

CRIMINALISTICS

Wednesday

Poster Session

11:30 am – 1:00 pm	B1	Revisiting Guidance on Sampling of Populations for Highly Polymorphic Forensic Loci <i>Sanne Aalbers, PhD*</i> ; <i>Katherine Gettings, PhD</i>
11:30 am – 1:00 pm	B2	Assessing the Added Value of Non-Human DNA Analysis for Forensic Soil Analysis <i>Kelly Meiklejohn, PhD*</i> ; <i>Melissa Scheible, MFS</i> ; <i>Tiffany Layne, PhD</i> ; <i>Teresa Tiedge, PhD</i> ; <i>Jack Hietpas, PhD</i> ; <i>Jodi Webb, MS</i> ; <i>Libby Stern, PhD</i>
11:30 am – 1:00 pm	B3	A Small-Scale Ancestry Informative DIP-STR Marker Set for Biogeographic Ancestry Inference in United States Populations <i>Lauren Hoopes, MSFS</i> ; <i>Nicole DeWald</i> ; <i>Diana Hall, PhD</i> ; <i>Daniele Podini, PhD</i> ; <i>Fabio Oldoni, PhD*</i>
11:30 am – 1:00 pm	B4	Addressing the Challenges of the ISFG Minimum Sequence Ranges When Implementing NGS Technologies for STR Typing <i>Christina Scott, MS*</i> ; <i>Kevin Cheng, PhD</i> ; <i>Kyleen Teague, PhD</i> ; <i>Kim Eskey, MS</i> ; <i>Tracy Ferguson, MS</i> ; <i>Jo-Anne Bright, PhD</i> ; <i>Rebecca Just, PhD</i> ; <i>Rebecca Mitchell, PhD</i>
11:30 am – 1:00 pm	B5	Assessing the Viability of DNA Yields From Taphonomically Altered Bone and Teeth <i>Shelby Feirstein, MS*</i> ; <i>Maria Castagnola, MA</i> ; <i>Mayaas Hassan, BA</i> ; <i>Alixs Pujols, BS</i> ; <i>Sara C. Zapico, PhD</i> ; <i>Luis Cabo, MS</i> ; <i>Joe Adserias-Garriga, PhD</i>
11:30 am – 1:00 pm	B6	It's Common Cents—How to Spend a Million Dollars in Five Months! <i>Julie Ferragut, BS*</i>
11:30 am – 1:00 pm	B7	The Molecular Diversity of 23 Y-STR Genetic Markers in an Endogamous Ramgharia Population of Punjab, India <i>Amandeep Kaur Bhambara, PhD*</i> ; <i>Shivkant Sharma, PhD*</i> ; <i>Vivek Sahajpal, PhD</i>
11:30 am – 1:00 pm	B8	A Comprehensive Drug Analysis of Vaporizer Products From Pennsylvania High Schools <i>Alexis Quinter, MASc*</i> ; <i>Joshua DeBord, PhD</i> ; <i>Alex Krotulski, PhD</i> ; <i>Barry Logan, PhD</i> ; <i>Max Denn, MS</i>
11:30 am – 1:00 pm	B9	Field Testing of Drug-Incorporated Edible Jellies Using Portable Raman-Based Analyzers and Colorimetric Tests <i>Abid Naseer, MS*</i> ; <i>Tahir Jamshaid, MPhil</i> ; <i>Muhammad Usman, MS</i> ; <i>Laraib Batool, PharmD</i> ; <i>Muhammad Saqib Kabir Khan, MS</i>
11:30 am – 1:00 pm	B10	Source Attribution of Fentanyl Via Metals Analysis <i>Edward Bentil, PhD*</i> ; <i>Marie Taylor, BSFS</i> ; <i>Brian Eckenrode, PhD</i>
11:30 am – 1:00 pm	B11	Determination of Plant DNA Recovery After Extraction of Ephedrine From Ephedra: A Pilot Study <i>Nurdan Sandikçi, MS*</i> ; <i>Tuğba Ünsal Sapan, PhD</i> ; <i>Sevil Atasoy, PhD</i> ; <i>Salih Tuncay, PhD</i> (FSF Emerging Forensic Scientist Award Poster Presentation)
11:30 am – 1:00 pm	B12	A Simple DNA Extraction Method and a Rapid PCR-Based Assay for Detecting Ricinus Communis L. DNA Co-Extracted With Ricin <i>Renato Paranaíba, PhD*</i>

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11:30 am – 1:00 pm	B13	A Rapid Method for Identifying Source Species of Body Fluids: Implications for Wildlife Investigations <i>Kate Jones*, Christopher Ehrhardt, PhD</i>
11:30 am – 1:00 pm	B14	The Mysterious Case of a Fatal Accident During Skydiving: A Fracture of the Pelvis From Parachute Opening Shock (POS)? <i>Naomi Iacoponi, MD*; Julia Lazzari, MD; Carla Occhipinti, MD; Giacomo Visi, MD; Matteo Leoni, MD; Alessandra Cicchini, MD; Giorgio Chiandussi, PEng; Roberto Testi, MD; Marco Di Paolo, MD</i>
11:30 am – 1:00 pm	B15	A 3D-Printed Object Topography Analysis and the Viability for Forensic Examination <i>Cooper Blair, BS*; Eric Law, PhD</i>
11:30 am – 1:00 pm	B16	WITHDRAWN
11:30 am – 1:00 pm	B17	A Characterization of Decomposing Human and Animal Tissue in a Micro-Scale Biotope Through Simulated Rainwater Extraction <i>Nicholas Lyde, BSFS*; Edward Bentil, PhD; Brian Eckenrode, PhD; Ivory Krise, MSFS; Nana Kennedy, MSFS</i>
11:30 am – 1:00 pm	B18	Analyzing the Case of a Fatal Shooting on a Movie Set <i>Peter Diaczuk, PhD*; Lexy Dejesus, BA</i>
11:30 am – 1:00 pm	B19	Developing a Method for the Analysis of Products Claiming to Treat COVID-19 <i>Christopher Poulos, MS*; Travis Falconer, PhD; Michael Thatcher, BS; Adam Lanzarotta, PhD; Martin Kimani, PhD</i>
11:30 am – 1:00 pm	B20	Forensic Intelligence Derived From Crime Scene Evidence Using Text Embeddings <i>Vinicius Lima, MEng*; Umit Karabiyik, PhD</i> <i>(FSF Emerging Forensic Scientist Award Poster Presentation)</i>
11:30 am – 1:00 pm	B21	Deep Ultraviolet Raman Spectroscopy for the Forensic Analysis of Oral Fluids <i>Mohamed Amin, PhD*; Fatima Matroodi, PhD; Entesar Al-Hetlani, PhD; Barbara Rossi, PhD; Igor Lednev, PhD</i> <i>(FSF Emerging Forensic Scientist Award Poster Presentation)</i>
11:30 am – 1:00 pm	B22	The Distribution of Retroreflective Glass Beads in Soil Samples <i>Shirly Montero, PhD*</i>
11:30 am – 1:00 pm	B23	Forensic Profiling of Cigarette Paper Using ATR/FTIR Spectroscopy and Machine Learning/Algorithms <i>Vishal Sharma, PhD*; Akanksha Sharma, MS</i>
11:30 am – 1:00 pm	B24	Low-Field and Benchtop NMR in the Forensic Science: Challenges and Opportunities <i>Caroline D'Oca, PhD*; Kahlil Salome, PhD; Anelize Bahniuk, PhD; Marcio Fernandes, PhD</i>
11:30 am – 1:00 pm	B25	Cracking the Case: Toward the Development of Mass Spectral Analysis of Blow Fly Eggs for Postmortem Interval Determination <i>Alexa Figueroa, BS*; Jennifer Rosati, PhD; Rabi Musah, PhD</i>
11:30 am – 1:00 pm	B26	The Contamination of Training Aid Substrates <i>Fernando Zaldivar Eyre, BS*</i>

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11:30 am – 1:00 pm	B27	A Rapid Hand-Held Detector for Drugs and Explosives and Their Signature VOCs Using Novel Nano-Porous Molecularly Imprinted Polymer Sensors <i>Kenneth Furton, PhD*; Abuzar Kabir, PhD; Patrick Roman, PhD</i>
11:30 am – 1:00 pm	B28	Exploring Alternative Solvents for Dichloromethane as an Extraction Solvent of Sexual Lubricant Components Using Gas Chromatography/Mass Spectroscopy <i>Safiya Best, MScFS*; Ashley Gamache; Candice Bridge, PhD</i>

