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NA's largest gathering of battery designers, engineers and senior executives focus on xEV Advanced Battery Technology at **North America's largest technical conference and exhibition for battery technology professionals** – where experts will engage during a series of case study presentations, interactive panels, and unparalleled networking opportunities

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DAY 1 | 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.

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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 | 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 2024

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



DAY 1 | xEV Battery Thermal Management

Next-Generation Battery Thermal Management Systems And Technology

08:15

Registration | Breakfast Reception

09:00

Chairs Opening Remarks |

Optimizing The Whole Vehicle Architecture At A System Level

Bob Galyen, rt. CTO CATL &
Chairman NaatBatt

In the Chair's Opening Remarks, we'll delve into the thrilling world of optimizing whole vehicle architecture at a system level. Discover emerging design philosophies tailored to various B.E.V. classes, and witness the transformative impact on overall vehicle design, including cutting-edge battery pack integration and thermal optimization strategies. Uncover the secrets to seamlessly incorporating cost optimization into your vehicle concept, paving the way for more affordable B.E.V.s. Get set for electrifying discussions on battery pack integration, thermal wizardry, and multi-function component integration.

09:20

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

Nathan Saliga, Chief Engineer,
ONE | Our NextEnergy

Your gateway to pioneering system-level strategies that promise to revolutionize the B.E.V. industry. In this session, we will unravel the complexities of cost savings while simplifying the intricacies of thermal management. Gain profound insights into the cost and complexity challenges that B.E.V. engineers face and discover the art of harmonizing system design, component selection, manufacturing processes, and their cost implications. Join us in identifying key pain points and unlocking remarkable opportunities for advancement.

09:40

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

Tim Vokes, Applications Engineering Manager,
Parker Lord

Delve into the identification of safety hazards and cutting-edge material solutions that will redefine the EV safety landscape. Gain a deep understanding of the causes of thermal runaway and thermal runaway propagation, while discovering how recent global developments have transformed the thermal risk landscape. Explore

an array of thermal management materials and dielectric coatings that guarantee safe battery operation, and delve into the world of intra-cell, module, and pack solutions, redefining battery safety during thermal events.

10:10

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

Bret Trimmer, Application Engineering
Manager, Neograft Solutions

In this session, we'll unveil the pivotal role of thermal management in unlocking faster charging, extended range, and preventing propagation issues. Explore the challenges and opportunities that lie ahead, as we delve into cutting-edge technologies, strategies, and best practices that promise to optimize thermal performance in EVs. Discover the key factors that dictate how quickly EVs can be charged and unravel the secrets to maximizing driving range through innovative thermal management materials. With a focus on controlling thermal runaway and its impact on cell cycle lifetime.

10:30

Immersion Cooling Battery Solution And Real-World Application

Franklin Huang, Business Development
Manager, XING Mobility

Explore the remarkable immersion cooling innovations by XING Mobility and uncover why it's a game-changer for the EV industry. Discover the secrets behind XING Mobility's triumphant Start of Production (SoP) immersion-cooled battery pack and its real-world application. Get ready to venture into XING's ongoing developments and catch a glimpse of what's on the horizon. Don't miss this exclusive opportunity to be a part of the Immersion Cooling technology revolution with XING Mobility.

10:50

Morning Networking Break

11:20

Innovative Elastomers: Elevating EV Sealing For Safety And Performance

Rick Valeriote, Chief Operating Officer,
Poly-Nova Technologies

Explore the development, rigorous testing, and astounding performance results of Poly-Nova's revolutionary Tektrasil material – a multi-functional elastomer that's set to revolutionize EV engineering. Uncover the magic of Tektrasil, a material that effortlessly tackles sealing performance and critical fire safety challenges. Brace yourself for enhanced safety as Tektrasil defies 1,200°C flames for over 30 minutes,

drastically reducing the risk of thermal incidents. Marvel at its superior sealing and NVH properties, ensuring long-term reliability and critical component protection. With limitless design possibilities and versatile applications, Tektrasil empowers engineers to shape the future of EVs.

