Advanced Battery Systems for plug in Hybrid Vehicle Applications

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Frontiers in Materials Science
Seminar Series

Presented by…

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Abstract

To meet the high-energy requirement that can enable the 40-miles electric drive P-HEVs, It is necessary to develop very high energy cathode or anode that offers 5,000 charge-depleting cycles, 15 years calendar life as well as excellent abuse tolerance. These challenging requirements make it difficult for conventional cathode materials to be adopted in P-HEVs. In this talk, we report on two very high energy cathodes based on layered lithium rich nickel manganese oxide and a gradient concentration nickel manganese layered oxide as potential cathode candidates for PHEV and EV applications. These materials exhibit over 200mAh/g capacity, outstanding stability with good cycle life and improved safety characteristics. We will also describe a new approach of using LTO anode that doesn't require an SEI combined with 5V-LiNi0.5Mn1.5O4 as a suitable system for 20 miles PHEV with very long life and outstanding safety.

More info?

https://blogs.anl.gov/expertsguide/khalil-amine/

http://materials.pnl.gov

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EMSL Auditorium

1:30 pm