

Wednesday

Poster Session

- 11:30 a.m. – 1:00 p.m.
- B1** **Development and Validation of the InnoXtract™ DNA Extraction Method for Bone and Teeth Samples**
Mah-Ro Khan, MS; Hiromi Brown, PhD; Hailey Holt, BS; Joanne B. Sgueglia, BA; Sudhir K. Sinha, PhD*
- B2** **The Effects of Temperature and Precipitation on the Amount of Recoverable Human DNA From Soil During Decomposition**
Wesley Wagner; Pamela L. Marshall, PhD*
- B3** **Extraction Efficiency Testing of Degraded Bone Samples: Comparing Two Extraction Methods for Use in Downstream Massively Parallel Sequencing (MPS) Applications**
Emily Deem, BS; Katie Zejdlik, PhD; Tiffany Saul, PhD; Frankie West, PhD*
- B4** **Evaluating the Effectiveness of Microbial DNA Extraction Kits for Intimate Samples**
Grace Rutledge, BS; Aaron Lynne, PhD; Rachel Houston, PhD; Sheree Hughes, PhD
- B5** **The Development of a Fully Automated System Employing Parallel Processing for Highly Efficient Extraction and Purification of DNA From a Range of Challenging Samples**
Matthew Ludeman, PhD; Angela Chen, MS; Leo Lai, BSc; Julio Mulero, PhD; William Hutchens, BSc; Kevin Miller, PhD*
- B6** **A Comparison of Five DNA Extraction Methods to Extract Genomic DNA From Human Body Fluid and Fly Artifact Samples**
Alexis Garloff; Kelly Elkins, PhD; David Rivers, PhD*
- B7** **A Comparison of DNA Extraction Techniques for the Recovery of Bovine DNA From Maggot Crops**
Cesar Cantu, BS; Sibyl Bucheli, PhD; Rachel Houston, PhD*
- B8** **Magnetic Bead Capture of Sperm Cells by Sperm-Specific Antibodies**
Samantha Davis, MS; Julia Wang, MS; Rachel Houston, PhD; Sheree Hughes, PhD; Brendan Chapman, BSc; Andrew Currie, PhD*
- B9** **DNA Methylation of Decedent Blood Samples to Estimate the Chronological Age of Human Remains**
Patrick Yew, MS; Yessenia Anaya, MS; Katherine Roberts, PhD; Winters Hardy, PhD*
- B10** **An Improved Method for the Analysis of Bisulfite Modified DNA Samples**
Deborah Silva, PhD; Caitlin Lydon*
- B11** **The Use of a Mobile Fingerprint Identification Device in the Field and DNA Evidence: Benefits and Consequences**
Amber Wetherbee; Hope Hardman; Nasir Butt; Dawn Schilens, BS; Thomas Gilson, MD*
- B12** **Evaluating Different Collection Tools for Transfer DNA Deposited on Wooden Surfaces**
Antonia Atkinson, BS; Alba Craig, BA; Krista Latham, PhD; Cynthia Cale, MS*
- B13** **Extraction Techniques to Increase DNA Recovery From Touch DNA Samples**
Ryan James Hinojosa, BS; Jillian Conte, PhD; Lawrence Quarino, PhD; Janine Kishbaugh, MSFS*
- B14** **Modeling Assault From Touch DNA**
Jamie Fredericks, PhD; Michael Lane, PhD; Beighley Ayers*

- B15** **The Persistence of Transfer DNA on Touched Objects Over Time**
Alba Craig, BA; Krista Latham, PhD; Cynthia Cale, MS; Stephen Nawrocki, PhD*
- B16** **An Evaluation of Collection Methods for Direct Polymerase Chain Reaction (PCR) Amplification of Touch DNA Samples**
Anna Salmonsens, MFS; Abigail Bathrick, MFS*; Jonathan Davoren, MS*
- B17** **A Combined Extraction of Protein and DNA From Touch Evidence on Ammunition Cartridge Cases**
Ashlee Lynch, BS; Glendon Parker, PhD*
- B18** **Can Variations in DNA Profile Composition Collected From Different Areas of the Same Handgun Inform Future Sampling Strategies?**
Cynthia Cale, MS; Jessica Miller, MS; Krista Latham, PhD; Erica Cantor, MS*
- B19** **The Quantification of Metal Ions Recovered During DNA Analysis of Brass Ammunition Using Inductively Coupled Plasma/Optical Emission Spectrometer (ICP/OES)**
Natalia Czado, MSFS; Sheree Hughes, PhD*
- B20** **Validation of a Lateral-Flow Immunoassay Test for the Rapid Screening of Cocaine Samples**
Corey Nida, PhD; Hunter Haddad, MS; Sandra Rodriguez-Cruz, PhD*
- B21** **The Extraction and Identification of Illicit Compounds From Baked Goods Using Paper Spray Ionization Tandem Mass Spectrometry**
*Isabella Haberstock, MS**
- B22** **A Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) Method Development and Validation for the Quantitation of Cannabinoids in Hemp and Marijuana Samples**
Andrea Yarberr, PhD; Jerome Mulloor, MS; Melissa Phillips, PhD; Aaron Urbas, PhD; Walter Wilson, PhD*
- B23** **A Novel Approach for Quantitation of Total Tetrahydrocannabinol (THC) in *Cannabis* Plant Extracts by Isotope Dilution Gas Chromatography/Mass Spectrometry (GC/MS)**
Jerome Mullor, PhD; Melissa Phillips, PhD; Aaron Urbas, PhD; Walter Wilson, PhD; Andrea Yarberr, PhD*
- B24** **The Classification of Cannabis Varieties Through Headspace Chemical Analysis and Transfer Learning**
Ting-Yu Huang; Jorn Chi-Chung Yu, PhD*
- B25** **A Genetic and Chemical Characterization of the Cannabis Products Seized at the Croatian Cannabidiol (CBD) Stores**
Slavena Cukrov-Bezbradica, PhD; Lucija Barbarić, PhD*
- B26** **The Effects of Degradative Stress on the Headspace Profile of Fentanyl**
Leann Forte, BS; Stephanie Vaughan, PhD; Ashley Fulton, PhD; Lauryn DeGreeff, PhD; Howard K. Holness, PhD; Kenneth G. Furton, PhD*
- B27** **Fentanyl Degradation in Syringes Obtained From Intravenous (IV) Drug Users in Washington, DC**
Shayla Montalvo, BA; Alexandra Evans, MFS; Morgan Levitas, MFS; Luke Short, PhD*
- B28** **The Use of Novel Gas Chromatography/Mass Spectrometry (GC/MS) and Gas Chromatography/Infrared Spectroscopy (GC/IR) Libraries for the Differentiation of Positional Isomers of Fentanyl-Related Substances (FRS)**
Kimiko Ferguson, MSc; Michael Gilbert, BS; Reta Newman, MA; Jose Almirall, PhD*
- B29** **The Application of Electrospun Polymers With Metallic Nanoparticles for Use in the Detection of Fentanyl by Surface-Enhanced Raman Spectroscopy (SERS)**
Daniel Rubin, BA; Mario Vendrell-Dones, MS; Ling Wang, PhD; Bruce McCord, PhD*

- B30** Identifying the Similarity Between In-Source Collision-Induced Dissociation (IS-CID) Fragment Ion Spectra and Tandem Mass Spectrometry (MS/MS) Product Ion Spectra for Seized Drug Identifications
Jared Sharp, BS; J. Tyler Davidson, PhD*
- B31** Silver-Doped Nanofibers as Surface-Enhanced Raman Spectroscopy (SERS) Substrates for the Detection of Synthetic Cathinones
Mario Vendrell-Dones, MS; Daniel Rubin, BA; Ling Wang, PhD; Bruce McCord, PhD*
- B32** The Extraction of Cannabidiol (CBD) From Gelatin Edibles With Analysis by Paper Spray Ionization-Mass Spectrometry (PSI-MS)
*Cheyenne Granger, BA**
- B33** The Quantitation of Cannabinoids in *Cannabis Sativa* L. Plants From Pakistan Using Gas Chromatography/Flame Ionization Detector (GC/FID)
Tahir Jamshaid, MPhil; Muhammad Chaudhary, MPhil; Muhammad Usman, MS; Zahid Mehmood, MPhil; Muhamamd Irfan Ashiq, PhD; Muhammad Tahir, PhD; Amina Iqbal*
- B34** The Quantitation of Opium Alkaloids in Seized, Crushed, and Mowed Plant Material
Muhammad Chaudhary, MPhil; Tahir Jamshaid, MPhil; Muhammad Irfan Ashiq, PhD; Mohammad Tahir, PhD; Atiqa Asif, MPhil*
- B35** The Use of Urine Rapid Response Fentanyl Test Strips to Detect Fentanyl in Seized Substances
*Lauren Bishop**
- B36** Continuous Vapor Sampling of Volatile Organic Compounds (VOCs) Associated With Explosives and Cocaine Using Capillary Microextraction of Volatiles (CMV)
Jacqueline Rodriguez, MS; Jose Almirall, PhD*
- B37** An Assessment of Robotic Solid Phase and Immunoaffinity Microextraction With Intact Mass Analysis for Saliva Identification in Forensic Samples
*Catherine Brown, PhD; Phillip Danielson, PhD; Kevin Legg, PhD**
- B38** The Separation of Natural and Synthetic Hallucinogenic Tryptamines Using High-Performance Liquid Chromatography-Photodiode Array (HPLC-PDA) and Ultra-High Performance Liquid Chromatography-Photodiode Array/Mass Spectrometry (UHPLC-PDA/QDa)
Mia Fabbri, BS; Marianne Staretz, PhD; Matthew Wood, PhD; Daniel Garrison, BS; Peter Harrsch, PhD; Thomas Brettell, PhD*

