

Soil Analysis

Freemont Room

The purpose of this workshop is to teach the basic, practical technique for identifying the essential soil-forming minerals using the polarizing microscope. Certain combinations of specific morphological and optical properties can be used to characterize most mineral species or families (groups). By the end of the day, students will have learned to identify the most frequently encountered soil-forming minerals. The importance of single grain isolation for analysis by SEM/EDS and Raman microprobe for identifying difficult grains will also be discussed.

Moderator:

Jenny Smith, Criminalist, Crime Laboratory, Trace Evidence, Missouri State Highway Patrol, Jefferson City, MO

Presenters:

Jason Beckert, Research Microscopist, Microtrace LLC, Elgin, IL

Skip Palenik, Senior Research Microscopist, Microtrace LLC, Elgin, IL

Fiber Contact Traces – Distribution and Persistence

Chouteau A

This workshop aims to show how the mechanism of fiber transfer in case of contact traces works, what the examiner has to consider, what kind of persistence ability we have to expect and what potential fiber traces can offer in forensics.

The workshop will cover the collection of trace evidence (fibers) at the crime scene and the aspects and considerations of where to collect evidence on the scene. The problem of contamination and sensible solutions will be discussed and shown during this workshop. The workshop will cover different techniques and schemes of trace recovery and various materials used for this purpose.

Another big issue addressed by this workshop will be the difference between fiber behavior on moved and unmoved objects or victims and also moving victims and offenders. The behavior and distribution on different surfaces will be assessed, and persistence studies will be presented (persistence of fibers on skin, clothes) and evaluated during practical exercises including the aspects of transfer (primary, secondary,...), loss and possible redistribution of fibers.

Moderator:

Sandra Koch, Forensic Examiner, Trace Evidence Unit, FBI Laboratory, Quantico, VA

Presenters:

Wolf Krauss, Forensic Biologist, Forensic Science Institute, Landeskriminalamt Baden-Wurttemberg, Stuttgart, Germany

Kornelia Nehse, Head of Fiber Department – EU Chairperson, Fiber and Micromorphology, Forensic Science Institute Berlin, Berlin, Brandenburg, Germany

Statistics

Chouteau B

This one-day workshop will review the application of statistical methods to practical decision-making requirements in the forensic laboratory. Of particular interest is the application of statistical methods to the analysis of both univariate and multivariate data based on class evidence, where the challenge is to assess similarity or dissimilarity in comparisons of questioned and known samples. The specific statistical concepts to be covered include measures of accuracy and uncertainty, confidence intervals for means, hypothesis tests (both parametric and nonparametric) for comparing means and for comparing variances, one-way analysis of variance, and outlier detection. The use of receiver-operator characteristic (ROC) plots for evaluating decisions will also be presented, as will the application of multivariate statistics to trace evidence data from a variety of spectroscopic (e.g., UV/visible, IR, and Raman spectra), chromatographic, mass spectrometric, and other sources. Principal component analysis, linear discriminant analysis, and cluster analysis for comparison and discrimination of trace evidence data will be presented, along with necessary validation procedures and multivariate hypothesis tests.

Moderator:

José R. Almirall, Professor, Chemistry and Biochemistry, International Forensic Research Institute, Florida International University, Miami, FL

Presenters:

Edward Bartick, Director of the Forensic Science Program, Department of Chemistry and Biochemistry, Suffolk University, Boston, MA

John V. Goodpaster, Assistant Professor, Forensic and Investigative Sciences Program, Indiana University – Purdue University Indianapolis (IUPUI), Indianapolis, IN

Stephen L. Morgan, Professor, Department of Chemistry and Biochemistry, University of South Carolina, Columbia, SC

Chemical and Physical Material Analysis

Empire C

This workshop will outline the techniques that are commonly used for the identification of chemical unknowns. Specific attention will be paid to microscopical examinations, wet chemical techniques, and various forms of instrumental analysis. A logical approach to the examination of chemical unknowns will also be discussed. As part of the workshop, several attendees will be invited to participate. These individuals will receive a set of blind samples to be analyzed in their laboratories using their protocols. The results obtained and the methods used during analysis will be discussed.

Moderator and Presenter:

Vincent J. Desiderio, President, American Society of Trace Evidence Examiners, Hamilton, NJ

Presenters:

Andrew Bowen, Forensic Scientist, Stoney Forensic, Inc., Chantilly, VA

Bill Chapin, Senior Research Microscopist, Polarized Light Microscopy, McCrone Associates, Inc., Westmont, IL

Paint Data Query (Day One)

Benton Room

Over 30 years ago, the Royal Canadian Mounted Police (RCMP) created an automotive paint database to help forensic scientists determine vehicle manufacturer, make, assembly plant, and year from a small paint chip left at a crime scene. This database, now known as Paint Data Query (PDQ), has grown to include samples of vehicle paint not only from North America, but also from Australia/New Zealand, Japan, and Europe. The PDQ workshop is designed to be a hands-on training session in which the attendees will receive instruction in the organization of the database, will practice classifying paint systems, will enter queries into PDQ, and will gain the basic interpretive skills necessary for evaluating the results obtained from a search. With an understanding of the database software and confidence in the query parameters entered, the paint examiner will be able to provide an accurate assessment of possible sources for a questioned paint sample, utilize the database for making significant assessments for paints in K/Q comparative situations, and utilize the database for maintaining their understanding of the structure and chemistry of modern automotive paints. Prior training and practical experience in paint analysis and FTIR paint examinations and classifications are recommended.

