

AMERICAN ACADEMY OF FORENSIC SCIENCES

73RD AAFS ANNUAL SCIENTIFIC MEETING

ONE ACADEMY

PURSUING JUSTICE THROUGH TRUTH IN EVIDENCE



WELCOME MESSAGE



Jeri D. Roper-Miller, PhD
2020-21 AAFS President

Welcome to the 73rd American Academy of Forensic Sciences Annual Scientific Meeting. We are 100% virtual this year and it is my pleasure and excitement to greet each and every one of you. While we could not be in Houston, we have planned a jammed packed week of science, collegial interactions, collaborations, learning, social networking, and just plain fun!

The Academy has nearly 6,500 members representing 70 countries. We usually meet annually in the U.S., but this year we are meeting virtually and worldwide for the first time. I cannot wait to see how many locations across the globe will be represented by our attendees.

Our meeting theme this year, *One Academy Pursuing Justice through Truth and Evidence*, has fueled the culture of the Academy since its inception. It has also encouraged more than 1,000 presentations for this week with over 560 oral, more that 380 posters, and countless presenters in the 18 workshops, and special sessions.

The Exhibit Hall will be accessible to attendees the entire week. Don't miss out on all the latest products and technology available to the forensic science industry. You also will want to participate in the Gamification activity by going on a virtual scavenger hunt to earn points towards winning some fun prizes. Don't forget to visit the online AAFS store between sessions for your chance to purchase meeting apparel.

I cannot thank everyone enough for all the effort, dedication, and support for making this virtual event memorable for all.

It saddens me that we cannot meet in person to appreciate the progress we have made as forensic scientists, but we can still exchange very important information while remaining safe and protecting one another from this global pandemic. This past year has been monumental in so many ways, yet I know the experiences of this week will bring us encouragement, energy, and educational growth. I look forward to seeing you when we are live.

So, let the meeting begin!

A handwritten signature in black ink that reads "Jeri R. Miller". The signature is written in a cursive style and is placed on a light-colored, textured background.

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REGISTRATION INFORMATION

Your registration fee includes the opportunity to claim continuing education credits, access to live and pre-recorded content for up to 90 days, virtual networking, and admission to the virtual exhibit hall.

All persons attending must be at least 18 years of age at the time of the meeting.

THREE WAYS TO REGISTER

1. Register online at www.aafs.org through the AAFS Web Account (<https://webdata.aafs.org/aafsweb/Security/SignIn.aspx>).
2. Scan and email your registration form to: registration@aafs.org.

Faxed registration forms are not accepted.

ONLINE REGISTRATION INFORMATION

- Online registrants are required to have an AAFS Web Account to register for the meeting.
- Current AAFS members or applicants will need to login to your AAFS Web Account to start your registration.
- If you are not a member of the AAFS, but you are or have been an Author or Co-Author on a presentation (oral or poster) at an AAFS Annual Scientific Meeting, you will have an AAFS Web Account.
- Use the “Forgot User Name or Password” button found on the AAFS Web Account page to retrieve a forgotten password.
- If this is your first contact with the AAFS, you will need to create a new AAFS Web Account. Click the “Create Account” button on the Login Page.

REGISTRATION CONFIRMATION

- When you register online, you will receive an email confirmation immediately.
- A confirmation email will be sent once your registration form has been processed.

QUESTIONS

If you have any questions or need assistance with registration, contact the AAFS Office at (719) 636-1100, ext. 111, or by email at: registration@aafs.org.

REGISTRATION FEES*

Effective Jan. 19

- | | |
|---|--------|
| 1. AAFS Member, Trainee Affiliate, Applicant* | \$225 |
| 2. Non-Member | \$350 |
| 3. AAFS Student Affiliate | \$ 90 |
| 4. Non-Member Student** | \$140 |
| 5. AAFS Retired Fellow | \$ -0- |

*Applicants must have a completed AAFS application on file by the application deadline.

**Non-Member Students must submit an official Verification of Enrollment confirming enrollment during February 2021 to registration@aafs.org. *Not available to those in postgraduate internships, residencies, or fellowships.*

No refunds after February 5, 2021.



OFFICERS AND OFFICIALS

Officers

<i>President:</i>	Jeri D. Roper-Miller, PhD
<i>President-Elect:</i>	Carl R. McClary, MS
<i>Past President:</i>	Zeno J. Geradts, PhD
<i>Vice President:</i>	Laura C. Fulginiti, PhD
<i>Secretary:</i>	Christopher R. Thompson, MD
<i>Treasurer:</i>	C. Ken Williams, MS, JD

Directors

<i>Anthropology:</i>	Jennifer C. Love, PhD
<i>Criminalistics:</i>	Anjali A. Ranadive, JD
<i>Digital & Multimedia Sciences:</i>	Marcus Rogers, PhD
<i>Engineering & Applied Sciences:</i>	Mark I. Marpet, PhD, PE
<i>General:</i>	Joanna L. Collins, MFS
<i>Jurisprudence:</i>	Roderick T. Kennedy, JD
<i>Odontology:</i>	Paula Brumit, DDS
<i>Pathology/Biology:</i>	James Louis Caruso, MD
<i>Psychiatry & Behavioral Science:</i>	Karen B. Rosenbaum, MD
<i>Questioned Documents:</i>	Thomas W. Vastrick, BS
<i>Toxicology:</i>	Sarah Kerrigan, PhD

Section Officers

Anthropology

Chair: Kristen Hartnett-McCann, PhD
Secretary: Marin A. Pilloud, PhD

Criminalistics

Chair: Jennifer S. Mihalovich, MPH
Secretary: Sandra B. Sachs, PhD

Digital & Multimedia Sciences

Chair: Jason M. Paroff, JD
Secretary: Patrick A. Eller, MS

Engineering & Applied Sciences

Chair: David Pienkowski, PhD
Secretary: Robert Dale Lynch, BArch

General

Chair: Steven C. Clark, PhD
Secretary: Melissa A. Connor, PhD

Jurisprudence

Chair: Robert M. Sanger, JD
Secretary: Donald E. Shelton, JD, PhD

Odontology

Chair: Roger D. Metcalf, DDS, JD
Secretary: Robin A. Ainsworth, DDS

Pathology/Biology

Chair: Carl J. Schmidt, MD
Secretary: Chris Milroy, MD, LLB

Psychiatry & Behavioral Science

Chair: Dean Michael De Crisce, MD
Secretary: Eleanor B. Vo, MD

Questioned Documents

Chair: Karen J. Nobles, BA
Secretary: Linda L. Mitchell, BS

Toxicology

Chair: Sherri L. Kacinko, PhD
Secretary: Sabra R. Botch-Jones, MS

PROGRAM COMMITTEE

2021 Annual Scientific Meeting Program Committee

<i>Program Chair:</i>	Gregory G. Davis, MD
<i>Program Co-Chair:</i>	Adam J. Freeman, DDS
<i>Plenary Session:</i>	Julie A. Howe, MBA; Douglas S. Lacey, MS
<i>Poster Sessions:</i>	Kate Spradley, PhD; Jan Seaman Kelly, BA
<i>Workshops:</i>	Sarah Kerrigan, PhD; Dean Michael De Crisce, MD
<i>Breakfast Seminars:</i>	Paul Messner, JD; Melissa A. Connor, PhD
<i>Luncheon Seminars:</i>	Andrew C. Seidel, PhD; Patrick Buzzini, PhD
<i>Last Word Society:</i>	Kenneth E. Melson, JD; Paula Brumit, DDS
<i>Bring Your Own Slides:</i>	Michael M. Baden, MD; J.C.U. Downs, MD; Joseph A. Prahlow, MD
<i>Student Academy:</i>	Marilyn T. Miller, EdD; Lynn A. Schneeweis, MS
<i>Interdisciplinary Symposium:</i>	Agnes D. Winokur, MS; Chris Milroy, MD, LLB
<i>Local Arrangements:</i>	Dayong Lee, PhD
<i>Academy Cup:</i>	Laura L. Liptai, PhD; Carla Miller Noziglia, MS
<i>Anthropology:</i>	Allysha P. Winburn, PhD; Krista E. Latham, PhD
<i>Criminalistics:</i>	Jason L. Linder, MFS; Peter J. Diaczuk, PhD
<i>Digital & Multimedia Sciences:</i>	Douglas R. White, MS; Kathryn C. Seigfried-Spellar, PhD
<i>Engineering & Applied Sciences:</i>	Kurt D. Weiss, MS
<i>General:</i>	Katherine M. Brown, PhD; Kimberlee Sue Moran, MSc
<i>Jurisprudence:</i>	Gary McDonald, Jr., JD; Terri Rosenblatt, JD
<i>Odontology:</i>	Denise C. Murmann, DDS
<i>Pathology/Biology:</i>	Jacqueline L. Parai, MD
<i>Psychiatry & Behavioral Science:</i>	Giuseppe Troccoli, MD; Jessica Morel, DO
<i>Questioned Documents:</i>	Samiah Ibrahim, BSc; Janet F. Masson, BJ
<i>Toxicology:</i>	Madeleine J. Swortwood, PhD; Amanda L.A. Mohr, MSFS
<i>Young Forensic Scientists Forum:</i>	Zain Bhaloo, MSc



AWARDS

The 2021 awards will be presented during the 2022 AAFS Annual Scientific Meeting in Seattle, WA, during scheduled business meetings. Details will be provided ahead of the 2022 meeting.

R.B.H. Gradwohl Laureate Medallion

Carol E. Henderson, JD (posthumously)

Distinguished Fellow

Lakshmanan Sathyavagiswaran, MD

Outstanding Early Career Achievement in Forensic Science Award

Nicholas V. Passalacqua, PhD

FSF Jan S. Bashinski Criminalistics Graduate Thesis Assistance Grant Recipient

Rachelle A. Turiello, MS

Humanitarian and Human Rights Resource Center's Clyde Snow Award Recipient

Douglas H. Ubelaker, PhD

FSF Emerging Forensic Scientist Award Recipients

Kamar Afra, MA

J. Tyler Davidson, PhD

David S.H. Funes, BS

FSF Warren-Young Scholarship Recipient

Ronald J. Moss, MEd, MS

AAFS Regional Awards

Midwest Association for Toxicology & Therapeutic Drug Monitoring: *Kimberly Yacoub, MS*

Midwestern Association of Forensic Scientists: *Dana L. Greely, MSFS*

Southwestern Association of Toxicologists: *Sarah E. Martin, MS*

AWARDS



2021 Section Award Honorees

Anthropology Section's

T. Dale Stewart Award
J. Lawrence Angel Award
Outstanding Mentorship Award
Ellis R. Kerley Research Award

Dennis C. Dirkmaat, PhD
Valerie Sgheiza, MA
Dennis C. Dirkmaat, PhD
Janna M. Andronowski, PhD
Mary E. Cole, PhD
Reed A. Davis, MSc

Criminalistics Section's

Paul L. Kirk Award
Mary E. Cowan Outstanding Service Award
Meritorious Service Award

Moses S. Schanfield, PhD
Lucy A. Davis, BHS
Peter J. Diaczuk, PhD

Digital & Multimedia Sciences Section's

Outstanding Research Award

Seth M. Eisenberg
Anthony Koertner, MS
Hillary Lathrop, PhD
Christina A. Malone, MSFS

General Section's

Paul W. Kehres Meritorious Service Award

William B. Andrews, MFS

Odontology Section's

Reidar F. Sognaes Award

Mary A. Bush, DDS

Pathology/Biology Section's

Milton Helpern Award
Award for Achievement in the Forensic Life Sciences
Best Resident Paper Award

Stephen D. Cohle, MD
M. Eric Benbow, PhD
Kristina-Ana Klaric, MD

Psychiatry & Behavioral Science Section's

Rosner Best Paper Award

Kathryn A. Cunningham, PsyD

Toxicology Section's

Alexander O. Gettler Award
Irving Sunshine Award
Ray Abernethy Award
Rolla N. Harger Award

Marilyn A. Huestis, PhD
Madeleine J. Swortwood, PhD
Rebecca Phipps, PhD
Kenneth E. Ferslew, PhD

GRADWOHL LAUREATE



Carol E. Henderson, JD

The honor is being bestowed posthumously; Ms. Henderson passed away May 14, 2020.

Ms. Henderson was elected into membership in the Jurisprudence Section in 1984 and was promoted to Fellow in 1990. Ms. Henderson served on the AAFS Membership Committee, the Nominating Committee, the Board of Directors and Executive Committee, the Good Forensic Practice Guidelines Committee, the Accreditation & Certification Task Force, the *Journal of Forensic Sciences* Editorial Board, the Long Term Planning Committee, and the Mission and Vision Task Force. In addition to her extensive committee service, Ms. Henderson served in a variety of meeting program positions for an unprecedented six annual meetings leading up to her election as Vice President, Secretary, and ultimately President-Elect. She served as AAFS President in 2008-09.

In recognition for her service to the Jurisprudence Section, Ms. Henderson was honored with the Harold A. Feder Award in 1999. Ms. Henderson was honored with the AAFS Distinguished Fellow Award in 2019.

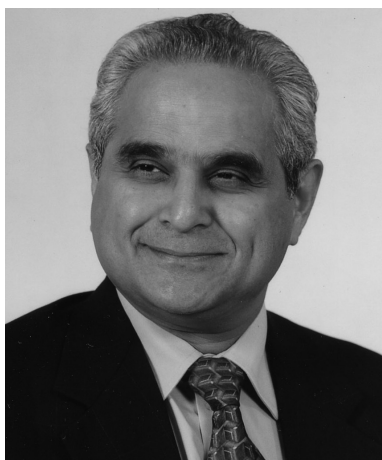
Ms. Henderson began her criminal justice career with the Federal Bureau of Prisons (BOP), working in a federal prison for male offenders in Miami, FL, and later as a researcher at the BOP headquarters in Washington, DC. She began her legal career as an Assistant United States Attorney in Washington, DC, then as a tenured professor at Stetson University College of Law. Ms. Henderson most recently served as a consultant in scientific evidence and law. She was the founding director of the award-winning National Clearinghouse for Science, Technology and the Law, an interdisciplinary resource that provides education and information to scientists, legal professionals, law enforcement, academics, and the public worldwide.

Ms. Henderson presented more than 300 lectures, webinars, and workshops on scientific evidence and courtroom testimony on six continents. She authored or edited more than 100 books, articles, and encyclopedias, including *Future Focus for Forensic Science*, a special issue of *The SciTech Lawyer* (2017).

Ms. Henderson appeared in the national media as a legal analyst and testified before the United States Congress. She served on the American Bar Association (ABA) Science & Technology Law Section Council, the ABA Judicial Division Forensic Science Committee, and as faculty for the National Judicial College. She also served as an editorial board member for WIREs Forensic Science journal and *The SciTech Lawyer* magazine.

Ms. Henderson provided an important commitment to forensic science and because of her dedication to the Forensic Sciences Foundation (FSF), she bequeathed a significant donation to the FSF. Additionally, the AAFS Past Presidents Council proposed having donations given to the FSF in her memory.

DISTINGUISHED FELLOW



Lakshmanan Sathyavagiswaran, MD

Dr. Lakshmanan Sathyavagiswaran was elected into membership in the Pathology/Biology Section in 1984 and achieved the status of Fellow in 1994. He is a medical graduate of Madras University, India with a conferred MD (Doctor of Medicine) from State University of New York.

Dr. Sathyavagiswaran served Los Angeles County as Chief Medical Examiner-Coroner/Director from 1992-2013, Interim Chief Medical Examiner-Coroner (CME-C) from April 2016 to January 2017, following which he was Consultant and Director of Operations to the Department of Medical Examiner-Coroner (DME-C) through December 31, 2018. As of January 1, 2019, he serves as a Consultant to DME-C. During his tenures, Dr. Sathyavagiswaran met the needs of the community and criminal justice system by working with organ procurement organizations (OPO) towards a zero denial policy in accordance with law and accepted medical practice.

He, and the Department of Coroner staff, participated in reality TV show “North Mission Road” with reruns still airing on the “Justice Network”. Over the course of his career, he handled the high profile cases of Michael Jackson, Whitney Houston, Carrie Fisher, and he recently amended the cause and manner of death of Natalie Wood. He testified in the OJ Simpson and Phil Spector trials. He, and his staff, have responded to several disasters including the 1986 Cerritos air crash, 1991 LAX US Air crash, the 1992 Los Angeles Riots, the 1994 Northridge Earthquake, 2005 Glendale Metro-link and 2008 Chatsworth Metro-link multiple fatality train accidents. He has also testified in Indonesia in the “OKI” trial.

Dr. Sathyavagiswaran has numerous publications in various journals, several book chapters and abstracts and conference presentations to his credit. He has been an invited Guest speaker in international meetings in India, France, Saudi Arabia, Singapore and Brazil. He was co-editor of a textbook “Forensic Neuropathology” published in 2007. He is the lead editor of the textbook “Multidisciplinary Medico-legal death Investigation – Role of Consultants” published in 2018.

Dr. Sathyavagiswaran has been Clinical Professor of Pathology and Medicine at USC Keck School of Medicine and Honorary Voluntary Clinical Professor at UCLA Geffen School of Medicine. He is an American Board Certified Physician in several specialties including Anatomic, Clinical & Forensic Pathology, Internal Medicine, Geriatric Medicine and Infectious Diseases. He is also certified in pathology by the Royal College of Physicians and Surgeons of Canada. As a peace officer, he holds a specialized law enforcement executive certificate from the Commission on Peace Officers Standards and Training, State of California.

Dr. Sathyavagiswaran served as President of the National Association of Medical Examiners (NAME) in 2010 and Chairman of the Board of Directors in 2011. As CME-C, the Department hosted the 39th Annual NAME meeting in Los Angeles (2005) wherein he was program chair.



BUSINESS MEETINGS

Attend Your Section's Annual Business Meeting for a Chance to Win a Complimentary Meeting Registration!

Do not miss the opportunity to win a complimentary meeting registration for the 2022 AAFS Annual Scientific Meeting in Seattle, WA! Each section will award one registration to a voting member who attends their virtual Section Business Meeting.

These meetings will be held the week prior to the AAFS Annual Scientific Meeting. Meetings will be scheduled by AAFS staff and a link will be provided to section members.

All times are Central Time.

Monday, February 8	
11:00 a.m. - 1:00 p.m.	Jurisprudence
2:00 p.m. - 4:00 p.m.	Digital & Multimedia Sciences
Tuesday, February 9	
10:00 a.m. - 12:00 p.m.	Psychiatry & Behavioral Science
12:00 p.m. - 2:00 p.m.	Criminalistics
2:00 p.m. - 4:00 p.m.	Odontology
Wednesday, February 10	
10:00 a.m. - 12:00 p.m.	Engineering & Applied Sciences
2:00 p.m. - 4:00 p.m.	General
Thursday, February 11	
11:00 a.m. - 1:00 p.m.	Pathology/Biology
2:00 p.m. - 4:00 p.m.	Questioned Documents
Friday, February 12	
10:00 a.m. - 12:00 p.m.	Toxicology
12:00 p.m. - 2:00 p.m.	Anthropology

Attend the AAFS Annual Business Meeting for a Chance to Win a Complimentary Meeting Registration!

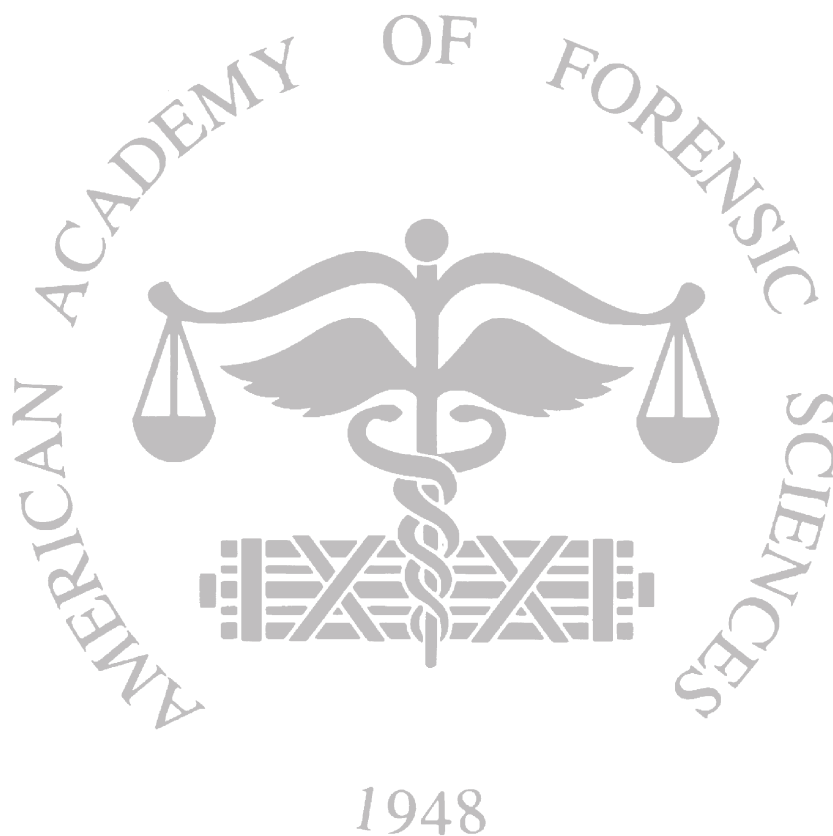
The Annual Business Meeting of the Fellows and Members of the AAFS will be held virtually on Wednesday, February 17, from 1:00 p.m. - 2:30 p.m. It is essential that all Fellows and Members attend this very important meeting in order to reach a quorum for the voting process. Agenda items include the election of 2021-22 Officers, consideration of bylaw amendments, recognition of the Gradwohl Laureate, the Distinguished Fellow, and the Outstanding Early Career Achievement in Forensic Science Award recipient. You will also be briefed on AAFS activities during the past year and plans for the future.

As an incentive to attend, all Fellows and Members present will automatically be entered in a drawing for a complimentary meeting registration to attend the 2022 AAFS Annual Scientific Meeting in Seattle, WA.

FINANCIAL CONTRIBUTORS

The American Academy of Forensic Sciences would like to thank the following for their contribution to the 2021 AAFS 73rd Annual Scientific Meeting:

The Center for Forensic Science Research and Education at the Fredric Rieders Family Foundation





CONTINUING EDUCATION

General Information

All meeting sessions are lectures with one or more speakers. Continuing professional education credits will be offered for physicians, dentists, and attorneys. Continuing education credit applications will be submitted for physicians, nurses, and dentists. Attorneys may request CLE credit; please see the "Legal" section.

To register for continuing education credit, please complete the appropriate section on the meeting Registration Form. An individual must be a registrant to obtain continuing education credit. Fees charged for continuing education credits are based on projected costs of providing the various types of continuing education credit. The AAFS has adopted a user-pay approach so that those individuals who benefit from the specific continuing education program are responsible for the costs incurred.

In order to be in compliance with accrediting organizations, introductions and breaks have been deducted from the total hours. Please note that continuing education credit is not available for all sessions. All continuing education credit recipients will receive certificates with the number of continuing education hours awarded. Attendance reports are filed with the appropriate state or national agency, as required.

Learning Objectives of the AAFS Continuing Education Program

- Recognize the perspectives and roles of the various forensic science disciplines
- Assess current concepts and practices
- Discuss relevant forensic science issues related to science, evidence and the law
- Identify strategies for researching descriptive studies, technology and methods, diagnostics, interpretation and testimony
- Review administrative functions performed by forensic scientists

American Board of Criminalists Approval

The American Academy of Forensic Sciences (AAFS) is approved by the American Board of Criminalistics (ABC) to offer continuing education points for approved workshops for criminalists and forensic scientists. The ABC maintains responsibility for the program, and credit may be awarded to ABC Fellows, Diplomates, and Affiliates.

Overall Purpose and Objective Statements for Major Aspects of AAFS Programs

Workshops and Special Sessions

Purpose: To provide an opportunity for experts to present material and to lead discussion and practical exercises related to forensic science methods, procedures, diagnosis, investigation, professional relations and practices, communication, administration, and professional development.

Educational Objectives: Detailed individually in each workshop and special session announcement and description.

Case Breaks

Purpose: To provide an opportunity for presentation and discussion of relevant historical and current topics of forensic science interest related to specific case investigations, or general or specific investigative needs and procedures, methodologies, and testimony.

Learning Overview: Detailed individually in each breakfast/luncheon seminar announcement and description.

Plenary and Keynote Sessions

Purpose: To provide a multidisciplinary presentation and discussion of issues related to the forensic science profession.

Learning Overview: Attendees will be able to: a) identify the challenges the forensic science profession has faced and will continue to face in terms of ensuring quality; b) identify ways to deal with the variances each challenge presents; and c) identify the entities which have influence over setting the quality standards in the field of forensic science.

Oral and Poster Section Scientific Sessions

Purpose: To provide an opportunity for presentation and discussion of case reports, descriptive studies, review presentations, research, administrative issues, and investigative/diagnostic methods regarding topics and issues of importance to a primary discipline among the forensic sciences. **Learning**

Learning Overview: To meet the educational objectives stated by each presenter for his/her presentation.

Last Word Society

Purpose: To provide a retrospective forensic analysis of historical events and to provide education about the history and evolution of forensic sciences as well as the modern methods and technologies used to re-examine past events of forensic science interest. Emphasis is placed on the evaluation of the original opinions and case outcome and on the development of newer hypotheses based on the re-analysis.

Learning Overview: To meet the educational objectives stated by each presenter for his/her presentation.

CONTINUING EDUCATION

Guidelines For Claiming Credit

As the sponsor of Continuing Education Credit, the AAFS recognizes that the forensic science disciplines are inextricably linked and that interdisciplinary knowledge is critical to promote competence in forensic practice. As a result, the claiming of credit for various continuing education activities related to medicine, dentistry, law, and other forensic disciplines need not be limited to one's primary professional specialty. For example, a forensic pathologist from the Pathology/Biology Section may gain very useful and relevant information by attending a presentation in the Anthropology Section scientific session. It is appropriate to claim continuing medical education credit for that session. Many other examples exist where the claiming of continuing education credit is appropriate for attending sessions that cover material related to, but which lay outside of, one's primary professional area of expertise.

It is the conference attendee's responsibility to document which program sessions were attended and to determine those sessions for which continuing education credit may be claimed. The AAFS operates under the assumption that meeting attendees will, in general, be unlikely to attend sessions that will not be beneficial to their professional practice and that the claim for continuing education credit is justified if a session contains scientific or practice-related information that may bring new knowledge, may affirm current knowledge, or may provide information that could possibly modify one's professional practices.

Those who wish to receive continuing education credit must register and pay the Continuing Education Credit fee on the meeting Registration Form. CE Credit Request Forms will be available on the AAFS website. The completed forms must be returned to AAFS by the designated deadline.

Joint Accreditation Statement



JOINTLY ACCREDITED PROVIDER™
INTERPROFESSIONAL CONTINUING EDUCATION

In support of improving patient care, this activity has been planned and implemented by the Postgraduate Institute for Medicine and the American Academy of Forensic Science. Postgraduate Institute for Medicine is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

Physician Continuing Medical Education Credit

The Postgraduate Institute for Medicine designates this live activity for a maximum of 45.25 AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Dental Continuing Education Credit

This continuing education activity has been planned and implemented in accordance with the standards of the ADA Continuing Education Recognition Program (ADA CERP) through joint efforts between Postgraduate Institute for Medicine and the American Academy of Forensic Sciences.

Postgraduate Institute for Medicine is an ADA CERP Recognized Provider. ADA CERP is a service of the American Dental Association to assist dental professionals in identifying quality providers of continuing dental education. ADA CERP does not approve or endorse individual courses or instructors, nor does it imply acceptance of the credit hours by boards of dentistry. Postgraduate Institute for Medicine designates this activity for 45.25 continuing education credits. Concerns or complaints about a CE Provider may be directed to the provider or to the Commission for Continuing Education Provider Recognition at www.ada.org/cerp.

Legal Continuing Education Credit

Continuing legal education credit will be awarded on an hour-for-hour basis. Attorneys may file the AAFS-issued CLE certificate with their respective state bars.

Non Physician Continuing Education Credit

A general non physician certificate of attendance will be available.

General Continuing Education Credit

General continuing education credit is offered for those practicing the various forensic science disciplines not represented in the aforementioned list.



CALENDAR OF EVENTS

This is not a comprehensive list of meetings, and will be updated as additional meetings are scheduled.

Events posted in blue are open to all meeting registrants.

Events posted in black are private meetings or require additional registration fees.

Monday, February 1, 2021

12:00 p.m. - 2:00 p.m. 2020-21 Section Officers Meeting

Thursday, February 4, 2021

8:00 a.m. - 9:00 a.m. Wiley Forensic Science in Focus Book Project Meeting

Friday, February 5, 2021

9:00 a.m. - 10:00 a.m. Finance Committee

Monday, February 8, 2021

9:00 a.m. - 10:00 a.m. Odontology Section Executive Committee
11:00 a.m. - 1:00 p.m. Jurisprudence Section Business Meeting
1:00 p.m. - 2:00 p.m. General Section Annual Committee Chairs Meeting
2:00 p.m. - 4:00 p.m. Digital & Multimedia Sciences Section Business Meeting

Tuesday, February 9, 2021

9:00 a.m. - 11:00 a.m. Toxicology Steering Committee
9:00 a.m. - 4:15 p.m. *Special Session #2: Young Forensic Scientists Forum (YFSF) Special Session—One Academy Pursuing Justice Through Truth in Evidence ... the Truth, the Whole Truth, and Nothing But the Truth*
10:00 a.m. - 12:00 p.m. Psychiatry & Behavioral Science Section Business Meeting
12:00 p.m. - 2:00 p.m. Criminalistics Section Business Meeting
2:00 p.m. - 4:00 p.m. Odontology Section Business Meeting
3:00 p.m. - 4:00 p.m. Humanitarian and Human Rights Resource Center Meeting

Wednesday, February 10, 2021

10:00 a.m. - 12:00 p.m. Engineering & Applied Sciences Section Business Meeting
10:00 a.m. - 1:00 p.m. *Journal of Forensic Sciences Associate Editors Meeting*
2:00 p.m. - 4:00 p.m. General Section Business Meeting

Thursday, February 11, 2021

8:00 a.m. - 9:00 a.m. Diversity Outreach Committee
11:00 a.m. - 1:00 p.m. Pathology/Biology Section Business Meeting
2:00 p.m. - 4:00 p.m. Questioned Documents Section Business Meeting
4:00 p.m. - 5:00 p.m. Anthropology Section Student "Speed Networking" Session

Friday, February 12, 2021

9:00 a.m. - 1:00 p.m. FEPAC: Forensic Science Education Programs Accreditation Commission Business Meeting
10:00 a.m. - 12:00 p.m. Toxicology Section Business Meeting
10:30 a.m. - 12:00 p.m. AAFS Executive Committee
12:00 p.m. - 2:00 p.m. Anthropology Section Business Meeting

CALENDAR OF EVENTS

Monday, February 15, 2021

Virtual Exhibits open for viewing at any time with meeting registration.

- 8:00 a.m. - 12:00 p.m. Workshop #1: *A Complete Introduction to Digitally Captured Signatures (DCS) and a Tutorial for Namirial's Firma Certa Forensic Analysis Tool*
- 8:00 a.m. - 12:00 p.m. Workshop #2: *Interpreting and Communicating DNA Evidence in a Probabilistic Genotyping Universe*
- 8:00 a.m. - 12:00 p.m. Workshop #3: *Scientific Working Group on Digital Evidence (SWGDE) and Digital Evidence: The Look of Modern Criminal Investigations*
- 8:00 a.m. - 12:00 p.m. Workshop #4: *The Impact of the COVID-19 Pandemic on Forensic Sciences With a Focus on Opioids and Emerging Drugs*
- 8:00 a.m. - 4:00 p.m. Poster Sessions – Anthropology, Criminalistics, Digital & Multimedia Sciences, Engineering & Applied Sciences, General, Jurisprudence, Odontology, Pathology/Biology, Psychiatry & Behavioral Science, Questioned Documents, Toxicology, YFSF
Posters will be available for viewing at any time with meeting registration.
- 8:00 a.m. - 5:00 p.m. Workshop #5: *Forensic Genetic Genealogy (FGG): Practical Aspects of Implementation for Law Enforcement and Criminalists*
- 8:00 a.m. - 5:00 p.m. Workshop #6: *Tuning in to the Barking Dog: Actionable Surveillance in an Evolving Chemical Threat Landscape*
- 9:00 a.m. - 4:00 p.m. 2020-21 AAFS Board of Directors
- 1:00 p.m. - 5:00 p.m. Workshop #7: *Applications, Implementation, and the Future of Direct Analysis in Real-Time Mass Spectrometry (DART®-MS) in Forensic Laboratories*
- 1:00 p.m. - 5:00 p.m. Workshop #8: *Utilizing Best Practice in Forensic Education and Remote Learning*
- 1:00 p.m. - 5:00 p.m. Workshop #9: *What They Don't Know Can Kill You*
- 1:00 p.m. - 5:00 p.m. Workshop #10: *When "Who" Doesn't Matter as Much as "How"—DNA Testimony Given Activity Level Propositions*
- 5:00 p.m. - 6:30 p.m. AAFS Diversity and Inclusion in the Forensic Sciences Session

Tuesday, February 16, 2021

Virtual Exhibits open for viewing at any time with meeting registration.

- 7:00 a.m. - 8:00 a.m. Case Break #1: *Forensics Standards Development: What's New With Standards Developing Organizations (SDOs) and What is the Organization of Scientific Area Committees (OSAC) for Forensic Science's Role*
- 8:00 a.m. - 12:00 p.m. Workshop #11: *A New Realm of Novel Psychoactive Substance (NPS) Opioids and NPS Benzodiazepines—Analytical and Interpretive Considerations*
- 8:00 a.m. - 12:00 p.m. Standards Consortium—*Implementation of Forensic Science Standards in an Operational Setting: Challenges and Solutions*
- 8:00 a.m. - 12:00 p.m. Workshop #13: *Forensic Multimedia Authentication: Real-Life Problems and Solutions*
- 8:00 a.m. - 4:00 p.m. Poster Sessions – Anthropology, Criminalistics, Digital & Multimedia Sciences, Engineering & Applied Sciences, General, Jurisprudence, Odontology, Pathology/Biology, Psychiatry & Behavioral Science, Questioned Documents, Toxicology, YFSF
Posters will be available for viewing at any time with meeting registration.
- 8:00 a.m. - 5:00 p.m. Workshop #14: *Policing in 2021—Perspectives, Problems, and Potentials*
- 8:00 a.m. - 5:00 p.m. Workshop #15: *STR Wars: The Rise of Sequencing*
- 8:00 a.m. - 5:00 p.m. Workshop #16: *Technology and Design of Security Documents for Counterfeiting and Alteration Resistance*
- 9:00 a.m. - 1:00 p.m. Student Academy
- 12:00 p.m. - 2:30 p.m. AAFS Long Term Planning Committee (LTPC)
- 1:00 p.m. - 5:00 p.m. Special Session #1: *To See or Not to See: Unbiased Answers to Forensic Questions*
- 1:00 p.m. - 5:00 p.m. Workshop #17: *An Update on Analytical Approaches for Hemp/Marijuana Differentiation*
- 1:00 p.m. - 5:00 p.m. Workshop #18: *Competency to Stand Trial: Nuances in Competency Assessments*
- 1:00 p.m. - 5:00 p.m. Workshop #19: *Most Valuable Publications (MVPs) of Forensic DNA: Examining the Most Valuable Publications in the Field*
- 6:00 p.m. - 8:00 p.m. Case Break #2: *The Sarah Yarborough Homicide—The First Case Where Investigative Genetic Genealogy Was Used to Generate Forensic Intelligence in 2011 (Open to All Meeting Attendees)*
- 6:00 p.m. - 8:00 p.m. Humanitarian and Human Rights Resource Center (HHRRC) Poster Session



CALENDAR OF EVENTS

Wednesday, February 17, 2021

Virtual Exhibits open for viewing at any time with meeting registration.

7:00 a.m. - 8:00 a.m. Case Break #3: *Bail Reform or Bail Elimination: A Historical Perspective and Case Analysis*
8:00 a.m. - 9:30 a.m. KEYNOTE ADDRESS

Scientific Sessions – Morning

8:30 a.m. - 11:25 a.m. Criminalistics Session I
8:30 a.m. - 11:30 a.m. Criminalistics Session II
8:30 a.m. - 11:30 a.m. Criminalistics Session III
8:30 a.m. - 11:30 a.m. Pathology/Biology Session I
8:30 a.m. - 11:30 a.m. Pathology/Biology Session II
8:30 a.m. - 11:30 a.m. Questioned Documents Session I
9:00 a.m. - 11:30 a.m. General Session I
9:00 a.m. - 11:30 a.m. General Session II

9:30 a.m. - 11:00 a.m. PLENARY SESSION
11:30 a.m. - 1:00 p.m. Poster Sessions LIVE TEXT CHAT with Authors From – Anthropology, Odontology, Toxicology
All Section Posters will be available for viewing from 8:00 a.m.–4:00 p.m. Presenting authors from designated sections will be available for discussion from 11:30 a.m.–1:00 p.m.

1:00 p.m. - 2:30 p.m. AAFS ANNUAL BUSINESS MEETING
2:30 p.m. - 4:30 p.m. University Fair
2:30 p.m. - 4:30 p.m. LIVE TEXT CHAT with EXHIBITORS
6:00 p.m. - 7:30 p.m. Consortium of Forensic Science Organizations (CFSO) Legislative Update Annual Report
6:00 p.m. - 7:30 p.m. Bring Your Own Slides

Thursday, February 18, 2021

Virtual Exhibits open for viewing at any time with meeting registration.

9:00 a.m. - 10:30 a.m. Forensic Sciences Foundation (FSF) Board of Trustees

Scientific Sessions – Morning

9:00 a.m. - 11:45 a.m. Criminalistics Session I
9:00 a.m. - 11:45 a.m. Psychiatry & Behavioral Science Session I
9:00 a.m. - 11:55 a.m. Criminalistics Session III
9:00 a.m. - 12:00 p.m. Anthropology Session I
9:00 a.m. - 12:00 p.m. Digital & Multimedia Sciences
9:00 a.m. - 12:00 p.m. General Session I
9:00 a.m. - 12:00 p.m. Jurisprudence
9:00 a.m. - 12:00 p.m. Questioned Documents Session II
9:00 a.m. - 12:00 p.m. Toxicology

Scientific Sessions – Afternoon

1:00 p.m. - 3:45 p.m. Engineering & Applied Sciences
1:00 p.m. - 3:45 p.m. Odontology
1:00 p.m. - 3:55 p.m. Psychiatry & Behavioral Science Session II
1:00 p.m. - 4:00 p.m. Anthropology Session II
1:00 p.m. - 4:00 p.m. Criminalistics Session II
1:00 p.m. - 4:00 p.m. Digital & Multimedia Sciences
1:00 p.m. - 4:00 p.m. General Session II
1:00 p.m. - 4:00 p.m. Jurisprudence
1:00 p.m. - 4:00 p.m. Pathology/Biology Session I
1:00 p.m. - 4:00 p.m. Toxicology
11:30 a.m. - 1:00 p.m. Poster Sessions LIVE TEXT CHAT with Authors From – Criminalistics, Engineering & Applied Sciences, Jurisprudence, Psychiatry & Behavioral Science, Questioned Documents
All Section Posters will be available for viewing from 8:00 a.m.–4:00 p.m. Presenting authors from designated sections will be available for discussion from 11:30 a.m.–1:00 p.m.



CALENDAR OF EVENTS

12:00 p.m. - 1:00 p.m. Case Break #4: *Lessons Learned: The Exoneration of Robert Earl DuBois*
6:00 p.m. - 8:00 p.m. Last Word Society

Friday, February 19, 2021

Virtual Exhibits open for viewing at any time with meeting registration.

Scientific Sessions – Morning

9:00 a.m. - 11:30 a.m. General Session II
9:00 a.m. - 11:30 a.m. Pathology/Biology Session I
9:00 a.m. - 11:50 a.m. Psychiatry & Behavioral Science Session III
9:00 a.m. - 12:00 p.m. Anthropology Session I
9:00 a.m. - 12:00 p.m. Criminalistics Session I
9:00 a.m. - 12:00 p.m. Digital & Multimedia Sciences
9:00 a.m. - 12:00 p.m. Engineering & Applied Sciences
9:00 a.m. - 12:00 p.m. Jurisprudence
9:00 a.m. - 12:00 p.m. Pathology/Biology Session II
9:00 a.m. - 12:00 p.m. Toxicology

Scientific Sessions – Afternoon

1:00 p.m. - 3:25 p.m. Engineering & Applied Sciences
1:00 p.m. - 3:30 p.m. Odontology
1:00 p.m. - 3:30 p.m. Pathology/Biology Session II
1:00 p.m. - 4:00 p.m. Anthropology Session II
1:00 p.m. - 4:00 p.m. Criminalistics Session II
1:00 p.m. - 4:00 p.m. Criminalistics Session III
1:00 p.m. - 4:00 p.m. General Session I
1:00 p.m. - 4:00 p.m. Questioned Documents Session III

11:30 a.m. - 1:00 p.m. Poster Sessions LIVE TEXT CHAT with Authors From – Digital & Multimedia Sciences, General, Pathology/Biology, YFSF
All Section Posters will be available for viewing from 8:00 a.m.–4:00 p.m. Presenting authors from designated sections will be available for discussion from 11:30 a.m.–1:00 p.m.

12:00 p.m. - 1:00 p.m. Case Break #5: *The ABCs of TLC (Open to All Meeting Attendees)*
3:00 p.m. - 5:00 p.m. 2021-22 AAFS Board of Directors

Tuesday, February 23, 2021

12:00 p.m. - 1:00 p.m. AAFS/SOFT Oral Fluid Committee

Friday, February 26, 2021

8:30 a.m. - 12:45 p.m. FEPAC: Accreditation of Forensic Science Academic Programs Through the AAFS

Thursday, March 4, 2021

10:00 a.m. - 11:00 a.m. AAFS 2021-22 Program Committee
11:00 a.m. - 12:00 p.m. AAFS 2021-22 Section Officers

Friday, April 2, 2021

11:00 a.m. - 12:00 p.m. Membership New Section Officer Application and Requirement Training



DIVERSITY AND INCLUSION SESSION

Open to All Meeting Registrants

Monday

February 15, 2021

5:00 p.m. – 6:30 p.m.

Perspectives on Diversity and Inclusion in Forensic Science

Considering last year's tumultuous events highlighting nationwide racial inequality, the DOC feels that providing expert guidance on matters of diversity—as well as providing a space for constructive dialogue—is of the utmost importance. The DOC has invited expert panelists to share their experiences and perspectives on diversity and inclusion related issues. The DOC hopes that this event will promote a meaningful dialogue on Diversity, Equity, and Inclusion in the forensic sciences for practitioners, academics, and students alike. The panel discussion will be followed by a live Q&A session.

Moderator

Kate Spradley, PhD
Texas State University
San Marcos, TX

Panel Speakers

Iris Wagstaff, PhD
American Association for the Advancement of Science
Diversity, Equity, and Inclusion
Washington, DC

Susan Antón, PhD
New York University
Diversity, Equity, Inclusion, and Development
New York, NY

Murrell Godfrey, PhD
The University of Mississippi
Diversity, Equity, and Inclusion
University, MS



STUDENT ACADEMY

Open to all Meeting Registrants

Tuesday

February 16, 2021

9:00 a.m. - 1:00 p.m.

The purpose of the Student Academy of Forensic Sciences is to bring to the attention of high school students the vital importance of the application of scientific principles to the administration of justice. It acquaints the participants with the role of the forensic science disciplines in the legal system as well as the education and training required for the career in each discipline.

Chair:

Marilyn T. Miller, EdD

Virginia Commonwealth University
Richmond, VA

Co-Chair:

Lynn A. Schneeweis, MS

Massachusetts State Police Crime Laboratory
Maynard, MA

Faculty:

Anthropology

Ginesse A. Listi, PhD

Louisiana State University
Baton Rouge, LA

Odontology:

Lillian A. Nawrocki, DDS

Office of the Medical Examiner
Suffolk County, NY

Criminalistics:

Kelly L. Knight, MS

George Mason University
Fairfax, VA

Pathology/Biology:

J.C.U. Downs, MD

forensiX, LLC
Savannah, GA

Digital & Multimedia Sciences:

Douglas Lacey, BS, MS

BEK TEX LLC
Stafford, VA 22556

Psychiatry & Behavioral Science:

Eleanor B. Vo, MD

OmaDesala Psychiatric Services
Ewing, NJ

Engineering & Applied Sciences:

Roy Crawford, BSME

R.R. Crawford Engineering, Inc
Whitesburg, KY

Questioned Documents:

Kelsey L. Osborn, BS

Osborn & Son
Middlesex, NJ

General:

Brian S. Clark, MFS

Federal Bureau of Investigation
Chicago, IL

Toxicology:

Ashraf Mozayani, PharmD, PhD

Texas Southern University
Houston, TX

T.L. Williams, MFS

Fredericksburg, VA

George F. Jackson, PhD

New Jersey Office of the Chief State Medical Examiner
Trenton, NJ

Jurisprudence:

Pamela A.W. King, JD

Minnesota State Public Defender Office
Rochester, MN



STUDENT ACADEMY

Program:

9:00 a.m.	-	9:10 a.m.	Introduction <i>Marilyn T. Miller, EdD, Chair</i>
9:10 a.m.	-	9:15 a.m.	“The Case” <i>Lynn A. Schneeweis, MS, Co-Chair</i>
9:15 a.m.	-	10:30 a.m.	“The Forensic Sciences” Group I Disciplines
9:15 a.m.	-	9:30 a.m.	<i>Pathology/Biology, J.C.U. Downs, MD</i>
9:30 a.m.	-	9:45 a.m.	<i>Anthropology, Ginesse A. Listi, PhD</i>
9:45 a.m.	-	10:00 a.m.	<i>Odontology, Lillian A. Nawrocki, DDS</i>
10:00 a.m.	-	10:15 a.m.	<i>Toxicology, Ashraf Mozayani, PharmD, PhD, and George F. Jackson, PhD</i>
10:15 a.m.	-	10:30 a.m.	<i>General, Brian S. Clark, MFS, and T.L. Williams, MS</i>
10:30 a.m.	-	10:45 a.m.	Questions/Answers, Assignment-Break
10:45 a.m.	-	12:00 p.m.	“The Forensic Sciences” Group II Disciplines
10:45 a.m.	-	11:00 a.m.	<i>Criminalistics, Kelly L. Knight, MS</i>
11:00 a.m.	-	11:15 a.m.	<i>Questioned Documents, Kelsey L. Osborn, BS</i>
11:15 a.m.	-	11:30 a.m.	<i>Engineering & Applied Sciences, Roy Crawford, BSME</i>
11:30 a.m.	-	11:45 a.m.	<i>Digital & Multimedia Sciences, Douglas Lacey, BS, MS</i>
11:45 a.m.	-	12:00 p.m.	<i>Psychiatry & Behavioral Science, Eleanor B. Vo, MD</i>
12:00 p.m.	-	12:15 p.m.	Questions/Answers, Assignment-Break
12:15 p.m.	-	12:45 p.m.	“The Solution” <i>Jurisprudence, Pamela A.W. King, JD</i>
12:45p.m.	-	1:00 p.m.	Wrap Up

INTERDISCIPLINARY SYMPOSIUM

S1 To See or Not to See: Unbiased Answers to Forensic Questions

Tuesday

Open to all Meeting Registrants

February 16, 2021

1:00 p.m. – 5:00 p.m.

3.75 CE Hours

Chair:

Agnes D. Winokur, MS
Drug Enforcement Administration
Southeast Laboratory
Miami, FL

Co-Chair:

Chris Milroy, MD, LLB
Ottawa Hospital
Ottawa, ON CANADA

Faculty:

Jose R. Almirall, PhD
Florida International University
Department of Chemistry
Miami, FL

Mark W. Perlin, PhD, MD
Cybergenetics
Pittsburgh, PA

Sherri L. Kacinko, PhD
NMS Labs
Horsham, PA

Victor W. Weedn, MD, JD
The George Washington University
Washington, DC

Roderick T. Kennedy, JD
Los Ranchos, NM

Learning Overview: After attending this presentation, attendees will have a greater understanding of the role of human bias in forensic sciences, the risks and benefits of information, targeted versus non-targeted methods, decoupling data analysis and comparison, the standardization of methods, and a greater appreciation for the complexity of balancing contextual information and decision points in forensic science disciplines and its impact in the justice court system.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by offering various perspectives regarding the role of human bias in forensic sciences and the pursuit of truth and justice.

Program Description: This presentation seeks to present various perspectives as they relate to human bias in forensic sciences and their impact in the justice system. Discussion will be from the perspectives of forensic science practitioners, statisticians, judges, and forensic science research professionals.

The theme for the 2021 American Academy of Forensic Sciences Scientific Meeting is *One Academy Pursuing Justice Through Truth in Evidence*. To illustrate this, the 2021 Interdisciplinary Symposium focuses on the role of human bias in forensic sciences and the justice court system, targeted and non-targeted methods, standardized methods, and managing information in the forensic disciplines. The presentations will illustrate these points by utilizing case examples.



INTERDISCIPLINARY SYMPOSIUM

S1 To See or Not to See: Unbiased Answers to Forensic Questions

Program:

1:00 p.m.	-	1:15 p.m.	Opening Remarks and Introduction <i>Agnes D. Winokur, MS</i>
1:15 p.m.	-	1:35 p.m.	The Path of Neutrality and Objectivity Is the Path of Truth and Justice <i>Victor W. Weedn, MD, JD</i>
1:35 p.m.	-	2:30 p.m.	Eliminating Bias in Forensic Algorithms and Statistics <i>Mark W. Perlin, PhD, MD</i>
2:30 p.m.	-	3:05 p.m.	Bias in Forensic Pathology <i>Chris Milroy, MD, LLB</i>
3:05 p.m.	-	3:20 p.m.	Break
3:20 p.m.	-	3:45 p.m.	A Matter of Bias: The Judicial Take <i>Roderick T. Kennedy, JD</i>
3:45 p.m.	-	4:15 p.m.	The Role of Standardization in Reducing Bias Within the Forensic Chemistry Disciplines <i>Jose R. Almirall, PhD</i>
4:15 p.m.	-	4:45 p.m.	Bias in Toxicology: What Is Bias and Is It Always Problematic? <i>Sherri L. Kacinko, PhD</i>
4:45 p.m.	-	5:00 p.m.	Live Zoom Questions and Answers <i>Link will be provided "in session" by the chair/moderator</i>

YOUNG FORENSIC SCIENTISTS FORUM



S2 One Academy Pursuing Justice Through Truth in Evidence ... the Truth, the Whole Truth, and Nothing But the Truth

Tuesday

Open to all Meeting Registrants

February 9, 2021

9:00 a.m. – 4:15 p.m.

5.0 CE Hours

YFSF Chair:

Zain Bhaloo, MSc

Canada Border Services Agency
Ottawa, ON, CANADA

YFSF Committee Members:

Emily A. Rue, MS

Oregon State University
Corvallis, OR

Amber J. Smith, MSFS

Houston Forensic Science Center
Houston, TX

Program Chair:

Hannah Noël Simmons, BS

Raleigh, NC

Program Co-Chair:

Catherine O. Brown, MSFS

Center for Forensic Science Research & Education
Willow Grove, PA

Learning Overview: After attending this presentation, attendees will better understand forensic science, how anyone's work can result in testimony, and how the different pressures that different courts impose can impact and shape our work, and vice versa, regardless of the discipline. In addition, attendees will learn about the advantages and importance of proper resume writing and interviewing skills.

Impact on the Forensic Science Community: The Young Forensic Scientists Forum (YFSF) has historically provided a venue for those forensic scientists with less than five years of professional experience to connect with, and further integrate into, their prospective fields as well as to learn about all the other disciplines. The YFSF should provide the space and opportunity for attendees/speakers to grow, develop, network, and learn from one another. This will allow young scientists the confidence to progress in their fields and one day hopefully provide the same opportunity to future young scientists.