Thursday—Session I

Standards Development and What We Think

Moderator:

Lisa M. Burdett, MS
Kansas Bureau of Investigation
Great Bend, KS

Co-Moderator:

Ashley Hall, PhD
University of Illinois at Chicago
Chicago, IL

8:30 a.m. – 8:45 a.m.

- B39** Community Resources and Updates From the Scientific Working Group for DNA Analysis Methods (SWGDM) Next Generation Sequencing (NGS) Committee

*Katherine Gettings, PhD**

8:45 a.m. – 9:00 a.m.

- B40** Standards Development Activities in Human Forensic Biology

*Beth Ordeman, MS**

- 9:00 a.m. – 9:15 a.m. **B41** **A Short Tandem Repeat (STR) Sequence Nomenclature Update From the Short Tandem Repeat: Align, Name, Define (STRAND) Working Group**
*Katherine Gettings, PhD**; *David Ballard, PhD*; *Martin Bodner, PhD*; *Jonathan King, MS*; *Walther Parson, PhD*; *Christopher Phillips*
- 9:15 a.m. – 9:30 a.m. **B42** **An Evaluation of the Current Opinion of Next Generation Sequencing (NGS) Technology in Forensics Through a Global Survey**
*Megan Foley, MSFS**; *Fabio Oldoni, PhD*
- 9:30 a.m. – 9:45 a.m. **B43** **American Forensic Practitioners' Opinions on Activity-Level DNA Reporting**
*Yoon Yang MS**; *Mechthild Prinz, PhD*; *Heather McKiernan, PhD*; *Fabio Oldoni, PhD*
- 9:45 a.m. – 10:00 a.m. **BREAK**

Forensic Biology at Human Decomposition Facilities

Moderator:

Sheree R. Hughes, PhD
Sam Houston State University
Huntsville, TX

Co-Moderator:

Emma M. Giacomello, BS
San Marcos, TX

- 10:00 a.m. – 10:15 a.m. **B44** **Microbial Dynamics of Human Decomposition Accurately Estimate Postmortem Interval**
*Zachary Burcham**; *Aeriel Belk*; *Alexandra Emmons, PhD*; *Heather Deel, BS*; *Amina Bouslimani*; *Zhenjiang Xu, PhD*; *Qiyun Zhu*; *Sibyl Bucheli, PhD*; *Aaron Lynne, PhD*; *Melissa Connor, PhD*; *Dawnie Steadman, PhD*; *Giovanna Vidoli, PhD*; *Sasha Reed*; *Michael Shaffer*; *Kelly Wrighton*; *Parsa Ghadermazi*; *Joshua Chan*; *David Carter, PhD*; *Rob Knight, PhD*; *Jessica Metcalf, PhD*
- 10:15 a.m. – 10:30 a.m. **B45** **A Pilot Study of Microbial Succession in Human Rib Skeletal Remains During Terrestrial Decomposition**
*Heather Deel, BS**; *Alexandra Emmons, PhD*; *Jennifer Kiely, BS*; *Franklin Damann, PhD*; *David Carter, PhD*; *Aaron Lynne, PhD*; *Rob Knight, PhD*; *Zhenjiang Xu, PhD*; *Sibyl Bucheli, PhD*; *Jessica Metcalf, PhD*
- 10:30 a.m. – 10:45 a.m. **B46** **Forensic Microbiology of Human Cadavers in an Experimental Mass Grave**
*Noemi Procopio, PhD**; *Sarah Gino, MD*; *Onengiye Ogbanga, MSc*; *Timothy P. Gocha, PhD*; *Daniel J. Wescott, PhD*; *Hayley L. Mickleburgh, PhD*
- 10:45 a.m. – 11:00 a.m. **B47** **Bone Fluorescence, Taphonomy, and the Postmortem Interval (PMI)**
*Natalie Moss**; *Alexander Smith*; *Melissa Connor, PhD*
- 11:00 a.m. – 11:15 a.m. **B48** **Bone “Soft” Maceration Procedures at Human Taphonomy Facilities: How “Soft” Are They Really?**
*Noemi Procopio, PhD**; *Luke William Gent, BS*; *Andrea Bonicelli, PhD*
- 11:15 a.m. – 11:30 a.m. **B49** **The Optimization of the InnoXtract™ Extraction and Purification System for DNA Extraction From Skeletal Samples and Analysis of Subsequent Downstream Processing Methods**
*Jennifer Snedeker, BS**; *David Russell, MS*; *Michelle Peck, MSc*; *Amy Holmes, PhD*; *Elayna Ciuzio, MS*; *Christina Neal, MS*; *Carmen Reedy, PhD*; *Sheree Hughes, PhD*; *Rachel Houston, PhD*
- 11:30 a.m. – 11:45 a.m. **B50** **The Application of Ancient DNA Methodologies to Burned Forensic Samples and Their Potential to Aid in the Identification and Analyses of Difficult Samples**
*Cody Parker, PhD**; *Erin Rawls, BS*; *Katelyn Bolhofner, PhD*; *Laura C. Fulginiti, PhD*; *Giovanna Vidoli, PhD*; *Joanna Devlin, PhD*; *Sree Kanthaswamy, PhD*; *Anne Stone, PhD*
- 11:45 a.m. – 12:00 p.m. **B51** **Rapid DNA Profiling for Disaster Victim Identification (DVI)**
*Jeremy Watherston, MSFS**; *David Bruce, PhD*; *Dennis McNevin, PhD*; *Jodie Ward, PhD*
- 12:00 p.m. – 1:00 p.m. **BREAK**

All the 'omes: Microbiome, Virome, and Proteome

Moderator:

Steven B. Lee, PhD
Florida International University
Miami, FL

Co-Moderator:

Noemi Procopio, PhD
Northumbria University
New Castle upon Tyne, United Kingdom

- 1:00 p.m. – 1:15 p.m. **B52** **The Identification and Characterization of Viral Biomarkers**
*Emma Graham, MS**; *Michael Adamowicz, PhD*; *Jennifer Clarke, PhD*; *Samodha Fernando, PhD*;
Joshua Herr, PhD
- 1:15 p.m. – 1:30 p.m. **B53** **Seasonal Comparisons Between Soil Fungal and Bacterial Communities Impacted by Human Decomposition**
*Lois Taylor, PhD**; *Allison Mason, BS*; *Jennifer DeBruyn, PhD*
- 1:30 p.m. – 1:45 p.m. **B54** **Body Mass Index (BMI) Impacts on Soil Chemical and Microbial Responses During Human Decomposition**
*Allison Mason, BS**; *Hayden McKee, MS*; *Katharina Hoeland, MS*; *Sarah Schwing, MA*; *Erin Patrick, MS*;
Shawn Campagna, PhD; *Dawnie Steadman, PhD*; *Jennifer DeBruyn, PhD*
- 1:45 p.m. – 2:00 p.m. **B55** **Proteomic Genotyping in Compromised Skeletal Remains**
*Glendon Parker, PhD**; *Jennifer Snedeker, BS*; *Trevor Borja, MSFS*; *Rachel Houston, PhD*
- 2:00 p.m. – 2:15 p.m. **B56** **The Use of Proteomic Genotyping to Estimate Genetic Ancestry for Intelligence Purposes**
*Zachary Goecker, PhD**; *Noah Herrick, MSFS*; *Bailey Wills, MSFS*; *Susan Walsh, PhD*; *Glendon Parker, PhD**
- 2:15 p.m. – 2:30 p.m. **BREAK**

