


ELECTRIC VEHICLE ARCHITECTURE  **CONFERENCE & EXHIBITION**
ADVANCED BATTERY TECHNOLOGY INNOVATION **16-17 NOVEMBER 2022**
DETROIT USA

BTM | BMS | CELLS & MODULES | BATTERY PACK DESIGN | MANUFACTURING | MATERIALS | RANGE | SAFETY & SUSTAINABILITY



INCREASING POWER



IMPROVED PERFORMANCE



BATTERY EFFICIENCY



INCREASED RANGE



FAST CHARGING



IMPROVED SAFETY



BATTERY HEALTH



DRIVING THE FUTURE OF VEHICLE ELECTRIFICATION

50 EXPERT SPEAKERS **100** EXHIBITORS **500+** BEV PROFESSION DELEGATES



Bob Galyen
Galyen Energy LLC



William Q. Walker, ph.D
KULR Technology Group



Tim Smith
Plasmatrete North America Inc.



Punnet Sinha
Siemens



Chris Churchill
Rogers Corporation



Dr Cecile Pera
ORVEL Ltd



Bret Trimmer
NEOGRAF Solutions



Sumin Zhu
AMPCERA



Eric Rountree
EC Power



Chris Korson
BASF



Timothy Vokes
LORD Corporation



John Williams
Aspen Aerogels



Rich Byczek
INTERTEK



Marc Auger
Coherent



Anthony R. Giesey
Economy



Gary Testa
Engineered Fluids, Inc.



Waldemar Linares
AVL



Troy Waldherr
TOX* PRESSOTECHNIK USA



Frank Billotto
DuPont



Karl Plattenberger
Mahindra Automotive North America



Alexander Teufl
VonRoll



Christian Freundel
Zeltwanger



Andy Richenderfer, Ph.D
Lubrizol



Scott Krusinski
Avery Dennison



Chin-Wei Chang
Dassault Systemes



James Herbison
ELANTAS PDG



Pierson Chang
Trumpf



Edna Betancourt
BASF



Michael Yarnall
Bdtronic



Dave Mukutmoni
Dassault Systemes



Elizabeth Knazs
HB Fuller



Michael Schink
Zoox



Dr Yan Shao
WACKER



Avinoam Rubinstain
CARRAR

PARTNER



PARTNER



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ADVANCED BATTERY TECHNOLOGY INNOVATION

WHAT TO EXPECT OVER THE TWO DAYS

DAY ONE

XEV BATTERY THERMAL MANAGEMENT

NEXT-GENERATION BATTERY THERMAL MANAGEMENT SYSTEMS AND TECHNOLOGY

- Next-Generation Thermal Management Solutions To Optimise Battery Safety & Performance
- Evaluating The Different Thermal Management Technologies Deployed To Ensure Cells Operate Under The Optimal Temperature Conditions
- Comparing The Relative Benefits Of Air & Liquid, Direct And Indirect Cooling In Terms Of Cost And Efficiency
- Meeting The Specific Thermal Management Challenges Of Ultra-Fast Charging And Increased Range
- Minimizing The Risk Of Thermal Runaway Propagation In Different Battery Designs
- How To Improve Thermal Efficiency, Enhance Lightweighting & Integration Capacity Of Components And Further Advance BMS Capacity
- Thermal Conductive Adhesives For Next-Generation Cell-to-Pack Configurations
- Engineering Single-Phases Immersion Cooling For Thermal Management Of Lithium-Ion Batteries
- Optimal Design Of Thermal Management Systems – At The System Level
- Disruptive Next-Generation Thermal Adhesive Solutions For Battery Applications
- Temperature Counts: Increasing xEV Safety Comfort, Range And Performance With Sensors
- Achieving Battery Safety With Advanced Thermal Management Solutions
- Engineering The Thermal & Safety Challenges In Next-Generation Battery Packs
- Don't Just Delay Thermal Propagation – Stop It
- Fast Charging & Thermoregulation: Battery Assessment By Means of A Multi-Scale Multi-Domain
- Material For Complex Thermal Management Systems
- Cell Monitoring With Electrochemical Impedance Spectroscopy To Extend Battery Life And Prevent Thermal Runaway
- Selecting The Right Material For Battery Thermal Management Evaluating The Potential Of Passive Thermal Management Solutions Such As Phase Change Materials (PCMs) and heat pipes (HPs)

