CRIMINALISTICS

Wednesday

Poster Session: DNA

11:30 am – 1:00 pm	**B1**	**Beyond Direct DNA Matches: Building Kinship Analysis Capacity Through National Training and Technical Assistance** Misty Marra, MSFS*; Mikalaa M. Martin, BS; Kelsey Massutti, MS; Neal Parsons, MS; Emily G. Strelka, MS
11:30 am – 1:00 pm	**B2**	**A New Tool for Trace DNA Collection** Jamie D. Fredericks, PhD*; Jill Snyder, BS
11:30 am – 1:00 pm	**B3**	**DNA Barcoding of *Mitragyna Speciosa* (Kratom): An Evaluation of Commercial Product Authenticity and Genetic Variation Among Marketed Kratom Varieties** Jasmine L. Sierra, BS*; Rachel Houston, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*
11:30 am – 1:00 pm	**B4**	**Evaluating the Persistence of Touch DNA on Common Forensic Surfaces Over Time** Madison Angeles, BS*; Lavinia Iancu, PhD
11:30 am – 1:00 pm	**B5**	**Evaluating the Relationship Between Cosmetic Trace Characterization and Biological Recovery Following Environmental Exposure** Elizabeth Chesna, PhD*; Siena Johnson, BS; Madeline G. McLeod, PhD
11:30 am – 1:00 pm	**B6**	**The Persistence and Detectability of Touch DNA on Textile Substrates Following Submersion in Freshwater and Marine Simulated Environments** Makenna Lanus, BS*; Lavinia Iancu, PhD
11:30 am – 1:00 pm	**B7**	**Experimental Validation of Seminal Trace Detection Under Challenging Forensic Conditions: An Evidence-Based Forensic Approach** Marco Piraino, MD*; Mauro Midiri, MD; Paola Meli, MD; Maria Puntarello, MD; Ginevra Malta, MD, PhD; Antonina Argo, MD, PhD
11:30 am – 1:00 pm	**B8**	**Forensic STR Profiling of 3rd–8th Century AD Petrous Bones: Shifting Chronological Limits of Standard Multiplexes** Alessandro Mameli, MS; Andrea Berti, PhD; Gavino Piras, MS; Chiara Della Rocca, PhD*
11:30 am – 1:00 pm	**B9**	**From Fragments to Alleles: An Odyssey Through STR Sequence Analysis Software for Degraded Human Remains** Pablo Solis, BS*; Mayra Eduardoff, PhD; Rachel Houston, PhD; Sheree R. Hughes, PhD; Amy Z. Mundorff, PhD; Ahana Chatterjee, MS; Jennifer Snedeker, PhD; Hayle Boechler, MS; Pieter van Oers, MSc; Erik de Jong, BS *(FSF Emerging Forensic Scientist Award Poster Presentation)*
11:30 am – 1:00 pm	**B10**	**Improved DNA Recovery From Blood, Saliva, and Decomposed Remains Using a Modified Automated EZ2 Extraction Protocol** Evelyn Gomez, BS*; Olivia M. Shick, BS; Kaylie Berkman, MS; Alexia A. Cassman, BS; Sheree R. Hughes, PhD; Rachel Houston, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*
11:30 am – 1:00 pm	**B11**	**Massively Parallel Sequencing of Short Tandem Repeats From Rootless Hair: What Worked, What Failed, and What Comes Next** Samantha M. Altman, BS*; Mason Adams, BS; Elaine Lewis, PhD; Ya-Chih (Jessica) Chang, PhD; Mia Gale, MFS; Daniele S. Podini, PhD*

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11:30 am – 1:00 pm	**B12**	**A Non-Random Recovery of Off-Target DNA During Hybridization Capture of Human Hair Shaft DNA** Angeleudys Miranda, BS*; Elaine Lewis, PhD; Daniele S. Podini, PhD
11:30 am – 1:00 pm	**B13**	**Evaluating EDTA Decalcification Conditions for DNA Recovery From Human Femoral Cortical Bone Using Robotic DNA Extraction** Kennedy M. Lamb, APM*; Sylvia G. Baehman, MS
11:30 am – 1:00 pm	**B14**	**Forensic Challenges of Low-Template DNA Mixtures: A Systematic Evaluation of Probabilistic Genotyping With High-Efficiency Microhaplotype Panels** Weibo Liang, MD*; Xiameng Chen, MD; Qiuyun Yang, MD; Shengqiu Qu, MD; Lin Zhang, MD
11:30 am – 1:00 pm	**B15**	**Forensic Genetics in Art History: Extracting and Analyzing Mitochondrial DNA From Ancient Sculptures to Determine Their Species and Haplogroup of Origin** Sofia Mateus Cano, BS*; Nathan H. Lents, PhD
11:30 am – 1:00 pm	**B16**	**From Degraded to Deciphered: Applying ATAC-seq to Forensic Molecular Diagnosis Under Degradation Conditions** Xiameng Chen, MD*; Weibo Liang, MD; Lin Zhang, MD; Shengqiu Qu, MD; Qiuyun Yang, MD
11:30 am – 1:00 pm	**B17**	**Rethinking Ancestry Inference: A Comparative Review of Short Tandem Repeats and Single Nucleotide Polymorphisms for Biogeographic Ancestry Prediction** Niharika Niharika, MSc*; Jagmahender Singh Sehrawat, PhD

Poster Session: Non-DNA

11:30 am – 1:00 pm	**B18**	**A Novel RNA SNP-Based Strategy for Forensic Analysis of Human Hair** Rebecca Flanagan, BS*; Emily Mendenilla; Jack Ballantyne, PhD; Erin Hanson, PhD
11:30 am – 1:00 pm	**B19**	**A Qualitative and Quantitative Analysis of Projected Bloodstain Patterns Generated by Blunt Force Impacts** Rafael J. López*; Dannael Carrero, EdD
11:30 am – 1:00 pm	**B20**	**Advancing CE-Based mRNA Body Fluid Identification Through Novel Biomarkers and Assay Optimization** Emma Robertson, BS*; Erin Hanson, PhD
11:30 am – 1:00 pm	**B21**	**Amino Acid Profiling of Single Human Hairs for Demographic Classification and Identification Using Gas Chromatography/Mass Spectrometry (GC/MS)** Amali Lakmini Udugama Udugamayalage, BSc*; John V. Goodpaster, PhD
11:30 am – 1:00 pm	**B22**	**An Optimization and Validation of an SEM/EDS Method for the Chemical Characterization of Gunshot Residue** Milazim Tahirukaj, DSc*
11:30 am – 1:00 pm	**B23**	**An Optimized Cannabis Color Test Assisted With Droplet UV/Vis Spectroscopy** Christopher Collins, BA*; Kolby Vautour, BS; Nanette M. Wachter, PhD; Robert B. Cody, PhD; Ling Huang, PhD
11:30 am – 1:00 pm	**B24**	**An Analysis of Ruhemann's Purple (RP) by Raman Spectroscopy for the Detection of Ninhydrin-Developed Latent Friction Ridge Patterns** Daye Kim, MS*; Jorn (Chi-Chung) Yu, PhD; Darren L. Williams, PhD; Geraldine Monjardez, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*

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11:30 am – 1:00 pm	**B25**	**Assessing the Practicality of Implementing Nitrogen Direct Analysis in Real Time-Mass Spectrometry (N2 DART-MS) With Existing Spectral Interpretation Tools** Christany Liggins, BS*; Arun S. Moorthy, PhD; J. Tyler Davidson, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*
11:30 am – 1:00 pm	**B26**	**An Assessment of Fentanyl Decontamination by Oxidative Reactions in Acidic Solutions** Mehdi Moini, PhD*; Brian Eckenrode, PhD; Edward Bentil, PhD
11:30 am – 1:00 pm	**B27**	**An Assessment of Strat-M Membrane Reusability in Franz Diffusion Cell Models for Sexual Lubricant Products in Sexual Assault Investigations** Samantha Knoblock, BA*; Candice Bridge, PhD
11:30 am – 1:00 pm	**B28**	**Capturing Post-Blast Residues: Vacuum-Assisted Cotton Sampling of TNT for GC/MS Analysis** Krystal VanHorn, BS*; J. Tyler Davidson, PhD; Darren L. Williams, PhD; Geraldine Monjardez, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*
11:30 am – 1:00 pm	**B29**	**The Chemometric Discrimination of Bulk and Ammunition-Recovered Smokeless Powders by Gas Chromatography/Mass Spectrometry (GC/MS)** Riley Clark, BS*; Alexis J. Hecker, MFS*; John V. Goodpaster, PhD; Drew Mueller, BS; Faith Bittner, BS; Taylor Loudermilk, BS
11:30 am – 1:00 pm	**B30**	**The Determination of the Enantiomeric Makeup of Ketamine and Medetomidine in Street Drug Samples** Sarah A. Shuda, MS*; Edward Sisco, PhD
11:30 am – 1:00 pm	**B31**	**The Development and Evaluation of Gas Chromatography/Mass Spectrometry and Liquid Chromatography/Photo Diode Array/Mass Spectrometry for Qualitative Identification of Phyto and Semi-Synthetic Cannabinoids** Caroline F. Lopez, BS*; Sarah Steffen, MFS; Tanya Ryzi, MFS; Ya-Chih (Jessica) Cheng, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*
11:30 am – 1:00 pm	**B32**	**The Differentiation of 3cm Single-Hair Fragments by Nine Selected Amino Acid Ratios** Mara Hann, BS*; Robert H. Powers, PhD; Alyssa Marsico, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*