DNA Extraction

Moderator:

Andrew J. Schweighardt, PhD
Northport, NY

Co-Moderator:

Jennifer L. Snedeker, BS
Huntsville, TX

- 2:30 p.m. – 2:45 p.m. **B57** **The Development and Evaluation of Two DNA Collection/Extraction Techniques for Cartridge Cases**
*Kyleen Elwick, PhD**; *Quentin Gauthier, PhD*; *Stephanie Rink, MFS*; *Emily Cropper, MS*; *Mark Kavlick, PhD*
- 2:45 p.m. – 3:00 p.m. **B58** **A Comparison of the Effect of Manual Versus Robotic DNA Extraction Methods on the Microbial Communities Associated With Forensically Relevant Human Biological Samples**
*Denise Wohlfahrt, BS**; *Sarah Seashols-Williams, PhD*; *Paul Brooks, PhD*; *Baneshwar Singh, PhD*
- 3:00 p.m. – 3:15 p.m. **B59** **Using Bone Biology to Optimize Forensic and Ancient DNA Extraction From Post-Cranial Skeletal Elements**
*Keith Biddle, MA**
- 3:15 p.m. – 3:30 p.m. **B60** **Compositional Analysis of Human Skeletal Samples Using Raman Spectroscopy and Correlation to DNA Recovery**
*Cody Silverman**; *Brooke Kammrath, PhD*; *Angie Ambers, PhD*
- 3:30 p.m. – 3:45 p.m. **B61** **An Enhanced DNA Extraction Method for Charred Bone Remains Using Pressure Cycling Technology (PCT)**
*Kira Hurley, BS**; *Lisa Ludvico, PhD*; *Angie Ambers, PhD*; *Pamela L. Marshall, PhD*

Thursday—Session II

Methylation, Tissues, and Body Fluids

Moderator:

Bruce R. McCord, PhD
Florida International University
Miami, FL

Co-Moderator:

Glendon Parker, PhD
University of California, Davis
Davis, CA

- 8:30 a.m. – 8:45 a.m. **B62** **An Evaluation of a Body Fluid Identification Method Using MicroRNAs (miRNAs) Co-Extracted With DNA**
*Kelsey Price, BS**; *Carolyn Lewis, BS*; *Ciara Rhodes, BS*; *Anaya Valentine, MS*; *Edward Boone, PhD*; *Sarah Seashols-Williams, PhD*
- 8:45 a.m. – 9:00 a.m. **B63** **A Demonstration of a Semi-Automated, Extraction-Free, MicroRNA (miRNA) Gene Expression Profiling Method for the Simultaneous Detection of Biofluids**
*Amy Brodeur, MFS**; *Frank Kero, PhD*; *B.J. Kerns, BS*
- 9:00 a.m. – 9:15 a.m. **B64** **Direct Messenger RNA (mRNA) Sequencing for the Identification and Analysis of Human Body Fluids**
*Quentin Gauthier, PhD**; *Patrick Rydzak, PhD*; *Kyleen Elwick, PhD*; *Mark Kavlick, PhD*
- 9:15 a.m. – 9:30 a.m. **B65** **The Development of Pyrosequencing-Based DNA Methylation Assay for Menstrual Blood Identification**
*Mirna Ghemrawi, MSFS**; *Nicole Fernandez-Tejero, MS*; *Valeria Castaneda, BS*; *Bruce McCord, PhD*
- 9:30 a.m. – 9:45 a.m. **B66** **The Optimization of a Rotationally Driven Microfluidic Method for Forensic DNA Methylation Sample Preparation**
*Rachelle Turiello, MS**; *Leah Dignan, BS*; *Francine Garrett-Bakelman, MD, PhD*; *James Landers, PhD*
- 9:45 a.m. – 10:00 a.m. **BREAK**

In the Lab and Databases

Moderator:

Pamela L. Marshall, PhD
Duquesne University
Pittsburgh, PA

Co-Moderator:

Sarah Hardy, BS
Unified Metropolitan Forensic Crime Laboratory
Englewood, CO

- 10:00 a.m. – 10:15 a.m. **B67** **A Quantiplex™-High Resolution Melt (HRM) Integrated Assay for Early Mixture Detection Using Support Vector Machine Modeling for “Whole Curve” Analysis/Proof-of-Concept Testing**
*Chastyn Smith, BS**; *Andrea Williams, MS*; *Hannah Wines, MS*; *Darianne Cloudy, MS*; *Jordan Cox, MS*; *Dayanara Torres, BS*; *Sarah Williams, PhD*; *Edward Boone, PhD*; *Tracey Dawson Green, PhD*
- 10:15 a.m. – 10:30 a.m. **B68** **The Integration of a High Resolution Melt (HRM) Mixture-Prescreening Assay Into the Quantifiler® Trio Quantification Chemistry Using the QuantStudio™ 6 Flex Real-Time Polymerase Chain Reaction (PCR) System**
*Dayanara Torres, BS**; *Chastyn Smith, BS*; *Andrea Williams, MS*; *Edward Boone, PhD*; *Tracey Dawson Green, PhD*
- 10:30 a.m. – 10:45 a.m. **B69** **Using Mitochondrial DNA (mtDNA) and the Y Chromosome to Estimate Population Affinity and Region of Origin**
*Andrew Schweighardt, PhD**; *Angela Soler, PhD*

- 10:45 a.m. – 11:00 a.m. **B70** **Solving Cold Cases With Databases: Considerations for the Application of Advanced DNA Searching Methodologies**
*Ashley Rodriguez**
- 11:00 a.m. – 11:15 a.m. **B71** **FauxDIS: An Interactive Online Forensic DNA Profile Database**
Ashley Hall, PhD; Jonathan Bisson, PhD*
- 11:15 a.m. – 11:30 a.m. **BREAK**

A Little Bit of This, and a Little Bit of That

Moderator:

Megan M. Foley, MSFS
The George Washington University
Washington, DC

Co-Moderator:

Michelle Harrel

- 11:15 a.m. – 11:30 a.m. **B72** **Using Mitochondrial DNA (mtDNA) and the Y Chromosome to Estimate Population Affinity and Region of Origin**
Andrew Schweighardt, PhD; Angela Soler, PhD*
- 11:30 a.m. – 11:45 a.m. **B73** **The Interpretation of Y-Chromosome Short Tandem Repeats (Y-STRs) for Missing Persons Cases**
Jianye Ge, PhD; Benjamin Crysup, PhD; Dixie Peters, MS; Meng Huang, PhD; Bruce Budowle, PhD*
- 11:45 a.m. – 12:00 p.m. **B74** **An Evaluation of a 74 Microhaplotypes (MHs) Assay for Kinship Testing in Four Major United States Population Groups**
Fabio Oldoni, PhD; Chiara Della Rocca, BS; Daniele Podini, PhD*
- 12:00 p.m. – 12:15 p.m. **B75** **Microwave Pre-Processing for Enhanced Rapid DNA Analysis of Forensic Samples**
Nicole Fernandez-Tejero, MSc; Fabiana Taglia, MS; Casandra Hernandez-Setser, PhD; Ling Wang, PhD; Robert O'Brien, BS; Kevin Lothridge, MS; Bruce McCord, PhD*; Steven B. Lee, PhD*
- 12:15 p.m. – 12:30 p.m. **B76** **Touch DNA Recovery to Inform Activity-Level Propositions: Fingerprints in the Wild and Their Domesticated Counterparts**
Ashley Hall, PhD; Ray Wickenheiser, DPS; Megan Tyahla, BS; Nivida Shete, MS*
- 12:30 p.m. – 1:30 p.m. **BREAK**

Bashinski Special Session

Moderator:

Sandra B. Sachs, PhD
Oakland Police Department
Oakland, CA

Co-Moderator:

