Study for Medical Device New Product Development and Life Cycle Management** YIJUN LU, Johnson & Johnson

10:45 (780-7) **Performing Extractables/Leachables Chemical Characterization on Implantable Medical Devices per ISO10093: Goals and Fundamental Challenges for Analytical Chemists** JIANWEI LI, Medtronic plc

11:05 (780-8) **Component Identification Beyond "EI Library Search" - USP <1663> in Practice** VAS GYORGY, Intertek, Louis Fleck, Howard Carpenter, Jason Cole, Kate Comstock

ORAL SESSIONS

Session 790

Advances in Elemental Analysis

Tuesday Morning, Room 121A

8:30 (790-1) **Separation of Arsenic and Cadmium Impurities from Multivitamin/Mineral Supplements Matrix by Sequential Coprecipitation and Determination with ICP-MS** ZIKRI ARSLAN, Jackson State University, Ermira Begu, Brittney Snell

8:50 (790-2) **A Comparison of Over the Counter (OTC) Medicines and Dietary Supplements with Regard to USP 232 (Q3D) and USP 2232 Regulations** PHIL RIBY, University of Manchester, Samar Thiab

9:10 (790-3) **Development of a Rapid Single Cell-ICP-MS Method for Investigation of Toxic Algae Microcystis Aeruginosa Treatment by Copper-Based Algacide** XING SHEN, Missouri University of Science and Technology, Haiting Zhang, Xiaolong He, Honglan Shi, Ma Yinfa, Hua Jiang, Chady Stephan, Cuihong Wan, Craig Adams, Todd Eichholz

9:30 (790-4) **Biomonitoring – Total Analysis and Single Particle Analysis of Selected Elements** EWA M PRUSZKOWSKI, PerkinElmer

9:50 **Recess**

10:05 (790-5) **Multivariate Analysis to Evaluate Matrix Effects and Develop Real-Time Signal Correction Using Naturally Occurring Background Species in Inductively Coupled Plasma Optical Emission Spectrometry** JAKE ALEXANDER CARTER, Wake Forest University, John T Sloop, Tina McSweeney, Bradley T Jones, George L Donati

10:25 (790-6) **How to Solve the “Axial-Radial” Dilemma?** OLAF SCHULZ, Spectro Analytical Instruments GmbH, Dirk Ardel, Wolfram Bohle

10:45 (790-7) **Underwater-LIBS Application in Geologic Carbon storage** CR BHATT, National Energy Technology Laboratory, Jinesh Jain, Dustin McIntyre

11:05 (790-8) **Investigation into Spectral Fluctuations in Laser-Induced Breakdown Spectroscopy: Some Recent Considerations and Experimental Results** WILLIS B JONES, University of Florida, Nicolo Omenetto, Benjamin W Smith

ORAL SESSIONS

Session 800

Bioanalytical Sensors (Half Session)

Tuesday Morning, Room 121B

8:30 (800-1) **Determination of Anion Gap (AG) Using Pulsed Chronopotentiometry** KEBEDE L GEMENE, Northern Kentucky University, Aadaeze Iloegbunam, Sara Keshvarz

8:50 (800-2) **Polycaprolactone Thermoplastic Electrodes for Patternable Carbon Enzyme Sensors** KAYLEE M CLARK, Colorado State University, Charles Henry, Kevin Klunder, Cynthia McCord

9:10 (800-3) **Effect of Osmium Tetroxide Bipyridine Labelling of Thrombin upon Binding to HD22 Aptamer** SARASI K GALAGEDERA, University at Albany, SUNY, Gerd-Uwe Flechsig, Gabriele Fuchs, Alan A Chen, Jia Sheng

9:30 (800-4) **Passive and Active Saccharide Functional Layers for Sensing Applications** PAULA E COLAVITA, Trinity College Dublin, Adam T Myles, James A Behan, Brendan Twamley, Thomas K Doyle, Eoin M Scanlan

ORAL SESSIONS

Session 810

Biomedical - Neurochemistry (Half Session)

Tuesday Morning, Room 121B

10:05 (810-1) **The Synergistic Effects of Serotonin and Histamine in Inflammation and Depression** MELINDA HERSEY, University of South Carolina, Alyssa West, Jennifer Woodruff, Lawrence P Reagan, Parastoo Hashemi

10:25 (810-2) **Ambient Extracellular Serotonin Levels Oscillate** COLBY EVAN WITT, University of South Carolina, Yangguang Ou, Melinda Hersey, Parastoo Hashemi

10:45 (810-3) **Diagnosis of Traumatic Brain Injury Using miRNA Signatures in Nanomagnetically Isolated Brain-Derived Extracellular Vesicles** JINA KO, University of Pennsylvania, Matthew Hemphill, Ramon Diaz-Arrastia, Junhyong Kim, Dave Meaney, David Issadore

11:05 (810-4) **Measurement of Dynamic Neurometabolic Changes During Spreading Depolarization** ANDREA S JAQUINS-GERSTL, University of Pittsburgh

ORAL SESSIONS

Session 820

Biomedical Mass Spectrometry (Half Session)

Tuesday Morning, Room 121C

8:30 (820-1) **A Fast, Accurate, Precise Method for the Analysis of Residual Solvents in Cannabis Concentrates** LEE MAROTTA, PerkinElmer, Miles Snow, Tom Kwoka, David Scott

8:50 (820-2) **High Speed, Consistent Extraction for the Compounds of Interest in the Potency Testing of Cannabis** TOM HALL, Fluid Management Systems, Rudolf Addink

9:10 (820-3) **The Simultaneous Identification of Urinary Biomarkers for Early Detection of Traumatic Brain Injury** ALEXANDRE CRISTEA, Missouri University of Science and Technology

9:30 (820-4) **Patterns of Exhaled VOCs Indicate Influenza A Infection in Pigs** SELINA TRAXLER, University Medical Center of Rostock, Jochen K Schubert, Wolfram Miekisch, Ann-Christin Bischoff, Theresa Schwaiger

ORAL SESSIONS

Session 830

Expanding Areas of Interest in Mass Spectrometry

Tuesday Morning, Room 122A

8:30 (830-1) **Pushing the Limits of Uranium Isotope Ratio Analysis on Picograms of Material by Atmospheric Pressure Ionization Mass Spectrometry** THOMAS P FORBES, National Institute of Standards and Technology, Christopher Szakal

8:50 (830-2) **Lipid Analysis of Thirty-Thousand Individual Cerebral Cells Using High-Resolution Mass Spectrometry** ELIZABETH KATHLEEN NEUMANN, University of Illinois at Urbana-Champaign, Joseph F Ellis, Stanislav S Rubakhin, Jonathan V Sweedler, Amelia E Triplett

9:10 (830-3) **High-Throughput Analysis of Photoredox Catalysis Reactions by Segmented Flow Nanoelectrospray Ionization-Mass Spectrometry** DANIEL J STEYER, University of Michigan, Alexandra Sun, Corey R Stephenson, Robert T Kennedy

9:30 (830-4) **Detection and Quantification of Trace Explosives with Solution-Cathode Glow Discharge Mass Spectrometry (SCGD-MS)** JUDY WU, Rensselaer Polytechnic Institute, Courtney Walton, Jacob T Shelley

9:50 **Recess**

10:05 (830-5) **The Volatile Fingerprint of Stem Cell Differentiation** ANN-CHRISTIN BISCHOFF, University Medical Center of Rostock, Johannes Wurm, Selina Traxler, Julia Bartels, Wolfram Miekisch, Jochen K Schubert

10:25 (830-6) **Peering into Metabolic Pathways During Early Development of the Frog (*Xenopus*) Embryo by Stable Isotope Labelling of Single Cells** ERIKA P PORTERO, University of Maryland, Aleena J Andrews, Peter Nemes

10:45 (830-7) **Comprehensive Analysis of Lipid Profile in Human Plasma by Shotgun Lipidomics after Simple Lipid Extraction with a SPE Column** CHUNYAN WANG, Barshop Institute, Limian Zhao, Jianing Wang, Xianlin Han

11:05 (830-8) **Open Probe Fast GC-MS - Real Time Analysis with Separation** AVIV AMIRAV, Tel Aviv University, Alexander Fialkov, Uri Keshet, Tal Alon

ORAL SESSIONS

Session 840

Next Generation Microfluidics Devices

Tuesday Morning, Room 122B

8:30 (840-1) **Picoliter-Scale Chromatin Enrichment for Droplet Microfluidic Epigenetic Analysis** STEVEN R DOONAN, University of Michigan, Yi Xu, Emory M Payne, Jeong-Heon Lee, Tamas Ordog, Ryan C Bailey

8:50 (840-2) **3D Printed Microfluidic Devices for On-Chip Solid Phase Extraction, Fluorescent Labeling, and Electrophoretic Separation of Preterm Birth Biomarkers** ANNA V NIELSEN, Brigham Young University, Michael J Beauchamp, David J Topham, Benjamin Q George, Hua Gong, Gregory P Nordin, Adam T Woolley

9:10 (840-3) **Viscosity Measurements of Eye Drops Under Realistic Conditions** MATT VANDEN EYNDEN, Formulaction, Inc., Thanina Amiar, Hubert Ranchon, Pascal Bru, Gerard Meunier

9:30 (840-4) **Development of a Glutamate Biosensor for Clinical Monitoring of the Injured Brain Using Online Microdialysis** ISABELLE C SAMPER, Imperial College London, Michelle L Rogers, Sharon Jewell, Sally A Gowers, Anthony Strong, Martyn G Boutelle

9:50 **Recess**

10:05 (840-5) **Wax Patterning on Plastics and Metals for Bioanalytical, Microfluidic and Electrochemical Applications** MOHTASHIM SHAMSI, Southern Illinois University Carbondale

10:25 (840-6) **Dual Extrusion-Based 3D Printing: A Rapid Prototyping Alternative for Electronic Microfluidic Devices** BRANDON STRONG, California Polytechnic State University, SLO, Aditya Rakesh Jangid, Siddharth B Prabhu, Bo Liu, Nathaniel W Martinez

10:45 (840-7) **A Paper-Based Lateral Flow Immunoassay for Detection of Traumatic Brain Injury Biomarker** NIANQIANG WU, West Virginia University, Xuefei Gao, Yang Feng

11:05 (840-8) **Visual Microfluidic Rheometer to Measure Viscosity of Low Viscosity Electrolytes** MATT VANDEN EYNDEN, Formulaction, Inc., Thanina Amiar, Patrycja Adamska, Christelle Tisserand, Pascal Da Costa, Patrick Abgrall, Gerard Meunier

ORAL SESSIONS

Session 850

Novel GCMS Techniques

Tuesday Morning, Room 124

8:30 (850-1) **GC-MS with Photoionization of Cold Molecules – An Alternative to Field Ionization** AVIV AMIRAV, Tel Aviv University, Alexander Fialkov, Tiina Laaksonen, Elias Ikonen

8:50 (850-2) **High Throughput Testing of Terpenes in Cannabis Samples by Headspace (HS)/Gas Chromatography (GC)/Mass Spectrometry (MS)** TOM KWOKA, PerkinElmer, Lee Marotta, Toby Astill

9:10 (850-3) **A Step-by-Step Analytical Protocol for Detecting and Identifying Minor Differences in Like Materials and Polymers Using Pyrolysis-Gas Chromatography/Mass Spectrometry Technique** ROJIN BELGANEH, Frontier Laboratories, Terry Ramus, Itsuko Iwai, William Pipkin, Robert Freeman

9:30 (850-4) **A New GCxGC-TOFMS Method for Quantitation of Biofuel Components in Jet Fuel** CHRISTINA N KELLY, LECO Corporation, Joseph E Binkley, Lorne M Fell

9:50 **Recess**

10:05 (850-5) **Recent Challenging Applications Analyzed with GC-MS with Cold EI** AVIV AMIRAV, Tel Aviv University, Alexander Fialkov, Uri Keshet, Tal Alon

10:25 (850-6) **Applying Qualitative and Quantitative Volatile Organic Compound Analyses to Cultural Heritage Materials** ERIC B MONROE, Library of Congress, Kelli Stoneburner, Fenella G France

10:45 (850-7) **Photocatalytic Degradation Study of Taste and Odor Compounds in Water by GCMS** SABRINA SULTANA, University of Maine, Carl Tripp, Aria Amirbahman

11:05 (850-8) **Automated Aroma Profiling of Alcoholic Beverages by GCxGC-TOF MS** LAURA MCGREGOR, SepSolve Analytical, Matthew Edwards, Anthony Buchanan, Rebecca Preston, Nick Bukowski, Bob Green

ORAL SESSIONS

Session 860

Preparing Biological Samples (Half Session)

Tuesday Morning, Room 121C

10:05 (860-1) **Magnetic Ionic Liquids as Extraction Solvents in Situ Dispersive Liquid-Liquid Microextraction of DNA** ASHLEY N BOWERS, Iowa State University, Maria Trujillo-Rodríguez, Jared L Anderson

10:25 (860-2) **Sample Preparation of Glycans for Analysis: An Evaluation of Technique and Format for Optimal Recovery** JESSICA DETSCH, Phenomenex, Tivadar Farkas, Eric Chapa, Brian Rivera, Matthew Brusius

10:45 (860-3) **Hyphenation of Analytical Techniques to Expand Chemical Coverage of a Single Cell** MARINA C PHILIP, University of Illinois, Elizabeth Kathleen Neumann, Joseph F Ellis, Huiying Tian, Stanislav S Rubakhin, Jonathan V Sweedler

11:05 (860-4) **Magnetic Ionic Liquid Supports Coupled with Mono and Disubstituted Ion-Tagged Oligonucleotides for Rapid DNA Analysis** CHENGHUI ZHU, Iowa State University, Kevin D Clark, Jared L Anderson

ORAL SESSIONS

Session 870

Sample Preparation Approaches for Environmental Samples

Tuesday Morning, Room 125

8:30 (870-1) **Advantages of High Efficiency Solid-Phase Micro Extraction Combined with High-Resolution, Accurate Mass GC-MS for the Analysis of Volatile Leachables from Inhalation Gas Pathways and Liquid Condensates, According to ISO 18562** MANUELA BERGNA, Thermo Fisher Scientific, Daniela Cavagnino, Jason Cole, Carlos F Garcia, Gyorgy Vas

8:50 (870-2) **Environmental Incremental Sampling Methodology Update** MARK L BRUCE, TestAmerica Laboratories

9:10 (870-3) **Headspace Analysis and Quantitation of Oxidizer Salts by Solid Phase Microextraction (SPME) and Other Methods** LAURYN DEGREEFF, US Naval Research Laboratory, Christopher J Katilie, Alison Simon, Janet Crespo-Cajigas, Luis Perez Almodovar

9:30 (870-4) **Designing Magnetic Ionic Liquids for Selective In Situ Stir Bar Dispersive Liquid-Liquid Microextraction** MUHAMMAD Q FAROOQ, Iowa State University, Maria Trujillo-Rodríguez, Jared L Anderson

9:50 **Recess**

10:05 (870-5) **Adsorptive Removal and Photocatalytic Degradation of Rhodamine B (Rh B) Using Fe-MOF/Magnetic-Biochar Multifunctional Composites** CHANAKA M NAVARATHNA, Mississippi State University, Narada B Dewage, Erin Farmer, Akila G Karunanayake, Todd Misna

10:25 (870-6) **Ethylene Oxide Detection at Low Parts-per-Trillion** MARTIN L SPARTZ, Max Analytical Technologies, Kelly R McPartland, Kaitlyn V Bagley

10:45 (870-7) **Fabrication of Novel, High Capacity, Coated SPME Fibers by Sputtering and Thin Film Deposition** DHANANJAY I PATEL, Brigham Young University, Tuhin Roychowdhury, Dhruv Shah, Dylan Jacobsen, Matthew R Linford

11:05 (870-8) **Removal of Methylene Blue from Aqueous Solutions Using Activated Rice Husk Biochar: Adsorption Isotherms, Kinetics and Error Analysis** SUNDAY FELIX NWORIE, Ebonyi State University, Ikenna F Nwabue

ORAL SESSIONS

Session 880

Sensors in Biological Systems

Tuesday Morning, Room 117

8:30 (880-1) **A Single-Molecule Sensor for the Ultrasensitive Detection of Biomolecules** KUMAR SAPKOTA, Virginia Commonwealth University, Soma Dhakal

8:50 (880-2) **Multiplexed Detection of Nucleic Acids with Single-Molecule FRET** SOMA DHAKAL, Virginia Commonwealth University, Anisa Kaur, Kumar Sapkota

9:10 (880-3) **Sensors with Tunable Inter-Dye Distance for Multiplexed Detection of Nucleic Acids** ANISA KAUR, Virginia Commonwealth University, Kumar Sapkota, Soma Dhakal

9:30 (880-4) **Introducing Structure-Switching Functionality into Small-Molecule-Binding Aptamers via Nuclease-Directed Truncation** HAIXIANG YU, Florida International University, Zongwen Wang, Juan Canoura, Yingzhu Liu, Obtin Alkhamis, Fengfu Fu, Yi Xiao

9:50 **Recess**

10:05 (880-5) **Ratiometric RNA-Based Sensors for Quantitative Imaging of Small Molecules in Living Cells** RIGUMULA WU, University of Massachusetts Amherst, Bin Zhao

10:25 (880-6) **Aptamer Fluorescence Anisotropy (Polarization) Sensors and Assays for Small Molecules** QIANG ZHAO, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences

10:45 (880-7) **Development of Volume Changing Polymer Brushes for Transduction of Small Molecules Using Silicon Photonic Sensor Arrays** SHANNON PHELAN WETZLER, University of Michigan, Robert Moeller, Ryan C Bailey

11:05 (880-8) **No Structure-Switching Required: A Generalizable Exonuclease-Mediated Aptamer-Based Assay for Small-Molecule Detection** JUAN CANOURA, Florida International University, Zongwen Wang, Haixiang Yu, Obtin Alkhamis, Yi Xiao, Fengfu Fu

POSTER SESSION

Session 890

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Agriculture

Tuesday Morning, Room Expo floor, back of aisles 1500-2300

(890-1 P) **Quantification of Tylosin Antibiotics and Antibiotic Resistance Genes in Cattle Waste.** KEERTHI APPALA, Western Kentucky University, Eric D Conte, John Kasumba, Getahun E Agga, John H Loughrin, Anne Carlisle

(890-2 P) **Anaerobic Degradation of Tetracycline Antibiotics in Agricultural Manure** JOHN KASUMBA, Western Kentucky University, Keerthi Appala, Getahun E Agga, John H Loughrin, Eric D Conte

(890-3 P) **Achiral and Chiral Analysis of Pesticides Using SFC-MS** GUANNAN LI, Agilent Technologies, Lisa Zang

(890-4 P) **Development of an ELISA Method Based on Light Absorption of Polyaniline for the Detection of Diphenylether Herbicide** RYOICHI ISHIMATSU, Kyushu University, Shimizu Shinichi, Morita Kinichi, Hongsibsong Surat

POSTER SESSION

Session 900

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Biomedical Methods

Tuesday Morning, Room Expo floor, back of aisles 1500-2300

(900-1 P) **Stem Cell and/or Levodopa Potentially Contributes to Amelioration of Rotenone-Induced Degeneration of Dopaminergic Neurons In Rat Brain** SAMY ABDEL FATAH ABDEL AZIM, Cairo University, Ahmed A Fatah, Abdel Moneim R Afify

(900-2 P) **Simulta- Neous Determination of Telmisartan and Metformine For Therapeutic Drug Monitoring** MOHAMED HELAL, University of Florida

(900-3 P) **Highly Accurate, Multi-Variant Glutathione (GSH, GSSG, and Total GSH) Measurement as Important Biomarker Test for Autism Spectrum Disorders and Neurodegenerative Diseases** ASHLEY TROUTEN, Duquesne University, Scott Faber, H M Skip Kingston, Timothy Fahrenholz, John Kern, Mesay Wolle, Matt Pamuku

(900-4 P) **In Silico Survey of the Central Conserved Regions of Viroids Classified in the Pospiviroidae Family for Conserved SRD-Like Motifs** PAUL FREIDHOFF, University of the Sciences in Philadelphia

(900-5 P) **Investigation of Binding of C-Peptide and Leptin to Red Blood Cells** LISA M MEINTS, Michigan State University, Hamideh Keshavarz, Nathan Kauffman, Kurt Zinn, Dana Spence

(900-6 P) **Utilizing ^{99m}Tc as a Tool to Analyze the Binding of Albumin and C-peptide to Red Blood Cells** MORGAN GEIGER, Michigan State University, Nathan Kauffman, Kurt Zinn, Dana Spence

(900-7 P) **Cationic Peptides as a Promising Candidates for Anti-Cancer Therapy** ANNA LUSHNIKOVA, N.N.Blokhin Cancer Research Center, Aleksandr Kostarev, Aleksandr Balbutsky, Daria Ponkratova, Sergej Andreev

(900-8 P) **Aptamer-Based Targeted Gene Editing** XIAOSHU PAN, University of Florida, Weihong Tan

(900-9 P) **Quantitative Determination of Pteridine Levels in Urine Samples for Potential Bladder Cancer Screening Using HPLC-MS/MS** GARRETT WARD, Missouri University of Science and Technology, Casey Burton, Honglan Shi, Anthony Kaczmarek, Yinfa Ma

(900-10 P) **Tumor Microenvironment (TME)-Activatable Circular Aptamer-PEG as an Effective Hierarchical-Targeting Molecular Medicine for Photodynamic Therapy** YU YANG, University of Florida

(900-11 P) **Paper-Based Breast Tumor Co-Culture Model to Quantify the Effects of Microenvironment on Estrogen Signaling** ZHI-WEI LIN, University of North Carolina at Chapel Hill, Nathan Whitman, Matthew R Lockett

(900-12 P) **The Role of Diabetes Mellitus in Collagen Disorder Associated with Pelvic Organ Prolapse** IDRIS AYANTOYE, Illinois Institute of Technology, Naiwei Chi, Rong Wang, Janet Tomczsko, Sylvia Botros

(900-13 P) **Maternal Chronic Unpredictable Stress Effects on Offspring Brain Chemistry** KATIE A PERROTTA, University of California Los Angeles, Merel Dagher, Sara A Erwin, Juan C Velasquez, Alexandre Bonnin, Hongyan Yang, Anne M Andrews

(900-14 P) **Characterizing Miniaturized 2,3 Dialdehyde Cellulose Paper (MDAP) for Use as a Scaffold for Tissue Engineering** CARSTEN KNUTSEN, California Polytechnic State University, Ward Kirschbaum, Lauren Robinson, E Brandon Strong, Andres Martinez, Nathaniel Martinez

POSTER SESSION

Session 910

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Capillary Electrophoresis

Tuesday Morning, Room Expo floor, back of aisles 1500-2300

(910-1 P) **Electrokinetic Separation of Single Stranded Oligonucleotides in Thermoplastic Nanochannels** CHARUNI ANURADHA AMARASEKARA, University of Kansas, Steven Allan Soper, Kumuditha M Weerakoon-Ratnayake

(910-2 P) **Measuring Chiral Recognition in Bile Salt Micelle Systems Using Isothermal Titration Calorimetry (ITC)** CHAD B SUSSMAN, Bucknell University, Ross T Pirnie, Shauna L Anderson, David Rovnyak, Tim G Strein

(910-3 P) **Analysis of Lysine Demethylase Activity Using Host-Assisted Capillary Electrophoresis** JIWON LEE, University of California, Riverside, Wenwan Zhong

POSTER SESSION

Session 920

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Electrochemistry

Tuesday Morning, Room Expo floor, back of aisles 1500-2300

(920-1 P) **Laser-Scribing Treatment of Pencil Drawn Electrodes Aiming at High-Performance Electrochemical Paper-Based Devices** VANESSA NEIVA ATAIDE, University of São Paulo, Wilson A Ameku, William R Araujo, Lucio Angnes, Thiago R Paixao

(920-2 P) **Electrochemical Determination of Dopamine Using a Graphene-Screen-Printed Carbon Electrode with Magnetic Solid-Phase Microextraction** HAYATI FILIK, Istanbul University

(920-3 P) **Carbon-Fiber Microelectrode Performance Enhancement via Electrodeposition of Gold Nanoparticles, Nafion Perfluorinated Resin and 3,4-ethylenedioxythiophene** PAULINE MARIE MARTHE WONNENBERG, American University, Durga S Mohanaraj, Alexander George Zestos

(920-4 P) **Electrochemical Impedance Analysis of E. Coli in Response to Physico-Chemical Stressors** JUSTINE SIMONE GORDON, Binghamton University

(920-5 P) **Oxygen Evolution Reaction at Ruthenium Oxide-Silver Chloride Nanofiber Catalysts in Alkaline Media** SU-JIN KIM, Ewha Womans University, Chongmok Lee, Youngmi Lee

(920-6 P) **Electrospun Ruthenium-Cobalt Mixed Oxide Nanotubes for Highly Electrocatalytic Oxygen Evolution Reaction** AREUM YU, Ewha Womans University, Myung Hwa Kim, Chongmok Lee, Youngmi Lee

(920-7 P) **Electrochemical Flow Injection Analysis of Sibutramine in Pharmaceutical Formulations and Dietary Supplements** WILLIAM R DE ARAUJO, UNICAMP, Rachel T Mathomes, Bridie Collins, Subrayal Reddy, Mario Santana, Thiago R Paixao

POSTER SESSION

Session 930

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Gas Chromatography

Tuesday Morning, Room Expo floor, back of aisles 1500-2300

(930-1 P) **Determination of Olefins in Condensates and Upgraded Bitumen by Gas Chromatography (GC) Using a Vacuum Ultraviolet (VUV) Detector** CHRIS RENE GOSS, InnoTech Alberta, Pal Prem, Amanda R Prefontaine, Lee Marotta

(930-2 P) **Improved PIONA Characterization of Automotive Spark-Ignition Fuel Using Gas Chromatography-Vacuum Ultraviolet Spectroscopy Supplemented by Mass Spectral Identification** RYAN KENT SCHONERT, VUV Analytics, Inc., Alex Hodgson

(930-3 P) **How Clean are my Shut-off Valves?** LINX K WACLASKI, Restek Corporation, Jaap De Zeeuw, Mark Badger

(930-4 P) **The Effect of Liner Geometry on Split and Splitless GC Analyses of Liquid Extracts** LINX K WACLASKI, Restek Corporation, Jaap De Zeeuw, Mark Badger

(930-5 P) **Turning Up the Heat on WAX GC Columns Without Getting Burned** GUSTAVO SERRANO IZAGUIRRE, Agilent Technologies, Phil Stremple, Ngoc-A Dang, Laura Provoost, Vanessa Abercrombie

(930-6 P) **A New Cost-Effective Headspace Gas Chromatographic System for Quality Control of the Brewing Process** MARK BELMONT, Thermo Fisher Scientific, Manuela Bergna, Daniela Cavagnino, Carlos F Garcia

(930-7 P) **11 Min of Fame, Fast FAMES Analysis Using Unique GC Column Selectivity** RAMKUMAR DHANDAPANI, Phenomenex

(940-10 P) **Application of CaR-ESI-MS in Studying Natural Human Milk Oligosaccharide Libraries and Their Protein Interactions** AMR MOSTAFA EL-HAWIET, Alexandria University

(940-11 P) **Charged Aerosol Detection: Factors Affecting Uniform Analyte Response** KATHERINE S LOVEJOY, Thermo Fisher Scientific, Michael Menz, Benjamin Eggart, Frank Steiner, Ian Acworth, Paul Gamache

(940-12 P) **The Stability of the Master LC/HRMS Calibration Solutions** ELLIOTT WILLIAMS, O2Si Smart Solutions, An LGC Standards Company, HuiChen W Stavros, Daniel Biggerstaff

(940-13 P) **Metabolomics and Flux Analysis Informed on the Mechanism of Response of AML to A Potent and Selective OXPHOS Inhibitor** PIETRO MORLACCHI, Agilent Technologies

(940-14 P) **A Simple Way to Perform Faster Quantitative Analysis of LC-MS/MS Data** JONATHAN HO, Shimadzu Corporation, Katie Pryor, Peter Ratsep, Christopher Gilles

(940-15 P) **Phytochemical Investigation of the Leaves of Alafia Barteri** OOLUWAFUNKE OLASUMBO OLALAYE, University of Lagos, Mbang Owolabi, Grace Ukpo, Francis Shode

(940-16 P) **High-Throughput Comprehensive Coverage of Hydrophilic and Hydrophobic Metabolites in Beer Utilizing a Dual Separation/High Resolution Accurate Mass Spectrometry System** IOANNA NTAI, Thermo Fisher Scientific, Martin Samonig, Stephanie Samra, Amanda Souza, Andreas Huhmer

(940-17 P) **Fast and Easy Separation of 23 Pain Management Drugs Including High, Stable Resolution of Isobaric Opioids from Human Urine by UHPLC-MS/MS** JON BARDSLEY, Thermo Fisher Scientific, Kean Woodmansey

(940-18 P) **Robust Extraction, Separation and Quantitation of Structural Isomer Steroids from Human Plasma by Solid Phase Extraction with Liquid Chromatography and Tandem Mass Spectrometry Detection (LC-MS/MS)** JON BARDSLEY, Thermo Fisher Scientific, Kean Woodmansey

(940-19 P) **High-Throughput Acetaminophen Metabolites and Protein Adducts Screening Using Magnetic Enzyme Bioreactors and LC-MS/MS** DI JIANG, University of Connecticut, Min Shen, James F Rusling

(940-20 P) **Universal Approach to the Screening of Plant-Based Toxins from a Variety of Genus and Species** ADRIAN M SCHRELL, Los Alamos National Laboratory, Robert Williams, Helen Cui

POSTER SESSION

Session 940

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LCMS Analysis

Tuesday Morning, Room Expo floor, back of aisles 1500-2300

(940-1 P) **UPLC-ESI-MS/MS Method Development for the Measurement of Urinary Biomarkers of Volatile Organic Compounds: Furfural, 5-Hydroxymethylfurfural, N-Methyl-2-pyrrolidone, Benzene, and Hydrogen Cyanide Metabolites in Urine** CHLOE BIREN, Center for Disease Control and Prevention, Declan McCarthy, Deepak Bhandari, Victor De Jesus, Benjamin Blount

(940-2 P) **Quantification of Nucleic Acid Damage Induced by Commonly Used Antiviral Drugs** AMIRA F EL-YAZBI, Alexandria University, Glen R Lopnow

(940-3 P) **Development of LCMS Method for Targeted Tea Compounds Analysis** XINWEI FENG, The Coca-Cola Company / APTC, Jason Li, Nola Yu

(940-4 P) **Orbitrap ID-X Tribird MS for Pharmaceutical Impurity Identification** KATE COMSTOCK, Thermo Fisher Scientific, Seema Sharma, Graeme McAlister, Fenghe Qiu

(940-5 P) **Analysis of Sequence-Defined Poly(Acrylate)s and Poly(Methacrylate)s by Tandem Mass Spectrometry** SEAN MICHAEL FISCHER, Duquesne University, Stephanie J Wetzel

(940-6 P) **Determination of Neonicotinoids in Bee Pollen and Bird Plasma** CHUNYAN HAO, Ministry of the Environment, Conservation and Parks, Xiaoming Zhao, Margaret Eng, Fengrong Sun, Christy A Morrissey

(940-7 P) **Small Scale Natural Product Isolation Using UPLC with Mass-Directed Purification** JO-ANN JABLONSKI, Waters Corporation, Andrew J Aubin

(940-8 P) **Quantitative Assessment of Methylmalonic Acid Using Fully Automated Direct Isotope Dilution Mass Spectrometry** JEREMIAH JAMROM, Duquesne University, Logan Miller, Fredrick D Foster, Matt Pamuku, H M Skip Kingston, Scott Faber

(940-9 P) **Analysis of Glycosaminoglycan Disaccharides by Liquid Chromatography-Electrospray Ionization Mass Spectrometry** YADI WANG, University of Texas at Arlington, Daniel W Armstrong

POSTER SESSION

Session 950

All posters are to be mounted by 10:00 AM and remain on display until 12:30 PM. Authors must be at their posters from 10:00 AM to 12:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Molecular Spectroscopy

Tuesday Morning, Room Expo floor, back of aisles 1500-2300

(950-1 P) **Development of Extraction Protocols & Evaluation via Bioanalytical Assays for Fingerprint Analyses** ERICA BRUNELLE, University at Albany, SUNY, Morgan Eldridge, Brenna Thibodeau, Jan Halamek

(950-2 P) **Kinetics of Photosensitized Decomposition of a Betacyanin Dye** EDGAR A CORONEL, Higher University of San Andrés

(950-3 P) **A Split Broccoli Aptamer Approach for Signal-On Proximity Assays Studied by Thermofluorimetric Analysis (TFA)** AMANDA KURIAN, Auburn University, Christopher J Easley

(950-4 P) **Photoluminescence Properties of Non-Commercially Available High Molecular Weight Polycyclic Aromatic Hydrocarbons at Room and Cryogenic Temperatures** KHANG TRIEU, University of Central Florida, Anthony Santana, Gavin Mohammad-Pour, Fernando Uribe-Romo, Andres Campiglia

(950-5 P) **Fluorescence Quenching/Deflection Method for Real-Time In-Situ Simultaneous Monitoring of Dissolved Oxygen and Materials Movements-Induced Beam Deflection at a Vicinity of an Aquatic Plant** XING-ZHENG WU, Fukuoka Institute of Technology, Luwei Huang

(950-6 P) **Biometric Authentication Approach via Sweat-Based Metabolite Monitoring** MINDY E HAIR, University at Albany, SUNY, Jan Halamek, Lenka Halamkova

(950-7 P) **Secret Key Cipher Developed with Bioaffinity-Based Assays** LEIF K MCGOLDRICK, University at Albany, SUNY, Jan Halamek

(950-8 P) **An Novel Anionic Conjugated Polyelectrolyte Lipoplex and Its Application for Apoptosis Imaging** PAN WU, Tsinghua University

(950-9 P) **Modulating Aptamer Specificity with pH-Responsive DNA Bonds** LI LONG, University of Florida

(950-10 P) **Integration of an Analytical System for Point-of-Care Test of miRNA by Combination of NASBA and Chemiluminescence** KOJI KARASAWA, Showa University, Shuhei Murayama, Masaru Kato, Hidetoshi Arakawa

(950-11 P) **Fluorophore Induced Plasmonic Current** JOSH MOSKOWITZ, UMBC-University of Maryland Baltimore County

(950-12 P) **UV-LED Based Spectral Continuum Generation for Spectroscopic Applications** TORSTEN JENEK, Heraeus Noblelight GmbH, Christoph Soeller

(950-13 P) **Piecemeal Rekindling of Coumarin 6 Fluorescence on Stepwise Unfolding of Protein by Surfactant** RAJASHREE BANERJEE, Indian Institute of Science Education and Research Kolkata

POSTER SESSION

Session 960

All posters are to be mounted by 10:00 AM and remain on display until 12:30 PM. Authors must be at their posters from 10:00 AM to 12:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Pharmaceutical - Chromatography and Mass Spectrometry

Tuesday Morning, Room Expo floor, back of aisles 1500-2300

(960-1 P) **Method Development and Validation for Separation of Nine Pharmaceutical Active Ingredients Using Reversed-Phase Liquid Chromatography and Modeling Software** JOHN S ALBAZI, Northeastern Illinois University, Maram Aldeeb

