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WEAUTOMOTIVE GROUP

DETROIT, USA

NOVEMBER 9-10TH

2023 xEV ADVANCED BATTERY TECHNOLOGY INNOVATION USA

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CUTTING-EDGE INSIGHT DELIVERED BY EXPERTS AND THOUGHT LEADERS INCLUDING:

Our programs are diligently researched and curated in partnership with the Automotive Manufacturing community, to **ensure they address the most pertinent current challenges and key investment areas.** This level of detail is part of our pioneering approach to content and ensures that we attract the highest level of attendees.

Bob Galyen
Conference Chair: Retired Chief Technical Officer | CATL

Dr Cecile Pera
Director | OROVEL

Bret Trimmer
Applications Engineering Manager
| NeoGraf Solutions

Gary Testa
President & CEO
| Engineered Fluids

Timothy Vokes
Application Engineering Manager | Parker Lord

Michael Kaas
EV Applications Engineer | ATF Inc.

Sankar Nallapati
Advanced Battery Module Engineer
| General Motors

Nathan Saliga
Chief Engineer
| One | Our Nex Energy

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Tom Clark
NA Battery Technology Leader | DuPont

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| Mahindra Automotive North

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Technical Lead, High Voltage Battery Systems
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Global Application Leader
| Ascend Performance Materials

Rich Byczek
Global Technical Director, Transportation Technologies
| Intertek

NOVEMBER 9-10TH 2023 I
DETROIT, USA

xEV CONFERENCE & EXPO | SERIES

NORTH AMERICAN'S LARGEST ANNUAL EVENT FOR XEV ADVANCED BATTERY TECHNOLOGY EXPERTS

Directly Addressing The Key, Current Challenges And Technology Innovations Accelerating Next-Generation Battery Electric Vehicles - Optimizing Cost, Efficiency, High Density & Performance

The Leading Summit To Match OEM And Battery Manufacturing Requirements With Expert Material, Solution And Technology Providers

Following the unparalleled success of WeAutomotive Group's Battery Thermal Management Conferences in Palo Alto and Stuttgart earlier this year, we are thrilled to announce the much-anticipated return of the xEV Advanced Battery Technology Innovation Summit to Detroit this November.

This year's summit features an agenda meticulously crafted in collaboration with leading US vehicle manufacturers, ensuring that the content is not only cutting-edge but also perfectly aligned with the needs and aspirations of the American automotive landscape.

Join us in Detroit this November for an event that promises to be a catalyst for groundbreaking advancements in xEV battery technology. Prepare to be part of an event that will shape the future of the automotive industry.

Key Topics

- Battery Thermal Management
- Battery Design & Integration
- Battery Management & Battery Intelligence
- Battery Management Systems
- Battery Safety
- Battery Cooling Plates
- Battery Components
- Battery Pack Assembly / Integrator
- Adhesives, Sealing & Bonding
- BEV Architectures
- Material Suppliers
- Joining Technologies & Solutions
- Battery Pack Design & Material
- Battery Assembly
- Battery Materials
- Powder Coatings
- Cabling & Connectors
- Cells & system
- Battery Applications
- Battery Manufacturers
- Battery Components
- Battery Assembly
- Sustainable Lightweight Solutions
- Battery Second Life Opportunities
- Beyond Li-ion
- Solid-State Batteries
- Testing Solutions
- Pressure Sensitive Adhesives &Tapes
- Battery Manufacturing
- Renewable Energy Systems
- Simulation & Modelling
- Recycling Li-ion Batteries
- Battery Charging / Fast Charging
- Battery Components
- Gap Fillers
- Electrification of The Off-Road Vehicle Market
- Battery & Fuel Cell Development
- Electric Systems Development
- Advanced Engineering
- Technology Solutions
- Advanced Lightweight Structures
- Dispensing Systems & Robots
- Liquid Systems
- Sealing Systems
- EVONOMY Data Ecosystem

DAY 1 I Battery Thermal Management

Addressing these challenges is critical to advancing the state of EV battery thermal management and improving the overall performance, safety, and sustainability of electric vehicles. Researchers, engineers, and manufacturers are continually working on innovative solutions to overcome these obstacles and accelerate the adoption of electric mobility.

Energy Density: EVs demand high-energy-density batteries for extended driving ranges. However, increasing energy density often generates more heat during charging and discharging, necessitating innovative thermal solutions to dissipate heat without compromising safety or efficiency.

Fast Charging: As EVs move towards faster charging capabilities, managing the heat generated during rapid charging becomes critical. Ensuring that batteries can withstand fast charging without overheating or degrading is a significant challenge.

Battery Safety: Preventing thermal runaway and thermal events, such as fires or explosions, is paramount. Developing materials and systems that enhance battery safety, especially in high-stress situations, is an ongoing concern.

Cost-Effectiveness: Implementing efficient thermal management systems while keeping costs down is a continuous challenge. Affordable solutions are essential to make EVs more accessible to a broader range of consumers.

Packaging Constraints: EVs have limited space available for battery packs. Designing thermal management systems that fit within the packaging constraints while maximizing efficiency is a complex problem.

Environmental Impact: Sustainable materials and practices are increasingly important in EV battery thermal management. Developing eco-friendly cooling fluids and insulation materials is a challenge to minimize the environmental impact of EVs.

Longevity: Extending the lifespan of EV batteries is crucial for reducing the total cost of ownership. Thermal management strategies that minimize battery degradation over time are in high demand.

Extreme Operating Conditions: EVs are used in a wide range of climates, from extreme cold to scorching heat. Creating thermal management systems that can handle these diverse conditions without compromising performance is a persistent challenge.

Extreme Operating Conditions: EVs are used in a wide range of climates, from extreme cold to scorching heat. Creating thermal management systems that can handle these diverse conditions without compromising performance is a persistent challenge.

Integration with Vehicle Systems: Ensuring seamless integration of thermal management systems with the broader vehicle architecture, including power electronics and climate control, requires innovative engineering solutions.

DAY 2 I Battery Cells & Systems Technologies

In the realm of electric vehicle (EV) manufacturing, safety has taken center stage, with an unwavering commitment to lowering battery costs while simultaneously enhancing energy density and rapid charging capabilities. As battery technology and cell chemistries continue to evolve, OEMs are laser-focused on realizing these objectives. They are actively seeking technologies that not only ensure safety but also drive efficiency, competitiveness in cost, sustainability, and deliver higher energy densities compared to previous standards.

- The Trade-off Between Battery Cost, Safety, Energy Density & Performance
- Improving Battery Safety & Preventing Thermal Runaway
- Optimizing Battery Management Systems
- Increasing Precision & Accuracy of Energy, Temperature & Safety Prediction
- How BMS Is Keeping Up With Evolving Cell Technology
- Designing Better Battery Packs
- The Commercialised Application Of Wireless BMS Solutions
- How BMS Will Keep Up With Evolving Cell Technology
- Future Battery Packs & Design Trends
- Solid-State
- Latest Methodologies In Battery Testing
- Battery Technologies & Pack Designs That Enable Fast Charging
- Assessing Future Chemistries & Technologies That Promise High Energy Density
- Battery Recycling & Battery Supply

ESTEEMED **CONFERENCE CHAIR 2023**

Are you ready to explore the forefront of electric vehicle innovation? Join us for a dynamic conference that delves into the heart of EV battery technology – optimizing the whole vehicle architecture at a system level. During this industry leading conference, we will unearth the strategies and insights that are shaping the future of automotive engineering.

We will uncover the challenges and triumphs of optimizing system integration on a whole vehicle scale, setting the stage for a new era in automotive engineering. Explore the cutting-edge design philosophies tailored to various classes of Battery Electric Vehicles, and gain a deeper understanding of how these philosophies influence the overall vehicle design.

Delve into the intricate relationship between emerging design philosophies and their impact on critical aspects such as battery pack integration and thermal optimization; and learn how to seamlessly incorporate cost optimization into whole vehicle design concept.

