C14   **Identification of Cocaine Using Hand-Held Raman Spectrometer for Use in Roadside Drug Tests: Surface-Enhanced Raman Spectroscopy (SERS) is Used Along With a Commercially Available Raman Instrument**

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The goal of this presentation is to introduce the forensic community to the field of SERS, highlight a promising direction for this spectroscopy, promote analytical/reproducible science in a forensic setting, and set the groundwork for other researchers to use SERS to identify different drugs such as marijuana and methamphetamine.

This presentation will impact the forensic science community by introducing a new technique to the forensic field that will no doubt be a major force in the future of drug screening, and to continue moving the forensic science field toward its rightful respected place among the analytical sciences.

Surface-enhanced Raman Spectroscopy (SERS) is a general analytical detection methodology that has application in a number of fields including biomedical detection chemical/biological warfare agent detection. Here, the technique has been chosen for the screening of cocaine. 10^{-7} M drops of cocaine have produced a unique Raman signal sufficient for positive identification. Emphasis is put on the challenges in using Raman spectroscopy to distinguish between cocaine and its metabolites. The spectrometer used for all measurements is a commercially-available hand-held Raman spectrometer. The SERS- active sensing substrate is a 200 nm thick silver film over nanosphere deposited using vapor deposition. Fabrication of the SERS substrate will be demonstrated in easy-to-understand figures.   **Surface-Enhanced Raman Spectroscopy, Cocaine, Roadside**