

AMERICAN ACADEMY OF FORENSIC SCIENCES

73RD AAFS ANNUAL SCIENTIFIC MEETING

ONE ACADEMY

PURSuing JUSTICE THROUGH TRUTH IN EVIDENCE



ADVANCE PROGRAM • FEBRUARY 2021



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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](https://webdata.aafs.org/aafswb/Security/SignIn.aspx) through the AAFS Web Account (<https://webdata.aafs.org/aafswb/Security/SignIn.aspx>).
2. Scan and email your registration form to: registration@aafs.org.
3. Mail your registration form, along with a check, money order, or purchase order, to:

AAFS

410 North 21st Street

Colorado Springs, CO 80904

(Checks must be drawn on a U.S. bank in U.S. funds, made payable to AAFS.)

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*

	Thru Jan. 18	Effective Jan. 19
1. AAFS Member, Trainee Affiliate, Applicant*	\$185	\$225
2. Non-Member	\$280	\$350
3. AAFS Student Affiliate	\$ 75	\$ 90
4. Non-Member Student**	\$115	\$140
5. AAFS Retired Fellow	\$ -0-	\$ -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.*

REFUNDS

All requests for refunds must be submitted by email to: hjefferson@aafs.org.

Canceled registration fees will be refunded as follows:

Prior to December 1	Full refund less \$25 charge
December 1-31	75% refund
January 1-31	60% refund
February 1-5	50% refund

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

<i>Chair:</i>	Kristen Hartnett-McCann, PhD
<i>Secretary:</i>	Marin A. Pilloud, PhD

Criminalistics

<i>Chair:</i>	Jennifer S. Mihalovich, MPH
<i>Secretary:</i>	Sandra B. Sachs, PhD

Digital & Multimedia Sciences

<i>Chair:</i>	Jason M. Paroff, JD
<i>Secretary:</i>	Patrick A. Eller, MS

Engineering & Applied Sciences

<i>Chair:</i>	David Pienkowski, PhD
<i>Secretary:</i>	Robert Dale Lynch, BArch

General

<i>Chair:</i>	Steven C. Clark, PhD
<i>Secretary:</i>	Melissa A. Connor, PhD

Jurisprudence

<i>Chair:</i>	Robert M. Sanger, JD
<i>Secretary:</i>	Donald E. Shelton, JD, PhD

Odontology

<i>Chair:</i>	Roger D. Metcalf, DDS, JD
<i>Secretary:</i>	Robin A. Ainsworth, DDS

Pathology/Biology

<i>Chair:</i>	Carl J. Schmidt, MD
<i>Secretary:</i>	Chris Milroy, MD, LLB

Psychiatry & Behavioral Science

<i>Chair:</i>	Dean Michael De Crisce, MD
<i>Secretary:</i>	Eleanor B. Vo, MD

Questioned Documents

<i>Chair:</i>	Karen J. Nobles, BA
<i>Secretary:</i>	Linda L. Mitchell, BS

Toxicology

<i>Chair:</i>	Sherri L. Kacinko, PhD
<i>Secretary:</i>	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. Please join us in acknowledging your most distinguished colleagues as they are presented with these prestigious awards.

R.B.H. Gradwohl Laureate Medallion

Carol Henderson, JD (posthumously)

Distinguished Fellow

Lakshmanan Sathyavagiswaran, MD

Outstanding Early Career Achievement in Forensic Science Award

Nicholas V. Passalacqua, PhD

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. Sognnaes Award

Mary A. Bush, DDS

Pathology/Biology Section's

Milton Helpert 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

AWARDS



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

Annual Lectureship Award

Marilyn A. Huestis, PhD

Madeleine J. Swortwood, PhD

Rebecca Phipps, PhD

Kenneth E. Ferslew, PhD

Johannes G. Ramaekers, 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. Greeley, MSFS*

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



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!

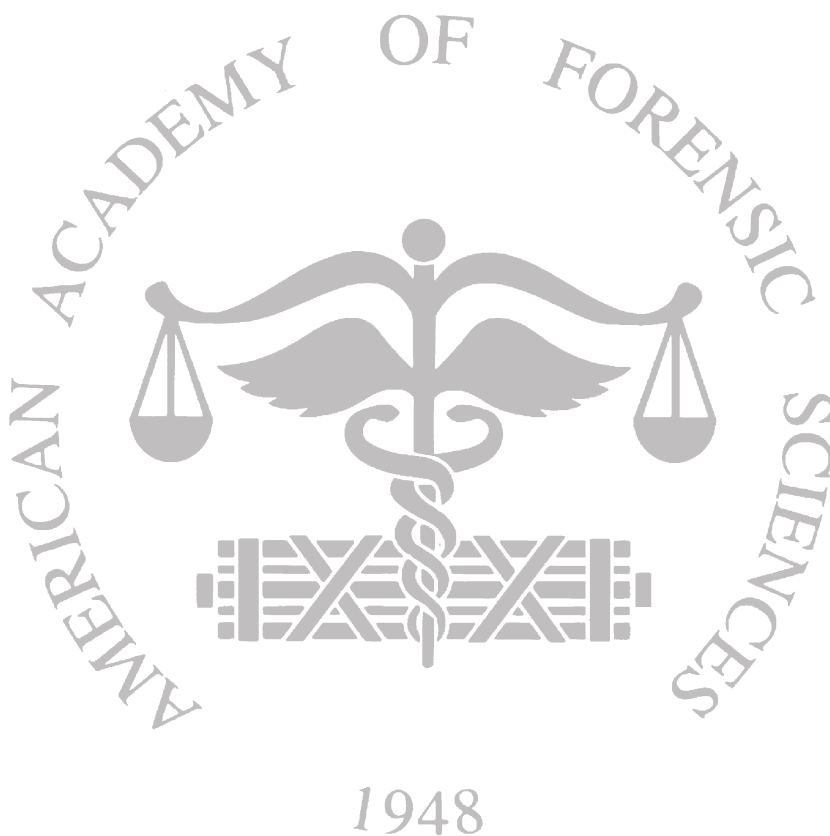
The Annual Business Meeting of the Fellows and Members of the AAFS will be held virtually on Wednesday, February 17, from 1:00 p.m. - 2:30 p.m. It is essential that all Fellows and Members attend this very important meeting in order to reach a quorum for the voting process. Agenda items include the election 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.

Educational Objectives: 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.

Educational Objectives: 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.

Educational Objectives: 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.

Educational Objectives: 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

This activity has been approved for AMA PRA Category 1 Credit(s)™.

Dental Continuing Education Credit

This activity is eligible for CDE credit, see final activity announcement for specific details. Postgraduate Institute for Medicine is an ADA CERP Recognized Provider.

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. Please contact Assistant Meeting Manager Sonya Bynoe, sbynoe@aaafs.org, no later than the January 18, 2020, pre-registration deadline if your state bar will not allow you to self-report. AAFS will apply for accreditation/approval from your state in this circumstance.

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. - 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

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

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: <i>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</i> |
| 8:00 a.m. - 12:00 p.m. | Workshop #11: <i>A New Realm of Novel Psychoactive Substance (NPS) Opioids and NPS Benzodiazepines—Analytical and Interpretive Considerations</i> |
| 8:00 a.m. - 12:00 p.m. | Standards Consortium— <i>Implementation of Forensic Science Standards in an Operational Setting: Challenges and Solutions</i> |
| 8:00 a.m. - 12:00 p.m. | Workshop #13: <i>Forensic Multimedia Authentication: Real-Life Problems and Solutions</i> |
| 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
<i>Posters will be available for viewing at any time with meeting registration.</i> |
| 8:00 a.m. - 5:00 p.m. | Workshop #14: <i>Policing in 2021—Perspectives, Problems, and Potentials</i> |
| 8:00 a.m. - 5:00 p.m. | Workshop #15: <i>STR Wars: The Rise of Sequencing</i> |
| 8:00 a.m. - 5:00 p.m. | Workshop #16: <i>Technology and Design of Security Documents for Counterfeiting and Alteration Resistance</i> |
| 9:00 a.m. - 1:00 p.m. | Student Academy |
| 1:00 p.m. - 5:00 p.m. | Special Session #1: <i>To See or Not to See: Unbiased Answers to Forensic Questions</i> |
| 1:00 p.m. - 5:00 p.m. | Workshop #17: <i>An Update on Analytical Approaches for Hemp/Marijuana Differentiation</i> |
| 1:00 p.m. - 5:00 p.m. | Workshop #18: <i>Competency to Stand Trial: Nuances in Competency Assessments</i> |
| 1:00 p.m. - 5:00 p.m. | Workshop #19: <i>Most Valuable Publications (MVPs) of Forensic DNA: Examining the Most Valuable Publications in the Field</i> |
| 6:00 p.m. - 8:00 p.m. | Case Break #2: <i>The Sarah Yarborough Homicide—The First Case Where Investigative Genetic Genealogy Was Used to Generate Forensic Intelligence in 2011 (Open to All Meeting Attendees)</i> |
| 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
9:00 a.m. - 12:00 p.m. Toxicology

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. AAAS ANNUAL BUSINESS MEETING
2:30 p.m. - 4:30 p.m. LIVE TEXT CHAT with EXHIBITORS
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.

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.

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

CALENDAR OF EVENTS

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

Friday, February 26, 2021

8:30 a.m. - 12:45 p.m.	FEPAAC: Accreditation of Forensic Science Academic Programs Through the AAFS
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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 <i>Pathology/Biology, J.C.U. Downs, MD</i> <i>Anthropology, Ginesse A. Listi, PhD</i> <i>Odontology, Lillian A. Nawrocki, DDS</i> <i>Toxicology, Ashraf Mozayani, PharmD, PhD, and George F. Jackson, PhD</i> <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 <i>Criminalistics, Kelly L. Knight, MS</i> <i>Questioned Documents, Kelsey L. Osborn, BS</i> <i>Engineering & Applied Sciences, Roy Crawford, BSME</i> <i>Digital & Multimedia Sciences, Douglas Lacey, BS, MS</i> <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

Faculty:

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

Sherri L. Kacinko, PhD
NMS Labs
Horsham, PA

Roderick T. Kennedy, JD
Los Ranchos, NM

Co-Chair:

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

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

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

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.	Questions and Answers



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

Tuesday

Open to all Meeting Registrants

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

Steven L. Downs, DBA

Methodist University

Fayetteville, NC

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 for 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 unites 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

PLENARY SESSION

One Academy Pursuing Justice Through Truth in Evidence

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.

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 makes 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.



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.

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/>.



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 bite mark 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 bite mark 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 bite mark. 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 bite mark 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 bite mark 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 bite mark 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 bite mark 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 bite mark. 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 bite mark evidence each entitled Robert to relief and concluded that Robert was innocent.

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.



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; 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

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

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

Carla Rodgers, MD

Wynnewood, PA

Barry K. Logan, PhD

NMS Labs
Horsham, PA

Carl J. Schmidt, MD

Wayne County Medical Examiners Office
University of Michigan
Detroit, MI

M.J. Menendez, JD

NMS Labs
Horsham, PA

Victor W. Weedn, MD, JD

The George Washington University
Washington, DC

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.	Societal Impacts During COVID-19: Tales From the Trenches <i>Carla Rodgers, MD</i>
9:10 a.m.	-	9:40 a.m.	COVID-19 Impacts on Death Rates for Overdoses, Accidents, Homicides, and Suicides <i>Carl J. Schmidt, MD</i>
9:40 a.m.	-	9:55 a.m.	Break
9:55 a.m.	-	10:25 a.m.	Impacts on Toxicology and Drug Positivity Trends During COVID-19 <i>Barry K. Logan, PhD</i>
10:25 a.m.	-	10:55 a.m.	Impacts on Toxicology and Drug Chemistry Laboratory Operations During COVID-19 <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 Memorandas 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:

Cydne L. Holt, PhD
Verogen
San Diego, CA

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

Anne Marie Schubert, JD
Sacramento County District Attorney's Office
Sacramento, 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>Anne Marie Schubert, JD</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; Anne Marie Schubert, JD</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; Anne Marie Schubert, JD; 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 Ciotton, 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. - 9:45 a.m.	Break
9:45 a.m. - 10:30 a.m.	Combatting NPS in the United States: Why Is the Dog Still Barking? <i>Kabrena E. Rodda, PhD</i>
10:30 a.m. - 11:15 a.m.	Toxicological Tools in International Response to the Use of Chemical Weapons <i>Marc-Michael Blum, PhD</i>
11:15 a.m. - 12:00 p.m.	Facilitated Discussion: Trends in Challenges and Best Practices in Approach <i>Kabrena E. Rodda, PhD; Jonathan Forman, PhD</i>
12:00 p.m. - 1:00 p.m.	Break
1:00 p.m. - 1:45 p.m.	Decoding the Dog's Bark: Technology, Policy, and the Surveillance of Emerging Threats <i>Jonathan Forman, PhD</i>
1:45 p.m. - 2:30 p.m.	Untargeted Chemical Identification With Mass Spectrometry <i>Kristin Jarman, PhD</i>
2:30 p.m. - 2:45 p.m.	Break
2:45 p.m. - 3:30 p.m.	Composite Machine Learning Algorithms for Material Sourcing <i>Josh Dettman, PhD</i>
3:30 p.m. - 4:15 p.m.	Counter-Terrorism Medicine: Creating a Medical Initiative Mandated by Escalating Asymmetric Attacks <i>Gregory Ciotto, MD; Michael Court, MD</i>
4:15 p.m. - 5:00 p.m.	A Facilitated Discussion: Identify Missing Stakeholders, Starting Points, and Schedule Next Steps <i>Kabrena E. Rodda, PhD; Jonathan Forman, PhD</i>

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

Faculty:

Amber Burns, MS

Maryland State Police Forensic Sciences Division
Pikesville, MD

Robert B. Cody, PhD

JEOL USA, Inc
Peabody, MA

Juli A. Cruciotti, MA

Virginia Department of Forensic Science
Manassas, VA

Co-Chair:

Luther S. Schaeffer, MSFS

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

Arun S. Moorthy, PhD

National Institute of Standards and Technology
Gaithersburg, MD

Erin Shonsey, PhD

Alabama Department of Forensic Sciences
Hoover, AL

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.	Questions and Answers <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 Collins, 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.	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>
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.	The Viewpoint of Forensics and Forensic Standards From a Prosecuting Attorney Perspective <i>Kenneth E. Melson, 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 Forensic Standards for Disaster Victim Identification and Their Intended Impact on Forensic Science <i>Marc A. LeBeau, PhD</i>
4:30 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 Gittelson, 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 <i>Link will be provided “in session” by the workshop chair/moderator</i> <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

Learning Overview: After attending this workshop, attendees will have a working knowledge of three databases, including (but not limited to): the kind of data available, their uses and limitations, and their research applications. Furthermore, attendees will have an in-depth understanding of tips and tricks for utilizing and analyzing the often robust and complex downloaded datasets.