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11:30 am – 1:00 pm	B29	Time-Since-Deposition Signatures for the Analysis of Canine Body Fluids <i>Alysia Townsley*; Christopher Ehrhardt, PhD</i>
11:30 am – 1:00 pm	B30	Implementing Y-Screen Protocols as a Tool for Sexual Assault Forensic Examination Kit Backlog Reduction <i>Lake Prescott, MSFS*</i>
11:30 am – 1:00 pm	B31	The Use of Quantitation Values to Infer the Possible Presence of Spermatozoa <i>Kate DeHeer, MPS*; Ashley Luther, MS; Joanna Johnson, MS</i>
11:30 am – 1:00 pm	B32	Seminal Fluid Identification in Different Semen Sample Types <i>Gabriela Roca, PhD*; Mercedes Aler; Maria Castagnola, MA; Scarlet Neilson, MSFS; Francisco Medina Paz, PhD; Maik Schlieper; Nora Ronan-Milz; Polina Khalizov; Elizabeth Brusacoram, BS; Maria Isabella Negretti, BS; Amy Brodeur, MFS; Mirna Ghemrawi, PhD</i>
11:30 am – 1:00 pm	B33	Increased DNA Quantification Sensitivity: An Evaluation of Investigator Quantiplex Pro FLX <i>Julia Wang, MS*; Ya-Chih Cheng, PhD; Joshua Boster, BS; Rachel Houston, PhD</i> <i>(FSF Emerging Forensic Scientist Award Poster Presentation)</i>
11:30 am – 1:00 pm	B34	A Novel Method for the Identification of Source Tissue in Biological Mixtures <i>Gabrielle Wolfe*; Nicole Dailey, MS; Christopher Ehrhardt, PhD</i>
11:30 am – 1:00 pm	B35	QIAxcel vs. qPCR: Evaluating Versatility for Forensic DNA Screening <i>Susana Garcia, BS*; Natalia Czado, MSFS; Damani Johnson, BS; Cesar Cantu, BS; Sheree Hughes, PhD; Rachel Houston, PhD</i> <i>(FSF Emerging Forensic Scientist Award Poster Presentation)</i>
11:30 am – 1:00 pm	B36	The Simultaneous Recovery of DNA, RNA, and Protein From Biological Samples for Forensic Applications Using a Novel Method <i>Jacob Hetzke, BS*; Coral Smith, MS; Brian Davis, PhD; Michael Rishel, PhD; Chrystal Chadwick, BS; John Nelson, PhD; Arati Iyengar, PhD</i>
11:30 am – 1:00 pm	B37	An In-Depth Look at DNA Casework on Fired Cartridge Casings Extracted Using a Modified Swabbing and Extraction Technique <i>Jennifer Belna, BS*; Rhonda Carter, BS</i>
11:30 am – 1:00 pm	B38	Streamlining Forensic Workflows: Field Test Results of Forensic Samples Using the HID NIMBUS Presto QNA System <i>Kayli Carrillo, BS*; Sheree Hughes, PhD</i> <i>(FSF Emerging Forensic Scientist Award Poster Presentation)</i>

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11:30 am – 1:00 pm	B39	The Simultaneous Determination of Time-Since-Deposition and Source Tissue for Forensic Biological Samples <i>Caitlin Lydon, BS*</i> ; Christopher Ehrhardt, PhD; Catherine Connon, PhD; Susan Greenspoon, PhD
11:30 am – 1:00 pm	B40	Modified Extraction Protocols for Nuclear DNA Extraction From Human Hair Shafts <i>Holly Zhao, BS*</i> ; Vinalon Mones, BS; Elaine Lewis, PhD; Glenn Fahrig, MS; Gregory Peiffer, PhD; Rebecca Sloman, MFS; Katherine Hargett, MFS; Todd Bille, MS; Daniele Podini, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)
11:30 am – 1:00 pm	B41	Direct to DNA: Revolutionizing Forensic Analysis by Streamlining the Process <i>Darcy Machado, MSFS*</i> ; Francesca Spatola, MS*
11:30 am – 1:00 pm	B42	Rapid DNA—Friend or Foe? Comparing Rapid DNA Analysis With Conventional Methodologies for Sexual Assault and Identification Cases <i>Tania Dominguez González, BS*</i> ; Jenny Acevedo González, PhD
11:30 am – 1:00 pm	B43	The Impact of Various Substrates and Deposition Time on Bacteria Associated With Saliva Samples and Its Implication on the Accuracy of a Bacterial Signature- Based Body Fluid Identification Method <i>Olisdey Galano Cruz, BS*</i> ; Sarah Seashols-Williams, PhD; Paul Brooks, PhD; Baneshwar Singh, PhD; Denise Wohlfahrt, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)
11:30 am – 1:00 pm	B44	Enhancing Success Rates in Sexual Assault Investigations With the SpermX Differential Extraction System <i>Huma Nasir, MS*</i> ; Amanda Walker, MS; Kelsy Lowther, MS
11:30 am – 1:00 pm	B45	Expanding On-Site Crime Scene Reconstruction Capabilities by Uncovering Microscopic Clues Using Mobile Laser-Induced Breakdown Spectroscopy (LIBS) <i>Leah Thomas, BS*</i> ; Roger Jefferys, MS; Luis Arroyo, PhD; Tatiana Trejos, PhD
11:30 am – 1:00 pm	B46	Analysis of Inorganic Oxidizing Salts in Intact and Chemically Reacted Consumer Fireworks Using Microscopical and Spectroscopic Approaches <i>Sydney Hampton, BS*</i> ; Cassidy Callaway, MS; Jared Estevanes, PhD; Patrick Buzzini, PhD; Geraldine Monjardez, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)
11:30 am – 1:00 pm	B47	An Artificial Intelligence-Based Detection of Ignitable Liquid Residues in Fire Debris Using a Deep Convolutional Neural Network <i>Ting-Yu Huang, PhD*</i> ; Jorn Yu, PhD
11:30 am – 1:00 pm	B48	The Detection of Organic Explosive Residues From Outdoor Explosions Using Confocal Raman Microscopy <i>Nicholas Jernigan, BS*</i> ; Jared Estevanes, PhD; Geraldine Monjardez, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)
11:30 am – 1:00 pm	B49	The Application of a Hand-Held Raman Spectrometer for the Classification of Synthetic- and Petroleum-Based Hydrocarbon Fluids <i>Javier Hodges, BS*</i> ; Kailee Marchand, BS; Jorn Yu, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)
11:30 am – 1:00 pm	B50	The Impact of Glass Vial Type in Measuring Raman Spectrum of Liquid Hydrocarbon Samples <i>Kailee Marchand, BS*</i> ; Javier Hodges, BS; Jorn Yu, PhD

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11:30 am – 1:00 pm	B51	The Detection of Bio-Based Lighter Fluid and Biodiesel Residues on Wood and Fabric Debris <i>Mengliang Zhang, PhD*</i>
11:30 am – 1:00 pm	B52	Real Bullets, Plastic Guns: Evaluating the Strength of 3D-Printed Gun Parts <i>Maria Mayol, BA*; Peter Diaczuk, PhD</i>
11:30 am – 1:00 pm	B53	The Collection Efficiency of the Activated Charcoal Adsorbent for the Detection and Identification of the DMNB by GC/MS From the Headspace of the Suspected Post-Blast Debris <i>Khalid Feras, MS*</i>
11:30 am – 1:00 pm	B54	The Characterization and Discrimination of Soil by Major Elemental Analysis Using Laser-Induced Breakdown Spectroscopy: A Case Study of Nirasaki in Central Japan <i>Kento Kumisaka, MD*; Ritsuko Sugita, PhD</i>
11:30 am – 1:00 pm	B55	An Investigation Into Chromatographic Methods for the Preservation, Stability, and Analysis of Organic Gunshot Residue <i>Addio Fiordigigli, BS*; Kourtney Dalzell, MS; Thomas Ledergerber, BS; Tatiana Trejos, PhD; Luis Arroyo, PhD</i>
11:30 am – 1:00 pm	B56	A Study of Casing Markings of Semi-Automatic Firearms Modified With a Glock® Switch <i>Nicole Sachman, BS*; Lawrence Quarino, PhD; Carol Ritter, MS; Peter Diaczuk, PhD</i>
11:30 am – 1:00 pm	B57	One-Step Non-Contact Sampling and Analysis of Trace Chemical Residues Using an Electrostatic Wand and Paper Spray Mass Spectrometry <i>Kimberly Edmunds*; La’Nyah Nance; Kenyon Evans-Nguyen, PhD</i>
11:30 am – 1:00 pm	B58	A Quantitative Assessment of the Stability of New AR-Style Rifle Breech Face Characteristics <i>Teagan Trent*; Eric Law, PhD</i>
11:30 am – 1:00 pm	B59	A Modified Procedure for Extracting Primer Gunshot Residue From Scanning Electron Microscopy Carbon Stubs and Trace Analysis Utilizing the Graphite Furnace-Atomic Absorption Spectrometry Technique <i>Khalid Feras, MS*</i>
11:30 am – 1:00 pm	B60	Outpacing the Law: NPS—A Global Threat Challenging Forensic Analysis <i>Tahir Jamshaid, MPhil*; Khalid Feras, MS*; Umair Ilkram Dar; Memoona Ishtiaq, PhD</i>
11:30 am – 1:00 pm	B61	The Enhancement of Latent Fingerprints Using Waste Biomass-Derived Biocompatible Fluorescent Graphene Nanosheets <i>Kajol Bhati, PhD*; Divya Tripathy, PhD</i>
11:30 am – 1:00 pm	B62	An Assessment of the Permeability of VOCs Between Containers Housing Detection Canine Training Aids <i>Kayla Hogan, BA*; Lauryn DeGreeff, PhD; Kenneth Furton, PhD</i>
11:30 am – 1:00 pm	B63	The Prevalence of GSR on Ammunition Packaging <i>Brittany Claassen, MS*; Kailyn Thomas; Jason Schroeder, MS</i> <i>(FSF Emerging Forensic Scientist Award Poster Presentation)</i>
11:30 am – 1:00 pm	B64	Advancing Trace Evidence Identification Through ATR/FTIR Spectroscopy and Machine Learning for Textile Fibers Analysis <i>Vishal Sharma, PhD*; Akanksha Sharma, MS</i>