Explore the intricacies of battery pack integration, while discovering the latest breakthroughs in thermal optimization and multi-function component integration. Get ready to be at the forefront of innovation in the automotive industry. This conference always promises to deliver fresh insights, groundbreaking strategies, and a glimpse into the future of electric vehicle architecture optimization. Don't miss out – **secure your seat today!**

BOB GALYEN

RT. CTO CATL, CHAIRMAN EMERITUS, NAATBATT

CATL NAATBatt INTERNATIONAL

DAY 1 | xEV Battery Thermal Management

Next-Generation Battery Thermal Management Systems And Technology

07:15

Registration | Breakfast Reception

08:00

Chairs Opening Remarks | Optimizing The Whole Vehicle Architecture At A System Level

Bob Galyen, rt. CTO **CATL** & Chairman **NaatBatt**

- System integration optimization issues at a whole vehicle level
- What are the emerging design philosophies for different classes of B.E.V.?
- How does this impact the design philosophy for the overall vehicle, including battery pack integration and thermal optimization?
- How do you incorporate cost optimization into your whole vehicle design concept to reduce the price of the vehicle?
- Battery pack integration/attachment, thermal optimization and multi-function component integration

08:20

Mastering Battery Thermal Management: System-Level Strategies To Slash Costs And Simplify Complexity In Electric Vehicles

Nathan Saliga, Chief Engineer,
ONE | Our NextEnergy

- Explore groundbreaking system-level approaches that empower EV engineers to achieve significant cost savings while streamlining the complexity associated with thermal management
- **The Cost Complexity Conundrum:** Unveiling the Challenges: Gain a deep understanding of the cost and complexity challenges faced by EV engineers in battery thermal management. Explore the intricate relationship between system design, component selection, manufacturing processes, and cost implications. Identify key pain points and opportunities for improvement

08:40

Optimizing Li-ion Battery Pack Design To Improve The Safety Of Electric Vehicles

Tim Vokes, Applications Engineering Manager, **Parker Lord**

- Identify safety hazards and material solutions for electric vehicle battery safety
- Assess causes of thermal runaway and thermal runaway propagation (TRP) in EV batteries
- Understand how thermal runaway risk and the regulatory landscape on thermal propagation
- have changed in recent years across the globe
- Learn about the variety of thermal management materials and dielectric coatings available for safe battery operation
- Learn about intra-cell, module, and pack solutions for battery safety in the instance of a thermal event

09:00

Immersion Cooling Battery Solution and Real-World Application

Franklin Huang, Business Development Manager, **XING Mobility**

- What is XING Mobility's immersion cooling and why is it important?
- How did XING Mobility succeed in SoP (Start of Production) immersion cooled battery pack?
- XING's ongoing development and what could be expected in the near future
- How can you participate in Immersion Cooling technology with XING Mobility

09:20

EV Thermal Management For Faster Charging, Extended Range, And Propagation Prevention

Bret Trimmer, Application Engineering Manager, **Neograf Solutions**

- Thermal management is a critical aspect of electric vehicle battery systems, with significant implications for faster charging, extended range, and propagation prevention. This conference session aims to provide a comprehensive overview of the challenges and opportunities in EV thermal management, exploring advancements in technologies, strategies, and best practices to optimize thermal performance in EVs
- Five factors control how fast EVs can be charged. Only one is controllable by the pack designer
- EV driving range is influenced by the thermal management materials used there are four primary methods of controlling thermal runaway, with benefits and drawbacks
- Cell Cycle Lifetime is strongly influenced by your thermal management method

09:40

Thermal Management & Bonding Of Lithium Battery Cells & Modules

Stephen Tuckwell, VP and Business Line Manager, **Elantas**

- Exploring visionary concepts that transcend conventional thermal management
- Presenting revolutionary technologies poised to redefine EV performance and sustainability
- **Quantum Bonding:** Unlocking the Power of Atomic-Level Connections
- **A glimpse into the future:** Quantum bonding techniques for unparalleled battery module stability and efficiency
- Real-world applications and potential disruptions in battery manufacturing
- **The Battery of the Future:** Self-Healing Modules and Adaptive Thermal Systems
- Unveiling self-healing battery modules: How advanced materials are reshaping EV batteries
- **Adaptive thermal systems:** Evolving batteries that adapt to real-time conditions
- Discussion on the sustainability implications of innovative thermal management and bonding techniques
- Strategies for eco-conscious EV development
- Speculation on the game-changing breakthroughs yet to come

10:00

Morning Networking Break

10:40

Addressing The Need for Safety AndPerformance In EV Sealing Materials: Developing An Innovative Elastomer That Delivers Sealing Performance And Uncompromising Fire Safety

Rick Valeriote, Chief Operating Officer, **Poly-Nova Technologies**

- Join us for a session delving into the development, rigorous testing, and performance results of Poly-Nova's new Tektrasil material
- A multi-functional elastomer material that allows Engineer's to solve both sealing performance and critical fire safety challenges
- **Enhanced Safety:** Tektrasil's ability to withstanding over 30 minutes of 1,200°C flame exposure significantly reduces the risk of catastrophic thermal incidents
- Superior Sealing and NVH Performance: Tektrasil maintains excellent sealing and NVH properties throughout the extended lifespan of EV's
- Ensuring NVH performance, long-term sealing reliability and protection of critical components
- **Versatile Applications and Manufacturing Options:** Tektrasil empowers Engineers with limitless design possibilities through its
- exceptional moldability, extrudability, and calendaring options

11:00

Fluids Of The Future: Selecting The Perfect Cooling Medium

Gary Testa, CEO, **Engineered Fluids**

- Explore simplified approaches to system complexity, empowering manufacturers with practical solutions for seamless implementation
- **Achieving Unmatched Performance:** Resolving Thermal Uniformity and Hotspot Challenges
- Explore cutting-edge techniques and innovations designed to maximize thermal management efficiency within large or densely packed battery modules
- Gain insights into the latest fluid selections, balancing thermal conductivity, compatibility, environmental considerations, and cost-effectiveness for optimal performance
- **Optimal Upkeep:** Ensuring Longevity and Reliability (10 minutes)
- Discover best practices for fluid monitoring, purification, and replacement, ensuring sustained performance, reliability, and adherence to safety standards
- **Cost-Effectiveness and ROI:** Immersion Cooling as a Smart Investment
- **Collaborative Solutions:** Integration with Vehicle Components

11:20

Next-Generation Adhesive Design For Cell-to-Pack Configurations

Thomas Clark, NA Battery Technology Leader, **DuPont**

- The ongoing evolution of battery pack designs has led to changes in material requirements, particularly for joining technologies. This presentation will cover changes in those requirements as they relate to next-generation battery packs and the role adhesives will play including:
- Durable pack assembly using bare metal and high-dielectric materials
- Cure kinetic considerations for high-volume manufacturing
- The impact of adhesives on end-of-life planning

11:40

New Process Solutions For Battery Systems Manufacturing

Wim Dexters, Sales Engineering Director, bdtronic, **Americas**

- The manufacturing processes for batteries andwhere our technologies can be applied;
- Challenges of dispensing thermal materials,volume shot sizes, etc
- The importance of surface pre-treatment inbattery application
- Heat staking and the need to have good processcontrol to achieve consistency and strong rivets

12:00

Simplification Through Integration: Unifying Thermal Management Systems

Karl Plattenberger, Chief Engineer- Powertrain and Thermal Systems, **MAHINDRA AUTOMOTIVE, NA**

- Discover the power of integration in reducing complexity and cost
- Explore strategies for consolidating multiple thermal management components into cohesive systems
- Uncover the benefits of integrated solutions, such as combined cooling and heating systems, simplified control architectures, and reduced component count

12:20

Material Innovations: Driving Cost Reduction And Performance Enhancement

- Unleash the potential of material innovations in battery thermal management. Explore cost-effective materials that offer superior thermal conductivity, insulation, and durability
- Discover how smart material selection and optimization can significantly reduce costs while enhancing system performance and reliability

12:40

Advanced Control And Monitoring Systems: Efficiency And Simplification In Harmony

- Explore cutting-edge control and monitoring systems that optimize thermal management while reducing complexity
- Delve into intelligent algorithms, sensor integration, and real-time data analytics that enable precise temperature regulation, minimize energy consumption, and streamline system operation

13:00

Network Lunch Break

14:00

Advanced Control And Monitoring Systems: Efficiency And Simplification In Harmony

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14:20

Thermal Runaway Early Detection: Critical Sensors And Connections For Safe Battery Management

Brian Engle, Business Development Manager, **Amphenol Advanced Sensors**

- How to achieve "Robust Early Detection of Thermal Runaway" in Lithium-ion battery technology
- Learn of the physics and chemistry of battery failure, the hazards of damaged battery systems, and the means of reliably detecting the moment a damaged battery cell vents
- Attendees will learn of the latest trends in xEV, EVSE, and ESS thermal system design as well as design features necessary for durable and accurate measurement and control of thermal management systems, including immersion cooling and heat pump type systems
- Presentation will review and address needs for critical sensing points within typical systems as well as environmental and communications constraints that drive design choices