Impact on the Forensic Science Community: This workshop will impact the forensic science community by bringing together detailed and relevant information about the application and research potential of available databases for forensic anthropology methods development, method accuracy performance, casework accuracy assessment, human skeletal and demographic variation, and comparisons of soft and hard tissue morphology. Much of the data included in these databases allows for researchers to answer big-picture questions that are not possible to address without unified datasets. By providing a workshop run by the developers of these three databases, this workshop's presentations will deliver detail on the development, accessibility, application, and limitations of each of these growing databases and prepare researchers to seize on the potential of this data to answer important questions in the field of forensic anthropology.

Chair:

Cris E. Hughes, PhD
University of Illinois
Department of Anthropology
Urbana, IL

Co-Chair:

Chelsey A. Juarez, PhD
California State Fresno
Department of Anthropology
Fresno, CA

Faculty:

Heather J.H. Edgar, PhD
Albuquerque, NM

Stephen D. Ousley, PhD
Homebase
Erie, PA

Targeted Audience: Anthropology

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

W12 Forensic Anthropology Databases for Research Purposes

Program Description: Data availability is the cornerstone of progression of any scientific inquiry. For forensic anthropologists, the data sources are limited, as they must be contextually appropriate (temporal, geographical, etc.) for study and application in forensic research on human variation. In recent years, several new databases have been developed for forensic anthropology research, building on those foundational databases available for decades. This workshop highlights three databases available for research: the Forensic Anthropology Data Bank, the New Mexico Decedent Image Database, and the Forensic Anthropology Database for Assess Methods Accuracy. These three databases offer unique, innovative, and nuanced data, and the workshop will cover the databases' goals, ethical considerations, research potential, data accessibility, data provenance and standards, database resources, tutorials, and more. Whether you are looking for a dynamic dataset for teaching purposes, starting on your first research project, or building on broad-reaching questions, knowing what data is available and how to maximize their analytical potential is a must. Furthermore, in the time of COVID-19, field research is limited, impacting graduate students to senior researchers. These virtual repositories offer a safe alternative and house data that can answer an abundance of research questions, all while being accessed safely and securely online.

Program:

8:00 a.m.	-	8:20 a.m.	Workshop Introductions <i>Chelsey A. Juarez, PhD</i>
8:20 a.m.	-	9:20 a.m.	Forensic Anthropology Database for Assess Methods Accuracy (FADAMA) <i>Cris E. Hughes, PhD; Chelsey A. Juarez, PhD</i>
9:20 a.m.	-	9:30 a.m.	Break
9:30 a.m.	-	10:30 a.m.	Forensic Anthropology Data Bank (FDB) <i>Stephen D. Ousley, PhD</i>
10:30 a.m.	-	10:40 a.m.	Break
10:40 a.m.	-	11:40 a.m.	New Mexico Decedent Image Database (NMDID) <i>Heather J.H. Edgar, PhD</i>
11:40 a.m.	-	12:00 p.m.	Questions and Answers

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

Andrew J. Savage, JD
Savage Law Firm
Charleston, SC

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>Andrew J. Savage, 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; Andrew J. Savage, 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>
11:35 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 and Workshop Conclusions <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>



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, MBBCh, 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



NATIONAL INSTITUTE OF JUSTICE

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

10:00 a.m. – 5:40 p.m.

Track 1: Session I

Controlled Substances and Toxicology

Moderator: Frances Scott, PhD

10:00 a.m. - 10:10 a.m.

Welcome and Opening Remarks

Lucas W. Zarwell, MFS; Frances Scott, PhD

10:10 a.m. - 10:30 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

Rabi A. Musah, PhD

10:30 a.m. - 10:50 a.m.

Increasing Safety, Speed, Sensitivity, and Selectivity of Controlled Substance Analysis

Amber Burns, MS

10:50 a.m. - 11:10 a.m.

Determining the Quality of Mass Spectral Library Searches Using a Quantitative Reliability Metric

Preshious Rearden, PhD

11:10 a.m. - 11:30 a.m.

Characterization of the Vapor Profile of Fentanyl and Related Analogs for Instrumental and Canine Detection

Lauryn DeGreeff, PhD

11:30 a.m. - 11:50 a.m.

Questions and Answers

11:50 a.m. - 12:10 p.m.

Break

12:10 p.m. - 12:30 p.m.

Chemical Foundations for a Cannabis Breathalyzer: Vapor Pressure Measurements and a Pilot Breath Collection Study

Tara M. Lovestead, PhD

12:30 p.m. - 12:50 p.m.

An Evaluation of Pre-Treatment Parameters in Forensic Hair Testing Using Statistical Design of Experiments (DoE)

Brianna Spear

12:50 p.m. - 1:10 p.m.

Identification of Phase II Opioid Metabolites in Human Hair

Megan Grabenauer, PhD

1:10 p.m. - 1:30 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

Rebecca Wagner, PhD

1:30 p.m. - 1:50 p.m.

Questions and Answers

1:50 p.m. - 2:00 p.m.

Break

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Track 1: Session II

Forensic Anthropology and Forensic Pathology

Moderator: Danielle McLeod-Henning

- 2:00 p.m. - 2:10 p.m. **Welcome and Opening Remarks**
Lucas W. Zarwell, MFS; Danielle McLeod-Henning
- 2:10 p.m. - 2:35 p.m. **A DNA Barcoding Strategy for Blow and Flesh Flies Encountered During Medicolegal Casework**
Sam Kwiatkowski, PhD
- 2:35 p.m. - 3:00 p.m. **The Impact of Drugs on Human Decomposition and the Postmortem Interval: Insect, Scavenger, and Microbial Evidence**
Dawnie W. Steadman, PhD
- 3:00 p.m. - 3:25 p.m. **Modeling the Fluvial Transport of Human Remains in the Sacramento River, California**
Eric J. Bartelink, PhD; Colleen F. Milligan, PhD
- 3:25 p.m. - 3:45 p.m. **Questions and Answers**
- 3:45 p.m. - 4:05 p.m. **Break**
- 4:05 p.m. - 4:30 p.m. **Skeletal Trauma Research in Forensic Anthropology**
Angela L. Harden, MA
- 4:30 p.m. - 4:55 p.m. **Postmortem Iris Recognition**
Adam Czajka
- 4:55 p.m. - 5:20 p.m. **Understanding the Pathology of Homicidal Pediatric Blunt Neurotrauma Through the Correlation of Advanced Magnetic Resonance Images With Histopathology**
Heather S. Jarrell, MD
- 5:20 p.m. - 5:40 p.m. **Questions and Answers**

Track 2: Session I

Impression and Pattern Evidence/Trace Evidence

Moderator: Gregory Dutton, PhD

- 10:00 a.m. - 10:10 a.m. **Welcome and Opening Remarks**
Lucas W. Zarwell, MFS; Frances Scott, PhD
- 10:10 a.m. - 10:35 a.m. **A Black Box Evaluation of Bloodstain Pattern Analysis Conclusions**
Austin R. Hicklin, PhD
- 10:35 a.m. - 11:00 a.m. **Physics and Statistical Models for Physical Match Analysis Utilizing 3D Microscopy of Fracture Surfaces**
Ashraf F. Bastawros, PhD
- 11:00 a.m. - 11:25 a.m. **Results of the 2019 3D Virtual Comparison Microscopy Topography Resolution Study (VCMTRS)**
Ryan Lilien, PhD
- 11:25 a.m. - 11:45 a.m. **Questions and Answers**
- 11:45 a.m. - 12:05 p.m. **Break**



NATIONAL INSTITUTE OF JUSTICE

12:05 p.m.	-	12:30 p.m.	Determining Fingerprint Age With Mass Spectrometry Imaging of Triacylglycerols <i>Young-Jin Lee</i>
12:30 p.m.	-	12:55 p.m.	The Application of Morphologically Directed Raman Spectroscopy (MDRS®) for the Forensic Examination of Soils <i>Brooke W. Kammrath, PhD</i>
12:55 p.m.	-	1:20 p.m.	Raman Microspectroscopy and Advanced Statistics for Detection and Characterization of Gunshot Residue <i>Igor K. Lednev, PhD</i>
1:20 p.m.		1:40 p.m.	Questions and Answers
1:40 p.m.	-	2:00 p.m.	Break
Track 2: Session II			Forensic Biology/DNA <i>Moderator: Gregory Dutton, PhD</i>
2:00 p.m.	-	2:10 p.m.	Welcome and Opening Remarks <i>Lucas W. Zarwell, MFS; Gregory Dutton, PhD</i>
2:10 p.m.	-	2:35 p.m.	Population Distribution and Factors Affecting Individual DNA Shedding Propensity <i>Mechthild K. Prinz, PhD</i>
2:35 p.m.	-	3:00 p.m.	Environmental Persistence of Touch DNA <i>Meghan Ramsey, PhD</i>
3:00 p.m.	-	3:25 p.m.	Toward Developing Forensically Relevant Single Cell Pipelines by Incorporating Unsupervised Clustering <i>Ken R. Duffy, PhD</i>
3:25 p.m.	-	3:45 p.m.	Questions and Answers
3:45 p.m.		4:05 p.m.	Break
4:05 p.m.	-	4:30 p.m.	A Universal Method for Biological Stain Identification and Analysis Using Raman Spectroscopy <i>Igor K. Lednev, PhD</i>
4:30 p.m.	-	4:55 p.m.	The Effect of Storage Conditions on Estimates of the Age of Dried Bloodstains <i>Robert W. Allen, PhD</i>
4:55 p.m.	-	5:20 p.m.	An Epigenetic Multiplex Capable of Discriminating Body Fluid Type, Age, and Phenotype <i>Bruce R. McCord, PhD</i>
5:20 p.m.	-	5:40 p.m.	Questions and Answers

Poster Session

Monday, February 15, 2021

10:00 a.m. – 5:40 p.m.

Tuesday, February 16, 2021

10:00 a.m. – 5:40 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. Salmonsens, 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



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

ANTHROPOLOGY

11:30 a.m. - 1:00 p.m.	A13	Sex Estimation of Skulls and Crania From Colombia Using MorphoPASSE Program v1.0 <i>Justin R. Maiers, MS*</i> ; Daniela Santamaria Vargas, BA; Elizabeth A. DiGangi, PhD; Jonathan D. Bethard, PhD
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 <i>Jade S. De La Paz, MS*</i> ; 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 <i>Alexandra R. Klales, PhD*</i> ; Ashley B. Maxwell, PhD
11:30 a.m. - 1:00 p.m.	A16	A Pilot Study of Geomorphometric Sex Estimation on the Pelvis <i>Emily Brooks, BA*</i> ; 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 <i>Stephanie Medrano, MA*</i> ; Molly A. Kaplan, BA*; 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 <i>Eric Frauenhofer*</i>
11:30 a.m. - 1:00 p.m.	A19	The Iliac Crest as a Skeletal Indicator of Puberty and Guide to Subadult Sex Estimation <i>Stephanie J. Cole, MS*</i> ; Kyra E. Stull, PhD; Marin A. Pilloud, PhD
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 <i>Francesco De Micco, MBBS*</i> ; 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 <i>Rutwik D. Shedje, MSc*</i> ; 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) <i>Roberto Scendoni*</i> ; 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 <i>Rutwik D. Shedje, MSc*</i> ; 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 <i>Sarah H. Ghannam, MA*</i> ; 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 <i>Varsha Warriar*</i> ; Rutwik D. Shedje, MSc; Tanuj Kanchan, MD; Kewal Krishan, PhD
11:30 a.m. - 1:00 p.m.	A26	Skeletal Age Estimation From Pubic Symphysis: A Systematic Review of the Suchey-Brooks Method <i>Tanuj Kanchan, MD*</i> ; Surjit Singh, MD; Varsha Warriar; Rutwik D. Shedje, MSc

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- 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*
- 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*
- 11:30 a.m. - 1:00 p.m. **A40** **Caseloads in Forensic Anthropology**
*Nicholas V. Passalacqua, PhD**; *Marin A. Pilloud, PhD*; *Casey Philbin, PhD*

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11:30 a.m.	-	1:00 p.m.	A41	The Impact of Forensic Anthropology Manuscripts in the <i>American Journal of Physical Anthropology</i> <i>Rhian Dunn, MS*</i> ; <i>Nicholas V. Passalacqua, PhD</i> ; <i>Joseph T. Hefner, PhD</i> ; <i>Katie Zejdlik, PhD</i>
11:30 a.m.	-	1:00 p.m.	A42	Consistency in Validation: Categorizing Validation Studies in Forensic Anthropology <i>Angela M. Dautartas, PhD*</i> ; <i>Kelly Sauerwein, PhD</i>
11:30 a.m.	-	1:00 p.m.	A43	A Hierarchy of Expert Performance as Applied to Forensic Anthropology <i>Stephanie Hartley, BA*</i> ; <i>Allysha P. Winburn, PhD</i>
11:30 a.m.	-	1:00 p.m.	A44	Reliability and Biasability of Sectioning-Point-Based Sex Estimation <i>Stephanie Hartley, BA*</i> ; <i>Allysha P. Winburn, PhD</i> ; <i>Itiel Dror, PhD</i>
11:30 a.m.	-	1:00 p.m.	A45	The Effects of Enhanced Quality Control (QC) Measures on Forensic Anthropological Practice <i>Raphaella M. Meloro, MA*</i> ; <i>Allysha P. Winburn, PhD</i> ; <i>Valerie DeLeon, PhD</i>
11:30 a.m.	-	1:00 p.m.	A46	Improving Radiographic Visualization of the Frontal Sinus for Scientific Identification <i>Erica R. Christensen, MS*</i> ; <i>Laura K. Scheid, MS</i> ; <i>Jered B. Cornelison, PhD</i> ; <i>Christine M. Pink, PhD</i>
11:30 a.m.	-	1:00 p.m.	A47	A Pilot Study on Measurement Error on 2D and 3D Images in Forensic Anthropological Applications <i>Theresa M. De Cree, BA</i> ; <i>Emily Brooks, BA</i> ; <i>Victoria Lamond, BA*</i> ; <i>Samantha LaFrance, BA*</i> ; <i>Luis L. Cabo, MS</i>
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 <i>Devin L. Adcox*</i> ; <i>Tiffany B. Saul, PhD</i>
11:30 a.m.	-	1:00 p.m.	A49	3D Web-Based Technologies to Support Interactive Forensic Anthropology Databases <i>Terrie Simmons-Ehrhardt, MA*</i>
11:30 a.m.	-	1:00 p.m.	A50	Back Together: An Innovative Procedure For Cranial Reconstruction as an Aid for Human Identification <i>Matteo Borrini, PhD*</i> ; <i>Satu Valoriani, PhD</i>
11:30 a.m.	-	1:00 p.m.	A51	The Application of Standardized Skeletal Inventory Methods to Fragmented Subadult Cranial Remains <i>Andrea Palmiotto, PhD*</i>
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 <i>Heather M. Garvin, PhD*</i> ; <i>Michael W. Kenyhercz, PhD</i> ; <i>Rachel Dunn, PhD</i> ; <i>Sabrina Sholts, PhD</i> ; <i>M. Schuyler Litten, MA</i>
11:30 a.m.	-	1:00 p.m.	A53	A Comparison of the Accuracy of Identification Between Non-Human and Human Skeletal Elements <i>Kaitlyn Klein, BS*</i> ; <i>Holly A. Long, BS*</i> ; <i>Summer B. Shipley, BS*</i>
11:30 a.m.	-	1:00 p.m.	A54	Portable Laser-Induced Breakdown Spectroscopy (LIBS) for the Categorization of Human Skeletal Remains <i>Kelsi Kuehn, MA*</i> ; <i>Matthieu Baudelet, PhD</i> ; <i>Jonathan D. Bethard, PhD</i>