11:40

Fluids Of The Future: Selecting The Perfect Cooling Medium

Gary Testa, CEO, Engineered Fluids

Simplified approaches that untangle system complexities, empowering manufacturers with seamless implementation strategies. Witness the resolution of thermal uniformity and hotspot challenges, achieved through cutting-edge techniques and innovations that redefine thermal management in large or densely packed battery modules. Explore the latest fluid selections, balancing thermal conductivity, compatibility, environmental considerations, and cost-effectiveness to unleash optimal performance. Discover the art of ensuring longevity, reliability, and adherence to safety standards through fluid monitoring, purification, and replacement best practices. Learn how immersion cooling is not just a smart investment but also the key to cost-effectiveness and remarkable ROI.

12:00

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

Thomas Clark, NA Battery Technology Leader,
DuPont

Explore the evolving realm of battery pack designs and how they've sparked material requirement transformations. This session will unveil the pivotal role that adhesives will play in next-generation battery packs, including strategies for durable pack assembly using bare metal and high-dielectric materials. Discover the intricate science of cure kinetics for high-volume manufacturing and the profound impact of adhesives on end-of-life planning.

12:20

New Process Solutions For Battery Systems Manufacturing

Wim Dexters, Sale Engineering Director,
bdtronic, Americas

In this session, we'll delve into the intricate manufacturing processes for batteries and transformative technologies. Explore the challenges surrounding dispensing thermal materials, handling varying shot sizes, and much more. Witness the paramount significance of surface pre-treatment in battery applications, unlocking the potential for unprecedented performance. Dive into the world of heat staking and the critical need for impeccable process control to achieve consistency and robust rivets.

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12:40

Simplification Through Integration: Unifying Thermal Management Systems

Karl Plattenberger, Chief Engineer- Powertrain and Thermal Systems

Explore the transformative impact of integration in simplifying EV thermal management, reducing complexity and costs. Delve into ingenious strategies for consolidating multiple thermal management components into cohesive systems that redefine efficiency. Uncover the remarkable benefits of integrated solutions, including combined cooling and heating systems, streamlined control architectures, and a significant reduction in component count; offering a glimpse into a future where simplicity and integration reign supreme!

13:00

Network Lunch Break

14:00

Material Innovations: Driving Cost Reduction And Performance Enhancement

Kai Becker, Global Application Leader, Ascend Performance Materials

This groundbreaking session will unveil the limitless potential of cutting-edge materials for battery thermal management. Discover game-changing, cost-effective materials that not only supercharge thermal conductivity, insulation, and durability but also pave the way for enhanced performance and unwavering reliability in battery electric vehicles. Join us in shaping the future of EV engineering through ingenious material selection and optimization.

14:20

Unlocking The Power Of High-Temperature Battery Design For Tomorrow's Energy Solutions

Eric Rountree, CEO, EC Power

The future of energy storage as we delve into the groundbreaking realm of high-temperature battery design. We will uncover the myriad benefits of intentionally running batteries at elevated temperatures. From enhancing safety protocols to prolonging battery lifetime, from turbocharging charging speeds to revolutionizing battery pack design – discover how high-temperature cell design is poised to reshape the energy landscape. We will also unveil innovative approaches like thermally modulated cells, simplifying the logistics of high-temperature operations. Join us on a journey into the future of batteries, where temperature is the key to unlocking unprecedented performance and efficiency.

14:40

Optimizing Total Cost Of Ownership Of EV Battery Test Facilities

Jim Duffy, Business Development Manager, Keysight Technologies

We will journey into the heart of the electric

vehicle revolution, where automakers and battery manufacturers are confronted with the urgent need to create swift, reliable products. As we venture into uncharted territory, we'll uncover groundbreaking strategies to conquer the challenge of managing energy consumption, pushing the boundaries of grid power limits. The key to reducing investment and operational costs lies in embracing flexible and innovative testing approaches. Join us in this electrifying exploration, where innovation meets efficiency, and the future of EV engineering is redefined, promising cost-effective, high-performance solutions for tomorrow's electric vehicles!

