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2025 Conference Programs

MONDAY, DECEMBER 8

Pre-Conference Tutorials

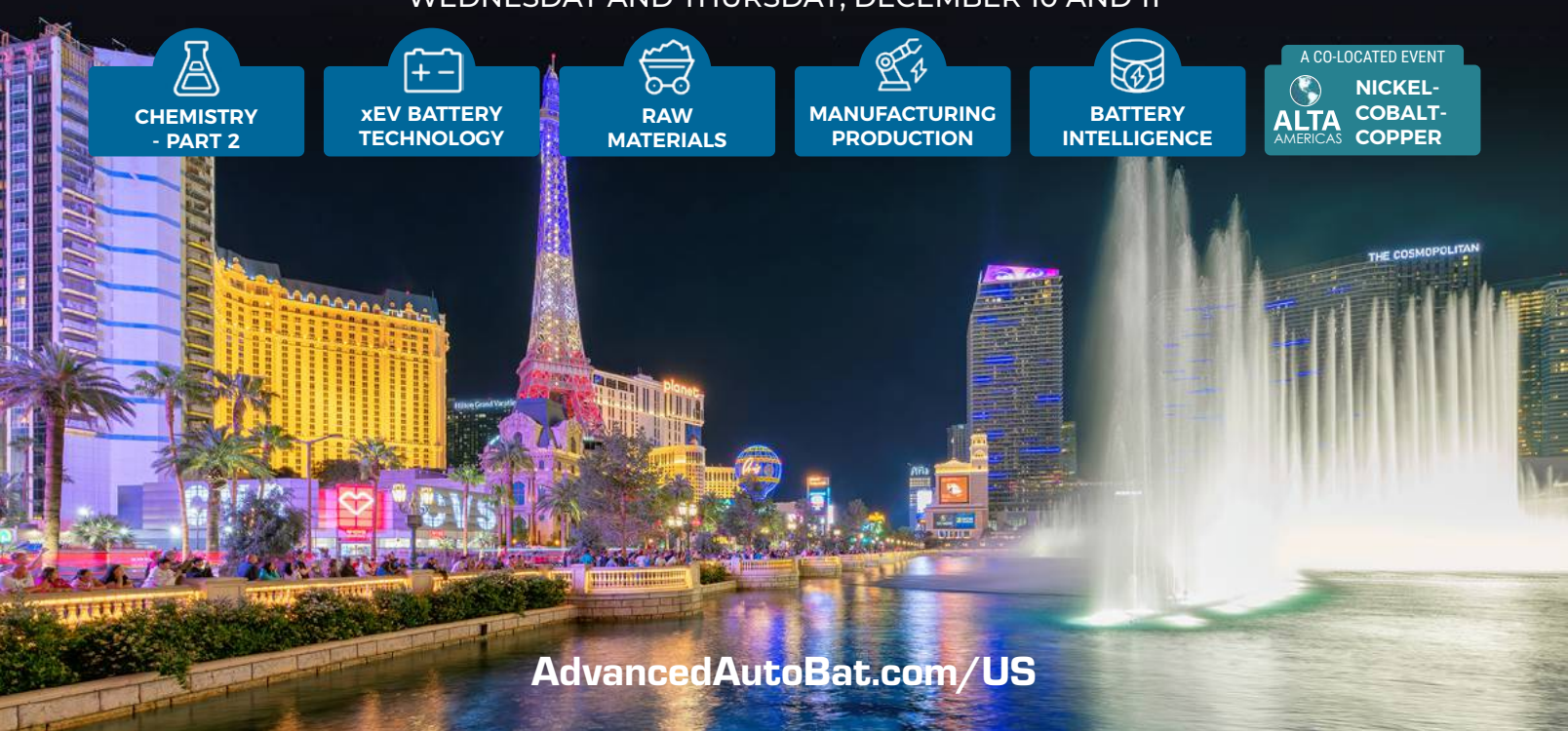
New Symposia: **LARGE-SCALE** | **LITHIUM-SULFUR**

TUESDAY AND WEDNESDAY, DECEMBER 9 AND 10

- CHEMISTRY - PART 1
- ENGINEERING
- HEAVY DUTY
- BATTERY MANUFACTURING
- BATTERY RECYCLING
- A CO-LOCATED EVENT: ALTA AMERICAS CRITICAL BATTERY MINERALS

WEDNESDAY AND THURSDAY, DECEMBER 10 AND 11

- CHEMISTRY - PART 2
- xEV BATTERY TECHNOLOGY
- RAW MATERIALS
- MANUFACTURING PRODUCTION
- BATTERY INTELLIGENCE
- A CO-LOCATED EVENT: ALTA AMERICAS NICKEL-COBALT-COPPER



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TUTORIALS

December 8, 2025 | Las Vegas, NV

Tutorials*

MONDAY, DECEMBER 8, 2025 8:00 - 9:30 AM

TUT1: Global EV Market Demand: In-Depth Insights, Future Projections, and the Impact on the Battery Supply Chain

Instructor:

Viktor Irle, Co-Founder & Market Analyst, EV Volumes

TUT2: Understanding the Future of Battery Cell Cost & Assessing the Economic Feasibility of Emerging Technologies

Instructors:

Varnika Agarwal, Research Analyst, Rho Motion

Edward Keith, Head of Consulting Operations, Benchmark Mineral Intelligence

TUT3: Lithium Mining & Methods

Instructors:

Nicolas Grosso, PhD, Director Innovation, Lilac Solutions

Adele Rouleau, Senior Environmental Consultant, Geosyntec Consultants

TUT4: Battery Management Systems & Charging

Instructor:

Scott Trimboli, PhD, Professor, Electrical & Computer Engineering, University of Colorado, Colorado Springs

MONDAY, DECEMBER 8, 2025 10:00 - 11:30 AM

TUT5: Cell & Pack Design

Instructor:

Kevin Konecky, Vice President, Battery Systems Engineering, Ola Electric

TUT6: AI for Battery Applications

Instructor:

Tal Sholklapper, PhD, CEO & Co-Founder, Voltaiq, Inc.

TUT7: Technology Innovation in the Chinese Battery Industry

Instructor:

Shmuel De-Leon, CEO, Shmuel De-Leon Energy Ltd.

TUT8: Economics of Battery Material Development & Manufacturing

Instructor:

Thomas D. Gregory, Owner and Consultant, Borealis Technology Solutions LLC

MONDAY, DECEMBER 8, 2025 1:00 - 2:30 PM

TUT9: Solid-State Batteries

Instructor:

Venkataraman Thangadurai, PhD, Chair, Energy & Faraday Institution; Adjunct Professor, School of Chemistry, University of St. Andrews

TUT10: Global Battery Passport Programs: Carbon Footprint & Critical Mineral Traceability

Instructors:

Varun Agarwal, PhD, International Transportation Lead, ORISE Fellow, U.S. Department of Energy

Jarod Kelly, PhD, Principal Energy System Analyst, Argonne National Laboratory

Frank Menchaca, Consultant, Libridge

David Roberts, Executive Director, Libridge

Michael Wang, PhD, Group Center Director & Distinguished Fellow, Systems Assessment Center, Argonne National Laboratory

Jingyi Zhang, PhD, Energy System Analyst, Argonne National Laboratory

TUT11: Battery Recycling: Market & Methods

Instructor:

Steve Sloop, PhD, President, OnTo Technology LLC

TUT12: In-Depth Analysis of the Chinese xEV Battery Industry

Instructor:

Mark Lu, PhD, Senior Industrial Analyst, Industrial Economics & Knowledge Center, Industrial Technology Research Institute

MONDAY, DECEMBER 8, 2025 3:00 - 4:30 PM

TUT13: Improving the Energy Density of Batteries with Silicon-Based Anodes

Instructor:

Dee Strand, PhD, CSO, R&D, Wildcat Discovery Technologies, Inc.

TUT14: Li-ion Battery Safety & Thermal Runaway

Instructor:

Ahmad Pesaran, PhD, Chief Energy Storage Engineer, National Renewable Energy Laboratory

TUT15: Li-ion Cell Design & Manufacturing

Instructor:

James Kaschmitter, CEO, SpectraPower LLC

TUT16: The Rechargeable Battery Market Value Chain and Main Trends: 2025-2035

Instructor:

Michael Sanders, Senior Advisor, Energy, Avicenne Energy

** All Access or separate registration required for Tutorials*

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Large-Scale Battery Energy Storage Systems

Innovations in Safe, Efficient, and Scalable Energy Storage

MONDAY, DECEMBER 8

7:00 am Registration and Morning Coffee

SAFETY & GRID STABILIZATION

7:50 Organizer's Remarks
Ian Murray, Associate Conference Producer, Cambridge EnerTech

7:55 Chairperson's Remarks
Benjamin Campbell, Manager, Battery Research, E Source

8:00 BESS Failures: Risk and Impact
Eula Billaut, Project Engineer, Energy Storage & Distributed Generation Program, Electric Power Research Institute
While the overall rate of BESS failure incidents has continued to decrease, recent BESS failures have received significant media attention. EPRI is conducting research on the risk of BESS failures to better understand the likelihood and impact of failures based on different factors. Collaboration on BESS safety and industry transparency will be essential to safety improvement efforts and reducing the risk of failures.

8:30 Battery Safety—Insights on Joint Safety Guidelines Development of Energy Storage Alliances and Manufacturer Solutions
Matthias Vetter, PhD, Energy Storage Chief Expert, Huawei Nuremberg Research Center
This talk will offer insights into the collaborative development of battery safety guidelines, drawing from the joint efforts of energy storage alliances and manufacturer-specific solutions. It will explore how these combined perspectives are shaping comprehensive safety protocols and advancing risk mitigation across the large-scale BESS ecosystem.

9:00 Grid Stabilization through BESS Applications
John Glassmire, Business Development, Hitachi Energy
BESS are a critical element to enable new data centers, industrial electrification, and EV charging. BESS are also a key technology in the transition to a more flexible, digitalized grid run on power electronics. We will review BESS applications that system integrators, utility customers, and developers can use to solve challenges—whether for market participation, supporting network operators, or behind-the-meter electricity optimization, highlighting key requirements for successful deployment and operation.

9:30 Networking Coffee Break

BATTERY INTELLIGENCE

10:00 Battery Intelligence Approach for Large-Scale BESS
Ray Hohenstein, Senior Director, Product Management, Fluence
As transmission-connection energy storage systems regularly top 1 GWh, grids worldwide depend more than ever on reliable performance. Battery intelligence is key: from controls that adapt to state-of-health, to dynamic degradation prediction, to multifaceted balance, and state-of-charge management, to mitigating cyber threats. Learn more about the current state of battery intelligence in large scale energy storage systems from Fluence, a leading global provider.

10:30 Energy Storage Battery Modeling: Challenges and New Frontiers
Zahra Nozarijouybari, Senior Battery System Design and Architecture Engineer, Tesla Motors
Grid-scale battery energy storage demands accurate modeling and qualification methods tailored to long lifetime expectations. Stationary cells face partial cycling, prolonged idle periods, temperature gradients, and extended low-rate usage conditions often overlooked in standard test protocols and battery model development. Cell-to-cell variation and evolving characteristics over time complicate lifetime prediction. Robust, purpose-built approaches are essential to capture these factors and ensure reliable forecasting and performance throughout decades of operation.

11:00 AI for Advanced BMS Development for Large-Scale BESS
Tedjani Mesbahi, PhD, Associate Professor, ICube Laboratory, INSA Strasbourg
This talk will explore our recent work developing explainable AI for intelligent energy management, hybrid energy systems, battery system design, traceability, and digital battery passports.

11:30 Sponsored Presentation *(Opportunity Available)*

12:00 pm Enjoy Lunch on Your Own

BATTERY CHEMISTRIES

1:00 Chairperson's Remarks
Ian Smith, Battery Product Manager, Energy & Industrial Automation, UL Solutions

1:05 Navigating Innovation and Investments in Long-Duration Energy Storage: From Technology Landscape to Commercial Reality
Urvi Mehta, Senior Research Associate, Energy Storage, Lux Research
This presentation explores the evolving landscape of long-duration energy storage, highlighting key technological innovations, IP developments, and market trends. Leveraging a comprehensive analysis of companies, investment dynamics, and cost structures, attendees will gain actionable insights into the economic viability and commercialization pathways of emerging energy storage technologies.

1:35 Advancing Sodium-ion for BESS: From NFPP/HC Cell Insights to Grid-Scale Storage
Brandon Kelly, PhD, Vice President, Cell Engineering, Peak Energy
Peak Energy shares progress on NFPP/HC sodium-ion technology, from large-format cell validation to early system-integration learnings at the module and string level. Highlights include degradation modeling, thermal management, and US scale-up strategy. Attendees will hear what's next in validation and where collaboration can accelerate commercial deployment for grid-scale energy storage.

2:05 Sponsored Presentation *(Opportunity Available)*

2:30 Networking Refreshment Break

ROADMAP TO 2030

3:00 ESS Market Trends in North America: Safety, Tariff, and Deployment Trends
Benjamin Campbell, Manager, Battery Research, E Source
The North American ESS market grew strongly in the past year while facing tariffs, history's largest ESS fire, and market pricing challenges in ERCOT. Despite this, the US market is expected to grow considerably in 2025. This presentation will discuss tariffs and their impact on US and Canadian deployment of ESS, the causes and ramifications of the Moss Landing fire, and review the market conditions in ERCOT and California.

3:30 PANEL DISCUSSION: Roadmap to 2030 and Beyond
Moderator: Ian Smith, Battery Product Manager, Energy & Industrial Automation, UL Solutions
This panel will discuss the future of large-scale BESS covering all angles—which chemistries may prove dominant (or will there be different ones for different use cases). What does mass expansion of large-scale energy storage look like over the next 5-10 years, taking into account the effect of tariffs on the supply chain? What steps can we take to best facilitate expansion and continue the BESS ecosystem's forward momentum?