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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 <i>Amelia J. Edwards, MS*</i> ; <i>Lesley A. Chesson, MS</i> ; <i>Thuan H. Chau, MS</i> ; <i>Vincent J. Sava, MA</i> ; <i>Gregory E. Berg, PhD</i>
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 <i>Lesley A. Chesson, MS*</i> ; <i>Thuan H. Chau, MS</i> ; <i>Amelia J. Edwards, MS</i> ; <i>Hannah Dibner, MS</i> ; <i>Gregory E. Berg, PhD</i>
11:30 a.m. - 1:00 p.m.	A57	Validating Isoscaping Methods: A Study of Oxygen, Strontium, and Sulfur <i>Tamara Tyner, MA*</i> ; <i>Daniel J. Wescott, PhD</i> ; <i>Nicholas P. Herrmann, PhD</i> ; <i>Tiffany B. Saul, PhD</i>
11:30 a.m. - 1:00 p.m.	A58	Mass Grave Localization Prediction With Geographical Information Systems in Guatemala and Future Impacts <i>Perla Santillan, MS*</i> ; <i>Scott Edwards, PhD</i> ; <i>Jenise Swall, PhD</i> ; <i>Tal Simmons, PhD</i>
11:30 a.m. - 1:00 p.m.	A59	The Importance of Hand-Drawn Maps in Forensic Archaeological Recoveries <i>Anthony V. Lanfranchi, BS*</i> ; <i>Kristine A. Kortnick, BS*</i> ; <i>Victoria Lamond, BA*</i>
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 <i>Catherine Maidment*</i> ; <i>Anna Williams, PhD</i>
11:30 a.m. - 1:00 p.m.	A61	Variation in Bone Shrinkage Due to Thermal Exposure: A Patellar Case Study <i>Ashley B. Maxwell, PhD*</i> ; <i>Alexandra R. Klaes, PhD</i> ; <i>Brailey Moeder</i>
11:30 a.m. - 1:00 p.m.	A62	The Implications of Thermal Alteration on Osteometry <i>Maritza Liebenberg, BSc*</i> ; <i>Leandi Liebenberg, MS</i> ; <i>Gabriele C. Kruger, MSc</i> ; <i>Ericka N. L'Abbe, PhD</i>
11:30 a.m. - 1:00 p.m.	A63	Burned Bodies: Positional Change in Decomposed and Fresh Human Remains <i>Petra Banks, MA*</i> ; <i>Mariah E. Moe, MA</i> ; <i>Courtney C. Siegert, MA</i> ; <i>Sophia Mavroudas, MA</i> ; <i>Steve Seddig, BS</i> ; <i>Nicholas P. Herrmann, PhD</i> ; <i>Timothy P. Gocha, PhD</i> ; <i>Daniel J. Wescott, PhD</i>
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 <i>Nicole H.W. Schwalbach, MA*</i>
11:30 a.m. - 1:00 p.m.	A65	Pack Rats: An Unconsidered Taphonomic Variable <i>Carlos J. Zambrano, PhD*</i> ; <i>Kent J. Buehler, MA</i> ; <i>Angela Berg, RN</i>
11:30 a.m. - 1:00 p.m.	A66	Phase II Spatial Patterning of Vulture-Scavenged Human Remains <i>Molly Miranker, MA*</i> ; <i>Alberto Giordano, PhD</i> ; <i>Kate Spradley, PhD</i>
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 <i>Craig A. Keyes, MS*</i> ; <i>Jolandie Myburgh, PhD</i> ; <i>Desiré Brits, PhD</i>
11:30 a.m. - 1:00 p.m.	A68	Taphonomic Alterations of Skeletal Remains Within a Subtropic Region: A Key West Cemetery <i>Fatima Soto, BS*</i> ; <i>Heather A. Walsh-Haney, PhD</i>
11:30 a.m. - 1:00 p.m.	A69	Taphonomic Effects of Acidic Soil on Human Remains in Japan: A Preliminary Study <i>Brian D. Padgett, PhD*</i>

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- 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
- 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*

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- 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*; *Melahat 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*

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- 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

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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**
- 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*; *Tilzja Quintero*; *Jhon L. Gonzalez, BA*; *Jaime Parra*
- 11:30 a.m. - 12:00 p.m. **Discussion**
Marin Pilloud, PhD; *Nicholas Passalacqua, PhD*

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	Proxies for Race: The Disconnect of Forensic Anthropology From Anthropology <i>Helen Cho, PhD*</i>
1:15 p.m. - 1:30 p.m.	A110	Out With the “-Oids”: Problems With the Use of Racist Terminology in Forensic Science <i>Elizabeth A. DiGangi, PhD*; Alba E. Craig, BA; Daniela Santamaria Vargas, BA</i>
1:30 p.m. - 1:45 p.m.	A111	Increasing Disparities: Sociopolitical Implications for the Use of Ancestry Estimation in the Medicolegal System <i>Jesse Roberto Goliath, PhD*; Meghan-Tomasita J. Cosgriff-Hernandez, PhD*</i>
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	Confronting Admixture: An Analysis of a Problematic Tradition in Forensic Anthropology <i>Teresa V. Wilson, PhD*; Sara Mire, BA; Bridget A. Cone</i>
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	The Accuracy of Forensic Anthropological Ancestry Estimation in Modern Casework: The Evaluation of Forensic Anthropology Reports From Three Medical Examiners’ Offices in the United States <i>Hillary R. Parsons, PhD*</i>
2:45 p.m. - 3:00 p.m.	A116	Race/Craft in Forensic Anthropology <i>Rachel Watkins, PhD*</i>
3:00 p.m. - 4:00 p.m.		Discussion <i>Agustín Fuentes, PhD</i>

Wednesday—Session I

Evidence Screening

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

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|------------------------|-----------|---|
| 8:30 a.m. - 8:45 a.m. | B1 | A Novel Colorimetric Isothermal Amplification Method for Cost-Effective, Rapid Body Fluid Identification
<i>Tiffany R. Layne, MS*</i> ; <i>An-Chi Tsuei, MS</i> ; <i>Annie Piland, BA</i> ; <i>Nathan Tanner, PhD</i> ;
<i>James P. Landers, PhD</i> |
| 8:45 a.m. - 9:05 a.m. | B2 | Stay Gold: Lab-Based Considerations to Help Keep Forensic DNA Analysis the Shining Standard
<i>Nancy Dinh*</i> |
| 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
<i>Magda A. Pereira de Barros*</i> |
| 9:20 a.m. - 9:35 a.m. | B4 | A Metabolomic Analysis for the Discovery of the Age of a Bloodstain Marker
<i>Seungyeon Lee, BS*</i> ; <i>Sora Mun, MT</i> ; <i>You-Rim Lee, MS</i> ; <i>Hyebin Choi, BS</i> ; <i>Miji Shin, BS</i> ;
<i>Sohyeon Kwon, BS</i> ; <i>Jiyeong Lee, PhD</i> ; <i>Ho Joong Sung, PhD</i> ; <i>Sung Hee Hyun</i> ;
<i>Hee-Gyoo Kang, PhD</i> |
| 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
<i>Seungyeon Lee, BS*</i> ; <i>Hyo-Jin Kim, MT</i> ; <i>Yoo-Jin Lee, MT</i> ; <i>Sora Mun, MT</i> ; <i>You-Rim Lee, MS</i> ;
<i>Miji Shin, BS</i> ; <i>Hyebin Choi, BS</i> ; <i>Sohyeon Kwon, BS</i> ; <i>Jiyeong Lee, PhD</i> ; <i>Ho Joong Sung, PhD</i> ;
<i>Sung Hee Hyun</i> ; <i>Hee-Gyoo Kang, PhD</i> |
| 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
<i>Erin R. Butler, MS*</i> ; <i>Heyi Yang, PhD</i> ; <i>Tatiana Perez, MS</i> ; <i>Ilyan Almuhrak, MS</i> ;
<i>Jahaira Zapata, MS</i> ; <i>Harmeen Bakshi, MS</i> ; <i>Megan Sutherland, BS</i> ; <i>Donald Siegel</i> |

Evidence Processing

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

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|-------------------------|-----------|---|
| 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
<i>Curt Hewitt*</i> ; <i>Danielle S. LeSassier, PhD</i> ; <i>Katharina L. Weber, BS</i> ; <i>Benjamin C. Ludolph, BS</i> ;
<i>Kathleen Q. Schulte, MS</i> ; <i>Leah Allen, BS</i> ; <i>Megan E. Powals, BS</i> ; <i>Alan R. Smith, BS</i> ;
<i>Nicolette C. Albright, MS</i> ; <i>August E. Woerner, PhD</i> ; <i>Leslie Parke, BS</i> ; <i>Myles W. Gardner, PhD</i> |
| 10:20 a.m. - 10:40 a.m. | B8 | Searching for the Silver Bullet of a Unified System to Deliver Forensic Science
<i>Rebecca E. Bucht, PhD*</i> ; <i>Sheila Willis, DS</i> ; <i>Lauren Wilson, PhD</i> ; <i>Lore George, MSc</i> ;
<i>Michelle D. Miranda, PhD</i> |

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*

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*
- 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*
- 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*
- 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*

CRIMINALISTICS

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 <i>Lauryl DeGreeff, PhD*</i> ; <i>Stephanie Vaughan, PhD</i> ; <i>Leann Forte, BS</i> ; <i>Howard K. Holness, PhD</i> ; <i>Kenneth G. Furton, PhD</i>
10:45 a.m. - 11:00 a.m.	B20	High Concentrations of Illicit Stimulants and Cutting Agents Cause False Positives on Fentanyl Test Strips <i>Tracy-Lynn E. Lockwood, BS*</i> ; <i>Alexandra Vervoordt, BS</i> ; <i>Marya Lieberman, PhD</i>
11:00 a.m. - 11:15 a.m.	B21	An Analysis of Drug Residue From Needle-Exchange Syringes in Washington, DC <i>Alexandra Evans, BS*</i> ; <i>Luke C. Short, PhD</i> ; <i>Michael Krause, MS</i> ; <i>Samantha M. Leach, MS</i> ; <i>Morgan M. Levitas, MFS</i> ; <i>Lucy Nguyen, MFS</i>
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 <i>Taís R. Fiorentin, PhD*</i> ; <i>Amanda L.A. Mohr, MSFS</i> ; <i>Melissa Fogarty, MSFS</i> ; <i>David M. Martin, PhD</i> ; <i>Thom Browne, Jr., PhD</i> ; <i>Trisha L. Conti, PhD</i> ; <i>Allison Standifer, MS</i> ; <i>Linda Bouchard, BS</i> ; <i>Michael W. Gilbert, BS</i> ; <i>Timothy A. Tripp, BS</i> ; <i>Jennifer Watson</i> ; <i>Susan Molloy, BS</i> ; <i>Barry K. Logan, PhD</i>

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 <i>Aldo Mattei, PhD*</i>
8:45 a.m. - 9:00 a.m.	B24	Latent Print Quality in Blind Proficiency Testing: Using Quality Metrics to Examine Laboratory Performance <i>Brett O. Gardner, PhD*</i> ; <i>Maddisen Neuman, MA</i> ; <i>Sharon Kelley, JD, PhD</i>
9:00 a.m. - 9:15 a.m.	B25	A Non-Destructive Collection of Latent Fingerprints Using Gellifters® and GLScan® <i>Sean D. Whitmer, BS*</i> ; <i>Rebecca D. Mitrani, BS*</i> ; <i>Kelli Edmiston</i> ; <i>Maria Antonia Roberts, MS</i>
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 <i>Corey B. Katz, MS*</i> ; <i>Naomi Kaplan-Damary, PhD</i> ; <i>Hal S. Stern, PhD</i>
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 <i>Amy M. Osborne, BS*</i> ; <i>Samira Beyramysoltan, PhD</i> ; <i>Rabi A. Musah, PhD</i>
9:45 a.m. - 10:00 a.m.		Break

CRIMINALISTICS

Spectra, Meth, EDTA, and Lubricants

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

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| 10:00 a.m. - 10:15 a.m. | B28 | The Effect of Modifications to the Core Fentanyl Structure on the Observed Product Ion Spectra
<i>Alia S. Hacker, BS*; J. Tyler Davidson, PhD; Glen P. Jackson, PhD</i> |
| 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
<i>Diana M. Wright, PhD*</i> |
| 10:30 a.m. - 10:45 a.m. | B30 | The Development of a Multivariate Mass Spectral Algorithm for the Identification of Seized Drugs
<i>Alexandra Adeoye, BS*; Samantha A. Mehnert; J. Tyler Davidson, PhD; Glen P. Jackson, PhD</i> |
| 10:45 a.m. - 11:00 a.m. | B31 | Mexican Methamphetamine Manufacturing Investigations
<i>Joe Bozenko, MSc*</i> |
| 11:00 a.m. - 11:15 a.m. | B32 | The Development of RED-BLEU: A UV/Vis Assay Following Colorimetric Detection of EDTA
<i>Sarah K. Schellhammer, BS*; Brittany C. Hudson, MS; Alexandra M. Wright, BS; Catherine Cupples Connon, PhD</i> |
| 11:15 a.m. - 11:30 a.m. | B33 | Validating the Sexual Lubricant Database Using True Known and Unknown Samples for Forensic Analysis
<i>Santana A.L. Thomas, PhD*; Brooke R. Baumgarten, MS; Candice Bridge, PhD</i> |

Thursday—Session I

Forensic Genealogy

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

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| 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
<i>Claire L. Glynn, PhD*; Rachel Graziano; Jessica Flynn, BS</i> |
| 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
<i>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</i> |
| 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
<i>Marybeth J. Sciarretta, MS*; Jarrett P. Ross, BA*</i> |

