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

11:30 a.m. – 1:00 p.m.  B2 The Effects of Temperature and Precipitation on the Amount of Recoverable Human DNA From Soil During Decomposition  
Wesley Wagner*; Pamela L. Marshall, PhD

11:30 a.m. – 1:00 p.m.  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  
(FSF Emerging Forensic Scientist Award Poster Presentation)

11:30 a.m. – 1:00 p.m.  B4 Evaluating the Effectiveness of Microbial DNA Extraction Kits for Intimate Samples  
Grace Rutledge, BS*; Aaron Lynne, PhD; Rachel Houston, PhD; Sheree Hughes, PhD  
(FSF Emerging Forensic Scientist Award Poster Presentation)

11:30 a.m. – 1:00 p.m.  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

11:30 a.m. – 1:00 p.m.  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

11:30 a.m. – 1:00 p.m.  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  
(FSF Emerging Forensic Scientist Award Poster Presentation)

11:30 a.m. – 1:00 p.m.  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

11:30 a.m. – 1:00 p.m.  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

11:30 a.m. – 1:00 p.m.  B10 An Improved Method for the Analysis of Bisulfite Modified DNA Samples  
Deborah Silva, PhD*; Caitlin Lydon

11:30 a.m. – 1:00 p.m.  B11 The Use of a Mobile Fingerprint Identification Device in the Field and DNA Evidence: Benefits and Consequences  
Amber Wetherbee; Hope Hardman*; Nasir Butt, DPhil; Dawn Schilens, BS; Thomas Gilson, MD  
(FSF Emerging Forensic Scientist Award Poster Presentation)

11:30 a.m. – 1:00 p.m.  B12 Evaluating Different Collection Tools for Transfer DNA Deposited on Wooden Surfaces  
Antonia Atkinson, BS*; Alba Craig, BA; Krista Latham, PhD; Cynthia Cale, MS
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:30 a.m. –</td>
<td>B13</td>
<td>Extraction Techniques to Increase DNA Recovery From Touch DNA Samples</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ryan James Hinojosa, BS; Jillian Conte, PhD*; Lawrence Quarino, PhD;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Janine Kishbaugh, MSFS</td>
</tr>
<tr>
<td>11:30 a.m. –</td>
<td>B14</td>
<td>Modeling Assault From Touch DNA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jamie Fredericks, PhD; Michael Lane, PhD; Beighley Ayers*</td>
</tr>
<tr>
<td>11:30 a.m. –</td>
<td>B15</td>
<td>The Persistence of Transfer DNA on Touched Objects Over Time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alba Craig, BA*; Krista Latham, PhD; Cynthia Cale, MS; Stephen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nawrocki, PhD</td>
</tr>
<tr>
<td>11:30 a.m. –</td>
<td>B16</td>
<td>An Evaluation of Collection Methods for Direct Polymerase Chain Reaction (PCR) Amplification of Touch DNA Samples</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Anna Salmonsen, MFS*; Abigail Bathrick, MFS*; Jonathan Davoren, MS</td>
</tr>
<tr>
<td>11:30 a.m. –</td>
<td>B17</td>
<td>A Combined Extraction of Protein and DNA From Touch Evidence on Ammunition Cartridge Cases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ashlee Lynch, BS*; Glendon Parker, PhD</td>
</tr>
<tr>
<td>11:30 a.m. –</td>
<td>B18</td>
<td>Can Variations in DNA Profile Composition Collected From Different Areas of the Same Handgun Inform Future Sampling Strategies?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cynthia Cale, MS*; Jessica Miller, MS; Krista Latham, PhD; Erica</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cantor, MS</td>
</tr>
<tr>
<td>11:30 a.m. –</td>
<td>B19</td>
<td>The Quantification of Metal Ions Recovered During DNA Analysis of Brass Ammunition Using Inductively Coupled Plasma/Optical Emission Spectrometer (ICP/OES)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Natalia Czado, MSFS*; Sheree Hughes, PhD</td>
</tr>
<tr>
<td>11:30 a.m. –</td>
<td>B20</td>
<td>Validation of a Lateral-Flow Immunoassay Test for the Rapid Screening of Cocaine Samples</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Corey Nida, PhD*; Hunter Haddad, MS; Sandra Rodriguez-Cruz, PhD</td>
</tr>
<tr>
<td>11:30 a.m. –</td>
<td>B21</td>
<td>The Extraction and Identification of Illicit Compounds From Baked Goods Using Paper Spray Ionization Tandem Mass Spectrometry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Isabella Haberstock, BS*</td>
</tr>
<tr>
<td>11:30 a.m. –</td>
<td>B22</td>
<td>A Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) Method Development and Validation for the Quantitation of Cannabinoids in Hemp and Marijuana Samples</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Andrea Yarberry, PhD*; Jerome Mullor, MS; Melissa Phillips, PhD;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aaron Urbas, PhD; Walter Wilson, PhD</td>
</tr>
<tr>
<td>11:30 a.m. –</td>
<td>B23</td>
<td>A Novel Approach for Quantitation of Total Tetrahydrocannabinol (THC) in Cannabis Plant Extracts by Isotope Dilution Gas Chromatography/Mass Spectrometry (GC/MS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jerome Mullor, PhD; Melissa Phillips, PhD; Aaron Urbas, PhD; Walter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wilson, PhD</td>
</tr>
<tr>
<td>11:30 a.m. –</td>
<td>B24</td>
<td>The Classification of Cannabis Varieties Through Headspace Chemical Analysis and Transfer Learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ting-Yu Huang*; Jorn Chi-Chung Yu, PhD</td>
</tr>
<tr>
<td>11:30 a.m. –</td>
<td>B25</td>
<td>A Genetic and Chemical Characterization of the Cannabis Products Seized at the Croatian Cannabidiol (CBD) Stores</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Slavena Cukrov-Bezbradica, PhD*; Lucija Barbarić, PhD</td>
</tr>
<tr>
<td>11:30 a.m. –</td>
<td>B26</td>
<td>The Effects of Degradative Stress on the Headspace Profile of Fentanyl</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leann Forte, BS*; Stephanie Vaughan, PhD; Ashley Fulton, PhD; Lauryn</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Degreeff, PhD; Howard K. Holness, PhD; Kenneth G. Furton, PhD</td>
</tr>
</tbody>
</table>

