FIU Applied Research Center

CLEMSON CHEMISTRY

FIU Arts & Sciences

RSVP

FP&L Distinguished Nuclear Lecture Series featuring Dr. R. Kenneth Marcus

"The Liquid Sampling-Atmospheric Pressure Glow Discharge (LS-APGD): A Practical Microplasma for Diverse Analytical Challenges"

February 27, 2015 | 3:00 PM | School of International & Public Affairs Building (SIPA) | Room 220

Across all of the fields of analytical chemistry, atomic spectrometry (elemental analysis) is the least evolved in terms of miniaturization and transportability. Simply put, the mainstay inductively-coupled plasma (ICP) source requires too much operational overhead. This laboratory is developing the liquid sampling-atmospheric pressure glow discharge (LS-APGD) microplasma for applications in optical emission and mass spectrometric analyses. This source operates at modest powers (<50 W, dc), with relatively low solution and support gas flow rates (10 mL and 10 mL per minute respectively). Beyond these favorable operation parameters, samples can be introduced into the microplasma as small (10 mL) solution aliquots, gases, or particulate aerosols produced via laser ablation. Initial source evaluation demonstrated mass sensitivities on the sub-nanogram level, with very high signal stability and a high level of robustness towards the introduction of samples of different matrix composition. We present an array of attributes that bode well for the further development of the LS-APGD as a pragmatic excitation/ionization source for field-deployable, elemental/isotopic/molecular analyses of natural and radioactive samples.

Dr. R. Kenneth Marcus is a professor of chemistry at Clemson University. Dr. Marcus earned B.S. degrees in chemistry and physics from Longwood College and a Ph.D. in analytical chemistry from the University of Virginia. In 2010, Dr. Marcus was named a Fellow of the Royal Society of Chemistry (FRSC) and in 2013 a Fellow of the American Association for the Advancement of Science (FAAAS). Dr. Marcus has graduated over 40 Ph.D. and MS students, and authored/co-authored more than 170 refereed publications as well as over 530 conference presentations. Research interests include the development and application of new plasma techniques for the atomic spectroscopic analysis of diverse materials as well as the development of novel detection methods for liquid chromatography.

This event is open to the public.

Please RSVP to 305-348-0431 or email aguirrec@fiu.edu

Refreshments will be provided

Date: February 27, 2015
Time: 3:00 pm
Location: SIPA Room 220

Applied Research Center
FIU Engineering Campus | EC 2100
(305) 348-4238 | arc.fiu.edu