



## WORKSHOP ABSTRACTS

September 21-24, 2021 - Poconos, PA

### **QUESTIONED DOCUMENTS SECTION WORKSHOPS (Virtual)**

QD section attendees, please see the additional document with information on the QD section's virtual meeting.

#### **(W1) Forensic Examination of Handwritten Electronic Signatures**

THIS WORKSHOP HAS BEEN CANCELLED

#### **(W2) Technology and Design of Security Documents for Counterfeiting and Alteration Resistance**

*Presented by: Joel A. Zlotnick, United States Department of State*

Full Day Workshop - Wednesday, September 22 - (Member \$150/Non-Member \$200 on-site)  
(Member \$50/Non-Member \$100, Virtual)

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 technologies and the design strategies that optimize their effectiveness. Depending on the meeting format, hands-on could proceed in one of two ways. First, virtual hands-on exercises could be facilitated by attendees examining their own personal passports, driver's licenses, birth records, etc. Alternately, a classroom format could allow for hands-on exercises using exemplar documents provided by the Bureau of Consular Affairs.

After attending this workshop, attendees will understand two facets of document security. First, this workshop provides an overview of common document security features like 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.

NOTE: Workshop attendees will need to provide their own exemplar security documents (passport, currency, driver's license, etc). Virtual attendees will also need to provide a magnifier, and 365nm ultraviolet light. More instructions will be sent to registrants ahead of the workshop.

### **(W13) Digitally Captured Signatures: Introduction, Visualization, Analysis**

*Presented by: Niko Kalantzis, Chartoularios Institute of Questioned Document Studies*

Half Day Workshop - Tuesday AM, September 20 - (Member \$30/Non-Member \$80, Virtual)

Digitally Captured Signatures (DCS but also known as biometric signatures, electronic handwritten signatures, eSignatures, online signatures etc.) have infiltrated the Questioned Document Examiner's workflow, being deployed worldwide and slowly appearing within casework. The QDE community rushed to identify the methodology for examination of DCS and build the bridge between the pen and paper product and the digital equivalent for signatures – an effort which led to the composition of the relevant Appendix in the Best Practice Manual of the European Network of Forensic Handwriting Experts by the STEFA Group 8 team. Still, experts are lacking exposure to DCS data as well as practice of the established methodology. This workshop aims at introducing the participants to the various aspects of visualization of the captured numerical data of DCS, and then allowing them to evaluate different types of data on test signatures and provide feedback through the use of questionnaires.

### **PDF Forensics**

*Presented by Leonard Rosenthal, Adobe*

Half Day Workshop - Morning- Friday, September 24 (Included in regular meeting registration for on-site attendees) (Member \$50/Non-Member \$100, Virtual, includes access to paper presentations on Thursday)

This workshop will focus on the forensic analysis of PDF digital documents. The workshop will begin with a general overview of the different components of PDF documents, followed by a detailed look into common PDF objects and how each can be forensically analyzed and evaluated. This workshop will include practical exercises and examples using sample PDF files. The purpose of this workshop is to provide attendees with a better understanding of PDF document structure and in turn a working knowledge to confidently address authentication concerns involving PDF documents when they arise in casework.

## **BIOLOGY SECTION WORKSHOPS**

### **(W3) Introduction to Probabilistic Genotyping and Validation Studies**

*Presented by Dr. Michael Adamowicz<sup>1</sup>, Dr. Mitchell M. Holland<sup>2</sup>, Sarah Copeland<sup>3</sup>, and Teresa Snyder-Leiby<sup>3</sup>*

<sup>1</sup>University of Nebraska <sup>2</sup>The Pennsylvania State University <sup>3</sup>Softgenetics, LLC (MAAFS Vendor)

Half Day Workshop - Afternoon - Tuesday, September 21 (Member \$100/Non-Member \$150)

This workshop will give an introduction to: probabilistic genotyping (PG) including an overview of statistical methods; the advantages of continuous PG over historical approaches including use of degraded samples; an explanation of the various parameters such as heterozygous imbalance, drop out, stutter including non-traditional stutter, and baseline data requirements for PG analysis; and a summary of the methods and results from validation studies of MaSTR™ PG software. In addition to the lecture component, there will be written exercises to calculate likelihood ratios (LRs) from weighted genotypes for mixtures and an opportunity to have hands-on experience operating PG software.

### **(W4) Work Smarter: Utilizing New Light Source Innovations to Help Reduce Your Backlog**

*Presented by Saad Khan, Foster + Freeman (MAAFS Vendor)*

Half Day Workshop - Morning - Wednesday, September 22 - (Member \$100/Non-Member \$150)

Finding, collecting, and processing serology evidence at the crime scene and in the laboratory can be time consuming, especially on difficult patterned backgrounds. Advances in new technology pave the way for smarter, more efficient processing techniques. Attendees of this workshop will be given an overview of light theory and refresher on traditional methods for evidence locating and collection. Attendees will then be introduced to new methodologies and techniques that involve beyond visible photography, bandpass filtering, and oblique lighting options to increase their collection and processing efficiency and cut down on agency backlogs. Attendees are encouraged to bring their own full spectrum DSLR camera and thumb drive if available.

### **(W5) How to Effectively Use Genetic Genealogy To Advance Violent Criminal Investigations**

*Presented by CeCe Moore\*, Parabon NanoLabs*

Half Day Workshop - Afternoon - Wednesday, September 22 - (Member \$100/Non-Member \$150)

Investigative Genetic Genealogy is a revolutionary forensics capability that has the potential to generate high confidence leads in active and cold cases. It can save your agency time and manpower by reducing the effort required to investigate and close cases. Through the use of real life criminal case studies, participants will learn:

- The methods and outcomes of genetic genealogy;
- The power of targeted kinship testing in complex cases, plus when and how to apply it; and,
- Tips & techniques employed by other agencies who have successfully closed active and cold cases.