All times are in the U.S. Pacific Time Zone
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:30 a.m. – 1:00 p.m.</td>
<td>B27</td>
<td><strong>Fentanyl Degradation in Syringes Obtained From Intravenous (IV) Drug Users in Washington, DC</strong></td>
<td>Shayla Montalvo, BA*; Alexandra Evans, MFS; Morgan Levitas, MFS; Luke Short, PhD</td>
</tr>
<tr>
<td></td>
<td>B28</td>
<td><strong>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)</strong></td>
<td>Kimiko Ferguson, MSc*; Michael Gilbert, BS; Reta Newman, MA; Jose Almirall, PhD</td>
</tr>
<tr>
<td></td>
<td>B29</td>
<td><strong>The Application of Electrospun Polymers With Metallic Nanoparticles for Use in the Detection of Fentanyl by Surface-Enhanced Raman Spectroscopy (SERS)</strong></td>
<td>Daniel Rubin, BA*; Mario Vendrell-Dones, MS; Ling Wang, PhD; Bruce McCord, PhD</td>
</tr>
<tr>
<td></td>
<td>B30</td>
<td><strong>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</strong></td>
<td>Jared Sharp, BS*; J. Tyler Davidson, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)</td>
</tr>
<tr>
<td></td>
<td>B31</td>
<td><strong>Silver-Doped Nanofibers as Surface-Enhanced Raman Spectroscopy (SERS) Substrates for the Detection of Synthetic Cathinones</strong></td>
<td>Mario Vendrell-Dones, MS*; Daniel Rubin, BA; Ling Wang, PhD; Bruce McCord, PhD</td>
</tr>
<tr>
<td></td>
<td>B32</td>
<td><strong>The Extraction of Cannabidiol (CBD) From Gelatin Edibles With Analysis by Paper Spray Ionization-Mass Spectrometry (PSI-MS)</strong></td>
<td>Cheyenne Granger, BA*</td>
</tr>
<tr>
<td></td>
<td>B33</td>
<td><strong>The Quantitation of Cannabinoids in Cannabis Sativa L. Plants From Pakistan Using Gas Chromatography/Flame Ionization Detector (GC/FID)</strong></td>
<td>Tahir Jamshaid, MPhil*; Muhammad Chaudhary, MPhil; Muhammad Usman, MS; Zahid Mehmoood, MPhil; Muhamamd Irfan Ashiq, PhD; Muhammad Tahir, PhD; Amina Iqbal</td>
</tr>
<tr>
<td></td>
<td>B34</td>
<td><strong>The Quantitation of Opium Alkaloids in Seized, Crushed, and Mowed Plant Material</strong></td>
<td>Muhammad Chaudhary, MPhil*; Tahir Jamshaid, MPhil; Muhammad Irfan Ashiq, PhD; Mohammad Tahir, PhD; Atiqa Asif, MPhil</td>
</tr>
<tr>
<td></td>
<td>B35</td>
<td><strong>The Use of Urine Rapid Response Fentanyl Test Strips to Detect Fentanyl in Seized Substances</strong></td>
<td>Lauren Bishop*</td>
</tr>
<tr>
<td></td>
<td>B36</td>
<td><strong>Continuous Vapor Sampling of Volatile Organic Compounds (VOCs) Associated With Explosives and Cocaine Using Capillary Microextraction of Volatiles (CMV)</strong></td>
<td>Jacqueline Rodriguez, MS*; Jose Almirall, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)</td>
</tr>
<tr>
<td></td>
<td>B37</td>
<td><strong>An Assessment of Robotic Solid Phase and Immunoaffinity Microextraction With Intact Mass Analysis for Saliva Identification in Forensic Samples</strong></td>
<td>Catherine Brown, PhD; Phillip Danielson, PhD; Kevin Legg, PhD*</td>
</tr>
<tr>
<td></td>
<td>B38</td>
<td><strong>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)</strong></td>
<td>Mia Fabbri, BS*; Marianne Staretz, PhD; Matthew Wood, PhD; Daniel Garrison, BS; Peter Harrsch, PhD; Thomas Brettell, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)</td>
</tr>
</tbody>
</table>
Thursday—Session I

Standards Development and What We Think

Moderator: Ashley Hall, PhD
Co–Moderator: Lucio Avellaneda, BS
University of Illinois at Chicago
Sam Houston State University
Chicago, IL
Huntsville, TX

8:30 a.m. – 8:45 a.m.  B39 Community Resources and Updates From the Scientific Working Group for DNA Analysis Methods (SWGDAM) Next Generation Sequencing (NGS) Committee
Katherine Gettings, PhD*

8:45 a.m. – 9:00 a.m.  B40 Standards Development Activities in Human Forensic Biology
Kristy Kadash, PhD*; 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
Co–Moderator: Emma M. Giacomello, BS
Sam Houston State University
Texas State University
Huntsville, TX
San Marcos, TX

10:00 a.m. – 10:15 a.m.  B44 Microbial Dynamics of Human Decomposition Accurately Estimate Postmortem Interval
Zachary Burcham*; Aerial 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