JoAnn Buscaglia, PhD
Federal Bureau of Investigation Laboratory
Quantico, VA

- 1:30 p.m. – 1:50 p.m. **B77** **A Responsive Academy Seeing the Modern Forensic World Through the Lens of Its History: Lessons Learned From the Pioneering Jan Bashinski**
*Sandra Sachs, PhD**
- 1:50 p.m. – 2:10 p.m. **B78** **The Important Role of Generalists in the Modern Forensic Science World of Specialists**
JoAnn Buscaglia, PhD; Jack Hietpas, PhD; Peter De Forest, PhD*
- 2:10 p.m. – 2:30 p.m. **B79** **Taking the Lead: Jan Bashinski and the Development of Modern Analytical Methods for the Chemical Detection of Gunshot Residues**
*Michelle D. Miranda, PhD**
- 2:30 p.m. – 2:45 p.m. **B80** **Jan Bashinski's Progressive Approach to Crime Lab Management: The Development of the Systematic Approach for the Analysis of Semen Evidence From 1978 to 1985**
George Sensabaugh, DCrim; Edward Blake, DCrim*
- 2:45 p.m. – 3:00 p.m. **B81** **Examining the Analytical Threshold (AT) Methods Used in Interpreting Capillary Electrophoresis (CE) - Based Short Tandem Repeat (STR) Profiles**
Sarah Riman, PhD; Hari Iyer, PhD; Peter Vallone, PhD*
- 3:00 p.m. – 3:15 p.m. **BREAK**
- 3:15 p.m. – 3:30 p.m. **B82** **Lessons Learned From a 40-Year Career in Forensic Science**
*Barry Fisher, MS, MBA**
- 3:30 p.m. – 3:45 p.m. **B83** **Fixing Forensic Science by Learning How to Learn From Our Mistakes**
*Brian Gestring, MS**
- 3:45 p.m. – 4:00 p.m. **B84** **Reclaiming Forensic Science: A Closer Look at the Sydney Declaration**
Michelle D. Miranda, PhD; Sheila Willis, PhD; Patrick Buzzini, PhD; Rebecca Bucht, PhD*
- 4:00 p.m. – 4:15 p.m. **B85** **Case Contextual Information and Its Variation Among Forensic Laboratories**
Taylor Hopkins; Lyndsie Ferrara*
- 4:15 p.m. – 5:00 p.m. **DISCUSSION**

Thursday—Session III

Fire Debris, Explosives, and Firearms

Moderator:

TBD

Co-Moderator:

TBD

- 8:30 a.m. – 8:45 a.m. **B86** **The Development of an *In Situ* Sampling Interface for Thermal Desorption Direct Analysis in Real-Time Mass Spectrometry (TD/DART®-MS) Analysis of Ignitable Liquid Residues (ILRs) in Fire Debris Samples**
*Briana Capistran, PhD**; *Matthew Staymates, MS*; *Edward Sisco, PhD*
- 8:45 a.m. – 9:00 a.m. **B87** **A Sensitivity Analysis of Dynamic Vapor Microextraction With Simulated Fire Debris**
*Jennifer Berry**; *Mary Gregg*; *Amanda Koepke*; *Chris Suiter*; *Reta Newman, MA*; *Kavita Jeerage*
- 9:00 a.m. – 9:15 a.m. **B88** **Gasoline Identification by Pattern Recognition: Facts and Myths**
*Reta Newman, MA**; *Brenda Christy, MS*; *Kelsey Winters, MS*; *Michael Gilbert, BS*
- 9:15 a.m. – 9:30 a.m. **B89** **Standards Development Activities Related to Ignitable Liquids, Explosives (ILE), and Gunshot Residue (GSR)**
*Brenda Christy, MS**
- 9:30 a.m. – 9:45 a.m. **B90** **Standards Development Activities in Firearm and Toolmark Examination**
*Jennifer Floyd, BS**
- 9:45 a.m. – 10:00 a.m. **B91** **An Update on the Academy Standards Board (ASB) Firearms and Toolmarks Consensus Body**
*Gregory Laskowski, MPA**
- 10:00 a.m. – 10:15 a.m. **B92** **Bullet Ricochet of Polymer-Coated Bullets**
*Stephen Daly**; *Peter Diaczuk, PhD*
- 10:15 a.m. – 10:30 a.m. **B93** **A Forensic-Related Study on AK Bullet (7.62mm X 39mm) Holes on 1mm Sheet Metal and the Designing of the First Android-Based Field Investigation Tool for AK Gun-Related Bullet Trajectory Reconstructions**
*Bandula Nishshanka, MS**; *Randika Ariyaratna, MS*; *Chris Shepherd, PhD*
- 10:30 a.m. – 10:45 a.m. **B94** **The Forensic Discrimination of Aluminum Sources in Improvised Explosive Devices (IEDs) Using Quantitative Trace Elemental Analysis**
*Anjuli Bhandari, PhD**; *Michelle Jordan, PhD*; *Christopher Saunders, PhD*; *Danica Ommen, PhD*; *JoAnn Buscaglia, PhD*

Latent Prints

Moderator:

TBD

Co-Moderator:

TBD

- 10:45 a.m. – 11:00 a.m. **B95** **Loading Artificial Fingerprints Onto Brass Shell Casings for Improved Method Development and Proficiency Testing**
*Curt Hewitt**; *Danielle LeSassier*; *Benjamin Ludolph*; *Kathleen Schulte*; *Myles Gardner*
- 11:00 a.m. – 11:15 a.m. **B96** **Standards Development Activities Related to the Examination of Friction Ridge Detail**
*Heidi Eldridge, PhD**

- 11:15 a.m. – 11:30 a.m. **B97** **Understanding and Generating Close Non-Matches in Latent Prints for Training, Testing, and Research**
*Heidi Eldridge, PhD**; *Christophe Champod, PhD*
- 11:30 a.m. – 11:45 a.m. **B98** **How Do Latent Print Examiners Perceive Blind Proficiency Testing? A Survey of Practicing Examiners**
*Brett Gardner, PhD**; *Sharon Kelley, PhD*; *Maddisen Neuman, MA*
- 11:45 a.m. – 12:00 p.m. **B99** **What Types of Information Can and Do Latent Print Examiners Review? A Survey of Practicing Examiners**
*Brett Gardner, PhD**; *Sharon Kelley, PhD*; *Maddisen Neuman, MA*
- 12:00 p.m. – 12:15 p.m. **B100** **Does Image Editing Improve the Quality of Latent Prints? An Analysis of Image-Enhancement Techniques in One Crime Laboratory**
Brett Gardner, PhD; *Maddisen Neuman, MA**; *Sharon Kelley, PhD*
- 12:15 p.m. – 1:00 p.m. **BREAK**

Poster Session

- 11:30 a.m. – 1:00 p.m. **B101** **The Validation of a Systematic Method for Duct Tape Physical Fits Through Inter-Laboratory Studies**
*Meghan Prusinowski**; *Evie Nguyen*; *Tatiana Trejos, PhD*
- B102** **Student Perceptions of the Forensic Science Major at Middle Tennessee State University**
*Cole Buffalini, BS**; *Frank Bailey, PhD*; *Karen Reed, PhD*
- B103** **Optimization Parameters of Fragmentary Voltage and Collision Energy for Identification and Separation of RDX (1,3,5-Trinitro-1,3,5-Triazinane) From Other Explosives With Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)**
Blerim Olluri; *Milazim Tahirukaj**; *Andriana Surleva*; *Xhemajl Ademaj*; *Herolind Krasniq, MS*
- B104** **Automated Particle Micromorphometry and Statistical Scoring for Improved Characterization of Aluminum (Al) Powders in Improvised Explosive Devices (IEDs)**
*Kayla Moquin, BS**; *Cami Fuglsby, MS*; *JenaMarie Baldaino, MS*; *Danica Ommen, PhD*; *Christopher Saunders, PhD*; *Jack Hietpas, PhD*; *JoAnn Buscaglia, PhD*
- B105** **The Impact of Ultraviolet (UV) Radiation and Plane Polarized Light (PPL) Microspectrophotometry (MSP) in the Characterization and Differentiation of Deeply Colored Automotive Fibers**
*Andra Lewis, MSFS**; *Patrick Buzzini, PhD*
- B106** **Using Capillary Columns for Measurements of Relative Distribution Constants of Vaporized Hydrocarbons Between Headspace and Polydimethylsiloxane (PDMS) Solid-Phase Microextraction (SPME) Fibers for Quantitative Chemical Analysis of Ignitable Liquids**
Joonyeong Kim, PhD
- B107** **The Evaluation of a Thermodynamic Model to Predict the Weathering of Ignitable Liquids at Different Temperatures**
*Hannah L. McMillen**; *Glen P. Jackson, PhD*
- B108** **Quantitative Ballistic Cartridge Case Analysis Using Micro-Computed Tomography (CT)**
*Kirsty Alsop, MS**; *Danielle Norman, PhD*; *Guillaume Remy, PhD*; *Paul Wilson, PhD*; *Mark Williams*
- B109** **An Internal Validation Study of the TopMatch 3D Scanner for Cartridge Cases**
*Kayli Carrillo, BS**; *Alexis Moser, BS*; *Jennifer Turner, MS*