Thursday

Poster Session: DNA

11:30 am—1:00 pm	**B45**	**One After Another or Better Together? Comparing Sequential and Simultaneous Collection Strategies for Rapid DNA** Megan Skovranko, MS; Allie Flores, BSc; Dan Watsula, MS*
11:30 am—1:00 pm	**B46**	**A Performance Evaluation of the Fully Automated PrepStudio Express for Forensic Casework and Sexual Assault Samples** Erin Hanson, PhD*; Beatrice Goh, PhD; Laura Riccardi, PhD; Irene Wong, BS; Samantha Chernoguz, MA; Chang Zhong, PhD
11:30 am—1:00 pm	**B47**	**Pilot Study: The Impact of Situational Variables on the Collection of Air Environmental DNA Using Simulated Crime Scene Scenarios** Rhonda Williams, PhD; Ashley Schluter, BASc*

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11:30 AM – 1:00 PM	**B48**	**STRUCTURE and ForenSeq UAS Ancestry Predictions: A Comparison Study** Melody Gokce*; Büşra Tosun, MSFS; Filipa Simão, PhD; Kelly M. Elkins, PhD*
11:30 am—1:00 pm	**B49**	**A Temporal Characterization of Environment-Derived Microbes in Natural and Synthetic Latent Fingermarks** Abigail Grey, BS*; Josep De Alcaraz-Fossoul, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*
11:30 am—1:00 pm	**B50**	**The Development and Forensic Validation of a Multiplex MSRE-qPCR Assay for Simultaneous Age Prediction and Tissue Identification From Trace Touch DNA** Benjamin Chinyama, MSc*
11:30 am—1:00 pm	**B51**	**The Impact of Immigration on Forensic Databases: Preliminary Results From Mitochondrial DNA Analysis** Ashley Gonzalez-Castro*; Joan Oruitemeka; Amanda Hewitt, BS; Filipa Simão, PhD*
11:30 am—1:00 pm	**B52**	**The Persistence of Human-Associated Microbial Communities on Commonly Used Personal Objects** Ranna Dawlaty, BS*; Lavinia Iancu, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*
11:30 am—1:00 pm	**B53**	**Trace DNA Persistence on Pocket Knives: Assessing Direct and Indirect Transfer in Simulated Co-Offending Stabbing Events** Haley Boom, BS*; Mechthild Prinz, PhD; Michele Di Nunzio, PhD; Fabio Oldoni, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*
11:30 am—1:00 pm	**B54**	**A Tri-Locus Sequencing Approach for Forensic Identification of Indoor Ornamental Plant Species** Laila M. Mansour*; In-Deria Barrows, BS; Leamarye Flores; Alevia Gayle; Ruth Kim; Nefise Oksas, BS; Jessica Remache-Jara; Nathan H. Lents, PhD
11:30 am—1:00 pm	**B55**	**A Comparison of M-Vac and Swab Collection Methods for DNA Recovery From Bleach-Cleaned Bloodstains** Christina Harris, BS*; Gulnaz T. Javan, PhD
11:30 am—1:00 pm	**B56**	**A Comparison of Results From a New Study to Other Recent and Historical Studies Evaluating DNA Under Fingernails** Halli Vogt, BA*; Emily Jasek, MS; Alexia A. Cassman, BS; Tim Kalafut, PhD
11:30 am—1:00 pm	**B57**	**An Alternative Approach to DNA Extraction From Highly Degraded Bone Samples Using the QIAGEN DNeasy PowerSoil Pro Kit** Alexi Wade, BS*; Mayra Eduardoff, PhD
11:30 am—1:00 pm	**B58**	**The Identification and Characterization of Multi-InDels From the Whole Genome** Shengqiu Qu, MD*; Weibo Liang, MD; Xiameng Chen, MD; Qiuyun Yang, MD; Lin Zhang, MD
11:30 am—1:00 pm	**B59**	**The Performance of the ForenSeq Kintelligence HT System on Environmentally Exposed Postmortem Bone Samples and Rootless Hairs** Grace Millis, BS*; Alyse Ostojic, BS; Elaine Lewis, PhD; Daniele S. Podini, PhD; Nicole Jewett, MFS
11:30 am—1:00 pm	**B60**	**The Performance of the PowerPlex 18E System for STR Profiling of Decomposed Human Postmortem Tissues Compared with the PowerPlex Fusion System** Eun-Byoul Jung, BS*; Ga Eun Kim, MSc; Chae Min Lee, BS; So Youn Im, MSc; Moon-Young Kim, MD, PhD

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11:30 am—1:00 pm	**B61**	**An Exploration of the Skin Virome as a Forensic Identification Tool** Andre Dumont, MSc*; Jamie Mong, PhD; Nayana Prabhu, PhD; Chin Chin Lim, MBA
11:30 am—1:00 pm	**B62**	**Integrating Emerging Methods for Forensic Application of Methylation-Based Age Prediction by Enzymatic Conversion, Nanopore Sequencing, and Deep Learning** Jolene Toh, BSc*; Jamie Mong, PhD; Prabhakaran Munusamy, MSc; Nayana Prabhu, PhD; Chin Chin Lim, MBA

Poster Session: Non-DNA

11:30 am—1:00 pm	**B63**	**A Case of Death After Custody: A Multidisciplinary Approach** Luca Dell'Amore, MD*; Irene Pradelle, MD; Matilde Ruju, MD; Viviana Ghesini, MD*; Francesca Righini, MSc; Margherita Neri, MD, PhD
11:30 am—1:00 pm	**B64**	**The Evaluation of Odor Profile Reproducibility in Candidate Substrates for Canine Training Aids** Fernando Zaldivar Eyre, MSFS*; Kenneth G. Furton, PhD; Lauryn DeGreeff, PhD
11:30 am—1:00 pm	**B65**	**The Identification of Cannabinoids Related to Delta-9-THC by Derivatization and GC/MS Analysis** James V. DeFrancesco, PhD*; Blake King
11:30 am—1:00 pm	**B66**	**The National Institute of Standards and Technology (NIST) Mass Spectral Reference Libraries** Edward Erisman, MS*
11:30 am—1:00 pm	**B67**	**The Optimization of Headspace SPME-GC/MS for Human Hand Volatile Organic Compound Profiling in Forensic Applications** Farnaz Javadimarand, MS*; Kenneth G. Furton, PhD
11:30 am—1:00 pm	**B68**	**WITHDRAWN**
11:30 am—1:00 pm	**B69**	**The Development of an LC/MS Method for the Recovery and Identification of Liquid Explosives From Challenging Matrices** Reshma Valmiki*; A. Bakarr Kanu, PhD
11:30 am—1:00 pm	**B70**	**Turning Up the Heat on Complex Mixtures: An Alternative Approach for the Analysis of Seized Drug Mixtures Using TD-DART-MS** Alleigh N. Couch, PhD*; Keshonna Towns, MS; J. Tyler Davidson, PhD
11:30 am—1:00 pm	**B71**	**Understanding the Chemical Origin and Variability of Gasoline Detergent Additives by DART-MS for Forensic Source Discrimination** Mengliang Zhang, PhD*; Daniel Sheehan, BAS; Ngee Chong, PhD
11:30 am—1:00 pm	**B72**	**Using Dry ATR/FTIR Spectroscopy to Identify 1,4-Butanediol in Alcoholic Beverages With Sugar and Other Flavor Additives** Thomas Spudich, PhD*; Ethan Nugen; Emma Madden; Myles Brant, BS; Aidan Bein, BS; Christina Hayes, MNS
11:30 am—1:00 pm	**B73**	**You Can't Elute With Us: The Development of a UPLC-PDA Method for the Screening of Benzodiazepines** Haley King, BS*; Carissa Burton, MS; Eduardo G. de Campos, PhD; Geraldine Monjardez, PhD
11:30 am—1:00 pm	**B74**	**Occupational Exposures to Illicit Drugs in Forensic Laboratories** Jennie Cox, PhD*

