

# Roundtable 2:

Battery Test Procedures

# Desired Workshop Outcomes

- Compare and contrast battery testing methods for both performance/durability and abuse/safety.
- Identify areas for collaboration which may lead to a better understanding of the assumption in the methods used; to a better understanding of the results that are produced; and to, possibly, a common, international testing framework.

# Presentations

- U.S. Battery Performance and Durability Testing
  - Ira Bloom/ANL
- Testing standards and new methods for batteries
  - SHAN Zhongqiang/Tianjin University
- U.S. Battery Abuse and Safety Testing
  - Peter Roth/SNL
- Testing of Lithium-ion Batteries for Self Heating and Lifetime Evaluation
  - HE Xiangming/Tsinghua University

# Battery Performance and Durability Testing

- What approach to testing is being used in China and the US (general philosophy)?
- What testing procedures are used in China and the US? Are they standards of standard practices? May we obtain a copy of each item? How do they compare to those used in China and the US?
- Do China and the US perform data analysis and modeling using test data? Do China and the US have any validated models that are used for full life estimation of other generic degradation models used? What approach is used for accelerating testing and life prediction?
- Do China and the US perform data quality analysis? Uncertainly analyses?
- Do China and the US validate the testing procedures against real-world results? How do the test results compare to vehicle results?
- Do China and the US perform post-test analyses on batteries? Techniques used?

# Battery Abuse and Safety Testing

- What safety testing standards or protocols are in place for the lithium-ion battery market in China and the US (vehicle or consumer electronics applications – what testing is required, who monitors and ensures testing, etc.)?
- What research is being done and implemented to mitigate or address the safety hazards associated with lithium-ion chemistries in China and the US?
- Are there currently any standards or certifications for HEV, EV, or PHEV lithium-ion batteries in China and the US? If not, are there plans to certify vehicle batteries?
- What is being done to address issues related to lithium-ion battery field failures (new materials, manufacturing quality assurance, etc.)?