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11:30 am – 1:00 pm	B65	Addressing Challenges in Mineral Identification by Raman Spectroscopy <i>Jasmine Kaur, MFS*</i> ; <i>Drew Kuroda, BS</i> ; <i>Joshua Christensen</i> ; <i>Marisia Fikiet, PhD</i> ; <i>Peter De Forest, DCrim</i> ; <i>Brooke Kammrath, PhD</i>
11:30 am – 1:00 pm	B66	The Characterization of Residues Left by the Impact of Different Types of Firearm-Propelled Projectiles <i>Jesus Velho, PhD*</i> ; <i>Aline Bruni, PhD</i> ; <i>Michele Dos Santos, MD, PhD</i> ; <i>Milena Souza, MD</i>

Thursday—Session I

Collection and Extraction

Moderator: Amy Brodeur, MFS

Co-Moderator: Ashley Morgan, PhD

8:00 am – 8:30 am	B67	Standards Development Activities in Human Forensic Biology <i>Jillian Conte, PhD*</i> ; <i>Charlotte Word, PhD</i> ; <i>Jarrah Kennedy, MSFS</i>
8:30 am – 8:45 am	B68	An Evaluation of Semen Extraction Efficiency and Recovery After Washing From Reusable Period Underwear <i>Caitlyn Spencer, BS*</i> ; <i>Sarah Seashols-Williams, PhD</i> (FSF Emerging Forensic Scientist Award Oral Presentation)
8:45 am – 9:00 am	B69	Swab Technology Is Advancing: Are We Putting Research Evidence Into Action? <i>Jillian Conte, PhD*</i> ; <i>Tracey Johnson, MSFS</i>
9:00 am – 9:15 am	B70	A Quantitative Assessment of Extraction Efficiencies Obtained From Various Methods and Sample Types <i>Lauren Mullen, MFS*</i> ; <i>Erica Romsos, MFS</i> ; <i>Peter Vallone, PhD</i> (FSF Emerging Forensic Scientist Award Oral Presentation)
9:15 am – 9:30 am	B71	Innovative Lab-on-a-Disc Technology for Rapid Differential DNA Extraction in Forensic Science <i>Beomseok Lee, PhD*</i> ; <i>Kyusang Lee, PhD</i> ; <i>Beomhee Ahn</i> ; <i>Hanna Kim, BS</i> ; <i>Hwanghee Ryu, MS</i> ; <i>Myunghee Jang, BS</i> ; <i>Yoon-Kyoung Cho, PhD</i>
9:30 am – 9:45 am	B72	A New DNA Collection Tool Kit: Bringing Versatility and Flexibility to Analysts <i>Jamie Fredericks, PhD*</i> ; <i>Eric Wooldridge, MS</i>
9:45 am – 10:15 am	B73	Differential Extractions—Defining the Problem <i>Robin Cotton, PhD*</i> ; <i>Ashley Lara, MS</i> ; <i>Anna Berberoglu, MS</i> ; <i>Xiaoyu Zhang, MS</i>
10:15 am – 10:30 am		BREAK

Criminalistics Gone Wild

Moderator: Tiffany Rodriguez, MS

Co-Moderator: C. Ken Williams, MS, JD

10:30 am – 11:30 am	B74	Criminalistics Gone Wild (in the Courtroom)—Human Factors, Activity Level, and Probability, Oh My! *Interactive Panel Discussion <i>Agnes Winokur, PhD*</i> ; <i>Tiffany Rodriguez, MS*</i> ; <i>Claude Roux, PhD, FRSN*</i> ; <i>Christopher Palenik, PhD*</i> ; <i>Joseph Remy*</i> ; <i>Tim Kalafut, PhD*</i>
11:30 am – 1:00 pm		BREAK

*Presenting Author

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Biomarkers, Body Fluids, and Y-STRs

Moderator: Robin Cotton, PhD

Co-Moderator: Kelly Elkins, PhD

1:00 pm – 1:15 pm	B75	A Proteomic Analysis of Semen for Human Identification and Body Fluid Classification <i>Zachary Goecker, PhD*</i> ; Zheng Zhang, MD; Erica Romsos, MFS; Meghan Burke, PhD; Glendon Parker, PhD; Stephen Stein, PhD; William Wallace, PhD; Peter Vallone, PhD
1:15 pm – 1:30 pm	B76	An Advanced Nucleic Acid Lateral Flow Assay for Rapid and Sensitive Identification of Human Vaginal Fluid Using Molecular Beacon Technology <i>Nidhi Subhashini, PhD*</i>
1:30 pm – 1:45 pm	B77	Integrating Genetic and Epigenetic Sequencing for Forensic Application in a Single Workflow <i>Mirna Ghemrawi, PhD*</i> ; Lindsay Kotchey, MSFS
1:45 pm – 2:00 pm	B78	A Microfluidic Device for the Rapid Serological Identification of Forensically Relevant Body Fluids <i>Taylor Chambers, BS*</i> ; Renna Nouwairi, PhD; Larissa Cunha, BS; Liam Barry, MS; Rachel Flemming, PhD; Zoey Golabek, BA; Sam McCollam; Tiffany Layne, PhD; James Landers, PhD; Ashleigh Williamson, PhD
2:00 pm – 2:15 pm	B79	The Identification and Optimization of MicroRNA Biomarkers for Accurate Body Weight Prediction in Forensic Samples <i>Kimberly Lettner, BS*</i> ; Xiaomeng Yang, MS; Sarah Seashols-Williams, PhD (FSF Emerging Forensic Scientist Award Oral Presentation)
2:15 pm – 2:30 pm	B80	Dead or Alive? Biomarker Identification for Postmortem Blood Detection <i>Sara C. Zapico, PhD*</i> ; Amy Brodeur, MFS; Tai-Hua Tsai, MS; Gulnaz Javan, PhD; Christian Stadler, PhD; Gabriela Roca, PhD
2:30 pm – 2:45 pm	B81	The Design and Development of Novel Single Multiplex System Incorporating 26 Rapidly Mutating Y-STRs: 26 RM Yplex <i>Rashed Alghafri, PhD*</i>
2:45 pm – 3:00 pm	B82	The Recovery of Probative aSTR and Y-STR Profiles From Single or a Few Micromanipulated Sperm Cells <i>Morgan Peters, MS*</i> ; Kaitlin Huffman, PhD; John Ballantyne, PhD; Erin Hanson, PhD (FSF Emerging Forensic Scientist Award Oral Presentation)
3:00 pm – 3:15 pm	BREAK	

FIGG and UHR

Moderator: Lori Seman, MS

Co-Moderator: Janine Kishbaugh, MS

3:15 pm – 3:45 pm	B83	The Humanitarian DNA Database (HDD): An Update <i>Michael Coble, PhD*</i> ; Melody Josserand, MS; Erika Ziemak, MS
3:45 pm – 4:15 pm	B84	When You Come to a Fork in the Road, Recognize It: Mapping the FIGG Decision-Making Landscape <i>Colleen Fitzpatrick, PhD*</i> ; Valerie Mattimore Fuller, PhD