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11:30 am—1:00 pm	**B75**	**Portable Raman Spectroscopy for Body Fluid Identification: An Evaluation of Commercial Instruments** Emily B. Tattrie, BS*; Mohamed Amin, PhD; Marisia A. Fikiet, PhD; Pauline E. Leary, PhD; Igor K. Lednev, PhD; Brooke W. Kammrath, PhD
11:30 am—1:00 pm	**B76**	**The Forensic Discrimination of Red Cotton and Polyester Fibers by Manufacturer Using Micro-Spectrophotometry, Statistical Modeling, and Machine Learning Analysis** Felix Yeboah, MS*; Britney Hitt, MSc; Tanaii D. Compton-James, BSc; Larry Tang, PhD; Andres D. Campiglia, PhD
11:30 am—1:00 pm	**B78**	**The Health Care Professional as the First Forensic Responder: An Interdisciplinary Framework for the First Response to Gender-Based Violence From an Italian Ministry of Health-Funded Project** Donatella Curtotti, PhD*; Luigi Nappi, PhD*; Wanda Nocerino, PhD*; Luigi Cipolloni, PhD; Elvira Grandone, PhD; Annamaria Petito, PhD; Felice Sorrentino, PhD; Alessandro Valenti, PhD
11:30 am—1:00 pm	**B79**	**Evaluating the Application of Thermal Desorption Direct Analysis in Real Time Mass Spectrometry (TD-DART-MS) for the Analysis of Electrical Tapes** Swathi Murali, MS*; Christany Liggins, BS; Patrick Buzzini, PhD; J. Tyler Davidson, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*

Thursday—Session I

Collection Techniques

Moderator: Harmeet Kaur, PhD — Co-Moderator: Paul Yount, DFS

8:30 am – 8:45 am	**B33**	**Blind Swabs vs. Self Swabs for DNA: A Socratic Debate** Carolyn Porta, PhD; Nancy R. Downing, PhD; Julie L. Valentine, PhD
8:45 am – 9:00 am	**B34**	**The DNA Left Behind: The Use of Trehalose as a Novel Strategy for Improving DNA Recovery** Sylvia G. Baehman, MS*; Robin W. Cotton, PhD
9:00 am – 9:15 am	**B35**	**Cross Your T's and Dot Your Eyes: The Optimization of DNA Recovery From Used Contact Lenses** Ashley Fannon, BS*; Fabio Oldoni, PhD; Sara Bodnar, MS; Coral M. Smith, MS *(FSF Emerging Forensic Scientist Award Oral Presentation)*
9:15 am – 9:30 am	**B36**	**An Evaluation of Propidium Iodide Nuclear Staining Coupled With Optical Tweezers for Saliva:Skin Cell Mixtures** Sarina Regis, BS*; Tracey Dawson Green, PhD; Joseph Reiner, PhD; Sarah Seashols-Williams, PhD *(FSF Emerging Forensic Scientist Award Oral Presentation)*
9:30 am – 9:45 am	**B37**	**Spectroscopic Characterization in Diverse Environments: Balancing Fingerprint Visualization With DNA Detection for Forensic Applications** Martyna Czarnomska, MS*; Marcelina Malinowska, PhD; Aneta Lewkowicz, PhD
9:45 am—10:00 am		**BREAK**

CRIMINALISTICS

Trace DNA

Moderator: Fabio Oldoni, PhD — Co-Moderator: Kelly Knight, MS

10:00 am – 10:15 am	**B39**	**Strategies to Improve STR Genotyping of Forensic Touch DNA Samples Collected From Challenging Surfaces for Human Identification** Joseph M. Rahm, PhD*
10:15 am – 10:30 am	**B40**	**Non-Destructive DNA Collection From Paper Substrates Using Electrostatic Detection Apparatus Combined With Direct PCR Amplification for STR Profiling** Rashed Alghafri, PhD*; Hamda Alfalasi, MBA; Atif Adnan, PhD
10:30 am – 10:45 am	**B41**	**Combining DNA From Multiple Fired Cartridge Cases Using Shared Microscopic Class Characteristics to Improve DNA Recovery** Savannah Koontz, MScFS*; Kayla Nichols, BS; Elizabeth L. Reilly; Stephanie Walcott, MScFS; Tracey Dawson Green, PhD
10:45 am – 11:00 am	**B42**	**The Recovery and Amplification of Touch DNA From Metal Surfaces** Caitlyn Amos, MSc*; Herve Menard, PhD; Alexander Gray, PhD; Niamh Nic Daeid, PhD
11:00 am – 11:15 am	**B43**	**An Objective Evaluation of Touch DNA Collection From Large Items of Evidence Using a Standardized Deposition Model** Heidi M. Haas, MS, ABC-CC*; Sylvia G. Baehman, MS; Thomas Spudich, PhD
11:15 am – 11:30 am	**B44**	**Front-End Separation of Trace DNA Mixtures Based on Time-Since-Deposition of Contributor Cell Populations** Arianna DeCorte, MS*; Christopher Ehrhardt, PhD; Gabrielle J. Wolfe, BS
11:30 am – 1:00 pm		**BREAK**

Laws, Standards, and Textbooks

Moderator: Rachel Houston, PhD — Co-Moderator: Cynthia Cale, MS

1:00 pm – 1:15 pm	**B80**	**You Can't Test Evidence You Don't Have: A Review of Biological Evidence Retention Laws in the United States** Margaret Frohnhoefer, BSc*; Reagen Dixon, BSc
1:15 pm – 1:30 pm	**B81**	**The Latest in Human Forensic Biology Standards Development** Jarrah R. Kennedy, MSFS*; Charlotte Word, PhD; Jillian Conte, PhD
1:30 pm – 1:45 pm	**B82**	**Progress Toward an Open-Access Forensic DNA Typing Textbook** John M. Butler, PhD*
1:45 pm – 2:00 pm		**BREAK**

CRIMINALISTICS

Transfer, Persistence, Prevalence, and Recovery

Moderator: Amy Brodeur, DFS | Co=Moderator: Sarah Seashols, PhD

2:00 pm – 2:15 pm	**B83**	**A Quantitative Analysis of DNA Transfer on Breast Swabs: Characterizing DNA-TPPR in Social and Intimate Contexts for Forensic Interpretation** Alexia A. Cassman, BS*; Tim Kalafut, PhD *(FSF Emerging Forensic Scientist Award Oral Presentation)*
2:15 pm – 2:30 pm	**B84**	**An Analysis of Trace DNA Transfer and Recovery Across Realistic Crime Scene Scenarios to Support Activity-Level Evaluations** Ashley Hall, PhD*; Ray Wickenheiser, DPS*
2:30 pm – 2:45 pm	**B85**	**DNA Transfer During Domestic Violence Incidents** Daniel Arend, BS*; Tim Kalafut, PhD *(FSF Emerging Forensic Scientist Award Oral Presentation)*
2:45 pm – 3:00 pm		**BREAK**

Sexual Assault

Moderator: Janine Kishbaugh, MS | Co=Moderator: Sylvia Etim

3:00 pm – 3:15 pm	**B86**	**Tracing Bacterial Transfer Following Sexual Assault** Dipanwita Raha, BSc*; Andrea Ramirez Torres, MSFS; Mirna Ghemrawi, PhD; George Duncan, PhD; Bruce R. McCord, PhD
3:15 pm – 3:30 pm	**B87**	**The Characterization of Cell-Free DNA in Seminal Plasma** Francis Vu, MS*; Robin W. Cotton, PhD
3:30 pm – 3:45 pm	**B88**	**An Evaluation of Optimized Differential Extraction (DE) Workflows for RapidHIT ID to Aid in the Analysis of Sexual Assault Evidence** Olivia Glaze, MSFS*; Haley Martin, BS; Rob Lagacé, BA; Erin Hanson, PhD
3:45 pm – 4:00 pm	**B89**	**Addressing the Backlog: Automated Differential Extraction and Next-Generation Sequencing to Streamline Sexual Assault Evidence Processing** Lyndsy Stacy, MS; Rachel Houston, PhD* *(FSF Emerging Forensic Scientist Award Oral Presentation)*
4:00 pm – 4:15 pm	**B90**	**Enhancing Forensic Detection of Male Sexual Fluids in Sexual Assault Cases Without Detectable Spermatozoa: High-Sensitivity PSA Validated Through ROC Analysis and Confirmed by Nuclear DNA Testing** Francesca T. Jimeno, APM*
4:15 pm – 4:30 pm		**BREAK**

Non-Human DNA

Moderator: Charlotte Word, PhD | Co-Moderator: Ashley Morgan, PhD

4:30 pm – 4:45 pm	**B91**	**The Development of an SSR-Based Panel for the Forensic Genetic Identification of *Ephedra Major* in Türkiye** Nurdan Sandikci, PhD*; Tuğba Ünsal Sapan, PhD; Sevil Atasoy, PhD

4:45 pm – 5:00 pm	**B92**	**Shielding the Evidence: An Evaluation of Cannabis Tissue Stabilization for Forensic Purposes** Michele Di Nunzio, PhD*; Aldo Di Nunzio, MSc; Ciro Di Nunzio, PhD; Pascale Basilicata, PhD; Maria Pieri, PhD
5:00 pm – 5:15 pm	**B93**	**Environmental DNA Metabarcoding of Fentanyl Seizures: A Proof-of-Concept for Differentiating Exhibits and Geographic Regions** Jennifer Snedeker, PhD; Lyndsy Stacy, MS; Olivia M. Shick, BS; Rachel Houston, PhD*
5:15 pm – 5:30 pm	**B94**	**Evidence-Type-Specific Effects of Relic DNA on Forensic Microbiome Source Attribution** Emily Cantrell, BS; Savannah C. Truan-Walker, BA; Julia Erie Tait, BS; Reese Saho, BS; Alison Buchan, PhD; Giovanna Vidoli, PhD; Zachary Burcham, PhD*

Thursday—Session II -

First, Let's Talk Controlled Substances…….Then, Let's Party!