14:40

Streamlined Manufacturing Processes: Driving Down Costs

- Discover innovative manufacturing techniques that streamline the production of thermal management systems
- Explore advanced assembly methods, automated manufacturing processes, and optimized supply chain management to reduce costs and enhance overall system efficiency

15:00

Leveraging Advanced Thermal Management For Enhanced xEV Battery Performance

Adrian Serna, Business Development Manager, **AdvanTech International**

- As the xEV (electric vehicle) industry continues to grow, optimizing battery technology becomes paramount for achieving improved performance and range
- With a focus on cutting-edge advancements, we will address key challenges faced by the industry and demonstrate how innovative thermal management strategies can lead to significant breakthroughs
- Understand the critical importance of managing heat in xEV batteries and the implications of temperature fluctuations on battery performance and longevity
- Explore advanced cooling techniques, such as liquid cooling, phase change materials, and active thermal management systems, designed to maintain optimal battery temperatures
- Learn how effective thermal management contributes to mitigating thermal runaway risks, ensuring the safety of both the vehicle and its occupants
- Discover how precise temperature control can lead to higher energy density, improved charging efficiency, and extended driving range
- Explore the integration of thermal management systems with battery pack design and the wider vehicle architecture

15:20

Precision Unleashed: Advanced Battery Cycling And Energy Storage Testing Solutions

- In the electrified future of transportation and energy storage, the role of advanced battery technologies is paramount. Join us in this cutting-edge conference session as we delve into the world of high-precision, integrated battery cycling and energy storage test solutions. Discover how these solutions are revolutionizing the way lithium-ion and other battery chemistries are tested, ensuring the highest levels of performance, safety, and reliability
- Understand the vital role of battery testing in ensuring optimal energy storage system performance, safety, and longevity
- Explore testing solutions covering the entire battery lifecycle, from R&D to end-of-life scenarios
- Delve into high-precision battery cycling techniques for accurate measurements of energy capacity, cycle life, and efficiency
- Discover integrated solutions designed to accommodate diverse battery chemistries and energy storage technologies
- Learn about advanced monitoring and analytics capabilities providing real-time battery behavior insights for design optimization
- Explore how integrated testing solutions facilitate predictive performance degradation mitigation through accelerated aging studies
- Delve into safety testing, including extreme condition replication, thermal runaway assessment, and fail-safe mechanism development

15:40

Revolutionizing EV Battery Technologies For A Sustainable Future

Lubrizol

Tom Corrigan, Technology Development Manager, **Lubrizol**

- **Advancing Electrolyte Formulations for Optimal Performance:** Explore how cutting-edge electrolyte solutions are pushing the boundaries of EV battery efficiency. Discover the latest breakthroughs in ion transport, safety enhancement, and extended cycle life
- **Defying Dendrite Growth with Separator Coatings:** Delve into the world of separator coatings that are revolutionizing battery safety. Learn how these coatings thwart dendrite growth,

boost thermal stability, and ensure worry-free battery performance
- **Mastering Heat with Thermal Management Solutions:** Immerse yourself in the realm of thermal interface materials, redefining temperature control within EV battery packs. Witness how these materials optimize heat dissipation, preserving battery efficiency and reliability
- **Empowering Electrodes with Advanced Binders and Additives:** Uncover the secrets behind electrode binders and conductive additives that are propelling energy density to new heights. See how these innovations elevate structural integrity and electrical conductivity
- **Innovations Beyond Chemistry: Enhancing Battery Durability:** Embark on a journey through Lubrizol's innovative additives, engineered to amplify battery durability, efficiency, and safety. Witness how these additives transform battery materials for a more sustainable future

16:00

Defining Diagnostic Parameters For Early Detection Of Thermal Runaway

- **Defining Diagnostic Parameters:** Delve into the intricate process of defining diagnostic parameters that facilitate the swift identification of evolving thermal runaway conditions
- **Sensor Integration and Data Acquisition:** Explore the integration of advanced sensors and data acquisition techniques that enable real-time monitoring of critical thermal indicators
- **Algorithm Development:** Uncover the methodologies behind developing sophisticated algorithms capable of interpreting sensor data and triggering timely alerts
- **Case Studies and Best Practices:** Learn from real-world case studies and best practices, highlighting successful implementation of diagnostic parameters for early thermal runaway detection.
- **Challenges and Solutions:** Address the challenges faced in accurately defining diagnostic parameters and explore innovative solutions
- **Regulatory Compliance and Safety Standards:** Understand the alignment of diagnostic parameters with regulatory compliance and industry safety standards
- **Cross-disciplinary Collaboration:** Recognize the importance of collaboration between battery engineers, data scientists, and software developers in optimizing diagnostic strategies.
- **Future Directions:** Get a glimpse into the future of early thermal runaway detection, as evolving technologies continue to enhance our ability to preemptively respond to critical situations

16:20

Afternoon Network Break

17:00

Innovative Bonding And Sealing Technologies Focusing On Performance, Simplicity In Processes, And Sustainability

Andrea Battisti, e-Mobility Project Leader, **Sika Corporation**
Fernada Ito, e-Mobility Technical Sales Manager, NA, **Sika Corporation**

- **Innovative bonding technologies:** the power of fast, flexible, and bespoke processing solutions
- **Multi-materials bonding:** addressing a constantly changing industry with a wide range of adhesives
- **Sustainability in Focus:** the trend for end-of-life-friendly solutions for a greener future

17:20

Mastering Thermal Management For Next-Gen Cylindrical Cells: Challenges And Innovative Solutions

- The rapid evolution of cylindrical battery cells has ushered in a new era of electric vehicle (EV) and energy storage system (ESS) performance. However, as energy densities increase, efficient thermal management becomes pivotal to ensure safety, longevity, and optimal functionality. Join us for an in-depth exploration of the thermal challenges accompanying next-generation cylindrical cells and the ingenious solutions reshaping their thermal management landscape
- Uncover distinctive thermal challenges of next-gen cylindrical cells
- Grasp efficient heat dissipation dynamics
- Master strategies to prevent thermal runaway events
- Explore innovative cooling approaches
- Harness adaptive thermal management systems
- Discover material innovations for enhanced heat transfer
- Compare active and passive cooling methods
- Understand integration of thermal sensors
- Optimize for extended cylindrical cell lifespan
- Ensure regulatory compliance and safety
- Gain insights into future-proofing thermal management

17:40

Unraveling The Mysteries Of Battery Health: A Journey Into Cutting-Edge SoH Determination And Cell-Level Degradation

As electric vehicles (EVs) revolutionize transportation, BMS plays a pivotal role in optimizing performance, enhancing safety, and extending battery life. Discover how industry leaders are pushing the boundaries of BMS technology to overcome current challenges and drive the EV revolution forward

- **Exploring Complexities in BMS Accuracy:** Understand how BMS innovation is addressing the accuracy and precision challenges in monitoring cell voltages and temperatures, enabling optimal performance and safety
- **Revolutionizing Balancing and SOC Estimation:** Delve into the latest breakthroughs that ensure effective cell balancing and accurate State of Charge (SOC) estimation for maximizing battery life and range prediction
- **Mastering Thermal Management Solutions:** Explore cutting-edge approaches to efficiently manage thermal conditions within battery packs, preventing overheating, degradation, and enhancing overall safety
- **Navigating Cell-to-Cell Variability:** Learn about innovative strategies that handle variations in cell characteristics, ensuring uniform aging and optimal pack efficiency
- **Unveiling Integration Marvels:** Discover how leading innovators are addressing the integration complexity of BMS into diverse EV architectures, forging compatibility and adaptability for future technologies
- **Adapting to Changing Battery Landscapes:** Get insights into adaptable BMS solutions that keep pace with evolving battery chemistries and formats, ensuring seamless integration and management
- **Empowering Fault Detection and Diagnostics:** Witness real-time solutions that swiftly identify and diagnose faulty cells, mitigating risks and maintaining overall pack health
- **Fortifying Cybersecurity:** Delve into the strategies deployed to safeguard BMS from cyber threats, ensuring the utmost security in EV operation
- **Optimization Without Compromise:** Explore cost-effective yet performance-driven BMS designs that embrace optimization without compromising on safety and efficiency
- **Navigating Regulatory Frontiers:** Gain valuable insights into how BMS innovation is aligning with ever-evolving safety and environmental regulations, ensuring compliance and future-proof designs