Program Description: This year's special session provides valuable information to young forensic scientists regarding the various disciplines within the AAFS and will serve as a forum to exchange, discuss, and cultivate new ideas. This full-day program has been put together to cover a wide range of topics and inform attendees as to how these topics relate to downstream disciplines, techniques, and individuals. The YFSF aims to show all young forensic scientists that what makes us special isn't just who we are alone, but how and what we contribute to forensics and the court system.

Every year, the American Academy of Forensic Sciences draws in thousands of globally recognized experts and professionals to present research, hold workshops, and showcase the various disciplines represented within the Academy. This special session will feature speakers from many of the AAFS sections who will discuss their work and how this work resulted in their presenting evidence in a court of law—both domestically and internationally.

Through these presentations, attendees will learn how experienced practitioners and professionals have worked to forward their disciplines and forensics as a whole and how their work culminated in presentation of evidence to a court during testimony. Through this special session, forensic experts will provide mentorship to young forensic scientists by conveying their experiences, their successes, their failures, and the lessons they learned.



YOUNG FORENSIC SCIENTISTS FORUM

S2 One Academy Pursuing Justice Through Truth in Evidence ... the Truth, the Whole Truth, and Nothing But the Truth

Speakers:

Brian S. Clark, MFS

Federal Bureau of Investigation
Chicago, IL

Vincent J. Desiderio, MS

United States Postal Inspection Service
Washington, DC

Emily D. Gottfried, PhD

Medical University of South Carolina
Charleston, SC

Mary L. Hall, MS

Houston, TX

Cheryl D. Hunter

American Academy of Forensic Sciences
Colorado Springs, CO

Laura M. Labay, PhD

NMS Labs
Horsham, PA

Nikolas P. Lemos, PhD

Lemos Toxicology Services
San Francisco, CA

Carl R. McClary, MS

Bureau of Alcohol, Tobacco, Firearms and Explosives
Atlanta, GA

Marin A. Pilloud, PhD

University of Nevada, Reno
Reno, NV

Jeri D. Roper-Miller, PhD

RTI International
Research Triangle Park, NC

Robert M. Sanger, JD

Sanger Swysen & Dunkle
Santa Barbara, CA

Tobin A. Tanaka, BS

Canada Border Services Agency
Ottawa, ON CANADA

Dirk Vastrick, BA

Dirk Vastrick Presents
Spokane Valley, WA

Duarte Nuno Vieira, MD, PhD

University of Coimbra
Coimbra, PORTUGAL

YOUNG FORENSIC SCIENTISTS FORUM



S2 One Academy Pursuing Justice Through Truth in Evidence ... the Truth, the Whole Truth, and Nothing But the Truth

Program:

9:00 a.m.	-	9:10 a.m.	Introduction to the YFSF Special Session <i>Zain Bhaloo, MSc</i>
9:10 a.m.	-	9:25 a.m.	Membership in the AAFS <i>Cheryl D. Hunter</i>
9:25 a.m.	-	9:35 a.m.	Presentation of YFSF Founders Award <i>Zain Bhaloo, MSc; Carl R. McClary, MS</i>
9:35 a.m.	-	9:50 a.m.	President's Address <i>Jeri D. Roper-Miller, PhD</i>
9:50 a.m.	-	10:10 a.m.	Forensic Science in International Investigations <i>Tobin A. Tanaka, BS</i>
10:10 a.m.	-	10:30 a.m.	Break
10:30 a.m.	-	10:50 a.m.	Strengthening Humanitarian Forensic Action in the 21st Century <i>Duarte Nuno Vieira, MD, PhD</i>
10:50 a.m.	-	11:10 a.m.	Forensic Toxicology—Uncovering the Truth in a Tube of Blood <i>Laura M. Labay, PhD</i>
11:10 a.m.	-	11:30 a.m.	Break
11:30 a.m.	-	11:50 a.m.	"The Ethical Forensic Scientist"—Nature or Nurture? <i>Nikolas P. Lemos, PhD</i>
11:50 a.m.	-	12:10 p.m.	Forensic Testimony—Do's and Don'ts <i>Robert M. Sanger, JD</i>
12:10 p.m.	-	12:30 p.m.	Trace-Related Tips for Tendering Truthful Testimony <i>Vincent J. Desiderio, MS</i>
12:30 p.m.	-	1:30 p.m.	Break
1:30 p.m.	-	1:50 p.m.	Skeletal Evidence in Forensic Anthropology <i>Marin A. Pilloud, PhD</i>
1:50 p.m.	-	2:10 p.m.	An Introduction to Forensic Behavioral Science <i>Emily D. Gottfried, PhD</i>
2:10 p.m.	-	2:30 p.m.	Obtaining Justice for Victims of a Multi-State, Multi-Jurisdictional Serial Sex Offender <i>Mary L. Hall, MS</i>
2:30 p.m.	-	2:45 p.m.	Break
2:45 p.m.	-	3:25 p.m.	How to Get Faster Reactions to Your Resume and Better Results From Your Interview <i>Dirk Vastrick, BA</i>
3:25 p.m.	-	4:10 p.m.	Resume Review Panel <i>Zain Bhaloo, MSc; Catherine O. Brown, MSFS; Hannah Noël Simmons, BS; Dirk Vastrick, BA</i>
4:10 p.m.	-	4:15 p.m.	Closing Remarks <i>Catherine O. Brown, MSFS; Hannah Noël Simmons, BS</i>



STANDARDS CONSORTIUM

SC1 The Implementation of Forensic Science Standards in an Operational Setting: Challenges and Solutions

Open to all Meeting Registrants

Tuesday

This session will include a Live Zoom Questions and Answers session.

Link will be provided "in session" by the session chair/moderator.

February 16, 2021

8:00 a.m. – 12:00 p.m.

4.0 CE Hours

Chair:

Sarah Kerrigan, PhD

Sam Houston State University
Department of Forensic Science
Huntsville, TX

Faculty:

Jason K. Graham, MD

New York City Office of Chief Medical Examiner
New York, NY

Beth Ordeman, MS

Pinellas County Forensic Laboratory
Largo, FL

Eric G. Pokorak, BS

Federal Bureau of Investigation Laboratory
Quantico, VA

Co-Chair:

John P. Jones II, MBA

National Institute of Standards and Technology
Gaithersburg, MD

Scott R. Oulton, BS

Vista, CA

Sandra E. Rodriguez-Cruz, PhD

Drug Enforcement Administration
Special Testing and Research Laboratory
Dulles, VA

Dustin Tate Yeatman, MS

Palm Beach County Sheriff's Office Crime Laboratory
West Palm Beach, FL

Learning Overview: After attending this presentation, attendees will understand the challenges and solutions associated with the implementation of forensic science standards in an operational setting and will gain increased awareness regarding specific resources that are available to facilitate their implementation efforts.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by enhancing greater public awareness of the existence of forensic science standards and positively contribute to the advancement of the profession.

The 2009 National Academy of Sciences (NAS) Report highlighted the need for the forensic science community to embrace the adoption of consensus-based standards ("... standards and best practices create a professional environment that allows organizations and professions to create quality systems, policies, and procedures and maintain autonomy from vested interest groups. Standards ensure desirable characteristics of services and techniques such as quality, reliability, efficiency, and consistency among practitioners.")¹ During the past decade, significant progress has been made in this respect. Existing Standards Developing Organizations (SDOs) and newly created SDOs have championed these efforts, in partnership with the Organization of Scientific Area Committees for Forensic Science (OSAC) of the National Institute of Standards and Technology (NIST). According to a 2020 survey of the AAFS membership, 89% of respondents were aware of standards development activities within their disciplines. Support for these activities were >80% across all sections of the Academy and >90% across all levels of membership (Student Affiliates to Retired Fellows).

Despite their development, implementation of the standards themselves can present a variety of challenges in an operational setting. Forensic science service providers operate in an unforgiving and adversarial environment where operational or technical change is not always embraced or readily achieved.

In this interdisciplinary symposium, operational laboratories share the challenges and solutions associated with standards implementation across a variety of scientific disciplines. Five recently published or updated standards from the Academy Standards Board (ASB) and American Society for Testing and Materials (ASTM) International will be used to demonstrate how operational laboratories overcame a variety of implementation challenges. Using illustrative examples in toxicology, DNA, seized drug analysis, disaster victim identification, and interdisciplinary training standards, leaders in operational laboratories will share their practical experience with standards implementation from within their organizations.

Finally, resources for laboratories who adopt (or who have already adopted) those standards will be shared using the OSAC Implementation "Toolkit." This process allows individual forensic science service providers that formally adopt consensus-based standards to be formally acknowledged, but it also enhances greater public awareness of the existence of the standards themselves and positively contributes to the advancement of the profession.

Reference(s):

1. National Research Council (NRC), Committee on Identifying the Needs of the Forensic Science Community. (2009). *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC: The National Academies Press.

FORENSIC SCIENCE EDUCATION PROGRAMS ACCREDITATION COMMISSION (FEPAC)



Accreditation of Forensic Science Academic Programs Through the FEPAC

Open to all Meeting Registrants

Friday

February 26, 2021

8:30 a.m. – 12:45 p.m.

Chair:

Dwight E. Adams, PhD
University of Central Oklahoma
Forensic Science Institute
Edmond, OK

Commissioner:

Jason L. Schroeder, MS
Harris County Institute of Forensic Science
Houston, TX

Commissioner:

A. Karl Larsen, PhD
University of Illinois, Chicago
Chicago, IL

Commissioner:

Heidi Eldridge, MS
RTI International
Research Triangle Park, NC

Commissioner:

Patrick A. Eller, MS
Metadata Forensics LLC
Richmond, VA

Commissioner:

Jeffrey K. Tomberlin, PhD
Texas A&M University
College Station, TX

Commissioner:

Sarah Seashols-Williams, PhD
Virginia Commonwealth University
Richmond, VA

Accreditation & Outreach Coordinator:

Nancy J. Jackson
American Academy of Forensic Sciences
Colorado Springs, CO

Learning Overview: Upon completion of this session, the participant should be able to understand the process of accreditation through the AAFS FEPAC mechanism and be able to participate in the process as a reviewer of academic programs. Participants from academic programs will also learn about the process of accreditation from different perspectives.

Program Description: This webinar has been developed to assist academic institutions offering undergraduate and graduate degree programs in forensic science and forensic digital evidence to prepare for the accreditation process through the FEPAC. This session will also assist future on-site evaluators (academic and practitioners) to prepare for evaluations of academic programs. Successful completion of this session will qualify participants for consideration to serve as on-site evaluators for FEPAC in the future (please note that participants must still meet other FEPAC requirements, such as membership in the AAFS and designation as either a practitioner or academician).

This training session will highlight updates to the FEPAC Standards for Accreditation and provide valuable information for both program directors and on-site evaluators.

The FEPAC is a standing committee of the AAFS with a membership that includes five educators, five forensic science practitioners, and a public member as voting members. The mission of the FEPAC is to maintain and enhance the quality of forensic science education through a formal evaluation and recognition of college-level academic programs. The primary function of the committee is to develop and maintain standards and to administer an accreditation program that recognizes and distinguishes high-quality undergraduate and graduate forensic science programs. Forty academic programs have successfully completed the accreditation process since 2003. Additional information on FEPAC can be found on the FEPAC website: <http://fepac-edu.org>.



FORENSIC SCIENCE EDUCATION PROGRAMS ACCREDITATION COMMISSION (FEPAC)

Accreditation of Forensic Science Academic Programs Through the FEPAC

Program:

8:30 a.m.	-	9:00 a.m.	Introduction and Welcoming Remarks Module 1: What to Know About FEPAC <i>Dwight E. Adams, PhD</i>
9:00 a.m.	-	9:30 a.m.	Module 2: An Overview of the FEPAC Application Process <i>Patrick A. Eller, MS</i>
9:30 a.m.	-	10:00 a.m.	Module 3: A Review of Self-Study Standards 3.0—General for all Programs <i>Jason L. Schroeder, MS</i>
10:00 a.m.	-	10:15 a.m.	Break
10:15 a.m.	-	10:45 a.m.	Module 4: A Review of Self-Study Standards 4.0—Undergraduate Programs <i>Jeffrey K. Tomberlin, PhD</i>
10:45 a.m.	-	11:15 a.m.	Module 5: A Review of Self-Study Standards 5.0—Graduate Programs <i>A. Karl Larsen, PhD</i>
11:15 a.m.	-	11:45 a.m.	Module 6: Accreditation Decisions and Categories, Appeals Process, Annual Reports, Substantive Changes, and Post-Visit Survey <i>Sarah Seashols-Williams, PhD</i>
11:45 a.m.	-	12:15 p.m.	Module 7: FEPAC On-Site Evaluator Training <i>Heidi Eldridge, MS</i>
12:15 p.m.	-	12:45 p.m.	Questions and Answers <i>FEPAC Commissioners and Accreditation Coordinator</i>

KEYNOTE ADDRESS

Open to All Meeting Registrants

Wednesday

February 17, 2021

8:00 a.m. – 9:30 a.m.



In Pursuit of Equity

Beronda L. Montgomery, PhD

**Michigan State University
East Lansing, MI**

Overview: Our evolving society is facing a number of challenges and changes—including a shifting of United States demographics toward racial and ethnic groups historically underrepresented in education and many scientific disciplines and a recent resurgence in a recognition of structural racism and other forms of discrimination. Encouraging increased access for and success of individuals from a broad range of diverse backgrounds is facilitated by evidence-based, high-impact practices that focus on building communities of support to advance organizational or institutional priorities and needed transformation. Specific approaches based on facilitating progress through structured mentoring, improving multigenerational understanding and engagement, organizational culture assessment and evaluation, and needed transformation to support the growth and success of a broad range of individuals will be highlighted.

Beronda L. Montgomery, PhD, is Michigan State University (MSU) Foundation Professor in the Departments of Biochemistry & Molecular Biology and Microbiology & Molecular Genetics. She also serves as Interim Assistant Vice President for Research & Innovation at MSU. Her research group investigates how photosynthetic organisms, including plants, adapt to changes in their environment. Her scholarship extends beyond biology and into studying mentorship, faculty development, and academic leadership to cultivate evidence-based strategies to foster equity and inclusion in academia and beyond. She studies and publishes broadly in the areas of plant biology, plant environment interactions, and mentoring/coaching and leadership development. Her central scholarly interest that spans these areas is to explore how organisms perceive, interact with, respond to, and transform their environment(s). In 2020, Dr. Montgomery was named to the Cell Press CrossTalk 100 Inspiring Black Scientists in America List and Union of Concerned Scientists Science Defender. Dr. Montgomery has been elected as a fellow of the American Academy of Microbiology in 2018 and of the American Association for the Advancement of Science in 2020. She often shares mentoring and faculty development issues, including plant biology-based lessons on mentoring, coaching, and leadership (or #LessonsFromPlants) on Twitter at @BerondaM, on her blog found at berondamontgomery.com, and in her upcoming book *Lessons From Plants* (2021, Harvard University Press).



PLENARY SESSION

Open to All Meeting Registrants

Wednesday

February 17, 2021

9:30 a.m. – 11:00 a.m.

1.5 CE Hours



Welcoming Remarks

One Academy Pursuing Justice Through Truth in Evidence

Jeri D. Roper-Miller, PhD

President

American Academy of Forensic Sciences

Research Triangle Park, NC

Plenary Session Chair:

Julie A. Howe, MBA

Saint Louis University

Franklin, Jefferson & St. Charles Medical Examiner Offices
St. Louis, MO

Plenary Session Co-Chair & Moderator:

Douglas S. Lacey, MS

BEK TEK LLC

Stafford, VA

Speakers

Lynn Garcia, JD

Texas Forensic Science Commission
Austin, TX

Richard Miles

Miles of Freedom
Dallas, TX

Christopher J. Plourd, JD

Superior Court
El Centro, CA

Overview: Foundational elements of all forensic sciences include the identification of objective data gleaned from the analysis of evidence and the subsequent presentation of findings to the trier of fact. These facets seek to further the cause of justice, whether in criminal or civil matters. However, this pursuit of justice begins well before the evidence is submitted for examination and continues after a verdict has been rendered. Furthermore, the establishment of scientific methodologies and standard forensic practices must be in-place to ensure objective analysis and interpretation of the evidence. Re-evaluation of those methodologies and practices and how they are presented to the trier of fact must be conducted to avoid misrepresentation of forensic analysis and conclusions drawn thereupon. This session is designed to hit upon these three important areas of consideration for the members of the American Academy of Forensic Sciences.

The honorable Christopher Plourd will discuss the value of forensic science standards to the American legal system. The 2009 National Academy of Sciences (NAS) report *Strengthening Forensic Science in the United States: A Path Forward* recognized that interpretation of forensic evidence was not always based upon scientific studies for validity.¹ The Report made 12 overall recommendations addressing the problems that were evident in forensic science. A number of the recommendations call for standardization, and the use of best practices and protocols. A standard development process unities all interested parties, be they scientists, lawyers or others, all of those with expertise, to achieve consensus in the adoption of a standard to achieve a common goal of improving forensic science. Standards provide a valuable resource for lawyers and judges to assess information about forensic evidence that may be at issue in a case. The information in a standard provides transparency regarding the strengths and weaknesses (or limitations) of the methodology or discipline and may make that information more assessable for bench and bar. Forensic science standards also provide greater guidance to judges and lawyers as to whether the forensic evidence should be admitted or excluded and offer information about whether testing or analysis was conducted appropriately. If proper protocols were not followed but for whatever reason exclusion is not an appropriate remedy, standards nevertheless may provide fertile ground for discrediting the witness and the evidence.

PLENARY SESSION

One Academy Pursuing Justice Through Truth in Evidence

General Counsel Lynn Garcia will discuss how the Texas Forensic Science Commission uses two core values—transparency and collaboration—to assist the Texas criminal justice system in achieving justice through accreditation, including audits; conducting investigations of laboratory self-disclosures and complaints alleging professional negligence or misconduct; and licensing forensic analysts. Judges and attorneys have a difficult time understanding scientific principles, especially when those principles are nuanced, limited or potentially subject to change. The criminal justice system’s fidelity to legal precedent and desire for finality make the appropriate consideration of scientific concepts a real challenge. There is also a pervasive and dangerous misunderstanding regarding the scope of accreditation and its role in ensuring the quality of forensic analysis. While accreditation provides a framework for quality and is essential to many forensic laboratories, it is not a panacea and does not guarantee the validity of analytical work and related interpretation. The Texas Commission provides a space outside the adversarial system for resolving the toughest of problems facing the community. By working collaboratively and encouraging transparency, the Commission has highlighted problems in forensic analysis and related interpretation that otherwise would have gone unnoticed.

Forensic science evidence has evolved in recent decades to help reform the criminal justice system. In 1994, Richard Miles was wrongfully convicted of murder and attempted murder based on eyewitness testimony at the age of 19. In addition, gunshot residue was allegedly found on Mr. Miles’ hand based on forensic analysis. Police did not consider other suspects based on these two pieces of evidence. As a result, Mr. Miles was sentenced to 40 years for the murder count and 20 years on the attempted murder charge. In 2007, Mr. Miles enlisted the help of Centurion Ministries, an organization based in New Jersey, that investigates wrongful conviction cases. In 2012, the Texas Court of Criminal Appeals overturned the conviction and found Mr. Miles innocent after spending 15 years in prison. Since that time, Mr. Miles has dedicated his life to improving the justice system. Because of his extraordinary contributions to provide holistic re-entry assistance to inmates released from prison through a non-profit that he founded called Miles of Freedom, Mr. Miles was recognized as a CNN Hero in 2019. Mr. Miles story demonstrates the impact that evidence and forensic science testimony have on individuals’ lives.

The program will conclude with a shared learning opportunity for attendees and speakers.

Reference(s):

1. National Research Council (NRC), Committee on Identifying the Needs of the Forensic Science Community. (2009). *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC: The National Academies Press.

Program:

9:30 a.m.	-	9:40 a.m.	Welcome and Opening Remarks <i>Jeri D. Roper-Miller, PhD; Julie A. Howe, MBA</i>
9:40 a.m.	-	10:05 a.m.	Forensic Science Standards Development and Use: What Is the Value to the American Legal System? <i>Christopher J. Plourd, JD</i>
10:05 a.m.	-	10:30 a.m.	The Importance of Collaboration and Transparency in Forensic Science Oversight: Lessons From Texas <i>Lynn Garcia, JD</i>
10:30 a.m.	-	10:55 a.m.	Protecting the Innocent and Science—Process Versus Procedure <i>Richard Miles</i>
10:55 a.m.	-	11:00 a.m.	Panel Discussion <i>Jeri D. Roper-Miller, PhD; Christopher J. Plourd, JD; Lynn Garcia, JD; Richard Miles</i>



CASE BREAK SESSIONS

Case Break Sessions are modified breakfast, luncheon, and evening sessions where interesting case presentations, typically of entertainment value, are made during a time when attendees can sit in on a session during what would normally be their breakfast, lunch, or dinner time while learning at the same time. These sessions are open to all meeting registrants.

CB1 Forensics Standards Development: What's New With Standards Developing Organizations (SDOs) and What is the Organization of Scientific Area Committees (OSAC) for Forensic Science's Role

Tuesday, February 16, 2021

7:00 a.m. – 8:00 a.m.

1.0 CE Hour

Karen Reczek, MLS*

National Institute of Standards and Technology
Gaithersburg, MD

Teresa Ambrosius, BS*

American Academy of Forensic Sciences Standards Board
Colorado Springs, CO

Learning Overview: After attending this presentation, attendees will have learned about the standards development process in the United States and internationally, as well as the advances in forensic standardization from United States and international SDOs, including the American Academy of Forensic Sciences (AAFS) Standards Board (ASB), the American Society for Testing and Materials (ASTM) International, the American Dental Association (ADA), the National Fire Protection Association (NFPA), the international SDO, the International Organization for Standardization (ISO), the International Organization for Standardization, and other relevant SDOs. Attendees will gain a better understanding of the progress of consensus standards development in different forensic disciplines, including fire debris, seized drugs, biology, digital evidence, toxicology, friction ridge, blood stain pattern, footwear/tire tread, crime scene investigation, and fire investigation. Attendees will learn how the OSAC for Forensic Science is working to facilitate the development and encourage forensic science service providers to implement them.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by educating forensic professionals on new and emerging standards in the various forensic disciplines as they can be implemented in the laboratory setting, incorporated into quality manuals, be applied to accreditation scopes, and can assist in further validation of methods and techniques in interlaboratory studies. The 2009 National Research Council (NRC) stressed the lack of standardization in forensics.¹ The advent of the OSAC for Forensic Science, administered by the National Institute of Standards and Technology (NIST) and the ASB, has resulted in several years of concerted efforts to identify gaps in standards and begin their development using the voluntary consensus standards development process.

In 2009, the NRC published *Strengthening Forensic Science in the United States: A Path Forward*, which summarized the challenges facing the forensics community and the lack of mandatory standardization, certification, and accreditation.¹ From this report, the Department of Justice (DOJ) and NIST signed a Memorandum of Understanding, which led to the establishment of the National Commission on Forensic Science (NCFS) and the NIST-administered OSAC for Forensic Science.

This presentation will provide an overview of the standards development processes in the United States and internationally. Informative content will include recent progress in standards development in forensic sciences. Attendees will learn about standards currently in development, soon to be published, and new standards from various SDOs, such as the ASB, the ASTM International, the ISO, the ADA, the NFPA, and other relevant SDOs. New standards include interdisciplinary topics, such as evidence collection and labeling, interpretation and reporting, and discipline-specific standards in the areas of criminalistics, digital evidence, facial recognition, photography, biology, pattern evidence, and crime and fire scene investigation, with focus on terminology, measurement uncertainty, measurement traceability, quality assurance, and calibration.

The OSAC for Forensic Science has been working closely with various SDOs to bring the community together to define requirements for the various disciplines for submission to the standards development process. The various roles in the standards development process and promotion of implementation of these standards will also be covered.

Reference(s):

- ¹ National Research Council (NRC), Committee on Identifying the Needs of the Forensic Science Community. (2009). *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC: The National Academies Press.

*Presenting Author

CASE BREAK SESSIONS

CB2 The Sarah Yarborough Homicide—The First Case Where Investigative Genetic Genealogy Was Used to Generate Forensic Intelligence in 2011

Tuesday, February 16, 2021

6:00 p.m. – 8:00 p.m.

2.0 CE Hours

Colleen M. Fitzpatrick, PhD*
Identifinders International LLC
Fountain Valley, CA

This session will include a Live Zoom Questions and Answers session. Link will be provided “in session” by the session chair/moderator.

Learning Overview: After attending this presentation, attendees will have insight into the development of investigative genetic genealogy as a means of developing investigative intelligence for cold casework. The 1991 homicide and sexual assault of Sarah Yarborough was the first known instance in which direct-to-consumer DNA test data was used to generate investigative leads for a cold case, opening the door for countless others that have since been solved using genetic genealogy. The Yarborough homicide investigation was first attempted in 2011 by comparing the Y-chromosomal Short Tandem Repeat (Y-STR) profile obtained from crime scene DNA to public Y-STR genetic genealogy databases. When the case was solved in 2019 using autosomal Single Nucleotide Polymorphism (SNP) testing GEDmatch, it was discovered that Sarah’s killer could have been identified at least 20 years earlier through the Combined DNA Index System (CODIS), but loopholes in the legal system had allowed him to avoid detection.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by proving a case study that illustrates the strengths and weaknesses of forensic genetic genealogy compared to those of conventional STR typing, conventional genealogical research, and the legal system, and how each factored into the resolution of a 30-year-old cold case in spite of the loopholes and flaws in the system.

In 2011, a match was found for the killer’s Y-STR profile to members of the Fuller Y-STR surname project who were descendants of Robert Fuller of Salem, MA, in the 1630s, a relative of the Mayflower Fullers. Suspicion fell on William Fuller, a long-time Yarborough family friend, who had been in the area at the time of the murder and whose daughter Elizabeth was Yarborough’s classmate. When William Fuller voluntarily gave a DNA sample, it was determined that he was not the killer nor was he the father of the killer. However, his Y-STR profile matched the Y-profile from crime scene DNA, indicating he was a paternal cousin of the killer, although it was not possible to estimate how closely they were related. The unusual situation developed that although the killer was still unknown, authorities knew his genealogy back to the 1600s and had even identified a cousin. Fullers living in the area were investigated, but the case went cold again.

The 2019 identification of Patrick Nicholas as a suspect using genetic genealogy autosomal SNP testing raised awareness of the limitations of CODIS and fueled debate over the role of familial searching versus genetic genealogy. Nicholas was convicted in 1983 of attempted first-degree rape in Benton County, WA, before CODIS was launched in the 1990s. In 1993, he was arrested again for first-degree child molestation. Although his DNA profile should have been entered into CODIS, he was allowed to plead to gross misdemeanor that did not require DNA collection. He escaped detection a second time. After Nicholas’ arrest, it was discovered that his brother Edward had already been entered into CODIS for a prior conviction for rape in the first degree; he was also a registered sex offender. Because Washington does not practice familial searching, Patrick Nicholas had escaped detection a third time.

Upon Nicholas’ identification using genetic genealogy, the King County Sheriff’s Office quickly secured his DNA from discarded cigarettes. His DNA was found to be a CODIS match to the DNA profile developed from the victim. Nicholas has been charged with first-degree murder with sexual motivation. He is currently pending trial in King County Superior Court, Seattle, WA.

Ironically, Sarah’s killer was named Nicholas, not Fuller. His grandfather was adopted, so that his legal surname was not his biological surname, highlighting the fact that even genetic genealogy has its loopholes.

*Presenting Author



CASE BREAK SESSIONS

CB3 Bail Reform or Bail Elimination: A Historical Perspective and Case Analysis

Wednesday, February 17, 2021

7:00 a.m. – 8:00 a.m.

1.0 CE Hour

Patricia C. Smith, MSL*

Harris County District Attorney's Office
Houston, TX

Betsy Adelizzi, PhD*

Fulshear, TX

Learning Overview: The goal of this presentation is to create an open and honest dialogue about the criminal justice system and those taxed with the responsibility of ensuring a fair and just system through inclusion, diversity, and with public safety in mind.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by reminding all attendees of their role in making positive and effective changes to the criminal justice system by focusing on inclusion, public safety, and fairness to all parties through collaborative research and practice with multiple disciplines.

The bail system has been around for hundreds of years. Criminal justice was a "largely private, often brutal affair. Family members were expected to avenge their murdered kin. Any private citizen could kill an offender sentenced to 'outlawry.' Anyone caught in the act of committing a crime could be summarily executed."¹ Gradually, personal blood feuds were exchanged for financial compensation to the victims by the offenders. There was a transition to a court-controlled justice system where ensuring appearances became a priority.

The offenders were tasked with finding another person to serve as a surety for the accused crime. However, the Industrial Revolution brought about more movement. Sureties were often family members or friends of the accused. Increased travel made locating sureties more challenging and created an incentive to flee the jurisdiction during trial or prior to verdict. In 1898, England passed the Bail Act to replace the previously required personal surety.² England proposed the Bail Act would be a more effective method of ensuring court appearances and curtail recidivism.

The United States did not initially enact bail legislation, but instead produced the first commercial bondsmen. Bail bonds became a lucrative business and quickly sparked interest across the country. Many courts were requiring bail to be paid in full as a condition of release.² Offenders reached out to bondsmen who paid the bail in exchange for interest and full repayment. The courts continued to increase the use of cash bail; more people became reliant on bondsmen. This quickly became more about money and less about ensuring appearances at future court dates.

The American Criminal Justice System, under the guidance of the Eighth Amendment Bail Clause, continues to evolve its bail system by adding different types of bonds.³ The most common bonds are Surety Bonds, Personal Bonds, and Cash Bonds. Additionally, there are Cash percentage of Bonds and General Order Bonds. Most states utilize at least one of the previously mentioned bonds.

Surety Bond is a promise by a bail bond company/agent to pay one party a certain amount if the second party fails to meet the obligation(s); the surety bond protects the obligee against losses resulting from the Defendant's failure to appear and typically requires a non-refundable fee (usually 10%).⁴

Personal Bond (Own Recognizance) is no money down and the party must agree to appear at future court dates. Personal Bonds are typically used for minor offenses and offenses where there is little to no threat to the public. General Order Bond is treated the same. Cash bonds are paid in their entirety. Cash bonds are where payment of the entire amount of the bond is given to the court clerk. The money can be returned at the end of the case if the Defendant does not violate his bail agreement.

Cash percentage of Bond is like cash bond, but only 10% of the bond is given to the court clerk. Money will be returned after disposition/end of case/trial unless the person violates his/her bond conditions. Should the Defendant violate the bail agreement, the state can seize property that will cover the entire amount.⁵

The individual states have evolved to the point of modifying, if not, arguably, eliminating their state's bail system based on politics and capitalism. This presentation will review California's, Texas', South Carolina's, and New York's previous bail system, including comparing their current changes. This presentation will discuss specific Harris County, TX, cases and engage attendees through polling.

Reference(s):

1. Seibler, John-Michael and Jason Snead. The History of Cash Bail. *The Heritage Foundation*, August 25, 2017. <https://heritage.org>.
2. Jackson, Angel. The Evolution of Money Bail Throughout History. *W. Haywood Burns Institute*, April 18, 2016. <https://burnsinstitute.org>.
3. United States Constitution, Article VIII.
4. McCullough, Jolie. Harris County Agreed to Reform Bail Practices That Keep Poor People in Jail. Will it Influence Other Texas Counties? *Texas Tribune*, July 31, 2019. <https://www.texastribune.org>.
5. Morrell, Jane. *4 Types of Bail Bonds in Rock Hill, South Carolina*. Accessed May 28, 2020. <https://www.mlblaw.com/blog/types-bail-bonds/>.

*Presenting Author

CASE BREAK SESSIONS

CB4 Lessons Learned: The Exoneration of Robert Earl DuBoise

Thursday, February 18, 2021

12:00 p.m. – 1:00 p.m.

1.0 CE Hour

Susan Friedman, JD*

Innocence Project
New York, NY

Teresa Hall, JD*

Hillsborough County State Attorney's Office
Tampa, FL

Adam J. Freeman, DDS*

Westport, CT

Nancy Dinh, MS*

Forensic Analytical Crime Lab
Hayward, CA

Learning Overview: The goals of this presentation are to help attendees: (1) understand the factors that lead to wrongful conviction; and (2) understand how, through a collaborative process, the prosecution, defense, and forensic experts can search for the truth.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by highlighting the numerous factors that led to the wrongful conviction and death sentence of a young man for a rape and murder he did not commit. Attendees will hear about how bitemark evidence triggered Robert's wrongful arrest and the impact of that conclusion on the rest of law enforcement's investigation, the role of the prosecution, defense, and forensic experts in the search for the truth, and what has happened in the aftermath of the exoneration.

In the early morning hours of August 19, 1983, a young woman's body was found behind a dentist's office in Tampa, FL. The victim was covered in blood and had a severely beaten face and jaw. The scene also indicated that the woman had been a victim of an actual or attempted sexual assault: she was lying on her back, nude except for a tube top that had been pulled over her chest, exposing her breasts.

The Hillsborough County Medical Examiner (ME) conducted an autopsy and the cause of death was determined to be massive blunt force trauma to the head. During the autopsy, the ME noticed what he believed to be a bitemark on her left cheek. A dentist on contract with the ME's office also examined the injury on the victim's face and concluded it was a human bitemark. Lastly, the ME collected a rape kit.

Detectives interviewed a number of witnesses, but none offered a solid lead. With no eyewitnesses to the crime, police quickly focused on obtaining dentitions from individuals. Robert was among those who provided an impression. A board-certified forensic odontologist examined the alleged bitemark and the impressions and concluded that Robert's teeth caused the mark. No other physical evidence connected Robert to the crime.

With its entire case resting on bitemark evidence, as the case headed to trial, the State utilized a jailhouse informant to build its case. Ultimately, Robert was convicted of murder and attempted sexual assault. The jury recommended a life sentence, but the judge overrode the jury's recommendation and sentenced Robert to death. The Florida Supreme Court subsequently vacated the death sentence.

Robert filed a motion for post-conviction DNA testing in 2006, but after a hearing, he was notified that the vast majority of the evidence in his case was destroyed in 1990—just five years after his conviction. In 2018, the Innocence Project began investigating Robert's case. Among the concerns was the use of bitemark evidence. In 2019, the Innocence Project contacted the Conviction Review Unit at the State Attorney's Office. Together, they engaged in a collaborative process in a search for the truth. As part of this process, they had the bitemark evidence and testimony reexamined, and an independent examination by a forensic odontologist concluded that the mark on the victim's face lacked sufficient detail and that there is no scientific support that odontologists could reliably diagnose a bitemark. Moreover, the methodology used in the evidence collection, analysis, and comparison demonstrated bias and was not in keeping within techniques of the time. Additionally, despite claims that the rape kit was destroyed, slides created during the victim's autopsy were found—critically, semen was identified on the victim's vaginal smear slide, Robert was excluded, and there was a presumptive hit in the Combined DNA Index System (CODIS).

On September 14, 2020, Robert's conviction was vacated. The judge found that the newly discovered DNA evidence and the newly discovered evidence about the bitemark evidence each entitled Robert to relief and concluded that Robert was innocent.

*Presenting Author



CASE BREAK SESSIONS

CB5 The ABCs of TLC

Friday, February 19, 2021

12:00 p.m. – 1:00 p.m.

1.0 CE Hour

Irina Geiman, MS*

United States Secret Service
Criminal Investigative Division
Washington, DC

Julia M. Barker, MSFS*

United States Secret Service
Criminal Investigative Division
Washington, DC

This session will include a Live Zoom Questions and Answers session. Link will be provided “in session” by the session chair/moderator.

Learning Overview: After attending this presentation, attendees will understand the basic scientific methodology for the forensic analysis of inks using Thin-Layer Chromatography (TLC). Attendees will have an opportunity to observe and learn analytical steps taken prior to and during the chemical examination of writing inks and printing inks typically found on questioned documents.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by demonstrating the importance of robust ink analysis and the limitations and interferences commonly encountered in such analysis. This presentation will provide a brief overview of microscopic and alternate-light source examinations, but will focus on TLC techniques utilized in the comparison and discrimination of inks. This presentation is intended as an introduction to ink analysis and will not address many of the scenarios and limitations commonly encountered in forensic casework.

Analysis of writing inks and printing inks typically involves comparison of inks to a potential source, such as an ink cartridge, to each other, or to a collection of standards. It is a multi-step process, which begins with a non-destructive physical examination before progressing to destructive chemical analyses necessitating sample removal. While the examination may be halted at any step of the process, it is important to consider the level of discrimination that may be achieved if additional analytical methods were to be employed. For example, TLC often does not differentiate pigmented inks; therefore, a technique such as Raman spectroscopy may be considered.

Ink examination also requires a well-developed understanding of limitations of the employed analytical techniques. Even basic light microscopy used to determine writing instrument type may provide inconclusive results when examining “hybrid” inks. The complexity of interfering factors increases with each subsequent analytical step. For example, during TLC analysis, Ultraviolet (UV) components of the substrate may interfere with UV components of the ink, creating overlapping bands on the TLC plate.

Attendees will also learn about several well-established methods available for dating of inks. While ink dating may provide valuable information, it presents a host of issues, such as availability of reference materials and storage conditions, that may affect document aging. This presentation will address some of the overarching concerns that should be evaluated when considering ink dating analysis.

During this presentation, attendees will have an opportunity to observe the non-destructive physical and optical examinations conducted prior to the destructive TLC analysis. Attendees will observe commonly encountered interferences, such as sample size limitations, substrate fluorescence and staining, and TLC plate effects. This presentation is intended to provide baseline knowledge of the scientific methodology used in the forensic examination of inks and will assist examiners in determining when chemical analyses would be beneficial for sample discrimination.

*Presenting Author

WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W1 A Complete Introduction to Digitally Captured Signatures (DCS) and a Tutorial for Namirial's Firma Certa Forensic Analysis Tool

Monday

February 15, 2021

8:00 a.m. – 12:00 p.m.

3.75 CE Hours

Learning Overview: The goals of this workshop are to introduce attendees to the new era of DCS, present the legal aspects of the new “digital” documents in reference to traditional pen and paper products, and familiarize attendees with the intricacies of handling such products, both from the hardware and the software aspect. Attendees will acquire the basic knowledge of DCS data and its correspondence to traditional pen and paper signatures and will gain experience using a DCS forensic analysis tool.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by helping attendees understand and familiarize themselves with DCS as a medium. Attendees will know what to look for in a case, how to analyze the DCS, and how to use this highly advanced forensic tool.

Chair:
Samiah Ibrahim, BSc
 Ottawa, ON, CANADA

Co-Chair:
Timothy Campbell, BSc
 Canada Border Services Agency
 Ottawa, ON, CANADA

Faculty:
Niko Kalantzis, MSc
 Charotularios PC
 Piraeus, Attiki, GREECE

Targeted Audience: Questioned Documents

Knowledge Level Required: Basic (little to no knowledge of subject presented)

Expected Handout Length: 42 pages

Participants will need to download and install software prior to the start of the workshop.

Program Description: This presentation will provide attendees with a complete introduction to DCS and a tutorial of the Firma Certa Forensic analysis tool by Namirial.

Program:

8:00 a.m. - 9:50 a.m.	Introduction to DCS <i>Niko Kalantzis, MSc</i>
9:50 a.m. - 10:00 a.m.	Break
10:00 a.m. - 11:30 a.m.	Introduction to the Use of Firma Certa Forensic Analysis Software <i>Niko Kalantzis, MSc</i>
11:30 a.m. - 12:00 p.m.	Live Zoom Questions and Answers <i>Link will be provided “in session” by the workshop chair/moderator</i> <i>Niko Kalantzis, MSc</i>



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W2 Interpreting and Communicating DNA Evidence in a Probabilistic Genotyping Universe

Monday

February 15, 2021

8:00 a.m. – 12:00 p.m.

3.75 CE Hours

Learning Overview: After attending this presentation, attendees will better understand the Likelihood Ratio (LR) and the limits of probabilistic genotyping and will gain tools to help explain the results of such analyses to stakeholders. The concepts to be discussed are applicable to probabilistic genotyping software in general and fundamentals of genetics and statistics. In addition, concepts of adventitious hits, false positives, and false negatives will be addressed. The relationship between a numerical result and the reliability of DNA evidence will be discussed. The appropriateness and limitations of a Bayesian framework for DNA evidence will be considered.

Impact on the Forensic Science Community: This presentation will impact the forensic science community through: (1) attendees gaining a better appreciation for the benefits and limitations of probabilistic genotyping; (2) attendees gaining an understanding of the role of proposition setting; and (3) attendees gaining experience on ways to communicate findings to other scientists, investigators, and the judicial system.

Chair:

Michael D. Coble, PhD

University of North Texas Health Science Center
Fort Worth, TX

Co-Chair:

Patrick Buzzini, PhD

Sam Houston State University
Huntsville, TX

Faculty:

Bruce Budowle, PhD

University of North Texas Health Science Center
Center for Human Identification
Fort Worth, TX

Tim Kalafut, PhD

Sam Houston State University
Department Forensic Science
Huntsville, TX

Targeted Audience: Criminalistics, Jurisprudence

Knowledge Level Required: Intermediate (some knowledge of subject presented)

Expected Handout Length: 100 pages

Program Description: The overall and the components of the LR and Probabilistic Genotyping software and how the LR is used in a Bayesian framework will be explained fundamentally and with examples.

WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W2 Interpreting and Communicating DNA Evidence in a Probabilistic Genotyping Universe

Program:

8:00 a.m.	-	8:05 a.m.	Welcome and Introduction <i>Michael D. Coble, PhD</i>
8:05 a.m.	-	8:40 a.m.	Probabilistic Genotyping, the LR, and Bayes' Theorem <i>Michael D. Coble, PhD</i>
8:40 a.m.	-	9:20 a.m.	Adventitious vs. False Inclusions, LR Magnitudes, and What They Mean <i>Timothy S. Kalafut, PhD</i>
9:20 a.m.	-	9:30 a.m.	Break
9:30 a.m.	-	10:05 a.m.	Setting Propositions <i>Timothy S. Kalafut, PhD</i>
10:05 a.m.	-	10:45 a.m.	Black Box or Expert-Software Pair? <i>Bruce Budowle, PhD</i>
10:45 a.m.	-	11:00 a.m.	Decision Theory <i>Patrick Buzzini, PhD</i>
11:00 a.m.	-	12:00 p.m.	Live Zoom Questions, Answers, and Conclusions <i>Link will be provided "in session" by the workshop chair/moderator</i> <i>Timothy S. Kalafut, PhD; Michael D. Coble, PhD; Patrick Buzzini, PhD;</i> <i>Bruce Budowle, PhD</i>



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W3 Scientific Working Group on Digital Evidence (SWGDE) and Digital Evidence: The Look of Modern Criminal Investigations

Monday

February 15, 2021

8:00 a.m. – 12:00 p.m.

3.75 CE Hours

Learning Overview: The goal of this presentation is to provide attendees with an overall view of the various types of digital forensic examinations and technical work being performed by members of SWGDE that can be applied in the attendees' day-to-day work.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by increasing awareness among the general population of forensic scientists of the work in digital forensics and by making digital forensic practitioners aware of the useful resources, guidance, and best practices available from SWGDE.

Chair:

Mary F. Horvath, MFS
Fort Myers, FL

Co-Chair:

Brandon Epstein, BS
Middlesex County Prosecutor's Office
New Brunswick, NJ

Faculty:

James Darnell, BS
United States Secret Service
University of Tulsa, Fisher Hall
Tulsa, OK

James R. Lyle, PhD
National Institute of Standards and Technology
Gaithersburg, MD

Matthew Domanic, BA
VTO, Inc
Broomfield, CO

Bertram Lyons, MA
Medex Forensics
Brooklyn, NY

Virginia Franqueira, PhD
University of Kent
School of Computing
Canterbury, UNITED KINGDOM

Patricia Mullaney, BS
Virginia Department of Forensic Science
Richmond, VA

Catalin Grigoras, PhD
National Center for Media Forensics
University of Colorado Denver
Denver, CO

Nicole R. Odom, MSFS
Virginia Department of Forensic Science—Central
Richmond, VA

Barbara Guttman, BA
National Institute of Standards and Technology
Gaithersburg, MD

Joseph Remy, JD
Burlington County Prosecutor's Office
Mount Holly, NJ

Graeme Horsman
Teesside University
Middlesbrough, UNITED KINGDOM

Steven B. Watson, BA
VTO, Inc
Broomfield, CO

James Howe, BA
Columbus Division of Police
Columbus, OH

Cole Whitecotton, MSc
National Center for Media Forensics
University of Colorado Denver
Denver, CO

WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W3 Scientific Working Group on Digital Evidence (SWGDE) and Digital Evidence: The Look of Modern Criminal Investigations

Targeted Audience: Digital & Multimedia Sciences, General, Jurisprudence

Knowledge Level Required: Intermediate (some knowledge of subject presented)

Expected Handout Length: 60 pages

Program Description: This presentation will provide an overview of topical and fundamental work taking place in multiple digital forensic technical areas, including social media, geolocation, audio, video, cloud acquisitions, and software validation, by members of SWGDE.

Program:

8:00 a.m. - 8:15 a.m.	SWGDE Introduction and Update <i>Mary F. Horvath, MFS; Brandon Epstein, BS</i>
8:15 a.m. - 8:40 a.m.	Demonstrating Confidence in the Reliability of Digital Forensic Tools <i>Barbara Guttman, BA; James R. Lyle, PhD</i>
8:40 a.m. - 9:05 a.m.	Validating Software Results: An Example of Why It Is Necessary and How to Mitigate a Problem <i>James Darnell, BS; Steven B. Watson, BA</i>
9:05 a.m. - 9:30 a.m.	The Use of Structured Argumentation to Support Conclusions: A Video Authentication Case Study <i>Patricia Mullaney, BS; Virginia Franqueira, BS; Graeme Horsman; Joseph Remy, BS</i>
9:30 a.m. - 9:50 a.m.	Break
9:50 a.m. - 10:15 a.m.	Advances on Microphone Attribution in Audio Forensics <i>Catalin Grigoras, PhD; Cole Whitecotton, MSc</i>
10:15 a.m. - 10:40 a.m.	Teardown Methods of Internet of Things (IoT) Devices <i>Nicole R. Odom, MSFS; Matthew Domanic, BA</i>
10:40 a.m. - 11:05 a.m.	Video Acquisition From Social Media and the Cloud <i>Brandon Epstein, BS; Bertram Lyons, BS</i>
11:05 a.m. - 11:30 a.m.	Using Google® Location Data for Investigative Purposes <i>James Howe, BS; Mary F. Horvath, MFS</i>
11:30 a.m. - 12:00 p.m.	Closing Remarks and Questions <i>Mary F. Horvath, MFS; Brandon Epstein, BS</i>



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W4 The Impact of the COVID-19 Pandemic on Forensic Sciences With a Focus on Opioids and Emerging Drugs

Monday

February 15, 2021

8:00 a.m. – 12:00 p.m.

3.75 CE Hours

Learning Overview: After attending this presentation, attendees will have a better understanding of: (1) the challenges that have resulted from the COVID-19 pandemic in the management of patients with Opioid Use Disorder (OUD); (2) the measures that institutions and providers have taken to address those challenges; (3) how toxicology and seized drug analysis have been impacted and how they have adjusted to meet unprecedented demands and challenges; and (4) how a COVID-19-impacted court system struggles to maintain the balance of justice and procedural law in the midst of interrupted and shut down of court services.

Impact on the Forensic Science Community: This workshop will impact the forensic science community by offering a multidisciplinary perspective on the impact of the COVID-19 pandemic and its effects on opioid use and emerging drugs in the United States.

Chair:

Agnes D. Winokur, MS

Drug Enforcement Administration/Southeast Laboratory
Miami, FL

Co-Chair:

Michael F. Rieders, PhD

NMS Labs
Horsham, PA

Faculty:

Brian J. Holoyda, MD

Martinez Detention Facility
Martinez, CA

Victor W. Weedn, MD, JD

The George Washington University
Washington, DC

Barry K. Logan, PhD

NMS Labs
Horsham, PA

Erin M. Worrell, BSc

Denver Office Medical Examiner
Denver, CO

M.J. Menendez, JD

NMS Labs
Horsham, PA

Mary E. Zaney, BS

Miami-Dade Medical Examiner
Miami, FL

Carl J. Schmidt, MD

Wayne County Medical Examiners Office
University of Michigan
Detroit, MI

Targeted Audience: Criminalistics, General, Jurisprudence, Pathology/Biology, Psychiatry & Behavioral Sciences, Toxicology

Knowledge Level Required: Intermediate (some knowledge of subject presented)

Expected Handout Length: 60 pages

Program Description: The forensic sciences are a critical support service for the criminal justice system in the United States. The COVID-19 pandemic of 2020 impacted the criminal justice system in many extraordinary ways, and this has had a secondary impact on the practice of, and demands on, forensic science. This presentation explores some of the societal impacts that have affected forensic practitioners, forensic science service providers, the court system, and the management and response to overdoses and related deaths, with a focus on those associated with opioids and emerging drugs.

WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W4 The Impact of the COVID-19 Pandemic on Forensic Sciences With a Focus on Opioids and Emerging Drugs

Program:

8:00 a.m.	-	8:10 a.m.	Opening Remarks and Introduction <i>Michael F. Rieders, PhD; Agnes D. Winokur, MS</i>
8:10 a.m.	-	8:40 a.m.	The Effect of COVID-19 on the Management of Patients With Opioid Use Disorder <i>Brian J. Holoyda, MD</i>
8:40 a.m.	-	9:10 a.m.	Death Investigation as a MLDI in the COVID-19 Pandemic <i>Erin M. Worrell, BSc</i>
9:10 a.m.	-	9:40 a.m.	Demographics of COVID-19 Positive Decedents in Miami-Dade County Medical Examiner Cases <i>Mary E. Zaney, BS</i>
9:40 a.m.	-	9:55 a.m.	Break
9:55 a.m.	-	10:25 a.m.	COVID-19 Impacts on Death Rates for Overdoses, Accidents, Homicides, and Suicides <i>Carl J. Schmidt, MD</i>
10:25 a.m.	-	10:55 a.m.	Impacts of COVID-19 on Drug Positivity and Operations in Forensic Chemistry and Toxicology <i>Barry K. Logan, PhD</i>
10:55 a.m.	-	11:25 a.m.	The Impact of COVID-19 on the Criminal Justice System <i>M.J. Menendez, JD</i>
11:25 a.m.	-	11:35 a.m.	American Academy of Forensic Sciences (AAFS) Opioids and Emerging Drugs Ad Hoc Committee Planks <i>Victor W. Weedn, MD, JD</i>
11:35 a.m.	-	12:00 p.m.	Live Zoom Questions and Answers <i>Link will be provided "in session" by the workshop chair/moderator</i>



WORKSHOPS

Registration Fee: \$100 through Jan. 18; \$150 effective Jan. 19

W5 Forensic Genetic Genealogy (FGG): Practical Aspects of Implementation for Law Enforcement and Criminalists

Monday

February 15, 2021

8:00 a.m. – 5:00 p.m.

7.5 CE Hours

Learning Overview: After attending this workshop, attendees will have foundational understanding and experiential knowledge of FGG, also known as Investigative Genetic Genealogy (IGG). Unlike other workshops on the subject, this workshop will provide insight into end-to-end practical decision-making that law enforcement and criminalists face from before a sample enters the FGG pipeline through the final genealogical identification process. Topics covered will include: (1) the organization of an FGG unit, including the development of Memorandums of Understanding (MOUs) and criteria for case selection; (2) Single Nucleotide Polymorphism (SNP) data generation technologies and how the choice of which technology to use is influenced by the quality and quantity of the DNA sample available; (3) the impact that quality and quantity have on workflow decision-making and data-driven checkpoints; (4) a live training session using genealogy tools with sample data; and (5) a template for studies that are critical to the development of standard operating procedures and interpretation guidelines. As part of the training session, this workshop will provide insight into how to evaluate data and interpret results and will familiarize attendees with the features, capabilities, and limitations associated with databases such as GEDmatch, as well as look at what new or advanced tools are on the horizon.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing experienced insight and guidance on the implementation of forensic genetic genealogy for criminal investigations. Practical recommendations will be presented on the construction of an end-to-end FGG workflow, along with suggestions on how it may eventually be incorporated into a well-established Combined DNA Index System (CODIS) pipeline.