15:00

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

Brian Engle, Business Development Manager, Amphenol Advanced Sensors

Buckle up for a thrilling exploration of achieving "Robust Early Detection of Thermal Runaway" in lithium-ion battery technology, where we'll unravel the intricacies of battery failure physics and chemistry while uncovering the dangers of damaged battery systems. Discover the groundbreaking means of reliably detecting the critical moment when a damaged battery cell vents. Dive into the latest trends in xEV, EVSE, and ESS thermal system design, unveiling design features that ensure durability and precision in thermal management systems, including cutting-edge methods like immersion cooling and heat pump systems. This presentation will leave you equipped with the knowledge of essential sensing points within typical systems, while also addressing the environmental and communication constraints that drive innovative design choices.

15:20

Enhancing EV Charging Station Reliability With Conformal Coatings

Scott Stephan, Director – Electronic Business Line, ELANTAS PDG, Inc.

The electric vehicle (EV) market's explosive growth has highlighted the urgent need for dependable and durable charging infrastructure. However, as they work to create and manufacture products that can endure the rigors of outdoor exposure, extreme environmental conditions, high power needs, and complex communication systems, electric vehicle charging station providers face a variety of hurdles. To overcome these difficulties and ensure the durability and effectiveness of EV charging stations, this discussion offers a thorough plan that makes use of conformal coatings.

15:40

Afternoon Network Break

16:20

Leveraging Advanced Thermal Management For Enhanced xEV Battery Performance

Adrian Serna, Business Development Manager, AdvanTech International

As we set our sights on achieving unprecedented performance and extended range, you'll be at the forefront of cutting-edge battery technology. Discover how innovative thermal management strategies are poised to break barriers and address industry challenges head-on. Delve into the pivotal role of heat management in xEV batteries, unraveling the impact of temperature fluctuations on performance and longevity. With an exploration of advanced cooling techniques, including liquid cooling, phase change materials, and active thermal management systems, we'll show you how maintaining optimal battery temperatures is the key to mitigating thermal runaway risks, ensuring vehicle and passenger safety. Get ready to unlock the secrets of precise temperature control, leading to higher energy density, improved charging efficiency, and an extended driving range.

16:40

Mastering Battery Balance: Simplified And Cost-Effective Solutions

Clint O'Conner, Co-Founder, True Balancing LLC

In this session, we'll dive deep into the intricacies of battery balance, uncovering the common causes and consequences of out-of-balance conditions. You'll discover the pivotal role that balance plays in elevating battery performance and lifespan. We'll unveil cutting-edge Battery Management System (BMS) technologies designed to monitor and maintain balance, presenting state-of-the-art methods and tools for precision balance management. Explore ingenious, cost-efficient strategies and techniques to tackle battery imbalance, while discussing the economic advantages of proactive balance maintenance. Witness the future with automated systems for real-time balance correction and diagnostic tools for assessing balance, all as we unravel the intricate relationship between balance and battery longevity. Join us in this thrilling session and be inspired by real-world case studies showcasing successful, cost-effective balance solutions that are destined to revolutionize electric vehicle engineering!

17:00

Battery Coolants: Moving Beyond Base Oil

Andy Richenderfer, Senior Research Engineer, Lubrizol

Battery coolants: the transition from conventional base oils to Evogen formulated fluids. Delve into an in-depth understanding of these coolants and the distinction between base oils and formulated fluids. Highlight the transformative potential of Evogen formulated fluids in the realm of battery thermal management, particularly in their role in enabling XFC (eXtreme Fast Charging) capabilities. Explore how the application of these formulated fluids serves as a pivotal strategy in averting the propagation of battery thermal runaway, which is a critical concern in the electric vehicle industry. A special focus will be directed towards Battery Electric Vehicle (BEV) design considerations that leverage direct immersion as a cooling method, unearthing promising opportunities for enhanced thermal management. Grasping the fundamental distinctions between base oils and formulated fluids, appreciating the advantages of Evogen formulated fluids in advancing battery thermal management and XFC, and comprehending how direct immersion cooling can be strategically integrated into BEV design for optimal performance and safety.

