



48th Annual SWAFS Conference

Grand Junction Convention Center

Grand Junction, Colorado



Tuesday, October 27th, 2026

Vendor Presentations

9:00a

Agilent Technologies: GCMS Low Energy Ionization to Determine Structural Information on Fentanyl and Nitazene Analogs (Kirk Lokits)

This work compiles low energy ionization spectra of fentanyl and nitazene analogs to assist in the identification of isobaric spectra generated under 70 eV ionization energy. Low energy ionization spectra of nitazene fentanyl analog standards were generated at 10, 12, 15, and 17 eV ionization energies and optimized for the formation of a molecular ion, molecular ion abundance, and high spectral fidelity (isotopic ratios) of the molecular ion patterns. The spectral patterns were then compared to street drug case samples and identified nitazene analogs and other controlled substances based on the creation of their respective molecular ion and isotopic patterns. The data illustrates the power and ability of the Agilent 7250 QTOF to produce the molecular ions of difficult to identify drugs due to similar or isobaric spectra that do not produce characteristic spectral fragmentation and or a molecular ion under conventional ionization energies of 70 eV.



Agilent

10:15a

JEOL USA: FAST Forensic Analysis? Sometimes! Ambient Ionization and DART Mass Spectrometry 23 Years Later (Robert (Chip) Cody)

Forensic applications for ambient ionization mass spectrometry were already under development when we introduced the AccuTOF-DART mass spectrometer at the ASMS Sanibel Conference on Forensics and Homeland security in January 2005. The original application focus was on explosives and chemical weapons, but surprisingly, the first published forensic application was for questioned documents and ballpoint pen inks. The AccuTOF-DART was quickly featured on the television series “CSI/NY”, although the applications featured on the shows didn’t quite match reality!

Starting twenty years ago, the Virginia DFS pioneered and validated the system for seized drug analysis, building a database of AccuTOF-DART mass spectra for drugs of abuse measured at four different levels of fragmentation. The Virginia drug database has been incorporated into the NIST DART Forensic Database which is being expanded as new psychoactive substances continue to appear.

Applications to trace evidence have included gunshot residue from 3D-printed guns, sexual assault investigations, and identification of automotive paint chips. AccuTOF-DART data for trace evidence often complements evidence examined by our scanning electron microscopes.

One of the most important applications has been for CITES enforcement as the US Fish and Wildlife Forensic Lab established a method and database for using the AccuTOF-DART to identify illegally traded timber from endangered species. Other forensic applications have included forensic entomology and rapid hemp/cannabis discrimination.

Samples that aren’t suitable for DART analysis can be analyzed using other ambient ionization methods that can be accessed rapidly with little or no hardware changes. I will show examples for identification of confiscated peptides and proteins, detection of enriched uranium, and unexpected contaminants in vaping liquids and hemp rolling papers.



Since 1949, the JEOL legacy has been one of outstanding innovation in developing instruments used to advance scientific research and technology. JEOL has more than 70 years of expertise in the field of electron microscopy, and more than 60 years in mass spectrometry and NMR spectrometry.

JEOL USA, Inc., incorporated in the United States in 1962, is a wholly owned subsidiary of JEOL Ltd. Japan. The primary business of JEOL USA is sales of new instruments and peripherals and support

of a vast installed base of instruments throughout the United States, Canada, Mexico, and South America.

JEOL Scanning Electron Microscopes and Mass Spectrometers are used by forensic investigators in crime labs, forensic science centers, and government agencies. The imaging and analytical ability of these sensitive yet easy-to-use instruments reveal physical and chemical details about evidence and provide answers to questions of identification.

10:45a

LUMI Drug Scan: From Seizure to Intelligence: Deploying Portable Drug Analysis at the Frontline (Scott Oulton)

The evolving complexity of the illicit drug market and increasing demand for timely information present ongoing challenges for frontline responders and forensic laboratories. A range of technologies are available to support drug identification, with each offering advantages and limitations in terms of safety, specificity, operational practicality, evidential value, and cost.

This presentation examines the role of portable drug analysis technologies within the broader forensic workflow, using the Lumi Drug Scan platform as a case study. Developed by PHF Science, New Zealand's forensic science provider, Lumi combines portable near-infrared spectroscopy with mobile and desktop software, secure forensic data management, digital chain-of-custody support, and organisation-wide intelligence capabilities.

The presentation will cover officer safety, management of mixtures and adulterants, evidential considerations, laboratory triage, handling of unknown substances, and the relationship between field screening and confirmatory laboratory analysis. The discussion will also address limitations of portable technologies and the continued importance of laboratory-based testing for evidential purposes and complex analytical challenges.

Beyond substance identification, the session will explore how secure digital workflows, forensic metadata capture, and aggregated intelligence can extend the value of field testing. Attendees will gain insight into how connected forensic ecosystems can link frontline screening, laboratory operations, and organisational intelligence to improve decision making, resource prioritisation, and understanding of emerging drug threats.



