

CRIMINALISTICS

Wednesday

Poster Session

11:30 AM – 1:00 PM	B1	WITHDRAWN
11:30 AM – 1:00 PM	B2	WITHDRAWN
11:30 AM – 1:00 PM	B3	An Investigation of Trace DNA Samples From Objects Stolen in Pickpocket Scenarios <i>Tiffany Kreidler, BS*</i> ; <i>Lauren Hoopes, BS</i> ; <i>Bas Kokshoorn, PhD</i> ; <i>Fabio Oldoni, PhD</i>
11:30 AM – 1:00 PM	B4	The Optimized Recovery of DNA From Exhaled Breath Devices: From Drug Detection to Human Identification <i>Kayli Carrillo, BS*</i> ; <i>Sheree Hughes, PhD</i>
11:30 AM – 1:00 PM	B5	The Impact of 1,4-Dithiothreitol (DTT) on the Microbial Community Structures Associated With Human Semen Samples <i>Christian Blaise, MS</i> ; <i>Denise Wohlfahrt, BS*</i> ; <i>Tomasz Arodz, PhD</i> ; <i>Sarah Seashols-Williams, PhD</i> ; <i>Baneshwar Singh, PhD</i>
11:30 AM – 1:00 PM	B6	Can We Predict DNA Shedding Propensity From Other Individual Characteristics? <i>Genesis Echavarria, BS*</i> ; <i>Ines Cedillo, MS</i> ; <i>Nicholas D.K. Petraco, PhD</i> ; <i>Mechthild Prinz, PhD</i>
11:30 AM – 1:00 PM	B7	The Multiple Reaction Monitoring Tandem Mass Spectrometry Approach: A Tool for Latent Stains of Biological Fluids Identification in Forensic Sciences Laboratory <i>Aldo Di Nunzio, MS*</i> ; <i>Anna Illiano, MS</i> ; <i>Chiara Melchiorre, MS</i> ; <i>Gabriella Pinto, MS</i> ; <i>Ciro Di Nunzio, BS*</i> ; <i>Nadia Tinto, MD</i> ; <i>Francesco Sessa, MS, PhD</i> ; <i>Massimiliano Esposito, MD</i> ; <i>Piero Pucci, MS</i> ; <i>Angela Amoresano, MS</i>
11:30 AM – 1:00 PM	B8	The Enhanced Collection and Recovery of Touch DNA Samples From Challenging Surfaces Using A Venturi Vacuum Device (VVD) Across Two Forensic DNA Workflows <i>Joseph Rahm, BS*</i> ; <i>Charday Ward, BS</i> ; <i>DeEtta Mills, PhD</i>
11:30 AM – 1:00 PM	B9	Touch DNA: An Evaluation of a Novel Collection Method <i>Jamie Fredericks, PhD*</i> ; <i>Hannah Varner, BSc</i>
11:30 AM – 1:00 PM	B10	Exploring Target Areas for Recovering Informative DNA Profiles From Eyeglasses <i>Isabel Melhado, BS*</i> ; <i>Krista Latham, PhD</i> ; <i>Cynthia Cale, MS</i> ; <i>Alex Wong, BA*</i>
11:30 AM – 1:00 PM	B11	The DNA Transfer to Bedsheets in Differing Cohabitation Environments <i>Jordan Roberson, BA*</i> ; <i>Olivia Messenger, BA*</i> ; <i>Krista Latham, PhD</i> ; <i>Cynthia Cale, MS</i>
11:30 AM – 1:00 PM	B12	Morphological and Autofluorescence Signatures for the Identification of Vaginal Cells in Mixture Samples Containing Saliva and/or Epidermal Cells <i>Hannah Burden, BS*</i> ; <i>Arianna DeCorte, MS</i> ; <i>Sarah Ingram, PhD</i> ; <i>Christopher Ehrhardt, PhD</i>
11:30 AM – 1:00 PM	B13	The Application of an Improved Processing Method of Touch DNA Samples <i>Deborah Soares Bispo Santos Silva, PhD</i> ; <i>Hannah Calista</i> ; <i>Caitlyn Martinez</i> ; <i>Ryan Smith, PhD</i> ; <i>Georgiana Gibson-Daw, PhD*</i>
11:30 AM – 1:00 PM	B14	Trace DNA: Recovery Efficiency From Patrimonial Crimes in the Brazilian Federal Police <i>Camila Maciel, BS</i> ; <i>Bruno Trindade, PhD*</i>

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- 11:30 AM – 1:00 PM **B15** **Improving the Analysis of Forensic Samples Using a Microwave Treatment and Rapid, Direct Polymerase Chain Reaction (PCR)**
*Fabiana Taglia, PhD**; *Nicole Fernandez-Tejero, MS*; *Cassandra Setser, PhD*; *Ling Wang, PhD*;
Kevin Lothridge, MS; *Bruce McCord, PhD*; *Steven Lee, PhD*
- 11:30 AM – 1:00 PM **B16** **Finding the DNA: How Much Was Recovered and Where Did the Rest Go?**
*Kyra Uramoto, MS**; *Robin Cotton, PhD*
- 11:30 AM – 1:00 PM **B17** **Using Exact Likelihood Ratio (LR) Distributions for Probabilistic Genotyping Software Validation**
*Mark Perlin, PhD, MD**; *Jennifer Hornyak Bracamontes, MS*; *Erin Estus, MS*
- 11:30 AM – 1:00 PM **B18** **The Algorithm Performance on a Firearm Examiner Black Study**
*Eric Law, PhD**; *Makia Maxey**; *Keith Morris, PhD*
- 11:30 AM – 1:00 PM **B19** **An Assessment of a Novel Method for Physical Fit Examinations Using an Extensive Database of Casework-Like Samples and Interlaboratory Studies**
*Zachary Andrews, MS**; *Meghan Prusinowski, MS*; *Tatiana Trejos, PhD*
- 11:30 AM – 1:00 PM **B20** **A Case Report: Identification of AP-238 and 2-Fluorodeschloroketamine in Internet-Available Powder Samples**
Karissa Resnik, MS; *Justin Poklis, BS*; *Michelle Peace, PhD*; *Frederick Moeller, MD*;
*Emanuele Alves, PhD**
- 11:30 AM – 1:00 PM **B21** **The Evaluation of Three Derivatization Reagents for the Identification of Eight Aminoindanes by Gas Chromatography/Mass Spectrometry (GC/MS)**
*Thomas Brettell, PhD**; *Amber Rose, MS*; *Monica Joshi, PhD*; *Matthew Wood, PhD*;
Marianne Staretz, PhD
- 11:30 AM – 1:00 PM **B22** **Investigating the Effect of Substitution Location on Fentanyl Analog Identification for Methyl-Substituted Fentanyl Analogs Using Gas Chromatography/Electron Ionization/Mass Spectrometry (GC/EI/MS)**
*Alexis Pollard, BS**; *J. Tyler Davidson, PhD*
- 11:30 AM – 1:00 PM **B23** **Multiple Micro-Abrasions on the Shooter's Hand and the Recharge of Ammunition at Home**
*Benedetta Pia De Luca, MD**; *Alessandra Stellacci, MD*; *Luigi Buongiorno, MD*;
Pierluigi Caricato, MD; *Carlo Angeletti, MD*; *Fortunato Pititto, MD*; *Maricla Marrone, MD*;
Giuseppe Strisciullo, BES; *Francesco Vinci, MD*
- 11:30 AM – 1:00 PM **B24** **The Sampling of Materials Using Laser Ablation and Electrostatic Capture, and the Analysis of Captured Particles Using Thermal Desorption Electrospray Ionization (TD-ESI) and an Ion Trap Mass Spectrometer**
*Brendan Minick**; *Kenyon Evans-Nguyen, PhD*
- 11:30 AM – 1:00 PM **B25** **Spectral Trends in Gas Chromatography/Electron Ionization/Mass Spectrometry (GC/EI/MS) Data From the Scientific Working Group for the Analysis of Seized Drugs (SWGDRUG) Library and Literature**
*William Feeney, PhD**; *Arun Moorthy, PhD*; *Edward Sisco, PhD*
- 11:30 AM – 1:00 PM **B26** **Statistical Discrimination Methods for Forensic Source Interpretation: The Application to Micromorphometric Feature Measurement of Aluminum Powders Used in Explosives**
*Danica Ommen, PhD**; *Christopher Saunders, PhD*; *JoAnn Buscaglia, PhD**

