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aabc europe

14th INTERNATIONAL advanced automotive battery conference

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WEDNESDAY & THURSDAY 15-16 MAY

- CHEMISTRY - PART 2
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- xEV BATTERY TECHNOLOGY
- BATTERY INTELLIGENCE
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TOP REASONS TO ATTEND

- Learn first-hand about the technical and business directions from major automakers currently active in the European market
- Hear key global market outlook data on the forecasted consumption trends for China, Japan, Korea, Europe and the United States
- Meet leading energy storage technologists from all automakers active in the European market
- Discuss fast-charging solutions coming to the market to support electrification goals for the coming decade
- Get an in-depth international overview of the lead industry including current trends, competitive analysis and examination of the key players and their strategies for market growth
- Discover the latest technological advancements in high specific energy batteries with long cycle life and low cost
- See how key players are overcoming challenges to commercialization for the specialty EV battery market while assessing consumer demand and competing technologies
- Understand the many facets of the international battery raw materials market, including advances in mining and processing with an emphasis on sourcing and cost control strategies by manufacturers
- Network at the largest international gathering of advanced energy storage technology developers and integrators in Europe

FEEDBACK FROM PREVIOUS EVENTS

"People show what will be the future, but it's also dealing with practical questions, it's not just a dream."

- Muriel Desaeger, PhD, Toyota Motor Europe

"We see experts from the car companies, the battery suppliers, and the system integrators. The presentations are of excellent quality."

- Eckhard Karden, PhD, Ford Research Center

"The annual visit of AABC is a must for any developer or scientist working on battery technologies for automotive applications."

- Arnold Lamm, PhD, e-Technologies GmbH, formerly Daimler AG

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13 MAY 2024 | STRASBOURG, FRANCE

TUTORIALS*

*All Access or separate registration required

MONDAY 13 MAY 14:00-15:30

TUT1: Solid-State Batteries

Instructor:
Juergen Janek, PhD, Professor, Solid-State Ionics & Electrochemistry, Justus Liebig University, Giessen

TUT2: Na-ion Batteries: Materials and State of the Art

Instructor:
Philipp Adelhelm, PhD, Professor, Institute of Chemistry, Humboldt-University Berlin

TUT3: Sustainability in the Automotive Battery Value Chain

Instructors:
Beatrice Browning, Senior Recycling Analyst, Benchmark Mineral Intelligence
Soad Chambazi, Sustainability Analyst, Benchmark Mineral Intelligence
Sarah Colbourn, Acting Head of Sustainability, Benchmark Mineral Intelligence
Stefan Debruyne, Director of External Affairs, SQM International

TUT4: The Rechargeable Battery Market: Value Chain and Main Trends

Instructors:
Christophe Pillot, PhD, Director, Avicenne Energy
Fabrice Renard, Senior Advisor, Avicenne Energy

TUT5: Cell & Pack Design for xEVs

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

MONDAY 13 MAY 16:00-17:30

TUT6: Battery Intelligence (instructor will be presenting virtually)

Instructor:
Sheldon Williamson, PhD, Professor & Canada Research Chair, Electrical & Computer & Software Engineering, University of Ontario Institute of Technology

TUT7: Recycling Methods

Instructor:
Steve Sloop, PhD, President, OnTo Technology LLC

TUT8: Improving the Energy Density of Batteries with Silicon-Based Anodes

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

TUT9: Battery Safety and Abuse Tolerance Validation

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

TUT10: In-Depth Analysis of the Chinese xEV Battery Market

Instructor:
Mark H. L. Lu, PhD, Senior Industrial Analyst, Industrial Economics & Knowledge Center, Industrial Technology Research Institute

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LITHIUM BATTERY CHEMISTRY — PART 1

Advancements in Lithium-ion and Beyond

MONDAY 13 MAY

12:00 Registration Open till 17:00

TUESDAY 14 MAY

7:00 Registration and Morning Coffee

MARKET OVERVIEW

8:30 Organizer's Remarks
Victoria Mosolgo, Conference Producer, Cambridge EnerTech

8:35 Chairperson's Remarks
Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster

8:40 The Rechargeable Battery Market: Value Chain and Main Trends, 2023-2033
Christophe Pillot, PhD, Director, Avicenne Energy
An overview of the 10-year automotive market forecasts from Avicenne and other analysts (micro/Hybrid/P-HEV/EV). Other coverage will include car makers' strategies and advanced energy storage (advanced lead acid/supercap/NiMH/LIB). Additionally, LIB design for P-HEV & EV markets (cylindrical, prismatic, pouch/wounded, stacked, Z fold cells) and LIB cell, module, and pack cost structure will be discussed.

9:00 Future Technologies for Automotive Batteries: Opportunities and Challenges
Angelique Janse van Rensburg, PhD, Head of Cell Chemistry and Methods, BMW Group
Lithium-ion technology is set to be the workhorse of e-mobility for the next decade and thus demands further R&D to improve the usual performance indicators such as energy density, safety, and lifetime. In addition, more sustainable materials and those that allow for faster charging are of high interest to the automotive industry. Selected observations originating from advanced electrode-active materials are discussed in this presentation.

9:20 The Battery Market
Hauke Simon, PhD, Director Strategy, EY Parthenon
Battery chemicals have been hailed as a sector with immense growth potential, driven by the increasing demand for batteries in various applications. However, the landscape of the industry has experienced a significant shift especially in Europe. This downturn has prompted a reevaluation of previous growth projections, leading to corrections in forecasts and necessitating a recalibration of strategies for industry stakeholders.

9:40 MODERATED Q&A: Session Wrap-Up
Moderator: Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster
Panelists:
Christophe Pillot, PhD, Director, Avicenne Energy
Angelique Janse van Rensburg, PhD, Head of Cell Chemistry and Methods, BMW Group
Hauke Simon, PhD, Director Strategy, EY Parthenon

10:00 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing - *Sponsored by* **ARKEMA**

ELECTROLYTES

10:50 The Electrolyte—The Hidden Champion for Maximizing the Performances of Modern and Innovative EV Cells
Ralf Wagner, PhD, CEO, E Lyte Innovations GmbH
E-Lyte aims to provide a sustainable and resilient supply chain for the perfect electrolyte solution for each energy storage system. The automotive industry currently has the greatest need for safe and powerful energy storage systems. The presentation will answer the question of why it is so difficult to find the perfect electrolyte for commercial battery technologies used in electric vehicles and how E-Lyte overcomes this challenge.

11:10 Enabling Lithium Metal: From Mine to Materials, Batteries, Vehicles, and Data
Kang Xu, PhD, , MRS Fellow, ECS Fellow, ARL Fellow (emeritus), Chief Scientist, SES AI Corp
SES AI specializes in rechargeable Li-Metal batteries (LMBs) with advanced electrolyte systems. These batteries offer excellent cycle-life, rate capability, energy density, and safety. SES has commercialized 100 Ah large format LMBs for EV and eVTOL applications. The company is now leveraging AI/ML for data mining in materials discovery, electrochemistry design, battery integration, recycling, and database management.

11:30 Armarator - An Invented Technology for Battery Separator
Wei-Ting Yeh, Deputy Director, Advanced Battery Materials, BenQ Materials Corporation
Armarator is a proprietary-design separator that offers a number of advantages over conventional separators including high temperature integrity, low film impedance and it does not require modifications to existing production processes. Armarator is easy for seamless adoption as a cost-effective solution for battery manufacturers.

11:50 MODERATED Q&A: Session Wrap-Up
Moderator: Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster
Panelists:
Ralf Wagner, PhD, CEO, E Lyte Innovations GmbH
Kang Xu, PhD, , MRS Fellow, ECS Fellow, ARL Fellow (emeritus), Chief Scientist, SES AI Corp
Wei-Ting Yeh, Deputy Director, Advanced Battery Materials, BenQ Materials Corporation

12:10 Networking Lunch *(Sponsorship Opportunity Available)*

13:10 Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

CATHODES

13:40 Chairperson's Remarks
Egbert Figgemeier, PhD, Senior Manager, IEK 12, Helmholtz Institute Muenster

13:45 Innovation in Cathode Materials Driving eMobility
Michael Kohl, PhD, Head Technical Sales, Battery Materials Europe, BASF SE
This talk will explore BASF's cathode material research, with focus on material advancements of various CAM types and their current CAM and recycling activities.

14:05 Pre-Lithiation as Enabling Technology for High-Capacity Negative Electrodes
Egbert Figgemeier, PhD, Senior Manager, IEK 12, Helmholtz Institute Muenster
Replacing carbon-based materials with silicon in negative electrodes for lithium-ion-batteries promises a boost of capacity and is therefore a major R&D topic. Nevertheless, widespread commercial automotive applications with silicon-modified anodes are still at the horizon, but not a commercial fact. Issues regarding volume variations, particle disintegration, and electrolyte consumption are hurdles still to overcome. The presentation will summarize latest efforts and prospects with regard to commercialization of silicon-based anodes.

14:25 Wildcat U.S. Manufacturing Plans for Advanced Cathode Materials
Dee Strand, PhD, CSO, R&D, Wildcat Discovery Technologies, Inc.
The intersection of Wildcat Discovery Technologies' materials experience with the U.S. goal of a domestic supply chain provides a unique opportunity. We will describe Wildcat's plan and progress to manufacture advanced cathode materials. Our product pipeline consists of materials that 1) provide a range of

energy densities; 2) are free of cobalt and nickel; 3) show promising material safety performance; and 4) have synergies in manufacturing unit operations.

14:45 MODERATED Q&A: Session Wrap-Up
Moderator: Egbert Figgemeier, PhD, Senior Manager, IEK 12, Helmholtz Institute Muenster
Panelists:
Michael Kohl, PhD, Head Technical Sales, Battery Materials Europe, BASF SE
Dee Strand, PhD, CSO, R&D, Wildcat Discovery Technologies, Inc.

15:05 Refreshment Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

15:30 Electrode and Cell Design for Sulfide Electrolyte-Based Solid-State Batteries
Holger Althues, PhD, Head, Chemical Surface Technology Group, Fraunhofer Institute for Material & Beam Technology
The talk will present and discuss innovations in electrode and cell design for sulfide electrolyte-based solid-state batteries. 100% silicon anodes were applied as stable high-energy anode concept in single- and multi-layer pouch cells with dry-processed NMC composite cathodes and solid electrolyte membranes. The cycling performance was studied in dependence of temperature and external pressure revealing high rate capability and cycle life.

15:50 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.

16:10 Battery Aging Mechanism Analysis and Pre-Failure Warning Application of Ripple
Johannes Roessner, CEO - BT Advisor, Xi'an Stropower Technologies Co.,Ltd.
Most studies on battery aging mechanisms consider DC factors, but few consider the complex ripples in vehicles.The battery aging mechanism caused by waves was studied using a systematic research method, thereby using spectral characteristics to monitor the time domain of SOH, lithium plating and other aspects.

16:30 PANEL DISCUSSION: MODERATED Q&A: Session Wrap-Up
Moderator: Egbert Figgemeier, PhD, Senior Manager, IEK 12, Helmholtz Institute Muenster
Panelists:
Holger Althues, PhD, Head, Chemical Surface Technology Group, Fraunhofer Institute for Material & Beam Technology
Karthik Ramaswami, PhD, CTO, R&D, SIONIC Energy
Johannes Roessner, CEO - BT Advisor, Xi'an Stropower Technologies Co.,Ltd.

16:50 Networking Reception in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

18:00 Close of Day

WEDNESDAY 15 MAY

7:20 Registration Open

7:30 Interactive Breakout Discussions & Morning Coffee
Interactive Breakout Discussions are informal, moderated discussions with brainstorming and interactive problem-solving, allowing participants from diverse backgrounds to exchange ideas and experiences and develop future collaborations around a focused topic.

TABLE 1: Solid-State Batteries
Moderator: Venkataraman Thangadurai, PhD, Professor, Chemistry, University of Calgary
TABLE 2: Electrolytes
Moderator: Gabriel Torres, Director of Product Management, Sionic Energy
TABLE 3: Innovations in Recycling Battery Materials & Second Life
Moderator: Steve Sloop, PhD, President, OnTo Technology LLC
TABLE 4: Li-ion NMC Fast Charging New Cells for E-Mobility
Moderator: Shmuel De-Leon, CEO, Shmuel De-Leon Energy Ltd.
TABLE 5: Battery Raw Materials Supply Chain
Moderator: Tom Van Bellinghen, Vice President, Marketing & OEM Value Chain, Rechargeable Battery Materials, Umicore
TABLE 6: Benefits of Wireless Communication Technology in Battery Management Systems
Moderator: Stefan Goede, Head of Research & Development, Co-Founder, Munich Electrification GmbH
TABLE 7: Opportunities and Potential for New Battery Technologies
Moderator: Ferdinand Ferstl, Associate Partner, E Mobility, P3 automotive GmbH
TABLE 8: Silicon Anodes and Cells
Moderator: Benjamin Park, PhD, Founder & CTO, Enevate
TABLE 9: Battery Intelligence
Moderator: Eli Leland, PhD, CTO and Co-Founder, Voltaiq, Inc.
TABLE 10: Cell Engineering
Moderator: Michael Schoenleber, Co-Founder & CTO, Batemo GmbH
TABLE 11: Advances in Sodium-ion Battery Materials
Moderator: Philipp Adelhelm, PhD, Professor, Institute of Chemistry, Humboldt-University Berlin
TABLE 12: Battery Legislation Globally – What Does the Battery Passport Imply in BMS & Battery?
Moderator: Silvio Marcon, Product Manager Battery Management Products, NXP Semiconductors Austria GmbH
TABLE 13: Automotive Battery Market Dynamics
Moderator: Carl Thoemmes, Business Development, Orbia Fluor & Energy Materials

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

LITHIUM-SULFUR

8:30 Lyten is Making Li-S Batteries a Commercial Reality
Karel Vanheusden, PhD, Vice President, Product Development, Lyten, Inc
Lyten is commercializing lithium-sulfur batteries enhanced with its proprietary 3D Graphene to enable next generation energy-storage with higher energy density, shorter charging times and longer cycle life. Lyten started operating a 3 MWh Li-S battery pilot line in California to support a variety of customers, and to further develop manufacturing capabilities for GWh-scale materials and cell production.

CATHODES

8:50 SOLGAIN™ Unlocking the Potential of Dry Cathode
Ludovic Odoni, Head of Research & Innovation, Syensqo
Solgain™ is the technology for "dry cathode manufacturing" enabled by the latest Syensqo PVDF polymer. Solgain™ technology produces a thick, highly loaded homogenous electrode in different manufacturing processes. It supports some of the known "dry" process advantages like lowering energy consumption, reducing footprint and costs . It also improves the ease and scalability for manufacturing and improves electrode performance using all kind of cathode active materials.

LITHIUM BATTERY CHEMISTRY — PART 1

Advancements in Lithium-ion and Beyond

SILICON ANODE

9:10 Umicore's Silicon Anode Material—How to Answer the Key Requirements from Electric Vehicle Manufacturers?
Jean-Sébastien Bridel, Senior Scientist, Research & Development, Umicore
After 15 years of R&D, Umicore introduces its silicon carbon composite (Si/C) anode portfolio. Today, and after extensive testing at large-scale, our customers confirm that Umicore Si/C technology is the right answer to meet their key requirements for next-generation EV batteries: performance, cost, scalability, ESG, and IP. We will detail our go-to-market strategy and industrial plan to be the first European Si-anode player at-scale.

9:30 On the Way to Silicon-Based Anode Materials—Beyond Cycle Stability
Stefan Haufe, PhD, Director, LIB Application Technology, R&D, Wacker Chemie AG
The challenges related to the huge volume change of silicon during lithiation still hamper its use as main anode material in lithium-ion batteries. Material concepts, addressing both mitigation on the electrode as well as on the materials level, are under investigation. Besides cycle stability and further electrochemical properties, applicability in existing production equipment and economic attractiveness are in the focus of these developments.

9:50 Silicon Isn't Just Silicon: A Navigation Through the World of Silicon Anode Materials With Technological and Commercial Insights
Ines Miller, Team Lead Battery Cells, E Mobility, P3 Automotive GmbH

10:10 Issues in the Massive Scale up of Cathode Production for EV Batteries and GEMX
Kenan Sahin, President & Founder, CAMX Power
Scale-up complexities often increase non-linearly. What is OK at low volume can be overwhelming at scale. So it is with the massive scale-up happening in the EV supply chain. Cathode is the most expensive component and determines performance. Half of the cathode costs are metals. Thus only big suppliers can exist. And they are taking capacity from a few thousand Kilotons to several million Kilotons. We will address the role for GEMX in alleviating scale issues in metal supplies and costs, water-washing and effluent disposal, flexibility of chemistries, and post-processing.

10:30 PANEL DISCUSSION: MODERATED Q&A: Session Wrap-Up
Moderator: Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster
Panelists:
Karel Vanheusden, PhD, Vice President, Product Development, Lyten, Inc
Stefan Haufe, PhD, Director, LIB Application Technology, R&D, Wacker Chemie AG
Jean-Sébastien Bridel, Senior Scientist, Research & Development, Umicore
Ines Miller, Team Lead Battery Cells, E Mobility, P3 Automotive GmbH
Ludovic Odoni, Head of Research & Innovation, Syensqo
Kenan Sahin, President & Founder, CAMX Power

10:50 Coffee Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

11:20 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 minimize inactive materials, pushing silicon anodes forward with significant cycle improvements.

11:40 Tailoring of Layered Electrode Materials by Doping and Co-Intercalation for Na-ion Batteries
Philipp Adelhelm, PhD, Professor, Institute of Chemistry, Humboldt-University Berlin
Na-ion batteries (SIBs) are emerging as potential alternatives to complement Li-ion battery (LIB) technology. SIBs offer energy densities close to LIBs while reducing the use of critical elements. Their conceptual similarity allows for production on existing LIB manufacturing lines, facilitating market implementation. This talk provides an overview of Na-ion battery development, focusing on materials (anode, cathode) and electrolytes.

12:00 Removing Restrictive Materials for a Sustainable, High Performance, and Cost-Effective Electrode Mass-Production
Nicolo Brambilla, CTO, Technology, Nanoramic Laboratories
Discover the impact of removing fluorinated binders and NMP solvent. Neocarbonix technology eliminates these materials from the battery, overcoming major blockers at each stage of its lifecycle, while leveraging conventional roll-to-roll coating equipment. This innovation streamlines manufacturing and recycling while enhancing the driving experience. Neocarbonix enables a 35% increase in energy density, a 27% cost reduction, and a 25% reduction in carbon footprint.

12:20 PANEL DISCUSSION: MODERATED Q&A: Session Wrap-Up
Moderator: Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster
Panelists:
Manuel Wieser, CTO, AnteoTech Ltd.
Nicolo Brambilla, CTO, Technology, Nanoramic Laboratories

12:40 Networking Lunch *(Sponsorship Opportunity Available)*

14:00 Dessert Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

14:30 Close of Conference

EV TECHNOLOGY FOR HEAVY DUTY APPLICATIONS

Commercialising Advanced High-Energy Batteries and Infrastructure for HEVs

MONDAY 13 MAY

12:00 Registration Open till 17:00

TUESDAY 14 MAY

7:00 Registration and Morning Coffee

HEAVY-DUTY MARKET EXPANSION

8:30 Organizer's Remarks
Craig Wohlers, Executive Director, Conferences, Cambridge EnerTech

8:35 Chairperson's Remarks
Denis Gorman, Head of Batteries & High Voltage Systems, FutureMotiv

8:40 Cell Safety for Commercial Vehicles
Dragoljub Vrankovic, PhD, Manager, Team Cell Technology, Daimler Truck
Battery electric trucks can be the future backbone of the transport industry—combining maximum energy efficiency with good flexibility. Daimler Truck AG has proven, with a number of projects and products on a global scale, how capable these electric trucks can be. This presentation will investigate the special needs of batteries and cells for commercial vehicles with a special focus on cell chemistry and safety.

