DISTINGUISHED SPEAKER

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in Situ Spectroscopic Monitoring of Elementary Processes in Electrochemical Energy Storage Devices

The coupling of microscopic and spectroscopic probes has opened new prospects toward the development and implementation of time-, and space-resolved tactics for monitoring interfacial and electrochemically-induced bulk events with unparalleled resolution, sensitivity and specificity. These advances combined with the use of microelectrodes has made it possible to decrease the time required for achieving potential control across interfaces to only fractions of a microsecond. This presentation will focus on applications of in situ spectroscopic and optical imaging techniques for monitoring in real time archetypical elementary processes of relevance to energy storage devices. Emphasis will be placed on the electrochemically-driven insertion and release of Li-ions into single microparticles of anodes and cathodes using in situ microraman scattering. Also to be illustrated is the use of chemometrics for the analysis of spectroscopic information which reproduces quantitatively features observed in charge discharge curves recorded by strictly electrochemical techniques.

Friday March 22, 2013
2:00 - 3:00 PM
Winston Chung Hall
Room 205/206

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