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17:20

Battery Safety - An Agnostic Approach Detecting Thermal Runaway

Jared Keyes, Global Application Engineering leader, **Honeywell**

This session will demystify thermal runaway and its stages, providing a comprehensive understanding of this critical issue. Get ready to be introduced to cutting-edge Honeywell solutions, including the BAS (Battery Aerosol Safety Sensor) and BPS (Battery Pressure Safety Sensor), set to redefine safety standards. We'll delve into lab testing and the crucial role of regulation enablement, paving the way for a safer electric vehicle landscape. Join us in exploring the future of battery safety, as we unravel innovative solutions that promise to revolutionize the world of electric vehicle engineering.

17:40

Revolutionizing Battery Systems: Innovative Bonding And Sealing Technologies For Sustainable E-Mobility

Martin Zäch, Global Technology Manager Battery, **SIKA**

Adam Halsband, Manager Director, Forward Engineering

This session promises to unveil groundbreaking bonding technologies that offer speed, flexibility, and tailor-made processing solutions, revolutionizing the industry. With a multi-material approach, we'll tackle the ever-changing landscape of e-mobility battery systems, focusing on bonding, sealing, and thermal management integration. Delve into the interplay between adhesive properties and substrates, highlighting

cold curing assembly with lightweight and mixed material substrates. Witness the development of products with a strong sustainability focus, ensuring they meet End-of-Life recycling and reparability requirements. Join us as we explore simulation-driven design for high voltage battery systems and multifunctional thermal conductive structural adhesives, all while addressing the demands of new sustainability and end-of-life requirements.

18:00

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

Kevin Wood, Scientist, Professor, Inventor, Strategist, and Entrepreneur in Energy Storage, **Voltaiq**

In this session, we'll delve into the rapid evolution of cylindrical battery cells and their pivotal role in reshaping the landscape of EV and ESS performance. As energy densities surge, the demand for efficient thermal management has never been greater to ensure safety, longevity, and optimal functionality.

Join us as we uncover the distinctive thermal challenges of next-gen cylindrical cells, grasp the dynamics of efficient heat dissipation, and master strategies to prevent thermal runaway events. Explore a world of innovative cooling approaches, harness adaptive thermal management systems, and discover material innovations that promise enhanced heat transfer. We'll compare active and passive cooling methods and delve into the integration of thermal sensors. Witness the optimization for extended cylindrical cell lifespan and the commitment to regulatory compliance and safety. Gain valuable insights into future-proofing thermal management, where innovation is the driving force

18:20

Chairs Closing Remarks

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

18:40

BUILDING TRUST



All Attendee Evening Drinks Reception

The grand finale of our conference day; It's the perfect opportunity to unwind and network in a relaxed and social atmosphere, connecting with fellow attendees, industry experts, and potential collaborators. Engage in meaningful conversations, exchange ideas, and build valuable relationships that can open doors to future collaborations and innovation. You'll also have the chance to debrief on the day's insights and discoveries in a casual setting. Plus, the reception promises to be a celebration of shared knowledge and a toast to the future of battery electric vehicle engineering. So, come join us, raise your glass, and be a part of this dynamic community of professionals dedicated to driving positive change in the world of electric vehicles.

19:00

Speakers Dinner



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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

07:30

Registration | Breakfast Reception

08:20

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

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

This session will unveil a ground breaking paradigm shift from component-level to system-level optimization, where holistic architectural design will reign supreme, profoundly impacting battery performance, range, and beyond. You'll be immersed in the mesmerizing symphony of interactions between battery systems and vehicle components, exploring flexible pack designs that seamlessly adapt to diverse vehicle architectures. We'll embrace modular, scalable, and space-efficient solutions that harmonize with various vehicle models and decode the intricate choreography of thermal management across vehicle systems. Explore strategies that enhance overall vehicle safety while safeguarding battery integrity and dive deep into software platforms orchestrating these intricate system interactions.