Moderator:

Diana Wright, Forensic Chemist and Examiner, Chemistry Unit, FBI Laboratory, Quantico, VA

Presenter:

Tamara Hodgins, PDQ Maintenance Team Supervisor, National Centre for Forensic Services – Alberta, Royal Canadian Mounted Police, Edmonton, Alberta, Canada

Tuesday, August 9, 2011

7:30 am-8:30 am

**Registration
and Continental Breakfast**

Chicago/San Francisco Foyer

8:30 am-12:00 pm

Concurrent Workshops

Advanced Fire Debris Analysis Interpretation

Empire A

The Advanced Fire Debris Workshop will include discussion on the following topics: environmental degradation, competitive absorption complications, petroleum refining and fuel variations, E1618 new report writing section, and Molotov cocktail study. There will also be a group participation with regard to difficult fire debris cases

Moderator:

David A. Green, Criminalist, Trace Evidence, Lake County Crime Laboratory, Painesville, OH

Presenter:

Ronald L. Kelly, Forensic Examiner, Explosives Unit, FBI Laboratory, Quantico, VA

Fracture Match Course

Empire B

After attending the workshop, attendees will have learned basic theory of fracture match and gained a better understanding of the applications of this examination in forensic casework. Attendees will have the opportunity to apply their skills by working on practical exercises utilizing case scenarios designed to challenge them and refine their ability to apply this technique. This presentation will impact the forensic community by providing attendees knowledge of fracture match examinations and its uses in the forensic science/law enforcement community.

Moderator:

Chris E. Taylor, Supervisory Chemist, Trace Evidence, U.S. Army Criminal Investigation Laboratory, Forest Park, GA

Presenter:

Troy J. Nowak, Forensic Chemist, Trace Evidence, U.S. Army Criminal Investigation Laboratory, Forest Park, GA

Paint Data Query (Day Two)

Benton Room

Over 30 years ago, the Royal Canadian Mounted Police (RCMP) created an automotive paint database to help forensic scientists determine vehicle manufacturer, make, assembly plant, and year from a small paint chip left at a crime scene. This database, now known as Paint Data Query (PDQ), has grown to include samples of vehicle paint not only from North America, but also from

Australia/New Zealand, Japan, and Europe. The PDQ workshop is designed to be a hands-on training session in which the attendees will receive instruction in the organization of the database, will practice classifying paint systems, will enter queries into PDQ, and will gain the basic interpretive skills necessary for evaluating the results obtained from a search. With an understanding of the database software and confidence in the query parameters entered, the paint examiner will be able to provide an accurate assessment of possible sources for a questioned paint sample, utilize the database for making significant assessments for paints in K/Q comparative situations, and utilize the database for maintaining their understanding of the structure and chemistry of modern automotive paints. Prior training and practical experience in paint analysis and FTIR paint examinations and classifications are recommended.

Moderator:

Diana Wright, Forensic Chemist and Examiner, Chemistry Unit, FBI Laboratory, Quantico, VA

Presenter:

Tamara Hodgins, PDQ Maintenance Team Supervisor, National Centre for Forensic Services – Alberta, Royal Canadian Mounted Police, Edmonton, Alberta, Canada

Animal Hair Identification for Forensic Scientists

Chouteau A

The goal of this 4-hour workshop is to familiarize participants with procedures for sampling, preparing, and examining animal hair using transmitted light microscopy. Activities will include a review of mammalian taxonomy and the types of forensic cases involving animal hair; examination and sampling of pelts; preparation and curation of hair standards and exemplars; and use of transmitted light microscopy to examine medullary and cuticular characteristics, particularly in domesticated mammals.

Moderator:

Sandy Parent, Forensic Scientist, Trace Evidence, Texas Department of Public Safety Crime Laboratory, Austin, TX

Presenter:

Bonnie C. Yates, Supervisor, Morphology Section, Office of Law Enforcement, U.S. Fish and Wildlife Service, Ashland, OR

Identification of Natural Fibers

Empire C

This workshop will familiarize participants with the microscopical identification of various types of natural fibers, including vegetable fibers, wool-type fibers, silks and mineral fibers, which may be encountered in criminal investigations. Lectures will focus on the examination of microscopical structures used for the recognition of various natural fiber types. There will also be a review of natural fiber sources, processing, and end uses.