18:00

Innovations In Heat Sink Optimization For EV Battery Packs

- The crucial role of thermal management in battery packs, and the complex challenges posed by heat dissipation during charging, discharging, and rapid acceleration
- Discover the breakthrough materials that are revolutionizing heat sink design, allowing for enhanced thermal conductivity, lightweight structures, and better heat dissipation
- Learn how heat sinks are seamlessly integrated into battery pack designs, ensuring efficient heat distribution across cells and modules, enhancing safety, and extending battery life
- Dive into the world of advanced simulation and modeling tools that enable engineers to predict thermal behavior, optimize heat sink placement, and ensure effective cooling strategies
- Discover how tailored heat sink designs are addressing the unique thermal challenges of different battery chemistries, cell formats, and pack configurations
- Uncover the latest innovations in thermal interface materials that bridge the gap between battery cells and heat sinks, improving heat transfer efficiency and reliability
- Explore the pros and cons of active and passive cooling solutions, and how hybrid approaches are achieving the optimal balance between efficiency and energy consumption
- Understand how effective heat sink optimization contributes to overall battery safety, preventing thermal runaway events and maintaining consistent pack performance
- Gain insights into the trajectory of heat sink optimization, including potential breakthroughs in advanced materials, real-time thermal management, and adaptive cooling strategies

18:20

Multiphysics Simulations For Accurate Real-World Representation

By embracing multiphysics simulations, researchers and engineers can now capture a comprehensive range of phenomena within battery cells, leading to a more precise representation of real-world conditions. This session explores how these advanced simulations go beyond heat transfer to account for fluid flow, chemical reactions, and electrochemistry, ultimately fostering a deeper understanding of battery behavior.

- Overview of multiphysics simulations and their significance in battery research
- Explanation of how different physical phenomena interact within battery cells
- Discussion of traditional heat transfer modeling in batteries

- **Exploration of additional physical processes:** fluid flow, chemical reactions, and electrochemistry
- Real-world examples showcasing the limitations of single-physics simulations
- Presentation on the importance of fluid dynamics in battery thermal management

- Simulation-based insights into how fluid flow affects temperature distribution and battery cooling
- Simulation-based investigation of how these processes influence temperature, efficiency, and aging
- Exploring the advantages of adopting multiphysics simulations for battery design and analysis
- Addressing computational challenges and trade-offs in implementing these complex simulations

18:40

Revolutionizing Multi-Functional Venting Units For Evolving Battery Safety

- Discover the pivotal role of multi-functional venting units in comprehensive battery safety strategies
- Explore how the expanding variety of battery pack designs and cell chemistries necessitates adaptable venting unit functionality
- Understand how these units ensure pressure equilibrium during regular operation and provide effective overpressure release during thermal runaway, mitigating the risk of battery fires
- Gain insights into the latest developments, trends, and cutting-edge solutions in venting unit engineering
- Uncover how evolving venting unit designs align with future battery safety needs, including advancements in technology and regulatory compliance
- Learn from real-world examples and case studies that highlight the successful implementation of venting unit solutions in diverse battery applications

19:00

Chairs Closing Remarks

19:20

All Attendee Evening Drinks Reception

DAY 2 | Battery Tech Cells & Systems

Optimizing the Safety, Capacity and Lifespan of Lithium-Ion Batteries with Battery Management Systems, Battery Intelligence Innovations & Battery Pack Advancements

07:15

Registration | Breakfast Reception

08:00

Chairs Opening Remarks | Architectural Alchemy: The Power of System-Level Optimization

Bob Galyen, rt. CTO **CATL** & Chairman **NaatBatt**

- Introducing the paradigm shift from component-level to system-level optimization
- Unveiling how holistic architectural design impacts battery performance, range, and beyond
- Diving into the orchestra of interactions between battery systems and vehicle components
- Exploring flexible pack designs that adapt to vehicle architectures
- Embracing modular, scalable, and space-efficient solutions that harmonize with various vehicle models
- Decoding the choreography of thermal management across vehicle systems
- Strategies to enhance overall vehicle safety while safeguarding battery integrity
- Delving into software platforms orchestrating system interactions

08:20

The Future Of Battery Electric Vehicle Architecture: Integrating Battery Packs With Body Structure

Nathan Saliga, Chief Engineer, **ONE | Our NextEnergy**

- Examination of traditional battery pack placement and integration approaches
- Introduction to the concept of integrating battery packs with the body structure
- Comparative analysis of the benefits and challenges associated with different integration methods
- Exploring the benefits of integrating battery packs with the body structure
- Technical considerations for integrating battery packs with the body structure:
- Structural design optimization for crash performance and energy absorption
- Battery module placement, cooling, and thermal management strategies
- Electrical and mechanical interfaces for efficient integration
- Lightweight materials and composite structures
- Challenges related to maintenance, repair, and recyclability

08:40

Fastener Evolution For Permanent Electrical Contact In Battery Joints With High Thermal And Dynamic Loads

Michael Kaas, EV Sales Engineer, **ATF Inc.**

- Battery joints, where multiple components are interconnected, need to maintain permanent electrical contact under extreme conditions, including high thermal and dynamic loads. In this session, we will explore the evolution of fasteners for battery joints to meet the increasing demands of modern battery systems
- Integration of traditional spring elements into one component, creating a built-in “clamp load sensor” that enables for immediate controllable clampload for known input torque
- Higher clamp load retention after being subject to thermal and dynamic loads
- Creates permanent electrical contact in joints with low surface pressures

09:00

Unveiling The Power Pathway: Mastering The Art Of High-Conductivity Joints: Cell-To-Cell With E-Clinching

Troy Walder, Vice President Sales And Operations, **Tox Pressotechnik USA**

- The intricacies of achieving optimal conductivity through precise material bonding. Advanced techniques aimed at minimizing electrical resistance and heat generation, thus paving the way for heightened vehicle range and operational efficiency
- Gain insights into the sophisticated fusion of aluminum, copper, and other vital metals, facilitating seamless connections for leads and cells while ensuring exceptional conductivity.
- Amplify electric vehicle range by establishing high-conductivity joints that effectively mitigate heat generation
- Grasp the intricate art of harmonizing connections between diverse metals, optimizing conductivity and overall performance
- Embark on a comprehensive overview of the E Clinching methodology, elucidating the intricate process of connecting various components within the battery
- Explore a spectrum of solutions designed to surmount obstacles such as oxide layer intricacies and the persistent threat of contact corrosion.
- Immerse yourself in a curated selection of practical application samples, highlighting the successful integration of these cutting-edge techniques
- Elevate your understanding of conductive connectivity beyond dual-sheet applications, uncovering the potential within multi-layer setups

09:20

Fastening Innovation: Powering Integration, Safety, And Efficiency

Xuzhe Zhao, Application Engineer Leader, **Arnold Fastening Systems**

- Addressing the challenges related to the assembly, mounting, and integration of battery modules
- Overview of the unique challenges related to battery module assembly, mounting, and integration in electric vehicles
- Introducing specialized fastening solutions to ensure robust connections, minimizing the risk of loosening or detachment
- Exploring the impact of vibrations and shocks on battery modules and associated components
- Presenting solutions that address these challenges, such as vibration-resistant fasteners and locking mechanisms, ensuring optimal performance and longevity
- Thermally conductive fasteners, to optimize heat dissipation and maintain optimal operating temperatures
- Addressing the need for streamlined assembly processes to enhance manufacturing efficiency

09:40

Leveraging Laser Technologies For Precise Cell, Pack, And Interconnection Production