DAY TWO

BATTERY TECHNOLOGY, CELLS & SYSTEMS

OPTIMIZING THE SAFETY, CAPACITY AND LIFESPAN OF LITHIUM-ION BATTERIES WITH BATTERY MANAGEMENT SYSTEMS, BATTERY INTELLIGENCE INNOVATIONS & BATTERY PACK ADVANCEMENTS

- Battery Design & Integration
- Battery Management & Battery Intelligence
- New Opportunities For The Cell & BMS Industry
- The Road To A Solid-State Powered Future
- Battery Technology Challenges For Commercial Vehicles
- Faster Charging, Higher Efficiency, Longer Range
- Immersion Cooling Technology For Cylindrical Lithium-Ion Cells
- Innovations & Developments in EV Architecture For Performance Vehicles
- High-Performance EV Powertrain Development & Battery Pack Design
- Latest Methodologies In Battery Testing
- High Precision Calorimetry And Measurement Of Heat Generation For EV Li-Ion Cells
- Fast Charging Optimization Of Lithium-Ion Battery Cells

CAN'T SAY ENOUGH GOOD THINGS ABOUT THE BATTERY TECHNOLOGY INNOVATION SUMMIT BY WEAUTOMOTIVE GROUP. IT WAS A WONDERFUL EVENT THAT ALLOWED ATTENDEES TO BETTER UNDERSTAND THE UPCOMING TECHNOLOGY TRENDS THAT WE'LL BE SEEING IN ELECTRIFICATION FOR YEARS TO COME. CAN'T WAIT TO ATTEND ANOTHER EVENT IN THE FUTURE!"

APPLICATION ENGINEER, PARKER-LORD

	EARLY BIRD	STANDARD
OEM/Battery Mnf.	\$400	\$800
Vendor/Supplier	\$1,300	\$1,500
Exhibitor	\$8,500	\$8,500

OFFER ENDS FRIDAY 14 OCTOBER 2022

7:30

REGISTRATION OPEN

Morning Breakfasts In Networking Exhibition Area
Continental Breakfast, Fresh Scrambled Eggs,
Hickory Smoked Bacon, Country Style Sausage,
Breakfast Potatoes

8:20 – 8:40

CHAIRS OPENING REMARKS

Bob Galyen

CTO NAATBatt , Retired CTO – CATL

- How to improve thermal efficiency, enhance lightweighting & integrational capacity of components and further advance BMS capacity
- Utilizing new design techniques, resistance to fire materials & emerging tools for reduced safety and thermal runaway risk
- Battery pack integration & thermal optimization at the system level

8:40 – 9:00

NEXT-GENERATION THERMAL MANAGEMENT SOLUTIONS TO OPTIMISE BATTERY SAFETY, PERFORMANCE CAPACITY AND LIFESPAN

Cecile Pera PhD.

Battery Electric Vehicle Expert – OROVEL Ltd.

- Battery Thermal Management: Trends in electric vehicles.
- Examining where we stand now and what challenges remain: Future outlook and possible technological solutions in development.
- How can an optimal thermal management system strategy be developed and what are the next-generation objectives?
- Assessing current technologies and methods for thermal conductivity and inclusion technology.
- Implementing thermal management to optimize battery life.
- How to effectively measure and evaluate thermal management solutions.
- The role of material science in thermal

management.

- How close are we to consolidating an industry-standard in thermal management architecture?