(960-2 P) **LC-MS Analysis of Artemisinin and Its Derivatives at Elevated Temperatures** FARAJA OMBWAYO, Rowan University, Amos Mugweru

(960-3 P) **Enabling Greater Sensitivity in LC-MS/MS Analysis with a Micro Flow LC, Nexera Mikros** JONATHAN HO, Shimadzu Corporation, Gerard Byrne, Peter Ratsep, Christopher Gilles

(960-4 P) **The Effects of SFC Preparative Scale-Up on Throughput, Purity and Recovery of an Impurity in an API Mixture** CATHARINE LAYTON, Waters Corporation, Andrew J Aubin, Jacquelyn Runco, Jo-Ann Jablonski

(960-5 P) **Mainstreaming Nano-LC** GREG WARD, Axcend Corporation, Milton Lee, Luke T Tolley, Xie Xiaofeng, Ray West

(960-6 P) **Impurities in Drug Substances by Ion Chromatography** HARI NARAYANAN, Metrohm USA, Katinka Ruth, Michael Chang, Leonel Marcelo Santos

(960-7 P) **Development of an Improved Amylose-Based Chiral Stationary Phase with Excellent Preparative Performance** TAKASHI SATO, YMC CO., LTD., Tsuyoshi Watabe, Masahide Kobayashi, Yoshihiko Yamada, Takehiro Iwadate, Junko Iwadate, Tomoko Izukawa, Chihiro Morita, Saoko Nozawa, Noritaka Kuroda, Jeffrey A Kakaley

(960-8 P) **Optimization of Oligonucleotide Separations on Ion-Exchange Chromatography** TAKASHI SATO, YMC CO., LTD., Akiko Matsui, Saoko Nozawa, Noritaka Kuroda, Jeffrey A Kakaley

(960-9 P) **Enhanced Productivity for Residual Solvent Analysis in Pharmaceutical Products According to USP 467 by Using a New Valve-and-Loop Static Headspace Sampler** XIAOTENG GONG, SGS, Benjamin Webber, Gayatri Trivedi, Danny Hower, Dajuan Lu, Julian Gulbinski, Giulia Riccardino, Manuela Bergna, Daniela Cavagnino, Carlos F Garcia

(960-10 P) **Analysis of High Boiling Point and Thermolabile Residual Solvents in Spray Dried Intermediates Using Static Headspace Gas Chromatography** LAURA PFUND, Merck

(960-11 P) **Automated Sample Preparation Directly from Closed Sterile Finish Pharmaceutical Product Vials** ORANE WHITE, Merck

(960-12 P) **Challenges in Root-Cause Investigation and Elimination of Artifact Peaks in the UPLC Impurity Profile of Compounds with Nosyl Group** TRUONG VAN, Merck

POSTER SESSION

Session 970

All posters are to be mounted by 10:00 AM and remain on display until 12:30 PM. Authors must be at their posters from 10:00 AM to 12:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Process Analytical

Tuesday Morning, Room Expo floor, back of aisles 1500-2300

(970-1 P) **FTIR Unchained: Evolved Gas Analysis of Organic Molecules** DANIEL B VAN NESS, Netzsch Instruments

(970-2 P) **Efficient Identification and Management of Degradant Data in Process Development** JOSEPH DIMARTINO, Advanced Chemistry Development, Inc., Andrew Anderson, Sanjivanjit Bhal

(970-3 P) **Assessment of Natural Radiation Hazard in Ceramics Imported to Sudan** SAIFELDIN MOHAMMED BABIKER SIDDEEG, King Khalid University, Isam Salih, Mohamed A Suliman

(970-4 P) **Evaluation of Milk Powder Authenticity with a Portable Mid-Infrared Spectrometer and a Non-Targeted Chemometric Approach** WILLIAM LIMM, Food and Drug Administration, Sanjeeva R Karunathilaka, Betsy Jean Yakes, Magdi Mossoba

(970-5 P) **Study on the Accuracy and Precision of Sample Preparation Processes Utilising an Easy to Program Automated Platform** PETER A DAWES, Eprep Pty Ltd, Andrew Minnett

(970-6 P) **The Effect of H2S on Serial Dilution Method for Determining Sulfate Reducing Bacteria** ABDULAZIZ ALRUESHED, Saudi Aramco

POSTER SESSION

Session 980

All posters are to be mounted by 10:00 AM and remain on display until 12:30 PM. Authors must be at their posters from 10:00 AM to 12:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Quality Control

Tuesday Morning, Room Expo floor, back of aisles 1500-2300

(980-1 P) **The Application of Control Chart for Assessment of Stability of Reference Materials** BIN WANG, National Institute of Metrology

(980-2 P) **Quality Evaluation of Medical Devices Using TOC instruments** YOSHIO IKEZAWA, Shimadzu Corporation

(980-3 P) **Analysis of Organic Solvents with ICP-OES – A Universal Challenge** DANIEL KUTSCHER, Thermo Fisher Scientific, Sabrina Antonio, Shona McSheehy Ducos

(980-4 P) **Innovative Mercury-Free UVc-LED Reactor for Bacteria Control in Purified Water** PASCAL RAJAGOPALAN, MilliporeSigma, Thomas Flint, Laurent Moreau, Estelle Riche, Joe Plurad, Christophe Paragot

(980-5 P) **Quality Control of Synthetic Biomolecules Using Rapid Methods with Serial Coupling of UV and MS Detectors** SYLVIA GROSSE, Thermo Fisher Scientific, Katherine S Lovejoy, Frank Steiner, Martin Samonig, Mauro De Pra, Martin Ruehl

(980-6 P) **Lab Automation** SCOT DAVID ABBOTT, Phoenix

(980-7 P) **Next-Generation TOC Monitor for Ultrapure Water Purification Systems** PIERRE CARUSO, MilliporeSigma, Pascal Rajagopalan, Estelle Riche, Joe Plurad, Christophe Paragot

(980-8 P) **Titration Goes Digital – Automatic Data Transfer from Titration Solutions & Standards to the Titrator** BETTINA STRABU-JUBB, MilliporeSigma, Valeria Gaertner

(980-9 P) **Navigating the Regulatory Elements of Medical and Laboratory Device Power Supply Technology** CHRISTOPHER SIEGL, Advanced Energy

All posters are to be mounted by 10:00 AM and remain on display until 12:30 PM. Authors must be at their posters from 10:00 AM to 12:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Sensors

Tuesday Morning, Room Expo floor, back of aisles 1500-2300

- (990-1 P) **Effect of Pore Size and Experimental Conditions on the Reference Potential of Reference Electrodes with Porous Glass Frits** EVAN L ANDERSON, University of Minnesota, Blair K Trout, Philippe Buhlmann
- (990-2 P) **Laser-Scribing Fabrication of Portable Electrochemical Devices on Non-Conductive Polymer Materials** LETÍCIA F MENDES, University of São Paulo, William R Araujo, Thiago R Paixao
- (990-3 P) **Surface-Enhanced Raman Spectroscopy-Based MicroRNA Detection from Bladder Cancer Patient Samples** CLAIRE BERMAN, Indiana University - Purdue University Indianapolis, Rajesh Sardar
- (990-4 P) **Development of a Triple Amperometric Microsensor for Simultaneous Measurements of Gasotransmitters - Nitric Oxide, Carbon Monoxide and Hydrogen Sulfide** HEE YOUNG MUN, Ewha Womans University, Youngmi Lee
- (990-5 P) **Site-Directed Antibody Immobilization Using Boronic Acid for Direct Detection of Analyte** ALMIRA RAMANAVICIENE, Vilnius University, Enrika Andzeviciute, Asta Kausaite-Minkstiniene, Inga Morkvenaite-Vilkonciene, Anton Popov, Arunas Ramanavicius
- (990-6 P) **RNA-Based Genetically Encoded Sensors for Cellular Imaging of Silver Ions** QIKUN YU, University of Massachusetts Amherst, Jing Shi
- (990-7 P) **An Intelligent Particle Navigator Powered by DNA Computation** DA HAN, Shanghai Jiao Tong University
- (990-8 P) **Label-Free Colorimetric Detection of Mercury (II) Ions Based on Gold Nanocatalysis** YANG-WEI LIN, National Changhua University of Education, Pei-Chia Yang, Wu Tsungshueh
- (990-9 P) **Detection of Salmonella Enteritis in Food Samples with Chiral Gold Nanoparticle Glycoconjugate Synthesis Relying on Carbohydrate-Lectin Interactions** IDRIS YAZGAN, Kastamonu University, Abdurrahman Gümüş, Buse Turan, Dilek Odaci Demirkol
- (990-10 P) **Quantitative Detection of Polyphosphate in Biological Samples Using Silicon Photonic Microring Resonators** MARIA DE LA CRUZ CARDENOSA RUBIO, University of Michigan, Beau S Schweitzer, Stephanie A Smith, Rachel Hemp, James H Morrissey, Ryan C Bailey
- (990-11 P) **Multiplexed Inflammatory Biomarker Assays Using Silicon Photonic Microring Resonators for Precision Medicine** COLE A CHAPMAN, University of Michigan, Heather M Robison, Jay McQuillan, Joyce M Koenig, Ryan C Bailey
- (990-12 P) **Localized Surface Plasmon Resonance-Based High-throughput Multiplexed MicroRNA Assay in Unmodified Patient Plasma** ADRIANNA MASTERSON, Indiana University - Purdue University Indianapolis
- (990-13 P) **DNA Tethering of Nanodiscs to Silicon Photonic Microring Resonators for Biophysical Characterization of the Blood Coagulation Cascade** SARA M MEDFISCH, University of Michigan, Fabienne Birkle, James H Morrissey, Ryan C Bailey
- (990-14 P) **Development of a Compact Microplate Reader Using a Silicone Optical Technology-Based Spatial Filter for Real-Time Monitoring of Cell Culture Condition During Cultivation** YUTA NAKASHIMA, Kumamoto University, Masaki Kounoura, Chacriya Malasuk, Keisuke Nakakubo, Naho Watanabe, Kinichi Morita, Yuji Oki, Satoru Kuhara, Kosuke Tashiro, Yoshitaka Nakanishi
- (990-15 P) **Plasmonic Microneedles for Continuous pH Monitoring Using Surface-Enhanced Raman Spectroscopy** JI EUN PARK, Northwestern University, Nihan Tanyeri, Richard Van Duyne, Milan Mrksich
- (990-16 P) **Withdrawn**
- (990-17 P) **Optical Immunosensors based on Interaction between Inorganic Semiconducting Materials and Proteins** URTE SAMUKAITE BUBNIENE, Vilnius University, Allysia Tereshchenko, Aura Kisieliute, Leva Baleviciute, Jurate Petroniene, Almira Ramanaviciene, Antanas Zinovicius, Inga Vilkonciene, Valentyn Smyntyna, Roman Viter, Arunas Ramanavicius
- (990-18 P) **Simultaneous Multiselective Spectroelectrochemical Fiber-Optic Sensor** TAKUYA OKAZAKI, Meiji University, Eri Shiokawa, Noriko Hata, Akira Taguchi, Kazuharu Sugawara, Hideki Kuramitz

- (990-19 P) **Process Analytical Technologies for Protein Therapeutic Manufacturing at the Point of Care** LEAH TOLOSA, University of Maryland, Baltimore County, Govind Rao, Yordan Kostov
- (990-20 P) **Novel Nanostructured Thermoplastic Poly (amic) Acid Membranes** EZER CASTILLO, Binghamton University, Omowunmi Sadik
- (990-21 P) **Compact and Multiplexed Absorptionmeter with Newly Developed Arrayed Quasi Spatial Filter Integrated for Microplate Analysis** SAKAI RYO, Kyushu University, Nakakubo Keisuke, Chacriya Malasuk, Hiroaki Yoshioka, Kinichi Morita, Yuta Nakashima, Yuji Oki
- (990-22 P) **Development of Compact Optical System based on Transparent / Translucent Filters in UV Region** JUNFENG ZHU, Kyushu University, Yusuke Hasuo, Keisuke Nakakubo, Yuya Mikami, Hiroaki Yoshioka, Kinichi Morita, Oki Yuji
- (990-23 P) **Calibration Free Ion Selective Electrode Sensing** NATHAN S LAWRENCE, ANB Sensors, Kay McGuinness, Neel Sisodia
- (990-24 P) **Profile of Cytokine/Chemokines Associated to Th17 Response as Distal Progression Markers in Patients with Locally Advanced Cervical Cancer (LACC)** HORACIO ZAMUDIO-MEZA, National Cancer Institute of Mexico
- (990-25 P) **Determination of Rapid Changes in Dopamine Concentrations in the Brain in Response to Noise Using Fast-Scan Cyclic Voltammetry** ANNA INGRID FIMMEL, University at Buffalo, SUNY
- (990-26 P) **Bi-Ligand Gold Nanoparticles as a Colorimetric Sensor for Barium** NADAV LERNER, IDF, Offer Zeiri
- (990-27 P) **Molecular Imprinted Photonic Crystal Sensor for the Rapid and Label-Free Detection of Flavor in Grape Wine** HUI SUN, Guangzhou University, Zhenkai Jin, Yi Zhang, Jlaping Lai

TUESDAY, MARCH 19, 2019 AFTERNOON

AWARDS

Session 1000

The Coblenz Society - The Williams-Wright Award - arranged by Ellen Miseo

Tuesday Afternoon, Room 124
Ellen Miseo, Presiding

- 1:30 **Introductory Remarks** - Ellen Miseo
- 1:35 **Presentation of the 2019 Coblenz Society - Williams-Wright Award to Wolfgang Petrich, Roche Diabetes Care GmbH, by Ellen Miseo**
- 1:40 (1000-1) **Biomedical Vibrational Spectroscopy** WOLFGANG PETRICH, Roche Diabetes Care GmbH
- 2:15 (1000-2) **What Lies Beneath? II: Raman Molecular Analysis of Buried Lesions for Clinical Diagnosis and Monitoring** NICK STONE, University of Exeter
- 2:50 (1000-3) **Fast High-Definition Infrared Microscopy for All-Digital Molecular Histopathology** ROHIT BHARGAVA, University of Illinois at Urbana-Champaign, Shachi Mittal, Kevin Yeh
- 3:25 **Recess**
- 3:40 (1000-4) **Quantum Cascade Laser-Based Infrared Microspectroscopy with Wide-Field Setups** NIELS KROEGER-LUI, Bruker
- 4:15 **Abstract Was Not Available At Time Of Print**

AWARDS

Session 1010

The LCGC Lifetime Achievement and Emerging Leader in Chromatography Awards - arranged by Laura Bush, Advanstar Communications, Inc.

Tuesday Afternoon, Room 125

Laura Bush, Advanstar Communications, Inc., Presiding

- 1:30 **Introductory Remarks - Laura Bush**
- 1:35 **Presentation of the 2019 LCGC Lifetime Achievement in Chromatography Award to Milos V Novotny, Indiana University, by Laura Bush, Advanstar Communications, Inc.**
- 1:40 (1010-1) **Living with Chromatography: Research, Educational Aims and People** MILOS V NOVOTNY, Indiana University
- 2:15 (1010-2) **Use of Ultrahigh Pressure LC-MS for Lipid Analysis** ROBERT T KENNEDY, University of Michigan
- 2:50 (1010-3) **Novel Column Formats for Compact Capillary Chromatography** MILTON L LEE, Brigham Young University, Abhijit Ghosh, Austin R Foster, Carlos Vilorio, Jacob C Johnson, Leena Milind Patil, Luke T Tolley, Paul B Farnsworth, H Dennis Tolley, Xiaofeng Xie, Brian D Iverson
- 3:25 **Recess**
- 3:40 **Presentation of the 2019 LCGC Emerging Leader in Chromatography Award to Ken Broeckhoven, Vrije Universiteit Brussel by Laura Bush, Advanstar Communications, Inc.**
- 3:45 (1010-4) **Importance of Fundamental and Theoretical Research for the Advance of Liquid Chromatography Separations** KEN BROECKHOVEN, Vrije Universiteit Brussel
- 4:20 (1010-5) **New Fabrication Methods For New Chromatographic Support Structures** GERT DESMET, Vrije Universiteit Brussel

SYMPOSIUM

Session 1020

Assessing Protein Quality for Nutrition and Accurate Labeling - arranged by David W Plank, WRSS Food & Nutrition Insights and Jonathan DeVries, DeVries & Associates

Tuesday Afternoon, Room 115A

David W Plank, WRSS Food & Nutrition Insights, Presiding

- 1:30 **Introductory Remarks - David W Plank and Jonathan DeVries**
- 1:35 (1020-1) **Future Protein Nutrition: Sources, Quality and Global Consumption** CLYDE DON, Clyde Don Consultancy Foodphysica
- 2:10 (1020-2) **The Role of Protein Quality in Meeting Protein Requirements of Humans Throughout the Life Cycle: Does Quality Matter?** JAMES D HOUSE, University of Manitoba
- 2:45 (1020-3) **Making a Protein Claim: Factors Impacting Protein Quality and a New Way for Measuring** DAVID W PLANK, WRSS Food & Nutrition Insights
- 3:20 **Recess**
- 3:35 (1020-4) **Instrumental Approaches to Assure the Authenticity of Protein** SNEH D BHANDARI, Merieux NutriSciences, Kenny (Zhuohong) Xie
- 4:10 (1020-5) **Protein Regulatory Compliance, Class Actions and Beyond** GEORGE SALMAS, The Food Lawyers

SYMPOSIUM

Session 1030

Beyond Gut-on-a-Chip: Intestinal Models, Sensors and Microbiome for Drug Discovery and Disease Modeling - arranged by Dulan B Gunasekara and Aadra Bhatt. University of North Carolina at Chapel Hill

Tuesday Afternoon, Room 115B

Dulan B Gunasekara, University of North Carolina at Chapel Hill, Presiding

- 1:30 **Introductory Remarks - Dulan B Gunasekara and Aadra Bhatt**
- 1:35 (1030-1) **Pharmaceutical Targeting of the Microbiome to Improve Cancer Drug Efficacy** AADRA BHATT, University of North Carolina at Chapel Hill
- 2:10 (1030-2) **Ex Vivo Intestinal Sensing Platforms** BHAVIK ANIL PATEL, University of Brighton

- 2:45 (1030-3) **Primary-Cell-Based Platforms Derived from Intestinal Stem Cells for Pharmaceutical Assays** DULAN B GUNASEKARA, University of North Carolina at Chapel Hill, Jennifer Speer, Yuli Wang, John K Fallon, Philip C Smith, Christopher E Sims, Nancy L Allbritton

3:20 **Recess**

- 3:35 (1030-4) **Towards a Comprehensive In Vitro Gut-on-a-Chip Model** ELISABETH VERPOORTE, University of Groningen
- 4:10 (1030-5) **Human 3D Gastrointestinal Microtissue Barrier Function as a Predictor of Drug-Induced Diarrhea** MATTHEW PETERS, AstraZeneca

SYMPOSIUM

Session 1040

Every Breath You Take - Dynamic Analytical Methods to Monitor Brain Metabolism after Injury - arranged by Stephane Marinesco, Inserm and Martyn Boutelle, Imperial College London

Tuesday Afternoon, Room 115C

Stephane Marinesco, Inserm, Presiding

- 1:30 **Introductory Remarks - Stephane Marinesco and Martyn Boutelle**
- 1:35 (1040-1) **Dexamethasone-Enhanced Microdialysis for TBI: Getting Closer to the Clinic** ADRIAN C MICHAEL, University of Pittsburgh, Elaine Robbins, Andrea S Jaquins-Gerstl, Chi Leng Leong, Sally A Gowers, Martyn G Boutelle
- 2:10 (1040-2) **Imaging Brain Metabolism Using Magnetic Resonance Spectroscopy** YAN LI, University of California, San Francisco
- 2:45 (1040-3) **Multi-Analyte Potentiometric Array Detectors for Simultaneous Monitoring of the Neurochemical Signature of Injury** MARTYN G BOUTELLE, Imperial College London, Sally A Gowers, Isabelle C Samper, Nick B Moser, Pantelis Georgiou, Chi Leng Leong
- 3:20 **Recess**
- 3:35 (1040-4) **Ultrasmall Microelectrode Biosensors based on Platinized Carbon Fibers for Brain Injury Monitoring** STEPHANE MARINESCO, Inserm
- 4:10 **Abstract Was Not Available At Time Of Print**

SYMPOSIUM

Session 1050

JAIMA (Japan Analytical Instruments Manufacturers Association) - II Analytical Solutions for Biopharma & Biotherapeutics: Analytical Solutions - arranged by Kouhei Tsumoto, The University of Tokyo and Satoshi Nomura, Horiba, Ltd.

Tuesday Afternoon, Room 126A

Kouhei Tsumoto, The University of Tokyo, Presiding

- 1:30 **Introductory Remarks - Kouhei Tsumoto and Satoshi Nomura**
- 1:35 (1050-1) **Bioprocess Prepared Medium Trending with Excitation-Emission Fluorescence (EEM)** JOHN BOBIAK, Bristol-Myers Squibb
- 2:10 (1050-2) **Structural Analysis of the Multimers of Bovine Serum Albumin by Ion Mobility-Mass Spectrometry** REBECCA S GLASKIN, Agilent Technologies, Dawn M Stickle
- 2:45 (1050-3) **High-Throughput LC-MS Analysis for Cell Culture Metabolites** PING HU, Janssen R&D, LLC
- 3:20 **Recess**
- 3:35 (1050-4) **Fully Validated Bioanalysis of Monoclonal Antibodies Using Fab-Selective Proteolysis nSMOL Coupled with LC-MS/MS** TAKASHI SHIMADA, Shimadzu Scientific Instruments, Noriko Iwamoto
- 4:10 **Abstract Was Not Available At Time Of Print**

SYMPOSIUM

Session 1060

Molecular Analysis of Liquid Biopsies for Precision Medicine -

arranged by Yong Zeng, University of Kansas and Hakho Lee, Massachusetts General Hospital, Harvard University

Tuesday Afternoon, Room 118B

Yong Zeng, University of Kansas, Presiding

- 1:30 **Introductory Remarks - Yong Zeng and Hakho Lee**
- 1:35 (1060-1) **Rethinking the Liquid Biopsy Diagnostics of Hematological Diseases with Single-Cell Functional Proteomics** RONG FAN, Yale University
- 2:10 (1060-2) **On-a-Chip Biosensing with Nano-Optical Resonators** ROMAIN QUIDANT, ICFO – The Institute of Photonic Sciences
- 2:45 (1060-3) **Current State of Exosome Based Diagnostics** JOHAN SKOG, Exosome Diagnostics
- 3:20 **Recess**
- 3:35 (1060-4) **Facile Profiling of DNA Epigenetic Heterogeneity by Microfluidic Digital High Resolution Melt** TZA-HUEI (JEFF) WANG, Johns Hopkins University
- 4:10 **Abstract Was Not Available At Time Of Print**

SYMPOSIUM

Session 1070

Next Generation Analytical Tools for Investigating Waste to Energy Systems -

arranged by Shelley D Minter, University of Utah

Tuesday Afternoon, Room 116

Shelley D Minter, University of Utah, Presiding

- 1:30 **Introductory Remarks - Shelley D Minter**
- 1:35 (1070-1) **Analytical Characterization of Bioelectrocatalysis in Extreme Environments** SHELLEY D MINTEER, University of Utah
- 2:10 (1070-2) **Confocal Raman Microscopy in the Study of Catalytic Membranes for Energy Conversion** CAROL KORZENIEWSKI, Texas Tech University
- 2:45 (1070-3) **Life Electric: Microbial Electrochemical Systems for Energy and Environmental Applications** MOH EL-NAGGAR, University of Southern California
- 3:20 **Recess**
- 3:35 (1070-4) **Internal Redox Polarity of an Individual *G. sulfurreducens* Bacterial Cell Attached to an Inorganic Substrate** LENNY TENDER, Naval Research Laboratory, Nikolai Lebedev, Matthew Yates, Igor Griva
- 4:10 (1070-5) **On the Use of Hyphenated Techniques for the Study of Electrochemically Active Bacteria** UWE SCHRODER, TU Braunschweig

SYMPOSIUM

Session 1080

NIJ (National Institute of Justice) - Emerging Analytical Methods for Chemical and Biological Forensic Evidence -

arranged by Gregory Dutton, National Institute of Justice and Igor K Lednev, University at Albany, SUNY

Tuesday Afternoon, Room 118A

Gregory Dutton, National Institute of Justice, Presiding

- 1:30 **Introductory Remarks - Gregory Dutton and Igor K Lednev**
- 1:35 (1080-1) **Forensic Science R&D Funding Programs at the National Institute of Justice: Opportunities in Analytical Chemistry, Applied Spectroscopy and Bioanalysis** GREGORY DUTTON, National Institute of Justice, Frances Scott
- 2:10 (1080-2) **Stable Isotopes to Determine Class Characteristics of Human Hair Donors and the Carrion Source of Blow Flies** GLEN P JACKSON, West Virginia University
- 2:45 (1080-3) **A New Tool for Fire/Arson Investigations** HERGEN EILERS, Washington State University, Natalie Gese, Benjamin R Anderson, Ray Gunawidjaja
- 3:20 **Recess**
- 3:35 (1080-4) **Recent Progress in Mass Spectrometry Imaging of Latent Fingerprints** YOUNG-JIN LEE, Iowa State University

4:10 (1080-5) **Raman Spectroscopy of Body Fluid Traces: Universal Method Development for the Analysis of Forensic Evidence** IGOR K LEDNEV, University at Albany, SUNY

SYMPOSIUM

Session 1090

SAS (Society for Applied Spectroscopy) – Current and Emerging Methods for Optical Trace Gas Analysis -

arranged by Robert Lascola, Savannah River National Laboratory

Tuesday Afternoon, Room 118C

Robert Lascola, Savannah River National Laboratory, Presiding

- 1:30 **Introductory Remarks - Robert Lascola**
- 1:35 (1090-1) **Fabry-Perot Ophotothermal Interferometry: A New Concept for Trace Gas Sensing in Ultrasmall Gas Volumes** BERNHARD LENDL, TU Wien
- 2:10 (1090-2) **Infrared On-Chip Photonics for Breath Diagnostics** BORIS MIZAIKOFF, Ulm University
- 2:45 (1090-3) **MRR Spectrometers in Chemical and Pharmaceutical Analysis: Identification and Quantification of Isomers in Complex Mixtures** JUSTIN L NEILL, BrightSpec, Inc., Matthew T Muckle, Aleksandr V Mikhonin, Reilly E Sonstrom, Brooks H Pate
- 3:20 **Recess**
- 3:35 (1090-4) **Broadband, High Resolution Dual-Comb Molecular Spectroscopy in the Mid-Infrared and THz Spectral Regimes** GERARD WYSOCKI, Princeton University, Jonas Westberg, Lukasz Sterczewski
- 4:10 (1090-5) **Novel Improvements and Applications Using Tunable Infrared Laser Direct Absorption Spectroscopy** SCOTT HERNDON, Aerodyne Research Inc, Mark Zahniser, David Nelson, Barry McManus, Joanne Shorter, Rob Roscioli, Tara I Yacovitch, Christoph Dyroff, Conner Daube

ORGANIZED CONTRIBUTED SESSIONS

Session 1100

SEAC (Society for Electroanalytical Chemistry): A Student**Session in Electroanalysis -** arranged by Stephen Maldonado, University of Michigan and Ryan White, University of Cincinnati**Tuesday Afternoon, Room 120A**

Stephen Maldonado, University of Michigan, Presiding

- 1:30 (1100-1) **Understanding the Corrosion Mechanism of Stainless Steel Thermal Spray Coatings Using Scanning Probe Techniques** SAMANTHA MICHELLE GATEMAN, McGill University, Janine Mauzeroll
- 1:50 (1100-2) **Extending the Time Scale of Fast-Scan Cyclic Voltammetry Measurements Using Double Waveform Partial Least Squares Regression and Frequency Domain Analyses** CARL J MEUNIER, North Carolina State University, Greg S McCarty, Leslie A Sombers
- 2:10 (1100-3) **Optimizing Conducting Polymer Modified Electrodes and Miniaturizing Instrumentation to Enhance Microfluidics Pumped by Redox-Magnetohydrodynamics (R-MHD)** FOYSAL Z KHAN, University of Arkansas, David N Parette, Ingrid Fritsch
- 2:30 (1100-4) **Electrochemical and Electrokinetic Route for Dialysate Regeneration** BEATRICE BERZINA, Iowa State University, Robbyn K Anand
- 2:50 **Recess**
- 3:05 (1100-5) **Charge Transfer at III-V Semiconductor Ultramicroelectrodes** MITCHELL LANCASTER, University of Michigan, Saurabh Acharya, Stephen Maldonado
- 3:25 (1100-6) **Operando Electrochemical Methods for Studying Energy Storage and Conversion Materials in Action** J TYLER MEFFORD, Stanford University
- 3:45 (1100-7) **Enabling Earth-Abundant Inorganic Materials for Efficient Solar Fuel Production** MIGUEL CABAN-ACEVEDO, California Institute of Technology
- 4:05 (1100-8) **High-Throughput Scanning Electrochemical Microscopy based on Nonlocal Continuous Line Probes** ANNA E DORFI, Columbia University, Daniel Esposito, John Wright, Henry Kuo

Advances in Fuels, Energy, and Petrochemical Analysis

Tuesday Afternoon, Room 117

John Baltrus, Presiding

1:30 (1110-1) **Rapid Measurement of Bitumen Content in Oil Sands by Laser-Induced Breakdown Spectroscopy** AISSA HARHIRA, National Research Council, Josette El Haddad, Alain Blouin, Mohamad Sabsabi

1:50 (1110-2) **Determination of Elemental Environmental Contaminants in Coal by Triple Quadrupole ICP-MS** LEE YU, National Institute of Standards and Technology

2:10 (1110-3) **Ultra-Fast CO₂ Reduction Ionic Liquids (ILs) Performed in Aerobic Environments** PINGHUA LING, Xavier University of Louisiana, Zhongyuan Huang, Zhe Wang, Petr Král, Sanoj Raj

2:30 (1110-4) **Remotely Operated Stations at Sea for Ships Fuel Sulfur Content Monitoring** TUOMAS HIETA, Gasera Ltd, Ismo Kauppinen

2:50 **Recess**

3:05 (1110-5) **Recent Advances in the Analysis of Petroleum-based Fuels Using Gas Chromatography-Vacuum Ultraviolet Spectroscopy** JAMES A DIEKMANN, VUV Analytics, Inc., Jack Cochran, Dan Wispinski

3:25 (1110-6) **Case Studies in Oil Spill Forensics: Finding Petroleum Biomarkers with GCxGC-TOFMS** CHRISTINA N KELLY, LECO Corporation, Robert K Nelson, Joseph E Binkley, Lorne M Fell

3:45 (1110-7) **Petroleum Oxygenates and Aromatics by Novel GC-FTIR** KELLY R MCPARTLAND, Max Analytical Technologies, Kaitlyn V Bagley, Martin L Spartz

4:05 (1110-8) **Developing Molecular Imprinted Composite Sensor Coatings for Monitoring Neutral Nitrogenous Compounds in Liquid Fuel** ADNAN MUJAHID, University of the Punjab, Muhammad Faizan, Tajamal Hussain

ORAL SESSIONS

Session 1120

Applications of Surface Analysis and Surface Imaging Techniques

Tuesday Afternoon, Room 120B

1:30 (1120-1) **Nanoscale Chemical and Mechanical Imaging via Peak Force Infrared Microscopy** LE WANG, Lehigh University

1:50 (1120-2) **Dry versus Wet? Negative Implications of Aerosol Impaction Methods on the Organic Volume Fraction of Binary Mixture Particles** HANSOL D LEE, University of Iowa, Elias S Hasenecz, Chathuri P Kaluarachchi, Elizabeth A Stone, Alexei V Tivanski

2:10 (1120-3) **Towards Simultaneous, High-Resolution Multimodal Chemical Imaging Based on Laser-Induced Breakdown Spectroscopy and Mass Spectrometry** MONTWAUN DEON YOUNG, Rensselaer Polytechnic Institute, Sunil P Badal, Jacob T Shelley, Jessica R Hellinger

2:30 (1120-4) **Non-Destructive Evaluation of Aromaticity and Maturity of Kerogens in Oil Shale with Multimodal Peak Force Infrared Microscopy at 10 nm Spatial Resolution** DEVON SCOTT JAKOB, Lehigh University, Le Wang, Haomin Wang, Xiaoji Xu

2:50 **Recess**

3:05 (1120-5) **Using Metal Ions to Obtain Reversible Control over Monolayer Properties** BRIANA CAPISTRAN, Michigan State University, Gary Blanchard

3:25 (1120-6) **Three-Dimensional Mapping of Optical Near-Field Responses by Controlling Probe-Sample Distance** HAOMIN WANG, Lehigh University, Xiaoji Xu, Le Wang, Devon Scott Jakob

3:45 (1120-7) **Three Dimensional Heterogeneous Structure formation on Solid Supported Lipid Bilayer Studied Using Single Particle Tracking** GUFENG WANG, North Carolina State University, Yaning Zhong

4:05 (1120-8) **Contact Angle as a Method of Probing Competitive Equilibria at Oxide Surfaces** BARRACK STUBBS, Michigan State University, Gary Blanchard

Bioanalytical Electrochemistry

Tuesday Afternoon, Room 120C

1:30 (1130-1) **Electrochemical Pre-Treatment for Enhancement of 3D-Printed Carbon Composite Electrodes** AYA ABDALLA, University of Brighton, Oliver Keattch, John P Salvage, Melanie S Flint, Bhavik Anil Patel

1:50 (1130-2) **Tubular Band Thermoplastic Electrode Arrays for Small-Volume Immunoassays** CYNTHIA MCCORD, Colorado State University, Kaylee M Clark, Kevin Klunder, Charles Henry

2:10 (1130-3) **Scanning Electrochemical Microscopic Probe for Real Time Monitoring of Bacterial Local Chemical Environment** NADEESHANI JAYATHILAKE, Oregon State University, Dipankar Koley

2:30 (1130-4) **Charge Transfer in Bio-Electrochemical Systems based on Organic Semiconductors and Redox Enzymes** ARUNAS RAMANAVICIUS, Vilnius University, Gintautas Bagdziunas, Sarunas Zukauskas, Povilas Genys, Jurate Petroniene, Mindaugas Gicevicius, Almira Ramanaviciene

2:50 **Recess**

3:05 (1130-5) **Electrochemical Measurement of Condensation of Tethered DNA on an Electrode Surface** KIANA PICKLE, University of Cincinnati

3:25 (1130-6) **Scanning Electrochemical Microscopy to Study Distance Dependent Metabolic Interaction of Bacteria in Simulated Biofilm** PARTHA SHEET, Oregon State University, Koley Dipankar

3:45 (1130-7) **Carbohydrate-Functionalized Conductive Polymer Biointerface: Fabrication, Characterization and Application for Protein Analysis** XIANGQUN ZENG, Oakland University, Ke Qu

4:05 (1130-8) **Homogeneous Electrocatalytic Mechanism between Surface Confined Methylene Blue and Freely Diffusing Ferricyanide** YAO WU, University of Cincinnati, Ryan J White

ORAL SESSIONS

Session 1140

Chemometric Applications in Environmental Analysis (Half Session)

Tuesday Afternoon, Room 121A

1:30 (1140-1) **Simulated Radiance Profiles for the Automated Detection of Volatile Organic Compounds from Passive Infrared Remote Sensing Data** ZIZI CHEN, University of Iowa, Gary W Small

1:50 (1140-2) **Chemometric Methods for Enhancing the Detection of Radioisotopes from Gamma-Ray Spectra** BRIAN W DESS, Kalman & Company, Inc., Gary W Small

2:10 (1140-3) **Gaussian Process-Based Machine Learning Methods for Sensor Calibration in Drifting Environments** FENG YANG, West Virginia University, Nianqiang Wu

2:30 (1140-4) **Detection of Sulfur Dioxide from Power Plant Emissions by Airborne Passive Fourier Transform Infrared Spectrometry** REBECCA MEREDITH, University of Iowa, Gary W Small

ORAL SESSIONS

Session 1150

Developments in DNA Analysis (Half Session)

Tuesday Afternoon, Room 121A

3:05 (1150-1) **Preconcentration of Cell Free DNA Using qPCR Compatible Magnetic Ionic Liquids** MIRANDA N EMAUS, Iowa State University, Kevin D Clark, Paige Hinners, Jared L Anderson

3:25 (1150-2) **Time-Resolved Diffusion Sensor Reveals DNA Recognition Dynamics of Proteins** MASAHIDE TERAZIMA, Kyoto University

3:45 (1150-3) **Aptamer-Maytansine Conjugate as Targeted Chemotherapy Drug for HER2 Overexpressed Tumors** YAN TAN, Hunan University

4:05 (1150-4) **Ultra-Sensitive Aptamer-Based Electrochemical Detection of Ochratoxin A Using Silver Metallization and Exonuclease I** AKKAPOL SUEA-NGAM, ETH Zurich, Andrew J DeMello, Philip D Howes

GCMS Analysis of Consumer Products, Clinical/Toxicology, and Food Safety

Tuesday Afternoon, Room 121B

1:30 (1160-1) **Qualitative and Quantitative Analysis of Electronic Cigarette Liquids Using Gas Chromatography-Orbitrap Mass Spectrometry** JANE COOPER, Thermo Fisher Scientific, Cristian Cojocariu, Jason Cole, Chris Allen

1:50 (1160-2) **Pyrolysis GC-MS Analysis of Paper Products** KAREN SAM, CDS Analytical

2:10 (1160-3) **The Determination of 1,4-dioxane in Cosmetics by GC-MS/MS** WANLONG ZHOU, US Food and Drug Administration, Jean C Hubinger, John W Gasper

2:30 (1160-4) **Recent Advancements in Urinary VOC Analysis Using Equilibrium Headspace SPME/GC/MS** KASEY EDWARDS, Center for Disease Control and Prevention, Eduardo Sanchez, Alai Fernandez, David Chambers, Victor De Jesus, Benjamin Blount, Christopher Reese

2:50 **Recess**

3:05 (1160-5) **Evaluation of the Migration of Brominated Flame Retardants in Food Simulants** RAFAEL PASEIRO-CERRATO, Food and Drug Administration, Lowri DeJager, Timothy H Begley

3:25 (1160-6) **Py-GC/MS Analysis of Cannabis Sativa Constituents in Edibles** WILLIAM PIPKIN, Frontier Laboratories, Terry Ramus, Rojin Belganeh, Itsuko Iwai, Robert Freeman, Watanabe Atsushi

3:45 (1160-7) **Comprehensive Untargeted Screening and Quantitation of Pesticides in Cannabis Using GCxGC and High Resolution Time of Flight Mass Spectrometry** TODD S RICHARDS, LECO Corporation, David E Alonso, Joseph E Binkley

4:05 (1160-8) **Puff by Puff Resolved Analysis of Smoke Constituents of Cannabis Products Using Photoionization TOF-MS** SVEN EHLERT, Photonion GmbH, Jan Heide, Andreas Walte, Ralf Zimmermann

ORAL SESSIONS

Session 1170

Liquid Chromatography - Alternative Stationary Phases

Tuesday Afternoon, Room 121C

1:30 (1170-1) **On-Line Hydrophobic Interaction Chromatography with Reverse Phase Liquid Chromatography-Charged Aerosol Detection-Mass Spectrometry to Characterize Polysorbates in Therapeutic Protein Formulation** YAN HE, Pfizer Inc.