9:00 Battery Cathode Chemistries for Heavy Duty On-Highway Trucks
John Forgie, PhD, Electrochemistry Senior Manager, Accelera by Cummins
Heavy duty truck OEMs have shown mixed interest in their cathode selection for BEV. In North America and Europe, companies leveraging their passenger car battery development have chosen layered-oxide cathodes, whereas others have chosen phosphate technology. China boasts the highest use of heavy truck BEV's, with phosphate technology being the predominant choice. At Accelera, we are investigating both technologies. Advantages, disadvantages, and the roadmaps of these chemistries will be discussed.

9:20 Battery Powered Trains: Operation of Li-ion Batteries and Effect of High-Switching Frequencies from DC/DC Converters
Tony Jaumann, PhD, Senior Specialist for Energy Storage Systems, Power Transmission - System Development, Siemens Mobility
Battery Powered Trains (BEMU) will continuously substitute diesel trains (DMU) in catenary-free rail network. Siemens Mobility will present results for aging and operation of Li-ion batteries with up to 1000 V. Charging of BEMU is carried out at overhead lines. Focus of the study will be the influence of ripple currents on battery cells as a result of DC/DC converters and 15 kV AC overhead lines.

9:40 MODERATED Q&A: Session Wrap-Up
Moderator: Denis Gorman, Head of Batteries & High Voltage Systems, FutureMotiv
Panelists:
Dragoljub Vrankovic, PhD, Manager, Team Cell Technology, Daimler Truck
John Forgie, PhD, Electrochemistry Senior Manager, Accelera by Cummins
Tony Jaumann, PhD, Senior Specialist for Energy Storage Systems, Power Transmission - System Development, Siemens Mobility

10:00 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing - *Sponsored by* **ARKEMA**

10:50 Battery Technologies for Multiple Units - Accelerating the Electrification of the Railway
Ezequiel Glasserman, Battery System Engineer, Stadler Deutschland GmbH
Battery electrical multiple units, such as the Stadler FLIRT Akku, offer a hybrid solution to rapidly electrify train lines still running on fossil fuels. The demands on the reliability and quality of multiple units, which are in use almost around the clock for up to 30 years, place high demands on the battery system. Here we present the first series-produced battery electrical multiple unit in Germany.

INNOVATION IN HEAVY-DUTY APPLICATIONS

11:10 Extreme Fast-Charge Batteries for Heavy-Duty Applications
Brian Barnett, PhD, CTO, Nyobolt
For many heavy-duty applications, batteries must deliver very high-power discharge capability and a very large number of charge-discharge cycles. The IDEAL battery would provide these attributes and would also be capable of incredibly fast charge with minimal heat release, allowing almost constant up-time. Nyobolt is commercializing battery technology with the capability of fully charging in 5-10 minutes or less, with outstanding cycle life, for mining and material handling/robotic applications.

11:30 LMFP: Material Technology and Cell Performance
Hana Huang, Sales Manager, HCM Co., Ltd.
In recent year, LMFP attracts more attentions because of the advantages such as high safety, longer cycle life and high voltage. We believe that LMFP will become one of the key materials in Lithium-ion battery industry. In this talk, I will brief about our milestone, 10-year experience in LMFP material technology, and share the latest performance data for Lithium-ion cell and Li-metal cell with LMFP.

11:50 MODERATED Q&A: Session Wrap-Up
Moderator: Denis Gorman, Head of Batteries & High Voltage Systems, FutureMotiv
Panelists:
Ezequiel Glasserman, Battery System Engineer, Stadler Deutschland GmbH
Brian Barnett, PhD, CTO, Nyobolt
Hana Huang, Sales Manager, HCM Co., Ltd.
SC Liao, Chief Technical Advisor, R&D , HCM CO., LTD.

12:10 Networking Lunch *(Sponsorship Opportunity Available)*

13:10 Dessert Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

INNOVATION IN HEAVY-DUTY APPLICATIONS

13:40 Chairperson's Remarks
Tony Jaumann, PhD, Senior Specialist for Energy Storage Systems, Power Transmission - System Development, Siemens Mobility

13:45 Powertrain Sizing for Heavy-Goods FCEVs
Denis Gorman, Head of Batteries & High Voltage Systems, FutureMotiv
Fuel cell vehicles are expected to be a key contributor to decarbonizing transportation, particularly for heavy goods and off-highway applications. A holistic approach to system sizing can minimize cost, weight, and complexity, all whilst ensuring that vehicle capability is not compromised. This session will demonstrate how customer requirements can be used to select appropriately-sized components, and explore how the capabilities of those components are interdependent.

14:05 Fast-Charging in High-Utilization Use Cases: Optimization of Power/Energy Ratios
Linus Froboese, Chief Technology Officer, Skeleton Technologies GmbH
The electrification of high utilization use cases requires low charging times and long cycle lifetimes in order to ensure low total cost of ownership. Skeleton Technologies has developed a high-power energy storage technology capable of being charged in 60 seconds and surviving up to 50,000 cycles. This presentation will analyze the requirements of high utilization use cases and how different energy storage technologies provide the lowest TCO for these applications.

14:25 Hybrid Supercapacitors with Lithium-ion Batteries in Electric Vehicles for Fast-Charging
Kawinkorn Iamrod, PhD, Researcher, University of Birmingham; Researcher, The Faraday Institution
This study aims to scale down supercapacitors to a coin cell size. Various charging rates will be applied to these cells using the VMP3 potential state from BioLogic. This experimentation will simulate scenarios where supercapacitors assist batteries in rapid charging from high-rate charger devices and when they harvest excess energy from the driving system with slower charging rates.

14:45 MODERATED Q&A: Session Wrap-Up
Moderator: Tony Jaumann, PhD, Senior Specialist for Energy Storage Systems, Power Transmission - System Development, Siemens Mobility
Panelists:
Denis Gorman, Head of Batteries & High Voltage Systems, FutureMotiv
Linus Froboese, Chief Technology Officer, Skeleton Technologies GmbH
Kawinkorn Iamrod, PhD, Researcher, University of Birmingham; Researcher, The Faraday Institution

15:05 Refreshment Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

15:30 Operation Optimization of Heavy-Duty Vehicles Based on Updated Battery Degradation Models
Gandiaga Inigo, Senior Researcher, Energy Storage and Management, Ikerlan
Data-driven battery degradation models increase the confidence of their predictions as more data is compiled from operation. Each time the degradation model is updated, the operation of a fleet of heavy-duty vehicles can be re-optimized (e.g., updating the charging or energy management strategy), so the warranty period of the battery is respected. As new vehicles are introduced in the fleet, transfer learning is applied to develop new degradation models.

15:50 Recycled NCM Cathode-Active Material Engineered for High-Power, High-Performance Heavy-Duty Lithium-ion Battery Applications
Ian Braime, Chief Commercial Officer, Ascend Elements
Kevin Dahlberg, PhD, Vice President of Cell Technology, Freudenberg e-Power Systems
Ascend Elements and Freudenberg e-Power Systems have collaborated to develop a novel recycled NCM-grade material tailored for heavy duty electrification applications, enabling long cycle life, high charge rate, and high safety. Recently both companies have worked together to scale and demonstrate the material and corresponding cell performance in multilayer 2 Ah prototype pouch cells and in large format production scale pouch cells.

16:10 The Evolution of a Road-Proven Technology for Electrification of Heavy-Duty Applications
Nicolas Jaeckel, PhD, Senior Battery Expert, LION Smart
LION Smart offers plug-and-play solutions for the integration of battery packs based on LION i3 modules (former BMW) that can be flexibly adapted to a wide range of requirements. LION offers high quality, road proven products on which customers can benefit from great development and long lifetime. Long-term availability" can be ensured through gradual further development while retaining the mechanical, thermal and electrical interfaces (backwards compatibility).

16:30 MODERATED Q&A: Session Wrap-Up
Moderator: Tony Jaumann, PhD, Senior Specialist for Energy Storage Systems, Power Transmission - System Development, Siemens Mobility
Panelists:
Gandiaga Inigo, Senior Researcher, Energy Storage and Management, Ikerlan
Ian Braime, Chief Commercial Officer, Ascend Elements
Kevin Dahlberg, PhD, Vice President of Cell Technology, Freudenberg e-Power Systems
Nicolas Jaeckel, PhD, Senior Battery Expert, LION Smart

16:50 Networking Reception in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

18:00 Close of Day

WEDNESDAY 15 MAY

7:20 Registration Open

7:30 Interactive Breakout Discussions & Morning Coffee
Interactive Breakout Discussions are informal, moderated discussions with brainstorming and interactive problem-solving, allowing participants from diverse backgrounds to exchange ideas and experiences and develop future collaborations around a focused topic.

TABLE 1: Solid-State Batteries
Moderator: Venkataraman Thangadurai, PhD, Professor, Chemistry, University of Calgary

TABLE 2: Electrolytes
Moderator: Gabriel Torres, Director of Product Management, Sionic Energy

TABLE 3: Innovations in Recycling Battery Materials & Second Life
Moderator: Steve Sloop, PhD, President, OnTo Technology LLC

TABLE 4: Li-ion NMC Fast Charging New Cells for E-Mobility
Moderator: Shmuel De-Leon, CEO, Shmuel De-Leon Energy Ltd.

TABLE 5: Battery Raw Materials Supply Chain
Moderator: Tom Van Bellinghen, Vice President, Marketing & OEM Value Chain, Rechargeable Battery Materials, Umicore

TABLE 6: Benefits of Wireless Communication Technology in Battery Management Systems
Moderator: Stefan Goede, Head of Research & Development, Co-Founder, Munich Electrification GmbH

TABLE 7: Opportunities and Potential for New Battery Technologies
Moderator: Ferdinand Ferstl, Associate Partner, E Mobility, P3 automotive GmbH

TABLE 8: Silicon Anodes and Cells
Moderator: Benjamin Park, PhD, Founder & CTO, Enevate

TABLE 9: Battery Intelligence
Moderator: Eli Leland, PhD, CTO and Co-Founder, Voltaiq, Inc.

TABLE 10: Cell Engineering
Moderator: Michael Schoenleber, Co-Founder & CTO, Batemo GmbH

TABLE 11: Advances in Sodium-ion Battery Materials
Moderator: Philipp Adelhelm, PhD, Professor, Institute of Chemistry, Humboldt-University Berlin

TABLE 12: Battery Legislation Globally – What Does the Battery Passport Imply in BMS & Battery?
Moderator: Silvio Marcon, Product Manager Battery Management Products, NXP Semiconductors Austria GmbH

TABLE 13: Automotive Battery Market Dynamics
Moderator: Carl Thoemmes, Business Development, Orbia Fluor & Energy Materials

INNOVATION IN HEAVY-DUTY APPLICATIONS

8:45 Chairperson's Remarks
Ezequiel Glasserman, Battery System Engineer, Stadler Deutschland GmbH

8:50 1000km+ zero emission: GenH2 Fuel Cell Truck's High Performance Battery
Kristina Pfeifer, PhD, R&D Engineer, Product Engineering, Daimler Truck AG
The Mercedes-Benz Trucks GenH2 Fuel Cell Truck recently made headlines for completing a remarkable journey, covering a record-breaking 1047 km on just one hydrogen tank. This success is attributed to an efficient system design, particularly the high-voltage battery and other essential components. The talk gives an overview of the overall GenH2 truck system with a special focus on its battery design and highlights the differences to battery-electric trucks.

9:10 Myth-Busting Heavy-Duty Electrification
Sigve Aasebo, Senior Advisor, Statens Vegvesen
Heavy-duty electrification is dependent on lighter, higher C, and cheaper battery cells. There will be no change before the vehicles may charge on publicly-available fast chargers. Business and logistics chains will remain, and the same transport companies will transition into a carbon neutral transport economy. Or is it the other way around? Join for an analysis made to make you think.

9:30 Advanced Concept of an Algorithm Extending the Life of Batteries in Electric Buses by Dynamically Adjusting the Depth of Discharge of Lithium-ion Cells
Bartek Kras, PhD, VP & CTO, Impact Clean Power Technology SA
Limiting the depth of discharge (DOD) allows you to achieve a greater number of cycles, but limits the useful energy in one cycle. The publication examined the hypothesis that it is possible to extend the lifetime and increase the discharge energy (higher vehicle mileage) at the expense of an initial limitation of the discharge depth (shorter range at the beginning of use).

ADVANCES IN SAFETY FOR HEAVY-DUTY APPLICATIONS

9:50 First Responder Emergency Response Guide Considerations for HVOR Applications
Brian Engle, Manager, Business Development, Electrification, Amphenol
The SAE J2990 Task Force has developed standard practice for documenting Emergency Response Guides for EV and fuel cell vehicles. Field incident investigations, first responder feedback, and recent research has provided further guidance for tools and resources needed as battery systems scale up for HVOR markets.

10:10 How to Improve Operations of Mass Transport Vehicles with Predictive Battery Analytics ACCURE Battery Intelligence
Sebastian Kawollek, Director Products & Projects, ACCURE Battery Intelligence
This presentation delves into advanced battery analytics techniques to enhance the efficiency, reliability, and lifespan of batteries in heavy-duty electric vehicles. Dr. Sebastian Kawollek, Director Product & Projects at ACCURE, will share the latest advancements in big data, machine learning, AI, and predictive analytics. Using real-world examples he'll demonstrate how fleets are using cloud-based analytics to better manage risk and enhance battery performance.

10:30 MODERATED Q&A: Session Wrap-Up
Moderator: Ezequiel Glasserman, Battery System Engineer, Stadler Deutschland GmbH
Panelists:
Kristina Pfeifer, PhD, R&D Engineer, Product Engineering, Daimler Truck AG
Sigve Aasebo, Senior Advisor, Statens Vegvesen
Bartek Kras, PhD, VP & CTO, Impact Clean Power Technology SA
Brian Engle, Manager, Business Development, Electrification, Amphenol

10:50 Coffee Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

11:20 Advances on High-Safety and Long-Lasting Lithium-ion Batteries for Demanding Heavy-Duty Applications
Sankar Das Gupta, PhD, Chairman & CEO & Co Founder, Electrovaya
Electrovaya's infinity batteries provide superior performance over conventional lithium-ion battery solutions, and are exceptionally well-suited for demanding and mission-critical applications where longevity and fire safety are critical metrics. This superior performance was achieved through years of R&D, extending the battery's lifetime and setting the industry standards (End of Life ~14000 cycles, equivalent to 3.5 million mile for a 250-mile range).

11:40 Benefits of Deploying Electrical Impedance Spectrometry (EIS)
Clemens Vanzeyl, Founder and Managing Director, Heimdalytycs GmbH
While lithium-ion batteries are prevalent in our lives, they are made safe through the encasement of the battery, combined with temperature sensing and cycle counting. This strategy is effective for electronics and small mobile applications, but impractical for large systems. Large systems require accurate measurement of a battery's "state of health," so that it may be isolated and replaced before failing.

12:00 First Vent Electrolyte Leak Detection: A Deterministic Approach to Battery Safety Honeywell
Chavonne Yee, Director, Regulations and Standards, Honeywell
Cell level detection of developing thermal runaway conditions is the first means to enact mitigation strategies and initiate safety measures. First vent electrolyte detection offers early warning to developing thermal runaway utilizing the unique gases released from lithium ion batteries. The rapid release of first vent gases enables them to be detected quickly throughout the battery pack.

12:20 MODERATED Q&A: Session Wrap-Up
Moderator: Ezequiel Glasserman, Battery System Engineer, Stadler Deutschland GmbH
Panelists:
Sankar Das Gupta, PhD, Chairman & CEO & Co Founder, Electrovaya
Clemens Vanzeyl, Founder and Managing Director, Heimdalytycs GmbH
Chavonne Yee, Director, Regulations and Standards, Honeywell

12:40 Networking Lunch *(Sponsorship Opportunity Available)*

14:00 Dessert Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

14:30 Close of Conference

MONDAY 13 MAY

12:00 Registration Open till 17:00

TUESDAY 14 MAY

7:00 Registration and Morning Coffee

EXPANDING GLOBAL RECYCLING MARKETS

8:30 Organizer's Remarks
Craig Wohlers, Executive Director, Conferences, Cambridge EnerTech

8:35 Chairperson's Remarks
Steve Sloop, PhD, President, OnTo Technology LLC

8:40 Future Scenarios for LIB Recycling in Each Region (Europe/US/China/Japan)
Akihito Fujita, Co-Head, Research & Consulting, Nomura Research Institute America, Inc.
As the EV market has stagnated in recent years, the market outlook surrounding recycling is also being affected. Among the many options envisioned for what kind of battery supply chain should be established in Europe and the US, recycling occupies an important position. This presentation will introduce the challenges and opportunities to realize the Closed Loop battery supply chain in Europe and the US, including a comparison with Asia.

9:00 Battery Recycling and Black Mass Forecast
Lee Allen, Strategic Markets Editor, Scrap, Fastmarkets
This presentation will cover scrap battery forecast, black mass pricing, and shredding and refining capacities.

9:20 Building Local and Circular Lithium-ion Recycling Solutions and Networks
Christian Lafrance, Director, Business Development Europe, Lithion Technologies
Accomplishing the full circularity is a challenge today. Taking a chance in a market to be a leader is a real leap of faith. How do you convince your management to start a circularity project? You need to balance feed stock markets, logistics, technology, and partnerships. This is what we have learned and what we want to make you benefit from so you can become a circularity agent.

9:40 MODERATED Q&A: Session Wrap-Up
Moderator: Steve Sloop, PhD, President, OnTo Technology LLC
Panelists:
Akihito Fujita, Co-Head, Research & Consulting, Nomura Research Institute America, Inc.
Lee Allen, Strategic Markets Editor, Scrap, Fastmarkets
Christian Lafrance, Director, Business Development Europe, Lithion Technologies

10:00 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing - *Sponsored by* **ARKEMA**

10:50 Sustainability Challenges for the Recycling of Present and Emerging Batteries
Marcel Weil, Scientific Research Group Leader, Research for Sustainable Energy Technologies, ITAS & HIU, Karlsruhe Institute of Technology
Several studies estimate a tremendous increase of energy-storage demand which causes a strong increase of critical raw-material demand (especially for Co, Ni, Li, natural graphite, and others). Secondary raw materials from the recycling of spent batteries are considered as a potential source to tackle at least a certain fraction of future demand. But there are still challenges for the recycling of used batteries today and in the future.

