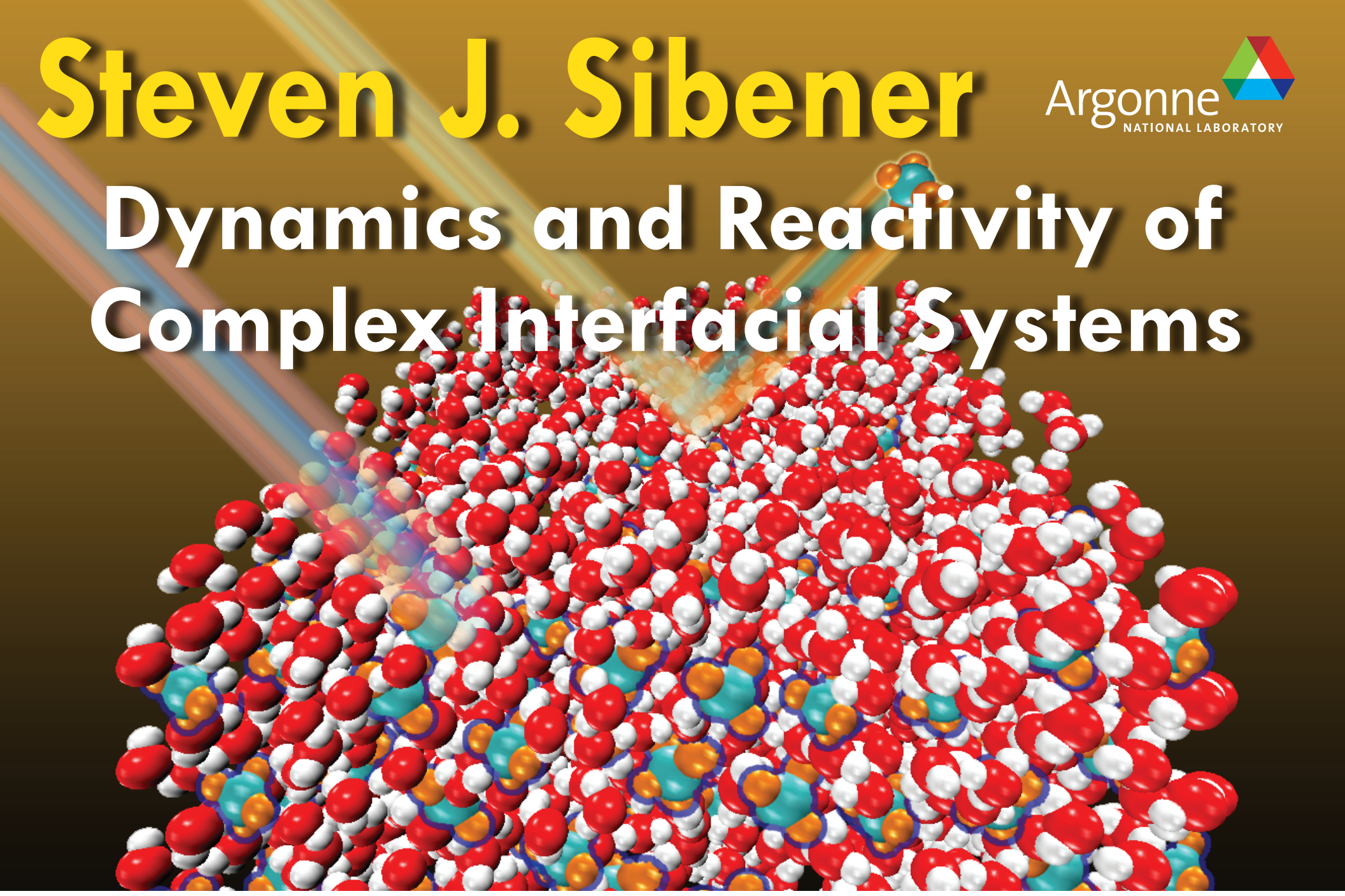
Steven J. Sibener

Argonne NATIONAL LABORATORY

Dynamics and Reactivity of Complex Interfacial Systems



The understanding and control of interfaces has entered a new era due to the advent of refined scattering, visualization, and simulation methods that can elucidate the true atomic- and nano-scale dynamics, reactivity, and self-organizing behavior of such systems. Illustrative research from our group that highlights such advances includes: the discovery of energetic embedding of molecules into ice, the dynamical properties of polymer interfaces spanning single chain motion through nanodomain organization, surface reactions including superconducting radio frequency materials, the dynamical properties of electronic interfaces, and the visualization of spatio/temporal reactivity correlations in order to elaborate mechanistic details of materials oxidation. This talk provides an overview of key ideas and insights derived from these studies.

Steven J. Sibener obtained his Sc.B. in chemistry and B.A. in physics from the University of Rochester in 1975, and his M.S. (1977) and Ph.D. (1979) in chemistry from the University of California, Berkeley. He was a postdoctoral fellow at Bell Laboratories from 1979-1980. He is currently the Carl William Eisendrath Distinguished Service Professor in Chemistry and The James Franck Institute at The University of Chicago, a Fellow of the Institute for Molecular Engineering, and Founding Director of UChicago's IME Water Research Initiative. Sibener has made seminal contributions to chemical physics, surface and materials chemistry, catalytic reaction kinetics, and nanoscience, with over 160 papers in these areas of research. He has served as Director of The James Franck Institute, the NSF MRSEC, the DoD MURI Center for Materials Chemistry in the Space Environment, and the NSF Center for Energetic Non-Equilibrium Chemistry at Interfaces. He chaired the two faculty committees that led to the establishment of UChicago's new Institute for Molecular Engineering. He is a Fellow of the APS and the AAAS, and has been a Visiting Fellow of JILA. Amongst his many honors are the 1988 Marlow Medal of the Royal Society of Chemistry, the 2012 AVS Prairie Chapter Award for Outstanding Research, and the 2012 ACS Arthur W. Adamson Award for Distinguished Service in the Advancement of Surface Chemistry.

Wednesday, June 3, 2015 | 3:00 p.m.

APS Colloquium

Bldg. 402 | APS Auditorium
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