

The INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, Inc.  
Eastern Idaho Section  
Idaho Falls Informal Seminars

**TOPIC:** ICIS/IEEE/ISA “Brew with the Crew” presents: The field vacuum extractor for non-destructive sampling of fixed surfaces, so simple it is genius!

**SPEAKER:** Jill R. Scott, Idaho National Laboratory

**DATE:** Thursday, April 21, 2011

**TIME:** 4:30P.M.

**PLACE:** The Zone, 1505 West Broadway, Idaho Falls, Idaho

**COST:** Order your drinks from the menu. Light hors d'oeuvres provided by the crew organizers.

**Abstract:**

Recovery of chemical contaminants from fixed surfaces for analysis can be challenging, particularly if it is not possible to acquire a solid sample to be taken to the laboratory. A simple device is described that collects semi-volatile organic compounds from fixed surfaces by creating an enclosed volume over the surface, then generating a modest vacuum. A solid-phase microextraction fiber (SPME) is then inserted into the evacuated volume where it functions to sorb volatilized organic contaminants. The device is based on a syringe modified with a seal that is used to create the vacuum, with a perforable plunger through which the SPME fiber is inserted. The reduced pressure speeds partitioning of the semi-volatile compounds into the gas phase and reduces the boundary layer around the SPME fiber, which enables a fraction of the volatilized organics to partition into the SPME fiber. After sample collection, the SPME fiber is analyzed using conventional gas chromatography/mass spectrometry.

IEEE members make plans to join your colleagues for the April informal technical seminar series event “Brew with the Crew\*” organized by the INL’s Instrumentation, Controls and Intelligent Systems (ICIS) Distinctive Signature, the Eastern Idaho Section of the Institute for Electrical and Electronics Engineers (IEEE) and the Idaho Falls branch of the International Society of Automation (ISA).

**Biography:**

While at the INL, Dr. Scott has worked on a variety of analytical chemistry applications as well as the design and fabrication of a variety of instrumentation. Applications have ranged from studying reaction mechanisms and kinetics of inorganic ions in the gas phase to exploring how well geological matrices can be used to observe bio/organic signatures with laser desorption mass spectrometry for the search for signs of life. Instrument design efforts have included development of the laser-based optical and chemical imager (LOCI) that includes a chemical imaging laser desorption FTICR-MS, laser-induced fluorescence (LIF), and laser-induced breakdown spectroscopy (LIBS). She has pioneered full modeling of ion motion, including airflow, within an ion mobility spectrometer (IMS) that has led to the development of novel technology for controlling ions, especially for instrument inlets. In addition, she is a co-inventor of the field vacuum extractor for sampling surfaces.

**The Bulletin:**

See other section news and information at <http://www.easternidahoieee.org/news.htm>

\*Brew with the Crew is an after work event, that takes place every third Thursday of the month at The Zone to provide an opportunity for instrumentation, control and intelligent systems researchers and practitioners to interact with others in their community.

**\*\*\* VISITORS AND NON-MEMBERS ARE WELCOME \*\*\***