11:10 Redefining Sustainability: AVL's Blueprint for Eco-Friendly Battery Design and Recycling Excellence
Adam Dendrinos, Senior Product Manager, Battery, AVL List GmbH
We'll discuss how proper design and engineering choices can boost recyclability and end-of-life strategies, touching on the legislative environment, material selection, and mechanical design, as well as manufacturing techniques. Furthermore, our discussion will dive into AVL's benchmarking program, where we will share concrete examples of how design choices significantly influence end-of-life options and CO2 footprint, investigated during our extensive battery tear-down analysis.

11:30 Direct Recycling Technology : Extracting Cathode & Anode from Process Waste
Yu-Tack Kim, CEO, ABR
This direct recycling technology can reduce carbon dioxide emissions by over 60% compared to traditional recycling methods, and costs can be reduced by up to 85%. A direct recycling process capable of handling 10MWh of defective batteries. When applying the extracted cathode active material as battery material through direct recycling technology, considering the product's allowable tolerance, a maximum of 22.5% can be mixed and used, resulting in a minimum cost reduction of 30%.

11:50 MODERATED Q&A: Session Wrap-Up
Moderator: Steve Sloop, PhD, President, OnTo Technology LLC
Panelists:
Marcel Weil, Scientific Research Group Leader, Research for Sustainable Energy Technologies, ITAS & HIU, Karlsruhe Institute of Technology
Adam Dendrinos, Senior Product Manager, Battery, AVL List GmbH

12:10 Networking Lunch *(Sponsorship Opportunity Available)*

13:10 Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

RECYCLING METHODS

13:40 Chairperson's Remarks
Anna Vanderbruggen, PhD, Process Engineer, GeoRessources Institute, University of Lorraine

13:45 Characterization of Process Water in Lithium-ion Battery Recycling
Sascha Nowak, PhD, Head of Analytics & Environmental, Electrochemical Energy Technology, University of Münster
Water-using recycling processes—such as wet crushing and electrohydraulic fragmentation—generate large amounts of contaminated process water, resulting in increased costs for the disposal of hazardous waste and safety guidelines. To improve wastewater management, safety, and sustainability of water-assisted recycling processes, comprehensive knowledge of the battery components in the water are required. Analytical techniques can play an important role during these processes.

14:05 Advances in Recycling Technology and Building Recycling Plants for Spoke and Hydro Metallurgy
Christian Reiche, CTO, Primobius
Primobius' innovative recycling technology for LiB integrates shredding and beneficiation to produce Black Mass, which is then processed in a Hydrometallurgy hub. This integrated system efficiently recovers critical metals, minimizes environmental impact, and supports the circular economy by providing sustainable inputs for new battery production.

14:25 Direct Recycle Cathode-Healing and Battery Deactivation to Improve Cost and Safety of the Value Chain
Steve Sloop, PhD, President, OnTo Technology LLC
Dr. Sloop will discuss recycling batteries with Cathode-Healing, along with inertization of lithium-ion, design for recycling with PFAS-free components. The approaches are presented in counterpoint of current plans to ship dangerous

goods for recycling, repurifying cathode metals, and resynthesizing cathodes for every battery lifecycle. The triple-threat of design for recycling, battery inertization, and Cathode-Healing is presented as a flexible, scalable approach to help make energy storage affordable for everyone.

14:45 MODERATED Q&A: Session Wrap-Up
Moderator: Anna Vanderbruggen, PhD, Process Engineer, GeoRessources Institute, University of Lorraine
Panelists:
Sascha Nowak, PhD, Head of Analytics & Environmental, Electrochemical Energy Technology, University of Münster
Christian Reiche, CTO, Primobius
Steve Sloop, PhD, President, OnTo Technology LLC

15:05 Refreshment Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

15:30 Effects of Over-Discharge on the Quality of Lithium-ion Battery Recycling Products
Alexandra Kaas, Research Associate, Mechanical Process Engineering and Mineral Processing, Freiberg University of Mining and Technology
Discharging is performed to ensure safety during a recycling process and can be done to different levels. The effects of over-discharging, e.g., formation of copper on the cathode or coating of the separator, have an influence on the quality of the recycling products, e.g., black mass or metal fractions. Examination of whether the new EU regulations can be met with different chemistries (NMC, NCA, LFP) were investigated.

15:50 Influences on the Properties of Black Mass from Mechanical Lithium-ion Battery Recycling
Christian Wilke, Research Associate, TU Bergakademie Freiberg
During mechanical recycling of lithium-ion batteries, a fine fraction, black mass is produced. This fraction consists of the detached coating of the electrodes and small quantities of impurities. Yield and composition of the black mass are influenced by the preceding processing steps, discharge, comminution, drying, and pyrolysis. This presentation provides an overview of the process settings that affect the black mass properties and outlines how to optimize yield and quality.

16:10 Lithium Recovery from Battery Recycling Effluents Using Ion Exchange Processes
Aliza Marie Salces, Graduate Student, Processing, Helmholtz Zentrum Dresden Rossendorf
Effluents generated from Li-ion battery recycling operations have unique chemistry with often high concentrations of lithium and minimal competing cations such as Al, Cu, Ni, Co, and Mn. In this work, the potential of lithium recovery from battery recycling effluents was investigated using ion exchange processes. Using cationic resins, fast lithium sorption kinetics and high lithium sorption capacity can be achieved. Using organic acids, selective lithium desorption is feasible.

16:30 MODERATED Q&A: Session Wrap-Up
Moderator: Anna Vanderbruggen, PhD, Process Engineer, GeoRessources Institute, University of Lorraine
Panelists:
Alexandra Kaas, Research Associate, Mechanical Process Engineering and Mineral Processing, Freiberg University of Mining and Technology
Christian Wilke, Research Associate, TU Bergakademie Freiberg
Aliza Marie Salces, Graduate Student, Processing, Helmholtz Zentrum Dresden Rossendorf

16:50 Networking Reception in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

18:00 Close of Day

WEDNESDAY 15 MAY

7:20 Registration Open

7:30 Interactive Breakout Discussions & Morning Coffee
Interactive Breakout Discussions are informal, moderated discussions with brainstorming and interactive problem-solving, allowing participants from diverse backgrounds to exchange ideas and experiences and develop future collaborations around a focused topic.

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Moderator: Silvio Marcon, Product Manager Battery Management Products, NXP Semiconductors Austria GmbH
TABLE 13: Automotive Battery Market Dynamics
Moderator: Carl Thoemmes, Business Development, Orbia Fluor & Energy Materials

RECYCLING METHODS

8:45 Chairperson's Remarks
Christian Wilke, Research Associate, TU Bergakademie Freiberg

8:50 Low-Carbon Footprint Bio-Diluents for Lithium-ion Battery Recycling
Ornela Boré-Bron, Business Manager EV Battery Recycling, Special Fluids Refining & Chemicals, TotalEnergies
Solvent extraction in Lithium-ion Battery Recycling recovers valuable metals like cobalt, nickel, and lithium. Diluents in this process have evolved from kerosene to clean fluids, and now to bio-diluents from waste/vegetable sources, proposed as eco-friendly alternatives. This presentation overviews diluents in battery recycling, evaluates their compatibility in hydrometallurgical flowsheets, their environmental impact, and their potential to reduce Scope 3 emissions in recycling plants.

Advancing Recycling of Valuable Materials from Spent Lithium-ion Batteries Using Electrostatic and Magnetic Separations
Hyeyeon Lee, PhD, Research Fellow, University of Birmingham
To enable greater elemental recovery and less resource waste, a robust pre-treatment technology is required. This study delineates the utilization of electrostatic and magnetic separation processes across four distinct lithium-ion battery formats and chemistries. These pre-treatment methods thereby facilitate the provision of high-purity materials which can be directly processed back into battery components, providing a secondary critical mineral ore for the battery industry whilst reducing secondary pollution concerns.

9:50 Innovative Approach to Lithium-ion Battery Recycling: Utilizing Froth Flotation with Bio-Based Cyrene Solvent as a Sustainable Binder Removal Pre-Treatment
Anna Vanderbruggen, PhD, Process Engineer, GeoRessources Institute, University of Lorraine
Froth flotation holds potential for separating cathode- and anode-active material in lithium-ion battery recycling and therefore increasing the recycling rate. Effective flotation separation requires removal of the organic binder (PVDF) from active particles' surfaces. This study investigates pre-treatment of an industrial black mass with the bio-based solvent Cyrene to efficiently remove the binder and compares it to the pyrolysis route.

10:10 Advancing Sustainability: Fast-Tracking Closed Loop Industry in Europe
Tomasz Poznar, Vice President, Strategy , Ascend Elements
Terms "sustainability" and "closed loop" are often used to describe battery recycling processes like pyrometallurgy and hydrometallurgy, but these traditional recycling processes are just the first steps in a battery materials journey. The typical outputs of battery recycling require processing before they can go into new EV batteries. This presentation puts recycled battery materials under the microscope and explores the steps to engineer new, battery-ready cathode and anode active materials.

10:30 MODERATED Q&A: Session Wrap-Up
Moderator: Christian Wilke, Research Associate, TU Bergakademie Freiberg
Panelists:
Blaise Bridier, Performance Liquids Technology Product Professional, ExxonMobil Chemical Europe
Hyeyeon Lee, PhD, Research Fellow, University of Birmingham
Anna Vanderbruggen, PhD, Process Engineer, GeoRessources Institute, University of Lorraine
Tomasz Poznar, Vice President, Strategy , Ascend Elements

10:50 Coffee Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

11:20 Graphite Anode Recycling: An Environmentally-Friendly Approach to Supply Chain Localization
Tomasz Poznar, PhD, Vice President, Strategy, Ascend Elements
In this talk, we will present data showing that the physio-chemical attributes and electrochemical performance of recycled graphite are on-par with pristine commercial graphite anode active materials. We will highlight the environmental, supply chain, and economic benefits for recycling graphite from lithium-ion batteries. Finally, we will discuss how recycled graphite can be a viable anode active material for Li-ion batteries.

…to
…Made
…easing interest
…o stay ahead of the
…e environment. Through
…and key IP players, with a focus on cathode active materials.

12:00 MODERATED Q&A: Session Wrap-Up
Moderator: Christian Wilke, Research Associate, TU Bergakademie Freiberg
Panelists:
Tomasz Poznar, PhD, Vice President, Strategy, Ascend Elements
Filippo Farina, PhD, Technology & Patent Analyst, Energy, KnowMade

12:40 Networking Lunch *(Sponsorship Opportunity Available)*

14:00 Dessert Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

14:30 Close of Conference

BATTERY ENGINEERING

Building Better Batteries through Improvements in Battery Safety, Cell Engineering, and Battery Management Systems

MONDAY 13 MAY

12:00 Registration Open till 17:00

TUESDAY 14 MAY

7:00 Registration and Morning Coffee

CHARGING

8:30 Organizer's Remarks
Victoria Mosolgo, Conference Producer, Cambridge EnerTech

8:35 Chairperson's Remarks
Christiane Essl, Researcher, Battery Safety, VIRTUAL VEHICLE Research GmbH

8:40 Battery in the Cloud
Christoph Kroener, PhD, Senior Expert, Robert Bosch GmbH

9:00 Innovative Battery Systems—Achieving High Energy Density while Improving Fast-Charging Capabilities and Safety
Vaneet Kumar, Vice President, European R&D Center, SVOLT Energy Technology Europe GmbH

SVOLT's next-generation cell-to-pack EV batteries deliver superior energy density, extended lifespan, and rapid charging capabilities while ensuring best-in-class safety. This is achieved by innovative system design and battery cells which are specifically designed for cell-to-pack architecture.

9:20 FEATURED PRESENTATION: A Standardized Lifecycle of Automotive HV-Batteries
Karsten Kueper, Head of Series Support and Localization, Volkswagen
Sebastian Schoeniger, Head of Development Battery Cells, Volkswagen Group

Volkswagen Group is aiming for 70% of electric vehicle sales in 2030. The battery development focusses on attractive products in the segments: Affordability, Range, & Performance. With standardized components, the complexity and variety of variants in the development, series, after-sales, and recycling of HV batteries can be minimized. This creates the best conditions for maintaining the value chain in the Volkswagen Group, reducing costs and controlling the life cycle.

9:40 MODERATED Q&A: Session Wrap-Up
Moderator: Christiane Essl, Researcher, Battery Safety, VIRTUAL VEHICLE Research GmbH
Panelists:
Karsten Kueper, Head of Series Support and Localization, Volkswagen
Sebastian Schoeniger, Head of Development Battery Cells, Volkswagen Group
Christoph Kroener, PhD, Senior Expert, Robert Bosch GmbH
Vaneet Kumar, Vice President, European R&D Center, SVOLT Energy Technology Europe GmbH

10:00 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing - *Sponsored by* **ARKEMA**

THERMAL MANAGEMENT AND MATERIALS

10:50 Driving Innovations in Battery Materials and Cell Concepts by Focusing on Lab-to-Pilot Scale-Up
Falko Schappacher, PhD, Managing Director, MEET Battery Research Center, University of Muenster

The process of driving innovations in battery materials and cell concepts through lab-to-pilot scale-up involves transitioning promising developments from the laboratory to larger-scale production for testing and optimisation. This entails the exploration and development of novel materials, innovative cell architectures, and scalable production processes.

11:10 Thermal Management Materials for EV Battery Module & Packs: High Energy Density and Safety
Tomohiro Kawai, PhD, Senior Chief Scientist & Leader, Product Design, Mitsubishi Chemical Corp.
Takata Nobuaki, Senior Manager, Mitsubishi Chemical Corp.

Mitsubishi Chemical's thermal management materials for EV battery module/packs are spotlighted for their integral role in enhancing high energy density and safety. Demonstrations of these materials' effectiveness in fast-charging and thermal stability will be conducted through simulations and test results. The key features presented include flame-retardant thermoplastic composite and inter-cell spacers. Strategies for mitigating thermal runaway will be explored.

11:30 Heat Recovery and Oxygen Recycling in CAM-Calcination Kilns with ONEJOON RHK-ecoCAM
Laurenz Plöchl, Sr. Key Account Manager, Battery Materials, ONEJOON GmbH

In CAM production huge amounts of gas and energy are used on a once-through basis today in the roller hearth kiln (RHK), accounting for a major part of a LiB carbon footprint. This presentation gives details of state-of-the-art equipment and technology for recycling up to 80% of the process gas and recovery of most of the off-gas energy into valuable heat and power. This technology offers significant OPEX and carbon reduction opportunities for CAM manufacturers.

11:50 PANEL DISCUSSION: MODERATED Q&A: Session Wrap-Up
Moderator: Christiane Essl, Researcher, Battery Safety, VIRTUAL VEHICLE Research GmbH
Panelists:
Falko Schappacher, PhD, Managing Director, MEET Battery Research Center, University of Muenster
Tomohiro Kawai, PhD, Senior Chief Scientist & Leader, Product Design, Mitsubishi Chemical Corp.
Laurenz Plöchl, Sr. Key Account Manager, Battery Materials, ONEJOON GmbH

12:10 Networking Lunch *(Sponsorship Opportunity Available)*

13:10 Dessert Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

BATTERY FAILURE

13:40 Chairperson's Remarks
Michael Schoenleber, Co-Founder & CTO, Batemo GmbH

13:45 Investigating the Ability of Plastic Current Collectors and Thermally-Stable Separators to Isolate Internal Short
Eric Darcy, PhD, Battery Technical Discipline Lead, Power Systems, NASA Johnson Space Center

As we push the specific energy over 250 Wh/kg in 21700 Li-ion cells with cathode metalized plastic current collectors (PCC), we lose tolerance to nail penetration. Adding thermally-stable separators, anode PCCs, and reducing cathode-active material adhesion to the collector didn't improve nail penetration safety. Jellyroll winding tension appears to play a major role in cylindrical cells since nail tolerance is achieved in prismatic pouch cells > 250 Wh/kg.

14:05 Comparing Safety-Relevant Parameters of Failing Batteries with Different Energy Density
Christiane Essl, Researcher, Battery Safety, VIRTUAL VEHICLE Research GmbH

Since many factors influence the results of battery experiments, it is important to analyse them—one important factor is the gravimetric energy density. In this presentation, results of failing state-of-the-art battery cells will be presented and discussed. The focus will be on the comparison of NMC cells with different gravimetric energy density. The results will be compared in the categories: thermal behavior, vent gas production, and vent gas composition.

14:25 Is Flexibility Contrary to High Throughput in Battery Cell Manufacturing? A Model-Based Approach for the Rapid Ramp-up of Innovative Production Equipment
Juergen Fleischer, PhD, Manager of Machines, Equipment & Process Automation, Karlsruhe Institute of Technology
To reconcile the two seemingly conflicting goals of highly flexible processes and high production volumes, new concepts are needed for singulation and stacking processes. Combining the traditional discrete stacking process with a continuous cutting operation will allow rapid changes in electrode dimensions. By setting up digital twins of the machinery, it is possible to virtually commission control components and deduce machine influences on material behaviour and product quality.

14:45 MODERATED Q&A: Session Wrap-Up
Moderator: Michael Schoenleber, Co-Founder & CTO, Batemo GmbH
Panelists:
Eric Darcy, PhD, Battery Technical Discipline Lead, Power Systems, NASA Johnson Space Center
Christiane Essl, Researcher, Battery Safety, VIRTUAL VEHICLE Research GmbH
Juergen Fleischer, PhD, Manager of Machines, Equipment & Process Automation, Karlsruhe Institute of Technology

15:05 Refreshment Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

CELL ENGINEERING AND SELECTION

15:30 LFP Battery Cells Made in Europe—A Matter of Course in the Future, or Not Feasible? Opportunities and Challenges of a Domestic LFP Supply Chain
Ines Miller, Team Lead Battery Cells, E Mobility, P3 Automotive GmbH
LFP based battery cells see increasing popularity in the e-mobility market promising a safe and cost-effective solution. To decrease dependency on Chinese import, more LFP cell capacities are planned to be installed in Europe—but can the technology keep its low cost footprint in a western environment? This question is answered by analysing the impact of local manufacturing conditions on the LFP cell cost structure.

15:50 Battery Cell Design Revealed—Why Batteries Are Built the Way They Are
Michael Schoenleber, Co-Founder & CTO, Batemo GmbH
In this talk we will discuss different performance targets of battery cells and how these are affected by material choice and cell design. We will illustrate some of the fundamental sensitivities of cell design by virtually designing and re-designing different cells and studying the impact on cell performance.

16:10 SafeCore - An Internal Fuse to Help Prevent Thermal Runaway
Dan Squiller, CEO, Amionx
SafeCore is a material that is coated on the current collector that acts like a fuse to help prevent thermal runaway. It protects against overcharge and internal short, and can enable next-generation chemistries like lithium metal and nanosilicon. Amionx has successfully transferred its patented SafeCore technology to multiple manufacturers to enhance their cell safety performance.

16:30 PANEL DISCUSSION: MODERATED Q&A: Session Wrap-Up
Moderator: Michael Schoenleber, Co-Founder & CTO, Batemo GmbH
Panelists:
Ines Miller, Team Lead Battery Cells, E Mobility, P3 Automotive GmbH
Dan Squiller, CEO, Amionx

16:50 Networking Reception in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

18:00 Close of Day

WEDNESDAY 15 MAY

7:20 Registration Open

7:30 Interactive Breakout Discussions & Morning Coffee
Interactive Breakout Discussions are informal, moderated discussions with brainstorming and interactive problem-solving, allowing participants from diverse backgrounds to exchange ideas and experiences and develop future collaborations around a focused topic.