1:50 (1170-2) **Oligosaccharides Analysis by High Performance Anion-Exchange Chromatography Using Dual Electrolytic Eluent Generation** YONGJING CHEN, Thermo Fisher Scientific, Yan Liu, Christopher Pohl

2:10 (1170-3) **Mass Spectrometry-Compatible Chiral Separations of Pesticides Using Core-Shell Chiral Stationary Phases to Assess Their Enantiomeric Properties** GARRETT HELLINGHAUSEN, University of Texas at Arlington, Elizabeth R Readell, M Farooq Wahab, JT Lee, Diego A Lopez, Choyce A Weatherly, Daniel W Armstrong

2:30 (1170-4) **Unique Essential Oil Analyses Using the Selectivity of Ionic Liquid Capillary Columns** LEONARD M SIDISKY, MilliporeSigma, Kathleen H Kiefer, James L Desorcie, Greg A Baney

2:50 **Recess**

3:05 (1170-5) **Best Practices for Selecting Orthogonal Column Phases during HPLC Method Development** ADAM BIVENS, Agilent Technologies, Anne Mack, William Long, Jason Link, Lakshmi Subbarao, Sami Chanaa

3:25 (1170-6) **New Hyperbranched Anion Exchange Phases for High pH Separation of Carbohydrates** CHRISTOPHER POHL, Thermo Fisher Scientific

3:45 (1170-7) **Reversed-Phase/Cation Exchange Stationary Phase Gradient for Analysis of Neurotransmitters** CAITLIN N CAIN, Virginia Commonwealth University, Anna V Forzano, Sarah C Rutan, Maryanne M Collinson

4:05 (1170-8) **Geopolymers: Setting Foot in Separation Science** NIMISHA THAKUR, University of Texas at Arlington, Durga D Khanal, Daniel W Armstrong

Neurochemistry: Voltammetry

Tuesday Afternoon, Room 122A

1:30 (1180-1) **How Organophosphate Exposure Impacts Synaptic Transmission** SHANE BERGER, University of South Carolina, Srimal Samaranyake, Melinda Hersey, Parastoo Hashemi

1:50 (1180-2) **Characterization of the Temporal Dynamics of Electrically-Evoked Hydrogen Peroxide in the Extracellular Space of Rat Tissue** KAREN E BUTLER, North Carolina State University, Christie A Lee, Leslie R Wilson, Carl J Meunier, Leslie A Sombers

2:10 (1180-3) **Sub-Second Probing of Mesolimbic Dopamine Signaling in Response to Pain Onset and Offset Using Fast-Scan Cyclic Voltammetry** TAYLOR GEE, University of Arizona, Stephen L Cowen, Edita Navratilova, Michael L Heien, Frank Porreca

2:30 (1180-4) **Sub-Second Measurement of Histamine Release and Reuptake in Zebrafish** ASHLEY LITTON, University of Kansas

2:50 **Recess**

3:05 (1180-5) **Investigating the Interaction of Purine Analogs with Carbon-Fiber Microelectrodes Using Fast-Scan Cyclic Voltammetry** GARY N LIM, University of Cincinnati, Ashley E Ross

3:25 (1180-6) **Surface Characteristics of Physically Small Carbon Electrodes Hydrogenated Using a Phenylsilane Reduction Method** RITA ROSHNI, Macquarie University, Christopher R McRae, Danny K Y Wong

3:45 (1180-7) **Comparing Environmental and Genetic Models of Autism via Behavioral and Neurochemical Analysis** ALYSSA WEST, University of South Carolina, Navid S Tavakoli, Parastoo Hashemi

4:05 (1180-8) **Subsecond Monitoring of Neurotransmitters in the Lymph Node** ASHLEY E ROSS, University of Cincinnati, Yuxin Li, Adam R Colley, Austin L Hensley

ORAL SESSIONS

Session 1190

Sample Preparation Tools (Half Session)

Tuesday Afternoon, Room 122B

1:30 (1190-1) **Rate of Adsorption of Pharmaceuticals in Unmodified and Surfactant Modified Clay Particle Packed Columns** NEIL D DANIELSON, Miami University, Kyle A Weaver, Luma T Lucas, Emmanuel Tetteh, Tedros M Berhane, Mark P Krekeler, Jonathan Levy

1:50 (1190-2) **An Automated Technique for Fast, Ambient Temperature Extraction and Analysis of Multiresidue Pesticides in Various Matrices** TOM HALL, Fluid Management Systems, Rudolf Addink

2:10 (1190-3) **Development and Optimization of TPW Sample Preparation Method Parameters for World Class Supply** TESSA CARDUCCI, Merck & Company, Inc., Antonio Oliveira, Vibha Patel, Edward Mularz, Joanna Everitt, Panos Diamandopoulos

2:30 (1190-4) **Flexible Automation for All Steps in Sample Preparation** PETER A DAWES, Eprep Pty Ltd, Andrew Minnett

ORAL SESSIONS

Session 1200

Sensors for Environmental and Security Applications

Tuesday Afternoon, Room 123

1:30 (1200-1) **A Metal-Organic Framework-Based Composite for Selective Electrochemical Sensing of NO₂** SHAREL PEISAN E, University of Cambridge, John Saffell, Wah On Ho, Ronan Baron, Lisa Hall

1:50 (1200-2) **Label Free Impedimetric Sensing of Bisphenol-A Using Flexible Gold Micro Interdigitated Electrode** SUNIL BHAND, Birla Institute of Technology & Science, Pilani - Goa Campus, Aruna C Singh

2:10 (1200-3) **Detection of Lead Ions with a Cys4 Zinc-Finger Motif Through α -Hemolysin Nanopore** GOLBARG MOHAMMADIROOZBAHANI, Illinois Institute of Technology, Xiyun Guan

2:30 (1200-4) **Sensor Design Based on Plant Molecules for the Qualitative and Quantitative Analysis of Some Trace Elements in Aqueous Media: Alternative Instruments to Conventional Analysis Methods** ALI ZAZOUA, University of Jijel, Nicole Jaffrezic-Renault

2:50 **Recess**

- 3:05 (1200-5) **Air Quality Monitoring: Affordable VOC Speciation** JOHN SAFFELL, Alphasense Ltd., Tanya Hutter, Andrew Stretton, Lisa Hall
- 3:25 (1200-6) **A Saturation State Sensor to Measure the Marine Carbonate Variability Associated with Global Climate Change** CHRISTINA MCGRAW, University of Otago, Wayne Dillon, Peter Dillingham
- 3:45 (1200-7) **Thiolated Ionic Liquids for Multimodal Sensors** ABDUL REHMAN, King Fahd University of Petroleum and Minerals
- 4:05 (1200-8) **Synthesis of Self-Functional Carbon Quantum Dots for Biosensing and Anti-Pathogenic Applications** CHIH-CHING HUANG, National Taiwan Ocean University

ORAL SESSIONS

Session 1210

Teaching Analytical Chemistry (Half Session)

Tuesday Afternoon, Room 122B

- 3:05 (1210-1) **Implementing Active Teaching and Learning Strategies in an Instrumental Analysis Course: Lessons Learned** DAVID JACOB WEISS, University of Colorado, Colorado Springs, Patrick J McGuire
- 3:25 (1210-2) **Renewed Purpose & Life: Using Retired Instrumentation to Train the Next Generation Scientists** DERRICK C WOOD, Conestoga High School
- 3:45 (1210-3) **Towards an Open-Source Analytical Chemistry Classroom and Laboratory** JAMES P GRINIAS, Rowan University
- 4:05 (1210-4) **Cost-Effective Microfluidics To Teach Stoichiometry in General Chemistry Classes or Labs: A Hands-on Workshop** LINDSAY VELTRI, West Virginia University, Lisa A Holland

POSTER SESSION

Session 1220

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Environmental - Air Analysis

Tuesday Afternoon, Room Expo floor, back of aisles 1500-2300

- (1220-1 P) **Air Quality Assessment of Akwa Ibom, An Oil Producing State of Nigeria Using Mosses, Lichens and Tree Barks** IMAOBONG UDOUSORO, University of Uyo, Olujide Akinbo, Edidiong Akwaowo, Emmana Williams, Abua Ikem
- (1220-2 P) **Comprehensive, Rapid Odor Monitoring Using SIFT-MS** VAUGHAN S LANGFORD, Syft Technologies, William S Kerr, Murray J McEwan, Mary Askey, Helena Barnes
- (1220-3 P) **Enhanced GC-MS Analysis of SVOCs in Air and Materials via the Use of Thermal Desorption Pre-Concentration and Novel Sampling Approaches** NICOLA WATSON, Markes International, Lara Kelly, Gareth Ellis, David Wevill, Helen Martin, Rui Li, Patricia Ballard, Caroline Widdowson
- (1220-4 P) **Emissions from Products and Materials: Simplifying the Analysis of Formaldehyde and Other VOCs in a Unified Analytical Approach** NICOLA WATSON, Markes International, Natasha Spadafora, Gareth Ellis, Massimo Santoro, Caroline Widdowson, Helen Martin, David Wevill, Rui Li, Patricia Ballard
- (1220-5 P) **A New Generation of Miniaturized Virtual Sensors Arrays Electronic Nose for Mobile Phone for Fast Analysis of VOC in the Environmental Air** JEAN-CHRISTOPHE MIFSUD, Rubix Senses & Instrumentation, Ivan Romanytsia

POSTER SESSION

Session 1230

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

GCMS Analysis

Tuesday Afternoon, Room Expo floor, back of aisles 1500-2300

- (1230-1 P) **Identification of Brown Recluse Spider Pheromone Using SPME-GC-MS and Novel Bioassay Techniques** ZACHARY FOULKS, Missouri University of Science and Technology, Jennifer Parks, Alexandre Cristea, Haiting Zhang, William Stoecker, Honglan Shi
- (1230-2 P) **Vacuum Assisted Sorbent Extraction (VASE) for Thermal Desorption-GC-MS Analysis** SAGE J B DUNHAM, Entech Instruments Inc, Victoria L Noad, Daniel B Cardin
- (1230-3 P) **A New Sample Introduction Solution for Superior Water Management During Analysis of VOCs in Drinking Water with Splitless Injection GC-MS** SAGE J B DUNHAM, Entech Instruments Inc, Victoria L Noad, Daniel B Cardin
- (1230-4 P) **Multicomponent Analysis of Metabolites in Cordyceps Sinensis (Chinese Caterpillar Fungus) Using GC-MS/MS** XIAOMING BAO, Shimadzu (China) Co., Ltd
- (1230-5 P) **Investigation of Key Parameters for a Smooth Method Transfer to a New Optimized Valve and Loop Headspace Autosampler** DAVIDE BRESSANELLO, Thermo Fisher Scientific, Manuela Bergna, Daniela Cavagnino
- (1230-6 P) **New Software Tool to Easily and Quickly Generate Automated Sample Preparation Workflow** DAVIDE BRESSANELLO, Thermo Fisher Scientific, Manuela Bergna, Daniela Cavagnino, Giulia Riccardino, Cristian Cojocariu
- (1230-7 P) **Trace Analysis of Chemical Weapon Simulants on a Gold Standard GCMS Field-Deployable Mobile Platform** KIRK LOKITS, Agilent Technologies, Thomas Talwar
- (1230-8 P) **A Flexible Analytical Platform for the Discovery of Biomarkers of Disease** LAURA MCGREGOR, SepSolve Analytical, Matthew Edwards, Anthony Buchanan, Nick Bukowski, Bob Green
- (1230-9 P) **GC-MS Analysis of the Essential Oils from the Leaves of Turraea Vogellii, A Medicinal Plant Used in the Management of Impotence in Alternative Medicine and Potential Bioactivities of Their Constituents** MODUPE MABEL OGUNLESI, University of Lagos, Chiadikaobi Amas
- (1230-10 P) **GC-MS Analyses of the Constituents of the Essential Oil Samples from Polygonum Lanigerum and Terminalia Mollis, Molluscicidal Plants Used in Alternative Medicine for the Management of Schistosomiasis** MODUPE MABEL OGUNLESI, University of Lagos, Olugbemi Akarigbo, Toheeb Aremu

POSTER SESSION

Session 1240

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Liquid Chromatography

Tuesday Afternoon, Room Expo floor, back of aisles 1500-2300

- (1240-1 P) **Supremacy of Gradient over Isocratic Elution in the Separation of a Sample of Nine Pharmaceutical Active Ingredients Using Reversed-Phase Separation and Modeling Software** JOHN S ALBAZI, Northeastern Illinois University, Ahmad Alahmadi
- (1240-2 P) **Application of a New Stationary Phase for the Separation of Basic Compounds with MS Compatible Mobile Phases** JUSTIN M GODINHO, Advanced Materials Technology, Chuping Luo, Robert Moran, Ben Libert, Conner McHale, William Johnson, Stephanie A Schuster, Barry Boyes
- (1240-3 P) **High Performance Separations Using a Novel Bonded Phase Compatible With 100% Aqueous Mobile Phases** CHUPING LUO, Advanced Materials Technology, Justin M Godinho, Conner McHale, William Johnson, Ben Libert, Stephanie A Schuster, Barry Boyes
- (1240-4 P) **Quantitative Determination of Catechins in Tea Samples Using a Software-Based Automated Method Development Workflow** SYLVIA GROSSE, Thermo Fisher Scientific, Soo Hyung Park, Mauro De Pra, Frank Steiner

(1240-5 P) **Complementary Dual LC as Alternative to Multi Heart-Cut LC for Samples of Medium Complexity Resulting in Improved Precision, Sensitivity and Productivity** MARIA GRÜBNER, Thermo Fisher Scientific, Frank Steiner, Mauro De Pra

(1240-6 P) **Strategies for the Transfer of Liquid Chromatographic Methods Between Different Instruments** MARIA GRÜBNER, Thermo Fisher Scientific, Carsten Paul, Mauro De Pra, Frank Steiner

(1240-7 P) **Liquid Chromatography of Carboxylic Acids Using an Amino Acid Surfactant Modifier** NEIL D DANIELSON, Miami University, Abd al-karim Ali

(1240-8 P) **Detection and Quantitation of Bismuth Catalyst for Evaluation of Polyurethane Coatings Formulations** ANDREW DAVIC, PPG Industries

(1240-9 P) **p-Phenylenediamine Grafted on Superficially Porous Silica as a Stationary Phase for HPLC** JOSEPH R EZZO, University at Buffalo, SUNY, Luis A Colon

(1240-10 P) **Development and Validation of High Performance Liquid Chromatographic Method for Quantitative Determination of Lung Cancer Biomarkers in Urine** SANJEEWA GAMAGEDARA, University of Central Oklahoma, Hezha O Rasul, Jia Xuan Mak

(1240-11 P) **Sub-2 Micron Edge Plane Carbon Stationary Phase for the Separation of Isomeric Compounds** REBEKAH GIBSON, Ohio State University, Susan V Olesik

(1240-12 P) **Determination of Brominated Fluorescein Components in the Color Additive D&C Orange No. 5 Using High-Performance Liquid Chromatography** INDIA C JAMES, Food and Drug Administration, Rodrigo Lazo-Portugal, Nicole R Richardson, Corina A McClure, Adrian Weisz

(1240-13 P) **Analysis of 302Da Polycyclic Aromatic Hydrocarbons Using Normal Phase Liquid Chromatography with UV-VIS Photodiode Array Detection** JAMES JAY JANESKO, University of Central Florida, Mohammadreza Chehelamirani, Andres Campiglia

(1240-14 P) **Preparation of Peptide Drug and On-Column Concentration with Ultra-Fast Preparative Purification Liquid Chromatograph** KOSUKE NAKAJIMA, Shimadzu Corporation, Shinichi Kawano, Yoshiyuki Watabe

(1240-15 P) **Entrapment of Proteins in High-Performance Affinity Columns for Chromatographic Studies of Solute-Protein Interactions** SAUMEN PODDAR, University of Nebraska-Lincoln, Elliott Rodriguez, Shiden Azaria, David S Hage

(1240-16 P) **Chiral Purification of Iridium (III) Complexes by SFC** JACQUELYN RUNCO, Waters Corporation, Andrew J Aubin

(1240-17 P) **High Purity Transition Metal Free Geopolymer Stationary Phases for HPLC** NIMISHA THAKUR, University of Texas at Arlington, Durga D Khanal, Diego A Lopez, Daniel W Armstrong

(1240-18 P) **A Stable, High-Efficiency UVC Laser Light Source for HPLC** THERESA THOMPSON, Phoseon Technology, Shiou-jyh (Puck) Ja

(1240-19 P) **Fabrication of Destructive Phenyl Hexyl Stationary Phase Gradients on Commercial Columns for Reversed-Phase Liquid Chromatography** SHELBY L WEATHERBEE, Virginia Commonwealth University, Anna V Forzano, Caitlin N Cain, Sarah C Rutan, Maryanne M Collinson

(1240-20 P) **Liquid Chromatography of Carboxylic Acids Using an Amino Acid Surfactant Modifier** NEIL D DANIELSON, Miami University, Abd al-karim Ali

(1240-21 P) **Increasing Sample Throughput Using Parallel Column Regeneration** ZHIMIN LI, Waters, Paula Hong, Patricia McConville

(1240-22 P) **"Best Second Choice" RP Analytical Column** IMRE SALLAY, Osaka Soda Company, Ltd., Satoshi Makino, Kosuke Kabe

(1240-23 P) **Stabilization of Proteins Using a Pluronic Polymer for Flow Injection Methods** NEIL D DANIELSON, Miami University, Yudan Chen

(1240-24 P) **What Do We Need to Know About D-Amino Acids?** SIQI DU, University of Texas at Arlington, Yadi Wang, Daniel W Armstrong

(1240-25 P) **Selectivity Characterization of Five Achiral Stationary Phases Using Supercritical Fluid Chromatography and Hydrophilic Interaction Chromatography** EDWARD G FRANKLIN, Regis Technologies, Inc., Melissa Wilcox, Gay Lowden, Ted Sczcerba

(1240-26 P) **Chemically Modified Polymeric Substrates to Improve Chiral Separations** MATTHEW PRZYBYCIEL, ES Industries, David Kohler

(1240-27 P) **The Development of a Column Screening Kit for Optimized SFC Separations** MATTHEW PRZYBYCIEL, ES Industries, David Kohler

(1240-28 P) **Synthesis and Application of New C3 Symmetric Diastereomeric Chiral Stationary Phases** JAE JEONG RYOO, Kyungpook National University, Jeong Jae Yu, KyuSung Heo, Gyuri Kim, Sunghwan Kim

(1240-29 P) **The Hydrophobic Subtraction Model of Reversed-Phase Selectivity – Principles and the Public Column Database** DWIGHT STOLL, Gustavus Adolphus College, Tina Dahlseid

(1240-30 P) **Preparative Purification of Synthetic Peptides** MARTHA KNIGHT, CC Biotech LLC, Farshad Karimi, Hossain H Sanei

POSTER SESSION

Session 1250

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Magnetic Resonance

Tuesday Afternoon, Room Expo floor, back of aisles 1500-2300

(1250-1 P) **Chiral Recognition of Binaphthyl Guests and Step-Wise Aggregation of Glycocholate** SOPHIE KONG, Bucknell University, Tim G Strein, David Rovnyak, Micheal R Krout

(1250-2 P) **Characterization of Glycocholate Micelle Formation by MEKC and NMR** RAEANNE M GEFFERT, Bucknell University, Echo He, Sophie Kong, Tim G Strein, David Rovnyak, Micheal R Krout

(1250-3 P) **Synthesis, Characterization and In Vitro Antimicrobial and Antitubercular Study of Hybrid Scaffold of Pyrazole-Triazole and Quinoline Moiety** TAPAN HARISHBHAI PAREKH, Shree PM Patel Institute of PG Studies and Research in Science, Nileshkumar D Vala

(1250-4 P) **Synthesis and Bio-Evaluation of Azetidin-2-one Containing Acetyl Pyrazoline Derivatives** SHAILESHKUMAR HASMUKHBHAI SHAH, Patel J.D.K.Davolwala Science College

POSTER SESSION

Session 1260

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Material Science

Tuesday Afternoon, Room Expo floor, back of aisles 1500-2300

(1260-1 P) **Effect of Carbonate Ions on Steel 10 Corrosion and Electrochemical Behavior** INNA ARTAMONOVA, Moscow Polytech

(1260-2 P) **What Levels of Detection are Needed Today in Semiconductor Industry?** EWA M PRUSZKOWSKI, PerkinElmer

(1260-3 P) **Characterization of Chitosan-Functionalized Silica Particles** SARAH BRADLEY, University at Buffalo, SUNY, Luis A Colon

(1260-4 P) **Recycling Metal Swarf by Extraction of Cutting Oils with Supercritical CO₂** ROLF SCHLAKE, Applied Separations, Alfred Kazianas, Madhu Anand

(1260-5 P) **Advanced Metal Seal Technologies for Critical Applications** CHRIS COSGROVE, Technetics Group

(1260-6 P) **Motions and Relaxations of DNA Imaged In Situ By Liquid-Phase Transmission Electron Microscopy** HUAN WANG, IBS Center for Soft and Living Matter, Kandula Hima Nagamanasa, Ye-Jin Kim, Oh-Hoon Kwon, Steve Granick

(1260-7 P) **Complete Fractionation of Extractable Petroleum Hydrocarbons Using Newly Developed Small Bed EPH SPE Cartridges** ALEXANDRIA PAVKOVICH, Restek Corporation, Jason Thomas, Erin Harrold, Gary Stidsen

POSTER SESSION

Session 1270

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Microscopic Characterization

Tuesday Afternoon, Room Expo floor, back of aisles 1500-2300

(1270-1 P) **Utilizing Oxygen-Sensing Boron Material to Develop a Novel Immunometabolism Assay** PARASTOO ANBAEI, University of Virginia, Drake D Dixon, Meng Zhuang, Christopher A DeRosa, Cassandra L Fraser, Rebecca R Pompano

(1270-2 P) **A Method for Region-Specific Mapping of Glucose Uptake in Live, Intact Tissue** AUSTIN F DUNN, University of Virginia, Rebecca R Pompano

(1270-3 P) **Application of Super Resolution Radial Fluctuation Imaging to Measurement of DNA Hybridization Kinetics** JUSTIN COOPER, Andor Technology, Jeffrey Oleske

(1270-4 P) **Energetically Favorable Structural Organization of the Hydrogel/Lipid Bilayer Assembly as Microscopically Justified** SERGEY V KAZAKOV, Pace University

(1270-5 P) **Nano Flow Imaging Provides Counts, Sizes and Images of Nano- and Microparticles** KENT PETERSON, Fluid Imaging Technologies, Cheng Her, Chris Sieracki, Christian Mills, John F Carpenter

(1270-6 P) **Interactions between Myelin Basic Protein and Anionic Lipids Probed with QCM-D and Fluorescence Microscopy** JENNIE CAWLEY, Lehigh University, Nathan J Wittenberg

(1270-7 P) **Characterization of Performance of Back-Illuminated sCMOS Cameras for Microscopy Applications Versus Conventional Front-Illuminated sCMOS and EMCCD Cameras** JEFFREY OLESKE, Andor Technology, Justin Cooper

(1270-8 P) **Formation and Characterization of Planar Model Membranes Rich in Caveolin-1** MEGAN E BLAUCH, Lehigh University, Sarah M Plucinsky, Jeffrey A Julien, Kerney J Glover, Nathan J Wittenberg

(1270-9 P) **Development of Fluorescence Lifetime Imaging to Measure Viability of Complex Microbial Communities** JOY P DUNKERS, National Institute of Standards and Technology (NIST), Brynna Jones, Hari Iyer, Stephan Stranick, Nancy Lin

POSTER SESSION

Session 1280

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Pharmaceutical Methodology

Tuesday Afternoon, Room Expo floor, back of aisles 1500-2300

(1280-1 P) **An Efficient Method for the Determination of Trace Excipient Impurities in Biotherapeutic Drug Products Containing Polysorbate** ROBERT BIRDSALL, Waters Corporation, Brooke Koshel, Ximo Zhang, Ying Qing Yu

(1280-2 P) **Comparison of a New Synthetic Solid Supported Liquid Extraction (SLE) Material, Diatomaceous Earth (DE) SLE and Liquid/Liquid Extraction (LLE) Protocols** MICHAEL BALESTRA, Agilent Technologies, Limian Zhao, Derick Lucas

(1280-3 P) **Analysis of Protein Secondary Structure by FTIR-ATR Spectroscopy** FUJI RISA, Shimadzu Corporation, Iwasaki Shoko, Tajima Takahiro

(1280-4 P) **Charged Aerosol Detection and Method Transfer of Compendial, Including USP, Methods** KATHERINE S LOVEJOY, Thermo Fisher Scientific, Ian Acworth, Paul Gamache

(1280-5 P) **Thickness Measurements of Pharmaceutical Coatings Using Hyperspectral Raman Spectroscopy** SI WON SONG, Kookmin University, Chan Ryang Park, Chung Hoe il, Hyung Min Kim

(1280-6 P) **Potentiometric Titration for USP Potassium Carbonate and Potassium Bicarbonate Monographs Modernization** HARI NARAYANAN, Metrohm USA, Frank Koch, Lucia Meier, Leonel Marcelo Santos, Michael Chang

(1280-7 P) **Development of Nucleic Acid Extraction and Detection Methods for the Analysis of Mycobacteria with Isothermal Amplification** MARCELINO VARONA, Iowa State University, Xiong Ding, Kevin D Clark, Jared L Anderson

(1280-8 P) **Accelerating Pharmaceutical Development from Pre-Candidate Selection to First-Time-In-Human Clinical Studies Using Automated Platforms** KAITLIN GRINIAS, GlaxoSmithKline

(1280-9 P) **Formulation and Evaluation of Enteric Coated Aspirin Capsules** HOLLY HORTON, Mayne Pharma, Inc, Amy Gladson, Kyle Fugit, Alex Garner

(1280-10 P) **Advanced Analytical Data System Integrating High Level Workflow Management** TOSHINOBU YANAGISAWA, Shimadzu Corporation, Koji Ono, Hiroomi Nishimura, Atshushi Imoto, Keisuke Yoshizawa, Ryuji Nishimoto

(1280-11 P) **Analyzing Drug Dissolution Kinetics with Two-Dimensional Correlation Spectroscopy** CHENGXUAN GUO, University of Iowa, Maxwell L Geng

(1280-12 P) **Selective and Sensitive Determination of Zinc in Various OTC Drug Substances and Drug Products as per USP <591>** HARI NARAYANAN, Metrohm USA, Michael Chang, Shibu Paul, Leonel Marcelo Santos

(1280-13 P) **Potassium Assay of Over-the-Counter (OTC) Drug Products by Ion Chromatography** HARI NARAYANAN, Metrohm USA, Uvaraj Mani, Michael Chang, Leonel Marcelo Santos

(1280-14 P) **Molecular Probes Can Give a Quick Indication of Column Selectivity Prior to Method Development** RICHARD A HENRY, Independent Consultant, William Campbell

POSTER SESSION

Session 1290

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Vibrational Spectroscopy

Tuesday Afternoon, Room Expo floor, back of aisles 1500-2300

(1290-1 P) **An FT-IR Comparison of Grazing Angle Ge-ATR, Transmission, and Coupled Multiple Reflection ATR for Studying Coated Si Wafers** SUSAN BERETS, Harrick Scientific Products, Suja Sukumaran, Bisirat Araya, James Delaney

(1290-2 P) **Sparse Sampling Methods for Hyperspectral Infrared Microscopy** YOULIN LIU, Purdue University, James Ulcickas, Andreas Geiger, Garth J Simpson

(1290-3 P) **Chemical Degradations of Rheumatoid Arthritis Drugs: A Surface-Enhanced Raman Scattering Study** HULYA Y ORTAK, Yeditepe University, Deniz Uzunoglu, Zehra Yilmaz, Ayse Cinkilic, Mustafa Culha

(1290-4 P) **Applications and Evaluation of New, Low Cost Crystal Elements for ATR-FTIR Spectroscopy** IAN ROBERTSON, PerkinElmer, Ariel Bohman, Robert Packer

(1290-5 P) **Optimising Applications of a Wide Range Mid-IR/near-IR FTIR Spectrometer** IAN ROBERTSON, PerkinElmer, Ariel Bohman, Robert Packer

(1290-6 P) **Quantitative Impurity Measurement in Pharmaceuticals by THz Laser Spectrometer** TETSUO SASAKI, Shizuoka University, Tomoaki Sakamoto, Makoto Otsuka

(1290-7 P) **Using Surface-Enhanced Raman Spectroscopy to Detect Parabens in Effluent** KUNG-HSUN YANG, National Cheng Kung University, Han-Wen Kuo, Li-Chun Wang, Wang-Hsien Ding

(1290-8 P) **Withdrawn**

(1290-9 P) **Studying Diffusion in Polymers: An FT-IR-ATR Approach** JAMES M SLOAN, US Army

(1290-10 P) **Vibrational Spectroscopic Analysis of a Salt Complex CNS Stimulant Using THz, Mid- and Near-IR, Raman and Low-Frequency Raman Spectroscopy** TOMOAKI SAKAMOTO, National Institute of Health Sciences, Tetsuo Sasaki, Toshiyuki Chikuma

(1290-11 P) **Using SERS for Protein-Small Molecule Detection on a Single Molecule Level** LAMYAA ALMEHMADI, SUNY at Albany, Stephanie Curley, Natalya Tokranova, Scott Tenenbaum, Igor K Lednev

This is a Tuesday evening poster session. All posters are to be mounted by 5:00 PM and remain on display until 8:30 PM. Authors must be at their posters from 6:30 – 8:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

NIJ (National Institute of Justice) Poster Session (Evening Session)