4:30 Close of Symposium

MONDAY, DECEMBER 8

7:00 am Registration and Morning Coffee

ADVANCEMENTS IN LITHIUM-SULFUR TECHNOLOGY

7:50 Organizer's Remarks
Ian Murray, Associate Conference Producer, Cambridge EnerTech

7:55 Chairperson's Remarks
Ratnakumar Bugga, PhD, Senior Fellow, Lyten

8:00 Status of High-Energy Li-S Batteries for Electrification
Jun Liu, Pacific Northwest National Laboratory
This talk will highlight PNNLs and collaborators' ongoing research towards increasing the energy density, cycle life, and safety of lithium-sulfur batteries.

8:30 Development of Materials for High-Energy-Density Li-S Batteries
Donghai Wang, Professor, Brown Foundation Chair, Lyle School of Engineering, Southern Methodist University
This talk will discuss recent advancements in materials designed to enhance the performance of lithium-sulfur (Li-S) batteries, focusing on strategies to achieve higher energy densities by addressing critical issues like conversion reaction limitations at three-phase interfaces and polysulfide shuttling. Novel material solutions, including the use of mixed conductors for solid-state architectures and hybrid polymer network cathodes for soluble-polysulfide-free operation, will be explored.

9:00 Integrating Material Design, *in operando* Characterization, and Electrochemical Study for Lithium-Sulfur Batteries
Vibha Kalra, PhD, Fred H. Rhodes Professor, Smith School of Chemical and Biomolecular Engineering, Cornell University
I will present our group's research on integrating material development, *in-operando* and postmortem characterization, and device testing (coin/pouch) to develop lithium-sulfur batteries. I will discuss representative projects on developing cathode, anode, and electrolyte chemistries to mitigate challenges such as the polysulfide shuttle, low S/Li2S conductivity, and lithium dendrites. Additionally, I will present our work on developing *operando* diagnostic tools for real-time monitoring during cycling to inform battery material design/engineering.

9:30 Networking Coffee Break

ADVANCEMENTS IN LITHIUM-SULFUR TECHNOLOGY [CONT.]

10:00 A Strategy for Building High-Cycle Life Lithium/Sulfur Batteries
Steven Visco, PhD, CEO & CTO, PolyPlus Battery
Global demand for Li-ion batteries is expected to soar to around 4.7 TWh by 2030. Replacing expensive metal oxides with earth-abundant sulfur cathodes has obvious appeal. This talk will outline a strategic approach for developing safe Li-ion/sulfur batteries capable of achieving high-cycle life. It will delve into the specific methodologies and material considerations crucial for enhancing the long-term stability and performance of Li/S cells.

10:30 Updates on All-Solid-State Lithium-Sulfur Battery Research
Bairav S Vishnugopi, Research Assistant Professor, Purdue University
This talk will provide an overview of the latest advancements in all-solid-state lithium-sulfur battery research, highlighting progress in addressing critical challenges.

11:00 Theion's Sulfur Crystal Battery: Game-Changing Scientific Results on Cell Level
Ulrich Ehmes, PhD, CTO, Theion
This talk explains the advantage of monoclinic gamma crystalline sulfur in a Lithium Sulfur Battery. Such allotrope has the potential to catapult gravimetric energy density towards 1000 Wh/kg. Theion updates the latest developments on cell level, and explains the underlying scientific concept and the electrochemical interactions.

11:20 Molybdenum Disulfide to Enable High-Energy Density and Long-Life Lithium-Sulfur Batteries
Ismail Sami, CEO & Co-Founder, Molyon
Molyon is developing next-generation lithium-sulfur batteries for a step change in battery performance. Current lithium-ion batteries are hitting their limits in performance, so we must look at next-generation chemistries which increase the range of our electric vehicles and are more sustainable. This talk will discuss Molyon's ongoing research and pathway to commercialization.

11:40 Sponsored Presentation *(Opportunity Available)*

12:00 pm Enjoy Lunch on Your Own

THE PATH TO COMMERCIALIZATION

1:00 Chairperson's Remarks
Ratnakumar Bugga, PhD, Senior Fellow, Lyten

1:05 Lyten's Approach to the Commercialization of Lithium-Sulfur Technology
Ratnakumar Bugga, PhD, Senior Fellow, Lyten
Combining its unique 3D graphene sulfur host with several advanced cell components, Lyten is developing next-generation Li-S cells with higher specific energy than Li-ion batteries. Lyten has begun manufacturing commercial cylindrical and pouch cells on semi-automatic assembly lines. We will present the performance of these cells and outline our roadmap for advancing Lyten's low-cost, high-energy, and green Li-S technology for UAVs, BESS, and EVs.

1:25 Stable Li-S Batteries Using 3D Li Anodes and Sulfurized Carbon
Rodrigo Salvatierra, PhD, CSO, Zeta Energy
Zeta Energy's technology has effectively addressed the primary issues preventing the commercialization of lithium-sulfur (LiS) batteries: dendrite formation and sulfur loss due to the polysulfide shuttle. This presentation will offer a comprehensive insight into our advanced anode and cathode technologies, showing how their synergy results in high-performance cells that fully leverage the inherent benefits of low-cost, sustainable, and accessible energy storage solutions.

1:45 Pieces of the Puzzle: A Complex Marriage between Li-S Technology, Performance, and Collaboration
Louis Adriaenssens, PhD, CTO, Gelion Technologies
Technological and commercial development in the lithium-sulfur space has accelerated significantly in the last two years. In this presentation, we present our contributions to building this momentum. We focus on: 1) the performance of our latest cathode technology, 2) the importance of partnership, and 3) the marriage of technology and partnership in delivering good cell-longevity and high-power—two of the hurdles that most intimidate sulfur battery technology.

2:05 Sponsored Presentation *(Opportunity Available)*

2:30 Networking Refreshment Break

3:00 "What Valley?": Low-Risk, High-Performance Li-S through Readily-Available Materials and Partnerships
Stephen E. Burkhardt, PhD, CTO, R&D, Conamix Inc.
Li-S batteries hold the promise of both high energy and low cost. However, achieving performance at scale often includes compromises on cost or energy density. Competition with incumbent Li-ion technologies makes scaling and commercialization even more challenging. Conamix will share prototype cell data for near-term applications. Partnerships and careful selection of the bill of materials delivers low cost, reduces scaling risk, and avoids supply chain limitations.

3:30 PANEL DISCUSSION: Roadmap to 2030: Lithium-Sulfur Pathway to Commercialization
Moderator: Ratnakumar Bugga, PhD, Senior Fellow, Lyten

4:30 Selected Poster Presentations

5:30 Close of Symposium

Lithium Battery Chemistry - Part 1

Next-Generation Energy Storage, Lithium-ion, and Beyond

MONDAY, DECEMBER 8

7:00 am Registration Open

TUESDAY, DECEMBER 9

7:00 am Registration and Morning Coffee

SOLID-STATE BATTERIES

7:50 Organizer's Remarks

Victoria Mosolgo, Conference Producer, Cambridge EnerTech

7:55 Chairperson's Remarks

Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster

8:00 New Perspective on All Solid-State Cells

Shirley Meng, PhD, Director, Energy Storage Research Alliance (ESRA), Argonne National Laboratory; The Liew Family Professor, The University of Chicago

Soft metals like lithium and sodium have excellent properties for being batteries' negative electrodes, with lithium considered as an ultimate anode material for future high-energy rechargeable batteries. There is a gap in understanding the grain orientation, also known as the texture, how such factor impacts the rechargeable metal battery performance. In this talk, I will explain how texturing can enable better performance in all solid-state batteries.

8:30 *In operando* Insights into Solid-State Batteries

Anna Windmueller, PhD, Head of Department - Batteries, Institute of Energy Technologies IET 1, Forschungszentrum Juelich

Cutting-edge *in-operando* techniques are transforming solid-state battery research. Here we present batteries at work in *in-operando* transmission electron microscopy and X-ray computed tomography. These techniques provide insight into lithium plating and stripping dynamics, as well as chemical and microstructural changes in composite cathodes and at interfaces on the example of garnet and polymer type batteries. This knowledge paves the way for stable battery performance and safety, driving next-generation innovations.

9:00 Insights into Successful Scale-Up—A Possible Recipe

Halle Cheeseman, PhD, Program Director, ARPA-E

Solid State Batteries are inevitable but how will the many valleys of death be traversed? Over the last 20 years, there have been few to no western companies achieving commercial success with a new battery technology. How can Solid State beat the trend? This presentation will highlight the problems and offer solutions. Topics will include: identifying a winning proposition, maximizing yield early, beachhead markets, and riding the wave.

9:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

10:10 Advanced Solid-State Air Batteries to Decarbonize Transportation

Mohammad Asadi, PhD, Assistant Professor, Illinois Institute of Technology

We present a room-temperature solid-state Li–air battery employing a composite polymer electrolyte that integrates Li10GeP2S12 (LGPS) nanoparticles within a modified polyethylene oxide (PEO) matrix that predominantly produces Li2O during discharge. The battery demonstrates stable cycling over 1000 cycles at 1000 mAh/g, with low polarization and excellent rate capability. This architecture achieves specific energies exceeding 1 kWh/kg and volumetric energy densities near 1000 Wh/L—well beyond the limits of current lithium-ion technologies.

10:40 Unlocking Subzero Performance and Fast Charging in All-Solid-State Batteries

Gaston Lee, Battery Engineer, Engineering, FastLion Energy Inc.

All-solid-state batteries (ASSBs) promise superior energy density and safety over conventional lithium-ion systems, but they face persistent challenges in high power applications and fast charging, particularly in subzero conditions. By integrating a precise thermal control system, we enable ASSBs to deliver on-demand performance without compromising cost, cycle life, or safety. This presentation will explore the design and implementation of our approach and demonstrate its broad applicability across the battery industry.

11:10 Presentation to be Announced

6K ENERGY

11:40 Networking Luncheon *(Sponsorship Opportunity Available)*

12:10 pm Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

SOLID STATE

12:40 Chairperson's Remarks

Shirley Meng, PhD, Director, Energy Storage Research Alliance (ESRA), Argonne National Laboratory; The Liew Family Professor, The University of Chicago

12:45 Establishing Electrolyte Pair Compatibility in Dual Solid-State Batteries for Enhanced Interfacial Stability

Raphaël Clément, PhD, Professor, UC Santa Barbara, Materials

We evaluate the compatibility of chloride and thiophosphate electrolytes in dual solid-state batteries. The LZC-LPSC pairing shows superior thermal stability, low interfacial resistance, and excellent cycling performance, offering design insights for stable, high-energy solid-state systems.

1:15 Li-Stuffed Garnets and Sodium Silicates for Next-Generation Batteries

Venkataraman Thangadurai, PhD, Chair, Energy & Faraday Institution; Adjunct Professor, School of Chemistry, University of St. Andrews

I would like to present recent advances in solid-state membranes for intercalation electrodes and also conversion electrodes, especially sulfur cathodes. Li-stuffed garnets and sodium silicates for next-generation batteries will be discussed.

1:45 Status of Batteries for Aviation Applications

Venkat Srinivasan, PhD, Director, Center for Collaborative Energy Storage Science, Argonne National Laboratory

As light duty passenger cars become more ubiquitous, the challenge for battery technology has evolved with focus shifting to supply chain challenges and the need for better batteries for hard-to-decarbonize sectors such as aviation. This talk will summarize the status of battery technology for these emerging markets and deep dive the approaches that are being pursued.

2:15 Refreshment Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

CATHODES

2:45 Understanding Slurry and Coating Behavior in NCMA and LFMP Blends

Ali Abouimrane, PhD, Senior Scientist, Electrification & Energy Infrastructures, Oak Ridge National Laboratory

Engineering the cathode electrode formulation is needed to increase the energy density of lithium-ion batteries. In this study, we will present our work on the electrochemical performance of cathode electrode systems based on the blend of Nickel Cobalt Manganese Aluminum (NCMA) and Lithium Ferro Manganese Phosphate (LFMP).

3:15 Optimizing Performance of LMFP/NMC Blends

Dee Strand, PhD, CSO, R&D, Wildcat Discovery Technologies, Inc.

This presentation shows a systematic evaluation of NMC and LMP blends with the aim of mapping the blend/performance space. The focus will be on performance metrics for high-energy cells with power performance sufficient for auto applications.

3:45 Presentation to be Announced

CAMX Power

Lithium Battery Chemistry - Part 1

Next-Generation Energy Storage, Lithium-ion, and Beyond

LITHIUM-SULFUR

4:15 Development of Long-Life Li/SPAN Batteries

Ping Liu, PhD, Professor and Director, Sustainable Power and Energy Center, University of California, San Diego

Sulfurized polyacrylonitrile, SPAN, is an alternative cathode to elemental sulfur for Li-S batteries. SPAN undergoes a solid-solid conversion reaction, largely free from the complications of soluble polysulfide intermediates. We will discuss our effort in electrolyte and electrode engineering as well as in improving SPAN capacity. Finally, we will outline the challenges associated with cycling lithium metal anode at high areal capacities, a necessity to realize high-energy density cells.

4:45 Lyten Li-S Lithium-Sulfur Cells: Commercialization and Technology Update

Speaker to be Announced, Lyten Inc

Lyten has begun producing commercial Li-S cells for UAV applications and is developing Li-S technology for BESS and EV applications. We will discuss progress toward these goals, technology developments, share cell performance data, and discuss production plans and supply chain status.

5:15 Networking Reception in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

6:15 Close of Day

WEDNESDAY, DECEMBER 10

8:00 am Registration and Morning Coffee

SILICON ANODE

8:20 Organizer's Remarks

Victoria Mosolgo, Conference Producer, Cambridge EnerTech

8:25 Chairperson's Remarks

Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster

8:30 Presentation to be Announced

9:00 Novel Electrolyte Additives for Enabling High-Energy Lithium-ion Chemistries

Karthik Ramaswami, PhD, CTO, R&D, SIONIC Energy

Next-gen lithium-ion batteries feature high-nickel NMC cathodes paired with silicon anodes to boost energy density, demanding innovative electrolyte design for safety, cycle life, and power considerations. Achieving control over the electrode-electrolyte interface, especially for new materials, involves employing sacrificial additives. Presented are novel electrolyte additives designed for high-energy cathodes and silicon anodes, focusing on stabilizing the CEI and SEI in this system.