All times are in the U.S. Pacific Time Zone
## CRIMINALISTICS

### 10:45 a.m. – 11:00 a.m.  B47  Bone Fluorescence, Taphonomy, and the Postmortem Interval (PMI)
Natalie Moss*; Alexander Smith; Melissa Connor, PhD
*(FSF Emerging Forensic Scientist Award Oral Presentation)*

### 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
*(FSF Emerging Forensic Scientist Award Oral Presentation)*

### 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:**
Nicole Fernandez-Tejero, MSc
Florida International University
Miami, FL

**Co-Moderator:** TBD
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
Ema Graham, MS*; Michael Adamowicz, PhD; Jennifer Clarke, PhD; Samodha Fernando, PhD; Joshua Herr, PhD
*(FSF Emerging Forensic Scientist Award Oral Presentation)*

### 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
*(FSF Emerging Forensic Scientist Award Oral Presentation)*

### 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

---

All times are in the U.S. Pacific Time Zone
CRIMINALISTICS

DNA Extraction

**Moderator:** Jillian Conte, PhD  
**Co–Moderator:** Jennifer L. Snedeker, BS  
**MicroGEM**  
**Charlottesville, VA**

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 Kamrath, 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  
(FSF Emerging Forensic Scientist Award Oral Presentation)

3:45 p.m. – 4:00 p.m.  
**B62**  
**Alternative Sperm Cell Lysis Methods for Sexual Assault Samples**  
Sarah K. Schellhammer, MS; Brittany C. Hudson, MS*; Jordan O. Cox, MS; Tracey Dawson Green, PhD

---

**Thursday—Session II**

Methylation, Tissues, and Body Fluids

**Moderator:** Glendon Parker, PhD  
**Co–Moderator:** Ya Chi (Jessica) Cheng, MS  
**University of California, Davis**  
**Davis, CA**

8:30 a.m. – 8:45 a.m.  
**B63**  
**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  
(FSF Emerging Forensic Scientist Award Oral Presentation)

8:45 a.m. – 9:00 a.m.  
**B64**  
**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.  B65  Direct Messenger RNA (mRNA) Sequencing for the Identification and Analysis of Human Body Fluids  
Quentin Gauthier, PhD*; Patrick Rydzak, PhD; Kyleen Elwick, PhD; Mrk Kavlick, PhD

9:15 a.m. – 9:30 a.m.  B66  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  
(FSF Emerging Forensic Scientist Award Oral Presentation)

9:30 a.m. – 9:45 a.m.  B67  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.  B68  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  
(FSF Emerging Forensic Scientist Award Oral Presentation)

10:15 a.m. – 10:30 a.m.  B69  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  
(FSF Emerging Forensic Scientist Award Oral Presentation)

10:30 a.m. – 10:45 a.m.  B70  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.  B71  Solving Cold Cases With Databases: Considerations for the Application of Advanced DNA Searching Methodologies  
Ashley Rodriguez*

11:00 a.m. – 11:15 a.m.  B72  FauxDIS: An Interactive Online Forensic DNA Profile Database  
Ashley Hall, PhD*; Jonathan Bisson, PhD
A Little Bit of This, and a Little Bit of That

**Moderator:**
Megan M. Foley, MSFS
The George Washington University
Washington, DC

**Co–Moderator:**
Mirna Ghemrawi, MSFS
Florida International University
Miami, FL

11:15 a.m. – 11:30 a.m.  **B73**  WITHDRAWN

11:30 a.m. – 11:45 a.m.  **B74**  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.  **B75**  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.  **B76**  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.  **B77**  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

1:30 p.m. – 1:50 p.m.  **B78**  A Responsive Academy Seeing the Modern Forensic World Through the Lens of Its History: Lessons Learned From the Pioneering Jan Bashinski
Sandra B. Sachs, PhD*

1:50 p.m. – 2:10 p.m.  **B79**  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.  **B80**  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.  **B81**  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, D.Crim*; Edward Blake, D.Crim

2:45 p.m. – 3:00 p.m.  **B82**  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

All times are in the U.S. Pacific Time Zone
### Thursday—Session III

**Fire Debris, Explosives, and Firearms**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Presenters</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 a.m. – 8:45 a.m.</td>
<td>B87</td>
<td>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</td>
<td>Briana Capistran, PhD*; Matthew Staymates, MS; Edward Sisco, PhD</td>
</tr>
<tr>
<td>8:45 a.m. – 9:00 a.m.</td>
<td>B88</td>
<td>A Sensitivity Analysis of Dynamic Vapor Microextraction With Simulated Fire Debris</td>
<td>Jennifer Berry*; Mary Gregg; Amanda Koepke; Chris Suiter; Reta Newman, MA; Kavita Jeerage</td>
</tr>
<tr>
<td>9:00 a.m. – 9:15 a.m.</td>
<td>B89</td>
<td>Gasoline Identification by Pattern Recognition: Facts and Myths</td>
<td>Reta Newman, MA*; Brenda Christy, MS; Kelsey Winters, MS; Michael Gilbert, BS</td>
</tr>
<tr>
<td>9:15 a.m. – 9:30 a.m.</td>
<td>B90</td>
<td>Standards Development Activities Related to Ignitable Liquids, Explosives (ILE), and Gunshot Residue (GSR)</td>
<td>Brenda Christy, MS*</td>
</tr>
<tr>
<td>9:30 a.m. – 10:00 a.m.</td>
<td>B91</td>
<td>Standards Development Activities in Firearm and Toolmark Examination</td>
<td>Jennifer Floyd, BS*; Gregory Laskowski, MPA</td>
</tr>
<tr>
<td>10:00 a.m. – 10:15 a.m.</td>
<td>B92</td>
<td>Bullet Ricochet of Polymer-Coated Bullets</td>
<td>Stephen Daly*; Peter Diaczuk, PhD</td>
</tr>
<tr>
<td>10:15 a.m. – 10:30 a.m.</td>
<td>B93</td>
<td>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</td>
<td>Bandula Nishshanka, MS*; Randika Ariyarathna, MS; Chris Shepherd, PhD</td>
</tr>
<tr>
<td>10:30 a.m. – 10:45 a.m.</td>
<td>B94</td>
<td>The Forensic Discrimination of Aluminum Sources in Improvised Explosive Devices (IEDs) Using Quantitative Trace Elemental Analysis</td>
<td>Anjuli Bhandari, PhD*; Michelle Jordan, PhD; Christopher Saunders, PhD; Danica Ommen, PhD; JoAnn Buscaglia, PhD</td>
</tr>
</tbody>
</table>
CRIMINALISTICS

