



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



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11:30 a.m. – 1:00 p.m.	B13	Extraction Techniques to Increase DNA Recovery From Touch DNA Samples Ryan James Hinojosa, BS; Jillian Conte, PhD*; Lawrence Quarino, PhD; Janine Kishbaugh, MSFS
11:30 a.m. – 1:00 p.m.	B14	Modeling Assault From Touch DNA Jamie Fredericks, PhD; Michael Lane, PhD; Beighley Ayers*
11:30 a.m. – 1:00 p.m.	B15	The Persistence of Transfer DNA on Touched Objects Over Time Alba Craig, BA*; Krista Latham, PhD; Cynthia Cale, MS; Stephen Nawrocki, PhD
11:30 a.m. – 1:00 p.m.	B16	An Evaluation of Collection Methods for Direct Polymerase Chain Reaction (PCR) Amplification of Touch DNA Samples Anna Salmonsén, MFS*; Abigail Bathrick, MFS*; Jonathan Davoren, MS
11:30 a.m. – 1:00 p.m.	B17	A Combined Extraction of Protein and DNA From Touch Evidence on Ammunition Cartridge Cases Ashlee Lynch, BS*; Glendon Parker, PhD
11:30 a.m. – 1:00 p.m.	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
11:30 a.m. – 1:00 p.m.	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
11:30 a.m. – 1:00 p.m.	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
11:30 a.m. – 1:00 p.m.	B21	The Extraction and Identification of Illicit Compounds From Baked Goods Using Paper Spray Ionization Tandem Mass Spectrometry Isabella Haberstock, BS*
11:30 a.m. – 1:00 p.m.	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 Yarberry, PhD*; Jerome Mulloor, MS; Melissa Phillips, PhD; Aaron Urbas, PhD; Walter Wilson, PhD
11:30 a.m. – 1:00 p.m.	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 Yarberry, PhD
11:30 a.m. – 1:00 p.m.	B24	The Classification of Cannabis Varieties Through Headspace Chemical Analysis and Transfer Learning Ting-Yu Huang*; Jorn Chi-Chung Yu, PhD
11:30 a.m. – 1:00 p.m.	B25	A Genetic and Chemical Characterization of the Cannabis Products Seized at the Croatian Cannabidiol (CBD) Stores Slavena Cukrov-Bezbradica, PhD*; Lucija Barbarić, PhD
11:30 a.m. – 1:00 p.m.	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 <i>(FSF Emerging Forensic Scientist Award Poster Presentation)</i>



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| 11:30 a.m. – 1:00 p.m. | 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 |
| 11:30 a.m. – 1:00 p.m. | 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 |
| 11:30 a.m. – 1:00 p.m. | 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 |
| 11:30 a.m. – 1:00 p.m. | 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
<i>(FSF Emerging Forensic Scientist Award Poster Presentation)</i> |
| 11:30 a.m. – 1:00 p.m. | 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 |
| 11:30 a.m. – 1:00 p.m. | B32 | The Extraction of Cannabidiol (CBD) From Gelatin Edibles With Analysis by Paper Spray Ionization-Mass Spectrometry (PSI-MS)
Cheyenne Granger, BA* |
| 11:30 a.m. – 1:00 p.m. | B33 | The Quantitation of Cannabinoids in <i>Cannabis Sativa</i> 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 |
| 11:30 a.m. – 1:00 p.m. | 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 |
| 11:30 a.m. – 1:00 p.m. | B35 | The Use of Urine Rapid Response Fentanyl Test Strips to Detect Fentanyl in Seized Substances
Lauren Bishop* |
| 11:30 a.m. – 1:00 p.m. | 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
<i>(FSF Emerging Forensic Scientist Award Poster Presentation)</i> |
| 11:30 a.m. – 1:00 p.m. | 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* |
| 11:30 a.m. – 1:00 p.m. | 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
<i>(FSF Emerging Forensic Scientist Award Poster Presentation)</i> |
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Thursday—Session I

Standards Development and What We Think

Moderator:

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

Co-Moderator:

Lucio Avellaneda, BS
Sam Houston State University
Huntsville, TX

- 8:30 a.m. – 8:45 a.m. **B39** **Community Resources and Updates From the Scientific Working Group for DNA Analysis Methods (SWGAM) 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
Sam Houston State University
Huntsville, TX

Co-Moderator:

Emma M. Giacomello, BS
Texas State University
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



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



DNA Extraction

Moderator:

Jillian Conte, PhD
MicroGEM
Charlottesville, VA

Co-Moderator:

Jennifer L. Snedeker, BS
Sam Houston State University
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
(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
University of California, Davis
Davis, CA

Co-Moderator:

Ya Chi (Jessica) Cheng, MS
Sam Houston State University
Huntsville, TX

- 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



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- 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; Mqrk 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



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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 Crysups, 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, DCrim*; Edward Blake, DCrim
- 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



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3:00 p.m. – 3:15 p.m.	B83	Lessons Learned From a 40-Year Career in Forensic Science Barry Fisher, MS, MBA*
3:15 p.m. – 3:30 p.m.	B84	Fixing Forensic Science by Learning How to Learn From Our Mistakes Brian Gestring, MS*
3:30 p.m. – 3:45 p.m.	B85	Reclaiming Forensic Science: A Closer Look at the Sydney Declaration Michelle D. Miranda, PhD; Sheila Willis, PhD; Patrick Buzzini, PhD*; Rebecca Bucht, PhD
3:45 p.m. – 4:00 p.m.		BREAK
4:00 p.m. – 4:15 p.m.	B86	Case Contextual Information and Its Variation Among Forensic Laboratories Taylor Hopkins*; Lyndsie Ferrara, PhD (FSF Emerging Forensic Scientist Award Oral Presentation)
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.	B87	The Development of an <i>In Situ</i> 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.	B88	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.	B89	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.	B90	Standards Development Activities Related to Ignitable Liquids, Explosives (ILE), and Gunshot Residue (GSR) Brenda Christy, MS*
9:30 a.m. – 10:00 a.m.	B91	Standards Development Activities in Firearm and Toolmark Examination Jennifer Floyd, BS*; 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

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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



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- 11:30 a.m. – 1:00 p.m. **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*
- 11:30 a.m. – 1:00 p.m. **B107** **The Evaluation of a Thermodynamic Model to Predict the Weathering of Ignitable Liquids at Different Temperatures**
Hannah L. McMillen*; Glen P. Jackson, PhD
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. – 1:00 p.m. **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
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. – 1:00 p.m. **B109** **An Internal Validation Study of the TopMatch 3D Scanner for Cartridge Cases**
Kayli Carrillo, BS*; Alexis Moser, BS; Jennifer Turner, MS
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. – 1:00 p.m. **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
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. – 1:00 p.m. **B111** **A Microscopical Examination and Elemental Analysis of Automotive Lubricating Greases**
Jared Estevanes, BS*; Rajesh Balaraman, PhD; Patrick Buzzini, PhD; Geraldine Monjardez, PhD
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. – 1:00 p.m. **B112** **Rapid Spectrochemical Mapping Techniques for the Enhanced Detection and Visualization of Gunshot Residue (GSR) Patterns**
Courtney Vander Pyl, MS*; Korina Menking-Hoggatt, PhD; Tatiana Trejos, PhD
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. – 1:00 p.m. **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
- 11:30 a.m. – 1:00 p.m. **B114** **A Characterization of Mounting Media for Hair and Fiber Microscopy**
Maria Lawas, MS; Linda Otterstatter, BS; Joshua Friedman, MS; Joseph Donfack, PhD*
- 11:30 a.m. – 1:00 p.m. **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
- 11:30 a.m. – 1:00 p.m. **B116** **Visualizing Shed Skin Cells in Fingerprint Residue Using Dark Field Microscopy**
Shin Muramoto, PhD*
- 11:30 a.m. – 1:00 p.m. **B117** **An Evaluation of the Stability and Durability of an Inkless Method for Fingerprint Recordings**
Sihai Li, BS*; Josep De Alcaraz-Fossoul, PhD
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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** **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 Kamrath, 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*; Shirley 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 Baudalet, 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