9:30 Presentation to be Announced

10:00 Presentation to be Announced

10:30 Coffee Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

PLENARY KEYNOTE

11:15 Chairperson's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

11:20 How GM Is Driving Battery Development and Enabling an All-EV Future

Kurt Kelty, Vice President, Battery Cell & Pack, General Motors

GM has established a foundation to accelerate the investment in—and development of—battery technology with a robust supply chain to support its growth over the next decade. In this talk, Kurt will discuss GM's strategies for investing in new technologies and how its in-house capabilities enhance those efforts, with an overview and rationale behind key investments made to date.

11:50 The Road to Profitable Electrification of Transportation Driven by Innovations in Electrochemistry

Donald Sadoway, PhD, Professor Emeritus of Materials Chemistry, MIT, CSO & Co-Founder, Pure Lithium

Electrification of transportation hinges on innovation in battery chemistry, not only on the vehicle. Installation of charging points would be accelerated by stationary storage onsite. If power generation is to be based on carbon-free but intermittent renewables, massive stationary storage is required. These are three different use cases, each optimally satisfied by a different battery chemistry, all of them beyond lithium-ion, priced no more than legacy technology.

12:20 pm How Redwood Materials Is Building a Sustainable Battery Supply Chain

Colin Campbell, CTO, Redwood Materials

In this talk, Colin will discuss Redwood's technology and commercial strategy, highlighting the company's Nevada campus which today is recycling the equivalent of 250,000 EVs worth of material a year and manufacturing cathode active material in the US for the first time.

12:50 Networking Luncheon *(Sponsorship Opportunity Available)*

1:50 Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)* **with Interactive Roundtables**

Battery Engineering

Better Batteries through Safety, Cell Design, and Intelligent Management

MONDAY, DECEMBER 8

7:00 am Registration Open

TUESDAY, DECEMBER 9

7:00 am Registration and Morning Coffee

BATTERY DESIGN AND MANAGEMENT

7:50 Organizer's Remarks

Victoria Mosolgo, Conference Producer, Cambridge EnerTech

7:55 Chairperson's Remarks

Eric Darcy, PhD, Battery Technical Discipline Lead, Power Systems, NASA Johnson Space Center

8:00 Cell-and-Battery Design for Aviation

William Huang, PhD, Manager Cell Engineering, Cell Engineering, Archer Aviation Inc.

The needs of battery technology for electric aviation are greatly different from consumer electronics and electric ground vehicles. This talk will discuss how lithium-ion battery cells of today can empower these technologies, and how the design and chemistry of these battery cells differ from those in other applications such as EVs. Battery pack design considerations for aerospace will also be highlighted, especially those around safety and thermal runaway management.

8:30 The Influence of Separator Design on Polymer Current Collector Safety

Eric Darcy, PhD, Battery Technical Discipline Lead, Power Systems, NASA Johnson Space Center

A metallized polymer cathode current collector demonstrated consistent isolation of internal short circuits triggered by a slow, shallow (3mm) radial nail penetration in 5Ah, 21700 cells yielding > 265 Wh/kg. A remarkable consistency (16 no thermal runaways (TR) in 16 attempts) while penetrated at 100% SoC occurred. In contrast, metal Al foil collector control cells went into immediate TR under same test. High speed radiography provides unique insights into the phenomena.

9:00 Streamlining BMS Variant Management with the Smart Edge BMS Approach

Stefan Goede, Co-Founder, Munich Electrification GmbH

In light of rapidly growing market expansion of EVs, supply chains for battery packs and BMS are diverse: some OEMs design BMS in-house, others are outsourcing BMS development to Tier 1 suppliers or pack integrators. Managing SW interface complexity and enabling quick development cycles while having multi-sourcing options for BMS are valuable advantages. This talk presents innovative BMS software concepts for software-defined vehicles.

9:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

10:10 A Comparative Review of Simplified Battery Models Used for Advanced Controls

Scott Trimboli, PhD, Professor, Electrical & Computer Engineering, University of Colorado, Colorado Springs

State-of-the-art BMS rely on accurate battery models and specialized algorithms to obtain useful estimates of the battery state in order to ensure proper performance and safe operation. Most practical models are simplifications and thus must trade off high accuracy for computational efficiency. This talk examines the implications of using various simplified models in the performance of key BMS tasks.

10:40 Engineering Design of a Comprehensive BMS

Rengaswamy Srinivasan, PhD, Principal Professional Staff Scientist, Research & Exploratory Development, Johns Hopkins University Applied Physics Laboratory

Most battery management systems (BMS) are electronics-only based, focused on monitoring voltage, current, and temperature. To meet the ever-increasing demands on lithium-ion batteries for higher energy and power densities, longer cycle and calendar lives, and improved performance and endurance, we need a more comprehensive BMS with three parts—electronics, mechanical and thermal, and algorithmic—that work synchronously with each other.

11:10 Presentation to be Announced

11:40 Networking Luncheon *(Sponsorship Opportunity Available)*

12:10 pm Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

BATTERY SAFETY

12:40 Chairperson's Remarks

Monica Marinescu, PhD, Senior Lecturer Mechanics of Materials, Mechanical Engineering, Imperial College London

12:45 Advancing Automotive Battery-Pack Safety with Innovative Venting Units

Michael Harenbrock, PhD, Principal Expert, Engineering Electric Mobility, MANN+HUMMEL GmbH

Vents are crucial for battery pack safety, especially under thermal runaway conditions. As battery cell chemistry and pack designs evolve, selecting appropriate venting units becomes increasingly important. The presentation provides an overview of regulatory and technological trends influencing vent design and introduces additional features such as gas sensors and hot particle filters.

1:15 Thermal Runaway Prognosis

Lin Liu, PhD, Associate Professor, Mechanical Engineering, University of Kansas

This study introduces a novel data-driven method—data-driven prognosis (DDP)—designed to estimate key constitutive parameters *in situ* and identify deviations from the expected degradation behavior of lithium-ion batteries (LIBs). In addition to accurately modeling degradation and capacity, this approach leverages statistical pattern recognition and machine learning techniques to detect anomalies and predict failures in batteries, such as thermal runaway.

1:45 Deactivation of End-of-Life Batteries

Corey T. Love, PhD, Senior Science & Technology Manager

Cell deactivation can improve the transportation safety of end-of-life batteries. We demonstrate a simple, cost effective method to safely deactivate cells and batteries (e.g., lithium-polymer pouch cells, 18650 lithium-ion cell, alkaline batteries, and lithium-ion power-tool batteries) as evidenced by elimination of the thermal runaway reaction or significantly reduced heat generation during accelerating rate calorimetry (ARC) testing.

2:15 Refreshment Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

2:45 Effects of Interfacial Adhesion on Lithium Plating Location in Solid-State Batteries with Carbon Interlayers

Neil Dasgupta, PhD, Associate Professor, Mechanical Engineering, University of Michigan

3:15 Estimating Parameters of Physics-Based Model of Lithium-Metal Battery Cells Using EIS

Gregory L. Plett, PhD, Professor, Electrical & Computer Engineering, University of Colorado, Colorado Springs

Lithium-metal batteries hold promise for heavy-duty transportation due to their high energy density, but before they can be adopted, battery management systems (BMS) must be developed to monitor and control their operation. This talk introduces a method to parameterize a physics-based model of these cells for BMS application that uses simple tests performed on electrochemical impedance spectroscopy (EIS) equipment.

3:45 Breakthrough Silicon Anode Technology: Ready for Market, Built for Scale
Ionel Stefan, CTO, R&D, Amprius Technologies
Amprius Technologies is advancing electric mobility with next-generation silicon anode batteries delivering over 450 Wh/kg and 1,000 Wh/L. These cells enable longer range, faster charge, and reduced weight for EVs and electric aviation. Validated by customers, Amprius' SiCore and SiMaxx platforms offer critical advantages where weight, volume, and power are limiting factors. With up to 100% higher energy density than graphite cells, Amprius is powering cleaner, more efficient transportation.

4:15 Understanding, Modeling, Validating, and Predicting Lithium-ion Battery Degradation
Monica Marinescu, PhD, Senior Lecturer Mechanics of Materials, Mechanical Engineering, Imperial College London
This presentation covers understanding lithium-ion battery degradation, how to model it, and how close those models are getting to usefully predict lifetime. We will describe our efforts to model lithium plating, SEI layer growth, positive electrode (cathode) decomposition, unequal degradation *in silico*n carbon composite electrodes, particle cracking, electrolyte consumption and cell dry-out, and how multiple degradation mechanisms are coupled with each other and contribute towards accelerated degradation (the knee point/cliff-edge/etc).

4:45 Presentation to be Announced

5:15 Networking Reception in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

6:15 Close of Day

WEDNESDAY, DECEMBER 10

8:00 am Registration and Morning Coffee

EV SAFETY AND ANALYSIS

8:20 Organizer's Remarks
Victoria Mosolgo, Conference Producer, Cambridge EnerTech

8:25 Chairperson's Remarks
Ahmad Pesaran, PhD, Chief Energy Storage Engineer, National Renewable Energy Laboratory

8:30 Presentation to be Announced

8:45 Sponsored Presentation *(Opportunity Available)*

9:00 Challenges with Discharging Stranded Energy of an EV Battery after a Crash
Ahmad Pesaran, PhD, Chief Energy Storage Engineer, National Renewable Energy Laboratory
Discharging stranded energy in electric vehicle (EV) batteries after a crash presents significant logistical challenges. Post-collision, damaged batteries may retain high voltage and capacity, posing risks of thermal runaway, fires, or electric shocks. Identifying safe and effective methods to discharge this energy is critical for first responders. This presentation explores the complexities of safely managing stranded energy, examining current approaches, technologies, and potential improvements to enhance post-crash safety protocols.

9:30 Duty Cycles, Schedules, and Battery Technologies for Electrified Class-8 Trucks
Tanvir Tanim, Battery R&D Engineer and Group Lead, Energy Storage Technology Group, Idaho National Laboratory
Electrification of Class-8 trucks is advancing due to battery technology and cost improvements. Understanding and predicting battery lifespan across vocations is crucial. Laboratory testing of relevant drive cycles provides insights into stress factors, optimizing battery size, cost, and lifespan. This study transforms real-world drive data into simplified power profiles and schedules, emphasizing the need for appropriate pack size and charger needs to support electric heavy-duty trucks.

10:00 Presentation to be Announced

10:30 Coffee Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

PLENARY KEYNOTE

11:15 Chairperson's Remarks
Craig Wohlers, General Manager, Cambridge EnerTech

11:20 How GM Is Driving Battery Development and Enabling an All-EV Future
Kurt Kelty, Vice President, Battery Cell & Pack, General Motors
GM has established a foundation to accelerate the investment in—and development of—battery technology with a robust supply chain to support its growth over the next decade. In this talk, Kurt will discuss GM's strategies for investing in new technologies and how its in-house capabilities enhance those efforts, with an overview and rationale behind key investments made to date.

11:50 The Road to Profitable Electrification of Transportation Driven by Innovations in Electrochemistry
Donald Sadoway, PhD, Professor Emeritus of Materials Chemistry, MIT, CSO & Co-Founder, Pure Lithium
Electrification of transportation hinges on innovation in battery chemistry, not only on the vehicle. Installation of charging points would be accelerated by stationary storage onsite. If power generation is to be based on carbon-free but intermittent renewables, massive stationary storage is required. These are three different use cases, each optimally satisfied by a different battery chemistry, all of them beyond lithium-ion, priced no more than legacy technology.

12:20 pm How Redwood Materials Is Building a Sustainable Battery Supply Chain
Colin Campbell, CTO, Redwood Materials
In this talk, Colin will discuss Redwood's technology and commercial strategy, highlighting the company's Nevada campus which today is recycling the equivalent of 250,000 EVs worth of material a year and manufacturing cathode active material in the US for the first time.

12:50 Networking Luncheon *(Sponsorship Opportunity Available)*

1:50 Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)* **with Interactive Roundtables**

EV Technology for Heavy-Duty Applications

Exploring Innovation in HEV Batteries and Infrastructure

MONDAY, DECEMBER 8

7:00 am Registration Open

TUESDAY, DECEMBER 9

7:00 am Registration and Morning Coffee

HEAVY-DUTY MARKET AND INITIATIVES

7:50 Organizer's Remarks
Sarah Stockwell, PhD, Conference Producer, Cambridge EnerTech

7:55 Chairperson's Remarks
Tom Maull, Manager, Technical Strategy, Elysia Battery Intelligence

8:00 Accelerating the Energy Transition for Commercial Vehicles
John Boesel, President & CEO, CALSTART Inc.
This presentation explores strategies to accelerate the energy transition for commercial vehicles, focusing on zero-emission technologies, policy alignment, and infrastructure development. Key insights will highlight scalable solutions and partnerships driving rapid deployment across freight, transit, and last-mile delivery sectors.

BATTERY TECHNOLOGY AND APPLICATIONS

8:30 Implementation of Fast-Charge Batteries for Heavy-Duty Applications
Brian Barnett, PhD, CTO, Nyobolt
Batteries capable of fast charge hold great interest for electrification of multiple heavy-duty applications. These require many charge–discharge cycles, often high-discharge power, and limited trade-off of energy density. Fast charge supports higher uptime and work rates. Nyobolt is working with partners in robotics, mining, and construction to implement batteries capable of 5–10-minute full SOC charging, high cycle life, and acceptable thermal attributes. Technology and implementation efforts are described.

9:00 Enabling Profitable Electrification of Heavy-Duty Vehicles with Advanced Vanadium-Based Anode Technology
Haodong Liu, PhD, Co-Founder and CTO, Tyfast Energy Corp.; Activate Fellow, Lawrence Berkeley National Laboratory
Tyfast delivers high-performance lithium-ion battery solutions for heavy-duty trucking, mining, and construction vehicle applications. Powered by a proprietary vanadium-based anode, the batteries enable ultra-fast charging (<6 minutes to 80% SOC), exceptional cycle life (>10,000 cycles), and reliable operation across a wide temperature range (-40°C to 70°C). Having passed safety tests, the technology also reduces vehicle downtime and total cost of ownership—making heavy-duty electrification both practical and economically viable.

9:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

10:10 Optimizing Batteries, Requirements, and Opportunities for Class-8 Heavy-Duty Truck Electrification
Kandler Smith, PhD, Electrochemical Modeling & Data Science Team Lead, National Renewable Energy Laboratory
Commercial electrification requires batteries designed for lowest total cost of ownership (TCO). Working with 21st Century Truck Partnership, DOE's HD-VOLTS Program establishes battery cell-design requirements based on vehicle drive cycles, range, fast charging, lifetime, and energy density. We identify opportunities for LFP, NMC, and emerging battery chemistries to meet medium- and long-term vehicle needs with lowest TCO.

10:40 Electrochemical Considerations for Hybrid Batteries in Heavy-Duty Trucks
Jordan Loos, Senior Specialist, Battery Integration, Cummins Battery Systems North America
As the industry pushes toward electrification, hybrid battery systems are emerging as a practical stepping stone, especially for heavy-duty trucks where range, cost, and charging infrastructure remain major hurdles for full BEV adoption. The electrochemistry considerations, trade-offs, and performance requirements in cell design for hybrids differs to that of BEV, which will be discussed in the various levels of hybridization as investigated at Accelera.

11:10 Sponsored Presentation *(Opportunity Available)*

11:40 Networking Luncheon *(Sponsorship Opportunity Available)*

12:10 pm Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

BATTERY TECHNOLOGY AND APPLICATIONS CONT.

12:40 Chairperson's Remarks
Kandler Smith, PhD, Electrochemical Modeling & Data Science Team Lead, National Renewable Energy Laboratory

12:45 Electrifying the Hard-to-Abate: Drivers and Battery Technology Development for Decarbonizing Fortescue's Mining Fleet Operations
Allan Paterson, PhD, Head, Battery Development, Fortescue ZERO
The route to supporting Fortescue's pathway to net-zero by 2030 requires the deployment of high-performance batteries into a fleet of off-highway electric vehicles. These offer unique challenges for being able to address decarbonization. At Fortescue Zero, we are leveraging our experience in the system design and development of high-performance batteries, including motorsports and off-road BEV systems, to accelerate the electrification and engineering of heavy-duty and mining vehicles.

1:15 From Concept to Reality: Development and Validation of Commercial Vehicle Specific Battery Cells
Philip Stephenson, PhD, General Manager, PACCAR Technical Center
Development and validation of commercial vehicle battery cells requires detailed understanding of the expected system design and use cases for the cells, in the context of battery packs, pack systems, and full vehicles. Following up on last year's presentation about requirements-based design for commercial-vehicle-specific battery cells, the presentation will discuss challenges and approaches toward development and validation of cells and will provide a progress update.

1:45 BEV Systems for Underground Mining Applications
Brian Huff, Vice President Technology & Product Line, Sandvik
Battery-electric heavy-duty vehicles face very different challenges in a mining environment compared to on-road BEVs. This talk will give an overview of typical duty cycles that actual, deployed underground mining BEV fleets see, how a vehicle–battery–charger system is optimized for this type of application, and what OEMs are looking for in emerging battery technology to enable the next horizon of improvements.

2:15 Refreshment Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

2:45 Battery Intelligence in the Electrified Mine: High Performance at Scale
Tom Maull, Manager, Technical Strategy, Elysia Battery Intelligence
Mining is one of the toughest applications for electrification—harsh duty cycles, minimal charging windows, and no tolerance for downtime. This talk shows how Elysia's battery intelligence platform, built on motorsport and automotive insights, outperforms standard methods. Through Formula E, luxury EV, and haul truck case studies, we reveal how cloud and embedded prognostics enable safer, faster charging, longer-lasting, and higher-uptime batteries. Intelligence isn't optional—it's essential for fleet performance.

3:15 Hyundai Zero Emissions Commercial Vehicles in North America
Jerome Gregeois, Director Commercial Vehicles Development, Hyundai-Kia America Technical Center

This presentation covers Hyundai's commitment to clean logistics in the U.S. through early deployments of electrified commercial vehicles. The presentation showcases the real-world performance of the XCIENT Fuel Cell heavy-duty truck, deployed in projects like NorCAL ZERO and HTWO Logistics. The presentation also outlines a strategy to develop the necessary hydrogen infrastructure, including refueling stations and strategic partnerships, to support scalable, sustainable freight operations.

3:45 Sponsored Presentation *(Opportunity Available)*

4:15 From Detection to Suppression: The Future of Battery Fire Safety in Electric Bus Fleets

Katelyn Tomaszewski, Project Manager, CALSTART

As battery electric buses (BEBs) grow in use, fire safety is crucial. This session will cover the latest fire detection and suppression technologies to prevent and contain thermal runaway incidents. But technology alone isn't enough; training for operators, maintenance teams, and first responders is key to managing risks and following safety protocols. Combining advanced systems with workforce readiness will ensure safer, more reliable electric bus fleets for the zero-emission future.

4:45 Sponsored Presentation *(Opportunity Available)*

5:15 Networking Reception in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

6:15 Close of Day

WEDNESDAY, DECEMBER 10

8:00 am Registration and Morning Coffee

HEAVY DUTY CHARGING AND INFRASTRUCTURE

8:20 Organizer's Remarks

Sarah Stockwell, PhD, Conference Producer, Cambridge EnerTech

8:25 Chairperson's Remarks

Jerome Gregeois, Director Commercial Vehicles Development, Hyundai-Kia America Technical Center

8:30 Sponsored Presentation *(Opportunity Available)*

9:00 How to Design, Build, Operate, and Maintain Complex Fleet Charging Infrastructure

Joshua Goldman, Senior Director of Sales, eMobility, ABM ATS

This presentation explores how ABM delivers end-to-end EV charging solutions by integrating planning, design, installation, and maintenance. Attendees will gain insights into navigating utility coordination, securing funding, managing loads, and implementing future-proof strategies. Through real-world case studies, smart charging technology, and integration with sustainability goals, the session highlights how ABM ensures safety, compliance, and 24/7 support to maximize performance, user satisfaction, and long-term value.

9:30 Heavy-Duty Fleet Application Chargers—Challenges and Technology

Seamus McGrath, Senior Director, High Power DC Charging Systems, Heliox

On the surface, fleet and heavy-duty vehicle charger infrastructure needs appear to be the same as passenger vehicle on-route needs. While they have much in common with each other, there are still significant differences. This presentation will explore some key aspects of products, along with deployment considerations that are critical to fleet charging infrastructure.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Coffee Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

PLENARY KEYNOTE

11:15 Chairperson's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

11:20 How GM Is Driving Battery Development and Enabling an All-EV Future

Kurt Kelty, Vice President, Battery Cell & Pack, General Motors

GM has established a foundation to accelerate the investment in—and development of—battery technology with a robust supply chain to support its growth over the next decade. In this talk, Kurt will discuss GM's strategies for investing in new technologies and how its in-house capabilities enhance those efforts, with an overview and rationale behind key investments made to date.

11:50 The Road to Profitable Electrification of Transportation Driven by Innovations in Electrochemistry

Donald Sadoway, PhD, Professor Emeritus of Materials Chemistry, MIT, CSO & Co-Founder, Pure Lithium

Electrification of transportation hinges on innovation in battery chemistry, not only on the vehicle. Installation of charging points would be accelerated by stationary storage onsite. If power generation is to be based on carbon-free but intermittent renewables, massive stationary storage is required. These are three different use cases, each optimally satisfied by a different battery chemistry, all of them beyond lithium-ion, priced no more than legacy technology.

12:20 pm How Redwood Materials Is Building a Sustainable Battery Supply Chain

Colin Campbell, CTO, Redwood Materials

In this talk, Colin will discuss Redwood's technology and commercial strategy, highlighting the company's Nevada campus which today is recycling the equivalent of 250,000 EVs worth of material a year and manufacturing cathode active material in the US for the first time.

12:50 Networking Luncheon *(Sponsorship Opportunity Available)*

1:50 Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)* **with Interactive Roundtables**

MONDAY, DECEMBER 8

7:00 am Registration Open

TUESDAY, DECEMBER 9

7:00 am Registration and Morning Coffee

ADVANCES IN CELL MANUFACTURING

7:50 Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

7:55 Chairperson's Remarks

Sam Jaffe, Principal, 1019 Technologies

8:00 From Physics to AI: Engineering the Next Generation of Battery Packs

Katharina Gerber, PhD, Engagement Manager for Battery Industry, Siemens DISW

In today's competitive battery market, innovators need a more advanced strategy than a hands-on trial-and-error development approach. This session introduces the Siemens Xcelerator portfolio—a suite of software tools that leverages generative engineering and digital twins to help battery developers reduce prototyping costs and streamline scale-up. Discover how integrated simulation and data management shorten time-to-market while ensuring consistent quality at every stage—from materials research through full-scale battery production.

8:30 Generative AI–Powered Vision Inspection for Manufacturing

Keven Wang, Co-Founder & CEO, UnitX

GenX is a Generative AI tool that simulates rare defects and generates synthetic defect images for enhanced AI-powered visual inspection in manufacturing. In this speech, Keven Wang will share GenX's key technological innovation, industrial applications, and its economic impact that GenX offer to the industries and business.

9:00 Manufacturing Process Modeling for Enhanced Sodium-Ion Battery Performance

Alejandro Franco, PhD, Professor, Reactivity & Chemistry of Solids Lab, University of Picardie Jules Verne

In this lecture, I first recall the key aspects of our ARTISTIC software platform and its unique characteristics that allow for the combination of physics-based mesoscale simulation of battery manufacturing, AI, and inverse design. I then present its adaptation for gaining insights into manufacturing-performance relationships for sodium-ion battery electrodes. This approach provides valuable insights on the electrochemical mechanisms at play in hard carbon electrodes for example, helping refine cell design.

9:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

10:10 Development of Ultrahigh-Energy-Density (1kWh/kg) Li-air Batteries: From R&D Samples to Engineering Prototypes and Pilot Manufacturing

Tim Lin, PhD, CTO and Founder, Solid Energies

Solid Energies Inc. is presenting the development of a new generation of solid-state Li-air battery with 1k (1000 Whr/kg) energy density (4 times of Li-ion battery), which is aimed for the application in a variety of high-value vehicles including regional jet aircraft, by leveraging their advances in solid-state electrolyte optimization and cell processing innovation/optimization to progress quickly toward the establishment of a pilot-scale line for their SSLaBs.

10:40 Introduction of the Beff Platform: Comprehensive Support from Cell Development to Production

Shunsuke Amagai, Founder & Co-CEO, Beff

Since our company's inception, we have collaborated with cell manufacturers and automotive OEMs to address numerous development and production challenges related to cells. Leveraging the expertise of our engineers who have extensive experience in the lithium-ion battery field, we offer comprehensive solutions from cell design to mass production. In this presentation, we will showcase the development methodologies using the Beff Platform, complemented by real-world examples.

11:10 Advanced Composite Material Manufacturing Enabled by GaN Solid-State Microwave and Plasma Technology

Grace Cho, Global Sales & Marketing Head , RFHIC Corp

As advanced battery materials like graphene and carbon nanotubes (CNTs) gain momentum, the demand for processing methods that are efficient, scalable, and environmentally sustainable continues to grow. RFHIC's GaN-based solid-state microwave technology offers a novel approach to composite material manufacturing by delivering precise, rapid, and uniform thermal processing. Unlike conventional heating methods, our microwave-driven solution enables enhanced process control and digital tunability—making it ideal for manufacturing of various composite materials such as graphene and CNT. Key benefits include shorter cycle times, improved material purity, and greater consistency. Join us to explore how RFHIC's microwave technology can elevate your composite material manufacturing processes and support next-generation battery innovation.

11:40 Networking Luncheon *(Sponsorship Opportunity Available)*

12:10 pm Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

ADVANCES IN CELL MANUFACTURING

12:40 Chairperson's Remarks

Shunsuke Amagai, Founder & Co-CEO, Beff

12:45 Aging Effects on Performance of Lithium Manganese Iron Phosphate Bearing Cells

Daniel Abraham, PhD, Senior Materials Scientist, Argonne National Laboratory

Lithium manganese iron phosphate (LMFP) is attractive as a lithium-ion battery cathode material as it does not contain Ni and Co, which are supply-constrained and expensive. However, widespread use of LMFP has been limited for reasons that include battery cycle life. In this presentation we will discuss insights from experiments being conducted using LMFP cathodes. Performance characteristics such as capacity fade and impedance changes during battery aging will be discussed.

1:15 Increasing Battery System Performance

Kevin Konecky, Vice President, Battery Systems Engineering, Ola Electric

Battery systems have evolved into complex assemblies where the battery cell, while central, is only part of a larger integrated architecture. Battery systems incorporate mechanical structure, thermal management, and advanced BMS, requiring robust integration to deliver safety, reliability, and performance. This presentation will discuss how each subsystem contributes to the overall battery system performance. We will examine current trends, emerging trends, technological advancements, and opportunities for innovation in next-generation systems.

1:45 Structure-Property Relationships of Ceramic-Modified Separators

Richard W. Pekala, CTO, R&D, Entek International, LLC

Polyolefin separators can undergo oxidation at high voltage, therefore the base film is typically coated on one or both sides with ceramic particles. While ceramic-coated separators are commonly used in EV applications, ENTEK will discuss the structure-property relationships of (1) ceramic-filled separators in which the ceramic is distributed throughout the bulk PE structure and (2) coextruded separators with a ceramic filled layer(s) combined with the PE layer.

2:15 Refreshment Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

BATTERY SAFETY

2:45 Mechanism and Solutions for Li-ion Thermal Runaway via Internal Shorts: Laser vs. DSC and ARC

John Zhang, PhD, CTO/CSO, Polypore International

This presentation focuses on Mechanism and Solutions for Li-ion Thermal Runaway via internal shorts.