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4:15 pm – 4:35 pm	B85	Building Branches: Navigating Practical and Ethical Considerations for the Responsible Use of Forensic Investigative Genetic Genealogy (FIGG) <i>Claire Glynn, PhD*</i>
4:35 pm – 4:55 pm	B86	Down the Rabbit Hole—Now Up a Tree: Solving Cold Cases Using Forensic Investigative Genetic Genealogy at the New York City Office of Chief Medical Examiner and the Queens District Attorney’s Office <i>Lisa Mertz, MS*; Karen Ross, JD*</i>
4:55 pm – 5:15 pm	B87	The Development of Artificial Single Nucleotide Polymorphism (SNP) Data for Investigative Genetic Genealogy (IGG) Research and Training: A Preliminary Study <i>Jessica Whitney, MS*; Keith Morris, PhD; Aldo Romero, PhD</i> <i>(FSF Emerging Forensic Scientist Award Oral Presentation)</i>
5:15 pm – 5:35 pm	B88	The Coldest Cold Case in Croatia: The Body in the Chest Freezer <i>Tina Smoljanović, BASc*; Hrvoje Senješ, MAS; Jerković Ivan, PhD</i>

Thursday – Session II

SWGMAAT Update and Fentanyl

Moderator: Glen Jackson, PhD

Co-Moderator: Mariah Carson, MSFS

8:00 am – 8:20 am	B89	A 2025 Update From the Scientific Working Group for the Analysis of Seized Drugs (SWGDRUG) <i>Jaclyn Iera, PhD*</i>
8:20 am – 8:40 am	B90	Reference-Free Identification of Fentanyl Analogs <i>Tom Metz, PhD*; Katherine Schultz, MS; Adam Hollerbach, PhD; Christopher Harrilal, PhD; Dylan Ross, PhD; Danielle Ciesielski, PhD; Yehia Ibrahim, PhD; Simone Raugei, PhD; Bobbie-Jo Webb-Robertson, PhD; Robert Ewing, PhD</i>
8:40 am – 9:00 am	B91	Using Chemical Profiling and Chemometrics for Predictive Fentanyl Geographic Associations <i>Agnes Winokur, PhD*</i>
9:00 am – 9:20 am	B92	Profiling Fentanyl in a Local Drug Market and Characterizing Variability Through Quantitative Chemical Analysis <i>Joshua DeBord, PhD*; Alexis Quinter, MASc; Max Denn, MS; Barry Logan, PhD; Alex Krotulski, PhD</i>
9:20 am – 9:40 am	B93	Longitudinal Insights Into the United States’ Illicit Fentanyl Supply From the Characterization of Counterfeit Fentanyl Tablets <i>Barry Logan, PhD*; Sarah Shuda, MS; Mia Borrelli, MS; M.J. Menendez, JD; Thom Browne, MA; Amanda Mohr, MS</i>
9:40 am – 9:55 am		BREAK

CRIMINALISTICS

Drug Chemistry Instrumental Analysis

Moderator: Ligu Song, PhD

Co-Moderator: Abdallah Malik Naanaa, MS

9:55 am – 10:10 am	B94	WITHDRAWN
10:10 am – 10:30 am	B95	The Development of an Analytical Scheme for the Identification of Nitazene Compounds <i>Sarah Caceres, MS*</i> ; <i>Russel Ford, PhD*</i> ; <i>Sherri Tupik, BS*</i>
10:30 am – 10:45 am	B96	Novel Approaches to Increase Specificity for Difficult Isomeric Separations With Ultra-High Performance Liquid Chromatography (UHPLC) for the Analysis of Seized Drugs <i>Jerimiah Seba, BS*</i> ; <i>Ira Lurie, PhD</i>
10:45 am – 11:00 am	B97	Determining the Utility of Gas Chromatography/Derivative Vacuum Ultraviolet Spectroscopy for Seized Drug Analysis Through a Comparison to Gas Chromatography/Mass Spectrometry Capabilities <i>Alexa Mehlman, BS*</i> ; <i>Ira Lurie, PhD</i> (FSF Emerging Forensic Scientist Award Oral Presentation)
11:00 am – 11:15 am	B98	Chemometrics as a Tool for Transformation: Addressing the Limitations of Gas Chromatography/Infrared Spectroscopy for Synthetic Cathinone Analysis <i>Jennifer Bonetti, MS*</i> ; <i>Ruben Kranenburg, PhD</i> ; <i>Stephen Hokanson, BS</i> ; <i>Matthew Pothier, MS</i> ; <i>Saer Samanipour, DSc</i> ; <i>Arian van Asten, PhD</i>
11:15 am – 11:30 am	B99	An Additional Analysis of Drug Test Strips by Mass Spectrometry for Rapid Comprehensive Drug Checking <i>Meghan Appley, PhD*</i> ; <i>Edward Sisco, PhD</i>
11:30 am – 1:00 pm		BREAK

Detector Dogs

Moderator: A. Bakarr Kanu, PhD, MRSC

Co-Moderator: Mikaela Romanelli, MS

1:00 pm – 1:20 pm	B100	Detector Dogs: Advancing Drug Detection Operations Using Science at the United States Customs and Border Protection <i>Jonathan McGrath, PhD*</i> ; <i>Armando Avallone, MS</i>
1:20 pm – 1:40 pm	B101	The Development of Fentanyl Training Aids to Advance Canine Detection Strategies <i>Jonathan McGrath, PhD*</i> ; <i>Armando Avallone, MS</i>
1:40 pm – 2:00 pm	B102	Canine Training Aid Development of Novel Target Odors to Advance Strategies to Combat Fentanyl Precursors at the Border <i>Jonathan McGrath, PhD*</i> ; <i>Armando Avallone, MS</i>
2:00 pm – 2:20 pm	B103	The Evolution of VOC Profiles During Early Human and Animal Decomposition in Application for Canine Detection <i>Fantasia Whaley, MSFS*</i> ; <i>Valerie Albizu, BS</i> ; <i>Joel Fuentes Carrasco, BS</i> ; <i>Emily Millan, BS</i> ; <i>Jordi Cruz, PhD</i> ; <i>Lauryn DeGreeff, PhD</i>
2:20 pm – 2:40 pm	B104	Assessing the Accuracy and Reliability of Canine Explosives Detection Using OSAC Training and Certification Standards <i>Adele Quigley-McBride, PhD*</i> ; <i>Haylie Browning, BS*</i> ; <i>Lauryn DeGreeff, PhD</i> ; <i>Paola A. Prada-Tiedemann, PhD</i>

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2:40 pm – 3:00 pm **B105** **Developing a Universal Smokeless Powder Training Aid**
Rushali Dargan, PhD; Lauryn DeGreeff, PhD*

3:00 pm – 3:20 pm **BREAK**

Firearm and Toolmark Examinations

Moderator: Jack Hietpas, PhD

Co-Moderator: Zoë Krohn

3:20 pm – 3:40 pm **B106** **OSAC/ASB Standards Development Activities in Firearm and Toolmark Examination**
Xiaoyu Zheng, MS; Robert Sanger**

3:40 pm – 4:00 pm **B107** **A Quantitative Topography Comparison of Toolmarks Made by Tongue-and- Groove Pliers**
Eunah Joo, MS; Thomas Renegar, AA; Johannes Soons, PhD; Michael Stocker, BS;
Robert Thompson, MFS; Xiaoyu Zheng, MS*

4:00 pm – 4:20 pm **B108** **The Interoperability of 3D Firearm Toolmark Measurements**
Xiaoyu Zheng, MS; Johannes Soons, PhD; James Yen, PhD*

4:20 pm – 4:40 pm **B109** **The Generation and Interpretation of the Similarity Score Distribution for Matched and Non-Matched Bullets and Cartridge Cases**
*Neal Schrode, BS**

4:40 pm – 5:00 pm **B110** **Quantitative Assessment of Barrel Wear From Solid Copper Bullets**
Natali Hassett, MS; Eric Law, PhD*

5:00 pm – 5:20 pm **B111** **A Quantitative Determination of Muzzle-to-Target Distance in Shooting Cases**
Taqiyah Chernesky, MScFS; Sophie Knier, MFS; Stephanie Walcott, MScFS; Emanuele Alves, PhD*

5:20 pm – 5:40 pm **B112** **Close Non-Matches and Database Searches: How Often Can We Expect to See a True Match Among the K Highest Correlations?**
Blanca Parker, BA; Heike Hofmann, PhD; Alicia Carriquiry, PhD*

Thursday – Session III

Challenging Samples From Human Remains

Moderator: Sheree Hughes, PhD

8:30 am – 9:00 am **B113** **Deep Ocean Recovery and DNA Identification of Human Remains From the Titan Submersible**
Nancy Stokes, MSFS; Taylor Dickerson, MSFS; John Walsh, MD; Timothy McMahon, PhD*

9:00 am – 9:15 am **B114** **An Evaluation of DNA Recovery From Chemically Treated Human Remains**
Jennifer Snedeker, BS; Rachel Houston, PhD; Sheree Hughes, PhD
(FSF Emerging Forensic Scientist Award Oral Presentation)*

