

National Institute of Justice
Forensic Science R&D Symposium
68th Annual American Academy of Forensic Sciences Scientific Meeting
Pavilion 11, Rio All-Suite Hotel

The NIJ Forensic Science Research and Development Symposium is a *free* and *open* meeting where attendees can learn about NIJ-funded research across a variety of forensic science areas. Feel free to stop by and listen to specific presentations or stay all day and learn about the diverse NIJ forensic science R&D portfolio.

Tuesday, February 23 — 8:30 a.m. – 5:15 p.m.

8:30 a.m. - 8:40 a.m. Welcome and Opening Remarks
Gerald LaPorte
Director, Office of Investigative and Forensic Sciences

Morning Session I – Impression, Pattern and Trace Evidence

8:40 a.m. - 9:05 a.m. Mobile, Automated Tool Mark Characterization/Comparison System
Scott Chumbley
Ames Laboratory

9:05 a.m. - 9:30 a.m. ACEware Latent Fingerprint Identification Research and Software Development
Austin Hicklin
Noblis

9:30 a.m. - 9:55 a.m. Isotope Analyses of Hair as a Trace Evidence Tool to Reconstruct Human Movements:
Establishing the Effects of the "Human Ecosystem" on Strontium and Oxygen Isotope
Ratios
Brett Tipple
IsoForensics

9:55 a.m. - 10:10 a.m. Break

Morning Session II – Forensic Biology/DNA

10:10 a.m. - 10:35 a.m. A Hybrid Machine Learning Approach for DNA Mixture Interpretation
Michael Marciano
Syracuse University

10:35 a.m. - 11:00 a.m. Delivery of a Microfluidic Acoustic Sperm Cell Trapping Prototype for Rapid Processing
of Sexual Assault Evidence
James Landers
University of Virginia

11:00 a.m. - 11:25 a.m. Isolation of Sperm DNA Through Protamine Capture
Michael Gerdes
General Electric Company, GE Global Research

11:25 a.m. - 11:35 a.m. Mid-Session Break

11:35 a.m. - 12:00 p.m. Robust STR Calling from High-throughput Sequencing Technologies
Yaniv Erlich
New York Genome Center

12:00 p.m. - 12:25 p.m. Measuring Rates of mtDNA Heteroplasmy and Assessing Transmission of Variants
Mitchell Holland
The Pennsylvania State University

12:25 p.m. - 1:45 p.m. Lunch Break – On Your Own

Afternoon Session I – Anthropology and Microbial Forensics

1:45 p.m. - 2:10 p.m. NSF and NIJ - A Partnership to Advance Fundamental Research in Forensic Science
Rebecca J. Ferrell
Program Director, Biological Anthropology

2:10 p.m. - 2:35 p.m. The Transformation of Data Collection Procedures for Forensic Skeletal Material:
Evaluating Osteometric Data in Forensic Anthropology
Natalie Langley
Lincoln Memorial University

2:35 p.m. - 3:00 p.m. A Multidisciplinary Validation Study of Nonhuman Animal Models for Human
Decomposition Research
Dawnie Steadman
University of Tennessee

3:00 p.m. - 3:25 p.m. Postmortem Changes and Translocation of Bacterial Community Structure and Function
for use in Criminal Investigations
Heather Jordan
Mississippi State University

3:25 p.m. - 3:35 p.m. Break

Afternoon Session II – Controlled Substances and Toxicology

3:35 p.m. - 4:00 p.m. Dried Blood Spot Analysis as an Emerging Technology for Application in Forensic
Toxicology
Nichole Bynum
Research Triangle Institute

4:00 p.m. - 4:25 p.m. Characterization and Abuse of Electronic Cigarettes: The Efficacy of “Personal
Vaporizers” as an Illicit Drug Delivery System
Michelle Peace, Joseph Stone, and Karen Butler
Virginia Commonwealth University

4:25 p.m. - 4:50 p.m. Should Forensic Laboratories Embrace Ultra-High Performance Supercritical Fluid
Chromatography as a Separation Technique for the Analysis of Seized Drugs?
Ira Lurie
George Washington University

4:50 p.m. - 5:15 p.m. A New Approach to Drug Screening in Forensic Toxicology: Paper Spray Mass
Spectrometry
Nicholas E. Manicke
Indiana University