Chair:

Colleen M. Fitzpatrick, PhD
Identifinders International LLC
Fountain Valley, CA

Co-Chair:

Kevin C. Kellogg, MS
Santa Clara County Crime Lab
San Jose, CA

Faculty:

Kirk Campbell, BS
Sacramento District Attorney's Office
Sacramento, CA

Jeanette M. Wallin, MPH
Department of Justice
Richmond, CA

Cydne L. Holt, PhD
Verogen
San Diego, CA

Targeted Audience: Criminalistics, General, Jurisprudence

Knowledge Level Required: Basic (little to no knowledge of subject presented)

Expected Handout Length: 200 pages

WORKSHOPS

Registration Fee: \$100 through Jan. 18; \$150 effective Jan. 19

W5 Forensic Genetic Genealogy (FGG): Practical Aspects of Implementation for Law Enforcement and Criminalists

Program Description: This workshop draws together a multidisciplinary panel of law enforcement personnel, genealogists, and criminalistics experts who deconstruct the implementation of an FGG, also known as an IGG, pipeline and provides attendees with a blueprint for how they can operationalize an end-to-end FGG workflow to generate investigative leads and conduct confirmatory testing. Although FGG has provided closure for more than 200 cold and contemporary cases, law enforcement agencies, the legal community, and criminalistics labs still have questions about the incorporation of kinship SNP analyses and genetic genealogy databases within an infrastructure of well-established forensic Short Tandem Repeat (STR) analyses and databases, such as CODIS. Forensic typing methods such as Capillary Electrophoresis (CE) and Next Generation Sequencing (NGS) are well defined; whether a sample is eligible for CODIS upload is made based on protocol. With the advent of FGG, however, the decision-making process is more complex. The technology required to generate a genetic genealogy SNP profile, whether by whole genome sequencing, microarray, or targeted NGS, is currently in the hands of private labs, not-for-profit labs, and genetic genealogy companies. Decisions on whether a sample could or should be used for IGG analysis are based on emerging sample quantity and quality guidelines, such as those stated in the Department Of Justice (DOJ) Interim Policy on Forensic Genetic Genealogy, that are not always understood by law enforcement and legal authorities, even with input from those labs and companies. The goal of this workshop is to provide law enforcement and criminalists alike a deeper insight and practical know-how to enable the most responsible access and use of this game-changing technology for the most effective generation of investigative intelligence.

Program:

8:00 a.m.	-	8:05 a.m.	Welcome and Introductions—Morning Speakers <i>Colleen M. Fitzpatrick, PhD</i>
8:05 a.m.	-	9:35 a.m.	The Organization of an IGG Unit <i>Kirk Campbell, BS</i>
9:35 a.m.	-	9:50 a.m.	Break
9:50 a.m.	-	11:20 a.m.	Data Driven Decisions for the Effective Generation of Forensic Genetic Genealogy Intelligence <i>Cydne L. Holt, PhD; Jeanette M. Wallin, MPH</i>
11:20 a.m.	-	12:00 p.m.	Questions and Answers <i>Colleen M. Fitzpatrick, PhD; Kevin C. Kellogg, MS; Cydne L. Holt, PhD; Jeanette M. Wallin, MPH; Kirk Campbell, BS</i>
12:00 p.m.	-	1:00 p.m.	Break
1:00 p.m.	-	1:05 p.m.	Introductions—Afternoon Speakers <i>Colleen M. Fitzpatrick, PhD</i>
1:05 p.m.	-	2:35 p.m.	Forensic Genetic Genealogy Tools, Data Evaluation, and Interpretation <i>Colleen M. Fitzpatrick, PhD</i>
2:35 p.m.	-	2:50 p.m.	Break
2:50 p.m.	-	4:20 p.m.	The Implementation of an End-to-End FGG Workflow in an Operational Setting <i>Kevin C. Kellogg, MS; Cydne L. Holt, PhD</i>
4:20 p.m.	-	5:00 p.m.	Live Zoom Questions, Answers, and Wrap Up Link will be provided “in session” by the workshop chair/moderator <i>Colleen M. Fitzpatrick, PhD; Kevin C. Kellogg, MS; Kirk Campbell, BS; Cydne L. Holt, PhD; Jeanette M. Wallin, MPH</i>



WORKSHOPS

Registration Fee: \$100 through Jan. 18; \$150 effective Jan. 19

W6 Tuning in to the Barking Dog: Actionable Surveillance in an Evolving Chemical Threat Landscape

Monday

February 15, 2021

8:00 a.m. – 5:00 p.m.

7.5 CE Hours

Learning Overview: After attending this workshop, attendees will better understand how current challenges for toxicological screening in death investigation cases extend to combating the proliferation and use of unregulated chemicals as weapons and where practicing toxicologists can help contribute to an effective national surveillance network through proactive recognition of emerging chemical threats.

Impact on the Forensic Science Community: This workshop will impact the forensic science community by: (1) providing technical competence on threat agnostic approaches to recognizing and preventing or mitigating evolving chemical threats; and (2) putting this new competence into action through facilitated discussions and exercises to establish a framework for proactive information sharing and surveillance.

Chair:

Kabrena E. Rodda, PhD

Pacific Northwest National Laboratory
Richland, WA

Co-Chair:

Jeri D. Roper-Miller, PhD

RTI International
Research Triangle Park, NC

Faculty:

Marc-Michael Blum, PhD

Blum-Scientific
Berlin, GERMANY

Simon Elliott, PhD

Elliott Forensic Consulting
Birmingham, UNITED KINGDOM

Gregory Ciottonne, MD

Beth Israel Deaconess Medical Center, Harvard
Boston, MA

Jonathan Forman, PhD

Pacific Northwest National Laboratory
Seattle, WA

Michael Court, MD

Beth Israel Deaconess Medical Center, Harvard
Boston, MA

Kristin Jarman, PhD

Pacific Northwest National Laboratory
Richland, WA

Josh Dettman, PhD

Massachusetts Institute of Technology Lincoln Laboratory
Lexington, MA

Targeted Audience: Criminalistics, General, Pathology/Biology, Toxicology

Knowledge Level Required: Intermediate (some knowledge of subject presented)

Expected Handout Length: 150 pages

WORKSHOPS

Registration Fee: \$100 through Jan. 18; \$150 effective Jan. 19

W6 Tuning in to the Barking Dog: Actionable Surveillance in an Evolving Chemical Threat Landscape

Program Description: Since the emergence in the United States of New Psychoactive Substances (NPS) in late 2007, the United States and international forensic toxicology communities have grown increasingly savvy at recognizing this continually evolving threat. Unfortunately, as toxicological screening capabilities have advanced, so have those of enterprising chemists and businessmen and women in evading attempts at NPS regulation. Further, the widespread availability of both the starting materials and instructional materials have expanded the public health threat to an issue of prominent global security concern. In this engaging and interactive workshop, the speakers will provide a comprehensive overview of the problem set and invite attendees to support a nationwide surveillance network to help United States decision makers actionably recognize, mitigate, and/or potentially source evolving chemical threats stemming from the global NPS trade.

Program:

8:00 a.m.	-	8:45 a.m.	A Census of Medicolegal Death Investigation in the United States: A Need to Determine the State of the Nation's Toxicology Laboratories and Their Preparedness in the Current Drug Overdose Epidemic <i>Jeri D. Roper-Miller, PhD</i>
8:45 a.m.	-	9:30 a.m.	The NPS Challenge in the United Kingdom: 15 Years of Experience <i>Simon Elliott, PhD</i>
9:30 a.m.	-	9:35 a.m.	Break
9:35 a.m.	-	10:20 a.m.	Combatting NPS in the United States: Why Is the Dog Still Barking? <i>Kabrena E. Rodda, PhD</i>
10:20 a.m.	-	11:05 a.m.	Toxicological Tools in International Response to the Use of Chemical Weapons <i>Marc-Michael Blum, PhD</i>
11:05 a.m.	-	11:50 a.m.	Facilitated Discussion: Trends in Challenges and Best Practices in Approach <i>Kabrena E. Rodda, PhD; Jonathan Forman, PhD</i>
11:50 a.m.	-	12:50 p.m.	Break
12:50 p.m.	-	1:35 p.m.	Decoding the Dog's Bark: Technology, Policy, and the Surveillance of Emerging Threats <i>Jonathan Forman, PhD</i>
1:35 p.m.	-	2:20 p.m.	Untargeted Chemical Identification With Mass Spectrometry <i>Kristin Jarman, PhD</i>
2:20 p.m.	-	2:25 p.m.	Break
2:25 p.m.	-	3:10 p.m.	Composite Machine Learning Algorithms for Material Sourcing <i>Josh Dettman, PhD</i>
3:10 p.m.	-	3:55 p.m.	Counter-Terrorism Medicine: Creating a Medical Initiative Mandated by Escalating Asymmetric Attacks <i>Gregory Ciottone, MD; Michael Court, MD</i>
3:55 p.m.	-	4:30 p.m.	A Facilitated Discussion: Identify Missing Stakeholders, Starting Points, and Schedule Next Steps <i>Kabrena E. Rodda, PhD; Jonathan Forman, PhD</i>
4:30 p.m.	-	5:00 p.m.	Live Zoom Questions and Answers Link will be provided "in session" by the workshop chair/moderator



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W7 Applications, Implementation, and the Future of Direct Analysis in Real-Time Mass Spectrometry (DART®-MS) in Forensic Laboratories

Monday

February 15, 2021

1:00 p.m. – 5:00 p.m.

3.5 CE Hours

Learning Overview: The goals of this presentation are to inform attendees of: (1) the fundamentals of how DART®-MS operates; (2) the current applications of DART®-MS in forensic laboratories; (3) what the practical considerations for implementation of DART®-MS are, including site planning, validation, testifying, and designing a workflow; (4) resources available to assist in the implementation process; and (5) the current state of research in the field of DART®-MS.

Impact on the Forensic Science Community: This workshop will impact the forensic science community by providing practitioners, laboratory managers, and legal personnel with the necessary information to understand the strengths, weaknesses, and capabilities of ambient mass spectrometry systems, specifically DART®-MS. This information is crucial for the laboratories that currently use the technology and for laboratories that are considering implementation of this technology.

Chair:

Edward Sisco, PhD

National Institute of Standards and Technology
Gaithersburg, MD

Co-Chair:

Luther S. Schaeffer, MSFS

Office of Investigative and Forensic Sciences
National Institute of Justice
Office of Justice Programs
Washington, DC

Faculty:

Amber Burns, MS

Maryland State Police Forensic Sciences Division
Pikesville, MD

Arun S. Moorthy, PhD

National Institute of Standards and Technology
Gaithersburg, MD

Robert B. Cody, PhD

JEOL USA, Inc
Peabody, MA

Erin Shonsey, PhD

Alabama Department of Forensic Sciences
Hoover, AL

Juli A. Cruciotti, MA

Virginia Department of Forensic Science
Manassas, VA

Targeted Audience: Criminalistics, General, Jurisprudence, Toxicology

Knowledge Level Required: Basic (little to no knowledge of subject presented)

Expected Handout Length: 200 pages

WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W7 Applications, Implementation, and the Future of Direct Analysis in Real-Time Mass Spectrometry (DART®-MS) in Forensic Laboratories

Program Description: As analytical instrumentation advances, forensic laboratories are constantly looking to implement new techniques that can provide faster, more sensitive, and more information-rich analyses. However, when laboratories decide to move forward with implementation of these techniques, it can be difficult to rapidly and fully integrate them into casework due to a lack of training, funding, and time.

One emerging technology that has begun to gain acceptance within the community and is being employed throughout the country is DART®-MS. DART®-MS is one of many Ambient Ionization-Mass Spectrometry (AI-MS) tools that allow for the near-instantaneous analysis of a range of samples with little-to-no sample preparation. It has been applied to forensic samples ranging from drugs and explosives to lubricants and inks, with more applications being researched.

This workshop aims to provide forensic practitioners, laboratory managers, and legal personnel with the information to understand what DART®-MS is, learn about how other laboratories are utilizing the technique, and learn about where the future of the technique is headed. Topics that will be covered in the workshop include the fundamentals of DART®-MS, current applications in forensic laboratories, strategies for validation, practical and legal considerations for implementation, and the current state of research and development.

Program:

1:00 p.m.	-	1:35 p.m.	The Fundamentals of DART®-MS <i>Robert B. Cody, PhD</i>
1:35 p.m.	-	2:00 p.m.	The Implementation and Development of Novel Workflows <i>Amber Burns, MS</i>
2:00 p.m.	-	2:25 p.m.	Developing a Validation Plan <i>Erin Shonsey, PhD</i>
2:25 p.m.	-	2:45 p.m.	Testifying on DART®-MS Results <i>Juli A. Cruciotti, MA</i>
2:45 p.m.	-	3:15 p.m.	Break
3:15 p.m.	-	3:35 p.m.	DART®-MS for Forensic Intelligence <i>Luther S. Schaeffer, MSFS</i>
3:35 p.m.	-	4:00 p.m.	Tools and Resources for Data Analysis <i>Arun Moorthy, PhD</i>
4:00 p.m.	-	4:30 p.m.	The Future of DART®-MS <i>Edward Sisco, PhD</i>
4:30 p.m.	-	5:00 p.m.	Live Zoom Questions and Answers Link will be provided "in session" by the workshop chair/moderator <i>Edward Sisco, PhD; Amber Burns, MS; Arun Moorthy, PhD; Erin Shonsey, PhD; Juli A. Cruciotti, MA; Robert B. Cody, PhD; Luther S. Schaeffer, MSFS</i>



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W8 Utilizing Best Practice in Forensic Education and Remote Learning

Monday

February 15, 2021

1:00 p.m. – 5:00 p.m.

3.75 CE Hours

Learning Overview: After attending this workshop, attendees will be able to utilize established methods and techniques recognized as best practice to enhance their approach to forensic science education. Attendees will actively engage with digital tools and practice classroom exercises designed for in-person, hybrid, and remote learning. Drawing on a range of international perspectives, all aspects of the workshop are intended to translate directly into the forensic classroom, regardless of whether that classroom is in-person or virtual.

Impact on the Forensic Science Community: This workshop will impact the forensic science community by providing tools that will improve the educational content and experience of future forensic scientists. In addition, these tools can be adapted for continuing education, training, and professional development of current forensic practitioners. It is hoped that improved pedagogical approaches will strengthen the academic backbone of the forensic community and support greater cross-institutional collaboration.

Chair:

Kimberlee Sue Moran, MSc
Rutgers University - Camden
Camden, NJ

Co-Chair:

Pamela L. Marshall, PhD
Duquesne University
Pittsburgh, PA

Faculty:

Amber Collings, PhD
Teesside University
Middlesbrough, UNITED KINGDOM

Charla Skinner Perdue, MFS
Florida State University Panama City Campus
Panama City, FL

Ashley Hudgins, MS
Phoenixville Area High School
Phoenixville, PA

Cynthia J. Kaeser Tran, PhD
Eastern Kentucky University
Richmond, KY

Melinda K. McPherson, PhD
Columbia College
Columbia, MO

Tim Thompson, PhD
Teesside University
School of Health & Life Sciences
Middlesbrough, UNITED KINGDOM

Targeted Audience: General

Knowledge Level Required: Intermediate (some knowledge of subject presented)

Expected Handout Length: 30 pages

WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W8 Utilizing Best Practice in Forensic Education and Remote Learning

Program Description: This workshop provides an opportunity for forensic science educators to reflect on and revisit evidence-based pedagogical practices with the goal of improving instruction in the new modes of instruction now commonplace across institutions. In addition, new approaches to instruction and assessment in an online environment will be presented as well as specific applications for forensic science content delivery. Throughout the workshop, these methods and activities will be modeled by the presenters and attendees will have the opportunity to test out the various tools and techniques presented.

Program:

1:00 p.m. - 2:10 p.m.	Effective Teaching Practices <i>Kimberlee Sue Moran, MSc; Cynthia J. Kaeser Tran, PhD; Tim Thompson, PhD; Melinda K. McPherson, PhD; Charla Skinner Perdue, MFS; Ashley Hudgins, MS</i>
2:10 p.m. - 2:20 p.m.	Break
2:20 p.m. - 3:30 p.m.	Best Practice for Remote Teaching <i>Kimberlee Sue Moran, MSc; Cynthia J. Kaeser Tran, PhD; Tim Thompson, PhD; Melinda K. McPherson, PhD; Charla Skinner Perdue, MFS; Ashley Hudgins, MS</i>
3:30 p.m. - 3:40 p.m.	Break
3:40 p.m. - 4:50 p.m.	Digital Teaching Tools <i>Kimberlee Sue Moran, MSc; Cynthia J. Kaeser Tran, PhD; Tim Thompson, PhD; Melinda K. McPherson, PhD; Charla Skinner Perdue, MFS; Ashley Hudgins, MS</i>
4:50 p.m. - 5:00 p.m.	Live Zoom Questions and Answers <i>Link will be provided "in session" by the workshop chair/moderator</i> <i>Kimberlee Sue Moran, MSc; Cynthia J. Kaeser Tran, PhD; Tim Thompson, PhD; Melinda K. McPherson, PhD; Charla Skinner Perdue, MFS; Ashley Hudgins, MS</i>



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W9 What They Don't Know Can Kill You

Monday

February 15, 2021

1:00 p.m. – 5:00 p.m.

3.75 CE Hours

Learning Overview: The goal of this workshop is to consider the function of standards in forensic disciplines and the ultimate role of forensic standards in the legal system.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by enabling attendees to understand: (1) how the legal community views and assesses the role of standards in court procedures; and (2) how standardization of methodologies and practices across an increasing number of forensic disciplines informs decisions by law enforcement and the courts. This presentation will alert forensic scientists on the need to engage in standardization activities to improve acceptability and use of forensic analyses, and finally, this presentation will also raise the awareness of forensic laboratories to the advantages of voluntarily including newly developed forensic science standards in their procedures, even to the point of including them as part of lab accreditation to the International Organization for Standardization (ISO) standard #17025: General Requirements for the Competence of Testing and Calibration Laboratories.

Chair:

Linton Mohammed, PhD
Forensic Science Consultants, Inc
Burlingame, CA

Co-Chair:

Pamela A.W. King, JD
Rochester, MN

Faculty:

Erin P. Forry, MS
Boston Police Department
Crime Lab
Boston, MA

Kenneth E. Melson, JD
The George Washington University Law School
Kinsale, VA

Roderick T. Kennedy, JD
Los Ranchos, NM

Mary C. McKiel, PhD
The American Academy of Forensic Sciences (AAFS)
Academy Standards Board
Colorado Springs, CO

Marc A. LeBeau, PhD
Federal Bureau of Investigation Laboratory
Quantico, VA

Jason M. Wiersema, PhD
Harris County Institute of Forensic Science
Houston, TX

Targeted Audience: All Disciplines

Knowledge Level Required: Basic (little to no knowledge of subject presented)

Expected Handout Length: 50 pages

Program Description: The contribution of forensic standards to dissemination of justice in the courts, especially where lives are at stake—are some forensic standards more readily accepted by courts than others? If so, what makes them preferable? This workshop explores the role of forensic standards in supporting evidence presented in criminal and civil court hearings from the viewpoint of the legal system and from the viewpoint of forensic science practitioners.

WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W9 What They Don't Know Can Kill You

Program:

1:00 p.m.	-	1:05 p.m.	Welcome and Introduction: Panel One <i>Mary C. McKiel, PhD</i>
1:05 p.m.	-	1:35 p.m.	The Viewpoint of Forensics and Forensic Standards From a Prosecuting Attorney Perspective <i>Kenneth E. Melson, JD</i>
1:35 p.m.	-	2:05 p.m.	The Courtroom Perspective on the Value of Standards for Forensics Currently Being Developed and Published by United States Standards Organizations, Especially the Academy Standards Board (ASB) <i>Pamela A.W. King, JD</i>
2:05 p.m.	-	2:35 p.m.	A Perspective on the Successes and Failures of Forensic Science From the Point of View of <i>Daubert</i> <i>Roderick T. Kennedy, JD</i>
2:35 p.m.	-	2:45 p.m.	Open Discussion Among Panelists <i>Roderick T. Kennedy, JD; Pamela A.W. King, JD; Mary C. McKiel, PhD; Kenneth E. Melson, JD</i>
2:45 p.m.	-	2:55 p.m.	Break
2:55 p.m.	-	3:00 p.m.	Welcome and Introduction: Panel Two—Forensic Science: Practitioner View <i>Mary C. McKiel, PhD</i>
3:00 p.m.	-	3:30 p.m.	A Discussion of the Recent Survey on Forensics and Standards From the American Society of Crime Laboratory Directors (ASCLD) <i>Erin P. Forry, MS</i>
3:30 p.m.	-	4:00 p.m.	A Discussion of the Development of Forensic Standards for Disaster Victim Identification and Their Intended Impact on Forensic Science <i>Jason M. Wiersema, PhD</i>
4:00 p.m.	-	4:30 p.m.	A Discussion on the Development of Standards for Forensic Toxicology and Their Intended Impact on the Field <i>Marc A. LeBeau, PhD</i>
4:30 p.m.	-	4:40 p.m.	Open Discussion Among Panelists <i>Erin P. Forry, MS; Marc A. LeBeau, PhD; Mary C. McKiel, PhD; Jason M. Wiersema, PhD</i>
4:40 p.m.	-	5:00 p.m.	Live Zoom Open Discussion, Wrap-Up, and Questions and Answers Link will be provided "in session" by the workshop chair/moderator <i>Erin P. Forry, MS; Marc A. LeBeau, PhD; Mary C. McKiel, PhD; Kenneth E. Melson, JD; Jason M. Wiersema, PhD</i>



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W10 When “Who” Doesn’t Matter as Much as “How”—DNA Testimony Given Activity-Level Propositions

Monday

February 15, 2021

1:00 p.m. – 5:00 p.m.

3.75 CE Hours

Learning Overview: After attending this workshop, attendees will understand the need to separate the ability to help answer the “who” question from the “how” or “when” questions. Attendees will realize that in relation to DNA findings, it is important to recognize that the value (i.e., likelihood ratio) of DNA profiles when considering the source of the DNA will generally be completely different from the value of these results when considering the activities that are alleged to have happened.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing guidance toward real-world testimony on how to handle DNA testimony when the court’s interest is beyond that of an “inclusion” and its associated likelihood ratio.

Chair:

Sheila Willis, DS
Dublin, IRELAND

Co-Chair:

Rebecca E. Bucht, PhD
National Bureau of Investigation Forensic Laboratory
Vantaa, FINLAND

Faculty:

Simone Gittelson, PhD
District of Columbia
Department of Forensic Sciences
Washington, DC 20024

Tim Kalafut, PhD
Sam Houston State University
Department of Forensic Science
Huntsville, TX

Tacha Hicks, PhD

Forensic Genetic Unit, University Hospital
University of Lausanne
Lausanne, SWITZERLAND

Jonathan Whitaker, PhD

Principal Forensic Sciences
Harrogate, UNITED KINGDOM

Targeted Audience: Criminalistics, General, Jurisprudence

Knowledge Level Required: Intermediate (some knowledge of the subject presented)

Expected Handout Length: 75 pages

Program Description: This workshop will provide information on tools to help address questions and advice on how to convey biological findings in a logical and balanced way. The presenters, who have practical and academic experience, will use mock testimony to model poor and good performances. This workshop will consist primarily of lectures and will be of interest to those who deliver DNA testimony and those who probe it.

WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W10 When “Who” Doesn’t Matter as Much as “How”—DNA Testimony Given Activity-Level Propositions

Program:

1:00 p.m.	-	1:15 p.m.	Introduction <i>Sheila Willis, DS</i>
1:15 p.m.	-	1:30 p.m.	“A Bad Day at Court” Mock Testimony—Group Role Play Video
1:30 p.m.	-	2:10 p.m.	Bayesian Framework and the Court—Do They Go Together? <i>Tim Kalafut, PhD</i>
2:10 p.m.	-	2:50 p.m.	Reporting Biological Results in Court, Taking Into Account the Issue (Who or How?) <i>Tacha Hicks, PhD</i>
2:50 p.m.	-	3:05 p.m.	Break
3:05 p.m.	-	3:45 p.m.	Casework Assessment and Interpretation—Great Expectations <i>Jonathan Whitaker, PhD</i>
3:45 p.m.	-	4:25 p.m.	Introduction to Bayesian Networks <i>Simone Gittelsohn, PhD</i>
4:25 p.m.	-	4:40 p.m.	“A Better Day at Court” Mock Testimony—Group Role Play Video
4:40 p.m.	-	5:00 p.m.	Questions and Answers



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W11 A New Realm of Novel Psychoactive Substance (NPS) Opioids and NPS Benzodiazepines—Analytical and Interpretive Considerations

Tuesday

February 16, 2021

8:00 a.m. – 12:00 p.m.

3.75 CE Hours

Learning Overview: After attending this workshop, attendees will be able to: (1) discuss current drug trends for NPS, specifically benzodiazepines and opioids; (2) discuss the difficulties in interpreting NPS benzodiazepines and opioids in Driving Under the Influence of Drugs (DUID), death investigation, and Drug-Facilitated Sexual Assault (DFSA) cases; and (3) assess different instrumentation for the analysis of NPS benzodiazepines and opioids.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing updated information on the ever-changing presence of NPS benzodiazepines and opioids.

Chair:

Alex J. Krotulski, PhD

Center for Forensic Science Research & Education
Willow Grove, PA

Co-Chair:

Dani C. Mata, MS

Orange County Crime Lab
Santa Ana, CA

Faculty:

Melissa Fogarty, MSFS

Center for Forensic Science Research & Education
Willow Grove, PA

Madeleine J. Swortwood, PhD

Sam Houston State University
Huntsville, TX

Barry K. Logan, PhD

NMS Labs
Horsham, PA

Svante Vikingsson, PhD

RTI International
Research Triangle Park, NC

Szabolcs Sofalvi, MSChE

Cuyahoga County Medical Examiner's Office
Cleveland, OH

Targeted Audience: Toxicology

Knowledge Level Required: Intermediate (some knowledge of subject presented)

Expected Handout Length: 250 pages

Supported by: The Center for Forensic Science Research and Education at the Fredric Rieders Family Foundation

Program Description: The Society Of Forensic Toxicologists (SOFT) Designer Drug Committee presents a workshop to discuss the latest trends in NPS benzodiazepines and opioids. For both opioids and benzodiazepines, case examples will be discussed for DUID incidences, death investigations, and DFSAs, along with different instrumentation that can be used to analyze both types of drugs in various matrices.

WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W11 A New Realm of Novel Psychoactive Substance (NPS) Opioids and NPS Benzodiazepines—Analytical and Interpretive Considerations

Program:

8:00 a.m.	-	8:05 a.m.	Welcome <i>Alex J. Krotulski, PhD; Dani C. Mata, MS</i>
8:05 a.m.	-	8:30 a.m.	Recent and Significant Changes in NPS Trends <i>Alex J. Krotulski, PhD</i>
8:30 a.m.	-	8:55 a.m.	Pharmacology and Interactions <i>Madeleine J. Gates, PhD</i>
8:55 a.m.	-	9:20 a.m.	Analytical Approaches: Screening vs. Confirmation and Seized Drug vs. Toxicology <i>Melissa Fogarty, MSFS</i>
9:20 a.m.	-	9:30 a.m.	Break
9:30 a.m.	-	9:55 a.m.	A History of Licit and Illicit Benzodiazepines <i>Barry K. Logan, PhD</i>
9:55 a.m.	-	10:20 a.m.	Forensic Cases Involving New NPS Benzodiazepines <i>Dani C. Mata, MS</i>
10:20 a.m.	-	10:45 a.m.	A History of Licit and Illicit Synthetic Opioids <i>Svante Vikingsson, PhD</i>
10:45 a.m.	-	11:10 a.m.	Forensic Cases Involving New NPS Opioids <i>Szabolcs Sofalvi, MS</i>
11:10 a.m.	-	11:20 a.m.	NPS Opioid and Benzodiazepine Combinations—Occurrence, Distribution, and Interpretive Challenges <i>Alex J. Krotulski, PhD</i>
11:20 a.m.	-	12:00 p.m.	Live Zoom Questions and Answers Link will be provided “in session” by the workshop chair/moderator <i>Alex J. Krotulski, PhD; Dani C. Mata, MS; Madeleine J. Gates, PhD; Melissa Fogarty, MSFS; Barry K. Logan, PhD; Svante Vikingsson, PhD; Szabolcs Sofalvi, MS</i>



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W12 Forensic Anthropology Databases for Research Purposes

Tuesday

February 16, 2021

8:00 a.m. – 12:00 p.m.

3.25 CE Hours

CANCELED

WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W12 Forensic Anthropology Databases for Research Purposes

CANCELED



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W13 Forensic Multimedia Authentication: Real-Life Problems and Solutions

Tuesday

February 16, 2021

8:00 a.m. – 12:00 p.m.

3.5 CE Hours

Learning Overview: After attending this workshop, attendees will: (1) be familiar with the latest developments in forensic video and audio authentication and enhancement and restoration; (2) understand criteria used for media authentication; (3) understand how to conduct analysis within a forensic framework; and (4) explore the latest technologies in the generation of synthetic imagery, including deepfakes, face2face, and others.

Impact on the Forensic Science Community: This workshop will impact the forensic science community by: (1) explaining the scientific approach in forensic media authentication, enhancement, and restoration; (2) demonstrating an authentication investigation framework; and (3) discussing tools used to create and combat multimedia forgery.

Chair:

Zeno J. Geradts, PhD
Netherlands Forensic Institute
Den Haag, NETHERLANDS

Co-Chair:

Catalin Grigoras, PhD
National Center for Media Forensics
University of Colorado Denver
Denver, CO

Faculty:

Leonid I. Rudin, PhD
Cognitech
Pasadena, CA

Cole Whitecotton, MSc
National Center for Media Forensics
University of Colorado Denver
Denver, CO

Gregory S. Wales, MS
National Center for Media Forensics
University of Colorado Denver
Denver, CO

Targeted Audience: Digital & Multimedia Sciences

Knowledge Level Required: Intermediate (some knowledge of subject presented)

Expected Handout Length: 250 pages

Program Description: This workshop on the impact of emerging technologies on multimedia forensics will examine new and emerging technologies affecting multimedia forensics today and over the coming decades. The information shared during the workshop is from academics, researchers, and practitioners currently working and researching in these new technology areas. Attendees will be informed of the latest developments in forensic video and audio authentication, enhancement, and restoration. This includes the latest technologies in the generation of synthetic imagery, including deepfakes, face2face, and others. This workshop assembles an experienced group of people impacting the world of multimedia forensics on a variety of topics

WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W13 Forensic Multimedia Authentication: Real-Life Problems and Solutions

Program:

8:00 a.m. - 8:30 a.m.	Video Manipulations, DeepFakes ... <i>Cole Whitecotton, MSc</i>
8:30 a.m. - 9:00 a.m.	A Vehicle's Forensic Make/Model Authentication Through Height-Preserving Constraints (FMMAHPC) in Closed-Circuit Television (CCTV) Video: A Novel Photogrammetry Method <i>Leonid I. Rudin, PhD</i>
9:00 a.m. - 9:15 a.m.	Break
9:15 a.m. - 9:45 a.m.	DeepFake and Video Authentication <i>Zeno J. Geradts, PhD</i>
9:45 a.m. - 10:15 a.m.	Video Authentication <i>Gregory S. Wales, MS</i>
10:15 a.m. - 10:30 a.m.	Break
10:30 a.m. - 11:30 a.m.	Audio Authentication <i>Catalin Grigoras, PhD</i>
11:30 a.m. - 12:00 p.m.	Questions and Answers <i>Zeno J. Geradts, PhD; Catalin Grigoras, PhD; Leonid I. Rudin, PhD; Cole Whitecotton, MSc; Gregory S. Wales, MS</i>



WORKSHOPS

Registration Fee: \$100 through Jan. 18; \$150 effective Jan. 19

W14 Policing in 2021—Perspectives, Problems, and Potentials

Tuesday

February 16, 2021

8:00 a.m. – 5:00 p.m.

7.75 CE Hours

Learning Overview: The goal of this presentation is to present multiple elements of present-day policing, specifically including use of force and biases, highlighting the complex interaction of myriad elements in police use-of-force cases.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by encouraging discussion and fostering objectivity in the pursuit of justice through truth in evidence in cases involving police use of force.

Chair:

J.C.U. Downs, MD
forensX, LLC
Savannah, GA

Co-Chair:

Joanna L. Collins, MFS
LINUS Investigations & Consulting
San Antonio, TX

Faculty:

Zeno J. Geradts, PhD
Netherlands Forensic Institute
Den Haag, NETHERLANDS

Brad Schrade, MA

Atlanta Journal-Constitution
Atlanta, GA

Jan M. Gorniak, DO
Clark County Office of the Coroner/Medical Examiner
Las Vegas, NV

Jerry R. Staton
Affordable Realistic Tactical Training
Del Valle, TX

Linda Kenney Baden, JD
New York, NY

Targeted Audience: Criminalistics, Digital & Multimedia Sciences, General, Jurisprudence, Pathology/Biology, Psychiatry & Behavioral Science, Toxicology

Knowledge Level Required: Basic (little to no knowledge of subject presented)

Expected Handout Length: 250 pages

Proceeds from this workshop will benefit the Forensic Sciences Foundation, Inc.



WORKSHOPS

Registration Fee: \$100 through Jan. 18; \$150 effective Jan. 19

W14 Policing in 2021—Perspectives, Problems, and Potentials

Program Description: This workshop will examine multiple perspectives of policing in the present day. Public/media, technology and biases, use of force, medicolegal, and legal aspects of such cases will be presented. The hope is that better understanding of specific elements and points of view will encourage discussion and foster objectivity in such cases.

Program:

8:00 a.m.	-	8:05 a.m.	Introduction <i>J.C.U. Downs, MD</i>
8:05 a.m.	-	9:05 a.m.	Media Perspective <i>Brad Schrade, BA</i>
9:05 a.m.	-	9:15 a.m.	Break
9:15 a.m.	-	10:15 a.m.	Police Training—Use of Force <i>Jerry R. Staton</i>
10:15 a.m.	-	11:15 a.m.	Digital Technology and Bias <i>Zeno J. Geradts, PhD</i>
11:15 a.m.	-	12:00 p.m.	Questions and Answers
12:00 p.m.	-	1:00 p.m.	Break
1:00 p.m.	-	2:00 p.m.	Police Training—Conducted Energy Weapons <i>Jerry R. Staton</i>
2:00 p.m.	-	3:00 p.m.	Medicolegal Perspective <i>Jan M. Gorniak, DO</i>
3:00 p.m.	-	3:10 p.m.	Break
3:10 p.m.	-	4:10 p.m.	Legal Perspective <i>Linda Kenney Baden, JD</i>
4:10 p.m.	-	5:00 p.m.	Discussion, Questions, and Answers <i>J.C.U. Downs, MD; Zeno J. Geradts, PhD; Brad Schrade, BA; Jerry R. Staton; Jan M. Gorniak, DO; Linda Kenney Baden, JD</i>



WORKSHOPS

Registration Fee: \$100 through Jan. 18; \$150 effective Jan. 19

W15 STR Wars: The Rise of Sequencing

Tuesday

February 16, 2021

8:00 a.m. – 5:00 p.m.

7.75 CE Hours

Learning Overview: After attending this presentation, attendees will have been introduced to forensic DNA sequencing methods that are currently being adopted for the analysis of Combined DNA Index System (CODIS) core Short Tandem Repeat (STR) loci, mitochondrial DNA, autosomal Single Nucleotide Polymorphisms (SNPs), and other non-traditional markers.

Impact on the Forensic Science Community: This workshop will impact the forensic science community by showcasing the innovative sequencing strategies that international forensic laboratories are implementing to improve their approach to forensic casework.

Chair:

Charla Marshall, PhD

Armed Forces DNA Identification Laboratory
Dover Air Force Base, DE

Faculty:

Kimberly S. Andreaggi, MFS

SNA International/Armed Forces DNA Identification Laboratory
Dover Air Force Base, DE

Frederick R. Bieber, PhD

Brigham & Women's Hospital
Department of Pathology
Boston, MA

Daniela D. Cuenca, MS

California Department of Justice
Richmond, CA

Katherine B. Gettings, PhD

National Institute of Standards and Technology
Gaithersburg, MD

Erin M. Gorden, MFS

Signature Science
Charlottesville, VA

Richard Green, PhD

Santa Cruz, CA

Ellen M. Greytak, PhD

Parabon NanoLabs, Inc
Reston, VA

Co-Chair:

Timothy P. McMahon, PhD

Armed Forces DNA Identification Laboratory
Dover, DE

Lisa L. Grossweiler, MS

Federal Bureau of Investigation Laboratory
Quantico, VA

Manfred Kayser, PhD

Erasmus University
Rotterdam, NETHERLANDS

François-Xavier Laurent, PhD

International Criminal Police Organization
Lyon, FRANCE

Thomas J. Parsons, PhD

International Commission on Missing Persons
Den Haag, NETHERLANDS

Walther Parson, PhD

Innsbruck, AUSTRIA

Andreas Tillmar, PhD

National Board of Forensic Medicine
Linköping, SWEDEN

Athina Vidaki, PhD

Erasmus University Medical Center Rotterdam
Rotterdam, NETHERLANDS

Susan Walsh, PhD

Indiana University Purdue University Indianapolis
Indianapolis, IN

Targeted Audience: Anthropology, Criminalistics, General, Pathology/Biology

Knowledge Level Required: Intermediate (some knowledge of subject presented)

Expected Handout Length: 400 pages

WORKSHOPS

Registration Fee: \$100 through Jan. 18; \$150 effective Jan. 19

W15 STR Wars: The Rise of Sequencing

Program Description: A long time ago in a forensic laboratory far, far away ... it was an era of capillary electrophoresis and STR analysis. MASSIVELY PARALLEL SEQUENCING (MPS), with its sensitive and high throughput capabilities, has infiltrated other genomic worlds, including clinical genetics and ancient DNA. Eager to behold this new technology, forensic scientists developed sequencing methods to analyze not only the STRs, but more and more loci including the entire mitogenome, autosomal and Y-chromosomal SNPs, and the methylated markers of the epigenome. This newly realized ability to zero in on these once reclusive targets now allows for ancestry, phenotype and age prediction, and gives way to the ultimate weapon, GENETIC GENEALOGY, requiring complex bioinformatic and statistical analyses. As a new hope dawns for forensic DNA analysis, ethical-legal and privacy concerns along with practical considerations challenge the use of these advanced methods. Yet the technology leads the way, as international experts race to harness the power of sequencing, to solve crimes and return missing persons to their loved ones

Program:

8:00 a.m.	-	8:05 a.m.	STR Wars: Episode I – An Introduction <i>Kimberly S. Andreaggi, MFS</i>
8:05 a.m.	-	8:30 a.m.	Automation and Developmental Validation of the Forenseq™ DNA Signature Preparation Kit for High Throughput Analysis in Forensic Laboratories <i>François-Xavier Laurent, PhD</i>
8:30 a.m.	-	8:55 a.m.	The Short Tandem Repeat: Align, Name, Define (STRAND) Working Group <i>Katherine B. Gettings, PhD</i>
8:55 a.m.	-	9:20 a.m.	The Phantom Menace—Mitogenome Analysis and Interpretation <i>Charla Marshall, PhD</i>
9:20 a.m.	-	9:45 a.m.	A Year After the Battle at Endor: MtDNA Massively Parallel Sequencing (MPS) Analysis at CA DOJ <i>Daniela D. Cuenca, MS</i>
9:45 a.m.	-	10:00 a.m.	Break
10:00 a.m.	-	10:25 a.m.	Improving Forensic Y-Chromosome Analysis <i>Manfred Kayser, PhD</i>
10:25 a.m.	-	10:50 a.m.	Of Human Eye Color—Genetics We Hope to Understand <i>Susan Walsh, PhD</i>
10:50 a.m.	-	11:15 a.m.	The Development of Molecular Tools to Predict Appearance, Ancestry, and Age Using MPS <i>Walther Parson, PhD</i>
11:15 a.m.	-	11:40 a.m.	The Revenge of the SNP—The Force Awakens <i>Thomas J. Parsons, PhD</i>
11:40 a.m.	-	12:00 p.m.	It Is the Way: Pre-Recorded Discussion <i>Kimberly S. Andreaggi, MFS</i>
12:00 p.m.	-	1:00 p.m.	Break



WORKSHOPS

Registration Fee: \$100 through Jan. 18; \$150 effective Jan. 19

W15 STR Wars: The Rise of Sequencing

Program cont.:

1:00 p.m.	-	1:05 p.m.	STR Wars: Episode II - Return of the Workshop <i>Kimberly S. Andreaggi, MFS</i>
1:05 p.m.	-	1:30 p.m.	Biostatistical Approaches for Advanced Relationship Inference <i>Andreas Tillmar, PhD</i>
1:30 p.m.	-	1:55 p.m.	"Luke, I Am Your ... First Cousin Once Removed!" Answering Questions of Extended Kinship for Bones, Teeth, and Hair Using SNP Capture <i>Erin M. Gorden, MFS</i>
1:55 p.m.	-	2:20 p.m.	Genetic Genealogy From a Bioinformatics Perspective <i>Ellen M. Greytak, PhD</i>
2:20 p.m.	-	2:45 p.m.	Genome Assembly and Haplotype Phasing for Human Identification <i>Richard Green, PhD</i>
2:45 p.m.	-	3:00 p.m.	Break
3:00 p.m.	-	3:25 p.m.	Epigenetic Fingerprinting: A New Hope for Human Individualization <i>Athina Vidaki, PhD</i>
3:25 p.m.	-	3:50 p.m.	Next Generation Sequencing (NGS) -Assisted Identification of Missing Service Members From Past Military Conflicts <i>Timothy P. McMahon, PhD</i>
3:50 p.m.	-	4:15 p.m.	CODIS Implementation of New Technologies <i>Lisa L. Grossweiler, MS</i>
4:15 p.m.	-	4:40 p.m.	Genealogics Rides the Three-Horse Chariot of the Criminal Justice System <i>Frederick R. Bieber, PhD</i>
4:40 p.m.	-	5:00 p.m.	The Last Forensic Scientist: Pre-Recorded Discussion <i>Kimberly S. Andreaggi, MFS</i>



WORKSHOPS

Registration Fee: \$100 through Jan. 18; \$150 effective Jan. 19

W16 Technology and Design of Security Documents for Counterfeiting and Alteration Resistance

Tuesday

February 16, 2021

8:00 a.m. – 5:00 p.m.

6.75 CE Hours

Learning Overview: After attending this workshop, attendees will understand two facets of document security. First, this workshop provides an overview of common document security features, such as security fibers, watermarks, microprinting, color shifting inks, ultraviolet printing, holograms, laser engraving, and many others. The second and equally important subject is how document components can be integrated with one another, and with document artwork, in ways that allow the security value of each anti-counterfeiting technology to be maximized.

Impact on the Forensic Science Community: This workshop will impact the forensic science community by providing document examiners and other forensic scientists with a better understanding of how security documents are designed and counterfeited, improving the ability of examiners to differentiate between genuine and counterfeit.

Chair:

Dennis J. Ryan, MBA
Applied Forensics LLC
East Meadow, NY

Co-Chair:

Joel A. Zlotnick, MSFS
United States Department of State
Washington, DC

Targeted Audience: Questioned Documents

Knowledge Level Required: Intermediate (some knowledge of subject presented)

Expected Handout Length: 200 pages

Program Description: Counterfeiting and alteration are continual threats to banknotes, passports, identity cards, birth records, and other security documents. Although contemporary security feature technologies are certainly part of the solution to document counterfeiting and alteration, security design strategies that maximize the effectiveness of security feature technologies are also very important. This workshop explores the landscape of contemporary document security feature technologies and the design strategies that optimize their effectiveness. Virtual hands-on exercises will be facilitated by attendees examining their own personal United States passports, driver's licenses, birth records, and other security documents.



WORKSHOPS

Registration Fee: \$100 through Jan. 18; \$150 effective Jan. 19

W16 Technology and Design of Security Documents for Counterfeiting and Alteration Resistance

Program:

8:00 a.m.	-	8:50 a.m.	Introduction <i>Joel A. Zlotnick, MSFS</i>
8:50 a.m.	-	9:00 a.m.	Break
9:00 a.m.	-	9:50 a.m.	Paper and Plastic Substrate Security Features <i>Joel A. Zlotnick, MSFS</i>
9:50 a.m.	-	10:00 a.m.	Break
10:00 a.m.	-	10:50 a.m.	Offset Printing and Security Features <i>Joel A. Zlotnick, MSFS</i>
10:50 a.m.	-	11:00 a.m.	Break
11:00 a.m.	-	11:50 a.m.	Intaglio Printing and Security Features <i>Joel A. Zlotnick, MSFS</i>
11:50 a.m.	-	1:00 p.m.	Break
1:00 p.m.	-	1:50 p.m.	Personalization Technologies <i>Joel A. Zlotnick, MSFS</i>
1:50 p.m.	-	2:00 p.m.	Break
2:00 p.m.	-	2:50 p.m.	Specialty Inks <i>Joel A. Zlotnick, MSFS</i>
2:50 p.m.	-	3:00 p.m.	Break
3:00 p.m.	-	3:50 p.m.	Optically Variable Devices and Lens Features <i>Joel A. Zlotnick, MSFS</i>
3:50 p.m.	-	4:00 p.m.	Break
4:00 p.m.	-	5:00 p.m.	Conclusion, Questions, and Answers <i>Joel A. Zlotnick, MSFS</i>



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W17 An Update on Analytical Approaches for Hemp/Marijuana Differentiation

Tuesday

February 16, 2021

1:00 p.m. – 5:00 p.m.

3.75 CE Hours

Learning Overview: After attending this presentation, attendees will understand the analytical schemes that are being employed to differentiate hemp from marijuana and will gain insight from laboratories that have implemented new methodology to address this issue.

Impact on the Forensic Science Community: This workshop will impact the forensic science community by providing additional insight regarding the use of various analytical schemes and the use of decision-point assays for the differentiation of hemp from marijuana.

Chair:

Sarah Kerrigan, PhD
Sam Houston State University
Department of Forensic Science
Huntsville, TX

Co-Chair:

Sandra E. Rodriguez-Cruz, PhD
Drug Enforcement Administration
Dulles, VA

Faculty:

Linda C. Jackson, MS
Department of Forensic Science
Richmond, VA

Walter Brent Wilson, PhD
National Institute of Standards and Technology
Gaithersburg, MD

Barry K. Logan, PhD
NMS Labs
Horsham, PA

Agnes D. Winokur, MS
Drug Enforcement Administration
Southeast Laboratory
Miami, FL

Targeted Audience: Criminalistics

Knowledge Level Required: Basic (little to no knowledge of subject presented)

Expected Handout Length: 120 pages

Program Description: During this workshop, analytical approaches for the differentiation of hemp from marijuana will be presented. Following the passage of the Farm Bill and the implementation of new methodology, laboratories will share their analytical findings and discuss various challenges associated with different approaches.



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W17 An Update on Analytical Approaches for Hemp/Marijuana Differentiation

Program:

1:00 p.m.	-	1:05 p.m.	Introduction and Welcome <i>Sarah Kerrigan, PhD</i>
1:05 p.m.	-	1:50 p.m.	Approaches to Cannabis Plant Testing at the Federal Level: Analytical Schemes and Findings <i>Sandra E. Rodriguez-Cruz, PhD</i>
1:50 p.m.	-	2:20 p.m.	Approaches to Cannabis Plant Testing in a State Laboratory: Strategies Moving Forward <i>Linda C. Jackson, MS</i>
2:20 p.m.	-	2:50 p.m.	Organization of Scientific Area Committees (OSAC) Seized Drug Subcommittee Survey Results: Hemp vs. Marijuana Differentiation <i>Agnes D. Winokur, MS</i>
2:50 p.m.	-	3:00 p.m.	Break
3:00 p.m.	-	3:30 p.m.	Cannabis Plant Testing in the Private Sector: Findings Across Jurisdictions <i>Barry K. Logan, PhD</i>
3:30 p.m.	-	4:00 p.m.	Inter-Laboratory Collaborations and Analytical Considerations <i>Sarah Kerrigan, PhD</i>
4:00 p.m.	-	4:30 p.m.	The Cannabis Quality Assurance Program (CannaQAP) at the National Institute of Standards and Technology <i>Walter Brent Wilson, PhD</i>
4:30 p.m.	-	5:00 p.m.	Live Zoom Panel Discussion <i>Link will be provided "in session" by the workshop chair/moderator</i> <i>Sarah Kerrigan, PhD; Sandra E. Rodriguez-Cruz, PhD</i>



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W18 Competency to Stand Trial: Nuances in Competency Assessments

Tuesday

February 16, 2021

1:00 p.m. – 5:00 p.m.

3.75 CE Hours

Learning Overview: The goal of this presentation is for attendees to first understand the basic requirements of an assessment for competency to stand trial. From there, attendees will build skills to identify the challenges in assessments and techniques used to address them. This workshop will explore competency assessments through case studies and give attendees the opportunity to apply what they have learned at the end with case examples and discussions.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing instruction to improve both performance and understanding of competency to stand trial assessments, which will ultimately improve case outcomes.

Chair:

Jessica Morel, DO
Fayetteville, NC

Co-Chair:

Emily D. Gottfried, PhD
Medical University of South Carolina
Charleston, SC

Faculty:

Natalie Armstrong Hoskowitz, PhD
Bridgewater State Hospital
Bridgewater, MA

Vivian Shnaidman, MD
Jersey Forensic Consulting, LLC
Princeton, NJ

Corina Freitas, MD

Crouse Health
Syracuse, NY

Targeted Audience: General; Jurisprudence; Psychiatry & Behavioral Science

Knowledge Level Required: Intermediate (some knowledge of subject presented)

Expected Handout Length: 1 page

Program Description: This workshop will include discussion on several topics related to competency to stand trial. This workshop's target audience includes both forensic evaluators and attorneys, as the defendant's legal team and the forensic evaluators should have an understanding of each other's needs and concerns regarding competence in order to move cases forward in the legal process.



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W18 Competency to Stand Trial: Nuances in Competency Assessments

Program:

1:00 p.m.	-	1:20 p.m.	Introduction: Define Competency Assessments <i>Jessica Morel, DO</i>
1:20 p.m.	-	2:00 p.m.	The History of Competency Assessments and What They Entail <i>Vivian Shnaidman, MD</i>
2:00 p.m.	-	2:30 p.m.	Special Considerations, Including Cultural Barriers, Language Barriers, Intellectual Disability, Age, Etc. <i>Natalie Armstrong Hoskowitz, PhD</i>
2:30 p.m.	-	3:00 p.m.	Extreme World Views and Delusional Disorders <i>Corina Freitas, MD</i>
3:00 p.m.	-	3:15 p.m.	Break
3:15 p.m.	-	3:55 p.m.	Malingering Incompetence and Refusal to Participate <i>Emily D. Gottfried, PhD</i>
3:55 p.m.	-	4:15 p.m.	How Does the Court Move Forward? <i>Jessica Morel, DO</i>
4:15 p.m.	-	4:45 p.m.	Case Examples and Discussions <i>Jessica Morel, DO; Emily D. Gottfried, PhD; Vivian Shnaidman, MD; Natalie Armstrong Hoskowitz, PhD; Corina Freitas, MD</i>
4:45 p.m.	-	5:00 p.m.	Questions and Answers <i>Jessica Morel, DO; Emily D. Gottfried, PhD; Vivian Shnaidman, MD; Natalie Armstrong Hoskowitz, PhD; Corina Freitas, MD</i>

WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W19 Most Valuable Publications (MVPs) of Forensic DNA: Examining the Most Valuable Publications in the Field

Tuesday

February 16, 2021

1:00 p.m. – 5:00 p.m.