\*Please note that while this workshop will be held in-person at the MAAFS meeting, the presenter will be presenting remotely.

**(W6) Did you know there's DNA on these things? How to get DNA profiles from fired cartridge cases.**

*Presented by Greg Peiffer and Glenn Fahrig; Bureau of Alcohol, Tobacco, Firearms and Explosives*  
Half Day Workshop - Morning - Tuesday, September 21 (Member \$100/Non-Member \$150)

Fired cartridge cases (FCCs) can be a critical piece of evidence and possibly the only evidence left at a crime scene. In this workshop, we will discuss the history of DNA analysis on FCCs, some of the obstacles, different methods of successfully analyzing FCCs, and have a hands-on demonstration.

**(W11) Interpretation of Sequence-Based STR Profiles in Mixed Samples**

*Presented by Luigi Armogida and Dr. Brian Young, NicheVision [MAAFS Vendor]*  
Half Day Workshop - Afternoon - Tuesday, September 21 (Member \$100/Non-Member \$150)

This workshop will cover the analysis sequence based STR profiles in mixed casework samples. The workshop will teach the essentials of sequence-based alleles and how they differ from length-based alleles. Attendees will learn about isoalleles, how to identify them, and how they affect profile statistics. Allele-specific stutter will be covered including details of how to separately identify LUS (longest uninterrupted stretch) and non-LUS stutter artifacts. We will describe non-stutter artifacts commonly found in sequence data and how they differ from non-stutter artifacts found in CE data. The entire beginning to end mixture analysis process will be demonstrated using the MixtureAce plugin to ArmedXpert. Attendees will have the opportunity to operate the software on mixed MPS data generated on the Verogen MiSeq platform.

**What's That Stain?: Serology and Body Fluid Identification**

*Presented by Sharon Polakowski, Wisconsin State Crime Lab - Milwaukee*  
Half Day Workshop - Morning- Friday, September 24 (Included in regular meeting registration)

This half day workshop will provide a brief history of serology in the field of forensics, an in-depth discussion of the tests and techniques currently available and their use in casework, and an overview of research in serology for the future.

## **CRIMINALISTICS SECTION WORKSHOPS**

### **(W7) Explosive Residue Collection, Analysis, and Determinations**

THIS WORKSHOP HAS BEEN CANCELLED

### **(W8) Forensic Chemistry & Toxicology Fundamentals Unknowns Analysis Workshop**

*Presenters: Dr. Kirk E. Lokits, Agilent (MAAFS Vendor)*

Half Day Workshop - Session A: Afternoon - Tuesday, September 21

Session B: Morning - Wednesday, September 22 (Member \$100/Non-Member \$150)

The MassHunter Fundamentals Unknowns Analysis Workshop is designed to be a 1/2 day of hands-on software exercises utilizing forensic data. The workshop is designed to help migrate established workflows within ChemStation Data Analysis to MassHunter Unknowns Analysis. The course will be spent in Unknowns Analysis, a small portion in Qualitative Analysis, using peak integration, deconvolution, and focused on single quad data. It's not required but preferred for the student to have access to MassHunter on an existing or soon to be acquired GCMS system in their laboratory. Course is limited to 16 attendees per session due to the number of computers available for each attendee. This workshop will be offered twice, one on Tuesday afternoon and then again on Wednesday morning. Additional attendees will be considered if they can provide their own laptops with Win10 and MassHunter 10.0 Qualitative/Quantitative Analysis.

### **(W9) Is Gasoline Present? - Using a statistically based method to graphically display the support for gasoline in an unknown sample**

THIS WORKSHOP HAS BEEN CANCELLED

### **(W10) Forensic Analysis of New and Emerging Fibers - Sponsored by ASTEE**

*Presented by Kelly Brinsko Beckert, Microtrace, LLC*

Full Day Workshop - Wednesday, September 22 (Member \$150/Non-Member \$200)

This workshop will describe new and emerging fiber types and fabric constructions, including their impact on forensic fiber identifications. Manufacturing methods, new fiber applications, and coating technologies will be discussed. The class will also detail the forensic identification of such fibers and fabrics based on their optical properties, as well as offer suitable instrumental methods that may assist the examiner during analysis or fiber comparisons. Students will use stereomicroscopes and PLMs to examine and characterize various fibers, and some fiber samples will also be available for students to keep.

## **(W12) Ethics in Forensic Science**

*Presented by Robin Bowen, West Virginia University*

Half Day Workshop - Tuesday, September 21 (Member \$100/Non-Member \$150)

Ethics is an understudied, yet significant topic when it comes to the field of forensic science. Although people may think of ethics as a personal matter, it also includes professional and public issues. Proper ethical behavior is required by scientists making complex decisions about the interpretation of data, about which problems to pursue, and about when to conclude an experiment, all which help to improve the quality of forensic science.

While the workshop includes many “basics,” the course relates those ideas to the forensic science profession. To understand forensic-specific ethics, it is important to look at the interactions between the cultures of science, law, research, and law enforcement.

Upon completion of this course, the student will be able to:

- Demonstrate the relationship between science, technology, and society in ethics
- Examine the various types of conflicts and the problems they may create
- Analyze what ethical standards are in place for forensic scientists and related professions
- Evaluate how codes of ethics in science may contradict other professions
- Defend how and why unethical situations occur
- Analyze when and how to report misconduct and associated consequences

Attendees are given the opportunity to interact and discuss ethical situations that have taken place within the forensic science community. Attendees will be presented with scenarios and the ethical considerations involved with each. The attendees will provide insight from their work environments and represent the “real-world” of ethics in forensic science. Participants should be open to discuss and debate, while keeping an open-mind and a positive environment.