

**UNL Department of Chemistry & cosponsored by NCMN
Physical/Inorganic/Materials (PIM) Special Seminar
Monday October 20, Room 548 Hamilton Hall
4:00 p.m.**

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Recent Developments in New Materials and Characterization Techniques for Energy Storage and Conversion

Globe warming and future energy supply are two major challenges facing American public today. To overcome such challenges, it is imperative to maximize the existing fuel utilization with new conversion technologies while exploring alternative energy sources with minimal environmental impact. Developing new energy technology requires the next generation materials and characterization tools. In this presentation, I will discuss some recent progresses in my laboratory in design and synthesis of nanomaterials for improved energy storage and conversion. Examples include nanoporous organic polymers for hydrogen storage, functionalized aligned carbon nanotube electrode and metal-organic-framework derived non-precious metal catalysts for fuel cell and lithium-air battery applications. The material developments were also facilitated by the synchrotron X-ray based in situ and spatiotemporal characterization techniques.