TABLE 1: Solid-State Batteries
Moderator: Venkataraman Thangadurai, PhD, Professor, Chemistry, University of Calgary

TABLE 2: Electrolytes
Moderator: Gabriel Torres, Director of Product Management, Sionic Energy

TABLE 3: Innovations in Recycling Battery Materials & Second Life
Moderator: Steve Sloop, PhD, President, OnTo Technology LLC

TABLE 4: Li-ion NMC Fast Charging New Cells for E-Mobility
Moderator: Shmuel De-Leon, CEO, Shmuel De-Leon Energy Ltd.

TABLE 5: Battery Raw Materials Supply Chain
Moderator: Tom Van Bellinghen, Vice President, Marketing & OEM Value Chain, Rechargeable Battery Materials, Umicore

TABLE 6: Benefits of Wireless Communication Technology in Battery Management Systems
Moderator: Stefan Goede, Head of Research & Development, Co-Founder, Munich Electrification GmbH

TABLE 7: Opportunities and Potential for New Battery Technologies
Moderator: Ferdinand Ferstl, Associate Partner, E Mobility, P3 automotive GmbH

TABLE 8: Silicon Anodes and Cells
Moderator: Benjamin Park, PhD, Founder & CTO, Enevate

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TABLE 12: Battery Legislation Globally – What Does the Battery Passport Imply in BMS & Battery?
Moderator: Silvio Marcon, Product Manager Battery Management Products, NXP Semiconductors Austria GmbH

TABLE 13: Automotive Battery Market Dynamics
Moderator: Carl Thoemmes, Business Development, Orbia Fluor & Energy Materials

SAFETY AND BATTERY MANAGEMENT SYSTEMS

8:40 Organizer's Remarks
Victoria Mosolgo, Conference Producer, Cambridge EnerTech

8:45 Chairperson's Remarks
Natalia Lebedeva, PhD, Scientific Project Officer, Energy Storage, European Commission

8:50 Advancements in Elastomeric Materials for Cell-to-Cell Pressure Management
Katleen Van Nuffel, Sr. Technical Service Engineer, Rogers Corporation
Elastomeric pads are vital for pressure management in pouch and prismatic cells, providing cushioning and adaptability for cell breathing and expansion due to dendritic growth and gas evolution. This presentation assesses the influence of pad material selection on overall pack performance. Various materials (silicone, polyurethane) with differing mechanical properties were tested for their impact on cycle life in pouch and prismatic formats.

9:10 Safety of Li-ion Batteries: Fire Emissions
Natalia Lebedeva, PhD, Scientific Project Officer, Energy Storage, European Commission
In this presentation, solid emissions from Li-ion batteries' fire are characterised by scanning electron microscopy in combination with energy-dispersive X-ray spectroscopy (SEM/EDX) and X-ray powder diffraction (XRD) to evaluate the size, morphology, and chemical composition of aerosol smoke particles allowing more quantitative risk assessment of such emissions for human health and the environment.

9:30 Future BMS Architectures—Lower Cost, Better Safety, and Faster Time-to-Market
Stefan Goede, CTO, Co-Founder, Munich Electrification GmbH
Battery management systems are a decisive factor for successful and fast development of batteries. Oftentimes, integrators struggle with managing the increasing software complexity in modern automotive and heavy-duty ECUs. Yet, time-to-market is critical and battery and cell variants are only growing. This talk presents a view on future BMS architectures, taking into consideration industry trends such as: the SW-defined vehicle, Ethernet to the Edge, and new safety goals.

9:50 ENERGETIC Horizon Europe Project: Next Generation Battery Management System Based on Data Rich Digital Twin
Tedjani Mesbahi, PhD, Associate Professor, ICube Laboratory, INSA Strasbourg
The ENERGETIC project, funded by the EU's Horizon Europe program, aims to enhance Battery Management Systems (BMS) for optimized battery usage in transportation and stationary settings. Through translational sensing tech and AI models, it seeks improved reliability, power, and safety. Leveraging Edge and Cloud computing, ENERGETIC will predict Li-ion battery lifespans via digital twin tech, fostering more sustainable energy solutions.

10:10 In the Line of Fire: Parameters for Torch and Grit Testing
John Williams, Vice President, Technical Services, Aspen Aerogels
A Li-ion cell in thermal runaway can release high-velocity particulates and thousands of liters of hot gas into the confined spaces of a battery pack. Safely ushering those hazards offboard before they trigger the adjacent cells is, essentially, a plumbing problem that touches on cell chemistry, vent design, and the architectural layout of the pack. Benchtop torch and grit (TaG) testing of materials and subassemblies can be a useful tool for pack designers, but the industry is not yet aligned on the correct input parameters (e.g., velocities, abrasive type, mass- and heat-fluxes) to properly simulate a thermal runaway event. Using recent TaG- and cell-test data, this presentation explores realistic parameters battery engineers can use to develop effective gas-management strategies.

10:30 PANEL DISCUSSION: MODERATED Q&A: Session Wrap-Up
Moderator: Natalia Lebedeva, PhD, Scientific Project Officer, Energy Storage, European Commission
Panelists:
Stefan Goede, CTO, Co-Founder, Munich Electrification GmbH
Tedjani Mesbahi, PhD, Associate Professor, ICube Laboratory, INSA Strasbourg
Cyrine Soufi, Electrical Engineering, INSA Strasbourg
John Williams, Vice President, Technical Services, Aspen Aerogels
Katleen Van Nuffel, Sr. Technical Service Engineer, Rogers Corporation

10:50 Coffee Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

CELL ENGINEERING AND PROTOTYPING

11:20 Better Thermal Models for Enhanced Cell Selection and Design
Alastair Hales, PhD, Founder and Scientific Advisory, About:Energy, Lecturer, Mechanical Engineering, University of Bristol
About:Energy creates the best battery models with a bottom-up approach. Heat generation, thermal effects, and thermal modelling for a huge part of this process. Here, the complexity of heat generation characterisation is introduced alongside the methods About:Energy uses to achieve accurate thermal control throughout thermal parameterisation. An example is given, showing the application of the models to compare performance of different cells, and the impact on system-wide design.

11:40 Cell Engineering and Prototyping
Alexander Roberts, PhD, Professor of Energy Storage, Centre for eMobility and Clean Growth, Coventry University
As new materials progress from laboratory to commercial reality, a key aspect in predicting final performance is device prototyping. This work demonstrates the effects of cell size and design on prototype prediction of final device performance. Through variation of design and size of Li-ion pouch cells, from single-layer through many layer, relationships with parameters such as capacity, rate, resistance, and lifetime are considered relative to those of final device.

12:00 How Do Conductive Electrode Coatings Optimize the Performance of Dry Coated Batteries?
Tobias Knecht, PhD, Battery Cells Specialist, Automotive Components, Henkel Adhesive Technologies
Dry coating of lithium-ion batteries has the potential to revolutionize battery production through a reduced solvent, energy and footprint demand. However, dry coated electrodes suffer from poor adhesion between the dry film and current collector that leads to the demand of a pre-coating. We want to discuss how carbon coatings of current collectors can enable dry battery manufacturing and improve battery cell performance.

12:20 PANEL DISCUSSION: MODERATED Q&A: Session Wrap-Up
Moderator: Natalia Lebedeva, PhD, Scientific Project Officer, Energy Storage, European Commission
Panelists:
Alastair Hales, PhD, Founder and Scientific Advisory, About:Energy, Lecturer, Mechanical Engineering, University of Bristol
Alexander Roberts, PhD, Professor of Energy Storage, Centre for eMobility and Clean Growth, Coventry University
Tobias Knecht, PhD, Battery Cells Specialist, Automotive Components, Henkel Adhesive Technologies

12:40 Networking Lunch *(Sponsorship Opportunity Available)*

14:00 Dessert Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

14:30 Close of Conference

MONDAY 13 MAY

12:00 Registration Open till 17:00

TUESDAY 14 MAY

7:00 Registration and Morning Coffee

GLOBAL MARKET OPPORTUNITIES IN BATTERY MANUFACTURING

8:30 Organizer's Remarks
Craig Wohlers, Executive Director, Conferences, Cambridge EnerTech

8:35 Chairperson's Remarks
Jochen Zausch, PhD, Senior Scientist, Team-Leader Electrochemistry and Batteries, Flow and Material Simulation, Fraunhofer ITWM

8:40 Technology Trends in Sodium-ion Batteries and Market Penetration
Christoph Neef, PhD, Senior Scientist, Fraunhofer Institute for Systems and Innovation Research ISI
A number of manufacturers have launched their first generation of sodium-ion batteries in 2023. The technologies used differ significantly and cover a wide range in cathode and anode materials and cell design. The presentation highlights current and future SIB technologies and makes an assessment of the future market development.

9:00 Supporting the Growth of the European Battery Ecosystem by Building the Bridge between Europe and Asia
Christian Ruediger, PhD, Managing Director, Chem4Batteries GmbH
Based on our in-depth industry knowledge and long-year trusted relationships along the entire battery value chain, from raw material mining to battery cell making, paired with our fundamental electrochemical expertise, we are in the unique position to seek, assess, and develop new businesses. We help our clients to navigate through new battery technology trends and their shift into localisation by building strategic collaborations and alliances.

9:20 Sustainable Battery Manufacturing and Use for a Greener Tomorrow
David Verner, Director of Energy Strategy, Gresham Smith & Partners
The shift in the automotive landscape towards electric vehicles (EVs) took a defining turn when the GMC Hummer EV emerged. The transformation of an iconic gas-guzzler into an EV muscle car heralded a meaningful change in the market. However, to realize the environmental aspirations of EVs, a comprehensive evaluation of the battery supply chain, from sourcing raw materials to recycling, is imperative.

9:40 MODERATED Q&A: Session Wrap-Up
Moderator: Jochen Zausch, PhD, Senior Scientist, Team-Leader Electrochemistry and Batteries, Flow and Material Simulation, Fraunhofer ITWM
Panelists:
Christoph Neef, PhD, Senior Scientist, Fraunhofer Institute for Systems and Innovation Research ISI
Christian Ruediger, PhD, Managing Director, Chem4Batteries GmbH
David Verner, Director of Energy Strategy, Gresham Smith & Partners

10:00 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing - *Sponsored by* **ARKEMA**

ADVANCES IN CELL MANUFACTURING

10:50 Future Manufacturing Approaches Including Advances in Pre-Lithiation
Wolfgang Bernhart, Senior Partner, Automotive Competence Center, Roland Berger Strategy Consultants GmbH
Outlook on acheiving manufacturing targets with on-demand supply balance for Li, Ni, Co, Mn, and graphite; alternative feedstock and processing routes; comparing costs and CO2 emission; strategies to secure critical raw materials adopted by major players; framework for holistic evaluation of manufacturing strategies.

11:10 Presentation to be Announced
Ultra high-power cells have transcended innovation to become indispensable in diverse applications. Future optimization heralds a new era, unlocking their full potential in facilities demanding high kinetic energy upon activation, revolutionizing industries such as supercars, aviation, and BBU systems with boundless possibilities.Enhancing cathode materials holds the promise of heightened energy density, extended cycle life, and enhanced safety. The integration of silicon into anode design presents an unprecedented leap in energy storage potential, necessitating innovative approaches. Through dynamic collaboration with industry leaders like Ronbay and Group 14, we embark on an exciting journey toward sustainable energy solutions, illuminating the path to a brighter, greener future.

11:50 MODERATED Q&A: Session Wrap-Up
Moderator: Jochen Zausch, PhD, Senior Scientist, Team-Leader Electrochemistry and Batteries, Flow and Material Simulation, Fraunhofer ITWM
Panelists:
Wolfgang Bernhart, Senior Partner, Automotive Competence Center, Roland Berger Strategy Consultants GmbH
Nan-Hung Lester Yeh, PhD, Research & Development Manager, Advanced Battery Technologies, E-One Moli Energy CORP.
Rick Constantino, PhD, CTO & Co-Founder, Manufacturing, Group14 Technologies

12:10 Networking Lunch *(Sponsorship Opportunity Available)*

13:10 Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

14:00 Chairperson's Remarks
Wolfgang Bernhart, Senior Partner, Automotive Competence Center, Roland Berger Strategy Consultants GmbH

GLOBAL MARKET OPPORTUNITIES IN BATTERY MANUFACTURING

14:05 FEATURED PRESENTATION: Disruption of Existing Supply Chain for Extraction and Processing of Rare Metals and the Manufacture of Battery Cells
John Kwon, General Counsel of Global Legal & Strategy, Contemporary Amperex Technology Limited (CATL)
Since the United States is a significant market for EVs, some battery manufacturers have had to change their global strategies and invest in the construction of battery plants in the United States. This is resulting in the re-organization of existing supply chains around the world. Similar disruption to existing supply chains will further be exacerbated with the imminent passage of the European Union Critical Raw Minerals Act of 2023.

ADVANCES IN CELL MANUFACTURING

14:25 Physical Models for Process Simulation of Lithium-ion Cell Production
Jochen Zausch, PhD, Senior Scientist, Team-Leader Electrochemistry and Batteries, Flow and Material Simulation, Fraunhofer ITWM
We propose to apply physics-based computer simulation in order to support the optimisation of specific process steps in the production of lithium ion batteries and pack assembly. We will describe our simulation approach and discuss how simulation results can be used to improve process design.

14:45 MODERATED Q&A: Session Wrap-Up
Moderator: Wolfgang Bernhart, Senior Partner, Automotive Competence Center, Roland Berger Strategy Consultants GmbH
Panelists:
John Kwon, General Counsel of Global Legal & Strategy, Contemporary Amperex Technology Limited (CATL)
Jochen Zausch, PhD, Senior Scientist, Team-Leader Electrochemistry and Batteries, Flow and Material Simulation, Fraunhofer ITWM

15:05 Refreshment Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

15:30 Battery Manufacturing Excellence: Where Safety, Efficiency and Quality Converge Honeywell
Srirama Hariharan, Technology Solutions Consultant, Gigafactories, Honeywell Deutschland Holding GmbH
For optimal gigafactory operation, seamless coordination across vital functions: process management, maintenance, safety, infrastructure, logistics and quality is vital. Yet, data from these areas often stays isolated in separate silos, hindering operators' daily tasks. Picture a centralized hub at the heart of the gigafactory streamlining interactions and data exchange across functions for enhanced efficiency. Discover the co-pilot concept with real-time expert guidance via the operations center, human expertise and AI empowering field operators for day-one readiness.

15:50 Novel, Dry Manufacturing Process for Low Cost, Low Carbon, High Energy Density, Mixed-Metal Oxide Cathode Active Materials
Joseph Adiletta, Vice President of Commercialization, Sylvatex
The cathode is the battery's most costly and carbon-intensive part; thus, it creates a critical supply chain bottleneck in realising the decarbonization impact we desire. A lower-cost, more sustainably-manufactured EV is achievable in the near term by employing a future-proofed next-generation cathode manufacturing process.

16:10 A Rapid Electrochemical Characterization Technique for Cell Manufacturing VOLTAIQ
Kevin Wood, Director, EBIx, Voltaiq Inc
Electrochemical characterization techniques have seen limited use in manufacturing, primarily because they are generally too slow to be practical in a high-throughput environment.We will present a rapid electrochemical characterization technique suitable for manufacturing that can reveal information about the transport, kinetic, and thermodynamic properties of a cell and can be used for lifetime prediction, defect detection, and root-cause analysis at scale.

16:30 MODERATED Q&A: Session Wrap-Up
Moderator: Wolfgang Bernhart, Senior Partner, Automotive Competence Center, Roland Berger Strategy Consultants GmbH
Panelists:
Joseph Adiletta, Vice President of Commercialization, Sylvatex
Kevin Wood, Director, EBIx, Voltaiq Inc
Srirama Hariharan, Technology Solutions Consultant, Gigafactories, Honeywell Deutschland Holding GmbH

16:50 Networking Reception in the Exhibit Hall with Poster Viewing
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18:00 Close of Day

WEDNESDAY 15 MAY

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TABLE 13: Automotive Battery Market Dynamics
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ADVANCES IN CELL MANUFACTURING

8:45 Chairperson's Remarks
David Verner, Director of Energy Strategy, Gresham Smith & Partners

8:50 IR Assisted Vacuum Drying in a Continuous Roll to Roll Process for Post-Drying of Electrodes EXCELITAS TECHNOLOGIES
Larisa Von Riewel, Sr Scientist, Innovation Global, Excelitas Noblelight GmbH
The post-drying of electrodes for lithium-ion batteries just before cell assembly is needed to ensure that the moisture content is below a critical level, as the remaining water can lead to cell degradation. We investigated the combination of different post-drying procedures on Li and Na-ion battery and evaluated the benefits of IR assisted vacuum drying in a continuous roll to roll process.

9:10 Addressing Scale-Up Challenges in Battery Materials
Keri Goodwin, PhD, Chief Technologist, Formulation, CPI
Presentation will detail CPI's work in supporting the main challenges faced by innovators in battery materials development. Several topics will be presented, including details of a new facility for open access synthetic scale-up

development of novel active materials, supporting the transition from lab scale to commercial validation in industrially relevant cell formats. This facility will also incorporate process analytical tools (PAT), soft sensors, and modelling in development of materials synthesis.

9:30 Breaking the Barrier between Digital and Reality: An Integrated Software Solution for Battery Manufacturing Optimisation and Personalised Training
Alejandro A. Franco, PhD, Professor, Reactivity & Chemistry of Solids Lab, University of Picardie Jules Verne
In this lecture I present the latest research carried out in my group regarding the development of digital twins of battery manufacturing processes. I present also, an innovative software solution integrating data management, simulation, manufacturing optimization, and personalised training capabilities. Such a software can be used in both computer and mixed reality environments, breaking the barrier between the digital and the real worlds.

9:50 LIOVIX Technology: Li Metal Anode Innovation at Scale
Marina Yakovleva, Director, R&D and New Business Development, Arcadium Lithium
Industry needs to monetize on and scale up innovative and sustainable solutions that can improve battery performance, safety, and manufacturing efficiency of the lithium metal anode. The core of Livent technology is LIOVIX, proprietary printable lithium formulation. The ability to print lithium metal anodes opens the pathway for the ranges of anode width and thickness, and allows cell manufacturer to easily change cell design and format to meet application requirements.

10:10 New Trends in Continuous Mixing of Battery Electrode Masses
Massimo Bernert, Sales Manager, Coperion GmbH
The state-of-the-art and dominant process for mixing of electrode masses is still the batch process. However, as a system supplier for the complete mixing process, we are currently noticing that inquiries from Europe and the USA are increasingly focusing on continuous mixing with extruder systems. The reasons for this are cost- and process-related advantages. This presentation will introduce the continuous mixing process, shows the advantages and identify future trends in mixing technology.

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Panelists:
Keri Goodwin, PhD, Chief Technologist, Formulation, CPI
Alejandro A. Franco, PhD, Professor, Reactivity & Chemistry of Solids Lab, University of Picardie Jules Verne
Marina Yakovleva, Director, R&D and New Business Development, Arcadium Lithium
Massimo Bernert, Sales Manager, Coperion GmbH

10:50 Coffee Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

11:20 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.

