Precise Measurements Lead to Advanced Technologies

Michael Trenary
Professor, Chemistry

CURRENT RESEARCH

Mechanisms of chemical reactions inform environmental and energy applications

Experimental physical chemistry is concerned with making precise measurements that can test hypotheses about the nature of chemical processes. Dr. Michael Trenary of the University of Illinois at Chicago focuses on understanding the mechanisms of chemical reactions that take place on solid surfaces. These reactions are essential to many technological processes. Although basic rather than applied, Dr. Trenary's research thus has implications for many technologies that shape everyday life. For example, his work is contributing to such advances as the development of sophisticated batteries and cleaner-burning fossil fuels.

Dr. Trenary's innovative research is particularly noteworthy for the unique instruments that he and his team have constructed for studying surface chemical reactions. With over thirty years of experience in the field, Dr. Trenary has used these new instruments to pioneer novel techniques for studying surfaces, while inspiring a new generation of scientists with creative approaches to chemistry. With a specialized expertise in the use of infrared spectroscopy, Dr. Trenary is able to identify and characterize novel molecular species that form during the course of surface chemical reactions. Moreover, his active collaborations with researchers in both the United States and in Japan have helped build a research program that fosters diversity of background, experience, and perspective. By gaining a fundamental understanding of the mechanisms of surface chemical reactions, Dr. Trenary and his team aim to design new materials for specific functions where surfaces play a critical role.

Current research includes:

- Advanced Battery Technology: Dr. Trenary and his team...

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AFFILIATION

UIC University of Illinois, at Chicago

EDUCATION

- B.S., in Chemistry, 1978 , University of California, Berkeley
- Ph.D., in Physical Chemistry, 1982 , Massachusetts Institute of Technology

AWARDS

- Dreyfus Teacher-Scholar Award, 1989
- Fellow of the American Vacuum Society, elected 2002
- Teaching Recognition Award, University of Illinois at Chicago, 2008
- Fellow of the American Association for the Advancement of Science, elected 2009
- Fellow of the American Chemical Society, elected 2011

RESEARCH AREAS

Technology, Chemistry, Materials Science / Physics, Clean Energy

FUNDING REQUEST

Your contributions will support the continued research of Dr. Michael Trenary, of the University of Illinois in Chicago, as he works towards gaining a fundamental understanding of the mechanisms of surface chemical reactions. Donations will fund the necessary costs for the sophisticated, custom-designed instrumentation used within Dr. Trenary's lab in addition to the cost of personnel, travel, and additional supplies. In choosing to donate, you will play a role in designing materials to achieve specific functions where surfaces play a critical role.