



Battery Seminar 2022

Jul. 12, 2022: Day 1 – Battery Training Tutorials

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| 8:00 am – 5:00 pm | Registration Open |
| 8:00 am – 8:25 am | Breakfast with Networking Sponsored by AMERICAN BATTERY SOLUTIONS |
| 8:25 am – 8:30 am | Welcome Note |
| 8:30 am – 9:30 am | <p>Tutorial A: Delineating the Intricacies of the Interfacial Chemistry of High-Nickel Cathodes in Lithium-Based Batteries Professor Arumugam Manthiram – University of Texas Austin</p> <p>High-nickel layered oxide cathodes with low or no cobalt offer high energy density, but suffer from complex interfacial instability in contact with electrolyte, resulting in shorter lifespan. This presentation will focus first on delineating the intricacies of the interfacial chemistry of high-nickel cathodes in both lithium-ion and lithium-metal batteries by employing a suite of advanced characterization methodologies. Then, the presentation will focus on overcoming the challenges with the design of robust cathode surface and electrolytes.</p> |
| 9:30 am – 10:30 am | <p>Tutorial B: Operando Studies of Li-Metal Anodes for Solid-State Batteries – Lessons Learned and Future Opportunities Associate Professor Iryna Zenyuk – University of California Irvine</p> <p>In this tutorial the speaker will present an overview of current state-of-the-art all solid state batteries (ASSBs) featuring various materials as separators (polymer, sulfide, oxides and halides). Then their integration with Li-metal anodes or in anode-free configuration will be presented. Operando x-ray studies performed in the speaker's group and other groups will be showcased to understand the resulting interfaces during cycling, as well to guide the design of stable, dendrite-free cells.</p> |
| 10:30 am – 11:00 am | Coffee with Networking |
| 11:00 am – 12:00 pm | <p>Tutorial C: Perspective on Failure Mechanisms and Instability in Solid-State Batteries Professor Partha Mukherjee and Bairav S. Vishnugopi – Purdue University</p> <p>This tutorial will focus on fundamental modes of instability and failure in solid-state batteries including considerations model-driven analysis and design for operational extremes.</p> |
| 12:00 pm – 1:30 pm | Lunch with Networking |
| 1:30 pm – 2:30 pm | <p>Tutorial D: Degradation Mechanisms and Mediation Strategies Thereof in Nickel-Rich Lithium-Ion Battery Cathodes Kent Griffith, Ph.D. – Northwestern University</p> <p>Nickel-rich lithium-ion battery cathode materials, including NMC and NCA, can provide high energy density while minimizing the use of cobalt. However, as the nickel content increases, material degradation can be severe, limiting the usable cycle life. In this talk, we will go through the degradation mechanisms affecting nickel-rich cathodes including microcracking, transition metal dissolution, parasitic side reactions, and oxygen loss and surface reconstruction. We will also cover strategies to improve the energy density and cycle life with high nickel contents of 80–95%.</p> |
| 2:30 pm – 3:30 pm | <p>Tutorial E: Accelerated Inter-Cycle Simulations of Li-Ion Battery Degradation with Intra-Cycle Resolution Jason Siegel, Ph.D. – University of Michigan</p> |
| 3:30 pm – 4:00 pm | Coffee with Networking |
| 4:00 pm – 5:00 pm | <p>Tutorial F: Model-Based BMS and the Design of Efficient Algorithms for Current and Next-Generation Batteries Professor Venkat Subramanian – University of Texas Austin and Manan Pathak – BattGenie</p> <p>This tutorial will talk about control algorithms for battery management systems, including optimal charging profiles and the need of physics-based models for real-time BMS applications. Analogies to simpler systems, and comparisons based on data gathered from real-life batteries will be presented and discussed.</p> |
| 5:00 pm – 5:30 pm | Wrap-Up (Summary & Conclusions) |
| *Agenda subject to change without notice | |