Tuesday Afternoon, Room Pub Pittcon

- (1300-1) **GC-MS and Product Ion MS-MS Studies on Isomeric Designer Drugs Related to 25I-N-BOMe** AHMAD ALMALKI, Auburn University, C Randall Clark, Jack DeRuiter
- (1300-2) **Establishing Exposure to Organic Explosive Compounds by Mass Spectrometric Means** CAMERON M LONGO, University at Albany, SUNY, Rabi A Musah
- (1300-3) **Raman Spectroscopic Method for Semen Identification: Azoospermia** MARISIA FIKIET, University at Albany, SUNY, Igor K Lednev
- (1300-4) **Detection and Identification of Illegally-Traded Woods by Mass Spectral Techniques** MEGHAN G FOGERTY, University at Albany, SUNY, Rabi A Musah
- (1300-5) **Forensic Applications of the Laser Ablation Direct Analysis in Real Time Imaging-Mass Spectrometry (LADI-MS) Technique** KRISTEN L FOWBLE, University at Albany, SUNY, Rabi A Musah
- (1300-6) **Recovering Trace DNA from Cotton Swabs Using Pressure Cycling and Alkali-Based Lysis** MEGHAN N ROIG, Florida International University, Nicole Fernandez Tejero, Vanessa Martinez, Bruce McCord
- (1300-7) **Detection of Halogenated Textile Chemicals Using Pyrolysis Gas Chromatography Mass Spectrometry Plasma Assisted Reaction Chemical Ionization Mass Spectrometry (py-GC-PARCI-MS)** MICHAEL J DOLAN, Georgetown University, Robert D Blackledge, Kaveh Jorabchi
- (1300-8) **Developing Direct Analysis in Real Time Mass Spectral Libraries for the General Unknown Screening of Drugs** FREDERICK LI, IonSense, Inc., Brian Musselman, Repaska Mishka, Paul Kennedy
- (1300-9) **DART-MS Analysis of Different Brands of Gasoline with Chemometrics** MENGJIANG ZHANG, Middle Tennessee State University, Isabella Barnett
- (1300-10) **Separation and Collection of Intact Spermatozoa via Capillary Electrophoresis for Rape Kit Analysis** SARAH LUM, University of Notre Dame, Norman Dovichi
- (1300-11) **National Institute of Justice - Forensic Science Research Programs & Funding Opportunities** GREGORY DUTTON, National Institute of Justice, Frances Scott, Danielle McLeod-Henning
- (1300-12) **In Situ Detection and Identification of Hair Dyes Using Surface-Enhanced Raman Spectroscopy (SERS)** ISAAC ESPARZA, Texas A&M University, Dmitry Kourouski
- (1300-13) **Development of a Flexible Algorithm for Substance Identification Using Mass Spectrometry** GLEN P JACKSON, West Virginia University, Samantha A Mehnert, Brandon D Lowe, Tyler J Davidson
- (1300-14) **Novel Approach for Contactless Detection of Energetic Materials** BERT UNGETHUEM, Airsense Analytics, Andreas Walte, Falko Ziegert, Stefan Zimmermann, Alexander Bohnhorst
- (1300-15) **Real-Time Chemical Warfare Agent Monitor** PHILIPP SULZER, IONICON Analytik, Jens Herbig, Lukas Maerk, Rene Gutmann, Dieter Rothbacher, Alfons Jordan, Klaus Winkler, Stefan Feil, Johann Seehauser
- (1300-16) **Optimizing the Delivery of Opioids in an E-Cigarette Aerosol with the Development of a Eutectic Mixture** JAZMINE POVLUICK, Virginia Commonwealth University, Michelle R Peace, Justin Poklis, Joseph Turner
- (1300-17) **Analysis of CBD Products by Direct Analysis Real Time Time of Flight Mass Spectrometry (DART-MS) and Ultra High-Performance Liquid Chromatography Tandem Mass Spectrometry (UHPLC-MS/MS)** KIMBERLY KARIN, Virginia Commonwealth University, Michelle R Peace, Justin Poklis, Mohammed Mustafa
- (1300-18) **Presumptive Analysis of Traditional Chinese Herbal Medicine from Two Sources by Direct Analysis Real Time Time of Flight Mass Spectrometry (DART-MS)** KIMBERLY KARIN, Virginia Commonwealth University, Michelle R Peace, Justin Poklis, Joseph Turner
- (1300-19) **Analysis of Nicotine Concentration in 22 E-liquids from New Zealand by UHPLC-MS/MS** GRACE CONNOLLY, Virginia Commonwealth University, Michelle R Peace, Justin Poklis, Robyn Somerville, Lindsay Robertson, Mei-Ling Blank, Janet Hoek
- (1300-20) **Reagent Free Sensing Concept for Organophosphate Monitoring** CHEYENNE BOWMAN, University at Albany, SUNY, Jan Halamek
- (1300-21) **Rape Kit Analysis: Bioaffinity-Based Assays for Identification of Semen at Crime Scene** ELIZABETH WEISS, University at Albany, SUNY, Amy Mascorro, Jan Halamek
- (1300-22) **Assessing the Quality of 3-Dimensional Imaging System and Validating an In-Silico Solution to Confirm NIBIN Hits** CHARLES RENO, Denver Police Department Crime Laboratory
- (1300-23) **The Implementation of a Method for Rapid Direct PCR on Diluted Saliva** MALLORY BAUD, Florida International University, Mallory McCord, Georgianna Gibson-Daw
- (1300-24) **Assessing External Decontamination and Extraction Parameters by Statistical Design of Experiments for Forensic Hair Analysis** JENNETT AJJALA, Florida International University, Anthony DeCaprio
- (1300-25) **SERS-Based Screening Tool for Synthetic Cannabinoids in Oral Fluid** CHIARA DERIU, Florida International University, Irene Conticello, Alexander Mebel, Bruce McCord
- (1300-26) **Discovery of New Loci of Interest for Body Fluid Identification Through DNA Methylation Melt Analysis** JOANA ANTUNES, Florida International University, George Duncan, Bruce McCord
- (1300-27) **A Cooperative-Binding Split Aptamer Assay for Rapid, Specific and Ultra-Sensitive Fluorescence Detection of Cocaine in Saliva** HAIXIANG YU, Florida International University, Juan Canoura, Bhargav Guntupalli, Yi Xiao
- (1300-28) **Rapid, Naked-Eye Screening for Synthetic Cathinones Based on Cross-Reactive Aptamers** YI XIAO, Florida International University, Weijuan Yang, Haixiang Yu, Obtin Alkhamis
- (1300-29) **Concentrating and Preserving THC and Designer Drugs through Paper Modifications for Paper Spray Mass Spectrometry** BRANDON JOHN BILLS, Indiana University - Purdue University Indianapolis, Nicholas Manicke
- (1300-30) **Ambient Air Monitoring and Remediation of One Pot Methamphetamine Laboratories** AUSTIN LEE CIESIELSKI, Oklahoma State University, Jarrad R Wagner
- (1300-31) **Doped-NaYF4 System for Fingerprint Identification** WILLIAM CROSS, South Dakota School of Mines and Technology, Stanley May, Aravind Baride, Jon Kellar, Ganesh Sigdel, Sierra Rasmussen
- (1300-32) **Sample Mining – The Identification of Emerging Novel Psychoactive Substances (NPS) through Re-Analysis of Biological Extracts from Forensic Toxicology Casework** ALEX KROTULSKI, Temple University, Susan Jansen Varnum, Barry K Logan
- (1300-33) **The Assurance Recipe: Facilitating Assurance Patterns** JUSTIN FIRESTONE, University of Nebraska - Lincoln
- (1300-34) **Optimization of Plasmonic Papers for Two-Tiered Drug Analysis on a Portable, SERS-PSI-MS Platform** DANIEL BURR, Illinois State University
- (1300-35) **Gunshot Residue Detection and Characterization via Spectroscopic Mapping for Forensic Purposes** SHELBY RUTH KHANDASAMMY, University at Albany, SUNY, Igor K Lednev, Alexander Rzhavskii
- (1300-36) **Illuminating Filipino Craniometric Ancestry and Admixture via Discriminant Function Analysis Against Worldwide Reference Groups** MATTHEW C GO, Department of Defense POW/MIA Accounting Agency
- (1300-37) **Nanoscale Imaging and Chemical Analysis of Extracellular DNA in Trace Biological Samples** ANITA J OLSEN, Virginia Commonwealth University, Congzhuo Wang, Emily R Brocato, Christopher J Ehrhardt, Vamsi K Yadavalli
- (1300-38) **Towards Age Determination of Latent Fingerprints by MALDI-Mass Spectrometry Imaging** KELLY O'NEILL, Iowa State University, Paige Hinners, Young-Jin Lee
- (1300-39) **Statistical Comparison of Mass Spectral Data for Positional Isomer Differentiation** EMMA L STUHMER, Michigan State University, Ruth Smith, Victoria McGuffin
- (1300-40) **Performance of a Vacuum Ultraviolet Spectrophotometer as a Gas Chromatography Detector Applied to Controlled Substances Detection** ZACKERY R ROBERSON, Indiana University Purdue University Indianapolis, John V Goodpaster

(1300-41) **A Game of Fire and Ice – Using Basic Science to Construct Thermal Profiles of Forensically Important Insects** TRAVIS W RUSCH, Texas A&M University, Aaron M Tarone, Jeff K Tomberlin

(1300-42) **Gas Chromatography / Vacuum Ultraviolet Spectroscopic Analysis of Intact and Burned Smokeless Powders and Their Post-Blast Residues** COURTNEY CRUSE, Indiana University-Purdue University Indianapolis, John Goodpaster

(1300-43) **Evaluating the Stability and Persistence of mRNA and miRNA for Body Fluid Identification in Forensic Samples** CARRIE MAYES, Sam Houston State University, Rachel Houston, Bobby LaRue, Sarah Seashols-Williams, Sheree Hughes-Stamm

(1300-44) **NIJ- Designing Methodology for Body Fluid Identification with a Portable Raman Spectrometer** JALISSA M THOMAS, University at Albany, SUNY, Igor K Lednev, Marisia Fikiet, Rina Dukor, Laurence A Nafie

PLENARY LECTURE

Session 1310

Plenary Lecture

Tuesday Afternoon, Room Grand Hall Ballroom B

5:00 (1310-1) **Preserving and Revealing History - Challenges of a Cultural Heritage Scientist** FENELLA G FRANCE, Library of Congress

WEDNESDAY, MARCH 20, 2019 MORNING

AWARDS

Session 1320

Advances in Measurement Science Lectureship Awards - arranged by Kimberly Agnew-Heard, Altria Client Services, LLC

Wednesday Morning, Room 126A

Kimberly Agnew-Heard, Altria Client Services, LLC, Presiding

8:30 **Introductory Remarks - Kimberly Agnew-Heard**

8:35 (1320-1) **The Rise of Microfluidic Paper-Based Analytical Devices** CHARLES HENRY, Colorado State University

9:10 (1320-2) **Nanosensors for Single-Molecule Sequencing** STEVEN ALLAN SOPER, University of Kansas

9:45 (1320-3) **Framework Nucleic Acids-Guided Molecular Sensing and Imaging** CHUNHAI FAN, Shanghai Jiao Tong University

10:20 **Recess**

10:35 (1320-4) **Error Correction Code Sequencing and Bit Sequencing** YANYI HUANG, Peking University

11:10 (1320-5) **On-Chip Rapid Diagnostic Susceptibility Testing of Bacteria and Fungi from Clinical Samples** ESTER SEGAL, Technion, Heidi Leonard, Sarel Halachmi, Raul Colodner

11:45 (1320-6) **Porous Silicon-Based Nanostructures for Optical Detection of Biochemical Analytes** MICHAEL J SAILOR, University of California, San Diego

AWARDS

Session 1330

The Pittsburgh Spectroscopy Award - arranged by Resa Stauffer, The Pittsburgh Conference

Wednesday Morning, Room 125

Resa Stauffer, The Pittsburgh Conference, Presiding

8:30 **Introductory Remarks - Resa Stauffer**

8:35 **Presentation of the 2019 Pittsburgh Spectroscopy Award to Yukihiro (Yuki) Ozaki, retired from Kwansai Gakuin University, by Donald C Antczak, Chairman of the Spectroscopy Society of Pittsburgh**

8:40 (1330-1) **Frontiers of ATR-Far-Ultraviolet Spectroscopy** YUKIHIRO OZAKI, Kwansai Gakuin University

9:15 (1330-2) **T-Jump Resonance and Normal Raman Determination of Reaction Coordinate of Thermoresponsive Hydrogel Volume Phase Transition** SANFORD A ASHER, University of Pittsburgh, Tsung-Yu A Wu, Alyssa B Zrimsek, Sergei Bykov, Ryan S Jakubek

9:50 (1330-3) **Raman Spectroscopy for Forensic Applications** IGOR K LEDNEV, University at Albany, SUNY

10:25 **Recess**

10:40 (1330-4) **Surface-Enhanced Raman Scattering of Lipids Inside and Outside Cells** JANINA KNEIPP, Humboldt-Universität zu Berlin, Vesna Živanović, Daniela Drescher

11:15 **Abstract Was Not Available At Time Of Print**

SYMPOSIUM

Session 1340

Analytical Innovations for Lipidomics - arranged by Richard A Yost, University of Florida

Wednesday Morning, Room 115A

Richard A Yost, University of Florida, Presiding

8:30 **Introductory Remarks - Richard A Yost**

8:35 (1340-1) **Single-Cell Lipidomics by Cluster Ion SIMS** NICHOLAS WINOGRAD, Penn State University

9:10 (1340-2) **Structural Characterization of Glycolipids and Phospholipids via UV Photodissociation MS** JENNIFER BRODBELT, University of Texas at Austin

9:45 (1340-3) **Bioinformatic Innovations for Lipidomics** JEREMY P KOELMEL, University of Florida, Timothy James Garrett

10:20 **Recess**

10:35 (1340-4) **Innovations in Ion Mobility and Tissue Analysis for Next-Gen Lipidomics** TIMOTHY JAMES GARRETT, University of Florida

11:10 (1340-5) **Translation of Lipidomic Technologies Towards Quantification of Blood Lipids and Their Natural Variations** MARKUS WENK, National University of Singapore

SYMPOSIUM

Session 1350

Gathered Multispectroscopic Highlights in the Elemental Field: Transformative, Juxtaposed, Elegant - arranged by R Kenneth Marcus, Clemson University and Steven Ray, State University of New York at Buffalo

Wednesday Morning, Room 115B

R Kenneth Marcus, Clemson University, Presiding

8:30 **Introductory Remarks - R Kenneth Marcus and Steven Ray**

8:35 (1350-1) **A Great Multielemental Hope: Working Towards the Development of a Modern Direct-Reading Mass Spectrograph for Atomic Spectrometry.** STEVEN RAY, State University of New York at Buffalo, Eric Jensen, Christopher Brais, Gene Atlas, M Bonner Denton, Gary Martin Hieftje

9:10 (1350-2) **Goals, Motivations, and Happenstance: The Development of the Liquid Sampling-Atmospheric Pressure Glow Discharge (LS-APGD) Microplasma for Diverse Applications** R KENNETH MARCUS, Clemson University

9:45 (1350-3) **Great Marvelous Hunches: Innovations in Atomic Spectroscopy** DAVID W KOPPENAAL, Pacific Northwest National Laboratory - EMSL

10:20 **Recess**

10:35 (1350-4) **It Does Better and Better: Inductively Coupled Plasma Mass Spectrometry for Solids and Liquids** DETLEF GÜNTHER, ETH Zurich

11:10 (1350-5) **The Two Sides of Elemental Analysis** GARY MARTIN HIEFTJE, Indiana University

SYMPOSIUM

Session 1360

Implementing Ultra-High-Pressure LC (UHPLC) in Pharmaceutical Analysis - arranged by Michael W Dong, MWD Consulting**Wednesday Morning, Room 115C**

Michael W Dong, MWD Consulting, Presiding

- 8:30 **Introductory Remarks - Michael W Dong**
- 8:35 (1360-1) **UHPLC in Method Development of Stability-Indicating Methods** MICHAEL W DONG, MWD Consulting
- 9:10 (1360-2) **Characterization and Quality Control of Recombinant Protein Therapeutics Using UHPLC** JENNIFER REA, Genentech, Inc.
- 9:45 (1360-3) **LC Column Innovations to Facilitate the Analysis of Pharmaceuticals** MATTHEW A LAUBER, Waters Corporation, Thomas H Walter, Qi Wang, Susan C Rzewuski, Jennifer M Nguyen, Kerri M Smith, Paul Rainville, Martin Gilar, Cheryl Boissel, Bonnie A Alden, Kevin D Wyndham
- 10:20 **Recess**
- 10:35 (1360-4) **Practice and Ramifications of Ultrafast LC and SFC** DANIEL W ARMSTRONG, University of Texas at Arlington
- 11:10 (1360-5) **Guidelines to Make Optimal Use of Ultra-High Pressures in Pharmaceutical Analysis** KEN BROECKHOVEN, Vrije Universiteit Brussel, Gert Desmet

SYMPOSIUM

Session 1370

Micro and Nanotechnologies for Next Generation Precision

Medicine - arranged by Ryan C Bailey and Heather Robison, University of Michigan

Wednesday Morning, Room 116

Ryan C Bailey, University of Michigan, Presiding

- 8:30 **Introductory Remarks - Ryan C Bailey and Heather Robison**
- 8:35 (1370-1) **Scaling Up Micro- and Nano-Fluidics for Disease Diagnostics and Drug Manufacturing** DAVID ISSADORE, University of Pennsylvania
- 9:10 (1370-2) **Micro-Technologies for Single-Cell Diagnostics in Clinical Medicine** NANCY L ALLBRITTON, University of North Carolina
- 9:45 (1370-3) **Observing Unique Dynamic Function of Adipose Tissue Through High Resolution Temporal Sampling into Microfluidic Droplets** CHRISTOPHER J EASLEY, Auburn University
- 10:20 **Recess**
- 10:35 (1370-4) **Harnessing Protease Activity as Biological Bits' for Programmable Medicine** GABE A KWONG, Georgia Tech & Emory, Brandon A Holt
- 11:10 (1370-5) **New Microfluidic Tools for High Throughput and Low Input and Epigenomic Studies** RYAN C BAILEY, University of Michigan

SYMPOSIUM

Session 1380

Miniature Mass Spectrometers and Ambient Ionization - arranged by Zheng Ouyang, Tsinghua University and Robert Graham Cooks, Purdue University**Wednesday Morning, Room 122B**

Zheng Ouyang, Tsinghua University, Presiding

- 8:30 **Introductory Remarks - Zheng Ouyang and Robert Graham Cooks**
- 8:35 (1380-1) **Development of Paper Spray Ionization for the Warfighter** TREVOR GLAROS, US Army Edgewood Chemical Biological Center
- 9:10 (1380-2) **Pushing Mass Spectrometry toward Point-of-Care Applications** ZHENG OUYANG, Tsinghua University, Wenpeng Zhang, Fan Pu, Liu Xinwei, Yu Xia
- 9:45 (1380-3) **Intraoperative Assessment of IDH Mutation Status of Gliomas Using Ion Trap Mass Spectrometry** ROBERT GRAHAM COOKS, Purdue University, Clint Alfaro, Valentina Pirro, Eyas M Hattab, Aaron Cohen-Gadol
- 10:20 **Recess**

10:35 (1380-4) **Spheroids for Stabilization of Microliter Biofluid Samples in the Dry State: Toward a More Effective Biobanking** ABRAHAM K BADU-TAWIAH, Ohio State University, Deidre E Damon, Devin Swiner

11:10

Abstract Was Not Available At Time Of Print**SYMPOSIUM**

Session 1390

The Application of Analytical Chemistry in Biofuel Study - arranged by Yanhong Zhang, National Corn to Ethanol Research Center**Wednesday Morning, Room 117**

Yanhong Zhang, National Corn to Ethanol Research Center, Presiding

- 8:30 **Introductory Remarks - Yanhong Zhang**
- 8:35 (1390-1) **Biomass Characterization and Carbohydrate Quantification** JUSTIN B SLUITER, National Renewable Energy Laboratory
- 9:10 (1390-2) **Mass Spectrometry Insights into Nutritional Compounds in Corn-to-Ethanol Fermentation Products** KEVIN R TUCKER, Southern Illinois University Edwardsville, Sarah E Bilskey, Yanhong Zhang
- 9:45 (1390-3) **Mycotoxins in DDGS: An Ethanol Industry Initiative to Improve the Integrity of Mycotoxin Results on DDGS** SHON VAN HULZEN, POET
- 10:20 **Recess**
- 10:35 (1390-4) **Analytical Challenges in Alternative Fuel Quality Evaluation** TERESA ALLEMAN, National Renewable Energy Laboratory
- 11:10 (1390-5) **Targeted Metabolomics -A Tool to Identify Bottlenecks in Microbial Biosynthetic Pathways** EDWARD BAIDOO, Department of Energy - Joint BioEnergy Institute / Lawrence Berkeley National Laboratory

WORKSHOPS

Session 1400

Changing the Face of Undergraduate STEM Education: Grant-Funded Programs for Success of Undergraduates in STEM - arranged by Mark Thomas Stauffer and Olivia S Long, University of Pittsburgh at Greensburg**Wednesday Morning, Room 120A**

Olivia S Long, University of Pittsburgh - Greensburg, Presiding

- 8:30 **Introductory Remarks - Mark Thomas Stauffer, Olivia S Long**
- 8:35 (1400-1) **Utilizing Journal Clubs with Undergraduates** JENNIFER KOEHL, Saint Vincent College, Albert Gahr, James Kellam, Stephen Jodis
- 8:55 (1400-2) **Interdisciplinary Course Based Undergraduate Research Experiences as a Way for More Students to do Real Science** PAMELA A MARSHALL, Arizona State University, Jennifer Broatch, Anthony B Falsetti, Jennifer Foltz-Sweat, Ken Sweat
- 9:15 (1400-3) **Learner-Centered Strategies and Self-Efficacy for Learning Astronomy** JANELLE M BAILEY, Temple University
- 9:35 **Recess**
- 9:50 (1400-4) **Broadening the Participation of Underrepresented Minorities in the Geosciences Using a Practical Field Camp Experience in Geophysics** KRISTINA KEATING, Rutgers University
- 10:10 (1400-5) **Insights into NSF reviewing in STEM-ed** TIM FUKAWA-CONNELLY, Temple University
- 10:30 (1400-6) **Science Seminar: A Model for Collaboration and Retention for Undergraduate STEM Majors** MARK THOMAS STAUFFER, University of Pittsburgh at Greensburg, Olivia S Long, Barbara J Barnhart

NIJ (National Institute of Justice) - Advancements in the Analysis of Forensic Evidence, Part I - arranged by Gregory Dutton, National Institute of Justice**Wednesday Morning, Room 118A**

Gregory Dutton, National Institute of Justice, Presiding

- 8:30 (1410-1) **Estimating Likelihood Ratios for the Comparison of Glass Evidence Using Trace Elemental Data** JOSE ALMIRALL, Florida International University, Ruthmara Corzo, Tricia Hoffman, Peter Weis, Daniel Ramos
- 8:50 (1410-2) **Improving the Forensic Relevance of LIBS by Quantifying Spectral Interferences** MATTHIEU BAUDELET, University of Central Florida, Jessica Chappell, Mauro Martinez
- 9:10 (1410-3) **Application of Infrared Imaging and Chemometrics to Facilitate the Forensic Examination of Automotive Paints** BARRY KENNETH LAVINE, Oklahoma State University, Undugodage Perera, Francis K Kwofie, Kaushalya D Dahal
- 9:30 (1410-4) **Viable, Affordable, and Meaningful Integration of Organic and Inorganic Analysis of Firearms Discharge Residue** SUZANNE BELL, West Virginia University
- 9:50 **Recess**
- 10:05 (1410-5) **Fiber Analysis Using Isotope Ratio Mass Spectrometry** DOUGLAS BEUSSMAN, St. Olaf College
- 10:25 (1410-6) **NIJ: Biochemical Characterization of Fingerprints for Forensic and Investigative Purposes** JAN HALAMEK, University at Albany, SUNY
- 10:45 (1410-7) **Lifestyle Profiling Using Metabolomics of Personal Objects** AMINA BOUSLIMANI, University of California, San Diego
- 11:05 (1410-8) **Non-Destructive Recovery of Defaced Serial Numbers Using Infrared Thermal Imaging** JOHN KALIVAS, Idaho State University, Ikwulono Unobe, Rene Rodriguez, Lisa Lau, Andrew Sorensen

ORAL SESSIONS

Session 1420

Advanced Nanomaterials**Wednesday Morning, Room 118B**

- 8:30 (1420-1) **Stability of Gold Nanostars in Different Chemical Environments** LIXIA ZHOU, Oregon State University, Tanner Aldous, Sean M Burrows
- 8:50 (1420-2) **Analysis of Nano-Sized Metal Oxide Particles in Food Additives** SADIA A KHAN, US Food and Drug Administration, Patrick J Gray, Timothy R Croley
- 9:10 (1420-3) **Multiplexed Instrument-Free Bar-Chart SpinChip Integrated with Nanoparticle-Mediated Magnetic Aptasensors for Visual Quantitative Detection of Multiple Pathogens** XIUJUN (JAMES) LI, University of Texas at El Paso, Xiaofeng Wei
- 9:30 (1420-4) **Molecular Insight into Antimicrobial Activity of Carbohydrate Functionalized Gold Nanoparticles on *Serratia Marcescens*** IDRIS YAZGAN, Kastamonu University
- 9:50 **Recess**
- 10:05 (1420-5) **Surface Controlled Copolymerized Fluorescent Silica Nanoparticles for Bioanalytical and Forensic Applications** GABOR PATONAY, Georgia State University, Maged Henary, Walid Abdelwahab, Eman Alsolmy, Gala Chapman
- 10:25 (1420-6) **Imaging Mass Cytometry for the Analysis of Nanoparticles in Cells** JENNIFER CHEN, York University, Brian Malile, Gurbrinder Ghotra
- 10:45 (1420-7) **Microfluidic Platform for Optimizing the Formation of Nanodiscs Libraries from Whole Cell Lysate** COLLEEN M RIORDAN, University of Michigan, Ryan C Bailey
- 11:05 (1420-8) **Development and Characterization of L-HSA Conjugated PLGA Nanoparticle for Hepatocyte Targeted Delivery of Antiviral Drug** PRAMOD BHUJANGRAO KHEDEKAR, Nagpur University, Nilesh R Rarokar, Dipali M Dhoke

Advances in Sensor Development: Biological and Environmental**Wednesday Morning, Room 118C**

- 8:30 (1430-1) **Customizable SPR Imaging Arrays for Coupling with MALDI-MS** ALEXANDER LAMBERT, University of California, Riverside, Chih-Yuan Chen, Quan Cheng
- 8:50 (1430-2) **The Enabling Volume Phase Transition by Which Pure Protein Hydrogels Form Functional Organogels** ANDREW E COUKOUMA, University of Pittsburgh, Natasha L Smith, Zhongyu Cai, Ryan S Jakubek, Sanford A Asher
- 9:10 (1430-3) **Lipid-Coated Bead and Fluorescence Spectroscopic Based Phospholipase Detection Systems for Disease Diagnosis** MENAKE E PIYASENA, New Mexico Institute of Mining and Technology, Rubi Gurung, Shahriare Hossain, Kalika Pai
- 9:30 (1430-4) **An Internally-Referenced Optical Biosensor** RUCHI GUPTA, University of Birmingham, Nicholas Goddard
- 9:50 **Recess**
- 10:05 (1430-5) **Thiamine Analysis Using DELFIA and ECL Platforms** KATIE A EDWARDS, Binghamton University
- 10:25 (1430-6) **Photosensitized Lipid Peroxidation Accelerates Vesicle Rupture on SiO₂ Surfaces: A QCM-D Study** ASHLEY M BAXTER, Lehigh University, Michael Farley, Nathan J Wittenberg
- 10:45 (1430-7) **Aptamer-Actuated 2D Photonic Crystal Hydrogel Adenosine Sensor** YUQI ZHANG, University of Pittsburgh, Kyeongwoo Jang, Zhongyu Cai, Sanford A Asher
- 11:05 (1430-8) **Immunomagnetic Pathogen Extraction Coupled to Perve-Based SERS Sensor** UGUR TAMER, Gazi University, Hasan Ilhan, Merve Eryilmaz, Burcu Guven, Zekiye Suludere, Demet Cetin, Ismail H Boyaci

ORAL SESSIONS

Session 1440

Bioanalytical - Microscopy and Spectroscopy**Wednesday Morning, Room 120B**

- 8:30 (1440-1) **Probing i-Motif Dynamics under Biomimetic Conditions** ANOJA MEGALATHAN, Virginia Commonwealth University, Soma Dhakal
- 8:50 (1440-2) **Quantitative Understanding of Lipid-Mediated DNA Probe Modification on Mammalian Cell Membranes** YOUSEF BAGHERI, University of Massachusetts Amherst, Bin Zhao, Mingxu You
- 9:10 (1440-3) **Structural Propensity of Polyglutamine is Repeat Length Dependent** RYAN S JAKUBEK, University of Pittsburgh, Riley J Workman, Stephen E White, Sanford A Asher
- 9:30 (1440-4) **New Perspectives for Label-Free 3D Cell and Tissue Imaging with a Novel Confocal Raman Microscope Setup** HARALD FISCHER, WITec GmbH, Ute Schmidt, Andrea Richter, David Steinmetz, Joachim Koenen, Wolfram Ibach, Olaf Hollricher
- 9:50 **Recess**
- 10:05 (1440-5) **Peak Force Photothermal Microscopy for Spectroscopic Imaging at sub 10 nm Spatial Resolution** XIAOJI XU, Lehigh University
- 10:25 (1440-6) **Single Molecule Investigations of the Behavior of Holiday Junction Processing Proteins** DALTON REED GIBBS, Virginia Commonwealth University, Soma Dhakal
- 10:45 (1440-7) **Soluble Zwitterionic Poly(sulfobetaine) Destabilizes Proteins** LYDIA KISLEY, Case Western Reserve University
- 11:05 (1440-8) **Cancer Neoantigen and Autoantibody Discovery from Cancer Patient Serum with PEP Technology** XING WANG, Array Bridge Inc

Bioanalytical Sensors and Electrochemical Methods

Wednesday Morning, Room 120C

- 8:30 (1450-1) **Sex Differences in Spontaneous Transient Adenosine Using Fast-Scan Cyclic Voltammetry *In Vivo*** JASON R BORGUS, University of Virginia, B Jill Venton
- 8:50 (1450-2) **Non-Invasive Sensing Concept for Forensic and Biometric Applications** JAN HALAMEK, University at Albany, SUNY
- 9:10 (1450-3) **Mitigating False Positive and Negative Responses of MicroRNA Assay in Patient Plasma** THAKSHILA LIYANANAGE, Indiana University - Purdue University Indianapolis, Rajesh Sardar, Hristos Z Kaimakliotis
- 9:30 (1450-4) **Riboswitch-Based Fluorescent Sensors for Intracellular Detection of ppGpp** ZHINING SUN, University of Massachusetts Amherst, Rigumula Wu
- 9:50 **Recess**
- 10:05 (1450-5) **3D-Printing Fabrication of Novel Optical Sensors for LSPR Detection of Proteins** KELVIN TRAN, University of California, Riverside, Quan Cheng, Samuel S Hinman
- 10:25 (1450-6) **In Vitro Isolation of Small-Molecule-Binding Aptamers with Intrinsic Dye-Displacement Functionality** HAI XIANG YU, Florida International University, Weijuan Yang, Obtin Alkhamis, Juan Canoura, Kyung-Ae Yang, Yi Xiao
- 10:45 (1450-7) **Visualization of Free Individual Exosome by DNA Nanostructures** KAI ZHU GUO, University of California, Riverside, Wenwan Zhong, Wen Shen
- 11:05 (1450-8) **Gold Nanoparticle-Graphene Hybrids for Surface Plasmon Resonance Sensing** NUR SELIN KAYA, Humboldt University of Berlin, Kannan Balasubramanian, Michel Wehrhold, Rodrigo M Iost

ORAL SESSIONS

Chromatographic and Mass Spectrometric Pharmaceutical Methods

Wednesday Morning, Room 121A

- 8:30 (1460-1) **Streamlined Method Development for Screening Active Pharmaceutical Ingredients in Cough and Cold Medication Using a Systematic Protocol** MARGARET MAZIARZ, Waters Corporation, Paul Rainville
- 8:50 (1460-2) **Face to Phase: How Antibody Domains Affect Retention on Chromatographic Stationary Phases** CORY E MURACO, MilliporeSigma, Michael Ye
- 9:10 (1460-3) **Chemical Medicine ID, Assay and Impurity by Ion Chromatography** HARI NARAYANAN, Metrohm USA
- 9:30 (1460-4) **Fast HPAE-PAD Method for Glycoprotein Monosaccharide Determination** SACHIN PATIL, Thermo Fisher Scientific, Jeffrey Scott Rohrer
- 9:50 **Recess**
- 10:05 (1460-5) **Simultaneous Quantitation of Residual Solvents and Water Content in Pharmaceuticals by Rapid Headspace GC-TCD** KAY JACOB, Genentech, Inc., C J Venkatramani, Rekha Thomas
- 10:25 (1460-6) **Enhanced Metabolite Identification Using Orbitrap Tribrid Mass Spectrometer ID-X and AcquireX Feature** KATE COMSTOCK, Thermo Fisher Scientific, Seema Sharma, Caroline Ding, Shuguang Ma
- 10:45 (1460-7) **Confident Analysis of Volatile Extractables and Leachables in Pharmaceutical Products by Advanced Static Headspace Sampling Technology Coupled to GC-HRAM** GONG XIAOTENG, SGS, Dujuan Lu, Danny Hower, Julian Gulbinski, Manuela Bergna, Daniela Cavagnino, Jason Cole, Carlos F Garcia
- 11:05 (1460-8) **An Efficient Synthesis of Diverse Heterocyclic Scaffolds via Multicomponent Reactions: Their Biological and Pharmaceutical Importance** HITENDRAKUMAR M PATEL, Sardar Patel University

Electrochemistry - Biological Applications

Wednesday Morning, Room 121B

- 8:30 (1470-1) **Biocomponent Catalytic Composite Sensors for the Monitoring of ROS/RNS in Cancer Tissue** AYA ABDALLA, University of Brighton, Bhavik Anil Patel, Melanie S Flint, Oliver Keattch
- 8:50 (1470-2) **Not All Sensors are Created Equal: Electrode Geometry and Material Affect Electrochemical Measurements at Single Cells** SARAH ELIZABETH CALHOUN, North Carolina State University, Lars E Dunaway, Andy C Schmidt, James G Roberts, Greg S McCarty, Leslie A Sombers
- 9:10 (1470-3) **HPAE-PAD Analysis of N-Linked Oligosaccharides from Glycoproteins Using Dual Eluent Generation Cartridge Mode** BEIBEI HUANG, Thermo Fisher Scientific, Jeffrey Scott Rohrer, Yongjing Chen
- 9:30 (1470-4) **Double-Layer Effects on Nucleic Acid Hybridization Kinetics at Self-Assembled DNA Monolayers Studied by Square-Wave Voltammetry (SWV)** NIAMAT E KHUDA, Auburn University, Subramaniam Somasundaram, Christopher J Easley
- 9:50 **Recess**
- 10:05 (1470-5) **Monolithic Microfluidic Devices for Quantitative Electrochemical Analysis of Neurotransmitters and Heavy Metals** GLEN D O'NEIL, Montclair State University
- 10:25 (1470-6) **Real-Time Electrochemical Detection of *Pseudomonas Aeruginosa* Using Transparent Carbon Ultramicroelectrode Arrays** OLJA SIMOSKA, University of Texas at Austin, Keith J Stevenson
- 10:45 (1470-7) **Square Wave Voltammetry Signal Amplification Strategies for Redox Reporter Molecules Used in Aptamer Sensors** TUGBA YILMAZ, Northeastern University, Martin Kimani, Edgar Goluch
- 11:05 (1470-8) **Calibration-Free Quantitation of Target DNA by "Potentiometric Stripping Analysis" Using Osmium Tetroxide Bipyridine as a Covalent Label** JOHNSI MATHIVANAN, University at Albany, SUNY, Sarasi K Galagedera, Gerd-Uwe Flechsig

