



Monday September 11, 2017. 12:00 pm
Seaver Science Auditorium

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Light, Electrons, and Protons: Lessons from Model Systems and Potentials for Photocatalysis

Abstract:

The inspiration for this talk comes from the photoelectrochemical interface, which is a place rich with unknowns and unrealized potential. Electrons are excited by light either in the electrode or in the adsorbed molecules, charges traverse the electrode-electrolyte interface, protons flow from the bulk to complete redox reactions, and interfacial electric fields develop to balance chemical potential differences between the opposing phases. In this talk, the complex chemistry at the interface will be used as a point of reference to motivate several chemical dynamics studies in small molecules, solids, and interfaces with the goal of generating new directions and ideas for understanding and driving reactions. New concepts that will be discussed are basicity in the excited state, solvation near an interface, electronic-vibrational dynamics in a solid made of a redox couple, and influencing proton conductivity with light. Several avenues on how to use this knowledge will be proposed.

The scientific community is invited to attend