Moderator:

Amy Michaud, Forensic Chemist, Bureau of Alcohol, Tobacco, Firearms and Explosives, Ammendale, MD

Presenter:

Leanora Bender, Forensic Chemist, Bureau of Alcohol, Tobacco, Firearms and Explosives, Ammendale, MD

Trace Evidence for New and Non-Practitioners

Chouteau B

This half-day workshop is designed to introduce new and non-practitioners to the various sub-disciplines of trace evidence. Specific discussions on the background, analysis, and significance of paint, hairs, fibers, and glass as evidence will be provided. In addition to these core trace sub-disciplines, similar information will be provided on the benefits and caveats of lubricant analysis in cases of sexual assault, and an overview of non-traditional trace evidence will also be provided. Who should attend? The information provided will serve to augment the training of those who are new to the field and provide a strong overview to those who are unaware of the benefits that trace evidence examinations possess.

Moderator:

Vincent J. Desiderio, President, American Society of Trace Evidence Examiners, Hamilton, NJ

Presenters:

Maureen C. Bottrell, Geologist/Forensic Examiner, Trace Evidence Unit, FBI Laboratory, Quantico, VA

Jeffrey Dake, Forensic Chemist, Trace Evidence Branch, U.S. Army Criminal Investigation Laboratory, Forest Park, GA

David B. Flohr, Supervisor, Trace Evidence Branch, U.S. Army Criminal Investigation Laboratory, Forest Park, GA

Sandra Koch, Forensic Examiner, Trace Evidence Unit, FBI Laboratory, Quantico, VA

12:00 pm-1:00 pm

Lunch on Your Own

1:00 pm-1:15 pm

Welcome and Opening Remarks

Chicago/San Francisco

Charles Heurich, Program Manager, Office of Investigative and Forensic Sciences,
National Institute of Justice, U.S. Department of Justice, Washington, DC

Maureen C. Bottrell, Geologist/Forensic Examiner, Trace Evidence Unit, FBI
Laboratory, Quantico, VA

1:15 pm-3:00 pm

**Debating the Merits of Trace Evidence
Analysis and Interpretation**

Chicago/San Francisco

The aim of this opening panel is to discuss the current challenges, concerns and successes in trace evidence practice in order to set the tone for the rest of the meeting and, in particular, to provide background for the next panel. The presentations will stimulate an honest debate and describe the issues already raised by NAS and others with an aim towards laying the foundation for making continued progress in our discipline.

Moderator:

Joseph P. Bono, Past President, American Academy of Forensic Sciences,
Indianapolis, IN

Presenters:

Maureen C. Bottrell, Geologist/Forensic Examiner, Trace Evidence Unit, FBI
Laboratory, Quantico, VA

David Exline, Senior Vice President, Gateway Analytical, Gibsonia, PA

Rockne P. Harmon, Forensic/Cold Case Consultant, Alameda, CA

D. Michael Risinger, John J. Gibbons Professor of Law, School of Law, Seton Hall
University, Newark, NJ

3:00 pm-3:30 pm

Break

3:30 pm-5:00 pm **Trace Evidence Moving Forward** *Chicago/San Francisco*

The panel will discuss how trace evidence is moving forward in various aspects of this unique field. Participants will receive perspectives from the international, federal and state communities. This panel will also discuss specific topics proposed to them or potential comments raised in the debate/panel before the session. The session will end with questions from the attendees.

Moderator:

Richard E. Bisbing, Executive Vice President, McCrone Associates, Inc., Westmont, IL

Presenters:

JoAnn Buscaglia, Research Chemist, FBI Laboratory, Quantico, VA

Vincent J. Desiderio, President, American Society of Trace Evidence Examiners, Hamilton, NJ

Gerry LaPorte, Program Manager, Office of Investigative and Forensic Sciences, National Institute of Justice, U.S. Department of Justice, Washington, DC

Claude Roux, Professor of Forensic Science, Centre for Forensic Science, University of Technology, Sydney, Broadway, New South Wales, Australia

5:30 pm-7:30 pm **Networking Event in the Vendor Hall** *Pershing Hall*

Wednesday, August 10, 2011

7:00 am-8:00 am **Exhibit Hall and Continental Breakfast** *Pershing Hall*

8:00 am-10:00 am **Presentation of Case Studies** *Chicago/San Francisco*

The presenters in this session will discuss different approaches and analytical techniques used for solving unique and challenging cases involving trace evidence, which include fibers, soil, paint and stomach content.