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- 11:30 AM – 1:00 PM **B27** **A Survey of Mounting Media Used for Hair and Fiber Microscopy**
*Maria Lawas, MS; Linda Otterstatter, BS; Joshua Friedman, MS; Joseph Donfack, PhD**
- 11:30 AM – 1:00 PM **B28** **The Application of Surface-Enhanced Raman Spectroscopy (SERS) for the Detection of Synthetic Cathinones**
Mario Vendrell-Dones, MS; Bruce McCord, PhD*
- 11:30 AM – 1:00 PM **B29** **The Unique Capability of Direct Analysis in Real-Time Mass Spectrometry (DART®-MS) for the Detection of Less Volatile Components in Ignitable Liquids**
Shruthi Perna, MS; Briza Marie Dedicataria, BS; Ngee Sing Chong, PhD; Mengliang Zhang, PhD**
- 11:30 AM – 1:00 PM **B30** **The Volatile Organic Compounds (VOCs) of Training Aids Used for Human Remains Detection Canines: A Survey on the Impact of Storage Conditions on Odor Signature**
Fantasia Whaley, PhDc; Lauryn DeGreeff, PhD*
- 11:30 AM – 1:00 PM **B31** **An Assessment of Field-Portable Instrumentation for Pre-Blast Explosives Detection**
Makenzie Kuehn, BS; J. Tyler Davidson, PhD; Geraldine Monjardez, PhD*
- 11:30 AM – 1:00 PM **B32** **Dating Crime Evidence With Microbes: The Ideal Forensic Clock?**
Josep De Alcaraz-Fossoul, PhD; Yue Wang, PhD; Ruoqian Liu, MS; Michelle Mancenido, PhD; Pamela Marshall, PhD; Celeste Núñez, BS; Jennifer Broatch, PhD; Lara Ferry, PhD*
- 11:30 AM – 1:00 PM **B33** **The Development of a Self-Assembled Gold Nanoparticle Thin Film to Support Field Detection of Trace Chemicals**
Taylor Parmer, BS; Geraldine Monjardez, PhD; Jorn (Chi-Chung) Yu, PhD; Sarah Stewart, MS*
- 11:30 AM – 1:00 PM **B34** **An Analysis of Polymer-Coated Bullets Using Spectroscopic Methods**
Liana Albano, BS; Peter Diaczuk, PhD*
- 11:30 AM – 1:00 PM **B35** **Differentiation of Delta-9-Tetrahydrocannabinol (Delta-9-THC) and Cannabidiol (CBD) Using Silver-Ligand Ion Complexation and Electrospray Ionization Tandem Mass Spectrometry (ESI-MS/MS)**
Alleigh Couch, BS; Jayleigh Lanza, BS; Christopher Zall, PhD; J. Tyler Davidson, PhD*
- 11:30 AM – 1:00 PM **B36** **Assessing the Individual and Joint Use of Ultraviolet/Visible (UV/VIS) Microspectrophotometry and Scanning Electron Microscopy/Energy Dispersive Spectroscopy (SEM/EDS) to the Differentiation of Colored Spray Paint**
Morgan Carpenter, BS; Jared Estevanes, BS; Patrick Buzzini, PhD*
- 11:30 AM – 1:00 PM **B37** **Tool Mark Matching Using 3D Structures**
Nam-Kyu Park, PhD; Hoyong Yie, ME; Young-Il Seo, MS*

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Thursday—Session I

The Past, Present, and Future

Moderator: Charlotte Word

Co-Moderator: Pamela Marshall

- 9:00 AM – 9:15 AM **B38** **Standards Development Activities in Human Forensic Biology**
*Beth Ordeman, BS, MS; Charlotte Word, PhD**
- 9:15 AM – 9:30 AM **B39** **DNA Testing: Looking Back and Looking Forward**
*Robin Cotton, PhD**
- 9:30 AM – 9:45 AM **B40** **“Back to the Future”—Bayes’ Theorem Goes Around, Comes Around**
*Patrick Buzzini, PhD; Tim Kalafut, PhD**
- 9:45 AM – 10:00 AM **BREAK**