9:15 am – 9:30 am **B115** **The Use of Mitochondrial DNA to Provide Ancestry of Skeletal Remains Discovered in the East Marshall Street Well (EMSW)**
Martin MacStudy, BS; Filipa Simao, PhD; Baneshwar Singh, PhD; Tal Simmons, PhD
(FSF Emerging Forensic Scientist Award Oral Presentation)*

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9:30 am – 9:45 am	B116	An Optimized Demineralization Method Using Bone Slices for Improved DNA Recovery of 19th-Century Human Skeletal Remains <i>Ciara Rhodes, BS*</i> ; <i>Reilly Price, MS</i> ; <i>Celeste Willetts, BS</i> ; <i>Tal Simmons, PhD</i> ; <i>Sarah Seashols-Williams, PhD</i> (FSF Emerging Forensic Scientist Award Oral Presentation)
9:45 am – 10:00 am	B117	Biparental and Uniparental Ancestry of the Unidentified Human Remains From the East Marshall Street Well <i>Christopher Twene, MS*</i> ; <i>Filipa Simao, PhD</i> ; <i>Baneshwar Singh, PhD</i> ; <i>Tal Simmons, PhD</i> (FSF Emerging Forensic Scientist Award Oral Presentation)
10:00 am – 10:15 am	BREAK	

Forensic Investigations, NIST Libraries, and Source Identification

Moderator: Geraldine Monjardez, PhD

Co-Moderator: Beth Saucier Goodspeed, MS

10:15 am – 10:30 am	B118	Non-Destructive Brand Classification From Automobile Tire Rubber Traces Using ATR/FTIR Spectroscopy and Machine Learning for Forensic Investigations <i>Vishal Sharma, PhD*</i> ; <i>Akanksha Sharma, MS</i>
10:30 am – 10:45 am	B119	The Development of a Protocol for the Elemental Analysis of Tire Marks in Road Crime Forensics <i>Matthieu Baudelet, PhD*</i> ; <i>John Lucchi, PhD</i> ; <i>Micaela Hernandez, BS</i> ; <i>Alex Curto, BA</i>
10:45 am – 11:05 am	B120	The National Institute of Standards and Technology (NIST) Mass Spectral Reference Libraries <i>Edward Erisman, MS*</i>
11:05 am – 11:30 am	B121	The Development and Evaluation of a Contrastive Learning Framework for Source Identification: Technology for Transformation in the Interpretation of Forensic Data <i>Danica Ommen, PhD*</i> ; <i>Christopher Saunders, PhD</i> ; <i>JoAnn Buscaglia, PhD</i>
11:30 am – 1:00 pm	BREAK	

An Elusive Generalist, Measurement Uncertainty, Standards Implementation, and the Tyranny of Universal Standards

Moderator: Brooke Weinger Kamrath, PhD

Co-Moderator: Alyssa Berthiaume, MS

1:00 pm – 1:30 pm	B122	The Curious Case of the Elusive Generalist <i>Sheila Willis, DSc*</i> ; <i>Michelle Miranda, PhD</i>
1:30 pm – 1:50 pm	B123	The Implementation of a Uniform Approach to Determine Measurement Uncertainty in Routine Chemical Forensic Casework <i>Ivo Alberink, PhD*</i> ; <i>Ingrid Bosman, PhD</i> ; <i>Marzena Glama, MS</i> ; <i>Dick-Paul Kloos, PhD</i> ; <i>Annette Sprong, BS</i> ; <i>Camille van Dijk, MS</i>
1:50 pm – 2:10 pm	B124	A Study of Standards Implementation Across the Forensic Sciences: Notes, Trends, and Future Directions <i>Vincent Desiderio, MS*</i> ; <i>John Paul Jones, MBA</i> ; <i>Allison Getz, MS</i> ; <i>Crystal DeGrange, MS</i> ; <i>Mark Stolorow, MS, MBA</i> ; <i>Steven Johnson, BS</i>

CRIMINALISTICS

2:10 pm – 2:40 pm	B125	Problematic Exclusionary Differences: The Tyranny of Universal Standards for Determining Exclusionary Differences <i>Janean Hanka, MS*; JoAnn Buscaglia, PhD*; Jack Hietpas, PhD; Danica Ommen, PhD; Christopher Saunders, PhD</i>
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2:40 pm – 3:00 pm	BREAK
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Friction Ridge Applications in Research and Practice I

Moderator: Bryan T. Johnson, MSFS

3:00 pm – 3:20 pm	B126	Standards Development Activities Related to Friction Ridge Examination <i>Heidi Eldridge, PhD*</i>
3:20 pm – 3:40 pm	B127	Forensic Lab's Phoenix Rise: The Remarkable Redemption of a Lost Latent Fingerprint Unit <i>Angelic Rountree, BS*; Alice White, BS</i>
3:40 pm – 4:00 pm	B128	Assessing the Performance of Fingerprint Laboratories Through Collaborative Exercises: The ENFSI Fingerprint Working Group Experience <i>Aldo Mattei, PhD*</i>
4:00 pm – 4:20 pm	B129	An Investigation of Fingermark Residue Components and Differentiation From Contaminants <i>Katelynn Perrault Uptmor, PhD*; Emma Macturk, BS</i>
4:20 pm – 4:30 pm	BREAK	

Friction Ridge Applications in Research and Practice II

Moderator: Marianne Staretz, PhD

4:30 pm – 4:50 pm	B130	Developing Reproducible Protocols and Definitions for Selecting Combined Minutiae: Applications in Research and Practice <i>Adele Quigley-McBride, PhD*; Heidi Eldridge, PhD*; Brett Gardner, PhD</i>
4:50 pm – 5:10 pm	B131	Likelihood Ratios for Fingerprint and Palm Impressions <i>Thomas Busey, PhD*; Meredith Coon, MS</i>
5:10 pm – 5:30 pm	B132	One Size Does Not Fit All: Variations in Documenting the ACE-V Process Among Latent Print Examiners <i>Ivy Walker, MS*; John Grassel, MA; Micaela Ascolese, BA; Rebecca Shute, MS</i>
5:30 pm – 5:50 pm	B133	Visualizing and Enhancing Latent Fingerprints Using Different Floral Powders: An Eco-Friendly Approach <i>Kajol Bhati, PhD*; Amandeep Kaur Bhambara, PhD*; Ankit Singh, MSc; Rajeev Kumar, PhD; Vinny Sharma, PhD</i>

CRIMINALISTICS

Friday

Poster Session

11:30 am – 1:00 pm	B134	Enhanced Genetically Variant Peptide Profiling From Human Hair Using Keratinase and Trypsin <i>Zheng Zhang, MD*[*]; William Wallace, PhD; Stephen Stein, PhD</i>
11:30 am – 1:00 pm	B135	Developing Digital Polymerase Chain-Based Assays for the Detection and Speciation of Foodborne Illness <i>Sylvia Etim, MS*[*]; Bruce McCord, PhD</i>
11:30 am – 1:00 pm	B136	Statistical Analysis of Fairness in Forensic Source Identification Problems <i>Semhar Michael, PhD*[*]; Christopher Saunders, PhD</i>
11:30 am – 1:00 pm	B137	Enhancing the Number of Contributor Inference Using mtDNA Haplotypes for Mixture Deconvolution <i>Zack Beyerl, BS*[*]; Nicole Mischak, BS*[*]; Regan Fenske, BA; Helene Douglas, BS; Daniele Podini, PhD</i>
11:30 am – 1:00 pm	B138	Different TrueAllele Users, Same DNA Answer: A Multi-Center Proficiency Study <i>William Allan, MASc*[*]; Jennifer Bracamontes, MS; Matthew Legler, BS; Jonathan Perlin, MS; Mark Perlin, MD, PhD</i>
11:30 am – 1:00 pm	B139	The Advancement and Practical Application of a Kinship Identification System Through the Exploration of Genetically Shared Chromosomal Regions Using High-Density SNP Data <i>Sohee Cho, PhD*[*]; Eunsoon Shin, PhD; Yong-Seok Kim, PhD; Soong Deok Lee, MD, PhD</i>
11:30 am – 1:00 pm	B140	DNA Metabarcoding: Can It Reliably Be Used to Characterize Pollen From Surface Soils? <i>Kelly Meiklejohn, PhD*[*]; Ozge Kuddar, MS; Benjamin Callahan, PhD; Christopher Bernhardt, PhD</i>
11:30 am – 1:00 pm	B141	An Analysis of DNA Preservation in Human Remains Embedded in Solid Building Materials <i>Hayle Boechler, BS*[*]; Mayra Mayr-Eduardoff, PhD; Sheree Hughes, PhD</i>
11:30 am – 1:00 pm	B142	A Decade of ForenSeq in Forensics: Where Are We Now? <i>Laurence Devesse, PhD*[*]; Melissa Kotkin, BS</i>
11:30 am – 1:00 pm	B143	Microhaplotypes: A Double-Edged Sword in Forensic Genetics <i>Pegah Farhadi, PhD*[*]; Arash Alipourtabrizi, MD</i>
11:30 am – 1:00 pm	B144	Investigating a Different Forensic Workflow for DNA Paternity Testing <i>Franzoni Anna, MS*[*]; Michele Rosso, PhD</i>
11:30 am – 1:00 pm	B145	Enhancing Rapid DNA Programs: Implementing a Metrics Tracker to Improve Performance and Measure Success <i>Emily Strelka, MFS*[*]; Erin Forry, MS; Jason Chute, MSFS; Mikalaa Martin, BS; Misty Marra, MSFS; Patricia Melton, PhD; Shannon Krauss, PhD</i>
11:30 am – 1:00 pm	B146	Upgrading to STRmix v2.11: A Chance to Do It All Again <i>Ut Dinh, MS*[*]; Alicia Cadenas, MS</i>
11:30 am – 1:00 pm	B147	The Application of Deep Learning in Latent Fingerprint Enhancement <i>Daye Kim, MS*[*]; Ming-Sie Pan; Chao-Hsing Fan, PhD; Jorn Yu, PhD</i> (FSF Emerging Forensic Scientist Award Poster Presentation)