Moderator:

David A. Green, Criminalist, Trace Evidence, Lake County Crime Laboratory,
Painesville, OH

8:00 am-8:25 am ***The Jig- Saw Murder***
Ray Palmer, Principal Forensic Scientist, Hairs and Fibres, The Forensic
Science Service, Huntingdon, Cambridgeshire, England, United Kingdom

8:25 am-8:50 am ***Case Studies in the Identification of Food Microtraces Derived from
Vomit and Gastric Contents***
Bill Schneck, Microanalysis Technical Leader, Crime Laboratory,
Washington State Patrol, Cheney, WA

8:50 am-9:15 am ***The Application of an Extra Paint Layer to Burglary Tools to Identify
Persons Involved in Bank Robbery***
Maarten Hordijk, Forensic Scientist, Netherlands Forensic Institute,
The Hague, Netherlands

9:15 am-9:40 am ***A Blind Comparison of Multiple Analytical Methods for Soil Comparison
in a Home Invasion Robbery Double Shooting Case in Urban Phoenix, AZ***
Gwyneth Williams Gordon, Associate Research Scientist, School of Earth
and Space Exploration, Arizona State University, Tempe, AZ

9:40 am-10:00 am Q&A

10:00am-10:30am **Break**

10:30 am-12:15 pm **Concurrent Sessions**

SOIL

Chouteau Room

The presenters in this session will discuss various approaches to forensic soil analysis and the current state of this type of testing within the United States. The time at the end of the session will be devoted to questions and answers or a panel and audience discussion on soil analysis.

Moderator:

Chris E. Taylor, Supervisory Chemist, Trace Evidence, U.S. Army Criminal Investigation Laboratory, Forest Park, GA

- 10:30 am-10:50 am ***The Status of Forensic Geosciences in the United States***
Marianne Stam, Criminalist Supervisor, Riverside Crime Laboratory, California Department of Justice, Riverside, CA
- 10:50 am-11:10 am ***The Potential of Mineral Varieties for Forensic Soil Analysis***
Andrew Bowen, Forensic Scientist, Stoney Forensics, Inc., Chantilly, VA
- 11:10 am-11:30 am ***The Utility of Microbial Profiling for Identification of Trace Soil Samples***
Ethan Smith, Graduate Student, School of Criminal Justice, Michigan State University, East Lansing, MI
- 11:30 am-11:50 am ***Forensic Soil Microscopy: Techniques and Casework Applications***
Skip Palenik, Senior Research Microscopist, Microtrace LLC, Elgin, IL
- 11:50 am-12:15 pm Q&A

PAINT

Empire AB

This session will include presentations regarding the analyses and identification of pigments encountered in paint, the discriminating power of physical and chemical comparisons of single-layer white architectural paints and an overview of the Paint Data Query (PDQ) database.

Moderator:

Sandy Parent, Forensic Scientist, Trace Evidence, Texas Department of Public Safety Crime Laboratory, Austin, TX

- 10:30 am-10:50 am ***Identification of Bismuth Oxychloride, a Pearlescent Pigment, in Automotive Paint Using Infrared Spectroscopy and Elemental Analysis***
Edward M. Suzuki, Supervising Forensic Scientist, Crime Laboratory, Washington State Patrol, Seattle, WA
- 10:50 am-11:10 am ***Chemical Classification of Pigments by Raman Spectroscopy for Forensic Applications***
Chris Palenik, Research Microscopist, Microtrace LLC, Elgin, IL
- 11:10 am-11:30 am ***Characterization and Discrimination of Single White Layer Architectural Paints***
Diana Wright, Forensic Chemist and Examiner, Chemistry Unit, FBI Laboratory, Quantico, VA

11:30 am-11:50 am ***Paint Data Query Automotive Database***
Tamara Hodgins, PDQ Maintenance Team Supervisor, National Centre for Forensic Services – Alberta, Royal Canadian Mounted Police, Edmonton, Alberta, Canada

11:50 am-12:15 pm Q&A

THINGS THAT GO BOOM

Chicago/San Francisco

This panel will deal with a variety of trace evidence materials dealing with analytical techniques for explosive, airbag residues, gunshot residues and tire treads examinations.

Moderator:

Jenny Smith, Criminalist, Crime Laboratory, Trace Evidence, Missouri State Highway Patrol, Jefferson City, MO

10:30 am-10:50 am ***Pyrotechnic Reaction Products of a Different Kind***
David B. Flohr, Supervisor, Trace Evidence Branch, U.S. Army Criminal Investigation Laboratory, Forest Park, GA

10:50 am-11:10 am ***Bang! Goes the Airbag; Using Dust from Deployed Airbags as Trace Material in Automotive Crimes.***
Louissa Marsh, Forensic Scientist, Marks and Traces, LGC Forensics, Abingdon, Oxfordshire, England, United Kingdom

11:10 am-11:30 am ***NONTOX Ammunition in Criminal Casework***
Robert Berk, Forensic Scientist III, Forensic Services, Illinois State Police, Chicago, IL

11:30 am-11:50 am ***The Potential of Pyrolysis-GC/MS for the Analysis of Tire Traces and Tire Treads***
Line Gueissaz, Academic Researcher and Lecturer, Microtraces, University of Lausanne, Lausanne, Switzerland

11:50 am-12:15 pm Q&A

12:15 pm-3:00 pm Poster Sessions and Box Lunch in Exhibit Hall *Pershing Hall*

Characterization of Materials by Elemental Analysis; μ XRF, LA-ICP-MS and LIBS Method Performance, Use of Match Criteria and Significance of Association

José R. Almirall, Professor, Chemistry and Biochemistry, International Forensic Research Institute, Florida International University, Miami, FL

Is That Hair From the Laundry?