11:40 Optimising Battery Pack and Module Production Tests
Paul Scharfe, Battery Production, Transportation Business Unit, National Instruments
In this session, we will focus on the current challenges that we see in battery pack and module production tests through the latest electrical validation test techniques. We will also talk about the fast amount of data that is generated in this process and how it can be used through smart data analytics tools to influence your overall efficiency.

12:00 Empowering Ecological Circularity in Battery Technology: From Materials to Manufacturing and Recycling
Wenjun Lin, Director, International BU, ONGOAL TECHNOLOGY CO,. LTD.
In today's battery industry, ONGOAL TECH explores the real-world solutions shaping today's battery industry – from the production of battery materials to the operations of Cell Gigafactories and sustainable black mass recovery. Delve into the latest large scale manufacturing equipment evolution and technological trends and glean insights from market leaders who are setting benchmarks in efficiency and energy saving.

12:20 MODERATED Q&A: Session Wrap-Up
Moderator: David Verner, Director of Energy Strategy, Gresham Smith & Partners
Panelists:
Shunsuke Amagai, Founder & Co-CEO, Beff
Paul Scharfe, Battery Production, Transportation Business Unit, National Instruments

12:40 Networking Lunch *(Sponsorship Opportunity Available)*

14:00 Dessert Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

14:30 Close of Conference

MONDAY 13 MAY

12:00 Registration Open till 17:00

TUESDAY 14 MAY

7:00 Registration and Morning Coffee

GRID-SCALE ENERGY STORAGE MARKET

8:30 Organizer's Remarks
Craig Wohlers, Executive Director, Conferences, Cambridge EnerTech

8:35 Chairperson's Remarks
Matthias Vetter, PhD, Energy Storage Chief Expert, Huawei Nuremberg Research Center

8:40 Exploring Stationary Storage Markets and Costs
Benjamin Campbell, Manager, Battery Research, E Source
This presentation provides an analysis of the current state of stationary energy storage markets, focusing on key trends in demand and technology adoption. Battery costs will be central to this session, with a focus on how new technologies are impacting stationary storage project costs and how we expect markets will respond to changing costs.

9:00 Mapping Energy Storage Technologies to Future Grid Applications
Chloe Herrera, Energy Storage Analyst, Lux Research
As energy systems become decarbonized by the use of intermittent renewables, multiple applications are demanding increased energy storage. The requirements of each of these applications vary widely, and no single energy storage technology will satisfy them all. This presentation will outline the key economic and technical metrics across technologies and provide a framework to map them to various grid-scale applications.

9:20 Grid Storage Forecast and Materials Requirements
Sam Jaffe, Business Development Senior Manager, Addionics
Grid storage is fast growing to become a large market for batteries throughout the world. This presentation will explore the growth of the grid storage market and look at battery cathode breakdown, from LFP to Sodium Ion. It will also estimate the amount of materials required to meet the forecasts.

9:40 MODERATED Q&A: Session Wrap-Up
Moderator: Matthias Vetter, PhD, Energy Storage Chief Expert, Huawei Nuremberg Research Center
Panelists:
Benjamin Campbell, Manager, Battery Research, E Source
Chloe Herrera, Energy Storage Analyst, Lux Research
Sam Jaffe, Business Development Senior Manager, Addionics

10:00 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing - *Sponsored by* **ARKEMA**

10:50 Strategies for Monetizing Stationary Battery Storage Systems: Case of German Power Market
Farzad Sarfarazi, Energy System Expert, Accenture
With the decreasing prices of stationary battery systems and recent regulatory clarifications, they are becoming increasingly attractive in the German power market. This presentation discusses strategies for capitalizing on these systems, analyzing market trends, regulatory frameworks, and technological advancements. It also explores the potential for generating revenue through stacking grid services, energy arbitrage, and the integration of renewable energy sources, aiming to enhance profitability and support the sustainable energy system transition.

11:10 Energy Storage Market Expansion in Europe
Tim Hotz, Principal, Roland Berger Strategy Consultants GmbH
The energy storage market in Europe is undergoing significant expansion, driven by increased demand for sustainable energy solutions. This presentation will look at innovative technologies and supportive policies that are fostering growth and positioning Europe as a key global player in advancing energy storage solutions.

11:30 MODERATED Q&A: Session Wrap-Up
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GRID-SCALE ENERGY STORAGE MARKET

13:40 Chairperson's Remarks
Sam Jaffe, Business Development Senior Manager, Addionics

13:45 Battery Storage Investment Environment in Different Europe Countries
Karolis Kiguolis, Founder, Exigere Responsum
Why do we have a different battery payback scenario in Europe? What determines that some countries located in the geographical part of Europe are significantly more advanced than their neighbors? Why, at first glance, do EU regulatory standards turn out to be completely different in different European countries? What do we see in the years 2024-2030 as the leaders of battery best investment practices in the EU?

INNOVATION IN GRID-SCALE ENERGY STORAGE

14:05 Multi-use Strategies for Behind-the-Meter and Front-of-the-Meter Battery Storage Applications
Matthias Vetter, PhD, Energy Storage Chief Expert, Huawei Nuremberg Research Center
For a secure and reliable power supply based on 100% renewable energy sources, decentralized and centralized battery storage systems are needed on a large scale and have to take over various tasks, such as providing grid services and storing of surplus amount of energy to be used at a later point of time. In this context, highly sophisticated operating control strategies are needed to enable multi-use concepts and revenue stacking.

14:25 From Electric Vehicles to Energy Storage
Thomas Fedderau, Senior Product Manager, EIA, UL International Germany
"From electric vehicles to energy storage" lecture will show how UL standards support safety lifecycle of EV and ESS batteries. It will give an overview and partly detailed insight in UL 2580 for Vehicles, UL 1973 and UL 9540/ UL 9540 A for ESS, as well as UL 1974 for second use, how too use it, and the vale and the requirements from higher level standards, like NFPA and IFC.

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Matthias Vetter, PhD, Energy Storage Chief Expert, Huawei Nuremberg Research Center
Thomas Fedderau, Senior Product Manager, EIA, UL International Germany

15:05 Refreshment Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

15:30 SineStack—Taking Energy Efficiency & Cycle Life to the Next Level
Teddy O'Connor, Advanced Battery Software Lead. Rimac Technology
The Sinestack is a technological powerhouse, incorporating a novel electrical architecture, state-of-the-art cells and a suite of battery intelligence tools to create a cutting edge all-in-one stationary energy storage and power delivery system. This talk will provide insights into the broad array of technical innovations enabling these attributes.

15:50 Successful Efficient Energy and E-Mobility Transition
Claudio Geyken, CEO & Founder, RiDERgy
Renewable energies are volatile in production and prices. To keep the grid stable, flexible power demand and batteries are needed. Electric vehicles provide both. It is RiDERgy's mission to electrify and charge fleets efficiently to accelerate EV adoption and 100% renewable electricity. Fleet operators struggle to electrify and keep costs low. RiDERgy helps keeping high uptime at low costs via an AI powered software.

16:10 MODERATED Q&A: Session Wrap-Up
Moderator: Sam Jaffe, Business Development Senior Manager, Addionics
Panelists:
Teddy O'Connor, Advanced Battery Software Lead. Rimac Technology
Claudio Geyken, CEO & Founder, RiDERgy

16:50 Networking Reception in the Exhibit Hall with Poster Viewing
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18:00 Close of Day

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Moderator: Tom Van Bellinghen, Vice President, Marketing & OEM Value Chain, Rechargeable Battery Materials, Umicore

TABLE 6: Benefits of Wireless Communication Technology in Battery Management Systems
Moderator: Stefan Goede, Head of Research & Development, Co-Founder, Munich Electrification GmbH

TABLE 7: Opportunities and Potential for New Battery Technologies
Moderator: Ferdinand Ferstl, Associate Partner, E Mobility, P3 automotive GmbH

TABLE 8: Silicon Anodes and Cells
Moderator: Benjamin Park, PhD, Founder & CTO, Enevate

TABLE 9: Battery Intelligence
Moderator: Eli Leland, PhD, CTO and Co-Founder, Voltaiq, Inc.

TABLE 10: Cell Engineering
Moderator: Michael Schoenleber, Co-Founder & CTO, Batemo GmbH

TABLE 11: Advances in Sodium-ion Battery Materials
Moderator: Philipp Adelhelm, PhD, Professor, Institute of Chemistry, Humboldt-University Berlin

TABLE 12: Battery Legislation Globally – What Does the Battery Passport Imply in BMS & Battery?
Moderator: Silvio Marcon, Product Manager Battery Management Products, NXP Semiconductors Austria GmbH

TABLE 13: Automotive Battery Market Dynamics
Moderator: Carl Thoemmes, Business Development, Orbia Fluor & Energy Materials

INNOVATION IN GRID-SCALE ENERGY STORAGE

9:05 Chairperson's Remarks
Chloe Herrera, Energy Storage Analyst, Lux Research

9:10 Beyond Performance Data: Evaluating Potential Safety Concerns of Alternative Cell Designs in Energy Storage Systems through a Testing Based Approach
Daniel Torelli, PhD, Managing Scientist, Exponent Intl Ltd
The continued demand for higher battery performance and lower costs has resulted in the development of larger, less-established cell designs. These alternative cell designs, however, can pose unexpected safety concerns. In this talk, we will describe common pitfalls related to cell design and manufacturing quality control, as observed through X-ray screening, computed tomography scanning, teardown analysis, and abuse testing, and will discuss lessons learned.

9:30 Energy Storage: Battery Chemistry and Technology Trends
Iola Hughes, Research Manager, Rho Motion
The stationary storage market was the fastest growing battery market in 2023, exceeding 100GWh. The session will look to address several key questions: What are the biggest opportunities and challenges for the stationary storage market? What is the outlook for sodium ion, flow batteries and other alternative tech? Who are the key players in the BESS market and what new technologies are being deployed in the space?

9:50 Battery Energy Storage Supply Chain: Trends, Risks, and Recommendations
Kevin Shang, Senior Research Analyst, Battery and Energy Storage Technology and Supply Chain, Wood Mackenzie
Grid energy storage is on a rapid growth curve and is already a key component of building a resilient grid that accommodates increasing renewables. However, supply chain issues have become a barrier, constraining energy storage deployment. This talk will also explore the supply challenges and market opportunities that arise while establishing secure and sustainable supply chains for energy storage, taking into account government energy policy, legislation and decarbonization strategy.

10:10 MODERATED Q&A: Session Wrap-Up
Moderator: Chloe Herrera, Energy Storage Analyst, Lux Research
Panelists:
Daniel Torelli, PhD, Managing Scientist, Exponent Intl Ltd
Iola Hughes, Research Manager, Rho Motion
Kevin Shang, Senior Research Analyst, Battery and Energy Storage Technology and Supply Chain, Wood Mackenzie

10:50 Coffee Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

11:20 Large-Scale Coupled Solar + Storage and BESS Augmentation Strategy
Sonia Leou, Sales Engineer, Large Scale Energy Storage, Fluence
With growing interest in BESS (battery energy storage system) around the globe, coupled solutions of solar system and storage system have also been gaining attention. The presentation illustrates AC and DC coupling solution concepts, including its pros and cons. Also due to battery degradation,

the idea of augmentation is also introduced to achieve battery end of life energy requirement.

11:40 Analyzing the Growing Need for Energy Storage in Industrial Applications: Implications for Sustainability, Resilience, and Technological Advancements
Bernhard Riegel, Director, R&D, HOPPECKE Batterien GmbH & Co. KG
The presentation illuminates the overall technological maturity of industrial energy storage, focusing on their main application areas in terms of sustainability and circular economy. It discusses approaches for developing new technologies and the electrochemical storage technologies that are expected to dominate in 2030, aiming to achieve the goal of climate neutrality by 2050.

12:00 MODERATED Q&A: Session Wrap-Up
Moderator: Chloe Herrera, Energy Storage Analyst, Lux Research
Panelists:
Sonia Leou, Sales Engineer, Large Scale Energy Storage, Fluence
Bernhard Riegel, Director, R&D, HOPPECKE Batterien GmbH & Co. KG

12:40 Networking Lunch *(Sponsorship Opportunity Available)*

14:00 Dessert Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

14:30 Close of Conference

LITHIUM BATTERY CHEMISTRY — PART 2

Advancements in Lithium-ion and Beyond

WEDNESDAY 15 MAY

12:30 Registration Open

12:40 Networking Lunch *(Sponsorship Opportunity Available)*

14:00 Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

SOLID STATE

14:30 Organizer's Remarks
Victoria Mosolgo, Conference Producer, Cambridge EnerTech

14:35 Chairperson's Remarks
Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster

14:40 New Perspective on Anode-Free All-Solid-State Batteries
Shirley Meng, PhD, Professor, University of Chicago; Chief Scientist, Argonne Collaborative Center for Energy Storage Science, Argonne National Laboratory
Anode-free strategy is gaining more interest in recent years, due to its manufacturing simplicity and potential for high-energy-density batteries without safety compromise. However, the design constraints for anode-free batteries have been difficult to overcome. In this talk, I will give an update on our efforts to enable anode-free lithium-metal and anode-free sodium-metal batteries. We hope to discuss a few opportunities presented by such a strategy.

15:00 Advanced Electrolytes for Metal Batteries
Venkataraman Thangadurai, PhD, Professor, Chemistry, University of Calgary
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.

15:20 Blue Solutions' Strategy for Developing an Agnostic New Polymer Electrolyte
Margaud Lecuyer, Electrochemical Engineer, Production Monitoring, Blue Solutions
Blue Solutions is already know as the pioneer company in the field of solid-state batteries, having put on the market Lithium Metal Polymer batteries since 2011. Currently, we are preparing next generation by developing a new electrolyte chemistry that is compatible with multiple cathode materials. The aim of this strategy? Anticipating possible market shifts due to either lack of mineral resources or OEMs wish to move to greener products in a medium time.

15:40 PANEL DISCUSSION: MODERATED Q&A: Session Wrap-Up
Moderator: Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster
Panelists:
Shirley Meng, PhD, Professor, University of Chicago; Chief Scientist, Argonne Collaborative Center for Energy Storage Science, Argonne National Laboratory
Venkataraman Thangadurai, PhD, Professor, Chemistry, University of Calgary
Margaud Lecuyer, Electrochemical Engineer, Production Monitoring, Blue Solutions

16:00 Refreshment Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

16:30 Solid-State Batteries
Juergen Janek, PhD, Professor, Solid-State Ionics & Electrochemistry, Justus Liebig University, Giessen
In this presentation, the current status of sulfide-based SSBs and the recent development of halide solid electrolytes will be briefly discussed, as well as the potential need for targeted design of cathode active materials for SSBs.

16:50 Oxide-Based Solid-State Batteries
Olivier Guillon, Professor & Director, Materials Synthesis & Processing, Forschungszentrum Juelich GmbH
This overview presentation will highlight the recent developments related to the integration of oxide electrolytes into lithium solid-state batteries within the Festbatt dedicated platform. In particular, synthesis with low carbon-footprint and energy-efficient processing are important for this class of materials. Thick and thin film technologies as well as innovative sintering approaches are key to guarantee materials compatibility and functionality.

17:10 The Future of Polymer Electrolytes in EV Applications
Gunther Brunklaus, PhD, Group Leader, Ionics in Energy Storage, IEK 12, Forschungszentrum Juelich
Solid-state batteries might enable future operation of electric vehicles. In this talk we discuss candidate polymer electrolytes for lithium metal batteries that afford reasonable cycle life and electrochemical stability. Synergistic performance improvements are demonstrated with hybrid electrolytes that allow for straightforward cell assembly. Relevant aspects of cell designs are addressed, also evaluating the consequences of externally applied pressure as often neglected criterion in view of key performance indicators of polymer-based batteries.

17:30 MODERATED Q&A: Session Wrap-Up
Moderator: Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster
Panelists:
Juergen Janek, PhD, Professor, Solid-State Ionics & Electrochemistry, Justus Liebig University, Giessen
Olivier Guillon, Professor & Director, Materials Synthesis & Processing, Forschungszentrum Juelich GmbH
Gunther Brunklaus, PhD, Group Leader, Ionics in Energy Storage, IEK 12, Forschungszentrum Juelich

17:50 Networking Reception in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

19:00 Close of Day

THURSDAY 16 MAY

8:00 Registration and Morning Coffee

SOLID STATE

8:40 Organizer's Remarks
Victoria Mosolgo, Conference Producer, Cambridge EnerTech

8:45 Chairperson's Remarks
Juergen Janek, PhD, Professor, Solid-State Ionics & Electrochemistry, Justus Liebig University, Giessen

8:50 Next-Generation LCB: Evolutionary Structure with Superior Performance, Cost-effectiveness & Resource Circulation
Vincent Yang, Founder & CEO, ProLogium Technology
Next-Generation Lithium Ceramic Battery: Evolutionary Structure with Superior Performance, Cost-effectiveness & Resource Circulation

9:10 Solid-State Batteries
Linda F. Nazar, PhD, Professor Chemistry & Canada Research Chair, Solid State Energy Materials, University of Waterloo
All-solid-state Li-S and Li2S batteries are gaining interest as alternatives to their liquid counterparts. The employment of solid electrolytes eliminates problems of the polysulfide shuttle and uncontrolled precipitation of the redox end members in lean electrolytes. However, issues of mass and electron transport, sluggish reaction kinetics, and reactivity of sulfide electrolytes have impeded their development. This presentation discusses material design factors for overcoming these hurdles and the opportunities they present.

LITHIUM BATTERY CHEMISTRY — PART 2

Advancements in Lithium-ion and Beyond

9:30 SOLBAT: The Solid-State Metal-Anode Battery Project within The Faraday Institution
Mauro Pasta, PhD, Professor, Applied Electrochemistry, University of Oxford
The SOLBAT project within The Faraday Institution, the UK's independent institute for electrochemical energy storage science and technology, aims to understand the fundamental science underpinning the manifold scientific and technological challenges to the practical development of solid-state batteries. In my presentation, I will summarize the scientific highlights from the SOLBAT project and the overall scientific direction.

9:50 Design Factors for Halide- and Sulfide-Based Solid-State Batteries
Yoon Seok Jung, PhD, Professor, Energy Storage Materials and Electrochemistry, Yonsei University
Recent advancements in all-solid-state batteries (ASSBs) have marked a significant leap forward. Mechanically sinterable sulfide solid electrolytes (SEs) are pivotal for the scalable fabrication of ASSBs. Additionally, the emergence of halide SEs, noted for their high oxidative stability, has opened new avenues. This presentation discusses material design factors for enhancing ionic conductivity, electrochemical stability, and compatibility between SEs, as well as engineering aspects associated with cell fabrication.

10:10 PANEL DISCUSSION: MODERATED Q&A: Session Wrap-Up
Moderator: Juergen Janek, PhD, Professor, Solid-State Ionics & Electrochemistry, Justus Liebig University, Giessen
Panelists:
Linda F. Nazar, PhD, Professor Chemistry & Canada Research Chair, Solid State Energy Materials, University of Waterloo
Mauro Pasta, PhD, Professor, Applied Electrochemistry, University of Oxford
Yoon Seok Jung, PhD, Professor, Energy Storage Materials and Electrochemistry, Yonsei University

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

11:00 Li-Free Anode Battery Development and Scaling at Quantumscape
Tim Holme, PhD, CTO, QuantumScape Battery Corporation
This talk will highlight the scientific and engineering challenges in developing and scaling production of an anode-free solid-state battery. QuantumScape was founded in 2010, with a mission to revolutionise energy storage to enable a sustainable future.