- B110** **The Assessment of Modern Glass From Portable Electronic Devices (PED) and Their Accessories by Micro X-Ray Fluorescence (μ -XRF) for Their Use in Forensic Investigations**
*Oriana Ovide, BS**; *Ruthmara Corzo, PhD*; *Tatiana Trejos, PhD*
- B111** **A Microscopical Examination and Elemental Analysis of Automotive Lubricating Greases**
*Jared Estevanes, BS**; *Rajesh Balaraman, PhD*; *Patrick Buzzini, PhD*; *Geraldine Monjardez, PhD*
- B112** **Rapid Spectrochemical Mapping Techniques for the Enhanced Detection and Visualization of Gunshot Residue (GSR) Patterns**
*Courtney Vander, MS**; *Korina Menking-Hoggatt, PhD*; *Tatiana Trejos, PhD*
- B113** **Combining Novel Sampling Techniques and Electrochemical Detection in Gunshot Residue (GSR) Analysis for Bullet Hole Identification and Distance Determination**
*Kourtney Dalzell, BS**; *Courtney Vander, MS*; *Tatiana Trejos, PhD*; *Luis Arroyo, PhD*
- B114** **A Characterization of Mounting Media for Hair and Fiber Microscopy**
Maria Lawas, MS; *Linda Otterstatter, BS*; *Joshua Friedman, MS*; *Joseph Donfack, PhD**
- B115** **A Diagnosis of Abusive Head Trauma (AHT): The Role of Immunohistochemistry in a Multidisciplinary Approach**
*Eleonora Mezzetti, MD**; *Andrea Costantino, MD*; *Andrea Scatena, MD*; *Giacomo Visi, MD*; *Paola Santoro, MD*; *Fabio Del Duca, MD*
- B116** **Visualizing Shed Skin Cells in Fingerprint Residue Using Dark Field Microscopy**
*Shin Muramoto, PhD**
- B117** **An Evaluation of the Stability and Durability of an Inkless Method for Fingerprint Recordings**
*Sihai Li, BS**; *Josep De Alcaraz-Fossoul, PhD*

Trace: Metals, Paint, Hair, Glass, Tire

Moderator:

TBD

Co-Moderator:

TBD

- 1:00 p.m. – 1:15 p.m. **B118** **Standards Development Activities in Trace Materials**
*Celeste M. Grover, MSFS**
- 1:15 p.m. – 1:30 p.m. **B119** **Five Years Since the President’s Council of Advisors on Science and Technology (PCAST) Report: The Value of Materials Science and Tribology as Foundational Science for Transfer and Persistence**
*Michael Aberle, BA**; *Hilton Kobus, PhD*; *James Robertson, PhD*; *Caroline O’Driscoll, PhD*; *Jurian Hoogewerff, PhD*
- 1:30 p.m. – 1:45 p.m. **B120** **The Forensic Discrimination of Copper Metal by Laser-Induced Breakdown Spectroscopy (LIBS)**
*Chase Notari, BS**; *Brooke Kammrath, PhD*
- 1:45 p.m. – 2:00 p.m. **B121** **The Transfer of Metal Traces by Human Touch Detected Using a Scanning Electron Microscopy With Energy-Dispersive X-ray Spectroscopy (SEM/EDS) Technique: A Pilot Study**
*Sofia Bodini, MD**; *Alberto Amadasi, PhD*; *Giacomo Govoni*; *Giacomo Belli, MD*; *Elena Cavriani, MD*; *Paola Braga, MD*; *Matteo Moretti, MD*; *Silvia Damiana Visonà, PhD*
- 2:00 p.m. – 2:15 p.m. **B122** **A Comparative Study on the Background Presence of Glass and Paint in Various Populations and Seasons in the United States**
*Lauryn Alexander, PhD**; *Oriana Ovide, MS*; *Olivia Duffett, BS*; *Andra Lewis-Krick, PhD*; *Patrick Buzzini, PhD*; *Tatiana Trejos, PhD*

- 2:15 p.m. – 2:30 p.m. **B123** **An Analysis of Simulated Automotive Paint Smears Representing Vehicle-to-Vehicle Collisions Using an Infrared (IR) Imaging Microscope**
*Barry Lavine, PhD**; *George Affadu, MS*; *Kaan Kalkan, PhD*
- 2:30 p.m. – 2:45 p.m. **B124** **Interlaboratory Studies to Evaluate the Forensic Analysis and Interpretation of Glass Evidence**
*Katelyn Lambert, MS**; *Shirly Montero, PhD*; *Jose Almirall, PhD*
- 2:45 p.m. – 3:00 p.m. **B125** **A Chemical Approach to Tire Mark Analysis—Preliminary Protocols From Collection on Scene to Elemental Profiling**
*John Lucchi, MS**; *Veronica Flores, BS*; *Matthieu Baudelet, PhD*
- 3:00 p.m. – 3:15 p.m. **B126** **Evaluating the Discriminating Power of Hair Amino Acid Ratios for Distinguishing Individuals Using Gas Chromatography/Mass Spectrometry (GC/MS)**
*Timothy Yaroshuk, MS**; *Alyssa Marsico, PhD*
- 3:15 p.m. – 3:30 p.m. **BREAK**

Drugs I

Moderator:
TBD

Co-Moderator:
TBD

- 3:30 p.m. – 3:45 p.m. **B127** **Standards Development Activities in Seized Drugs**
*Agnes D. Winokur, MS**
- 3:45 p.m. – 4:00 p.m. **B128** **A Comparison of Analytical Workflows for Seized Drug Analysis**
*Edward Sisco, PhD**; *Amber Burns, MSFS*; *Elizabeth Schneider, BS*; *Charles R. Miller IV, MSFS*; *Laurel Bobka, MSFS*
- 4:00 p.m. – 4:15 p.m. **B129** **Evaluating the Robustness and Ruggedness of a Statistical Method to Compare Mass Spectra**
*Andrew Sacha, BS**; *Victoria McGuffin, PhD*; *Ruth Waddell Smith, PhD*
- 4:15 p.m. – 4:30 p.m. **B130** **The Analytical Challenges of Distinguishing Between Pentylone and Its Positional Isomers**
*Sally Ho, PhD**
- 4:30 p.m. – 4:45 p.m. **B131** **The Development of an Expert Algorithm for Substance Identification (EASI) of Fentanyl Analogs Using Mass Spectrometry**
*Alexandra Adeoye, BS**; *Glen P. Jackson, PhD*
- 4:45 p.m. – 5:00 p.m. **B132** **Extracted Volatiles From Cannabis Smoke: A Potential Source for the Determination of Detectable Exhalable Breath Components in Users**
*Katherine E. Zink, PhD**; *Kavita M. Jeerage, PhD*; *Tara M. Lovestead, PhD*
- 5:00 p.m. – 5:15 p.m. **B133** **Gas Chromatography/Mass Spectrometry (GC/MS) of Phencyclidine (PCP) Analogs**
*Alexandra Kuchinos, BS**; *Thomas Brettell, PhD*; *Lawrence Quarino, PhD*; *Jennifer Bonetti, MS*
- 5:15 p.m. – 5:30 p.m. **B134** **High-Performance Thin-Layer Chromatography (HPTLC) Separation of Tryptamine-Based Hallucinogens**
*Kelsey Patterson, BS**; *Matthew Wood, PhD*; *Jeanne Berk, PhD*; *Thomas Brettell, PhD*

Friday—Session I

DNA Mixtures

Moderator:

Kristy Kadash, PhD
Jefferson County Regional Crime Lab
Golden, CO

Co-Moderator:

Damani Johnson, BS
Huntsville, TX

- 8:30 a.m. – 8:45 a.m. **B135** **Interpreting DNA Mixtures With Extreme Allele Overlap**
*Tim Kalafut, PhD**; *Jo-Anne Bright, PhD*; *Duncan Taylor, PhD*; *John Buckleton, DSc*
- 8:45 a.m. – 9:00 a.m. **B136** **The Effect of Pull-Up on the Allele Peak Heights and the Weights of Genotypes for Minor Donors**
*Damani Johnson, BS**; *Tim Kalafut, PhD*
- 9:00 a.m. – 9:15 a.m. **B137** **The Detection and Analysis of DNA Mixtures With the MiSeq® FGx™**
*Rachel Houston, PhD**; *Timothy Kalafut, PhD*; *Ryan Gutierrez, PhD*
- 9:15 a.m. – 9:30 a.m. **B138** **Enhanced Mixture Interpretation With Macrohaplotypes Based on Long-Read DNA Sequencing**
*Jianye Ge, PhD**; *Jonathan King, MS*; *Sammed Mandape, MS*; *Bruce Budowle, PhD*
- 9:30 a.m. – 9:45 a.m. **BREAK**

