Pacific Northwest
NATIONAL LABORATORY
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Director's Distinguished Lecture Series

Dr. R. Graham Cooks

Distinguished Professor of Chemistry
Department of Chemistry and Center for Advanced Instrumentation Development
Purdue University

March 25, 2014 | 3:30 – 4:30 pm, with reception following | Battelle Auditorium

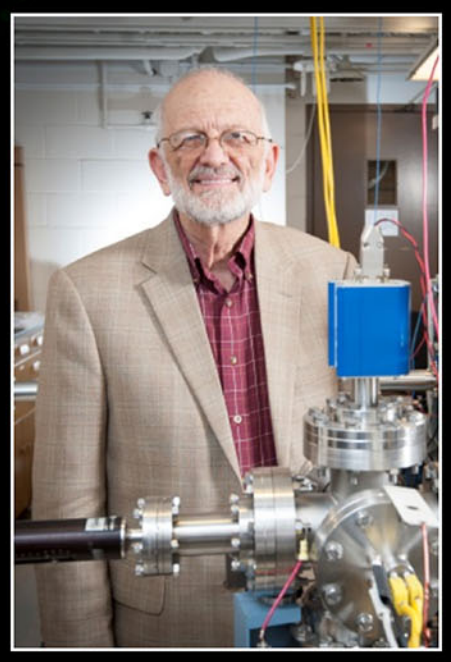
Extending the Boundaries of Mass Spectrometry: Analysis, Synthesis, and Materials Preparation

Mass spectrometry can be defined as the science and technology of ions. Dr. Cooks surveys this broad field and its applications to medicine, biochemistry, and organic chemistry. He also illustrates applications of ambient ionization mass spectrometry to on-site and intrasurgical analysis. He will show examples of chemical synthesis, surface tailoring, and materials preparation using mass spectrometry.

ABOUT DR. COOKS

Dr. Graham Cooks' discoveries have touched a broad swath of Americans' daily lives, from fundamental research to medical care. He is internationally known for the design and development of mass spectrometers and their use in analyzing complex mixtures. He pioneered desorption electrospray ionization for applications from food safety to detecting explosives residues on airport luggage. This technology was featured in the TV show CSI for obtaining chemical fingerprints that reveal more than identity. A current research interest is applying ambient ionization in imaging tumor margins, monitoring therapeutic drugs, and identifying microorganisms.

Science of ions at PNNL and EMSL

Pacific Northwest National Laboratory and the Environmental Molecular Sciences Laboratory at PNNL advance discoveries in energy, environment, human health and national security through the use of their unique collection of mass spectrometry instrumentation and expertise. Scientists are advancing proteomics research, aerosol particle characterization, the study of ion-surface collisions, bio-remediation, carbon cycling, and materials characterization.

PNNL and EMSL users have collaborated with Dr. Cooks' research group since 2003, advancing the use of ion soft-landing for understanding surface chemistry.