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 <i>Sam Kwiatkowski, PhD*</i> ; <i>Michael A. Donley, MS</i> ; <i>Katherine Welch, MS</i> ; <i>Roger Kahn, PhD</i>
10:10 a.m. - 10:25 a.m.	B38	A Two-Trace Problem in Probabilistic Genotyping: Should the Evidence Be Combined or Not? <i>Maarten Kruijver, PhD*</i> ; <i>Duncan Taylor, PhD</i>
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 <i>Oluwwakemi Sowemimo, MS*</i> ; <i>Fabio Oldoni, PhD</i> ; <i>Megan M. Foley, MSFS</i>
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 <i>Josephine Buckley, BA*</i> ; <i>Fabio Oldoni, PhD</i> ; <i>Megan M. Foley, MSFS</i>
10:55 a.m. - 11:10 a.m.	B41	How to Deal With Low Likelihood Ratios (LRs) in Mixed DNA Samples <i>Curt Schuerman, BS</i> ; <i>Tim Kalafut, PhD</i> ; <i>Clinton D. Buchanan, PhD</i> ; <i>Joel D. Sutton, MSFS</i> ; <i>Jo-Anne Bright, PhD</i> ; <i>Brian Higgins, MSFS*</i>
11:10 a.m. - 11:25 a.m.	B42	Microhaplotypes for Kinship Analyses <i>Chiara Della Rocca</i> ; <i>Fabio Oldoni, PhD*</i> ; <i>Kenneth Kidd, PhD</i> ; <i>Fulvio Cruciani, PhD</i> ; <i>Daniele S. Podini, PhD</i>
11:25 a.m. - 11:45 a.m.	B43	Mixture Software Is Invalid for Touch DNA <i>Charles H. Brenner, PhD*</i>

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 <i>Yungchun Lai*</i>
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 <i>Raimo Tanzi*</i> ; <i>Roberta Aversa, MS</i> ; <i>Francesca Fontana, MD</i> ; <i>Claudio Forcato, PhD</i>
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 <i>Rebecca Mitchell, PhD*</i> ; <i>Daniel S. Standage, PhD</i> ; <i>Rebecca Just, PhD</i>
11:30 a.m. - 1:00 p.m.	B47	A Routine Rape Case That Became Tricky (and Educational) <i>Mark Benecke, PhD*</i>
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 <i>Fabiana Taglia*</i> ; <i>Ling Wang, PhD*</i> ; <i>Kevin Lothridge, MSc</i> ; <i>Robert I. O'Brien, BS</i> ; <i>Bruce R. McCord, PhD</i> ; <i>Steven B. Lee, PhD</i>

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 <i>Nidhi Sheth, MS*; Harish Swaminathan, PhD; Amanda J. Gonzalez, MS; Ken Duffy, PhD; Catherine M. Grgicak, PhD</i>
11:30 a.m. - 1:00 p.m.	B50	Analyzing the Effect of Cleaning Products on Presumptive Blood Testing Kits <i>Heather Kavaloski*; Adrienne Brundage, PhD</i>
11:30 a.m. - 1:00 p.m.	B51	Recovery of DNA From Surfaces of Handguns: Targeting Relevant Sampling Areas <i>Cynthia Cale, MS*; Jessica Miller, BS; Krista E. Latham, PhD; Erica Cantor, MS; Gay L. Bush, PhD</i>
11:30 a.m. - 1:00 p.m.	B52	STK® Sperm Tracker as a Presumptive Test for Semen Stain Detection <i>Jessica M. McLamb, MS*; Emily R. Cropper, MS; Susannah Kehl, MS; Mark F. Kavlick, PhD</i>
11:30 a.m. - 1:00 p.m.	B53	Practical Applications of a Wet-Vacuum DNA Collection System <i>Jessica M. McLamb, MS*; Mark F. Kavlick, PhD</i>
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 <i>Melissa K.R. Scheible, MS*; Kelly A. Meiklejohn, PhD</i>
11:30 a.m. - 1:00 p.m.	B55	An Evaluation and Comparative Analysis of Rapid DNA Analysis and Direct Amplification <i>Cynthia Cale, MS*; Robin D. Guidry, MS; Courtney Head, MS; Rebecca Ramsey, MS</i>
11:30 a.m. - 1:00 p.m.	B56	Trends of Trace DNA Profiles in Forensic Casework: A Broad Case Study <i>Katrina Welker, BS*; Amber L. Mayfield, BS*; Heather Mills, MS</i>
11:30 a.m. - 1:00 p.m.	B57	Developmental Validation of the Quantifiler™ Trio Assay for the QuantStudio™ 7 Flex System <i>Tracy Ferguson, MS*; Loni Wronka, MS; Rebecca Mitchell, PhD; Rebecca Just, PhD</i>
11:30 a.m. - 1:00 p.m.	B58	Establishing a Regional DNA Database <i>Ryan Gallagher, MS*; Ja'Neisha Hutley, MS; Brian Pfleeger, BS</i>
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 <i>Lauren C. Canale, BS*; Gloria Dimick, MS; Jason Beckert, MS; Mitchell M. Holland, PhD</i>
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 <i>Emily R. Cropper, MS*; Mark F. Kavlick, PhD; Michael D. Coble, PhD</i>
11:30 a.m. - 1:00 p.m.	B61	The Visualization of Seminal Stains on Dark Textiles <i>Victoria Pieczynski, BS*; Celestina D. Rossi; Jorn Chi-Chung Yu, PhD</i>
11:30 a.m. - 1:00 p.m.	B62	Indirect DNA Transfer—A Murder Case With Unexplained DNA Traces on a Spent Cartridge Case <i>Katharina Helm, PhD*; Bettina Dunkelmann, PhD; Stefan Pittner, PhD; Harald J. Meyer; Fabio Carlo Monticelli; Franz Neuhuber, PhD</i>

CRIMINALISTICS

11:30 a.m. - 1:00 p.m.	B63	A Multivariate Statistical Approach for Enhancing Ancestry Prediction From Microhaplotype Data <i>Chiara Della Rocca*, Fabio Oldoni, PhD; Eugenio Alladio, PhD; Andrea Berti, PhD; Filippo Barni, PhD; Fulvio Cruciani, PhD; Daniele S. Podini, PhD</i>
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 <i>Sohee Cho, PhD*; Soong Deok Lee, PhD</i>
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 <i>Megan M. Foley, MSFS*; Mona Pissarreck, BS</i>
11:30 a.m. - 1:00 p.m.	B66	One Swab, Two Uses: Rapid DNA and Conventional DNA Testing <i>Robert I. O'Brien, BS*; Tylor Barnhart, MS*; Becky Carter</i>
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 <i>Shabnam Maharramli, BS*; Tugba Ünsal, PhD; Nurdan Kenan, MS; Kaan Yilancioglu, PhD; Sevil Atasoy, PhD</i>
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 <i>Supawon Srettabunjong, MD*; Pacharaporn Ruksakul, BSc; Pattama Ekpo</i>
11:30 a.m. - 1:00 p.m.	B69	Human Identification From Washed Semen Stains <i>Tugba Ünsal, PhD*; Aysun Gungor, MS; Isil T. Erdogan, MS; Kaan Yilancioglu, PhD; Sevil Atasoy, PhD</i>
11:30 a.m. - 1:00 p.m.	B70	"The Sexome": Identifying Unique Microbial Signatures in Male and Female Pairings <i>Natasha Nye, MS*; Brendan Chapman, BSc*</i>
11:30 a.m. - 1:00 p.m.	B71	The Development of Epigenetic Methylation Markers for Skin/Sweat <i>Nicole Fernandez Tejero, BS*; Quentin T. Gauthier, MSFS; Bruce R. McCord, PhD</i>
11:30 a.m. - 1:00 p.m.	B72	The Evaluation of Degraded Human DNA Samples Using the Illumina® Global Screening Array <i>David Russell, MS*; Carmen R. Reedy, PhD; Elayna Moreithi, MS; Christina Neal, MS; Mary Heaton, MS; Stephen Turner</i>
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 <i>Phillip Irion, BS*; Tina Moroosse, MS; Casey Jelsema, PhD; Robert K. O'Brien, MS</i>
11:30 a.m. - 1:00 p.m.	B74	Venturi Vacuum-Enhanced Collection and Recovery of Touch DNA Samples Coupled With Direct Polymerase Chain Reaction (PCR) for Forensic DNA Typing <i>Joseph M. Rahm, BS*; DeEtta Mills, PhD</i>
11:30 a.m. - 1:00 p.m.	B75	The Success Rate of Rapid DNA Technology in Genealogical Determination in Forensic Science <i>Nasibe Yagmur Kartal, BS*; Shabnam Maharramli, BS; Merve Erdem, BS; Tugba Ünsal, PhD; Kaan Yilancioglu, PhD; Sevil Atasoy, PhD</i>

CRIMINALISTICS

11:30 a.m. - 1:00 p.m.	B76	GlobalFiler® IQC Amplification Kit Validation <i>David Jackson, MS*</i>
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 <i>Kymeri E. Davis, MS*; John V. Goodpaster, PhD</i>
11:30 a.m. - 1:00 p.m.	B78	The Effects of Degradative Stress on Vapor Analysis of Fentanyl <i>Leann Forte, BS*; Kenneth G. Furton, PhD; Lauryn DeGreeff, PhD</i>
11:30 a.m. - 1:00 p.m.	B79	Nuclear Magnetic Resonance (NMR) Spectroscopy as a Tool for the Quantitative Determination of Cannabinoids and Related Compounds in Sugary Beverages <i>Christopher L. Suiter, PhD*; Cheryle Beuning, PhD; Jason A. Widegren, PhD; Tara Lovestead, PhD</i>
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 <i>Ruby E. Liliedahl, BS*; J. Tyler Davidson, PhD</i>
11:30 a.m. - 1:00 p.m.	B81	The Development of Colorimetric Methods for Marijuana Identification Via Mobile Phone Imaging <i>Griffin Cassata*; Brooke W. Kammrath, PhD; Anthony Provatas, PhD; Koby Kizzire, PhD</i>
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) <i>Michelle Wood, PhD*</i>
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) <i>Jerome Mulloor, MS*; Andrea Yarberry, PhD*; Walter Brent Wilson, PhD</i>
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 <i>Tahir Jamshaid, MPhil*; Muhammad Usman, MS; Zahid Mahmood, MPhil; Imtiaz Hussain, MPhil; Abid Naseer, MS; Muhammad Taimoor Chaudhary, MPhil*; Mohammad A. Tahir, PhD</i>
11:30 a.m. - 1:00 p.m.	B85	An Electrochemical Analysis of Fentanyl and Fentalogs Toward a Rapid Screening Assay <i>Natalie Sellnau, BS*; Frederique T. Deiss, PhD</i>
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) <i>Kaitlin Farrell, BS*; Anthony DiDomenico, BS; David Schiering, PhD; Pauline E. Leary, PhD; Brooke W. Kammrath, PhD; Koby Kizzire, PhD</i>
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 <i>Nicholas Gogola, BS*; Peter R. Valentin, MSFS</i>
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 <i>Miquellie B. Bonner*; Ngee-Sing Chong; Mengliang Zhang, PhD*</i>

CRIMINALISTICS

- 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** **The Impact of the Ultraviolet (UV) Region and Plane Polarized Light (PPL) Microspectrophotometry (MSP) in the Characterization and Differentiation of Black Automotive Fibers**
Andra Lewis, MSFS; Patrick Buzzini, PhD*
- 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*
- 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*
- 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**
- 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*; Mariela Marrone, MD*; Francesca Tarantino, MD*; Claudia Perrone, MD; Salvatore Moliterno, MD; Lucia Nardelli; Francesco Vinci, MD**

CRIMINALISTICS

11:30 a.m. - 1:00 p.m.	B101	An Adhesive Analysis of Various Tapes Using Laser-Induced Breakdown Spectroscopy (LIBS) <i>Madeleine Braun*</i> ; 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 <i>Courtney H. Vander Pyl, MS*</i> ; 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 <i>Ting-yu Huang, MS*</i> ; Jorn Chi-Chung Yu, PhD
11:30 a.m. - 1:00 p.m.	B104	Revisiting the Recovery of Defense Sprays From Fabrics <i>Shirly Montero, PhD; Thomas Cahill, PhD; Ringo Preciado*</i> ; 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 <i>Kourtney A. Dalzell*</i> ; Korina Menking-Hoggatt, MS; Colby E. Ott, MS; Tatiana Trejos, PhD; Luis E. Arroyo, PhD
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) <i>Elora C.D. Wall, BS*</i> ; 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 <i>Thomas B. Renegar*</i> ; 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 <i>Keith L. Monson, PhD*</i> ; 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 <i>Alain Beauchamp, PhD*</i>
1:45 p.m. - 2:00 p.m.	B110	Estimating Muzzle-to-Target Distance From the Physical Characteristics of a Bullet Hole <i>Alan Lee, BS*</i> ; 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 <i>Mylène Falardeau, BSc*</i> ; 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

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| 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
<i>Christopher P. Chany, MS*; Thomas R. White, BS*; Rebekah D. Lloyd, BS; Juan A. Rojas, BS</i> |
| 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)
<i>Matteo D. Gallidabino, PhD*; Leon P. Barron, PhD; Céline Weyermann, PhD; Francesco S. Romolo, PhD</i> |
| 3:00 p.m. | - | 3:15 p.m. | B114 | The Reconstruction of Obliterated Serial Numbers in Polymers Using Raman Spectroscopy
<i>Lilian Skokan, BSc*; Cédric Parisien, MSc; Cyril Muehlethaler, PhD; Andreas Ruediger, PhD</i> |
| 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
<i>Shawna F. Gallegos*; Nathaniel Hall, PhD; Paola A. Prada-Tiedemann, PhD</i> |
| 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
<i>Heidi Eldridge, MS*; Marco De Donno, MS*; Christophe Champod, PhD*</i> |
| 3:45 p.m. | - | 4:00 p.m. | B117 | A Field Analysis of Laboratory Case Processing: Latent Print Comparison and Examiner Conclusions
<i>Brett O. Gardner, PhD; Sharon Kelley, JD, PhD; Maddisen Neuman, MA*</i> |

Thursday—Session III

General Biology I

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

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| 9:00 a.m. | - | 9:20 a.m. | B118 | Implementing a Testimony Transcript Review Process
<i>Annalivia Harris, MSc*; Carisa Martinez*</i> |
| 9:20 a.m. | - | 9:35 a.m. | B119 | Clarifying Blood Pool Vocabulary
<i>Rachel A. Johnson, MS*</i> |
| 9:35 a.m. | - | 9:50 a.m. | B120 | A Validation Study of Applied Biosystems™ VeriFiler™ Plus Polymerase Chain Reaction (PCR) Amplification Kit
<i>Jessica M. Esparza, PhD*</i> |
| 9:50 a.m. | - | 10:05 a.m. | B121 | The Development of a Five-Dye Insertion/Deletion (INDEL) Panel for Ancestry Determination
<i>Lucio Avellaneda, BS*; Ryan Gutierrez, BS; Damani Johnson, BS; Bobby Larue, Jr., PhD; Rachel M. Houston, PhD</i> |