SCALING BATTERY MANUFACTURING

3:15 Advancing Electrolytes for Next-Generation Batteries: Materials, Formulations, and Scalable Manufacturing

Carl Thoemmes, Business Deveopment Director, Orbia Fluor & Energy Materials

Electrolyte innovation is critical to unlocking the performance and safety of next-generation lithium-ion batteries. This presentation will explore recent progress in electrolyte raw materials, advanced formulations, and scalable manufacturing solutions. Emphasis will be placed on addressing emerging performance demands, including compatibility with silicon anodes, Mn-rich and high-nickel cathodes, li-metal, fast charging, reduced gassing, and high-temperature stability. The session will highlight how material and process development can enable evolving industry needs.

3:45 Sponsored Presentation *(Opportunity Available)*

4:15 Battery Manufacturing Scale-Up Costs

Sam Jaffe, Principal, 1019 Technologies

As many startup battery companies go from benchtop to manufacturing line, a big question remains: How much does it cost to build a battery factory? This presentation will try to answer that question for North America, Europe, and Asia. It will also explore alternative manufacturing models (contract manufacturing, capital-lite, and zero capex component-as-a-service). And it will delve into best practices for supply chain procurement.

4:45 Sponsored Presentation *(Opportunity Available)*

5:15 Networking Reception in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

6:15 Close of Day

WEDNESDAY, DECEMBER 10

8:00 am Registration and Morning Coffee

DIGITAL PASSPORTS FOR BATTERY MAUFACTURING

8:20 Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

8:25 Chairperson's Remarks

Daniel Abraham, PhD, Senior Materials Scientist, Argonne National Laboratory

8:30 Sponsored Presentation *(Opportunity Available)*

9:00 NXP eisBMS for Battery Fast Charging

Cameron Chase, Director, Business Development, Systems Engineering, NXP Semiconductors

Electrochemical impedance spectroscopy is not a new technology by any means in lithium-ion. Using EIS during fast charging as a means of monitoring the cell temperature and providing a robust measurement of plating risks, including feedback across the whole electrode surface, is about to be introduced with NXP's new eisBMS solution.

SITE SELECTION

9:30 Talent, Transformers, and Tariff Relief: Finding US Sites Built with Skilled Labor, Max Incentives, & Grid Strength

Tom Croteau, Senior Managing Director, Maxis Advisors

Discover how battery and advanced manufacturing companies can identify US sites offering the optimal mix of skilled labor, robust electric infrastructure, top-tier incentives, and tariff protection. This session explores key criteria, emerging hotspots, and strategic considerations for choosing locations primed for growth, resilience, and long-term competitive advantage.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Coffee Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

PLENARY KEYNOTE

11:15 Chairperson's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

11:20 How GM Is Driving Battery Development and Enabling an All-EV Future

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12:20 pm How Redwood Materials Is Building a Sustainable Battery Supply Chain

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12:50 Networking Luncheon *(Sponsorship Opportunity Available)*

1:50 Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)* **with Interactive Roundtables**

Battery Recycling

Advanced Recycling Methods for Sustainable Battery Materials Supply

MONDAY, DECEMBER 8

7:00 am Registration Open

TUESDAY, DECEMBER 9

7:00 am Registration and Morning Coffee

RECYCLING MARKET DEMAND

7:50 Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

7:55 Chairperson's Remarks

Steve Sloop, PhD, President, OnTo Technology LLC

8:00 Navigating Battery Recycling: Innovations, Policy Landscapes, and Market Challenges

Urvi Mehta, Senior Research Associate, Energy Storage, Lux Research

This presentation provides an in-depth analysis of battery recycling, highlighting technological advancements, regulatory complexities, and market dynamics impacting the industry. It integrates comprehensive research on patents, investment patterns, and cost structures, addressing critical economic and policy-related challenges that influence the future of battery recycling.

8:30 Opportunities and Challenges for Closed Loop within North America

Aki Fujita, Principal, Arthur D. Little

Currently, the North American recycling supply chain is not a complete closed loop within the region, and the challenges include: (1) "leakage" of black mass to Asia, (2) economies of scale sufficient to ensure profitability, and (3) lack of pCAM factories. This presentation will discuss the challenges and business opportunities for establishing a closed loop supply chain within North America in the future.

9:00 FEATURED PRESENTATION: Lithium-ion Battery Recycling: Science & Technology Challenges and Opportunities

Ilias Belharouak, PhD, Section Head, Electrification and Energy Infrastructure Division, Oak Ridge National Laboratory

The rise of lithium-ion batteries, especially in electric vehicles, drives demand for sustainable recycling. However, recycling technologies face early-stage challenges and lag behind market growth. This document reviews current methods—pyrometallurgical, hydrometallurgical, and direct recycling—with a focus on the US-developed ReCell process. It explores benefits, challenges, and cathode regeneration, concluding with future perspectives on advancing energy and environmental sustainability in lithium-ion battery recycling.

9:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

SAFETY RISKS IN BATTERY RECYCLING & STORAGE

10:10 Lithium Battery Safety Risks in Recycling

Barry Perlmutter, President, Perlmutter & Idea Development (P&ID) LLC

Lithium-ion batteries (LIBs) recycling is a complex process including deep-discharging, shredding/granulating, black mass drying, electrolyte recovery with gas treatment, and finally classification and sorting of black mass, copper, aluminum, plastic, and ferrous metals. Many hazards exist including exposure to combustible dust and flammable, corrosive, and toxic electrolytes. This presentation reviews chemical industry-level safety protocols and hazard and operability studies to prevent accidents and ensure process safety.

DESIGN FOR RECYCLING

10:40 Designing Batteries for a Sustainable Future: Minimizing Carbon Footprint and Enhancing Recyclability

Adam Dendrinos, Senior Product Manager, Battery, AVL List GmbH

AVL presents a design-focused approach to minimizing battery carbon footprint and improving recyclability. This session explores how engineering decisions around materials, construction, and manufacturing affect sustainability and end-of-life recovery. Case studies from AVL's benchmarking and teardown analyses illustrate how specific design choices support circularity and reduce CO2 impact. We also examine how design aligns with regulatory frameworks, including EU Battery Passport implementation.

11:10 Sponsored Presentation *(Opportunity Available)*

11:40 Networking Luncheon *(Sponsorship Opportunity Available)*

12:10 pm Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

RECYCLING METHODS

12:40 Chairperson's Remarks

Aki Fujita, Principal, Arthur D. Little

12:45 Efficient Use and Recycling Strategies to Minimize Critical Raw Material Needs

Linda Gaines, PhD, Transportation Systems Analyst, Energy Systems, Argonne National Laboratory

This presentation discusses how to get the most electric miles from battery material, as quickly as possible, to minimize material requirements during rapid growth periods. Non-standard strategies offered include using smaller batteries, extracting miles faster, recycling sooner, limiting second-life applications, and reallocating routes within mixed fleets. Demand for critical materials can be reduced by a factor larger than by battery size reduction alone, easing scarcity concerns.

1:15 Deactivation and Extraction of Lithium(-Metal) from Lithium-ion Batteries and Other Next Generation Materials

Sascha Nowak, PhD, Head of Analytics & Environmental, Electrochemical Energy Technology, University of Münster

Handling and transporting aged or defective battery cells is a key challenge in establishing an efficient battery recycling infrastructure. An important prerequisite for such a system is the development of suitable methods for the pre-treatment and deactivation of lithium-ion and lithium-metal batteries. Additionally, the extraction of lithium is getting more attention to achieve an overall better recycling efficiency. Here, we present some of our latest results on the topic.

1:45 Reducing the Risk of Recycling Industrialization: Developments on Direct Recycling and Deactivation

Steve Sloop, PhD, President, OnTo Technology LLC

Dr. Sloop will discuss a three-dimensional approach for battery materials reclamation: Deactivation, Direct Recycling, and Design. The service of lithium-ion batteries and recycling of their materials is at the forefront of the reestablishment of the North American supply chain of critical materials refining and manufacturing. The industrialization of this requires innovative processes and design to realize cost and safety demands for US dominance in the next generation of lithium-ion manufacturing.

2:15 Refreshment Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

2:45 Green Recycling of Mixed Chemistry Black Mass: Sustainable Approaches to Binder Removal, Flotation, Leaching and Metal Recovery

Marc Simon Henderson, Curtin University and FBICRC

This research is focused on the development of greener recycling technologies capable of treating a mixed chemistry black mass feed. Our research has identified green processing options throughout the recycling flowsheet, including the pre-treatment, material concentration, leaching and impurity removal / metal recovery stages.

SECOND LIFE

3:15 Retirement Planning for Electric Vehicle Batteries: Why LFP has Greater Second-Life Potential than NMC and NCA batteries
Anna Cobb, PhD Candidate, Engineering & Public Policy, Carnegie Mellon University
We assess the economics of electric vehicle (EV) battery repurposing by estimating the maximum price a repurposer could pay for used EV battery packs to manufacture second-life stationary storage systems at life-adjusted costs competitive with new systems.

3:45 Sponsored Presentation *(Opportunity Available)*

4:15 The Challenges for Battery Reuse before Recycling Them
Carl Smith, Board Member, Bluewater Battery Logistics
Market estimations predict second-life battery applications growth, but the reality is that most of retired Li-ion batteries are recycled. We talk about the challenges and how to solve them.

4:45 Sponsored Presentation *(Opportunity Available)*

5:15 Networking Reception in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

6:15 Close of Day

WEDNESDAY, DECEMBER 10

8:00 am Registration and Morning Coffee

SECOND LIFE

8:20 Organizer's Remarks
Craig Wohlers, General Manager, Cambridge EnerTech

8:25 Chairperson's Remarks
Carl Smith, Board Member, Bluewater Battery Logistics

8:30 Sponsored Presentation *(Opportunity Available)*

9:00 Second-Life Battery Applications: More Than Just Extracting Value
Emil Nusbaum, Vice President of Strategy, Government, & Regulatory Affairs, Automotive Recyclers Association
This session will look at the challenges battery recyclers face in securing domestically sourced feedstock along with safety challenges automotive recyclers face when working with high-voltage vehicles. Second-life battery applications can help bridge the gap between end-of-life battery collection and battery recycling. Learn more about what industry is doing to promote battery affordability and the securing of critical minerals.

9:30 Advancing Data Transparency in Battery Recycling and Reuse
Antoni Tong, PhD, CEO, Smartville
Smartville has developed an integrated platform that enables the efficient assessment, trading, and repurposing of used EV batteries for second-life applications. Combining its proprietary Periscope diagnostic tool and Battery-connect repurposing solution, Smartville helps recyclers, fleet operators, and energy developers to address retired EV batteries. This presentation will highlight the technology, data workflows, and real-world use cases that drive Smartville's mission to extend battery life, reduce waste, and unlock new value.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Coffee Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

PLENARY KEYNOTE

11:15 Chairperson's Remarks
Craig Wohlers, General Manager, Cambridge EnerTech

11:20 How GM Is Driving Battery Development and Enabling an All-EV Future
Kurt Kelty, Vice President, Battery Cell & Pack, General Motors
GM has established a foundation to accelerate the investment in—and development of—battery technology with a robust supply chain to support its growth over the next decade. In this talk, Kurt will discuss GM's strategies for investing in new technologies and how its in-house capabilities enhance those efforts, with an overview and rationale behind key investments made to date.

11:50 The Road to Profitable Electrification of Transportation Driven by Innovations in Electrochemistry
Donald Sadoway, PhD, Professor Emeritus of Materials Chemistry, MIT, CSO & Co-Founder, Pure Lithium
Electrification of transportation hinges on innovation in battery chemistry, not only on the vehicle. Installation of charging points would be accelerated by stationary storage onsite. If power generation is to be based on carbon-free but intermittent renewables, massive stationary storage is required. These are three different use cases, each optimally satisfied by a different battery chemistry, all of them beyond lithium-ion, priced no more than legacy technology.

12:20 pm How Redwood Materials Is Building a Sustainable Battery Supply Chain
Colin Campbell, CTO, Redwood Materials
In this talk, Colin will discuss Redwood's technology and commercial strategy, highlighting the company's Nevada campus which today is recycling the equivalent of 250,000 EVs worth of material a year and manufacturing cathode active material in the US for the first time.

12:50 Networking Luncheon *(Sponsorship Opportunity Available)*

1:50 Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)* **with Interactive Roundtables**

Lithium Battery Chemistry - Part 2

Next-Generation Energy Storage, Lithium-ion, and Beyond

WEDNESDAY, DECEMBER 10

8:00 am Registration Open

BATTERY SUPPLY

2:20 pm Organizer's Remarks
Victoria Mosolgo, Conference Producer, Cambridge EnerTech

2:25 Chairperson's Remarks
Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster

2:30 Supply Chain Management
Mitul Dalal, Group Manager, Energy R&D, Panasonic R&D Co. of America

3:00 Battery System Design for Hyperscale AI/ML Datacenters
Christina Peabody, Hardware Engineer, Google Inc.
Krishnanjan Ravikumar, Principal Engineer, Google

Advanced, high-power batteries are key to datacenter power backup systems. Li-ion batteries are a common choice for datacenter energy storage systems, due to their versatility and significant power density and longevity benefits. This talk will discuss hyperscale datacenter power management challenges presented by the proliferation of AI/ML. Specifically, we will address how to incorporate batteries at different levels of the power system for optimal power management and system reliability.

3:30 Sponsored Presentation *(Opportunity Available)*

4:00 Refreshment Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

BATTERY APPLICATIONS AND SCALE-UP

4:30 Synergically Address the Interface Issues of Lithium Metal Batteries
Xiangbo Meng, PhD, Associate Professor, Mechanical Engineering, University of Arkansas Fayetteville

Lithium metal batteries, adopting Li metal as the anode and NMC811 as the cathode, are promising for higher energy density than that of lithium-ion batteries (LIBs). However, the interfacial issues of such LMBs rooted in the anode and cathode are very challenging and hindering the Li||NMC811 LMBs from commercialization. We recently found that addressing these interfacial issues synergically paves a technically feasible route for accomplishing the best performance of LMBs.