Chairperson: Dr. John Warner

Jul. 13, 2022: Day 2 – Energy Storage Systems in Automotive Applications

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| 8:00 am – 6:00 pm | Registration Open |
| 8:00 am – 8:30 am | Breakfast with Networking Sponsored by AMERICAN BATTERY SOLUTIONS |
| 8:30 am – 9:00 am | Results From a Comprehensive Battery Benchmarking Index Tal Sholklapper – Voltaiq |
| 9:00 am – 9:30 am | Next Generation Battery Technology and Scale-up – Automotive Insights Tobias Glossmann – Mercedes-Benz R&D North America |
| 9:30 am – 10:00 am | The Value of Battery Advances to EV Makers and Users Oliver Gross – Stellantis |
| 10:00 am – 10:30 am | Coffee with Networking Sponsored by BRIGHTVOLT |
| 10:30 am – 11:00 am | Status and Perspectives of Solid Polymer Electrolyte Based Solid-State Battery Owen Lu – Ford Motor Company |
| 11:00 am – 11:30 am | Three Strategies to Unlock the Future of Solid-State Batteries Alex Yu – Factorial Energy |
| 11:30 am – 12:00 pm | A Simplified Approach to Solid-State Li Ion Battery Manufacturing Anaba Anani – BrightVolt |
| 12:00 pm – 1:30 pm | Lunch with Networking Sponsored by VOLTAIQ |
| 1:30 pm – 2:00 pm | Solid-State Lithium-Metal Anode Battery Development at QuantumScape Will Hudson – QuantumScape |
| 2:00 pm – 2:30 pm | On a Solid Path to Market Pu Zhang – Solid Power |
| 2:30 pm – 3:00 pm | R2R Activated Dry Electrode Process Katharina Gerber – LiCAP Technologies |
| 3:00 pm – 3:30 pm | Coffee with Networking Sponsored by BRIGHTVOLT |
| 3:30 pm – 4:00 pm | Replacing Graphite with Sila's Silicon – Shipping and Validating Today Kurt Kelty – Sila Nanotechnologies |
| 4:00 pm – 4:30 pm | TBA TBA |
| 4:30 pm – 5:00 pm | From Spent to Supply – Reviving Used Cathode Materials Using Hydro-to-Cathode™ Technology Haixia Deng – Ascend Elements |
| 5:00 pm – 5:30 pm | Reimagining the Battery Mujeeb Ijaz – Our Next Energy |
| 6:00 pm – 8:00 pm | INTERTEK Facility Tours with Cocktails Reception Event attendees will get an exclusive opportunity to tour INTERTEK's 100,000+ square-foot Battery Testing Center of Excellence to learn about the latest testing methods for batteries of all sizes from coin-cell through electric vehicles. INTERTEK performs a variety of tests out of this facility, to industry and global standards, including life-cycling, vibration, environmental, abuse and safety certifications. See this facility firsthand and ask questions to resident experts, and enjoy some light appetizers and beverages while networking with industry peers. |

*Agenda subject to change without notice

Jul. 14, 2022: Day 3 – Energy Storage Systems in Stationary Grid/Utility Applications