CRIMINALISTICS

- 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*

Friday—Session I

MPS and SNPs

Moderator: Harmeet Kaur, PhD
Cuyahoga County Medical Examiner's Office
Cleveland, OH

- 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**

CRIMINALISTICS

- 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 Squazzi, 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*
- 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*
- 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*

CRIMINALISTICS

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 <i>Mary R. Williams, MS*; Michael E. Sigman, PhD; Frances Whitehead, BS</i>
1:15 p.m. - 1:30 p.m.	B141	Validating Fire Debris Classification With Ground Truth Samples <i>Michael E. Sigman, PhD*; Mary R. Williams, MS</i>
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 <i>Jessica Carlotti, BS*; Cynthia J. Kaeser Tran, PhD</i>
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 <i>Michelle Corbally, MS*; Jessica Chappell, PhD; Mary R. Williams, MS; Michael E. Sigman, PhD</i>
2:00 p.m. - 2:15 p.m.	B144	A Chemical Waste Treatment Facility Fire and Explosion <i>Chin Chin Lim*; Michael Ming Kiong Tay; Hui Ying Yvonne Sim</i>
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 <i>Kristen L. Fowble, PhD*; Mark L. Miller, PhD; Jennifer Thomas, PhD; Stephanie Armas; Jason V. Miller, MSFS; Raleigh Parrott II</i>
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 <i>Courtney Cruse, BS*; John V. Goodpaster, PhD</i>
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 <i>Patrick M. Rydzak, PhD*; Kyleen E. Elwick, PhD; James M. Robertson, PhD</i>
3:15 p.m. - 3:30 p.m.	B148	A Population Study of Textile Fibers on Parapets of High-Rise Housing in Singapore <i>Sherni Koh, BS; Vanessa Eng*</i>

CRIMINALISTICS

- 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
- 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** **Criminalistics: A Subcategory Would Be Firearm Examination**
*Theodore V. Vorbuerger, 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
- 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**

CRIMINALISTICS

Potpourri II

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

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| 2:30 p.m. - 2:45 p.m. | B157 | A Characterization of Artificial Fingerprint Samples
<i>Danielle S. LeSassier, PhD*</i> ; <i>Katharina L. Weber, BS</i> ; <i>Kathleen Q. Schulte, MS</i> ;
<i>Benjamin C. Ludolph, BS</i> ; <i>Megan E. Powals, BS</i> ; <i>Brooke Tashner, MS</i> ; <i>Curt Hewitt</i> |
| 2:45 p.m. - 3:00 p.m. | B158 | Artificial Intelligence Applied to Image Quality Metrics of Latent Papillary Impressions
<i>Maryah E.M. Haertel*</i> ; <i>André L. Melo</i> ; <i>Eduardo J. Linhares</i> |
| 3:00 p.m. - 3:15 p.m. | B159 | A Quantitative Reliability Metric (QRM) for Querying Large Databases
<i>Peter de B. Harrington, PhD*</i> ; <i>Zewei Chen, MS</i> ; <i>Vivekananda Shetty, PhD</i> ;
<i>Preshious Rearden, PhD</i> ; <i>Angelica Torres Noyola, BS</i> |
| 3:15 p.m. - 3:30 p.m. | B160 | Improving Our Knowledge of Drug Usage Through the Analysis of Used Injecting Paraphernalia
<i>Eleanor Finch, BS*</i> ; <i>Mark Bartlett, MPH</i> ; <i>Julie Latimer, BN</i> ; <i>Marianne Jauncey, BMed, MPH</i> ;
<i>Ronald Shimmon, PhD</i> ; <i>Marie Morelato, PhD</i> ; <i>Claude Roux, PhD</i> |
| 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
<i>Roehl Marave Cinco, PhD*</i> |
| 3:45 p.m. - 4:00 p.m. | B162 | Methods to Detect Changes in Illicit Product Markets From Routine Forensic Casework
<i>Michael Krause, MS*</i> ; <i>Luke C. Short, PhD</i> ; <i>Samantha M. Leach, MS</i> ;
<i>Morgan M. Levitas, MFS</i> ; <i>Brandon P. Jones, MS</i> |

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 <i>Cole Whitecotton, MSc*; Gretchel Lomboy, MSc; James Zjalic, MSc</i>
9:15 a.m. - 9:30 a.m.	C2	Houston, We Have a Problem: Deepfake Is the Word! <i>Sebastiano Battiato, PhD*; Oliver Giudice, PhD*; Luca Guarnera, MS*</i>
9:30 a.m. - 9:50 a.m.	C3	The Recreation and Visualization of Runtime Objects Relationship From Process Memory Images <i>Aisha Ali-Gombe, PhD*; Golden G. Richard III, PhD</i>
9:50 a.m. - 10:25 a.m.	C4	Performing Mac® Memory Analysis Using Objective-C and Swift Data Structures <i>Modhuparna Manna, BTech*; Andrew Case, MS; Golden G. Richard III, PhD</i>
10:25 a.m. - 10:40 a.m.	C5	AI-Based Audio Enhancement May Cause False Evidence <i>Eddy B. Brixen, BA*</i>
10:40 a.m. - 10:55 a.m.	C6	Connected Objects (Internet of Things [IoT]) as Crime Witnesses <i>Manon Fischer, MS*</i>
10:55 a.m. - 11:10 a.m.	C7	Enhancing Child Pornography Offender Risk Assessment Using Digital Forensics Artifacts <i>Marcus Rogers, PhD*; Kathryn C. Seigfried-Spellar, PhD; Sienna J. Bates, BS; Kayla Rux</i>
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 <i>Jenise Reyes-Rodriguez, BS*; Barbara Guttman, BA*; Richard Ayers, MS*</i>
11:25 a.m. - 12:00 p.m.	C9	An Initial Forensic Analysis of Sailfish OS <i>Krassimir Tzvetanov, MS*; Umit Karabiyik, PhD</i>

Analysis III & Multimedia I

1:00 p.m. - 1:20 p.m.	C10	An Analysis of Audio Recordings Made Using the Voice Recorder Application on Android™ Phones <i>Gina DeAngelis*; Jeff M. Smith, MS; Catalin Grigoras, PhD; Marcus Rogers, PhD</i>
1:20 p.m. - 1:35 p.m.	C11	A Forensic Analysis of Digital Speech Standard (DSS) Files <i>Catalin Grigoras, PhD*; Cole Whitecotton, MSc; Jeff M. Smith, MS; Douglas S. Lacey, MS; Bruce E. Koenig, MFS; James Zjalic, MSc</i>
1:35 p.m. - 1:55 p.m.	C12	Data Decryption of Android™ Third-Party Private Messaging Apps: A Case Study <i>Lyndsay Haak, BS*; Josh Brunty, MS*</i>

DIGITAL & MULTIMEDIA SCIENCES

1:55 p.m. - 2:05 p.m.	C13	A Forensic Analysis of Joker-Enabled Android™ Malware Apps <i>Chen Shi, MS*; Chao-Chun Cheng; Yong Guan, PhD*</i>
2:05 p.m. - 2:20 p.m.	C14	Examining the Impact of Garbage Collection and Process States in Userland Memory Forensics <i>Sneha Sudhakaran, MTech*; Aisha Ali-Gombe, PhD; Golden G. Richard III, PhD</i>
2:20 p.m. - 2:40 p.m.	C15	An Analysis of Acquisition Methods of Ring Video Doorbell Files <i>Brandon Epstein, BS*; Bertram Lyons, MA*; Walter Bruehs, MS*</i>
2:40 p.m. - 3:20 p.m.	C16	A Study on Unmanned Aircraft Systems Forensics Framework (UAS FFWK) <i>Nagi Mei, DSc*</i>
3:20 p.m. - 3:40 p.m.	C17	A Response to the Threat of Stegware <i>Li Lin*; Abby Martin, BA*; Wenhao Chen, BS; Seth H. Pierre; Yong Guan, PhD; Jennifer Newman, PhD*</i>
3:40 p.m. - 4:00 p.m.	C18	The Use of 3D Injury Maps and the Effects of Different Visual Presentation Formats <i>Sophena S. Wilson, MS*</i>

Friday

Multimedia II & Resources I

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 <i>Lam D. Nguyen, MS*; David Brian Marks, MS*; Richard Vorder Bruegge, PhD</i>
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 <i>Marla E. Carroll, BS*; Lora Sims*; Julie A. Carnes; Richard Vorder Bruegge, PhD</i>
9:40 a.m. - 9:55 a.m.	C21	An Analysis of Body-Worn Camera Photogrammetry Using Depth Mapping <i>Toby M. Terpstra*; William T. Neale, MArch; Tomas Owens, BFA; Eric King, BA; Steven Beier, MS; Tilo Voitel</i>
9:55 a.m. - 10:10 a.m.	C22	Determining Range of Certainty in Photogrammetry and Videogrammetry <i>Toby M. Terpstra*; William T. Neale, MArch; Eric King, BA; Alireza Hashemian, MS; David Hessel, BS</i>
10:10 a.m. - 10:25 a.m.	C23	Computer Forensics Reference Data Sets (CFReDS v2.0) for Digital Evidence <i>Richard Ayers, MS*; Mehdi Shahid, MS*</i>
10:25 a.m. - 10:50 a.m.	C24	Using Rapid Differential Forensics Algorithm to Speed Transmission of Large Files Around the World <i>Mark D. Guido, MS*; Rob H. Schmicker, BS; Brandon Adler, MS; Tristan Fletcher, BS</i>

DIGITAL & MULTIMEDIA SCIENCES

10:50 a.m. - 11:05 a.m.	C25	A Comparative Analysis of Mobile Forensic Tools: Reliability and Accuracy Related to iOS® 13 Notes App Forensic Evidence Recognition and Classification <i>Tanvi Gandhi, BS*; Marcus Rogers, PhD</i>
11:05 a.m. - 11:25 a.m.	C26	Looking Into Your Future: A Continuous Human Gait Prediction for the Near Future <i>Amin Fallahi, BS*; Diksha Shukla, PhD; Vir V. Phoha, PhD</i>
11:25 a.m. - 11:40 a.m.	C27	A Holistic Framework for Investigating Geospatial Data in Cyber Forensics <i>Mohammad M. Mirza, MS*; Umit Karabiyik, PhD</i>
11:40 a.m. - 12:00 p.m.	C28	Crowdsourcing Forensics: Generating a Digital Artifact Catalog <i>Lam D. Nguyen, MS*; Eoghan Casey, PhD*</i>

Poster Session

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

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 <i>Sonoka Okura, BE*[*]; Yasumi Ito, PhD; Yuki Kunugi; Yasuyuki Takano; Tatsuya Fukuoka, ME; Ryuichi Yamada; Yoshiyuki Kagiya, PhD; Tetsuya Nemoto, PhD</i>
11:30 a.m. - 1:00 p.m.	D2	A Novel, Data-Driven Approach to the Classification of Bloodstain Patterns <i>Tong Zou, MS*[*]; Hal S. Stern, PhD*[*]</i>
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) <i>Walter Brent Wilson, PhD*[*]; Maryam Abdur-Rahman</i>
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 <i>Elsie Beales, BSc*[*]; Almantas Pivrikas, PhD; Paola A. Magni, PhD</i>
11:30 a.m. - 1:00 p.m.	D5	Forensic Investigative Issues in a Fireworks Production Factory Explosion <i>Gennaro Baldino, MD*[*]; Cristina Mondello, MD, PhD; Chiara Stassi, MD; Antonio Bottari, MD; Elvira Ventura Spagnolo, MD, PhD</i>
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) <i>Nicholas Sharp, PhD*[*]; Ruthmara Corzo, PhD; Jamie L. Weaver, PhD; Blaza Toman, PhD; Maria Martinez, PhD; Eric B. Steel; Jose R. Almirall, PhD</i>
11:30 a.m. - 1:00 p.m.	D7	Portable Dynamic Vapor Microextraction for Forensic and Environmental Field Studies <i>Adam J. Friss, PhD*[*]; Adam J. Broerman, BS; Megan Harries, PhD; Tara Lovestead, PhD</i>
11:30 a.m. - 1:00 p.m.	D8	A Fatal Hyperbaric Treatment Explosion Investigation Incorporating Engineering Simulations With Verification and Validation <i>Clarence B. Kemper III, BS*[*]</i>

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 <i>Paul J. Ippoliti*[*]; Jeffrey Werlich; Dennis Hardy; Cami Fuglsby, MS; Christopher Yarnes; Christopher P. Saunders, PhD; Josh Dettman, PhD</i>
1:15 p.m. - 1:35 p.m.	D10	Examining the Repeatability and Reproducibility of the Heat Release Rate (HRR) From Upholstered Furniture <i>Daniel Madrzykowski, PhD*[*]</i>

1:35 p.m.	-	1:55 p.m.	D11	Using Object Detection to Obtain Flame Height From Experimental Video and Evaluate Predictive Models <i>Joseph Willi, MS*</i>
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 <i>David R. Bosch, PhD*; Mark C. Pozzi, MS*; Paul Renfro Lewis, Jr., MS*; Kenneth J. Saczalski, PhD; Parris Ward, JD</i>
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 <i>Mark C. Pozzi, MS*; David R. Bosch, PhD*; Paul Renfro Lewis, Jr., MS*; Kenneth J. Saczalski, PhD*; Parris Ward, JD</i>
2:35 p.m.	-	2:50 p.m.	D14	Reconstructing Energy Data From Faulty Electric Energy Meters: Mission Impossible? <i>Alessandro M. Ferrero, MSc*; Veronica Scotti, JD</i>
2:50 p.m.	-	3:05 p.m.	D15	Home Accessibility Modifications Necessary for a Man With a Cervical Spine Injury <i>Robert Dale Lynch, BArch*</i>
3:05 p.m.	-	3:25 p.m.	D16	The Biomechanics of Head and Brain Injury <i>John D. Lloyd, PhD*</i>
3:25 p.m.	-	3:45 p.m.	D17	The Curious Case of Asbestos Disease Among Dental Technicians <i>James Millette, PhD*</i>

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 <i>Zygmunt M. Gorski, BA*</i>
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? <i>Rachel L. Pozzi, MS*; Mark C. Pozzi, MS*; David R. Bosch, PhD; Kenneth J. Saczalski, PhD; Parris Ward, JD; Anne Egelston, PhD</i>
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 <i>Kurt D. Weiss, MS*</i>
10:00 a.m.	-	10:30 a.m.	D21	Automotive Defect Case Studies Exemplifying Agency Capture of the National Highway Traffic Safety Administration (NHTSA) <i>Rachel L. Pozzi, MS*; Mark C. Pozzi, MS*; David R. Bosch, PhD*; Kenneth J. Saczalski, PhD*; Parris Ward, JD; Anne Egelston, PhD</i>