11:20 Solid State Battery—Developing the Technology and Going to Market with an Attractive Value Proposition
Godwill K Bancole, Head, Solid State Battery Incubator, Umicore
Umicore 2030 RISE strategy—with innovation and sustainability pillars—empowers SSB technology development to market. We aim at contributing to better materials consumption and a more balanced and diversified supply, building reliable and innovative partnerships in the industry. SSB topics covered: value proposition and market, Umicore specific updates, techno development journey and challenges still to be addressed, cooperation in the ecosystem.

11:40 First Commercially-Ready Metallurgical Grade, Mechanically-Milled Si-Dominant Anode for EV Batteries Coreshell
Jonathan Tan, CEO, Coreshell
Coreshell's metallurgical Silicon enabling technology delivers high capacity, fast-charging, and superior safety. Our low-cost liquid-phase nano-coating addresses critical electrode surface degradation issues and enables batteries with a Silicon-dominant anode that have 30+% higher energy density, superior intrinsic thermal safety, and significantly lower cost/kWh compared to current LIBs. Our Si anode material is 50% the cost of graphite and can be 100% locally sourced.

12:00 PANEL DISCUSSION: MODERATED Q&A: Session Wrap-Up
Moderator: Juergen Janek, PhD, Professor, Solid-State Ionics & Electrochemistry, Justus Liebig University, Giessen
Panelists:
Tim Holme, PhD, CTO, QuantumScape Battery Corporation
Godwill K Bancole, Head, Solid State Battery Incubator, Umicore

12:20 Networking Lunch *(Sponsorship Opportunity Available)*

13:00 Dessert Break in the Exhibit Hall with Last Chance for Poster Viewing *(Sponsorship Opportunity Available)*

SOLID STATE

13:30 Chairperson's Remarks
Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster

13:35 Design Strategies for Anodes and Interface toward High-Energy and Long-Lasting Quasi-All-Solid-State Lithium Batteries Employing Garnet Solid Electrolytes
Jusik Kim, PhD, Principal Researcher, Samsung Advanced Institute of Technology
In this presentation, we will discuss anode design strategies for introducing a carbon-based interlayer, from the perspective of reducing the interfacial resistance and preventing short-circuit formation via experimental measurements and computational modelling.

13:55 All-Climate Solid-State Battery Enabled by Non-Flammable Gel Polymer Electrolyte
Zhe Li, PhD, Senior Researcher, China Science Lab, General Motors
Solid-state battery (SSB) is a potentially superior alternative to a state-of-the-art lithium-ion battery, owing to its merits in abuse tolerance, operable temperature ranges, and system integration. Though promising, SSBs still face barriers that hinder their practical application, such as insufficient physical contact and poor ionic transport. In this talk, we will propose the strategies of utilising gel polymer electrolytes to effectively enhance the interfacial compatibility.

14:15 Saft's Advanced & Beyond Lithium-ion Technologies
Patrick Bernard, PhD, Director, Research, SAFT
Saft is developing new Li-ion products reflecting market needs: NMC/LTO cell for heavy-cycling applications, LMFP and other phosphate-based technologies for energy, power, and safety-critical applications. Future materials will allow the development of next generations of Li-ion technologies: HV phosphates, Li-rich rocksalts, and niobium oxides. Beyond conventional Li-ion batteries, Saft has launched a large program of R&D and industrialisation on solid-state technologies.

14:35 MODERATED Q&A: Session Wrap-Up
Moderator: Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster
Panelists:
Jusik Kim, PhD, Principal Researcher, Samsung Advanced Institute of Technology
Zhe Li, PhD, Senior Researcher, China Science Lab, General Motors
Patrick Bernard, PhD, Director, Research, SAFT

14:55 Session Break

15:10 How E-magy's Nanoporous Silicon Material Enables Next Generation Li-ion Batteries E-MAGY on with silicon
Fergal Harrington-Beatty, Sr Bus Dev Mgr, Commercial, E magy
E-magy's nanoporous silicon material has been designed to enable high silicon anodes (>80% Si content) by employing a particle structure that counteracts expansion. Based in the Netherlands, E-magy makes its own material via a patented manufacturing process, and is targeting 350 Wh/kg and 1000 cycles when deployed in battery cells, with a second larger facility planned in 2026.

15:30 LXMO: Stable, Safe, High-Capacity CAM Made by Stratus Materials

Ian Matts, PhD, Director, Product Develpoment, Stratus Materials

This talk will cover the development of LXMO, a new class of Lithium/Manganese (LMR) cathode material by Stratus Materials. The presentation will be data-intensive and show how this material succeeds in common full cell testing configurations as a compelling solution. We will focus on durability and safety performance as well as energy density.

15:50 Next-Generation Batteries (Silicon, Lithium-Metal, Sulphur): Status Update

Nicolo Campagnol, PhD, Solution Manager, Battery Insights, McKinsey & Co.

This talk aims to create more clarity about next-generation Li-ion chemistries in terms of what they are and what their industrialization status is.

16:10 MODERATED Q&A: Session Wrap-Up

Moderator: Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster
Panelists:
Ian Matts, PhD, Director, Product Develpoment, Stratus Materials
Nicolo Campagnol, PhD, Solution Manager, Battery Insights, McKinsey & Co.

16:30 Close of Conference

xEV BATTERY TECHNOLOGY, APPLICATION, AND MARKET

Driving the Future Growth of Electric Vehicles Globally

WEDNESDAY 15 MAY

12:30 Registration Open

12:40 Networking Lunch *(Sponsorship Opportunity Available)*

14:00 Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

MARKET EXPANSION OF xEVs AND THEIR BATTERIES

14:30 Organizer's Remarks
Craig Wohlers, Executive Director, Conferences, Cambridge EnerTech

14:35 Chairperson's Remarks
Roland Matthé, Technical Fellow, Global Battery Systems; Manager, Electrical Architecture, Stellantis

14:40 KEYNOTE PRESENTATION: Porsche's New Battery Advancements for the Taycan and Macan BEVs
Otmar Bitsche, PhD, Director, E-Mobility, Porsche AG

Porsche as leader in fast-charging and 800V technology introduces two new EVs in 2024. The Taycan shows significant steps ahead in range, efficiency, power, and fast-charging. This was enabled by new developments in cell technology, thermal management, and operating strategy. The complete new all-electric Macan, based on the PPE platform, brings 800V high power and fast-charging technology to the high-volume model at Porsche.

15:00 KEYNOTE PRESENTATION: Battery Technologies for Automotive Applications—Trends and Challenges
Kurt Vandeputte, Manager Battery Cell Competence Center, BMW Group

15:20 Proven Reliability of TotalEnergies Immersion Cooling Technology in Application
Gerard Quoirin, TotalEnergies Lubricants

Immersion cooling is a technology that enables ultra-fast charging of lithium batteries and provides an unprecedented level of safety. Using fluids developed by TotalEnergies, we will demonstrate the maturity of this concept through concrete examples.

15:40 MODERATED Q&A: Session Wrap-Up
Moderator: Roland Matthé, Technical Fellow, Global Battery Systems; Manager, Electrical Architecture, Stellantis
Panelists:
Otmar Bitsche, PhD, Director, E-Mobility, Porsche AG
Kurt Vandeputte, Manager Battery Cell Competence Center, BMW Group
Gerard Quoirin, TotalEnergies Lubricants

16:00 Refreshment Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

16:30 Sustainability and Affordability—Requirements for Future Mobility, Electrification, and Batteries
Roland Matthé, Technical Fellow, Global Battery Systems; Manager, Electrical Architecture, Stellantis

Stellantis is a global vehicle manufacturer based on companies in automotive business since 1896. The company is pushing forward the transformation of automotive mobility towards sustainability with a special focus on keeping mobility affordable. Electrification of the portfolio is progressing and requires battery solutions which have to meet two key goals, sustainability and affordability.

16:50 Fast Charge Innovation – an Example of 3-Way Partnership in Research & Advanced Engineering Aiming Toward Technology Readiness
Pierre Tran-Van, PhD, Scientist, Renault SAS

One of the enablers of mass EV adoption is the increase in C-rate charge capability, usually at the expense of energy density and durability. This presentation will share some steps of a collaboration featuring the dominant-silicon anode from Enevate thanks to a partnership with LGES.

17:10 Preparation for the Near-Future: Market & Technical Planning of the Asian xEV LIB Manufacturers
Mark H. L. Lu, PhD, Senior Industrial Analyst, Industrial Economics & Knowledge Center, Industrial Technology Research Institute

This presentation will provide an overview of the above cell-makers' planning, especially covering both the technical comparison, market, and product segmentation to show the future development in Asian xEV LIB manufacturers.

17:30 MODERATED Q&A: Session Wrap-Up
Moderator: Roland Matthé, Technical Fellow, Global Battery Systems; Manager, Electrical Architecture, Stellantis
Panelists:
Pierre Tran-Van, PhD, Scientist, Renault SAS
Mark H. L. Lu, PhD, Senior Industrial Analyst, Industrial Economics & Knowledge Center, Industrial Technology Research Institute

17:50 Networking Reception in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

19:00 Close of Day

THURSDAY 16 MAY

8:00 Registration and Morning Coffee

MARKET EXPANSION OF xEVs AND THEIR BATTERIES

8:45 Chairperson's Remarks
Kevin Konecky, Vice President, Battery Systems Engineering, Ola Electric

8:50 100% Silicon Anodes Enable Higher Energy Density, Improved Safety, and Faster Charging xEV Li-ion Cells
Robert Anstey, CEO, GDI

Most silicon-carbon Li-ion cells contain >50% graphite anode active material. Many of these blends have serious supply chain risks, safety concerns, and calendar life issues. EV pack space and weight must be increased to enhance safety and thermal management to make these cells less dangerous and speed up charging. GDI solves this in the cell by replacing all graphite, binder, and carbon in the anode with low surface area silicon to increase energy density, safety, and fast charging speeds.

9:10 Introduction to the Premium Platform Electric (PPE) Battery System
Sebastian Lacher, PhD, Head, Cell & Cell Module Development, E Traction HV Systems Development, Audi AG

Audi and Porsche will launch their first vehicles on the Premium Platform Electric to market. This talk will introduce key features such as fast charging and thermal management from cell up to system-level.

9:30 Experiences From In-House Developed Battery Management System for Commercial Vehicles
Oskar Lindstrom, Senior Manager, Battery and Energy Controls, Scania Group

Experiences and conclusions from in-house developed Battery Management System for multipack solutions for heavy trucks and buses. Our findings of the BMS system to support external developed and compiled SW packages, such

as cell algorithms for specific cell types. Challenges and experiences regarding interfaces, performance, speed and flexibility. Improvements in finding deviations and implement solutions faster. Release to customer while fulfilling process requirements such as cyber security and functional safety.

xEV BATTERY TECHNOLOGY

9:50 Enevate Fast Track to Commercialisation
Benjamin Park, PhD, Founder & CTO, Enevate Corp.
Ultra-fast charging is the last hurdle to widespread EV adoption. Charging as fast as filling a tank is a clear objective for vehicle and battery makers alike. Enevate will update its progress in enabling this goal, including results showing all-silicon fast-charging cells in different form factors. Enevate will also update progress in commercialisation and practical demonstration of its cell technology.

10:10 MODERATED Q&A: Session Wrap-Up
Moderator: Kevin Konecky, Vice President, Battery Systems Engineering, Ola Electric
Panelists:
Sebastian Lacher, PhD, Head, Cell & Cell Module Development, E Traction HV Systems Development, Audi AG
Oskar Lindstrom, Senior Manager, Battery and Energy Controls, Scania Group
Benjamin Park, PhD, Founder & CTO, Enevate Corp.
Robert Anstey, CEO, GDI

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

11:00 Multi-Chemistry Battery Electric Platforms—A Technological Differentiator
Joern Neuhausen, PhD, Director, PwC Strategy
The diversification of electric platforms will determine the next phase in eMobility transformation. To meet diverse relevant customer needs, future BEV powertrain requires differentiated platforms, mainly driven by battery and cell technology. Multi-chemistry powertrain platforms will play a pivotal role, enabling OEM and suppliers to introduce innovation across classes and build competitive advantages across range, charging speed, and costs.

11:20 How Safety Regulations and Battery Pack Design Trends Drive Venting Unit Innovation
Michael Harenbrock, PhD, Principal Expert, Engineering Electric Mobility, MANN+HUMMEL GmbH
Battery pack safety concepts are essential to ensure trust in battery technology and to comply with battery safety regulations. New battery cell chemistries and pack designs require differentiated safety concepts, driving the need for adapted venting units which play an important role in reducing the negative impact of thermal runaways. This presentation will provide an overview of current challenges and solutions for multi-functional venting units—beyond just gas release.

11:40 Incorporating Innovations Into the xEV Supply Chain Battery Segment: Imperatives, Obstacles, and a Role for CAMX Power
Kenan Sahin, President & Founder, CAMX Power
Prior to 2020, EVs had not arrived in volume, the suppliers were in clusters, technology adoption decisions were being made. Now EVs are into millions, suppliers and supplies have become a tightly linked chain with key adoption decisions made. The dominant costs of innovation adoption are costs of forward and backward compatibility and warranties, potentially overwhelming benefits of the innovation.Yet innovations are needed. Who is going to assess innovations for supply chain compatibility and how. We will discuss the issue for cell chemistries and present CAMX as one venue.

12:00 MODERATED Q&A: Session Wrap-Up
Moderator: Kevin Konecky, Vice President, Battery Systems Engineering, Ola Electric
Panelists:
Joern Neuhausen, PhD, Director, PwC Strategy
Michael Harenbrock, PhD, Principal Expert, Engineering Electric Mobility, MANN+HUMMEL GmbH
Kenan Sahin, President & Founder, CAMX Power

12:20 Networking Lunch *(Sponsorship Opportunity Available)*

13:00 Dessert Break in the Exhibit Hall with Last Chance for Poster Viewing *(Sponsorship Opportunity Available)*

xEV BATTERY TECHNOLOGY

13:30 Chairperson's Remarks
Craig Wohlers, Executive Director, Conferences, Cambridge EnerTech

13:35 Securing the Competitiveness of the European Battery Industry in a Changing World
Ilka Von Dalwigk, Policy Manager, European Battery Alliance
The EU battery industry is under pressure. Recent geopolitical challenges hamper the investment climate and its competitiveness. The work started by the European Battery Alliance to stay ahead of competitors will only succeed if decision-makers acknowledge the change of paradigm in global trade and embrace the changed rules of the game. It is therefore paramount that industry and policy-makers act jointly to complete and future-proof the EU's regulatory toolbox.

13:55 Increasing Battery System Performance
Kevin Konecky, Vice President, Battery Systems Engineering, Ola Electric
Battery systems are complex systems with the battery cell as the core technology of the system, but then integrated with multiple subsystems, including mechanical, thermal, and battery management systems (BMS). This presentation will look into the different subsystems that contribute to the overall battery system performance and opportunities for improvement in next-generation battery systems. Battery system trends in the industry will be evaluated and discussed.

14:15 Dynamic Crash Research of HV Batteries with a Drop Tower
Roland Weixler, Managing Director, KE TEC GmbH
Today different crush tests are defined, with the disadvantage to observe only the local damage by the intrusion. By contrast, dynamic tests stress the whole battery. In order to protect the crash center from unexpected events, it could be interesting to crash the battery system with a drop tower. A further advantage is that the whole battery will be monitored with a high-speed 3D measurement system during the crash.

14:35 MODERATED Q&A: Session Wrap-Up
Moderator: Craig Wohlers, Executive Director, Conferences, Cambridge EnerTech
Panelists:
Ilka Von Dalwigk, Policy Manager, European Battery Alliance
Kevin Konecky, Vice President, Battery Systems Engineering, Ola Electric
Roland Weixler, Managing Director, KE TEC GmbH

14:55 Session Break

15:10 Trends and Developments in Battery Performance
Aslan Goeger, Director Business Development, Farasis Energy Europe GmbH
Offering high energy density whilst ensuring fast charging will be a key milestone for future success in the automotive industry, combined with the ability to deliver demanded volumes in-time. Aslan Goeger, Director Business Development at Farasis Energy Europe, explains in his presentation, how the organization will tackle these challenges based on high performance lithium-ion batteries and will give an insight into latest battery developments.

15:30 Scalable Dry Coating of Battery Electrodes with DRYtraec
Arthur Dupuy, PhD, Research Associate, Fraunhofer IWS
The proprietary dry coating technology DRYtraec enables solvent-free battery electrode coating with significant cost reduction potential. Results of the application of this technology for the production of electrodes for LIB (NMC, LFP, Graphite), Li-S, and SSB at a prototype scale (20cm wide tandem coatings at 10m/min) will be presented.

15:50 Empowering Electric Vehicle Battery Testing: Conquering Data Challenges for Enhanced Safety and Performance
Martin Thaler, Big Data Analytics, NI/Emerson
Testing electric vehicle (EV) batteries guarantees their safety, performance, and durability. Nonetheless, EV battery testing confronts a range of data-related challenges. Join us to explore the significance of tackling these challenges within EV battery testing as it becomes pivotal in the "shift left" paradigm, ultimately enhancing the overall performance of batteries.

16:10 MODERATED Q&A: Session Wrap-Up
Moderator: Craig Wohlers, Executive Director, Conferences, Cambridge EnerTech
Panelists:
Arthur Dupuy, PhD, Research Associate, Fraunhofer IWS
Martin Thaler, Big Data Analytics, NI/Emerson
Aslan Goeger, Director Business Development, Farasis Energy Europe GmbH

16:30 Close of Conference

WEDNESDAY 15 MAY

12:30 Registration Open

12:40 Networking Lunch *(Sponsorship Opportunity Available)*

14:00 Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

GLOBAL MARKET DEMAND

14:30 Organizer's Remarks
Craig Wohlers, Executive Director, Conferences, Cambridge EnerTech

14:35 Chairperson's Remarks
Lukasz Bednarski, Associate Director, Battery Raw Materials, IHS Markit

14:40 EV Sales Review for 2023 and the Expectations Going Forward and Implications on Battery Demand
Viktor Irle, Co-Founder & Market Analyst, EV Volumes

15:00 Outlook for Battery Raw Materials
Olivier Masson, Metals and Mining Analyst, Fastmarkets
This presentation will cover recent developments in the markets for major battery raw materials, particularly lithium, nickel, and cobalt. The presentation will also give an outlook on the supply and demand for these raw materials and highlight any issues that could affect the price for these commodities in the years ahead.

15:20 Sustainable Production of Low-Cost IRA Compliant Cathode Active Material
Wyatt Olson, Senior Program Manager, 6K Energy
Christelle Debaudre, Dir. New Business Development, Europe, 6K Inc
Richard Holman, CTO, Battery Products, 6K Inc
The process for producing battery material must change to create a long-term ecosystem in the US. It must be cost-effective and environmentally friendly, thus sustainably sustainable. Requiring a process that is energy efficient, produces no waste, and can reuse virtually all byproducts by returning them to the feedstock supply for future battery material. Learn how we are producing IRA compliant NMC and LFP using a sustainable, circular process.