08:40

Cell Design Considerations For Optimized EV Battery Pack

Fan Xu, Research Technical Program Manager – Battery Materials and Systems Research, **General Motors**

As GM continues marching towards an all-electric, zero emission future with 25+ yrs experience in vehicle electrification, this mission has never been more important and urgent to our society than now. To accelerate EV adoption, the advancement of battery technology, in particular, battery chemistry, requires a solid and deep understanding of customer pain points first. Following this philosophy, this talk will discuss how to further unleash the power of battery chemistry and cell design to expedite EV cell technology advancement.

09:00

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

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

Unravel the remarkable evolution of fasteners, a vital component in maintaining permanent electrical contact within battery joints, even under the most extreme conditions of high thermal and dynamic loads. We'll explore cutting-edge innovations, including the integration of traditional spring elements into a single component, effectively creating a built-in "clamp load sensor" that ensures immediate controllable

clamp load with known input torque. Witness how these advancements result in higher clamp load retention following exposure to thermal and dynamic loads, ultimately achieving permanent electrical contact in joints with low surface pressures.

09:20

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

Brendan Kenyon, Head Technology, **Tox Pressotechnik USA**

The intricate world of optimal conductivity, exploring advanced techniques to minimize electrical resistance and heat generation, ultimately elevating vehicle range and operational efficiency. You'll gain invaluable insights into the fusion of aluminum, copper, and other vital metals, enabling seamless connections for leads and cells while ensuring exceptional conductivity. Get ready to amplify electric vehicle range through high-conductivity joints that effectively mitigate heat generation. Embark on an enlightening journey through the art of harmonizing connections between diverse metals, optimizing conductivity and overall performance.

We'll also offer a comprehensive overview of the E-Clinching methodology, demystifying the intricate process of connecting various battery components. Dive into a spectrum of solutions designed to overcome challenges like oxide layer intricacies and contact corrosion. Immerse yourself in practical application samples showcasing the successful integration of these cutting-edge techniques, elevating your understanding of conductive connectivity beyond dual-sheet applications to unlock the potential within multi-layer setups.

09:40

Innovative Joining And Sealing Solutions Achieved By Flowform® Fasteners And PIAS® Nuts For Electric Vehicle (EV) Battery Manufacturing

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

Explore the pivotal role of comprehensive joining solutions in battery design and manufacturing processes within the context of today's electric vehicle landscape. This session delves into the use of Flowform® fasteners and PIAS® Pierce nuts to build robust, leak-free battery packs, safeguarding them from environmental factors. Discover innovative approaches for tackling joining challenges across various material stack-ups, adhesive applications, and sealing methods for battery housing designs.

10:00

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

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

Uncover the transformative power of powder coating in battery electric vehicle components. Explore the remarkable advancements, applications, performance enhancements, and environmental benefits that powder coating offers in BEV components. Gain valuable insights into the unique challenges faced when powder coating BEV components, from intricate designs to material requirements, as we tackle these challenges head-on to achieve flawless results. Discover the future trends and emerging opportunities in the rapidly evolving field of powder coating for BEV components, setting the stage for new horizons in innovation.

Delve into the critical role of powder coating as a protective insulating layer for battery packs, mitigating the risk of electrical system failures and preventing heat build-up in batteries, ensuring optimal safety and performance. Unlock the secrets behind powder coating's exceptional electrical insulation properties, empowering even the most intricate designs with high dielectric strength, extraordinary adhesion performance, and exceptional thermal shock resistance. Unlocking the untapped potential of powder coating for enhanced BEV component performance.