Tami Atwell, Forensic Scientist, Indianapolis-Marion County Forensic Services Agency, Indianapolis, IN

Forensic Analysis of Glass Using Laser Induced Breakdown Spectroscopy (LIBS)

Erica M. Cahoon, Graduate Student, Chemistry Department, International Forensic Research Institute, Florida International University, Miami, FL

Forensic Analysis of Textile Fiber Dyes by Diffuse Reflection and Reflection-Absorption Infrared Spectroscopy

Mary W. Carrabba, Assistant Professor, Department of Chemistry, Southern Oregon University, Ashland, OR

The Identification of Metal Transfer from Bullets onto Laminated Glass

John M. Chester, Forensic Scientist, Microanalysis Unit, Indiana State Police Laboratory, Indianapolis, IN

Electrospray Ionization-Mass Spectrometry (ESI-MS) Identification of Urea Nitrate and Ammonium Nitrate Residue

Inge Corbin, Graduate Student, Department of Chemistry and Biochemistry, Florida International University, Miami, FL

PDMS Condom Lubricant: Persistence on the Penis and Presence in Personal Care Products

Sally Coulson, Science Leader, Physical Evidence, Institute of Environmental Science And Research Ltd. (ESR), Auckland, New Zealand

Validating Glass Annealing Thresholds in an ISO World

Tiffany Eckert-Lumsdon, Forensic Chemist, Trace Evidence, U.S. Army Criminal Investigation Laboratory, Forest Park, GA

Analysis of Trace Evidence Using a Combined Raman/LIBS Microscope System

David Exline, Senior Vice President, Gateway Analytical, Gibsonia, PA

The Effect of Pigment Type on Pigment Variation due to Differential Mixing in Spray Paints

Kris Gates, Forensic Scientist, Trace and Chemistry Units, Portland Laboratory, Oregon State Police, Clackamas, OR

Method Development for the Rapid Separation and Detection of Organic Gunshot Residue by UPLC/MS/MS

Jennifer L. Greaux, Research Assistant, Department of Chemistry and Biochemistry, Florida International University, Miami, FL

The Efficacy of Hair Washing Prior to Submission for Nuclear DNA Analysis

Celeste Grover, Forensic Scientist, Forensic Services Division, Oregon State Police, Clackamas, OR

Inter-Laboratory Comparison of LA-ICP-MS, μ XRF and LIBS Methods for Bulk Soil Analysis

Sarah C. Jantzi, Student, Chemistry and Biochemistry, International Forensic Research Institute, Florida International University, Miami, FL

The Impact of Chromatic Aberration on the Infrared Microspectral Analysis of Trace Evidence

Brooke Weinger Kammrath, Adjunct Lecturer, Science Department, John Jay College of Criminal Justice, City University of New York, NY

Forensic Characterization and Chemical Identification of Dyes Extracted from Millimeter-Length Fibers

Stephen L. Morgan, Professor, Department of Chemistry and Biochemistry, University of South Carolina, Columbia, SC

A Comparison of Solution-Based and Laser Ablation ICP-MS Analysis of Forensic Glass Samples and a Proposed Standard Test Method for Determination of Trace Elements in Glass Samples Using Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS)

Randall Nelson, Special Agent and Forensic Scientist, Forensic Services, Tennessee Bureau of Investigations, Nashville, TN

Improvements in Analytical Precision in the Forensic Analysis of Glass through the Use of Metal Filters in μ -XRF Analysis

Chris Palenik, Research Microscopist, Microtrace LLC, Elgin, IL

Hyperspectral Imaging as a Method of Detecting and Visualizing Ignitable Liquid Residues

Cara Plese, Forensic Scientist, Gateway Analytical, LLC, Gibsonia, PA

Standards and Best Practice in Microscope Photometry for Validation, Quality Control, and Admissibility

Dale K. Purcell, Doctoral Student, The Graduate Center, City University of New York, NY

Forensic Palynological Investigation of Marijuana Use: From Paraphernalia to Corpses

Karl Reinhard, Professor, Forensic Science Degree Program, University of Nebraska – Lincoln, Lincoln, NE

The Evidential Value of Finding Glass on Head Hair and Headwear

Claude Roux, Professor of Forensic Science, Centre for Forensic Science, University of Technology, Sydney, Broadway, New South Wales, Australia