Moderator: Mariene Strantz — Co-Moderator: Brooke Kammrath, PhD

8:30 am – 8:45 am	**B95**	**2027 Standards Development Activities in Seized Drugs: An Update From SWGDRUG, ASTM, and OSAC** Jaclyn Iera, PhD*; Anne L. Slaymaker, PhD*; S. Ina Fullbright, MS*
8:45 am – 9:00 am	**B96**	**A Qualitative and Quantitative Analysis of Regional Trends in Opioid Formulations** Joshua S. DeBord, PhD*; Alex J. Krotulski, PhD; Barry K. Logan, PhD
9:00 am – 9:15 am	**B97**	**Quantifying the Threat: Insights Into the Changing Illicit Drug Landscape Through NIST's RaDAR Program** Meghan G. Appley, PhD*; Sarah A. Shuda, MS; Edward Sisco, PhD
9:15 am – 9:30 am	**B98**	**Chemical Complexity in the Illicit Drug Supply: Multi-State HRMS Characterization of Seized Drug Exhibits** Madison Schackmuth, PhD*; Amanda L.A. Mohr, MSFS; Mia Borrelli, MScFS; Alexandra T. Kuchinos, MS; Macenzie Powell, MS; Allison Standifer, MS; Alyssa Stulz, BS; Barry K. Logan, PhD
9:30 am – 9:45 am	**B99**	**Navigating Semi-Synthetic Cannabinoid Interferences: Evaluating C18 and Phenyl Hexyl Columns for Forensic Δ9-THC Measurements** Walter B. Wilson, PhD*
9:45 am – 10:00 am		**BREAK**

Collaboration Across Sea, Space, Dope, and Education

Moderator: Edward Sisco, PhD — Co=Moderator: Abdallah Malik Naanaa, MS

10:00 am – 10:15 am	**B100**	**The FDA's Satellite Laboratory Operations—A Field Deployable Toolkit for the Rapid Analysis of Various Products and Substances at International Mail Facilities: A Designer Benzodiazepine Case Study** Brandon Reyes, MS*
10:15 am – 10:30 am	**B101**	**Collaboration Across the Sea: Establishing Sustainable, Accredited Forensic DNA Testing in the Small Island Developing State of Saint Lucia** Valerie Mattimore Fuller, PhD*; Fernanda Henry, MSFS*

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10:30 am – 10:45 am	**B102**	**Incorporating Risk-Based Safety Into the Development of Undergraduate Forensic Chemistry Teaching Laboratories** Eduardo G. de Campos, PhD*; Samuella B. Sigmann, MS
10:45 am – 11:00 am	**B103**	**The Development and Implementation of Student Choice Project-Based Learning Assignments in the Forensic Biology Higher Education Classroom** Ashley Morgan, PhD*
11:00 am – 11:15 am	**B104**	**Beyond Team Performance: The Validation of OSAC Certification Standards for Illicit Drug Detection Canines** Kathleen R. Sucher, BS*; Andrea C. Medrano, MSFS; Emma Calabrese, PhD; Adele Quigley-McBride, PhD; Paul C. Bunker; Lauryn DeGreeff, PhD; Paola A. Prada-Tiedemann, PhD *(FSF Emerging Forensic Scientist Award Oral Presentation)*
11:15 am – 11:30 am	**B105**	**Data-Independent or Data-Dependent? A Comparison of SWATH and IDA Acquisitions for the Identification of Novel Nitazene Analogs** J. Tyler Davidson, PhD*; Emma Hardwick, BA
11:30 am – 1:00 pm		**BREAK**

When Small Clues Tell Big Stories

Moderator: Beth Saucier Goodspeed, MS Co=Moderator: John Goodpaster, PhD

1:00 pm – 1:15 pm	**B106**	**Standards Development Activities in Trace Materials** Sandra Koch, PhD*; Celeste M. Grover, MSFS; Jennifer L. Remy, MS
1:15 pm – 1:30 pm	**B107**	**Strategies for Measuring the Difference Between Particle Populations** Clarissa Resmen, MS*; Janean Hanka, MS; Jack Hietpas, PhD; JoAnn Buscaglia, PhD; Danica M. Ommen, PhD; Christopher P. Saunders, PhD
1:30 pm – 1:45 pm	**B108**	**Measuring Variability in the Identification and Reporting of Ignitable Liquids Through an International Interlaboratory Study** Edward Sisco, PhD*; Briana A. Capistran, PhD; Dennis Leber, PhD; Vincent J. Desiderio, MS
1:45 pm – 2:00 pm	**B109**	**Standards Development Activities Related to Ignitable Liquids, Explosives, and Gunshot Residue** Kimberly S. Kunkler, PhD*
2:00 pm – 2:15 pm	**B110**	**The Isotopic and Metallurgical Characterization of Gunshot Residue for Source Attribution and Evidential Interpretation** Tolulope Bayode Bayode Abejide, MFS*; David Olayemi Alebiosu, PhD
2:15 pm – 2:30 pm	**B111**	**An Analysis of Smokeless Powder Extractions Using Alternative Solvents in Comparison to Dichloromethane** Sophia Carlton, BS*; Hadley Woodfin, MS; Candice Bridge, PhD; Mary R. Williams, MS
2:30 pm – 2:45 pm	**B112**	**Source Attribution of Petroleum by GC/MS and Multivariate Analysis** Javier E. Hodges, BS*; Jorn (Chi-Chung) Yu, PhD *(FSF Emerging Forensic Scientist Award Oral Presentation)*

2:45 pm – 3:00 pm	**B113**	**A Black Box Study of Muzzle-to-Target Distance Determination Using Gunshot Residue** Nicole M. Richetelli, PhD*; R. Austin Hicklin, PhD
3:00 pm – 3:15 pm	**B114**	**Real-Time Detection of Organic Gun Shot Residue Using a Novel Dielectric Barrier Discharge Ionization Source** Charlotte M. Fletcherova, BS*; Adam B. Hall, PhD; Ciara E. Conway, MS; Jan-Christoph Wolf, PhD
3:15 pm – 3:30 pm		**BREAK**

New Trends in Forensic Impressions

Moderator: Andra Lewis, PhD Co=Moderator: C. Ken Williams, MS, JD Co-Moderator: Elizabeth Gardner, PhD

3:30 pm – 3:45 pm	**B115**	**Forensic Hand Detail Image Comparison: A Reference Dataset to Support Research, Development, and Operational Improvements** Nicole M. Richetelli, PhD*; Jim Cole; Richard W. Vorder Bruegge, PhD
3:45 pm – 4:00 pm	**B116**	**Investigating the Effect of Latent Print Development Methods on the Analysis and Comparison of Electrical Tapes** Swathi Murali, MS*; Patrick Buzzini, PhD *(FSF Emerging Forensic Scientist Award Oral Presentation)*
4:00 pm – 4:15 pm	**B117**	**Extending the Evidentiary Lifespan of Latent Fingerprints: Rehydration as a Pretreatment for Aged Impressions on Non-Porous Substrates** Jamie Spaulding, PhD*
4:15 pm – 4:30 pm	**B118**	**Assessing Nozzle Surface Persistence and Resulting Toolmarks in Additively Manufactured Firearm Components** Raymond J. Petzold, BS*; Thomas B. Renegar, BS; Xiaoyu A. Zheng, MSME
4:30 pm – 4:45 pm	**B119**	**Forensic Characterization and Discrimination of Automotive Vinyl Wraps by Vibrational Spectroscopy and Optimized Micro-X-Ray Fluorescence** Caleb M. Edwards-Dugan, BS*; Jamie Spaulding, PhD
4:45 pm – 5:00 pm	**B120**	**Fluorescence Microscopy in a Sequential Analytical Scheme for the Discrimination of Black Electrical Tape** Grace E. Patzer, BS*; Lawrence Quarino, PhD
5:00 pm – 5:15 pm	**B121**	**A Comparison From Concrete: A Comparison of Elemental Profiles From Tire Rubber and Tire Mark Particles** James McAleer, BS*; Drew Jonsson; John G. Lucchi, PhD; Matthieu Baudelet, PhD
5:15 pm – 5:30 pm	**B122**	**Quick Measurements of Shoeprint (2D) Comparison Using a Standalone Laptop for Field and Lab Applications: A Ten-Feature Method Via Machine Learning** John Z. Wang, PhD*; Zelong Yu, BS
5:30 pm – 5:45 pm	**B123**	**The Effect of Analyst Experience on the Similarity Scores Produced by 3-Dimensional Virtual Comparison Microscopy (VCM)** Brandon Best, MScFS*; Elizabeth Gardner, PhD; Jackson Stinson