Differential Extraction and BFID

Moderator: Rachelle Turiello

Co-Moderator: Brian Higgins

- 10:00 AM – 10:15 AM **B41** **When and “Y” to Screen With QIAGEN® Investigator® Casework GO!**
Julia Wang, MS; Grace Rutledge, MS; Rachel Houston, PhD; Sheree Hughes, PhD*
- 10:15 AM – 10:30 AM **B42** **An Interlaboratory Comparison of SpermX™ and Conventional Differential Extractions for DNA Analysis of Sexual Assault Samples**
Sudhir Sinha, PhD; Joanne Sgueglia, BA*; Hailey Holt, BS; Erin Hanson, PhD; Justina Nichols, MSFB; Tim Kalafut, PhD; Mah-Ro Khan, MS; Thomas Walsh, MSFS; Megan Foley, MSFS; John (Jack) Ballantyne, PhD; Hiromi Brown, PhD*
- 10:30 AM – 10:45 AM **B43** **Modified Differential Cell Lysis Using a Combined prepGEM™ and Alkaline Approach**
Brittany Hudson, MS; Tracey Dawson Green, PhD*
- 10:45 AM – 11:00 AM **B44** **WITHDRAWN**
- 11:00 AM – 11:15 AM **B45** **Evil Under the Sun: An Assessment of Body Fluid Identification and DNA Profiling After Exposure to Tropical Weather Conditions**
Sara C. Zapico, PhD; Christian Stadler, PhD; Gabriela Roca, PhD*
- 11:15 AM – 11:30 AM **B46** **The Impact of Various Storage Temperatures and Times on the Microbiome of Forensically Relevant Biological Samples**
Denise Wohlfahrt, BS; Sarah Seashols-Williams, PhD; Baneshwar Singh, PhD*
- 11:30 AM – 11:45 AM **B47** **Forensic Body Fluid Classification Using a Panel of MicroRNAs in DNA Extracts**
Ciara Rhodes, BS; Kelsey Price, MS; Anaya Valentine, MS; Carolyn Lewis, PhD; Edward Boone, PhD; Sarah Seashols-Williams, PhD*
- 11:45 AM – 12:00 PM **B48** **A Field-Forward Microfluidic Method for Transcriptomic Serological Analysis**
Renna Nouwairi, BS; Larissa Cunha, BS; Tiffany Layne, PhD; Rachel Fleming, PhD; James Landers, PhD*

12:00 PM – 1:30 PM

BREAK

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Probabilistic Genotyping

Moderator: *Tim Kalafut*

Co-Moderator: *Taylor Dickerson*

- 1:30 PM – 1:45 PM **B49** **My Results are Unintuitive, Now What? Casework Studies on Unintuitive STRmix™ Results and the Approaches Utilized for Reporting**
*Alicia Cadenas, MS**; *Samantha Wandzek, MS*
- 1:45 PM – 2:00 PM **B50** **Probabilistic Genotyping With Microhaplotypes**
*Daniele Podini, PhD**; *Helene Douglas, BS*; *Sofia Arichavala Centeno, BS*; *Angie Zhao, MFS*; *Katherine Rizzolo, MFS*; *Fabio Oldoni, PhD*
- 2:00 PM – 2:15 PM **B51** **Identifying Victim Remains Using Kinship Genotype Inference**
*Mark Perlin, PhD, MD**; *William Allan, MS*
- 2:15 PM – 2:30 PM **BREAK**

Trace DNA and Mixtures

Moderator: *Lisa Burdett*

Co-Moderator: *Fabio Oldoni*

- 2:30 PM – 2:45 PM **B52** **DNAmix 2021—Inter-laboratory Variation in Interpretations, Comparisons, and Statistical Analyses of DNA Mixtures**
*R. Austin Hicklin, PhD**; *Nicole Richetelli, PhD**; *Brandi Emerick, PhD*; *Jonathan Davoren, MSc*
- 2:45 PM – 3:00 PM **B53** **Selectively Analyzing and Interpreting DNA From Multiple Donors With a Full Single-Cell Strategy**
*Nidhi Sheth, MSc**; *Leah O'Donnell, MS*; *Madison Mulcahy, BS*; *Ken Duffy, PhD*; *Desmond Lun, PhD*; *Catherine Grgicak, PhD*
- 3:00 PM – 3:15 PM **B54** **Using a Non-Destructive Method to Predict DNA Yield and the Presence of a Mixture in Touch DNA**
*Sarah Roisch, BS**; *Susan Greenspoon, PhD*; *Christopher Ehrhardt, PhD*; *Sarah Ingram, PhD*
- 3:15 PM – 3:30 PM **B55** **Is This Fingermark Suitable for Dactyloscopy or Genotyping? It Depends on the Minimum Surface Requirement (MSR)!**
*Michele Di Nunzio, MSc**; *Josep De Alcaraz-Fossoul, PhD**; *Carme Barrot-Feixat, PhD*
- 3:30 PM – 3:45 PM **B56** **Using Attenuated Total Reflectance/Fourier Transform Infrared (ATR/FTIR) to Characterize Circulating Free DNA (cfDNA) Interactions With Metal Surfaces to Optimize The Collection and Processing of Touch DNA Samples**
*Jessica Thornton, BS**; *Tina Moroose, MS*; *Keith Morris, PhD*
- 3:45 PM – 4:00 PM **B57** **Updating Research Data on Firearms Cases Using Expanded Autosomal Short Tandem Repeat (STR) Kits**
*Rachel Oefelein, MS**
- 4:00 PM – 4:15 PM **B58** **Generating Short Tandem Repeat (STR) Profiles on a Porous Substrate Using Nile Red Detection**
*Ryan Hinojosa, BS**; *Janine Kishbaugh, MS*; *Lawrence Quarino, PhD*; *Jillian Conte, PhD*
- 4:15 PM – 4:30 PM **B59** **An Automated Genotype Database for Associating Counterfeit Drug Evidence**
*Mark Perlin, PhD, MD**; *William Allan, MS*; *Matthew Legler, BS*

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Thursday—Session II

Standard Development and Related Activities Strengthening Forensic Science

Moderator: Beth Saucier Goodspeed

Co-Moderator: Jason Bory

8:30 AM – 8:45 AM	B60	Standards Development Activities in Firearm and Toolmark Examination <i>Robert Sanger, JD*</i>
8:45 AM – 9:00 AM	B61	Standards Development Activities in Trace Materials <i>Celeste Grover, MSFS*</i>
9:00 AM – 9:15 AM	B62	Standards Development Activities Related to Ignitable Liquids, Explosives, and Gunshot Residue <i>Brenda Christy, MS*</i>
9:15 AM – 9:30 AM	B63	Standards Development Activities Related to the Examination of Friction Ridge Detail <i>Heidi Eldridge, PhD*</i>
9:30 AM – 9:45 AM	B64	Current and Future Standards Development Activities in Seized Drugs <i>Agnes Winokur, MS*</i>
9:45 AM – 10:00 AM	B65	The Development of a Standard Guide for the Use of X-Ray Diffraction in the Forensic Examination of Geological Materials <i>Libby Stern, PhD*; Ian Saginor, PhD; Alastair Ruffell, PhD</i>
10:00 AM – 10:15 AM	B66	Seized Drugs Process Map <i>David Gouldthorpe, MS*; Melissa Taylor, BA; Heather Waltke, MFS, MPH</i>
10:15 AM – 10:30 AM	B67	An Inter-Laboratory Study to Assess Practical Utility of the Organization of Scientific Area Committees (OSAC) -Proposed Standard 2021-S-0006 (Standard for the Use of GenBank for Taxonomic Assignment of Wildlife) <i>Khushi Patel; Melissa Scheible, MFS; Kelly Meiklejohn, PhD*</i>
10:30 AM – 10:45 AM	B68	An Update on the Status of the Department of Justice, Office of Justice Programs, National Institute of Justice (NIJ), National Center on Forensics (NCF) Grant <i>Joseph DiZinno, DDS*</i>
10:45 AM – 11:00 AM		BREAK