10:20

AkzoNobel

Morning Networking Break

11:00

Optimizing High-Voltage Systems For Fast Charging And Enhanced Thermal Management In Electric Vehicles

Brian Robert, Research Engineer, **Ford Motor Company**

As the electric vehicle (EV) industry continues to grow, the demand for fast-charging solutions is more crucial than ever. This session delves into the complexities and innovations surrounding high-voltage systems in EVs, exploring how they impact fast charging and thermal management. Discuss the latest advancements in high-voltage architecture, charging technologies, and thermal management strategies. From efficient power distribution to battery temperature control, attendees will gain insights into how optimizing high-voltage systems can significantly enhance the charging speed, battery lifespan, and overall performance of electric vehicles. Join a comprehensive discussion on the future of EV high-voltage systems and their role in driving sustainable and electrified transportation.

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11:20**Improved Methods For Leak testing Lithium-Ion Batteries****Thomas Schwoerer, President, Zeltwanger**

Highlighting the critical importance of Battery Leak Testing for ensuring both safety and performance in the field of battery technology. Delving into comprehensive test solutions spanning from laboratory settings to the production scale within Giga factories, covering a spectrum of battery components, including cells, modules, packs, enclosures (trays and lids), cooling channels, and associated components. The presentation underscores the pivotal role that rigorous leak testing plays in safeguarding battery systems and maximizing their efficiency at various stages of development and production.

11:40**Leveraging Laser Technologies For Precise Cell, Pack, And Interconnection Production****Marc Auger, Business Development Manager, Coherent Inc.**

This session will be your gateway to comprehending the transformative power of laser technologies in battery cell production, unveiling their role in optimizing electrode fabrication, material deposition, and overall cell quality. Dive into a laser-driven paradigm, where we'll revolutionize battery pack assembly, achieving unparalleled precision and efficiency through laser welding for cell-to-cell interconnections, ensuring robust electrical pathways and elevating safety standards. Explore the forefront of interconnection technologies, where lasers bring advanced soldering, welding, and ablation techniques to the table, paving the way for high-speed, high-precision interconnections, bolstering performance, reliability, and scalability in battery engineering.

We'll delve into the tangible benefits of laser-enabled battery manufacturing, including increased production speeds, enhanced quality control, and augmented flexibility, while also addressing the technical challenges and potential solutions for laser integration. Exploring emerging technologies like ultrafast lasers and additive manufacturing, destined to redefine the industry and catalyze the development of next-generation batteries, including solid-state and advanced energy storage systems.

12:00**Developing A Common Battery Pack Architecture To Power Multiple Vehicle Types****John Warner, Chief Customer Officer, American Battery Solutions**

A scalable common battery architecture that promises to streamline and enhance energy storage solutions. Dive into how this revolutionary architecture enables the optimization of battery solutions for a diverse range of customers, all within a common framework, ensuring consistency in product design and manufacturing processes, leading to remarkable efficiency and cost-effectiveness. Immerse yourself in real-world examples demonstrating the adaptability and versatility of this approach, showcasing its

ability to support the development of multiple tailored solutions that meet unique customer requirements. Discover the scalability of the common battery architecture, accommodating various sizes and capacities, making it suitable for a wide range of applications, all while translating common design and manufacturing processes into cost savings. Learn about the performance benefits achieved through this architecture, including improved energy efficiency, reliability, and longevity. And don't miss the opportunity to explore potential future applications and developments enabled by this innovative approach to battery architecture, as we shape the future of electric vehicles with efficiency and adaptability at its core!

12:20**Navigating Advancements And Challenges In Conductive Electrode Coating For Electric Batteries, Modules, And Packs****Jacob Turner, Scientific Associate in Adhesive Technologies, Henkel**

Delve into the crucial world of conductive electrode coating, where advancements and challenges are shaping the future of electric vehicles. Discover cutting-edge conductive materials that power up electrode coatings, optimizing battery performance and driving dynamics. Explore innovations in electrode coating precision, thickness, and uniformity, enhancing energy density, charging speeds, and performance consistency across cells and modules. Witness breakthrough techniques that stabilize active battery materials, mitigate degradation, and enhance long-term durability. Uncover advancements in thermal stability through conductive coatings, addressing heat dissipation and thermal runaway risks. We'll also unveil cost-effective strategies in electrode coating manufacturing while tackling the complexities of coating multiple electrode layers for advanced battery designs and addressing ongoing challenges in coating degradation over charge/discharge cycles.

