

CRIMINALISTICS

Wednesday

Poster Session

- 11:30 AM – 1:00 PM **B1** **Enhancing the Detection and Analysis of Low-Copy Number DNA From Fingerprints on Commonly Found Substrates at Crime Scenes**
*Sulekha Coticone, PhD**; *Camila Garcia, BS*
- 11:30 AM – 1:00 PM **B2** **Exploring DNA Quality of Nucleic Acid Dye Staining for Portable Fluorescence Microscope**
*Chao-hsing Fan, PhD**; *Ming-Sie Pan, PhDc*
- 11:30 AM – 1:00 PM **B3** **An Investigation of Trace DNA Samples From Objects Stolen in Pickpocket Scenarios**
*Tiffany Kreidler, BS**; *Lauren Hoopes, BS*; *Bas Kokshoorn, PhD*; *Fabio Oldoni, PhD*
- 11:30 AM – 1:00 PM **B4** **The Optimized Recovery of DNA From Exhaled Breath Devices: From Drug Detection to Human Identification**
*Kayli Carrillo, BS**; *Sheree Hughes, PhD*
- 11:30 AM – 1:00 PM **B5** **The Impact of 1,4-Dithiothreitol (DTT) on the Microbial Community Structures Associated With Human Semen Samples**
Christian Blaise, MS; *Denise Wohlfahrt, BS**; *Tomasz Arodz, PhD*; *Sarah Seashols-Williams, PhD*; *Baneshwar Singh, PhD*
- 11:30 AM – 1:00 PM **B6** **Can We Predict DNA Shedding Propensity From Other Individual Characteristics?**
*Genesis Echavarria, BS**; *Ines Cedillo, MS*; *Nicholas D.K. Petraco, PhD*; *Mechthild Prinz, PhD*
- 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**
*Aldo Di Nunzio, MS**; *Anna Illiano, MS*; *Chiara Melchiorre, MS*; *Gabriella Pinto, MS*; *Ciro Di Nunzio, BS**; *Nadia Tinto, MD*; *Francesco Sessa, MS, PhD*; *Massimiliano Esposito, MD*; *Piero Pucci, MS*; *Angela Amoresano, MS*
- 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**
*Joseph Rahm, BS**; *Charday Ward, BS*; *DeEtta Mills, PhD*
- 11:30 AM – 1:00 PM **B9** **Touch DNA: An Evaluation of a Novel Collection Method**
*Jamie Fredericks, PhD**; *Hannah Varner, BSc*
- 11:30 AM – 1:00 PM **B10** **Exploring Target Areas for Recovering Informative DNA Profiles From Eyeglasses**
*Isabel Melhado, BS**; *Krista Latham, PhD*; *Cynthia Cale, MS*; *Alex Wong, BA**
- 11:30 AM – 1:00 PM **B11** **The DNA Transfer to Bedsheets in Differing Cohabitation Environments**
*Jordan Roberson, BA**; *Olivia Messenger, BA**; *Krista Latham, PhD*; *Cynthia Cale, MS*
- 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**
*Hannah Burden, BS**; *Arianna DeCorte, MS*; *Sarah Ingram, PhD*; *Christopher Ehrhardt, PhD*
- 11:30 AM – 1:00 PM **B13** **The Application of an Improved Processing Method of Touch DNA Samples**
Deborah Soares Bispo Santos Silva, PhD; *Hannah Calista*; *Caitlyn Martinez*; *Ryan Smith, PhD*; *Georgiana Gibson-Daw, PhD**

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- 11:30 AM – 1:00 PM **B14** **Trace DNA: Recovery Efficiency From Patrimonial Crimes in the Brazilian Federal Police**
*Camila Maciel, BS; Bruno Trindade, PhD**
- 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; Casandra 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 Feeny, PhD; Arun Moorthy, PhD; Edward Sisco, PhD*

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- 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**
- 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, BD*; *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, PhD**; *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: TBD