5:00 Potentials & Challenges of Solid-State Batteries for Automotive Applications
Julian Bigi, PhD, Senior Battery Technology Engineer, Battery Engineering, BMW Group

As the transportation sector shifts towards electric vehicles, the demand for safe, high-performance, and low-cost batteries steadily increases. Solid-state batteries have potential to increase safety and energy past Li-ion technologies. The integration of these batteries on a system-level remains challenging, as they often require high temperatures and/or pressures. Additionally, they exhibit large volume expansion with lithium metal anodes. This presentation highlights the potentials and challenges from the automotive perspective.

5:30 Accelerating Battery Innovation with Microstructure- and Particle-Scale Modeling: Bridging Manufacturing and Performance
Francois Usseglio-Viretta, PhD, Battery Researcher, Transportation & Hydrogen Systems Center, National Renewable Energy Laboratory

High-fidelity imaging and particle-scale modeling reveal how microstructural features like voids, cracks, and heterogeneity influence battery performance. By simulating microstructures and linking them to electrochemical behavior, we can guide material selection, optimize manufacturing, and accelerate development. This talk highlights how multi-scale modeling bridges materials processing and performance for next-generation battery technologies.

6:00 Close of Day

THURSDAY, DECEMBER 11

8:00 am Registration and Morning Coffee

SILICON ANODE

8:20 Organizer's Remarks
Victoria Mosolgo, Conference Producer, Cambridge EnerTech

8:25 Chairperson's Remarks
Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster

8:30 Talk Title to be Announced
Rob Anstey, CEO, GDI

9:00 Binders vs. Structural Additives—The Key to Maximum Silicon Anode Performance
Manuel Wieser, CTO, AnteoTech Ltd.

Binders and additives, though a small part of anode compositions, play a crucial role in achieving a long cycle life. This is especially vital for silicon-containing anodes, where materials like SiOx, Si/C, or Si are employed to enhance storage capacity. Evolving binder chemistries and innovative structural additives, such as Anteo X, aim to minimise inactive materials, pushing silicon anodes forward with significant cycle improvements.

9:30 How Nano-Composite Silicon and Other Technologies Will Unlock Higher Performance Lithium-ion Batteries
Gleb Yushin, PhD, Professor, Georgia Institute of Technology

As we transition from fossil fuel dependency to clean, renewable-based energy, we need to quickly scale up the production of high-performance products. This talk will discuss how Sila's silicon/carbon (Si/C) nanocomposite powder (branded as Titan Silicon) overcomes supply chain and performance limitations of graphite and significantly improves energy density, power density and charging rate of Li-ion cells.

10:00 Presentation to be Announced

10:30 Coffee & Bagel Break in the Exhibit Hall with Last Chance for Poster Viewing *(Sponsorship Opportunity Available)*

ZINC AND SODIUM BATTERIES

11:00 Sodium-ion Batteries in Automotive Applications: A New Technology for Hybridization
Asmae El Mejdoubi, PhD, Chief Product Officer, TIAMAT

This presentation will highlight the performance characteristics of NVPF-HC sodium-ion cells, developed specifically to meet the demands of the high power battery market. These cells demonstrate competitive energy density, excellent power capability, and robust cycling behavior, making them ideal for hybrid automotive applications. This comprehensive overview aims to position sodium-ion as a credible and strategic technology in the evolving landscape of automotive electrification.

11:30 Thermodynamic and Kinetic Control of Aqueous Electrolytes for Zn-Metal Batteries
David Xiulei Ji, Professor, Chemistry, Oregon State University

We investigate the functions of anions in amorphous lithium-salt composites as Li-ion battery cathodes. In $Fe/Li_3PO_4/LiF$, a multi-electron transfer delivers 368 mAh/g and 940 Wh/kg. In $Cu_2S/Li_2CO_3/Li_2SO_4$, carbonate and sulfate exhibit reversible anionic redox with 247 mAh/g at 3.0 V. These results demonstrate that anions can be mobile and function as active redox centers, enabling high-energy cathodes for next-generation Li-ion batteries.

12:00 pm Understanding Safety of New Technologies (SSB, Na-ion, Li Metal) from the Ground Up
Loraine Torres-Castro, PhD, Battery Safety Lead, Sandia National Laboratories

Lithium Battery Chemistry - Part 2

Next-Generation Energy Storage, Lithium-ion, and Beyond

Sandia National Laboratories aims to create a comprehensive safety framework for next-generation batteries, integrating material testing, mechanistic modeling, and safety assessments. This approach will mitigate risks, streamline design, and establish safety criteria crucial for advancing battery technology.

12:30 Enjoy Lunch on Your Own

CATHODES AND ELECTROLYTES

1:30 Chairperson's Remarks

Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster

1:35 Beyond Carbonates: What Do Scalable High-Performance Electrolytes Look Like?

Gustavo Hobold, PhD, CTO, Greentown Labs

Here we discuss electrolyte/molecule design strategies that can enable scalable, low-cost electrolytes that offer a step-up in performance compared to legacy carbonates. These electrolytes can effectively solve long-withstanding such as record-breaking performance in low-cost chemistries such as LMFP, zero gassing in Si-based anodes, <5 min fast charge, and stable high voltage operation

2:05 Ultra-Stable Cathodes Enabled by Compositional and Structural Dual-Gradient Design

Tongchao Liu, PhD, Assistant Chemist, Chemical Sciences and Engineering Division, Argonne National Laboratory

Next-generation cathodes require high-voltage operation (≥4.5 V) while maintaining structural and electrochemical stability. We present a dual-gradient cathode architecture—combining compositional gradients and an ordered-to-disordered structural transition—that enables stable cycling at up to 4.7 V. This design suppresses surface degradation, limits lattice strain, and enhances thermal resilience, achieving long-life, high-capacity performance beyond the limitations of current cathode technologies.

2:35 Session Break

CLOSING PLENARY PANEL DISCUSSION

2:45 PANEL DISCUSSION: Navigating the Global EV Growth in Harmony with Shifting US Policy, Demanding Energy Security, and Big Data Requirements

Moderator: Christina Lampe-Onnerud, PhD, Founder and CEO, Cadenza Innovation

In a world where EV momentum continues to evolve, the industry is facing great uncertainty in policy and energy priorities. In this Plenary Closing Discussion, we are ending the conference with a thought-provoking and insightful panel of experts led by Christina Lampe-Onnerud.

3:45 Close of Conference

Present a Poster

SAVE $50!

AABC encourages attendees to gain further exposure by presenting their work in the poster sessions. To secure an onsite poster board, your full submission must be received, and your registration paid in full by November 7, 2025.

Register and indicate that you would like to present a poster. Once your registration has been fully processed, we will send an email with a unique link and instructions for submitting your abstract and other materials. Please see website for more information.

Reasons you should present your research poster at this conference:

- Your research will be seen by leaders from top commercial, academic and government institutes
- Discuss your research and collaborate with interested attendees and speakers
- Your poster presentation will be published in our conference materials
- Receive a $50 discount off your Commercial or Academic/Government registration

WEDNESDAY, DECEMBER 10

8:00 am Registration Open

xEV MARKET EXPANSION

2:20 pm Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

2:25 Chairperson's Remarks

Rana Mohtadi, PhD, Senior Principal Scientist, Materials Research, Toyota Research Institute of North America

2:30 FEATURED PRESENTATION: Bringing New Battery Technology to the Mainstream

Oliver Gross, MASc, SME Energy Storage and Conversion, Advanced Propulsion Technology, Stellantis
Carrie Okma, Head of Lithium ion Modules & Cell Product Release & Validation Center, Stellantis

High-volume battery production is a different enterprise than that enjoyed by most other large-scale products. It therefore creates some distinct challenges to the introduction of new technologies into mass markets, particularly when balancing superior product performance and potential cost with quality, reliability, and capital expenses. This discussion will illustrate how both sides strive to achieve an optimal solution for maker, seller, and customer alike.

3:00 USABC Battery Development Program Overview

Matt Denlinger, Battery Research Engineer, Energy Storage Research, Ford Motor Company

The United States Advanced Battery Consortium LLC (USABC), a subsidiary of USCAR, is a collaborative research organization comprised of technical personnel from Ford, General Motors, and Stellantis. USABC has been pursuing advanced energy storage technologies for electrified vehicles for over 30 years. This talk will highlight recent updates to USABC's long term battery development targets and provide an overview of expected upcoming funding opportunities for US-based battery suppliers.

3:30 Presentation to be Announced

PARACLETE ENERGY

4:00 Refreshment Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

4:30 FIRESIDE CHAT: Meeting the Growing Demand for Energy Storage

Dong-Su Kim, CEO, LG Technology Ventures

This fireside chat will explore the current and future energy storage market and how LG sees the market and opportunities for growth.

5:00 Materials Progresses and Needs for Advanced Battery Technologies

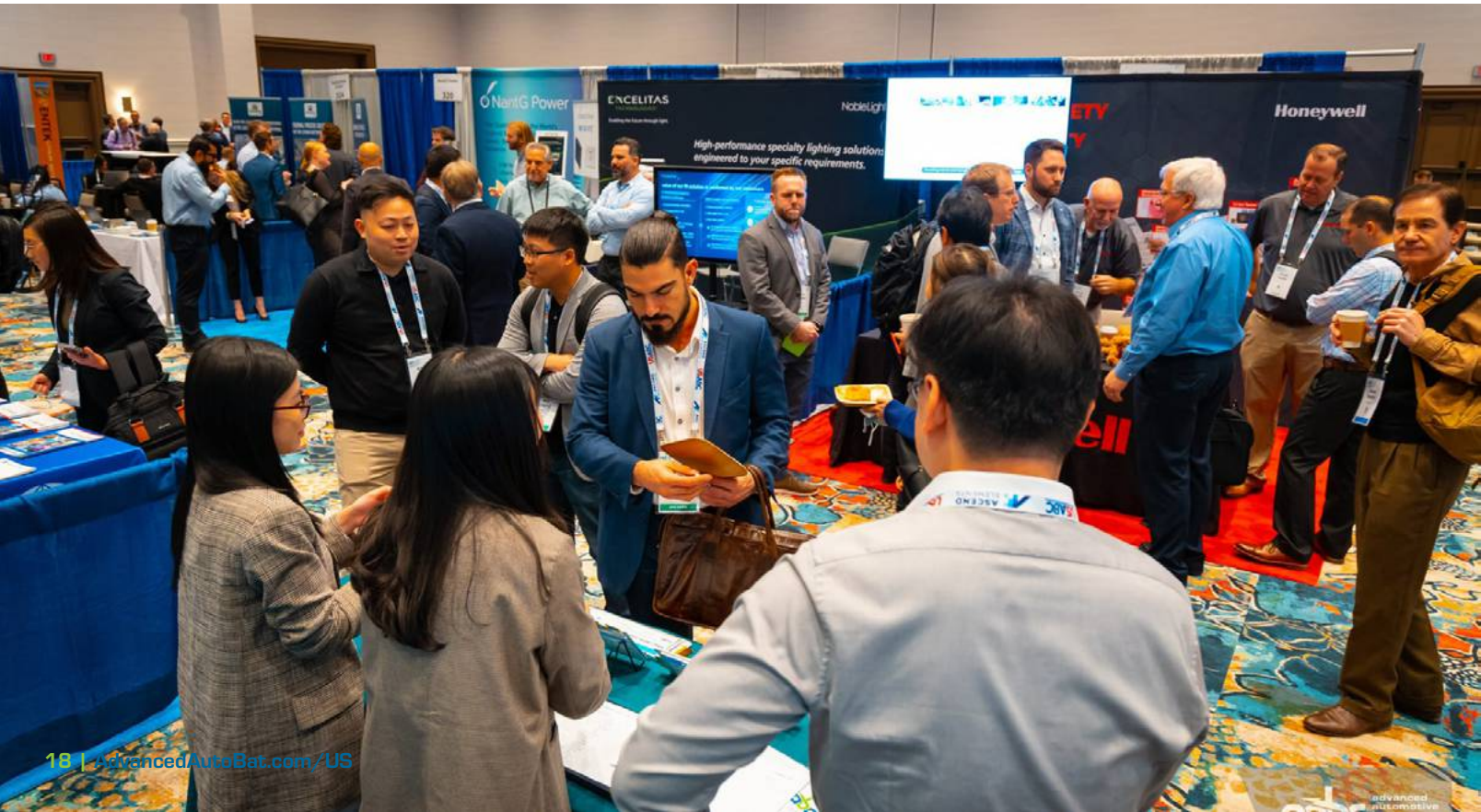
Rana Mohtadi, PhD, Senior Principal Scientist, Materials Research, Toyota Research Institute of North America

Advanced Li-ion batteries and beyond are poised to close key technological gaps related to increased energy densities, cost, and supply chain. The success of these technologies can only be achieved through the discovery of practical battery material systems. Over a decade ago, we achieved unprecedented advancements through the design of material systems. In this discussion, I will outline the technological challenges and highlight the recent progress made in our laboratories.

5:30 Development of Next-Generation Solid-State Batteries at Nissan

Albert Xiao, PhD, Senior Researcher, Nissan Motor Co Ltd.

Nissan remains committed to bringing All-Solid-State Battery vehicles to market as part of our "Ambition 2030" business plan. ASSB technology holds the key to longer range, faster charging, enhanced safety, and ultimately a more exciting driving experience for our customers. While first-generation



ASSBs are expected to be a game changer in terms of performance, next-generation ASSBs are expected to extend those performance improvements to a wider audience.

6:00 Close of Day

THURSDAY, DECEMBER 11

8:00 am Registration and Morning Coffee

xEV MARKET EXPANSION

8:20 Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

8:25 Chairperson's Remarks

Benjamin Park, PhD, Founder & CTO, Enevate Corp.

8:30 Continuous, Agile Pack Design for a Dynamic Battery Market VOLTAIQ

Speaker to be Announced, Voltaiq Inc

EV cell selection and battery pack design faces unprecedented challenges from evolving cell chemistry, shifting supply chains, and competitive pressure. Traditional serial, waterfall approaches must evolve into continuous, agile processes with parallel feedback loops. This talk covers market realities driving change, strategies for responsive cell selection and pack design, and best practices for cell qualification to enable resilient design cycles.