12:40**Electrification: How OEMs Accelerate Architecture Research & Definition While Optimizing Power, Range, Reliability, And Cost****Anthony Giesey, Senior VP, Economy Group**

A dynamic session where you'll discover how more than 50+ leading OEMs are propelling the rapid development and continuous refinement of their next-generation vehicle architectures. Delve into the intricacies of optimizing power, range, reliability, and cost while staying at the forefront of innovation. Explore the Economy Ecosystem, supported by a network of 500+ suppliers, driving over 90% of new electrified architectures across diverse industries including Automotive, Aviation, Heavy Duty / Offroad, Logistics, and Marine. Gain invaluable insights from the company that has spearheaded the evolution of Automotive architectures, from 48V to extraordinary voltages like 900V and beyond, setting a precedent for innovation in various sectors. Don't miss this opportunity to be at the forefront of cutting-edge architectural advancements.

13:00**Laser Surface Treatment To Improve Battery Production****Catherine Veilleux, Applications Lab Supervisor, Laserax**

This session offers an in-depth strength and aging study that demonstrates the remarkable efficiency of laser texturing in preparing aluminum surfaces for adhesive bonding, resulting in more reliable joints in battery applications. Witness the transformative power of laser cleaning, ensuring that battery poles are thoroughly rid of oxides, electrolytes, and organic contaminants before wire bonding or laser welding, guaranteeing the success of the joint. Delve into the world of laser light texturing, which can be harnessed to prepare metallic surfaces for sealant joints in battery trays and enclosures, as well as to enhance the adhesion and durability of structural adhesives.

13:20**Network Lunch Break****14:20****Revolutionizing EV Battery Assembly: Overcoming Adhesive Dispensing Challenges For Enhanced Performance****Shawn Webb, Automotive/E-Mobility Industry Specialist, 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.

14:40**Maximizing Efficiency And Sustainability In EV Battery Assembly With Plasmatre****Frank Petrolli, VP Strategic Market Development, Plasmatre**
Alex Borchardt, Sales & Business Development, Plasmatre**DON'T MISS OUT! OUR ULTRA SAVER RATE ENDS 30TH AUGUST 2024****OEM/Battery Mnfr. \$300****Vendor/Supplier \$500****battery-innovation-usa.com**

We'll unveil the future of EV battery assembly processes, where Plasmatreating technology emerges as a revolutionary force. Prepare to be captivated by the incredible versatility of Plasmatreating as it cleans and activates surfaces, transforming automotive manufacturing. Explore a world of possibilities with over 100 diverse applications, and be amazed by its game-changing impact on production processes. Dive into the cutting-edge #OpenAirPlasma® Technology, where Plasmatreating elevates EV battery assembly, enhancing thermal management, bond strength, corrosion protection, and more. Discover how it paves the way for scalable battery production, aligning perfectly with the rapid growth of the EV industry. Join us on this eco-friendly journey, as Plasmatreating reduces VOC and CO2 emissions, championing sustainability. And, the excitement doesn't end there – gain valuable insights into traceability and zero downtime.

15:00

Adaptive Pack Designs: Modular Solutions For Harmonious Vehicle Integration

Karl Plattenberger, Chief Engineer- Powertrain and Thermal Systems

In this session, we'll introduce the concept of architectural agility, emphasizing the essence of adaptive pack designs that transcend vehicle boundaries. Discover the pivotal role of modular solutions in accommodating various vehicle architectures, showcasing the principles of modularity in battery pack design. Immerse yourself in a symphony of components, exploring adaptable cell arrangements, cooling modules, and electronic components, all while unraveling innovations in layout, stacking, and compact design strategies.

Witness the power of replicability, as modular packs enable streamlined production across multiple vehicle models, leveraging common pack components for cost-effectiveness and efficiency. Experience the elegance of integration as we showcase case studies of how modular packs harmonize with different vehicle structures, achieving an integrated appearance without compromising pack efficiency. We'll also delve into the challenges of maintaining performance while scaling designs and balancing production efficiency, customization, and quality.