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 <i>Rojin Belganeh*</i>
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 <i>Sarah V. Hainsworth, PhD*</i> ; <i>Patrick H. Geoghegan, PhD</i> ; <i>Guy N. Rutty, MD</i> ; <i>Michael E. Fitzpatrick, PhD</i>
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 <i>Rachel L. Pozzi, MS*</i> ; <i>Mark C. Pozzi, MS*</i> ; <i>David R. Bosch, PhD</i> ; <i>Kenneth J. Saczalski, PhD</i> ; <i>Parris Ward, JD</i> ; <i>Anne Egelston, PhD</i>
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 <i>Mark I. Marpet, PhD, PE*</i>
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 <i>Mark I. Marpet, PhD, PE*</i>

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 <i>Kavita M. Jeerage, PhD*</i> ; <i>Megan Harries, PhD</i> ; <i>Adam J. Friss, PhD</i> ; <i>Tara Lovestead, PhD</i>
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) <i>Walter Brent Wilson, PhD*</i>
1:45 p.m. - 2:00 p.m.	D29	A Quantitative Assessment of Last Words Using Suicide Note Assessment REsearch (SNARE) <i>Cristina Aggazzotti, PhD*</i>
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 <i>Angela Almela, PhD*</i>
2:15 p.m. - 2:35 p.m.	D31	Deception Data, Mindset, and Validation Testing <i>Carole E. Chaski, PhD*</i>
2:35 p.m. - 3:05 p.m.	D32	Detecting Linguistic Markers of Religious Extremism in Religious Mosque Sermons: A Case Study of Pakistan <i>Mariam Dar, PhD*</i>
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 <i>John Nixon, MBA*</i>

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 <i>Lauryn DeGreeff, PhD*</i> ; <i>Christopher J. Katilie</i> ; <i>Ryan F. Johnson, PhD</i>
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 <i>Morgan J. Ferrell, MA*</i> ; <i>John J. Schultz, PhD</i>
9:30 a.m. - 9:45 a.m.	E3	Classification of Tires Using Elemental Fingerprinting <i>John Lucchi, BS*</i> ; <i>Dan Gluck</i> ; <i>Larry Tang</i> ; <i>Matthieu Baudelet, PhD</i>
9:45 a.m. - 10:00 a.m.	E4	Sparse Modeling for the Classification of Evidence From Spectral Data <i>Dayla C. Rich, BS*</i>
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 <i>John Z. Wang, PhD*</i>
10:30 a.m. - 10:45 a.m.	E6	An Initial Investigation Into the Effects of Lacquered Ammunition on Toolmark Transfer <i>Nicole Marie Groshon, MS*</i>
10:45 a.m. - 11:00 a.m.	E7	Mitigating Entomological Hazards in Scene Investigation <i>Michelle R. Sanford, PhD*</i>
11:00 a.m. - 11:15 a.m.	E8	A Temporal and Spatial Analysis of Firearm Deaths in Harris County, Texas: 2009–2020 <i>Stacy A. Drake, PhD*</i> ; <i>Ned Levine, PhD</i> ; <i>Nimesh Chandrakant Shah, MPH</i> ; <i>Alicia Medina, BS</i> ; <i>Yijiong Yang, BM, MHA</i> ; <i>Dwayne A. Wolf, MD, PhD</i>
11:15 a.m. - 11:30 a.m.	E9	Getting Unstuck on Tape Testing <i>Leslie Parke, BS*</i> ; <i>Kathleen Q. Schulte, MS</i> ; <i>Curt Hewitt</i>

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 <i>Kewal Krishan, PhD*; Michael S. Nirenberg, DPM</i>
9:15 a.m. - 9:30 a.m.	E11	Forensic Gait Analysis—Scientific Foundations, Applications, and a Case Study <i>Michael S. Nirenberg, DPM*</i>
9:30 a.m. - 9:45 a.m.	E12	Variation in Plantar Pressure Distribution Among Different Body Mass Index (BMI) Categories: Forensic Implications <i>Richa Mukhra, MSc; Kewal Krishan, PhD*</i>
9:45 a.m. - 10:00 a.m.	E13	Footprint Analysis: Data From North India Study Suggests New Features for Individualization and Biologic Profiling <i>Kewal Krishan, PhD*; John A. DiMaggio, DPM; Michael S. Nirenberg, DPM</i>
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 <i>Katie Swift, MSN*; Jessica Volz, DNP*</i>
10:30 a.m. - 10:45 a.m.	E15	Johannesburg Identification Unit: Identifying the Unidentified Deceased at a South African Medicolegal Mortuary <i>Craig A. Keyes, MS*; Trisha-Jean Mahon, MSc; Allison Gilbert, MSc</i>
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 <i>Eleonora Valentinuz*; Davide Radaelli; Serena Lecis; Alessandro Manfredi; Lara Consoloni; Martina Montanaro, MD; Martina Zanon, MD; Paolo Fattorini</i>
11:00 a.m. - 11:15 a.m.	E17	Murder on the Cruise: The Kanesaki Micki Case and the Scientific Evidence Found <i>Pietrantonio Ricci, PhD*; Isabella Aquila, MD, PhD*</i>
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 <i>Cliff Akiyama, MPH, MA*</i>

Thursday—Session I

Crime Scene Investigation III

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

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| 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
<i>John Male Paolucci, BS*</i> |
| 9:30 a.m. - 9:45 a.m. | E20 | Biomechanical Assessment of Various Punching Techniques
<i>Peter Hofer, MD*; Jiri Adamec; Stefan Pittner, PhD; Fabio Carlo Monticelli; Matthias Graw; Jutta Schoepfer</i> |
| 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
<i>Gabrielle E. DiEmma, BS*; Jillian Conte, PhD; Kimberlee Sue Moran, MSc; Karen S. Scott, PhD</i> |
| 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

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| 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
<i>Rebecca Shute, MS*; Michael Russ, MS*; Prem Rachakonda, MS; William Henningsen, BS; Bryon O'Neil, MBA; Lance Miller, BS; Jeri D. Roper-Miller, PhD</i> |
| 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
<i>Katherine N. Scafide, PhD*; Nancy R. Downing, PhD*; Matthew J. Hayat, PhD; Daniel J. Sheridan, PhD; Nesibe Kutahyaloglu, MS</i> |
| 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
<i>Meghan Appley, MS*; Rabi A. Musah, PhD</i> |
| 11:00 a.m. - 11:15 a.m. | E25 | Seeing vs. Knowing: Overcoming the Brain's Filters to Render Realistic Forensic Sketches
<i>Sharon K. Moses, PhD*</i> |
| 11:15 a.m. - 11:30 a.m. | E26 | Biological Evidence in Sexual Violence Cases
<i>Sila Aslan; Mete K. Gulmen, PhD, MD*; Kenan Kaya</i> |



GENERAL

- 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** **Utilizing the National Missing and Unidentified Persons System (NamUs) to Resolve Missing, Unidentified, and Unclaimed Person Cases**
*Bobbie B.J. Spamer, MS**
- 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** **Officer-Involved Shootings (OIS) ... Premature Conclusions**
*Rod Englert, BS**

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

GENERAL

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

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 Endouterine 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**

Forensic Education

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

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| 1:00 p.m. - 1:15 p.m. | E70 | Comparing Virtual Tools for Investigator Training
<i>Katherine Ramsland, PhD*</i> |
| 1:15 p.m. - 1:30 p.m. | E71 | Pushing the Bounds of Virtual Education: The Creation of an Interactive, Virtual Forensic Serology Lab
<i>Catherine Cupples Connon, PhD*</i> |
| 1:30 p.m. - 1:45 p.m. | E72 | Assessing the Impact of Using Virtual Reality as a Training Tool Compared to Role-Play Simulation in the Forensic Management of the Dead Training
<i>Xuan Wei, MA; Kristy A. Winter, MS; Pierre M.M. Guyomarc'h, PhD; Ivett Kovari, PhD; Laurel Clegg, MSc; Sherry C. Fox, PhD; Melissa Kiehl, MA; Bilal Sabloun, MD; Christian Rouffaer, MS; Oran Finegan, MSc*</i> |
| 1:45 p.m. - 2:00 p.m. | E73 | Create Virtual Tours Using Google® Tour Creator for Remote Instruction
<i>Gina Londino-Smolar, MS*</i> |
| 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
<i>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</i> |
| 2:15 p.m. - 2:30 p.m. | E75 | Enriching the Forensic Science Curriculum Through a Guided Study Abroad Experience
<i>Kimberlee Sue Moran, MSc*; Karen S. Scott, PhD</i> |
| 2:30 p.m. - 2:45 p.m. | | Break |

Forensic Education & Lab Management

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

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

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 <i>Erin P. Koester, MS*; Joshua Mayo, MSFS*; William B. Andrews, MFS</i>
9:15 a.m. - 9:30 a.m.	E82	A Case of Suicidal Hanging or Accidental Asphyxiophilia? A Case Discussion <i>Sarah Hinnawi, MD*; Ganesh Patil, MBBS</i>
9:30 a.m. - 9:45 a.m.	E83	The Impact of COVID-19 on Medicolegal Death Investigations: The Challenges, Strategies, and Lived Experiences During the Early Days of the Coronavirus Pandemic <i>Vienna C. Lam, MA*; Sheryl C. Fabian, PhD; Gail S. Anderson, PhD</i>
9:45 a.m. - 10:00 a.m.	E84	Managing COVID-19-Related Death in Ibadan: The Human Angle Narratives of a Forensic Pathologist <i>Uwom O. Eze, MD*</i>
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 <i>Christopher Ramos, MD*; Abigail J. Grande, MPH; Prentiss Jones, Jr., PhD; Joseph A. Prahlow, MD; Theodore T. Brown, MD</i>
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 <i>Luigi Papi; Sara Turco, MD*; Fabio Stefanelli; Silvio Chericoni; Claudia Giaconi, MD; Matteo Scopetti, MD; Alessandro Santurro, MD</i>
10:45 a.m. - 11:00 a.m.	E87	A Longitudinal Evaluation of Death Investigation of Elder Abuse and Neglect Deaths <i>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</i>
11:00 a.m. - 11:15 a.m.	E88	A Unique Case of Postmortem Manipulation Artifact Mimicking Homicidal Violence <i>Brett E. Harding, MBA*; Jennifer Corneal, MD; Tiffany R. Brown</i>
11:15 a.m. - 11:30 a.m.	E89	Deceiving Appearance: Death Due to the Use of the Novel Psychoactive Substance Bromazepam <i>Anita Roman Hasert, BS*</i>

Thursday

Conviction Integrity: Causes of and Cures for Wrongful Convictions

Moderator: Kevin Riach, JD
Fredrikson & Byron, PA
Minneapolis, MN

Co-Moderator: Daniel G. Martin, JD
Superior Court of Arizona
Phoenix, AZ

- 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

Co-Moderator: Sheri H. Mecklenburg, JD
Northern District of Illinois
Chicago, IL

- 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? <i>Kelly A. Grimsley, MFS*; Ismail M. Sebetan, MD, PhD*; Paul Stein, PhD*</i>
11:30 a.m. - 1:00 p.m.	F10	A Double Truth: When Scientific and Judicial Conclusions Are Divergent <i>Michela Ferrara, MD*; Mariarosaria David, MD, PhD; Stefania De Simone, MD*; Francesca Maglietta, MD*; Giuseppe Bertozzi, MD*; Santina Cantatore; Luigi Cipolloni, MD, PhD</i>
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 <i>Katherine A. Roberts, PhD*; Paula Mitchell, JD; Nikki Herst-Cook, JD; Mehul B. Anjaria, MS</i>
11:30 a.m. - 1:00 p.m.	F12	The Application of Virtual Reality in Forensic Science <i>Jeff Cheng-Lung Lee, PhD*; Yuan Fang; Cheng Te Kuo; Szu Hao Lee</i>

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 <i>Allison Lewis, JD*</i>
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”? <i>John D. Schmid, JD*</i>
1:35 p.m. - 1:55 p.m.	F15	Ineffective Assistance of Counsel in DNA Cases: Lawyers and Judges Don’t Get It <i>Albert (Buzz) E. Scherr, JD*</i>

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 <i>Andrew Singer*</i>
2:10 p.m. - 2:35 p.m.	F17	The Implementation of Rapid DNA: Prevent Tomorrow’s Victim <i>Frederick Harran, MS*</i>
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>

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 |

Wednesday

Poster Session

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*

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 Fieuws; 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 <i>Yea Lee Shu, MSc*; Jannick De Tobel, PhD; Chen Jun, MSc; Steffen Fieuws; Patrick W. Thevissen, PhD</i>
2:45 p.m. - 3:00 p.m.	G12	The Identification of Fiery Highway Crash Remains <i>Robert C. Walcott, DDS*</i>
3:00 p.m. - 3:15 p.m.	G13	The Application of an Intraoral Scanner to Identify Monozygotic (MZ) Twins <i>Botond Simon, DMD*; Janos Vag</i>
3:15 p.m. - 3:45 p.m.	G14	Postmortem Anterior Tooth Loss and Time Since Death <i>Susan J. Baker, DMD*; Murray K. Marks, PhD; James M. Lewis, DMD</i>

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 <i>Richard R. Souvion, DDS*; Leslie A. Haller, DMD*</i>
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 <i>Fatemah Alkandiri*; Anfal Karimi, MS; Derek M. Draft, DDS; Victoria S. Lucas, PhD; Graham J. Roberts, MDS</i>
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 <i>Salem Altalie, FACLM; Cezar Capitaneanu, DMD, PhD*</i>
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 <i>Jayakumar Jayaraman, PhD*; Maria-Jose Mendez Cervantes, MS; Peter Thiuri Gakunga, PhD; Graham J. Roberts, MDS</i>
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) <i>Jannick De Tobel, PhD; Dana A. Ahmed, MSc*; Maria L. Clarke, DDS; Patrick W. Thevissen, PhD</i>
2:45 p.m. - 3:00 p.m.	G20	First Molar-to-Tooth-Length Ratios in Age Estimation <i>Ashith B. Acharya, BDS*</i>
3:00 p.m. - 3:15 p.m.	G21	An Evaluation of Cameriere's Tooth Development Measurements on Panoramic Radiographs and the Effect on Related Age Prediction <i>Debora Hürter, DMD*; Jannick De Tobel, PhD; Patrick W. Thevissen, PhD; Anca R. Iliescu, DMD; Yea Lee Shu, MSc; Steffen Fieuws; Maria L. Clarke, DDS; Chen Jun, MSc; Pierre Lahoud, DDS</i>
3:15 p.m. - 3:30 p.m.	G22	Demirjian's Dental Age Estimation Using Third Molars: A Systematic Review <i>Tanuj Kanchan, MD*; Rutwik D. Shedde, MSc; Arun K. Patnana, MDS; Kewal Krishan, PhD</i>