The Foundry Sand Murder

Bill Schneck, Microanalysis Technical Leader, Crime Laboratory, Washington State Patrol, Cheney, WA

The Characterization and Discrimination of Pink and Red Nail Polish Lacquers: A Preliminary Study

Edward Sisco, Student, Chemistry and Forensic Science, University of Maryland and West Virginia University, College Park, MD

Validation of X-Ray Fluorescence (XRF) to Determine Osseous or Dental Origin of Unknown Material

Richard M. Thomas, Forensic Examiner, Trace Evidence Unit – Anthropology, FBI Laboratory, Quantico, VA

Prevalence of GSR on the Hands of Police Officers

Emily Turner, Forensic Analyst I, Trace Evidence, Hamilton County Coroner's Crime Laboratory, Cincinnati, OH

Precision of Elemental Analysis Measurements of Glass by μ -XRF and the Impact on Forensic Comparisons

Melissa Valadez, Trace Evidence Section Manager, Texas Department of Public Safety Crime Laboratory, Austin, TX

Slippery When Wet: Analysis of a Wet Silencer in a Homicide Case

Michael A. Villareal, Forensic Chemist, Trace Evidence Branch, U.S. Army Criminal Investigation Laboratory, Forest Park, GA

An Evaluation of Microanalysis Techniques for Materials Characterization in the Terahertz Spectral Region 9 to 1.5 THz (300 to 50 cm^{-1})

Donna Wilson, Forensic Scientist, Chemistry Department, Washington State Patrol, Seattle, WA

3:00 pm-5:45 pm

Concurrent Sessions

GLASS

Chouteau Room

The presenters in this session will discuss different approaches to the interpretation, evaluation, and techniques utilized for elemental analysis of glass for forensic casework.

Moderator:

Maureen C. Bottrell, Geologist/Forensic Examiner, Trace Evidence Unit, FBI Laboratory, Quantico, VA

3:00 pm-3:20 pm

Investigation of Changes of the Refractive Index of Small Glass Fragments Caused by Laser Ablation

Stefan Becker, Scientific Director, Forensic Science Institute, Bundeskriminalamt, Wiesbaden, Germany

- 3:20 pm-3:40 pm ***Elemental Analysis of Glass by LA-ICP-OES for Forensic Discrimination Purposes***
Emily R. Schenk, Student, Chemistry and Biochemistry, International Forensic Research Institute, Florida International University, Miami, FL
- 3:40 pm-4:00 pm ***A Proposed Standard Test Method for Forensic Analysis of Glass Using Capillary Micro X-Ray Fluorescence Spectrometry***
Kristine Olsson, Forensic Scientist, Trace Evidence Section, Johnson County Sheriff's Office Crime Laboratory, Mission, KS
- 4:00 pm-4:15 pm Q&A
- 4:15 pm-4:30 pm Break**
- 4:30 pm-4:50 pm ***When Is a Peak, a Peak? Calculating Detection and Quantification Limits for Micro X-Ray Fluorescence Spectrometry of Glass Samples***
Troy Ernst, Forensic Scientist, Trace Evidence Unit, Michigan State Police Grand Rapids Laboratory, Grand Rapids, MI
- 4:50 pm-5:10 pm ***Predictive Modeling for Determining the Discriminative Power of Trace Glass Evidence as a Function of the Number of Sampled Glass Fragments***
Eric Kalendra, Assistant Professor, Applied Information Technology, George Mason University, Fairfax, VA
- 5:10 pm-5:30 pm ***Update on Elemental Analysis Working Group***
José R. Almirall, Professor, Chemistry and Biochemistry, International Forensic Research Institute, Florida International University, Miami, FL
- 5:30 pm-5:45 pm Q&A

FIBER

Empire AB

This session will focus on new advances in the analysis of dyed fibers. Presentations will be on topics of discrimination of fiber trace evidence via dichroic ratio measurements, UV-visible microspectrophotometry, time-of-flight mass spectrometry in conjunction with capillary electrophoresis or liquid chromatography, statistics and fibers comparisons, and assessment of automotive fibers.

Moderator:

Keith Beck, Professor, Textile Engineering, Chemistry and Science, North Carolina State University, Raleigh, NC

- 3:00 pm-3:20 pm ***Visible Light Dichroic Ratio Measurements for Classification and Discrimination of Fiber Trace Evidence***
Dale K. Purcell, Doctoral Student, The Graduate Center, City University of New York, NY