Forensic Science Principles—A Closer Look at the Sydney Declaration

Moderator: Patrick Buzzini

Co-Moderator: Michelle Miranda

11:00 AM – 11:15 AM	B69	Revisiting the Essence of Forensic Science: The Sydney Declaration Coming of Age? <i>Claude Roux, PhD*; Rebecca Bucht, PhD; Patrick Buzzini, PhD; Frank Crispino, PhD; Peter De Forest, DCrim; Keith Inman, MCrim; Pierre Margot, MSc, PhD; Michelle Miranda, PhD; Olivier Ribaux, PhD; Niamh Nic Daeid, PhD; Sheila Willis, PhD</i>
11:15 AM – 11:30 AM	B70	The Sydney Declaration: Should We Care About Forensic Science Principles? <i>Claude Roux, PhD*; Rebecca Bucht, PhD; Patrick Buzzini, PhD; Frank Crispino, PhD; Olivier Ribaux, PhD</i>

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11:30 AM – 11:45 AM	B71	An Exercise in Scientific Problem Solving <i>Peter De Forest, DCrim; Michelle Miranda, PhD; Patrick Buzzini, PhD*; Sheila Willis, PhD</i>
11:45 AM – 12:00 PM	B72	Ficta Vivos Docent: Learning From Detective Fiction <i>Michelle Miranda, PhD*; Peter De Forest, DCrim</i>
12:00 PM – 1:00 PM		BREAK

Fire Debris, Explosives, and Firearms

Moderator: Rita Newman

Co-Moderator: Brenda Christy

1:00 PM – 1:15 PM	B73	A Study Comparing the Use of Agilent® QP Gas Chromatography/Mass Spectrometry (GC/MS) for Screening and Gas Chromatography/Tandem Mass Spectrometry (GC/MS/MS) for the Confirmation of Smokeless Powders <i>Monica Joshi, PhD*; Blake Kerstetter, BS; Kirk Lokits, MS, PhD</i>
1:15 PM – 1:30 PM	B74	Assessing the Evidentiary Value in Fire Debris Analysis: A Proposed Workflow <i>Frances Whitehead, MS; BS*; Michael Sigman, PhD; Mary Williams, MS</i>
1:30 PM – 1:45 PM	B75	The Detection of Gasoline in Fire Debris Using Artificial Intelligence: Image Transformation of Gas Chromatography and Mass Spectrometry Data and Deep Learning <i>Ting-Yu Huang, MSc*; Jorn (Chi-Chung) Yu, PhD</i>
1:45 PM – 2:00 PM	B76	Method Optimization and Validation for a Confined Thermal Desorption-Direct Analysis in Real-Time Mass Spectrometry (TD-DART-MS) Sampling Interface Developed for Ignitable Liquid Analysis <i>Briana Capistran, PhD*; Matthew Staymates, MS; Edward Sisco, PhD</i>
2:00 PM – 2:15 PM	B77	Population Statistics and a Reference Population Database of Firearm Toolmarks <i>Xiaoyu Zheng, MS*; Johannes Soons, PhD; Erich Smith, MS; Martin Baiker-Sørensen, PhD</i>
2:15 PM – 2:30 PM	B78	Reporting Likelihood Ratio (LR) for Case Work in Firearm Evidence Identification <i>John Song, PhD*</i>
2:30 PM – 2:45 PM	B79	The Role of Adsorption on the Detectability of Contained Explosives and Drugs <i>Emma Calabrese, BS*; Lauryn DeGreeff, PhD</i>
2:45 PM – 3:00 PM	B80	The Combined Solid Phase Extraction Procedure for the Analysis of Organic and Inorganic Explosives Residue <i>Courtney Cruse, PhD*; Amara Borchers, BS; Kristen Fowble, PhD; David Pavone, MFS; Jennifer Thomas, PhD; Stephanie Armas, MS; Mark Miller, PhD; Sarah Sipe, PhD</i>
3:00 PM – 3:15 PM	B81	The Statistical Characterization of the Discriminating Power of Trace Elemental Concentrations of Aluminum Foils Used in Improvised Explosive Devices <i>Anjuli Bhandari, PhD; Michelle Jordan, PhD; Danica Ommen, PhD; Christopher Saunders, PhD*; JoAnn Buscaglia, PhD*</i>
3:15 PM – 3:30 PM	B82	Gunshot Suicides Caused by Cane-Gun and Alarm Garden Gun Cannon: Two Case Reports <i>Lea-Helena Rossi, MD*; Nathalie Jousset, MD; Stephane Malbranque, MD</i>
3:30 PM – 3:45 PM		BREAK

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Drugs I

Moderator: DeMia Pressley

Co-Moderator: Mariel Candelario-Gorbea

- 3:45 PM – 4:00 PM **B83** **The Application of the Expert Algorithm for Substance Identification (EASI) on Synthetic Cathinones Using Mass Spectrometry (MS)**
*Glen Jackson, PhD**; *Alexandra Adeoye, MS*; *Jessica Orris, BS*; *Stephen Hokanson, BS*
- 4:00 PM – 4:15 PM **B84** **The Application of the Expert Algorithm for Substance Identification (EASI) to the Mass Spectral Identification of Fentanyl Analogs**
*Alexandra Adeoye, MS**; *Glen Jackson, PhD*
- 4:15 PM – 4:30 PM **B85** **The Development and Validation of a Quantitative Method for the Analysis of Fentanyl Containing “Dope” Samples**
*Joshua DeBord, PhD**; *Jennifer Shinefeld, MS*; *Barry Logan, PhD*; *Alex Krotulski, PhD*
- 4:30 PM – 4:45 PM **B86** **Distinguishing Piperazine and 12 Analogs Using Raman Microspectroscopy and Chemometrics**
*Brianna Zettlemoyer, BS**; *Thomas Brettell, PhD*; *Monica Joshi, PhD*; *Lawrence Quarino, PhD*
- 4:45 PM – 5:00 PM **B87** **Untargeted Headspace/Solid-Phase Microextraction Coupled to Gas Chromatograph/Mass Spectrometer (HS/SPME-GC/MS)? An HS/SPME-GC/MS Analysis of Terpenes and Cannabinoids for the Geographical Sourcing of Marijuana Using Multivariable Data Analysis**
*Janet Crespo Cajigas, MS**; *Howard Holness, PhD*; *Lauryn DeGreeff, PhD*; *Kenneth Furton, PhD*
- 5:00 PM – 5:15 PM **B88** **The Development and Validation of a Method for the Differentiation of Hemp and Marijuana by Gas Chromatography/Mass Spectrometry (GC/MS)**
*Sarah Shuda, MSFS**; *Joshua Folger, BS*; *Barry Logan, PhD*