Lumi Drug Scan combines forensic science expertise with modern digital workflows to deliver rapid drug analysis and intelligence for safe, secure and informed decision making when encountering suspected illicit substances.

Developed by PHF Science, New Zealand's national forensic science agency, Lumi is designed for law enforcement, forensic laboratories, border agencies, corrections, public health organisations, and harm reduction services. The Lumi platform combines a portable near-infrared (NIR) spectrometer, mobile and desktop analysis applications, and secure data management with organisation-wide analytics.

Lumi Drug Scan supports safer handling of suspected drugs, faster decision making, and improved information sharing. Samples can be analysed through transparent packaging, reducing exposure risks while maintaining sample integrity. Results are generated in seconds and are accompanied by secure digital records including photographs, location data, operator information, and case details.

By connecting frontline screening, laboratory workflows, and organisational intelligence within a single secure ecosystem, Lumi extends the value of drug analysis beyond substance identification alone, transforming individual drug encounters into actionable information that supports operational effectiveness, public safety, and evidence-based decision making.

1:45p

Shimadzu Scientific Instruments: Shimadzu Solutions for Reducing Helium Usage in your Drug Lab (Doug Carlton)

Various economic factors have driven the use of helium as a GC and GCMS carrier gas to become more inconvenient for today's drug labs. In a continued effort to support these laboratories, Shimadzu has a collection of hardware and application solutions to alleviate this burden. These solutions will be presented not only in a technical sense, but also with attention to financial and time costs when implementing each of the solutions.



SHIMADZU

Excellence in Science

Shimadzu Scientific Instruments is a leading manufacturer of benchtop analytical instruments. Expertise lies within the lines of chromatography, mass spectrometry, molecular spectroscopy, elemental analysis, and physical characterization.

3:15p

908 Devices: Bridging the Gap: Leveraging Field-Deployable Devices to Streamline Forensic Lab Analysis (Tamara Keller, Nadine Whiting and Madison Simmons)

As analytical technology continues to advance, forensic drug laboratories face increasing pressure to improve efficiency, safety, and turnaround time without compromising accuracy. A central question emerging from this pressure is how laboratories can streamline sample analysis while maintaining defensible, accurate results.

The integration of field-deployable detection technologies offers one solution: enabling presumptive triage of samples prior to laboratory confirmation. VipIR, a field-deployable infrared and Raman spectroscopy platform, allows first responders and investigators to generate rapid, non-destructive presumptive identifications at the point of encounter, reducing reliance on color-based presumptive tests that carry higher rates of false positives. The SMARTID feature allows a higher level of confidence comparing the FTIR and Raman spectra and determining the identification based upon both technologies. NIRLab extends this capability into the determination of cannabis versus hemp investigations, allowing laboratories to make real-time decisions regarding the scope of analysis necessary for prosecution.

Similarly, the MX908 can support more accurate field-level identification of controlled substances associated with misdemeanor and lower level felony offenses, providing investigators and prosecutors with actionable data earlier in the case lifecycle. The MX908's identification capabilities carry an added layer of confidence, giving officers and prosecutors greater assurance in field-generated identifications and supporting more informed plea negotiations.

By incorporating validated field-testing protocols, spanning VipIR, MX908 and NIRLab in the field, laboratories can meaningfully reduce unnecessary sample submissions, thereby alleviating analytical backlogs. This approach carries downstream benefits for local jurisdictions as well, including expedited jail proceedings and more efficient case adjudication.



908 Devices is a Burlington, Massachusetts company that makes handheld chemical analysis devices. Responders use them in the field to identify unknown or hidden substances.

What they do: Their portable analyzers let first responders, law enforcement, the military, and customs and corrections agencies quickly identify things like fentanyl and other illicit drugs, explosives, chemical warfare agents, and toxic exposures. The devices pair analytical technologies

(high-pressure mass spectrometry and infrared/FTIR spectroscopy) with software automation and machine learning.

Key products:

- **MX908:** the flagship handheld mass spectrometer.
- **VipIR:** an FTIR identification device. It has shipped more than 100 units since launch.
- **ProtectIR:** after Q2 it won a \$6M order from an Asia-Pacific corrections agency.
- **NIRLab:** added through the 2026 acquisition of Swiss company NIRLAB SA, and now being brought to the U.S. market .

4:00p

Veolia Labwater Solutions: Water Purity Standards for Forensic Laboratory Applications (Peter Janik)

At Veolia Labwater Solutions, we bring more than 80 years of dedicated expertise in pioneering ultrapure water purification systems tailored to the stringent demands of modern laboratories. As water specialists supporting water purification technologies, we understand that sample integrity is essential in forensic science.

Labwater solutions deliver ultrapure water free from nucleases, endotoxins, and trace DNA, helping prevent contamination that could compromise sensitive analytical testing or forensic evidence. We offer Labwater solutions ranging from benchtop point-of-use (POU) systems to central, laboratory-wide systems, so you can choose the right fit for your lab's size and water demand.

Labwater Solutions works closely with forensic scientists to deliver high-purity water solutions that preserve every analysis and streamline lab operations.



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