- 3:20 pm-3:40 pm ***Discrimination of Dyed Cotton Fibers Based on UV-Visible Microspectrophotometry and Multivariate Statistical Analysis***
John V. Goodpaster, Assistant Professor, Forensic and Investigative Sciences Program, IUPUI, Indianapolis, IN
- 3:40 pm-4:00 pm ***Analysis of Fibre Dyes by Capillary Electrophoresis – Quadrupole Time-of-Flight Mass Spectrometry***
Claude Roux, Professor of Forensic Science, Centre for Forensic Science, University of Technology, Sydney, Broadway, New South Wales, Australia
- 4:00 pm-4:15 pm Q&A
- 4:15 pm-4:30 pm Break**
- 4:30 pm-4:50 pm ***Comparative Finished Fiber Analysis Using Liquid Chromatography, Nano-Sampling Cryomicrotomy and Time-of-Flight Mass Spectrometry Techniques***
David Hinks, Cone Mills Professor of Textile Chemistry, Department of Textile Engineering, Chemistry and Science, North Carolina State University, Raleigh, NC
- 4:50 pm-5:10 pm ***Evaluation of Statistical Measures for Fiber Comparisons by Interlaboratory Studies***
Stephen L. Morgan, Professor, Department of Chemistry and Biochemistry, University of South Carolina, Columbia, SC
- 5:10 pm-5:30 pm ***Assessing the Random Match Probability of Automotive Carpet Fibers***
Harold Deadman, Forensic Examiner IV, Trace Evidence Unit, Metropolitan Police Department Crime Laboratory, Lorton, VA
- 5:30 pm-5:45 pm Q&A

Non-Conventional Trace Evidence

Chicago/San Francisco

The presenters in this session will discuss analytical techniques used on a variety of different trace evidence materials including condom and sexual lubricants, black electrical tape, glitter, non-human DNA, and polyurethane foam particles. Two cases involving unusual trace evidence will also be presented.

Moderator:

Amy Michaud, Forensic Chemist, Bureau of Alcohol, Tobacco, Firearms and Explosives, Ammendale, MD

- 3:00 pm-3:20 pm ***Method Validation for the Analysis of Condom and Sexual Lubricants Using Direct Analysis Mass Spectrometry***
Jeffrey Dake, Forensic Chemist, Trace Evidence Branch, U.S. Army Criminal Investigation Laboratory, Forest Park, GA

- 3:20 pm-3:40 pm ***The Analysis of Black Electrical Tape as Forensic Evidence***
Madlen Margau, Forensic Scientist, Chemistry Section, Centre of Forensic Sciences, Toronto, Canada
- 3:40 pm-4:00 pm ***Glitter: The Ideal Trace Evidence?***
Claude Roux, Professor of Forensic Science, Centre for Forensic Science, University of Technology, Sydney, Broadway, New South Wales, Australia
- 4:00 pm-4:15 pm Q&A
- 4:15 pm-4:30 pm Break**
- 4:30 pm-4:50 pm ***Taxonomic Identifications of Traces Using Non-Human DNA***
David A. Stoney, Chief Scientist, Stoney Forensic, Inc., Chantilly, VA
- 4:50 pm-5:10 pm ***Contribution to the Characterization, Identification and Comparison of Polyurethane Foam Particles***
Skip Palenik, Senior Research Microscopist, Microtrace LLC, Elgin, IL
- 5:10 pm-5:30 pm ***The Strength of Trace Evidence: Two Case Studies where Unusual Trace Evidence Has Impacted Legal Proceedings***
Kari Pitts, Chemist and Research Officer, Physical Evidence Section, Forensic Science Lab, ChemCentre, Perth, Western Australia
- 5:30 pm-5:45 pm Q&A

Thursday, August 11, 2011

7:30 am-8:00 am **Continental Breakfast** *Chicago/San Francisco Foyer*

8:00 am-8:30 am **Case Study Presentation** *Chicago/San Francisco*

Processing of Deceased Bodies by Trace Evidence Examiners in the Morgue Setting

One of the unique responsibilities of the trace evidence examiners at the Tarrant County (Texas) Medical Examiner's Office is the processing of decedent's bodies for evidentiary materials. Last year alone, the trace evidence team examined approximately fifty bodies. This presentation will outline the procedure utilized to efficiently and effectively recover trace materials in a morgue setting prior to autopsy. Numerous case examples will be related to demonstrate the value of this procedure.

Moderator:

Sandra Koch, Forensic Examiner, Trace Evidence Unit, FBI Laboratory, Quantico, VA

Presenters:

Patricia C. Eddings, Senior Trace Analyst, Crime Laboratory, Tarrant County Office of the Chief Medical Examiner, Fort Worth, TX

Kelly L. Belcher, Senior Trace Analyst, Tarrant County Medical Examiner's Office, Fort Worth, TX

8:30 am-9:50 am **Instrumental Analysis** *Chicago/San Francisco*

This session will include presentations on the use of instrumentation for the micro analysis of trace evidence including the use of SERS (Raman) methods for dye analysis, the use of a combined Raman/LIBS microscope system, the use of a femtosecond laser ablation system coupled to ICP-MS and a comparison between various instrumental methods for the characterization of glass evidence.

