

THURSDAY, MARCH 27, 2014
12:15 PM, 1315 CHEMISTRY

Analytical Seminar

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“ Ambient Ionization Mass Spectrometry for Intrasurgical Diagnostics, On-line Reaction Monitoring, and Chemical Synthesis on a Preparative Scale “

This presentation uses three examples to illustrate the scope of ambient ionization mass spectrometry (ionization of samples in their native state, without sample preparation). One example is the diagnosis of disease by recording mass spectra from tissue in a surgical setting. Data are given for several diseases, notably brain cancer and prostate cancer. The second example is on-line monitoring of reactions for intermediates, especially in cases where the reaction must be conducted in the absence of air and water, like the Negishi reaction. Mechanistic insights are obtained and short-lived intermediates are detected. The third example involves formation of nanoparticles, chemically modified surfaces and synthetic organic compounds. In these experiments, ions generated by spray ionization in air are collected. Synthesis of new C-C bonds is done on the 10's of mg scale.