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 <i>Celeste Santos Martins, MD*; Joseph A. Felo, DO</i>
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 <i>Paulyann Macclayton, MD*; Merrill O. Hines III, MD</i>
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 <i>Steven C. Gabaeff, MD*</i>
9:15 a.m.	-	9:30 a.m.	H4	Fatal Systemic (Paradoxical) Air Embolism Diagnosed by Postmortem Funduscopy <i>Lucy Bradley*; Anna G. McDonald, MD; Patrick E. Lantz, MD</i>
9:30 a.m.	-	9:45 a.m.	H5	The Aftermath of Abusive Head Trauma: A Unique Pediatric Disease <i>Rudy J. Castellani, MD*; Brittany Erskine, BS; Carl J. Schmidt, MD; Joyce L. deJong, DO; Amanda O. Fisher-Hubbard, MD</i>
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 <i>Marwil C. Pacheco, MD; Terri Mason, MD; Ashley E. Mathew, MD*; Donna Marlowe Stewart, MD</i>
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 <i>Sterling McLaren, MD*; Ian J. Puffenberger, MD; Meredith A. Frank, MD; James Louis Caruso, MD</i>
10:30 a.m.	-	10:45 a.m.	H8	Infant Deaths Associated With Methamphetamine Exposure: A Case Series <i>Khusbu Patel, BA*; Abigail J. Grande, MPH; Elizabeth A. Douglas, MD; Amanda O. Fisher-Hubbard, MD</i>
10:45 a.m.	-	11:00 a.m.	H9	The Recent Outbreak of Bupropion Use in Cook County, Illinois <i>Lorenzo Gitto, MD*; Ponni Arunkumar, MD; Daniel S. Isenschmid, PhD; Alex J. Krotulski, PhD; Serenella Serinelli, MD, PhD*</i>

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*
- 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* (Wiedmann) (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 <i>Maura DeJoseph, DO; Christina M. Schock, MS; Donald Turbiville, MD; James R. Gill, MD*</i>
2:15 p.m. - 2:30 p.m.	H28	A COVID-19 Profile in Mumbai City, India, With a Humanitarian Forensic Aspect <i>Manoj Bhausaheb Parchake, MD*</i>
2:30 p.m. - 2:45 p.m.	H29	Suicide Analysis in the Time of COVID-19 in Orange County, California <i>Kelly Keyes, BS*</i>
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 <i>Hans H. de Boer, MD, PhD*; Romy Du Long, MD; Judith Fronczek; Johannes W.M. Niessen, MD, PhD; Allard van der Wal, MD, PhD</i>
3:00 p.m. - 3:15 p.m.	H31	Evaluating Small Vessel Neutrophils as a Marker for Systemic Infection <i>Zuzanna Gorski, MD*; Chris Milroy, MD, LLB; Jacqueline L. Parai, MD</i>
3:15 p.m. - 3:30 p.m.	H32	Non-Skeletal Injuries Related to Cardiopulmonary Resuscitation (CPR): An Autopsy Study <i>Fabiola Righi, DO*; Peter T. Lin, MD</i>
3:30 p.m. - 3:45 p.m.	H33	Extracorporeal Membrane Oxygenation (ECMO) in the Forensic Setting: A Series of 19 Forensic Cases <i>Andrew J. Layman, MD*; Peter T. Lin, MD</i>
3:45 p.m. - 4:00 p.m.	H34	Postmortem Changes of Female External Genitalia and Their Importance in Suspected Sexual Abuse <i>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</i>

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 <i>Tabitha Ward, MD*; Varsha Podduturi, MD; Pramod Gumpeni, MD</i>
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 <i>Marcella F. Fierro, MD*</i>
9:30 a.m. - 9:45 a.m.	H37	Excited Delirium Unassociated With Police Involvement <i>Katherine F. Maloney, MD*</i>
9:45 a.m. - 10:00 a.m.	H38	Paschen's Law and Electrical Burns <i>Mark E. Goodson, PE*; William Steward, BS</i>

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. Ratty, 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 <i>Keenan Boulnemour, BS*;</i> 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 <i>Adam Jimenez*;</i> 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 <i>Sean M. Reid, BS*;</i> Tiffany O'Neill, DO; Jerri McLemore, MD
11:30 a.m. - 1:00 p.m.	H53	Embolization of Radically Invasive Projectiles (R.I.P.®) <i>Richard Morris, MD*;</i> 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 <i>Giampiero Bottari*;</i> 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 <i>Serenella Serinelli, MD, PhD*;</i> 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 <i>Natalia Belova*;</i> Zabiullah Ali, MD; Andrew Rohrer
11:30 a.m. - 1:00 p.m.	H57	Self-Immolation in a Dumpster <i>Wendy M. Gunther, MD*;</i> Gary Zientek, MD
11:30 a.m. - 1:00 p.m.	H58	Pre-Pandemic Trends in Suicide: New Mexico, 2009–2018 <i>Karen Zeigler, DO*;</i> 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 <i>Giuseppe Bertozzi, MD*;</i> 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 <i>Matteo A. Sacco, MD*;</i> 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 <i>Salvatore Roccuzzo, MD*;</i> 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 <i>Ozgenur K. Tok, MD;</i> 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 <i>Sara Lo Pinto, MD*;</i> 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 <i>Samuel J. Farris, BS*;</i> Joseph A. Prahlow, MD

PATHOLOGY/BIOLOGY

11:30 a.m. - 1:00 p.m.	H65	Cassowary Fatally Attacks Its Owner <i>Nanny Wenzlow, DVM, PhD*; William F. Hamilton, MD</i>
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? <i>Nilesh Keshav Tumram, MD*</i>
11:30 a.m. - 1:00 p.m.	H67	A Quantitative Investigation of Diatom Dispersion in Lung Tissue of Confirmed Drowning Incidents <i>Dominik Hagen, BS*; Astrid Obermayer; Walter Stoiber; Walther Gotsmy; Fabio Carlo Monticelli; Stefan Pittner, PhD</i>
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 <i>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*</i>
11:30 a.m. - 1:00 p.m.	H69	An Unusual Presentation of Asphyxia Due to Choking <i>Alexis Jelinek*; Craig T. Mallak, JD, MD; Darin Trelka, MD, PhD; Rebecca MacDougall, MD</i>
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 <i>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</i>
11:30 a.m. - 1:00 p.m.	H71	An Unusual Hospital Asphyxiation: Death From the Incorrect Administration of Nitrous Oxide (N₂O) <i>Stefania De Simone, MD*; Francesca Maglietta, MD*; Michela Ferrara, MD*; Giuseppe Bertozzi, MD*; Benedetta Baldari, MD; Alessandra Torsello*; Luigi Cipolloni, MD, PhD*</i>
11:30 a.m. - 1:00 p.m.	H72	Exsanguination Due to Urethral Laceration <i>Hae-Sun La*; Tanner Bartholow, MD; Todd M. Luckasevic, DO</i>
11:30 a.m. - 1:00 p.m.	H73	Neuropathologic Findings in Fatal Silicone Embolism Syndrome: Potential Contributions to Cause of Death <i>Sarah C. Thomas, MD*; Michelle Stram, MD; Rebecca Folkerth, MD</i>
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? <i>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*</i>
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) <i>Angelina I. Phillips, MD*; James Madory, DO; S. Erin Presnell, MD</i>
11:30 a.m. - 1:00 p.m.	H76	Acute Infectious Esophagitis: Three Cases With Variable Etiologies <i>Keenen Smith, MS*; Lauren R. Crowson-Hindman, DO*; Angelina I. Phillips, MD*</i>
11:30 a.m. - 1:00 p.m.	H77	Medullary Thyroid Carcinoma (MTC) With Diabetic Ketoacidosis: An Autopsy Case Report and Literature Review <i>Harin Cheong*; Hyun Lyong Koo</i>

PATHOLOGY/BIOLOGY

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

PATHOLOGY/BIOLOGY

11:30 a.m. - 1:00 p.m.	H91	Death From Peritonitis Due to Multiple Intestinal Perforations: Approaching a Case of Advanced Tuberculosis (TB) <i>Federico Manetti, MD*; Vittorio Gatto, MD; Matteo Scopetti, MD; Alessandro Santurro, MD; Martina Padovano, MD; Paola Frati, PhD; Vittorio Fineschi, MD, PhD</i>
11:30 a.m. - 1:00 p.m.	H92	The Dentist's Nightmare: A Case of Massive Left Ventricular Infarction After Dental Implantation <i>Martina Padovano, MD*; Matteo Scopetti, MD; Federico Manetti, MD; Alessandro Santurro, MD; Paola Frati, PhD; Vittorio Fineschi, MD, PhD</i>
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 <i>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*</i>
11:30 a.m. - 1:00 p.m.	H94	Sudden Death Due to Takayasu Arteritis: A Case Report <i>Manoj Bhausaheb Parchake, MD*</i>
11:30 a.m. - 1:00 p.m.	H95	Subcapsular Hepatic Hematoma in a Pregnant Woman With No Prenatal Care: A Case Report <i>Suzi Dodt, BS*; John X. Hu, MD, PhD*</i>
11:30 a.m. - 1:00 p.m.	H96	A Case of Fatal Hemorrhage During Pregnancy <i>Lauren Lippincott, DO*</i>
11:30 a.m. - 1:00 p.m.	H97	A Sudden Pediatric Death: A Case of Asymptomatic Muscular Dystrophy <i>Sara Beardsley, BS*; Avneesh Gupta, MD; Kathryn McFadden, MD; Sarah E. Avedschmidt, MD</i>
11:30 a.m. - 1:00 p.m.	H98	Sudden Death After Bounce House Activities: A Late Complication of Congenital Diaphragmatic Hernia (CDH) <i>Kendall Smith, BA*; Brandy Shattuck, MD; James Elliott</i>
11:30 a.m. - 1:00 p.m.	H99	Intraosseous Puncture-Induced Bone Fractures Mimicking Child Abuse: A Case Report <i>Xin Zhang, MD*; Matthew Wanner, MD; Dominique Battles; Christopher Poulos, MD</i>
11:30 a.m. - 1:00 p.m.	H100	Pediatric Cylindrical Battery Ingestion Causing Fatal Aorto-Esophageal and Pulmonic-Esophageal Fistulae <i>Robin Moiseff, MD*; Kendall V. Crowns, MD</i>
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 <i>Melissa Menard*; Christopher Glen Ball, MBBS, MScEng; Andrew Williams, MD; Kona Williams, MD</i>
11:30 a.m. - 1:00 p.m.	H102	A Molecular Autopsy by Exome Sequencing in a Decedent With Suspected Genetic Cerebral Small Vessel Disease <i>Nicole A. Croom, MD*; Daniel Vincent Sullivan, MD, MA; Eric Huang, MD, PhD; Ellen Moffatt, MD; Walter P. Devine, MD, PhD</i>
11:30 a.m. - 1:00 p.m.	H103	Retinal Hemorrhages (RH) in a 6-Month-Old Child Related to Disseminated Intravascular Coagulation <i>Maria E. Magidenko, BA*; Amanda O. Fisher-Hubbard, MD; Joseph A. Prahlow, MD; Theodore T. Brown, MD</i>

PATHOLOGY/BIOLOGY

11:30 a.m. - 1:00 p.m.	H104	Death in the Water? Not Always Drowning! <i>Massimiliano Esposito, MD*; Francesco Sessa, MS, PhD; Stefano D'Errico, MD, PhD</i>
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 <i>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*</i>
11:30 a.m. - 1:00 p.m.	H106	Hand Sanitizer Ingestion Leads to Lethal Methanol Toxicity <i>Catherine Nicka*; Lauren E. Dvorscak, MD</i>
11:30 a.m. - 1:00 p.m.	H107	No Laughing Matter: Deaths Associated With Chronic Nitrous Oxide (N₂O) Abuse <i>Justin Rueckert, DO*; Vickie Willoughby, DO; Min Wang, MD, PhD</i>
11:30 a.m. - 1:00 p.m.	H108	A Case Series of Cyanide Poisoning: A Rising Trend <i>Cemyigit Deveci, MD*; Mehmet Atilgan; Refik Akman, MD</i>
11:30 a.m. - 1:00 p.m.	H109	Black Esophagus and Fatal Cocaine Intoxication: An Unusual Combination <i>Alessandro Manfredi*; Diana Bonuccelli, MD; Laura Giusti, MD; Martina Zanon, MD; Davide Radaelli; Martina Montanaro, MD; Stefano D'Errico, PhD</i>
11:30 a.m. - 1:00 p.m.	H110	Wischnewsky Spots and Black Esophagus in Deaths Involving Diabetic Ketoacidosis: A Case Series <i>Ricardo Kaempfen, MS*; Joseph A. Prahlow, MD; Amanda O. Fisher-Hubbard, MD</i>
11:30 a.m. - 1:00 p.m.	H111	Sodium Nitrite Suicide: A Case Report <i>Vishwajeeth Pasham, MD*; Demi B. Garvin, PharmD; Angelina I. Phillips, MD*</i>
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 <i>Paola Santoro, MD*; Sara Turco, MD; Arianna Baronti, MD; Andrea Costantino, MD; Silvia Romano; Maria Chiara David, PhD; Zoe Del Fante, MD</i>
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 <i>Sotirios Ziogos, BSc (Hons)*; Kari M. Pitts, PhD; Ian Dadour, PhD; Paola A. Magni, PhD</i>
11:30 a.m. - 1:00 p.m.	H114	Inter-Individual Variation in Soil Chemistry and Microbial Ecology During Human Decomposition <i>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</i>
11:30 a.m. - 1:00 p.m.	H115	Temperature-Dependent Postmortem Protein Degradation in Pigs <i>Janine Geissenberger, MSc*; Bianca Ehrenfellner, MS; Fabio Carlo Monticelli; Peter Steinbacher, PhD; Stefan Pittner, PhD</i>
11:30 a.m. - 1:00 p.m.	H116	The Detection and Profiling of Seminal DNA From Fly Larvae, Pupae, and Puparia to Investigate Sexual Intercourse Postmortem <i>Grace Mulder, BS*; Paola A. Magni, PhD; Brendan Chapman, BSc</i>