Mixture Deconvolution and Probabilistic Genotyping

Moderator:

Tim Kalafut, PhD
Sam Houston State University
Huntsville, TX

Co-Moderator:

Jianye Ge, PhD
University of North Texas Health Science Center
Fort Worth, TX

- 9:45 a.m. – 10:00 a.m. **B139** **Results From a Probabilistic Genotyping Software for the Continuous Interpretation of Next Generation Sequencing (NGS) Autosomal Short Tandem Repeat (aSTR) Mixtures**
*Kevin Cheng, MS**; *Jo-Anne Bright, PhD*; *James Curran, PhD*; *John Buckleton, DSc*
- 10:00 a.m. – 10:15 a.m. **B140** **The Recovery of Probative DNA Information From Complex Mixtures Involving First-Degree Relatives or Marginally Detectable Minor Donors Using Direct Single Cell Subsampling (DSCS) and Probabilistic Genotyping (PG)**
*Kaitlin Huffman, MS**; *Erin Hanson, PhD*; *Jack Ballantyne, PhD*
- 10:15 a.m. – 10:30 a.m. **B141** **Automated Familial Search Using a Probabilistic Genotype Database**
Matthew Legler, BS; *Kevin Miller, PhD*; *Mark Perlin, MD, PhD**; *Garett Sugimoto, MS*
- 10:30 a.m. – 10:45 a.m. **B142** **Using DNA Mixtures for Relationship Inference and Missing Persons Identification**
*Maarten Kruijver, PhD**
- 10:45 a.m. – 11:00 a.m. **B143** **“Essentially, All Models Are Wrong, but Some Are Useful”—A Comparison of Likelihood Ratios Obtained From EuroForMix and STRmix™**
*Kevin Cheng, MS**; *Øyvind Bleka, PhD*; *Peter Gill, PhD*; *James Curran, PhD*; *Jo-Anne Bright, PhD*; *Duncan Taylor, PhD*; *John Buckleton, DSc*
- 11:00 a.m. – 11:15 a.m. **B144** **Peeling Away Uncertainty: A Probabilistic Approach to DNA Mixture Deconvolution**
William Allan, MS; *Hajara Chaudhry, MS*; *John Donahue, MA*; *Mark Perlin, MD, PhD**; *Mark Wilson, PhD*

Forensic Genealogy

Moderator:

Kyleen E. Elwick, PhD
Federal Bureau of Investigation Laboratory
Quantico, VA

Co-Moderator:

Rachel M. Houston, PhD
Sam Houston State University
Huntsville, TX

- 11:15 a.m. – 11:30 a.m. **B145** **How Forensic Genetic Genealogy (FGG) Is Supporting the Combined DNA Index System (CODIS) and the Criminal Justice System**
*Colleen Fitzpatrick, PhD**
- 11:30 a.m. – 11:45 a.m. **B146** **The Development and Implementation of Forensic Genealogy Casework Acceptance Criteria and Testing Guidelines and Their Impact on Developing Valuable High-Density Single Nucleotide Polymorphism (SNP) Datafiles**
Robert Bever, PhD; Teresa Vreeland, BS*
- 11:45 a.m. – 12:00 p.m. **B147** **Internal Validation of the ForenSeq™ Kintelligence Kit for Application to Forensic Genetic Genealogy Cases**
Michelle Peck, MFS; Stephen Turner, PhD; V. Peter Nagraj, MS; David Russell, MS; Jessica Bouchet, BS; Amy Holmes, PhD; Rachel Houston, PhD; Jennifer Snedeker, BS; Carmen Reedy, PhD; Christina Neal, MS*
- 12:00 p.m. – 12:15 p.m. **B148** **An Analysis of the Genealogy Process in Investigative Genetic Genealogy**
*Su Erturk, BS; Lawrence Wein, PhD**
- 12:15 p.m. – 12:30 p.m. **B149** **A Theft of Consent: How FGG Solved One of the Most Difficult Unsolved Serial Rapist Cases in Texas and Louisiana**
*Leighton D'Antoni, JD**
- 12:30 p.m. – 1:30 p.m. **BREAK**

Poster Session

- 11:30 a.m. – 1:00 p.m. **B150** **Nuclear DNA Single Nucleotide Polymorphism (SNP) Profiles Derived From a Human Hair Shaft**
Daniele Podini, PhD; Elaine Lewis, PhD*
- B151** **A Comprehensive Evaluation of the ForenSeq™ DNA Signature Prep Kit on the MiSeq® FGx™ Next Generation Sequencing (NGS) System**
Chelsea Jones, BS; Fabio Oldoni, PhD; Megan Foley, MSFS; Thomas Walsh, MSFS; Justina Nichola, BS*
- B152** **Developmental Validation of the Illumina® Infinium™ Assay Using the Global Screening Array (GSA) on the iScan® System for Use in Forensic Laboratories**
David A. Russell, MS; Carmen Reedy, PhD; Stephen D. Turner, PhD; Stephanie Guertin, PhD; Mary Heaton, MS; Jessica Bouchet, BS; Michelle Peck, MFS; Erin Gorden, MFS; Elayna Ciuzio, MS; Christina Neal, MS*
- B153** **Joint Data Analysis of DNA Mixtures Using Probabilistic Genotyping**
Sara Antillon, MS; Jennifer Hornyak Bracamontes, MS, Kevin Miller, PhD, Mark Perlin, MD, PhD; Mark Wilson, PhD*
- B154** **An Evaluation of the QIAamplifier® 96 Thermal Cycler**
Madeline Roman, PhD; Josh Abernathy, MSFS; Bryan Davis, BS*

- B155** **Toward a Sample In-Answer Out Centrifugal Microfluidic Platform for Nucleic Acid Detection**
Leah Dignan, BSc; Michael Woolf, PhD; Will Treene; James Landers, PhD*
- B156** **Using a Non-Destructive Method to Estimate the Number of Contributors and Predict DNA Yield in Touch DNA Mixtures**
Susan Greenspoon, PhD; Christopher Ehrhardt, PhD; Christin Lee Master; Sarah Ingram, PhD*
- B157** **An Evaluation of Microhaplotype Markers in Kinship Analysis in a Korean Population**
Sohee Cho, PhD; Soong Deok Lee, MD, PhD*
- B158** **Examining the Ancestry of the Spring Street Presbyterian Church Burial Vault Population Using Mitochondrial DNA (mtDNA) Analysis**
Stephanie Gladysck, PhD; Shannon A. Novak, PhD; Jodi Lynn Barta, PhD**
- B159** **Contemporary Population Genetics Data and Haplogroup Prediction Using 27 Y-Chromosomal Short Tandem Repeat (Y-STR) Loci in the Croatian Population**
Dragan Primorac, MD, PhD; Vedrana Skaro; Petar Projic, PhD; Sasa Missoni; Ivana Horjan Zanki; Sinisa Merkas; Jelena Sarac; Natalija Novokmet; Andrea Ledic; Adela Makar; Gordan Lauc; Simun Andjelinovic; Zeljana Basic; Ivana Kruzic; Marijana Neuberg; Martina Smolic; Robert Smolic; Irena Hrstic; Dragan Trivanovic; Rijad Konjhodzic; Lana Salihefendic; Naida Babic Jordamovic; Damir Marjanovic*
- B160** **Rapidly Mutating Y-Chromosomal Short Tandem Repeats (RM Y-STRs) in Punjabi Deep-Rooted Endogamous Pedigrees From Pakistan**
*Shahid Nazir, PhD**
- B161** **Developing Effective and Sustainable Teaching Labs for Forensic DNA Courses**
*Catherine Cupples Connon, PhD**
- B162** **The Evaluation of Cannabinoid Synthase Polymorphisms for Distinguishing Between Marijuana and Hemp**
Student Ya-Chih Cheng, MS; Rachel Houston, PhD; Sarah Kerrigan, PhD; Madeline Roman, PhD*
- B163** **An Evaluation of Chloroplast DNA Barcoding Markers to Individualize *Papaver Somniferum* for Forensic Intelligence Purposes**
Kari Graham, BS; Rachel Houston, PhD*
- B164** **The Development and Validation of a Rapid Color Test for Acetic Anhydride**
Muhammad Chaudhary, MPhil; Tahir Jamshaid, MPhil; Rabia Naveed, MPhil; Muhamamd Irfan Ashiq, PhD; Mohammad Tahir, PhD*
- B165** **A Journey: The International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) 17020:2012 Accreditation for Crime Scene Units in Latin America**
*Alejandro Madrigal, BS; Abraham Aysa, JD; Domingo Villarreal, BA; Ramon Diaz, MS**
- B166** **The Effect of Household Cleaning Agents on the Fluorescein Presumptive Blood Test**
River Williams; Jaymelee Kim, PhD*
- B167** **Soil Mineral Analysis by Particle Correlated Raman Spectroscopy (PCRS): Optimized Dispersion and Double-Pass Raman Analysis**
Savannah Brown, BS; Gabrielle Messe, BA; Hannah Garvin, MS; Nicholas Gogola, MS; Chase Notari, BS; Virginia Maxwell, PhD; John Reffner, PhD; Peter De Forest, PhD; Christopher Palenik, PhD; Peter Harrington, PhD; Deborah Huck-Jones, PhD; Bridget O'Donnell, PhD; Andrew Whitley, PhD; Brooke Kammrath, PhD*
- B168** **Feature Occurrence and Error Rates in Textile Physical Fit Comparisons**
Zachary Andrews, BS; Colton Diges; Tatiana Trejos, PhD*