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11:30 am – 1:00 pm	B148	Elucidating the Mechanism of Unwanted and Uncontrolled Water Adducts in the Tandem Mass Spectra of Synthetic Cannabinoids <i>McKenna Oaks*</i> ; Christopher Poulos, MS; Emmanuel Ubana, BS; Fabien Goulay, PhD; Glen Jackson, PhD
11:30 am – 1:00 pm	B149	Utilizing a Field-Deployable, High-Resolution Mass Spectrometry System for Screening of Seized Drugs by DART-MS Analysis <i>Elizabeth Robinson, MS*</i> ; Edward Sisco, PhD; Thomas Forbes, PhD
11:30 am – 1:00 pm	B150	The Effect of Mass Spectral Selection on Discrimination of Fentanyl Analog Positional Isomers <i>Alexandra Rahn, BS*</i> ; Ruth Waddell Smith, PhD; Victoria McGuffin, PhD
11:30 am – 1:00 pm	B151	Structural Characterization of Nitazene Analogs Using Electrospray Ionization- Tandem Mass Spectrometry (ESI-MS/MS) <i>Emma Hardwick, BA*</i> ; J. Tyler Davidson, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)
11:30 am – 1:00 pm	B152	Fingerprint Evidence Analysis of Fraudulent Receipts in Taichung City, Taiwan <i>Yu-Chih Lin, PhD*</i> ; Pei-Yi Hua, MS; Chi-I Wu, MS; Chia-Chen Weng, MAS; Kuo-Lan Liu, MD, PhD
11:30 am – 1:00 pm	B153	The Development and Validation of a New GC/MS Decision-Point Method for Marijuana and Hemp Differentiation Using Hydrogen as Carrier Gas <i>Agatha Villegas, BS*</i> ; Sandra Rodriguez-Cruz, PhD; Michael Weaver, BS
11:30 am – 1:00 pm	B154	Evaluating the Performance of DEA's New GUARDS Method Via an Interlaboratory Study <i>Mark Frisch, PhD*</i> ; Sandra Rodriguez-Cruz, PhD
11:30 am – 1:00 pm	B155	Exploring Natural Aging and Depletion Processes of Latent Fingermarks With 2D and 3D Imaging <i>Alexandrea Buscarello, BS*</i> ; Josep De Alcaraz-Fossoul, PhD
11:30 am – 1:00 pm	B156	Utilizing Low Energy Ionization to Differentiate and Identify Fentanyl and Nitazene Analogs <i>Kirk Lokits, PhD*</i>
11:30 am – 1:00 pm	B157	The Development and Validation of a Combined Selected Ion Monitoring-Scan GC/MS Method for Nitazene Analogs <i>Alleigh Couch, BS*</i> ; Emma Hardwick, BA; Claire Phelps, MSFS; J. Tyler Davidson, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)
11:30 am – 1:00 pm	B158	The Differentiation of Isobaric Methyl-Substituted Fentanyl Analogs Using Direct Analysis in Real-Time Mass Spectrometry (DART-MS) and All-Ion Fragmentation (AIF) <i>Christany Liggins, BS*</i> ; Alleigh Couch, BS; J. Tyler Davidson, PhD
11:30 am – 1:00 pm	B159	Thermal Desorption-Direct Analysis in Real-Time Mass Spectrometry (TD-DART-MS) of Seized Drug Mixtures <i>Keshonna Towns, BS*</i> ; Alleigh Couch, BS; J. Tyler Davidson, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)
11:30 am – 1:00 pm	B160	An Evaluation of a Transportable Linear Ion Trap Mass Spectrometer for Rapid Seized Drug Screening <i>Fiza Tajdin, BS*</i> ; Christina Chang, MS; Alleigh Couch, BS; J. Tyler Davidson, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)

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11:30 am – 1:00 pm	B161	The Differentiation of CBD and Δ9-THC Isomers Using Copper Ion Complexation and Electrospray Ionization Tandem Mass Spectrometry <i>Alleigh Couch, BS*; Christopher Zall, PhD; J. Tyler Davidson, PhD</i> (FSF Emerging Forensic Scientist Award Poster Presentation)
11:30 am – 1:00 pm	B162	Enhancing Latent Print Development With Lanconide Powder <i>Lydia Buxa*; Chad Snyder, PhD</i>
11:30 am – 1:00 pm	B163	A Modified and Optimized Duquenois Test for Classical and Designer Cannabis Products <i>Marie Lemay*; Ryan Smith, BS; Ling Huang, PhD; Nanetter Wachter, PhD</i>
11:30 am – 1:00 pm	B164	Discriminating Between the Tandem Mass Spectra of Isomeric Synthetic Cannabinoids Using the Expert Algorithm for Substance Identification (EASI) <i>Alexandra Adeoye, MS*; Alleigh Couch, BS; J. Tyler Davidson, PhD; Glen Jackson, PhD</i> (FSF Emerging Forensic Scientist Award Poster Presentation)
11:30 am – 1:00 pm	B165	An Analysis of Mitragyna Hirsuta and Mitragyna Diversifolia Being Offered as Legal Alternatives to Kratom <i>Megan Joos, BS*; Elizabeth Gardner, PhD</i>
11:30 am – 1:00 pm	B166	The Development of a Virtual Liquid Chromatography Method Development Tool <i>Haley Berkland, MS*</i>
11:30 am – 1:00 pm	B167	The Drug Enforcement Administration's Basic Forensic Chemist Training Program Becomes the First Forensic Training Program Accredited by the Federal Law Enforcement Training Accreditation Board <i>Jessica Rasmussen, MS*</i>
11:30 am – 1:00 pm	B168	The Development and Testing of a Novel Sorbent Material for Headspace Analysis With Application to Illicit Drugs <i>Sadie Olrogg, BS*; Lauryn DeGreeff, PhD; Joongho Moon, PhD</i>
11:30 am – 1:00 pm	B169	The Optimization of Fast Blue B Test for Cannabis Products <i>Ryan Smith, BS*; Marie Lemay*; Ling Huang, PhD</i>
11:30 am – 1:00 pm	B170	The Detection and Quantitation of Xylazine, Medetomidine, and Detomidine as Adulterants to Heroin or Illicitly Manufactured Fentanyl Using NanoLC With Various Mass Spectrometers <i>Mehdi Moini, PhD*; Brian Eckenrode, PhD</i>
11:30 am – 1:00 pm	B171	The Development of an LC/MS/MS Method for the Identification of Psilocybin and Psilocin From Seized Drugs <i>Alexia Cassman, BS*; Kristen Head, MS</i>
11:30 am – 1:00 pm	B172	DSI-GC/MS Analysis of Designer Cannabis Gummies <i>Hannah LaVena*; Kevin Bisceglia, PhD; Ling Huang, PhD</i>
11:30 am – 1:00 pm	B173	GC/VIR Technology in Seized Drug Analysis <i>Sherri Tupik, BS*</i>
11:30 am – 1:00 pm	B174	WITHDRAWN
11:30 am – 1:00 pm	B175	The Development and Optimization of a Method for the Quantitation of Seized Drugs Using Rapid Gas Chromatography/Mass Spectrometry <i>Marissa Ho, BS*; Briana Capistran, PhD; Edward Sisco, PhD; Ira Lurie, PhD</i> (FSF Emerging Forensic Scientist Award Poster Presentation)