Moderator:

Stephen L. Morgan, Professor, Department of Chemistry and Biochemistry, University of South Carolina, Columbia, SC

8:30 am-8:50 am ***Surface-Enhanced Raman Spectroscopy (SERS) Methods and Databases for the Characterization of Dyes***

Deanna M. O'Donnell, Postdoctoral Research Assistant, Department of Chemistry, City College of New York, NY

8:50 am-9:10 am ***Improvements in Laser Ablation Inductively Coupled Plasma-Mass Spectrometry for Trace Forensic Analysis of Common Household Products Using a Short (100 Femtosecond) Pulse Ultraviolet Laser***

Megan Mekoli, Graduate Student, Chemistry, Iowa State University, Ames, IA

9:10 am-9:30 am ***Evaluation of the Performance of Different Match Criteria for the Comparison of Elemental Composition of Glass by μ -XRF, ICP-MS, LA-ICP-MS and LIBS***
Tatiana Trejos, Coordinator of Research Programs, International Forensic Research Institute, Florida International University, Miami, FL

9:30 am-9:50 am Q&A

9:50 am-10:10 am Break

10:10 am-12:15 pm Interpretation of Data *Chicago/San Francisco*
Trace evidence reporting has been under scrutiny since the NAS report. The question is, how to assess the significance of our findings? This panel will explore different approaches to interpreting trace evidence data.

Moderator:

William A. Randle, Criminalist Supervisor – Trace Evidence, Missouri State Highway Patrol Crime Laboratory, Jefferson City, MO

10:10 am-10:30 am ***Time to Rethink Dusts***
David A. Stoney, Chief Scientist, Stoney Forensics, Inc., Chantilly, VA

10:30 am-10:50 am ***Trace Materials on Footwear - Science or Ichnomancy? The Perils for Interpretation of Soil Trace Evidence***
Ruth Morgan, Director, Jill Dando Institute (JDI), Centre for the Forensic Sciences, Security and Crime Scenes, University College London, London, England, United Kingdom

10:50 am-11:10 am ***ROC Curves for Methods of Evaluating Evidence: A Common Performance Measure Based on Similarity Scores***
R. Bradley Patterson, Graduate Research Associate, Department of Statistics, George Mason University, Fairfax, VA

11:10 am-11:30 am ***Improving Investigative Lead Information and Evidential Significance Assessment for Automotive Paint by Development of Pattern Recognition Based Library Search Techniques***
Barry K. Lavine, Associate Professor, Chemistry, Oklahoma State University, Stillwater, OK

11:30 am-11:50 am ***On Parametric Models for Pairwise Comparisons with Applications to the Estimation of Random Match Probabilities***
Donald T. Gantz, Professor, Applied Information Technology, George Mason University, Fairfax, VA

11:50 am-12:15 pm Q&A

12:15 pm-1:40 pm

Keynote Lunch Presentation

Chicago/San Francisco

Microscopic Trace Evidence: The Overlooked Clue

In recent years trace evidence has become, almost exclusively, a tool to be used at trial. It's traditional use, however, was to help detectives in developing leads to further their investigations. This presentation will first describe a few historical cases that originally highlighted the value of microscopic trace evidence in solving crimes and will be followed by several examples from the author's casebook that illustrate the success of this approach in recent investigations. The principles underlying this approach and the techniques and thought processes that lead to its successful application will be described and illustrated.

Presenter:

Skip Palenik, Senior Research Microscopist, Microtrace LLC, Elgin, IL

1:40 pm-3:00 pm

Report Writing

Chicago/San Francisco

This session will discuss the various report writing formats currently in use in the Trace Evidence community. The use of levels of association versus reporting the results and saving a detailed discussion of the methods and interpretation for court or including a description of methods and interpretation into report documents will be covered as well as how these formats have been received in the criminal justice community.

Moderator:

Sandy Parent, Forensic Scientist, Trace Evidence, Texas Department of Public Safety Crime Laboratory, Austin, TX

1:40 pm-2:00 pm

Communicating Conclusions – Customer Feedback from the Criminal Justice System

Helen R. Griffin, Forensic Scientist, Forensic Sciences Laboratory, Ventura County Sheriff's Office, Ventura, CA

2:00 pm-2:20 pm

European Presentation on Report Writing

Kornelia Nehse, Head of Fiber Department - EU Chairperson, Fiber and Micromorphology, Forensic Science Institute Berlin, Berlin, Brandenburg, Germany

2:20 pm-2:40 pm

Michael B. Smith, Forensic Examiner, FBI Laboratory, Quantico, VA

2:40 pm-3:00 pm

Q&A

3:00 pm-3:10 pm

Poster Award Presentation

Chicago/San Francisco

Vincent J. Desiderio, President, American Society of Trace Evidence Examiners, Hamilton, NJ

3:15 pm-3:20 pm

Closing Remarks

Chicago/San Francisco

Charles Heurich, Program Manager, Office of Investigative and Forensic Sciences, National Institute of Justice, U.S. Department of Justice, Washington, DC