3.75 CE Hours

Learning Overview: After attending this workshop, attendees will better understand the principles involved in DNA analysis and interpretation, knowledge of core foundational literature supporting these principles, and information that can strengthen training programs for DNA analysts.

Impact on the Forensic Science Community: This workshop will impact the forensic science community by contributing to the creation of a defined body of knowledge covering historical and foundational literature, published validation studies, and recent, relevant publications that can fortify reliable forensic DNA analysis and interpretation.

Chair:

John M. Butler, PhD

National Institute of Standards and Technology
Gaithersburg, MD

Co-Chair:

Robin W. Cotton, PhD

Boston University School of Medicine
Biomedical Forensic Sciences
Boston, MA

Faculty:

Mechthild K. Prinz, PhD

John Jay College of Criminal Justice
Department of Sciences
New York, NY

Charlotte J. Word, PhD

Richmond, VA

Targeted Audience: Criminalistics, General, Jurisprudence

Knowledge Level Required: Intermediate (some knowledge of subject presented)

Expected Handout Length: 150 pages

Program Description: This presentation will examine and review useful publications covering forensic DNA analysis and interpretation with a focus on information that will benefit students and practitioners.

Program:

1:00 p.m. - 1:15 p.m.

Introduction to Workshop and Criteria for Developing a Literature List

John M. Butler, PhD

1:15 p.m. - 1:30 p.m.

The Value of a Knowledge Base for Educating Students and Practitioners

Robin W. Cotton, PhD

1:30 p.m. - 1:45 p.m.

A Review of Training Standards

Charlotte J. Word, PhD

1:45 p.m. - 2:00 p.m.

MVPs in DNA Collection, Extraction, and Quantitation

Robin W. Cotton, PhD



WORKSHOPS

Registration Fee: \$50 through Jan. 18; \$100 effective Jan. 19

W19 Most Valuable Publications (MVPs) of Forensic DNA: Examining the Most Valuable Publications in the Field

Program cont.:

2:00 p.m. - 2:15 p.m.	MVPs in Polymerase Chain Reaction (PCR), Short Tandem Repeats (STRs), and Capillary Electrophoresis (CE) <i>John M. Butler, PhD</i>
2:15 p.m. - 2:30 p.m.	MVPs in Population Genetics and Statistical Analysis <i>Robin W. Cotton, PhD</i>
2:30 p.m. - 2:45 p.m.	Live Zoom Questions and Answers <i>Link will be provided "in session" by the workshop chair/moderator</i> <i>John M. Butler, PhD; Robin W. Cotton, PhD; Charlotte J. Word, PhD; Mechthild K. Prinz, PhD</i>
2:45 p.m. - 2:55 p.m.	Break
2:55 p.m. - 3:10 p.m.	MVPs in Binary Approaches to Mixture Interpretation <i>Mechthild K. Prinz, PhD</i>
3:10 p.m. - 3:25 p.m.	MVPs in Probabilistic Genotyping Systems <i>John M. Butler, PhD</i>
3:25 p.m. - 3:40 p.m.	MVPs on DNA Transfer and Activity Level Propositions <i>John M. Butler, PhD</i>
3:40 p.m. - 3:55 p.m.	MVPs on Lineage Markers <i>Robin W. Cotton, PhD</i>
3:55 p.m. - 4:10 p.m.	MVPs on Phenotyping and New Technologies <i>Mechthild K. Prinz, PhD</i>
4:10 p.m. - 4:25 p.m.	MVPs on Method Validation, Quality Control, and Human Factors <i>John M. Butler, PhD</i>
4:25 p.m. - 5:00 p.m.	Live Zoom Wrap-Up, Conclusions, and Questions & Answers <i>Link will be provided "in session" by the workshop chair/moderator</i> <i>John M. Butler, PhD, PhD; Robin W. Cotton, PhD; Charlotte J. Word, PhD; Mechthild K. Prinz, PhD</i>

HUMANITARIAN AND HUMAN RIGHTS RESOURCE CENTER



Poster Session

The Humanitarian and Human Rights Resource Center (HHRRC) of the American Academy of Forensic Sciences (AAFS), with support from the National Institute of Justice's Forensic Technology Center of Excellence, provides needed resources and support to apply modern forensic science to global humanitarian and human rights projects. This Humanitarian and Human Rights Poster Session is a virtual open meeting where attendees can learn about the application of forensic science to investigate humanitarian and human rights injustices. Information will be available at www.forensicCOE.org.

Tuesday

February 16, 2021

6:00 p.m. – 8:00 p.m.

Moderator:

Dawnie W. Steadman, PhD

HHRRC Chair

Director, Forensic Anthropology Center

University of Tennessee

Knoxville, TN

Co-Moderator:

Jeri D. Roper-Miller, PhD

2020-21 AAFS President

Senior Director, Center for Forensic Sciences

RTI International

Research Triangle Park, NC

- 1 Dental Age Estimation From Human Remains at the Cambodian Mass Gravesite of Krang Ta Chan: Scientific Evidence of Child Victims**
Julie M. Fleischman, PhD; John A. Piakis, DDS
- 2 Decomposition Rates in the Wet Season in Southern Nigeria**
Izuchukwu S. Etoniru, MBBS, MSc; Jolandie Myburgh, PhD; Desiré Brits, PhD; Maryna Steyn, MBCh, PhD
- 3 Bone Modifications by Scavengers in South Africa and the Implications for Forensic Investigations**
Craig A. Keyes, MSc; Jolandie Myburgh, PhD; Desiré Brits, PhD
- 4 Vulture Scavenging in the Lowveld of South Africa and the Implications for Forensic Investigations**
Craig A. Keyes, MSc; Jolandie Myburgh, PhD; Desiré Brits, PhD
- 5 Fingerprint Scan for the Dead: Real-time Identification During Search and Recovery Phase in Large-Scale Disaster**
Datuk Mohd Shah Bin Mahmood, PhD; Khoo Lay See, PhD; Muhammad Syafiq Bin Zamasry, PhD; Lai Poh Soon
- 6 Forensic Biology Capacity-Building Challenges and Opportunities in Northern Uganda**
Jaymelee Kim, PhD; Joan Baughman, MS; Julia Hanebrink, MA; Hugh Tuller, MA; Paul D. Emanovsky, PhD; Dawnie W. Steadman, PhD
- 7 Multisector Collaborations for Transitional Justice in Uganda**
Jaymelee Kim, PhD; Julia Hanebrink, MA; Hugh H. Tuller, MA; Tricia Redeker Hepner, PhD; Dawnie W. Steadman, PhD; Paul D. Emanovsky, PhD
- 8 The Forensic Anthropology Center of Quintana Roo: Human Identification and the Recovery of Dignity**
Ximena Chávez Balderas; Noé Tapia Albino; José Ángel Martín Jiménez; Reyna Castañeda Correa
- 9 The Diaspora of the Xavantes of Marãiwatsédé: Colonization and Indigenous Genocide in Modern Times**
Cláudia Regina Plens, PhD; Camila Diogo de Souza, PhD
- 10 Forensic International Dental Database: Bayesian Model to Estimation Age at Death in Adults Using the Lamendin's Technique Criteria**
Roberto C. Parra, MSc; Karen J. Escalante-Flórez; Lucio A. Condori; Douglas H. Ubelaker, PhD
- 11 The Application of Geophysical Methods, Remote Detection, Environmental Variables, and New Algorithms for Searching Graves Corresponding to Burials Related to Facts of Human Rights Violations**
Carlos Molina; Alejandra Baena; Mario Duarte; Raúl Echeverri; Alexander Caneva; Edier Fernando Ávila; Luis Alberto; Jorge Guerrero; Miguel Saumett



HUMANITARIAN AND HUMAN RIGHTS RESOURCE CENTER

Posters cont.:

- 12 Tales of Small Things—Personal Belongings of Undocumented Migrants in Texas**
Marek Jasinski, PhD; Kate Spradley, PhD; Molly A. Kaplan, MA

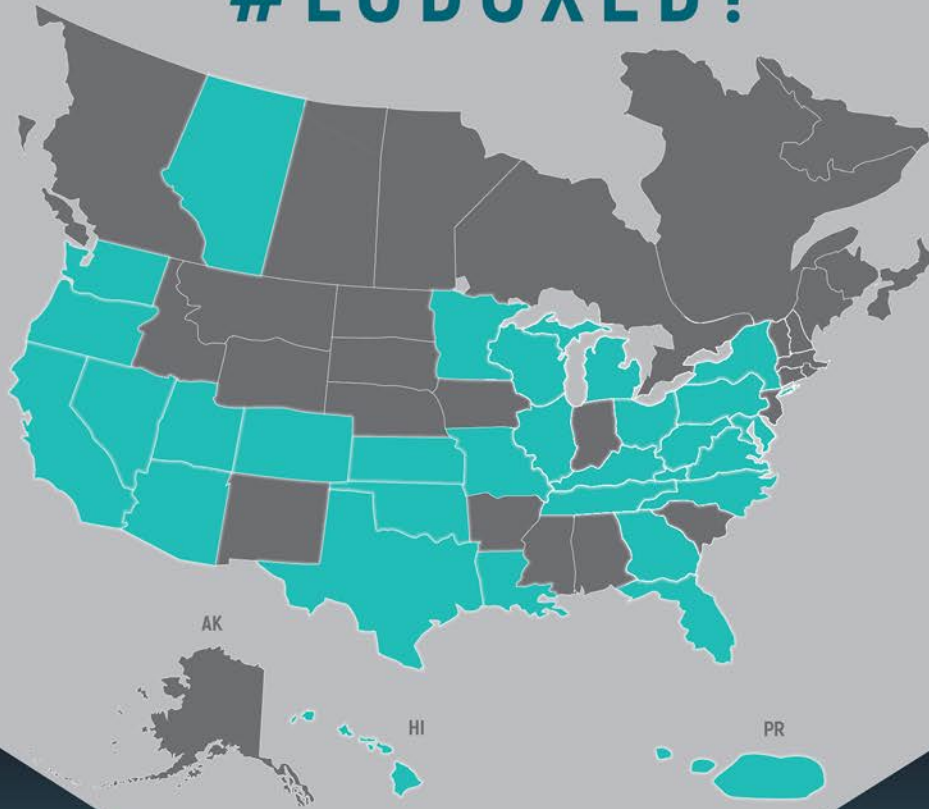
- 13 Searching for the Unidentified in South Texas Cemeteries: The Application of Geophysical Prospection**
Nicholas P. Herrmann, PhD; Courtney C. Siegert, MA; Mariah E. Moe, MA; Kate Spradley, PhD; Timothy P. Gocha, PhD; Chloe P. McDanel, MA; Kari Helgeson, MA; Isis Valdez; Shanna B. High, BS

- 14 The Human Rights Impacts of Burial Practices on Migrant Death Investigation in South Texas**
Molly A. Kaplan, MA; Kate Spradley, PhD

- 15 Developing Isotopic Tools (Databases and Models) for Human Traceability and Provenance in Argentina: Updates**
Luciano O. Valenzuela, PhD; Silvana Turner, Lic; Sofia Egaña, Lic; Luciano L. Loupías, Lic; Felipe Otero, Lic

- 16 Strontium Isotope Ratios in Mexican Hair and Tap Water—Potentials and Limitations for Aiding the Identification of Undocumented Border Crossers**
Saskia Ammer, MSc

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Forensic Science Research and Development (R&D) Symposium

The National Institute of Justice (NIJ) Forensic Science R&D Symposium is an open meeting where attendees can learn about NIJ-funded research across a variety of forensic science areas. AAFS meeting registration is not necessary. Feel free to log on and listen to specific presentations or stay all day and learn about the diverse NIJ forensic science R&D portfolio. This year, NIJ will also have a poster session highlighting recent research.

Information will be available at: <https://forensiccoe.org/workshop/2021-nij-forensic-science-rd-symposium/>.

Tuesday

February 16, 2021

9:00 a.m. – 4:40 p.m. (U.S. Central Time Zone)

Track 1: Session I

Seized Drugs and Toxicology

Moderator: Frances Scott, PhD

9:00 a.m.	-	9:10 a.m.	Welcome and Opening Remarks <i>Lucas W. Zarwell, MFS; Frances Scott, PhD</i>
9:10 a.m.	-	9:30 a.m.	A Rapid Forensic Identification of Psychoactive Plant Types by Multivariate Data Analysis of a Direct Analysis in Real-Time Mass Spectrometry (DART®-MS) Plant Database, Featuring a User-Friendly Graphical User Interface <i>Rabi A. Musah, PhD</i>
9:30 a.m.	-	9:50 a.m.	Increasing Safety, Speed, Sensitivity, and Selectivity of Controlled Substance Analysis <i>Amber Burns, MS</i>
9:50 a.m.	-	10:10 a.m.	Determining the Quality of Mass Spectral Library Searches Using a Quantitative Reliability Metric <i>Preshious Rearden, PhD</i>
10:10 a.m.	-	10:30 a.m.	Characterization of the Vapor Profile of Fentanyl and Related Analogs for Instrumental and Canine Detection <i>Lauryn DeGreeff, PhD</i>
10:30 a.m.	-	10:50 a.m.	Questions and Answers
10:50 a.m.	-	11:10 a.m.	Break
11:10 a.m.	-	11:30 a.m.	Chemical Foundations for a Cannabis Breathalyzer: Vapor Pressure Measurements and a Pilot Breath Collection Study <i>Tara M. Lovestead, PhD</i>
11:30 a.m.	-	11:50 a.m.	An Evaluation of Pre-Treatment Parameters in Forensic Hair Testing Using Statistical Design of Experiments (DoE) <i>Brianna Spear</i>
11:50 a.m.	-	12:10 p.m.	Identification of Phase II Opioid Metabolites in Human Hair <i>Megan Grabenauer, PhD</i>
12:10 p.m.	-	12:30 p.m.	The Development and Validation of Two Automated Sample Preparation Techniques for the Comprehensive Screening for Biological Matrices Using Liquid Chromatography Quadrupole Time-of-Flight Mass Spectrometry: A Correlative Analysis of Drug Recognition Expert Evaluations and Forensic Toxicology Results in Suspected Driving Under the Influence of Drugs Cases <i>Rebecca Wagner, PhD</i>
12:30 p.m.	-	12:50 p.m.	Questions and Answers
12:50 p.m.	-	1:00 p.m.	Break



NATIONAL INSTITUTE OF JUSTICE

Track 1: Session II

Forensic Anthropology and Forensic Pathology

Moderator: Danielle McLeod-Henning

- 1:00 p.m. - 1:10 p.m. **Welcome and Opening Remarks**
Lucas W. Zarwell, MFS; Danielle McLeod-Henning
- 1:10 p.m. - 1:35 p.m. **A DNA Barcoding Strategy for Blow and Flesh Flies Encountered During Medicolegal Casework**
Sam Kwiatkowski, PhD
- 1:35 p.m. - 2:00 p.m. **The Impact of Drugs on Human Decomposition and the Postmortem Interval: Insect, Scavenger, and Microbial Evidence**
Dawnie W. Steadman, PhD
- 2:00 p.m. - 2:25 p.m. **Modeling the Fluvial Transport of Human Remains in the Sacramento River, California**
Eric J. Bartelink, PhD; Colleen F. Milligan, PhD
- 2:25 p.m. - 2:45 p.m. **Questions and Answers**
- 2:45 p.m. - 3:05 p.m. **Break**
- 3:05 p.m. - 3:30 p.m. **Skeletal Trauma Research in Forensic Anthropology**
Angela L. Harden, MA
- 3:30 p.m. - 3:55 p.m. **Postmortem Iris Recognition**
Adam Czajka
- 3:55 p.m. - 4:20 p.m. **Understanding the Pathology of Homicidal Pediatric Blunt Neurotrauma Through the Correlation of Advanced Magnetic Resonance Images With Histopathology**
Heather S. Jarrell, MD
- 4:20 p.m. - 4:40 p.m. **Questions and Answers**

Track 2: Session I

Impression and Pattern Evidence/Trace Evidence

Moderator: Gregory Dutton, PhD

- 9:00 a.m. - 9:10 a.m. **Welcome and Opening Remarks**
Lucas W. Zarwell, MFS; Gregory Dutton, PhD
- 9:10 a.m. - 9:35 a.m. **A Black Box Evaluation of Bloodstain Pattern Analysis Conclusions**
Austin R. Hicklin, PhD
- 9:35 a.m. - 10:00 a.m. **Physics and Statistical Models for Physical Match Analysis Utilizing 3D Microscopy of Fracture Surfaces**
Ashraf F. Bastawros, PhD
- 10:00 a.m. - 10:25 a.m. **Results of the 2019 3D Virtual Comparison Microscopy Topography Resolution Study (VCMTRS)**
Ryan Lilien, PhD
- 10:25 a.m. - 10:45 a.m. **Questions and Answers**
- 10:45 a.m. - 11:05 a.m. **Break**

11:05 a.m.	-	11:30 a.m.	Determining Fingerprint Age With Mass Spectrometry Imaging of Triacylglycerols <i>Young-Jin Lee</i>
11:30 a.m.	-	11:55 a.m.	The Application of Morphologically Directed Raman Spectroscopy (MDRS®) for the Forensic Examination of Soils <i>Brooke W. Kammrath, PhD</i>
11:55 a.m.	-	12:20 p.m.	Raman Microspectroscopy and Advanced Statistics for Detection and Characterization of Gunshot Residue <i>Igor K. Lednev, PhD</i>
12:20 p.m.	-	12:40 p.m.	Questions and Answers
12:40 p.m.	-	1:00 p.m.	Break
Track 2: Session II			Forensic Biology/DNA <i>Moderator: Gregory Dutton, PhD</i>
1:00 p.m.	-	1:10 p.m.	Welcome and Opening Remarks <i>Lucas W. Zarwell, MFS; Gregory Dutton, PhD</i>
1:10 p.m.	-	1:35 p.m.	Population Distribution and Factors Affecting Individual DNA Shedding Propensity <i>Mechthild K. Prinz, PhD</i>
1:35 p.m.	-	2:00 p.m.	Environmental Persistence of Touch DNA <i>Meghan Ramsey, PhD</i>
2:00 p.m.	-	2:25 p.m.	Toward Developing Forensically Relevant Single Cell Pipelines by Incorporating Unsupervised Clustering <i>Ken R. Duffy, PhD</i>
2:25 p.m.	-	2:45 p.m.	Questions and Answers
2:45 p.m.	-	3:05 p.m.	Break
3:05 p.m.	-	3:30 p.m.	A Universal Method for Biological Stain Identification and Analysis Using Raman Spectroscopy <i>Igor K. Lednev, PhD</i>
3:30 p.m.	-	3:55 p.m.	The Effect of Storage Conditions on Estimates of the Age of Dried Bloodstains <i>Robert W. Allen, PhD</i>
3:55 p.m.	-	4:20 p.m.	An Epigenetic Multiplex Capable of Discriminating Body Fluid Type, Age, and Phenotype <i>Bruce R. McCord, PhD</i>
4:20 p.m.	-	4:40 p.m.	Questions and Answers



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Poster Session

Monday, February 15, 2021

9:00 a.m. – 4:40 p.m.

Tuesday, February 16, 2021

9:00 a.m. – 4:40 p.m.

- 1 Investigating Upper Thermal Limits of Forensically Important Blow Flies to Improve Testimony in Forensic Entomology**
Travis W. Rusch
- 2 The New Mexico Decedent Image Database (NMDID): A New Resource for Forensic Anthropology**
Shamsi Daneshvari Berry, PhD; Heather J.H. Edgar, PhD
- 3 How Skin Color Affects Bruise Assessments by Alternate Light: The Results of a Randomized Controlled Trial**
Katherine N. Scafide, PhD; Nancy Downing
- 4 Auto-Curation of a Large Human Decomposition Image Collection**
Sara Mousavi
- 5 Coupling Raman Spectroscopy With Ambient Sampling, Portable Mass Spectrometry for On-Site, High-Throughput Evidence Confirmation on a Single Instrumental Platform**
Christopher Mulligan
- 6 The Preservation of Forensically Relevant Biological Materials With Commercial Off-the-Shelf Antioxidants and Chelators**
Abigail S. Bathrick, MFS
- 7 An Evaluation of Massively Parallel Sequencing (MPS) Technology on Tissues Collected for Forensic Identification From the Body Farm**
Elisa Wurmbach, PhD
- 8 A Rotational Platform-Driven Microdevice for Differential Separation, Purification, and Amplification of Sexual Assault Forensic Samples**
Tracey Dawson Cruz, PhD
- 9 Decontamination of Crime Scene Equipment: An Evaluation of Current Methods and Best Practices**
Donia Slack, MS
- 10 Improving Results From Touch DNA Evidence With Optimized Direct Polymerase Chain Reaction (PCR) Methods**
Anna C. Salmonsén, BS
- 11 Paper Microfluidic Single-Walled Carbon Nanotubes Chemiresistive Biosensor Arrays for Body Fluids Identification**
Ashok Mulchandani
- 12 The Occurrence and Utility of Non-Identifiable Fingermarks**
David A. Stoney, PhD
- 13 The Use of Empirical Algorithms for Fire Investigation Analysis**
Daniel Madrzykowski, PhD
- 14 Security Crystals: Near-Infrared (NIR) -to-NIR Upconverting Nanoparticles for Fingerprint Identification and DNA Extraction**
William M. Cross, PhD
- 15 Statistical Error Estimation for an Objective Measure of Similarity to a Latent Image**
Donald T. Gantz, PhD

- 16 A Characterization and Analysis of Lithium-Ion Battery Fire Signatures and Debris**
Ofodike Ezekoye
- 17 Forensic Interpretation of Multiple Concurrent Audio Recordings**
Rob C. Maher, PhD
- 18 Evaluating and Optimizing DNA Extraction and Amplification Protocols for Microbiome-Based Forensic Applications**
Logan J. Willis
- 19 Key Factors in Particle Combination Analysis**
David A. Stoney, PhD
- 20 Post-Blast Explosives Attribution**
Paul J. Ippoliti
- 21 Validating the Sexual Lubricant Database Using True Known and Unknown Samples for Forensic Analysis**
Santana A.L. Thomas, PhD



ANTHROPOLOGY

Wednesday

Poster Session

Moderator: *Lara E. McCormick, PhD*
Omaha, NE

Co-Moderator: *Katie M. Rubin, PhD*
Defense POW/MIA Accounting Agency
Joint Base Pearl Harbor-Hickam, HI

- 11:30 a.m. - 1:00 p.m. **A1** **The Introduction of a Cranial Gunshot Trauma Photographic Atlas**
*Tessa Somogyi, MA**; *Elizabeth A. Evangelou, MA**; *Kevin E. Sheridan, PhD*;
*Elizabeth A. DiGangi, PhD**
- 11:30 a.m. - 1:00 p.m. **A2** **Fusion and Fracture: Forensic Implications of the Hyoid Bone**
*Laura C. Fulginiti, PhD**; *Andrew C. Seidel, PhD**; *Katelyn L. Bolhofner, PhD**
- 11:30 a.m. - 1:00 p.m. **A3** **The Frequency and Pattern of Cardiopulmonary Resuscitation (CPR) -Related Fractures in an Infant Autopsy Sample**
*Miriam E. Soto Martinez, PhD**; *Jason M. Wiersema, PhD*; *Julie M. Fleischman, PhD*;
Deborah C. Pinto, PhD; *Christopher Greeley, MD*; *Angela Bachim, MD*;
Marcella Donaruma-Kwoh, MD; *Si Gao, MS*; *Laney R. Feeser, MA*
- 11:30 a.m. - 1:00 p.m. **A4** **A Random Forest Approach to False Start Analysis**
*Kirsty Alsop, MSc**; *Waltraud Baier, PhD*; *Danielle Norman, PhD*; *Brian Burnett*;
Mark A. Williams, PhD
- 11:30 a.m. - 1:00 p.m. **A5** **Revisiting Serrated vs. Non-Serrated Kerf Marks in Sharp Force Trauma (SFT) Analyses**
*Keroshini Guynes**
- 11:30 a.m. - 1:00 p.m. **A6** **A Survey of Skeletal Trauma Within the Southeast Texas Applied Forensic Science Collection: A Wealth of Research Opportunity**
*Jennifer R. Kiely, MS**; *Kate M. Lesciotto, PhD*; *Sheree R. Hughes, PhD*
- 11:30 a.m. - 1:00 p.m. **A7** **Homicide Fracture Pattern Frequencies by Sex and Geographic Location**
*Cortney N. Hulse, MA**; *Kyra E. Stull, PhD*; *Laura D. Knight, MD*
- 11:30 a.m. - 1:00 p.m. **A8** **Patterning of Projectile Trauma Associated With a Historic World War II Battlefield Site**
*Willa R. Trask, PhD**; *Rebecca J. Wilson-Taylor, PhD**
- 11:30 a.m. - 1:00 p.m. **A9** **Communist Human Rights Violations in Poland (1944–1956): A Forensic Anthropological Perspective**
Krzysztof Fluder, MSc; *Matteo Borrini, PhD**; *Constantine Eliopoulos, PhD*
- 11:30 a.m. - 1:00 p.m. **A10** **Sex Estimation of a Croatian Population Based on Computed Tomography (CT) Scans of the Crania**
Carolane Radman, MD; *Zeljana Basic, PhD**; *Dragan Primorac, MD, PhD*; *Ivana Kruzic, PhD*
- 11:30 a.m. - 1:00 p.m. **A11** **A Preliminary Study of Sex Determination Using the Alveolar Ridge in Korean Adults**
*Dong-Ho Eddie Kim, BSc**; *U-Young Lee, MD, PhD*; *Yi-Suk Kim, MD, PhD*
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **A12** **Applying Posterior Probability Thresholds to Traditional Cranial Trait Sex Estimation Methods**
Patricia Avent; *Cris E. Hughes, PhD**; *Heather M. Garvin, PhD*

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- 11:30 a.m. - 1:00 p.m. **A13** **Sex Estimation of Skulls and Crania From Colombia Using MorphoPASSE Program v1.0**
*Justin R. Maiers, MS**; *Daniela Santamaria Vargas, BA*; *Elizabeth A. DiGangi, PhD*;
Jonathan D. Bethard, PhD
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **A14** **The Relationship of Enthesis Size to Muscle Size and Sexual Dimorphism in the Cranium and Clavicle in New Zealand and Thai Populations**
*Jade S. De La Paz, MS**; *Stephanie Woodley, PhD*; *Hallie Buckley, PhD*; *Siân Halcrow, PhD*;
Nawaporn Techataweewan, PhD
- 11:30 a.m. - 1:00 p.m. **A15** **The Utility of the Sacrum for Sex Estimation**
*Alexandra R. Klales, PhD**; *Ashley B. Maxwell, PhD*
- 11:30 a.m. - 1:00 p.m. **A16** **A Pilot Study of Geomorphometric Sex Estimation on the Pelvis**
*Emily Brooks, BA**; *Theresa M. De Cree, BA**; *Luis L. Cabo, MS*; *Nora Butterfield*
- 11:30 a.m. - 1:00 p.m. **A17** **Establishing Postcranial Sex Estimation Criteria for Unidentified Migrants at the United States-Mexico Border**
*Stephanie Medrano, MA**; *Molly A. Kaplan, MA**; *Kate Spradley, PhD*;
Gillian M. Fowler, MSc; *Cris E. Hughes, PhD*
- 11:30 a.m. - 1:00 p.m. **A18** **An Evaluation of Patellar Measurements for Estimating Sex in African Americans**
*Eric Fraunhofer**
- 11:30 a.m. - 1:00 p.m. **A19** **The Iliac Crest as a Skeletal Indicator of Puberty and Guide to Subadult Sex Estimation**
*Stephanie J. Cole, MS**; *Kyra E. Stull, PhD*; *Marin A. Pilloud, PhD*
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **A20** **Age Estimation in a South African Sample of 224 Living Subjects Using the Cameriere (Bo/Ca) and Tanner–Whitehouse 2 (TW2) Methods**
*Francesco De Micco, MBBS**; *Nikolaos Angelakopoulos*; *Federica Martino, MD*;
Graziamaria Corbi, PhD; *Roberto Cameriere*; *Carlo P. Campobasso, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **A21** **A Computed Tomographic Evaluation of the Vertebrochondral Joint for Age Estimation**
*Rutwik D. Shedje, MSc**; *Tanuj Kanchan, MD*; *Shilpi Gupta Dixit, MD*; *Pawan K. Garg, MD*;
Varsha Warriar
- 11:30 a.m. - 1:00 p.m. **A22** **Age Estimation Using a Radiation-Free Medical Method: An Analysis of Carpal Bones by Magnetic Resonance Imaging (MRI)**
*Roberto Scendoni**; *Mariano Cingolani, MD*; *Francesco De Micco, MBBS**; *Roberto Cameriere*
- 11:30 a.m. - 1:00 p.m. **A23** **A Computed Tomographic Analysis of Medial Clavicular Epiphyseal Fusion for Age Estimation in an Indian Population**
*Rutwik D. Shedje, MSc**; *Tanuj Kanchan, MD*; *Pawan K. Garg, MD*; *Shilpi Gupta Dixit, MD*;
Varsha Warriar; *Pushpinder Khera, MD*; *Kewal Krishan, PhD*
- 11:30 a.m. - 1:00 p.m. **A24** **Estimating Age From 2D and 3D Imaging of Skeletal Remains: An Assessment of Reliability Using the Medial Clavicle**
*Sarah H. Ghannam, MA**; *Brittany S. Walter, PhD**; *William R. Belcher, PhD*
- 11:30 a.m. - 1:00 p.m. **A25** **The McKern-Stewart Method as a Technique for Analyzing Age-Related Pubic Symphyseal Changes: A Systematic Review and Meta-Analysis**
*Varsha Warriar**; *Rutwik D. Shedje, MSc*; *Tanuj Kanchan, MD*; *Kewal Krishan, PhD*

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- 11:30 a.m. - 1:00 p.m. **A26** **Skeletal Age Estimation From Pubic Symphysis: A Systematic Review of the Suchey-Brooks Method**
*Tanuj Kanchan, MD**; *Surjit Singh, MD*; *Varsha Warriar*; *Rutwik D. Shedge, MSc*
- 11:30 a.m. - 1:00 p.m. **A27** **The Age-Informative Value of the Pubic Symphysis Compared to Other Skeletal Traits in a Chilean Sample Using Transition Analysis**
*Jacqueline Galimany, MA**; *Sara M. Getz, PhD*
- 11:30 a.m. - 1:00 p.m. **A28** **Testing the Traits of TA3: Setting a Baseline for Method Development and Performance**
*Sara M. Getz, PhD**; *Patrick D. Byrnes, PhD*
- 11:30 a.m. - 1:00 p.m. **A29** **Aging From Cranial Suture Closure**
*Sittiporn Ruengdit, PhD**; *D. Troy Case, PhD*; *Pasuk Mahakkanukrauh, MD*
- 11:30 a.m. - 1:00 p.m. **A30** **Does Age Matter?! An Age Study on Maxillary Sinus Morphologies in Human Identification**
*Teresa M. Runge, MS**; *Joel D. Irish, PhD*; *Alicia Ventresca Miller, PhD*; *Matteo Borrini, PhD*
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **A31** **The Use of High-Resolution Computed Tomography (CT) to Explore Age-Related Trabecular Change in Human Ribs**
*Sophia Mavroudas, MA**; *Victoria M. Dominguez, PhD*; *Devora S. Gleiber, MA*
- 11:30 a.m. - 1:00 p.m. **A32** **An Age-at-Death Estimation in a Contemporary Australian Population Using Femoral Histomorphometry**
*Ariane Maggio, MFS**; *Daniel Franklin, PhD*
- 11:30 a.m. - 1:00 p.m. **A33** **Automated Techniques for Cortical Bone Histological Variable Segmentation and Image Enhancement**
*Mary E. Cole, PhD**; *Reed A. Davis, MS*; *Joshua T. Taylor*; *Janna M. Andronowski, PhD*
- 11:30 a.m. - 1:00 p.m. **A34** **The Longitudinal Effects of Prolonged Opioid Use on Cortical Bone Remodeling in a Rabbit Model: Part I—Intraskelatal Variability and Regional Differences Detected Via Micro-Computed Tomography (Micro-CT)**
*Janna M. Andronowski, PhD**; *Mary E. Cole, PhD*; *Reed A. Davis, MS*; *Adam J. Schuller, BS*; *Abigail R. LaMarca*; *Gina R. Tubo*
- 11:30 a.m. - 1:00 p.m. **A35** **Group-Specific Label Use in Anthropology: A Review of the *Journal of Forensic Sciences*, 2010–2019**
*Erin B. Waxenbaum, PhD**
- 11:30 a.m. - 1:00 p.m. **A36** **Population Variation in the Occurrence of Midline and Canine Diastemata**
*Cassie E. Skipper, MA**; *SaMoura L. Horsley**; *Dori E. Kenessey, BA*; *Tatiana Vlemincq-Mendieta, MS*; *G. Richard Scott, PhD*; *Marin A. Pilloud, PhD*
- 11:30 a.m. - 1:00 p.m. **A37** **Fluctuating Asymmetry: A Craniofacial Comparison to Better Understand Central American and Mexican Migration**
*Stephanie Medrano, MA**; *Kate Spradley, PhD*; *Katherine E. Weisensee, PhD*
- 11:30 a.m. - 1:00 p.m. **A38** **Vertebral Neural Canal (VNC) Dimensions in Contemporary Subadult Samples: Indicators of Stress, Population Variation, or Both?**
*Louise K. Corron, PhD**; *Christopher A. Wolfe, MA*; *Kyra E. Stull, PhD*
- 11:30 a.m. - 1:00 p.m. **A39** **Integrating the Biocultural Profile Into the Identification Process at the Louisiana State University Forensic Anthropology and Computer Enhancement Services (LSU FACES) Laboratory**
*Emily F. Michon, MA**; *Sophia I. Reck, MA*; *Ginesse A. Listi, PhD*; *Teresa V. Wilson, PhD*

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- 11:30 a.m. - 1:00 p.m. **A40** **Caseloads in Forensic Anthropology**
*Nicholas V. Passalacqua, PhD**; *Marin A. Pilloud, PhD*; *Casey Philbin, PhD*
- 11:30 a.m. - 1:00 p.m. **A41** **The Impact of Forensic Anthropology Manuscripts in the *American Journal of Physical Anthropology***
*Rhian Dunn, MS**; *Nicholas V. Passalacqua, PhD*; *Joseph T. Hefner, PhD*; *Katie Zejdlik, PhD*
- 11:30 a.m. - 1:00 p.m. **A42** **Consistency in Validation: Categorizing Validation Studies in Forensic Anthropology**
*Angela M. Dautartas, PhD**; *Kelly Sauerwein, PhD*
- 11:30 a.m. - 1:00 p.m. **A43** **A Hierarchy of Expert Performance as Applied to Forensic Anthropology**
*Stephanie Hartley, BA**; *Allysha P. Winburn, PhD*
- 11:30 a.m. - 1:00 p.m. **A44** **Reliability and Biasability of Sectioning-Point-Based Sex Estimation**
*Stephanie Hartley, BA**; *Allysha P. Winburn, PhD*; *Itiel Dror, PhD*
- 11:30 a.m. - 1:00 p.m. **A45** **The Effects of Enhanced Quality Control (QC) Measures on Forensic Anthropological Practice**
*Raphaella M. Meloro, MA**; *Allysha P. Winburn, PhD*; *Valerie DeLeon, PhD*
- 11:30 a.m. - 1:00 p.m. **A46** **Improving Radiographic Visualization of the Frontal Sinus for Scientific Identification**
*Erica R. Christensen, MS**; *Laura K. Scheid, MS*; *Jered B. Cornelison, PhD*; *Christine M. Pink, PhD*
- 11:30 a.m. - 1:00 p.m. **A47** **A Pilot Study on Measurement Error on 2D and 3D Images in Forensic Anthropological Applications**
Theresa M. De Cree, BA; *Emily Brooks, BA*; *Victoria Lamond, BA**; *Samantha LaFrance, BA**; *Luis L. Cabo, MS*
- 11:30 a.m. - 1:00 p.m. **A48** **The Utility of Digital Imaging Technologies for the Virtual Curation and Metric Analysis of Skeletal Remains**
*Devin L. Adcox**; *Tiffany B. Saul, PhD*
- 11:30 a.m. - 1:00 p.m. **A49** **3D Web-Based Technologies to Support Interactive Forensic Anthropology Databases**
*Terrie Simmons-Ehrhardt, MA**
- 11:30 a.m. - 1:00 p.m. **A50** **Back Together: An Innovative Procedure For Cranial Reconstruction as an Aid for Human Identification**
*Matteo Borrini, PhD**; *Satu Valoriani, PhD*
- 11:30 a.m. - 1:00 p.m. **A51** **The Application of Standardized Skeletal Inventory Methods to Fragmented Subadult Cranial Remains**
*Andrea Palmiotto, PhD**
- 11:30 a.m. - 1:00 p.m. **A52** **A Metric Approach to Human and Non-Human Species Identification of Skeletal Remains Using Machine Learning**
*Heather M. Garvin, PhD**; *Michael W. Kenyhercz, PhD*; *Rachel Dunn, PhD*; *Sabrina Sholts, PhD*; *M. Schuyler Litten, MA*
- 11:30 a.m. - 1:00 p.m. **A53** **A Comparison of the Accuracy of Identification Between Non-Human and Human Skeletal Elements**
*Kaitlyn Klein, BS**; *Holly A. Long, BS**; *Summer B. Shipley, BS**

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- 11:30 a.m. - 1:00 p.m. **A54** **Portable Laser-Induced Breakdown Spectroscopy (LIBS) for the Categorization of Human Skeletal Remains**
*Kelsi Kuehn, MA**; *Matthieu Baudelet, PhD*; *Jonathan D. Bethard, PhD*
- 11:30 a.m. - 1:00 p.m. **A55** **Choose Your Own (Accreditation) Adventure in the Defense POW/MIA Accounting Agency's (DPAA's) Isotope Testing Program: Part I—Sample Preparation**
*Amelia J. Edwards, MS**; *Lesley A. Chesson, MS*; *Thuan H. Chau, MS*; *Vincent J. Sava, MA*; *Gregory E. Berg, PhD*
- 11:30 a.m. - 1:00 p.m. **A56** **Choose Your Own (Accreditation) Adventure in the Defense POW/MIA Accounting Agency (DPAA) Isotope Testing Program: Part II—Sample Analysis**
*Lesley A. Chesson, MS**; *Thuan H. Chau, MS*; *Amelia J. Edwards, MS*; *Hannah Dibner, MS*; *Gregory E. Berg, PhD*
- 11:30 a.m. - 1:00 p.m. **A57** **Validating Isoscoping Methods: A Study of Oxygen, Strontium, and Sulfur**
*Tamara Tyner, MA**; *Daniel J. Wescott, PhD*; *Nicholas P. Herrmann, PhD*; *Tiffany B. Saul, PhD*
- 11:30 a.m. - 1:00 p.m. **A58** **Mass Grave Localization Prediction With Geographical Information Systems in Guatemala and Future Impacts**
*Perla Santillan, MS**; *Scott Edwards, PhD*; *Jenise Swall, PhD*; *Tal Simmons, PhD*
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **A59** **The Importance of Hand-Drawn Maps in Forensic Archaeological Recoveries**
*Anthony V. Lanfranchi, BS**; *Kristine A. Kortonick, BS**; *Victoria Lamond, BA**
- 11:30 a.m. - 1:00 p.m. **A60** **Shining a Light on Forensic Anthropology: The Use of Alternative Light Sources (ALS) to Detect Skeletal Remains Underwater**
*Catherine Maidment**; *Anna Williams, PhD*
- 11:30 a.m. - 1:00 p.m. **A61** **Variation in Bone Shrinkage Due to Thermal Exposure: A Patellar Case Study**
*Ashley B. Maxwell, PhD**; *Alexandra R. Klaes, PhD*; *Brailey Moeder*
- 11:30 a.m. - 1:00 p.m. **A62** **The Implications of Thermal Alteration on Osteometry**
*Maritza Liebenberg, BSc**; *Leandi Liebenberg, MS*; *Gabriele C. Kruger, MSc*; *Ericka N. L'Abbe, PhD*
- 11:30 a.m. - 1:00 p.m. **A63** **Burned Bodies: Positional Change in Decomposed and Fresh Human Remains**
*Petra Banks, MA**; *Mariah E. Moe, MA*; *Courtney C. Siegert, MA*; *Sophia Mavroudas, MA*; *Steve Seddig, BS*; *Nicholas P. Herrmann, PhD*; *Timothy P. Gocha, PhD*; *Daniel J. Wescott, PhD*
- 11:30 a.m. - 1:00 p.m. **A64** **Mattress Fires and Their Effect on the Destruction and Distribution of Remains in a House Fire Setting**
*Nicole H.W. Schwalbach, MA**
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **A65** **Pack Rats: An Unconsidered Taphonomic Variable**
*Carlos J. Zambrano, PhD**; *Kent J. Buehler, MA*; *Angela Berg, RN*
- 11:30 a.m. - 1:00 p.m. **A66** **Phase II Spatial Patterning of Vulture-Scavenged Human Remains**
*Molly Miranker, MA**; *Alberto Giordano, PhD*; *Kate Spradley, PhD*
- 11:30 a.m. - 1:00 p.m. **A67** **Vulture and Black-Backed Jackal Scavenging: Forensic Implications for the Recovery of Scattered Remains in South Africa**
*Craig A. Keyes, MS**; *Jolandie Myburgh, PhD*; *Desiré Brits, PhD*

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- 11:30 a.m. - 1:00 p.m. **A68** **WITHDRAWN**
- 11:30 a.m. - 1:00 p.m. **A69** **Taphonomic Effects of Acidic Soil on Human Remains in Japan: A Preliminary Study**
*Brian D. Padgett, PhD**
- 11:30 a.m. - 1:00 p.m. **A70** **The Application and Implication of Radiocarbon Dating in Forensic Case Work: When Medicolegal Significance Meets Archaeological Relevance**
*Benoit Bertrand, PhD**; *Philippe Morbidelli, MD*; *Anne A. Becart, DDS, PhD*;
Pascale Richardin, PhD; *Didier Gosset, MD, PhD*; *Vadim Mesli, MD*;
Valéry C. Hédouin, MD, PhD
- 11:30 a.m. - 1:00 p.m. **A71** **Investigating the Extent of Bone Diagenesis in Short Timescales Through a Histological Approach**
*Caley A. Mein**; *Anna Williams, PhD*
- 11:30 a.m. - 1:00 p.m. **A72** **The Growth of Bryozoan Colonies on Immersed Human Bones: How Can It Help to Estimate the Minimum Postmortem Interval?**
*Vadim Mesli, MD**; *Benoit Bertrand, PhD*; *Quentin Scanvion, MD*; *Didier Gosset, MD, PhD*;
Valéry C. Hédouin, MD, PhD
- 11:30 a.m. - 1:00 p.m. **A73** **An Analysis of Clothed Pig Proxies (*Sus Scrofa*) When Cold Temperatures Are Present in Central Illinois**
*Katharine C. Woollen, MS**
- 11:30 a.m. - 1:00 p.m. **A74** **Decomposition in the Sonoran Desert During the Summer**
*Kaitlyn J. Fulp, BA**; *Meghan M. Gast*; *Jacob A. Harris, PhD*; *Katelyn L. Bolhofner, PhD*

Thursday—Session I

Biological Profile and Identification

Moderator: Brittany S. Walter, PhD
Defense POW/MIA Accounting Agency Lab
Offutt Air Force Base, NE

Co-Moderator: Angela M. Dautartas, PhD
Troy University
Troy, AL

- 9:00 a.m. - 9:15 a.m. **A75** **Forensic Anthropology Casework Performance: Assessing Accuracy and Trends for Biological Profile Estimates on a Comprehensive Sample of Identified Decedent Cases**
Cris E. Hughes, PhD; *Chelsey A. Juarez, PhD**; *An-Di Yim, MA*
- 9:15 a.m. - 9:30 a.m. **A76** **Variation in Pubic Body Shape in Hispanic and Euroamerican Populations and the Implications for Assessing Biological Sex From Skeletal Remains**
*Erica Cantor, MS**; *Krista E. Latham, PhD*; *Stephen P. Nawrocki, PhD*
- 9:30 a.m. - 9:45 a.m. **A77** **Reference Sample Optimization for Juvenile Age Estimation From Diaphyseal Lengths**
*Valerie Sgheiza, MA**; *An-Di Yim, MA**
- 9:45 a.m. - 10:00 a.m. **A78** **Skeletal Age Estimation in the Living: Conventional Radiography (CR) Versus Magnetic Resonance Imaging (MRI) and Staging Technique Versus Atlas Method**
*Heleen Coreelman, MSc**; *Elke Hillewig, MSc*; *B. de Haas, BSc*; *Patrick W. Thevissen, PhD*;
Jannick De Tobel, PhD

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- 10:00 a.m. - 10:15 a.m. **A79** **The Effects of Measurement Properties and Underlying Human Variation on FORDISC® Classification and Tolerance for Craniometric Error**
*Michala K. Stock, PhD**; *Katie M. Rubin, PhD*; *Kyle A. McCormick, PhD*
- 10:15 a.m. - 10:30 a.m. **A80** **Tracing Latinx Population History Through Odontometrics**
*Rebecca L. George, PhD**; *Marin A. Pilloud, PhD*
- 10:30 a.m. - 10:45 a.m. **A81** **Trotter and Gleser's (1958) Equations Outperform Trotter and Gleser's (1952) Equations in Estimating Living Statures of White Males**
*Yangseung Jeong, PhD**; *Eun Jin Woo*; *Simon Eduard Pergande*
- 10:45 a.m. - 11:00 a.m. **A82** **Metric Identification Support Tool (MIST): A Statistically Based Instrument for Use in Medical Examiner/Coroner Offices to Support Personal Identification Results**
*Sharon M. Derrick, PhD**; *Jason M. Wiersema, PhD*; *Deborah C. Pinto, PhD*; *Blair Boatwright, PhD*
- 11:00 a.m. - 11:15 a.m. **A83** **An Introduction to a Skeletal Series for Forensic Anthropology Research and Training**
*Christine M. Pink, PhD**; *Erica R. Christensen, MS*; *Laura K. Scheid, MS*; *Jered B. Cornelison, PhD*
- 11:15 a.m. - 11:30 a.m. **A84** **Bodies Without Names, Names Without Bodies: Searching for Lost Lives in Lisbon, Portugal**
Ana Rita Inácio, MD; *Sandra R. Sousa, MS*; *Zoi R. Argyropoulou, MD*; *Silvia R. Andrade, MD*; *Catarina R. Gomes, MD*; *Mário Sardinha, MD*; *Carlos dos Santos, MD*; *Eugenia Cunha, PhD**
- 11:30 a.m. - 11:45 a.m. **A85** **Management of the Dead After Disasters From Aquatic Environments in the Asia and Pacific Region**
*Sherry C. Fox, PhD**; *Nitin K. Agrawal, MDS*; *Eva Bruenisholz, MS*; *Laurel Clegg, MSc*; *Melihat Elif Gunce Eskikoy, DDS, PhD*; *Sharmila Gurung, MSc*; *Jennifer L. Hughes, PhD*; *Lay See Khoo, PhD*; *Udo Krenzer, MA*; *Alex Starkie, PhD*
- 11:45 a.m. - 12:00 p.m. **A86** **Stakeholder Forums: Applying a Social Science Strategy for Recognizing Policy Consensus Among Divergent Stakeholders on Transnational DNA Data Sharing in Missing Persons Identifications**
*Sara H. Katsanis, MS**; *Diana J. Madden, MA*; *Courtney C. Siegert, MA*; *Jennifer K. Wagner, JD, PhD*; *Kate Spradley, PhD*

Thursday—Session II

Trauma and Taphonomy

Moderator: Kelly Sauerwein, PhD
National Institute of Standards and Technology
Gaithersburg, MD

Co-Moderator: Janet E. Finlayson, PhD
SNA International supporting the DPAA
Alexandria, VA

- 1:00 p.m. - 1:15 p.m. **A87** **Rib Fracture Analysis of Infant Cardiopulmonary Resuscitation (CPR) Methods Using Porcine Surrogates**
*Laney R. Feeser, MA**
- 1:15 p.m. - 1:30 p.m. **A88** **Experimentally Induced Rib Fractures Using Euthanized Burmese Pythons (*Python bivittatus* Kuhl): A Comparison of Compression Impacts to Inform Pediatric Rib Fractures in Humans**
*Amy Pham, BA**; *Shannon L. Dery, BS*; *Heather A. Walsh-Haney, PhD*; *Jiehong Liao*; *Ian Bartoszek*

ANTHROPOLOGY

- 1:30 p.m. - 1:45 p.m. **A89** **Differentiating the Skeletal Trauma Resulting From Pediatric Simple Short Falls Compared With Physical Abuse: A Retrospective International Multicenter Pilot Study**
*Samantha K. Rowbotham, PhD**; *Ryan Blumenthal, PhD*; *Tania Delabarde, PhD*; *Laurence Legrand, MD*; *Elizabeth van der Walt, FCRad*; *Tom Sutherland, FRANZCR*; *Zarina Lockhat, FFRAD*; *Owen J. Arthurs, PhD*
- 1:45 p.m. - 2:00 p.m. **A90** **Differences in Fracture Healing Between Unintentional and Abuse-Related Fractures in Young Children**
*Diana Lynn Messer, PhD**; *Jessica L. Campbell, PhD*; *Brent H. Adler, MD*; *Lynne Ruess, MD*; *Farah W. Brink, MD*; *Henry L. Xiang, MD, PhD*
- 2:00 p.m. - 2:15 p.m. **A91** **The Effects of Input Energy and Impact Surface on Cranial Fracture Patterns**
*Mariyam I. Isa, PhD**; *Todd W. Fenton, PhD*; *Alexis C. Goots, MA*; *Elena O. Watson, MS*; *Feng Wei, PhD*
- 2:15 p.m. - 2:30 p.m. **A92** **The Issues and Complexities of Establishing Methodologies to Differentiate Between Vertical and Horizontal Impact Mechanisms in the Analysis of Skeletal Trauma**
*Nick Dempsey, BA**; *Richard Bassed, BDS*; *Soren Blau, PhD*
- 2:30 p.m. - 2:45 p.m. **A93** **An Assessment of the Ability of Forensic Anthropologists to Detect Skeletal Trauma Using Radiological Methods**
*Amy Joy Spies, MSc**; *Maryna Steyn, PhD*; *Daniel N. Prince, MBBCh*; *Desiré Brits, PhD*
- 2:45 p.m. - 3:00 p.m. **A94** **Bone Diagenesis in the Marine Environment: Trace Element Distribution in Mammalian Bones Recovered From Shipwrecks**
*Edda Guareschi, MD, MSc**; *Noreen J. Evans, PhD*; *Kai Rankenburg, PhD*; *Bradley J. McDonald*; *Shanan S. Tobe, PhD*; *Philip K. Nicholls, PhD*; *Paola A. Magni, PhD*
- 3:00 p.m. - 3:15 p.m. **A95** **Widespread and Common Blow Fly Species in the Northeastern United States: How Useful Are They in the Forensic Inference About the Movement of a Corpse**
*Julie Pinto, MS**; *R. Christopher O'Brien, PhD*; *Paola A. Magni, PhD*; *Ian Dadour, PhD*
- 3:15 p.m. - 3:30 p.m. **A96** **Using Metabolomics to Gain a Deeper Understanding of Human Decomposition**
*Amanda May, PhD**; *Katharina M. Höland, MSc*; *Hayden McKee, MSc*; *Allison R. Mason, BS*; *Sarah Schwing, BA, BSc*; *Charity G. Owings, PhD*; *Thomas Delgado, BA*; *Mary C. Davis, MSc*; *Russell L. Zaretski, PhD*; *Jennifer M. DeBruyn, PhD*; *Dawnie W. Steadman, PhD*; *Shawn R. Campagna, PhD**
- 3:30 p.m. - 3:45 p.m. **A97** **A New Quantitative Method for Analyzing Burned Human Remains**
*Amanda N. Williams, PhD**
- 3:45 p.m. - 4:00 p.m. **A98** **A Refined Classification System for Thermally Damaged Human Remains by Body Segment**
*Elayne J. Pope, PhD**; *Chelsey A. Juarez, PhD*; *Alison Galloway, PhD*