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 *(FSF Emerging Forensic Scientist Award Poster Presentation)

11:30 a.m. – 1:00 p.m.  B102  Student Perceptions of the Forensic Science Major at Middle Tennessee State University
Cole Buffalini, BS*; Frank Bailey, PhD; Karen Reed, PhD

11:30 a.m. – 1:00 p.m.  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

11:30 a.m. – 1:00 p.m.  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

11:30 a.m. – 1:00 p.m.  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

All times are in the U.S. Pacific Time Zone
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Presenters</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:30 a.m.</td>
<td>B106</td>
<td>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</td>
<td>Joon Y. Kim, PhD*</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B107</td>
<td>The Evaluation of a Thermodynamic Model to Predict the Weathering of Ignitable Liquids at Different Temperatures</td>
<td>H. L. McMillen, PhD; G. P. Jackson, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B108</td>
<td>Quantitative Ballistic Cartridge Case Analysis Using Micro-Computed Tomography (CT)</td>
<td>K. Alsop, MS; D. Norman, PhD; G. Remy, PhD; P. Wilson, PhD; M. Williams (FSF Emerging Forensic Scientist Award Poster Presentation)</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B109</td>
<td>An Internal Validation Study of the TopMatch 3D Scanner for Cartridge Cases</td>
<td>K. Carrillo, BS*; A. Moser, BS; J. Turner, MS (FSF Emerging Forensic Scientist Award Poster Presentation)</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B110</td>
<td>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</td>
<td>O. Ovide, BS*; R. Corzo, PhD; T. Trejos, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B111</td>
<td>A Microscopical Examination and Elemental Analysis of Automotive Lubricating Greases</td>
<td>J. Estevanes, BS*; R. Balaraman, PhD; P. Buzzini, PhD; G. Monjardez, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B112</td>
<td>Rapid Spectrochemical Mapping Techniques for the Enhanced Detection and Visualization of Gunshot Residue (GSR) Patterns</td>
<td>C. Vander, MS*; K. Menking-Hoggatt, PhD; T. Trejos, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B113</td>
<td>Combining Novel Sampling Techniques and Electrochemical Detection in Gunshot Residue (GSR) Analysis for Bullet Hole Identification and Distance Determination</td>
<td>K. Dalzell, BS*; C. Vander, MS; T. Trejos, PhD; L. Arroyo, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B114</td>
<td>A Characterization of Mounting Media for Hair and Fiber Microscopy</td>
<td>M. Lawas, MS; L. Otterstatter, BS; J. Friedman, MS; J. Donfack, PhD* (FSF Emerging Forensic Scientist Award Poster Presentation)</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B115</td>
<td>A Diagnosis of Abusive Head Trauma (AHT): The Role of Immunohistochemistry in a Multidisciplinary Approach</td>
<td>E. Mezzetti, MD*; A. Costantino, MD; A. Scatena, MD; G. Visi, MD; P. Santoro, MD; F. Del Duca, MD</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B116</td>
<td>Visualizing Shed Skin Cells in Fingerprint Residue Using Dark Field Microscopy</td>
<td>S. Muramoto, PhD*</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B117</td>
<td>An Evaluation of the Stability and Durability of an Inkless Method for Fingerprint Recordings</td>
<td>S. Li, BS*; J. Alcaraz-Fossoul, PhD</td>
</tr>
</tbody>
</table>
CRIMINALISTICS

Trace: Metals, Paint, Hair, Glass, Tire

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  WITHDRAWN

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
(FSF Emerging Forensic Scientist Award Oral Presentation)

2:15 p.m. – 2:30 p.m.  B123  WITHDRAWN

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
(FSF Emerging Forensic Scientist Award Oral Presentation)

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
(FSF Emerging Forensic Scientist Award Oral Presentation)