- Redefining Precision in Battery Cell Manufacturing: Gain a comprehensive understanding of laser technologies and their transformative role in battery cell production. Delve into laser-based precision cutting, welding, and marking techniques, and explore how they optimize electrode fabrication, material deposition, and overall cell quality
- Revamping Battery Pack Assembly: A Laser-driven Paradigm: Uncover the unparalleled precision and efficiency offered by lasers in battery pack assembly. Dive into the intricacies of laser welding for cell-to-cell interconnections, facilitating robust electrical pathways within the pack. Explore how laser technologies elevate structural integrity and safety standards for battery packs
- Pushing the Boundaries of Interconnection Technologies: Explore the forefront of interconnection technologies revolutionized by lasers. Investigate advanced laser soldering, welding, and ablation techniques, enabling high-speed, high-precision interconnection of battery components. Delve into their impact on performance, reliability, and scalability in battery engineering
- Evaluating the Benefits and Overcoming Challenges in Laser-enabled Battery Manufacturing: Delve into the tangible benefits of incorporating lasers into battery manufacturing processes. Analyze increased production speeds, enhanced quality control, and augmented flexibility as advantages. Delve into the technical challenges surrounding laser integration, including process optimization and system compatibility, and explore viable solutions
- Pioneering Laser-driven Innovations: Charting the Future of Battery Manufacturing: Unlock the horizon of laser-driven battery manufacturing innovations. Explore emerging technologies like ultrafast lasers and additive manufacturing, and their potential to redefine the industry. Examine how lasers catalyze the development of next-generation batteries, including solid-state and advanced energy storage systems

10:00

Morning Networking Break

10:40

Powering Up EVs: Dynamic Solutions For Battery Manufacturing Challenges

- Innovative fire-resistant materials for preventing thermal runaway and propagation
- Advanced insulating solutions to mitigate the risk of short circuits and ensure electrical isolation
- Thermal interface materials (TIMs) and phase change materials (PCMs) for efficient heat dissipation
- Solutions to optimize temperature control within battery cells and packs
- Adhesive and bonding technologies for robust component attachment
- Conductive materials ensuring reliable electrical connectivity across battery systems
- Breakthrough solutions for secure joining of diverse battery components
- Innovative fastening technologies to enhance structural integrity and performance
- Exploring materials with reduced environmental impact across the battery lifecycle

11:00

Navigating Advancements And Challenges In Conductive Electrode Coating For Electric Batteries, Modules, And Packs

Jacob Turner, Scientific Associate in Adhesive Technologies, **Henkel**

- Conductive electrode coating is a critical aspect of electric vehicle (EV) battery technology, impacting performance, efficiency, and safety
- As technology evolves, there are both notable advancements and challenges in this domain:
- Cutting-edge conductive materials powering up electrode coatings for peak battery performance
- Exploring conductivity improvements and their impact on EV driving dynamics
- Innovations in electrode coating thickness precision for optimizing energy density and charging speeds
- The role of nanotechnology in achieving ultra-precise coating uniformity
- Breakthrough techniques ensuring consistent electrode coating thickness across diverse cells and modules
- Addressing performance variations through uniformity in electrode coatings
- Electrode coating's role in stabilizing active battery materials for prolonged cycle life
- Advanced coatings mitigating degradation and enhancing long-term durability
- Advancements in thermal stability through conductive coatings for enhanced heat dissipation
- Mitigating thermal runaway risks with cutting-edge electrode coatings
- Unveiling cost-effective strategies in electrode coating manufacturing
- Addressing challenges in achieving consistent electrode coating thickness at scale
- Conquering complexities in coating multiple electrode layers for advanced battery designs
- Investigating ongoing challenges in electrode coating degradation over charge/discharge cycles
- Addressing the need for extensive testing to validate new coating formulations under real-world conditions

11:20

Unveiling The Synergy: Exploring How Semiconductors Shape The Future Of Electric Vehicle Batteries

Anthony R. Giesey, Senior VP, **Evonomy Group**

- The development of electric vehicle (EV) batteries is heavily influenced by advancements in semiconductor technology, as various electronic components and control systems within EVs rely on semiconductor devices
  Understand the influence of semiconductor innovations on enhancing battery chemistry for improved energy density and charging speed
- Learn about solid-state batteries and how they have the potential to reshape the EV battery landscape
- Explore how semiconductors power advanced Battery Management Systems (BMS) for precise cell monitoring and optimization
- Learn how these technologies enable efficient balancing, prolonging battery life, and enhancing overall safety
- Analyse the role of high-performance semiconductors in efficient energy conversion, motor control, and regenerative braking
- Understand how power electronics contribute to maximizing EV efficiency and range
- Delve into the integration of advanced semiconductors and sensors in thermal management systems to ensure optimal battery temperature
- Learn how real-time thermal regulation enhances safety and performance
- Analyse semiconductor technology advancements driving efficient power conversion and management in high-speed charging systems
- Learn about semiconductor-driven solutions for enhancing EV battery recyclability and sustainable materials

11:40

Igniting Innovation: Unleashing Laser Power In Battery Evolution

Alex Fraser, Vice-président et CTO, **Laserax Inc**

- Exploring lasers diverse applications in electrode fabrication, electrolyte deposition, and even micro-welding of intricate battery components
- Learn how lasers, beyond their traditional roles, enhance precision in bonding and welding processes
- Discover the applications of laser cleaning in removing contaminants for optimized adhesion
- Laser Texturing - Revolutionizing Thermal and Structural Adhesives
- Analyse how lasers are revolutionizing thermal and structural adhesives through precision texturing
- Discover the potential of laser-textured surfaces to enhance adhesion and thermal conductivity
- Laser Marking - Creating Lasting Traceability
- Explore the diverse applications of lasers in creating lasting traceability on battery components
- Laser Welding - Surpassing Ultrasonic Bonding and Resistance Welding
- Discover how lasers are surpassing traditional methods like ultrasonic bonding and resistance welding
- Analyse the advantages of laser welding for intricate battery components and robust joints

12:00

Revolutionizing EV Battery Assembly: Overcoming Adhesive Dispensing Challenges For Enhanced Performance

Mike Thomas, Sr. Director, Business Unit - Industrial Coating Systems, **Nordson Corporation**

- Exploring the unique and intricate challenges associated with adhesive dispensing for electric vehicle (EV) battery cells, modules, and packs
- Discover cutting-edge approaches and technologies to achieve consistent and uniform adhesive dispensing across diverse battery components
- Precision and accuracy, understanding how advanced adhesive application methods are redefining precision in EV battery assembly
- Learn how adaptable adhesive dispensing systems are addressing the variability in EV battery designs, accommodating various cell configurations, module sizes, and pack layouts
- Explore the critical aspect of material compatibility, including the selection of adhesives that harmonize with diverse substrates within EV batteries for robust bonding
- Strategies to ensure adhesives withstand the demanding thermal conditions within EV battery packs, safeguarding structural integrity and performance
- Optimizing adhesive curing times to strike a balance between bond strength and assembly efficiency
- Explore advanced quality control methodologies that scrutinize adhesive bonds, ensuring impeccable performance and safety across EV battery systems
- Explore how the choice of adhesive materials contributes to the environmental sustainability of EV batteries, and learn about the latest eco-friendly adhesive solutions

12:20

Unraveling The Mysteries Of Battery Health: A Journey Into Cutting-Edge SoH Determination And Cell-Level Degradation

- Discover innovative strategies, methodologies, and technologies that are reshaping the way we assess battery health, paving the way for an era of longer-lasting, high-performance EVs
- Complex Degradation Mechanisms: Investigate the intricate factors contributing to battery degradation, encompassing thermal stress, cycling fatigue, voltage fading, and chemical changes that affect capacity and performance
- Multifaceted Degradation Patterns: Delve into the diverse degradation patterns exhibited by various battery chemistries, including lithium-ion, solid-state, and emerging technologies, and learn how they impact SoH determination
- Cell-to-Cell Variability: Address the challenge of cell-to-cell variability, where individual cells within a battery pack may exhibit differing degradation rates, necessitating advanced methods for accurate SoH assessment
- Age vs. Usage Degradation: Understand the distinction between aging-related degradation and usage-induced degradation, and how separating these factors is crucial for precise SoH estimation
- Nonlinear Degradation Behavior: Explore how degradation doesn't follow a linear path, and discover strategies to model and predict

degradation trends that may vary over time and under different operating conditions
- Diagnostic Techniques: Delve into cutting-edge diagnostic techniques such as electrochemical impedance spectroscopy, ultrasonic imaging, and AI-based algorithms that provide deep insights into cell health and degradation
- Data Complexity and Processing: Navigate the complexities of handling vast amounts of battery data collected over time, and how to extract meaningful insights to accurately determine SoH
- SoH Estimation Algorithms: Uncover the development of sophisticated algorithms that combine various data sources, including voltage, current, temperature, and impedance, to estimate SoH with higher accuracy
- In-Situ and Ex-Situ Testing: Explore the benefits and challenges of in-situ and ex-situ testing methods for monitoring battery degradation, including their impact on real-world applications
- Safety Implications: Recognize how accurate SoH determination contributes to EV safety, as degradation can lead to unexpected failures and pose risks to both drivers and passengers