ANTHROPOLOGY

Friday—Session I

Structural Vulnerability and Critical Race Theory

Moderator: *Erin B. Waxenbaum, PhD*
Evanston, IL

Co-Moderator: *Rebecca L. George, PhD*
University of Nevada, Reno
Reno, NV

- 9:00 a.m. - 9:15 a.m. **A99** **Reporting Biases Between Missing Persons and Unidentified Persons in the United States**
*Micayla C. Spiros, MS**; *Kelly R. Kamnikar, MA*
- 9:15 a.m. - 9:30 a.m. **A100** **America Since Wounded Knee: Contextual Vulnerabilities in the Ongoing Missing and Murdered Indigenous Women (MMIW) Crisis**
*A. Skylar Joseph, MS**
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 9:30 a.m. - 9:45 a.m. **A101** **Structural Vulnerability in Transgender and Non-Binary Decedent Populations: Analytical Considerations and Harm-Reduction Strategies**
*Amy Michael, PhD**; *Mariyam I. Isa, PhD*; *Lee Redgrave*; *Anthony Redgrave, MS*
- 9:45 a.m. - 10:00 a.m. **A102** **Forensic Anthropology is WEIRD: Knowledge Production by Whom for Whom**
*Nandar Yuki, MA**; *Elaine Y. Chu, MA*; *Matthew C. Go, PhD*
- 10:00 a.m. - 10:15 a.m. **A103** **Terminology Used to Describe Human Variation in Forensic Anthropology**
*Marin A. Pilloud, PhD**; *Cassie E. Skipper, MA*; *SaMoura L. Horsley*; *Alba E. Craig, BA*; *Krista E. Latham, PhD*; *Katie Zejdlik, PhD*; *Chaunese Clemmons, BA*; *Deborah Boehm, PhD*; *Casey Philbin, PhD*
- 10:15 a.m. - 10:30 a.m. **A104** **Assumed Differences and Unquestioned Typologies: The Oversimplification of Race and Ancestry in Forensic Anthropology**
*Nicolette Parr, PhD**; *Allysha P. Winburn, PhD*; *Sean D. Tallman, PhD*

Symposium: The Ethics of Forensic Anthropological Practice

Moderator: *Marin A. Pilloud, PhD*
University of Nevada, Reno
Reno, NV

Co-Moderator: *Nicholas V. Passalacqua, PhD*
Western Carolina University
Cullowhee, NC

- 10:30 a.m. - 10:45 a.m. **A105** **Forensic Science and the Living: The Ethics of “Determining” Age From Minor Children**
*Elizabeth A. DiGangi, PhD**; *Ariel M. Gruenthal-Rankin, MSc*; *Tessa Somogyi, MA*
- 10:45 a.m. - 11:00 a.m. **A106** **WITHDRAWN**
- 11:00 a.m. - 11:15 a.m. **A107** **Bakeng Se Afrika and the Ethics of Digital Repositories of Human Remains**
*Ericka N. L’Abbe, PhD**; *Amanda Alblas, PhD*; *Kerri Keet, MSc*; *Yann Heuzé, PhD*; *Sandeepha Rajbaran Singh, MSc*; *Clarisa van der Merwe, MSc*
- 11:15 a.m. - 11:30 a.m. **A108** **The Ethics of Combatants as Investigators in the Search for People Missing Due to Armed Conflict**
*Derek Congram, PhD**; *Maria L. Urbano*; *Tilzia Quintero*; *Jhon L. Gonzalez, BA*; *Jaime Parra*
- 11:30 a.m. - 12:00 p.m. **Discussion**
Marin Pilloud, PhD; *Nicholas Passalacqua, PhD*

ANTHROPOLOGY

Friday—Session II

Diversity and Inclusion Symposium—Doing More Harm than Good: Forensic Anthropology Has a Race Problem

Moderator: *Alba E. Craig, BA*
Indianapolis, IN

Co-Moderator: *Tanya Ramos, BA*
Indianapolis, IN

1:00 p.m.	-	1:15 p.m.	A109	WITHDRAWN
1:15 p.m.	-	1:30 p.m.	A110	WITHDRAWN
1:30 p.m.	-	1:45 p.m.	A111	WITHDRAWN
1:45 p.m.	-	2:00 p.m.	A112	Don't Let Your World Be Too Small: The Relevance of Identity and Skeletal Populations <i>Phoebe R. Stubblefield, PhD*</i>
2:00 p.m.	-	2:15 p.m.	A113	WITHDRAWN
2:15 p.m.	-	2:30 p.m.	A114	Adulteration of Ancestry: A Time for Reform <i>Ann H. Ross, PhD*; Marin A. Pilloud, PhD*</i>
2:30 p.m.	-	2:45 p.m.	A115	WITHDRAWN
2:45 p.m.	-	3:00 p.m.	A116	WITHDRAWN
3:00 p.m.	-	4:00 p.m.		Discussion <i>Agust n Fuentes, PhD</i>



CRIMINALISTICS

Wednesday—Session I

Evidence Screening

Moderator: *Baneshwar Singh, PhD*
Virginia Commonwealth University
Richmond, VA

- 8:30 a.m. - 8:45 a.m. **B1** **A Novel Colorimetric Isothermal Amplification Method for Cost-Effective, Rapid Body Fluid Identification**
*Tiffany R. Layne, MS**; *An-Chi Tsuei, MS*; *Annie Piland, BA*; *Nathan Tanner, PhD*;
James P. Landers, PhD
- 8:45 a.m. - 9:05 a.m. **B2** **Stay Gold: Lab-Based Considerations to Help Keep Forensic DNA Analysis the Shining Standard**
*Nancy Dinh**
- 9:05 a.m. - 9:20 a.m. **B3** **An Aptamer-Based Fluorescence Biosensor for Salivary Lysozyme Using Localized Surface Plasmon Resonance-Enhanced Fluorescence of Zinc Selenide Sulfide (ZnSSe) -Alloyed Quantum Dots-Gold Nanoparticle Nanohybrid**
*Magda A. Pereira de Barros**
- 9:20 a.m. - 9:35 a.m. **B4** **A Metabolomic Analysis for the Discovery of the Age of a Bloodstain Marker**
*Seungyeon Lee, BS**; *Sora Mun, MT*; *You-Rim Lee, MS*; *Hyebin Choi, BS*; *Miji Shin, BS*;
Sohyen Kwon, BS; *Jiyeong Lee, PhD*; *Ho Joong Sung, PhD*; *Sung Hee Hyun*;
Hee-Gyoo Kang, PhD
- 9:35 a.m. - 9:50 a.m. **B5** **Evaluation Surface Effect of Bloodstains on Various Absorbent and Non-Absorbent Surfaces Using a Metabolomic Approach**
*Seungyeon Lee, BS**; *Hyo-Jin Kim, MT*; *Yoo-Jin Lee, MT*; *Sora Mun, MT*; *You-Rim Lee, MS*;
Miji Shin, BS; *Hyebin Choi, BS*; *Sohyen Kwon, BS*; *Jiyeong Lee, PhD*; *Ho Joong Sung, PhD*;
Sung Hee Hyun; *Hee-Gyoo Kang, PhD*
- 9:50 a.m. - 10:05 a.m. **B6** **The Development and Validation of a Multiple Reaction Monitoring (MRM) Mass Spectrometry (MS) Assay for Confident Identification of Protein Biomarkers for Blood, Semen, and Saliva**
*Erin R. Butler, MS**; *Heyi Yang, PhD*; *Tatiana Perez, MS*; *Ilyan Almuqarak, MS*;
Jahaira Zapata, MS; *Harmeen Bakshi, MS*; *Megan Sutherland, BS*; *Donald Siegel*

Evidence Processing

Moderator: *Sabrina S. Seehafer, PhD*
Ankeny, IA

- 10:05 a.m. - 10:20 a.m. **B7** **Unlocking Dependable Forensic Results From Shell Casings: Advances in Method Development, Sample Collection, and Genetic Analysis**
*Curt Hewitt**; *Danielle S. LeSassier, PhD*; *Katharina L. Weber, BS*; *Benjamin C. Ludolph, BS*;
Kathleen Q. Schulte, MS; *Leah Allen, BS*; *Megan E. Powals, BS*; *Alan R. Smith, BS*;
Nicolette C. Albright, MS; *August E. Woerner, PhD*; *Leslie Parke, BS*; *Myles W. Gardner, PhD*
- 10:20 a.m. - 10:40 a.m. **B8** **Searching for the Silver Bullet of a Unified System to Deliver Forensic Science**
*Rebecca E. Bucht, PhD**; *Sheila Willis, DS*; *Lauren Wilson, PhD*; *Lore George, MSc*;
Michelle D. Miranda, PhD

CRIMINALISTICS

- 10:40 a.m. - 10:55 a.m. **B9** **Evaluating a Test for Shedding Propensity Using Tape Lifts From Different Skin Locations**
*Xiao Chen, BS**; *Tebah Browne, MS*; *Genevieve Trapani, BS*; *Nicholas D. Petraco, PhD*;
Mechthild K. Prinz, PhD
- 10:55 a.m. - 11:25 a.m. **B10** **Non-Destructive, Rapid Differentiation of Cell Types Relevant to Sexual Assault Investigations Utilizing Morphological and Autofluorescence Signatures**
*Taylor R. Moldenhauer, BS**; *Christopher J. Ehrhardt, PhD*; *Jonathan Millman, PhD*;
Cory Steinberg, BSc; *Sonja Stadler, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)

Wednesday—Session II

Drugs 1

Moderator: *Linda C. Jackson, MS*
Department of Forensic Science
Richmond, VA

- 8:30 a.m. - 8:45 a.m. **B11** **The Differentiation of Hemp From Marijuana Using a Qualitative Decision-Point Assay**
*Ya-Chih Cheng, MS**; *Sarah Kerrigan, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 8:45 a.m. - 9:00 a.m. **B12** **The Results of an Interlaboratory Validation to Differentiate Marijuana From Hemp**
*Sarah Kerrigan, PhD**; *Ya-Chih Cheng, MS*; *Chance Cline, BS*; *Kay McClain, BS*;
James T. Miller, MA
- 9:00 a.m. - 9:15 a.m. **B13** **An Analysis of Cannabis Plant Materials in Drug Enforcement Administration (DEA) Laboratories: A Year in Review**
*Sandra E. Rodriguez-Cruz, PhD**; *Camala L. Dubach, BS*; *Michael J. Weaver, BS*
- 9:15 a.m. - 9:30 a.m. **B14** **Candies and Cannabinoids—The Rapid Identification of Cannabinoids in Plant Material and Edible Complex Matrices by Ambient Mass Spectrometry**
*Megan I. Chambers, BS**; *Rabi A. Musah, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 9:30 a.m. - 9:45 a.m. **B15** **Raman Spectroscopy and Multivariate Curve Resolution for Mixture Analysis of Forensic Drug Samples**
*Aaron Urbas, PhD**; *Peter Trask, BS*
- 9:45 a.m. - 10:00 a.m. **B16** **Benzodiazepine Drug Chemistry Analysis Results Submitted to the National Forensic Laboratory Information System (NFLIS-Drug): 2015 to 2018**
*DeMia P. Pressley, MS**; *Liqun Wong, MS*; *Terrence Boos, PhD*; *BeLinda J. Weimer, MA*;
David Heller, BS; *Jeffrey M. Ancheta, BS*; *Neelima Kunta, BS*; *Megan Grabenauer, PhD*;
Katherine Moore Bollinger, MS; *Hope Smiley-McDonald, PhD*; *Jeri D. Roper-Miller, PhD*

Drugs 2

Moderator: *Elizabeth A. Gardner, PhD*
University of Alabama at Birmingham Department of Criminal Justice
Birmingham, AL

- 10:00 a.m. - 10:15 a.m. **B17** **Analyzing Designer Fentanyl Analogs Using a Fentanyl Classifier**
*Arun S. Moorthy, PhD**; *Anthony Kearsley, PhD*; *W. Gary Mallard, PhD*; *William E. Wallace, PhD*



CRIMINALISTICS

- 10:15 a.m. - 10:30 a.m. **B18** **National Institute of Standards and Technology (NIST) Direct Analysis in Real Time Mass Spectrometry (DART®-MS) Tools for Seized Drug Analysis**
*Arun S. Moorthy, PhD**; *Edward Sisco, PhD*
- 10:30 a.m. - 10:45 a.m. **B19** **A Characterization of the Vapor Profiles of Fentanyl and Synthetic Opioids for Instrumental and Canine Detection**
*Lauryn DeGreeff, PhD**; *Stephanie Vaughan, PhD*; *Leann Forte, BS*; *Howard K. Holness, PhD*; *Kenneth G. Furton, PhD*
- 10:45 a.m. - 11:00 a.m. **B20** **High Concentrations of Illicit Stimulants and Cutting Agents Cause False Positives on Fentanyl Test Strips**
*Tracy-Lynn E. Lockwood, BS**; *Alexandra Vervoordt, BS*; *Marya Lieberman, PhD*
- 11:00 a.m. - 11:15 a.m. **B21** **An Analysis of Drug Residue From Needle-Exchange Syringes in Washington, DC**
*Alexandra Evans, BS**; *Luke C. Short, PhD*; *Michael Krause, MS*; *Samantha M. Leach, MS*; *Morgan M. Levitas, MFS*; *Lucy Nguyen, MFS*
- 11:15 a.m. - 11:30 a.m. **B22** **Method Validation and Detection of Adulterants in 1,031 Seized Drug Exhibits by High Resolution Mass Spectrometry**
*Tais R. Fiorentin, PhD**; *Amanda L.A. Mohr, MSFS*; *Melissa Fogarty, MSFS*; *David M. Martin, PhD*; *Thom Browne, Jr., PhD*; *Trisha L. Conti, PhD*; *Allison Standifer, MS*; *Linda Bouchard, BS*; *Michael W. Gilbert, BS*; *Timothy A. Tripp, BS*; *Jennifer Watson*; *Susan Molloy, BS*; *Barry K. Logan, PhD*

Wednesday—Session III

Fingerprints, Footwear, and Insects

Moderator: *Stephen K. Gicale, MSFS*
Forest Park, GA

- 8:30 a.m. - 8:45 a.m. **B23** **Assessing the Performance of Fingerprint Laboratories Through Collaborative Exercises and Proficiency Tests: A Discussion Based on the European Experience**
*Aldo Mattei, PhD**
- 8:45 a.m. - 9:00 a.m. **B24** **Latent Print Quality in Blind Proficiency Testing: Using Quality Metrics to Examine Laboratory Performance**
*Brett O. Gardner, PhD**; *Maddisen Neuman, MA*; *Sharon Kelley, JD, PhD*
- 9:00 a.m. - 9:15 a.m. **B25** **A Non-Destructive Collection of Latent Fingerprints Using Gellifters® and GLScan®**
*Sean D. Whitmer, BS**; *Rebecca D. Mitrani, BS**; *Kelli Edmiston*; *Maria Antonia Roberts, MS*
- 9:15 a.m. - 9:30 a.m. **B26** **A Statistical Method for Evaluating the Reliability of Identification of Randomly Acquired Characteristics (RACs) in Footwear Impression Evidence**
*Corey B. Katz, MS**; *Naomi Kaplan-Damary, PhD*; *Hal S. Stern, PhD*
- 9:30 a.m. - 9:45 a.m. **B27** **A Tisket, A Tasket, Tribolium in Your Basket: The Development of a New Approach for the Forensic Detection of Stored-Product Insect Pests Using Direct Analysis in Real Time-High Resolution Mass Spectrometry (DART®-HRMS) and Chemometrics**
*Amy M. Osborne, BS**; *Samira Beyramysoltan, PhD*; *Rabi A. Musah, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 9:45 a.m. - 10:00 a.m. **Break**

CRIMINALISTICS

Spectra, Meth, EDTA, and Lubricants

Moderator: *Pamela L. Marshall, PhD*
Duquesne University
Pittsburgh, PA

- 10:00 a.m. - 10:15 a.m. **B28** **The Effect of Modifications to the Core Fentanyl Structure on the Observed Product Ion Spectra**
*Alia S. Hacker, BS**; *J. Tyler Davidson, PhD*; *Glen P. Jackson, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 10:15 a.m. - 10:30 a.m. **B29** **Defining and Explaining Comparative Spectral Differences Within the Organization of Scientific Area Committee's (OSAC's) Trace Materials Standards**
*Diana M. Wright, PhD**
- 10:30 a.m. - 10:45 a.m. **B30** **The Development of a Multivariate Mass Spectral Algorithm for the Identification of Seized Drugs**
*Alexandra Adeoye, BS**; *Samantha A. Mehnert; J. Tyler Davidson, PhD*; *Glen P. Jackson, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 10:45 a.m. - 11:00 a.m. **B31** **Mexican Methamphetamine Manufacturing Investigations**
*Joe Bozenko, MSc**
- 11:00 a.m. - 11:15 a.m. **B32** **The Development of RED-BLEU: A UV/Vis Assay Following Colorimetric Detection of EDTA**
*Sarah K. Schellhammer, BS**; *Brittany C. Hudson, MS*; *Alexandra M. Wright, BS*;
Catherine Cupples Connon, PhD
- 11:15 a.m. - 11:30 a.m. **B33** **Validating the Sexual Lubricant Database Using True Known and Unknown Samples for Forensic Analysis**
*Santana A.L. Thomas, PhD**; *Brooke R. Baumgarten, MS*; *Candice Bridge, PhD*

Thursday—Session I

Forensic Genealogy

Moderator: *Cyndi Hall, MS*
Idaho State Police
Meridian, ID

- 9:00 a.m. - 9:20 a.m. **B34** **Assessing the Public's Opinion on the Use of Forensic Genetic Genealogy (FGG) in Criminal Investigations**
*Claire L. Glynn, PhD**; *Rachel Graziano*; *Jessica Flynn, BS*
- 9:20 a.m. - 9:35 a.m. **B35** **Whole Genome Sequencing (WGS) of Highly Degraded Samples for Forensic Genetic Genealogy and a Case Study**
*Kelly Harkins Kincaid, PhD**; *Maria A. Nieves Colón, PhD*; *Charles Vaske, PhD*;
Cristina Verdugo, PhD; *Beth Nelson, BS*; *Josh Kapp, BS*; *Barbara Rae-Venter, PhD*;
Kathryn Johnston, MD; *James Scharf, BS*; *Beth Shapiro, PhD*; *Richard Green, PhD*
- 9:35 a.m. - 9:55 a.m. **B36** **The Expansion of Genealogy Into Forensics: The Challenges of Converting a Commercial Industry Into a Forensic Industry**
*Marybeth J. Sciarretta, MS**; *Jarrett P. Ross, BA**



CRIMINALISTICS

Probabilistic Genotyping and Likelihood Ratios

Moderator: *Lisa M. Burdett, MS*
Kansas Bureau of Investigation
Great Bend, KS

- 9:55 a.m. - 10:10 a.m. **B37** **Alleles With Dissimilar Frequencies Between Ethnic Populations Increase the Uncertainty in DNA Mixture Interpretation**
*Sam Kwiatkowski, PhD**; *Michael A. Donley, MS*; *Katherine Welch, MS*; *Roger Kahn, PhD*
- 10:10 a.m. - 10:25 a.m. **B38** **A Two-Trace Problem in Probabilistic Genotyping: Should the Evidence Be Combined or Not?**
*Maarten Kruijver, PhD**; *Duncan Taylor, PhD*
- 10:25 a.m. - 10:40 a.m. **B39** **The Generation and Comparison of Various Short Tandem Repeat (STR) Stutter Positions and Longest Uninterrupted Stretch (LUS) Stutter Settings for a Probabilistic Genotyping Software Following Various Electrophoretic Protocols**
*Oluwwakemi Sowemimo, MS**; *Fabio Oldoni, PhD*; *Megan M. Foley, MSFS*
- 10:40 a.m. - 10:55 a.m. **B40** **The Generation of a Universal Protocol Data Set to Validate Probabilistic Genotyping Software for Uniformity Between Laboratories**
*Josephine Buckley, BA**; *Fabio Oldoni, PhD*; *Megan M. Foley, MSFS*
- 10:55 a.m. - 11:10 a.m. **B41** **How to Deal With Low Likelihood Ratios (LRs) in Mixed DNA Samples**
Curt Schuerman, BS; *Tim Kalafut, PhD*; *Clinton D. Buchanan, PhD*; *Joel D. Sutton, MSFS*; *Jo-Anne Bright, PhD*; *Brian Higgins, MSFS**
- 11:10 a.m. - 11:25 a.m. **B42** **Microhaplotypes for Kinship Analyses**
Chiara Della Rocca; *Fabio Oldoni, PhD**; *Kenneth Kidd, PhD*; *Fulvio Cruciani, PhD*; *Daniele S. Podini, PhD*
- 11:25 a.m. - 11:45 a.m. **B43** **WITHDRAWN**

Poster Session

- 11:30 a.m. - 1:00 p.m. **B44** **The Study of Using Next Generation Sequencing (NGS) Technologies to Analyze Mixed DNA Patterns**
*Yungchun Lai**
- 11:30 a.m. - 1:00 p.m. **B45** **A Performance Evaluation of the VeriFiler™ Plus Polymerase Chain Reaction (PCR) Amplification Kit for Single Cell Forensics**
*Raimo Tanzi**; *Roberta Aversa, MS*; *Francesca Fontana, MD*; *Claudio Forcato, PhD*
- 11:30 a.m. - 1:00 p.m. **B46** **IusSTR®: An Open-Source Python® Package for Translating Forensic Short Tandem Repeat (STR) Sequences Into Interpretable Formats**
*Rebecca Mitchell, PhD**; *Daniel S. Standage, PhD*; *Rebecca Just, PhD*
- 11:30 a.m. - 1:00 p.m. **B47** **A Routine Rape Case That Became Tricky (and Educational)**
*Mark Benecke, PhD**
- 11:30 a.m. - 1:00 p.m. **B48** **Increasing the Speed and Efficiency of DNA Extractions Using a Microwave Toward Increasing the Speed and Success of Rapid DNA Analysis**
*Fabiana Taglia**; *Ling Wang, PhD**; *Kevin Lothridge, MSc*; *Robert I. O'Brien, BS*; *Bruce R. McCord, PhD*; *Steven B. Lee, PhD*

CRIMINALISTICS

- 11:30 a.m. - 1:00 p.m. **B49** **Toward Developing a Forensically Relevant Single-Cell Pipeline by Incorporating Direct-to-Polymerase Chain Reaction (PCR) Extraction: Effects on Signal Quality and Allele Dropout**
*Nidhi Sheth, MS**; *Harish Swaminathan, PhD*; *Amanda J. Gonzalez, MS*; *Ken Duffy, PhD*; *Catherine M. Grgicak, PhD*
- 11:30 a.m. - 1:00 p.m. **B50** **Analyzing the Effect of Cleaning Products on Presumptive Blood Testing Kits**
*Heather Kavaloski**; *Adrienne Brundage, PhD*
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **B51** **Recovery of DNA From Surfaces of Handguns: Targeting Relevant Sampling Areas**
*Cynthia Cale, MS**; *Jessica Miller, BS*; *Krista E. Latham, PhD*; *Erica Cantor, MS*; *Gay L. Bush, PhD*
- 11:30 a.m. - 1:00 p.m. **B52** **STK® Sperm Tracker as a Presumptive Test for Semen Stain Detection**
*Jessica M. McLamb, MS**; *Emily R. Cropper, MS*; *Susannah Kehl, MS*; *Mark F. Kavlick, PhD*
- 11:30 a.m. - 1:00 p.m. **B53** **Practical Applications of a Wet-Vacuum DNA Collection System**
*Jessica M. McLamb, MS**; *Mark F. Kavlick, PhD*
- 11:30 a.m. - 1:00 p.m. **B54** **Using Hybridization Capture to Obtain Mitochondrial Genomes From Forensically Relevant Canids: Assessing Sequence Variation for Species Identification**
*Melissa K.R. Scheible, MS**; *Kelly A. Meiklejohn, PhD*
- 11:30 a.m. - 1:00 p.m. **B55** **An Evaluation and Comparative Analysis of Rapid DNA Analysis and Direct Amplification**
*Cynthia Cale, MS**; *Robin D. Guidry, MS*; *Courtney Head, MS*; *Rebecca Ramsey, MS*
- 11:30 a.m. - 1:00 p.m. **B56** **Trends of Trace DNA Profiles in Forensic Casework: A Broad Case Study**
*Katrina Welker, BS**; *Amber L. Mayfield, BS**; *Heather Mills, MS*
- 11:30 a.m. - 1:00 p.m. **B57** **Developmental Validation of the Quantifiler™ Trio Assay for the QuantStudio™ 7 Flex System**
Tracy Ferguson, MS; *Loni Wronka, MS*; *Rebecca Mitchell, PhD*; *Rebecca Just, PhD**
- 11:30 a.m. - 1:00 p.m. **B58** **Establishing a Regional DNA Database**
*Ryan Gallagher, MS**; *Ja'Neisha Hutley, MS*; *Brian Pfleeger, BS*
- 11:30 a.m. - 1:00 p.m. **B59** **The Correlation of Hair Morphology and Length to Mitochondrial DNA (mtDNA) Massively Parallel Sequencing (MPS) Results**
*Lauren C. Canale, BS**; *Gloria Dimick, MS*; *Jason Beckert, MS*; *Mitchell M. Holland, PhD*
- 11:30 a.m. - 1:00 p.m. **B60** **An Assessment of the NovaQUANT™ Human Nuclear and Mitochondrial DNA Quantitative Polymerase Chain Reaction (qPCR) Assay Using the National Institute of Standards and Technology (NIST) Standard Reference Material (SRM) 2372a**
*Emily R. Cropper, MS**; *Mark F. Kavlick, PhD*; *Michael D. Coble, PhD*
- 11:30 a.m. - 1:00 p.m. **B61** **The Visualization of Seminal Stains on Dark Textiles**
*Victoria Pieczynski, BS**; *Celestina D. Rossi*; *Jorn Chi-Chung Yu, PhD*
- 11:30 a.m. - 1:00 p.m. **B62** **Indirect DNA Transfer—A Murder Case With Unexplained DNA Traces on a Spent Cartridge Case**
*Katharina Helm, PhD**; *Bettina Dunkelmann, PhD*; *Stefan Pittner, PhD*; *Harald J. Meyer*; *Fabio Carlo Monticelli*; *Franz Neuhuber, PhD*



CRIMINALISTICS

- 11:30 a.m. - 1:00 p.m. **B63** **A Multivariate Statistical Approach for Enhancing Ancestry Prediction From Microhaplotype Data**
*Chiara Della Rocca**; Fabio Oldoni, PhD; Eugenio Alladio, PhD; Andrea Berti, PhD; Filippo Barni, PhD; Fulvio Cruciani, PhD; Daniele S. Podini, PhD
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **B64** **The Biogeographic Origin and Genetic Characteristics of the Peopling of Jeju Island Based on Lineage Markers**
*Sohee Cho, PhD**; Soong Deok Lee, PhD
- 11:30 a.m. - 1:00 p.m. **B65** **The Optimization of DNA Extraction From Buccal Samples Collected With the CollectEject™ Oral Swab for High-Throughput Testing**
*Megan M. Foley, MSFS**; Mona Pissarreck, BS
- 11:30 a.m. - 1:00 p.m. **B66** **One Swab, Two Uses: Rapid DNA and Conventional DNA Testing**
*Robert I. O'Brien, BS**; Tylor Barnhart, MS*; Becky Carter
- 11:30 a.m. - 1:00 p.m. **B67** **The Identification of Various Body Fluids Obtained From the Crime Scene With Fourier Transform Infrared (FTIR) and Age Determination**
*Shabnam Maharramli, BS**; Tugba Ünsal, PhD; Nurdan Kenan, MS; Kaan Yilancioglu, PhD; Sevil Atasoy, PhD
- 11:30 a.m. - 1:00 p.m. **B68** **The Stability of Semenogelin-I (Sg-I) in Seminal Fluid and Seminal Stain on Various Fabrics Under Various Temperatures**
*Supawon Srettabunjong, MD**; Pacharaporn Ruksakul, BSc; Pattama Ekpo
- 11:30 a.m. - 1:00 p.m. **B69** **Human Identification From Washed Semen Stains**
*Tugba Ünsal, PhD**; Aysun Gungor, MS; Isil T. Erdogan, MS; Kaan Yilancioglu, PhD; Sevil Atasoy, PhD
- 11:30 a.m. - 1:00 p.m. **B70** **“The Sexome”: Identifying Unique Microbial Signatures in Male and Female Pairings**
*Natasha Nye, MS**; Brendan Chapman, BSc*
- 11:30 a.m. - 1:00 p.m. **B71** **The Development of Epigenetic Methylation Markers for Skin/Sweat**
*Nicole Fernandez Tejero, BS**; Quentin T. Gauthier, MSFS; Bruce R. McCord, PhD
- 11:30 a.m. - 1:00 p.m. **B72** **The Evaluation of Degraded Human DNA Samples Using the Illumina® Global Screening Array**
*David Russell, MS**; Carmen R. Reedy, PhD; Elayna Moreithi, MS; Christina Neal, MS; Mary Heaton, MS; Stephen Turner
- 11:30 a.m. - 1:00 p.m. **B73** **Evaluating the Use of the M-Vac® Wet Vacuum System to Recover DNA From Cotton Fabric**
*Phillip Irion, BS**; Tina Moroose, MS; Casey Jelsema, PhD; Robert K. O'Brien, MS
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **B74** **WITHDRAWN**
- 11:30 a.m. - 1:00 p.m. **B75** **The Success Rate of Rapid DNA Technology in Genealogical Determination in Forensic Science**
*Nasibe Yagmur Kartal, BS; Shabnam Maharramli, BS; Merve Erdem, BS; Tugba Ünsal, PhD**; Kaan Yilancioglu, PhD; Sevil Atasoy, PhD

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- 11:30 a.m. - 1:00 p.m. **B76** **GlobalFiler® IQC Amplification Kit Validation**
*David Jackson, MS**
- 11:30 a.m. - 1:00 p.m. **B77** **The Identification of Drugs in Powder Form With No Sample Preparation Via Headspace Solid-Phase Microextraction (SPME) and Gas Chromatography/Mass Spectrometry (GC/MS) Methods**
Kymeri E. Davis, MS; John V. Goodpaster, PhD*
- 11:30 a.m. - 1:00 p.m. **B78** **The Effects of Degradative Stress on Vapor Analysis of Fentanyl**
Leann Forte, BS; Kenneth G. Furton, PhD; Lauryn DeGreeff, PhD*
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **B79** **WITHDRAWN**
- 11:30 a.m. - 1:00 p.m. **B80** **The Differentiation of Synthetic Cathinone Isomers by Gas Chromatography/Electron Ionization/Mass Spectrometry (GC/EI/MS) and Multivariate Analysis**
Ruby E. Lilledahl, BS; J. Tyler Davidson, PhD*
- 11:30 a.m. - 1:00 p.m. **B81** **The Development of Colorimetric Methods for Marijuana Identification Via Mobile Phone Imaging**
Griffin Cassata; Brooke W. Kammrath, PhD; Anthony Provatas, PhD; Koby Kizzire, PhD*
- 11:30 a.m. - 1:00 p.m. **B82** **The Power of Knowing Now: Rapid Drug Screening Using Atmospheric Solids Analysis Probe/Mass Spectrometry (ASAP/MS)**
*Michelle Wood, PhD**
- 11:30 a.m. - 1:00 p.m. **B83** **Method Development for Separation and Quantitation of 17 Cannabinoids Using Gas Chromatography/Mass Spectrometry (GC/MS) and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)**
Jerome Mulloor, MS; Andrea Yarberry, PhD*; Walter Brent Wilson, PhD*
- 11:30 a.m. - 1:00 p.m. **B84** **The Detection of Chloroquine in Opium Using Gas Chromatography/Mass Spectrometry (GC/MS): A Toxic Adulterant**
Tahir Jamshaid, MPhil; Muhammad Usman, MS; Zahid Mahmood, MPhil;*
Imtiaz Hussain, MPhil; Abid Naseer, MS; Muhammad Taimoor Chaudhary, MPhil;*
Mohammad A. Tahir, PhD
- 11:30 a.m. - 1:00 p.m. **B85** **An Electrochemical Analysis of Fentanyl and Fentalogs Toward a Rapid Screening Assay**
Natalie Sellnau, BS; Frederique T. Deiss, PhD*
- 11:30 a.m. - 1:00 p.m. **B86** **Effective Field Analysis of Low-Dose Fentanyl Mixtures by Portable Vibrational Spectroscopy and Portable Gas Chromatography/Mass Spectrometry (GC/MS)**
Kaitlin Farrell, BS; Anthony DiDomenico, BS; David Schiering, PhD; Pauline E. Leary, PhD;*
Brooke W. Kammrath, PhD; Koby Kizzire, PhD
- 11:30 a.m. - 1:00 p.m. **B87** **The Roles of Projectile Energy and Apparel Fabric Damage in Assessing the Magnitude of Long-Range Shooter Distances**
Nicholas Gogola, BS; Peter R. Valentin, MSFS*
(FSF Emerging Forensic Scientist Award Poster Presentation)



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- 11:30 a.m. - 1:00 p.m. **B88** **Forensic Textile Dye Analysis by Thermal Desorption Direct Analysis in Real-Time Mass Spectrometry (DART®-MS) and Raman Microscopy**
*Miquellie B. Bonner**; *Ngee-Sing Chong*; *Mengliang Zhang, PhD**
- 11:30 a.m. - 1:00 p.m. **B89** **The Effects of Sample Preparation Optimization on Soil Mineral Analysis by Particle Correlated Raman Spectroscopy (PCRS)**
*Nicholas Gogola, BS**; *Hannah Garvin, BSc*; *Savannah Brown, BS*;
Brooke W. Kammrath, PhD; *John A. Reffner, PhD*; *Peter R. De Forest, DCrim*;
Christopher S. Palenik, PhD; *Peter de B. Harrington, PhD*; *Deborah Huck-Jones*;
Bridget O'Donnell, PhD; *Andrew Whitley, PhD*
- 11:30 a.m. - 1:00 p.m. **B90** **An Evaluation of Score-Based Likelihood Ratios (SLRs) for Glass Data**
*Federico Veneri, MSc**; *Danica Ommen, PhD*
- 11:30 a.m. - 1:00 p.m. **B91** **Newly Commercialized Recycled Paints: Are They as Variable as They Seem?**
*Laurianne Huard**; *Cyril Muehlethaler, PhD*
- 11:30 a.m. - 1:00 p.m. **B92** **An Evaluation of Five Methods to Develop Latent Prints on Thermal Paper**
*Jenna M. Pregent, BS**; *Tal Simmons, PhD*; *Janine Sodano, MS*; *Jennie Mouer, MS*
- 11:30 a.m. - 1:00 p.m. **B93** **WITHDRAWN**
- 11:30 a.m. - 1:00 p.m. **B94** **Processing Gaps for 1,2-Indanedione (IND)**
*Lesly Barco, MFS**; *Marisa Bender, MS*; *Kelli Edmiston*; *Kyle Tom, MS*; *Paul Stein, PhD*;
Ismail M. Sebetan, MD, PhD
- 11:30 a.m. - 1:00 p.m. **B95** **The Development of Systematic Approaches for Physical Fit Comparisons of Trace Materials**
*Meghan Prusinowski, MS**; *Zachary B. Andrews*; *Evie K. Brooks, MS*; *Tatiana Trejos, PhD*
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **B96** **The Development of Odor Profiling Methods for the Detection of Contraband Firearms**
*Kirsten R. Nettles, BS**; *Cameron P. Ford*; *Paola A. Prada-Tiedemann, PhD*
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **B97** **What's That Lingering Smell? An Evaluation of Residual Decomposition Odor Volatiles in Colombian Territory**
*Emily A. DeRuyter**; *Kirsten R. Nettles, BS*; *Paola A. Prada-Tiedemann, PhD*;
Gabriel A. Bohorquez; *Jorge Ulises Rojas Guevara, PhD*; *Martha X. Ochoa-Torres*;
Juan David Cordoba Parra
- 11:30 a.m. - 1:00 p.m. **B98** **Optimization Parameters of Fragmentary Voltage and Collision Energy for the Identification and Separation of N-Methyl-N-(2,4,6-Trinitrophenyl)nitramide (TETRYL) From Other Explosives With Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)**
*Milazim Tahirukaj**; *Blerim Olluri, PhD**; *Andriana Surleva*; *Herolind Krasniqi**;
*Xhemajl Ademaj, PhD**; *Nedzad Korajlic, PhD*
- 11:30 a.m. - 1:00 p.m. **B99** **A Characterization of Ignitable Liquid Residues and Interfering Pyrolysis Products of Common Substrates in Forensic Fire Debris Analysis**
*Khalid S. Feras, MPhil**

CRIMINALISTICS

- 11:30 a.m. - 1:00 p.m. **B100** **Shotgun Hunting Fatalities—How to Be Wrong in Reconstruction! Pitfalls for the Medical Examiner and the Ballistics Expert: A Case Report**
*Alessandra Stellacci**; *Luigi Buongiorno, MD**; *Maricla Marrone, MD**;
*Francesca Tarantino, MD**; *Claudia Perrone, MD*; *Salvatore Moliterno, MD*;
Lucia Nardelli; *Francesco Vinci, MD**
- 11:30 a.m. - 1:00 p.m. **B101** **An Adhesive Analysis of Various Tapes Using Laser-Induced Breakdown Spectroscopy (LIBS)**
*Madeleine Braun**; *Rosemarie C. Chinni, PhD*
- 11:30 a.m. - 1:00 p.m. **B102** **The Application of Laser-Based Methods for the Analysis of Gunshot Residue (GSR) Originating From Modern Ammunition**
*Courtney H. Vander Pyl, MS**; *Korina Menking-Hoggatt, MS*; *Claudia Martinez Lopez, PhD*;
Tatiana Trejos, PhD
- 11:30 a.m. - 1:00 p.m. **B103** **The Application of Wavelet Transform and Transfer Learning for Gasoline Classification Using a Hand-Held Raman Spectrometer**
*Ting-yu Huang, MS**; *Jorn Chi-Chung Yu, PhD*
- 11:30 a.m. - 1:00 p.m. **B104** **Revisiting the Recovery of Defense Sprays From Fabrics**
Shirly Montero, PhD; *Thomas Cahill, PhD*; *Ringo Preciado**; *Zev Goldberg, BS*
- 11:30 a.m. - 1:00 p.m. **B105** **The Detection of Lead-Free Inorganic and Organic Gunshot Residue (IGSR and OGSR) Using Laser-Induced Breakdown Spectroscopy (LIBS), Electrochemistry, and Machine Learning**
*Kourtney A. Dalzell**; *Korina Menking-Hoggatt, MS*; *Colby E. Ott, MS*; *Tatiana Trejos, PhD*;
Luis E. Arroyo, PhD
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **B106** **A Comparison of Sampling Techniques of Surface and Bulk Dental Enamel for Analysis With Inductively Coupled Plasma/Mass Spectrometry (ICP/MS)**
*Elora C.D. Wall, BS**; *Joseph B.M. Turner, PhD*; *Tal Simmons, PhD*

Thursday—Session II

Firearms

Moderator: *Jack Hietpas, PhD*
Microtrace
Elgin, IL

- 1:00 p.m. - 1:15 p.m. **B107** **The Digital Preservation of the President John F. Kennedy Assassination Bullet Artifacts**
*Thomas B. Renegar**; *Robert M. Thompson, MFS*; *Michael T. Stocker*; *Xiaoyu A. Zheng, MS*;
Johannes A. Soons, PhD
- 1:15 p.m. - 1:30 p.m. **B108** **A Validation Study of the Accuracy, Repeatability, and Reproducibility of Firearm Comparisons**
Keith L. Monson, PhD; *Erich D. Smith, MS**; *Jennifer L. Stephenson, MSFS*;
*L. Scott Chumbley, PhD**; *Stanley J. Bajic, PhD*; *Max D. Morris, PhD*; *Daniel S. Zamzow, MS*
- 1:30 p.m. - 1:45 p.m. **B109** **The Impact of Bullet Caliber and Composition on the Statistical Distribution of Non-Match Scores Based on High-Resolution Topography Measurements**
*Alain Beauchamp, PhD**



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- 1:45 p.m. - 2:00 p.m. **B110** **Estimating Muzzle-to-Target Distance From the Physical Characteristics of a Bullet Hole**
*Alan Lee, BS**; *Peter J. Diaczuk, PhD*; *Andrew J. Winter, MS*; *Patrick McLaughlin, MS*
- 2:00 p.m. - 2:15 p.m. **B111** **The Interpretation of Gunshot Residues (GSR) at the Activity Level: State of Knowledge**
*Mylène Falardeau, BSc**; *Karelle Seguin, BSc*; *Liv Cadola, MSc*; *Frank Crispino, PhD*
- 2:15 p.m. - 2:30 p.m. **Break**

Firearms and Pattern Evidence

Moderator: *Ann B. Geisendorfer, JD*
Schenectady, NY

- 2:30 p.m. - 2:45 p.m. **B112** **An Investigation Into the Source of Contamination of Gunshot Residue (GSR) Primer Found in an Exam Room Used to Analyze Clothing for GSR**
*Christopher P. Chany, MS**; *Thomas R. White, BS**; *Rebekah D. Lloyd, BS*; *Juan A. Rojas, BS*
- 2:45 p.m. - 3:00 p.m. **B113** **A Novel Machine Learning Approach Based on Quantitative Profile-Profile Relationship (QPPR) to Address Complex Source-Level Problems in the Forensic Analysis of Gunshot Residue (GSR)**
*Matteo D. Gallidabino, PhD**; *Leon P. Barron, PhD*; *Céline Weyermann, PhD*; *Francesco S. Romolo, PhD*
- 3:00 p.m. - 3:15 p.m. **B114** **The Reconstruction of Obliterated Serial Numbers in Polymers Using Raman Spectroscopy**
*Lilian Skokan, BSc**; *Cédric Parisien, MSc*; *Cyril Muehlethaler, PhD*; *Andreas Ruediger, PhD*
- 3:15 p.m. - 3:30 p.m. **B115** **Odor Stimuli Validation in Smokeless Powders: The Bridge Between Analytical Chemistry Approaches and Dynamic Airflow Sampling**
*Shawna F. Gallegos**; *Nathaniel Hall, PhD*; *Paola A. Prada-Tiedemann, PhD*
- 3:30 p.m. - 3:45 p.m. **B116** **The International Close Non-Match Library (ICNML): An International Known Source Database for Friction Ridge Training, Testing, and Research**
*Heidi Eldridge, MS**; *Marco De Donno, MS**; *Christophe Champod, PhD**
- 3:45 p.m. - 4:00 p.m. **B117** **A Field Analysis of Laboratory Case Processing: Latent Print Comparison and Examiner Conclusions**
Brett O. Gardner, PhD; *Sharon Kelley, JD, PhD*; *Maddisen Neuman, MA**

Thursday—Session III

General Biology I

Moderator: *Stephen K. Gicale, MSFS*
Forest Park, GA

- 9:00 a.m. - 9:20 a.m. **B118** **Implementing a Testimony Transcript Review Process**
*Annalivia Harris, MSc**; *Carisa Martinez**
- 9:20 a.m. - 9:35 a.m. **B119** **Clarifying Blood Pool Vocabulary**
*Rachel A. Johnson, MS**

CRIMINALISTICS

- 9:35 a.m. - 9:50 a.m. **B120** **A Validation Study of Applied Biosystems™ VeriFiler™ Plus Polymerase Chain Reaction (PCR) Amplification Kit**
*Jessica M. Esparza, PhD**
- 9:50 a.m. - 10:05 a.m. **B121** **The Development of a Five-Dye Insertion/Deletion (INDEL) Panel for Ancestry Determination**
*Lucio Avellaneda, BS**; *Ryan Gutierrez, BS*; *Damani Johnson, BS*; *Bobby Larue, Jr., PhD*; *Rachel M. Houston, PhD*
- 10:05 a.m. - 10:20 a.m. **B122** **Human Identification Using the Skin Virome**
*Michael S. Adamowicz, PhD**; *Jennifer Clarke, PhD*; *Samodha Fernando, PhD*; *Ema H. Graham, MS*; *Joshua Herr, PhD*; *Grace Watkins, BS*
- 10:20 a.m. - 10:35 a.m. **B123** **I-FAMILIA: An Innovative Service Offering International DNA Kinship Matching Capacity for Missing Persons Identifications**
*François-Xavier Laurent, PhD**; *Andrea Fischer, PhD*; *Susan Hitchin, PhD*

General Biology II

Moderator: Pamela L. Marshall, PhD
Duquesne University
Pittsburgh, PA

- 10:35 a.m. - 10:50 a.m. **B124** **Proteomic Genotyping: Increased Sensitivity Using Targeted Mass Spectrometry Platforms**
*Glendon Parker, PhD**; *Zachary C. Goecker, MPS*; *Kevin M. Legg, PhD*
- 10:50 a.m. - 11:05 a.m. **B125** **Body Fluid and DNA Persistence on Juvenile Victims of Sexual Assault**
*Caitlin E. Rogers, MS**; *Rosalyn Walker, MSN*; *Hannah Renee Reasbeck, BS*
- 11:05 a.m. - 11:20 a.m. **B126** **Pull-Up Problems: A Method to Better Identify and Characterize Pull-Up Peaks**
*Valerie Clermont-Beaudoin, MFS**; *Sarah Bourgoin, MSc*; *Diane Seguin, MSc*
- 11:20 a.m. - 11:35 a.m. **B127** **The Development of a DNA Extraction Method From Rootless Hair Shafts**
*Sudhir K. Sinha, PhD**; *Andrew Loftus, PhD*; *Ryan Gutierrez, BS*; *Clara E. Krzykwa, BS*; *Hiromi Brown, PhD*
- 11:35 a.m. - 11:55 a.m. **B128** **The Extraction and Genotyping of Human DNA in a Still Body Aqueous Environment**
*Samantha Border**; *Pamela L. Marshall, PhD*; *Lisa R. Ludvico, PhD*; *Shannon Mahoney (FSF Emerging Forensic Scientist Award Oral Presentation)*



CRIMINALISTICS

Friday—Session I

MPS and SNPs

- 9:00 a.m. - 9:15 a.m. **B129** **The Implementation of Biological Models for the Probabilistic Interpretation of Next Generation Sequencing (NGS) Autosomal Short Tandem Repeat (aSTR) Mixtures**
*Kevin Cheng**; *Meng-Han Lin, PhD*; *Jo-Anne Bright, PhD*; *James M. Curran, PhD*;
John S. Buckleton, PhD
- 9:15 a.m. - 9:30 a.m. **B130** **An Alternate Workflow for Preparing Precision ID Identity and Ancestry Panel Libraries for Illumina® Sequencing**
Melissa K.R. Scheible, MS; *Emma Timpano, BS*; *Laura Boggs*; *Kelly A. Meiklejohn, PhD**
- 9:30 a.m. - 9:45 a.m. **B131** **“Touch Microbiome” vs. “Touch DNA”: Exploring Potentials and Limitations Toward Forensic Personal Identification**
*Noemi Procopio, PhD**; *Giulia Sguazzi, BSc*; *Flavia Lovisolo, MSc*; *Flavia Carton, PhD*;
Federica Sellitto; *Filippo Renò, PhD*; *Mario Migliario, MD*; *Stefano Ghignone*;
Samuele Voyron, PhD; *Gabriella D’angiolella, MD*; *Pamela Tozzo, MD*;
Luciana Caenazzo; *Sarah Gino, MD*
- 9:45 a.m. - 10:00 a.m. **B132** **Massively Parallel Sequencing (MPS) of Diatom and Bacterial DNA: A New Approach for Freshwater Trace Evidence Analysis**
*Kirstie R. Scott, PhD**; *Arif Malik, PhD*; *Eleanor Dormontt, PhD*; *Vicki Thomson, PhD*;
Jennifer M. Young, PhD
- 10:00 a.m. - 10:20 a.m. **B133** **The Dive Into Next Generation Sequencing (NGS): From Validation to Implementation**
*Cristina L. Rentas, MFS**; *Tarah Nieroda, MS**
- 10:20 a.m. - 10:35 a.m. **B134** **An Evaluation of Hotspot Chloroplast Regions to Differentiate Crop Type and Biogeographical Origin of *Cannabis Sativa***
*Ya-Chih Cheng, MS**; *Madeline G. Roman, PhD*; *Rachel M. Houston, PhD*

DNA Mixtures

Moderator: Taylor M. Dickerson III, MSFS
SNA International
Dover Air Force Base, DE

- 10:35 a.m. - 10:50 a.m. **B135** **The Recovery of Full Single Source DNA Profiles From Contributors to Complex Mixtures by Direct Single Cell Subsampling (DSCS)**
*Kaitlin S. Huffman, MS**; *Erin K. Hanson, PhD*; *John Ballantyne, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 10:50 a.m. - 11:05 a.m. **B136** **Evaluating the Forensim Package for Modeling DNA Mixtures for Statistical Calculations of Contributor Attribution in North American Populations**
*Nicole M.M. Novroski, PhD**; *Ashley Moo-Choy*; *Frank R. Wendt, PhD**
- 11:05 a.m. - 11:20 a.m. **B137** **The False Inclusion of Non-Contributors in DNA Mixtures Cases**
*Marie Semaan, MS**; *Sarah Abbas, MS*; *Issam Mansour, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)

CRIMINALISTICS

- 11:20 a.m. - 11:35 a.m. **B138** **DNA Mixture Interpretation: Bias Versus the Scientific Method**
Antonel Olckers, PhD; Annelize Van der Merwe, PhD*
- 11:35 a.m. - 12:00 p.m. **B139** **Testing, Comparing, and Validating Traditional and Emerging Number Of Contributors (NOC) Systems for Forensic DNA Purposes**
Catherine M. Grgicak, PhD; Slim Karkar, PhD; Desmond S. Lun, PhD*

Friday—Session II

Fire Debris/Explosives

Moderator: *Jason L. Schroeder, MS*
Harris County Institute of Forensic Science
Houston, TX

- 1:00 p.m. - 1:15 p.m. **B140** **Evaluating Likelihood Ratios, Decision Thresholds, and Fire Debris Analysts' Performances**
Mary R. Williams, MS; Michael E. Sigman, PhD; Frances Whitehead, BS*
- 1:15 p.m. - 1:30 p.m. **B141** **Validating Fire Debris Classification With Ground Truth Samples**
Michael E. Sigman, PhD; Mary R. Williams, MS*
- 1:30 p.m. - 1:45 p.m. **B142** **Absorbent Household Materials for the Collection of Ignitable Liquid Residues (ILRs) From Surfaces of Varying Porosity**
Jessica Carlotti, BS; Cynthia J. Kaeser Tran, PhD*
- 1:45 p.m. - 2:00 p.m. **B143** **The Development of an Internet-Deployed Statistical Application for the Analysis of Compounds in Fire Debris Samples**
Michelle Corbally, MS; Jessica Chappell, PhD; Mary R. Williams, MS; Michael E. Sigman, PhD*
- 2:00 p.m. - 2:15 p.m. **B144** **A Chemical Waste Treatment Facility Fire and Explosion**
Chin Chin Lim; Michael Ming Kiong Tay; Hui Ying Yvonne Sim*
- 2:15 p.m. - 2:30 p.m. **Break**

Explosives and Trace Evidence

Moderator: *Jason L. Schroeder, MS*
Harris County Institute of Forensic Science
Houston, TX