Poster Session

- 11:30 AM – 1:00 PM **B89** **The Commercialization of a Universal Method for Body Fluid Identification for Forensic Purposes**
*Alexis Weber, MS**; *Igor Lednev, PhD*
- 11:30 AM – 1:00 PM **B90** **The Evaluation of Demineralization Parameters for DNA Extraction Methods From Skeletal Remains**
*Jennifer Snedeker, BS**; *Erin Gorden, MFS*; *Gina Parada, MSFS*; *Christina Neal, MS*; *Carmen Reedy, PhD*; *Rachel Houston, PhD*
- 11:30 AM – 1:00 PM **B91** **Improving Allele Call Rates for Challenging Samples With ePCR1 Buffer**
*Brooke Ouwerkerk, BTech, BSc**; *Georgina Lush, BS*; *Renee Leduc, PhD*; *Steen Hartsen, MBA, BSc, BTech*; *Jason Moore, MA, BSc*
- 11:30 AM – 1:00 PM **B92** **The Differentiation of *Cannabis Sativa* Crop Type and Biogeographical Origin Using Nine Novel Chloroplast Single Nucleotide Polymorphism (SNP) Markers**
*Michele Di Nunzio, MSc**; *Carme Barrot-Feixat, PhD*; *David Gangitano, PhD*
- 11:30 AM – 1:00 PM **B93** **Maximum DNA Recovery From Cold Case Victims Using Ancient and Forensic DNA Extraction Methods**
*Erin Rawls, BS**; *Amber Coffman, BS*; *Cody Parker, PhD*; *Laura Fulginiti, PhD*; *Anne Stone, PhD*; *Matthew Emery, PhD*; *Jane Buikstra, PhD*; *Amanda Wissler, PhD*; *Robert Oldt, BS*; *Sreetharan Kanthaswamy, PhD*; *Stevie Winingear, MA*

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- 11:30 AM – 1:00 PM **B94** **Mitochondrial DNA Sequence Variation in the Lebanese Population**
*Breanna Nickels, BS**; *Kimberly Andreaggi, PhD*; *Elise Anderson, MSFS*;
Jennifer Higginbotham, MFS; *Mirna Ghemrawi, PhD*; *Susan Walsh, PhD*;
Dennis De Luca, PhD; *Charla Marshall, PhD*
- 11:30 AM – 1:00 PM **B95** **Utilizing Environmental DNA (eDNA) from Geologic Materials for Sample-to-Sample Comparisons**
*Teresa M. Tiedge, MPS**; *Kelly Meiklejohn, PhD*
- 11:30 AM – 1:00 PM **B96** **Optimizing DNA Extraction in Highly Degraded Bone**
*Michelle Woo, BS**; *Daniela Frausto, BS**; *Tal Simmons, PhD*; *Joseph Jones, PhD*;
Baneshwar Singh, PhD
- 11:30 AM – 1:00 PM **B97** **The Development of a Screening Tool to Determine Optimal Sampling Sites for DNA Recovery From Human Skeletal Remains**
*Kathleen Smith, BS**; *Angie Ambers, PhD*; *Brooke Kammrath, PhD*
- 11:30 AM – 1:00 PM **B98** **The Generation of High-Quality Libraries for the Prediction of External Visible Characteristics and Biogeographical Ancestry Using a Low-Cost Automation Platform**
*Riya Thekdi, MFS**; *Juan Carlos Perez, BS*; *Richelle Barta, BS*; *Erin McCarthy, BS*;
Elmira Forouzmand, PhD; *Samantha Dowles, BS*; *Gothami Padmabandu, MS*;
Kathryn Stephens, PhD
- 11:30 AM – 1:00 PM **B99** **The Optimization of Single Nucleotide Polymorphism (SNP) SNaPshot™ Multiplexes to Distinguish Fiber and Drug-Type Cannabis Sativa**
*Natalia Czado, MSFS**; *Sheree Hughes, PhD*; *Rachel Houston, PhD*
- 11:30 AM – 1:00 PM **B100** **Creating a Forensic Reference Ladder and Multiplex to Be Used in Animal Abuse Cases**
*Vallarie Ostenson, BS**; *DeEtta Mills, PhD*
- 11:30 AM – 1:00 PM **B101** **The Creation of a Presumptive Multiplex Kit to Test for the Presence of Domestic Animal Mitochondrial DNA in Cases of Presumed Animal Abuse**
*Lindsey Kaufman, BA**; *DeEtta Mills, PhD*
- 11:30 AM – 1:00 PM **B102** **The Potential of the 165 Ancestry-Informative Single Nucleotide Polymorphisms (SNPs) in Further Discriminating Asian Populations**
*Sohee Cho, PhD**; *Soong Deok Lee, MD, PhD*; *Haeun You, BS*
- 11:30 AM – 1:00 PM **B103** **The Use of Optical Trapping Coupled With a Microfluidic Device for Cell Separation**
*Brittney Hackworth, BS**; *Samantha Pagel, MSFS*; *Sarah Seashols-Williams, PhD*;
Joseph Reiner, PhD; *Mackenzie Lally, MSFS*; *Tracey Dawson Green, PhD*
- 11:30 AM – 1:00 PM **B104** **The Effects of the Composition of Whole Saliva/Oral Fluids on the Development of Epigenetic Markers**
*Nicole Fernandez-Tejero, MS**; *Mirna Ghemrawi, PhD*; *Bruce McCord, PhD*
- 11:30 AM – 1:00 PM **B105** **A Snapshot of Current Opinions on Sequencing Technology in Forensics**
Megan Foley, MSFS; *Fabio Oldoni, PhD**
- 11:30 AM – 1:00 PM **B106** **A Side-by-Side Evaluation of Presumptive Blood Identification Tests**
*Hillary Culbertson, PhD**
- 11:30 AM – 1:00 PM **B107** **The Development of Carbon Nanotubes-Assisted Solid-Phase Microextraction for Fire Debris Analysis**
*Ting-Yu Huang, MSc**; *Jorn (Chi-Chung) Yu, PhD*