8:45 Sponsored Presentation *(Opportunity Available)*

9:00 FEATURED PRESENTATION: Exploring Cylindrical Battery Technology and Its Role in the Mobility Market

Takashi Sato, General Manager, Development Strategy Department, Mobility Energy Business Division, Panasonic Energy Corporation

Panasonic Energy is the leading company in the field of cylindrical batteries, particularly for mobility applications. The company is at the forefront of innovative research into cylindrical lithium-ion batteries for the mobility market. In order to further improve driver usability, meet potential needs, and expand their market reach, Panasonic Energy is committed to the continuous evolution of their batteries in all aspects, including technology, service, and beyond.

9:30 CATL's 21st-Century Lab: The Current State of Research on Lithium Metal

YouTing Kong, PhD, Manager, CATL

21C is a crossroad for academic research and industrial development, and this presentation will offer insight into its latest research while providing an industrial perspective on the development of lithium metal batteries. For the first time, we will introduce a bottom-up design methodology that helped us achieve longer cycle life under lean electrolyte conditions, where electrolyte formulations are iterated based on a clear understanding of cell failure mechanisms.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Coffee & Bagel Break in the Exhibit Hall with Last Chance for Poster Viewing *(Sponsorship Opportunity Available)*

11:00 PANEL DISCUSSION: From Lab to Lot: How Battery Start-Ups Can Break into the Auto OEM Supply Chain

Moderator: John Du, PhD, Partner, General Motors Ventures LLC

Tailored for battery ecosystem founders and suppliers, this discussion will dive into real-world challenges and practical strategies—from financing and partnerships to scaling and validation—that can make or break a start-up's path to commercialization.

INNOVATIONS IN BATTERIES FOR xEVs

12:00 pm The Opportunities and Challenges for LiFePO4-Based All-Solid-State Batteries

Minghong Liu, PhD, Battery Research Engineer, Ford Motor Company

LFP as an alternative cathode-active material is becoming the mainstream of more affordable EV models or attractive to people who are more concerned about EV battery safety. Using LFP in ASSB could also serve the same purpose. However, the compatibility between LFP and solid electrolyte and the rate capability of LFP SSB needs to be addressed. In this presentation, the progress of research on LFP cathode SSB will be reported.

12:30 Enjoy Lunch on Your Own

INNOVATIONS IN BATTERIES FOR xEVs

1:30 Chairperson's Remarks

Matt Denlinger, Battery Research Engineer, Energy Storage Research, Ford Motor Company

1:35 Enevate's Novel Solutions for High-Energy Density, Safety, and Fast Charge

Benjamin Park, PhD, Founder & CTO, Enevate Corp.

It is relatively easy to just show one excellent metric when developing cells. However, for commercialization, there exists a laundry list of specifications that customers demand. Enevate has 20 years of experience understanding customer demands and working on addressing problems for various markets. In this talk, Enevate will describe its recent novel approaches to improving batteries for electric mobility and other applications.

2:05 Revolutionizing Low-Voltage Boardnet Systems with SCiB Cell Property with Lithium-Titanium Oxide (LTO)

Hiroki Inagaki, Technical Executive, Battery Division, Toshiba

Toshiba's high-power lithium-ion battery, utilizing lithium-titanium oxide (LTO) anodes, known as SCiB, is expanding its applications across automotive, industrial, and various other sectors. This presentation explores the potential and innovative ideas for low-voltage board net systems leveraging the unique characteristics of SCiB cells. Through this, Toshiba aims to offer battery solutions that excel in efficiency, reliability, and safety for low-voltage systems.

2:35 Session Break

CLOSING PLENARY PANEL DISCUSSION

2:45 PANEL DISCUSSION: Navigating the Global EV Growth in Harmony with Shifting US Policy, Demanding Energy Security, and Big Data Requirements

Moderator: Christina Lampe-Onnerud, PhD, Founder and CEO, Cadenza Innovation

In a world where EV momentum continues to evolve, the industry is facing great uncertainty in policy and energy priorities. In this Plenary Closing Discussion, we are ending the conference with a thought-provoking and insightful panel of experts led by Christina Lampe-Onnerud.

3:45 Close of Conference

Global Battery Raw Materials

Balancing Supply, Demand, and Costs for Battery Component Materials

WEDNESDAY, DECEMBER 10

8:00 am Registration Open

GLOBAL DEMAND FOR BATTERY RAW MATERIALS

2:20 pm Organizer's Remarks
Craig Wohlers, General Manager, Cambridge EnerTech

2:25 Chairperson's Remarks
Ahmad Pesaran, PhD, Chief Energy Storage Engineer, National Renewable Energy Laboratory

2:30 Critical Insights for Various Stakeholders into the Battery Industry's Carbon Emissions and Sustainability Challenges
Edward Keith, Head of Consulting Operations, Benchmark Mineral Intelligence
Ed will present Benchmark's outlook on critical battery raw material supply chains vital to the energy transition. He will explore supply-demand dynamics, highlighting the key challenges and emerging opportunities facing the battery industry, and how these are expected to develop in the years ahead.

3:00 The Highly Exposed North American Battery Material Supply Chain and the Impact of Tariffs
Kimberly Berman, Independent Consultant, Pivot Research
Many gigafactories are currently under construction as automakers roll out their EV strategies and launch new vehicles that better meet consumer preferences. However, lack of development of the upstream and midstream parts of the battery value chain has exposed the industry to geopolitical risks that have only been made worse with tariffs. This talk will explore the supply chain risks that threaten the drive to de-risk battery production.

3:30 Advanced Composite Material Manufacturing Enabled by GaN Solid-State Microwave and Plasma Technology RFHIC
Grace Cho, Global Sales & Marketing Head , RFHIC Corp
As advanced battery materials like graphene and carbon nanotubes (CNTs) gain momentum, the demand for processing methods that are efficient, scalable, and environmentally sustainable continues to grow. RFHIC's GaN-based solid-state microwave technology offers a novel approach to composite material manufacturing by delivering precise, rapid, and uniform thermal processing. Unlike conventional heating methods, our microwave-driven solution enables enhanced process control and digital tunability—making it ideal for manufacturing of various composite materials such as graphene and CNT. Key benefits include shorter cycle times, improved material purity, and greater consistency. Join us to explore how RFHIC's microwave technology can elevate your composite material manufacturing processes and support next-generation battery innovation.

4:00 Refreshment Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

4:30 Navigating the Emerging Complexities of the Raw-Materials Side of the Battery Value Chain
Taylor Shively, Principal Consultant, CRU Group
Recent supply responses have shifted many critical metals markets into surplus, but beyond the near-term, significant investments are needed to keep pace with demand. However, recent geopolitical developments and net-zero aspirations are impacting how the value chain from ore to EV door, is developing. Taylor will explore CRU's outlook and the emerging complexity of the raw-materials side of the battery value chain.

5:00 Lithium in Africa: Risks and Opportunities
Lukasz Bednarski, Principal Analyst, S&P Global
The African continent is attracting significant attention from lithium mining companies interested in the growth opportunities represented by this region. Zimbabwe's recent success in the development and ramp-up of its mines proves that lithium mining in Africa has a future. Meanwhile, countries such as Ghana, Botswana, Namibia, and South Africa have lithium deposits that can be profitably mined even in a lower price environment, with the application of conventional methods.

5:30 Globally Competitive pCAM Production in Canada: Which Factors Drive Costs?
Marco Romero, Founder & CEO, Positive Materials
Cost-competitive pCAM production is essential for establishing resilient North American battery supply chains beyond Asia-dominated sources. Project Positive+ is providing a disruptive source of precursor cathode active materials (pCAM). The project uniquely delivers highly scalable regional battery materials production, in a cost-efficient manner, while enabling local critical mineral use and upgrading, creating resilient supply alternatives essential for energy security and industrial competitiveness.

6:00 Close of Day

THURSDAY, DECEMBER 11

8:00 am Registration and Morning Coffee

GLOBAL DEMAND FOR BATTERY RAW MATERIALS

8:20 Organizer's Remarks
Craig Wohlers, General Manager, Cambridge EnerTech

8:25 Chairperson's Remarks
Lukasz Bednarski, Principal Analyst, S&P Global

8:30 Presentation to be Announced Vianode

9:00 Fastmarkets Battery Materials Outlook and Update
Andrew Saucer, Battery Raw Materials Analyst, Fastmarkets
We will explore the most recent Fastmarkets forecasting data on a variety of battery raw materials, including lithium, cobalt, nickel, and graphite individually. This forecast will walk through each of these markets and examine the events actively shaping the markets and how they will impact the long term drivers of pricing.

MARKET OPPORTUNITIES IN BATTERY RAW MATERIALS

9:30 FEATURED PRESENTATION: Lithium Developments, Carbon Accounting, and Outlook to 2040
Roland Chavasse, Secretary General & Co-Founder, International Lithium Association
The presentation by the International Lithium Association (ILiA) will explore challenges and potential solutions to some of the key global issues in the lithium industry, including efforts to coordinate carbon and water footprinting techniques and regionalization and friendshoring in the value chain. In addition, the role of the ISO in the lithium industry and the risks posed by misinformation will be discussed.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Coffee & Bagel Break in the Exhibit Hall with Last Chance for Poster Viewing *(Sponsorship Opportunity Available)*

11:00 Life-Cycle Analysis of Batteries with the R&D GREET LCA Model
Michael Wang, PhD, Group Center Director & Distinguished Fellow, Systems Assessment Center, Argonne National Laboratory
With support of the US Department of Energy, Argonne continues to improve and expand battery LCA in R&D GREET with a battery LCA module. Most recently, we use the R&D GREET battery LCA module to simulate GHG emissions of selected battery packs under different global battery passport program frameworks. We will present the R&D GREET battery LCA module and its results here.

11:30 Building a North American Battery Supply Chain in a Globally Challenging Market
Ken Hoffman, Founder & CEO, Traubenbach
As the USA moves to a post-IRA battery development era, how do companies building a battery supply chain react? What are the chemistries that will be most resilient to geopolitical pressures, and how will the partnerships needed to succeed occur? I will lay out a path for future battery success in North America.

12:00 pm Recent North American Lithium-ion Battery Supply Chain Growth

Ahmad Pesaran, PhD, Chief Energy Storage Engineer, National Renewable Energy Laboratory

Significant demand for Lithium-ion batteries (LIBs) for EV and grid applications has led to supply chain issues for North America. To track the growth of the LIB supply chain, NAATBatt and NREL have published a database of companies that mine, process, manufacture, reuse, and recycle batteries in NA since September 2021. We will discuss the growth of various segments, particularly in mining and material processing over the last four years.

12:30 Enjoy Lunch on Your Own

MARKET OPPORTUNITIES IN BATTERY RAW MATERIALS

1:30 Chairperson's Remarks

Ken Hoffman, Founder & CEO, Traubenbach

1:35 Green Growth in North America: Technology and Inflation in a Tariff Economy

Chris Berry, Founder & President, House Mountain Partners

The amount of geopolitical tumult impacting the financial and clean energy markets is unprecedented, and many think we are watching a movie we've never seen before. Higher interest rates, volatile metals prices, and policy uncertainty are three of a number of issues that are impacting the pace and trajectory of electrification. This presentation explores the impacts of all three and offers a way forward given that uncertainty is guaranteed.

2:05 Understanding the Evolving Mining Standards Landscape: Opportunities and Risks

Emily Greenspan, Associate Director, Oxfam America

As transition mineral demand escalates, strong environmental, social, and human rights safeguards are essential to ensuring that the mining sector does not repeat the mistakes of the past. Along with government regulations, voluntary standards have an important role to play. This session will explore how standards are evolving to meet the moment. Will new standards create a foundation for more corporate accountability and sustainable supply chains or increase greenwashing opportunities?

2:35 Session Break

CLOSING PLENARY PANEL DISCUSSION

2:45 PANEL DISCUSSION: Navigating the Global EV Growth in Harmony with Shifting US Policy, Demanding Energy Security, and Big Data Requirements

Moderator: Christina Lampe-Onnerud, PhD, Founder and CEO, Cadenza Innovation

In a world where EV momentum continues to evolve, the industry is facing great uncertainty in policy and energy priorities. In this Plenary Closing Discussion, we are ending the conference with a thought-provoking and insightful panel of experts led by Christina Lampe-Onnerud.

3:45 Close of Conference

WEDNESDAY, DECEMBER 10

8:00 am Registration Open

GLOBAL BATTERY MANUFACTURING: STRATEGY AND OPPORTUNITY

2:20 pm Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

2:25 Chairperson's Remarks

Gerald Sammer, PhD, Principal Business Development Manager, AVL List GmbH

2:30 The Next Frontier: Battery Manufacturing in a Post-IRA World

John Warner, PhD, Chief Customer Officer, American Battery Solutions

With the Inflation Reduction Act reshaping the US battery landscape, this session will explore what's next. Topics include: localization strategies, critical mineral sourcing, and how global players are responding to US policy shifts.

3:00 Battery Supply Chains under Shifting Policies

Evelina Stoikou, Senior Associate, Energy Storage, Bloomberg New Energy Finance

Shifting global policies around the world, especially in the US, Europe, and China, are reshaping the future of battery technology, manufacturing, and supply chains. This session will explore how policy is influencing the adoption and supply of batteries for electric vehicles and stationary storage. It will also highlight strategic approaches manufacturers and suppliers are adopting to remain competitive and aligned with regulatory goals.

3:30 Sponsored Presentation *(Opportunity Available)*

4:00 Refreshment Break in the Exhibit Hall with Poster Viewing

(Sponsorship Opportunity Available)

4:30 Insights from One of the World's Leading Experts in DBE Manufacturing: Drawing on His Experience Scaling a 10GWh Next-Generation Battery Factory at Tesla

Hieu Duong, PhD, Chief Manufacturing Officer, AM Batteries

- Why Asian cell manufacturers maintain a 20-year advantage in manufacturing using conventional methods and why a technological leap is necessary for new entrants to compete.
- How dry electrode technology enables 30-40% CAPEX reduction and up to 70% OPEX savings compared to conventional solvent-based manufacturing.
- How this innovative approach removes the need for extensive solvent management systems, gigantic drying ovens, and associated supply chain complexities.