15:20

Optimizing Energy Density: Mastering Battery Management Systems For EVs

Harmanpreet Singh, Technical Lead, High Voltage Battery Systems, **Monarch Tractor**

Unravel the intricate landscape of Battery Management Systems (BMS) design and integration for electric vehicles (EVs). In this session, we'll dive deep into the key challenges

faced by engineers and experts, including addressing cell variability, ensuring safety in high voltage environments, and mastering thermal management. Get ready to explore the development of sophisticated algorithms that promise enhanced efficiency for tasks such as cell balancing, state of charge estimation, and predictive health analysis.

Discover strategies for seamless BMS integration with diverse vehicle components, all while effectively managing electromagnetic interference (EMI) concerns. We'll uncover the delicate balance between system robustness, performance, and adaptability to different battery chemistries and configurations. Gain insights into efficient data processing, storage, and communication methods that offer real-time insights without compromising system performance. Join us as we embark on an exciting journey into the future of BMS design, within the rapidly advancing electric vehicle industry, where innovation and efficiency are set to redefine the energy density of battery packs, promising enhanced performance and longevity for electric vehicles.

15:40

Lithium-Ion Battery Between Design Engineering And Production

Dr. Najah George, Senior Director of Research and Development **Photon Automation**

Explore the fascinating concept of quality assurance using decay factors to assess cell measurements against expected discharge rates over time. Witness the power of machine vision and 3D scanning techniques that ensure the external features of cells meet the highest standards of quality and consistency. Delve into the realm of traceability, where data for each cell is stored and shared for 100% traceability throughout the assembly process. Experience the precision application of adhesives in battery assembly, achieved through high-efficiency, fully automatic dispensing systems, guided and verified by machine vision. Discover how robots will revolutionize automated battery assembly, including the use of high-speed gantry-style and six-axis robots for various tasks.

Uncover the world of servo-powered, precision-controlled pressing, ensuring the accurate assembly of press-fit components. Explore advanced testing techniques, from electrical testing to micro-ohm resistance measurements and high-current testing, all culminating in end-of-line testing for unmatched quality assurance. Learn about the process data collection and dynamic adjustments based on collected data, promising enhanced assembly control. Join us in this session where automation meets precision, and the future of electric vehicle battery assembly is set to reach new heights of quality and efficiency, promising reliable and high-performance batteries for EVs!

16:00

Ensuring Personnel Safety In EV Battery Testing: A Comprehensive Approach

Rich Byczek, Global Technical Director **Transportation Technologies, Intertek**

Tackle the evolving challenges of electric vehicle (EV) battery testing with the utmost dedication to safety. As EV batteries surge in energy capacity, power output, and recharge speeds, rigorous testing and safety validation become paramount. This session is your gateway to exploring the critical safety considerations for personnel and test setups during these vital tests. We'll cover the entire spectrum, from facility requirements to specialized test equipment, real-time monitoring, proactive and reactive safety measures, and the safe handling of high-voltage electronics and batteries. Join us as we delve into case studies and best practices, ensuring that personnel safety remains at the forefront of EV battery testing, where challenges meet comprehensive solutions and the future of EV technology is as safe as it is exciting!

16:20

Rare Earth (Magnets) And Critical Elements (Batteries): Making Finite Resources Infinite

Benjamin M. Wrightsman, President, **ReElement Technologies**

In this session we will explore the historical and emerging technologies to support reclamation of Rare Earth and Critical Elements. These elements are the key part of magnets for motors and batteries that power and move us. In the US we are regularly sourcing these raw minerals from other least favored countries for our first utilization, but how can we ensure to keep them in the value stream? Today we lose them back into other lower commodity markets or de-valorization processes that require repeat needs for more limited natural resources mining. Let's look at how a proven processing method of chromatography is being deployed in this novel application to solve both REE and CE recycling and refining needs to near infinity.

16:40

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

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

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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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