

# Spectroscopy and theory for studying electronic structure of lithium battery materials



**Time:** Wednesday, **October 10**, 2012

**Location:** 54-130 (Pers Hall)

**Organizers:** Wanli Yang, Zhi Liu, Jinghua Guo, Zahid Hussain

**Scope:** A soft x-ray workshop *NOT* limited to soft x-ray techniques. Focus is on the critical issues in Li-ion battery materials, and possible solutions through soft x-ray spectroscopy and theoretical calculations.

- Critical issues involved in Li-ion battery performance, safety, and life-time.
- Soft x-ray spectroscopy and theoretical calculations for battery material researches

<b>Time</b>	<b>Speaker /Title</b>
08:00 - 08:30	Morning Coffee & Breakfast at ALS
<b>08:30 - 09:00</b>	<b>Mariappan Parans Paranthaman (Oak Ridge National Lab)</b> <i>Surface Modification of Cathode Materials and Novel Anodes for Lithium Ion Batteries</i>
<b>09:00 - 09:30</b>	<b>Zhi Liu (Berkeley Lab)</b> <i>Topic: on ambient pressure x-ray photoelectron spectroscopy</i>
<b>09:30 - 10:00</b>	<b>Thomas Conry (Polyplus)</b> <i>Next-Generation Li-Air, Li-Sulfur, and Li-Water Batteries Based on Protected Lithium Electrodes</i>
10:00 - 10:15	Coffee Break & Discussions
<b>10:15 - 10:45</b>	<b>Dennis Nordlund/Tsu-Chien Weng (Stanford)</b> <i>Topic: X-ray Raman Spectroscopy of Lithium Battery Materials</i>
<b>10:45 - 11:15</b>	<b>Nelson, Johanna (Stanford)</b> <i>Spectroscopic Nanometer Resolution Imaging on Li-ion Batteries</i>
<b>11:15 - 11:45</b>	<b>David Prendergast (Molecular Foundry)</b> <i>Using Simulated X-ray Absorption Spectroscopy to Study Energy Storage Materials</i>
12:00 - 13:30	Lunch Break
<b>13:30 - 14:00</b>	<b>Venkat Srinivasan (EETD)</b> <i>Topic: Energy storage for electric vehicles</i>
<b>14:00 - 14:30</b>	<b>Debajeet K. Bora (Berkeley Lab)</b> <i>In-situ soft x-ray spectroscopic study of the hole diffusion in photoelectrochemical water-splitting of hematite</i>
<b>14:30 - 15:00</b>	<b>Nikhilendra Singh (Toyota)</b> <i>X-ray Absorption Spectroscopy for Mg battery electrolytes</i>
15:00- 15:15	Coffee break & Discussions
<b>15:15 - 15:45</b>	<b>Xiaosong Liu (Berkeley Lab)</b> <i>Soft x-ray spectroscopy study of electronic structure in LiFePO<sub>4</sub></i>
<b>15:45 - 16:15</b>	<b>Jonathan Lee (Livermore National Lab)</b> <i>In Situ Soft X-ray Spectroscopy for the Investigation of Advanced Materials for Electrical Energy Storage</i>