12:40

Revolutionizing EV Battery Performance Through Dynamic Pack-Level Thermal Simulations

- Discussion of unique considerations in modeling thermal interactions within multi-cell battery packs
- Exploration of challenges related to heat distribution, temperature gradients, and localized heating
- In-depth analysis of heat transfer mechanisms within battery packs
- Simulation-driven insights into various cooling techniques: liquid cooling, air cooling, and phase change materials
- Presentation on leveraging simulations to optimize cooling system designs
- Case studies showcasing how thermal optimization leads to improved battery efficiency and longevity
- Exploring the role of simulations in predicting and mitigating thermal runaway events
- Demonstrating how early detection using simulations enhances EV battery safety
- Analysis of how battery arrangement affects heat distribution and temperature uniformity
- Simulation-based assessment of different battery pack layouts for optimal thermal performance
- Discussion of methodologies to validate simulation results against real-world data
- Exploring strategies to calibrate models for accurate representation of thermal behavior
- Insights into the role of simulations in meeting regulatory standards and performance targets

13:00

Adaptive Pack Design: Modular Solutions For Harmonious Vehicle Integration

Karl Plattenberger
Chief Engineer Powertrain & Thermal Systems,
Mahindra Automotive North

14:00

Adaptive Pack Designs: Modular Solutions For Harmonious Vehicle Integration

- Architectural Agility: The Essence of Adaptive Pack Designs
- Introducing the concept of flexible pack designs that transcend vehicle boundaries
- The role of modular solutions in accommodating various vehicle architectures
- Modularity Unveiled: Designing for Scalability and Customization
- Diving into the principles of modularity in battery pack design
- Showcasing how scalable solutions simplify adaptation to different vehicle sizes and layouts
- A Symphony of Components: Modular Building Blocks
- Exploring the building blocks of modular pack designs
- Insight into adaptable cell arrangements, cooling modules, and electronic components.
- Innovations in layout, stacking, and compact design strategies
- The Power of Replicability: Enabling Vehicle Family Harmony
- How modular packs enable streamlined production across multiple vehicle models
- Leveraging common pack components for cost-effectiveness and efficiency
- Integration Elegance: Seamlessly Merging with Vehicle Architecture
- Showcasing case studies of how modular packs harmonize with different vehicle structures
- Achieving an integrated appearance without compromising pack efficiency
- Scalability and Beyond: Challenges in Design and Manufacturing
- Navigating the challenges of maintaining performance while scaling designs
- Balancing production efficiency, customization, and quality

14:20

How To Improve Energy Density Of Pack

Harmanpreet Singh, Senior Battery Mechanical Engineer, **Monarch Tractor**

- **Exploring Complexities:** Understanding the intricate landscape of Battery Management Systems (BMS) design and integration for electric vehicles (EVs)
- **Key Challenges:** Uncovering the major hurdles faced by engineers and experts, including cell variability, safety in high voltage environments, and thermal management
- **Algorithms for Efficiency:** Learning about the development of sophisticated algorithms for tasks such as cell balancing, state of charge estimation, and predictive health analysis
- **Integration Strategies:** Discovering strategies for seamless integration of BMS systems with diverse vehicle components, while addressing electromagnetic interference (EMI) concerns
- **Scalability and Flexibility:** Understanding the delicate balance between system robustness, performance, and adaptability to different battery chemistries and configurations
- **Data Processing Insights:** Gaining insights into efficient data processing, storage, and communication methods that offer real-time insights without compromising the system
- Future Directions: Exploring the evolving landscape of BMS design in the context of the rapidly advancing electric vehicle industry

14:40

Battery Diagnostics: Powering Electric Vehicle Performance

- Optimal Performance Assurance: Understand how battery diagnostics contribute to ensuring optimal operation, safety, and lifespan of EV battery packs
- State of Charge and Health Estimation: Learn about estimating remaining energy and battery condition
- Cell Balancing Strategies: Discover methods to balance charge levels across battery cells for enhanced capacity and longevity
- Temperature Management: Explore how diagnostics manage thermal conditions to prevent overheating
- Anomaly Detection: Understand the detection of abnormal conditions that could affect battery performance and safety
- Data-driven Insights: Delve into the importance of data collection, analysis, and trends to assess battery health and make informed decisions
- Predictive Maintenance: Discover how diagnostics enable proactive maintenance and replacement by predicting potential issues
- Shaping Electric Mobility: Gain an understanding of how battery diagnostics are shaping the future of electric mobility through increased efficiency and sustainability

15:00

Maximizing Performance Without Compromising Safety In Evolving Li-ion Battery Designs

- **Enhanced Performance, Evolving Risks:** Explore how the growing performance of Li-ion batteries brings both advancements and new challenges related to thermal runaway and safety considerations
- **Balancing Performance and Safety:** Delve into the complex interplay between increased battery performance and the potential impact on safety measures, aiming to strike the right balance
- Heat Generation and Mass Ejection Correlations: Gain insights into the research focused on understanding the relationships between heat generation and mass ejection during thermal runaway events
- **Challenges and Outliers:** Understand the persistent challenges in determining whether heightened battery performance affects safety, including the causes and implications of outlier cases
- **Cutting-edge Research:** Discover the latest advancements in uncovering the connections between battery performance, safety risks, and the intricate dynamics of thermal runaway
- Implications for Design and Development: Gain valuable knowledge about how the findings influence the design and development of future Li-ion battery technologies, with a keen focus on safety enhancements

15:20

Navigating The Fast Lane: Engineering Solutions For Challenges In Fast And Ultra-Fast EV Battery Charging

- Exploring the design and engineering considerations essential for accelerating EV battery charging while ensuring safety, performance, and sustainability
- **Unveiling the Roadblocks:** Key Challenges in Fast and Ultra-Fast Charging
- Introduction to the complexities posed by rapid charging demands
- Highlighting the critical challenges of heat management, degradation, and safety

- **Heat Management:** Cooling Strategies to Tackle Thermal Stress
- Deep dive into managing heat generated during fast charging
- Innovative cooling solutions to prevent thermal degradation and maintain optimal battery temperature
- **Power without Pain:** Balancing Battery Degradation and Performance
- Exposing the correlation between charging speed and battery lifespan
- Engineered materials and chemistries that withstand high charging rates while minimizing degradation
- **Voltage Vortex:** Overcoming Voltage Stress in High-Power Charging
- Navigating the complexities of high voltage stress during ultra-fast charging
- Design considerations for cells and packs that can handle increased voltages safely
- **Safety Systems:** Harnessing Technology to Ensure Charging Security
- Showcasing technologies to prevent thermal runaway and safety incidents
- Advanced safety mechanisms and rapid shutdown strategies
- Revamping Charging Infrastructure: Engineering Compatibility
- Aligning battery capabilities with existing and future charging infrastructure
- Developing standardized protocols for fast charging interoperability
- **Size Matters:** Pack Design for High-Power Charging
- Crafting battery packs to accommodate high currents and maintain efficiency.
- Optimizing energy density, power density, and thermal considerations
- **The Price of Progress:** Cost-Effective High-Power Solutions
- Analyzing cost implications of incorporating fast charging technologies
- Striking a balance between performance improvements and cost-effectiveness

15:40

Innovations In Battery Thermal Management: Degradation Modeling and Machine Learning Integration

- Unveiling cutting-edge advancements in battery thermal management that leverage degradation modeling and machine learning integration
- Predicting Battery Degradation Through Thermal Stress Modeling
- Exploration of how simulation tools predict battery degradation linked to thermal stress
- Unveiling the intricate relationship between temperature fluctuations and battery lifespan
- Designing Robust Thermal Management for Enhanced Battery Longevity
- Showcasing how manufacturers employ degradation modeling for improved thermal system design
- Insights into minimizing degradation and extending battery life through advanced thermal management
- Harnessing the Power of Machine Learning in Thermal Management
- Journey into the fusion of simulation and machine learning for intelligent strategies
- How machine learning adapts to real-time vehicle data, optimizing thermal management for performance and safety
- Real-Time Adaptability: Machine Learning-Driven Thermal Management
- Real-world case studies demonstrating machine learning's role in dynamic thermal adjustments
- Illustration of how on-the-fly changes enhance performance and ensure battery safety
- Symbiosis of Degradation Modeling and Machine Learning
- Exploring the synergy between degradation modeling and machine learning
- How these technologies together redefine thermal management strategies