5:00 Chinese Battery Production: Breakthroughs and Key Companies Scaling Battery Innovation

Shmuel De-Leon, CEO, Shmuel De-Leon Energy Ltd.

This session will explore the latest breakthroughs, highlighting key companies pioneering these technologies, such as WeLion, Great Power, and SVOLT. Attendees will gain exclusive insights into the first-generation solid-state batteries poised for mass production and how Chinese manufacturers are overcoming critical challenges, from electrolyte stability to production scalability.

5:30 The Great Reshuffle: Trade Wars and the Competition for Critical Metals

Frank Nikolic, Vice President, Base & Battery Metals, CRU Group

The competition for onshoring and critical metals is intensifying as US looks to challenge China's massive lead. This talk will explore the current landscape of the battery value chain and what is needed to ensure the US industry has a secure and stable source of critical metals.

6:00 Close of Day

THURSDAY, DECEMBER 11

8:00 am Registration and Morning Coffee

SCALING GLOBAL BATTERY PRODUCTION

8:20 Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

8:25 Chairperson's Remarks

Evelina Stoikou, Senior Associate, Energy Storage, Bloomberg New Energy Finance

8:30 Sponsored Presentation *(Opportunity Available)*

9:00 The 2025 Hottest Battery Manufacturing Issue in China: How to Produce Semi-Solid Batteries?

Mark Lu, PhD, Senior Industrial Analyst, Industrial Economics & Knowledge Center, Industrial Technology Research Institute

Semi-solid batteries are becoming the hottest emerging battery technology in China in 2025, but the production process is very different from that of traditional liquid batteries, which will promote the upgrading and innovation of production equipment in the short term. This presentation will introduce the newest innovation in China, about the SSB used for dry mixing and dry coating, stacking, pole piece glue frame printing, and isostatic pressing technology.

9:30 From 50% to 5% Scrap: A Data-Driven Breakthrough in Battery Cell Manufacturing

Gerald Sammer, PhD, Principal Business Development Manager, AVL List GmbH

This presentation introduces an innovative approach to significantly reduce scrap rates in battery cell production using robust AI-driven design and optimization methodologies. By integrating Active Design of Experiments (DoE) with multi-objective genetic algorithms, manufacturers can achieve superior product quality within acceptable tolerance ranges. The method demonstrates a reduction in production scrap from 50% to just 5%, while maintaining performance KPIs such as capacity and energy losses.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Coffee & Bagel Break in the Exhibit Hall with Last Chance for Poster Viewing *(Sponsorship Opportunity Available)*

11:00 The Battery Innovation Bottleneck: How to Scale Beyond the Lab

Christoph Baum, PhD, Program Manager, Battery Research, Fraunhofer USA

Fraunhofer builds world's largest research infrastructure for scaling battery production—a unique platform that enables collaboration with industrial partners to accelerate the development and commercialization of battery technologies based on cutting-edge research. Fraunhofer is connecting with pilot initiatives in the U.S. to establish a transatlantic network of pilot line infrastructures ensuring a seamless transfer of innovations into the market, covering a wide range of cell formats, chemistries, and next-generation technologies.

ADVANCES IN R&D FOR PRODUCTION

11:30 Simultaneous Higher Power and Higher Energy Batteries by Self-Assembled 3D Microstructured Electrodes

Sergio Baron, CEO, Dynami Battery

The prevailing battery production paradigm forces a trade-off: high capacity (range) vs. high power (fast charging). Dynami's patented electrode production platform crafts lithium-ion superhighways that create batteries that don't compromise, delivering both high power and high capacity. Dynami's chemistry-agnostic technology uses less active materials and is additive to most other battery technologies, including solid-state batteries.

12:00 pm Polyurethane Adhesives for Next Generation Battery Pack Assembly

Thomas Clark, PhD, Research Scientist, DuPont

Two component reactive polyurethanes offer broadly tunable material properties with cure kinetics ideally suited for rapid pack assembly. Recent developments will be presented that demonstrate the robust adhesion of polyurethanes to traditionally difficult substrates such as dielectric materials and bare metals. The role of polyurethane adhesives in driving efficient pack assembly will be featured.

12:30 Enjoy Lunch on Your Own

1:30 Chairperson's Remarks

Frank Nikolic, Vice President, Base & Battery Metals, CRU Group

1:35 Ultrafast Laser Structuring Providing Refinement on Electrode Design for Cylindrical Batteries

Wilhelm Pfleging, PhD, Head of Group Laser Materials Processing/Lithium-ion Batteries, Institute for Applied Materials (IAM-AWP), Karlsruhe Institute of Technology (KIT)

Manufacturing 4690 cells involves the use of laser structuring for thick-film electrodes. Those batteries undergo an accelerated electrolyte filling process. Electrolyte rewetting during battery operation is significantly enhanced, contributing to an increased cycle lifetime and prevents lithium plating during fast charging. The R2R pilot line is undergoing further development to enhance process efficiency. It uses advanced, high-power, ultrafast lasers which have been successfully used with various types of electrode materials.

WORKFORCE RECRUITING & DEVELOPMENT

2:05 Battery Workforce Trends & Insights

Matt Anders, Founder & Lead Recruiter, VoltForce

Exploring trends across the battery industry from a talent and workforce perspective. From hiring projections, geo-political influence, compensation benchmarking, and educational resources, I will dive into the industry and provide actionable insights for companies and individuals alike.

2:35 Session Break

CLOSING PLENARY PANEL DISCUSSION

2:45 PANEL DISCUSSION: Navigating the Global EV Growth in Harmony with Shifting US Policy, Demanding Energy Security, and Big Data Requirements

Moderator: Christina Lampe-Onnerud, PhD, Founder and CEO, Cadenza Innovation

In a world where EV momentum continues to evolve, the industry is facing great uncertainty in policy and energy priorities. In this Plenary Closing Discussion, we are ending the conference with a thought-provoking and insightful panel of experts led by Christina Lampe-Onnerud.

3:45 Close of Conference

Battery Intelligence

Using Machine Learning and Artificial Intelligence to Optimize Battery Development from Materials to Manufacturing

WEDNESDAY, DECEMBER 10

8:00 am Registration Open

EV NAVIGATION AND DATA

2:20 pm Organizer's Remarks
Victoria Mosolgo, Conference Producer, Cambridge EnerTech

2:25 Chairperson's Remarks
Chao Hu, PhD, Associate Professor, Mechanical Engineering, University of Connecticut

2:30 Examining BEV Battery Aging: Insights from VW's Fleet Data
Robin Saam, Battery Development, Volkswagen AG
A common perception about battery aging exists. But does this perception align with the aging experienced by BEV customers? Are high temperatures, large DC-Charging proportions, or high currents the pain points in real-world battery aging, or can they be neglected because of their rare occurrence? By using VW's fleet data, these questions will be further analyzed.

3:00 Physically Constrained Reactive Collision Avoidance for Autonomous Navigation
Zhimin Xi, PhD, Professor, Systems Engineering, Rutgers University
This talk presents a reactive collision avoidance method for autonomous vehicles that accounts for physical motion constraints. We introduce a velocity-obstacle-based algorithm that selects the safest feasible velocity closest to the desired trajectory. The approach ensures safe navigation toward dynamic or static targets, even when no ideal velocity exists, by enforcing minimum-velocity fallback strategies.

3:30 Enabling Smarter Battery Decisions with Micantis
Mykela DeLuca, Product Manager, Micantis
As the demand for battery technology grows around the world, the need for high-quality, organized, and actionable data has become increasingly important. From identifying quality issues on the production line to developing predictive models for battery life and performance, smarter decisions start with trustworthy data. Micantis helps researchers and manufacturers centralize, clean, structure, and analyze their battery data, from formation to end-of-life, enabling faster insights and higher confidence in results. By removing data silos, streamlining feature extraction, and simplifying report generation, Micantis supports both day-to-day quality control and long-term. We'll share how customers are using Micantis to catch issues earlier, accelerate learning cycles, and build scalable battery workflows grounded in good data.

4:00 Refreshment Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

4:30 Early Life Prediction and Rapid State-of-Health Estimation of Lithium-ion Batteries
Chao Hu, PhD, Associate Professor, Mechanical Engineering, University of Connecticut
This talk will discuss the long-term testing and methodology development efforts for early-life prediction and rapid state-of-health estimation led by a collaborative team of researchers at the University of Connecticut, the University of Oxford, and Iowa State University.

5:00 Bridging the Gap between Battery Materials and Cells through Process Simulations Based on Physics-Aware AI
Alejandro Franco, PhD, Professor, Reactivity & Chemistry of Solids Lab, University of Picardie Jules Verne
In this lecture, I will provide an update on the latest developments in digital models for the accelerated optimization of battery manufacturing processes. These models are based on novel physics-aware AI, able to not only predict properties as a function of manufacturing process parameters but also to explain the physicochemical mechanisms involved in the process. This work gives rise to the first-of-its-kind digital brain of production digital twins.

5:30 Machine Learning—An Opportunity for Reducing the Resource Consumption of Finalization Quality Control
Patric Keister, Quality Assurance, Fraunhofer Research Facility Production Battery Cell FFB

6:00 Close of Day

THURSDAY, DECEMBER 11

8:00 am Registration and Morning Coffee

BATTERY MANAGMENT AND CONTROL

8:20 Organizer's Remarks
Victoria Mosolgo, Conference Producer, Cambridge EnerTech

8:25 Chairperson's Remarks
Hosam K. Fathy, PhD, Mechanical Engineering, University of Maryland College Park

8:30 Sponsored Presentation *(Opportunity Available)*

9:00 An Overview of Model-Based Control and Machine Learning for Lithium-ion and Lithium-sulfur Batteries
Hosam K. Fathy, PhD, Mechanical Engineering, University of Maryland College Park
This talk will provide a high-level exploration of some of the key challenges and opportunities in the model-based control of both lithium-ion and lithium-sulfur batteries, including both solid and liquid electrolyte Li-S batteries. Much of the talk will focus on emerging opportunities for test trajectory optimization and machine learning for both battery types, with a focus on Li-S batteries.

9:30 Battery Intelligence in the Context of Electric Aviation
Venkat Viswanathan, Assistant Professor, Mechanical Engineering, Carnegie Mellon University
This presentation discusses leveraging machine learning and robotic experimentation to accelerate innovation in battery materials. It explores how these advanced techniques streamline material discovery, optimize properties, and expedite the development of next-generation battery technologies.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Coffee & Bagel Break in the Exhibit Hall with Last Chance for Poster Viewing *(Sponsorship Opportunity Available)*

11:00 Toward Generalizable Battery Diagnostics with Predictive Pretraining Transformers
Jingyuan Zhao, PhD, University of California Davis
A predictive pretraining transformer (PPT) framework is proposed for generalizable battery diagnostics across diverse chemistries and operating conditions. By employing supervised pretraining on large-scale time-series data, followed by task-specific fine-tuning, the model enables accurate and transferable state-of-health (SOH) estimation across a wide range of materials. Results demonstrate high predictive performance with reduced data and training requirements, supporting scalable deployment of AI-driven diagnostics in real-world battery systems.

11:30 Intelligent Battery Management System for Li-Metal Batteries
Kostyantyn Khomutov, Co-Founder and CEO, GBatteries
Li-metal batteries offer exceptional energy density but face safety and cycle life challenges. GBatteries' Intelligent Battery Management System uses adaptive pulse-based control to enhance performance, reduce degradation, and enable prediction, detection, and prevention of safety events. Validated in drone and aerospace applications, it improves runtime by up to 63%. This session explores how intelligent control accelerates the safe adoption of Li-metal batteries for electric mobility.

12:00 pm State-of-Health Estimations
Tina Shoa, PhD, Professor Sustainable Energy Engineering, Faculty of Applied Sciences, Simon Fraser University

This study presents a practical methodology for using Electrochemical Impedance Spectroscopy (EIS) in Battery Management Systems, enabling accurate state-of-charge (SoC) prediction and battery core temperature. By incorporating compensation methods for nonlinearities, valid EIS data was obtained during battery operation and within a short rest period. Using 1,500 EIS samples from 196 batteries, an XGBoost model predicted SoC with 90% accuracy, supporting real-time, embedded EIS/AI applications.

12:30 Enjoy Lunch on Your Own

ARTIFICAL INTELLIGENCE

1:30 Chairperson's Remarks

Tal Sholklapper, PhD, CEO & Co-Founder, Voltaiq, Inc.

1:35 Building the Foundation of Battery AI

Tal Sholklapper, PhD, CEO & Co-Founder, Voltaiq, Inc.

AI's potential in the battery industry has fallen short, with issues such as inaccurate recommender systems, poor lifetime predictions, and lengthy data entry processes. The key to unlocking better insights lies in clean, real-time data, which is critical for scaling AI in this space. Given the complexity of battery chemistries, supply chains, and production, standardized data collection is essential for effective AI in production environments.

2:05 Advanced Battery Management System for EVs

Saeid Habibi, PhD, Professor Mechanical Engineering, Center for Mechatronics & Hybrid Technologies, McMaster University

This study presents an advanced strategy for state-of-charge (SOC) and state-of-health (SOH) estimation that has achieved errors of less than 1%. This strategy includes combined spectral and temporal characterization of cells. It uses the Smooth Variable Structure Filter together with the Interacting Multiple Model concept for estimation.

2:35 Session Break

CLOSING PLENARY PANEL DISCUSSION

2:45 PANEL DISCUSSION: Navigating the Global EV Growth in Harmony with Shifting US Policy, Demanding Energy Security, and Big Data Requirements

Moderator: Christina Lampe-Onnerud, PhD, Founder and CEO, Cadenza Innovation

In a world where EV momentum continues to evolve, the industry is facing great uncertainty in policy and energy priorities. In this Plenary Closing Discussion, we are ending the conference with a thought-provoking and insightful panel of experts led by Christina Lampe-Onnerud.

3:45 Close of Conference

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