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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
<i>Kelsey Springer, BS*; Robert H. Powers, PhD</i> |
| 11:30 a.m. - 1:00 p.m. | H118 | The Succession of Postmortem Protein Degradation in Different Muscles in Rats and Humans
<i>Lisa Jakob, MSc*; Angela Zissler, PhD; Bianca Ehrenfellner, MS; Janine Geissenberger, MSc; Fabio Carlo Monticelli; Peter Steinbacher, PhD; Stefan Pittner, PhD</i> |
| 11:30 a.m. - 1:00 p.m. | H119 | Postmortem Protein Degradation as a Tool to Estimate the Postmortem Interval (PMI): A Systematic Review
<i>Stefan Pittner, PhD*; Walter Stoiber; Peter Steinbacher, PhD; Janine Geissenberger, MSc; Fabio Carlo Monticelli; Angela Zissler, PhD</i> |
| 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
<i>Anja Victoria Perner, BSc*; Bianca Ehrenfellner, MS; Janine Geissenberger, MSc; Fabio Carlo Monticelli; Peter Steinbacher, PhD; Stefan Pittner, PhD</i> |
| 11:30 a.m. - 1:00 p.m. | H121 | The Identification of Unidentified Remains
<i>Katherine Cochrane, MD*; Darinka Mileusnic-Polchan, MD, PhD</i> |
| 11:30 a.m. - 1:00 p.m. | H122 | The Role of Postmortem Computed Tomography (PMCT) In High-Energy Traumatic (HET) Deaths
<i>Massimiliano dell'Aquila, MD*; Gianpietro Volonnino; Alessia Quattrocchi*; Paola Santoro, MD; Alessandra De Matteis, MD; Andrea Scatena; Sara Turco, MD; Andrea Costantino</i> |
| 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
<i>Cristina Mondello, MD*; Salvatore Roccuzzo, MD*; Gennaro Baldino, MD; Antonio Bottari, MD; Alessio Asmundo; Giuseppe F. Lo Re, MD; Sergio Salerno; Fabrizio Perri, MD; Elvira Ventura Spagnolo, MD, PhD*</i> |
| 11:30 a.m. - 1:00 p.m. | H124 | Conflict of Interest in the California Coroner or Sheriff-Coroner Systems
<i>Callie G. Huston, MFS*; Ismail M. Sebetan, MD, PhD*; Paul Stein, PhD*</i> |
| 11:30 a.m. - 1:00 p.m. | H125 | Pancreatic Subcapsular/Interstitial Hemorrhage Associated With Acute Systemic Hypoxia and Its Impact on Endocrine Organs
<i>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</i> |
| 11:30 a.m. - 1:00 p.m. | H126 | A Multidisciplinary Approach Is Mandatory in the Forensic Sciences
<i>Francesco Sessa, MS, PhD*; Angelo Montana, MD; Massimiliano Esposito, MD; Aldo Liberto, MD; Monica Salerno, MD, PhD*</i> |

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
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
<p>Moderator: Jonathan Eisenstat, MD Georgia Bureau of Investigation Decatur, GA</p>		
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
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

PATHOLOGY/BIOLOGY

- 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. Rutty, 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*
- 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**

PATHOLOGY/BIOLOGY

- 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** **The Forensic Medicolegal System in Qatar**
Ibrahim K. El Ramahi, MD; Khalid M. BinMarzook*

Thursday

Psychiatry & Behavioral Science I

9:00 a.m.	-	9:15 a.m.	I1	Psychological Trauma in South Carolina Asylum Seekers <i>Royal Pipaliya*</i> ; Afifah 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 <i>Laura Volpini, PhD*</i> ; 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 <i>Dana M.C. Valdez, MD*</i>
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 <i>Satyam Choudhuri, BHSc*</i> ; 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 <i>Jessica Morel, DO*</i> ; 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 <i>Linda Corsaletti*</i> ; Vincenzo Lusa, JD*
11:30 a.m.	-	1:00 p.m.	I7	The Relationship of Firearm Possession to Attachment Styles and Psychological Well-Being <i>Oktay Cavus, MSc*</i>
11:30 a.m.	-	1:00 p.m.	I8	Trends in Suicide: A Postmortem Analysis of a 20-Year Case History <i>Giacomo Belli, MD*</i> ; 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 <i>Lucia Tattoli, PhD*</i> ; 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 <i>Lucia Tattoli, PhD*</i> ; Cristiano Barbieri, MD; Ignazio Grattagliano, PsyD; Caterina Bosco, MD; Giancarlo Di Vella, MD, PhD
11:30 a.m.	-	1:00 p.m.	I11	Child Neglect or Chronic Diseases? An Overlap and a Matter for Experts <i>Luana Bonaccorso, MD*</i> ; Caterina Bosco, MD*; Elena Coppo, MD; Sara S. Racalbutto, 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, MD; 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

- 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*; Giulia Cacciatore, MD*; Angelica Zibetti, MD; Fabrizio Cordasco, MD*; Carmen Scalise, MD; Carlo Filippo Bonetta*, MD*; Matteo A. Sacco, MD*; Francesco Sicilia, MD*; Luigi De Aloe, MD*; Pietrantonio Ricci, PhD*; Cristoforo Ricci, PhD; Santo Gratteri, MD; 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 à 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*; Richard J. Perrillo, PhD*; Jenny Brook, MS; 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*; 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
<i>Linda Eisenhart*</i> ; <i>R. Austin Hicklin, PhD*</i> ; <i>Brian Eckenrode, PhD</i> ; <i>Peter J. Belcastro, Jr., MA</i> ;
<i>Ted M. Burkes, BS</i> ; <i>Meredith DeKalb Miller, MFS</i> ; <i>Michael A. Smith, PhD</i> ; <i>Connie L. Parks, MA</i> ;
<i>JoAnn Buscaglia, PhD</i> |
| 9:00 a.m. | - | 9:15 a.m. | J2 | An Empirical Exploration of Handwriting Theory With Regard to Natural Variation
<i>Nancy Cox*</i> ; <i>Thomas Neumark, MS*</i> |
| 9:15 a.m. | - | 9:35 a.m. | J3 | Measuring and Communicating Opinion Strength in Forensic Handwriting Examination: Concepts, Findings, and Future Directions
<i>Mara L. Merlino, PhD*</i> ; <i>Tierra M. Freeman, PhD</i> ; <i>Veronica B. Dahir, PhD</i> ; <i>Charles Edwards, MA</i> |
| 9:35 a.m. | - | 9:55 a.m. | J4 | Toward Consensus in Describing Handwriting
<i>Diane Kruger, JD*</i> |
| 9:55 a.m. | - | 10:05 a.m. | J5 | Pen Pressure Measurement in Signatures of Women and Men Using 3D Digital Microscopes
<i>Dilara Oner, PhD*</i> ; <i>Ibrahim Demir, PhD</i> ; <i>Gursel Cetin, PhD</i> |
| 10:05 a.m. | - | 10:20 a.m. | J6 | Tiger King—Forensic Document Evidence Involving the Disappearance of Jack Donald Lewis
<i>Thomas W. Vastrick, BS*</i> |
| 10:20 a.m. | - | 10:30 a.m. | J7 | Anonymous Letters Examination: Where Forensic Linguistics Meets Handwriting Examination
<i>Andrea Ledic, MS*</i> ; <i>Lidija Tepes Golubic, PhD</i> ; <i>Petra Bago, PhD</i> |
| 10:30 a.m. | - | 10:45 a.m. | J8 | Forensic Handwriting Analysis of Judahite Biblical Period Inscriptions
<i>Yana Gerber*</i> |
| 10:45 a.m. | - | 11:00 a.m. | J9 | The Creation of a Demand Note Reference Collection
<i>McKenzie Weyh, BS*</i> |
| 11:00 a.m. | - | 11:30 a.m. | J10 | The Forensic Document Examiner's Method of Communication in Court: The Chart
<i>Jan Seaman Kelly, BA*</i> |

QUESTIONED DOCUMENTS

Thursday

Questioned Documents II

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

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 Nicolaides, 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*

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 <i>Yoko Seki, MA*</i>
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 <i>Zekai Genç, PhD; Sevil Atasoy, PhD*</i>
11:30 a.m. - 1:00 p.m.	J25	Writer's Cramp and Technology: Its Influence on Intra-Writer Handwriting Variability <i>Tassi Dalton, JD; Chris Rush, PhD; Larry S. Miller, PhD; Heidi H. Harralson, MA*</i>
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 <i>Keelie Johnson, BS*; Sarah Pryor; Angela Roe, MSc</i>
11:30 a.m. - 1:00 p.m.	J27	Relationships Between Handwriting Slant and Demographic Features <i>Anyesha Ray*; Alicia L. Carriquiry, PhD; Danica Ommen, PhD</i>

Friday

Questioned Documents III

Moderator: *James Tarver, MS*
Seattle, WA

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

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

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|------------------------|------------|--|
| 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
<i>Grayce Behnke, MS*; Teresa R. Gray, PhD</i> |
| 11:30 a.m. - 1:00 p.m. | K2 | Lethal Self-Poisoning by Ingestion of Yew (<i>Taxus Baccata</i>, Taxacées): Two Case Reports
<i>Bérengrère Dautreme, MD*; Fabien Lamoureux, PharmD, PhD; Anne-Claire Lhoumeau, MD; Elodie Saussereau, PharmD; Gilles P.</i> |
| 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
<i>Britni N. Skillman, PhD*; Crystal Arndt, MSFS; Teresa R. Gray, PhD</i> |
| 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
<i>Paul Speaker, PhD*</i> |
| 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)
<i>Shaiju Vareed, PhD*; Ernest D. Lykissa, PhD</i> |
| 11:30 a.m. - 1:00 p.m. | K6 | A Suicidal Sodium Nitrite/Nitrate Ingestion Outbreak in Houston, Texas
<i>Erin C. Strickland, PhD*; Varsha Podduturi, MD; Teresa R. Gray, PhD</i> |
| 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
<i>Claudia Carelli*; Paolo Fais, PhD; Francesca Freni; Matteo Moretti, MD; Claudia Vignali; Luca Morini</i> |
| 11:30 a.m. - 1:00 p.m. | K8 | A Veterinary Forensics Review of Pesticide Toxicity in Canines
<i>Lurette Muir, BS*; Julia Perkinson, BS; Ngaio Richards, PhD; Susan C. Underkoffler, MFS; Judith Rodriguez Salas, MS; Karen S. Scott, PhD</i> |
| 11:30 a.m. - 1:00 p.m. | K9 | Measurement Uncertainty (MU): A Novel Quality Assurance Use in Forensic Toxicology for Internal Proficiency Testing
<i>William M. Schroeder II, MS*; Frederick Strathmann, PhD; Laura M. Labay, PhD</i> |
| 11:30 a.m. - 1:00 p.m. | K10 | False Positive Emit II Plus Ecstasy Assay Due to Bupropion
<i>Maja Jelena Cop*; Sandra Mudric</i> |
| 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)
<i>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</i> |

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) <i>Christian Buckingham, BSc*; James Watterson, PhD</i>
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 <i>Chiara Siodambro*; Matteo Moretti, MD*; Luca Morini; Gulnaz T. Javan, PhD; Francesca Freni; Claudia Vignali; Claudia Carelli</i>
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) <i>Amber D. Budmark, BS*; Justin L. Poklis, BS; Grace R. Williams, PhD; Carl E. Wolf II, PhD</i>
11:30 a.m. - 1:00 p.m.	K15	New Perspectives in Postmortem Diagnosis of Acute Heroin Abuse <i>Gianpietro Volonnino*; Andrea Costantino, MD; Sara Turco, MD; Alice Chiara Manetti, MD; Silvia Romano; Valentina Fazio; Paola Santoro, MD; Raffaele La Russa, MD</i>
11:30 a.m. - 1:00 p.m.	K16	Patterns of Natural Cannabinoids in Hair <i>Ryan B. Paulsen, PhD*; Virginia Hill, BS; Neil Stowe, PhD; Michael I. Schaffer, PhD</i>
11:30 a.m. - 1:00 p.m.	K17	Analysis of Fentanyl Analogs and Common Drugs <i>Madison N. Martin, BA*; Steven W. Fleming, MS; Emily Bouso Raley, MSFS; Lauren L. Richards-Waugh, PhD</i>
11:30 a.m. - 1:00 p.m.	K18	Transforming Toxicology in South Africa—Illustrating Proof of Concept Using Data From Routine Carboxyhaemoglobin (COHb) Analysis <i>Jade Mader, MSc*; Bronwen B. Davies, MFS</i>
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 <i>Nicole Bracewell, MSc*; Danielle Harrell, DO; Katrina Van Pelt, DO</i>
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) <i>Neil Stowe, PhD*; Ryan B. Paulsen, PhD; Virginia Hill, BS; Michael I. Schaffer, PhD</i>
11:30 a.m. - 1:00 p.m.	K21	Unusual Routes for Substance Abuse: Fatal Inhalation of a Fentanyl Patch <i>Federico Manetti, MD*; Martina Padovano, MD; Matteo Scopetti, MD; Maria Chiara David, PhD; Alessandro Santurro, MD; Antonio Grande, MD, PhD</i>
11:30 a.m. - 1:00 p.m.	K22	Trends in Drug-Facilitated Crime and Sexual Assault in San Francisco, California <i>Mairin M. Higgins*; Crystal N. Jarquin, BS; Jennifer Olivero, BS; Karen S. Scott, PhD; Luke N. Rodda, PhD</i>
11:30 a.m. - 1:00 p.m.	K23	Postmortem Toxicology Trends in the United States Before and During the COVID-19 Pandemic <i>Stephanie Marco, PhD*</i>

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*; *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-Methylenedioxypyrovalerone (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

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
- 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
- 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

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
<i>Edith Viel, BSc*; Brigitte Desharnais, PhD; Pascal Mireault, MSc</i> |
| 2:15 p.m. | - | 2:30 p.m. | K44 | Updated Techniques for Characterizing Cannabis Use
<i>Jami Reber, MSc*; Erin L. Karschner, PhD; Joshua Seither, PhD; Jessica L. Knittel, MS; Jeff Walterscheid, PhD</i> |
| 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)
<i>Mingjing Sun*; Courtney Sellens, BS</i> |
| 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
<i>Ruth E. Winecker, PhD*; Edward J. Cone, PhD; David J. Kuntz, PhD; Ron R. Flegel, MS; Eugene Hayes, PhD</i> |

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
<i>Johannes G. Ramaekers, PhD</i>
<i>Department of Neuropsychology & Psychopharmacology</i>
<i>Maastricht University</i>
<i>The Netherlands</i> |
|-----------|---|-----------|--|

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
<i>Andrea Carolina Noble, PhD*; Donna M. Papsun, MS; Sherri L. Kacinko, PhD; Barry K. Logan, PhD</i> |
| 9:15 a.m. | - | 9:30 a.m. | K48 | A Flualprazolam Study on Postmortem Samples
<i>Helen H. Ha, MS*; Dani C. Mata, MS</i> |
| 9:30 a.m. | - | 9:45 a.m. | K49 | The Detection of Kavain in Powder: Death Scene Evidence and Postmortem Blood Analysis
<i>George S. Behonick, PhD*; Kevin G. Shanks, MS; Lee M. Tormos, MD</i> |

TOXICOLOGY

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

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** **A Complex Suicide by Drowning and Self-Strangulation**
Marcello Benevento; Silvia Trotta; Gabriele Mandarelli, MD, PhD; Giampiero Bottari; Cristina Elena Rosa Caterino; Biagio Solarino, PhD*
- 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 Cacciato, 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 <i>Tiffany L. Hoke*</i>
11:30 a.m. - 1:00 p.m.	Y12	A Case Study of the Correlation Between Bullying and Subsequent School Shootings <i>Levi E. Peck*; Hunter N. Gault*; Rikki A. Tasso-Thompson*; Christina A. Leija, MS</i>

Pathology/Biology

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

Toxicology

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