ORAL SESSIONS

Environmental Analytical Methods Using Mass Spectrometry

Wednesday Morning, Room 121C

- 8:30 (1480-1) **Solvent-Free Thermal Desorption Technique for Quantification of Semi-Volatile Organic Compounds (SVOCs) in Water Samples by EPA Method 8270** SAGE J B DUNHAM, Entech Instruments Inc, Daniel B Cardin, Victoria L Noad
- 8:50 (1480-2) **Quantification of Persistent Organic Pollutants in Human Blood Using Stir Bar Sorptive Extraction, GC Triple Quad MS, and Isotope Dilution Mass Spectrometry** WEIER HAO, Duquesne University, Anthony Macherone, John Stuff, Scott Faber, John Kern, Matt Pamuku, Ashley Dillard, H M Skip Kingston
- 9:10 (1480-3) **Using a Novel Ionization Source Coupled with High Resolution Mass Spectrometry for Accurate Identification of Chlorinated Paraffins in a Complex Environmental Sample** SCOTT J PUGH, LECO Corporation, Georgy Tikhonov, David E Alonso, Viatcheslav Artaev
- 9:30 (1480-4) **Development of Accurate VOC Gas Standards in High Pressure Cylinders** ANNARITA BALDAN, VSL, Janneke Van Wijk, Jianrong Li, Rina Wortman
- 9:50 **Recess**
- 10:05 (1480-5) **Faster GC-MS Analysis with Short Narrow Bore Column and Method Translation** JAAP DE ZEEUW, Restek Corporation, Chris Rattray, Mark Badger, Kristi Sellers
- 10:25 (1480-6) **Comprehensive, Non-Target Environmental Exposome Sample Characterization Using GCxGC and High Resolution Time of Flight Mass Spectrometry** TODD S RICHARDS, LECO Corporation, David E Alonso, Joseph E Binkley
- 10:45 (1480-7) **Analytical Chemistry Lessons from History: The Discovery of PCBs and the Future of Analytical Methods for Environmental Contaminants** MICHELLE MISSELWITZ, Chemistry Matters Inc., David Megson, Courtney D Sandau
- 11:05 (1480-8) **Multi Cartridge Solid Phase Extraction of Waste Water Samples Using EPA 625: Extraction, Cleanup and Drying** RUDOLF ADDINK, Fluid Management Systems, Tom Hall

ORAL SESSIONS

Session 1490

Liquid Chromatography: Controlling Retention – New Stationary Phases, Temperature, and Modeling**Wednesday Morning, Room 122A**

Anna Forzano, Presiding

8:30 (1490-1) **C8-Ammonium Multicomponent Stationary Phase Gradients on Silica Particle Columns for Strong Anion Exchange and Reversed Phase Liquid Chromatography** ANNA V FORZANO, Virginia Commonwealth University, Caitlin N Cain, Sarah C Rutan, Maryanne M Collinson

8:50 (1490-2) **Multiplicative On-Column Solute Focusing Using Spatially Dependent Temperature Programming for Capillary HPLC** MICHAEL T RERICK, University of Pittsburgh, Stephen R Groskreutz, Stephen G Weber

9:10 (1490-3) **Surface Modification of Superficially Porous Silica Particles for HPLC via Diazotization and "Craft Knitting"** LUIS A COLON, University at Buffalo, SUNY, Amaris C Borges-Munoz, Joseph R Ezzo, Joscely Velez-Gonzalez

9:30 (1490-4) **pH Stable Liquid Chromatography Stationary Phases Made Using the Thiol-yne Reaction** ERIN P SHIELDS, University of Pittsburgh, Stephen G Weber

9:50 **Recess**

10:05 (1490-5) **A Closer Look at the Retention of Polar Compounds in Hydrophilic Interaction Chromatography (HILIC)** GUO YONG, Fairleigh Dickinson University

10:25 (1490-6) **Evaluation of Three Temperature- and Mobile Phase-Dependent Retention Models for Reversed-Phase Liquid Chromatography** ANTHONY R HORNER, University of Pittsburgh, Rachael E Wilson, Stephen R Groskreutz, Stephen G Weber

10:45 (1490-7) **Closed Form Expressions for Retention Time and Peak Width in Gradient Liquid Chromatography Based on Linear Solvent Strength and Neue-Kuss Models** SARAH C RUTAN, Virginia Commonwealth University, Peter W Carr, Dwight Stoll, Stephen G Weber, Lena N Jeong

11:05 (1490-8) **Evaluation of Chromatography Fundamentals Applied to Weak Cation Exchange Separation of Proteins Charge Variants** SHANE BECHLER, Thermo Fisher Scientific, Julia Baek, Shanhua Lin, Stacy Tremintin

ORAL SESSIONS

Session 1500

Neurochemistry Techniques to Study Neurotransmitters and Metabolites**Wednesday Morning, Room 123**

Erika Varner, Presiding

8:30 (1500-1) **Simultaneous and Differentiated Measurement of Catecholamines by Developing and Evaluating a Novel Neural Probe Suitable for In Vivo Studies** MAHSA LOTFI MARCHOUBEH, University of Arkansas, Mengjia L Hu, Richard N Pellegrino, Miguel L Arbgo Tello, Ingrid Fritsch

8:50 (1500-2) **Integration of Electrochemical and Chemogenetic Techniques to Probe Brain Dopamine Functions on Behavior** ROHAN V BHIMANI, University at Buffalo, SUNY, Jinwoo Park, Caroline Bass

9:10 (1500-3) **Oscillations in Ambient Extracellular Serotonin Levels: Implications for Psychiatric Disease** YANGGUANG OU, University of South Carolina, Colby Evan Witt, Melinda Hersey, Parastoo Hashemi

9:30 (1500-4) **Monitoring Metabolic Crisis in Traumatic Brain Injury Model Rats** ELAINE ROBBINS, University of Pittsburgh, David Fine, Chi Leng Leong, Andrea S Jaquins-Gerstl, Amy Wagner, Martyn G Boutelle, Adrian C Michael

9:50 **Recess**

10:05 (1500-5) **Transient Adenosine Changes During Global Cerebral Ischemia: A Comparison of Two-Vessel Occlusion and Four-Vessel Occlusion** MALLIKARJUNARAO GANESANA, University of Virginia, B Jill Venton

10:25 (1500-6) **Real-Time Electrochemical Detection of Methionine-Enkephalin and Truncated Metabolites** SARAH ELIZABETH CALHOUN, North Carolina State University, Carl J Meunier, Christie A Lee, Greg S McCarty, Leslie A Sombers

10:45 (1500-7) **Development of a Wireless Biosensing System for Real-Time Detection of Tissue Ischemia** SALLY A GOWERS, Imperial College London, Michelle L Rogers, Isabelle C Samper, Richard M Kwasnicki, Mansoor A Kahn, Shehan P Hettiaratchy, Martyn G Boutelle

11:05 (1500-8) **A Novel OMC-PEDOT Based Sensors for Real-Time Dopamine Detection Using a Microfluidic Platform** TONGHATHAI PHAIRATANA, Prince of Songkla University

ORAL SESSIONS

Session 1510

Overcoming Challenges and Streamlining Cannabis Contaminant Testing (Half Session)**Wednesday Morning, Room 124**

8:30 (1510-1) **Overcoming the Challenges Associated with Heavy Metal Analysis of Cannabis & Hemp Using a ICP-MS** AARON HINEMAN, PerkinElmer, Toby Astill

8:50 (1510-2) **Maximization of Analytical Cannabis Extractions and Sample Clean-Up Through the Use of a Single Process Combined Pressurized Fluid and Dispersive Solid Extraction** PATRICIA ATKINS, SPEX CertiPrep, Alicia Stell, Brittany Leffler

9:10 (1510-3) **Streamlining Cannabis Testing Using GC and GCxGC with High Performance TOFMS: Multiple Assays on a Single Instrument** DAVID E ALONSO, LECO Corporation, Joseph E Binkley

9:30 (1510-4) **Investigation of Matrix Effects in Edible Cannabis Products** DAVID DOUGLAS DAWSON, CW Analytical, Robert W Martin

ORAL SESSIONS

Session 1520

Process Analytical Methods (Half Session)**Wednesday Morning, Room 124**

10:05 (1520-1) **Determination of Total THC and CBD Content in Cannabis Flower by Fourier Transform Near-Infrared Spectroscopy** ARIEL BOHMAN, PerkinElmer, Doug Townsend, Robert Packer

10:25 (1520-2) **Raman Spectroscopy Analytical Method Development and Transferability for Control of Critical Process Parameters** KAREN ESMONDE-WHITE, Kaiser Optical Systems Inc., Ian Lewis, Sean Gilliam, Patrick Wiegand, Maryann Cuellar, David Strachan

10:45 (1520-3) **Monitoring of Fluoride in Semiconductor Cleaning Chemicals** CHUANNAN BAI, ECI Technology, Jingjing Wang, Guang Liang, Helen Lu, Eugene Shalyt

11:05 (1520-4) **Variability of Solute-Sorbent Binding Capacities in Solid-Phase Extraction (SPE) Materials** SONALI R PANDEY, South Dakota State University, Shiksha Sharma, Derick Lucas, Bruce Richter, Douglas Raynie

POSTER SESSION

Session 1530

All posters are to be mounted by 10:00 AM and remain on display until 12:30 PM. Authors must be at their posters from 10:00 AM to 12:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Atomic Spectroscopy/Elemental Analysis**Wednesday Morning, Room Expo floor, back of aisles 1500-2300**

(1530-1 P) **Analytics of Anti-Microbial Silver-Activated Carbons** HENRY G NOWICKI, PACS Inc. - Activated Carbon Services, Richard Capp, Emmanuel Schreiber, George Nowicki

(1530-2 P) **Optimization of Combustion Methods for the Determination of Low Level Nitrogen/Protein in Food and Feed Products** MASON R MARSH, LECO Corporation, Fred Schultz, Adam Darling

(1530-3 P) **Fully Automated Elemental Analysis for Liquid Samples Applications** MICHAEL STALKER, CE Elantech, Francesco Leone, Guido Giazzi, Liliانا Krotz

(1530-4 P) **Establishing Geochemical Standards and Methods for CHNS Abundances and CNS Isotopes** MICHAEL STALKER, CE Elantech, Francesco Leone, Guido Giazzi, Eva Stueeken, Liliانا Krotz

(1530-5 P) **Development of an Online Direct Mercury Analyser for Workroom Air Monitoring** WARREN THOMAS CORNS, P S Analytical

(1530-6 P) **Overcoming the Effect of Dissolved Acid Gases for Analysis of Total Mercury in Foodstuffs by CV-AFS After Closed Digestion** SHAUN THOMAS LANCASTER, P S Analytical

(1530-7 P) **Hg, As, and Se Determination by Photochemical Vapour Generation – AFS: Challenging Industrial Applications** SHAUN THOMAS LANCASTER, P S Analytical

(1530-8 P) **Preconcentration and Ultra Trace Level Determination of Mercury Using Ammonium Lauryl Sulfate Coated Alumina Modified by Dithizone** ZAHEER AHMED KHAN, Shaheed Benazir Bhutto University

(1530-9 P) **Ultrasensitive Detection of Mercury Ions Using Single Particle Inductively Coupled Plasma-Mass Spectrometry** YUQIAN XING, University of North Dakota, Juan Han, Xu Wu, David T Pierce, Julia Xiaojun Zhao

(1530-10 P) **Daily Intake of Essential and Nonessential Elements in Edible Fish Muscles Available to the Missouri Population** ABUA IKEM, Lincoln University

(1530-11 P) **Benefits of ICP-MS with 10 Times Higher Sensitivity and 1/2 of Argon Consumption** OLIVER BUETTEL, Analytik Jena, Louri Kalinitchenko

(1530-12 P) **Reflux Open-Vessel Digestion System Can Overcome Volatilization Loss in Mercury Speciation Analysis** GUOYING CHEN, USDA, Bunhong Lai, Mao Xuefei

(1530-13 P) **Use of Flame Atomic Absorption Spectrometry (FAAS) and Chemometrics to Possible Correlations Between Selected Metals and Geographic Origin for Specific Types of Coffee Bean** MARK THOMAS STAUFFER, University of Pittsburgh at Greensburg, Paul J Kerber

(1530-14 P) **Heavy Metal Investigations in Biological Specimens Using XRF Spectrometry** VIVEK K SINGH, SMVD University

(1530-15 P) **Improving Principal Components Analysis (PCA) in Emission Sources Assessment Using Geostatistical Methodologies** BONELLI MARIA GRAZIA, CINIGeo, Andrea Manni

POSTER SESSION

Session 1540

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Consumer Products

Wednesday Morning, Room Expo floor, back of aisles 1500-2300

(1540-1 P) **Analysis of E-Cigarette Liquid** GUSTAVO SERRANO IZAGUIRRE, Agilent Technologies, Vanessa Abercrombie, Phil Stremple

(1540-2 P) **Inverse Supercritical Fluid Extraction and Miniaturized Asymmetrical Flow Field-Flow Fractionation for the Analysis of Nanoparticles in Commercial Sunscreens** ROBERT REED, Postnova Analytics Inc., Soheyl Tadjiki, Florian Meier

(1540-3 P) **Next Generation Supported Liquid Extraction (SLE) Materials for Determination of Azo Dyes in Textiles** DERICK LUCAS, Agilent Technologies, Michael Balestra, Limian Zhao, Kunqiang Jiang

(1540-4 P) **Extraction and Identification of Nicotine from Hookah Tobacco Leaves Using Reversed-Phase High- Performance Liquid Chromatography** JOHN S ALBAZI, Northeastern Illinois University, Maha Alamr

(1540-5 P) **Synthesis, Characterization and Dyeing Assessment of Some Novel Disperse Azi Dyes on Wool and Nylon Fabrics with AZO Dyes** ANKITKUMAR DINESHBNHAI PANCHAL, Shri R K Prikh Arts and Science College, Hiteshkumar J Patel

(1540-6 P) **Carbon Monoxide and Small Hydrocarbon Gas Emissions from Sub-ohm Electronic Cigarettes** AHMAD EL HELLANI, American University of Beirut

POSTER SESSION

Session 1550

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Environmental - Water Analysis

Wednesday Morning, Room Expo floor, back of aisles 1500-2300

(1550-1 P) **Multivariate Analysis of Five-Year Stream Chemistry Dataset in a Mixed Land Use Watershed** ABUA IKEM, Lincoln University, Jimmie Garth

(1550-2 P) **ICP-OES: The Often Underestimated Workhorse in Trace Elemental Analysis** DANIEL KUTSCHER, Thermo Fisher Scientific, Nora Bartsch, Sabrina Antonio, Shona McSheehy Ducos

(1550-3 P) **The Fundamentals and Performance Characteristics of Axial and Radial View in ICP-OES Analysis** DANIEL KUTSCHER, Thermo Fisher Scientific, Nora Bartsch, Matthew Cassap, Sabrina Antonio, Shona McSheehy Ducos

(1550-4 P) **Functionalized Conductive Polymers for Determination of Heavy Metals and Their Removal from Water** AHMAD ROHANIFAR, University of Toledo, Nilofar Alipourasiabi, Joseph G Lawrence, Jon R Kirchoff

(1550-5 P) **Optimize Sample Throughput Utilizing High Speed Screening of Volatile Organic Compounds in Environmental Samples** ANNE JUREK, EST Analytical, Kelly Cravenor, Lindsey Pyron

(1550-6 P) **Quantitation and Localization of Endocrine Disruptor Compounds Accumulation in Fathead Minnows by Complementary Mass Spectrometry Analyses** RACHEL DAVIS, Southern Illinois University Edwardsville, Bobbi J Potter, Sarah Rizzo, Jackson Hoang, Kevin R Tucker

(1550-7 P) **An Examination of the USEPA Method 624 Update** ANNE JUREK, EST Analytical, Kelly Cravenor, Lindsey Pyron

(1550-8 P) **Alternative Carrier Gases for EPA Volatile Methods** LEE MAROTTA, PerkinElmer, Jacob Rebholz

(1550-9 P) **ASTM D7979 PFAS Analysis in Surface Water with the Addition of Gen X and Adona** EMILY PARRY, Agilent Technologies, Tarun Anumol

(1550-10 P) **Highly Sensitive P&T-GCMS Technology is Setting New Standards in Drinking Water Testing** JACOB REBHOLZ, Teledyne Tekmar, Amy Nutter, Tim Anderson, Carlos F Garcia, Daniela Cavagnino

(1550-11 P) **Determination of VOCs in Water by GC-MS after Headspace-Solid-Phase Microextraction (HS-SPME)** JESSICA WESTLAND, Agilent Technologies

(1550-12 P) **Trace Level Analysis of Odorants in Drinking Water Using Headspace SPME-Trap Extraction** GARETH M ROBERTS, Markes International, Massimo Santoro, Claire Keller, Patricia Ballard, Nicola Watson, Abdenour Achour

(1550-13 P) **Modified Ground Rubber Tire (GRT) as Heavy Metal Adsorbents** ACHALA S LIYANAGE, Mississippi State University, Suranga M Rajapaksha, Dennis W Smith, Todd Mlsna

(1550-14 P) **Ultra Fast EPA 8270E Semivolatiles Analysis** FRED FEYERHERM, Agilent Technologies, Thomas Talwar, Meredith Clarage

(1550-15 P) **Photodegradation Kinetics of High-Molecular Weight Polycyclic Aromatic Hydrocarbons in Seawater** ANTHONY MOORE, University of Central Florida, Andres Campiglia, Chandana Wansakkarage, Sadia Arif

(1550-16 P) **New Activated Carbon for PFAOA and PFAOS Contaminants** HENRY G NOWICKI, PACS Inc. - Activated Carbon Services, Charles Carr, Richard Capp, George Nowicki

(1550-17 P) **New Field Sampling for PFAOA and PFAOS at Low PPT** HENRY G NOWICKI, PACS Inc. - Activated Carbon Services, Richard Capp, Barbara Sherman, George Nowicki

(1550-18 P) **Synthesis of Gold and Silver Nano-Assisted Polyamic Acid Films for Anti-Microbially Enhanced Water Treatment** NAUMIH NOAH, United States International University-Africa, Ibrahim Kimotho, MILDred Nawiri

(1550-19 P) **Synthesis, Characterization, Electrochemical and Quantum Evaluation of Some Organic Amines as Corrosion Inhibitors** LYAMINE MESSAADIA, University of Mohamed Seddik Ben Yahia, Jijel, Messaoud Benamira, Yasmine Boughoues, Nafila Bouider

(1550-20 P) **La2NiO4/ZnO Hetero-System: Highly Efficient Catalyst for Degrading Organic Dyes in Water Under Solar Light Irradiation** HICHAM LAHMAR, University of Mohamed Seddik Ben Yahia, Jijel, Messaoud Benamira, Lyamine Messaadia, Mohamed Trari

(1550-21 P) **Preparation of ZrO2- Fe2O3 Nanoparticles and Their Application as Photocatalyst for Cr(IV) Reduction and Hydrogen Production** MESSAOUD BENAMIRA, University of Mohamed Seddik Ben Yahia, Jijel, Naima Doufar, Hicham Lahmar

(1550-22 P) **Chromium (VI) Removal Using a New Photo-Electrodialysis Process Using a Novel Polymeric Membranes** SOFIANE BENSAAADI, University of Science and Technology - Houari Boumediene, Mourad Amara

(1550-23 P) **On-Site Determination of Trace Nickel(II) in Water Samples by the Combination of a Simple Enrichment Technique with a Handheld Spectrometer** HITOSHI MIZUGUCHI, Tokushima University, Genya Umeda, Suherman Suherman, Toshio Takayanagi, Kinichi Morita

(1550-24 P) **Withdrawn**

(1550-25 P) **Improve System Longevity for Semi-Volatile Organic Compound Analysis** GUSTAVO SERRANO IZAGUIRRE, Agilent Technologies, Yun Zou, Phil Stremple

(1550-26 P) **Extending the Applicability of Sorptive Extraction-Based Sampling Techniques Through Enhanced Automation and Sample Concentration for GC & GC-MS** NICOLA WATSON, Markes International, Lara Kelly, Gareth Ellis, Massimo Santoro, Claire Keller, Patricia Ballard

(1550-27 P) **Recovery of EPA Method 525 (Semi-Volatiles), Organochlorine-Pesticides, PCBs and Phenols using a Newly Developed Nitrogen Evaporator** JENNIFER SALMONS, J2 Scientific LLC, Mike Tanner, Jeff Wiseman

(1550-28 P) **The Speciated Analysis and Certification of a Standard Reference Material of Low-level Hexavalent Chromium in a Soil Matrix by Speciated Isotope Dilution Mass Spectrometry, EPA Method 6800** LAUREN STUBBERT, Duquesne University, James Henderson, Weier Hao, Logan Miller, Matt Pamuku, H M Skip Kingston, Teresa Switzer, Bob O'Brian, Larry Tucker

POSTER SESSION

Session 1560

All posters are to be mounted by 10:00 AM and remain on display until 12:30 PM. Authors must be at their posters from 10:00 AM to 12:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Mass Spectrometric Methods

Wednesday Morning, Room Expo floor, back of aisles 1500-2300

(1560-1 P) **Novel On-Line Multidimensional Low-Flow LCMS Setups for Comprehensive and Fast Proteome Profiling** OLEKSANDR BOYCHENKO, Thermo Fisher Scientific, Christopher Pynn, Wim Decrop

(1560-2 P) **Evaluating the Soft Nature of Electrospray Ionization Using Atmospheric-Pressure Ion Mobility Mass Spectrometry** WILLIAM P MCMAHON, Georgetown University, Rohan Dalvi, Joseph Lesniewski, Shannon Conroy, Kaveh Jorabchi

(1560-3 P) **Thermal Extraction Directly Coupled to Mass Spectrometry for Passive Dosimetry Applications** ANTHONY QUALLEY, US Air Force, Mitch Rubenstein

(1560-4 P) **Quantification of Fluoride in Infant Formula by Ion Chromatography-Plasma Assisted Reaction Chemical Ionization Mass Spectrometry (IC-PARCI-MS)** JOSEPH LESNIEWSKI, Georgetown University, David Dain, Paolo Lecchi, Kaveh Jorabchi

(1560-5 P) **Two Innovative Devices for DART MS Systems** DEREK GONZALES, BioChromato, Chikako Takei, Kenichi Yoshizawa

(1560-6 P) **A Novel Approach to Direct Analysis of Aldehydes in Sustainable Paperboards: Automated SIFT-MS** VAUGHAN S LANGFORD, Syft Technologies, William S Kerr, Mark J Perkins, Christel Du Bruyn

(1560-7 P) **Investigating a Derivatization Technique for Synthetic Cathinones Using Ethylchloroformate: GC-MS Analysis of Cyclic Tertiary Amines Related to MDPV** YOUNIS F ABIEDALLA, Auburn University, C Randall Clark, Jack DeRuiter

(1560-8 P) **Nano Measurements of Catecholamines in Cells to Determine How ATP Facilitates the Loading of Norepinephrine into Small Vesicles** ANNA LARSSON, University of Gothenburg, Soodabeh Majdi, Andrew Ewing

(1560-9 P) **Introducing a New Fully Automated Multi-Mode Sample Pre-Concentration System for VOC-SVOC GCMS Analysis** GARETH M ROBERTS, Markes International, Lara Kelly, Massimo Santoro, Claire Keller, Patricia Ballard, Nicola Watson

(1560-10 P) **Integrating Microfluidic Acoustic Mixing with Vibrating Sharp-Edge Spray Ionization (VSSI) for Time-Resolved Mass Spectrometry Analysis** XIAOJUN LI, West Virginia University, Chong Li, Peng Li

(1560-11 P) **Droplet Microfluidics Solid Phase Extraction for High Throughput Screening Mass Spectrometry** GILLIAN E ROBBINS, University of Michigan, Daniel J Steyer, Robert T Kennedy

(1560-12 P) **Completely Automated Extraction and Analysis of Antibiotics in Eggs Using a New Robotic Autosampler and LC/MS/MS Platform** FREDRICK D FOSTER, Gerstel, Inc., John Stuff, Laurel A Vernarelli, Jacqueline A Whitecavage

(1560-13 P) **A Multi-Detector Set-Up Comprising of UV/Vis, Charged Aerosol and Single Quadrupole Mass Spectrometric Detection for Comprehensive Quantitative Sample Analysis** STEPHAN MEDING, Thermo Fisher Scientific, Katherine S Lovejoy, Martin Samonig, Frank Hoefler, Remco Swart, Frank Steiner, Martin Ruehl

(1560-14 P) **Novel AutoSyringe Infusion Pump Assisted Graphene Nanosheets Based Pipette-Tip Micro-Solid Phase Extraction Technique for the Analysis of Triclosan in Aqueous Samples Using Liquid Chromatography** VINOTH KUMAR PONNUSAMY, Kaohsiung Medical University

(1560-15 P) **Microfluidic Sample Preparation Coupled to Capillary Liquid Chromatography Mass Spectrometry for Metabolomic Analysis of Islets of Langerhans** KELCIE A ZEGALIA, University of Michigan, Martin De Beer, Mark A Burns, Robert T Kennedy

(1560-16 P) **Ionization Efficiency for Environmentally Relevant Compounds Using Atmospheric Pressure Photoionization in Comparison with Electrospray Ionization** PRAKRIYA SHRESTHA, Southern Illinois University Edwardsville, Kevin R Tucker

(1560-17 P) **Using the Semi-Quantitative Analysis Feature in Inductively Coupled Plasma Tandem Mass Spectrometry Instruments to Perform Quantitative Determinations** JOHN T SLOOP, Wake Forest University, George L Donati, Bradley T Jones

(1560-18 P) **Real-Time Analysis of Nitrogen Containing Compounds Under Varying Nutrition** GIOVANNI PUGLIESE, University Medical Center of Rostock, Trefz Phillip, Beate Brock, Wolfram Miekisch, Jochen K Schubert

(1560-19 P) **Hyphenated TGA-GCMS Methods to Detect Residual Solvents** KEVIN MENARD, Mettler Toledo, Noah Menard, Blaine Weddle

(1560-20 P) **Overcoming Challenges of Residual Solvent Analysis in Pharmaceutical and Cannabis Using Highly Deactivated Phase Cyan** RAMKUMAR DHANDAPANI, Phenomenex

(1560-21 P) **Elucidation of the Mechanisms of the "Matrix Effect" on ESI - Evaluation of the "Desorption" Processes of Amino Acid Mixtures From Solvent Droplets** AMI KANESHIMA(KAGEYAMA), Yokohama City University, Akira Motoyama, Mitsuo Takayama

WEDNESDAY, MARCH 20, 2019 AFTERNOON

POSTERS ON EXPO FLOOR ONLY – NO TECHNICAL SESSIONS

POSTER SESSION

Session 1570

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Cannabis

Wednesday Afternoon, Room Expo floor, back of aisles 1500-2300

(1570-1 P) **SPME Arrow Sampling of Terpenes in Cannabis Plant Material** JESSICA WESTLAND, Agilent Technologies

(1570-2 P) **Optimizing Sample Preparation in Pesticides Analysis for Cannabis** JESSICA WESTLAND, Agilent Technologies

(1570-3 P) **Separation and Quantitation of Seven Cannabinoids Using SFC-MS/MS** GUANNAN LI, Agilent Technologies, Jennifer Hitchcock

(1570-4 P) **Method Development for the Analysis of Residual Solvents and Terpenes in One Run Using Headspace GC-MS/FID** RON HONNOLD, Agilent Technologies, Robert Kubas, Kirk Lokits, Thomas Talwar

(1570-5 P) **Confident Profiling of Cannabis Terpenes by Flow-Modulated GCxGC** LAURA MCGREGOR, SepSolve Analytical, Matthew Edwards, David Mathis, Wade Bontempo

(1570-6 P) **Electrochemical Quantification of Aldicarb Pesticide Using a Nanoporous Gold Modified Electrode** THIAGO MATHEUS GUIMARAES SELVA, Federal Institute of Pernambuco, Marcio Vilar, Anandhakumar Sukeri, Thiago R Paixao

(1570-7 P) **Quantitation of Aflatoxins B1, B2, G1, G2 and Ochratoxin A in Cannabis by LC with Fluorescence Detection** MICHAELA DAVENPORT, Shimadzu Scientific Instruments, Sarah Braseth, Max Wang, Robert Clifford, Craig Young

(1570-8 P) **A Simple Approach to Analyzing Residual Solvents in Cannabis Concentrates via HS-GC** COLTON MYERS, Restek Corporation, Jason S Herrington, Ashlee Gerardi, Kristi Sellers, Scott Grossman

(1570-9 P) **Elemental Analysis of Cannabis and Cannabis Containing Food Products** ROBERT LOCKERMAN, CEM Corporation, Austin Thornton, Tina Restivo

(1570-10 P) **Chromatographic Resolution of Naturally Occurring Enantiomeric Cannabinoids Using SFC-MS** MELISSA WILCOX, Regis Technologies, Inc., Edward G Franklin, Giulia Mazzocanti

(1570-11 P) **Cannabis-Infused Edibles Quality Assurance Needed** BETTY WEDMAN- ST LOUIS, Private Practice

(1570-12 P) **Maximization of Analytical Cannabis Extractions and Sample Clean-Up Through the Use of a Single Process Combined Pressurized Fluid and Dispersive Solid Extraction (EDGE)** ALICIA STELL, CEM Corporation, Patricia Atkins, Leffler A Brittany, Candice A Olsson

(1570-13 P) **Developing a High Throughput Digestion Methodology for Heavy Metals Analysis by ICP-MS in Cannabis** SUHAS NARKHEDE, Questron Technologies Corp., Nicolas McLeod

(1570-14 P) **Evaluate Isomer Ratios of Pesticides for the Cannabis Industry** HUICHEN W STAVROS, O2Si Smart Solutions, An LGC Standards Company, Daniel Biggerstaff

(1570-15 P) **Single Column Solution for Determination of Residual Solvents and Terpenes in Cannabis** RAMKUMAR DHANDAPANI, Phenomenex

(1570-16 P) **Automated Preparation Method for the Determination of Aflatoxins and Ochratoxin A in Cannabis** JENNIFER SALMONS, J2 Scientific LLC, Mike Tanner, Jeff Wiseman, Joe Batek

SEAC POSTER SESSION

Session 1580

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

SEAC (Society for Electroanalytical Chemistry) Poster Session

Wednesday Afternoon, Room Expo floor, back of aisles 1500-2300

(1580-1 P) **Utilization of Nafion for Sensitivity Increase Towards Neurotransmitter Detection** DILPREET RAJU, American University, Alexander Mendoza, Alexander George Zestos

(1580-2 P) **Single Sensor for Detection of Zika and Dengue Viruses** MARCOS V FOGUEL, University of Central Florida, Marcos V Foguel, Percy V Calvo-Marzal, Dmitry M Kolpashchikov, Karin Y Chumbimuni-Torres

(1580-3 P) **Development of Hydrophobic Conductive Ink and Its Application Towards Paper Based Ion Selective Electrodes** BRIAN BAILEY, University of Central Florida, Mohammad Kakroudic, Percy C Marzal, Karin C Torres

(1580-4 P) **Flexible Screen Printed Carbon Electrodes for the Detection of Heavy Metals in Drinking Water** CONNOR E RAHM, University of Cincinnati, Noe Alvarez, Kiera Gazica, William E Heineman

(1580-5 P) **Chemically Modified Carbon-Fiber Microelectrodes for Enhanced Detection of ATP** YUXIN LI, University of Cincinnati, Ashley E Ross

(1580-6 P) **Bismuth-Film Carbon Nanotube Working Electrodes Used in Detecting Cadmium** KIERA GAZICA, University of Cincinnati, Noe Alvarez, Kolade Ojo

(1580-7 P) **Simultaneous Detection of Redox Active and Non-Redox Active Neurotransmitters with Double-Barrel Pipettes** RAN CHEN, University of Illinois at Urbana-Champaign, Yuanyuan Wei, Jordynn Palmer, Mei Shen

(1580-8 P) **Array of Bipolar Electrodes Arranged to Generate a Visual Voltammogram in a Microfluidic Device** JAN BORCHERS, Iowa State University, Olga Riusech, Benjamin Rayborn, Xiao Ruiqi, Jingzhu Shu, Robbyn K Anand

(1580-9 P) **Size-Dependent Electrochemical Ostwald Ripening of Au NPs** DHRUBA KUMAR PATTADAR, University of Louisville, Francis P Zamborini

(1580-10 P) **Reference Electrodes Based on an Ionic Liquid Doped Biocompatible Silicone Membrane** XIN V CHEN, University of Minnesota, Philippe Buhlmann, Andreas Stein

(1580-11 P) **Ionic Liquid-Based Reference Membranes and Ion-Selective Membranes with Reduced Delamination** EVAN L ANDERSON, University of Minnesota, Sujay A Chopade, Xue V Zhen, Timothy P Lodge, Marc A Hillmyer, Philippe Buhlmann

(1580-12 P) **Single Nanoparticle Impact Electroanalysis of the Hydrogen Evolution Reaction on Silicon Photoelectrodes** JORDYN N JANUSZ, Montclair State University, Glen D O'Neil

(1580-13 P) **Small Atomic Cluster Electrocatalysis on Boron Doped Diamond Nanoelectrodes** ANDREW DAVID PENDERGAST, University of North Carolina at Chapel Hill, Jeffrey E Dick

(1580-14 P) **Emulsion-Mediated Electrodeposition of Nanoporous Metal Nanoparticles: Electroanalytical Applications Comparing Ensemble and Single Particle Measurements** MATTHEW W GLASSCOTT, University of North Carolina at Chapel Hill, Jeffrey E Dick

(1580-15 P) **Electrochemical Detection of Extracellular Bacterial Compounds Using Thread Based Capillary Electrophoresis** MARTIN KIMANI, Northeastern University, Edgar Goluch

(1580-16 P) **Development of Dual Function pH and Hydrogen Peroxide Microsensor as a SECM Probe** SUJI PARK, Oregon State University, Dipankar Koley

(1580-17 P) **Characterization of Live Biofilm Using SECM** CHRIS B BAHRO, Oregon State University, Dipankar Koley

UNDERGRADUATE POSTER SESSION

Session 1590

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Undergraduate Poster Session

Wednesday Afternoon, Room Expo floor, back of aisles 1500-2300

(1590-1 P) **Branched Amphipathic Peptide Nanocapsules – Study of Their Cellular Uptake Mechanisms and Intracellular Trafficking** ERIN MCGRAW, Auburn University, Sam Yarbrough, Adriana Avila Flores

(1590-2 P) **Comparing Carbohydrate Structures Modeled with Density Functional Theory to Experimentally Measured Conformations** EMILY D ZIPERMAN, Baylor University, Emyia I Calixte, Elyssia S Gallagher

(1590-3 P) **Method Comparison for the Determination of Metal Ion Uptake by Iron Oxide Composites** KATHRYN AELINE LAYMAN, Bethel College, Amber Schmidt, Logan Heinrichs, Alexander A Haas

(1590-4 P) **In Vivo Electrochemical Determination of Aspirin Using Fast-Scan Cyclic Voltammetry** PHWAY PHWAY, University at Buffalo, SUNY, Jinwoo Park, Rohan V Bhimani

(1590-5 P) **Wax and 3D Printing: Alternative, Eco-Friendly and Cost-Effective Methods to Current Microbiological Staining Techniques** ADITYA RAKESH JANGID, California Polytechnic State University, SLO, Brandon Strong, Andres W Martinez, Nathaniel W Martinez

(1590-6 P) **Optical Anodic Stripping Voltammetry in a Bipolar Electrode Format** NICHOLAS JAMES HUMPHREY, Colorado College, Eli Fahrenkrug

(1590-7 P) **Morphological and Microstructural Characterization of Food Matrices** ALBERTA ARYEE, Delaware State University, Benjamin Bougouneau, Michael Moore, Samuel A Besong

(1590-8 P) **Identification of Microbial Growth in Georgia Diesel Fuels** ASHTON TAYLOR MCKINNON, Georgia Department of Agriculture, David Au, Carrie Crabtree, John Shugart

(1590-9 P) **Increased Resolving Power and Detection Sensitivity of Two-Dimensional Liquid Chromatography for Bottom-Up Analysis of Therapeutic Proteins** HAYLEY LHOTKA, Gustavus Adolphus College, Dwight Stoll, Gregory Staples, Ben Madigan, David C Harnes, Gabriel Leme