CRIMINALISTICS

Multidisciplinary Session: Criminalistics, Digital & Multimedia Sciences, Engineering & Applied Sciences, Psychiatry & Behavioral Science, and Toxicology

To Boldly Go: Navigating New Frontiers at the Intersection of AI and Forensic Science—Part I

Moderator: Jason Lewis, PhD — Co-Moderator: Ann Geisendorfer, JD

1:00 pm – 1:20 pm	**C21**	**Benchmarking AI Detectors on Altered Images: What Works, What Doesn't, and What We're Still Learning** Stephanie Reinders, PhD*; Gautham Venkatasubramanian, MSc
1:20 pm – 1:40 pm	**C22**	**The Role of Artificial Intelligence-Based Machine Learning Algorithms in Automated Forensic Facial Approximation: A Scientific Stride** Jagmahender Singh Sehrawat, PhD*
1:40 pm – 2:00 pm	**C23**	**Tracing Meaning Across the Universe: A Forensic Semiotic Evaluation of Context Loss and AI Overinterpretation** Ivan Jerković, PhD*; Željana Bašić, PhD
2:00 pm – 2:20 pm	**B124**	**A Quick Differentiation of Similar Paint Colors Using a Palm-Sized Spectrometry Device for Field and Lab Applications: An Emerging Technology Via Machine Learning for an AI Direction** John Z. Wang, PhD*; Long Bing, PhD
2:20 pm – 2:40 pm	**B125**	**AI-Assisted Rare Sperm Cell Identification for Direct Single Cell aSTR Analysis From Late-Reported Post-Coital Samples** Morgan S. Peters-Grim, PhD*; Erik Baumann, BS; DeAna Dziak-Paustian, PhD; Jack Ballantyne, PhD; Erin Hanson, PhD
2:40 pm – 2:50 pm		**BREAK**

To Boldly Go: Navigating New Frontiers at the Intersection of AI and Forensic Science—Part II

Moderator: David Notowitz, BS — Co-Moderator: E. Allyn Smith, PhD

2:50 pm – 3:10 pm	**L52**	**Retro-BAC: An R Shiny Application for Retrograde Extrapolation Alcohol Calculation With IA Chatbot** Carlos Espinoza Cruz, PharmD*
3:10 pm – 3:30 pm	**L53**	**Using Machine Learning to Estimate How Designer Benzodiazepines Behave—From Structure Alone** Joel R. Fry, MS*; Dominica Peri, MS; Yomna Elgamal, MS; Guillermo Garza, MS; Marisol Castaneto, PhD; Anthony Rios, PhD; Min Wang, PhD
3:30 pm – 4:00 pm	**D14**	**Artificially Generated Handwriting in Forensic Comparisons** Gautham Venkatasubramanian, MSc*; Alicia L. Carriquiry, PhD
4:00 pm – 5:00 pm	**J13**	**Artificial Intelligence-Associated Psychosis: Clinical and Forensic Implications of Emerging Human–AI Interactions** Amanda Grace Hecker, MD*; Christopher Sterwald, MD; Rebecca Stenersen, MD; Jason Banarsee, MD; Luan Garcia, MD

CRIMINALISTICS

Multidisciplinary Session: Criminalistics and Jurisprudence

Moderator: Vincent Desiderio, MS Co-Moderator: Clinton Hughes, JD

9:30 am – 11:30 am	**B38**	**A Discussion on DNA Transfer, Persistence, Prevalence, and Recovery: Challenges, Gaps, and the Future State From the Scientific and Legal Perspectives** Vincent J. Desiderio, MS*; Clinton Hughes, JD*; J.D. Schmid, JD*; Colin Bellair, JD*; Lynn Garcia, JD*; Jarrah R. Kennedy, MSFS*; Tacha Hicks, PhD*; John M. Butler, PhD*; Ted R. Hunt, JD*

Friday

Poster Session: DNA

11:30 am – 1:00 pm	**B136**	**A Characterization of Chloroplast Haplotype Variation in Singaporean *Cannabis Sativa* Casework Samples** Olivia M. Shick, BS*; Rachel Houston, PhD
11:30 am – 1:00 pm	**B137**	**A Comparison of Semi-Continuous and Continuous Probabilistic Genotyping Models for STR DNA Mixture Interpretation** Nilay Sengezer, BS*; Kelly M. Elkins, PhD
11:30 am – 1:00 pm	**B138**	**Developing an Improved Multiplex for the Genetic Profiling of *Papaver Somniferum* L.** Greta Hundtofte, BS*; Rachel Houston, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*
11:30 am – 1:00 pm	**B139**	**The Development and Optimization of Complementary Multiplex SNaPshot Assays for Body Fluid Detection, Age Prediction, and DNA Degradation** Chloe Blakey, BS*; Katherine Puc, BS*; Ya-Chih (Jessica) Cheng, PhD
11:30 am – 1:00 pm	**B140**	**The Development of a Hydrogel-Based Platform for Integrated Fingerprint and Touch DNA Analysis** Malgorzata Nadolska-Dawidowska, PhD*; Martyna Czarnomska, MS; Marcelina Malinowska, PhD; Martyna Kuczynska, MSc; Aneta Lewkowicz, PhD
11:30 am – 1:00 pm	**B141**	**The Development of a Novel qPCR Assay for the Detection of *Mitragyna Speciosa*** Sydney M. Hampton, BS*; Rachel Houston, PhD
11:30 am – 1:00 pm	**B142**	**The Development of Forward and Reverse Primers Targeting the Mitochondrial D-Loop and 12S rRNA Region for Molecular Identification of Trafficked Endangered Avian Species** Cherrélee Miles, BS*; Mayra Eduardoff, PhD
11:30 am – 1:00 pm	**B143**	**The Differentiation of Direct and Passive DNA Transfer Samples Using Cellular Autofluorescence** Drake W. Somervell, BS*; Christopher Ehrhardt, PhD
11:30 am – 1:00 pm	**B144**	**DNA Profiling of Human DNA Extracted From *Dermestes Maculatus* Using CE and NGS** Ny'Gia Williams, BS*; Jennafer Buckshaw; Madison Simms; Kylie Thayer, BS; Kayden L. Phillips; Filipa Simão, PhD; Kelly M. Elkins, PhD
11:30 am – 1:00 pm	**B145**	**An Evaluation of Direct Extraction and InnovaPrep® Elution Technology for Optimized DNA Recovery From AirPrep™ Cub Air Sampling Filters** Adriana Hogan, BS*; Rhonda Williams, PhD

11:30 am – 1:00 pm	**B146**	**An Evaluation of Fingermark Development Techniques for Optimized DNA Recovery From Non-Porous Surfaces** Selena Cisana, PhD*; Monica Omedei, MD, PhD*
11:30 am – 1:00 pm	**B147**	**A Tissue-Specific Evaluation of Human Postmortem Soft Tissues for Autosomal STR Profiling Across Progressive Decomposition Stages** Ga Eun Kim, MSc*; Eun-Byoul Jung, BS; Chae Min Lee, BS; So Youn Im, MSc; Soong Deok Lee, MD, PhD; Moon-Young Kim, MD, PhD
11:30 am – 1:00 pm	**B148**	**A Comparative Evaluation of the Qiagen EZ2 DNA Investigator Sep&Prep Kit and Established Differential Extraction Workflows for Sexual Assault Evidence** Karesa Ruiz, BS*; Heather Sarik, APM; Kristen Naughton, APM
11:30 am – 1:00 pm	**B149**	**The Identification and Characterization of Multi-InDels From the Whole Genome** Shengqiu Qu, MD*; Weibo Liang, MD; Xiameng Chen, MD; Qiuyun Yang, MD; Lin Zhang, MD
11:30 am – 1:00 pm	**B150**	**A Study on the DNA Detection Rate From Different Sampling Sites of Human Long Bone Skeletal Remains** Tsun-Ying Huang, MSc; Liang-Ju Chen, BASc; Zhe-Ming Zhan, BSc; Chun-Yen Lin, PhD*

