COPE Seminar Series

May 6th, Marcus Nano 1116-1118 11 AM-12 PM

Probing Charge Carriers in Mixed Ionic-Electronic Conducting Polymers

Conjugated polymers continue to emerge as next-generation electronic materials for mixed ionic-electronic conduction applications, ranging from biomedical sensing to energy storage. However, their development is hampered by a lack of rational design principles due to missing fundamental knowledge about how ion-charge interactions and dynamic polymer nanostructure influence charge transport and storage along polymer chains. In this talk, I will first discuss how we are exploiting the ultrafast dynamics of photoexcited charge carriers to provide details on their nanoscale environment and trapping behavior. Then I will show how in situ electronic and vibrational spectroscopy of polymer electrodes can be used to track their complex nanoscale dynamics during charging, revealing insights into nanostructures that support the formation of mobile carriers.

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