CRIMINALISTICS

11:30 am – 1:00 pm	B176	WITHDRAWN
11:30 am – 1:00 pm	B177	WITHDRAWN
11:30 am – 1:00 pm	B178	The Proliferation of Nitazenes in the United States Drug Market: Examining Powders and Counterfeit Tablets <i>Mia Borrelli, MS*</i> ; Sarah Shuda, MS; Amanda Mohr, MS; Thom Browne, MA; Barry Logan, PhD
11:30 am – 1:00 pm	B179	A Discovery of False Positive Illicit Drug Identification With Portable Surface- Enhanced Raman Spectroscopy (SERS) <i>Ella Galvan*</i> ; Desmond Brown; Don Ostrowski, APM; Richard Crocombe, PhD; Pauline Leary, PhD; Brooke Kammrath, PhD
11:30 am – 1:00 pm	B180	Illicit Drug Analysis in the Field With a Portable Instrument “Toolkit” <i>Brooke Kammrath, PhD*</i> ; Desmond Brown; Ella Galvan; Samuel Friday, BS; Drew Kuroda, BS; Alexander Klein, BS; Jessica Persechino, MA; Jessica Behn, BS; Jon Naples; Debbie Fuller; Isabelle Radgen-Morvant, MS; Richard Crocombe, PhD
11:30 am – 1:00 pm	B181	Optimizing Extraction Methods for Cannabinoid Quantitation in Cannabis Gummies: A Comparative Study Using LC-PDA <i>Ya-Chih Cheng, PhD*</i> ; Walter Wilson, PhD
11:30 am – 1:00 pm	B182	The Presumptive Identification of Psilocybin and Psilocyn in Mushrooms and Food Products Using Matrix-Assisted Ionization Vacuum (MAIV) and Time-of- Flight/Mass Spectrometry (TOF/MS) <i>Maci Koester, BS*</i> ; Deborah Brimijoin, MS; Jennifer Clary, MS (FSF Emerging Forensic Scientist Award Poster Presentation)
11:30 am – 1:00 pm	B183	A Green Method for Seized Drug Analysis Using a Portable Liquid Chromatograph <i>Jayda Barber, BS*</i> ; Ira Lurie, PhD
11:30 am – 1:00 pm	B184	Drug Detection in Complex Materials Using Confocal Raman Microspectroscopy <i>Natasha Wheatley, MPA*</i> ; Kenzie Ballinger, BS*
11:30 am – 1:00 pm	B185	WITHDRAWN

Friday—Session I

Mixtures and Probabilities

Moderator: Kristy Kadash, PhD

Co-Moderator: Josep De Alcarz Fossoul, PhD

8:00 am – 8:30 am	B186	Back to the Future: Applying Decades-Old Probabilistic Models to Today’s DNA Results When Activities Are of Interest <i>Simone Gittelson, PhD*</i> ; Franco Taroni, PhD; Tim Kalafut, PhD; John Buckleton, DSc
8:30 am – 8:45 am	B187	The Construction of a Microhaplotype Panel for Complex Mixture Deconvolution Using Next-Gen Sequencing <i>Regan Fenske, BA*</i> ; Sarah Cavanaugh, MSFS; Helene Douglas, BS; Daniel Standage, PhD; Robert Lagace, BA; Andrew Feldman, PhD; Jeffrey Lin, MS; Kenneth Kidd, PhD; Daniele Podini, PhD (FSF Emerging Forensic Scientist Award Oral Presentation)

CRIMINALISTICS

8:45 am – 9:00 am	B188	DNA Evidence Analysis Using the Same Number of Contributors for Prosecution and Defense Will Often Frame a Non-Contributing Suspect <i>Charles Brenner, PhD*</i>
9:00 am – 9:15 am	B190	Touch/Trace DNA in Activity-Level Propositions: Anatomy of a DNA Transfer <i>Ashley Hall, PhD*; Ray Wickenheiser, DPS; Aldrin Alviar, MS</i>
9:15 am – 9:30 am	B189	The Development of Universal STRmix™ Parameters for Legacy Kits <i>Tim Kalafut, PhD*</i>
9:30 am – 10:00 am	B191	Evaluating the Consistency of a DNA Mixture Interpretation Protocol <i>Joseph Truppi, BS*; Mario Galioto, MS; Michael Donley, MS; Katie Welch, MS</i>
10:00 am – 10:15 am		BREAK

Looking Back and Moving Forward

Moderator: Kelly Knight, MS

10:15 am – 10:45 am	B192	A Perspective on More Than 30 Years of Forensic DNA Research and Technology Development <i>Bruce McCord, PhD*</i>
10:45 am – 11:00 am	B193	From Planning to Practice: Navigating the Implementation of Rapid DNA Technology and Tracking Success Metrics <i>Jason Chute, MSFS*; Patricia Melton, PhD; Emily Strelka, MFS; Erin Forry, MS; Mikalaa Martin, BS; Misty Marra, MSFS; Shannon Krauss, PhD</i>
11:00 am – 11:15 am	B194	A Sensitivity Evaluation of the Applied Biosystems RapidHIT ID System v2.0 and RapidINTEL Plus Sample Cartridge <i>Emily Yen Dang, BS*; Morgan Eaton, MS; Raygan Harrington, BS; Tracey Dawson Green, PhD (FSF Emerging Forensic Scientist Award Oral Presentation)</i>
11:15 am – 11:30 am	B195	An Assessment of the RapidHIT ID System v2.0 for Use on Evidentiary Samples and Its Suitability for Implementation Into Law Enforcement <i>Trupti Sriram, BS*; Jamia Mealy, MFS; Kristen Naughton, BS</i>
11:30 am – 1:00 pm		BREAK

How Low Can (Should) We Go?

Moderator: Pamela Marshall, PhD

Co-Moderator: Baneswar Singh, PhD

1:00 pm – 1:15 pm	B196	An Analysis of Pre- and Post-Coital Microbial Transfer Using Deep Shotgun Metagenomic Studies <i>Andrea Ramirez Torres, BS*; Mirna Ghemrawi, PhD; George Duncan, PhD; Bruce McCord, PhD</i>
1:15 pm – 1:30 pm	B197	Exploring the World of “Touch DNA” and “Touch Microbiome”: One-Shot DNA Collection and Extraction <i>Michele Di Nunzio, PhD*; Sarah Gino, MD; Andrea Bonicelli, PhD; Noemi Procopio, PhD</i>
1:30 pm – 1:45 pm	B198	Size-Selective Purification to Separate High and Low Molecular Weight DNA <i>Vinalon Mones, BS*; Helene Douglas, BS; Glenn Fahrig, MS; Gregory Peiffer, PhD; Rebecca Sloman, MFS; Katherine Hargett, MFS; Jessica Broner, MS; Jonathan King, MS; Elaine Lewis, PhD; Michael Coble, PhD; Todd Bille, MS; Daniele Podini, PhD</i>

CRIMINALISTICS

1:45 pm – 2:00 pm	B199	Probabilistic Clustering of Single-Cell Investigative Evaluations <i>Qhawe Bhembé, MSFS*</i> ; <i>Nidhi Sheth, PhD</i> ; <i>Leah O'Donnell, MS</i> ; <i>Ken Duffy, PhD</i> ; <i>Desmond Lun, PhD</i> ; <i>Catherine Grgicak, PhD</i> (FSF Emerging Forensic Scientist Award Oral Presentation)
2:00 pm – 2:15 pm	B200	The Comparison and Evaluation of Predictors on Single-Cell Weights of Evidence <i>Catherine Grgicak, PhD*</i> ; <i>Desmond Lun, PhD</i>
2:15 pm – 2:30 pm	B201	Low-Level DNA Recovery From Fired Cartridge Casings, Firearms, and Explosive Devices: Comparing Conventional Methods and Sequencing-Based DNA Typing <i>Mirna Ghemrawi, PhD*</i> ; <i>Leah Nangeroni, MS</i>
2:30 pm – 2:45 pm	B202	Getting More From Less: Low-Level DNA Mixtures on Cartridges <i>Kari Danser, MS*</i> ; <i>Jennifer Bracamontes, MS</i> ; <i>Matthew Legler, BS</i> ; <i>Mark Perlin, MD, PhD</i>
2:45 pm – 3:00 pm	B203	Integrated On-Chip PCR-Capture-Sizing-CE Microsystems for Ultrasensitive Forensic DNA Typing <i>Xiujun Li, PhD*</i>
3:00 pm – 3:15 pm		BREAK