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



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- 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
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 4:15 p.m. – 4:30 p.m. **B130** **WITHDRAWN**
- 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
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 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
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 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
(FSF Emerging Forensic Scientist Award Oral Presentation)

Friday—Session I

DNA Mixtures

Moderator:

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

Co-Moderator:

Rachelle A. Turiello, MS
University of Virginia
Charlottesville, VA

- 8:30 a.m. – 8:45 a.m. **B135** **Interpreting DNA Mixtures With Extreme Allele Overlap**
Timothy 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
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 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
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 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*; Garrett 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
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 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



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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, MS*; 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** **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

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; Gordan Lauc; Simun Andjelinovic; Zeljana Basic; Ivana Kruzic; Marijana Neuberg;
Martina Smolic; Robert Smolic; Irena Hrstic; Dragan Trivanovic; Rijad Konjhdzic;
Lana Salihefendic; Naida Babic Jordamovic; Damir Marjanovic

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| 11:30 a.m. – 1:00 p.m. | B160 | Rapidly Mutating Y-Chromosomal Short Tandem Repeats (RM Y-STRs) in Punjabi Deep-Rooted Endogamous Pedigrees From Pakistan
Shahid Nazir, PhD* |
| 11:30 a.m. – 1:00 p.m. | B161 | Developing Effective and Sustainable Teaching Labs for Forensic DNA Courses
Catherine Cupples Connon, PhD* |
| 11:30 a.m. – 1:00 p.m. | B162 | The Evaluation of Cannabinoid Synthase Polymorphisms for Distinguishing Between Marijuana and Hemp
Ya-Chih Cheng, MS*; Rachel Houston, PhD; Sarah Kerrigan, PhD; Madeline Roman, PhD |
| 11:30 a.m. – 1:00 p.m. | B163 | An Evaluation of Chloroplast DNA Barcoding Markers to Individualize <i>Papaver Somniferum</i> for Forensic Intelligence Purposes
Kari Graham, BS*; Rachel Houston, PhD
(FSF Emerging Forensic Scientist Award Poster Presentation) |
| 11:30 a.m. – 1:00 p.m. | 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 |
| 11:30 a.m. – 1:00 p.m. | 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* |
| 11:30 a.m. – 1:00 p.m. | B166 | The Effect of Household Cleaning Agents on the Fluorescein Presumptive Blood Test
<i>River Williams*</i> ; <i>Jaymelee Kim, PhD</i> |
| 11:30 a.m. – 1:00 p.m. | 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 |
| 11:30 a.m. – 1:00 p.m. | B168 | Feature Occurrence and Error Rates in Textile Physical Fit Comparisons
Zachary Andrews, BS*; Colton Diges; Tatiana Trejos, PhD
(FSF Emerging Forensic Scientist Award Poster Presentation) |
| 11:30 a.m. – 1:00 p.m. | 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 |
| 11:30 a.m. – 1:00 p.m. | 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 |
| 11:30 a.m. – 1:00 p.m. | B171 | The Case of a Ferocious Double Homicide: When Your Home Hides the Killer and the Murderer's Weapon
Matteo Scopetti; Martina Padovano*; Federico Manetti; Martina Zanon; Alessandro Santurro; Stefano D'Errico |
| 11:30 a.m. – 1:00 p.m. | 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
(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 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*
- 3:30 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



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- 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
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 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
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 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
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 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
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 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
(FSF Emerging Forensic Scientist Award Oral Presentation)

Friday—Session II

Gunshot Residue

Moderator:

TBD

Co-Moderator:

TBD

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- 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
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 9:00 a.m. – 9:15 a.m. **B190** **Elemental 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. **B191** **A Pilot Study of Lead Isotopes and Trace Element Utility in Shooting Investigations**
Aaron Hernandez Flores, AS*; Gwyneth Gordon, PhD; Shirley Montero, PhD
(FSF Emerging Forensic Scientist Award Oral Presentation)



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

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



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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** **WITHDRAWN**
- 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
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 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 Cheng, MS*; Sarah Kerrigan, PhD
(FSF Emerging Forensic Scientist Award Oral Presentation)



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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	WITHDRAWN