3:15 p.m. – 3:30 p.m.  BREAK

Drugs I

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

All times are in the U.S. Pacific Time Zone
### CRIMINALISTICS

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Presenters</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00 p.m. – 4:15 p.m.</td>
<td>B129</td>
<td><strong>Evaluating the Robustness and Ruggedness of a Statistical Method to Compare Mass Spectra</strong></td>
<td>Andrew Sacha, BS*; Victoria McGuffin, PhD; Ruth Waddell Smith, PhD</td>
<td><em>(FSF Emerging Forensic Scientist Award Oral Presentation)</em></td>
</tr>
<tr>
<td>4:15 p.m. – 4:30 p.m.</td>
<td>B130</td>
<td><strong>WITHDRAWN</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4:30 p.m. – 4:45 p.m.</td>
<td>B131</td>
<td><strong>The Development of an Expert Algorithm for Substance Identification (EASI) of Fentanyl Analogs Using Mass Spectrometry</strong></td>
<td>Alexandra Adeoye, BS*; Glen P. Jackson, PhD</td>
<td><em>(FSF Emerging Forensic Scientist Award Oral Presentation)</em></td>
</tr>
<tr>
<td>4:45 p.m. – 5:00 p.m.</td>
<td>B132</td>
<td><strong>Extracted Volatiles From Cannabis Smoke: A Potential Source for the Determination of Detectable Exhalable Breath Components in Users</strong></td>
<td>Katherine E. Zink, PhD*; Kavita M. Jeerage, PhD; Tara M. Lovestead, PhD</td>
<td></td>
</tr>
<tr>
<td>5:00 p.m. – 5:15 p.m.</td>
<td>B133</td>
<td><strong>Gas Chromatography/Mass Spectrometry (GC/MS) of Phencyclidine (PCP) Analogs</strong></td>
<td>Alexandra Kuchinos, BS*; Thomas Brettell, PhD; Lawrence Quarino, PhD; Jennifer Bonetti, MS</td>
<td><em>(FSF Emerging Forensic Scientist Award Oral Presentation)</em></td>
</tr>
<tr>
<td>5:15 p.m. – 5:30 p.m.</td>
<td>B134</td>
<td><strong>High-Performance Thin-Layer Chromatography (HPTLC) Separation of Tryptamine-Based Hallucinogens</strong></td>
<td>Kelsey Patterson, BS*; Matthew Wood, PhD; Jeanne Berk, PhD; Thomas Brettell, PhD</td>
<td><em>(FSF Emerging Forensic Scientist Award Oral Presentation)</em></td>
</tr>
</tbody>
</table>

#### Friday—Session I

**DNA Mixtures**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Presenters</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 a.m. – 8:45 a.m.</td>
<td>B135</td>
<td><strong>Interpreting DNA Mixtures With Extreme Allele Overlap</strong></td>
<td>Timothy Kalafut, PhD*; Jo-Anne Bright, PhD; Duncan Taylor, PhD; John Buckleton, DSc</td>
<td></td>
</tr>
<tr>
<td>8:45 a.m. – 9:00 a.m.</td>
<td>B136</td>
<td><strong>The Effect of Pull-Up on the Allele Peak Heights and the Weights of Genotypes for Minor Donors</strong></td>
<td>Damani Johnson, BS*; Tim Kalafut, PhD</td>
<td><em>(FSF Emerging Forensic Scientist Award Oral Presentation)</em></td>
</tr>
<tr>
<td>9:00 a.m. – 9:15 a.m.</td>
<td>B137</td>
<td><strong>The Detection and Analysis of DNA Mixtures With the MiSeq® FGx™</strong></td>
<td>Rachel Houston, PhD*; Timothy Kalafut, PhD; Ryan Gutierrez, PhD</td>
<td></td>
</tr>
<tr>
<td>9:15 a.m. – 9:30 a.m.</td>
<td>B138</td>
<td><strong>Enhanced Mixture Interpretation With Macrohaplotypes Based on Long Read DNA Sequencing</strong></td>
<td>Jianye Ge, PhD*; Jonathan King, MS; Sammed Mandape, MS; Bruce Budowle, PhD</td>
<td></td>
</tr>
<tr>
<td>9:30 a.m. – 9:45 a.m.</td>
<td></td>
<td><strong>BREAK</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All times are in the U.S. Pacific Time Zone
## 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

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:45 a.m. – 10:00 a.m.</td>
<td>B139</td>
<td>Results From a Probabilistic Genotyping Software for the Continuous Interpretation of Next Generation Sequencing (NGS) Autosomal Short Tandem Repeat (aSTR) Mixtures</td>
<td>Kevin Cheng, MS*; Jo-Anne Bright, PhD; James Curran, PhD; John Buckleton, DSc</td>
</tr>
<tr>
<td>10:00 a.m. – 10:15 a.m.</td>
<td>B140</td>
<td>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)</td>
<td>Kaitlin Huffman, MS*; Erin Hanson, PhD; Jack Ballantyne, PhD</td>
</tr>
<tr>
<td>10:15 a.m. – 10:30 a.m.</td>
<td>B141</td>
<td>Automated Familial Search Using a Probabilistic Genotype Database</td>
<td>Matthew Legler, BS; Kevin Miller, PhD; Mark Perlin, MD, PhD*; Garett Sugimoto, MS</td>
</tr>
<tr>
<td>10:30 a.m. – 10:45 a.m.</td>
<td>B142</td>
<td>Using DNA Mixtures for Relationship Inference and Missing Persons Identification</td>
<td>Maarten Kruijver, PhD*</td>
</tr>
<tr>
<td>10:45 a.m. – 11:00 a.m.</td>
<td>B143</td>
<td>“Essentially, All Models Are Wrong, but Some Are Useful”—A Comparison of Likelihood Ratios Obtained From EuroForMix and STRmix™</td>
<td>Kevin Cheng, MS*; Øyvind Bleka, PhD; Peter Gill, PhD; James Curran, PhD; Jo-Anne Bright, PhD; Duncan Taylor, PhD; John Buckleton, DSc</td>
</tr>
<tr>
<td>11:00 a.m. – 11:15 a.m.</td>
<td>B144</td>
<td>Peeling Away Uncertainty: A Probabilistic Approach to DNA Mixture Deconvolution</td>
<td>William Allan, MS; Hajara Chaudhry, MS; John Donahue, MA; Mark Perlin, MD, PhD*; Mark Wilson, PhD</td>
</tr>
</tbody>
</table>