16:00

Unleashing The Potential: Innovations In Powder Coating For Enhanced BEV Component Performance

Kevin Hales, Automotive Innovation Manager – Powder Coatings, **Akzonobel**

- **Advancements, Applications, Performance, and Environmental Benefits of Powder Coating in BEV Components:**
- **Challenges and Considerations in Powder Coating for BEV Components:** Gain valuable insights into the unique challenges faced when powder coating BEV components. From intricate designs to specific material requirements, learn how industry experts tackle these challenges head-on to achieve flawless results
- **Future Trends and Opportunities in Powder Coating for BEV Components:** Get a sneak peek into the future of powder coating for BEV components. Discover emerging trends and explore the vast opportunities that lie ahead in this rapidly evolving field, opening new horizons for innovation
- **Analyzing Protective Properties:** Delve into the critical role of powder coating in providing an insulating layer for battery packs. Learn how these coatings effectively mitigate the risk of electrical system failures and prevent heat build-up in batteries, ensuring optimal safety and performance
- **Unveiling Unrivaled Insulation:** Unlock the secrets behind powder coating's exceptional electrical insulation properties for BEV components, including cylindrical and prismatic cell surfaces. Discover the high dielectric strength, extraordinary adhesion performance, and exceptional thermal shock resistance that empower even the most intricate designs

16:20

Dialogue And Discovery: Engaging Perspectives And Networking

17:00

Exploring A Sustainable Loop: Analysing The Growing Trend Of Battery Recycling Techniques, Technologies, And Cost Considerations

Victoria Korbonits, Director of Business Development, **Botree Recycling Technologies**
Xiao Lin, Founder, CEO, **Botree Recycling Technologies**

- **Learn the Booming Trend:** Understand why battery recycling is emerging as a major trend in the industry, with numerous players investing and assessing its potential
- **Diving into Crucial Questions:** This presentation and interactive discussion delves deep into pivotal questions currently on the minds of OEMs and Cell Suppliers
- **Discover Different Recycling Techniques:** Analyse various recycling techniques and types of recycling facilities, evaluating their efficacy and environmental impact
- **Technologies Driving Recycling:** Explore the technologies available for battery recycling and how they contribute to the sustainable reuse of materials
- **Cost Insight:** Gain insights into the expected costs associated with battery recycling and how these costs are factored into the broader ecosystem
- **Recycling's Financial Benefits:** Learn how recycling offers financial advantages by exploring the costs, returns, and the overall raw material cycle.
- **Structuring for Recyclability:** Understand how battery design and structure influence recyclability, fostering a circular approach to battery manufacturing
- **Nurturing Lithium-Ion Innovators:** Analyse strategies for engaging with innovators in lithium-ion cell recycling, driving advancements in the recycling sector
- **Efficiency and Sustainability:** Discover methods to enable efficient and environmentally friendly disassembly of battery packs, ensuring sustainable recycling processes
- **Collective Industry Action:** Explore collaborative initiatives within the industry aimed at introducing effective and widespread battery recycling practices

17:20

Unlocking Value: Deep Dive Into Efficient Second-Life Usage Of Electric Vehicle Batteries

Jan Born, CTO & Co-Founder, **Circumonics GmbH**

- **Exploring Repurposing Possibilities:** Analyse the diverse applications where repurposed EV batteries find new life, from energy storage to grid balancing
- **Maximizing Residual Capacity:** Deep dive into the ways repurposed batteries leverage their residual capacity for sustained functionality in various roles
- **Energy Storage Solutions:** Learn about repurposed batteries' pivotal role in energy storage systems, contributing to grid stability and renewable integration
- **Renewable Energy Harmony:** Discover how second-life EV batteries harmonize with renewable energy sources, reducing intermittencies and ensuring reliability
- **Backup Power Applications:** Learn how repurposed batteries serve as reliable backup power sources during grid outages or emergencies
- **Efficiency for Charging Infrastructure:** Analyse how repurposed batteries optimize EV charging infrastructure, managing peak loads and demand charges
- **Empowering Remote Areas:** Deep dive into the role of repurposed batteries in providing cost-effective energy solutions for remote and off-grid areas
- **Safety and Reliability:** Understand the challenges and solutions in ensuring the safety and reliability of repurposed batteries in new applications
- **Towards Sustainability:** Analyse the alignment of efficient second-life usage with circular economy principles, fostering a more sustainable future
- What steps can be taken to make the battery management system accessible by the second use recyclers?
- Under which circumstances does a second life application make sense from a technical and financial standpoint?
- Insurance and warranting of second life packs

17:40

Breaking The Cycle: Unraveling The Cell Type Impact On Lithium-Ion Battery Recycling For Electric Vehicles

- Delve into the influence of cell types on the recycling process of lithium-ion batteries for electric vehicles (EVs). As the demand for sustainable transportation continues to rise, efficient battery recycling becomes paramount
- Explore the critical role that cell types play in the recycling process and uncover innovative approaches to maximize resource recovery and minimize environmental impact
- Unravel the complex relationship between cell types and the recycling process of lithium-ion batteries
- Discover how the design, composition, and chemistry of battery cells impact their recyclability and explore the challenges and opportunities associated with different cell types, such as cylindrical, prismatic, and pouch cells
- The specific factors that influence recycling efficiency, including cell geometry, electrode materials, and battery management systems
- Examine emerging recycling technologies and methodologies tailored to address the unique characteristics of each cell type, promoting a more circular economy for EV batteries

18:00

[Panel] Revolutionizing Electric Vehicles: Unleashing The Power Of Solid State Batteries

Sumin Zhu, Amphcera
Sankar Nallapati, GM
Harmanpreet Singh, Monarch Tractor

- Pushing the Boundaries of Solid State Batteries: Overcoming Energy Density Challenges for EV Applications
- Discover the critical challenge of ionic conductivity in solid electrolytes. Learn how researchers are exploring novel compositions and advanced fabrication techniques to enhance ionic conductivity while ensuring structural stability, overcoming limitations in power output and charge/discharge rates
- Uncover the challenge of ionic conductivity in solid electrolytes. Explore innovative approaches to enhance conductivity while maintaining structural stability, overcoming limitations in power and charge/discharge rates
- Overcome scalability challenges in Solid State Battery manufacturing. Explore innovative roll-to-roll and solution-based techniques to achieve mass production and cost competitiveness in the EV market
- Prioritize safety and reliability in EV applications. Explore how Solid State Batteries improve safety compared to liquid electrolyte batteries. Address concerns like dendrite formation, thermal management, and mechanical stress to enhance battery reliability

18:40

Pioneering Fast Charging Revolution With CATL's Breakthrough Shenxing Battery

- **Session Overview:**
- Discover a groundbreaking conference session that unveils the future of electric vehicle (EV) battery technology with CATL's game-changing Shenxing battery. Fast charging has taken a transformative leap in sustainable transportation, erasing range anxiety and revolutionizing EV adoption. This session delves into the extraordinary advancements that the Shenxing battery brings, reshaping the landscape of EV charging and positioning emission-free transportation as an accessible reality.
- **Session Highlights:**
- **Fast Charging Transformation:** Explore the paradigm shift in sustainable transportation with CATL's Shenxing battery, revolutionizing EV fast charging and alleviating range anxiety
- **Elevating Practicality:** Delve into the impact of dramatically reduced charging times on daily EV use, making it more convenient and practical for everyday journeys
- **CATL's Shenxing Battery:** Uncover the technological marvel that is the Shenxing battery, equipped with a 4C superfast charging solution that redefines EV charging speeds
- Advancements in Battery Technology: Understand the underlying advancements in electrochemistry, material innovation, and system structure that enable the Shenxing battery's breakthrough performance
- **Addressing Charging Challenges:** Explore how the Shenxing battery rises to challenges, maintaining fast charging speeds even at low temperatures, ensuring safety, and enabling 80% SOC charge in just 10 minutes
- **Safety at the Core:** Gain insights into the integrated safety features, upgraded electrolytes, coated separators, and real-time fault testing algorithms that ensure a secure fast charging experience
- **Global EV Battery Market Trajectory:** Explore the exponential growth of the EV battery market, as industry leaders push the boundaries of efficiency, safety, and performance, transforming the future of sustainable transportation

