Member Update

NAATBatt Annual Meeting
March 13, 2019

Donald Karner
WE MAKE BATTERIES WORK

- Testing & Certification
- Battery Applications
- Research & Development
High Power Test Capability

- Reserve battery testing
- Traction life cycle testing
- 2 Channels
  - 750 VDC
  - 300 kW
  - 1,000 A
Application Testing

- Multiple Chemistries
  - Carbon
  - Lead
  - Lithium
  - Nickel
  - Sodium

- Abuse Testing

- Vibration Testing
SYNCHROTRON X-RAYS

Revisiting lead batteries with modern tools

Synchrotrons = particle accelerators that generate x-rays
- Higher energy = real conditions
- Higher flux = real time
- Higher resolution = real complexity

Pack level (mm) → Particle level (μm) → Atomic level (nm)

Example: XRD from motorcycle battery plates
Example: CT scan of a paste electrode
Example: surface diffraction of lead adsorption and incorporation on BaSO₄ surface

Advanced Photon Source (APS), Argonne National Laboratory
WatchDog Battery Intelligence

- Non-Intrusive Two-Wire Installation
- Cellular Data Transmission
  - Voltage
  - Temperature
  - Location
- Application/Chemistry Specific Analytics
  - Battery operation
  - Battery health
  - Battery location
Thanks!

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