U.S. Department of Justice
Office of Justice Programs
National Institute of Justice

How can chemists and biologists contribute to solving crime?

*Find out by attending the **National Institute of Justice's symposia at Pittcon 2020**. Five oral sessions and a poster session will highlight the work of NIJ-funded researchers and others who are applying advances from the chemical and biological sciences to develop better methods of analyzing forensic evidence.*

See the reverse for full session agendas

Stop by the National Institute of Justice **booth #5239** to learn about our funding programs and take home our latest publications.

Meet NIJ program managers at the booth on Wednesday, March 4:

Frances Scott
Seized Drugs
Forensic Toxicology
1:00-2:30 p.m.

Gregory Dutton
Trace Evidence
Impression & Pattern Evidence
Forensic Biology/DNA
2:00-3:30 p.m.

**Catch both program managers at the NIJ poster session on Tuesday, March 3 from 5:30–7:30 p.m. in the Skyline Ballroom.*

What is NIJ?

The National Institute of Justice (NIJ) — the research, development, and evaluation agency of the U.S. Department of Justice — is dedicated to improving knowledge and understanding of crime and justice issues through science. NIJ supports external research in forensic science.

How does R&D in the physical and life sciences support forensic examiners?

- New technology for improved evidence detection and collection
- Automated, accurate, and reliable methods of analysis
- Standards, databases, and statistics for classifying and comparing evidence

Funding Opportunities

1. Research and Development in Forensic Science for Criminal Justice Purposes

NIJ's primary funding program for forensic science R&D solicits proposals once annually. All proposals advancing the analysis of physical evidence (with few exceptions) are invited.

Deadline: TBA

2. Graduate Research Fellowship

NIJ invites applications to support Ph.D. students whose dissertation research is relevant to criminal justice.
Deadline: April 15, 2020

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NIJ SESSIONS AT PITTCON 2020

McCormick Place, Chicago, Illinois, March 1–5, 2020

MONDAY

Emerging Analytical Methods for Chemical and Biological Forensic Evidence, Monday morning, Room W183A, Session: 2-12

8:30 Introductory Remarks – Gregory Dutton

8:35 Forensic Science R&D Funding Programs at the National Institute of Justice – Frances Scott and Gregory Dutton, National Institute of Justice

9:10 A Confirmatory Test for Sperm in Sexual Assault Samples using a Microfluidic-Integrated Cell Phone Imaging System – Utkan Demirci, Stanford University

9:45 When was the Fingerprint Left? Determining Fingerprint Deposition Time with Mass Spectrometry Imaging – Young Jin Lee, Iowa State University

10:20 Break

10:35 Vibrational Spectroscopy and Advanced Statistics for Detection and Characterization of Gunshot Residue – Igor Lednev, University at Albany, SUNY

Advancements in the Analysis of Forensic Trace Evidence, Monday afternoon, Room W184BC, Session: 4-3

1:30 Developments in the Forensic Analysis of Automotive Paints by SEM/EDS – Christopher Palenik, Microtrace LLC

1:50 The Chemical, Micro-morphological and Isotopic Characterization of Smokeless Powders – Jack Hietpas, The Pennsylvania State University

2:10 Electrochemical Tape-and-paper-based Devices for Detection of Explosives – Frederique Deiss, Indiana University - Purdue University Indianapolis

2:30 Advances in Forensic Fire Debris Analysis Research and Practice – Michael Sigman, University of Central Florida

2:50 Break

3:05 Next-generation Fingermark Lifters with Instant Visualization Capability – Oliver Hofstetter, Northern Illinois University

3:25 Suspect Profiling using Fingerprint Composition for Investigative Purposes – Jan Halamek, University at Albany, SUNY

3:45 Determining the Strength of Forensic Lubricant Evidence from DART-MS and GC-MS Data – Candice Bridge, University of Central Florida

4:05 Inferring SNP Genotype from Forensic Protein Samples – Glendon Parker, University of California, Davis

TUESDAY

Innovations and Trends in Forensic Examination of Seized Drugs and Forensic Toxicology, Tuesday morning, Room W183, Session: 2-29