## 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

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:15 a.m. – 11:30 a.m.</td>
<td>B145</td>
<td>How Forensic Genetic Genealogy (FGG) Is Supporting the Combined DNA Index System (CODIS) and the Criminal Justice System</td>
<td>Colleen Fitzpatrick, PhD*</td>
</tr>
<tr>
<td>11:30 a.m. – 11:45 a.m.</td>
<td>B146</td>
<td>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</td>
<td>Robert Bever, PhD*; Teresa Vreeland, BS</td>
</tr>
<tr>
<td>11:45 a.m. – 12:00 p.m.</td>
<td>B147</td>
<td>Internal Validation of the ForenSeq™ Kintelligence Kit for Application to Forensic Genetic Genealogy Cases</td>
<td>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</td>
</tr>
</tbody>
</table>
### CRIMINALISTICS

**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

**11:30 a.m. – 1:00 p.m.**  
**B151**  
**A Comprehensive Evaluation of the ForenSeq™ DNA Signature Prep Kit on the MiSeq® FGx™ Next Generation Sequencing (NGS) System**  
Chelsea Jones, BS*; Megan Foley, MSFS; Thomas Walsh, MSFS; Justina Nichola, BS; Fabio Oldoni, PhD  
*(FSF Emerging Forensic Scientist Award Poster Presentation)*

**11:30 a.m. – 1:00 p.m.**  
**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

**11:30 a.m. – 1:00 p.m.**  
**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

**11:30 a.m. – 1:00 p.m.**  
**B154**  
**An Evaluation of the QIAamplifier® 96 Thermal Cycler**  
Madeline Roman, PhD*; Josh Abernathy, MSFS; Bryan Davis, BS

**11:30 a.m. – 1:00 p.m.**  
**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  
*(FSF Emerging Forensic Scientist Award Poster Presentation)*

**11:30 a.m. – 1:00 p.m.**  
**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

**11:30 a.m. – 1:00 p.m.**  
**B157**  
**An Evaluation of Microhaplotype Markers in Kinship Analysis in a Korean Population**  
Sohee Cho, PhD*; Soong Deok Lee, MD, PhD

**11:30 a.m. – 1:00 p.m.**  
**B158**  
**WITHDRAWN**

**11:30 a.m. – 1:00 p.m.**  
**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; Gordana Lauz; Simun Andjelinovic; Zeljana Basic; Ivana Krujc; Marijana Neuberg; Martina Smolic; Robert Smolic; Irena Hrstic; Dragan Trivanovic; Ridaj Konjhdzic; Lana Salihefendic; Naida Babic Jordamovic; Damir Marjanovic

---

*All times are in the U.S. Pacific Time Zone*
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:30 a.m.</td>
<td>B160</td>
<td>Rapidly Mutating Y-Chromosomal Short Tandem Repeats (RM Y-STRs) in Punjabi Deep-Rooted Endogamous Pedigrees From Pakistan</td>
<td>Shahid Nazir, PhD*</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B161</td>
<td>Developing Effective and Sustainable Teaching Labs for Forensic DNA Courses</td>
<td>Catherine Cupples Connon, PhD*</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B162</td>
<td>The Evaluation of Cannabinoid Synthase Polymorphisms for Distinguishing Between Marijuana and Hemp</td>
<td>Ya-Chih Cheng, MS*; Rachel Houston, PhD; Sarah Kerrigan, PhD; Madeline Roman, PhD</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B163</td>
<td>An Evaluation of Chloroplast DNA Barcoding Markers to Individualize Papaver Somniferum for Forensic Intelligence Purposes</td>
<td>Kari Graham, BS*; Rachel Houston, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B164</td>
<td>The Development and Validation of a Rapid Color Test for Acetic Anhydride</td>
<td>Muhammad Chaudhary, MPhil*; Tahir Jamshaid, MPhil; Rabia Naveed, MPhil; Mohammad Irfan Ashiq, PhD; Mohammad Tahir, PhD</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B165</td>
<td>A Journey: The International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) 17020:2012 Accreditation for Crime Scene Units in Latin America</td>
<td>Alejandro Madrigal, BS; Abrahm Aysa, JD; Domingo Villarreal, BA; Ramon Diaz, MS*</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B166</td>
<td>The Effect of Household Cleaning Agents on the Fluorescein Presumptive Blood Test</td>
<td>River Williams*; Jaymelee Kim, PhD</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B167</td>
<td>Soil Mineral Analysis by Particle Correlated Raman Spectroscopy (PCRS): Optimized Dispersion and Double-Pass Raman Analysis</td>
<td>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</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B168</td>
<td>Feature Occurrence and Error Rates in Textile Physical Fit Comparisons</td>
<td>Zachary Andrews, BS*; Colton Diges; Tatiana Trejos, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B169</td>
<td>The Detection of Animal Blood Using Green Synthesized Surface-Enhanced Raman Spectroscopy (SERS)</td>
<td>Geraldine Monjardez, PhD*; Erin Bruner, MS; Rajesh Balaraman, PhD; Patrick Buzzini, PhD</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B170</td>
<td>The Visualization of Bruises Using an Alternate Light Source (ALS)</td>
<td>Wan Yu Tan, BS*; Karen Kelly, MD; Ann Marie Mires, PhD; Sabra Jones, MS</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B171</td>
<td>The Case of a Ferocious Double Homicide: When Your Home Hides the Killer and the Murder’s Weapon</td>
<td>Matteo Scopetti; Martina Padovano*; Federico Manetti; Martina Zanon; Alessandro Santurro; Stefano D’Errico</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>B172</td>
<td>The Effects of Improper Ammunition Storage</td>
<td>Victoria Andre, MS*; Peter Diaczuk, PhD; Patrick McLaughlin, MS</td>
</tr>
</tbody>
</table>
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
*(FSF Emerging Forensic Scientist Award Oral Presentation)*

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** 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

