

CHEMISTRY DEPARTMENT SEMINAR

Advances in Vibrational Stark Shift Spectroscopy for Measuring Interfacial Electric Fields

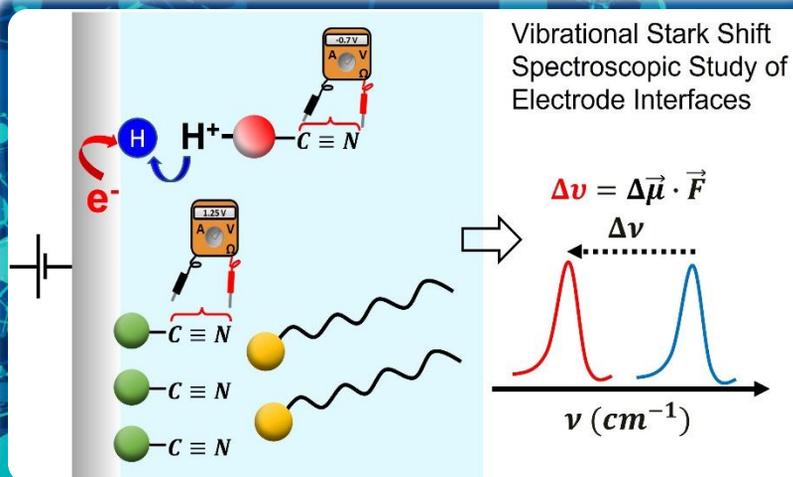
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Measuring, modeling, and engineering electric fields on the molecular scale are ubiquitously important in a wide spectrum of physical and chemical phenomena ranging from device physics to electrochemistry and catalysis. It is argued that many enzymes operate based on this principle, and lessons learned from them can be extended to other catalytic systems. A major challenge towards this goal is quantifying electric fields on microscopic scales. Towards that goal, we will discuss recent advances in Stark shift spectroscopy, with emphasis on its applications in deciphering interfacial

electric fields and related phenomena. The potential of using vibrational Stark probes, with a focus on benzonitriles, for measuring electric fields will be discussed. We will describe recent applications of benzonitrile Stark shift probes for studying field caused by surfactants and the interplay between a proton-coupled electron transfer reaction and the electrostatics of the interface. We will highlight both future prospects and limitations of using such probes for a better understanding of chemical microenvironments.



October 21st @12 pm – Lopez 106

Meeting ID: 951 3765 0274

<https://zoom.us/j/95137650274>