15:40 MODERATED Q&A: Session Wrap-Up
Moderator: Lukasz Bednarski, Associate Director, Battery Raw Materials, IHS Markit
Panelists:
Viktor Irle, Co-Founder & Market Analyst, EV Volumes
Olivier Masson, Metals and Mining Analyst, Fastmarkets
Wyatt Olson, Senior Program Manager, 6K Energy

16:00 Refreshment Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

16:30 Lithium in the Terawatt-Hour Era
Adam Megginson, Analyst, Benchmark Mineral Intelligence
After closely tracking and analysing a tumultuous 12 months for the lithium market, what lessons can we learn? What does the remainder of 2024 have in store for supply & demand, and how will this affect prices for this specialty chemical so vital to electrification?

16:50 Risks to the European Battery Raw Materials Supply Chain
Alex Laugharne, Principal Consultant, Consulting, CRU International
Massive investment in European LIB capacity is resulting in rapid growth in raw and active materials requirements. In-region availability of raw material resources is limited; the build-out of refining and active materials capacity remains incipient. This presentation will highlight the scale of the challenge meeting regional demand for low-cost, low-carbon, and responsibly-sourced raw materials; incorporating supply-demand balance scenarios, company and regulatory responses, and risks to key players.

17:10 China Lithium Battery Market Update
Jared Zhu, Senior Consulting Project Manager, Shanghai Metals Market
Rapid growth of global lithium-ion battery demand, geopolitical factors, and technological development have a great impact on the lithium-ion battery industry, specifically on raw materials. Heavy investment in the raw materials sector could lead to overcapacity once EV sales' growth is lower than expected. Different types of batteries also could reduce dependency on certain raw materials. Huge fluctuation in raw-materials prices could deeply damage the battery industry and beyond.

17:30 MODERATED Q&A: Session Wrap-Up
Moderator: Lukasz Bednarski, Associate Director, Battery Raw Materials, IHS Markit
Panelists:
Adam Megginson, Analyst, Benchmark Mineral Intelligence
Alex Laugharne, Principal Consultant, Consulting, CRU International
Jared Zhu, Senior Consulting Project Manager, Shanghai Metals Market

17:50 Networking Reception in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

19:00 Close of Day

THURSDAY 16 MAY

8:00 Registration and Morning Coffee

GLOBAL MARKET DEMAND

8:45 Chairperson's Remarks
Alex Laugharne, Principal Consultant, Consulting, CRU International

8:50 Sustainable CNT Manufacturing to Meet Global Demand for High-Performance, Low-Cost Carbon Nanotubes
David Arthur, CEO, CHASM Advanced Materials
With Carbon nanotubes (CNTs) becoming critical for today's EV batteries, sustainable, scalable approaches to meet expected global demand are needed, including US and European production. In the past, commercial application has been hindered by the practical obstacles of scaling manufacturing at viable cost. In this talk, we'll present CHASM's unique approach, which produces low-cost, tunable and high purity CNT materials and we'll share performance results and expansion plans.

9:10 Unconventional Lithium Resources & Extraction Methods
Lukasz Bednarski, Associate Director, Battery Raw Materials, IHS Markit
The presentation based on the new research report provides an overview of novel extraction methods from unconventional lithium deposits. It provides risk analysis of unconventional lithium extraction methods and explores their impact on supply and demand forecast. The presentation also highlights the importance of novel extraction methods for regionalisation of battery supply chain and sustainability.

SUPPLY CHAIN SUSTAINABILITY

9:30 Sustainable Lithium Supply—SQM at the Forefront of Transparent Mining Assurance
Stefan Debruyne, Director of External Affairs, SQM International
Lithium is an essential element in the global energy transition. It's critically important to stakeholders that it is mined in a sustainable and equitable way. Besides an update on SQM's progress on its sustainable development plan, SQM's innovation roadmap toward water-neutral lithium production will be presented. Additionally, global lithium demand and SQM's expansion plan will be updated.

9:50 Energizing Europe's Eco-Friendly Mobility: Selecting the Ideal CAM Materials for an Environmentally Sound Supply Chain Aligned with OEMs' Sustainability Goals
Tom Van Bellinghen, Vice President, Marketing & OEM Value Chain, Rechargeable Battery Materials, Umicore
In this presentation, we'll explore the critical role of carefully choosing CAM (cathode active materials) to power Europe's sustainable mobility transformation. We'll delve into the selection of different chemistries, each with their own performance profile and ramp-up challenges. We'll also highlight their vital role in constructing a supply chain that meets the stringent sustainability standards set by original equipment manufacturers (OEMs).

10:10 MODERATED Q&A: Session Wrap-Up
Moderator: Alex Laugharne, Principal Consultant, Consulting, CRU International
Panelists:
Lukasz Bednarski, Associate Director, Battery Raw Materials, IHS Markit
Stefan Debruyne, Director of External Affairs, SQM International
Tom Van Bellinghen, Vice President, Marketing & OEM Value Chain, Rechargeable Battery Materials, Umicore
David Arthur, CEO, CHASM Advanced Materials

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

BATTERY RAW MATERIALS SUPPLY

11:00 Building the World's Next Tier-1 Lithium Operation, Sustainably
Catarina Noci, Commercial Director, Sigma Lithium
Sigma is committed to decarbonizing the battery supply chain. We have commercialized a lithium concentrate product that has a zero-carbon footprint, is processed without tailings dams, in a facility that utilizes no potable water or harsh chemicals and is run on renewable power. The company is now analyzing a step to intermediates to reduce the capital investment hurdles facing the lithium industry and enable a cost-effective localized battery supply chain.

11:20 An Update on Brazilian Nickel's Low-Carbon Piauí Nickel Project
Anne Oxley, Technical Director, Brazilian Nickel PLC
Brazilian Nickel's Piauí Project in NE Brazil is a nickel laterite heap leach, producing nickel- and cobalt-intermediate products as feed for battery cathodes. Small-scale production began in 2022, and construction for the full-scale project will begin in 2024. Nickel production of 25,000 tpa contained in MHP will begin in 2026. Brazilian Nickel will give an update on progress on the project, other future projects, and its CO2 reduction plans.

11:40 Graphene from Disperser Manufacturer Accelerates Battery Development
Hironobu Minai, Section Manager, Sapporo R&D, JOKOH CO., LTD.
JOKOH has developed highly customizable graphene using our ultra-high pressure homogenizer (NAGS). Free combinations of shape, lateral dimensions, layers thickness, and dispersion concentration can be possible. We show the quality assessment details based on ISO standards and comparison of battery performance with CNT and others. The products can be provided as powder, dispersion liquid, and ink mixed with other materials. We aim to contribute to significantly shortening the development period.

12:00 MODERATED Q&A: Session Wrap-Up
Moderator: Alex Laugharne, Principal Consultant, Consulting, CRU International
Panelists:
Catarina Noci, Commercial Director, Sigma Lithium
Anne Oxley, Technical Director, Brazilian Nickel PLC
Hironobu Minai, Section Manager, Sapporo R&D, JOKOH CO., LTD.

12:20 Networking Lunch *(Sponsorship Opportunity Available)*

13:00 Dessert Break in the Exhibit Hall with Last Chance for Poster Viewing *(Sponsorship Opportunity Available)*

BATTERY RAW MATERIALS SUPPLY

13:30 Chairperson's Remarks
Anne Oxley, Technical Director, Brazilian Nickel PLC

13:35 Regional Diversification in Battery Compositions and the Impact of Regional Supply-and-Demand Balance
Robert Burrell, Senior Analyst, Project Blue
This presentation will assess how the regional variations in cathode chemistry choice by manufacturers will impact raw material requirements in major markets. The development of the supply chains in these regions will undergo different strains and stresses as regional production ramps up, with both private and government support targeting particular markets.

13:55 Nickel Market Outlook
Jason Sappor, Senior Analyst, S&P Global Commodity Insights
We expect the global nickel market to remain oversupplied in 2024, as supply from top producer Indonesia expands further. This presentation will assess the nickel market performance in 2024 and provide our five-year price forecast, considering factors including electric vehicle sales, battery chemistry mix, and supply-and-demand fundamentals.

14:15 Québec: A Reliable Partner for Raw Battery Minerals
Jonathan Lafontaine, P.Geo., M.Sc., Strategic Advisor, MNRF-Quebec
The Government of Québec published the first critical and strategic mineral plan from a Canadian province in October 2020, and in January 2023 published a revised action plan. This presentation will highlight the how Québec is taking action to become a key battery material provider from mining to processing.

14:35 MODERATED Q&A: Session Wrap-Up
Moderator: Anne Oxley, Technical Director, Brazilian Nickel PLC
Panelists:
Robert Burrell, Senior Analyst, Project Blue
Jason Sappor, Senior Analyst, S&P Global Commodity Insights
Jonathan Lafontaine, P.Geo., M.Sc., Strategic Advisor, MNRF-Quebec

14:55 Session Break

15:10 Sustainable FPC for BMS CCS
Keisuke Ito, CFO Executive Officer, Elephantech Inc.
Currently, many EV cell manufacturers have a presence in Europe, but EV components are still dependent on exports from other area. Elephantech is the first in the world to successfully mass-produce inkjet-printed circuit boards while reducing carbon emissions by 75%, copper usage by 70%, and water consumption by 95%. This sustainable process aims to resolve geopolitical risks by establishing a production base in Europe.

15:30 Empowering Tomorrow: Building a Resilient Graphite Ecosystem for Sustainable Futures
Bridget Catherine Deveney, VP Product Development and Applications, Vianode
Battery material production, especially active anode materials, is mainly centered in Asia, posing a risk to non-Asian industries during global disruptions. Vianode counters this by manufacturing high-volume, competitive anode materials with top-tier performance in Norway, enhancing efficiency and sustainability. The presentation will touch on Vianode's progress in graphite recycling, advancing toward pilot-scale implementation.

15:50 Mineral-Based Raw Materials—Essential Products for Battery Safety from Cell to Pack Level

Pia Lindorf, Head R&D Technical Services, Coatings & Electronics, Nabaltec AG

Nabaltec AG is a leading European manufacturer offering a wide range of aluminum hydrate-based materials specially designed to serve battery safety applications like a.m. and passive heat management. To further highlight, Nabaltec has developed a new class of flame-retardant fillers to provide lightweight battery cases made of thermosets or eng. plastics with an integral heat barrier effect due to ceramification of the polymer composite.

16:10 MODERATED Q&A: Session Wrap-Up

Moderator: Anne Oxley, Technical Director, Brazilian Nickel PLC
Panelists:
Bridget Catherine Deveney, VP Product Development and Applications, Vianode
Pia Lindorf, Head R&D Technical Services, Coatings & Electronics, Nabaltec AG
Keisuke Ito, CFO Executive Officer, Elephantech Inc.

16:30 Close of Conference

WEDNESDAY 15 MAY

12:30 Registration Open

12:40 Networking Lunch *(Sponsorship Opportunity Available)*

14:00 Dessert Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

14:30 Chairperson's Remarks
Marc LeDuc, Technical Content Manager, SAE International

14:35 Organizer's Remarks
Frank Bokulich, Product Content and Business Development Manager, SAE International

14:40 Numerical Approach for the Characterisation of the Venting Process of Cylindrical Cells under Thermal Runaway Conditions
Javier Marco Gimeno, PhD, Post Doctoral Researcher, Universitat Politécnica de Valencia

In this work, Computational Fluid Dynamics (CFD) are employed to predict this venting process in an LG18650 cylindrical battery. The ejection of the generated gases was considered to analyse its dispersion in the surrounding volume through a Reynolds-Averaged Navier-Stokes (RANS) approach. Initial work has focused on developing an appropiate methodology to set the proper boundary conditions that faithfully recreate these events.

15:00 A Comparative Analysis of Thermal Runaway Propagation in Different Modular Lithium-ion Battery Configurations
Carlos Mico, PhD, Professor, Universitat Politècnica de València

The study at the module level includes experimental validation and employs a comprehensive model considering heat transfer due to electrical performance and thermal runaway phenomena. The findings provide valuable insights into the design and operation of modular lithium-ion battery systems, guiding engineers and researchers in implementing best practices to improve safety and performance across various applications.

15:20 BTR Research Progress in Solid-state Battery Key Materials
BTR Better our world
Chenglin Yang, Ph.D. Head of Solid State Department, Solid State Battery Material Department, BTR Group Central Research Institute

BTR is a high-tech company leading in new energy materials such as lithium-ion battery anode and cathode. It has been the world's top anode supplier for 14 years. BTR supports a low-carbon lifestyle and green future through its R&D in solar power, electric vehicles, and energy storage systems. The semi-solid batteries offer enhanced thermal safety and performance, while the all-solid batteries, despite their transformative potential, still face scientific and industrialization hurdles.

15:40 MODERATED Q&A: Session Wrap-Up
Moderator: Brian Engle, Manager, Business Development, Electrification, Amphenol
Panelists:
Carlos Mico, PhD, Professor, Universitat Politècnica de València
Javier Marco Gimeno, PhD, Post Doctoral Researcher, Universitat Politécnica de Valencia

16:00 Refreshment Break in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

16:30 Simulation and Evaluation of Battery Aging in Electric Hybrid Storage Systems
Andreas Braun, Project Manager, Global Battery Competence Team, AVL Deutschland GmbH

The extension of traction batteries from electric vehicles with supercapacitors is regularly discussed as a possibility to increase the lifetime of lithium-ion batteries as well as the performance of the vehicle drive. The objective of this work was to validate these assumptions by developing a simulation model. In addition, an economic analysis is performed to qualitatively classify the simulation results.

16:50 Model-Based Knowledge Management in HV Battery Development
Ibtihal Badi, Development Engineer, AVL

This paper will draw upon the tenets of the already established KM strategies in AVL High-Voltage Energy Systems Team and AI-centric paradigm tailored for the implementation of KMS within organisational frameworks. Our proposed approach serves to fortify the foundations of KM strategy by outlining the ways in which AI interfaces with existing operational procedures.

17:20 MODERATED Q&A: Session Wrap-Up
Moderator: Brian Engle, Manager, Business Development, Electrification, Amphenol
Panelists:
Andreas Braun, Project Manager, Global Battery Competence Team, AVL Deutschland GmbH
Ibtihal Badi, Development Engineer, AVL

17:50 Networking Reception in the Exhibit Hall with Poster Viewing
(Sponsorship Opportunity Available)

19:00 Close of Day

THURSDAY 16 MAY

8:00 Registration and Morning Coffee

8:40 Organizer's Remarks
Frank Bokulich, Product Content and Business Development Manager, SAE International

8:45 Chairperson's Remarks
Brian Engle, Manager, Business Development, Electrification, Amphenol

8:50 Super EV: Powering the Future with 500-Mile Range and 1000 Horsepower
amprius
Ionel Stefan, Chief Technology Officer, R&D, Amprius Technologies

Improvements in pure silicon anodes with nanowire structures have enabled LIB energy density and specific energy performance that exceed current state-of-the-art graphite cells by 50-100%, depending on cell size. Commercialized cells have demonstrated 1,300 Wh/L and 500 Wh/Kg and have achieved 4000 W/kg power density with over 400 Wh/kg specific energy density, while maintaining cycle life compatible with aerospace, military, and other high-end applications.

9:10 Safety Testing of Stationary Battery Energy Systems: Overview of Standards
Natalia Lebedeva, PhD, Scientific Project Officer, Energy Storage, European Commission

9:50 Building Transparent, Traceable, and Responsible Critical Mineral Supply Chains
Douglas Johnson-Poensgen, Founder & CEO, Circulor

10:10 PANEL DISCUSSION: Session Wrap-Up
Moderator: Brian Engle, Manager, Business Development, Electrification, Amphenol
Panelists:
Ionel Stefan, Chief Technology Officer, R&D, Amprius Technologies
Natalia Lebedeva, PhD, Scientific Project Officer, Energy Storage, European Commission
Douglas Johnson-Poensgen, Founder & CEO, Circulor

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

11:00 Electrifying the Future: Nickel's Role in Advancing Battery Technology and Markets
Parvin Adeli, PhD, Manager, Batteries, Nickel Institute
Batteries are the fastest growing market for nickel and the Nickel Institute (NI) is quite active in this space. This presentation provides an overview of the NI Battery Program followed by the current global EV market and the share of nickel-based battery chemistries. Furthermore, a discussion on the patent landscape and the latest technology developments is included.

11:20 Does the Electric Behavior Sufficiently Describe Battery State of Health?
Anna Stefanopoulou, PhD, William Clay Ford Professor of Technology, University of Michigan
Not for cases with sizeable irreversible swelling from plating or gas evolution. Dimensional changes of cells can be harbingers of poor health.

11:40 Road to 1000miles per Charge—24M Innovative and Proprietary Process and Product Design Platforms
Junzheng Chen, Vice President, Advanced R&D, 24M Technologies Inc.
Conventional LIB platform is struggling of energy density and cost while improving the safety. In this technical session, we will go over the unique approaches from 24M (SemiSolid, ETOP, Impervio, Eternalyte, Liforever) in addressing these current bottlenecks, including process and product design platforms and unique separator and electrolyte material to achieve higher energy density with better cost and recycling structure while dramatically improving safety performance.

12:00 MODERATED Q&A: Session Wrap-Up
Moderator: Brian Engle, Manager, Business Development, Electrification, Amphenol
Panelists:
Parvin Adeli, PhD, Manager, Batteries, Nickel Institute
Anna Stefanopoulou, PhD, William Clay Ford Professor of Technology, University of Michigan
Junzheng Chen, Vice President, Advanced R&D, 24M Technologies Inc.

12:20 Networking Lunch *(Sponsorship Opportunity Available)*

13:00 Dessert Break in the Exhibit Hall with Last Chance for Poster Viewing *(Sponsorship Opportunity Available)*

13:50 Chairperson's Remarks
Marc LeDuc, Technical Content Manager, SAE International

13:55 PANEL DISCUSSION: Battery Safety Standards
Moderator: Brian Engle, Manager, Business Development, Electrification, Amphenol
Our panel of experts will discuss the SAE/ISO battery safety standards including what is the recommended practice in design standards? In addition, what are recommended practice testing and regulation versus standards will be covered.
Panelists:
Carlos Mico, PhD, Professor, Universitat Politècnica de València
Michael Harenbrock, PhD, Principal Expert, Engineering Electric Mobility, MANN+HUMMEL GmbH
Kurt Vollmacher, Project Leader Worldwide Standardised Responder Information, Energy Safety
Christian Thiele, Ground Vehicle Standards Director, SAE International

14:55 Session Break

15:30 PANEL DISCUSSION: European Battery Passport, Provenance, and Global Traceability Standards
Moderator: Ilka Von Dalwigk, Policy Manager, European Battery Alliance
As the global battery community rises to meet demand around the world, the critical key to success depends on the ability to deliver traceable, cost-effective, high-quality, safe cells at-scale. In an effort to deliver on this, our panel of experts will discuss the keys to CO2 tracking, ESG, provenance, and traceability standards in Europe versus the United States.
Panelists:
Douglas Johnson-Poensgen, Founder & CEO, Circulor
Anna Stefanopoulou, PhD, William Clay Ford Professor of Technology, University of Michigan
John Tintinalli, Europe General Manager, SAE International

16:30 Close of Conference

BATTERY INTELLIGENCE

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

WEDNESDAY 15 MAY

12:30 Registration Open

12:40 Networking Lunch *(Sponsorship Opportunity Available)*

14:00 Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

MACHINE LEARNING FOR RESEARCH AND DEVELOPMENT

14:30 Organizer's Remarks
Victoria Mosolgo, Conference Producer, Cambridge EnerTech

14:35 Chairperson's Remarks
Weihan Li, Research Group Leader, RWTH Aachen University

14:40 Building Gigafactories for Greener Batteries with Software & AI
Siddharth Khullar, Vice President, Software Engineering & AI, Northvolt

Northvolt's machine learning R&D pioneers advancements in battery technology, employing sophisticated algorithms to optimise performance and enhance energy efficiency. The team focuses on pushing the boundaries of using software, machine vision, and machine learning applications to drive innovation in sustainable energy storage solutions. The talk will focus on glimpses of Northvolt's playbook to deploy technological advancements in Software and ML in Cell Design, Validation facilities, and on Shopfloor.