Poster Session: Non-DNA

11:30 am – 1:00 pm	**B151**	**Evaluating the Reproducibility and Interpretive Value of Micro-Spectrophotometry Absorbance Spectra in Forensic Differentiation of Red Cotton and Polyester Fibers** Britney Hitt, MSc*; Tanaii D. Compton-James, BSc; Felix Yeboah, MS; Larry Tang, PhD; Andres D. Campiglia, PhD
11:30 am – 1:00 pm	**B152**	**An Evaluation of LC-PDA and GC/MS Methods for Cannabinoid Quantification in Commercial and Homemade Gummy Edibles** Ya-Chih (Jessica) Chang, PhD*; Walter B. Wilson, PhD
11:30 am – 1:00 pm	**B153**	**Extracting the Signal: An Assessment of Extraction Solvents and the Feasibility of FTIR-Based Detection for 5F-ADB From Thyme** Dezmond W. Stollings, BS*; Kailee R. Marchand, BS; Eduardo G. de Campos, PhD; Geraldine Monjardez, PhD
11:30 am – 1:00 pm	**B154**	**GRIFFINs and GoBleNs: A Non-Fictional Tool for Identifying Trace Controlled Substance Surrogates in Complex Mixtures** Aidan P. Holman, BS*; Larissa Borak, BS*; Dmitry Kurouski, PhD
11:30 am – 1:00 pm	**B155**	**Identifying the Effects of Commercial Detergents on the Absorbance and Fluorescence Profile of Blue Cotton and Polyester Fibers Using Micro-Spectrophotometry** Tanaii D. Compton-James, BSc*; Britney Hitt, MSc; Andres D. Campiglia, PhD
11:30 am – 1:00 pm	**B156**	**The Impact on Barrel Wear Caused by Polymer-Coated Ammunition** Teagan Trent, BS*; Eden Amin, MS; Eric Law, PhD
11:30 am – 1:00 pm	**B157**	**Investigating the Impact of Solvent, Ligand, and Instrumental Configuration on Copper-Ion Complexation Behavior for Cannabinoids** Emma M. Fitzgibbons, MS*; Brianna K. Neilan, BS; Christopher M. Zall, PhD; J. Tyler Davidson, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*

11:30 am – 1:00 pm	**B158**	**Keeping Pace With Emerging Synthetic Cannabinoids: The Development of a Targeted Screening Method for the Analysis of Seized Drugs Using Gas Chromatography/ Mass Spectrometry** Kailee R. Marchand, BS*; Eduardo G. de Campos, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*
11:30 am – 1:00 pm	**B159**	**A Large-Scale Impregnation of Household Textiles With Heroin: Forensic Implications From the First Documented Case in Europe** Erika Buratti, PhD*; Alice Cerioni, PhD; Giulia Ricchezze, MS; Marta Cippitelli, PhD; Rino Froldi, MS; Gianmario Mietti, PhD; Mariano Cingolani, MD; Roberto Scendoni, MD, PhD
11:30 am – 1:00 pm	**B160**	**Making the Invisible Visible: Using Recrystallization to Improve Micro-Raman Spectroscopy Detection of TNT Post-Blast Residues** Emily Sierra, BA*; Krystal VanHorn, BS; Jared Estevanes, PhD; Geraldine Monjardez, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*
11:30 am – 1:00 pm	**B161**	**On the Differential Degradation of Color in Multi-Component Textile Fibers Using Microscopy, UV/Vis Microspectrophotometry, and Raman Spectroscopy** Sterling Mitchell, BS*; Shannon Keyser, MS; Waleska Castro, PhD; Patrick Buzzini, PhD
11:30 am – 1:00 pm	**B162**	**Raman Signal-to-Image Transformation With Deep Learning for Ignitable Liquid Classification** Ting-Yu Huang, PhD*; Jorn (Chi-Chung) Yu, PhD
11:30 am – 1:00 pm	**B163**	**The Application of a Liquid Chromatography/Tandem Mass Spectrometry (LC/QqQ/MS) Method for Quantifying Benzodiazepines From Seized Drug Material** Nicholas E. Khorozov, MS*; Joshua S. DeBord, PhD; Alex J. Krotulski, PhD; Barry K. Logan, PhD
11:30 am – 1:00 pm	**B164**	**The Identification of Nitazene Analogs Using Ultra-High Performance Liquid Chromatography Coupled with Photodiode Array and Mass Spectrometry Detection (UPLC-PDA-MS)** Payton J. Barkman, BS*; Christany Liggins, BS; Audrey Pless, MS; J. Tyler Davidson, PhD *(FSF Emerging Forensic Scientist Award Poster Presentation)*
11:30 am – 1:00 pm	**B165**	**An Analysis of Tampered Oral Morphine Solutions Containing Coloring Agents** Kelsey M. Griffin, BS; David S. Jackson, BS; Enrique G. Yanes, PhD*

Friday – Session I

Qualitative and Quantitative Evaluation

Moderator: Khalid Lodhi, DSc

Co-Moderator: Pamela Marshall, PhD

8:30 am – 8:45 am	**B126**	**The Development of an Eight-Dye Digital PCR Assay for Forensic DNA Quantification** Priyankaa A. Bhatia, PhD*; Hajara S. Chaudhry, MS; Quentin Gauthier, PhD; Joseph Donfack, PhD; Mark F. Kavlick, PhD
8:45 am – 9:00 am	**B127**	**Pinpointing the Best Sample for STR/YSTR and FIGG Using a Novel Automated DNA Extract Typing Process for Quantitation Kit Data Interpretation and Reporting** Valerie Mattimore Fuller, PhD*; Heather Harrah, MS; Fernanda Henry, MSFS
9:00 am – 9:15 am	**B128**	**Advancing Forensic DNA Quantification: The Development of an Ultra-Short Multiplex qPCR Toolkit for Characterizing Highly Degraded Samples** Thilini Chandrasekara, MScFS*; Mayra Eduardoff, PhD; Mirna Ghemrawi, PhD *(FSF Emerging Forensic Scientist Award Oral Presentation)*

9:15 am – 9:30 am	**B129**	**Quantitative DNA Profiling: Easier QAQC Practices in Forensic DNA Typing by Using a Novel Evaluation of Linearity Between the Input Mass to DNA Amplification and the RFU Output of Genetic Analysis** Fernanda Henry, MSFS*; Valerie Mattimore Fuller, PhD*
9:30 am – 9:45 am	**B130**	**A Chemometric Evaluation of Single-Source DNA Profiles Using the Degradation Index and Peak Height Ratios** Eugenio Alladio, PhD*; Sergio Schiavone, MA; Paolo Garofano, PhD; Tereza Neocleous, PhD
9:45 am – 10:00 am	**B131**	**A Comparative Evaluation and Internal Validation of the InnoXtract DNA Extraction Method for Low Template and Trace DNA Samples** Huma Nasir, MS*; Amanda Walker, MS; Kelsy Lowther, MS; Emily Heupel, BS
10:00 am—10:15 am		**BREAK**

Bones, Missing Persons, and Kinship

Moderator: Nasir Butt, PhD — Co-Moderator: Andrea Borchardt, MS

10:15 am – 10:30 am	**B132**	**Going Beyond Traditional STRs: Multi-Marker Comparison for Identification and Kinship Analysis of Highly Degraded Skeletal Remains** Ahana Chatterjee, MS*; Amy Z. Mundorff, PhD; Lucinda Davenport, PhD; David Ballard, PhD; Sheree R. Hughes, PhD; Mayra Eduardoff, PhD; Rob Lagacé, BA; Hayle Boechler, MS; Pieter van Oers, MSc *(FSF Emerging Forensic Scientist Award Oral Presentation)*
10:30 am – 10:45 am	**B133**	**A Validation of the EZ2 Connect Fx System and Organic Extraction for DNA Profiling From Bone and Teeth With the Evaluation of Milled and Crushed Bone and Teeth on the ANDE 6C Rapid DNA Analysis System** Callie Parker, BS*; Andrew Schweighardt, PhD; Heather Lenzy, BS
10:45 am – 11:00 am	**B134**	**Moving Beyond Inconclusive Kinship DNA Testing Results in South Africa** Donna-Lee P. Martin, PhD*; Mark W. Perlin, PhD; William P. Allan, MS; Laura Heathfield, PhD
11:00 am – 11:15 am	**B135**	**Beyond Buccal Swabs: Expanding Rapid DNA Applications to Bone, Nails, and Decomposed Tissues for Disaster Victim Identification** Kayli N. Carrillo, PhD*; Kylie Yount, MSc; Sheree Hughes, PhD
11:15 am – 11:30 am	**B211**	**Missing Person Identification: Analyses of Remains of the Fourth Victim of a Serial Killer in Southwest Ghana by Anthropologic and Genetic Methods** Kofi A.A. Afrifah, PhD*
11:30 am—1:00 pm		**BREAK**