- B169 The Detection of Animal Blood Using Green Synthesized Surface-Enhanced Raman Spectroscopy (SERS)**
*Geraldine Monjardez, PhD**; *Erin Bruner, MS*; *Rajesh Balaraman, PhD*; *Patrick Buzzini, PhD*
- B170 The Visualization of Bruises Using an Alternate Light Source (ALS)**
*Wan Yu, Tan, BS**; *Karen Kelly, MD*; *Ann Marie Mires, PhD*; *Sabra Jones, MS*
- B171 The Case of a Ferocious Double Homicide: When Your Home Hides the Killer and the Murder's Weapon**
Matteo Scopetti; *Martina Padovano**; *Federico Manetti*; *Martina Zanon*; *Alessandro Santurro*; *Stefano D'Errico*
- B172 The Effects of Improper Ammunition Storage**
*Victoria Andre, MS**; *Peter Diaczuk, PhD*; *Patrick McLaughlin, MS*

What's Next in Next Generation Sequencing

Moderator:

Michelle A. Peck, MFS
International Commission on Missing Persons
The Hague, South Holland, Netherlands

Co-Moderator:

Charla Marshall, PhD
Armed Forces DNA Identification Laboratory
Dover Air Force Base, DE

- 1:30 p.m. – 1:45 p.m. **B173 The Forensic Utility of the ForenSeq™ MainstAY Kit With Challenging Samples**
*Lucio Avellaneda, BS**; *Ryan Gutierrez, PhD*; *Rachel Houston, PhD*
- 1:45 p.m. – 2:00 p.m. **B174 A Modified ForenSeq™ DNA Signature Prep Kit Protocol for Increased Allele Recovery From Low DNA Quantities**
Sana Enke, BS; *Kimberly Eskey, MS*; *Tracy Ferguson, MS*; *Rebecca Just, PhD**
- 2:00 p.m. – 2:15 p.m. **B175 Predicting Short Tandem Repeat (STR) Genotypes From Identity-Informative Single Nucleotide Polymorphisms (SNPs) Across Three Ancestry Population Groups**
Anjalika Balasuriya, HBSc; *Nicole Novroski, PhD**; *Frank Wendt, PhD*
- 2:15 p.m. – 2:30 p.m. **B176 The Development of an Enhanced Buffer to Overcome Polymerase Chain Reaction (PCR) Inhibition for DNA Typing by Targeted Next Generation Sequencing (NGS)**
*Shan-Fu Wu**; *Keenan Fleming*; *Richelle Barta*; *June Snedecor*; *Samantha Snow*; *Joana Antunes*; *Sarah Radecke*; *Juan Perez*; *Gothami Padmabandu*; *Kathryn Stephens*
- 2:30 p.m. – 2:45 p.m. **B177 Evaluating Library Preparation Improvements of Short Tandem Repeats (STRs) Using the PowerSeq™ 46GY System for Massively Parallel Sequencing (MPS)**
*Kyleen Elwick, PhD**; *Patrick Rydzak, PhD*; *James Robertson, PhD*
- 2:45 p.m. – 3:00 p.m. **B178 Forensic Autosomal Short Tandem Repeat (STR) Profiling Using the Promega® PowerSeq™ Kit on Oxford Nanopore® Technologies' MinION Device**
Courtney Hall, MS; *Rupesh Kesharwani, PhD*; *Nicole Phillips, PhD*; *John Planz, PhD*; *Fritz Sedlazeck, PhD*; *Roxanne Zascavage, PhD**
- 3:00 p.m. – 3:15 p.m. **B179 GeoFOR: An Innovative Geographic Information Systems (GIS) -Based Application and Accumulated Degree Days (ADD) Calculator**
*Cristina Tica, PhD**; *Katherine Weisensee, PhD*; *Patrick Claflin*; *Patricia Carbajales-Dale, MS*
- 3:15 p.m. – 3:30 p.m. **BREAK**

Crime Scene Tools and Techniques

Moderator:

TBD

Co-Moderator:

TBD

- 3:30 p.m. – 3:45 p.m. **B180** **The Billey Joe Johnson Homicide**
*Bryan Burnett, MS**
- 3:45 p.m. – 4:00 p.m. **B181** **The Application of Artificial Intelligence (AI) Image Analysis Techniques to Bloodstain Pattern Analysis**
*James Creecy, PhD**; *Jicheng Fu, PhD*; *Craig Gravel, MA*
- 4:00 p.m. – 4:15 p.m. **B182** **Determining the Minimum Size of Soil Samples For Forensic Geological Analysis**
*Brittany Claassen, BS**; *Emma Redman*; *Ted Schwartz, MS*; *Thomas Brettell, PhD*; *Lawrence Quarino, PhD*
- 4:15 p.m. – 4:30 p.m. **B183** **The Development of a Technique for the Forensic Identification of Carrion Beetles**
*Amy Osborne, BS**; *Jennifer Rosati, PhD*; *Rabi Musah, PhD*
- 4:30 p.m. – 4:45 p.m. **B184** **Human Scent Biometrics: A Pilot Study in Source-Origin Determination**
*Vidia A. Gokool, MS**; *Howard K. Holness, PhD*; *Kenneth G. Furton, PhD*
- 4:45 p.m. – 5:00 p.m. **B185** **Volatile Organic Compounds (VOCs) Produced by Bacteria Associated With Decomposition**
*Veronica Cappas, BS**; *Megan Morris*; *Dan Syles, PhD*; *Reena Roy, PhD*
- 5:00 p.m. – 5:15 p.m. **B186** **Analyzing the “Cross-Hatch” Patterns of Clear Biaxially Oriented Polypropylene (BOPP) Tapes**
*Walter Rowe, PhD**
- 5:15 p.m. – 5:30 p.m. **B187** **“Leaf” It to Direct Analysis in Real-Time High Resolution Mass Spectrometry (DART®-HRMS) and Multivariate Statistical Analysis for the Forensic Identification of Illegally Traded Timber**
*Mónica Ventura, BS**; *Samira Beyramysoltan, PhD*; *Meghan Appley, MS*; *Edgard Espinoza, PhD*; *Rabi Musah, PhD*

Friday—Session II

Gunshot Residue

Moderator:

TBD

Co-Moderator:

TBD

- 8:30 a.m. – 8:45 a.m. **B188** **An Evaluation of Organic and Inorganic Gunshot Residues in Various Populations Using Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)**
*William Feeney, BS**; *Korina Menking-Hoggatt, PhD*; *Luis Arroyo, PhD*; *James Curran, PhD*; *Suzanne Bell, PhD*; *Tatiana Trejos, PhD*
- 8:45 a.m. – 9:00 a.m. **B189** **The Association of Smokeless Powders and Lab-Generated Residues to Organic Gunshot Residue (OGSR) Using Gas Chromatography/Mass Spectrometry (GC/MS) and Direct Analysis in Real-Time High Resolution Mass Spectrometry (DART®-HRMS) Analysis Followed by Chemometrics**
*Emily Lennert, MS**; *Candice Bridge, PhD*
- 9:00 a.m. – 9:15 a.m. **B190** **Elemental Profiling of Total Gunshot Residue (GSR) Using Total Reflection X-Ray Fluorescence (TXRF) Spectrometry**
*Samantha Gong, BS**; *Ling Huang, PhD*; *Jason Berger, MS*; *Nicole Homburger, BS*