(1590-10 P) **Characterization of a Nucleic Acid Biosensor for 5-HTP Using a Fluorescence-Based Assay** JOSEPH KELLER, Kalamazoo College, Courtney McGinnis, Clayton Wilkey, Robert Batey, Jennifer Furchak

(1590-11 P) **Rapid and Sensitive Detection of Inorganic Ions Using Capillary Electrophoresis** DUSTY JAMES HAMILTON, Keene State College, Kraly R James

(1590-12 P) **Investigation of the Role of the Communication Module in a Nucleic Acid Biosensor for 5-HTP Using a Fluorescence-Based Assay** COURTNEY MCGINNIS, Kalamazoo College, Joseph Keller, Clayton Wilkey, Robert Batey, Jennifer Furchak

(1590-13 P) **Using ELISA Methods and Paper-Based Microfluidics (P-ELISA) to Analyze Myoglobin from the Human Heart** APRIL STICH, Maryville University, Joy Sandman, Gifty Blankson, Thomas Spudich

(1590-14 P) **Lab Procedure to Replace EDTA Titration for Calcium and Magnesium Concentration Determination Using Molecular Spectroscopy for Those That are Colorblind** TANNER YOUNG, Maryville University, Drayton Rorah, Thomas Spudich

(1590-15 P) **The Effect of Temperature on Roman Concrete** HELEN C QIN, Cranbrook Kingswood Upper School, Xiangqun Zeng

(1590-16 P) **Your Epigenome is What you Eat** ARABELLA L GARCIA, University of Pennsylvania School of Medicine, Natarajan V Bhanu, Peder L Lund, Benjamin A Garcia

(1590-17 P) **Development of a Magnetic Micro Valve via a Doped PDMS Layer for Microfluidic Sample Handling in a Field Portable Device Controlled by a Microcontroller** JORDY FEATHERSTONE, Pfeiffer University, Jason Emory

(1590-18 P) **Withdrawn**

(1590-19 P) **HPLC Using Single Reference Standard with Relative Molar Sensitivity for the Determination of Natural Components from Products and Foods** MIKI TAKAHASHI, Ritsumeikan University, Nishizaki Yuzo, Sugimoto Naoki, Sato Kyoko, Inoue Koichi

(1590-20 P) **A Low-Cost, Open-Source Chromatography Data Acquisition System Using a Single-Board Computer** SAMUEL FOSTER, Rowan University, Michael Aliranges, Eric Constans, James P Grinias

(1590-21 P) **Use of Gold Nanoporous Microelectrodes (NPG - μ E) for Monitoring Hydrogen Peroxide in Cell Media During Induced Oxidative Stress** EDUARDO JOSE CARVALHO JUNIOR, University of Sao Paulo, Jéssica Selva, Mauro Bertotti

(1590-22 P) **Characterization of Ionophore-Grafted Carbon Fiber Microelectrodes for Cu(II) Sensing Using Fast-Scan Cyclic Voltammetry** ASPASIA AMIRIDIS, University of South Carolina, Jordan Holmes, Parastoo Hashemi

(1590-23 P) **Medium Optimization for Voltammetric Serotonin Measurements in Human Stem Cells** DEANNA K KEEN, University of South Carolina, Rachel A Saylor, Parastoo Hashemi

(1590-24 P) **Evaluating the Effects of Perinatal Lead Exposure on Developmental Neurochemistry with a Focus on Serotonin** NAVID S TAVAKOLI, University of South Carolina, Alyssa West, Parastoo Hashemi

(1590-25 P) **Investigating the Effects of Silver Nanoparticles on Daphnia Magna Through Dietary and Waterborne Exposure** BOBBI J POTTER, Southern Illinois University Edwardsville, Kevin R Tucker

(1590-26 P) **Single Cell Analysis of Rose Bengal-Induced Oxidative Stress in *Dictyostelium Discoideum*** JESSICA T DUONG, Trinity College, Michelle L Kovarik

(1590-27 P) **Measurement of Kinetics and Specificity of Peptide Substrate Reporters for Protein Kinase B from *Dictyostelium Discoideum*** RAHULJEET S CHADHA, Trinity College, Sababa Anber, Misha Mehra, Kunwei Yang, Michelle L Kovarik

(1590-28 P) **Design of a Custom mTOR-Specific Peptide Substrate Reporter** GRIGORII KALMINSKII, Trinity College, Sameir Madden, Michelle L Kovarik, Hebe M Guardiola-Diaz

(1590-29 P) **Optimizing the Ninhydrin Assay for Quantifying Gelatin Methacryol Functionalization** ALYSSA N MONTALBINE, University of Virginia, Jonathan M Zatorski, Jennifer Ortiz-Cárdenas, Rebecca R Pompano

(1590-30 P) **Capillary Electrophoresis Separations with Sample Stacking: Determination of Low Estrogen-Levels Using UV-Visible Absorbance Detection** SAFA AHAD, West Virginia University, Lisa A Holland

(1590-31 P) **Investigation of Carbodiimide Coupling to Grafted Aryl Carboxylates on Glassy Carbon Electrodes** CAITLYN M HUM, Wittenberg University, Justin C Unternaher, Kristin K Cline

(1590-32 P) **Point-of-Care Measurement of Sulfatase Marker in Human Body Fluids for Cancer Diagnosis** BRANDON DANG, Xavier University of Louisiana, Patricia Pham, Zhongyuan Huang, Zhe Wang

(1590-33 P) **Metals Toxicity, Nutrition, and Disease Interactions of Elk in the Peck Ranch Conservation Area after Reintroduction** SIFA GICHAU, Lincoln University, Abua Ikem, Katrina Knott

(1590-34 P) **Evaluating the Impact of Natural Fiber Welding on Cellulose Structure Through Atomic Force Microscopy** CHRISTIAN E HOFFMAN, U.S. Naval Academy, Robert T Chung, Patrick Fahey, Elizabeth Yates, Paul C Trulove, David P Durkin

(1590-35 P) **Comparison of Open Limestone Channel Remediation of Abandoned Mine Drainage On Site and Column Model Simulation** JESSICA M SCHULTE, Saint Francis University, Kassidy L Troxell, Kayla M Grasso, Anthony M Vassalotti, William H Strosnider, Joel Bandstra, David M Madl, Perez B Youmbi, Rebekah C Krupa, Dallas R Shattuck, Charles J Spellman, James P Krug, Caleb J Weyant, Logan J Stern, David K Wolfe, Edward P Zovinka

(1590-36 P) **Analysis of Brominated Flame Retardants (BFRs) by Chromatography in Precipitation Samples Collected in Northeast Ohio** BRITTANY M BOWMAN, College of Wooster, Jennifer A Faust

(1590-37 P) **Determination of Heavy Metals in Hyperaccumulator Plants by X-Ray Fluorescence** NICOLE M SARAO, US Naval Academy, Maria J Schroeder

(1590-38 P) **Characterizing the Formation of Brown Carbon with Attenuated Total Reflection Infrared Spectroscopy** SHAYNA VICKER, College of Wooster, Kevin Wokosin, Erika Womack, Jennifer Faust

(1590-39 P) **Effects of Hydrogen Bond Organization on the Dielectric Relaxation and Electrical Conductivity Behavior of bis-MPA Based Hyperbranched Polymers** RACHAEL DITZLER, Seton Hill University, Beibei Chen, Scott M Grayson, Sergei I Nazarenko

(1590-40 P) **Parameterization of DPA for Analysis Using Molecular Dynamic Simulations** MARIA E WAHAL, Westminster College, Jessica Sarver

(1590-41 P) **Facile Synthesis of Nitrogen-Sulfur-Doped Graphene Quantum Dots with High Fluorescence Quantum Yield for Bioimaging and Detection of Gold Nanoparticles** ZACK SCHROER, New Mexico Highlands University, Jiao Chen

(1590-42 P) **Evaporation Driven Capillary Flow for Multistep Paper-Based Assays** ANDRES W MARTINEZ, California Polytechnic State University, Emily R Christensen, Erin R Lundy

(1590-43 P) **Pesticide Extraction Methods from Northeast Ohio Precipitation Samples: Validation by GC-MS and LC-MS/MS** JENELLE BOOKER, College of Wooster, Arielle Welch, Brittany Bowman, Connor Mangan, Kevin Miller, Asvin Gireesh, Jennifer A Faust

THURSDAY, MARCH 21, 2019 MORNING

SYMPOSIUM

Session 1600

Advances in Capillary LC Separations - arranged by Stephen G Weber, University of Pittsburgh

Thursday Morning, Room 118C

Stephen G Weber, University of Pittsburgh, Presiding

8:30 **Introductory Remarks - Stephen G Weber**

8:35 (1600-1) **Instrumentation for Compact Nanoflow LC** MILTON L LEE, Brigham Young University, Luke T Tolley, Leena Milind Patil, Paul B Farnsworth, Ray West, H Dennis Tolley, Thy X Truong, Greg Ward, Xiaofeng Xie

9:10 (1600-2) **Nano-LC Coupled to EI-MS for a Fast and Reliable Untargeted Characterization of LC-Amenable Compounds** LUIGI MONDELLO, University of Messina, Francesca Rigano

9:45 (1600-3) **Capillary Liquid Chromatography with Perfectly Ordered Support Structures** GERT DESMET, Vrije Universiteit Brussel

10:20 **Recess**

10:35 (1600-4) **Overcoming Some of the Challenges of Capillary LC in Neurochemistry Applications** STEPHEN G WEBER, University of Pittsburgh, Khanh T Ngo, Michael T Rerick, Andrea S Jaquins-Gerstl, Rachael E Wilson, Yejin Yang, Erin P Shields

11:10 (1600-5) **Miniaturized HPLC with Electroosmotic Pumping** SHAORONG LIU, University of Oklahoma

SYMPOSIUM

Session 1610

Advances in Raman Spectroscopy - arranged by Sanford A Asher, University of Pittsburgh**Thursday Morning, Room 118B**

Sanford A Asher, University of Pittsburgh, Presiding

- 8:30 **Introductory Remarks - Sanford A Asher**
- 8:35 (1610-1) **Theoretical Studies of Electrochemical TERS**
GEORGE C SCHATZ, Northwestern University
- 9:10 (1610-2) **Advances in Time-Gated Remote Raman Spectroscopy** SHIV KUMAR SHARMA, University of Hawaii
- 9:45 (1610-3) **Ultrafast and Nanoscale Raman Spectroscopies**
RENEE R FRONTIERA, University of Minnesota
- 10:20 **Recess**
- 10:35 (1610-4) **Potential Biomarkers Indicating Developmental Competence of Matured Oocytes Studied by Raman Spectroscopy**
YUKIHIRO OZAKI, Kwansei Gakuin University, Mika Ishigaki, Yumi Hoshino
- 11:10 (1610-5) **Development of Deep UV Raman Instrumentation and Methodologies for Standoff Trace Explosive Detection** SERGEI BYKOV, University of Pittsburgh, Kyle T Hufziger, Ryan D Roppel, Dipak Rout, Ivan G Pallares, Ryan S Jakubek, Sanford A Asher

SYMPOSIUM

Session 1620

Affinity Selection-Mass Spectrometry: Development and Application in Drug Discovery - arranged by Hui Zhang, Pfizer Inc. and Chang Liu, Sciex**Thursday Morning, Room 120A**

Hui Zhang, Pfizer Inc., Presiding

- 8:30 **Introductory Remarks - Hui Zhang and Chang Liu**
- 8:35 (1620-1) **Advances in Affinity Selection Mass Spectrometry for Characterizing Active Compounds in Natural Product Mixtures**
RICHARD B VAN BREEMEN, Oregon State University
- 9:10 (1620-2) **Enabling High Throughput Screening of Challenging Targets for Lead Identification by Affinity Selection Mass Spectrometry**
JUNCAI MENG, Bristol-Myers Squibb, Dave Harden, Litao Zhang
- 9:45 (1620-3) **Application of Affinity Selection Mass Spectrometry for Target Tractability Assessment and High Throughput Hit Identification**
JOSEPH KOZOLE, GlaxoSmithKline, Caterina Musetti, Roland Annan, Mark Bean, Geoffrey Quinque, Mary Mentzer, Yong Jiang, Jeffrey Guss
- 10:20 **Recess**
- 10:35 (1620-4) **ASMS as a Biophysical Tool** THOMAS O'CONNELL, Pfizer Inc., Wenyi Hua, Hui Zhang
- 11:10 (1620-5) **ALIS Affinity Selection in Pharmaceutical Discovery**
PETER DANDLIKER, Merck & Company, Inc.

SYMPOSIUM

Session 1630

Analytical Cannabis I - arranged by Joshua Crossney, jCanna, Inc.**Thursday Morning, Room 115A**

Joshua Crossney, jCanna, Inc., Presiding

- 8:30 **Introductory Remarks - Joshua Crossney**
- 8:35 (1630-1) **Building Bridges: Cannabis Science Education and Medical Reform** JOSHUA CROSSNEY, jCanna, Inc. & CSC Events, LLC
- 9:10 (1630-2) **Optimize This! How Grinding, Packing and Pushing Can Improve Cannabis Extraction** MARKUS ROGGEN, Complex Biotech Discovery Ventures, Barry Schubmehl, Gunther Croll, Jeffery Scott, Melissa Fauth
- 9:45 (1630-3) **Methods for Advanced Analytical Characterization and Discovery in Cannabis Natural Products** KEVIN A SCHUG, University of Texas at Arlington, Allegra Leghissa, Hildenbrand Zacariah
- 10:20 **Recess**
- 10:35 (1630-4) **Improving Cannabis Testing Workflows**
KATHERINE K STENERSON, MilliporeSigma
- 11:10 (1630-5) **A Systems Engineering Approach to Cannabis Product Development** JACKLYN R GREEN, Agate Biosciences

SYMPOSIUM

Session 1640

Clinical Mass Spectrometry: From Bench to Bedside and Back - arranged by Yu Zhou, Cleveland Clinic**Thursday Morning, Room 115C**

Yu Zhou, Cleveland Clinic, Presiding

- 8:30 **Introductory Remarks - Yu Zhou**
- 8:35 (1640-1) **A Targeted Integrative Computational Pipeline to Assess Fecal Transplantation for the Treatment of Ulcerative Colitis** YU ZHOU, Cleveland Clinic
- 9:10 (1640-2) **Mass Spectrometric Innovations for Translational and Clinical Research** RICHARD A YOST, University of Florida
- 9:45 (1640-3) **Quality Management of Clinical LC-MS Laboratories**
SIHE WANG, Akron Children's Hospital
- 10:20 **Recess**
- 10:35 (1640-4) **MALDI TOF Mass Spectrometry in Clinical Microbiology Practice** YI-WEI TANG, Memorial Sloan Kettering Cancer Center
- 11:10 (1640-5) **Image MS of Tissue Biopsies to Assess Diagnosis, Prognosis and Response to Therapies** PIERRE CHAURAND, University of Montreal

SYMPOSIUM

Session 1650

Emerging Frontiers in Laser Induced Breakdown Spectroscopy - arranged by Jagdish P Singh, Mississippi State University and Matthieu Baudelet, University of Central Florida**Thursday Morning, Room 116**

Jagdish P Singh, Mississippi State University, Presiding

- 8:30 **Introductory Remarks - Jagdish P Singh and Matthieu Baudelet**
- 8:35 (1650-1) **Laser Ablation Based Spectroscopic Analysis: Intelligent Elemental, Isotopic and Molecular Information Extraction**
RICHARD RUSSO, Lawrence Berkeley National Laboratory, Xianglei Mao, Vassilia Zorba, Jhanis Gonzalez, Jong Yoo
- 9:10 (1650-2) **LIBS: Application to National Security** JENNIFER L GOTTFRIED, US Army Research Laboratory
- 9:45 (1650-3) **Multi Modal Spectroscopy for In Situ Material Characterization** V K UNNIKISHNAN, Municipal Academy of Higher Education
- 10:20 **Recess**
- 10:35 (1650-4) **Dealing with the Matrix Effect in LIBS Analyses** JIN YU, Shanghai Jiao Tong University
- 11:10 (1650-5) **Laser Induced Breakdown Spectroscopy: Application to Gas Samples** JAGDISH P SINGH, Mississippi State University, Fang Yu Yueh, Kemal E Eseller

SYMPOSIUM

Session 1660

Ion Mobility Mass Spectrometry: The Next Revolution - arranged by Matthew F Bush, University of Washington**Thursday Morning, Room 117**

Matthew F Bush, University of Washington, Presiding

- 8:30 **Introductory Remarks - Matthew F Bush**
- 8:35 (1660-1) **New Capabilities Based Upon Ion Mobility Separations in Structures for Lossless Ion Manipulations with Mass Spectrometry** RICHARD D SMITH, Pacific Northwest National Laboratory
- 9:10 (1660-2) **Multidimensional Ion Mobility Enabled by Modular Design** MATTHEW F BUSH, University of Washington
- 9:45 (1660-3) **A Cyclic Ion Mobility - Mass Spectrometry Instrument with High Resolution and Multi-Function Capability** KEVIN GILES, Waters Corporation, Jakub Ujma
- 10:20 **Recess**
- 10:35 (1660-4) **Fourier Transform-Based Analysis Methods for Ion Mobility-Mass Spectrometry Characterization of Polydisperse Assembly Ions** JAMES STEPHEN PRELL, University of Oregon, Sean P Cleary, Jesse W Wilson

11:10 (1660-5) **Using Trapped Ion Mobility to Synchronize Ions in Data-Independent Acquisition (DIA) Mass Spectrometry** HANNES LUC ROST, University of Toronto, Max Frank, Florian Meier, Andreas Brunner, Scarlet Koch, Markus Lubeck, Oliver Raether, Ben Collins, Ruedi Aebersold, Matthias Mann

SYMPOSIUM

Session 1670

Modernizing the U.S. Pharmacopeia National Formulary - arranged by Jeffrey Scott Rohrer, Thermo Fisher Scientific and Leonel Marcelo Santos, United States Pharmacopeia

Thursday Morning, Room 123

Jeffrey Scott Rohrer, Thermo Fisher Scientific, Presiding

8:30 **Introductory Remarks - Jeffrey Scott Rohrer and Leonel Marcelo Santos**

8:35 (1670-1) **Harmonization of USP Chapter <621> Chromatography** HORACIO N PAPPA, US Pharmacopeia

9:10 (1670-2) **The Role of Ion Chromatography in USP Modernization** JEFFREY SCOTT ROHRER, Thermo Fisher Scientific

9:45 (1670-3) **Key Factors to Develop Stability Indicating Methods for Pharmaceutical Products** KIM HUYNHBA, Pharmalytik

10:20 **Recess**

10:35 (1670-4) **Implementation of the New Elemental Impurity Quality Standard** ERNEST PARENTE, Cardinal Health Regulatory Sciences

11:10 (1670-5) **United States Pharmacopeia Over-the-Counter Drug Product Monographs** LEONEL MARCELO SANTOS, United States Pharmacopeia

SYMPOSIUM

Session 1680

Nanomaterials for Advanced Optical Sensing - arranged by Zachary Schultz, Ohio State University and Richard L McCreery, University of Alberta

Thursday Morning, Room 124

Zachary Schultz, Ohio State University, Presiding

8:30 **Introductory Remarks - Zachary Schultz and Richard L McCreery**

8:35 (1680-1) **Raman Spectroscopy of Buried Interfaces in Molecular Electronic Devices, With and Without SERS** RICHARD L MCCREERY, University of Alberta, Scott R Smith, Anna K Farquhar, Mustafa Supur

9:10 (1680-2) **Toward Point-of-Need TB Diagnostics: A Merger of Nanomaterials, Solid-Phase Microextraction, and Surface-Enhanced Raman Scattering** MARC D PORTER, University of Utah, Jennifer H Granger, Nicholas A Owens, Alex Skuratovsky, Colin C Young, Lars Laurentius, Robert J Soto, Anita Amin, Prithwiraj De, Delphi Chatterjee

9:45 (1680-3) **Development of SERS and SESORRS for Multiplexed Bioanalysis** KAREN FAULDS, University of Strathclyde, Fay Nicolson, Duncan Graham, Hayleigh Kearns, Anastasia Kapara

10:20 **Recess**

10:35 (1680-4) **SERS Optophysiology on Nanofibers: Fabrication, Optical Properties and Applications in Monitoring Metabolites Near Cells** JEAN-FRANCOIS MASSON, University of Montreal

11:10 (1680-5) **Enhanced Raman Scattering from Amino Acids to Proteins** ZACHARY SCHULTZ, Ohio State University

SYMPOSIUM

Session 1690

Rapid Methods for Food Analysis - arranged by Katherine Carlos and Lowri DeJager, US FDA

Thursday Morning, Room 125

Katherine Carlos, US FDA, Presiding

8:30 **Introductory Remarks - Katherine Carlos and Lowri DeJager**

8:35 (1690-1) **Foreign Material Quantification in Agricultural Products Using NIR Based Seed Sorting** MARK ARLINGHAUS, General Mills Inc.

9:10 (1690-2) **Rapid Prediction of Major and Minor Food Constituents Using Hyperspectral Imaging: Applications on Cocoa Beans and Coffee Beans** NICOLA CAPORASO, University of Nottingham

9:45 (1690-3) **The Food Analysis Revolution on Your Smartphone** MICHEL NIELEN, Wageningen University and Research - RIKILT

10:20 **Recess**

10:35 (1690-4) **Use of SIFT-MS to Study Garlic Deodorization and Cacao Roasting** SHERYL BARRINGER, Ohio State University

11:10 (1690-5) **Rapid Evaporative Ionization Mass Spectrometry (REIMS) Platforms for Classification of Lamb Meat Flavor** JESSICA PRENNI, Colorado State University, Cody Gifford, Dale Woerner

SYMPOSIUM

Session 1700

Single Cell Genomic and Proteomic Analysis for Precision Medicine - arranged by Chaoyong Yang, Xiamen University

Thursday Morning, Room 115B

Chaoyong Yang, Xiamen University, Presiding

8:30 **Introductory Remarks - Chaoyong Yang**

8:35 (1700-1) **Droplets for Single Cell Genomics** YANYI HUANG, Peking University

9:10 (1700-2) **Highly Multiplexed and High-Throughput Analysis of Single Cells** DANIEL T CHIU, University of Washington

9:45 (1700-3) **Correlative Study of Human Brain Tumors Using Single-Cell Transcriptomes and Single-Cell Dynamics Tracking in a Microvasculature-on-a-Chip System** RONG FAN, Yale University

10:20 **Recess**

10:35 (1700-4) **A Paired-Seq Approach for High-Throughput Single-Cell Transcriptome Sequencing** CHAOYONG YANG, Xiamen University

11:10 **Abstract Was Not Available At Time Of Print**

ORGANIZED CONTRIBUTED SESSIONS

Session 1710

Analytical Testing of Antibody-Drug Conjugates in Pharmaceutical Development - arranged by Gregory K Webster, AbbVie and Laila Kott, Arbutus Biopharma Corp

Thursday Morning, Room 120B

Gregory K Webster, AbbVie, Presiding

8:30 (1710-1) **Assessment of Small Molecule Impurities in Antibody Drug Conjugates** MICHAEL T JONES, Pfizer Inc.

8:50 (1710-2) **Testing for Tween-80 in Antibody-Drug Conjugate Formulations** GREGORY K WEBSTER, AbbVie, Yong Chen, Matthew A Gragg

9:10 (1710-3) **Using Deconjugation to Analyze the Drug in Antibody Drug Conjugates** COLIN MEDLEY, Genentech, Inc., Yi Li

9:30 (1710-4) **Analytical Challenges of Process Development for ADCs from a Small Molecule Perspective** YANQUN ZHAO, AbbVie

9:50 **Recess**

10:05 (1710-5) **Development Strategies for IEX Separations of mAb's, ADC's and Other Complex Bio-Molecules** NORMAN LOUIS FISCHER, Pfizer Inc.

10:25 (1710-6) **Bioanalysis of Antibody-Oligonucleotide Conjugates** RACHEL JOHNS, Avidity Biosciences

10:45 (1710-7) **Outsourcing Antibody-Drug Conjugate Testing for Commercial Products: Contract Lab Selection, Method Transfer, and Contract Lab Monitoring** GREGG MONTEN, Seattle Genetics

11:05 (1710-8) **Analytical Challenges in Characterization of ADCs** DMITRY R GUMEROV, Mersana Therapeutics

ORGANIZED CONTRIBUTED SESSIONS

Session 1720

NIJ (National Institute of Justice) - Advancements in the Analysis of Forensic Evidence, Part II - arranged by Frances Scott, National Institute of Justice**Thursday Morning, Room 118A**

Frances Scott, National Institute of Justice, Presiding

8:30 (1720-1) **Chemometric Processing of Direct Analysis in Real Time (DART) Mass Spectrometric Data for the Identification and Classification of New Psychoactive Substances** RABI A MUSAH, University at Albany, SUNY, Kristen L Fowble, Samira Beyramysoltan, Meghan G Fogerty

8:50 (1720-2) **The Use of Gas Chromatography with Tandem Ultra Violet and Mass Spectrometric Detection for the Analysis of Fentanyl Analogs** IRA LURIE, George Washington University, Sydney Buchalder, Loan Marginean

9:10 (1720-3) **Retrospective Identification of Synthetic Cannabinoids and Novel Opioids in Forensic Toxicology Casework Using Archived Mass Spectrometry Data** AMANDA L A MOHR, Center for Forensic Science Research and Education, Alex Krotulski, David L Buzby, Barry K Logan

9:30 (1720-4) **Differences in Cannabis Impairment due to Route of Administration** MEGAN GRABENAUER, RTI International, Ryan Vandrey

9:50 Recess

10:05 (1720-5) **Identification of Mitragynine and Its Metabolites Using High Resolution Mass Spectrometry** STEPHANIE PAULINE BASILIERE, Sam Houston State University, Sarah Kerrigan

10:25 (1720-6) **Development of a Modern Compendium of Microcrystal Tests for Illicit Drugs and Diverted Pharmaceuticals** MEGGAN KING, McCrone Research Institute, Sebastian Sparenga, Gary Laughlin, Dean Golemis, Kelly Brinsko

10:45 (1720-7) **A Fully-Integrated Centrifugal Microfluidic Device for On-Site Colorimetric Detection of Explosives and Narcotics** SHANNON T KRAUSS, University of Virginia, Charles P Clark, Aeren Q Nauman, Ryan M Aubrey, Brian E Root, James P Landers

11:05 (1720-8) **A Novel Method for the Identification of Controlled Substances Using Photoluminescent Indicators and Its Implementation into a Portable System for Field Use** DAVID NASH, University of Central Florida, Richard Blair

ORAL SESSIONS

Session 1730

Bioanalytical Analysis Using LCMS**Thursday Morning, Room 120C**

8:30 (1730-1) **Protein Separations Using High Performance Large Pore Superficially Porous Particles: Optimization Strategies for MAb Variant Resolution** BARRY BOYES, Advanced Materials Technology, Ben Libert, Stephanie A Schuster, Brian Wagner, Conner McHale, William Miles

8:50 (1730-2) **Blocking Silanols' Effect with Thick Polymer Layer for MS-Compatible Protein Separations** RACHEL JACOBSON, Purdue University, Yunqian Zou, Mary J Wirth

9:10 (1730-3) **Development of Novel Mass Spectrometry Methods for the Determination of Drug to Antibody Ratio of Interchain Cysteine Linked Antibody Drug Conjugates** KE LI, Missouri University of Science and Technology, Zhiling Zhang, Zhongping (John) Lin, Yinfa Ma, Honglan Shi

9:30 (1730-4) **Micro Extraction by Packed Sorbent Coupled to Liquid Chromatography-Tandem Mass Spectrometry for the Analysis of Prostanoids and Isoprost in Dried Blood Spots of Preterm Newborns Suffering from Patent Ductus Arteriosus** DENISE BIAGINI, University of Pisa, Shaula Antoni, Silvia Ghimenti, Tommaso Lomonaco, Francesca G Bellagambi, Armando Cuttano, Rosa Teresa Scaramuzzo, Massimiliano Ciantelli, Fabio Di Francesco, Roger Fuoco

9:50 Recess

10:05 (1730-5) **Capillary Liquid Chromatography-Mass Spectrometry at 35,000 psi for the Separation and Identification of Lipids** MATT SORENSEN, University of Michigan, Kelsey Miller, James W Jorgenson, Robert T Kennedy

10:25 (1730-6) **Role of Nanoscale Interstitial Dimensions in Slip-Flow RPLC-MS with Gradient Elution** YUN YANG, Purdue University, Yiyang Zhou, Mary J Wirth

10:45 (1730-7) **Analysis of Isoprostanes in Oral Fluid Using Micro Extraction by Packed Sorbent Coupled to Liquid Chromatography - Tandem Mass Spectrometry to Monitor Oxidative Stress in Healthy Adults Performing Physical Activity** SILVIA GHIMENTI, University of Pisa, Denise Biagini, Tommaso Lomonaco, Shaula Antoni, Francesca G Bellagambi, Fabio Di Francesco, Roger Fuoco, Emilia Bramanti, Jean-Marie Galano, Camille Oger

11:05 (1730-8) **Simultaneous Detection of H3K79 Methylation States by Single Template Oriented Molecularly Imprinted Polymers (MIPs) Coupled with Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)-Based Targeted Proteomics** YUN CHEN, Nanjing Medical University

ORAL SESSIONS

Session 1740

Liquid Chromatography - Increasing Separation Speed**Thursday Morning, Room 121A**

8:30 (1740-1) **Enhancing the Performance of Nanoflow LC: Retention Time Reproducibility, Detection Limits, and Speed** LUKE T TOLLEY, Axcend Corporation, Xiaofeng Xie, Leena Milind Patil, Paul B Farnsworth, H Dennis Tolley, Milton L Lee

8:50 (1740-2) **An Online Microdialysis-HPLC Method for Sub-Minute Monitoring of Striatal Dopamine** KHANH T NGO, University of Pittsburgh, Andrea S Jaquins-Gerstl, Adrian C Michael, Stephen G Weber

9:10 (1740-3) **Fast Analysis of Haloacetic Acids, Bromate and Dalapon Using Ion Chromatography Coupled with Mass Spectrometry** CHARANJIT SAINI, Thermo Fisher Scientific, Christopher Pohl, Yan Liu

9:30 (1740-4) **The Column-in-a-Valve Solution to Minimize Extra-Column Band Broadening for High Speed 1D and Multi-Dimensional Separations** BART DEGREEF, Vrije Universiteit Brussel, Michael T Rerick, Vincent Pepermans, Stephen G Weber, Gert Desmet

9:50 Recess

10:05 (1740-5) **Evaluation of Screening Methodologies Using Superficially Porous Based Chiral Columns** WILLIAM LONG, Agilent Technologies, Anne Mack

10:25 (1740-6) **Fast Method Development and Acceleration of Existing Methods Using Narrow-Bore SPP UHPLC Columns** THOMAS J WAEGHE, MAC-MOD Analytical, Stephanie A Schuster, Conner McHale

10:45 (1740-7) **Evaluation of Newly Commercialized Sub-2 μ m Chiral Stationary Phases in SFC and HPLC** ZACHARY BREITBACH, AbbVie

ORAL SESSIONS

Session 1750

Liquid Chromatography in Food Science (Half Session)**Thursday Morning, Room 121B**

8:30 (1750-1) **Selectivity and Resolution Advantages of Superficially Porous Particles with C30 Stationary Phase** STEPHANIE A SCHUSTER, Advanced Materials Technology, Conner McHale, Richard A Henry

8:50 (1750-2) **High Resolution Separation of Vitamin E Isomers Using C30 HPLC Column** XUEFEI SUN, Thermo Fisher Scientific, Ilze Birznieks, Shanhua Lin, Qian Peng

9:10 (1750-3) **HPLC Method to Determine Trimethylamine in Fish Oil and Multivitamin Softgels** FAKHARY MINA, Pharmavite, Fang Xia, Mohamed Koroma

9:30 (1750-4) **Nutritional Sugar Analysis in Complex Food and Beverage Matrices** HARI NARAYANAN, Metrohm USA

ORAL SESSIONS

Session 1760

Microscopic Characterization of Biological and Pharmaceutical Materials**Thursday Morning, Room 121C**

8:30 (1760-1) **Accelerated Confocal Raman Imaging by Dynamic Sparse Sampling of Active Pharmaceutical Ingredients** ZHENG TIAN SONG, Purdue University, Shijie Zhang, G M Dilshan P Godaliyadda, Dong-Hye Ye, Gregory T Buzzard, Charles A Bouman, Garth J Simpson

8:50 (1760-2) **Quantification of E-Cadherin-Mediated Tensile Forces Using Digital Membrane DNA Tension Probe** BIN ZHAO, University of Massachusetts Amherst

9:10 (1760-3) **Towards Highly Sensitive Mid-Infrared Photothermal Microscopy Through Chemically-Selective Phase Contrast Imaging** CHEN LI, Purdue University, Changqin Ding, Fengyuan Deng, Garth J Simpson

9:30 (1760-4) **Green Synthesis of Silver, Zinc and Copper Nanoparticles from the Aqueous Extract of Spondias Mombin and Terminalia Ivorensis Leaves and Their Antibacterial Activity** DAVID KEHINDE ADEYEMI, University of Lagos, Oluwatosin O Johnson, Adebowale A Adeluola, Gloria A Ayoola

9:50 **Recess**

10:05 (1760-5) **SHG Microscopy of In Situ Accelerated Stability Testing Enabled by Lab Automation** SREYA SARKAR, Purdue University, Scott Griffin, Zhengtian Song, Garth J Simpson

10:25 (1760-6) **Bright Blue Boron-Based Nanoparticles for Labelling of Immune Cells** MAURA BELANGER, University of Virginia, Meng Zhuang, Kristen H Richey, Christopher A DeRosa, Rebecca R Pompano, Cassandra L Fraser

10:45 (1760-7) **In-Situ Confocal Rheology Studies of Stress Relaxation in Strain Stiffening Collagen Networks** KHANH-HOA TRAN-BA, Towson University, Laura J Kaufman, Stephen M Spinella

11:05 (1760-8) **Polarization-Dependent Imaging of Biological Samples Using a Microretarder Array** HILARY FLORIAN, Purdue University, Garth J Simpson, James Ulcickas, Geiger Andreas, Casey Smith, Alex Sherman

ORAL SESSIONS

Session 1770

Pharmaceutical Separations (Half Session)

Thursday Morning, Room 121B

10:05 (1770-1) **The Study of the Use of Relative Response Factor (RRF) in Potency Assay Analysis of Pharmaceutical Products and the Analysis of its Potential Impact Factors** LISA (SONG) LIU, Bayer Healthcare, Ariel Mouallem, Kangping Xiao

10:25 (1770-2) **A Novel Monolithic Column with Controlled Pore Structure and Its Applications in Virus Purification** CHEN HONG LIAO, Tantt, Min-Shyan Sheu, Sin Ji Chen

10:45 (1770-3) **Validation of an Improved Ion Chromatography Method for the Limit of Choline Test in the USP Succinylcholine Chloride Monograph** HUA YANG, Thermo Fisher Scientific

11:05 (1770-4) **HPTLC Method Validation and Quantification of Genistein - An Important Isoflavonoid from In Vitro and In Vivo Parts of Pueraria Tuberosa (ROXB. Ex Willd.) DC** ILLA C PATEL, Hemchandracharya North Gujarat University, Asha K Patel

ORAL SESSIONS

Session 1780

Portable Instruments

Thursday Morning, Room 122A

8:30 (1780-1) **Withdrawn**

8:50 (1780-2) **Accurate Opioid Identification Using Handheld Raman Spectroscopy** ADAM J HOPKINS, Metrohm USA

9:10 (1780-3) **Explosives Analysis with Portable Ion-Trap Gas Chromatography-Mass Spectrometry (GC-MS) for Battlefield Forensics** KAYLA MOQUIN, University of New Haven, Brooke Weinger Kammrath, Pauline Leary

9:30 (1780-4) **Future of Air Quality Monitoring with Miniaturized Trace Level VOC Analysis Technology** JUHO UOTILA, Gasera Ltd, Ismo Kauppinen

9:50 **Recess**

10:05 (1780-5) **Converting Conventional HPLC Methods to Portable Nanoflow LC** RAY WEST, Axcend Corporation, Milton Lee, Luke T Tolley, Xiaofeng Xie, Greg Ward

10:25 (1780-6) **PPM Analysis of Crystallinity within Amorphous Solid Dispersions by Triboluminescence** GARTH J SIMPSON, Purdue University, Casey Smith, Scott Griffin, Gregory S Eakins, Sengupta Atanu, Siwei Zhang, Julie Novak, Zhen Liu, Timothy Rhodes

10:45 (1780-7) **"Axial" Magnetic Levitation Using Ring Magnets Enables Simple Density-Based Analysis, Separation, and Manipulation** SHENCHENG GE, Harvard University

11:05 (1780-8) **Comparison of Contemporary Gas Chromatography and Vapor-Phase Photoacoustic Spectroscopy for Remote Gas Analysis** JOHN V HINSHAW, Serveron, Steve Mahoney

ORAL SESSIONS

Session 1790

Practical Aspects of LIMS Selection and Implementation

Thursday Morning, Room 122B

8:30 (1790-1) **Lab Automation: A Practical Guide to Selecting the Right LIMS** CHRISTINE PASZKO, Accelerated Technology Laboratories, Laura Lee Williford

8:50 (1790-2) **Lab Automation Case Study: Our Journey to a New LIMS** BOB WANDRO, Silicon Valley Clean Water, Ken Ochi

9:10 (1790-3) **The LIMS Project: Putting Together a Winning Team** SCOTT KRIEGER, Accelerated Technology Laboratories, Dylan Clark

9:30 (1790-4) **Cutting Corners for Informatics Implementations: A Reality or Dream?** ALEXIOS CHRONIS, CSols, Inc.