Co-Moderator: TBD

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

Differential Extraction and BFID

Moderator: TBD

Co-Moderator: TBD

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| 10:00 AM – 10:15 AM | B41 | When and “Y” to Screen With QIAGEN® Investigator® Casework GO!
<i>Julia Wang, MS*; Grace Rutledge, MS; Rachel Houston, PhD; Sheree Hughes, PhD</i> |
| 10:15 AM – 10:30 AM | B42 | An Interlaboratory Comparison of SpermX™ and Conventional Differential Extractions for DNA Analysis of Sexual Assault Samples
<i>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</i> |
| 10:30 AM – 10:45 AM | B43 | Modified Differential Cell Lysis Using a Combined prepGEM™ and Alkaline Approach
<i>Brittany Hudson, MS*; Tracey Dawson Green, PhD</i> |
| 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
<i>Sara C. Zapico, PhD*; Christian Stadler, PhD; Gabriela Roca, PhD</i> |
| 11:15 AM – 11:30 AM | B46 | The Impact of Various Storage Temperatures and Times on the Microbiome of Forensically Relevant Biological Samples
<i>Denise Wohlfahrt, BS*; Sarah Seashols-Williams, PhD; Baneshwar Singh, PhD</i> |
| 11:30 AM – 11:45 AM | B47 | Forensic Body Fluid Classification Using a Panel of MicroRNAs in DNA Extracts
<i>Ciara Rhodes, BS*; Kelsey Price, MS; Anaya Valentine, MS; Carolyn Lewis, PhD; Edward Boone, PhD; Sarah Seashols-Williams, PhD</i> |
| 11:45 AM – 12:00 PM | B48 | A Field-Forward Microfluidic Method for Transcriptomic Serological Analysis
<i>Renna Nouwairi, BS*; Larissa Cunha, BS; Tiffany Layne, PhD; Rachel Fleming, PhD; James Landers, PhD</i> |
| 12:00 PM – 1:30 PM | | BREAK |

*Presenting Author

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Probabilistic Genotyping

Moderator: TBD

Co-Moderator: TBD

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| 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
<i>Alicia Cadenas, MS*; Samantha Wandzek, MS</i> |
| 1:45 PM – 2:00 PM | B50 | Probabilistic Genotyping with Microhaplotypes
<i>Daniele Podini, PhD*; Helene Douglas, BS; Sofia Arichavala Centeno, BS; Angie Zhao, MFS; Katherine Rizzolo, MFS; Fabio Oldoni, PhD</i> |
| 2:00 PM – 2:15 PM | B51 | Identifying Victim Remains Using Kinship Genotype Inference
<i>Mark Perlin, PhD, MD*; William Allan, MS</i> |
| 2:15 PM – 2:30 PM | | BREAK |

Trace DNA and Mixtures

Moderator: TBD

Co-Moderator: TBD

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

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Thursday—Session II

Standard Development and Related Activities Strengthening Forensic Science

Moderator: TBD

Co-Moderator: TBD

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, MD*; 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: TBD

Co-Moderator: TBD

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: TBD

Co-Moderator: TBD

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</i>
3:30 PM – 3:45 PM		BREAK

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Drugs I

Moderator: TBD

Co-Moderator: TBD

- 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**; 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

CRIMINALISTICS

- 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** **Femicide During the COVID-19 Pandemic: The Italian Context**
Gianluca Rossi, MD; Alice Porceddu, MD; Camilla Bonci, MD; Francesca Capello, MD; Giancarlo Di Vella, PhD*
- 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 Δ9-Tetrahydrocannabinol (Δ9-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*

CRIMINALISTICS

- 11:30 AM – 1:00 PM **B121** **Accounting for Household Substrates in a Model for Predicting the Weathering of Ignitable Liquids**
Max Denn; Glen Jackson, PhD*
- 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)**
Sara Moreno, BS; Emily Kell, BS; Kimberly Burrow, BS; Lauren Richards-Waugh, PhD*
- 11:30 AM – 1:00 PM **B123** **The Quantitative Analysis of Mitragynine and 7-Hydroxymitragynine in Kratom Samples Commercially Available in Richmond, VA, Using Gas Chromatography/Mass Spectrometry (GC/MS)**
Jade Smith, BS; Hunter Fleming, MS; Emanuele Alves, PhD*
- 11:30 AM – 1:00 PM **B124** **The Raman Spectroscopic Analysis of Drugs in Contaminated Fingermarks: The Effect of Temperature and Time Since Deposition**
Mohamed Amin, MSc; Entesar Al-Hetlani, PhD; Igor Lednev, PhD*
- 11:30 AM – 1:00 PM **B125** **The Tools, Resources, and Collaborative Research Used to Address Seized Drugs Measurement Challenges**
*Edward Sisco, PhD**

Friday—Session I

Next Generation Sequencing

Moderator: TBD

Co-Moderator: TBD

- 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**
Mandi Van Buren, MPharm; Brooke Ramirez, BS*
- 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**
Mandi Van Buren, MPharm; Brooke Ramirez, BS*
- 9:30 AM – 9:45 AM **B128** **The Evaluation of the ForenSeq™ MainstAY Kit for Mixed Forensic DNA Samples**
Damani Johnson, BS; Lucio Avellaneda, BS; Rachel Houston, PhD; Tim Kalafut, PhD*
- 9:45 AM – 10:00 AM **B129** **The Identification of Trends of Sequenced-Based Allelic Drop-Out in Autosomal Short Tandem Repeats (STRs)**
Megan Foley, MSFS; Gerwald Koehler, PhD; Jun Fu, PhD; Robert Allen, PhD; Jarrad Wagner, PhD*
- 10:00 AM – 10:15 AM **B130** **Determining Linkage Patterns for the Identity of Single Nucleotide Polymorphisms (SNPs) Found in Common Forensic Sequencing Assays**
Isabella George, BS; Daniele Podini, PhD; Megan Foley, MSFS*
- 10:15 AM – 10:30 AM **B131** **Mitochondrial Genome Sequences From 6,025 Population Samples**
Charla Marshall, PhD; Kimberly Andreaggi, PhD; Jennifer Higginbotham, MFS; Elise Anderson, MSFS; Walther Parson, PhD*