3:00 p.m. – 3:15 p.m. **BREAK**

Crime Scene Tools and Techniques

**Moderator:**
TBD

**Co–Moderator:**
TBD

3:15 p.m. – 3:30 p.m. **B179** Forensic Austosomal 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*

3:30 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

All times are in the U.S. Pacific Time Zone
4:00 p.m. – 4:15 p.m. B182Determining the Minimum Size of Soil Samples For Forensic Geological Analysis
Brittany Claassen, BS*; Emma Redman; Ted Schwartz, MS; Thomas Brettell, PhD; Lawrence Quarino, PhD
(FSF Emerging Forensic Scientist Award Oral Presentation)

4:15 p.m. – 4:30 p.m. B183The Development of a Technique for the Forensic Identification of Carrion Beetles
Amy Osborne, BS*; Jennifer Rosati, PhD; Rabi Musah, PhD
(FSF Emerging Forensic Scientist Award Oral Presentation)

4:30 p.m. – 4:45 p.m. B184Human Scent Biometrics: A Pilot Study in Source-Origin Determination
Vidia A. Gokool, MS*; Howard K. Holness, PhD; Kenneth G. Furton, PhD
(FSF Emerging Forensic Scientist Award Oral Presentation)

4:45 p.m. – 5:00 p.m. B185Volatile Organic Compounds (VOCs) Produced by Bacteria Associated With Decomposition
Veronica Cappas, BS*; Megan Morris; Dan Syles, PhD; Reena Roy, PhD
(FSF Emerging Forensic Scientist Award Oral Presentation)

5:00 p.m. – 5:15 p.m. B186Analyzing 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
(FSF Emerging Forensic Scientist Award Oral Presentation)

Friday—Session II

Gunshot Residue

Moderator: TBD
Co–Moderator: TBD

8:30 a.m. – 8:45 a.m. B188An 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. B189The 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
(FSF Emerging Forensic Scientist Award Oral Presentation)

9:00 a.m. – 9:15 a.m. B190Elemental Profiling of Total Gunshot Residue (tGSR) 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. B191A Pilot Study of Lead Isotopes and Trace Element Utility in Shooting Investigations
Aaron Hernandez Flores, AS*; Gwyneth Gordon, PhD; Shirly Montero, PhD
(FSF Emerging Forensic Scientist Award Oral Presentation)
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30 a.m. – 9:45 a.m.</td>
<td>B192</td>
<td><strong>A Study on the Longevity of Primer Gunshot Residue (pGSR) in an Outdoor Environment</strong></td>
<td>Christopher Chany, MS*; Thomas White, BS; Juan Rojas, BS; Rebekah Lloyd, BS; Marcos Rivera, BSA</td>
</tr>
<tr>
<td>9:45 a.m. – 10:00 a.m.</td>
<td>B193</td>
<td><strong>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)</strong></td>
<td>Korina Menking-Hoggatt, PhD*; Colby Ott, MS; Courtney H. Vander Pyl, MS; Kourtney Dalzell, BS; James Curran, PhD; Luis Arroyo, PhD; Tatiana Trejos, PhD</td>
</tr>
<tr>
<td>10:00 a.m. – 10:15 a.m.</td>
<td></td>
<td><strong>This and That</strong></td>
<td></td>
</tr>
<tr>
<td>10:15 a.m. – 10:30 a.m.</td>
<td>B194</td>
<td><strong>Acid Phosphatase (AP) Detection in Food Products and Mold</strong></td>
<td>Katrina Ostapovicz, MS; Amy Brodeur, MFS*</td>
</tr>
<tr>
<td>10:30 a.m. – 10:45 a.m.</td>
<td>B195</td>
<td><strong>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</strong></td>
<td>Kristen M. Atkinson, BS*; Brittany C. Hudson, MSFS; Catherine Cupples Connon, PhD (FSF Emerging Forensic Scientist Award Oral Presentation)</td>
</tr>
<tr>
<td>10:45 a.m. – 11:00 a.m.</td>
<td>B196</td>
<td><strong>Volatile Organic Compounds (VOCs) Associated With Diseased Human Blood</strong></td>
<td>Megan Morris*; Veronica Cappas, BS; Dan Sykes, PhD; Virginia Greenberger, PhD (FSF Emerging Forensic Scientist Award Oral Presentation)</td>
</tr>
<tr>
<td>11:00 a.m. – 11:15 a.m.</td>
<td>B197</td>
<td><strong>The Stages of Heat Damage to Fabrics Encountered in Forensic Clothing Examination: A Microscopic Examination</strong></td>
<td>Cheyenne Smith*; Chesterene Cwiklik, BS; Braeden Camarota; Lauren Bouoju Davies</td>
</tr>
<tr>
<td>11:15 a.m. – 11:30 a.m.</td>
<td>B198</td>
<td><strong>The Effect of Washing on the Transfer and Persistence of Fiber Evidence</strong></td>
<td>Madison Carter, BS*; Brooke Kammrath, PhD; John Reffner, PhD; Virginia Maxwell, DPhil</td>
</tr>
<tr>
<td>11:30 a.m. – 11:45 a.m.</td>
<td>B199</td>
<td><strong>The Identification of Toxic Adulterants in Seized Drug Material Around the World</strong></td>
<td>Judith Rodriguez Salas, MSFS*; Amanda Mohr, MSFS; Thom Browne, MA; Barry Logan, PhD</td>
</tr>
<tr>
<td>11:45 a.m. – 12:00 p.m.</td>
<td>B200</td>
<td><strong>X-Ray Powder Diffraction: A Unique Approach for Identifying and Differentiating Controlled Substances</strong></td>
<td>Hillary Culbertson, PhD*</td>
</tr>
<tr>
<td>12:00 p.m. – 12:15 p.m.</td>
<td>B201</td>
<td><strong>An Evaluation of Two Portable Devices for the Detection of Common Drug-Facilitated Crimes (DFC) Drugs</strong></td>
<td>Hannan Latif, MS*; Nikolas P. Lemos, PhD (FSF Emerging Forensic Scientist Award Oral Presentation)</td>
</tr>
<tr>
<td>12:15 p.m. – 1:15 p.m.</td>
<td></td>
<td><strong>Break</strong></td>
<td></td>
</tr>
</tbody>
</table>
## Drugs III

