

MAR17-2016-000626

Abstract for an Invited Paper
for the MAR17 Meeting of
the American Physical Society

In the Footsteps of Irving Langmuir: Physical Chemistry in Service of Society

EMILY CARTER, Princeton University

The approach that Irving Langmuir took during his scientific career in industry at General Electric exemplifies the best that we chemical physicists/physical chemists can offer the world. His name is associated with very fundamental concepts and phenomena (e.g., the Langmuir isotherm, Langmuir-Blodgett films) along with practical inventions (e.g., the Langmuir probe, Langmuir trough). He worked at the interface of physics, chemistry, and engineering, with much of his important work devoted to understanding surface and interface phenomena. I have – unintentionally – followed in his footsteps, trained as a physical chemist who now leads the engineering school at Princeton. In this talk, I will give examples from my research as to how fundamental physical chemistry techniques and concepts – based largely on quantum mechanics – can be harnessed to help the world transition to a sustainable energy future. In the footsteps of Irving, surface and interfacial phenomena will figure prominently in the examples chosen.