- 2:30 p.m. - 2:45 p.m. **B145** **The Combined Extraction and Analysis of Trace Organic, Inorganic, and Peroxide Explosives Residues**
Kristen L. Fowble, PhD; Mark L. Miller, PhD; Jennifer Thomas, PhD; Stephanie Armas; Jason V. Miller, MSFS; Raleigh Parrott II*
- 2:45 p.m. - 3:00 p.m. **B146** **The Optimization of Gas Chromatography-Vacuum Ultraviolet (GC-VUV) Spectroscopy for the Analysis of Explosives and Their Post-Blast Residues**
Courtney Cruse, BS; John V. Goodpaster, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)



CRIMINALISTICS

- 3:00 p.m. - 3:15 p.m. **B147** **A Comparison of Spectra for Common Dyes on Five Different Mounted and Unmounted Textile Fiber Types Using Raman Spectroscopy**
*Patrick M. Rydzak, PhD**; *Kyleen E. Elwick, PhD*; *James M. Robertson, PhD*
- 3:15 p.m. - 3:30 p.m. **B148** **A Population Study of Textile Fibers on Parapets of High-Rise Housing in Singapore**
Sherni Koh, BS; *Vanessa Eng**
- 3:30 p.m. - 3:45 p.m. **B149** **The Selection and Spatial Analysis of USDA-NRCS Soil Survey Map Units Based on Typical Soil Color for Forensic Investigations**
*Libby A. Stern, PhD**; *Dylan E. Beaudette*; *Jason E. Nemecek, PhD*; *Charles A. Ferguson, PhD*; *Ian Saginor, PhD*
- 3:45 p.m. - 4:00 p.m. **B150** **Modern Single Grain Forensic Palynology: Preserving the Evidence for a Comprehensive Analysis**
*Luz J. Kelley, MS**; *Bryan McCullough*; *Matthieu Baudelet, PhD*

Friday—Session III

Potpourri I

Moderator: *Irina Geiman, MS*
United States Secret Service
Washington, DC

- 1:00 p.m. - 1:15 p.m. **B151** **Forensic Paint Analysis With Simultaneous Optical Photothermal Infrared (O-PTIR) and Raman Microspectroscopy**
*Brooke W. Kammrath, PhD**; *Eoghan Dillon, PhD*; *Jay Anderson, BBA*; *Curtis Marcott, PhD*; *Mustafa Kansiz, PhD*; *Kaitlin Kruglak, MS*; *John A. Reffner, PhD*
- 1:15 p.m. - 1:30 p.m. **B152** **A Standard Development for Visual Color Determination and Comparison in Forensic Soil Examinations: The Organization of Scientific Area Committees (OSAC) Subcommittee on Geological Materials**
*Libby A. Stern, PhD**; *Brad Lee, PhD*; *Ethan Groves, BS*
- 1:30 p.m. - 1:45 p.m. **B153** **Soil Mineral Analysis by Particle Correlated Raman Spectroscopy (PCRS): Method Optimization**
*Hannah Garvin, BSc**; *Nicholas Gogola, BS*; *Savannah Brown, BS*; *Virginia M. Maxwell, DPhil*; *John A. Reffner, PhD*; *Peter R. De Forest, DCrim*; *Christopher S. Palenik, PhD*; *Peter de B. Harrington, PhD*; *Deborah Huck-Jones*; *Bridget O'Donnell, PhD*; *Andrew Whitley, PhD*; *Brooke W. Kammrath, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 1:45 p.m. - 2:00 p.m. **B154** **The Scent of Death: Analyzing the Molecules of Decomposition and Influence on Insect Succession via Solid Phase Microextraction (SPME)**
*Abigail J. Starck, BS**; *Dan G. Sykes, PhD*
- 2:00 p.m. - 2:15 p.m. **B155** **A Review of the Scientific Foundations for Firearm Examination**
*Theodore V. Vorburger, PhD**; *Steven P. Lund, PhD*; *Heather E. Waltke, MFS*; *Robert M. Thompson, MFS*; *James A. Yen, PhD*; *Gregory S. Klees, BA*; *Wayne E. Arendse, MSc*; *Shannan Williams-Mitchem, MA*; *John M. Butler, PhD*; *Jason Weixelbaum, PhD*

CRIMINALISTICS

2:15 p.m. - 2:30 p.m. **B156** **Bricks Without Straw: Providing a Forensic Laboratory Experience in the Age of COVID-19**
*Walter F. Rowe, PhD**

Potpourri II

*Moderator: Elizabeth A. Gardner, PhD
University of Alabama at Birmingham Department of Criminal Justice
Birmingham, AL*

2:30 p.m. - 2:45 p.m. **B157** **A Characterization of Artificial Fingerprint Samples**
Danielle S. LeSassier, PhD; Katharina L. Weber, BS; Kathleen Q. Schulte, MS;
Benjamin C. Ludolph, BS; Megan E. Powals, BS; Brooke Tashner, MS; Curt Hewitt*

2:45 p.m. - 3:00 p.m. **B158** **WITHDRAWN**

3:00 p.m. - 3:15 p.m. **B159** **A Quantitative Reliability Metric (QRM) for Querying Large Databases**
Peter de B. Harrington, PhD; Zewei Chen, MS; Vivekananda Shetty, PhD;
Preshious Rearden, PhD; Angelica Torres Noyola, BS*

3:15 p.m. - 3:30 p.m. **B160** **Improving Our Knowledge of Drug Usage Through the Analysis of Used Injecting Paraphernalia**
Eleanor Finch, BS; Mark Bartlett, MPH; Julie Latimer, BN; Marianne Jauncey, BMed, MPH;
Ronald Shimmon, PhD; Marie Morelato, PhD; Claude Roux, PhD*

3:30 p.m. - 3:45 p.m. **B161** **Heroin Identification by Fourier Transform Infrared/Attenuated Total Reflectance (FTIR/ATR) Spectroscopy on Petroleum Ether-Based Extracts**
*Roehl Marave Cinco, PhD**

3:45 p.m. - 4:00 p.m. **B162** **Methods to Detect Changes in Illicit Product Markets From Routine Forensic Casework**
Michael Krause, MS; Luke C. Short, PhD; Samantha M. Leach, MS;
Morgan M. Levitas, MFS; Brandon P. Jones, MS*



DIGITAL & MULTIMEDIA SCIENCES

Thursday

Analysis I & II

Moderator: *Brandon Epstein, BS*
Middlesex County Prosecutor's Office
New Brunswick, NJ

- 9:00 a.m. - 9:15 a.m. **C1** **A Study of Video Conferencing Software From an Authentication Perspective**
*Cole Whitecotton, MSc**; *Gretchel Lomboy, MSc*; *James Zjalic, MSc*
- 9:15 a.m. - 9:30 a.m. **C2** **Houston, We Have a Problem: Deepfake Is the Word!**
*Sebastiano Battiato, PhD**; *Oliver Giudice, PhD**; *Luca Guarnera, MS**
- 9:30 a.m. - 9:50 a.m. **C3** **The Recreation and Visualization of Runtime Objects Relationship From Process Memory Images**
*Aisha Ali-Gombe, PhD**; *Golden G. Richard III, PhD*
- 9:50 a.m. - 10:25 a.m. **C4** **Performing Mac® Memory Analysis Using Objective-C and Swift Data Structures**
*Modhuparna Manna, BTech**; *Andrew Case, MS*; *Golden G. Richard III, PhD*

Moderator: *Mark R. McCoy, EdD*
University of Central Oklahoma
Edmond, OK

- 10:25 a.m. - 10:40 a.m. **C5** **AI-Based Audio Enhancement May Cause False Evidence**
*Eddy B. Brixen, BA**
- 10:40 a.m. - 10:55 a.m. **C6** **Connected Objects (Internet of Things [IoT]) as Crime Witnesses**
*Manon Fischer, MS**
- 10:55 a.m. - 11:10 a.m. **C7** **Enhancing Child Pornography Offender Risk Assessment Using Digital Forensics Artifacts**
*Marcus Rogers, PhD**; *Kathryn C. Seigfried-Spellar, PhD*; *Sienna J. Bates, BS*; *Kayla Rux*
- 11:10 a.m. - 11:25 a.m. **C8** **New in Computer Forensics Tool Testing's (CFTT's) Mobile Forensics—SQLite, SQLite Recovery, and a New Federated Testing Tool**
*Jenise Reyes-Rodriguez, BS**; *Barbara Guttman, BA**; *Richard Ayers, MS**
- 11:25 a.m. - 12:00 p.m. **C9** **An Initial Forensic Analysis of Sailfish OS**
*Krassimir Tzvetanov, MS**; *Umit Karabiyik, PhD*

Analysis III & Multimedia I

Moderator: *Irfan Ahmed, PhD*
Virginia Commonwealth University
Richmond, VA

- 1:00 p.m. - 1:20 p.m. **C10** **An Analysis of Audio Recordings Made Using the Voice Recorder Application on Android™ Phones**
*Gina DeAngelis**; *Jeff M. Smith, MS*; *Catalin Grigoras, PhD*; *Marcus Rogers, PhD*

DIGITAL & MULTIMEDIA SCIENCES



- 1:20 p.m. - 1:35 p.m. **C11** **A Forensic Analysis of Digital Speech Standard (DSS) Files**
*Catalin Grigoras, PhD**; *Cole Whitecotton, MSc*; *Jeff M. Smith, MS*; *Douglas S. Lacey, MS*;
Bruce E. Koenig, MFS; *James Zjalic, MSc*
- 1:35 p.m. - 1:55 p.m. **C12** **Data Decryption of Android™ Third-Party Private Messaging Apps: A Case Study**
*Lyndsay Haak, BS**; *Josh Brunty, MS**
- 1:55 p.m. - 2:05 p.m. **C13** **A Forensic Analysis of Joker-Enabled Android™ Malware Apps**
*Chen Shi, MS**; *Chao-Chun Cheng*; *Yong Guan, PhD**
- 2:05 p.m. - 2:20 p.m. **C14** **Examining the Impact of Garbage Collection and Process States in Userland Memory Forensics**
*Sneha Sudhakaran, MTech**; *Aisha Ali-Gombe, PhD*; *Golden G. Richard III, PhD*
- 2:20 p.m. - 2:40 p.m. **C15** **An Analysis of Acquisition Methods of Ring Video Doorbell Files**
*Brandon Epstein, BS**; *Bertram Lyons, MA**; *Walter Bruehs, MS**
- Moderator: *Jason D. Latham, BA*
CDFS, Inc
Wheat Ridge, CO
- 2:40 p.m. - 3:20 p.m. **C16** **A Study on Unmanned Aircraft Systems Forensics Framework (UAS FFWK)**
*Nagi Mei, DSc**
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 3:20 p.m. - 3:40 p.m. **C17** **A Response to the Threat of Stegware**
Li Lin; *Abby Martin, BA**; *Wenhao Chen, BS*; *Seth H. Pierre*; *Yong Guan, PhD*;
Jennifer Newman, PhD
- 3:40 p.m. - 4:00 p.m. **C18** **The Use of 3D Injury Maps and the Effects of Different Visual Presentation Formats**
*Sophena S. Wilson, MS**

Friday

Multimedia II & Resources I

Moderator: *James Howe, BA*
Columbus Division of Police
Columbus, OH

- 9:00 a.m. - 9:20 a.m. **C19** **The Organization of Scientific Area Committees (OSAC) Digital/Multimedia Scientific Area Committee Standards Work—Part 1: Digital Evidence and Speaker Recognition**
*Lam D. Nguyen, MS**; *David Brian Marks, MS**; *Richard Vorder Bruegge, PhD*
- 9:20 a.m. - 9:40 a.m. **C20** **The Organization of Scientific Area Committees (OSAC) Digital/Multimedia Scientific Area Committee Standards Work—Part 2: Video/Imaging Technology & Analysis (VITAL) and Facial Identification**
*Marla E. Carroll, BS**; *Lora Sims**; *Julie A. Carnes*; *Richard Vorder Bruegge, PhD*
- 9:40 a.m. - 9:55 a.m. **C21** **An Analysis of Body-Worn Camera Photogrammetry Using Depth Mapping**
*Toby M. Terpstra**; *William T. Neale, MArch*; *Tomas Owens, BFA*; *Eric King, BA*;
Steven Beier, MS; *Tilo Voitell*



DIGITAL & MULTIMEDIA SCIENCES

- 9:55 a.m. - 10:10 a.m. **C22** **Determining Range of Certainty in Photogrammetry and Videogrammetry**
*Toby M. Terpstra**; *William T. Neale, MArch*; *Eric King, BA*; *Alireza Hashemian, MS*;
David Hessel, BS
- 10:10 a.m. - 10:25 a.m. **C23** **Computer Forensics Reference Data Sets (CFReDS v2.0) for Digital Evidence**
*Richard Ayers, MS**; *Mehdi Shahid, MS**
- Moderator: *Kris C. Cano, MA*
City of Scottsdale Police Department
Scottsdale, AZ
- 10:25 a.m. - 10:50 a.m. **C24** **Using Rapid Differential Forensics Algorithm to Speed Transmission of Large Files Around the World**
*Mark D. Guido, MS**; *Rob H. Schmicker, BS*; *Brandon Adler, MS*; *Tristan Fletcher, BS*
- 10:50 a.m. - 11:05 a.m. **C25** **Comparative Analysis of Mobile Forensic Tools: Reliability and Accuracy Related to iOS® 13 Notes App Forensic Evidence Recognition and Classification**
*Tanvi Gandhi, BS**; *Marcus Rogers, PhD*
- 11:05 a.m. - 11:25 a.m. **C26** **Looking Into Your Future: A Continuous Human Gait Prediction for the Near Future**
*Amin Fallahi, BS**; *Diksha Shukla, PhD*; *Vir V. Phoha, PhD*
- 11:25 a.m. - 11:40 a.m. **C27** **A Holistic Framework for Investigating Geospatial Data in Cyber Forensics**
*Mohammad M. Mirza, MS**; *Umit Karabiyik, PhD*
- 11:40 a.m. - 12:00 p.m. **C28** **Crowdsourcing Forensics: Generating a Digital Artifact Catalog**
*Lam D. Nguyen, MS**; *Eoghan Casey, PhD**

Poster Session

- 11:30 a.m. - 1:00 p.m. **C29** **File Structure Analysis of Media Files Transmitted and Received Over WhatsApp**
*Henry L. Risemberg, MS**; *Catalin Grigoras, PhD*; *Jeff M. Smith, MS*
- 11:30 a.m. - 1:00 p.m. **C30** **A Technique for Reducing Flash Glare for the Forensic Photographer**
*Joe P. Anderson, BFA**; *Dustin C. Hatfield, MA*
- 11:30 a.m. - 1:00 p.m. **C31** **On-Camera vs. Off-Camera Flash**
*Desmond R. Bostick**; *Dustin C. Hatfield, MA*
- 11:30 a.m. - 1:00 p.m. **C32** **Assessing Agreement Among Crime Scene Measurement Methods**
*Maria Christiene M. Lawas, MS**; *Susan Y. Williams, MS*; *Steven Jameson, BS*;
Anthony R. Gonzalez, MS; *Paula Ernst, BS*; *Joseph Donfack, PhD*

Thursday

Poster Session

- 11:30 a.m. - 1:00 p.m. **D1** **The Development of a Fracture Risk Evaluation Method by Computer Simulation That Reproduces Pressure Distribution on Bone Due to Compression and Striking**
*Sonoka Okura, BE**; *Yasumi Ito, PhD*; *Yuki Kunugi*; *Yasuyuki Takano*; *Tatsuya Fukuoka, ME*; *Ryuichi Yamada*; *Yoshiyuki Kagiya, PhD*; *Tetsuya Nemoto, PhD*
- 11:30 a.m. - 1:00 p.m. **D2** **A Novel, Data-Driven Approach to the Classification of Bloodstain Patterns**
*Tong Zou, MS**; *Hal S. Stern, PhD**
- 11:30 a.m. - 1:00 p.m. **D3** **The Determination of Delta-9-Tetrahydrocannabinol (THC), Tetrahydrocannabinolic Acid (THCA), and Total THC in Seized Cannabis (Hemp and Marijuana) Samples by Liquid Chromatography With Ultraviolet Detection (LC-UV)**
*Walter Brent Wilson, PhD**; *Maryam Abdur-Rahman*
- 11:30 a.m. - 1:00 p.m. **D4** **A Hyperspectral Analysis of Fabrics Submerged in the Indian Ocean: An Innovative Way to Aid in the Estimation of the Time Human Remains Have Spent in Water**
*Elsie Beales, BSc**; *Almantas Pivrikas, PhD*; *Paola A. Magni, PhD*
- 11:30 a.m. - 1:00 p.m. **D5** **Forensic Investigative Issues in a Fireworks Production Factory Explosion**
*Gennaro Baldino, MD**; *Cristina Mondello, MD, PhD*; *Chiara Stassi, MD*; *Antonio Bottari, MD*; *Elvira Ventura Spagnolo, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **D6** **Monte Carlo Uncertainty Analysis for the Measurement of Forensic Glass Using Neutron Activation Analysis and Laser Ablation-Inductively Coupled Plasma/Mass Spectrometry (LA-ICP/MS)**
*Nicholas Sharp, PhD**; *Ruthmara Corzo, PhD*; *Jamie L. Weaver, PhD*; *Blaza Toman, PhD*; *Maria Martinez, PhD*; *Eric B. Steel*; *Jose R. Almirall, PhD*
- 11:30 a.m. - 1:00 p.m. **D7** **WITHDRAWN**
- 11:30 a.m. - 1:00 p.m. **D8** **A Fatal Hyperbaric Treatment Explosion Investigation Incorporating Engineering Simulations With Verification and Validation**
*Clarence B. Kemper III, BS**

Fire Forensics & Energy & Biomechanics

Moderator: *Kurt D. Weiss, MS*

Case Study Collision Science, LLC

Santa Barbara, CA

- 1:00 p.m. - 1:15 p.m. **D9** **Post-Blast Explosives Attribution**
*Paul J. Ippoliti**; *Jeffrey Werlich*; *Dennis Hardy*; *Cami Fuglsby, MS*; *Christopher Yarnes*; *Christopher P. Saunders, PhD*; *Josh Dettman, PhD*
- 1:15 p.m. - 1:35 p.m. **D10** **Examining the Repeatability and Reproducibility of the Heat Release Rate (HRR) From Upholstered Furniture**
*Daniel Madrzykowski, PhD**



ENGINEERING & APPLIED SCIENCES

- 1:35 p.m. - 1:55 p.m. **D11** **Using Object Detection to Obtain Flame Height From Experimental Video and Evaluate Predictive Models**
*Joseph Willi, MS**
- 1:55 p.m. - 2:15 p.m. **D12** **Carbon Monoxide Poisoning in a Heavy Truck: An Investigation of Unknown Causes of a Fatal Crash With Fuel-Fed Fire**
*David R. Bosch, PhD**; *Mark C. Pozzi, MS**; *Paul Renfro Lewis, Jr., MS**;
Kenneth J. Saczalski, PhD; *Parris Ward, JD*
- 2:15 p.m. - 2:35 p.m. **D13** **A Heavy Truck Fuel-Fed Fire: Vehicle Design Failures Causing Predictable Fatality in Otherwise-Survivable Conditions**
*Mark C. Pozzi, MS**; *David R. Bosch, PhD**; *Paul Renfro Lewis, Jr., MS**;
*Kenneth J. Saczalski, PhD**; *Parris Ward, JD*
- 2:35 p.m. - 2:50 p.m. **D14** **Reconstructing Energy Data From Faulty Electric Energy Meters: Mission Impossible?**
*Alessandro M. Ferrero, MSc**; *Veronica Scotti, JD*
- 2:50 p.m. - 3:05 p.m. **D15** **Home Accessibility Modifications Necessary for a Man With a Cervical Spine Injury**
*Robert Dale Lynch, BArch**
- 3:05 p.m. - 3:25 p.m. **D16** **The Biomechanics of Head and Brain Injury**
*John D. Lloyd, PhD**
- 3:25 p.m. - 3:45 p.m. **D17** **The Curious Case of Asbestos Disease Among Dental Technicians**
*James Millette, PhD**

Friday

Vehicle Defects & Forensic Investigations

Moderator: *Darren Franck, MSME*
Advanced Engineering Associates, Inc
Charleston, WV

- 9:00 a.m. - 9:20 a.m. **D18** **Roadside Tire Mark: A Useful Source of Supplementary Evidence**
*Zygmunt M. Gorski, BA**
- 9:20 a.m. - 9:40 a.m. **D19** **Why Not Jail for National Highway Traffic Safety Administration (NHTSA) Crimes: Is Agency Capture to Blame?**
*Rachel L. Pozzi, MS**; *Mark C. Pozzi, MS**; *David R. Bosch, PhD*; *Kenneth J. Saczalski, PhD*;
Parris Ward, JD; *Anne Egelston, PhD*
- 9:40 a.m. - 10:00 a.m. **D20** **Evaluating the Effect of the Crash Locking Tongue on the Breaking Strength of Seat Belt Webbing**
*Kurt D. Weiss, MS**
- 10:00 a.m. - 10:30 a.m. **D21** **Automotive Defect Case Studies Exemplifying Agency Capture of the National Highway Traffic Safety Administration (NHTSA)**
*Rachel L. Pozzi, MS**; *Mark C. Pozzi, MS**; *David R. Bosch, PhD**; *Kenneth J. Saczalski, PhD**;
Parris Ward, JD; *Anne Egelston, PhD*

ENGINEERING & APPLIED SCIENCES



- 10:30 a.m. - 10:50 a.m. **D22** **Forensic Differentiation of Ink Samples Using the Pyrolysis-Gas Chromatography/Mass Spectrometry (GC/MS) Technique**
*Rojin Belganeh**
- 10:50 a.m. - 11:10 a.m. **D23** **Toward a Practical Standard for Quantification of the Edge and Tip Sharpness of Knives and Other Sharp Weapons**
*Sarah V. Hainsworth, PhD**; *Patrick H. Geoghegan, PhD*; *Guy N. Rutty, MD*;
Michael E. Fitzpatrick, PhD
- 11:10 a.m. - 11:30 a.m. **D24** **The Environmental Protection Agency (EPA) and National Highway Traffic Safety Administration (NHTSA) Prosecutorial Discretion: A Dichotomy of Effectiveness**
*Rachel L. Pozzi, MS**; *Mark C. Pozzi, MS**; *David R. Bosch, PhD*; *Kenneth J. Saczalski, PhD*;
Parris Ward, JD; *Anne Egelston, PhD*
- 11:30 a.m. - 11:45 a.m. **D25** **The Role of Standards and Case Law Relating to Forensic Analysis in Walkway-Safety Incidents: Part One**
*Mark I. Marpet, PhD, PE**
- 11:45 a.m. - 12:00 p.m. **D26** **The Role of Standards and Case Law Relating to Forensic Analysis in Walkway-Safety Incidents: Part Two**
*Mark I. Marpet, PhD, PE**

Fire Investigations & Linguistics

Moderator: *Harold Franck, MSEE*
Advanced Engineering Associates, Inc
St. Petersburg, FL

- 1:00 p.m. - 1:15 p.m. **D27** **Partitioning Relationships to Quantitate Organic Molecules in Air or Breath Samples**
*Kavita M. Jeerage, PhD**; *Megan Harries, PhD*; *Adam J. Friss, PhD*; *Tara Lovestead, PhD*
- 1:15 p.m. - 1:45 p.m. **D28** **An Overview of an Integrated Cannabis Measurement Services Program to Help the Forensic Community in the Determination of Δ^9 -Tetrahydrocannabinol (Δ^9 -THC), Tetrahydrocannabinolic Acid (THCA), and Total THC in Seized Cannabis (Hemp and Marijuana)**
*Walter Brent Wilson, PhD**
- 1:45 p.m. - 2:00 p.m. **D29** **A Quantitative Assessment of Last Words Using Suicide Note Assessment REsearch (SNARE)**
*Cristina Aggazzotti, PhD**
- 2:00 p.m. - 2:15 p.m. **D30** **Computational Classification of Written Statements as True or False: Comparing Experimental and High-Stakes Data in the Forensic Setting**
*Angela Almela, PhD**
- 2:15 p.m. - 2:35 p.m. **D31** **Deception Data, Mindset, and Validation Testing**
*Carole E. Chaski, PhD**
- 2:35 p.m. - 3:05 p.m. **D32** **Detecting Linguistic Markers of Religious Extremism in Religious Mosque Sermons: A Case Study of Pakistan**
*Mariam Dar, PhD**
- 3:05 p.m. - 3:25 p.m. **D33** **Elementary Analytical Techniques to Enable Verification of Claims and Data That Lie Outside Personal Specialism Comfort Zones**
*John Nixon, MBA**



GENERAL

Wednesday—Session I

Crime Scene Investigation I

Moderator: *Briana K. Verdoorn, MA*
Midwest Medical Examiner's Office
Ramsey, MN

- 9:00 a.m. - 9:15 a.m. **E1** **A Method for the Determination of Canine Olfactory Limits of Detection (LoD) Using a Quantitative Vapor Delivery System**
*Lauryn DeGreeff, PhD**; *Christopher J. Katilie*; *Ryan F. Johnson, PhD*
- 9:15 a.m. - 9:30 a.m. **E2** **Documenting Outdoor Skeletal Scatters Using Close-Range Photogrammetry (CRP): Testing the Number of Individual Coded Targets to Improve 3D Model Accuracy**
*Morgan J. Ferrell, MA**; *John J. Schultz, PhD*
- 9:30 a.m. - 9:45 a.m. **E3** **Classification of Tires Using Elemental Fingerprinting**
*John Lucchi, BS**; *Dan Gluck*; *Larry Tang*; *Matthieu Baudelet, PhD*
- 9:45 a.m. - 10:00 a.m. **E4** **Sparse Modeling for the Classification of Evidence From Spectral Data**
*Dayla C. Rich, BS**
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 10:00 a.m. - 10:15 a.m. **Break**

Crime Scene Investigation II

Moderator: *Kelsie Bryand, MS*
Sam Houston State University
Huntsville, TX

- 10:15 a.m. - 10:30 a.m. **E5** **Differentiating the Thickness of Black Plastic Bags Used in Bomb or Weapon Wrappings: A New Palm-Sized Digital Micrometer Approach**
*John Z. Wang, PhD**
- 10:30 a.m. - 10:45 a.m. **E6** **An Initial Investigation Into the Effects of Lacquered Ammunition on Toolmark Transfer**
*Nicole Marie Groshon, MS**
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 10:45 a.m. - 11:00 a.m. **E7** **Mitigating Entomological Hazards in Scene Investigation**
*Michelle R. Sanford, PhD**
- 11:00 a.m. - 11:15 a.m. **E8** **A Temporal and Spatial Analysis of Firearm Deaths in Harris County, Texas: 2009–2020**
*Stacy A. Drake, PhD**; *Ned Levine, PhD*; *Nimesh Chandrakant Shah, MPH*; *Alicia Medina, BS*; *Yijiong Yang, BM, MHA*; *Dwayne A. Wolf, MD, PhD*
- 11:15 a.m. - 11:30 a.m. **E9** **Getting Unstuck on Tape Testing**
*Leslie Parke, BS**; *Kathleen Q. Schulte, MS*; *Curt Hewitt*

GENERAL

Wednesday—Session II

Forensic Podiatry & Footwear Analysis

Moderator: *Phillip M. Curran, MFS*
United States Army Criminal Investigation Command
Quantico, VA

- 9:00 a.m. - 9:15 a.m. **E10** **Forensic Podiatry—An Overlooked Science in the Analysis of Feet, Footprints, Gait, and Tracks**
*Kewal Krishan, PhD**; *Michael S. Nirenberg, DPM*
- 9:15 a.m. - 9:30 a.m. **E11** **Forensic Gait Analysis—Scientific Foundations, Applications, and a Case Study**
*Michael S. Nirenberg, DPM**
- 9:30 a.m. - 9:45 a.m. **E12** **Variation in Plantar Pressure Distribution Among Different Body Mass Index (BMI) Categories: Forensic Implications**
Richa Mukhra, MSc; *Kewal Krishan, PhD**
- 9:45 a.m. - 10:00 a.m. **E13** **Footprint Analysis: Data From North India Study Suggests New Features for Individualization and Biologic Profiling**
*Kewal Krishan, PhD**; *John A. DiMaggio, DPM*; *Michael S. Nirenberg, DPM*
- 10:00 a.m. - 10:15 a.m. **Break**

Forensic Science at Home and Abroad

Moderator: *Tanya L. Marlow, MS*
United States Army Criminal Investigation Command
Quantico, VA

- 10:15 a.m. - 10:30 a.m. **E14** **The Proper Identification of Acute Injuries Through Follow-Up Appointments**
*Katie Swift, MSN**; *Jessica Volz, DNP**
- 10:30 a.m. - 10:45 a.m. **E15** **Johannesburg Identification Unit: Identifying the Unidentified Deceased at a South African Medicolegal Mortuary**
*Craig A. Keyes, MS**; *Trisha-Jean Mahon, MSc*; *Allison Gilbert, MSc*
- 10:45 a.m. - 11:00 a.m. **E16** **Elder Abuse in Northeastern Italy—Health Care Providers' Perceptions and Medicolegal Perspectives: A Survey of the Phenomenon in Two Italian Hospitals**
*Eleonora Valentinuz**; *Davide Radaelli*; *Serena Lecis*; *Alessandro Manfredi*; *Lara Consoloni*; *Martina Montanaro, MD*; *Martina Zanon, MD*; *Paolo Fattorini*
- 11:00 a.m. - 11:15 a.m. **E17** **Murder on the Cruise: The Kanesaki Micki Case and the Scientific Evidence Found**
*Pietrantonio Ricci, PhD**; *Isabella Aquila, MD, PhD**
- 11:15 a.m. - 11:30 a.m. **E18** **Examining the Escalating Rise of Violence Against Law Enforcement by Youth Street Gangs During the COVID-19 Pandemic**
*Cliff Akiyama, MPH, MA**



GENERAL

Thursday—Session I

Crime Scene Investigation III

Moderator: *Lindsey N. Crim, MCJ*
Office of the State Chief Medical Examiner
Nashville, TN

- 9:00 a.m. - 9:30 a.m. **E19** **Identifying Markings on Fabric Consistent With Being Created by a Cycling Taser® and the Application of Infrared Photography to Locate Suspected Taser® Probe Markings on a Police Officer’s Uniform**
*John C. Paolucci, BS**
- 9:30 a.m. - 9:45 a.m. **E20** **Biomechanical Assessment of Various Punching Techniques**
*Peter Hofer, MD**; *Jiri Adamec*; *Stefan Pittner, PhD*; *Fabio Carlo Monticelli*; *Matthias Graw*; *Jutta Schoepfer*
- 9:45 a.m. - 10:00 a.m. **E21** **A Microscopic and Elemental Analysis of Anthropological and Modern Buried Hair Compared to Soil Composition: A Case Study of a Male Child and Adult Female From the Arch Street Project in Pennsylvania**
*Gabrielle E. DiEmma, BS**; *Jillian Conte, PhD*; *Kimberlee Sue Moran, MSc*; *Karen S. Scott, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 10:00 a.m. - 10:15 a.m. **Break**

Crime Scene Investigation IV

Moderator: *Frances M. Wheatley, MA*
Office of the State Chief Medical Examiner
Nashville, TN

- 10:15 a.m. - 10:30 a.m. **E22** **The National Institute of Justice’s (NIJ’s) Terrestrial Light Detection And Ranging (LiDAR) Scanning Working Group (TLSWG) for Criminal Justice Applications: Progress to Date**
*Rebecca Shute, MS**; *Michael Russ, MS**; *Prem Rachakonda, MS*; *William Henningsen, BS*; *Bryon O’Neil, MBA*; *Lance Miller, BS*; *Jeri D. Roper-Miller, PhD*
- 10:30 a.m. - 10:45 a.m. **E23** **Predicting Alternate Light Absorption in Areas of Trauma Based on Skin Color: Not All Wavelengths Are Equal**
*Katherine N. Scafide, PhD**; *Nancy R. Downing, PhD**; *Matthew J. Hayat, PhD*; *Daniel J. Sheridan, PhD*; *Nesibe Kutahyaliloglu, MS*
- 10:45 a.m. - 11:00 a.m. **E24** **Species-Level Forensic Identification of Illegally Traded Endangered Woods Using a Combination of Mass Spectral and Chemometric Techniques**
*Meghan Appley, MS**; *Rabi A. Musah, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 11:00 a.m. - 11:15 a.m. **E25** **Seeing vs. Knowing: Overcoming the Brain’s Filters to Render Realistic Forensic Sketches**
*Sharon K. Moses, PhD**

GENERAL

- 11:15 a.m. - 11:30 a.m. **E26** **Biological Evidence in Sexual Violence Cases**
Sila Aslan; Mete K. Gulmen, PhD, MD; Kenan Kaya*
- 11:30 a.m. - 11:45 a.m. **E27** **Forensic Science Learning for Victims of Enforced Disappearances: Study Results**
*Carlos A. Gutierrez, MSFS**
- 11:45 a.m. - 12:00 p.m. **E28** **Military Forensic Science—From the Battlefield to the Courtroom**
*Lauren Wilson, PhD**

Thursday—Session II

NamUs

*Moderator: Kelly L. Allmeyer, BA
 Office of the Regional Medical Examiner
 Saint Charles, MO*

1:00 p.m. - 2:30 p.m. **E29** **WITHDRAWN**

2:30 p.m. - 2:45 p.m. **Break**

Investigation

*Moderator: Alex T. Verdoorn, BA
 Hennepin County Medical Examiner's Office
 Minneapolis, MN*

2:45 p.m. - 3:00 p.m. **E30** **Spatial and Demographic Patterns of Resolved Missing Persons Cases: What the National Missing and Unidentified Persons System (NamUs) Data Tell Us**
*Ann W. Bunch, PhD**

3:00 p.m. - 3:15 p.m. **E31** **Using Computer Measurements to Improve Evaluator Reliability of Credibility Assessment With Human Physiology Waveforms**
*James P. O'Burke, MS**

3:15 p.m. - 3:30 p.m. **E32** **Dating Apps and Their Implications on Child Sexual Abuse: A Discussion of One Such Case**
Sarah Hinnawi, MD; Ganesh Patil, MBBS*

3:30 p.m. - 4:00 p.m. **E33** **WITHDRAWN**



GENERAL

Friday—Session I

Poster Session

- 11:30 a.m. - 1:00 p.m. **E34** **A Vapochromic Colorimetric Sensor for the Cross-Contamination of Volatile Organic Compounds (VOCs)**
*Janet M. Crespo Cajigas, BS**; *Christopher J. Katilie; Abuzar Kabir, PhD;*
Lauryn DeGreeff, PhD; Kenneth G. Furton, PhD
- 11:30 a.m. - 1:00 p.m. **E35** **Different Chemical Processes on Various Types of Tape to Visualize Latent Prints**
*Diana Martinez, MFS**; *Ismail M. Sebetan, MD, PhD**; *Paul Stein, PhD**
- 11:30 a.m. - 1:00 p.m. **E36** **The Enhancement of Tattoos Using Alternative Light Sources vs. Photo Editing Software**
*Mirtha L. Gonzalez, BA**; *Dustin C. Hatfield, MA*
- 11:30 a.m. - 1:00 p.m. **E37** **Evaluating the Effects of Heat on DNA Recovered From Friction Ridges Developed With 1,2-Indanedione (IND)**
*Ismail M. Sebetan, MD, PhD**; *Paul Stein, PhD**; *Kathryn Novaes, MFS**
- 11:30 a.m. - 1:00 p.m. **E38** **Forensic Analysis by Raman Spectroscopy**
*Aylin Yalçin Saribey, PhD**; *Nurdan Kenan, MS*
- 11:30 a.m. - 1:00 p.m. **E39** **Textile Biodeterioration: Postmortem Interval (PMI) Estimation With Image Analysis Software in Burial, Surface, and Freshwater Environments**
*Randi M. Depp, MS**; *C. Samuel Edwards, BS;* *Jacob S. Haschak*
- 11:30 a.m. - 1:00 p.m. **E40** **12 Myths About Genetic Genealogy**
*Tynan Peterson, MA**; *Melanie Thomas Armstrong, BA**
- 11:30 a.m. - 1:00 p.m. **E41** **An Elderly Woman Living With Her Dead Son: A Case Report**
*Albane Guigne**; *Benjamin Mokdad, MD;* *Benoit Hucheloup, MD;* *Florence Vincent;*
Bérengère Dautreme, MD; *Gilles P. Tournel*
- 11:30 a.m. - 1:00 p.m. **E42** **A Forensic Approach to a Fatal Harbor Accident in Genoa, Italy, in 2013**
*Camilla Tettamanti, MD**; *Alessandro Bonsignore, MD, PhD;* *Luca Vallega, MD;*
Francesco De Stefano, MD; *Francesco Ventura, MD*
- 11:30 a.m. - 1:00 p.m. **E43** **Disclosing and Strengthening Forensic Science in Portugal: A Homicide Case**
*João De Sousa, MS**
- 11:30 a.m. - 1:00 p.m. **E44** **Medicolegal Death Investigator Workplace Safety Hazards: A Scoping Review of the Literature**
Stacy A. Drake, PhD; *Caitlyn Thoene**; *Margaret Foster, MS, MPH*
- 11:30 a.m. - 1:00 p.m. **E45** **Death on the Farm: Suicide by Tractor Runover**
Chiara Toni, MD; *Francesca Iannaccone;* *Alice Chiara Manetti, MD;* *Arianna Baronti, MD**
- 11:30 a.m. - 1:00 p.m. **E46** **A Remote-Controlled Flail Mower Work-Related Death: Who Handled the Controller?**
David Forni, MD; *Claudia Giaconi, MD;* *Francesca Iannaccone;* *Arianna Baronti, MD;*
*Alice Chiara Manetti, MD**

GENERAL

- 11:30 a.m. - 1:00 p.m. **E47** **A Silent Suicide**
*Francesca Iannaccone**; *Andrea Scatena**; *Andrea Costantino**; *Damiano Marra, MD*
- 11:30 a.m. - 1:00 p.m. **E48** **An Unusual Work-Related Death at the Construction Site: The Half-Twisted Man**
Luigi Papi; *Arianna Baronti, MD*; *Alice Chiara Manetti, MD*; *Andrea Costantino**
- 11:30 a.m. - 1:00 p.m. **E49** **How Many Times Does Forensic Pathology Have the Chance to Save Lives? A Case Report**
*Giuseppe Bertozzi, MD**; *Francesco Sessa, MS, PhD**; *Santina Cantatore*;
*Luigi Cipolloni, MD, PhD**; *Francesca Maglietta, MD**; *Michela Ferrara, MD**;
*Stefania De Simone, MD**; *Irene Riezzo, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **E50** **How to Get Away With Murder: The Importance of a Correct Reconstruction of a Crime Scene Investigation (CSI)**
*Michela Ferrara, MD**; *Stefania De Simone, MD**; *Francesca Maglietta, MD**;
*Giuseppe Bertozzi, MD**; *Francesco Sessa, MS, PhD*; *Santina Cantatore*;
*Luigi Cipolloni, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **E51** **Murder? No! It Is Just Drug Abuse: A Weird Crime Scene**
*Stefania De Simone, MD**; *Francesca Maglietta, MD**; *Michela Ferrara, MD**;
*Giuseppe Bertozzi, MD**; *Francesco Sessa, MS, PhD*; *Luigi Cipolloni, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **E52** **Men on Fire! Two Murders Solved by a Multidisciplinary Approach**
*Stefania De Simone, MD**; *Luigi Cipolloni, MD, PhD**; *Francesco Sessa, MS, PhD*;
*Francesca Maglietta, MD**; *Giuseppe Bertozzi, MD**; *Santina Cantatore*;
*Michela Ferrara, MD**
- 11:30 a.m. - 1:00 p.m. **E53** **An Examination of the Self-Efficacy of High School Students in the Prevention of Drug Addiction**
Hacer Merve Meydanci; *Alptekin Cetin, PhD*; *Tugba Ünsal, PhD**; *Nurdan Kenan, MS*;
Kaan Yilancioglu, PhD; *Sevil Atasoy, PhD*
- 11:30 a.m. - 1:00 p.m. **E54** **Ethical Committee: A Southern Italian Experience**
*Francesca Maglietta, MD**; *Natascha Pascale, MD**; *Mauro A. Ciavarella*;
Valeria Bruno, MD; *Maria Ausilia Mangieri, MS*; *Maria Carmela Izzi, MS*;
Gaetano Annese, MD; *Aldo Di Fazio*
- 11:30 a.m. - 1:00 p.m. **E55** **Closed-Circuit Television (CCTV) Detection of National Security Threats Through On-Screen Identification of Text**
Lam N. Nguyen, BS; *Brendan Chapman, BSc**
- 11:30 a.m. - 1:00 p.m. **E56** **Two Cases of Sharp Force Trauma: Homicide or Suicide? Solving an Enigma With Forensic Methodology**
*Benedetta Baldari, MD**; *Michela Ferrara, MD*; *Stefania De Simone, MD*;
Mariarosaria David, MD, PhD; *Luigi Cipolloni, MD, PhD**; *Francesco Sessa, MS, PhD*
- 11:30 a.m. - 1:00 p.m. **E57** **Men Who Hate Women: The New Italian Stalking Law and Femicide Cases Review in Foggia Territory**
*Francesca Maglietta, MD**; *Michela Ferrara, MD**; *Giuseppe Bertozzi, MD**;
*Stefania De Simone, MD**; *Francesco Sessa, MS, PhD*; *Santina Cantatore*;
Luigi Cipolloni, MD, PhD
- 11:30 a.m. - 1:00 p.m. **E58** **Football Hooliganism: A Case of Homicide by Being Struck by a Car**
*Natascha Pascale, MD**; *Francesca Maglietta, MD**; *Mauro A. Ciavarella*;
Valeria Bruno, MD; *Aldo Di Fazio*



GENERAL

- 11:30 a.m. - 1:00 p.m. **E59** **A Complex Suicide Committed With a Knife and a Blunt Object**
*Alessandra Torsello**; *Michela Ferrara, MD*; *Stefania De Simone, MD*;
Francesca Maglietta, MD; *Giuseppe Bertozzi, MD*; *Francesco Sessa, MS, PhD*;
Santina Cantatore; *Luigi Cipolloni, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **E60** **A Drowned Man in the Woods: A Case of Death by Drowning in Blood**
*Alessandra Torsello**; *Mariarosaria David, MD, PhD*; *Stefania De Simone, MD*;
Michela Ferrara, MD; *Francesca Maglietta, MD*; *Giuseppe Bertozzi, MD*;
*Luigi Cipolloni, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **E61** **The Use of Video Recording Systems in Solving Forensic Cases**
*Isabella Aquila, MD, PhD**; *Fabrizio Cordasco, MD**; *Francesco Sicilia, MD**;
*Carmen Scalise, MD**; *Matteo A. Sacco, MD**; *Fiorella Caputo, MD**; *Luigi De Aloe, MD**;
*Giulia Cacciatore, MD**; *Carlo Filippo Bonetta**; *Angelica Zibetti, MD**; *Santo Gratteri, MD*;
*Pietrantonio Ricci, PhD**
- 11:30 a.m. - 1:00 p.m. **E62** **A Mysterious Case of a Serial Killer in Italy: “The Monster of Florence”—Is the Case Really Solved?**
*Luigi De Aloe, MD**; *Matteo A. Sacco, MD**; *Fabrizio Cordasco, MD**; *Fiorella Caputo, MD**;
*Francesco Sicilia, MD**; *Carmen Scalise, MD**; *Giulia Cacciatore, MD**;
Santo Gratteri, MD; *Carlo Filippo Bonetta**; *Angelica Zibetti, MD**;
*Pietrantonio Ricci, PhD**; *Isabella Aquila, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **E63** **The “Tomato” Falsification of the Crime Scene: A Special Case of Murder**
*Luigi De Aloe, MD**; *Carmen Scalise, MD**; *Matteo A. Sacco, MD*; *Roberto Raffaele, BE**;
Francesco Sicilia, MD; *Pietrantonio Ricci, PhD**; *Isabella Aquila, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **E64** **A Penetrating Chest Trauma Due to a High-Velocity Projectile in the Workplace**
*Sarah Hinnawi, MD**; *Ganesh Patil, MBBS*
- 11:30 a.m. - 1:00 p.m. **E65** **Comparing Illicit Opioids and Synthetics Collected From Death Scene Investigations to Toxicology Results of Overdose Deaths**
Tracy-Lynn E. Lockwood, BS; *Alfarena Ballew, MBA**
- 11:30 a.m. - 1:00 p.m. **E66** **An Unusual Suicide With Multiple Stab Wounds**
Claudia Rosa, MD; *Roberto Testi, MD*; *Silvia Boca*; *Matteo A. Sacco, MD**; *Carmen Scalise, MD**;
Angelica Zibetti, MD; *Pietrantonio Ricci, PhD*; *Isabella Aquila, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **E67** **The Importance of an Interdisciplinary Approach for a Differential Diagnosis of Child Abuse: A Case Report**
*Angelica Zibetti, MD**; *Giulia Cacciatore, MD**; *Fiorella Caputo, MD*; *Carmen Scalise, MD**;
Luigi De Aloe, MD; *Matteo A. Sacco, MD**; *Fabrizio Cordasco, MD*; *Carlo Filippo Bonetta*;
Francesco Sicilia, MD; *Pietrantonio Ricci, PhD*; *Isabella Aquila, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **E68** **Infant Homicide: Perpetrators, Causes, and Prevention**
*Rebecca Amuso, MS**; *Casey Roy, MS**; *Xiang Zhang, MD*; *Zabiullah Ali, MD*; *Ling Li, MD*
- 11:30 a.m. - 1:00 p.m. **E69** **The Importance of Postmortem Investigations in Intrauterine Fetal Death: Case Studies and a Review of the Literature**
*Carmen Scalise, MD**; *Fabrizio Cordasco, MD**; *Fiorella Caputo, MD*; *Francesco Sicilia, MD*;
Matteo A. Sacco, MD; *Angelica Zibetti, MD**; *Giulia Cacciatore, MD**; *Luigi De Aloe, MD**;
Santo Gratteri, MD; *Carlo Filippo Bonetta*; *Pietrantonio Ricci, PhD**; *Isabella Aquila, MD, PhD**

GENERAL



Forensic Education

Moderator: *James P. O’Burke, MS*
The Polygraph Institute
San Antonio, TX

- 1:00 p.m. - 1:15 p.m. **E70** **Comparing Virtual Tools for Investigator Training**
*Katherine Ramsland, PhD**
- 1:15 p.m. - 1:30 p.m. **E71** **Pushing the Bounds of Virtual Education: The Creation of an Interactive, Virtual Forensic Serology Lab**
*Catherine Cupples Connon, PhD**
- 1:30 p.m. - 1:45 p.m. **E72** **WITHDRAWN**
- 1:45 p.m. - 2:00 p.m. **E73** **Create Virtual Tours Using Google® Tour Creator for Remote Instruction**
*Gina Londino-Smolar, MS**
- 2:00 p.m. - 2:15 p.m. **E74** **Innocence Project Initiative and Cold Case Program—Experiential Applications of Constructivism for Unbiased Investigative Public Service**
Caitlin E. Porterfield, MS; Amber Fortney*; Wayne D. Lord, PhD; Mark R. McCoy, EdD; John P. Mabry, JD; Craig Gravel, MS; James P. Creecy, PhD; Jennifer Schmitz, JD; Dwight E. Adams, PhD*
- 2:15 p.m. - 2:30 p.m. **E75** **Enriching the Forensic Science Curriculum Through a Guided Study Abroad Experience**
Kimberlee Sue Moran, MSc; Karen S. Scott, PhD*
- 2:30 p.m. - 2:45 p.m. **Break**

Forensic Education & Lab Management

Moderator: *Sandra Haddad, PhD*
Bay Path University
Longmeadow, MA

- 2:45 p.m. - 3:00 p.m. **E76** **Setting a New Standard in Access and Quality for Forensic Science and Justice Training**
Kevin Lothridge, MSc; DeEtta Mills, PhD*; Gerald M. LaPorte, MSFS*; Becky Carter*
- 3:00 p.m. - 3:15 p.m. **E77** **An Evaluation of a Model for Providing Cost-Effective, Accessible Continuing Education Content to Forensic Scientists**
*Thomas J. Gluodenis, Jr., PhD**
- 3:15 p.m. - 3:30 p.m. **E78** **Feeling Stress at Work? Stress, Support, and Decision-Making of Forensic Examiners**
Mohammed A. Almazrouei, MS; Itiel Dror, PhD; Ruth M. Morgan, PhD*
- 3:30 p.m. - 3:45 p.m. **E79** **Data-Driven Support for Optimal Forensic Laboratory Staffing**
*Paul Speaker, PhD**
- 3:45 p.m. - 4:00 p.m. **E80** **The Implementation of a Blind Quality Control Program in a Forensic Laboratory**
Callan Hundl, BS; Maddisen Neuman, MA; Alicia R. Rairden, MS; Preshious Rearden, PhD; Peter R. Stout, PhD*



GENERAL

Friday—Session II

Death Investigation I

Moderator: *Celia M. Gallo, MFS*
United States Army Criminal Investigation Command
Quantico, VA

- 9:00 a.m. - 9:15 a.m. **E81** **Self-Inflicted Gunshot Wound: Suicide or Accident? You Decide**
*Erin P. Koester, MS**; *Joshua Mayo, MSFS**; *William B. Andrews, MFS*
- 9:15 a.m. - 9:30 a.m. **E82** **A Case of Suicidal Hanging or Accidental Asphyxiophilia? A Case Discussion**
*Sarah Hinnawi, MD**; *Ganesh Patil, MBBS*
- 9:30 a.m. - 9:45 a.m. **E83** **WITHDRAWN**
- 9:45 a.m. - 10:00 a.m. **E84** **Managing COVID-19-Related Death in Ibadan: The Human Angle Narratives of a Forensic Pathologist**
*Uwom O. Eze, MD**
- 10:00 a.m. - 10:15 a.m. **Break**

Death Investigation II

Moderator: *Gwyneth W. Gordon, PhD*
Arizona State University
Tempe, AZ

- 10:15 a.m. - 10:30 a.m. **E85** **A Medicolegal Death Investigation and Review of Inhalant-Related Deaths**
*Christopher Ramos, MD**; *Abigail J. Grande, MPH*; *Prentiss Jones, Jr., PhD*;
Joseph A. Prahlow, MD; *Theodore T. Brown, MD*
- 10:30 a.m. - 10:45 a.m. **E86** **A Postmortem Medicolegal, Radiological, and Toxicological Investigation in a Case of Suicide by Multiple Stabbings Associated With Ingestion of an N-Hexane Mixture**
Luigi Papi; *Sara Turco, MD**; *Fabio Stefanelli*; *Silvio Chericoni*; *Claudia Giaconi, MD*;
Matteo Scopetti, MD; *Alessandro Santurro, MD*
- 10:45 a.m. - 11:00 a.m. **E87** **A Longitudinal Evaluation of Death Investigation of Elder Abuse and Neglect Deaths**
*Stacy A. Drake, PhD**; *Anthony Akande, MBA*; *Peter Adam Kelly, PhD, MBA*;
Yijiong Yang, BM, MHA; *Carmel B. Dyer, MD*; *Dwayne A. Wolf, MD, PhD*
- 11:00 a.m. - 11:15 a.m. **E88** **A Unique Case of Postmortem Manipulation Artifact Mimicking Homicidal Violence**
*Brett E. Harding, MBA**; *Jennifer Corneal, MD*; *Tiffany R. Brown*
- 11:15 a.m. - 11:30 a.m. **E89** **Deceiving Appearance: Death Due to the Use of the Novel Psychoactive Substance Bromazepam**
*Anita Roman Hasert, BS**

