Yale Institute for Nanoscience and Quantum Engineering

Friday-March 24, 2017

12:00-1:00 PM

BECTON SEMINAR ROOM
Light lunch will be served at 11:45 a.m.

Yiren Zhong
Department of Chemistry, Yale University
P/I Prof. Hailiang Wang

"Surface Chemistry and Cathode Materials Design for Lithium-Sulfur Batteries"

Rechargeable lithium-sulfur batteries are potentially high-energy- density and low-cost electrochemical devices for future electric transportation and stationary energy storage, however the short cycle life imposes a strong constraint on their applications. On the cathode side, poor cycling stability is mainly caused by uncontrolled diffusion of lithium polysulfide intermediates. Our research aims to address this key challenge by realizing rational design of high-performance sulfur cathodes based on molecular level understanding of the chemical interactions at material/polysulfide interfaces.

Burak Dura
Department of Biomedical Engineering, Yale University
P/I Prof. Rong Fan

"Single-Cell Technologies for Assaying Immune Cell Interactions"

Initiation and progression of immune responses require cell–cell interactions. Molecular interactions at the contact interface or initiated by paracrine signaling mediate cellular cross-talk and trigger a series of well-orchestrated downstream signaling events. The magnitude and dynamics of these signals promote and coordinate immune cell activation, and underlie a broad array of functional outcomes, such as target cell elimination, secretory activity, and proliferation. Understanding how these interaction events are transduced into functional responses demands correlated measurements at different stages as these responses unfold. In this talk, I will describe a set of micro-technologies we have developed to study immune cell communication and ensuing effector functions at the single-cell level, and will highlight example applications of these technologies particularly on immune cell activation dynamics and multiplexed proteomic profiling.

Host: Professor Eric Altman