8:30 Introductory Remarks – Frances Scott

8:35 Towards an Improved Understanding of the Mass Spectrometric Identification of Cathinones and Fentalogs – Glen Jackson, West Virginia University

9:10 Isolation of Class-specific Aptamers and Development of Sensors for Instantaneous Detection of Synthetic Cathinones – Yi Xiao, Florida International University

9:45 What's in the Vape? Measuring Ethanol in the Condensation Aerosol Produced by E-Cigarettes – Michelle Peace, Virginia Commonwealth University

10:20 Break

10:35 Developing a Fieldable SERS-PSI-MS Platform for On-Site, High Throughput Drug Evidence Confirmation – Christopher Mulligan, Illinois State University

11:10 Determination of the Structures of New Psychoactive Substances using DART-MS-derived Collision Induced Dissociation Data – Rabi Musah, University at Albany, SUNY

Innovations in Forensic Examination of Seized Drugs and Forensic Toxicology, Tuesday afternoon, Room W184D, Session: 4-8

1:30 Development of Improved Extraction/Purification Methods for LC-QqQ-MS Analysis of Novel Psychoactive Substances – Anthony DeCaprio, Florida International University

1:50 Evaluation of 25+ Techniques for the Determination of Cannabinoids in Marijuana Infused Edibles – Carl Wolf, Virginia Commonwealth University

2:10 Systematic Comparison of Pre-treatment Parameters in Hair Analysis for Amphetamine, Cocaine, Heroin, Diazepam, and THC – Jennett Chenevert-Aijala, Florida International University

2:30 Identification of Drugs in Powders, Liquids, and Plant Material via Solid Phase Microextraction (TV-SPME) – John Goodpaster, Indiana University - Purdue University Indianapolis

2:50 Break

3:05 High Times: Mass Spectral Analysis of Headspace Volatiles for the Detection and Identification of Psychoactive Synthetics – Meghan Fogerty, University at Albany, SUNY

3:25 HRMS-based Drug Screening in Forensic Toxicology: Data Acquisition Comparison – Jessica Ayala, Sam Houston State University

3:45 Modifying Paper Spray Mass Spectrometry for the Detection of Opioids and Synthetic Cannabinoids in Biofluids – Brandon Bills, Indiana University - Purdue University Indianapolis

4:05 Simplifying Potent Drug Analysis in Forensic Toxicology by a Surface-enhanced Raman Spectroscopy-based, Label-free Technique – Rajesh Sardar, Indiana University - Purdue University Indianapolis

NIJ Poster Session

Tuesday evening, 5:30 – 7:30, Skyline Ballroom

WEDNESDAY

Innovations in Technology to Advance Forensic Science, Wednesday morning, Room W181A, Session: 4-9

8:30 Validation of Novel Statistical Approaches for the Interpretation of Trace Evidence – Jose Almirall, Florida International University

8:50 Considerations for Field Deployable Vapor Sampling in Forensic Science – Megan Harries, National Institute of Standards and Technology

9:10 Novel Near-Infrared and Raman Spectroscopic Technologies for Black Print Classification and Photography Identification – Christian Huck, Leopold-Franzens University, Institute of Analytical Chemistry and Radiochemistry

9:30 Vibrational Spectroscopy and Hyperspectral Imaging for Characterization of Gunshot Residues – Jorge Yanez, University of Concepcion

9:50 Break

10:05 Analysis and Classification of Organic Gunshot Residues (OGSRs) with Mass Spectrometry and Raman Spectroscopy – Jacob Shelley, Rensselaer Polytechnic Institute

10:25 Innovative Methods of Preparation and Analysis of Biological Samples for Forensic Purpose – Renata Wietecha-Posluszny, Jagiellonian University

10:45 On-site and Quantitative Molecular-level Investigation of Bio-samples by Raman Multivariate Curve Resolution – Masahiro Ando, Waseda University

11:05 Forensic Analyses of 3D-printed Firearms – James Cizdziel, University of Mississippi