19:00

Chairs Closing Remarks | Interactive Exploration: Engaging Audience Insights And Collaboration

Bob Galyen, rt. CTO **CATL** & Chairman **NaatBatt**

19:20

All Attendee Evening Drinks Reception

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Past Attendees

Chief Engineer – Battery Electric & Plug-In Hybrid Vehicles, Chief Engineer, Electrified Propulsion System, **Chief Engineer,** Electrical System, Head, **EV Engineering Systems,** Head of Vehicle Electrification Technology, **Head of Hybrid and EV Battery System,** Chief Scientist, **Energy and Systems,** Head of Vehicle Architecture, **Head of Systems and Control Engineering,** Electrification Project Engineer, **Head of Research,** Materials and Manufacturing, **Group Product Director Hybrid and Electric Systems,** Lead Engineer, **Electrical Systems Engineering,** Lead Engineer, **Electrified Powertrain,** Head of Body Structures/Body in White, Battery Electric Vehicle Global Lead Engineer, **Global Battery Systems Engineering,** Battery Research Engineer, **Technical Manager – Innovation Management,** Chief Engineer & Technical Leader – Energy Storage & Systems

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- Battery Management Systems
- Battery Safety
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- Battery Components
- Battery Pack Assembly / Integrator
- Adhesives, Sealing & Bonding
- BEV Architectures
- Material Suppliers
- Joining Technologies & Solutions
- Battery Pack Design & Material
- Battery Assembly
- Battery Materials
- Powder Coatings
- Cabling & Connectors
- Cells & system
- Battery Applications
- Battery Manufacturers
- Battery Components
- Battery Assembly
- Sustainable Lightweight Solutions
- Battery Second Life Opportunities
- Beyond Li-ion
- Solid-State Batteries
- Testing Solutions
- Pressure Sensitive Adhesives &Tapes
- Battery Manufacturing
- Renewable Energy Systems
- Simulation & Modelling
- Recycling Li-ion Batteries
- Battery Charging / Fast Charging Battery Components
- Gap Fillers
- Electrification of The Off-Road Vehicle Market
- Battery & Fuel Cell Development
- Electric Systems Development
- Advanced Engineering
- Technology Solutions
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- Liquid Systems
- Sealing Systems
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xEV CONFERENCE & EXPO | SERIES

For full details, please contact the Team

Email: info@we-automotive.com **Call:** US +001 (313) 799 2911 EU +44 7932 631 029

SELECT YOUR BOOTHS POSITION NOW!

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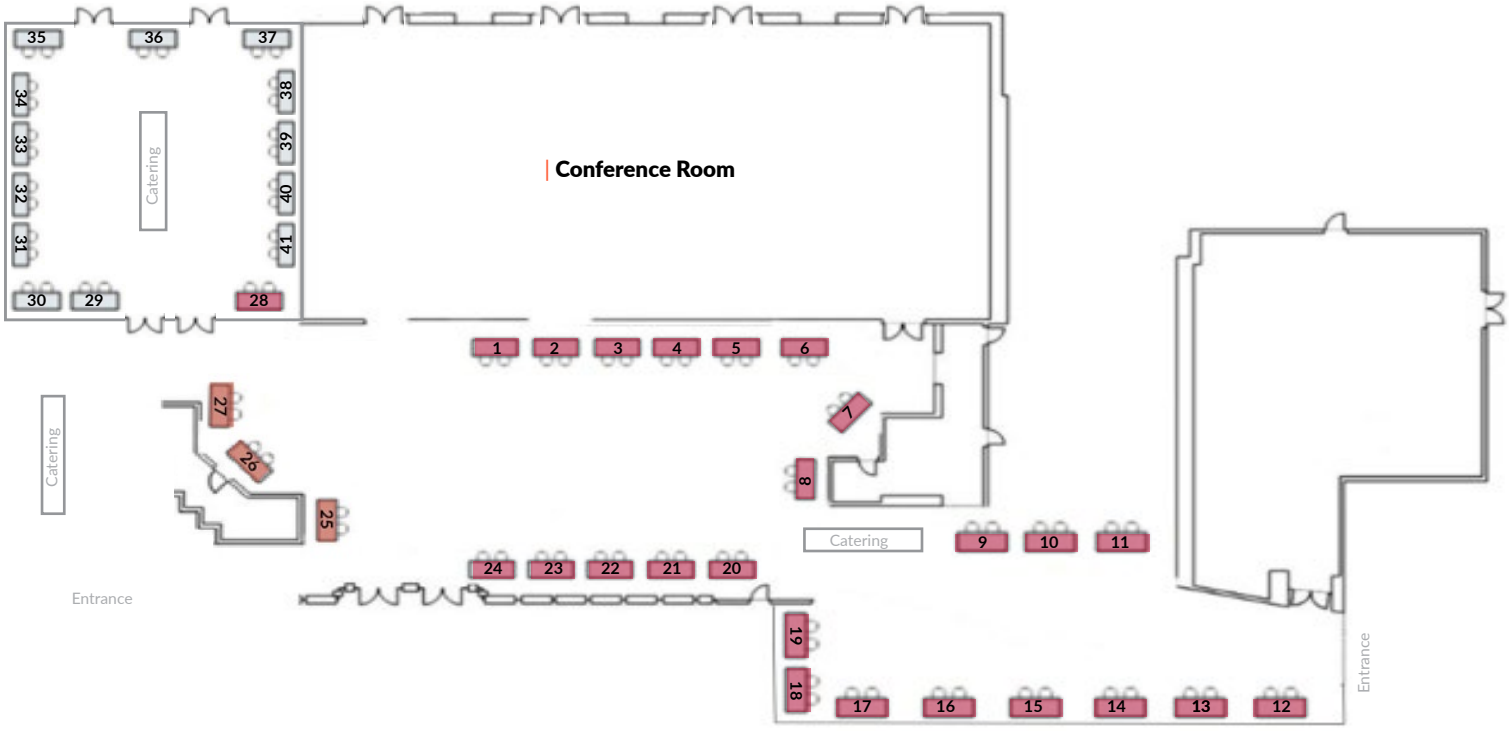
Floor Plan



1	Henkel	9	LASERAX	17	AdvanTech	25	BUILDING TRUST Sika	33	41
2	Henkel	10	Chroma	18	bdtronic	26	Nordson	34	
3	ARNOLD BlueFastening Systems	11	circunomics	19	DUPONT	27	Lubrizol	35	
4	Parker Lord	12	RAMPF discover the future	20	EJOT ATF	28	EVONIMY Electrification, AI, Connectivity	36	
5	Parker Lord	13	intertek Total Quality. Assured.	21	EJOT ATF	29		37	
6	TOX PRESSOTECHNIK	14	ING	22	AkzoNobel	30		38	
7	NEOGRAF SOLUTIONS	15	ITSO "Its Cooling" STANLEY Engineered Fastening	23	POLY-NOVA north america	31		39	
8	ELANTAS	16	SEKISUI	24	ENGINEERED FLUIDS	32		40	

NOVEMBER 9-10TH

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REDUCED COST | SYSTEM INTEGRATION | INCREASING POWER | IMPROVED PERFORMANCE | BATTERY EFFICIENCY | INCREASED RANGE | FAST CHARGING | IMPROVED SAFETY | BATTERY HEALTH

EARLY BIRD RATE
OEM RATE $600 USD

- Prices include food & beverages, morning breakfast & coffee
- Networking breaks, coffee and snacks. Hot buffet luncheon
- Afternoon coffee break including soft drinks & snacks
- All attendee evening drinks reception – open bar

EARLY BIRD RATE
SUPPLIER RATE $1,000 USD

- Prices include food & beverages, morning breakfast & coffee
- Networking breaks, coffee and snacks. Hot buffet luncheon
- Afternoon coffee break including soft drinks & snacks
- All attendee evening drinks reception – open bar

STANDARD RATE
OEM RATE $800 USD

- Prices include food & beverages, morning breakfast & coffee
- Networking breaks, coffee and snacks. Hot buffet luncheon
- Afternoon coffee break including soft drinks & snacks
- All attendee evening drinks reception – open bar

STANDARD RATE
SUPPLIER RATE $1,300 USD

- Prices include food & beverages, morning breakfast & coffee
- Networking breaks, coffee and snacks. Hot buffet luncheon
- Afternoon coffee break including soft drinks & snacks
- All attendee evening drinks reception – open bar

PRIORITY BOOKING NOW OPEN!

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