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Presenters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:15 p.m. –</td>
<td>B202</td>
<td>Understanding Research Methods, Limitations, and Appropriate Applications of Drug Data Collected by the National Forensic Laboratory Information System (NFLIS-Drug)</td>
<td>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*</td>
</tr>
<tr>
<td>1:30 p.m. –</td>
<td>B203</td>
<td>Project REMEDY: Providing Emerging Drug Data and Materials to the Community</td>
<td>Edward Sisco, PhD*; Aaron Urbas, PhD; Sara Driscoll, BS; Hunter Haddad, MS; Rebecca Jones, BS; Trinette Spratley, BS; Sherri L. Tupik, BS</td>
</tr>
<tr>
<td>1:45 p.m. –</td>
<td>B204</td>
<td>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</td>
<td>Nick Richardson, PhD*; Wayne Pitts, PhD; David Heller, BS; Hope Smiley-McDonald, PhD; Megan Grabenauer, PhD; DeMia Pressley, MS</td>
</tr>
<tr>
<td>2:00 p.m. –</td>
<td>B205</td>
<td>WITHDRAWN</td>
<td></td>
</tr>
<tr>
<td>2:15 p.m. –</td>
<td>B206</td>
<td>An Evaluation of the Physical and Chemical Variation in Tablets Found to Contain Fentanyl</td>
<td>Emily Lockhart, MS*; James Jordan, PhD</td>
</tr>
<tr>
<td>2:30 p.m. –</td>
<td>B207</td>
<td>An Analysis of Fentalogs and Illicit Fentanyl Vapor Profiles</td>
<td>Stephanie Vaughan, PhD*; Ashley Fulton, PhD; Lauryn DeGreeff, PhD*</td>
</tr>
<tr>
<td>2:45 p.m. –</td>
<td>B208</td>
<td>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)</td>
<td>Arun Moorthy PhD*; Edward Sisco, PhD; Stephen Tennyson, BS; Ruthmara Corzo, PhD</td>
</tr>
<tr>
<td>3:00 p.m. –</td>
<td>B209</td>
<td>Best Buds—Ambient Ionization Coupled With Mass Spectrometry for the Forensic Analysis of Cannabinoid-Infused Complex Matrices</td>
<td>Megan Chambers, BS*; Rabi Musah, PhD (FSF Emerging Forensic Scientist Award Oral Presentation)</td>
</tr>
<tr>
<td>3:15 p.m. –</td>
<td>B210</td>
<td>A Retrospective Review of Hemp/Marijuana Decision Point Assays in Operational Laboratories</td>
<td>James Miller, MA*; Kay McClain, BS; Charles Cline, BS; Ya-Chih (Jessica) Cheng, MS; Sarah Kerrigan, PhD</td>
</tr>
<tr>
<td>3:45 p.m. –</td>
<td>B211</td>
<td>Factors Influencing the In Situ Formation of Psychoactive Cannabinoids From Cannabidiol During Gas Chromatography/Mass Spectrometry (GC/MS) Analysis</td>
<td>Ya-Chih Cheng, MS*; Sarah Kerrigan, PhD (FSF Emerging Forensic Scientist Award Oral Presentation)</td>
</tr>
</tbody>
</table>

## Drugs IV—Cannabis Quantitation

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Presenters</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:30 p.m. –</td>
<td>B210</td>
<td>A Retrospective Review of Hemp/Marijuana Decision Point Assays in Operational Laboratories</td>
<td>James Miller, MA*; Kay McClain, BS; Charles Cline, BS; Ya-Chih (Jessica) Cheng, MS; Sarah Kerrigan, PhD</td>
</tr>
<tr>
<td>3:45 p.m. –</td>
<td>B211</td>
<td>Factors Influencing the In Situ Formation of Psychoactive Cannabinoids From Cannabidiol During Gas Chromatography/Mass Spectrometry (GC/MS) Analysis</td>
<td>Ya-Chih Cheng, MS*; Sarah Kerrigan, PhD (FSF Emerging Forensic Scientist Award Oral Presentation)</td>
</tr>
<tr>
<td>Time</td>
<td>Session</td>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4:00 p.m. – 4:15 p.m.</td>
<td>B212</td>
<td>An Analysis of Cannabis Plant Materials by Infrared Spectroscopy for Differentiating Hemp and Marijuana</td>
<td>Aaron Urbas, PhD*; Ewelina Mistek-Morabito, PhD; Igor Lednev, PhD; Walter Wilson, PhD; Melissa Phillips, PhD</td>
</tr>
<tr>
<td>4:15 p.m. – 4:30 p.m.</td>
<td>B213</td>
<td>The National Institute of Standards and Technology (NIST) Cannabis Quality Assurance Program (CannaQAP): A Tool for Improving Quantitative Measurements in Cannabis</td>
<td>Melissa Phillips, PhD; Walter Wilson, PhD*</td>
</tr>
<tr>
<td>4:30 p.m. – 4:45 p.m.</td>
<td>B214</td>
<td>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</td>
<td>Jose Gonzalez, BS*</td>
</tr>
<tr>
<td>4:45 p.m. – 5:00 p.m.</td>
<td>B215</td>
<td>WITHDRAWN</td>
<td></td>
</tr>
</tbody>
</table>