9:50 **Recess**

10:05 (1790-5) **LIMS: Beyond Sample Testing and Tracking** STACEY BREWER, Accelerated Technology Laboratories, Steve Wesson

10:25 (1790-6) **Enhancing User Experience Through Effective LIMS UI Design** ANTHONY JOHN LISI, CSols, Inc.

10:45 (1790-7) **Getting More from Your LIMS and Knowing When It's Time to Upgrade** LAURA LEE WILLIFORD, Accelerated Technology Laboratories, Steve Wesson

11:05 (1790-8) **LIMS Customization is Greed, and Greed is Good** CHRISTOPHER H PETTY, CSols, Inc.

ORAL SESSIONS

Session 1800

Spectroscopic and Physical Characterization of Materials

Thursday Morning, Room 126A

8:30 (1800-1) **Advanced Features of Elemental Analysis Techniques for Direct Solids Analysis on Challenging Samples: ETV-ICP, Inert Gas Fusion Techniques, Glow Discharge** MATTHIEU CHAUSSEAU, HORIBA Scientific, Philippe Hunault, Kayvon Savadkouei

8:50 (1800-2) **Vibrational Spectroscopy of Charge Transfer State Stability in Doped Organic Semiconductor Films** KRISTEN WATTS, University of Arizona, Bharati Neelamraju, Erin Ratcliff, Jeanne Pemberton

9:10 (1800-3) **New Certified Reference Materials for Metal Alloy Additive Manufacturing** DAVID COLER, Analytical Reference Materials, Mitchell Planty

9:30 (1800-4) **Platinum End Capped Gold Nanorods Coupled with PbZrTiO₃ Particles for Efficient Hydrogen Production Using Near IR Light** VINEET KUMAR, North Carolina State University

9:50 **Recess**

10:05 (1800-5) **Trace Analysis in Acetonitrile for the Detection of ZnO, A Proof of Concept for the Analysis of Metal Oxide Nanoparticles** MARIO A ALPUCHE-AVILES, University of Nevada, Reno, Salvador Gutierrez-Portocarrero, Nelum Karunathilake

10:25 (1800-6) **Analytical and Spectroscopic Methods for the Characterization of Desalination Thin Film Nanocomposite Membranes** AHMED OMAIA RASHED, The American University in Cairo, Adham Ramadan, Amal Esawi

10:45 (1800-7) **Calorimetry of Atomic Layer Deposition Half-Reactions** ALEX MARTINSON, Argonne National Laboratory, Charles Campbell, In Soo Kim, James Lownsbury, James Gladden

11:05 (1800-8) **Dehydration Chemistry of Cement Studied by Thermogravimetric Analysis** ALFRED ANTONY CHRISTY, University of Agder, Dawid Stawski

POSTER SESSION

Session 1810

All posters are to be mounted by 10:00 AM and remain on display until 12:30 PM. Authors must be at their posters from 10:00 AM to 12:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Analytical Chemistry Education

Thursday Morning, Room Expo floor, back of aisles 1500-2300

(1810-1 P) **Excel(R) in the Laboratory - Not Just Plotting Data** SCOT DAVID ABBOTT, Phoenix

(1810-2 P) **Monitoring Water Quality of the Lackawanna River in Northeastern Pennsylvania: Involving Middle School Students in Environmental Analytical Chemistry** MARY LYNN GRAYESKI, Marywood University, Karen Donati

(1810-3 P) **The Effect of Digestion Method on Quantitation of Selected Metals in Tea Types by Flame Atomic Absorption Spectrometry: Preliminary Results From a Laboratory Project for Instrumental Analysis** MARK THOMAS STAUFFER, University of Pittsburgh at Greensburg, Adam A Andrekanic, Brandin M Adams, Danyaal A Alam, Nicholas A Frankos, Michelle L Lofink, Alexa C Martin, Daniel C Starr

(1810-4 P) **Summary of Results Obtained From a Study of Mine Drainage Remediation Facility in Southwestern Pennsylvania: A Research and Service Project for Secondary-Level and Undergraduate Science Students** MARK THOMAS STAUFFER, University of Pittsburgh at Greensburg, Shreya D Gulati

(1810-5 P) **Charting the Elements in Early 20th-Century General Chemistry Textbooks** PAULO ALVES PORTO, Universidade de São Paulo

POSTER SESSION

Session 1820

All posters are to be mounted by 10:00 AM and remain on display until 12:30 PM. Authors must be at their posters from 10:00 AM to 12:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Art and Archaeology

Thursday Morning, Room Expo floor, back of aisles 1500-2300

(1820-1 P) **Compositional Analysis and Radiocarbon Dating of the Rock Art of Guara, Cuba** RUTH ANN ARMITAGE, Eastern Michigan University, Sylvia Torres

(1820-2 P) **Ambient Ionization Mass Spectrometric Approaches for Analyses of Ancient Textiles** RUTH ANN ARMITAGE, Eastern Michigan University, Jennifer Campos Ayala

(1820-3 P) **Resonance Raman Analysis of Korean Traditional and Modern Pigment** CHANG HYUN BAE, Kookmin University, An Se Hyeong, Chang Suk Lee, Chan Ryang Park, Gyu Ho Kim, Hyung Min Kim

(1820-4 P) **The Analysis of Historic Paper Using Inductively Coupled Plasma-Optical Emission Spectroscopy to Determine Trace Metal Composition for Preservation Purposes** THOMAS SPUDICH, Maryville University, Kelsey Vancil, Beronika Levitchin, Eric B Monroe

POSTER SESSION

Session 1830

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Clinical/Toxicology

Thursday Morning, Room Expo floor, back of aisles 1500-2300

(1830-1 P) **Circular Bifunctional Aptamer for Enhanced Blood-Brain-Barrier Penetration and Tauopathy Therapy** XIAOWEI LI, University of Florida, Zhihui Yang, Ying Jiang

(1830-2 P) **Measuring Binding Kinetics of Nanomaterials With Protein Coronas via Radical Species Formation** ROXANA COREAS, University of California, Riverside, Zhong Wenwan

(1830-3 P) **Analytical Determination of Drugs in Serum Using a Triple Quadrupole LC/MS** JAROD GROSSMAN, Agilent Technologies

(1830-4 P) **Amelioration of Over Expression of Bax and Bcl2 in Nano Sized Copper Oxide-Induced Oxidative Liver Injury and Apoptosis in Rats by Potent Antioxidants** SAMY ABDEL FATAH ABDEL AZIM, Cairo University
SAMY ABDEL FATAH ABDEL AZIM, Cairo University, Ahmed A Fatah, Abdel Moneim R Afify

(1830-5 P) **Forensic Toolbox Using Biocatalytic Analysis of Biomarkers for the Identification of Biological Sex, Ethnicity, Time of Deposition and Age** AUDREY JEANNE AULELEY, University at Albany, SUNY, Jan Halamek

(1830-6 P) **Development and Implementation of an Ultra-Trace Level Detection Method Using LC/MS/MS for the Quantitation of Thyroxine Isomers and Metabolites for In Vitro Toxicology Screening** JEREMY MCFADDEN, Corteva AgriSciences, Mercedes Biven, David Hills, David Robbins, Jessica LaRocca, Bethany Hannas, Lisa Buchholz, Audrey Lehman

(1830-7 P) **Rapid Testing of Seven Lysosomal Storage Disorders Using a Self-Cleaning ESI Source: An improvement for the Newborn Screening Laboratory** SARA ELIZABETH SMITH, PerkinElmer, James DiPerna, Joe Trometer, Alyssa Vranish, Tsun Au Yeung, Michael H Gelb, C Ronald Scott, Frantisek Turecek, Yang Liu, Naveen Chennamaneni, Arun Kumar, Joyce Liao

POSTER SESSION

Session 1840

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Food Science

Thursday Morning, Room Expo floor, back of aisles 1500-2300

(1840-1 P) **C30 Modified Superficially Porous Particle Columns for Food and Supplement Applications** CONNER MCHALE, Advanced Materials Technology, Stephanie A Schuster, Jason Lawhorn

(1840-2 P) **Rapid Separation of Fatty Acid Methyl Esters** GUSTAVO SERRANO IZAGUIRRE, Agilent Technologies, Phil Stremple, Yun Zou

(1840-3 P) **Vacuum Ultraviolet Spectroscopy as a New Tool for GC Analysis of Terpenes in Flavors and Fragrances** ALEX HODGSON, VUV Analytics, Inc., Jack Cochran

(1840-4 P) **Analyzing a Wide Variety of Food, Flavor, and Fragrance Sample Types with a Single GCxGC-MS Method Using a New Flow-Based Modulator** ELIZABETH M HUMSTON-FULMER, LECO Corporation, Joseph E Binkley, Lorne M Fell

(1840-5 P) **New Opportunities for Wine Analysis Through SPME Arrow and GC-MS/MS** CÉLINE FRANCO, University of Bordeaux, Justine Laboyrie, Maria Tiziana Lisanti, Picard Magali, Stéphanie Marchand, Gilles De Revel, Giulia Riccardino, Davide Bressanello, Manuela Bergna, Daniela Cavagnino

(1840-6 P) **Quantitative GC-VUV Analysis of Essential Oil Terpenes Using Time Interval Deconvolution** ALEX HODGSON, VUV Analytics, Inc.

(1840-7 P) **Volatile Profile Comparison of Flavored and Non-Flavored Vodkas by Purge & Trap Thermal Desorption GC/MS** RONALD EDWARD SHOMO, Scientific Instrument Services

(1840-8 P) **Correlating Consumer Sensory Experience from Apple Aroma with VOC Profiles Acquired by Automated TD GC-MS** GARETH M ROBERTS, Markes International, Natasha Spadafora, Massimo Santoro, Claire Keller, Patricia Ballard, Nicola Watson

(1840-9 P) **Moisture and Total Solid Determination of Milk-Based Products Comparing Automated Thermogravimetric and Air Oven Loss-on-Drying Techniques** MASON R MARSH, LECO Corporation, Jenifer Laurin, Adam Darling

(1840-10 P) **Evaluation of the Translocation, Accumulation and Remediation of Selenium and Mercury in Pink (*Pleurotus Djamor*) and White Oyster (*Pleurotus Ostreatus*) Mushrooms** ALINE OLIVEIRA, Federal University of São Paulo, Juliana Naozuka

(1840-11 P) **Process Optimization and Validation of Vitamins K1, D2 and D3 via Online SFE / SFC / MS-MS Analysis** GREGORY J ROBINSON, Shimadzu Scientific Instruments, Dan Hengst, Chad Scheuerell

(1840-12 P) **Nitrogen/Protein Determination of Spirulina Algae by Dumas Method** MICHAEL STALKER, CE Elantech, Francesco Leone, Guido Giuzzi, Liliana Krotz

(1840-13 P) **Comparative Assessment of Catechin and Gallic Acid Content in Different Brands of Black and Green Tea** BASSAM ALFARHANI, University of Al-Qadisiyah

(1840-14 P) **An Accurate, Fast Method for Determination of Ethanol in Kombucha** BILL YAWNEY, Aqua Vitea, Lee Marotta

POSTER SESSION

Session 1850

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Fuels, Energy and Petrochemical Analysis

Thursday Morning, Room Expo floor, back of aisles 1500-2300

(1850-1 P) **Identification and Quantitation of Sugar Components Throughout the Corn-to-Ethanol Fermentation Process by LC-MS** SARAH E BILSKEY, Southern Illinois University Edwardsville, Kevin R Tucker, Yanhong Zhang

(1850-2 P) **Measuring Corrosive Gasses Using Gas Chromatography (GC) Techniques in Pipeline Products** CHRIS RENE GOSS, InnoTech Alberta, Amanda R Prefontaine, Lee Marotta

(1850-3 P) **Petroleum Biomarkers Around the World: Fingerprinting Crude Oils** CHRISTINA N KELLY, LECO Corporation, Joseph E Binkley, Robert K Nelson, Lorne M Fell

(1850-4 P) **Recycling Metals in Waste Lithium Ion Batteries Using Titanosilicate ETS-10** XUEYI ZHANG, Penn State University, John Bricker, Jay Thakkar, Nicholas Dudenas, Blaine Wissler, Nikhil Narayanan

(1850-5 P) **3-D Graphene-Doped Carbon Felt Anodes Boost Electric Current Generation in Microbial Fuel Cells Fed with Wastewater** MOHAMED MAHMOUD, National Research Centre

(1850-6 P) **Orthogonal Selectivity for Separation of Light and Heavy Petroleum Hydrocarbons by GCxGC** RAMKUMAR DHANDAPANI, Phenomenex

POSTER SESSION

Session 1860

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Microfluidics/Lab-on-a-Chip

Thursday Morning, Room Expo floor, back of aisles 1500-2300

(1860-1 P) **Detecting Bladder Cancer Through Quantifying Urinary Survivin by Automated Microfluidic ELISA** WENYI LIU, University of Michigan, Xiaotian Tan, Xudong Fan

(1860-2 P) **Microfluidic Hepatocyte Bioreactor with Automated Perfusion and Online Detection of Hepatic Glucose Output** ANNA G ADAMS, Florida State University, Michael G Roper

(1860-3 P) **Development of Immunoaffinity Extraction Monoliths for Preterm Birth Biomarkers in 3D Printed Microfluidic Devices** HAIFA M ALMUGHAMSI, Brigham Young University, Ellen Parker, Gregory P Nordin, Adam T Woolley

(1860-4 P) **3D-Printed Microfluidics for Insert-Based 3D Cell Culture** ALEXANDRA D HARRISON, Saint Louis University, R Scott Martin

(1860-5 P) **Development of a Nanoliter-Volume Displacement Immunoassay Using Antibody-Coated Beads Confined to a Microfluidic Rotary Mixer** HUI JIN, Auburn University, Christopher J Easley

(1860-6 P) **Human Transferrin Receptor (CD71)-Based Cell Capture for Pan-Cancer Detection in Liquid Biopsies** VERONICA LYONS, Texas Tech University, Bhagya Wickramaratne

(1860-7 P) **Structural Characterization of Synthetic Lipid Vesicles by Taylor Dispersion Analysis with Two-Point Fluorescence Detection** MEAGAN RHYNE, University of Tennessee, Christopher A Baker

(1860-8 P) **PolyJet 3D Printing of Microfluidic Channels with No Post-Processing Steps** ANDRE CASTIAUX, Saint Louis University, R Scott Martin, Dana Spence, Cody Pinger, Marcus Bunn

(1860-9 P) **Improving Paper-Based Microfluidic Mixing by the Incorporation of Flow Disrupting Structures** HANNAH C GREEN, Louisiana Tech University, Bryant Hollins

(1860-10 P) **Microfluidic Bead-Based Immunoassay Platform Enabled by Coupled Acoustic Streaming** ZIYI HE, West Virginia University, Xiaojun Li, Justin Huffman, Peng Li

(1860-11 P) **A 3D-Printed Microfluidic Platform for Studying Cell-to-Cell Communication** CODY PINGER, Michigan State University, Dana Spence

(1860-12 P) **Enhancements to Novel 3D-Printed Membrane Inserts for Use in a 3D-Printed Two-Compartment Model for Antibiotic Susceptibility Determination of Bacteria** ANDREW A HELLER, Michigan State University, Dana Spence

(1860-13 P) **Hydrodynamic Detachment of Proteins in a Sinusoidal Microchannel** JESSANNE Y LICHTENBERG, Baylor University, Stanley Ling, Seung Kim

(1860-14 P) **Automated Microfluidic Droplet Generation and Merging with Integrated Salt-Water Electrodes for Droplet-Based Recombinase Polymerase Amplification (RPA)** NAN SHI, Auburn University, Christopher J Easley

(1860-15 P) **Single Cell DNA Amplification On-Chip for Reduced Sequencing Bias** HARVEY C TIAN, Cornell University, Harold G Craighead

(1860-16 P) **"Extreme Microfluidics" Label-Free of Sorting of Extremely Rare Circulating Tumor Cells and Clusters** MEHMET TONER, Massachusetts General Hospital

POSTER SESSION

Session 1870

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Nanoscience

Thursday Morning, Room Expo floor, back of aisles 1500-2300

(1870-1 P) **Thermal Stability of Novel Food Active Packaging Materials Based on Biodegradable Polymer/Metallic Nanoparticles and Clay Nanocomposites** BENHACINE FAYCAL, University of Sciences and Technology - Houari Boumediene, Metref Farid, Hadj-Hamou Assia Siham

(1870-2 P) **Comparison of Asymmetrical Flow Field-Flow Fractionation Coupled with Dynamic Light Scattering and Dynamic Light Scattering in Batch Mode for Sizing of Polydisperse Silver Nanoparticle Suspensions** ROBERT REED, Postnova Analytics Inc., Soheyl Tadjiki, Florian Meier, Roland Drexel

(1870-3 P) **Exploring the Electrochemical Surface Area-to-Volume Ratios and Oxidation Behavior of Surface-Attached Metal Nanoparticles for Different Assembly Methods and Electrode Materials** JAY SHARMA, University of Louisville, Dhruva Kumar Pattadar, Badri Prasad Mainali, Francis P Zamborini

(1870-4 P) **Objective Pain Analysis Using Nanostructured Biosensors** RISHANA NKECHI UBAH, Binghamton University, Omowunmi Sadik

(1870-5 P) **Electrochemical Signaling of 5-Enolpyruvylshikimate-3-Phosphate Synthase GMO Plant Biomarker** PETER M NDANGILI, Technical University of Kenya, Priscilla G Baker, Emmanuel I Iwuoha

(1870-6 P) **Synthesis and Analytical Characterization of Controlled Release Nanosized Polymeric Composites Holding Doxorubicin and Rosemary** FAHIMA MOSAAD HELALY, National Research Centre

(1870-7 P) **Single Ag Nanoelectrodes: Preparation and Electrochemistry** YONGXIN LI, Anhui Normal University, Hongmei Hua, Yong Liu

(1870-8 P) **Plasmonic Study Molecular Spacer Limitation on Substitution and Bioconjugation on Gold Nanoparticles** PAOLA CORIO, USP, Raísa L Silveira, Mónica Mamián-López, Joel C Rubim, Marcia L Temperini, Jonnatan J Santos

(1870-9 P) **A Self-Assembled Aptamer-Hyperbranched Polymer Nanocarrier for Target and Photoresponsive Drug Delivery** LU YANG, University of Florida

(1870-10 P) **Polydopamine-Coated Gold Nanostars as a Tumor-Targeted Photothermal/Drug Delivery Nanopatform for Combined Tumor- and Neovascular- Therapy** YU-FEN HUANG, National Tsing Hua University, You-Hong You

(1870-11 P) **Using Static Multiple Light Scattering to Monitor Stability and Particle Size of Concentrated Dispersions** MATT VANDEN EYNDEN, Formulation, Inc., Christelle Tisserand, Roland Ramsch, Jeremy Cohen, Pascal Bru, Gerard Meunier

(1870-12 P) **Novel Approach for the Characterization of Suspension Properties of Aluminum Salts in Vaccines** MATT VANDEN EYNDEN, Formulation, Inc., Christelle Tisserand, Pascal Bru, Gerard Meunier

(1870-13 P) **Formulation and Evaluation of Transdermal Patch Containing Poly-(Lactide-Co-Glycolide) Nanoparticles of Sumatriptan Succinate for Management of Migraine** PRAMOD SHRIDHAR SALVE, Rashtrasant Tukadoji Maharaj Nagpur University

THURSDAY, MARCH 21, 2019

AFTERNOON

SYMPOSIUM

Session 1880

3D Printing in Analytical Instrumentation - arranged by Adam Woolley, Brigham Young University and Dana Spence, Michigan State University

Thursday Afternoon, Room 115B

Adam Woolley, Brigham Young University, Presiding

1:30 **Introductory Remarks - Adam Woolley and Dana Spence**

1:35 (1880-1) **Miniaturizing 3D Printed Microfluidics for Highly Integrated Device Fabrication** GREGORY P NORDIN, Brigham Young University, Adam T Woolley

2:10 (1880-2) **3D Printing and the Possibility to Manufacture Portable Microchemical Analysis Devices** MICHAEL BREADMORE, University of Tasmania

2:45 (1880-3) **Use of 3D Printing and Modular Microfluidics to Integrate Cell Culture with Electrochemical Analysis** R SCOTT MARTIN, Saint Louis University

3:20 **Recess**

3:35 (1880-4) **The Art of 3D-Printing Biocompatible Microfluidics** ALBERT FOLCH, University of Washington - Seattle

4:10 (1880-5) **Polyjet 3D-printing: Our Own Personal Bio-based Machine Shop** DANA SPENCE, Michigan State University, Cody Pinger, Marcus Bunn, Andre Castiaux

SYMPOSIUM

Session 1890

Analytical Cannabis II - arranged by Joshua Crossney, jCanna, Inc.

Thursday Afternoon, Room 115A

Joshua Crossney, jCanna, Inc., Presiding

1:30 **Introductory Remarks - Joshua Crossney**

1:35 (1890-1) **Determination of Potency and Pesticides in Hemp and Cannabis Products Using a Single Quadrupole Mass Spectrometer Equipped with Diverse Sample Introduction Methods** JACK HENION, Advion, Inc, Ben Nie

2:10 (1890-2) **Testing for Metals in Cannabis Using ICP-MS** ANDREW FORNADEL, Shimadzu Scientific Instruments, Daniel Davis, Robert Clifford, Scott Kuzdzal

2:45 (1890-3) **Guidelines and State Requirements for a Safe and Effective Product** LORI DODSON, Maryland Medical Cannabis Commission

3:20 **Recess**

3:35 **Abstract Was Not Available At Time Of Print**

4:10 **Abstract Was Not Available At Time Of Print**

SYMPOSIUM

Session 1900

Automation in the Research and Development Laboratory: From Academia to Industry - arranged by Kaitlin Grinias, GlaxoSmithKline and Marcelo Filgueira, Dow Chemical Company

Thursday Afternoon, Room 115C

Kaitlin Grinias, GlaxoSmithKline, Presiding

1:30 **Introductory Remarks - Kaitlin Grinias and Marcelo Filgueira**

1:35 (1900-1) **Discovering Novel Solar Cell Materials Using 'Robot-Ready' Reactions and Machine Learning** JOSHUA SCHRIER, Fordham University

2:10 (1900-2) **High-Throughput Implementation of Gas Chromatography with Automated Sample Preparation** MARCELO FILGUEIRA, Dow Chemical Company, Reetam Chakrabarti, Marie Devlin, Francois Huby

2:45 (1900-3) **Fully Automated High Throughput Sample Preparation for Peptide Map Analysis** DANIEL SCHUESSLER, GlaxoSmithKline

3:20 **Recess**

3:35 (1900-4) **A Microscale Droplet Tool for Automated Reaction Screening Targeted at Pharmaceutical Process Development** MICHAEL WLEKLINSKI, Eli Lilly and Company, Brandon J Reizman, Nicholas A Magnus

4:10 (1900-5) **Mapping the Dark Space of Chemical Reactions with Extended Nanomole Synthesis and MALDI-TOF MS** SHISHI LIN, Merck & Company, Inc., Spencer D Dreher, Christopher J Welch, Huaming Sheng, Sergei Dikler

SYMPOSIUM

Session 1910

Challenges in Surface Vibrational Spectroscopy - arranged by Colin Bain, Durham University and Takeshi Hasegawa, Kyoto University

Thursday Afternoon, Room 116

Colin Bain, Durham University, Presiding

1:30 **Introductory Remarks - Colin Bain and Takeshi Hasegawa**

1:35 (1910-1) **Raman Imaging** COLIN BAIN, Durham University, Mario Possiwan

2:10 (1910-2) **Investigating Interfacial Biomolecules Using Broadband Vibrational Sum-Frequency Generation Spectroscopy at Laser Repetition Rates up to 100 kHz** ZSUZSANNA HEINER, Humboldt University of Berlin, Mark Mero, Janina Kneipp, Freeda Yesudas

2:45 (1910-3) **Emerging Applications of ATR-FTIR Spectroscopic Imaging in Surface Science** SERGEI KAZARIAN, Imperial College London

3:20 **Recess**

3:35 (1910-4) **Which Shall We Choose pMAIRS or MAIRS2 for a Thin-Film Analysis?** TAKESHI HASEGAWA, Kyoto University

4:10 (1910-5) **Surface-Enhanced 2DIR Spectroscopy Promoted by Plasmonic Nano-Arrays** IGOR V RUBTSOV, Tulane University, Robert T Mackin, Bar Cohn, Lev Chuntunov

SYMPOSIUM

Session 1920

Journal of Proteome Research: Advancing Measurement of the Structural Proteome - arranged by John Robert Yates, The Scripps Research Institute

Thursday Afternoon, Room 120A

John Robert Yates, The Scripps Research Institute, Presiding

1:30 **Introductory Remarks - John Robert Yates**

1:35 (1920-1) **In-Cell Protein Footprinting: A Tool for Structural Biology** LISA M JONES, University of Maryland

2:10 (1920-2) **Molecular Painting of the Proteome** JOHN ROBERT YATES, Scripps Research

2:45 (1920-3) **Development of an Integrated Platform for MS-Guided Structural Biology** VICKI WYSOCKI, Ohio State University

3:20 **Recess**

3:35 (1920-4) **Proteomic Methods and Applications for Protein Folding and Stability Measurements** MICHAEL C FITZGERALD, Duke University

4:10 (1920-5) **Ion Mobility-Mass Spectrometry for Structural Proteomics: From Collision Induced Unfolding to Top-Down Sequencing** BRANDON RUOTOLO, University of Michigan

SYMPOSIUM

Session 1930

MS Based Label-Free High-Throughput Bioanalysis for Drug Discovery - arranged by Sammy Datwani, Labcyte

Thursday Afternoon, Room 117

Sammy Datwani, Labcyte, Presiding

1:30 **Introductory Remarks - Sammy Datwani**

1:35 (1930-1) **High Throughput Analysis in Drug Discovery: Utilizing Rapid Diagnostics with Ion Mobility-Mass Spectrometry** JAMES N DODDS, North Carolina State University, Erin S Baker

2:10 (1930-2) **High Throughput Experiments with SAMDI Mass Spectrometry** MILAN MRKSICH, Northwestern University

2:45 (1930-3) **Application of Acoustic Mist Ionization Mass Spectrometry for Metabolic Profiling** JONATHAN WINGFIELD, AstraZeneca

3:20 **Recess**

3:35 (1930-4) **Utility of a Novel Acoustic Mist Ionization Mass Spectrometry-Based Interface in Early Drug Discovery: Delivery of a Preliminary Screen** ARSENIY BELOV, GlaxoSmithKline, Guofeng Zhang, Melanie Leveridge, Luke Ghislain, Sammy S Datwani, Roland Annan

4:10 (1930-5) **Label-Free High-Throughput ESI-MS Enabled by the Acoustic Droplet Ejection to the Open-Probe Probe Sampling Interface** HUI ZHANG, Pfizer Inc., Chang Liu, Hua Wenyi, Luke Ghislain, Tom Covey, Sammy S Datwani

SYMPOSIUM

Session 1940

Smart Materials for Biological Sensing - arranged by Shana Kelley, University of Toronto and Leyla Soleymani, McMaster University

Thursday Afternoon, Room 118A

Leyla Soleymani, McMaster University, Presiding

1:30 **Introductory Remarks - Leyla Soleymani and Shana Kelley**

1:35 (1940-1) **Soft, Skin-Integrated Microfluidic Systems for Capture, Storage and Biomarker Analysis of Sweat** JOHN ROGERS, Northwestern University

2:10 (1940-2) **Profiling Cells Inside and Out Using Magnetic Nanoparticles** SHANA KELLEY, University of Toronto

2:45 (1940-3) **Multi-Length Scale Materials for Biosensing** LEYLA SOLEYMANI, McMaster University

3:20 **Recess**

3:35 (1940-4) **Stimuli-Responsive Functional DNA Nanomaterials with Enhanced Sensitivity and Selectivity for Biomedical Applications** YI LU, University of Illinois at Urbana-Champaign

4:10 (1940-5) **Smart Materials for Simultaneous Glucose Sensing and Insulin Delivery** FRANCES S LIGLER, North Carolina State University and University of North Carolina at Chapel Hill, Zhen Gu

SYMPOSIUM

Session 1950

Whole Genome Sequencing: Current Instrumentation, Impact, and Application in the Food Safety Arena - arranged by Eric W Brown, US Food and Drug Administration and Jonathan DeVries, DeVries & Associates

Thursday Afternoon, Room 118B

Eric W Brown, US Food and Drug Administration, Presiding

1:30 **Introductory Remarks - Eric W Brown**

1:35 (1950-1) **Sequence-Based Subtyping, Metagenomics and Transcriptomics for Salmonella Characterization** ERIC W BROWN, US Food and Drug Administration, Marc W Allard

2:10 (1950-2) **A Whole Genome Sequencing Network for Real-Time Characterization and Source Tracking of Foodborne Pathogens** MARC W ALLARD, US Food and Drug Administration, Eric W Brown

2:45 (1950-3) **Whole Genome Sequencing for Food Safety in the Context of Student Training** EDWARD DUDLEY, Penn State University

3:20 **Recess**

3:35 (1950-4) **The Application of "Next Generation" Sequencing in Metagenomics** SAMUEL PETER MYODA, IEH Laboratories & Consulting Group

4:10 (1950-5) **Regulatory and Surveillance Applications for Use of WGS Data - How the Data is Changing the Way We Assess Regulatory Compliance and Food Safety Hazards** STEPHANIE DEFIBAUGH-CHAVEZ, USDA

WORKSHOPS

Session 1960

Saliva Analysis: Non-Invasive Technologies for Drug Testing, Diagnosing Infection, and Assessing Inflammatory and Health Status - arranged by Fabio Di Francesco, University of Pisa

Thursday Afternoon, Room 120C

Fabio Di Francesco, University of Pisa, Presiding

1:30 **Introductory Remarks - Fabio DiFrancesco**

1:35 (1960-1) **Salvia Tests: Application to Drug and Health Care Monitoring** FABIO DI FRANCESCO, University of Pisa, Tommaso Lomonaco, Silvia Ghimenti, Denise Biagini, Francesca G Bellagambi, Shaula Antoni, Roger Fuoco

1:55 (1960-2) **Effect of Sampling Procedures for the Chemical Characterization of Oral Fluid in Clinical Applications** TOMMASO LOMONACO, University of Pisa, Silvia Ghimenti, Denise Biagini, Francesca G Bellagambi, Shaula Antoni, Fabio Di Francesco, Roger Fuoco

2:15 (1960-3) **Development of Quantum Dots based Optical Sensor for the Measurement of Glucose in Saliva** KIM KING-TONG LAU, Xi'an Jiaotong-Liverpool University

2:35 **Recess**

2:50 (1960-4) **Development and Validation of an HPLC-MS/MS Method for the Detection of Oxidative Stress Biomarkers in Saliva: Clinical Applicability** ISABEL TORRES-CUEVAS, IIS la Fe, Consuelo Chafer, Carmen Peña, Maximo Vento

3:10 (1960-5) **Point-of-Care Diagnostics in Human Bodily Fluids for Pathogens and Biomarkers of Disease** DEVON CAPRA PAWLEY, University of Miami, Emre Dikici, Greg O'Connor, Mara Mirasoli, Aldo Roda, Sapna Deo, Sylvia Daunert

WORKSHOPS

Session 1970

The Latest Developments in (U)HPLC Column Technology - arranged by Jason Anspach, Phenomenex

Thursday Afternoon, Room 120B

Jason Anspach, Phenomenex, Presiding

1:30 **Introductory Remarks - Jason Anspach**

1:35 (1970-1) **Monolithic Chromatography Revisited: Not Just for Small Molecules Anymore** CORY E MURACO, MilliporeSigma, Michael Ye

1:55 (1970-2) **A Hybrid HILIC and Anion-Exchange HPLC Column for Separation of Polar Compounds** XIAONING LU, Restek Corporation

2:15 (1970-3) **Improving the Sensitivity of LC-MS Quantitation in Bioanalysis with MicroLC** REMCO VAN SOEST, SCIEX

2:35 **Recess**

2:50 (1970-4) **Investigating Different Column Hardware Materials for Bio-Inert Flow Paths in (U)HPLC** JASON ANSPACH, Phenomenex, Srinivasa Rao, Dean Campbell, Tran Lynn, Brian Rivera

3:10 (1970-5) **Ultra-High Resolution Semi-Preparative Liquid Chromatography Application to Impurity Identification in Drug Samples** FABRICE GILLES GRITTI, Waters Corporation

3:30 (1970-6) **Achieving Ultra-High Peak Capacities with Pillar Array Columns** WIM DE MALSCHE, Vrije Universiteit Brussel, Martyna Baca, Gert Desmet, Heidi Ottevaere

ORAL SESSIONS

Session 1980

'Omics: From A-Z and Every Application in Between

Thursday Afternoon, Room 118C

1:30 (1980-1) **High Performance GC- and GCxGC-TOFMS Metabolomics-Based Approach for the Discovery of Potential Cancer Biomarkers in Plasma** DAVID E ALONSO, LECO Corporation, Joseph E Binkley