JURISPRUDENCE

Thursday

Conviction Integrity: Causes of and Cures for Wrongful Convictions

Moderator: *Kevin Riach, JD*

*Fredrikson & Byron, PA
Minneapolis, MN*

Co-Moderator: *Terri Rosenblatt, JD*

*The Legal Aid Society
Bronx, NY*

- 9:00 a.m. - 9:30 a.m. **F1** **Lessons Learned From the Creation and Operation of Conviction Integrity Units (CIUs) in District Attorney's Offices in Texas**
John F. Lopez, Jr., JD; Cynthia R. Garza, JD*; Alison F. Dahlberg, JD*; Calli Bailey, JD**
- 9:30 a.m. - 9:50 a.m. **F2** **Licensing of Forensic Analysts in Texas and Implications for Individual Professional Misconduct**
*Leigh M. Tomlin, JD**

Standards and Guidelines: From Lab Lawyers to Expert Evidence

Moderator: *Amy Curtis Jenkins, JD*

*Virginia Department of Forensic Science
Richmond, VA*

Co-Moderator: *Deandra M. Grant, JD*

*Hamilton Grant PC
Dallas, TX*

- 9:50 a.m. - 10:05 a.m. **F3** **Forensic Laboratories: Time to Lawyer Up**
*Amy Curtis Jenkins, JD**
- 10:05 a.m. - 10:20 a.m. **F4** **Implementing Organization of Scientific Area Committees (OSAC) Standards at the Local Level: Lessons From Texas**
Lynn Garcia, JD; Mark D. Stolorow, MS, MBA**
- 10:20 a.m. - 10:35 a.m. **F5** **Putting Words in the Mouth of the Expert: Using Rules of Evidence to Script Expert Testimony Based on the President's Council of Advisors on Science and Technology (PCAST) Principles**
*Michael Chamberlain, JD**
- 10:35 a.m. - 10:50 a.m. **Questions & Answers**
- 10:50 a.m. - 11:05 a.m. **Break**

Forensics in the Courtroom

Moderator: *Jessica Gabel Cino, JD*

*Georgia State University College of Law
Atlanta, GA*

- 11:05 a.m. - 11:25 a.m. **F6** **Science, Technology, and Jurors: An Update**
*Donald E. Shelton, JD, PhD**
- 11:25 a.m. - 11:45 a.m. **F7** **Transfer and Persistence Expert Evidence in the Canadian Criminal Trial Process**
*Cecilia Hageman, PhD**
- 11:45 a.m. - 12:00 p.m. **F8** **An Evaluation of Expert Testimony on Secondary Transfer: Knowledge and Perceptions of Potential Jurors and Those Employed in the Criminal Justice System**
*Rachel H. Oefelein, MSc**



JURISPRUDENCE

Poster Session

- 11:30 a.m. - 1:00 p.m. **F9** **Expert Witness Testimony and Adaptive Speech Devices: Feasible Reality or Impractical Liability?**
*Kelly A. Grimsley, MFS**; *Ismail M. Sebetan, MD, PhD**; *Paul Stein, PhD**
- 11:30 a.m. - 1:00 p.m. **F10** **A Double Truth: When Scientific and Judicial Conclusions Are Divergent**
*Michela Ferrara, MD**; *Mariarosaria David, MD, PhD*; *Stefania De Simone, MD**; *Francesca Maglietta, MD**; *Giuseppe Bertozzi, MD**; *Santina Cantatore*; *Luigi Cipolloni, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **F11** **Post-Conviction DNA Testing: A Two-Year Summary of a Law School and University Collaboration to Identify and Evaluate Post-Conviction Cases**
*Katherine A. Roberts, PhD**; *Paula Mitchell, JD*; *Nikki Herst-Cook, JD*; *Mehul B. Anjaria, MS*
- 11:30 a.m. - 1:00 p.m. **F12** **The Application of Virtual Reality in Forensic Science**
*Jeff Cheng-Lung Lee, PhD**; *Yuan Fang*; *Cheng Te Kuo*; *Szu Hao Lee*

The Defense Perspective: Discovery, Admissibility, and Post-Conviction Litigation

Moderator: John D. Schmid, JD
Sixth District Public Defender
Duluth, MN

Co-Moderator: Kelsey P. McKay, JD
Respond Against Violence
Austin, TX

- 1:00 p.m. - 1:15 p.m. **F13** **Transparency to the Defense Is Essential to Truly Pursue “Justice Through Truth In Evidence”: A Defense Perspective on Discovery Reform in New York and a Possible National Standard**
*Allison Lewis, JD**
- 1:15 p.m. - 1:35 p.m. **F14** **Protecting the Innocent: When and Under What Circumstances Should Source-Level DNA Evidence Be Admitted in Cases Where the Relevant Issue Is “Activity” Rather Than “Source”?**
*John D. Schmid, JD**
- 1:35 p.m. - 1:55 p.m. **F15** **Ineffective Assistance of Counsel in DNA Cases: Lawyers and Judges Don’t Get It**
*Albert (Buzz) E. Scherr, JD**

The Jurisprudence of New Technology

Moderator: Catherine L. Bonventre, JD, PhD
North Carolina Agricultural and
Technical State University
Greensboro, NC

Co-Moderator: Kenneth E. Melson, JD
The George Washington University Law School
Kinsale, VA

- 1:55 p.m. - 2:10 p.m. **F16** **Partnering With Law Enforcement to Implement Novel DNA Technologies**
*Andrew Singer**
- 2:10 p.m. - 2:35 p.m. **F17** **The Implementation of Rapid DNA: Prevent Tomorrow’s Victim**
*Frederick Harran, MS**
- 2:35 p.m. - 2:50 p.m. **Questions & Answers**

JURISPRUDENCE

2:50 p.m. - 3:05 p.m.	F18	When Bad Science Leads to Incorrect Guilty Sentences: Reconsidering the Lorandi-Bugna Case <i>Veronica Scotti, JD*</i> ; <i>Alessandro M. Ferrero, MSc</i>
3:05 p.m. - 3:25 p.m.	F19	The Need for Ethical, Legal, and Social Implications (ELSI) Evaluations in Forensic Science Methods and Police Investigative Technologies <i>Sarah Chu, MS*</i>
3:25 p.m. - 3:45 p.m.	F20	Digital Evidence in Criminal Cases Before the United States Courts of Appeal: A Follow-Up Study on Trends and Issues for Consideration <i>Martin Novak, MPA*</i>
3:45 p.m. - 4:00 p.m.		Questions & Answers

Friday

Data and Technology

Moderator: *Lesley M. Clifford, BS*
Oxford, UNITED KINGDOM

9:00 a.m. - 9:15 a.m.	F21	Terrestrial Light Detection And Ranging (LiDAR) Scanning (TLS), Admissibility of 3D "Point Cloud" Evidence and Testimony <i>Robert M. Sanger, JD*</i>
9:15 a.m. - 9:30 a.m.	F22	Cell Phones Are the New DNA: The Emerging Role of Mobile Device Forensics in Wrongful Conviction Exonerations <i>John J. Carney, Esq., JD*</i>
9:30 a.m. - 9:50 a.m.	F23	#DataStories <i>Paul Reedy*</i>
9:50 a.m. - 10:05 a.m.	F24	Is Epigenetics Ready for Prime Time? The Potential of Using DNA Methylation Patterns to Differentiate Monozygotic Twins and to Estimate DNA Donor Age <i>Robert F. Hedges, JD*</i>

Feature Comparisons in the Courtroom

Moderator: *M.J. Menendez, JD*
NMS Labs
Horsham, PA

10:05 a.m. - 10:20 a.m.	F25	Cheiloscopy: Lip Print Prevarications <i>Michelle L. Behan, JD*</i> ; <i>Gil Sapir, JD</i>
10:20 a.m. - 10:35 a.m.	F26	Bayes' Theorem, Forensic Science, and the Law: Long-Lost Relatives or Feuding Family? <i>Tim Kalafut, PhD*</i>
10:35 a.m. - 10:50 a.m.	F27	A Critical Review of Admissibility of Canine Alerts in Arson Cases <i>Terry-Dawn Hewitt, LLM*</i>
10:50 a.m. - 11:05 a.m.	F28	Jury Trials During the COVID-19 Pandemic: Lessons Learned From Texas <i>David Slayton, MPA*</i>



JURISPRUDENCE

Should Firearms/Toolmarks Evidence Be Admissible in Court?: Both Sides of the Argument

Moderator: *Virginia Barron, JD*
Westbrook, MN

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|-------------------------|------------|--|
| 11:05 a.m. - 11:25 a.m. | F29 | Examining the Foundational Validity of Firearm and Toolmark Identification and the Continued Admission of Flawed “Science” in Court: A Call for Increased Scrutiny
<i>Kyla J. Wells, JD*</i> |
| 11:25 a.m. - 11:45 a.m. | F30 | Don’t Shoot the Messenger: Firearm and Toolmark Evidence Is Still Reliable
<i>Raymond Valerio, JD*</i> |
| 11:45 a.m. - 12:00 p.m. | | Questions & Answers |

ODONTOLOGY

Wednesday

Poster Session

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|------------------------|-----------|---|
| 11:30 a.m. - 1:00 p.m. | G1 | Limousine Fire
<i>Roland G. Chew, DDS*</i> |
| 11:30 a.m. - 1:00 p.m. | G2 | Intra-Alveolar Photogrammetry Scanning of Empty Dental Sockets of Teeth Missing Postmortem for Root Morphology Analysis: A Case Study
<i>Domenico Dellaia, DDS*; Carlo Robino; Greta Cena, MD; Elena Chierito, PhD; Emilio Nuzzolese, PhD*</i> |
| 11:30 a.m. - 1:00 p.m. | G3 | The Correlation Between Root Translucency, Calcium Hydroxyapatite Content, and DNA Preservation in Teeth for Unidentified Human Remains (UHR) Investigations
<i>Paul M. Yount*; Virginia M. Maxwell, DPhil; James M. Lewis, DMD; Thomas J. David, DDS; Murray K. Marks, PhD; Paula Brumit, DDS; Angie Ambers, PhD</i> |
| 11:30 a.m. - 1:00 p.m. | G4 | Cementum Annuli: Technique, Microscopy, and Age Estimation
<i>Michael Clay, DMD*; James M. Lewis, DMD; Paula Brumit, DDS; Murray K. Marks, PhD</i> |
| 11:30 a.m. - 1:00 p.m. | G5 | Obstructive Sleep Apnea-Hypopnea Syndrome (OSAHS): Medicolegal Implications and the Role of the Dentist in a Multidisciplinary Approach
<i>Francesca Zangari, MD*</i> |

Thursday

Odontology I

Moderator: *Leslie A. Haller, DMD*
Miami, FL

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|-----------------------|------------|---|
| 1:00 p.m. - 1:15 p.m. | G6 | Computed Tomography (CT) -Based Dental Identification—Changing the Paradigm and Practice of Dental Identification
<i>Robert E. Wood, DDS, PhD*; Taylor L. Gardner, BFS*; Dawn Thorpe</i> |
| 1:15 p.m. - 1:30 p.m. | G7 | When There Are No Typical Dental Remains, “Thinking Outside the Bag” Is Required to Make a Positive Dental Identification
<i>Randolph L. Mitchell, DMD*</i> |
| 1:30 p.m. - 1:45 p.m. | G8 | Ghost Ship Fire—Up in Smoke
<i>Roland G. Chew, DDS*</i> |
| 1:45 p.m. - 2:00 p.m. | G9 | Selecting the Skeletal Mandibular Identifiers With the Strongest Potential for Human Identification on Panoramic Radiographs
<i>Anca R. Iliescu, DMD*; Cezar Capitaneanu, DMD, PhD; Debora Hürter, DMD; Steffen Fieuwis; Jannick De Tobel, PhD; Patrick W. Thevissen, PhD</i> |
| 2:00 p.m. - 2:20 p.m. | G10 | A Fractal Analysis of Bone Trabeculae—Artificial Intelligence in Identification
<i>Sylvain Desranleau, DMD*; James McGivney, DMD</i> |
| 2:20 p.m. - 2:30 p.m. | | Break |



ODONTOLOGY

- 2:30 p.m. - 2:45 p.m. **G11** **Selecting the Dental Morphological Identifiers With the Strongest Potential for Human Identification on Panoramic Radiographs**
Yea Lee Shu, MSc; Jannick De Tobel, PhD; Chen Jun, MSc; Steffen Fieuws; Patrick W. Thevissen, PhD*
- 2:45 p.m. - 3:00 p.m. **G12** **The Identification of Fiery Highway Crash Remains**
*Robert C. Walcott, DDS**
- 3:00 p.m. - 3:15 p.m. **G13** **The Application of an Intraoral Scanner to Identify Monozygotic (MZ) Twins**
Botond Simon, DMD; Janos Vag*
- 3:15 p.m. - 3:45 p.m. **G14** **Postmortem Anterior Tooth Loss and Time Since Death**
Susan J. Baker, DMD; Murray K. Marks, PhD; James M. Lewis, DMD*

Friday

Odontology II

Moderator: *Megan Lenahan, DDS
St. Louis, MO*

- 1:00 p.m. - 1:30 p.m. **G15** **Several Key Concepts in Bitemark Analysis Are as Relevant Now as Ever**
Richard R. Souviron, DDS; Leslie A. Haller, DMD**
- 1:30 p.m. - 1:45 p.m. **G16** **Dental Age Estimation: A Comparison of Three Methods of Estimating Dental Age in a Population of Kuwaiti Children, Adolescents, and Young Adults**
Fatemah Alkandiri; Anfal Karimi, MS; Derek M. Draft, DDS; Victoria S. Lucas, PhD; Graham J. Roberts, MDS*
- 1:45 p.m. - 2:00 p.m. **G17** **The Impact of Age Estimation of Recruited and Exploited Children by Terrorist and Violent Extremist Groups**
*Salem Altalie, FACLM; Cezar Capitaneanu, DMD, PhD**
- 2:00 p.m. - 2:20 p.m. **G18** **The Applicability of Caucasian and Chinese Dental Reference Datasets for Age Estimation in Hispanic Children in Texas**
Jayakumar Jayaraman, PhD; Maria-Jose Mendez Cervantes, MS; Peter Thiuri Gakunga, PhD; Graham J. Roberts, MDS*
- 2:20 p.m. - 2:30 p.m. **Break**
- 2:30 p.m. - 2:45 p.m. **G19** **Third Molar Development Stages on Panoramic Radiographs Differ From Those on Cone Beam Computed Tomography (CBCT)**
Jannick De Tobel, PhD; Dana A. Ahmed, MSc; Maria L. Clarke, DDS; Patrick W. Thevissen, PhD*
- 2:45 p.m. - 3:00 p.m. **G20** **First Molar-to-Tooth-Length Ratios in Age Estimation**
*Ashith B. Acharya, BDS**
- 3:00 p.m. - 3:15 p.m. **G21** **WITHDRAWN**
- 3:15 p.m. - 3:30 p.m. **G22** **Demirjian's Dental Age Estimation Using Third Molars: A Systematic Review**
Tanuj Kanchan, MD; Rutwik D. Shedje, MSc; Arun K. Patnana, MDS; Kewal Krishan, PhD*

PATHOLOGY/BIOLOGY

Wednesday—Session I

Pediatric Mortality

Moderator: *Evan Matshes, MD*
NAA Group
San Diego, CA

Co-Moderator: *Chris Milroy, MD, LLB*
Ottawa Hospital
Ottawa, CANADA

- 8:30 a.m. - 8:45 a.m. **H1** **Pediatric Sudden Unexpected Death (SUD) Due to Undiagnosed Mediastinal T-Cell Lymphoblastic Lymphoma: A Series of Three Cases**
*Celeste Santos Martins, MD**; *Joseph A. Felo, DO*
- 8:45 a.m. - 9:00 a.m. **H2** **Variations in Postmortem Perianal Findings in Infants: A Retrospective Review of Non-Traumatic Abnormalities and the Potential Diagnostic Pitfalls in Determining Trauma**
*Paulyann Maclayton, MD**; *Merrill O. Hines III, MD*
- 9:00 a.m. - 9:15 a.m. **H3** **Recognizing the Misuse of Probabilistic Language (PL) and False Certainty in False Accusations of Child Abuse**
*Steven C. Gabaeff, MD**
- 9:15 a.m. - 9:30 a.m. **H4** **Fatal Systemic (Paradoxical) Air Embolism Diagnosed by Postmortem Funduscopy**
*Lucy Bradley**; *Anna G. McDonald, MD*; *Patrick E. Lantz, MD*
- 9:30 a.m. - 9:45 a.m. **H5** **The Aftermath of Abusive Head Trauma: A Unique Pediatric Disease**
*Rudy J. Castellani, MD**; *Brittany Erskine, BS*; *Carl J. Schmidt, MD*; *Joyce L. deJong, DO*; *Amanda O. Fisher-Hubbard, MD*
- 9:45 a.m. - 10:00 a.m. **H6** **Child and Adolescent Suicide: A Ten-Year (2010–2019) Retrospective Analysis of Medical Examiner Cases in Kentucky**
Marwil C. Pacheco, MD; *Terri Mason, MD*; *Ashley E. Mathew, MD**; *Donna Marlowe Stewart, MD*
- 10:00 a.m. - 10:15 a.m. **Break**

Toxicology

Moderator: *Karl E. Williams, MD*
Allegheny County Office of the Medical Examiner
Pittsburgh, PA

- 10:15 a.m. - 10:30 a.m. **H7** **When Epidemic Meets Pandemic: A Case Series of Pediatric Fentanyl Deaths in Denver, CO**
*Sterling McLaren, MD**; *Ian J. Puffenberger, MD*; *Meredith A. Frank, MD*; *James Louis Caruso, MD*
- 10:30 a.m. - 10:45 a.m. **H8** **Infant Deaths Associated With Methamphetamine Exposure: A Case Series**
*Khusbu Patel, BA**; *Abigail J. Grande, MPH*; *Elizabeth A. Douglas, MD*; *Amanda O. Fisher-Hubbard, MD*
- 10:45 a.m. - 11:00 a.m. **H9** **The Recent Outbreak of Bupropion Use in Cook County, Illinois**
*Lorenzo Gitto, MD**; *Ponni Arunkumar, MD*; *Daniel S. Isenschmid, PhD*; *Alex J. Krotulski, PhD*; *Serenella Serinelli, MD, PhD**



PATHOLOGY/BIOLOGY

- 11:00 a.m. - 11:15 a.m. **H10** **Isopropanol in Postmortem Vitreous Humor Due to Body Preparation for Tissue Procurement: A Report of Six Cases**
*Annamaria Melton, BS, BA**; *Stephen D. Cohle, MD*; *Katherine A. Turner, PhD*;
Carl W. Hawkins, MD; *Sarah E. Avedschmidt, MD*
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 11:15 a.m. - 11:30 a.m. **H11** **Paralytic Shellfish Poisoning Resulting From the Consumption of Shellfish From a Beach in Alaska**
*Cristin Marie Rolf, MD**; *Patryce McKinney, BA, MBA*

Wednesday—Session II

Forensic Entomology

Moderator: *Ashleigh M. Faris, PhD*
Texas A&M University
College Station, TX

Co-Moderator: *Lauren Weidner, PhD*
Arizona State University
Glendale, AZ

- 8:30 a.m. - 8:45 a.m. **H12** **A Simplified DNA Barcoding Strategy for Forensically Relevant Blow, Flesh, and Scuttle Flies**
*Sam Kwiatkowski, PhD**; *Michelle R. Sanford, PhD*; *Michael A. Donley, MS*;
Katherine Welch, MS; *Roger Kahn, PhD*
- 8:45 a.m. - 9:00 a.m. **H13** **Microbiome Dynamics in *Lucilia Sericata* (Meigen, 1826) (Diptera: Calliphoridae) Developmental Stages**
*Lavinia Iancu, PhD**; *Victoria Ioana Paun, MS*; *Iulia Roxana Angelescu, PhD*;
Paris Lavin, PhD; *Carlos Henríquez-Castillo, PhD*; *Cristina Purcarea, PhD*
- 9:00 a.m. - 9:15 a.m. **H14** **Bone Microbial Community Succession During Multi-Year Decomposition in an Aquatic Habitat**
*Sierra Kaszubinski, MS**; *Emily Nestle*; *Joseph P. Receveur, BS*; *Jennifer L. Pechal, PhD*;
M. Eric Benbow, PhD
- 9:15 a.m. - 9:30 a.m. **H15** **Microbes as the Puppet Master: Clear Evidence Microbes Drive the Decomposition Process and Colonization by Insects**
*Casey A. Flint, BS**; *Tawni L. Crippen, PhD*; *Jeffery K. Tomberlin, PhD*
- 9:30 a.m. - 9:45 a.m. **H16** **Investigating Linkages Between Volatile Organic Compounds (VOCs), Total Body Scoring (TBS), and the Stages of Decomposition in Adult Pigs**
*Jerika Ho, BSc**; *Angela Skopyk, BS*; *Helene N. LeBlanc, PhD*
- 9:45 a.m. - 10:00 a.m. **H17** **When Primary Colonizers Are Late to the Party: Implications for Using Time of Colonization to Inform Postmortem Interval**
*Jennifer L. Rhinesmith-Carranza, BS**; *Jeffery K. Tomberlin, PhD*
- 10:00 a.m. - 10:15 a.m. **Break**

PATHOLOGY/BIOLOGY

Moderator: *Denise Gemmellaro, PhD*
Department of Biology, Kean University
Union, NJ

- 10:15 a.m. - 10:30 a.m. **H18** *Lucilia eximia* (Wiedemann) (Diptera: Calliphoridae) Attraction and Colonization Behavior: A Little-Studied Species With Great Forensic Importance
*Samantha J. Sawyer, BS**; *Jeffery K. Tomberlin, PhD*
- 10:30 a.m. - 10:45 a.m. **H19** Geographic, Landscape, and Sex Variation in Adult Blow Fly Microbiomes: Implications for Forensics
*Kadie F. Bernstein**; *Joseph P. Receveur, BS*; *Jennifer L. Pechal, PhD*; *Nicholas Babcock, MS*; *M. Eric Benbow, PhD*
- 10:45 a.m. - 11:00 a.m. **H20** Seasonal Differences in Soil Fungal Community Successional Patterns Impacted by Long-Term Human Decomposition
*Lois S. Taylor, MS**; *Allison R. Mason, BS*; *Jennifer M. DeBruyn, PhD*
- 11:00 a.m. - 11:15 a.m. **H21** The Survival of *Calliphora vicina* (R.-D.) (Diptera: Calliphoridae), a Forensically Significant Blow Fly, Following Submergence Depends on Life Stage and Submergence Time
*Jeffrey Yung, MS**; *Vienna C. Lam, MA*; *Gail S. Anderson, PhD*
- 11:15 a.m. - 11:30 a.m. **H22** The Effects of Carrion Clothing Color on Blow Fly Oviposition
*Kristi Bugajski, PhD**

Thursday

COVID-19, Other Infections, and Artifacts

Moderator: *Erin G. Brooks, MD*
University of Wisconsin Hospital and Clinics
Madison, WI

Co-Moderator: *Reema Khan, MD*
Chicago, IL

- 1:00 p.m. - 1:15 p.m. **H23** The Role of Autopsy in COVID-19 Disease
*Isabella Aquila, MD, PhD**; *Matteo A. Sacco, MD**; *Carlo Filippo Bonetta*; *Carmen Scalise, MD*; *Fabrizio Cordasco, MD*; *Francesco Sicilia, MD*; *Luigi De Aloe, MD*; *Angelica Zibetti, MD*; *Santo Gratteri, MD*; *Fiorella Caputo, MD*; *Giulia Cacciatore, MD*; *Pietrantonio Ricci, PhD*
- 1:15 p.m. - 1:30 p.m. **H24** COVID-19 Suspected Deaths Certified by the Florida District 2 Medical Examiner's Office: Causes of Death and Pre-Existing Medical Conditions
*Stephen L. Sgan, MD**; *John E. Sgan*; *Lucas P. Stoev*
- 1:30 p.m. - 1:45 p.m. **H25** A SARS-CoV-2 (COVID-19) Experience at an Academic Medical Examiner's (ME's) Office
*Theodore T. Brown, MD**; *Prentiss Jones, Jr., PhD*; *Kristi Bailey, BS*; *Abigail J. Grande, MPH*; *Elizabeth A. Douglas, MD*; *Brandy Shattuck, MD*; *Amanda O. Fisher-Hubbard, MD*; *Jared Brooks, MD*; *Joyce L. deJong, DO*; *Joseph A. Prahlow, MD*
- 1:45 p.m. - 2:00 p.m. **H26** A Retrospective Analysis of Deaths in Harris County, Texas, for the Detection of COVID-19 Prior to March 2020
*Pramod Gumpeni, MD**; *Kaeleigh DeMeter, BS**



PATHOLOGY/BIOLOGY

- 2:00 p.m. - 2:15 p.m. **H27** **The Identification of Unrecognized COVID-19 Deaths by Nasopharyngeal Swabs at Funeral Homes**
*Maura DeJoseph, DO; Christina M. Schock, MS; Donald Turbiville, MD; James R. Gill, MD**
- 2:15 p.m. - 2:30 p.m. **H28** **A COVID-19 Profile in Mumbai City, India, With a Humanitarian Forensic Aspect**
*Manoj Bhausaheb Parchake, MD**
- 2:30 p.m. - 2:45 p.m. **H29** **Suicide Analysis in the Time of COVID-19 in Orange County, California**
*Kelly Keyes, BS**
- 2:45 p.m. - 3:00 p.m. **H30** **Histological Parameters of Myocarditis in Relation to the Cause of Death in Clinical and Forensic Autopsy Pathology**
Hans H. de Boer, MD, PhD; Romy Du Long, MD; Judith Fronczek; Johannes W.M. Niessen, MD, PhD; Allard van der Wal, MD, PhD*
- 3:00 p.m. - 3:15 p.m. **H31** **Evaluating Small Vessel Neutrophils as a Marker for Systemic Infection**
Zuzanna Gorski, MD; Chris Milroy, MD, LLB; Jacqueline L. Parai, MD*
- 3:15 p.m. - 3:30 p.m. **H32** **Non-Skeletal Injuries Related to Cardiopulmonary Resuscitation (CPR): An Autopsy Study**
Fabiola Righi, DO; Peter T. Lin, MD*
- 3:30 p.m. - 3:45 p.m. **H33** **Extracorporeal Membrane Oxygenation (ECMO) in the Forensic Setting: A Series of 19 Forensic Cases**
Andrew J. Layman, MD; Peter T. Lin, MD*
- 3:45 p.m. - 4:00 p.m. **H34** **Postmortem Changes of Female External Genitalia and Their Importance in Suspected Sexual Abuse**
Dalia M. Alsaif, MD; Maram A. Al-Farayedhi, MD; Ghada Alshamsi, SBFLM; Marwah I. Al-Bayat, MD; Osama Al-madani; Magdy Abdel Azim Kharoshah, MD, FFFLM*

Friday—Session I

Non-Natural Deaths

Moderator: *Katherine F. Maloney, MD*
Erie County Medical Examiner's Office
Buffalo, NY

Co-Moderator: *Angela N. Baldwin, MD, MPH*
Office of Chief Medical Examiner
New York City, NY

- 9:00 a.m. - 9:15 a.m. **H35** **Hurricane Harvey: Fatality Overview**
Tabitha Ward, MD; Varsha Poddaturi, MD; Pramod Gumpeni, MD*
- 9:15 a.m. - 9:30 a.m. **H36** **A Framework for Assessing Mortality and Morbidity After Large-Scale Disasters: The National Academies of Science 2020 Report**
*Marcella F. Fierro, MD**
- 9:30 a.m. - 9:45 a.m. **H37** **Excited Delirium Unassociated With Police Involvement**
*Katherine F. Maloney, MD**
- 9:45 a.m. - 10:00 a.m. **H38** **Paschen's Law and Electrical Burns**
Mark E. Goodson, PE; William Steward, BS*

PATHOLOGY/BIOLOGY

10:00 a.m. - 10:15 a.m. **H39 Electrothermal Fatalities**
Gert Saayman, FCPATH; Suzan M. Mabotja, FCPATH; Stefanie Ferraris, MBChB*

10:15 a.m. - 10:30 a.m. **Break**

Moderator: *Hannah C. Jarvis, MRCS*
Harris County Institute of Forensic Sciences
Houston, TX

Co-Moderator: *Jan M. Gorniak, DO*
Clark County
Office of the Coroner/Medical Examiner
Las Vegas, NV

10:30 a.m. - 10:45 a.m. **H40 Fatalities Due to Major Vascular Trocar Injuries in Laparoscopic Surgery**
Hannah C. Jarvis, MRCS; Gregory M. Dickinson, MD**

10:45 a.m. - 11:00 a.m. **H41 The Petechiae Enigma—Manual Strangulation in the Absence of Petechiae**
*J.C.U. Downs, MD**

11:00 a.m. - 11:15 a.m. **H42 Axonal Injury Is Detected by β -Amyloid Precursor Protein (β APP) Immunohistochemistry in Near Instantaneous/Rapid Death From Head Injury Following Road Traffic Collision (RTC)**
Safa Al-Sarraj, FRCPath; Guy N. Ruddy, MD*

11:15 a.m. - 11:30 a.m. **H43 Anaphylactic Death: A New Forensic Workflow for Diagnosis**
Massimiliano Esposito, MD; Veronica Filetti, MSc; Carla Loreto, MD;*
*Francesco Sessa, MS, PhD; Angelo Montana, MD**

Poster Session

11:30 a.m. - 1:00 p.m. **H44 Neck Injuries Associated With Strangulation With Cable Ties**
Andri Traustason; Carl Johan Wingren, PhD*

11:30 a.m. - 1:00 p.m. **H45 Otorrhagia in Strangulations: An Important But Often Underestimated Finding in Forensic Pathology**
Rosario Barranco, MD; Camilla Tettamanti, MD; Alessandro Bonsignore, MD, PhD;*
Francesco Ventura, MD

11:30 a.m. - 1:00 p.m. **H46 The Reconstruction of the Dynamics in Slash Injuries: A Case of Attempted Murder**
Luigi De Aloe, MD; Matteo A. Sacco, MD*; Fabrizio Cordasco, MD*; Fiorella Caputo, MD*;*
Carmen Scalise, MD; Angelica Zibetti, MD; Giulia Cacciatore, MD; Carlo Filippo Bonetta*;*
Francesco Sicilia, MD; Pietrantonio Ricci, PhD; Isabella Aquila, MD, PhD**

11:30 a.m. - 1:00 p.m. **H47 Physical Restraint and Neglect in the Elderly: A Forensic Case and Review of the Literature**
Carmen Scalise, MD; Fabrizio Cordasco, MD*; Roberto Raffaele, BE*; Francesco Sicilia, MD;*
Luigi De Aloe, MD; Matteo A. Sacco, MD; Fiorella Caputo, MD; Pietrantonio Ricci, PhD;*
*Isabella Aquila, MD, PhD**

11:30 a.m. - 1:00 p.m. **H48 Cranial Injury Pattern Analysis in the Reconstruction of a Homicide With a Hammer**
*Carlos Durão; Duarte Nuno Vieira, MD, PhD**

11:30 a.m. - 1:00 p.m. **H49 A Fatal Case of Retropharyngeal Abscess Following a Cervical Penetrating Wound**
Alessandro Santurro, MD; Federico Manetti, MD; Matteo Scopetti, MD;*
Martina Padovano, MD; Sara Turco, MD; Antonio Grande, MD, PhD



PATHOLOGY/BIOLOGY

- 11:30 a.m. - 1:00 p.m. **H50** **Around the World: A Short Case Series of Atypical Intracranial Bullet Tracks**
*Keenan Boulnemour, BS**; *Joseph A. Prahlow, MD*
- 11:30 a.m. - 1:00 p.m. **H51** **A Pen as an Intermediate Target Becomes a Secondary Projectile Causing a Unique Patterned Injury**
*Adam Jimenez**; *Mark A. Giffen, Jr., DO*
- 11:30 a.m. - 1:00 p.m. **H52** **The Alteration of the Appearance of a Gunshot Wound by the Use of a Hemostatic Agent**
*Sean M. Reid, BS**; *Tiffany O'Neill, DO*; *Jerri McLemore, MD*
- 11:30 a.m. - 1:00 p.m. **H53** **Embolization of Radically Invasive Projectiles (R.I.P.®)**
*Richard Morris, MD**; *James L. Locke, MD*; *Pamela E. Southall, MD*
- 11:30 a.m. - 1:00 p.m. **H54** **Gunshot Defense Wounds: The Need for a Classification**
*Giampiero Bottari**; *Cristina Elena Rosa Caterino*; *Marcello Benevento*; *Davide Ferorelli*; *Biagio Solarino, PhD*; *Silvia Trotta*
- 11:30 a.m. - 1:00 p.m. **H55** **Suicide in Older Adults: A Retrospective Study in Cook County, Illinois**
*Serenella Serinelli, MD, PhD**; *Ponni Arunkumar, MD*; *Lorenzo Gitto, MD**
- 11:30 a.m. - 1:00 p.m. **H56** **How (Not) to Pop a Cyst at Home: Heart and Lung Perforation After Needle Insertion Into the Chest Wall**
*Natalia Belova**; *Zabiullah Ali, MD*; *Andrew Rohrer*
- 11:30 a.m. - 1:00 p.m. **H57** **Self-Immolation in a Dumpster**
*Wendy M. Gunther, MD**; *Gary Zientek, MD*
- 11:30 a.m. - 1:00 p.m. **H58** **Pre-Pandemic Trends in Suicide: New Mexico, 2009–2018**
*Karen Zeigler, DO**; *Sarah Lathrop, DVM, PhD*
- 11:30 a.m. - 1:00 p.m. **H59** **The Chainsaw Massacre at the Beginning: An Unusual Suicide With a Jigsaw at the End**
*Giuseppe Bertozzi, MD**; *Stefania De Simone, MD**; *Michela Ferrara, MD**; *Francesca Maglietta, MD**; *Stefano D'Errico, PhD*; *Luigi Cipolloni, MD, PhD**; *Benedetta Baldari, MD**
- 11:30 a.m. - 1:00 p.m. **H60** **A Rare Suicide by a Homemade Explosive With Multiple Suicide Notes: A Case Report and Systematic Review of the Literature**
*Matteo A. Sacco, MD**; *Carmen Scalise, MD*; *Luigi De Aloe, MD*; *Fabrizio Cordasco, MD**; *Fiorella Caputo, MD*; *Francesco Sicilia, MD**; *Giulia Cacciatore, MD**; *Angelica Zibetti, MD**; *Carlo Filippo Bonetta**; *Pietrantonio Ricci, PhD**; *Isabella Aquila, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **H61** **Multiple Suicidal Gunshot Wounds in Italy: Case Reports and Medicolegal Considerations**
*Salvatore Rocuzzo, MD**; *Elvira Ventura Spagnolo, MD, PhD*; *Cristina Mondello, MD**; *Chiara Chiara Stassi, MD*; *Gennaro Baldino, MD*; *Patrizia Gualniera*; *Daniela Sapienza*; *Alessio Asmundo*
- 11:30 a.m. - 1:00 p.m. **H62** **Disability-Related Road Traffic Crashes Involving Children**
Ozgenur K. Tok, MD; *Mete K. Gulmen, PhD, MD**; *Kenan Kaya*; *Ahmet Hilal, MD*
- 11:30 a.m. - 1:00 p.m. **H63** **Widespread Polyvisceral Vascular Angiectasias in an Electrocution Victim: A Case Report**
*Sara Lo Pinto, MD**; *Rosario Barranco, MD*; *Francesco Ventura, MD*; *Gabriele Gaggero, MD*
- 11:30 a.m. - 1:00 p.m. **H64** **Acute Progression of Traumatic Diaphragmatic Laceration With Gastric Herniation in the Context of Underlying Chronic Disease**
*Samuel J. Farris, BS**; *Joseph A. Prahlow, MD*

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- 11:30 a.m. - 1:00 p.m. **H65** **Cassowary Fatally Attacks Its Owner**
*Nanny Wenzlow, DVM, PhD**; *William F. Hamilton, MD*
- 11:30 a.m. - 1:00 p.m. **H66** **A Fatality by Cattle Hooves in an Elderly Cowherder: Is There a Specific Pattern of Hoof Injury?**
*Nilesh Keshav Tumram, MD**
- 11:30 a.m. - 1:00 p.m. **H67** **A Quantitative Investigation of Diatom Dispersion in Lung Tissue of Confirmed Drowning Incidents**
*Dominik Hagen, BS**; *Astrid Obermayer*; *Walter Stoiber*; *Walther Gotsmy*; *Fabio Carlo Monticelli*; *Stefan Pittner, PhD*
- 11:30 a.m. - 1:00 p.m. **H68** **The “Key” Element in a Case of False Decapitation of a Missing Person: A Case Report and Review of the Literature**
*Luigi De Aloe, MD**; *Carmen Scalise, MD**; *Francesco Sicilia, MD**; *Matteo A. Sacco, MD**; *Fabrizio Cordasco, MD**; *Silvia Boca*; *Pietrantonio Ricci, PhD**; *Isabella Aquila, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **H69** **An Unusual Presentation of Asphyxia Due to Choking**
*Alexis Jelinek**; *Craig T. Mallak, JD, MD*; *Darin Trelka, MD, PhD*; *Rebecca MacDougall, MD*
- 11:30 a.m. - 1:00 p.m. **H70** **A Lethal Fat Embolism Syndrome (FES) Related to Spine Surgery: A Presentation of Two Clinical Case Reports**
*Davide Radaelli**; *Martina Zanon, MD*; *Martina Montanaro, MD*; *Alessandro Manfredi*; *Eleonora Valentinuz*; *Stefano D’Errico, MD, PhD*; *Paolo Frisoni, MD*; *Letizia Alfieri, MD*; *Margherita Neri, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **H71** **An Unusual Hospital Asphyxiation: Death From the Incorrect Administration of Nitrous Oxide (N₂O)**
*Stefania De Simone, MD**; *Francesca Maglietta, MD**; *Michela Ferrara, MD**; *Giuseppe Bertozzi, MD**; *Benedetta Baldari, MD*; *Alessandra Torsello**; *Luigi Cipolloni, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **H72** **Exsanguination Due to Urethral Laceration**
*Hae-Sun La**; *Tanner Bartholow, MD*; *Todd M. Luckasevic, DO*
- 11:30 a.m. - 1:00 p.m. **H73** **Neuropathologic Findings in Fatal Silicone Embolism Syndrome: Potential Contributions to Cause of Death**
*Sarah C. Thomas, MD**; *Michelle Stram, MD*; *Rebecca Folkerth, MD*
- 11:30 a.m. - 1:00 p.m. **H74** **A Case of Death Due to Asphyxia From the Use of Mechanical Restraints in a Hospital Environment: Always an Accidental Death?**
*Carmen Scalise, MD**; *Fabrizio Cordasco, MD**; *Matteo A. Sacco, MD**; *Francesco Sicilia, MD**; *Luigi De Aloe, MD**; *Massimo Iera, MD*; *Pietrantonio Ricci, PhD*; *Isabella Aquila, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **H75** **A Retrospective Review of Deaths in Custody Submitted for Medicolegal Autopsy at a Medical University in South Carolina (2012 to 2020)**
*Angelina I. Phillips, MD**; *James Madory, DO*; *S. Erin Presnell, MD*
- 11:30 a.m. - 1:00 p.m. **H76** **Acute Infectious Esophagitis: Three Cases With Variable Etiologies**
*Keenen Smith, MS**; *Lauren R. Crowson-Hindman, DO**; *Angelina I. Phillips, MD**
- 11:30 a.m. - 1:00 p.m. **H77** **Medullary Thyroid Carcinoma (MTC) With Diabetic Ketoacidosis: An Autopsy Case Report and Literature Review**
*Harin Cheong**; *Hyun Lyoun Koo*



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- 11:30 a.m. - 1:00 p.m. **H78** **A Fatal Case of *Vibrio Vulnificus* Wound Infection**
*Colin Appleford, DO**; *Kelly G. Devers, MD*
- 11:30 a.m. - 1:00 p.m. **H79** **Sudden Death Due to Leukostasis in a Subject With Untreated Chronic Lymphocytic Leukemia (CLL)**
*Lorenzo Gitto, MD**; *Rohin Mehta, MD*; *Kanish Mirchia, MD*; *Christopher Ramos, MD*; *Serenella Serinelli, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **H80** **Drowning or Something Else? The Uncommon Birt-Hogg-Dubé Syndrome**
*Martina Zanon, MD**; *Marco Carucci, MD*; *Eleonora Valentiniuz*; *Martina Montanaro, MD*; *Davide Radaelli*; *Alessandro Manfredi*; *Stefano D'Errico, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **H81** **An Autopsy of a Young Female With Abdominal Pain**
*John X. Hu, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **H82** **A Case of Hamartoma of Mature Cardiac Myocytes (HMCM) Correctly Diagnosed at Autopsy**
*Crystal Magno, MD**; *John Stash, DO*; *Pamela E. Southall, MD*
- 11:30 a.m. - 1:00 p.m. **H83** **The Sudden Death of a Firefighter: A Look at On-Duty Coronary Heart Disease Fatalities**
*Allison Gaines, MBS**; *Abraham T. Philip, MD*
- 11:30 a.m. - 1:00 p.m. **H84** **Subdural Hematoma Due to Central Nervous System (CNS) Histoplasmosis in the Setting of Undiagnosed Human Immunodeficiency Virus (HIV) Infection**
*Keely Coxon, BS**; *J. Matthew Lacy, MD*
- 11:30 a.m. - 1:00 p.m. **H85** **The Importance of the Autopsy in Unknown Infectious Diseases**
*Francesco Sessa, MS, PhD**; *Monica Salerno, MD, PhD**; *Angelo Montana, MD*; *Massimiliano Esposito, MD*; *Cristoforo Pomara, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **H86** **Acquired Tracheoesophageal Fistula (TEF) Secondary to Tuberculosis in a Human Immunodeficiency Virus (HIV) Patient: A Case Report With Review**
*Shashank Tyagi, MD**
- 11:30 a.m. - 1:00 p.m. **H87** **Autism Spectrum Disorder (ASD) and Sudden Cardiac Death: Is There a link? A Case Report and a Literature Review**
*Massimiliano Esposito, MD**; *Aldo Liberto, MD*; *Francesco Sessa, MS, PhD*; *Giuseppe Bertozzi, MD*; *Monica Salerno, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **H88** **The Role of Histopathology Deaths Due to Pulmonary Thromboembolism in Forensic Cases**
*Isabella Aquila, MD, PhD**; *Matteo A. Sacco, MD**; *Carmen Scalise, MD**; *Fabrizio Cordasco, MD**; *Fiorella Caputo, MD**; *Francesco Sicilia, MD**; *Luigi De Aloe, MD**; *Silvia Boca*; *Massimo Iera, MD*; *Pietrantonio Ricci, PhD**
- 11:30 a.m. - 1:00 p.m. **H89** **The Influence of Body Mass Index (BMI) in Autoptic Procedures: An Experimental Study in Forensic Cases**
*Francesco Sicilia, MD**; *Matteo A. Sacco, MD*; *Carmen Scalise, MD*; *Fabrizio Cordasco, MD*; *Fiorella Caputo, MD*; *Valerio R. Aquila**; *Luigi De Aloe, MD*; *Pietrantonio Ricci, PhD*; *Isabella Aquila, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **H90** **Sudden Cardiac Death Due to Vasculitis: Case Reports and a Review of the Literature**
*Cristina Mondello, MD**; *Alessio Asmundo*; *Salvatore Rocuzzo, MD*; *Chiara Chiara Stassi, MD*; *Gennaro Baldino, MD*; *Luigi Cardia, MD*; *Elvira Ventura Spagnolo, MD, PhD*

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- 11:30 a.m. - 1:00 p.m. **H91** **Death From Peritonitis Due to Multiple Intestinal Perforations: Approaching a Case of Advanced Tuberculosis (TB)**
*Federico Manetti, MD**; *Vittorio Gatto, MD*; *Matteo Scopetti, MD*; *Alessandro Santurro, MD*; *Martina Padovano, MD*; *Paola Frati, PhD*; *Vittorio Fineschi, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **H92** **The Dentist's Nightmare: A Case of Massive Left Ventricular Infarction After Dental Implantation**
*Martina Padovano, MD**; *Matteo Scopetti, MD*; *Federico Manetti, MD*; *Alessandro Santurro, MD*; *Paola Frati, PhD*; *Vittorio Fineschi, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **H93** **A Rare Case of Sudden Cardiac Death Associated With Isolated Congenital Coronary Artery Anomalies (CAA): Autopic and Histopathological Results**
*Francesco Sicilia, MD**; *Vincenzo Arena, MD*; *Fabrizio Cordasco, MD**; *Ludovico Abenavoli, PhD, MD*; *Carmen Scalise, MD*; *Luigi De Aloe, MD*; *Matteo A. Sacco, MD**; *Angelica Zibetti, MD**; *Giulia Cacciatore, MD*; *Fiorella Caputo, MD**; *Carlo Filippo Bonetta*; *Pietrantonio Ricci, PhD**; *Isabella Aquila, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **H94** **Sudden Death Due to Takayasu Arteritis: A Case Report**
*Manoj Bhausahab Parchake, MD**
- 11:30 a.m. - 1:00 p.m. **H95** **Subcapsular Hepatic Hematoma in a Pregnant Woman With No Prenatal Care: A Case Report**
*Suzi Dodt, BS**; *John X. Hu, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **H96** **A Case of Fatal Hemorrhage During Pregnancy**
*Lauren Lippincott, DO**
- 11:30 a.m. - 1:00 p.m. **H97** **A Sudden Pediatric Death: A Case of Asymptomatic Muscular Dystrophy**
*Sara Beardsley, BS**; *Avneesh Gupta, MD*; *Kathryn McFadden, MD*; *Sarah E. Avedschmidt, MD*
- 11:30 a.m. - 1:00 p.m. **H98** **Sudden Death After Bounce House Activities: A Late Complication of Congenital Diaphragmatic Hernia (CDH)**
*Kendall Smith, BA**; *Brandy Shattuck, MD*; *James Elliott*
- 11:30 a.m. - 1:00 p.m. **H99** **Intraosseous Puncture-Induced Bone Fractures Mimicking Child Abuse: A Case Report**
*Xin Zhang, MD**; *Matthew Wanner, MD*; *Dominique Battles*; *Christopher Poulos, MD*
- 11:30 a.m. - 1:00 p.m. **H100** **Pediatric Cylindrical Battery Ingestion Causing Fatal Aorto-Esophageal and Pulmonic-Esophageal Fistulae**
*Robin Moiseff, MD**; *Kendall V. Crowns, MD*
- 11:30 a.m. - 1:00 p.m. **H101** **A Fatal Ruptured Saccular Middle Cerebral Artery Aneurysm in a 14-Year-Old Boy: A Case Report**
*Melissa Menard**; *Christopher Glen Ball, MBBS, MScEng*; *Andrew Williams, MD*; *Kona Williams, MD*
- 11:30 a.m. - 1:00 p.m. **H102** **WITHDRAWN**
- 11:30 a.m. - 1:00 p.m. **H103** **Retinal Hemorrhages (RH) in a 6-Month-Old Child Related to Disseminated Intravascular Coagulation**
*Maria E. Magidenko, BA**; *Amanda O. Fisher-Hubbard, MD*; *Joseph A. Prahlow, MD*; *Theodore T. Brown, MD*



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- 11:30 a.m. - 1:00 p.m. **H104** **Death in the Water? Not Always Drowning!**
*Massimiliano Esposito, MD**; *Francesco Sessa, MS, PhD*; *Stefano D'Errico, MD, PhD*
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **H105** **A Particular Case of Adipositas Cordis in a Girl Suffering From Lymphocytic Myocarditis and Hashimoto's Thyroiditis**
*Francesco Sicilia, MD**; *Fabrizio Cordasco, MD**; *Giulia Cacciatore, MD*;
Ludovico Abenavoli, PhD, MD; *Angelica Zibetti, MD**; *Carlo Filippo Bonetta**;
Matteo A. Sacco, MD; *Luigi De Aloe, MD*; *Fiorella Caputo, MD*; *Carmen Scalise, MD**;
*Pietrantonio Ricci, PhD**; *Isabella Aquila, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **H106** **Hand Sanitizer Ingestion Leads to Lethal Methanol Toxicity**
*Catherine Nicka**; *Lauren E. Dvorscak, MD*
- 11:30 a.m. - 1:00 p.m. **H107** **No Laughing Matter: Deaths Associated With Chronic Nitrous Oxide (N₂O) Abuse**
*Justin Rueckert, DO**; *Vickie Willoughby, DO*; *Min Wang, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **H108** **A Case Series of Cyanide Poisoning: A Rising Trend**
*Cemyigit Deveci, MD**; *Mehmet Atilgan*; *Refik Akman, MD*
- 11:30 a.m. - 1:00 p.m. **H109** **Black Esophagus and Fatal Cocaine Intoxication: An Unusual Combination**
*Alessandro Manfredi**; *Diana Bonuccelli, MD*; *Laura Giusti, MD*; *Martina Zanon, MD*;
Davide Radaelli; *Martina Montanaro, MD*; *Stefano D'Errico, PhD*
- 11:30 a.m. - 1:00 p.m. **H110** **Wischnewsky Spots and Black Esophagus in Deaths Involving Diabetic Ketoacidosis: A Case Series**
*Ricardo Kaempfen, MS**; *Joseph A. Prahlow, MD*; *Amanda O. Fisher-Hubbard, MD*
- 11:30 a.m. - 1:00 p.m. **H111** **Sodium Nitrite Suicide: A Case Report**
*Vishwajeeth Pasham, MD**; *Demi B. Garvin, PharmD*; *Angelina I. Phillips, MD**
- 11:30 a.m. - 1:00 p.m. **H112** **Toxicological, Histological, and Immunohistochemical Analysis in a Case of Malignant Arrhythmia Due to Acute Pure Caffeine Intoxication**
*Paola Santoro, MD**; *Sara Turco, MD*; *Arianna Baronti, MD*; *Andrea Costantino, MD*;
Silvia Romano; *Maria Chiara David, PhD*; *Zoe Del Fante, MD*
- 11:30 a.m. - 1:00 p.m. **H113** **An Analysis of the Effect of Necrophagous Entomofauna on Fabric Modifications During a Summer Season in Western Australia**
*Sotirios Ziogos, BSc (Hons)**; *Kari M. Pitts, PhD*; *Ian Dadour, PhD*; *Paola A. Magni, PhD*
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **H114** **Inter-Individual Variation in Soil Chemistry and Microbial Ecology During Human Decomposition**
*Allison R. Mason, BS**; *Hayden McKee, MSc*; *Katharina M. Höland, MSc*; *Thomas Delgado*;
Mary C. Davis, MSc; *Sarah Schwing, BA, BSc*; *Shawn R. Campagna, PhD*;
Dawnie W. Steadman, PhD; *Jennifer M. DeBruyn, PhD*
(FSF Emerging Forensic Scientist Award Poster Presentation)
- 11:30 a.m. - 1:00 p.m. **H115** **Temperature-Dependent Postmortem Protein Degradation in Pigs**
*Janine Geissenberger, MSc**; *Bianca Ehrenfellner, MS*; *Fabio Carlo Monticelli*;
Peter Steinbacher, PhD; *Stefan Pittner, PhD*
- 11:30 a.m. - 1:00 p.m. **H116** **WITHDRAWN**