- 9:15 a.m. – 9:30 a.m. **B191** **A Pilot Study of Lead Isotopes and Trace Element Utility in Shooting Investigations**
Aaron Hernandez Flores, AS; Gwyneth Gordon, PhD; Shirly Montero, PhD*
- 9:30 a.m. – 9:45 a.m. **B192** **A Study on the Longevity of Primer Gunshot Residue (pGSR) in an Outdoor Environment**
Christopher Chany, MS; Thomas White, BS; Juan Rojas, BS; Rebekah Lloyd, BS; Marcos Rivera, BSA*
- 9:45 a.m. – 10:00 a.m. **B193** **A Probabilistic Interpretation of a Large Population Study of Gunshot Residue (GSR) and Background Profiles Using Laser-Induced Breakdown Spectroscopy (LIBS), Electrochemistry, and Scanning Electron Microscopy With Energy-Dispersive X-Ray Spectroscopy (SEM/EDS)**
Korina Menking-Hoggatt, PhD; Colby Ott, MS; Courtney H. Vander Pyl, MS; Kourtney Dalzell, BS; James Curran, PhD; Luis Arroyo, PhD; Tatiana Trejos, PhD*
- 10:00 a.m. – 10:15 a.m. **BREAK**

This and That

Moderator:
TBD

Co-Moderator:
TBD

- 10:15 a.m. – 10:30 a.m. **B194** **Acid Phosphatase (AP) Detection in Food Products and Mold**
*Katrina Ostapovicz, MS; Amy Brodeur, MFS**
- 10:30 a.m. – 10:45 a.m. **B195** **Reducing Interference in the Ultraviolet/Visible (UV/Vis) Spectra of Blood Samples to Detect Ethylenediaminetetraacetic Acid (EDTA) via the Reverse EDTA Detection in Blood Using Eriochrome® Black T [EBT] and UV/Vis (RED-BLEU) Assay**
Kristen M. Atkinson, BS; Brittany C. Hudson, MSFS; Catherine Cupples Connon, PhD*
- 10:45 a.m. – 11:00 a.m. **B196** **Volatile Organic Compounds (VOCs) Associated With Diseased Human Blood**
Megan Morris; Veronica Cappas, BS; Dan Sykes, PhD; Virginia Greenberger, PhD*
- 11:00 a.m. – 11:15 a.m. **B197** **The Stages of Heat Damage to Fabrics Encountered in Forensic Clothing Examination: A Microscopic Examination**
Cheyenne Smith; Chesterene Cwiklik, BS; Braeden Camarota; Lauren Bouoju Davies*
- 11:15 a.m. – 11:30 a.m. **B198** **The Effect of Washing on the Transfer and Persistence of Fiber Evidence**
Madison Carter, BS; Brooke Kammrath, PhD; John Reffner, PhD; Virginia Maxwell, DPhil*

Drugs II

Moderator:
TBD

Co-Moderator:
TBD

- 11:30 a.m. – 11:45 a.m. **B199** **The Identification of Toxic Adulterants in Seized Drug Material Around the World**
Judith Rodriguez Salas, MSFS; Amanda Mohr, MSFS; Thom Browne, MA; Barry Logan, PhD*
- 11:45 a.m. – 12:00 p.m. **B200** **X-Ray Powder Diffraction: A Unique Approach for Identifying and Differentiating Controlled Substances**
*Hillary Culbertson, PhD**
- 12:00 p.m. – 12:15 p.m.

12:15 p.m. – 1:15 p.m. **B201** **An Evaluation of Two Portable Devices for the Detection of Common Drug-Facilitated Crimes (DFC) Drugs**
Hannan Latif, MS; Nikolas P. Lemos, PhD*

BREAK

Drugs III

Moderator:
TBD

Co-Moderator:
TBD

1:15 p.m. – 1:30 p.m. **B202** **Understanding Research Methods, Limitations, and Appropriate Applications of Drug Data Collected by the National Forensic Laboratory Information System (NFLIS-Drug)**
*Wayne Pitts, PhD; David Heller, BS; Hope Smiley-McDonald, PhD; BeLinda J. Weimer, MA; Megan Grabenauer, PhD; Katherine Bollinger; Jeri Roper-Miller, PhD; DeMia Pressley, MS**

1:30 p.m. – 1:45 p.m. **B203** **Project REMEDY: Providing Emerging Drug Data and Materials to the Community**
Edward Sisco, PhD; Aaron Urbas, PhD; Sara Driscoll, BS; Hunter Haddad, MS; Rebecca Jones, BS; Trinette Spratley, BS; Sherri L. Tupik, BS*

1:45 p.m. – 2:00 p.m. **B204** **Using the Drug Enforcement Administration's (DEA's) Forensic Laboratory Drug Chemistry Report Data to Validate the Federal Bureau of Investigation's (FBI's) Law Enforcement Drug Seizure Data**
Nick Richardson, PhD; Wayne Pitts, PhD; David Heller, BS; Hope Smiley-McDonald, PhD; Megan Grabenauer, PhD; DeMia Pressley, MS*

2:00 p.m. – 2:15 p.m. **B205** **The Effect of Modifications to the Core Fentanyl Structure on the Observed Product Ion Spectra**
Alia Hacker, BS; Tyler Davidson, PhD; Glen Jackson, PhD*

2:15 p.m. – 2:30 p.m. **B206** **An Evaluation of the Physical and Chemical Variation in Tablets Found to Contain Fentanyl**
Emily Lockhart, MS; James Jordan, PhD*

2:30 p.m. – 2:45 p.m. **B207** **An Analysis of Fentalogs and Illicit Fentanyl Vapor Profiles**
Stephanie Vaughan, PhD; Ashley Fulton, PhD; Lauryn DeGreeff, PhD*

2:45 p.m. – 3:00 p.m. **B208** **The New National Institute of Standards and Technology/National Institute of Justice (NIST/NIJ) Direct Analysis in Real-Time Mass Spectrometry (DART®-MS) Data Interpretation Tool (DIT)**
Arun Moorthy PhD; Edward Sisco, PhD; Stephen Tennyson, BS; Ruthmara Corzo, PhD*

3:00 p.m. – 3:15 p.m. **B209** **Best Buds—Ambient Ionization Coupled With Mass Spectrometry for the Forensic Analysis of Cannabinoid-Infused Complex Matrices**
Megan Chambers, BS; Rabi Musah, PhD*

3:15 p.m. – 3:30 p.m. **BREAK**

Drugs IV—Cannabis Quantitation

Moderator:

TBD

Co-Moderator:

TBD

- 3:30 p.m. – 3:45 p.m. **B210** **A Retrospective Review of Hemp/Marijuana Decision Point Assays in Operational Laboratories**
*James Miller, MA**; *Kay McClain, BS*; *Charles Cline, BS*; *Ya-Chih (Jessica) Cheng, MS*; *Sarah Kerrigan, PhD*
- 3:45 p.m. – 4:00 p.m. **B211** **Factors Influencing the *In Situ* Formation of Psychoactive Cannabinoids From Cannabidiol During Gas Chromatography/Mass Spectrometry (GC/MS) Analysis**
*Ya-Chih (Jessica) Cheng, MS**; *Sarah Kerrigan, PhD*
- 4:00 p.m. – 4:15 p.m. **B212** **An Analysis of Cannabis Plant Materials by Infrared Spectroscopy for Differentiating Hemp and Marijuana**
*Aaron Urbas, PhD**; *Ewelina Mistek-Morabito, PhD*; *Igor Lednev, PhD*; *Walter Wilson, PhD*; *Melissa Phillips, PhD*
- 4:15 p.m. – 4:30 p.m. **B213** **The National Institute of Standards and Technology (NIST) Cannabis Quality Assurance Program (CannaQAP): A Tool for Improving Quantitative Measurements in Cannabis**
*Melissa Phillips, PhD**; *Walter Wilson, PhD*
- 4:30 p.m. – 4:45 p.m. **B214** **Testosterone as an Internal Standard in Qualitative Decision-Point Assays for the Differentiation of Hemp From Cannabis: Optimization and Limitations in High Cannabidiol (CBD) Matrices**
*Jose Gonzalez, BS**
- 4:45 p.m. – 5:00 p.m. **B215** **Distinguishing Hemp and Marijuana Using a Portable Mid-Infrared Spectrometer**
*Sandra Rodriguez-Cruz, PhD**; *Michael Weaver, BS*