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| 8:00 am – 5:00 pm | Registration Open |
| 8:00 am – 8:30 am | Breakfast with Networking Sponsored by AMERICAN BATTERY SOLUTIONS |
| 8:30 am – 9:00 am | TBA Mike Calise – Tritium |
| 9:00 am – 9:30 am | Utilizing Battery Storage for Peak Shaving at EV Charging Sites Joseph Cappeta – Eaton |
| 9:30 am – 10:00 am | EV Standards and System Architecture Roadmap – Why do Standards Mean so Much? Pat Hayes – ABB |
| 10:00 am – 10:30 am | Coffee with Networking |
| 10:30 am – 11:00 am | Charging & Future Energy Storage Technologies Jasmeen Bal – Lucid Motors |
| 11:00 am – 11:30 am | Ample Battery Swapping Technology for Electric Vehicle Fleets Albert Liu – Ample |
| 11:30 am – 12:00 pm | Re-Use vs. Re-Build – Two Approaches to Deploying Used EV Packs into Stationary Energy Storage Michael Worry – Nuvation Energy |
| 12:00 pm – 1:30 pm | Lunch with Networking Sponsored by VOLTAIQ |
| 1:30 pm – 2:00 pm | Next Generation of Lithium Ion Batteries for Energy Storage Applications Raj DasGupta – ElectroVaya |
| 2:00 pm – 2:30 pm | Beyond Li-ion for the Daily Cycling Stationary Energy Storage Markets Adam Briggs – Ambri |
| 2:30 pm – 3:00 pm | Microgrids for Residential Applications – Lessons Learned, Case Studies and the Road Ahead Mohammad Alkuran – Enphase Energy |
| 3:00 pm – 3:30 pm | Coffee with Networking |
| 3:30 pm – 4:00 pm | The Next Phase of Energy Storage – Project Execution, Operations, and Sustainability Kevin Fok – LG Energy Solution |
| 4:00 pm – 4:30 pm | Transforming the Performance, Safety and Efficiency of Battery Systems With a Cell-Level Approach Carlton Brown – Dukosi |
| 4:30 pm – 5:00 pm | Enabling EV Adoption – Charging and Energy Storage: Global Trends, Challenges and Test Solutions Martin Weiss – NH Research |
| 5:00 pm – 5:15 pm | Closing Comments / End of Seminar |

**Agenda subject to change without notice*

Location – Battery Seminar

The Inn at St. John's
44045 Five Mile Road
Plymouth, MI 48170 USA
Tel.: (001) 734-414-0600

Location – Facility Tour

INTERTEK
45000 Helm St. #150
Plymouth, MI 48170 USA
Tel.: (001) 734-582-2900

Pricing

| January 1, 2022 | Registration Opens |
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| January 1, 2022 – May 14, 2022 | Early Bird: \$899/day, \$1199/2 days or \$1499/3 days |
| May 15, 2022 – July 08, 2022 | Regular: \$999/day, \$1399/2 days or \$1699/3 days |
| July 09, 2022 – July 14, 2022 | On-Site: \$1099/day, \$1499/2 days or \$1799/3 days |
| Networking Pass – access to evening cocktails reception and Day 2 INTERTEK facility tour (no access to seminar) | \$200/person* *already included with minimum 1-day event registration |

- 10% group discount for 3+ attendees from the same corporation/institution (all attendees must register and pay at the same time)
- 25% discount for attendees from a government agency (a valid government ID is required)
- 25% discount for attendees from an academic institution (a valid academic institution ID is required)
- Contact us for additional attractive group discounts for parties of 5+ people attending from the same corporation/institution

PlugVolt® discounted room rate is available at The Inn at St. John's until June 26, 2022, following which rooms may not be available and/or available at the prevailing rate. Reservations can be made directly at:

[PlugVolt Battery Seminar 2022 Hotel Bookings](#)

Program Outline

This seminar will provide an entire day of technical tutorials on fundamental materials' challenges for electrochemical energy storage, opportunities and challenges with solid-state batteries, best design practices for cell engineering, battery modeling and health monitoring, second life design considerations for energy storage, etc.

These presentations will be accompanied by complementary industry updates offered by subject matter experts from major multinational OEMs, Tier 1 suppliers, and battery manufacturers. Topics will cover several existing battery chemistries and their application to stationary/grid storage and automotive xEVs, along with recent advances in some Li Ion technologies, challenges in bringing these batteries to volume production, and any specific performance requirements driven by such applications.

The seminar will also offer event attendees an exclusive opportunity to tour INTERTEK Battery Testing Center of Excellence in Plymouth, Michigan (USA) facility firsthand and ask questions to resident experts, and enjoy some light appetizers and beverages while networking with industry peers.

Questions?

Contact JC Soman at 1-877-PLUGVOLT or juratesoman@plugvolt.com for more details, or visit our website www.plugvolt.com or www.batteryseminars.com

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