Massive Parallel Sequencing

Moderator: Sarah Seashols, PhD — Co-Moderator: Dragan Primorac, MD, PhD

1:00 pm – 1:15 pm	**B166**	**The Integration of a Bacterial Probe Into a Digital Polymerase Chain Reaction Multiplex for Forensic DNA Quantification** Sylvia S. Etim, MSc*; George Duncan, PhD; Bruce R. McCord, PhD *(FSF Emerging Forensic Scientist Award Oral Presentation)*

1:15 pm – 1:30 pm	**B167**	**Evaluating the Effect of Sequencing Plexity on Likelihood Ratios in NGS STR Mixture Analysis** Damani Johnson, BS*; Tim Kalafut, PhD *(FSF Emerging Forensic Scientist Award Oral Presentation)*
1:30 pm – 1:45 pm	**B168**	**Beyond Length-Based Typing: Microhaplotype Sequencing for Resolving High-Degree DNA Mixtures** Yakubu Magaji Yuguda, MSc PhD*
1:45 pm – 2:00 pm	**B169**	**From SNP Mixtures to Separated Genotypes** Mark W. Perlin, PhD*
2:00 pm—2:15 pm		**BREAK**

Probabilistic Genotyping

Moderator: Rachel Houston, PhD — Co-Moderator: Sylvia Etim

2:15 pm – 2:30 pm	**B170**	**Turning Experiences Into Actionable Insights: Considerations, Lessons Learned, and Recommendations for Implementing Probabilistic Genotyping** Nicole M. Richetelli, PhD*; R. Austin Hicklin, PhD; Brandi L. Emerick, PhD
2:30 pm – 2:45 pm	**B171**	**The Evaluation and Optimization of the STRmix Maximum Degradation Parameter for Reinterpretation of Degraded DNA Mixtures** Gunmeet Kaur Bali, MS*
2:45 pm – 3:00 pm	**B172**	**A Comparison of DNA Mixture Deconvolution Software Performance in Length-Based and Sequence-Based Systems** Kyle Duke, APM*; Daniela D. Cuenca, MS; Kevin K. Cheng, PhD; Jeanette Wallin, MPH
3:00 pm – 3:15 pm	**B173**	**From Match Strength to Match Accuracy: Answering the Ultimate DNA Question** Mark W. Perlin, PhD*; William P. Allan, MS; Jennifer M. Bracamontes, MS; Matthew Legler, BS
3:15 pm—3:30 pm		**BREAK**

Phenotyping

Moderator: Cynthia Cale, MS — Co-Moderator: Tebah Browne, PhD

3:30 pm – 3:45 pm	**B174**	**The Final Portrait: Integrating Skeletal Analysis, DNA Phenotyping, and Facial Approximation for Human Identification** Joe Adserias-Garriga, PhD*; Francisco Medina-Paz, PhD; Jorge Molina, BA; Sara C. Zapico, PhD*
3:45 pm – 4:00 pm	**B175**	**The Identification and Optimization of MicroRNA Biomarkers for Predicting Muscularity in Forensic Samples** Xiaomeng Yang, MS*; Juan-Pablo Rodriguez, BS; Daja Bonilla, MSFS; J. Paul Brooks, PhD; Sarah Seashols-Williams, PhD *(FSF Emerging Forensic Scientist Award Oral Presentation)*
4:00 pm– 4:15 pm	**B176**	**An Evaluation of MicroRNA Expression for Body Mass Index Category and Body Weight Prediction in Whole Blood** Juan-Pablo Rodriguez, BS*; Xiaomeng Yang, MS; J. Paul Brooks, PhD; Sarah Seashols-Williams, PhD

*Presenting Author

4:15 pm—4:30 pm **BREAK**

Information From Protein

Moderator: Andra Lewis, PhD Co-Moderator: Jorn (Chi Chung) Yu, PhD

4:30 pm – 4:45 pm **B177** **The Preservation and Analysis of Body Fluid Protein in DNA-Isolation: Source Identification When Using the QIAamp and DNA IQ Workflow**
Glendon J. J. Parker, PhD*; Daniella Luistro, MSFS; Lauren Ho, BSc; Kyle Burk, MSFS

4:45 pm – 5:00 pm **B178** **The Development of Proteomic Methods for the Analysis and Identification of Human Decomposition-Associated Peptides and Proteins**
Alexa Genalo, MSc*; Barney Bishop, PhD; Edward Bentil, PhD

5:00 pm – 5:15 pm **B179** **An Integrated Multi-Omics Workflow for Characterizing the Aging of Human Biological Traces to Improve Time-Since-Deposition Estimation**
Domiziana Buffoni, MSc*; Sarah Gino, MD, PhD; Paul Anthony Langton, BSc; Anna Franzoni, MS; Michele Rosso, PhD; Cristiano Sabelli, PhD; Noemi Procopio, PhD
(FSF Emerging Forensic Scientist Award Oral Presentation)

Friday – Session II

Clues From a Crime Scene

Moderator: Alyssa Berthiaume, MS Co-Moderator: Jorn (Chi Chung) Yu, PhD

8:30 am – 8:45 am **B180** **Following a Case From the Crime Scene to the Courtroom**
Alyssa E. Berthiaume, MS*

8:45 am – 9:00 am **B181** **Bridging the Gap Between Examiner Conclusions and Score-Based Likelihood Ratios**
Xiaoyu A. Zheng, MSME*; Johannes A. Soons, PhD; Steven Lund, PhD; Erich D. Smith, MFS; Rachael Gominsky, MSc

9:00 am – 9:15 am **B182** **Assessing the Effects of Prolonged Xylene Exposure on Fiber Color and Fluorescence Properties**
Joseph Donfack, PhD*; Linda Otterstatter, BSc

9:15 am – 9:30 am **B183** **Lost in Translation: When Forensic Scientists Speak the Same Language but Mean Different Things**
Sandra Koch, PhD*

9:30 am – 9:45 am **B184** **Evaluating Why: A New White Box Study of Bloodstain Pattern Classification**
Nicole M. Richetelli, PhD*; Paul Kish, MS; Kevin Winer, BSc

9:45 am – 10:00 am **B185** **A Region-Specific Evaluation of Machine Learning Models for Fire Debris Classification Using Weighted Multiclass Partial AUC**
Emran Hossain, MSc*; Larry Tang, PhD

CRIMINALISTICS

Field Instruments for Detecting Drugs, Explosives, and Dangerous Substances

Moderator: C. Ken WIlliams, MS, JD Co-Moderator: Ann B. Geisendorfer, JD Co-Moderator: Maria Carson, MSFS

10:00 am – 10:15 am **B186** **A Spontaneous Formation of TATP in Long-Term Stored Industrial Isopropanol Waste: A Forensic Investigation of a Fatal Industrial Explosion**
Ya-Ling Yeh, PhD*; Ming-Yang Pan, BSc; Wun-Jhen Chen, MSc; Ming-Shi Tsai, MSc; Sheng-Hsiung Yang, PhD; Sheng-Meng Wang, PhD

10:15 am – 10:30 am **B187** **A First-Principles Investigation of Shock Sensitivity in Triacetone Triperoxide**
Grace E. Patzer, BS*; Matthew T. Kieber-Emmons, PhD

10:30 am– 10:45 am **B188** **The Development of a Novel Vapor Pre-Concentrator for Enhanced Non-Contact Detection of Dangerous Substances Using Ion Mobility Spectrometry**
Galpayage Dona Thouli L. Jayawardana, MS*; Lauryn DeGreeff, PhD; Ashely Fulton, PhD; Braden C. Giordano, PhD

10:45 am– 11:00 am **B189** **Flies as Passive Chemical Sentinels for the Field Detection and Identification of Illicit Drugs and Explosives Using Portable Mass Spectrometry and Ion Mobility Spectrometry**
Brooke W. Kammrath, PhD*; Lauryn R. Cammarata, BA; Hadleigh J. Sargent; Kalyna Karpishka, BS; Hailey J. Ruddock; Pauline E. Leary, PhD; Samantha J. Sawyer, PhD

11:00 am – 11:15 am **B190** **Validated Analytical Figures of Merit for Differentiating Drugs and Explosives With Drift Tube Ion Mobility Spectrometry**
A. Bakarr Kanu, PhD*

11:15 am – 11:30 am **B191** **The Detection of Invisible Explosive Residues From Surfaces Using Dynamic Sampling and Thermal Desorption-Gas Chromatography/Mass Spectrometry (TD-GC/MS)**
Alexis J. Hecker, MFS*; John V. Goodpaster, PhD; Drew Mueller, BS

11:30 am – 1:00 pm **BREAK**

The Dope Session With a Small Clue Taste After the Mardi Gras Party

Moderator: Elizxabeth Gardner, PhD Co-Moderator: Danielle LaVictoire, MNS

1:00 pm – 1:15 pm **B192** **The Determination of the Total Net Weight of Drugs in Large Batches of Impregnated Cardboard Boxes: A Novel Bayesian Approach**
Ivo Alberink, PhD*; Annette Sprong, BSc; Leen Ham, van der, PhD; Jeannette Leegwater, MSc

