Michigan Institute for Plasma Science and Engineering Seminar

When Low Temperature Plasmas Meet Surfaces

Prof. David B. Graves

University of California at Berkeley

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Abstract

Low temperature plasmas (LTPs) are virtually always bounded by surfaces. Charged particles from the plasma recombine and are emitted at walls; plasma species exchange mass, momentum and energy with walls; the plasma electrostatic potential is referenced to wall potential; energetic and often chemically reactive charged and neutral species from the plasma impact surfaces and reflect, embed, diffuse and desorb back into the plasma; dust particle nuclei may originate at surfaces; and surface erosion and re-deposition often dramatically alter plasma neutral composition and temperature. In this talk, I will present an overview of low temperature plasma-surface interactions with an emphasis on what the LTP community has learned during the last several decades, including some thoughts on new directions and opportunities. This includes in particular the recent emphasis on LTP-biomedical applications, which introduces a new set of especially challenging problems for the understanding and control of plasma-surface interactions.

About the Speaker: **David B. Graves joined the University of California at Berkeley in 1986 after receiving his PhD in Chemical Engineering from the University of Minnesota. He is currently Full Professor and Vice-Chair of the Department of Chemical and Biomolecular Engineering. He is author or co-author of over 150 publications. Prof. Graves is a fellow of the American Vacuum Society and the Institute of Physics and was the recipient of the Electrochemical Society Young Author Award, the NSF Presidential Young Investigator Award, the Tegal Plasma Thinker Award, and the 3rd annual Plasma Prize of the Plasma Science and Technology Division of the AVS.**