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- 11:30 AM – 1:00 PM **B108** **Trace Metal Profiling of Polymer Filaments Used in 3D Printing**
*Thomas Gluodenis, PhD; John Stallworth**
- 11:30 AM – 1:00 PM **B109** **The Elemental Analysis of Recently Manufactured Automotive Glasses and a Comparison of Data Processing Programs**
Seongshin Gwak, PhD; Dongkye Lee, PhD; Kiwook Kim, MS; Sangcheol Heo, MS; Seung-jin Ryu, PhD; Hyun Jee Kim, PhD*
- 11:30 AM – 1:00 PM **B110** **WITHDRAWN**
- 11:30 AM – 1:00 PM **B111** **The Forensic Analysis of 3D-Printed Polymers Using Direct Analysis in Real-Time Mass Spectrometry (DART®-MS)**
Jenna Covey, MSFS; Brian Musselman, PhD; Maria-Isabel Carnasciali, PhD; Brooke Kammrath, PhD*
- 11:30 AM – 1:00 PM **B112** **Improving the Delta-9-Tetrahydrocannabinol (delta-9-THC) Quantitative Measurements in Forensic Laboratories by The National Institute of Standards and Technology (NIST) CannaQAP**
Walter Wilson, PhD; Andrea Yarberry, PhD; Jerome Mulloor, MS*
- 11:30 AM – 1:00 PM **B113** **The Investigation and Quantitation Using Ultraviolet/Visible (UV/Vis) Spectrophotometry of the Products of the 4-Aminophenol Reaction With Cannabinoids**
Juliet Pearsall, BS; Marianne Staretz, PhD; Matthew Wood, PhD; Jeanne Berk, PhD*
- 11:30 AM – 1:00 PM **B114** **An Investigation of Organic Gunshot Residues by Direct Analysis in Real-Time Mass Spectrometry (DART®-MS)**
Thomas Ledergerber, BS; William Feeney, PhD; Edward Sisco, PhD; Luis Arroyo, PhD; Tatiana Trejos, PhD*
- 11:30 AM – 1:00 PM **B115** **A Mass Spectral Interpretation of Pinaca-Type Novel Psychoactive Substances (NPS)**
Christopher Poulos, BS; Glen Jackson, PhD*
- 11:30 AM – 1:00 PM **B116** **The Application of the Expert Algorithm for Substance Identification (EASI) on N-Alkanes**
Alexander Pfeffer, BS; Alexandra Adeoye, MS; Glen Jackson, PhD*
- 11:30 AM – 1:00 PM **B117** **The Influence of Instrument Parameters on Replicate Mass Spectra and Spectral Comparison Algorithms**
Isabel Galvez Valencia, BS; Glen Jackson, PhD*
- 11:30 AM – 1:00 PM **B118** **Boar Hunt or Manhunt? Fatality During Boar Hunting Expedition**
Andrea Costantino, MD; Naomi Iacoponi, MD*; Julia Lazzari, MD; Alice Chiara Manetti, MD; Valentina Bugelli, MD, PhD; Paride Minervini; Marco Di Paolo, MD*
- 11:30 AM – 1:00 PM **B119** **The Quantitative Analysis of Δ 9-Tetrahydrocannabinol (Δ 9-THC) in Cannabis Plants Using the Fast Blue BB Colorimetric Test**
Nicole Valdes, MS; Roberta Gorziza, PhD; Jose Almirall, PhD*
- 11:30 AM – 1:00 PM **B120** **Open Fire**
Abigail Wilson, BS; Peter Diaczuk, PhD*
- 11:30 AM – 1:00 PM **B121** **Accounting for Household Substrates in a Model for Predicting the Weathering of Ignitable Liquids**
Max Denn, MS, BS; Glen Jackson, PhD*

CRIMINALISTICS

11:30 AM – 1:00 PM	B122	The Qualitative Identification of Delta-8-Tetrahydrocannabinol (delta-8-THC) and Delta-9-Tetrahydrocannabinol (delta-9-THC) Using Thin-Layer Chromatography (TLC) <i>Sara Moreno, BS*</i> ; <i>Emily Kell, BS</i> ; <i>Kimberly Burrow, BS</i> ; <i>Lauren Richards-Waugh, PhD</i>
11:30 AM – 1:00 PM	B123	WITHDRAWN
11:30 AM – 1:00 PM	B124	The Raman Spectroscopic Analysis of Drugs in Contaminated Fingermarks: The Effect of Temperature and Time Since Deposition <i>Mohamed Amin, MSc*</i> ; <i>Entesar Al-Hetlani, PhD</i> ; <i>Igor Lednev, PhD</i>
11:30 AM – 1:00 PM	B125	The Tools, Resources, and Collaborative Research Used to Address Seized Drugs Measurement Challenges <i>Edward Sisco, PhD*</i>

Friday—Session I

Next Generation Sequencing

Moderator: Sheree Hughes

Co-Moderator: Charla Marshall

9:00 AM – 9:15 AM	B126	One Laboratory's Experience With Next Generation Sequencing (NGS) Using the Verogen MiSeq® FGx System and Signature Prep Kit: The Decision, the Validation, and the Implementation <i>Mandi Van Buren, MPharm*</i> ; <i>Brooke Ramirez, BS</i>
9:15 AM – 9:30 AM	B127	The Internal Validation of Verogen ForenSeq™ DNA Signature Prep Kit Primer Set B Using the Hamilton Nimbus HD and MiSeq® FGx <i>Mandi Van Buren, MPharm*</i> ; <i>Brooke Ramirez, BS</i>
9:30 AM – 9:45 AM	B128	The Evaluation of the ForenSeq™ MainstAY Kit for Mixed Forensic DNA Samples <i>Damani Johnson, BS*</i> ; <i>Lucio Avellaneda, BS</i> ; <i>Rachel Houston, PhD</i> ; <i>Tim Kalafut, PhD</i>
9:45 AM – 10:00 AM	B129	The Identification of Trends of Sequenced-Based Allelic Drop-Out in Autosomal Short Tandem Repeats (STRs) <i>Megan Foley, MSFS*</i> ; <i>Gerwald Koehler, PhD</i> ; <i>Jun Fu, PhD</i> ; <i>Robert Allen, PhD</i> ; <i>Jarrad Wagner, PhD</i>
10:00 AM – 10:15 AM	B130	Determining Linkage Patterns for the Identity of Single Nucleotide Polymorphisms (SNPs) Found in Common Forensic Sequencing Assays <i>Isabella George, BS*</i> ; <i>Daniele Podini, PhD</i> ; <i>Megan Foley, MSFS</i>
10:15 AM – 10:30 AM	B131	Mitochondrial Genome Sequences From 6,025 Population Samples <i>Charla Marshall, PhD*</i> ; <i>Kimberly Andreaggi, PhD</i> ; <i>Jennifer Higginbotham, MFS</i> ; <i>Elise Anderson, MSFS</i> ; <i>Walther Parson, PhD</i>
10:30 AM – 10:45 AM	B132	Perceptions of Forensic Scientists on Statistical Models and Ethical Implications in DNA Evidence Evaluations Using Sequence Data <i>Sanne Aalbers, MSc*</i> ; <i>Bruce Weir, PhD</i>
10:45 AM – 11:00 AM		BREAK