9:00 – 9:20

HOW PRESSURE-SENSITIVE ADHESIVES ENABLE ADVANCED EV BATTERY DESIGNS

Scott Krusinski

Product Manager, Automotive & Other Transportation, Avery Dennison

- Various design trends and engineering challenges are driving interest in new and effective bonding solutions for EV battery pack materials.
- These solutions include high-performance tapes featuring pressure-sensitive adhesives. Such tapes provide not only effective bonding, but help address issues related to flame retardancy, boosting dielectric, and optimizing design and assembly.
- In this session, Scott Krusinski, Avery Dennison Performance Tapes product manager for Automotive & other Transportation, will showcase the benefits of pressure-sensitive adhesive technology. He'll discuss why it's a sound solution for a wide range of pack applications and provide an overview of Avery Dennison's capabilities related to EV batteries.

9:20 – 9:40

THERMAL CONDUCTIVE ADHESIVES FOR NEXT GENERATION CELL-TO-PACK CONFIGURATIONS

Timothy Vokes

Application Engineering Manager, Thermal Management Materials and Structural Adhesives, Parker Lord

- Current battery pack configurations – In the current, modular-based battery pack configuration, a minimum of two discrete thermal interface materials (TIMs) or "gap fillers" (GF) are typically employed to regulate

the temperature of the modules and ensure safe, efficient performance.

- Trade-offs with conventional modular design – Challenges with the old design include added weight and volume from the inactive portions of the module which ultimately translates into compromised pack energy density.
- Next generation cell-to-pack configuration – Given these challenges, many EV and battery manufacturers are eliminating modules entirely and directly bond batteries to the cooling plate. This new module-free approach, referred to as "Cell-to-Pack" (CTP), reportedly increases volume-utilization space from 15-50%, depending upon battery cell design.
- The benefits of thermally conductive gap fillers – Cell-to-Pack configurations offer numerous benefits, including increased volume-utilization space from 15-50%, reduction in the number of parts up to 40%, less expensive, lower energy density cells given the extra space, improvements to pack energy density, and more!

9:40 – 10:00

ENGINEERING SINGLE-PHASE IMMERSION COOLING FOR THERMAL MANAGEMENT OF LITHIUM-ION BATTERIES

Gary Testa

President & CEO – Engineered Fluids Inc.

- Air cooling is neither safe nor effective and this session will demonstrate the immediate advantages of SLIC technology as the superior solution
- Examining the drivers for immersion cooling
- Outlining the cooling fluid requirements for immersion cooling
- Examining the drivers for immersion cooling
- What is a Single-Phase, Liquid Immersion Cooling?
- Exploring coolants compatibility with materials used in Battery Management Systems
- Demonstration of how immersion Cooling with AmpCool extends battery life
- How to prevent fire propagation between battery cells using AmpCool Coolant



I Would Like To Attend

Please register at www.battery-innovation-usa.com

10:00 – 10:20

RELIABLE BATTERY SEALING SOLUTIONS THAT ENABLE ASSEMBLY LINE OPTIMIZATION: A FAST-CURING SILICONE ADHESIVE FOR THERMAL STABILITY

Dr Yan Shao

Technical Marketing Manager, Wacker Chemie

- A fast-curing, structural seal that will remain stable and reliable under high thermal stress, for electronics applications.
- Multiple curing temperatures provide the flexibility customers need in their operations.
- Fast cure at low temperature, with fast adhesion build-up.

10:20 -10:40

DISRUPTIVE NEXT GENERATION THERMAL ADHESIVE SOLUTIONS FOR BATTERY APPLICATIONS

Alexander Teufl

Global Technical Expert Resins – VONROLL

- Various solutions for cylindrical/ prismatic/ pouch cell modules and pack designs
- Combination of gap-filler and fixation / cast and forget approach
- High flexibility over the whole operating temperature
- Green and clean resins for environmental and health safety
- Homogenous heat dissipation through finetuned thermal conductivity
- Outgassing free formulation / no Silicones
- Excellent thermal shock behavior
- Non flammable and self extinguishing

10:40 – 11:20

MORNING NETWORKING BREAK

Exhibition Hall > Tea, Coffee, Soft Drinks

11:20 -11:40

TWO-PHASE HIGH-PERFORMANCE THERMAL MANAGEMENT: DIRECT EVAPORATIVE IMMERSION TECHNOLOGY

Avinoram Rubinstain

CEO, CARRAR

This disruptive, holistic thermal management solution effectively addresses the significant challenges of cooling and heating the entire automotive battery system, powertrain, compute, and electronic components. The technology is based on two-phase immersion pool boiling for extremely efficient active control.