1:15 pm – 1:30 pm **B193** **A Consideration of Efficacy and Storage Lifetime of Fentanyl Training Materials**
Kayla A. Hogan, MSFS*; Kenneth G. Furton, PhD; Lauryn DeGreeff, PhD

1:30 pm – 1:45 pm **B194** **Building Consensus, Advancing Standards: An Update on Dogs and Sensors**
Andrea C. Medrano, MSFS*; Paola A. Prada-Tiedemann, PhD; Suzanne S (Suzy) Perry; Kenneth G. Furton, PhD

1:45 pm – 2:00 pm **B195** **Branching Out: Using Mass Spectral Decision Trees to Simplify Nitazene Analog Identification**
Emma Hardwick, BA*; Arun S. Moorthy, PhD; J. Tyler Davidson, PhD
(FSF Emerging Forensic Scientist Award Oral Presentation)

2:15 pm – 2:30 pm	**B197**	**Forensic Identification and Process Profiling of a Novel Clandestine Etomidate Synthesis Laboratory** Sheng-Hsiung Yang, PhD*; Chien-Min Ko, MSc; Ya-Ling Yeh, PhD
2:30 pm – 2:45 pm	**B198**	**From Seizure to Source: Integrating Tablet Topography and Chemical Profiles for Illicit Drug Profiling** Alicia L. Carriquiry, PhD*; Hana Lee, PhD; Agnes D. Winokur, PhD; Charley M. Bergeron, BS
2:45 pm – 3:00 pm	**B199**	**Surface-Enhanced Raman Spectroscopy Coupled With Chemometric Modeling for the Detection of Fentanyl Analogs in Simulated Counterfeit Tablets and Complex Street Drug Mixtures** Kristen Jerich, MS*; Bruce R. McCord, PhD
3:00 pm – 3:15 pm	**B200**	**An Evaluation of Octadecylsilane, Phenyl Hexyl, and Pentafluorophenyl Columns for LC-UV Profiling and Quantitation of Cannabinoids in CBD-Based Hemp Oil** Walter B. Wilson, PhD*; Elizabeth H. Jaynes, BS
3:15 pm—3:30 pm		**BREAK**

Instrumentation and Software Developments

Moderator: J. Tyler Davidson, PhD — Co-Moderator: Brooke Kammrath, PhD

3:30 pm – 3:45 pm	**B201**	**An Evaluation of a Portable Raman Hyperspectral Imaging Instrument for Low-Concentration Fentanyl Detection and Identification** Nathaniel Daley, BA*; Jason M. Fontes*; Desmond A. Brown, MS; Ari Forman, MSc; Pauline E. Leary, PhD; Richard A. Crocombe, PhD; Brooke W. Kammrath, PhD
3:45 pm – 4:00 pm	**B202**	**An Opportunity Study Comparing Animal Neural Interface to Benchtop and Portable Instrumentation for Forensic Vapor Detection** Fernando Zaldivar Eyre, MSFS*; Daigoro Greco, MSFS; Peter Ledochowitsch, PhD; Joanna Chang, PhD; Julien Bloch, PhD; Maxym Myroshnychenko, PhD; Lauryn DeGreeff, PhD
4:00 pm – 4:15 pm	**B203**	**The Effects of Pixel Width on Feature Preservation and Clustering Performance in Miniaturized Near-Infrared Spectrometers** Jung Tsai, BSc*; Jason Wen, PhD; Ajay Yadiki, MSc; Jorn (Chi-Chung) Yu, PhD *(FSF Emerging Forensic Scientist Award Oral Presentation)*
4:15 pm – 4:30 pm	**B206**	**A NIST Polymer Pyrolysis Search: A New Pyrolysis GC/MS Search Program and Mass Spectral Reference Library** Edward Erisman, MS*
4:30 pm – 4:45 pm	**B207**	**Process Maps: A Key Tool for Laboratory Process Auditing and System Improvement** Heather E. Waltke, MFS*
4:45 pm – 5:00 pm	**B208**	**Comparative Volatilomic Signatures of Natural Burials and Research Donor Interments: Implications for Forensic Detection** Brian Eckenrode, PhD*; Edward Bentil, PhD; Kennedy Drish, MSc; Timothy Nelligan, BS; Steven Hoyt, PhD
5:00 pm – 5:15 pm	**B209**	**Chemical Signatures of Life and Death: VOC Profiling Using a Custom Nitrogen Purge Headspace Chamber and Canister-Assisted Vacuum Collection Coupled to Thermal Desorption GC/MS** Edward Bentil, PhD*; Brian Eckenrode, PhD; Brady Norris Pitts, MSc; Kennedy Drish, MSc

Friday—Session III

Multidisciplinary Session: Criminalistics and Toxicology

Seized Drugs

Moderator: Amanda Mohr, MSFS — Co-Moderator: Abdallah Malik Naanaa, MS

8:30 am – 8:45 am	**B210**	**An Analytical Scheme for the Identification and Quantification of 7-Hydroxymitragynine in Commercial Products** Sandra E. Rodriguez-Cruz, PhD*; Mark Frisch, PhD
8:45 am – 9:00 am	**L64**	**Expanded Mitragynine Alkaloid Testing in Biological Matrices in Response to the Unregulated Kratom Product Landscape** Erin Spargo, PhD, F-ABFT*; Donna M. Papsun, MS; Lauren Eccarius, MS; Rachel C. Reilly, MSFS; Amanda Cooke, BS; Barry K. Logan, PhD
9:00 am – 9:15 am	**L65**	**The Quantification of Kratom Alkaloids in Enhanced Commercial Products** Max T. Denn, MS*; Lauren Eccarius, MS; Alex J. Krotulski, PhD; Barry K. Logan, PhD
9:15 am – 9:30 am	**L66**	**Introducing the Forensically Relevant Drug Database (FRDD): A Curated Platform for Emerging Drug Information** Savannah Baker, MSc*; Barry K. Logan, PhD; Alex J. Krotulski, PhD
9:30 am – 9:45 am	**L67**	**Beyond Routine Testing: Insights From the NLCP Pulse Testing Program on Emerging Drug Trends** Jeri D. Ropero-Miller, PhD*; Svante Vikingsson, PhD; Katherine Bollinger, MS; Lauren Johann, BS; Eugene D. Hayes, PhD; Lisa S. Davis, MS; Ruth E. Winecker, PhD; Gabrielle E. DiEmma, MS
9:45 am – 10:05 am	**L68**	**Adapting Forensic Toxicology and Chemistry Workflows to Respond to the Rapid Evolution of the Orphine Analogs** Alex J. Krotulski, PhD*; Donna M. Papsun, MS; Sara E. Walton, PhD; Isabella Buttacavoli, MS; Max T. Denn, MS; Barry K. Logan, PhD
10:05 am—10:15 am		**BREAK**

Analytical Advances and Alternative Matrice

Moderator: Michele Crosby, PhD — Co-Moderator: Morgan Lawler

10:15 am – 10:30 am	**L69**	**A Liquid Chromatography/Tandem Mass Spectrometric Analysis of Ethyl Glucuronide in Postmortem Hair for the Assessment of Alcohol Use** Joshua Gallon, BSc; Gerd Jakobsson, PhD; Robert Kronstrand, PhD*
10:30 am – 10:45 am	**L70**	**Δ9-Tetrahydrocannabinol Absorption Profiles After E-Cigarettes Use** Pascale Basilicata, PhD; Rossella Guadagni, PhD; Angela Simonelli, PhD; Angela Silvestre, PhD; Maria Pieri, PhD*

CRIMINALISTICS

10:45 am – 11:00 am **L71** **Analysis of Placenta and Meconium for the Assessment of Prenatal Cannabinoid and Semi-Synthetic Cannabinoid Exposure**
Marco Ballotari, PhD*; Michael T. Truver, PhD; Sarah H. Bartock, PhD; Wen Dui, PhD; Tiara Evans, MFS; Chris W. Chronister, PhD; Kay Roussos-Ross, MD; Bruce A. A. Goldberger, PhD

11:00 am – 11:15 am **L72** **Hats Off! THC Metabolite Positivity in Human Hair Wigs Following Five-Day Exposure to Drug-Free Artificial Sweat/Sebum and Contaminated Baseball Caps**
Gabrielle E. DiEmma, MS*; Svante Vikingsson, PhD; Katherine Bollinger, MS; Lauren Johann, BS; Eugene D. Hayes, PhD; Lisa S. Davis, MS; Ruth E. Winecker, PhD

11:15 am – 11:30 am **L73** **Modernizing High-Throughput Forensic Toxicology Testing Through Automated Post-Extraction Processing and Direct 96-Well Plate Sampling**
Hannah Strickland, BS*; Belicia C. Sutton, MSFS; Robert M. Lockwood, PhD; Curt S. Harper, PhD