CRIMINALISTICS

Forensic Genetic Genealogy

Moderator: Sheree Hughes

Co-Moderator: Charla Marshall

- 11:00 AM – 11:15 AM **B133** **Trends in Profiles of Offenders Caught Using Forensic Genetic Genealogy (FGG)**
Will Vause, BA; Pamela Marshall, PhD*
- 11:15 AM – 11:30 AM **B134** **Solving More Cases Using Search Keys and Expanded DNA Indirect Matching (EDIM)**
*Ray Wickenheiser, DPS, MBA**
- 11:30 AM – 11:45 AM **B135** **The Impact of Manually Degraded Single Nucleotide Polymorphism (SNP) Microarray Data on GEDmatch Top Genetic Matches for Forensic Genetic Genealogy Purposes**
Justin Rivera, BS; Claire Glynn, PhD*
- 11:45 AM – 1:00 PM **BREAK**

Challenging and Non-Human Samples

Moderator: Rachel Houston

Co-Moderator: Steven Lee

- 1:00 PM – 1:15 PM **B136** **Experimental Maceration on Human Bones: How Does It Impact the “Forens-OME”?**
Noemi Procopio, PhD; Andrea Bonicelli, PhD; Sheree Hughes, PhD*
- 1:15 PM – 1:30 PM **B137** **The Application of Ancient DNA Methodologies to Badly Burned Forensic Samples and Their Potential to Aid in the Identification and Analysis of Difficult Samples**
Cody Parker, PhD; Erin Rawls, BS; Amber Coffman, BS; Katelyn Bolhofner, PhD; Laura Fulginiti, PhD; Giovanna Vidoli, PhD; Joanne Devlin, PhD; Robert Oldt, BS; Sreetharan Kanthaswamy, PhD; Anne Stone, PhD*
- 1:30 PM – 1:45 PM **B138** **The Recovery of Human DNA From Fly Larvae**
Cesar Cantu, BS; Sibyl Bucheli, PhD; Rachel Houston, PhD*
- 1:45 PM – 2:00 PM **B139** **The Progress on Obtaining Nuclear DNA Profiles From a Human Hair Shaft**
*Elaine Lewis, PhD; Daniele Podini, PhD; Arely Parra López, BS**
- 2:00 PM – 2:15 PM **B140** **The Development of a Next Generation Sequencing Panel Targeting Cannabinoid Synthase Genes to Distinguish Between Marijuana and Hemp**
Ya-Chih (Jessica) Cheng, MS; Rachel Houston, PhD*
- 2:15 PM – 2:30 PM **B141** **The Intraspecies Variation of Commercially Available Kratom Products in Common DNA Barcode Regions**
Kari Graham, DPhil; Cesar Cantu, BS; Rachel Houston, PhD*
- 2:30 PM – 2:45 PM **B142** **An investigation of Forensic Applications for Nanoplate-Based Digital Polymerase Chain Reaction (PCR)**
Mirna Ghemrawi, PhD; Nicole Fernandez-Tejero, MS; Alyssa Sanchez, BS; Bruce McCord, PhD*
- 2:45 PM – 3:00 PM **B143** **The Social Amoeba in Forensic Science: Microbial Fingerprinting and Epigenetics**
*Andrea Alvashere, PhD**
- 3:00 PM – 3:15 PM **BREAK**

CRIMINALISTICS

In the Lab and in the Field

Moderator: Kelly Knight

Co-Moderator: Baneshwar Singh

- 3:15 PM – 3:30 PM **B144** **Developing a Rapid DNA Response Plan for Mass Identification Events: An Inter-Laboratory Approach to Mobilizing a Forensic DNA Laboratory**
*Dana DeVito, BS**; *Amy McGuckian, MS*; *Julie Sikorsky, MS*; *Taylor Koepfler, MS*; *Jason Chute, MSFS*; *Kelly Beatty, MSFS*
- 3:30 PM – 3:45 PM **B145** **Toward a Rapid DNA Tool for Integrated Forensic Epigenetic Sample Preparation**
*Rachelle Turiello, MS**; *Renna Nouwairi, BS*; *Jordan Keller, BS*; *Francine Garrett-Bakelman, MD, PhD*; *James Landers, PhD*
- 3:45 PM – 4:00 PM **B146** **Discovering the Mysteries About Degradation of Extracted DNA From Trace Evidence When Stored in Different Conditions: State-of-the-Art and Future Perspectives**
*Noemi Procopio, PhD**; *Giulia Sguazzi, MA*; *Giulia Giappichini, MS*; *Chiara Cirioni, MS*; *Selena Cisana, PhD*; *Luciano Garofano, PhD*; *Paolo Garofano, MD, PhD*; *Pasquale Linarello*; *Monica Omedei, PhD*; *Luca Salvaderi, BSc*; *Debora Varrone, Sarah Gino, MD*
- 4:00 PM – 4:15 PM **B147** **Investigator® 24plex QS Amplification Kit Validation and Evaluation of New Formulation**
*Samantha Wandzek, MS**; *Jamie Haas, MS*; *Sapana Prajapati, BS*; *Alicia Cadenas, MS*
- 4:15 PM – 4:30 PM **B148** **The Development of a Five-Dye Insertion/Deletion (INDEL) Panel for Human Identification**
*Lucio Avellaneda, BS**; *Damani Johnson, BS*; *Rachel Houston, PhD*
- 4:30 PM – 4:45 PM **B149** **The Status of the DNA Backlog in South Africa**
*Antonel Olckers, PhD**
- 4:45 PM – 5:00 PM **B150** **The Impact of Key Factors Absent in Forensic DNA Analysis in South Africa**
*Antonel Olckers, PhD**

Friday—Session II

Drugs II

Moderator: Thaddeus Mostowtt

Co-Moderator: Carmen Masters

- 8:30 AM – 8:45 AM **B151** **Gas Chromatography-Vacuum Ultraviolet (GC-VUV) Detection of JWH-18 Positional Isomers and Select Diastereomeric Synthetic Cannabinoids**
*Diana Le, BS**; *Ira Lurie, PhD*
- 8:45 AM – 9:00 AM **B152** **The Investigation of Analytical Methods Using Real-Time Mass Spectrometry for the Rapid Analysis of Seized Drugs**
*Madeline Bloom, BS**; *Edward Sisco, PhD*; *Ira Lurie, PhD*
- 9:00 AM – 9:15 AM **B153** **The Investigation of Cannabidiol Conversion Into Delta-9-Tetrahydrocannabinol in Electronic Cigarettes**
*Laerissa Reveil, MS**; *Justin Poklis, BS*; *Matthew S. Halquist, PhD*; *Michelle Peace, PhD*
- 9:15 AM – 9:30 AM **B154** **The Nanogram Level Detection of Five Illicit Drugs Using the Ion Mobility Spectrometer: A Field-Testing Report**
*John Wang, PhD**; *Rong Zhang, PhD*