Administration and Planning

Moderator: Fabio Oldoni, PhD

Co-Moderator: Charlotte Word, PhD

3:15 pm – 3:45 pm	B204	So, You Want a Job in Forensic Science? Getting Hired as a Forensic Scientist From the Hiring Manager's Perspective <i>Matthew Gamette, MS*</i> ; <i>Rylene Nowlin, BS*</i>
3:45 pm – 4:15 pm	B205	The Role of the National Technology Validation Implementation Collaborative (NTVIC) in Forensic Technology Implementation <i>Matthew Gamette, MS*</i>
4:15 pm – 4:35 pm	B206	A National Survey and Interviews on Training in Forensic Science Service Laboratories in the United States Evaluative Report <i>Kelly Elkins, PhD*</i>
4:35 pm – 5:05 pm	B207	Planning for and Executing a Disaster Response: The Rapid DNA Mass Disaster Emergency Response and Preparedness Toolkit <i>Mikalaa Martin, BS*</i> ; <i>Taylor Koepfler, MSFS</i> ; <i>Jason Chute, MSFS</i> ; <i>Shannon Krauss, PhD</i> ; <i>Laura Kuyper, MFS</i> ; <i>Katie Scott, MSFS</i> ; <i>Jeri Roper-Miller, PhD</i>

Friday—Session II

A Morning of Trace Materials—Standards, Soils, Glass, Paint, and Textiles

Moderator: Christopher Palenik, PhD

Co-Moderator: Susan Gross, MSFS

8:15 am – 8:35 am	B208	Standards Development Activities in Trace Materials <i>Sandra Koch, PhD*</i> ; <i>Celeste Grover, MSFS</i>
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CRIMINALISTICS

8:35 am – 8:55 am	B209	Differentiating Soil by Color and Mineralogy for Soil Comparisons: An Experiment Using Soil From North Carolina <i>Libby Stern, PhD*</i> ; <i>Hannah Dickson, MS</i> ; <i>Jodi Webb, MS</i> ; <i>Kelly Meiklejohn, PhD</i> ; <i>Jack Hietpas, PhD</i> ; <i>Ian Saginor, PhD</i> ; <i>Michael Smith, PhD</i>
8:55 am – 9:15 am	B210	Soil Discrimination by Particle-Related Raman Spectroscopy <i>Drew Kuroda, BS*</i> ; <i>Jasmine Kaur, MFS</i> ; <i>Joshua Christensen</i> ; <i>Marisia Fikiet, PhD</i> ; <i>Peter Harrington, PhD</i> ; <i>Peter De Forest, DCrim</i> ; <i>Brooke Kammrath, PhD</i>
9:15 am – 9:35 am	B211	An Elemental Analysis of Glass Powder on Spent Projectiles <i>Shirly Montero, PhD*</i> ; <i>Summer Garcia</i>
9:35 am – 9:55 am	B212	Data Fusion From Infrared, Elemental, MSP, and Raman Analysis Techniques to the Maximization of the Efficiency of the Analytical Sequence for the Forensic Examination of Paint Evidence <i>Patrick Buzzini, PhD*</i> ; <i>Morgan Carpenter, BS</i> ; <i>Swathi Murali, MS</i> ; <i>James Curran, PhD</i>
9:55 am – 10:15 am	B213	Wait, Hot Cooking Oil Turned Your Shirt From Green to Orange? <i>Tiffany Rodriguez, MS*</i> ; <i>William Perdue, MPA</i>
10:15 am – 10:30 am		BREAK

The River's Silent Witness, Chemometric Approaches, and Clandestine Human Burials

Moderator: Thaddeus Mostowtt, PhD

Co-Moderator: Tiffany Rodriguez, MS

10:30 am – 10:50 am	B214	Skeleton in the Stream: Unraveling the Murder Mystery of the River's Silent Witness <i>Akhilesh Pathak, MD*</i>
10:50 am – 11:10 am	B215	Chemometric Approaches for Investigating Multiblock Hyperspectral Data in Forensic Biological Evidence Analysis <i>Eugenio Alladio, PhD*</i> ; <i>Alberto Mazzoleni, MS</i> ; <i>Carolina Scagliarini, MS</i> ; <i>Paolo Garofano, MD, PhD</i>
11:10 am – 11:30 am	B216	A Layered Analytical Method for Detecting Clandestine Human Burials <i>Brian Eckenrode, PhD*</i> ; <i>Edward Bentil, PhD</i>
11:30 am – 1:00 pm		BREAK

An Afternoon of Fire Debris, Explosives, and GSR

Moderator: Andra Lewis, PhD

Co-Moderator: Edward Sisco, PhD

1:00 pm – 1:20 pm	B217	Standards Development Activities Related to Ignitable Liquids, Explosives, and Gunshot Residue <i>Brenda Christy, MS*</i>
1:20 pm – 1:40 pm	B218	The Validation of a Rapid GC/MS Method for Forensic Fire Debris Screening Applications <i>Briana Capistran, PhD*</i> ; <i>Elizabeth Robinson, MS</i> ; <i>Edward Sisco, PhD</i>
1:40 pm – 2:00 pm	B219	An Application of the Expert Algorithm for Substance Identification (EASI) to Predict ASTM E1618-19 Ignitable Liquid Classes From Gas Chromatography/Mass Spectrometry Data of Ignitable Liquid Residues <i>Hannah McMillen, MS*</i> ; <i>Glen Jackson, PhD</i>

CRIMINALISTICS

2:00 pm – 2:20 pm	B220	Revealing Gunshot Residue Flow and Deposition Behaviors Using Laser Sheet Scattering, High-Speed Videography, Atmospheric Particle Analysis, and Spectrometric Analytical Techniques <i>Thomas Ledergerber, BS*; Matthew Staymates, MS*; Kourtney Dalzell, MS; Luis Arroyo, PhD; Roger Jefferys, MS; Tatiana Trejos, PhD</i>
2:20 pm – 2:40 pm	B221	An Assessment of the Transfer and Persistence of Gunshot Residue in Simulated Arrest Scenarios Analyzed by Screening and Confirmatory Methods <i>Kourtney Dalzell, MS*; Thomas Ledergerber, BS; Leah Thomas, BS; Addio Fiordigigli, BS; Tatiana Trejos, PhD; Luis Arroyo, PhD</i>
2:40 pm – 3:00 pm	BREAK	

Drug Chemistry Standards, Developments, and Applications

Moderator: Pete Ausilli, MS

Co-Moderator: Carmen Masters, MSFS

3:00 pm – 3:15 pm	B222	Standard Development Activities in Seized Drug Analysis: The Current Status and Challenges <i>Agnes Winokur, PhD*</i>
3:15 pm – 3:30 pm	B223	Tracking the Emergence of Medetomidine, Tetracaine, and Other Substances as Adulterants in Philadelphia, Pennsylvania, Recreational Opioid Markets <i>Max Denn, MS*; Joshua DeBord, PhD; Alexis Quinter, MASc; Alex Krotulski, PhD; Barry Logan, PhD</i> <i>(FSF Emerging Forensic Scientist Award Oral Presentation)</i>
3:30 pm – 3:45 pm	B224	A Systematic Study of Liquid Chromatography in Search of the Best Separation of Cannabinoids for Potency Testing of Hemp-Based Products <i>Liguo Song, PhD*</i>
3:45 pm – 4:00 pm	B225	Sample Preparation Procedures at NIST for the Determination of Δ^9-THC and Its Isomers in Commercial and Seized Cannabis Vape Products by GC/MS <i>Walter Wilson, PhD*; Ya-Chih Cheng, PhD</i>
4:00 pm – 4:15 pm	B226	The Development of a Δ^9-THC Colorimetric Breathalyzer Using 3D Printing Manufacture <i>Savanah Allinson, BS*; Taqiyah Chernesky, MScFS; Aron Jaffe, MScFS; Stephanie Walcott, MScFS; Emanuele Alves, PhD</i>
4:15 pm – 4:30pm	B227	Psilocin Derivatives in Edibles: Issues, Extraction Tips, and Case Studies <i>H. Ross Ehmann, MSFS*; Oriana Ovide, MSFS</i>
4:30 pm – 4:50 pm	B228	The Application of the Expert Algorithm for Substance Identification (EASI) to Differentiate Tandem Mass Spectra of 2,3-MDMA and 3,4-MDMA <i>Glen Jackson, PhD*; Alexandra Adeoye, MS; Sandra Rodriguez-Cruz, PhD</i>
4:50 pm – 5:10 pm	B229	Standardizing and Implementing Direct Analysis in Real Time-Mass Spectrometry Methods Throughout DEA Laboratories <i>Sandra Rodriguez-Cruz, PhD*</i>
5:10 pm – 5:30 pm	B230	The Development and Validation of the Global Uniform Analysis and Reporting of Drug-Related Substances (GUARDS) Method <i>Michael Weaver, BS*; Sandra Rodriguez-Cruz, PhD; Mark Frisch, PhD; Corey Nida, PhD</i>