*Presenting Author

CRIMINALISTICS

10:30 AM – 10:45 AM **B132** **Perceptions of Forensic Scientists on Statistical Models and Ethical Implications in DNA Evidence Evaluations Using Sequence Data**
Sanne Aalbers, MSc; Bruce Weir, PhD*

10:45 AM – 11:00 AM **BREAK**

Forensic Genetic Genealogy

Moderator: TBD

Co-Moderator: TBD

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: TBD

Co-Moderator: TBD

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, Biology 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*

CRIMINALISTICS

2:45 PM – 3:00 PM **B143** **The Social Amoeba in Forensic Science: Microbial Fingerprinting and Epigenetics**
*Andrea Alveshere, PhD**

3:00 PM – 3:15 PM **BREAK**

In the Lab and in the Field

Moderator: TBD

Co-Moderator: TBD

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: TBD

Co-Moderator: TBD

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*

CRIMINALISTICS

9:00 AM – 9:15 AM	B153	The Investigation of Cannabidiol Conversion Into Delta-9-Tetrahydrocannabinol in Electronic Cigarettes <i>Laerissa Reveil, MS*;</i> <i>Justin Poklis, BS;</i> <i>Matthew S. Halquist, PhD;</i> <i>Michelle Peace, PhD</i>
9:15 AM – 9:30 AM	B154	The Nanogram Level Detection of Five Illicit Drugs Using the Ion Mobility Spectrometer: A Field-Testing Report <i>John Wang, PhD*;</i> <i>Rong Zhang, PhD</i>
9:30 AM – 9:45 AM	B155	A Quantitative Determination of Four Designer Benzodiazepines by High-Performance Thin-Layer Chromatography (HPTLC) <i>Isabella Iorio, BS*;</i> <i>Thomas Brettell, PhD;</i> <i>Marianne Staretz, PhD;</i> <i>Matthew Wood, PhD</i>
9:45 AM – 10:00 AM	B156	The Separation of Lysergic Acid Diethylamide (LSD) and its Analogs by High-Performance Thin-Layer Chromatography (HPTLC) <i>Tori Schaffer, BS*;</i> <i>Sandra Rodriguez-Cruz, PhD;</i> <i>Jeanne Berk, PhD;</i> <i>Thomas Brettell, PhD</i>
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 <i>Sarah Shuda, MSFS*;</i> <i>Barry Logan, PhD</i>
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 <i>Volda Appia-Kusi, BS*;</i> <i>Ira Lurie, PhD</i>
10:30 AM – 10:45 AM	B159	The Evaluation of Fentanyl and Fentanyl-Related Compounds on United States Paper Currency <i>Matthew Hewes, MS*;</i> <i>Alex Krotulski, PhD;</i> <i>Donna Papsun, MS;</i> <i>Barry Logan, PhD</i>
10:45 AM – 11:00 AM		BREAK

Canines and Guns

Moderator: TBD

Co-Moderator: TBD

11:00 AM – 11:15 AM	B160	The Chemical Analysis of the Surface Building Collapse Samples: Updating Decontamination Protocols for Search and Rescue Canines <i>Michelle Karpinsky, BS*;</i> <i>Lauryn DeGreeff, PhD;</i> <i>Erin Perry, MS, PhD</i>
11:15 AM – 11:30 AM	B161	The Development of a Safe Canine Training Aid Mimic for Fentanyl <i>Leann Forte, MS*;</i> <i>Howard Holness, PhD;</i> <i>Kenneth Furton, PhD;</i> <i>Lauryn DeGreeff, PhD</i>
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 <i>Igor Lednev, PhD*;</i> <i>Shelby Khandasammy, BS;</i> <i>Lenka Halamkova, PhD;</i> <i>Matthieu Baudelet, PhD</i>
11:45 AM – 12:00 PM	B163	Sourcing Glass Traces on Bullets as Additional Evidence for Shooting Reconstruction <i>Crystal Rosales, BS*;</i> <i>Gwyneth Gordon, PhD;</i> <i>Kyle Mueller, MS;</i> <i>Maia Nguyen, MPS;</i> <i>Shirly Montero, PhD</i>
12:00 PM – 1:00 PM		BREAK

CRIMINALISTICS

Frictin Ridge

Moderator: TBD

Co-Moderator: TBD

- 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: TBD

Co-Moderator: TBD

- 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, Masters, 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*

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