15:00 Polymer Cell Development
Sungbin Park, PhD, Department Leader, LG Energy Solution

15:20 Driving Safety with Evidence-Based Prognostics
Tom Maull, Technical Strategy and Partnerships Manager, Elysia Battery Intelligence from Fortescue

In the quest for safer and more efficient EVs, OEMs face immense challenges. While AI cloud analytics and fast charge algorithms are proposed solutions, they lack the transformative impact needed for widespread EV adoption. Elysia's embedded solutions, integrated with a cloud-based ecosystem, offer evidence-based insights. This context first approach enhances safety and prognostics, providing OEMs and fleet operators with actionable data while minimising false positives and negatives.

15:40 MODERATED Q&A: Session Wrap-Up
Moderator: Weihan Li, Research Group Leader, RWTH Aachen University
Panelists:
Siddharth Khullar, Vice President, Software Engineering & AI, Northvolt
Sungbin Park, PhD, Department Leader, LG Energy Solution

16:00 Refreshment Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

BATTERY MATERIAL DEVELOPMENT

16:30 Physics-Based Machine Learning for Battery Modelling
Changfu Zou, PhD, Associate Professor, Electrical Engineering, Chalmers University of Technology

Current practices of physics-based machine learning mainly focus on data-driven surrogates generated to replace physics-based models. These models often trade accuracy for speed, but lack generalisability, adaptability, and interpretability, which are qualities crucial for optimisation and control purposes. To bridge the gap, we propose a novel machine-learning architecture—termed model-integrated neural networks—and demonstrate its successful application in modelling different batteries and electrode materials.

16:50 Machine Learning for the Advanced Characterisation and Design of Battery Electrodes
Samuel J. Cooper, Senior Lecturer, Electrochemical Science & Engineering Group, Imperial College London

In this talk, Sam will explain the various microstructural characterisation and analysis methods developed by his team, including some novel machine learning approaches. He will also propose a workflow for optimising the manufacturing parameters of these materials that use generative adversarial networks and Bayesian optimisation.

17:10 Modelling of Solid-State Battery Materials with Machine Learning
Nongnuch Artrith, Assistant Professor, Materials Chemistry and Catalysis, Utrecht University

Here, we give an overview of recent methodological advancements of ML techniques for atomic-scale modelling and materials design. We review applications to materials for solid-state batteries, including electrodes, solid electrolytes, coatings, and the complex interfaces involved.

17:30 MODERATED Q&A: Session Wrap-Up
Moderator: Weihan Li, Research Group Leader, RWTH Aachen University
Panelists:
Changfu Zou, PhD, Associate Professor, Electrical Engineering, Chalmers University of Technology
Samuel J. Cooper, Senior Lecturer, Electrochemical Science & Engineering Group, Imperial College London
Nongnuch Artrith, Assistant Professor, Materials Chemistry and Catalysis, Utrecht University

17:50 Networking Reception in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

19:00 Close of Day

THURSDAY 16 MAY

8:00 Registration and Morning Coffee

LIFETIME PREDICTIONS

8:40 Organizer's Remarks
Victoria Mosolgo, Conference Producer, Cambridge EnerTech

8:45 Chairperson's Remarks
Remus Teodorescu, PhD, Professor, IEEE Fellow, Villum Investigator, Aalborg University

8:50 ABB in Battery Manufacturing
Rickard Gustafsson, Automation Solution Architect , ABB Process Industries, ABB
Le Anh Ma, Bus Dev Mgr, Bus Dev, ABB Corp Research

9:10 Battery Lifetime Prediction with Machine Learning: From Laboratory Data to Field Data
Weihan Li, Research Group Leader, RWTH Aachen University

Reliable and accurate degradation prediction remains challenging due to the nonlinear nature of lithium-ion batteries that stems from internal electrochemical reactions and intrinsic parameter variability across cells. In this talk, we will introduce our current work in battery ageing trajectory prediction with machine learning with case studies of both testing data in the laboratory and large-scale field data from 60 electric vehicles.

9:30 Smart Battery Technology for Lifetime Improvement
Remus Teodorescu, PhD, Professor, IEEE Fellow, Villum Investigator, Aalborg University
Smart Battery is a novel BMS concept that brings together cells with power electronics and AI for transportation and grid storage, with significant extended lifetime and high potential for second-lifetime application. The key feature is the bypass device for cell-level load management, allowing complete balancing of SoC, SoT, and SoH, along with square pulse excitation for online impedance measurement and fault-tolerant operation AI-based health and safety management.

9:50 Automatic Aging Prediction for Li-ion Batteries
Michael Hess, PhD, CEO, R&D, Battronics
Data evaluation of battery aging matrices is very time consuming as tests from different SoC, Temp, DoD, and C-rates have to be evaluated. We show how this can be facilitated by online-based automatic aging analysis which is also used for phys. & ML aging prediction to judge remaining battery life.

10:10 MODERATED Q&A: Session Wrap-Up
Moderator: Remus Teodorescu, PhD, Professor, IEEE Fellow, Villum Investigator, Aalborg University
Panelists:
Weihan Li, Research Group Leader, RWTH Aachen University
Michael Hess, PhD, CEO, R&D, Battronics

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

DIGITAL TWINS

11:00 AI-Based Digital Twin—Anomaly Detection and Diagnostics for HV Battery Behaviour and Performance
Alwin Tuschkan, Project Manager, IODP, AVL List GmbH
Automotive HV batteries are demanding a focussed effort on safety and failure prevention. Conventional methods for health monitoring fall short due to their supervised nature, relying on historical fault data. This presentation shows an innovative approach involving the implementation of an AI-based digital twin leveraging a graph neural network for unsupervised anomaly detection in fleet data. Furthermore, our approach incorporates domain knowledge to proactively prevent HV battery failure.

11:20 Multi-Scale Modelling of Battery Degradation and the Pathway to Battery Digital Twins
Billy Wu, PhD, Associate Professor, Dyson School of Design Engineering, Imperial College London
In this talk, we explore multi-scale battery degradation. At the particle level, we show how phase field fatigue models can describe fracture behaviour. Continuum-scale models can then describe how mechanical stresses are dynamically distributed through an electrode and how this changes with composite graphite-silicon electrodes. At the pack level, we explore how current heterogeneities further exacerbate this problem, and how digital twins provide a route to extend cell lifetime.

11:40 Advanced Battery Analytics to Eliminate Risks on Battery Health, Safety and Performance
Jonas Keil, Tech Lead, Battery Analytics & Engineering, TWAICE Technologies GmbH
The rapidly growing battery market in automotive applications demands eliminating risks in battery health, safety and performance. TWAICE leverages advanced battery analytics by testing and modeling in battery pre-life combined with in-life monitoring and machine learning techniques. To synergize physics-based and data-driven technologies enables generating insights into the current states of batteries and to predict those into the future.

12:00 PANEL DISCUSSION: MODERATED Q&A: Session Wrap-Up
Moderator: Remus Teodorescu, PhD, Professor, IEEE Fellow, Villum Investigator, Aalborg University
Panelists:
Alwin Tuschkan, Project Manager, IODP, AVL List GmbH
Billy Wu, PhD, Associate Professor, Dyson School of Design Engineering, Imperial College London
Jonas Keil, Tech Lead, Battery Analytics & Engineering, TWAICE Technologies GmbH

12:20 Networking Lunch *(Sponsorship Opportunity Available)*

13:00 Dessert Break in the Exhibit Hall with Last Chance for Poster Viewing *(Sponsorship Opportunity Available)*

13:30 Chairperson's Remarks
Weihan Li, Research Group Leader, RWTH Aachen University

13:35 Next-Generation Intelligent Battery Management System with Enhanced Safety for Transportation Electrification
Sheldon Williamson, PhD, Professor & Canada Research Chair, Electrical & Computer & Software Engineering, University of Ontario Institute of Technology
Range anxiety is a key reason that consumers are reluctant to embrace electric vehicles (EVs). However, none of today's EVs allow fast charging in cold or even cool temperatures due to the risk of lithium plating, the formation of metallic lithium that drastically reduces battery life and even results in safety hazards. Here, we present an approach that enables 15-minute fast charging of Li-ion batteries at any temperature (-50 °C).

13:55 Data-Driven Approach for Accelerated Re-Characterization of Second-Life Batteries for Recovery and Reuse
Mona Faraji-Niri, PhD, Assistant Professor, Energy Systems, Energy Innovation Centre, University of Warwick
One of the main challenges of integrating the second-life battery cells is related to their re-characterisation after the first life, particularly when not enough information is shared from their first life use and storage. Here it will be discussed how the non-invasive experimental techniques such as electrochemical impedance spectroscopy (EIS) combined with machine learning (ML) techniques can support solving this challenge by accurately predicting the second-life battery's state-of-health (SoH) rapidly.

14:15 SAMBA – Scanning Acoustic Microscopy-Based Battery Analysis
Moritz Kroll, PhD, Battery Data Science, Electrical Energy Storage, Fraunhofer Institute for Solar Energy Systems
Inhomogeneities in batteries have a negative impact on service life and jeopardize safe operation. Currently, there is a lack of suitable detection options to identify such defects reliably, quickly, and cost-effectively. This project develops an ultrasound-based non-destructive testing method to inspect battery pouch cells. Scanning Acoustic Microscopy (SAM) is used to generate image data that is subsequently analyzed by an AI-based evaluation routine.

14:35 MODERATED Q&A: Session Wrap-Up
Moderator: Weihan Li, Research Group Leader, RWTH Aachen University
Panelists:
Sheldon Williamson, PhD, Professor & Canada Research Chair, Electrical & Computer & Software Engineering, University of Ontario Institute of Technology

14:55 Session Break

BATTERY DEVELOPMENT

15:10 Sponsored Presentation *(Opportunity Available)*

15:30 Performing Microscale Simulations of Long-Term SEI Growth in Li-ion Batteries
Falco Schneider, PhD, Scientist, Flow and Material Simulation, Fraunhofer ITWM
Li-ion batteries are exposed to a variety of degradation effects, causing cell aging over time. One major contributor to capacity and power fade of the cell is growth of the solid electrolyte interphase (SEI). In this talk we will discuss how the long-term growth behaviour of the SEI can be captured with fully coupled electrochemical simulations. Furthermore, we present numerical methods to enable long-term aging studies of such detailed models.

15:50 From Battery Development to Battery Passports: Electrochemical Insights at-Scale
Tal Sholklapper, PhD, CEO & Co-Founder, Voltaiq, Inc.
From development to production to battery passports, the imperative to understand battery quality, performance, and health at every stage is clear. Rather than assemble a patchwork of siloed systems to meet these needs, companies that take an integrated, full-lifecycle approach to achieving electrochemical insights at-scale will learn faster than the competition, serve customer needs better, and ultimately win in the marketplace.

16:10 MODERATED Q&A: Session Wrap-Up
Moderator: Weihan Li, Research Group Leader, RWTH Aachen University
Panelists:
Falco Schneider, PhD, Scientist, Flow and Material Simulation, Fraunhofer ITWM
Tal Sholklapper, PhD, CEO & Co-Founder, Voltaiq, Inc.

16:30 Close of Conference

WEDNESDAY 15 MAY

12:30 Registration Open

12:40 Networking Lunch *(Sponsorship Opportunity Available)*

14:00 Dessert Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

Session Header

14:30 Organiser's Remarks

14:35 Chairperson's Remarks

14:40 Toyota Hydrogen Overview
Tina Singh, Principal Engineer, Sustainability & Regulatory Affairs, Toyota Motor North America

15:00 Decarbonizing Heavy Duty Transport – AVLs 40t Fuel Cell Demo Truck
Josef Macherhammer, Product Manager Hydrogen and Fuel Cell, AVL List GmbH
AVL embarked on the development of a truck demonstrator aimed at showcasing a viable solution for fuel cell-powered trucks that fully addresses the demands of fleet operators. The development was based on a European 4x2 semitrailer tractor with a sleeping cabin and a 3.8-meter wheelbase. This approach presented considerable challenges in terms of accommodating the fuel cell system(s), high-voltage (HV) battery, e-drive, and hydrogen storage systems within the limited space.

15:20 Sponsored Presentation *(Opportunity Available)*

16:00 Refreshment Break in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

16:30 Hydrogen Trucks
Michael Tormoen, Systems Integration Engineer III, Advanced Engineering, Daimler Truck N America
Hydrogen Fuel Cell Trucks are an important part of Daimler Truck's overall zero-emissions strategy. Daimler Truck has demonstrated the capability of the heavy-duty fuel cell system for long haul with the Mercedes-Benz GenH2 Truck Record Run achieving over 1,000 km of zero emission, loaded operation in real-world conditions on a single fueling. This presentation will highlight the unique challenges and opportunities hydrogen presents for the North American heavy-duty truck market.

16:50 Numerical Analysis of The Relation Between the Porosity of the Fuel Electrode Support and Functional Layer, and Performance of Solid Oxide Fuel Cells Using Computational Fluid Dynamics
Jakub Kupecki, Member of Hydrogen Europe Research, Institute of Power Engineering Research Institute

17:10 Catalytic and Electro Catalytic Performance for Applications in Solid Oxide Fuel Cells Supplied with Ethanol Steam Reforming Mixtures
Alessandro Donazzi, PhD, Professor, Department of Energy, Politecnico di Milano
The direct utilisation of alcohols in solid oxide fuel cells for on-board transportation systems can significantly improve the energetic efficiency by using excess heat for internal reforming. Thanks to their resistance to coking, perovskite anodes are promising alternatives to state-of-the-art Ni-based cermets. Novel Sr(Ti0.3Fe0.7Ru0.07)O3-d exsolution anodes provide both catalytic reforming activity and electrochemical activity with steam/ethanol mixtures (3:1 m/m) between 700 and 800°C, with 195 mW/cm2 maximum power density.

17:50 Networking Reception in the Exhibit Hall with Poster Viewing *(Sponsorship Opportunity Available)*

19:00 Close of Day

THURSDAY 16 MAY

8:00 Registration and Morning Coffee

Session Header

8:40 Organiser's Remarks

8:45 Chairperson's Remarks

8:50 Sponsored Presentation *(Opportunity Available)*

9:10 Conditions for Hydrogen to be Viable in Road Transport
Sigve Aasebo, Senior Advisor, Statens Vegvesen
Europe lacks electricity and grid. This begs the question of hydrogen for road transport related to energy efficiency and grid efficiency to the forefront. Under which circumstances are hydrogen advisable and when should battery electric vehicles be preferred?

9:30 Presentation to be Announced

9:50 Presentation to be Announced

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

11:00 Presentation to be Announced

11:20 Presentation to be Announced

11:40 Sponsored Presentation *(Opportunity Available)*

12:20 Networking Lunch *(Sponsorship Opportunity Available)*

13:00 Dessert Break in the Exhibit Hall with Last Chance for Poster Viewing *(Sponsorship Opportunity Available)*

Session Header

13:30 Chairperson's Remarks

13:35 Presentation to be Announced

13:55 Presentation to be Announced

14:15 Presentation to be Announced

14:55 Session Break

15:10 Sponsored Presentation *(Opportunity Available)*

15:30 Presentation to be Announced

15:50 Exergoeconomic Evaluation of a PEM Fuel Cell
Jose R Sodre, PhD, Head, Mechanical Biomedical & Design Engineering, Aston Univ
This work presents an exergoeconomic evaluation of a 1.2 kW proton exchange membrane (PEM) fuel cell designed for vehicular application. The varied operating parameters were stack temperature, cell voltage and air pressure and air stoichiometry. The results show that air stoichiometry is the most influential parameter on the exergy cost, which is also sensitive to cell voltage and hydrogen price.

16:30 Close of Conference

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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 materials.

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- Opportunity to display literature in the resource centre

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- Company listing including contact information and 50- word description (deadlines permitting) included in Conference Materials
- Company name and URL link included in Conference Proceedings package delivered electronically
- Co-operative email campaign inviting your clients and prospects to attend at a discount

For more information regarding sponsorship opportunities, please contact:

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Companies R-Z
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+1 781.247.6286
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Sample List of 2023 Delegates

- Amazon, Sr Mgr
- Andreas Stihl AG & Co KG, Purchaser Production Material Battery Cells, Battery Technnology
- Audi AG, N EM 552
- BMW Grp, Head, Research Battery Technology
- BP, Technologist Expert, Research
- Castrol Germany GmbH, Sr Technologist PD Driveline & EV Fluids, Driveline Technology Ctr
- Daimler Truck AG, Mgr, HV Battery Dev
- Dyson Ltd, Cell Design Mgr, Energy Storage
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- ExxonMobil Chemical Central Europe GmbH, Global Fluid Technology Advisor, Performance Liquids Technology
- Ferrari SpA, Engineer
- Fraunhofer Institute for Material & Beam Technology, Process Engineer, Chemical Surface & Battery Technology
- General Motors Co, Lead Engineer, Advanced Battery Pack Engineering
- Hyundai Mobis Co Ltd, Principal Research Engineer, ePT Core Technology
- LG Chem, GM, Battery R&D Center
- McKinsey & Co Inc, Expert Assoc Partner
- Mitsubishi Materials Corp, Sales Rep, MMC RYOTEC Corporation
- Mitsui & Co Ltd, Mgr, Battery Materials & Recycling Business
- NASA Johnson Space Ctr, Asst Dir of Energy Conversion, Power Systems
- Natl Renewable Energy Lab, Chief Energy Storage Engineer, Ctr for Mobility
- Natl Taiwan University of Science & Technology, Prof, Advanced Electrochemical Battery & Biosensor Lab
- Nissan Motor Co Ltd, GM, Powertrain & EV Engineering
- Panasonic Industry Europe GmbH, Expert, Battery Cell & Energy Solutions
- Phillips 66, Mgr of Special Carbons, Bus Dev
- Porsche AG, Sr Dev Engineer, Dev HV Battery Systems BEV
- Saint Gobain, Sr Research Engineer
- Samsung SDI, Professional, Next Generation Product Planning
- Subaru Corp, Sr Engineer, Electrified Power Unit Design
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For hotel reservations, please go to the Travel page of AdvancedAutoBat.com/Europe

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Strasbourg Convention Ctr
Place de Bordeaux
67082 Strasbourg cedex, France

HOST HOTEL:

AC Hotel & Residence
Inn Strasbourg
4 -6 Boulevard de Dresde
Strasbourg, France, 67000

DISCOUNTED ROOM RATE:
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DISCOUNTED ROOM RATE CUT-OFF DATE: 4 April 2024

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