CRIMINALISTICS

- 9:30 AM – 9:45 AM **B155** **A Quantitative Determination of Four Designer Benzodiazepines by High-Performance Thin-Layer Chromatography (HPTLC)**
*Isabella Iorio, BS**; *Thomas Brettell, PhD*; *Marianne Staretz, PhD*; *Matthew Wood, PhD*
- 9:45 AM – 10:00 AM **B156** **The Separation of Lysergic Acid Diethylamide (LSD) and its Analogs by High-Performance Thin-Layer Chromatography (HPTLC)**
*Tori Schaffer, BS**; *Sandra Rodriguez-Cruz, PhD*; *Jeanne Berk, PhD*; *Thomas Brettell, PhD*
- 10:00 AM – 10:15 AM **B157** **The Conversion of Cannabidiol to Delta-9-Tetrahydrocannabinol (delta-9-THC) During Gas Chromatography/Mass Spectrometry (GC/MS) Analysis**
*Sarah Shuda, MSFS**; *Barry Logan, PhD*
- 10:15 AM – 10:30 AM **B158** **The Utility of Flip-Flop Chromatography Employing Silica Hydride Stationary Phases With Diode Array Ultraviolet and Single Quadrupole Mass Spectrometric Detection for the Analysis of Seized Drugs**
*Volda Appia-Kusi, BS**; *Ira Lurie, PhD*
- 10:30 AM – 10:45 AM **B159** **The Evaluation of Fentanyl and Fentanyl-Related Compounds on United States Paper Currency**
*Matthew Hewes, MS**; *Alex Krotulski, PhD*; *Donna Papsun, MS*; *Barry Logan, PhD*
- 10:45 AM – 11:00 AM **BREAK**

Canines and Guns

Moderator: *Ann Geisendorfer*

Co-Moderator: *Carolyn Hudson*

- 11:00 AM – 11:15 AM **B160** **The Chemical Analysis of the Surface Building Collapse Samples: Updating Decontamination Protocols for Search and Rescue Canines**
*Michelle Karpinsky, BS**; *Lauryn DeGreeff, PhD*; *Erin Perry, MS, PhD*
- 11:15 AM – 11:30 AM **B161** **The Development of a Safe Canine Training Aid Mimic for Fentanyl**
*Leann Forte, MS**; *Howard Holness, PhD*; *Kenneth Furton, PhD*; *Lauryn DeGreeff, PhD*
- 11:30 AM – 11:45 AM **B162** **A Two-Step Method for the Identification and Highly Specific Analysis of Organic Gunshot Residue Using Raman and Laser-Induced Breakdown Spectroscopies**
*Igor Lednev, PhD**; *Shelby Khandasammy, BS*; *Lenka Halamkova, PhD*; *Matthieu Baudelet, PhD*
- 11:45 AM – 12:00 PM **B163** **Sourcing Glass Traces on Bullets as Additional Evidence for Shooting Reconstruction**
*Crystal Rosales, BS**; *Gwyneth Gordon, PhD*; *Kyle Mueller, MS*; *Maia Nguyen, MPS*; *Shirly Montero, PhD*
- 12:00 PM – 1:00 PM **BREAK**

CRIMINALISTICS

Frictin Ridge

Moderator: Claudine Pereira

Co-Moderator: Robin Ruth

- 1:00 PM – 1:15 PM **B164** **The Critical Evaluation of Various Classification Systems of Lip Prints**
Mukesh Thakar, PhD; Jagmeet Kaur, MSc*
- 1:15 PM – 1:30 PM **B165** **The Development of Latent Fingerprints on a Cigarette Using Ruthenium Tetroxide**
Young-Il Seo, MS; Jiho Seo, MS; Byung-sun Moon, PhD; Nam-Kyu Park, PhD*
- 1:30 PM – 1:45 PM **B166** **Quantitative Measurements for Fingerprint Quality Determination**
Hoyong Yie, ME; Byung-sun Moon, PhD; Nam-Kyu Park, PhD; Young-Il Seo, MS*
- 1:45 PM – 2:00 PM **B167** **The Standardization Process of the Fingerprint Profession: The European Approach**
*Aldo Mattei, PhD, MSc**
- 2:00 PM – 2:15 PM **B168** **The Effect of Smoking, Tobacco Chewing, and Various Pathological Conditions on Lip Prints**
Jagmeet Kaur, MSc; Mukesh Thakar, PhD*
- 2:15 PM – 2:30 PM **B169** **The Discrimination of Smokers and Non-Smokers Based on the Analysis of Fingermarks Using Attenuated Total Reflectance/Fourier Transform Infrared (ATR/FTIR) Spectroscopy and Chemometrics**
Mohamed Amin, MSc; Entesar Al-Hetlani, PhD; Igor Lednev, PhD*
- 2:30 PM – 3:00 PM **BREAK**

Paint, Hair, Fibers, and Tires

Moderator: Agnes Winoker

Co-Moderator: Vincent Villena

- 3:00 PM – 3:15 PM **B170** **The Effect of Elevated Temperatures on the Microscopical Identification of Vegetable Fibers**
*Walter Rowe, PhD**
- 3:15 PM – 3:30 PM **B171** **Optimal Machine Learning Model Selection on Tire Classification**
Amir Alipour Yengejeh, PhD; Larry Tang, PhD; John Lucchi, MS; Matthieu Baudelet, PhD*
- 3:30 PM – 3:45 PM **B172** **Wrestling With the Evaluation of Fiber Evidence: Transfer and Persistence Modeled Through Jiu-Jitsu Activities**
Victoria Lau, MSc; Claude Roux, PhD; Xanthe Spindler, PhD*
- 3:45 PM – 4:00 PM **B173** **A Chemical Approach to Tire Mark Analysis**
John Lucchi, MS; Matthieu Baudelet, PhD*
- 4:00 PM – 4:15 PM **B174** **Image Analysis and Neural Networks Techniques for Hair Examinations**
David H. Funes, MS; Candice Bridge, PhD*
- 4:15 PM – 4:30 PM **B175** **The Microscopical Recognition and Characterization of Pigmented Fibers**
*Kelly Brinsko Beckert, BS, MS; Otyllia Abraham, BS, MS; Ethan Groves, BS; Skip Palenik, BS; Christopher Palenik, MS, PhD**

CRIMINALISTICS

- 4:30 PM – 4:45 PM **B176** **An Analysis of Automotive Paint Layers on Plastic Substrates Using Chemical Imaging Fourier Transform Infrared (FTIR) Microscopy**
James Cizdziel, PhD; Kendall Wontor, MPharm; Carly Clisham, BS*
- 4:45 PM – 5:00 PM **B177** **Combatting Illegal Logging Through the Use of Direct Analysis in Real-Time High Resolution Mass Spectrometry (DART®-HRMS) and Statistical Logarithms**
Mónica Ventura, BS; Samira Beyramysoltan, PhD; Benedetta Garosi, BS; Meghan Appley, PhD; Edgard Espinoza, PhD; Rabi Musah, PhD*
- 5:00 PM – 5:15 PM **B178** **Electrochemical Characterization of Common Cutting Agents in Illicit Drugs**
George Hedlund, BS, Frederique T. Deiss, PhD*