Our two-phase immersion TMS technology enables:

- Keeping battery cells at the optimal temperature
- Ensuring uniform temperature for the entire pack down to the cell level
- Indifference to ambient temperature
- 3X higher in-vehicle heat dissipation capacity

Delivering benefits

- Extending battery lifetime and warranty opportunity
- Delay and even prevent thermal runaway
- Makes battery charging possible at 10C+
- Same battery cell chemistry everywhere in the world
- Reducing the total cost of ownership for OEMs, dealers, and consumers
- Perfect for extreme and prolonged acceleration for high performance
- Growing the second-hand EV market

11:40 -12:00

ACHIEVING BATTERY SAFETY WITH ADVANCED THERMAL MANAGEMENT SOLUTIONS

William Q. Walker, ph.D

Director of Engineering at KULR

Technology Group

- Mitigating thermal runaway heating and arresting flames using KULR's Thermal Runaway Shield (TRS).
- Test and analysis results for battery pack with and without TRS.
- Addressing lithium-ion cell/battery transportation concerns with KULR's innovative solutions.

12:00 – 12.20

THERMAL MANAGEMENT STRATEGIES FOR FASTER CHARGING, EXTENDING RANGE AND PREVENTING PROPAGATION

Bret Trimmer

Application Engineering Manager, NEOGRAF Solutions

- Reviewing the latest goals and best current methods for EV battery thermal management.
- Examining the five factors that allow cells to charge quickly and discussing the single factor that pack designers can control.
- Exploring the four primary strategies pack manufacturers use to prevent Thermal Runaway and the impact of each on fast charging, cell performance, and lifetime.
- Each propagation control method introduces benefits or harm to the cells in terms of fast charging, cell cycle lifetime, charge rate, and driving range.
- Understanding the three key advantages that graphite offers for thermal management.
- For applications where smaller-pack-size and lighter-weight are important, flexible graphite will be discussed as a direct substitute for aluminum.

WELL PLANNED EVENT, WITH FULL AGENDA AND MULTIPLE NETWORKING OPPORTUNITIES. PRESENTATIONS FOCUSED ON REAL-WORLD APPLICATION, DEPLOYMENT, AND CHALLENGES, WITH A DIVERSE MIX OF STAKEHOLDERS BOTH ATTENDING AND PRESENTING."

GLOBAL TECHNICAL DIRECTOR,
TRANSPORTATION TECHNOLOGIES – INTERTEK



I Would Like To Attend

Please register at www.v.battery-innovation-usa.com

12:20 – 12:40

PERFORMANCE UNDER PRESSURE: WHY PYROTHIN THERMAL BARRIERS GET BETTER AT END-OF-LIFE

John Williams

VP Technical Services, Aspen Aerogels

- Preventing thermal propagation starts with the cell-to-cell (C2C) barrier.
- Aspen Aerogels' PyroThin materials are widely recognized as providing the highest thermal performance in the industry, and recent testing is beginning to reveal why.
- The surprising interactions between compressive loading and thermal behaviour are leading to some of the most space- and weight-efficient solutions available today.

12:40 – 13:00

FAST CHARGING & THERMOREGULATION: BATTERY ASSESSMENT BY MEANS OF A MULTI-SCALE MULTI-DOMAIN MODEL

Waldemar Linares

Manager Advanced Simulation Technologies – AVL

- Outline of application challenges for fast charging and thermoregulation
- Discussion of modeling approach managing different scales and domains
- Discussion of electrochemical cell modeling approaches
- Presentation of validation results
- Simulation results on fast charging for different control strategies thermoregulation concepts

13:00 – 13:20

EFFICIENT THERMAL MANAGEMENT TO ENSURE MAXIMUM EV PERFORMANCE & SAFETY

Edna Betancourt

Market Segment Manager – E&E and eMobility, BASF

- The safety level of lithium-ion batteries depends not only on the cell-to-cell chemistry but also on the protection of connections around the battery modules, making thermal management activities a key process for EV manufacturers.
- Analyzing high-performance solutions that are inherently flame resistant and more resilient to continuous high temperatures.