1:50 (1980-2) **Mass Spectrometry-Based Metabolomics of *Arabidopsis thaliana* Exposed to Copper Oxide Nanoparticles** NITAGABR CHAVEZ SORIA, University at Buffalo, SUNY, Mary B Bisson, G Ekin Atilla-Gokcumen, Diana S Aga

2:10 (1980-3) **Application of the Galaxy Platform to Aptamer Selection** REBECCA WHELAN, University of Notre Dame

2:30 (1980-4) **Proteomic Profiling of Neural Induction During Frog Embryonic Development Using HRMS** BAXI B APARNA, University of Maryland, Sally A Moody, Peter Nemes

2:50 **Recess**

3:05 (1980-5) **Spatial Proteomics Analysis of Postmortem Brain in Alzheimer's Disease** KAITLYN STEPLER, Vanderbilt University, Rena A S Robinson

3:25 (1980-6) **Metabolic Profiling of Cell Clones in the Early Developing (Frog) Embryo Using Liquid Chromatography Mass Spectrometry** JIE LI, University of Maryland, Peter Nemes, Erika P Portero

3:45 (1980-7) **Preparation of a Coated Capillary with Low Electro Osmotic Flow and Its Application in Capillary Zone Electrophoresis-Electrospray Ionization-Tandem Mass Spectrometry for Shotgun Proteomics** ZHENBIN ZHANG, University of Notre Dame, Norman Dovichi

4:05 (1980-8) **Short Tandem Repeat and Next Generation Sequencing Analysis of Single Cells Using a Digital Microfluidic Laser Cell Lysis Platform** JULIAN LAMANNA, University of Toronto, Dean Chamberlain, Michael Dryden, Harrison Edwards, Aaron Wheeler

ORAL SESSIONS

Session 1990

Advancements in Clinical/Toxicology Applications for Human Matrices

Thursday Afternoon, Room 121A

1:30 (1990-1) **Blood Alcohol and Inhalant Analysis by Gas Chromatography - Vacuum Ultraviolet Spectroscopy** JAMES A DIEKMANN, VUV Analytics, Inc., Jack Cochran, Alex Hodgson

1:50 (1990-2) **Paper Spray Mass Spectrometry for Quantitation of Antifungal Drugs from Plasma Samples** CHRISTINE SKAGGS, Indiana University - Purdue University Indianapolis, Nicholas Manicke

2:10 (1990-3) **Nanoparticle Enhanced Surface Plasmon Resonance (SPR) Biosensing on an Antifouling Lipid Membranes in Undiluted Serum** NOR AKMALIZA RAIS, University of California, Riverside, Kristy S McKeating, Samuel S Hinman, Quan Cheng

2:30 (1990-4) **Improving Analytical Performance with Innovative Sample Preparation Materials for the Quantitation of Drugs in Biological Matrices** DERICK LUCAS, Agilent Technologies, Michael Balestra, Limian Zhao, Kunqiang Jiang

2:50 **Recess**

3:05 (1990-5) **The Utility of Dried Blood Spots for Clinical Testing of Fabry Disease** SARA ELIZABETH SMITH, PerkinElmer, James DiPerna

3:25 (1990-6) **Cytotoxicity Studies of Phosphorylated and Sulfonated Flavonoid-Derived Nanoparticles** SIMON WAIHENYA, Binghamton University

3:45 (1990-7) **Study of Multi-Walled Carbon Nanotubes in Lung Tissue Using a Combined Hyperspectral Imaging Technique** MARUDACHALAM SHANMUGASUNDARAM, HORIBA Scientific, Jamie Uertz, Marinella Sandros, Christie M Sayes

4:05 (1990-8) **Multi-Parameter Microfluidics for Early Sepsis Detection** YUN ZHOU, Texas Tech University

ORAL SESSIONS

Session 2000

Advancements in Security and Detection (Half Session)

Thursday Afternoon, Room 121B

1:30 (2000-1) **Split Deoxyribozyme Sensors for Pathogen Detection and Drug Susceptibility Testing** BIDHAN CHANDRA DHAR, University of Central Florida, Ryan Connelly, Suvra Mitra, Yulia Gerasimova

1:50 (2000-2) **Recent Advances in Mobile Technology and LIMS** STEVE WESSON, Accelerated Technology Laboratories, Joe Yorke

2:10 (2000-3) **Next Generation Organophosphate Sampler/Detector** MITCH RUBENSTEIN, US Air Force, John Rogers, Sungbong Kim, Steve Kim, Michael Brothers, Doug Adkins, Patrick R Lewis, Joshua Smith

2:30 (2000-4) **Combination of Ion Mobility Spectroscopy with Optical Detection Methods to Improve the Detection Capabilities and the False Alarm Rate** BERT UNGETHUEM, Airsense Analytics, Andreas Walte, Markus Rotermann

ORAL SESSIONS

Session 2010

Biological and Food Quality Using LCMS

Thursday Afternoon, Room 126A

1:30 (2010-1) **A Novel Microsampling Approach for Analysis of Δ 9-Tetrahydrocannabinol, Cannabidiol, and Cannabinol in Human Whole Blood** GANESH MOORTHY, University of Pennsylvania

1:50 (2010-2) **Comprehensive Analysis of Oxylipins in Human Plasma Using RPLC-MRM-MS with Heatmap-Assisted Selection of Transitions** QIBIN ZHANG, University of North Carolina at Greensboro, Guan-Yuan Chen

2:10 (2010-3) **Where Are We Losing Low Concentration Biomarkers? Is Chromatography or Mass Spec Detection the Problem?** MARK RICHARD SCHURE, Kroungold Analytical, Inc, Nicole M Devitt, Joe M Davis

2:30 (2010-4) **Improving Glycan Profiling in Biopharmaceutical Process Development Using Spectral Library** XIMO ZHANG, Waters Corporation

2:50 **Recess**

3:05 (2010-5) **Internal Degradation Marker Compound for Large Multicomponent Calibration Solutions** DANIEL BIGGERSTAFF, O2Si Smart Solutions, An LGC Standards Company, HuiChen W Stavros, Madeline Luby

3:25 (2010-6) **Clinical Mass Spectrometry and Inter-Lab Data Variability: Root Causes** EDUARD ROGATSKY, Albert Einstein College of Medicine

3:45 (2010-7) **Validation of CBD Method** SUE DANTONIO, Agilent Technologies, Karen Kaikaris

4:05 (2010-8) **Identification of Natural Dye and Other Phytochemicals in *Lonchocarpus cyanescens* Benth (Fabaceae) Plant Extract Using Liquid Chromatography-High-Resolution Mass Spectrometry (LC-HRMS)** TANVIR AHMED AMIT, University at Buffalo, SUNY, Luis A Colon, Rosemary B Bassey

ORAL SESSIONS

Session 2020

Bringing the Instrument to the Field (Half Session)

Thursday Afternoon, Room 121B

3:05 (2020-1) **Field Spectroscopic Analysis: Environmental, Pharmaceutical and Security Applications** TRAVIS KISNER, Detectachem

3:25 (2020-2) **Detection and Identification of Plant Pathogens on Maize Kernels with a Handheld Raman Spectrometer** CHARLES FARBER, Texas A&M University, Dmitry Kurouski

3:45 (2020-3) **The Application of Fusion Tags to Improve the Sensitivity of Reporter Phage Detection Systems** JOEY N TALBERT, Iowa State University, Sam Rasmussen Nugen

4:05 (2020-4) **Micro-Optical Components and Quantum Dots Based Handheld Instrument System for In-Field Detection in Poultry Supply Chain** ZHAN LU, Zhejiang University, Yafang Shen, Chaojie Li, Yanbin Li, Yingchun Fu, Zunzhong Ye, Jianping Wang

ORAL SESSIONS

Session 2030

Characterization of Novel Nanomaterials with Biological and Biomedical Applications

Thursday Afternoon, Room 121C

1:30 (2030-1) **Single Nanoparticle Spectroscopic Imaging for Probing of Multidrug Membrane Transporters of Single Live Cells** X NANCY XU, Old Dominion University, Preeyaporn Songkiatisak, Pavan Cherukuri, Feng Ding

1:50 (2030-2) **Delivery of Lethal dsRNAs in Insect Diets by Branched Amphiphilic Peptide Nano-Capsules** ADRIANA AVILA FLORES, Auburn University, John Tomich, Gerald Reeck

2:10 (2030-3) **Investigation of the Molecular Imprinting Process for Epoxy and Carbon Nanofiber SPME** BRIAN FITCH, Ohio State University, Susan V Olesik

2:30 (2030-4) **Electrogravimetry Characterization of PPy/CNFs New Nanocomposite Synthesized in Ionic Liquid [EMIM][NTf2]** LARBI OULARBI, University Hassan II Casablanca, Mireille Turmine, Mama El Rhazi

2:50 **Recess**

3:05 (2030-5) **Single Nanoparticle Optical Biosensors for Real-time, Single-Molecule and Super-Resolution Imaging of Single Live Cells** X NANCY XU, Old Dominion University, Preeyaporn Songkiatisak, Pavan Cherukuri, Krishna Raut

3:25 (2030-6) **Efficient Energy Transfer from Near-Infrared Emitting Gold Nanoparticles to Pendant Ytterbium (III)** SCOTT E CRAWFORD, University of Pittsburgh, Christopher Andolina, Derrick Kaseman, Jill E Millstone

3:45 (2030-7) **Enhanced Integrated Photodynamic Therapy Activity of Zinc Phthalocyanine-Modified Nanoparticles and Biomolecules Conjugates** DAVID O OLUWOLE, Rhodes University

4:05 (2030-8) **Silver Nanoparticle-Based SERS Substrates on Alumina Scaffolds** ADAM BOTTOMLEY, Queen's University, Kevin G Stamplecoskie, Mativya Prokipchuk

ORAL SESSIONS

Session 2040

Electrochemistry and Nanotechnology (Half Session)

Thursday Afternoon, Room 122A

1:30 (2040-1) **Photoelectrochemistry of Individual Entities: Single Nanoparticles and Agglomerates** MARIO A ALPUCHE-AVILES, University of Nevada, Reno, Salvador Gutierrez-Portocarrero, Nelum Karunathilake, Rezvan Kazemi

1:50 (2040-2) **Electrodeposition of Porous Metal Nanoparticles from a Water-in-Oil Emulsion System: Measuring Single Nanoparticle Electrocatalysis on Inert Nanoelectrodes** JEFFREY E DICK, University of North Carolina at Chapel Hill

2:10 (2040-3) **Single Entity Electrochemistry in the Noise** HANG O REN, Miami University

2:30 (2040-4) **Self-Assembled Films Based on Composites of Polyaniline and Reduced Graphene Oxide** FÁBIO RUIZ SIMÕES, Federal University of São Paulo, Gabriela M Araujo

ORAL SESSIONS

Session 2050

Electrochemistry: Environmental and Energy

Thursday Afternoon, Room 122B

1:30 (2050-1) **Ultra-Sensitive Analysis of Toxic Metal Ions Using Hot Microelectrodes** ALIAKSEI BOIKA, University of Akron, Jason Bonezzi, Syed Rafiquddin

1:50 (2050-2) **High-Temperature Electrochemistry in a Pressurized Flow Cell** GERD-UWE FLECHSIG, University at Albany, SUNY, Zhihua Chang

2:10 (2050-3) **Bubble Nucleation-Based Electrochemical Sensor for Detection of Per- and Polyfluoroalkyl Substances (PFAS) in Water** LONG LUO, Wayne State University, Ruchiranga Ranaweera

2:30 (2050-4) **Electroanalytical Determination of Carbaryl in Real Samples Using New Modified Carbon Paste Sensors** FATIMA EZZAHRA SALIH, Faculty of Sciences and Technologies, Aicha Ouarzane, Mama El Rhazi

2:50 **Recess**

3:05 (2050-5) **Solution-Processable Conducting Polymers for Macroscale High-Rate Energy-Storage Devices** MEGAN B SASSIN, US Naval Research Laboratory, Ashley Hoffmaster, Jeffrey W Long, Chi Kin Lo, Anna Osterholm, John R Reynolds

3:25 (2050-6) **Electrochemical Resazurin Assay for Bacteria Detection in Milk** CODY CARRELL, Colorado State University, Melissa Schenkel, Charles Henry, Brian Geiss, Chloe Chou

3:45 (2050-7) **Dynamic Identification of Interfacial Ionic Exchange in Poly(o-phenylenediamine) by Ac-Electrogravimetry** EL MAHDI HALIM, University Hassan II Casablanca, Ozlem Sel, Rezan Demir-Cakan, Mama El Rhazi, Hubert Perrot

4:05 (2050-8) **Nano Porous Molybdenum Carbide Nanowires, Ni-Ferrite Nanoparticles and Their Hybrid for Electrochemical Hydrogen Evolution and Its Sensing** TAJAMAL HUSSAIN, University of the Punjab, Lahore, Shaista Jabeen, Adnan Mujahid

ORAL SESSIONS

Session 2060

Harnessing the Power of FTIR and Multivariate Analysis – Case Studies (Half Session)

Thursday Afternoon, Room 122A

3:05 (2060-1) **Calibration and Quantification of Respirable Particles in Mining Scenarios via Fourier Transform Infrared Spectroscopy** ROBERT STACH, Ulm University, Patrick Krebs, Boris Mizaikoff, Emanuele Cauda, Teresa Barone

3:25 (2060-2) **Experimental Characterization of Composition-Dependent Multicomponent Diffusivity of 2,5-Lutidine and Acetonitrile in Polyurethane** MARK VARADY, U.S. Army ECBC, Devon Boyne, Robert Lambeth, Janlyn Eikenberg, Stefan Bringuier, Thomas Pearl, Brent Mantooth

3:45 (2060-3) **Determination of Quality Parameters in Fried Palm Oil Using Near-Infrared Spectroscopy and Multivariate Analysis** ARIEL BOHMAN, PerkinElmer, Hannah Rance, Kathryn Lawson-Wood, Ian Robertson, Robert Packer

4:05 (2060-4) **Infrared Spectroscopic Methods for Detection of Adulterants in Milk** MAZEN BAHADI, McGill University, Ashraf Ismail, Jacqueline Sedman

ORAL SESSIONS

Session 2070

Microfluidics/Lab-on-a-Chip Innovations

Thursday Afternoon, Room 123

1:30 (2070-1) **High Resolution 3D Printed Microfluidic Devices for Particle Trapping, On-Chip Reactions, and Detector Interfacing** MICHAEL J BEAUCHAMP, Brigham Young University, Hua Gong, Anna V Nielsen, Gregory P Nordin, Adam T Woolley

1:50 (2070-2) **Automating Assays for Chromatin Accessibility Regions and Nucleosome Positioning Utilizing Droplet Microfluidic Platforms** GLORIA E DIAZ, University of Michigan, Ryan C Bailey, Yi Xu

2:10 (2070-3) **On-Line Sample Preconcentration on Flow-Gated Capillary Electrophoresis** MAOJUN GONG, Wichita State University

2:30 (2070-4) **Paper-based Nuclease Protection Assays for Pathogen Detection** SIDHARTHA JAIN, Colorado State University, Eka Noviana, Zachary D Call, Brian Geiss, David S Dandy, Charles Henry, Kristen M Feibelman

2:50 **Recess**

3:05 (2070-5) **Detection and Quantification of Intracellular Peroxynitrite by Using Microchip Electrophoresis Coupled with Laser-Induced Fluorescence** DHANUSHKA BANDARA WEERASEKARA, University of Kansas, Susan M Lunte

3:25 (2070-6) **Development of a Microchip Device for Interfacing Electrophoretic Separations with Silicon Photonic Microring Resonator Arrays** JOHN D ORLET, University of Michigan, Ryan C Bailey

3:45 (2070-7) **A Microfluidic Bubble Perfusion System for Brain Slice Culture and Analysis of Cellular Secretions** AMIRUS SALEHEEN, University of Tennessee, Christopher A Baker

4:05 (2070-8) **Development of Microfluidic Methods to Monitor Protein Nitration due to Oxidative Stress** KELCI M SCHILLY, University of Kansas, Alexis C Paige, Garett L Melton, Susan M Lunte

ORAL SESSIONS

Session 2080

Neurochemistry: Mass Spectrometry (Half Session)

Thursday Afternoon, Room 124

1:30 (2080-1) **Measuring Neuropeptide Concentration Dynamics of the Central Melanocortin System Using Capillary Liquid Chromatography-Mass Spectrometry** ALEC C VALENTA, University of Michigan, Robert T Kennedy

1:50 (2080-2) **Electroosmotic Perfusion-Microdialysis for the In Vivo Study of Ectopeptidases in the Rat Brain** RACHAEL E WILSON, University of Pittsburgh, Andrea S Jaquins-Gerstl, Amir Faraji, Stephen G Weber

2:10 (2080-3) **Mass-Spectrometry based Label-Free Quantitation of Peptides Related to Pruritus - A Chronic Itch Condition in Mice** KRISHNA DWAIPAYANA BHARADWAJ ANAPINDI, University of Illinois at Urbana-Champaign, Emily G Tillmaand, Eduardo D De La Toba, Ashley D Lenhart, Jeff Guo, Qin Lui, Jonathan V Sweedler

2:30 (2080-4) **Segmented Flow-nESI for Sensitive, High Throughput Analysis of Complex Samples** SHANE WELLS, University of Michigan, Daniel J Steyer, Robert T Kennedy

ORAL SESSIONS

Session 2085

Petrochemical: Analytical Tools Advancing Energy Exploration (Half Session)

Thursday Afternoon, Room 124

3:05 (2085-1) **Modified Silica Nanoparticle and Its Nano Fluid for Enhanced Oil Recovery** YANXIA ZHOU, University of North Dakota, Xu Wu, Xun Zhong, Wen Sun, Julia Zhao, Hui Pu

3:25 (2085-2) **GC Fingerprinting to Assist Oil Wells Downhole Corrosion** TALAL ALGHAMDI, Saudi Aramco

3:45 (2085-3) **An Evaluation of the Method Determining Hydrogen Sulfide in Crude** ABDULAZIZ ALRUESHED, Saudi Aramco

4:05 (2085-4) **Characterization of Oil Shales Using Infrared Attenuated Total Reflection Spectroscopy for Economical, Energy-Efficient Mining at Reduced Environmental Impact** PATRICK KREBS, University of Ulm, Robert Stach, Bobby Pejdic, Lionel Esteban, Boris Mizaikoff

ORAL SESSIONS

Session 2090

Vibrational Spectroscopy in Biological, Lubricant, and Explosive Materials

Thursday Afternoon, Room 125

1:30 (2090-1) **Advancements in In-Service Lubricant Analysis Using Infrared Spectroscopy** ARIEL BOHMAN, PerkinElmer, Robert Packer, Ian Robertson

1:50 (2090-2) **Wide-Area, Hyperspectral Raman Analysis of Explosives Using a Fiber-Coupled Spatial Heterodyne Raman Sensor** NATHANIEL RICHARD GOMER, ChemImage Corporation, Nirmal Lamsal, Heather E Gomer, Matthew P Nelson, Haiyin Sun

2:10 (2090-3) **Characterizing Virus-Induced Gene Silencing at the Cellular Level with *In Situ* Multimodal Imaging** SADIE BURKHOW, Iowa State University, Nicole M Stephens, Yu Mei, Maria E Dueñas, Daniel J Freppon, Geng Ding, Shea C Smith, Young-Jin Lee, Basil J Nikolau, Steven A Whitham, Emily A Smith

2:30 (2090-4) **UV Resonance Raman Structural Characterization of an (In)soluble Polyglutamine Peptide** STEPHEN E WHITE, University of Pittsburgh, Ryan S Jakubek, Sanford A Asher

2:50 **Recess**

3:05 (2090-5) **Rapid, Targeted Near-Infrared Spectroscopic Procedure for Assessing Extra Virgin Olive Oil Authenticity** MAGDI MOSSOBA, Food and Drug Administration, Sanjeeva R Karunathilaka, Kyungeun Lee, Zachary Ellsworth, Lea Bruckner, Betsy Jean Yakes

3:25 (2090-6) **Detection and Quantification of Water Pollutants Using Silver Nanoparticles-Nanocellulose 3D Surface Enhanced Raman Spectroscopy (SERS) Substrate** MUHAMMAD HOSSEN, University of Maine

3:45 (2090-7) **Understanding the Feasibility of a SERS-Based Screening Tool for Synthetic Cannabinoids in Oral Fluid** CHIARA DERIU, Florida International University, Irene Conticello, Alexander Mebel, Bruce McCord

4:05 (2090-8) **SERS Analysis of Serum for Differentiation of Cancer from Chronic Diseases** MUSTAFA CULHA, Yeditepe University, Ertug Avci, Soner Dogan, Bilge G Tuna, Munevver B Cicekdal, Basak Kayhan, Mehmet Eser, Fatih Altintoprak, Zengin Ismail

POSTER SESSION

Session 2100

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Biopharmaceuticals

Thursday Afternoon, Room Expo floor, back of aisles 1500-2300

(2100-1 P) **Characterization of Monoclonal Antibody Heterogeneity from Oxidation and Proteolysis by Analytical Hydrophobic Interaction Chromatography** ATIS CHAKRABARTI, Tosoh Bioscience LLC, Daniel Shollenberger, Stacy Shollenberger, Jordan Stewart

(2100-2 P) **Evaluation of a New 2 µm Silica-Based Size Exclusion Chromatography Column for the Analysis of Proteins, mAb Fragments and Peptides** ATIS CHAKRABARTI, Tosoh Bioscience LLC, Andre Pressley, Stacy Shollenberger

(2100-3 P) **Optimization of Tryptic Digestion Protocol to Minimize Oxidation and Deamidation for Biotherapeutic Characterization** AMBER DAWN HENRY, MilliporeSigma, Pegah R Jalili, Kevin Ray

(2100-4 P) **Antibody Fragmentation Optimization: A Systematic Procedure for Producing Functional Fragments from Small Quantities of IgG** ANDREW W KINMAN, University of Virginia, Rebecca R Pompano

(2100-5 P) **Development of an Analytical-Scale Monoclonal Antibody Purification Workflow Using Size Exclusion and Ion Exchange Chromatography** DENNIS T KÖHLER, Thermo Fisher Scientific, Sabrina Patzelt, Mauro De Pra, Markus M Martin

(2100-6 P) **Improvement of Separation of Monoclonal Antibodies Using Core-Shell Column** NORIKAZU NAGAE, ChromaNik Technologies Inc., Tomoyasu Tsukamoto, Makoto Sato

(2100-7 P) **Development of Novel Reversed-Phase Packing Material for Improved Separation of Protein Biopharmaceuticals Including Intact Antibodies** TAKASHI SATO, YMC CO., LTD., Ken Tsutsui, Chiaki Matsumura, Noriko Shoji, Hiroki Kanezaki, Naohiro Kuriyama, Jeffrey A Kakaley

(2100-8 P) **A Bio-Inert, Durable, and Reliable Surface for HPLC and UHPLC Columns and Components Used in the Analysis of Proteins and other Difficult Molecules** LUKE PATTERSON, SilcoTek Corporation

(2100-9 P) **Direct LC/MS Analysis Method of Surfactants Contained in Antibody Drugs Using a Polymer-Based Reversed Phase Column** LEAH SULLIVAN, Shodex, Ronald Benson, Junji Sasuga, Eiji Kagawa, Hiroki Takenaka

(2100-10 P) **Downstream Process Development of Monoclonal Antibodies in High-Yield and High-Purity by Affinity and Ion-Exchange Chromatography** TAKASHI SATO, YMC CO., LTD., Taniguchi Masatoshi, Tetsuro Fukuta, Kaori Itaya, Makoto Higami, Masaaki Hanamura, Noritaka Kuroda, Naohiro Kuriyama

(2100-11 P) **Rapid Analysis of Aggregates in Antibody Drugs by Novel SEC Column** LEAH SULLIVAN, Shodex, Hirotsugu Nakanishi, Junya Kato, Eiji Kagawa, Ronald Benson

(2100-12 P) **Method Transfer and Routine Analysis of Protein and Peptide-Based Drug Products Using a Biocompatible UHPLC System** BROOKE KOSHEL, Waters Corporation, Robert Birdsall, Corey Reed, Stephan Koza, Zhimin Li, Paula Hong

(2100-13 P) **Field-Flow Fractionation in Biopolymer and Pharmaceutical Research** LUIS A JIMENEZ, Merck

POSTER SESSION

Session 2110

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Chemometrics and Computational

Thursday Afternoon, Room Expo floor, back of aisles 1500-2300

(2110-1 P) **A Generalized Approach to the Deconvolution of Unresolved Chromatographic Peaks in Mass Spectrometry** DONALD KUEHL, Cerno Bioscience, Yongdong Wang, Stacey Simonoff

(2110-2 P) **Coupling Orthogonal Signal Correction and Classical Least-Squares Calibration for the Determination of Glucose in Near-Infrared Spectra** AUSTIN JOHN GESSELL, University of Iowa, Gary W Small

(2110-3 P) **Nucleolin and Nucleophosmin as Expected Targets for Cationic Peptides, Inducing Tumor Cell Apoptosis** ALEKSANDR KOSTAREV, Lomonosov Moscow State University, Anna Lushnikova, Daria Ponkratova, Ksenia Kozhikhova

(2110-4 P) **Withdrawn**

(2110-5 P) **On the Selection of Variables for Quantitative Multi-Elemental LIBS Using Artificial Neural Networks** DANIEL SBARBARO, University of Concepción, Danny Luarte, Jorge Yañez

(2110-6 P) **Withdrawn**

(2110-7 P) **Property of LVQ as Classification Method and Its Application to Analytical Data** MATASHIGE OYABU, Kanazawa Institute of Technology, Nobuhiko Kasezawa, Heizo Tokutaka, Hiroshi Shio

(2110-8 P) **Introducing Undergraduate Chemists to Calibration and Validation: Part 1 - Comparison of Results from Selected Univariate and Multivariate Regression Methods Applied to a Hypothetical and an Experimental Multianalyte Determination** MARK THOMAS STAUFFER, University of Pittsburgh at Greensburg, Danyaal A Alam

(2110-9 P) **Introducing Undergraduate Chemists to Calibration and Validation: Part 2 - Cross-Validation of Multivariate Calibration Schemes Using Partial Least Squares (PLS) Regression, with Data Manipulation Using Matlab and Microsoft Excel** MARK THOMAS STAUFFER, University of Pittsburgh at Greensburg

(2110-10 P) **Evaluation of Statistical Techniques to Normalize Urinary Metabolomic Data** SANJEEWA GAMAGEDARA, University of Central Oklahoma, Tyler Cook

(2110-11 P) **Tracking Column Performance and Column Integrity with a Chemical Test Mixture Designed Specifically for SFC Chromatography** MATTHEW PRZYBYCIEL, ES Industries, David Kohler

(2110-12 P) **Molecular Modelling and Synthesis of Heterocyclic Molecules for the Treatment of Multiple Sclerosis** JIGNASA KETAN SAVJANI, Institute of Pharmacy, Nirma University, Surmil Shah

(2110-13 P) **Comparison of Parallel Factor Analysis 2 and Multivariate Curve Resolution-Alternating Least-Squares for the Resolution of Co-Eluting Polycyclic Aromatic Hydrocarbons with Overlapped Absorption Spectra** MOHAMMADREZA CHEHELAMIRANI, University of Central Florida, James Jay Janesko, Andres Campiglia

(2110-14 P) **Web-Based HMI: The Winds of Change** ANNA MAMMEN, Tismo Technology, Shankar Velayudhan

(2110-15 P) **Chemical Profiling and Chemometric Evaluation of Trace Elements in Natural and Processed Herbal Supplements** OLUJIDE AKINBO, Butler University, Zach Towle, Abua Ikem, Imaobong Udusoro

(2110-16 P) **Cost Effective, Time Efficient, Secure, and NIST Compliant Infrastructure, Platform, and Software as a Service Technology for the Life Science Community to Conduct Data Analytics & Management** PETAR STOJADINOVIC, GoodPipetting: A Division of Automation Trainer

POSTER SESSION

Session 2120

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Electrochemistry - Bioanalytical

Thursday Afternoon, Room Expo floor, back of aisles 1500-2300

(2120-1 P) **Aryl Modified Surfaces for the Fabrication of Electrochemical Aptamer-Based Sensors on Glassy Carbon** ISRAEL BELMONTE, University of Cincinnati, Ryan J White

(2120-2 P) **Exploring Glucagon Exocytosis Utilizing Amperometric Detection** MEGAN M CONNOLLY, University of Michigan, Robert T Kennedy, Waldemar Gorski

(2120-3 P) **Electrochemical and Behavioral Measurements in Wistar Rats** KIERSTEN J GARCIA, University of Kansas, Tadd Schendier, Rachel Ginther, David J Jarmolowicz, Michael Johnson, Stefanie Stancato

(2120-4 P) **Indirect Detection of Unlabeled DNA with Pulse Voltammetry and a New Differential Potentiostat** ASANKA GAURUKANDURE GEDARA, Auburn University, Christopher J Easley, Subramaniam Somasundaram

(2120-5 P) **Electrochromic Detection of Pyruvate by Closed Bipolar Electrode System** ARIELLE LOPEZ, University of Notre Dame, Paul Bohn

(2120-6 P) **Nanocomposite Based Modified Glassy Carbon Electrode for Electrochemical Detection of L-DOPA** GOVIND SHARMA SHYAM SUNDER, University of Toledo, Ahmad Rohanifar, Amila M Devasurendra, Jon R Kirchoff

(2120-7 P) **Serotonin Release and Uptake in Zebrafish Whole Brains** CHASE STUCKY, University of Kansas, Michael Johnson

(2120-8 P) **A Single-Molecule Interaction Spectrum for Non-Covalent Interaction inside Membrane Protein Channel** MENG-YIN LI, East China University of Science and Technology, Yilun Ying, Wei Tong, Yong-Jing Wan, Yi-Tao Long

(2120-9 P) **Wireless Nanopore Electrode for Single Entity Analysis** YILUN YING, East China University of Science and Technology, Yongxu Hu, Rui Gao, Ling-Fei Cui, Yitao Long

POSTER SESSION

Session 2130

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Food Safety

Thursday Afternoon, Room Expo floor, back of aisles 1500-2300

(2130-1 P) **Fast Analysis of Ethanol in Kombucha by GC/FID** GUSTAVO SERRANO IZAGUIRRE, Agilent Technologies, Vanessa Abercrombie, Phil Stremple

(2130-2 P) **Increased Reproducibility in the Analysis of EU and EPA PAHs with a Select PAH GC Column and Metal Microfluidic Guard Chip Technology by Gas Chromatography** GUSTAVO SERRANO IZAGUIRRE, Agilent Technologies, Vanessa Abercrombie, Phil Stremple

(2130-3 P) **Study of the Migration of Adhesive Components Used in Food Contact Materials Into Food Simulants** RAFAEL PASEIRO-CERRATO, Food and Drug Administration, Lowri DeJager, Timothy H Begley

(2130-4 P) **The Effect of Thermal Inactivation on Virus Adhesion on Food-Processing Materials** AO GUO, Illinois Institute of Technology, Rong Wang, Carol Shieh, Runan Yan

(2130-5 P) **Polymer-Modified Electrolyte-Gated Transistor Platform for Soybean Agglutinin Detection** JIAYI HE, University of Minnesota, Mathew Thomas, Rebeca Sarahi Rodriguez, C Daniel Frisbie, Christy Haynes

(2130-6 P) **An Analyzer for QC Problem Solving** MONIA SCARSI, Velp Scientific Inc

(2130-7 P) **Simultaneous Determination of 152 Veterinary Drug in Milk Using Ultra Performance Liquid Chromatograph-Tandem Mass Spectrometry** LIU ZHAO, Shimadzu (China) Co.,Ltd.

(2130-8 P) **Analysis of Trans-Fatty Acids in Food Products Using Various GC Columns** JANA ROUSOVA, Restek Corporation, Chris English, Joe Konschnik, Kristi Sellers, Scott Adams, Jaap De Zeeuw

(2130-9 P) **Identification of Active Ingredients in Anticoagulant Rodenticide Products** BUU TRAN, Wadsworth Center, Sarah Neely, Simi Kaur, Richard Okoniewski

(2130-10 P) **Multiclass Mycotoxin Analysis in Peanut Butter and Infant Formula Using Captiva EMR-Lipid Cleanup and LC/MS/MS** MEGAN JUCK, Agilent Technologies, Derick Lucas, Limian Zhao

(2130-11 P) **Analysis of Acrylamide Levels in Various Food Types in the Iraqi Markets Using Chromatography Techniques** BASSAM ALFARHANI, University of Al-Qadisiyah

(2130-12 P) **Estimation of Exposure to Selected Contaminants in Dairy Products Contained in Plastic Packaging** PERFECTO PASEIRO, University of Santiago de Compostela, Raquel Sendón, Ana Rodriguez Bernaldo de Quiros, Juana Bustos, Antia Lestido

(2130-13 P) **A GC-MS Method for Identification of Potential Contaminants in Food Plastic Packaging and a LC-MS Method for Determination of Contaminants in Foodstuffs** PERFECTO PASEIRO, University of Santiago de Compostela, Antia Lestido, Raquel Sendón, Ana Rodriguez Bernaldo de Quiros, Juana Bustos

(2130-14 P) **Quantification of Persistent Organic Pollutants in Commercial Dietary Supplements Using Stir-Bar Sorptive Extraction, GC Triple Quad MS, and Isotope Dilution Mass Spectrometry** ASHLEY DILLARD, Duquesne University, Weier Hao, H M Skip Kingston, Matt Pamuku

(2130-15 P) **Nitrogen/Protein Determination in Insect Food and Animal Feed by Dumas Method** MICHAEL STALKER, CE Elantech, Francesco Leone, Guido Giuzzi, Liliana Krotz

(2130-16 P) **Accelerating Food Analysis Using Advanced ICP-MS Technology** DANIEL KUTSCHER, Thermo Fisher Scientific, Shona McSheehy Ducos, Sabrina Antonio

(2130-17 P) **Addressing the Challenges of Residual VOC in Food Packaging by an Advanced HS-GCMS System** CRISTIAN COJOCARIU, Thermo Fisher Scientific, Giulia Riccardino, Daniela Cavagnino, Manuela Bergna

(2130-18 P) **Determination of Mineral Oil Saturated and Aromatic Hydrocarbons (MOSHs and MOAHs) in Food Contact Materials** MATTHEW EDWARDS, SepSolve Analytical, Laura McGregor, Nick Bukowski, Pete Grosshans, Steve Smith

(2130-19 P) **Determination of Hexavalent Chromium in Dietary Supplements** JAMES HENDERSON, Duquesne University, Lauren Stubbert, Weier Hoa, Logan Miller, Matt Pamuku, Larry Tucker, Diego Cortesi, H M Skip Kingston

POSTER SESSION

Session 2140

All posters are to be mounted by 2:00 PM and remain on display until 4:30 PM. Authors must be at their posters from 2:00 PM to 4:30 PM. All authors must check in at the help desk the day of their presentation to receive their materials for their posters.

Laboratory Informatics

Thursday Afternoon, Room Expo floor, back of aisles 1500-2300

(2140-1 P) **LIMS & ELN: The Backbone to Your Quality Management System (QMS)** STEVE WESSON, Accelerated Technology Laboratories, Laura Lee Williford

(2140-2 P) **Withdrawn**

(2140-3 P) **One of These Things is not Like the Other... Or is it?** ABBEY D VANGELOFF, Yahara Software, Garrett Peterson