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- 11:30 a.m. - 1:00 p.m. **H117** **The Temporal Relation of the Generation of 3-Methylbutanol and Related Compounds in Decomposing Chicken Liver**
*Kelsey Springer, BS**; *Robert H. Powers, PhD*
- 11:30 a.m. - 1:00 p.m. **H118** **The Succession of Postmortem Protein Degradation in Different Muscles in Rats and Humans**
*Lisa Jakob, MSc**; *Angela Zissler, PhD*; *Bianca Ehrenfellner, MS*; *Janine Geissenberger, MSc*; *Fabio Carlo Monticelli*; *Peter Steinbacher, PhD*; *Stefan Pittner, PhD*
- 11:30 a.m. - 1:00 p.m. **H119** **Postmortem Protein Degradation as a Tool to Estimate the Postmortem Interval (PMI): A Systematic Review**
*Stefan Pittner, PhD**; *Walter Stoiber*; *Peter Steinbacher, PhD*; *Janine Geissenberger, MSc*; *Fabio Carlo Monticelli*; *Angela Zissler, PhD*
- 11:30 a.m. - 1:00 p.m. **H120** **Multiple Sampling of Human Muscle Tissue Over Time to Eliminate Biases and Enhance Data Quality for Protein-Based Postmortem Interval (PMI) Delimitation**
*Anja Victoria Perner, BSc**; *Bianca Ehrenfellner, MS*; *Janine Geissenberger, MSc*; *Fabio Carlo Monticelli*; *Peter Steinbacher, PhD*; *Stefan Pittner, PhD*
- 11:30 a.m. - 1:00 p.m. **H121** **The Identification of Unidentified Remains**
*Katherine Cochrane, MD**; *Darinka Mileusnic-Polchan, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **H122** **The Role of Postmortem Computed Tomography (PMCT) In High-Energy Traumatic (HET) Deaths**
*Massimiliano dell'Aquila, MD**; *Gianpietro Volonnino*; *Alessia Quattrocchi**; *Paola Santoro, MD*; *Alessandra De Matteis, MD*; *Andrea Scatena*; *Sara Turco, MD*; *Andrea Costantino*
- 11:30 a.m. - 1:00 p.m. **H123** **The Role of Postmortem Computed Tomography (PMCT) in the Assessment of the Cause of Death in a Natural Disaster (Flooding): A Sicilian Experience**
*Cristina Mondello, MD**; *Salvatore Rocuzzo, MD**; *Gennaro Baldino, MD*; *Antonio Bottari, MD*; *Alessio Asmundo*; *Giuseppe F. Lo Re, MD*; *Sergio Salerno*; *Fabrizio Perri, MD*; *Elvira Ventura Spagnolo, MD, PhD**
- 11:30 a.m. - 1:00 p.m. **H124** **Conflict of Interest in the California Coroner or Sheriff-Coroner Systems**
*Callie G. Huston, MFS**; *Ismail M. Sebetan, MD, PhD**; *Paul Stein, PhD**
- 11:30 a.m. - 1:00 p.m. **H125** **Pancreatic Subcapsular/Interstitial Hemorrhage Associated With Acute Systemic Hypoxia and Its Impact on Endocrine Organs**
*Fumiya Morioka**; *Naoto Tani, MA*; *Tomoya Ikeda, PhD, MD*; *Aoki Aoki, BA*; *Alissa M. Shida, MS*; *Kei Ikeda, MD*; *Tatsuya Hirokawa, PhD*; *Takaki Ishikawa, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **H126** **A Multidisciplinary Approach Is Mandatory in the Forensic Sciences**
*Francesco Sessa, MS, PhD**; *Angelo Montana, MD*; *Massimiliano Esposito, MD*; *Aldo Liberto, MD*; *Monica Salerno, MD, PhD**



PATHOLOGY/BIOLOGY

Friday—Session II

Microbiome and Pathology Potpourri

Moderator: *Gregory Alan Schmunk, MD*
Urbandale, IA

Co-Moderator: *Sharon A. Boone, MD, JD, LLM*
Bowen Island, CANADA

- 9:00 a.m. - 9:15 a.m. **H127 Trends in Postmortem Microbiome Research Activities: A Ten-Year Review**
*Jennifer L. Pechal, PhD**; *Carl J. Schmidt, MD*; *Heather R. Jordan, PhD*; *M. Eric Benbow, PhD*
- 9:15 a.m. - 9:30 a.m. **H128 Conceptualizing the Gut Thanatomicrobiota in Substance Abuse Disorders**
*Gulnaz T. Javan, PhD**; *Sheree J. Finley, PhD*; *LaTia Scott, PhD*; *Silvia D. Visona, MD*;
Antonio M.M. Osculati, MD
- 9:30 a.m. - 9:45 a.m. **H129 Decontamination Strategies for Sampling Internal Bone Microbiomes Submerged in Aquatic Environments**
*Emily Nestle**; *Sierra Kaszubinski, MS*; *Joseph P. Receveur, BS*; *Jennifer L. Pechal, PhD*;
M. Eric Benbow, PhD
- 9:45 a.m. - 10:00 a.m. **H130 Caspase 9 and Caspase 3 Immunohistochemical Reactivity Pattern in Skeletal and Cardiac Muscle at Different Times After Death: A New Tool for Postmortem Interval (PMI) Determination?**
*Chiara Stassi, MD**; *Cristina Mondello, MD, PhD*; *Gennaro Baldino, MD*;
Giovanni Francesco Spatola, MD; *Maria Laura Uzzo, MD*; *Antonio Micali, MD*;
Salvatore Rocuzzo, MD; *Alessio Asmundo*; *Elvira Ventura Spagnolo, MD, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 10:00 a.m. - 10:15 a.m. **H131 Maximum DNA Recovery From Cold Case Victims Using Ancient and Forensic Extraction Methods**
Matthew V. Emery, PhD; *Amanda Wissler, MA*; *Erin Rawls*; *Katelyn L. Bolhofner, PhD*;
Robert F. Oldt, BS; *Sreetharan Kanthaswamy, PhD*; *Jane E. Buikstra, PhD*;
Laura C. Fulginiti, PhD; *Anne Stone, PhD**
- 10:15 a.m. - 10:30 a.m. **Break**
- Moderator: *Jonathan Eisenstat, MD*
Georgia Bureau of Investigation
Decatur, GA
- 10:30 a.m. - 10:45 a.m. **H132 Molecular Testing in Sudden Death Associated With Epilepsy in a Forensic Office: Genotype-Phenotype**
*Michelle Stram, MD**; *Yingying Tang, MD, PhD*; *Jansen Seheult, MD*; *Rebecca Folkerth, MD*
- 10:45 a.m. - 11:00 a.m. **H133 The Sound of Violence: The Utility of Voice Recording in the Investigation of the Cause of a Sudden Death in Custody**
Michael Freeman, MD, PhD; *Ellen M.F. Strömmer, MPH**
- 11:00 a.m. - 11:15 a.m. **H134 Survival Intervals Following Fatal Single Gunshot Wounds of the Head**
Michelle S. Clark, MS; *Deland Weyrauch, MD**; *James R. Gill, MD*

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- 11:15 a.m. - 11:30 a.m. **H135** **Experimental Shots in Tissue-Simulant Materials and Analysis Through Computed Tomography (CT) Scanning**
*Nikolaos Tsiatis, PhD**; *Konstantinos Moraitis, PhD*; *Konstantinos Katsos, PhD*;
*Emmanouil I. Sakelliadis, PhD**; *Chara Spiliopoulou, PhD*
- 11:30 a.m. - 11:45 a.m. **H136** **Veterinary Forensic Pathology: Cases From an Emerging Discipline**
*Beverly J. McEwen, DVM, PhD**
- 11:45 a.m. - 12:00 p.m. **H137** **Canid Predators Kill Bites and the Injuries to Their Animal or Human Victims**
*Nanny Wenzlow, DVM, PhD**; *William F. Hamilton, MD*

Postmortem Radiology

Moderator: Karen L. Kelly, MD
Brody School of Medicine at East Carolina University
Greenville, NC

- 1:00 p.m. - 1:15 p.m. **H138** **Potential Applications of Micro-Computed Tomography (Micro-CT) in Forensic Casework: Evidence From Zebrafish**
*Meaghan C. Dougher, MPS**; *Keith Cheng, MD, PhD*
- 1:15 p.m. - 1:30 p.m. **H139** **Personal Identification Using Part-to-Part Comparison of the Third Lumbar (L3) Vertebra From Antemortem and Postmortem Computed Tomographic (AMCT and PMCT) Scans**
*Jonathan M. Ford, PhD**; *Guy N. Ruddy, MD*; *Daniel W. Martin, BS*; *Jasmin Amoroso, MA*;
Michael J.P. Biggs, MBChB; *Summer J. Decker, PhD*
- 1:30 p.m. - 1:45 p.m. **H140** **Imaging Impact: Can Computed Tomography Fractography Determine Direction of Fracture Propagation?**
*Ruth M. Machin, MBBS, MSc, FRCR**; *Michael J.P. Biggs, MBChB*; *Alison L. Brough, PhD*;
Bruno Morgan, BS
- 1:45 p.m. - 2:00 p.m. **H141** **The Evaluation of the Routine Use of Postmortem Computed Tomography (PMCT) In a High-Volume United States Medical Examiner's Office**
*Yohsuke Makino, MD**; *Kana Unuma*; *Kurt B. Nolte, MD*; *Natalie L. Adolphi, PhD*
- 2:00 p.m. - 2:15 p.m. **Break**

Death Investigation

Moderator: Greg Vincent, MD
Office of the Chief Medical Examiner
Farmington, CT

Co-Moderator: Lorenzo Gitto, MD
State University of New York Upstate
Department of Pathology
Syracuse, NY

- 2:15 p.m. - 2:30 p.m. **H142** **Cellular FLICE-Like Inhibitory Protein (C-FLIP) and Troponin-I: Promising Markers for the Determination of the Vitality in Suicidal Hangings**
*Zoe Del Fante, MD**; *Alessandra De Matteis, MD*; *Andrea Scatena*; *Francesca Iannaccone*;
Arianna Baronti, MD; *Massimiliano dell'Aquila, MD*; *Aniello Maiese, MD*
- 2:30 p.m. - 2:45 p.m. **H143** **Suicidal Firearms Injuries of the Back of the Head/Neck: A Case Series**
*Jared Brooks, MD**; *Theodore T. Brown, MD*; *Joyce L. deJong, DO*; *Brandy Shattuck, MD*;
Joseph A. Prahlow, MD



PATHOLOGY/BIOLOGY

- 2:45 p.m. - 3:00 p.m. **H144** **Roderick Covlin's Botched Bathtub-Staged Homicide: Aquatic Investigative Techniques to Get It Right From the Start**
*Andrea Zaferes, BA**
- 3:00 p.m. - 3:15 p.m. **H145** **Clinical Forensic Medicine at the Georgia Bureau of Investigation Medical Examiner Office (GBI MEO)**
Lora A. Darrisaw, MD; Elizabeth Andrews, BS*
- 3:15 p.m. - 3:30 p.m. **H146** **WITHDRAWN**

Thursday

Psychiatry & Behavioral Science I

Moderator: *Jessica Morel, DO*
Fayetteville, NC

- 9:00 a.m. - 9:15 a.m. **I1** **Psychological Trauma in South Carolina Asylum Seekers**
*Royal Pipaliya**; *Affifah Khan*; *Brian Elmore*; *Avi Borad*; *Emily D. Gottfried, PhD*
- 9:15 a.m. - 9:30 a.m. **I2** **A Proposal for a Scientific Forensic Model Applied to Missing Persons Searches**
*Laura Volpini, PhD**; *Maria Gaia Pensieri, PhD*; *Silvia Mesturini, MA*; *Pier Matteo Barone, PhD*
- 9:30 a.m. - 9:45 a.m. **I3** **Mental Health Crisis Response Teams and the Challenges of Evidence-Based Police Reform**
*Dana M.C. Valdez, MD**
- 9:45 a.m. - 10:00 a.m. **I4** **Testifying in Court in a Forensic Mental Health Case: Opinions From the Medical and Legal Sides of the Room**
*Satyam Choudhuri, BHSc**; *Madeleine Harris, MD*; *Sebastien S. Prat, MD*
- 10:00 a.m. - 10:15 a.m. **Break**
- 10:15 a.m. - 11:45 a.m. **I5** **The Forgotten Ones: Post-Traumatic Stress Disorder (PTSD) in First Responders**
*Jessica Morel, DO**; *Giuseppe Troccoli, MD**; *Allison Gaines, MBS**; *Kyle Krebs, BS**; *Megan Stacy, BS**

Poster Session

- 11:30 a.m. - 1:00 p.m. **I6** **Deviant Behavior in Relationships Between Humans and Animals**
*Linda Corsaletti**; *Vincenzo Lusa, JD**
- 11:30 a.m. - 1:00 p.m. **I7** **The Relationship of Firearm Possession to Attachment Styles and Psychological Well-Being**
*Oktay Cavus, MSc**
- 11:30 a.m. - 1:00 p.m. **I8** **Trends in Suicide: A Postmortem Analysis of a 20-Year Case History**
*Giacomo Belli, MD**; *Jessica Quaiotti, MD*; *Matteo Moretti, MD*; *Laura Scotti*; *Claudia Carelli*; *Vittorio Bolcato, MD*; *Antonio M.M. Osculati, MD*
- 11:30 a.m. - 1:00 p.m. **I9** **Borderline Personality Disorder and Religion: An Unusual Marital Relationship**
*Lucia Tattoli, PhD**; *Cristiano Barbieri, MD*; *Ignazio Grattagliano, PsyD*; *Caterina Bosco, MD*; *Giancarlo Di Vella, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **I10** **The Psychotic Development of a Personality Disorder in a Case of Double Homicide**
*Lucia Tattoli, PhD**; *Cristiano Barbieri, MD*; *Ignazio Grattagliano, PsyD*; *Caterina Bosco, MD*; *Giancarlo Di Vella, MD, PhD*



PSYCHIATRY & BEHAVIORAL SCIENCE

- 11:30 a.m. - 1:00 p.m. **I11** **Child Neglect or Chronic Diseases? An Overlap and a Matter for Experts**
*Luana Bonaccorso, MD**; *Caterina Bosco, MD**; *Elena Coppo, MD*;
Sara S. Racalbuto, PsyD; *Giuliana Mattioda, MD*; *Federica Mirri, MD*;
Francesco Lupariello, MD; *Giancarlo Di Vella, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **I12** **Autoeroticism and Depression in Lockdown From COVID-19: Accidental Death in Combined Asphyxiophilia—Autoerotic Asphyxia by Nitrogen Inhalation and Secondary Effects of Trazodone**
Luigi Buongiorno, MD; *Alessandra Stellacci**; *Marrone, MD*; *Francesca Tarantino, MD*;
Claudia Perrone, MD; *Salvatore Moliterno, MD*; *Lucia Nardelli*; *Giuseppe Strisciullo, BES*;
Francesco Vinci, MD
- 11:30 a.m. - 1:00 p.m. **I13** **Family Mass Murders in Italy, 1990–2019**
*Fabio Innocenzi, MD**; *Federica Doriguzzi Bozzo*; *Alessandro Gabriele, MD*;
Niccolò D. Melloni, MD; *Giancarlo Di Vella, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **I14** **The Perpetrator-Victim Bond in Matricide: An Unusual Case**
*Caterina Bosco, MD**; *Cristiano Barbieri, MD*; *Ignazio Grattagliano, PsyD*;
*Lucia Tattoli, PhD**; *Giancarlo Di Vella, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **I15** **Could a Psychogenic Death Occur? The Scientific Analysis of a Mysterious Biochemical Process**
*Isabella Aquila, MD, PhD**; *Carmen Scalise, MD**; *Valerio R. Aquila**; *Matteo A. Sacco, MD*;
*Fabrizio Cordasco, MD**; *Fiorella Caputo, MD*; *Francesco Sicilia, MD**; *Luigi De Aloe, MD*;
*Pietrantonio Ricci, PhD**; *Cristoforo Ricci, PhD*
- 11:30 a.m. - 1:00 p.m. **I16** **Face Similarity Linkage: A Novel Biometric Approach to Sexually Motivated Serial Killer Victims**
*Sarah B. Hackett, MS**; *Brendan Chapman, BSc*; *David Keatley*

Psychiatry & Behavioral Science II

Moderator: *Jessica Morel, DO*
Fayetteville, NC

- 1:00 p.m. - 1:30 p.m. **I17** **Psychosis and Psychopathy: Two Conditions That Have Determined the Form and Function of the Insanity Defense**
*Alan R. Felthous, MD**
- 1:30 p.m. - 3:10 p.m. **I18** **The Insanity Defense in the Contemporary Context**
*Alan R. Felthous, MD**; *Scott E. Kirkosky, MD**; *Marvin S. Swartz, MD**; *Joseph D. Bloom, MD**
- 3:10 p.m. - 3:25 p.m. **Break**
- 3:25 p.m. - 3:55 p.m. **I19** **An Overview of the Cultural Defense**
*Angela G. Fielder, MA**; *Elizabeth M. Brissette, BA**; *Joseph Chien, DO*; *Kendell L. Coker, PhD*

Friday

Psychiatry & Behavioral Science III

9:00 a.m.	-	9:20 a.m.	I20	The Management and Epidemiological Data of SARS-COV-2 Emergencies in Prisons: The Italian Model <i>Fiorella Caputo, MD*</i> ; <i>Giulia Cacciatore, MD*</i> ; <i>Angelica Zibetti, MD</i> ; <i>Fabrizio Cordasco, MD*</i> ; <i>Carmen Scalise, MD</i> ; <i>Carlo Filippo Bonetta*</i> ; <i>Matteo A. Sacco, MD*</i> ; <i>Francesco Sicilia, MD*</i> ; <i>Luigi De Aloe, MD*</i> ; <i>Pietrantonio Ricci, PhD*</i> ; <i>Cristoforo Ricci, PhD</i> ; <i>Santo Gratteri, MD</i> ; <i>Isabella Aquila, MD, PhD*</i>
9:20 a.m.	-	9:30 a.m.	I21	Confinement and Psychotic Decompensation: A Forensic Perspective <i>Bernat-Noël Tiffon Nonis, PsyD*</i>
9:30 a.m.	-	9:40 a.m.	I22	“Folie á Deux” (Simultaneous) and Deliriant Induction to Murder <i>Bernat-Noël Tiffon Nonis, PsyD*</i>
9:40 a.m.	-	9:50 a.m.	I23	A Case Study of Amok Syndrome and Intermittent Pathological Impulsiveness <i>Bernat-Noël Tiffon Nonis, PsyD*</i>
9:50 a.m.	-	10:00 a.m.	I24	A Case Study of Murder and a Criminal Personality in a Trained Elite Military Man <i>Bernat-Noël Tiffon Nonis, PsyD*</i>
10:00 a.m.	-	10:15 a.m.	I25	Uxoricide and Mental Disorder: A Retrospective and Descriptive Study of 30 Patients Hospitalized in a French Secure Unit Over a 22-Year Period <i>Aline Quenault*</i>
10:15 a.m.	-	10:30 a.m.		Break
10:30 a.m.	-	10:50 a.m.	I26	Dr. Jekyll and Mr. Hyde—Child Pornography, Cybercrime, and Pediatrics: A Case Report From Argentina <i>Maria S. Ciruzzi, PhD*</i>
10:50 a.m.	-	11:05 a.m.	I27	The Neurocognitive and Emotional Effects of Chronic Polychlorinated Biphenyls (PCB) Exposure <i>Pamela Mahoney, PhD*</i> ; <i>Richard J. Perrillo, PhD*</i> ; <i>Jenny Brook, MS</i> ; <i>Erin Elofson, MS</i>
11:05 a.m.	-	11:20 a.m.	I28	A Model for Mapping the Neural Circuits Underlying Impulsive Aggression <i>Jose Bou Nassif, MD*</i> ; <i>Alan R. Felthous, MD</i>
11:20 a.m.	-	11:35 a.m.	I29	Tele-Testimony to Overcome Testimonial Hearsay in Civil Commitment Hearings <i>Ferdows Z. Ather, MD*</i>
11:35 a.m.	-	11:50 a.m.	I30	Telehealth Forensic Mental Health Evaluations: Benefits, Pitfalls, and Lessons Beyond the Pandemic <i>Alan W. Chen, MD*</i>



QUESTIONED DOCUMENTS

Wednesday

Questioned Documents I

Moderator: *Linton Mohammed, PhD*
Forensic Science Consultants, Inc
Burlingame, CA

- 8:30 a.m. - 9:00 a.m. **J1** **The Accuracy and Reliability of Forensic Handwriting Examiner Decisions**
*Linda Eisenhart**; *R. Austin Hicklin, PhD**; *Brian Eckenrode, PhD*; *Peter J. Belcastro, Jr., MA*;
Ted M. Burkes, BS; *Meredith DeKalb Miller, MFS*; *Michael A. Smith, PhD*; *Connie L. Parks, MA*;
JoAnn Buscaglia, PhD
- 9:00 a.m. - 9:15 a.m. **J2** **An Empirical Exploration of Handwriting Theory With Regard to Natural Variation**
*Nancy Cox**; *Thomas Neumark, MS**
- 9:15 a.m. - 9:35 a.m. **J3** **Measuring and Communicating Opinion Strength in Forensic Handwriting Examination: Concepts, Findings, and Future Directions**
*Mara L. Merlino, PhD**; *Tierra M. Freeman, PhD*; *Veronica B. Dahir, PhD*; *Charles Edwards, MA*
- 9:35 a.m. - 9:55 a.m. **J4** **WITHDRAWN**
- 9:55 a.m. - 10:05 a.m. **J5** **Pen Pressure Measurement in Signatures of Women and Men Using 3D Digital Microscopes**
*Dilara Oner, PhD**; *Ibrahim Demir, PhD*; *Gursel Cetin, PhD*
- 10:05 a.m. - 10:20 a.m. **J6** **Tiger King—Forensic Document Evidence Involving the Disappearance of Jack Donald Lewis**
*Thomas W. Vastrick, BS**
- 10:20 a.m. - 10:30 a.m. **J7** **Anonymous Letters Examination: Where Forensic Linguistics Meets Handwriting Examination**
*Andrea Ledic, MS**; *Lidija Tepes Golubic, PhD*; *Petra Bago, PhD*
- 10:30 a.m. - 10:45 a.m. **J8** **Forensic Handwriting Analysis of Judahite Biblical Period Inscriptions**
*Yana Gerber**
- 10:45 a.m. - 11:00 a.m. **J9** **The Creation of a Demand Note Reference Collection**
*McKenzie Weyh, BS**
- 11:00 a.m. - 11:30 a.m. **J10** **The Forensic Document Examiner’s Method of Communication in Court: The Chart**
*Jan Seaman Kelly, BA**

QUESTIONED DOCUMENTS

Thursday

Questioned Documents II

Moderator: *Timothy Campbell, BSc*
Canada Border Services Agency
Ottawa, CANADA

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|-------------------------|------------|---|
| 9:00 a.m. - 9:30 a.m. | J11 | Standards for the Examination of Documents Using a Digital Workspace
<i>Mark Goff, BA*</i> |
| 9:30 a.m. - 9:55 a.m. | J12 | The Use of Digitally Captured Signature (DCS) Technology in Everyday Casework
<i>Niko Kalantzis, MSc*</i> |
| 9:55 a.m. - 10:10 a.m. | J13 | Electronic Signatures: What Are They, What Do We Know About Them, and What Do I Do When an Electronic Signature Case Lands on My Desk?
<i>Kathleen Annunziata Nicolaidis, BA*</i> |
| 10:10 a.m. - 10:45 a.m. | J14 | Normalization and Comparability of Digitally Captured Signatures (DCS)
<i>Niko Kalantzis, MSc*</i> |
| 10:45 a.m. - 11:10 a.m. | J15 | In-Air Trajectories (IATs): Applications of an Emerging Handwriting Characteristic
<i>Niko Kalantzis, MSc*; Michael Pertsinakis*</i> |
| 11:10 a.m. - 11:35 a.m. | J16 | A Best Practice Manual for Forensic Examination of Digitally Captured Signatures (DCS)
<i>Tomasz Dziedzic, PhD*; Niko Kalantzis, MSc*</i> |
| 11:35 a.m. - 12:00 p.m. | J17 | Document Abnormalities Related to Portable Document Format (PDF) Technology
<i>Joseph L. Parker, Sr., MSA*</i> |

Poster Session

Moderator: *Janet F. Masson, BJ*
Houston, TX

Co-Moderator: *Samiah Ibrahim, BSc*
Ottawa, CANADA

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|------------------------|------------|--|
| 11:30 a.m. - 1:00 p.m. | J18 | Inconspicuous Writing Features: An Illustrated Glossary
<i>Jacqueline A. Joseph, BA*</i> |
| 11:30 a.m. - 1:00 p.m. | J19 | An Evaluation of Gray Value Measurements and Hyperspectral Imaging (HSI) as a Method for Differentiating Optical Characteristics of Porous-Tipped Pen Inks
<i>Clarra G. Moore, BS*; Patrick Buzzini, PhD</i> |
| 11:30 a.m. - 1:00 p.m. | J20 | Quantitative Support for Forensic Document Examination in an Open Set Using Random Forests
<i>Madeline Q. Johnson, BA*; Danica Ommen, PhD; Alicia L. Carriquiry, PhD</i> |
| 11:30 a.m. - 1:00 p.m. | J21 | Methods and Materials Used in Steganographic "Invisible Ink" Communications in Prison Facilities
<i>Michael T. Adkins, MS*; Heidi H. Harralson, MA*; Larry S. Miller, PhD</i> |
| 11:30 a.m. - 1:00 p.m. | J22 | The User's Experience (UX) Process: Website Design for the Private Practitioner
<i>Meredith DeKalb Miller, MFS*</i> |

QUESTIONED DOCUMENTS

- 11:30 a.m. - 1:00 p.m. **J23** **The Application of the Data Augmentation Technique to the Data Generation in Handwriting Classification**
*Yoko Seki, MA**
- 11:30 a.m. - 1:00 p.m. **J24** **Education and Training in Forensic Document Analysis Offered as an Elective Course to Undergraduate Forensic Science Students in Turkey**
*Zekai Genç, PhD; Sevil Atasoy, PhD**
- 11:30 a.m. - 1:00 p.m. **J25** **Writer's Cramp and Technology: Its Influence on Intra-Writer Handwriting Variability**
*Tassi Dalton, JD; Chris Rush, PhD; Larry S. Miller, PhD; Heidi H. Harralson, MA**
- 11:30 a.m. - 1:00 p.m. **J26** **History and Recent Revisions to the Policies Regarding Testimony of Forensic Document Examiners in the State of Texas**
Keelie Johnson, BS; Sarah Pryor; Angela Roe, MSc*
- 11:30 a.m. - 1:00 p.m. **J27** **Relationships Between Handwriting Slant and Demographic Features**
Anyesha Ray; Alicia L. Carriquiry, PhD; Danica Ommen, PhD*

Friday

Questioned Documents III

Moderator: *James Tarver, MS
Seattle, WA*

- 1:00 p.m. - 1:30 p.m. **J28** **Remedial Paper Examinations**
*Larry A. Olson, MFS**
- 1:30 p.m. - 1:55 p.m. **J29** **Digital Walkthrough of the Validation of a Method for Measuring Magnetic Flux of Toner-Printed Documents**
Carrie Polston, BA; Patrick Buzzini, PhD*
- 1:55 p.m. - 2:40 p.m. **J30** **The European Document Experts Working Group (EDEWG) Organization and Service**
Andreas J. Rippert; Jürgen Bügler, PhD*; Rolf Fauser*; Hakon Schjonsby*; Kairi Kriiska**
- 2:40 p.m. - 3:00 p.m. **J31** **Generating and Harnessing Objective Data for Trash Mark Examinations**
Linda Eisenhart; Joseph C. Stephens, MSFS*; Jocelyn V. Abonamah, MFS; Colbey Ryman; Paige Riley; Nirmeen Salah; Brian Eckenrode, PhD*
- 3:00 p.m. - 3:15 p.m. **J32** **The Effects of Heating and Laser Printing on Paper Surface Textures as Assessed by Discrete Two-Dimensional Fast Fourier Transforms and One-Dimensional Power Spectra**
Walter F. Rowe, PhD; Richik Haldar*
- 3:15 p.m. - 3:30 p.m. **J33** **Minimally Destructive Ink Analysis Using Miniaturized Ultraviolet/Visible (UV/Vis) Spectroscopy**
Lenora N. Rutten; Morgan Morrill, BS; Ling Huang, PhD*
- 3:30 p.m. - 3:45 p.m. **J34** **Force Plate and High-Speed Video Analysis of the Stamping Device Application**
Victoria MacMillan; Kimberly Nugent, MSc*; Ryan Foley, MSc; Tobin A. Tanaka, BS**
- 3:45 p.m. - 4:00 p.m. **J35** **A Study Into Additive Manufacturing to Clone Stamping Device Impressions**
Muskan Vir; Kimberly Nugent, MSc*; Rachael M. Carew, MSc*; Liv Cadola, MSc; Cyril Muehlethaler, PhD; Mylène Falardeau, BSc*; Tobin A. Tanaka, BS**

TOXICOLOGY

Wednesday

Poster Session

Moderator: Karen S. Scott, PhD
Arcadia University
Glenside, PA

Co-Moderator: Elisa N. Shoff, MS
Miami-Dade Medical Examiner Department
Miami, FL

- 11:30 a.m. - 1:00 p.m. **K1** **The Effect of COVID-19 and Texas's Phased Reopening Plan on Ethanol Concentrations in Driving While Intoxicated (DWI) Cases in Harris County, Texas**
Grayce Behnke, MS; Teresa R. Gray, PhD*
- 11:30 a.m. - 1:00 p.m. **K2** **Lethal Self-Poisoning by Ingestion of Yew (*Taxus Baccata*, Taxacées): Two Case Reports**
Bérengère Dautreme, MD; Fabien Lamoureux, PharmD, PhD; Anne-Claire Lhoumeau, MD; Elodie Saussereau, PharmD; Gilles P.*
- 11:30 a.m. - 1:00 p.m. **K3** **Phencyclidine (PCP) Prevalence and Demographics in Driving While Intoxicated/ Driving Under the Influence of Drugs (DWI/DUID) and Postmortem Casework in Harris County, Texas, 2013–2018**
Britni N. Skillman, PhD; Crystal Arndt, MSFS; Teresa R. Gray, PhD*
- 11:30 a.m. - 1:00 p.m. **K4** **The Return on Investment From Reducing Turnaround Time for Processing Driving Under the Influence (DUI) Drug Cases**
*Paul Speaker, PhD**
- 11:30 a.m. - 1:00 p.m. **K5** **A Validated Method for the Quantitative Determination of Isotonitazene in Hair by Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)**
Shaiju Vareed, PhD; Ernest D. Lykissa, PhD*
- 11:30 a.m. - 1:00 p.m. **K6** **A Suicidal Sodium Nitrite/Nitrate Ingestion Outbreak in Houston, Texas**
Erin C. Strickland, PhD; Varsha Podduturi, MD; Teresa R. Gray, PhD*
- 11:30 a.m. - 1:00 p.m. **K7** **A Suspected Case of Attempted Homicide by Rodenticides Administration: How Hair Analysis Can Help Us in Solving the Mystery**
Claudia Carelli; Paolo Fais, PhD; Francesca Freni; Matteo Moretti, MD; Claudia Vignali; Luca Morini*
- 11:30 a.m. - 1:00 p.m. **K8** **A Veterinary Forensics Review of Pesticide Toxicity in Canines**
Lurette Muir, BS; Julia Perkinson, BS; Ngaio Richards, PhD; Susan C. Underkoffler, MFS; Judith Rodriguez Salas, MS; Karen S. Scott, PhD*
- 11:30 a.m. - 1:00 p.m. **K9** **Measurement Uncertainty (MU): A Novel Quality Assurance Use in Forensic Toxicology for Internal Proficiency Testing**
William M. Schroeder II, MS; Frederick Strathmann, PhD; Laura M. Labay, PhD*
- 11:30 a.m. - 1:00 p.m. **K10** **False Positive Emit II Plus Ecstasy Assay Due to Bupropion**
Maja Jelena Cop; Sandra Mudric*
- 11:30 a.m. - 1:00 p.m. **K11** **Expanding Frontiers in Postmortem Toxicology: Drug Tracing in Different Postmortem Matrices During Human Decomposition Using Ultra High-Performance Liquid Chromatography–High-Resolution Mass Spectrometry (UHPLC–HRMS)**
Katharina M. Höland, MSc; Shawn R. Campagna, PhD; Amanda May, PhD; Hayden McKee, MSc; Mary C. Davis, MSc; Sarah Schwing, BA, BSc; Thomas Delgado; Charity G. Owings, PhD; Allison R. Mason, BS; Jennifer M. DeBruyn, PhD; Dawnie W. Steadman, PhD; Russell L. Zaretski, PhD*

TOXICOLOGY

- 11:30 a.m. - 1:00 p.m. **K12** **An Analysis of Tramadol and Its Metabolites in Rat Skeletal Tissues Following Acute and Repeated Dose Patterns Using High-Performance Liquid Chromatography Tandem Mass Spectrometry (HPLC/MS/MS)**
Christian Buckingham, BSc; James Watterson, PhD*
- 11:30 a.m. - 1:00 p.m. **K13** **A Fatal Poisoning of Four Workers at a Farm: The Distribution of Hydrogen Sulfide (H₂S) and Thiosulfate(TS) in Different Biological Matrices**
Chiara Siodambro; Matteo Moretti, MD*; Luca Morini; Gulnaz T. Javan, PhD; Francesca Freni; Claudia Vignali; Claudia Carelli*
- 11:30 a.m. - 1:00 p.m. **K14** **The Development of a Simultaneous Separation and Identification Ultra Performance Liquid Chromatography/High-Performance Liquid Chromatography (UPLC/HPLC) Tandem Mass Spectrometry (MS/MS) Screening Method for Sulfur-Containing Fentanyl Analogs (SFA)**
Amber D. Budmark, BS; Justin L. Poklis, BS; Grace R. Williams, PhD; Carl E. Wolf II, PhD (FSF Emerging Forensic Scientist Award Poster Presentation)*
- 11:30 a.m. - 1:00 p.m. **K15** **New Perspectives in Postmortem Diagnosis of Acute Heroin Abuse**
Gianpietro Volonnino; Andrea Costantino, MD; Sara Turco, MD; Alice Chiara Manetti, MD; Silvia Romano; Valentina Fazio; Paola Santoro, MD; Raffaele La Russa, MD*
- 11:30 a.m. - 1:00 p.m. **K16** **Patterns of Natural Cannabinoids in Hair**
Ryan B. Paulsen, PhD; Virginia Hill, BS; Neil Stowe, PhD; Michael I. Schaffer, PhD*
- 11:30 a.m. - 1:00 p.m. **K17** **Analysis of Fentanyl Analogs and Common Drugs**
Madison N. Martin, BA; Steven W. Fleming, MS; Emily Bouso Raley, MSFS; Lauren L. Richards-Waugh, PhD*
- 11:30 a.m. - 1:00 p.m. **K18** **Transforming Toxicology in South Africa—Illustrating Proof of Concept Using Data From Routine Carboxyhemoglobin (COHb) Analysis**
Jade Mader, MSc; Bronwen B. Davies, MFS*
- 11:30 a.m. - 1:00 p.m. **K19** **A Four-Year Comparison (2016–2019) of Toxicology Results in Suicide-Related Deaths From the West Tennessee Regional Forensic Center in Memphis, Tennessee**
Nicole Bracewell, MSc; Danielle Harrell, DO; Katrina Van Pelt, DO*
- 11:30 a.m. - 1:00 p.m. **K20** **Hydroxycocaine Concentrations in Head and Body Hair as Determined by Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)**
Neil Stowe, PhD; Ryan B. Paulsen, PhD; Virginia Hill, BS; Michael I. Schaffer, PhD*
- 11:30 a.m. - 1:00 p.m. **K21** **Unusual Routes for Substance Abuse: Fatal Inhalation of a Fentanyl Patch**
Federico Manetti, MD; Martina Padovano, MD; Matteo Scopetti, MD; Maria Chiara David, PhD; Alessandro Santurro, MD; Antonio Grande, MD, PhD*
- 11:30 a.m. - 1:00 p.m. **K22** **Trends in Drug-Facilitated Crime and Sexual Assault in San Francisco, California**
Mairin M. Higgins; Crystal N. Jarquin, BS; Jennifer Olivero, BS; Karen S. Scott, PhD; Luke N. Rodda, PhD*
- 11:30 a.m. - 1:00 p.m. **K23** **Postmortem Toxicology Trends in the United States Before and During the COVID-19 Pandemic**
*Stephanie Marco, PhD**

TOXICOLOGY

- 11:30 a.m. - 1:00 p.m. **K24** **The Discovery of Gamma-Butyrolactone (GBL) in JUUL® E-Liquids**
*Alaina Holt, BS**; *Michelle R. Peace, PhD*; *Justin L. Poklis, BS*; *Caroline O. Cobb, PhD*
- 11:30 a.m. - 1:00 p.m. **K25** **The Stability of Drug Analytes in Positive Umbilical Cord Tissue After Long-Term Frozen Storage**
*Emily Fenton, MBA**; *Robert Paul Hessler, Jr., MS*; *Marykathryn Tynon Moody, MSFS*; *Karen S. Scott, PhD*
- 11:30 a.m. - 1:00 p.m. **K26** **The Evaluation of Extraction Parameters for the Analysis of Authentic Hair Reference Material (HRM) in Forensic Hair Testing Using Statistical Design of Experiments (DoE)**
*Brianna Spear**; *Anthony P. DeCaprio, PhD*

Thursday

Drugs & Driving Special Session

*Moderator: Jennifer F. Limoges, MS
 New York State Police
 Albany, NY*

*Co-Moderator: Nicholas B. Tiscione, MS
 Palm Beach County Sheriff's Office
 West Palm Beach, FL*

- 9:00 a.m. - 9:15 a.m. **K27** **Recommendations for Drug Testing in Driving Under the Influence of Drugs (DUID) and Motor Vehicle Fatality Cases—2021 Update**
*Amanda D'Orazio, MS**; *Barry K. Logan, PhD*; *Amanda L.A. Mohr, MSFS*; *Ayako Chan-Hosokawa, MS*; *Curt E. Harper, PhD*; *Marilyn A. Huestis, PhD*; *Sarah Kerrigan, PhD*; *Jennifer F. Limoges, MS*; *Laura J. Liddicoat, BS*; *Amy Miles, BS*; *Colleen E. Scarneo, MS*; *Karen S. Scott, PhD*
- 9:15 a.m. - 9:30 a.m. **K28** **Canadian Blood Drug Concentration Regulations and Drug-Impaired Driving Cases: A Snapshot of Findings in the Province of Québec**
*Edith Viel, BSc**; *Pascal Mireault, MSc*
- 9:30 a.m. - 9:45 a.m. **K29** **Pennsylvania Driving Under the Influence of Drugs (DUID) Trends: 2010–2020**
*Jolene Bierly, MSFS**; *Ayako Chan-Hosokawa, MS*; *Barry K. Logan, PhD*
- 9:45 a.m. - 10:00 a.m. **K30** **The Impact of Reducing the Ethanol Threshold for Performing Drug Testing in Driving While Intoxicated (DWI) Cases**
*Teresa R. Gray, PhD**
- 10:00 a.m. - 10:15 a.m. **K31** **The Rise of Polypharmacy-Impaired Driving Involving Fentanyl**
*Nicholas B. Tiscione, MS**
- 10:15 a.m. - 10:30 a.m. **K32** **Houston Cocktail: Cases of Driving Under the Influence of Hydrocodone, Alprazolam, and Carisoprodol**
*Dayong Lee, PhD**; *Peter R. Stout, PhD*



TOXICOLOGY

Drug Trends

Moderator: *Alex J. Krotulski, PhD*
Center for Forensic Science Research & Education
Willow Grove, PA

- 10:30 a.m. - 10:45 a.m. **K33** **An Evaluation of Drug-Facilitated Sexual Assault Cases in the City of Houston, Texas, From 2014 to 2019**
*Sara Dempsey, PhD**; *Peter R. Stout, PhD*; *Dayong Lee, PhD*
- 10:45 a.m. - 11:00 a.m. **K34** **Updated Trends and Case Studies in the Lysergic Acid Diethylamide (LSD) Revival**
*Ryanne Brown, MS**; *Jessica L. Knittel, MS*; *Erin L. Karschner, PhD*; *Jeff Walterscheid, PhD*
- 11:00 a.m. - 11:15 a.m. **K35** **Monitoring of Specialized Internet Forums to Ensure Complete Toxicology Testing in Suicide Death Investigations**
*Laura M. Labay, PhD**; *Robert A. Middleberg, PhD**

Toxicological Characterization

Moderator: *Sarah Himes Bartock, PhD*
Quest Diagnostics Nichols Institute
Chantilly, VA

- 11:15 a.m. - 11:30 a.m. **K36** **Measuring Inhibition of Neurotransmitter Transport In Vitro to Predict Effects and Abuse Potential of Novel Cathinone-Type Stimulants**
*Svante Vikingsson, PhD**; *Mattias Persson, PhD*; *Robert Kronstrand, PhD*; *Henrik Green, PhD*
- 11:30 a.m. - 11:45 a.m. **K37** **Brain Concentrations of 3,4-Methylenedioxypropylamphetamine (MDPV) and Its Metabolites in Male Rats: The Relationship to Pharmacodynamic Effects**
Steven Towler, BS; *Teeshavi Devi Acosta, MS*; *Joshua S. Elmore, BS*; *Michael Chojnacki, BS*; *Michael H. Baumann, PhD*; *Marta Concheiro-Guisan, PhD**
- 11:45 a.m. - 12:00 p.m. **K38** **A Metabolic Profile Determination of 2F-Viminol, A Novel Synthetic Opioid (NSO) Identified in Forensic Investigations**
*Aracelis A. Velez, BS**; *Alex J. Krotulski, PhD*; *Donna M. Papsun, MS*; *Karen S. Scott, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)

Analytical Methods

Moderator: *Gregory A. Priebe, MS*
Ascertain Forensics at Redwood Toxicology
Santa Rosa, CA

- 1:00 p.m. - 1:15 p.m. **K39** **Long-Term Stability Assessment of Fentanyl Analogs in Blood Using Liquid Chromatography/Quadrupole Time-Of-Flight/Mass Spectrometry (LC/QTOF/MS)**
*Kaitlyn B. Palmquist, BS**; *Madeleine J. Swortwood, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 1:15 p.m. - 1:30 p.m. **K40** **Quantitative Forensic Toxicology by Standard Addition: Consideration, Experimentation, and Implementation**
*Alex J. Krotulski, PhD**; *Sherri L. Kacinko, PhD*; *Joseph Homan, MS*; *Barry K. Logan, PhD*
- 1:30 p.m. - 1:45 p.m. **K41** **The Quantification of Oxycodone and Its Phase I and II Metabolites in Urine**
*Michael Truver, PhD**; *Gerd Jakobsson, MSc*; *Maria Cherma, PhD*; *Henrik Green, PhD*; *Robert Kronstrand, PhD*

TOXICOLOGY

- 1:45 p.m. - 2:00 p.m. **K42** **Chiral Separation and Analysis of Methylphenidate, Ethylphenidate, and Ritalinic Acid in Blood by Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)**
*Christina Smith, BS**; *Marlon A. Young, BS*; *Madeleine J. Swortwood, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)

Cannabinoids

Moderator: *Nathalie A. Desrosiers, PhD*
Royal Canadian Mounted Police
Ottawa, CANADA

- 2:00 p.m. - 2:15 p.m. **K43** **Cannabis and Driving Throughout the Legalization Process: A Portrait of the Province of Québec, Canada**
*Edith Viel, BSc**; *Brigitte Desharnais, PhD*; *Pascal Mireault, MSc*
- 2:15 p.m. - 2:30 p.m. **K44** **Updated Techniques for Characterizing Cannabis Use**
*Jami Reber, MSc**; *Erin L. Karschner, PhD*; *Joshua Seither, PhD*; *Jessica L. Knittel, MS*; *Jeff Walterscheid, PhD*
(FSF Emerging Forensic Scientist Award Oral Presentation)
- 2:30 p.m. - 2:45 p.m. **K45** **A Determination of Δ^9 -Tetrahydrocannabinol (THC) and Cannabidiol (CBD) in Edibles Using Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)**
*Mingjing Sun**; *Courtney Sellens, BS*
- 2:45 p.m. - 3:00 p.m. **K46** **The Prevalence of Cannabidiol (CBD) and Tetrahydrocannabinol (THC) in Federally Regulated Workplace Drug Testing Urine Specimens**
*Ruth E. Winecker, PhD**; *Edward J. Cone, PhD*; *David J. Kuntz, PhD*; *Ron R. Flegel, MS*; *Eugene Hayes, PhD*

Annual Lectureship

Moderator: *Madeleine J. Swortwood, PhD*
Sam Houston State University
Huntsville, TX

Co-Moderator: *Amanda L.A. Mohr, MSFS*
Center for Forensic Science Research
& Education
Willow Grove, PA

- 3:00 p.m. - 4:00 p.m. **Drugs of Use or Abuse? Classifying Novel Psychoactive Substances and Psychedelics**
Johannes G. Ramaekers, PhD
Department of Neuropsychology & Psychopharmacology
Maastricht University
The Netherlands



TOXICOLOGY

Friday

Postmortem Toxicology

Moderator: *Dani C. Mata, MS*
Orange County Crime Lab
Santa Ana, CA

- 9:00 a.m. - 9:15 a.m. **K47** **A Comparison of Novel Psychoactive Substances (NPS) Positivity in Postmortem Investigations, 2019–2020**
*Andrea Carolina Noble, PhD**; *Donna M. Papsun, MS*; *Sherri L. Kacinko, PhD*;
Barry K. Logan, PhD
- 9:15 a.m. - 9:30 a.m. **K48** **A Flualprazolam Study on Postmortem Samples**
*Helen H. Ha, MS**; *Dani C. Mata, MS*
- 9:30 a.m. - 9:45 a.m. **K49** **The Detection of Kavain in Powder: Death Scene Evidence and Postmortem Blood Analysis**
*George S. Behonick, PhD**; *Kevin G. Shanks, MS*; *Lee M. Tormos, MD*
- 9:45 a.m. - 10:00 a.m. **K50** **Over the Counter (OTC) Drugs Encountered in a Large Population of Postmortem Pediatric Cases**
*Jennifer L. Turri Swatek, MS**; *Michael E. Lamb, MSFS*
- 10:00 a.m. - 10:15 a.m. **K51** **Bladder Wash: A (Not-So) Alternative Specimen for Postmortem Forensic Toxicology**
*Kylie E. Candela, BS**; *Karen S. Scott, PhD*; *Amy P. Hart, MD*; *Luke N. Rodda, PhD*
- 10:15 a.m. - 10:30 a.m. **K52** **Abuse Deterrent Formulation (ADF) Oxycodone: A Ten-Year Study of Driving Under the Influence of Drugs (DUID) and Postmortem (PM) Oxycodone/Oxymorphone Blood Trends**
*Kari M. Midthun, PhD**; *Sherri L. Kacinko, PhD*

21st Annual Postmortem Pediatric Toxicology

Moderator: *Nikolas P. Lemos, PhD*
Lemos Toxicology Services
San Francisco, CA

Co-Moderator: *Madeleine J. Swortwood, PhD*
Sam Houston State University
Huntsville, TX

- 10:30 a.m. - 11:30 a.m. **K53** **Postmortem Pediatric Forensic Toxicology**
*Robert A. Middleberg, PhD**; *Nikolas P. Lemos, PhD*; *Michael F. Rieders, PhD**;
*Laura M. Labay, PhD**; *Jennifer L. Turri Swatek, MS**
- 11:30 a.m. - 12:00 p.m. **Discussion**



LAST WORD SOCIETY

Thursday

- 6:00 p.m. - 6:25 p.m. **LW1** **China and the History of Fingerprinting: A Forgotten Chapter?**
*Daniel Asen, PhD**
- 6:25 p.m. - 6:50 p.m. **LW2** **Pursuing Injustice Through Truth in Conjecture: The Hunt for a Scapegoat During an Ancient Pandemic**
*Matteo Borrini, PhD**
- 6:50 p.m. - 7:15 p.m. **LW3** **19th-Century Charity Hospital Admission Records—A Window Into Irish Life and Times**
*Colleen M. Fitzpatrick, PhD**
- 7:15 p.m. - 8:15 p.m. **LW4** **“The Man Who Never Was”—Was He the Man the British Say He Was?**
*Pete Speth, MD**



YFSF POSTERS

Friday

Anthropology

11:30 a.m. - 1:00 p.m. Y1 **A Bone Elemental Age-at-Death Estimation of Deceased Adult Females: A Pilot Study**
Melissa Bernard, MSc; Tracy Rogers, PhD*

Criminalistics

11:30 a.m. - 1:00 p.m. Y2 **“The Squeakiest Wheel Doesn’t Always Get the Grease”: Indigenous Perceptions on the Highway of Tears Missing and Murdered Indigenous Women and Girls (MMIWG) Investigations**
Steff King, BS; Gail S. Anderson, PhD*

11:30 a.m. - 1:00 p.m. Y3 **Evaluating a DNA Extraction Procedure for Skeletal Remains**
Jacob D. Nead; Christina Neal, MS; David Russell, MS*

11:30 a.m. - 1:00 p.m. Y4 **WITHDRAWN**

11:30 a.m. - 1:00 p.m. Y5 **An Unusual Attempted Suicide or a Covered Attempted Homicide? A Neck Stabbing Case Report and Review of the Literature**
Chiara Stassi, MD; Gennaro Baldino, MD*; Cristina Mondello, MD; Salvatore Rocuzzo, MD; Orazio Malfa, MD; Luigi Cardia, MD; Elvira Ventura Spagnolo, MD, PhD*

11:30 a.m. - 1:00 p.m. Y6 **Racial Bias and Missing Persons Investigations**
Michelle Jeanis, PhD; Bryanna Fox, PhD*; Elizabeth A. DiGangi, PhD*; Jonathan D. Bethard, PhD**

11:30 a.m. - 1:00 p.m. Y7 **The Limits of Blood Pattern Analysis (BPA) in the Analysis of a Forensic Case**
Carlo Filippo Bonetta; Roberto Raffaele, BE*; Luigi De Aloe, MD; Matteo A. Sacco, MD*; Carmen Scalise, MD*; Francesco Sicilia, MD; Angelica Zibetti, MD*; Giulia Cacciatore, MD; Pietrantonio Ricci, PhD*; Fabrizio Cordasco, MD; Fiorella Caputo, MD; Isabella Aquila, MD, PhD**

11:30 a.m. - 1:00 p.m. Y8 **A Landscape Study of Rapid DNA Technology**
Hannah M. Cawley; Lyndsie N. Ferrara, PhD*

11:30 a.m. - 1:00 p.m. Y9 **A Comparison of Semi-Automated and Manual Differential Separation Methods for Mock Sexual Assault Swabs**
Stephanie Rink, BA; Kyleen E. Elwick, PhD; James M. Robertson, PhD*

11:30 a.m. - 1:00 p.m. Y10 **Firearm and Toolmark Standard Operating Procedures (SOP) Assessed to Determine Variety in Forensics Laboratories**
*Madison McGregor**

YFSF POSTERS

General

-
- 11:30 a.m. - 1:00 p.m. **Y11** **The Quantification of Persistent Organic Pollutants in Organic and Non-Organic Produce Using Stir-Bar Sorptive Extraction With Gas Chromatography/Mass Spectrometry (GC/MS) and Isotope Dilution Mass Spectrometry**
*Tiffany L. Hoke**
- 11:30 a.m. - 1:00 p.m. **Y12** **A Case Study of the Correlation Between Bullying and Subsequent School Shootings**
Levi E. Peck; Hunter N. Gault*; Rikki A. Tasso-Thompson*; Christina A. Leija, MS*

Pathology/Biology

-
- 11:30 a.m. - 1:00 p.m. **Y13** **An Unintentional Drowning With a Contributing Factor of Carbon Monoxide Intoxication**
Raymond H. Bayer III, BS; Joseph A. Prahlow, MD*
- 11:30 a.m. - 1:00 p.m. **Y14** **Determining the Ideal Swab Type for Collection of the Microbiome for Forensic Identification Purposes**
*Natalie M. Wise, BS**

Toxicology

-
- 11:30 a.m. - 1:00 p.m. **Y15** **Qualtrics Survey of Gamma-Hydroxybutyric Acid (GHB) Methodologies in Blood and Urine**
Jeovanna S. Badson, BS; Marc A. LeBeau, PhD; Camila Berner; Jack Andrews; Karen S. Scott, PhD*



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