

DEPARTMENT OF CHEMISTRY AND ENVIRONMENTAL SCIENCE
SEMINAR SERIES
SPRING 2018

DATE: THURSDAY, JANUARY 25, 2018

WHERE: CENTRAL KING BUILDING - 116

TIME: 1:30 PM

GUEST SPEAKER

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TOPIC

Desorption Electrospray Ionization for Liquid Sample Analysis

ABSTRACT

Desorption Electrospray ionization (DESI) is a recent advance in the field of mass spectrometry (MS), which allows direct sample analysis with little or no sample pre-treatment/preparation. In our laboratory, we have developed DESI-MS method to analyze liquid samples. Different from traditional electrospray ionization (ESI), the direct sampling capability of liquid sample DESI allows us to use it for a number of novel forensic and bioanalytical applications including fast analysis of biofluids (e.g., detection of drugs-of-abuse in urine/saliva or large protein complexes from their native environment), online coupling MS with chromatography (LC), and developing microsecond time-resolved mass spectrometry as well as detection of elusive organometallic reaction intermediates. In particular, in combination with electrochemistry (EC), liquid sample DESI-MS also has high impact in the field of proteomics. For instance, the electrochemical mass spectrometry can be very useful for quickly sequencing disulfide bond-containing proteins and probing protein conformational changes. In this talk, I'll introduce these new analytical applications of liquid sample DESI-MS. In addition, I will talk about an ambient ion dissociation method that we developed in recent years, with aim to developing tandem mass spectrometry at atmospheric pressure for chemical structural analysis.

Committee members:

Dr. Nancy Jackson, Dr. Mengyan Li, Dr. Som Mitra