



So Flacs



Seminar



“Environmental Forensics and Analytical Atomic Spectrochemistry”

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Professor Emeritus, University of Massachusetts

Abstract. Environmental forensics is a new subject area relating to courtroom or litigation proceedings and the fact basis for mediated or negotiated transactions involving environmental matters. Environmental forensic investigations often deal with historical release of contaminants and attempt to establish who caused the contamination, when and how the contamination occurred, how extensive the contamination was, what levels of contamination exposure existed, and how valid the test results were. Plasma spectrochemical analysis has been applied to a large variety of environmental and forensic materials to identify and quantify their elemental concentrations, isotopic compositions, and metal compound forms. Specifically, inductively coupled plasma (ICP) atomic emission (ICP-AES) and mass spectrometry (ICP-MS) provide powerful elemental analysis tools for air monitoring, biota analysis, soil and sediment analysis, radionuclide determinations, and water and ecological monitoring. The features of plasma spectrochemistry will be described, and ICP analyses of environmental and forensic materials will be reviewed with emphasis on chemometric data interpretation for source identification. The unique applications of laser ablation (LA-ICP-MS) for microsamples and especially crime scene samples will be demonstrated. Elemental speciation with combined separation and ICP-MS tools also will be introduced.

Biography. Ramon Barnes is director of the University Research Institute for Analytical Chemistry, Professor Emeritus of Chemistry at the University of Massachusetts, editor of the ICP Information Newsletter (1975-), and chairman of the Winter Conference on Plasma Spectrochemistry (1980-). He received a Ph.D. in analytical chemistry from the University of Illinois, Champaign/Urbana, in 1966, an A.M. in chemistry from Columbia University, New York, in 1963, and was a post doctoral research fellow at Iowa State University, Ames, in 1968 and 1969. He served as an Army Captain at NASA Lewis Research Center, Cleveland, from 1966 to 1968. From 1969 to 2000 he taught analytical chemistry and maintained an international research program at the University of Massachusetts, Amherst. He has published more than 300 papers, edited four books, and continues an active research interest in fundamentals and applications of inductively coupled plasma (ICP) discharges for spectrochemical analysis. The University Research Institute for Analytical Chemistry (URIAC) is the research and development division of ICP Information Newsletter, Inc., a not-for-profit corporation established in 1997 to foster science education, research, and study in spectroanalytical chemistry.

Monday, January 25, 2010



NOON at Barry University, Wiegand Annex Rm 103

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3:00 PM at Nova Southeastern University, Parker Science Bldg. Rm 338

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