13:20 – 14:20

NETWORKING LUNCH BREAK

Soup, Salad, Mains, Sides, Desert
Tea, Coffee, Juices, Soft Drinks

14:20 – 14:40

HOW SELECTING AN OPTIMIZED CELL-TO-CELL PAD MATERIAL CAN IMPROVE VOLUMETRIC ENERGY DENSITY, CYCLE LIFE AND SAFETY IN EV/HEV PACKS

Chris Churchill, Sr. Technical Service Manager, Rogers Corporation

- This presentation will explore the key considerations to designing inter-cell battery packaging: battery performance, thermal runaway delay and reducing wasted space in the overall pack design
- Intrinsic material properties critical for cell-to-cell pressure management and validation through single cell application testing
- Review mechanisms to delay thermal propagation, material level test methods and single cell application test
- Selecting dual function battery pads maximize cell performance and safety while minimizing process steps and cost

14:40 – 15:00

EXPLORING THE 4 CRITICAL ADHESIVE & SEALANT PILLARS TO OPTIMIZE YOUR HIGH-VOLTAGE BATTERIES IN ELECTRIC VEHICLES

Elizabeth Knazs

Business Development Manager, Electric Vehicle and Battery Engineering Adhesives – HB Fuller

- H.B. Fuller Supports EV OEMs and Tier manufacturers by providing innovative materials, battery safety solutions, thermally conductive products, structural adhesives and sealing technologies. We provide complete turnkey solutions by including chemistry selection, product validation, production implementation, and technical support throughout the entire commercialization process.
- Our patented EV Protect 4006 increases EV battery safety by improving protection against fires and thermal propagation. Additional key benefits include corrosion protection, semi-structural support, NVH properties, impact resistance, while helping to maintain a stable internal battery temperature from extreme

external environments.

- H.B. Fuller's next generation innovative adhesive and sealant solutions provide improved thermal management performance, increase structural rigidity, and seal against external environments. We are dedicated to developing products that help provide a safer battery for the future.

15:00 – 15:20

INCREASING THERMAL TRANSFER IN EV BATTERIES THROUGH THE USE OF OPENAIR-PLASMA TECHNOLOGY

Tim Smith

Chief Technology Officer – Plasmatreat North America Inc.

- Learn how through the uses of Openair Plasma technology the mechanical strength and thermal transfer of individual cells can be increased
- Wire bond failures can be avoided
- Aluminum battery enclosure seals can be protected from environmental corrosion

15:20 – 15:40

OPTIMAL DESIGN OF THERMAL MANAGEMENT SYSTEMS AT SYSTEMS LEVEL

- Optimizing the behavior of all components & subsystems in the vehicle
- Evaluating new break-throughs & innovations in thermal efficiency to balance the performance of the system
- Introducing multi-functional components into thermal management systems

15:40 – 16:00

THERMAL RUNAWAY CHALLENGES IN NEXT-GENERATION BATTERY PACK DESIGNS

- As automotive OEMs drive to increasingly advanced pack designs they are being asked to balance the desire for increasingly advanced range and improved recharge time with growing regulations focused on safety and recyclability.
- Cell behavior and how it relates to full battery pack performance
- The continued evolution of cell chemistry and how that relates to evolution in battery pack design
- Next-Generation battery pack design, such as cell-to-pack and second-life battery use

YES 

I Would Like To Attend

Please register at www.battery-innovation-usa.com

16:00 – 16:20

NEW PROCESS SOLUTIONS FOR BATTERY SYSTEMS MANUFACTURING

Michael Yarnall

President, *bdtronic*

- The manufacturing processes for batteries and where our technologies can be applied;
- Challenges of dispensing of thermal materials, volume shot sizes, etc.
- The importance of surface pre-treatment in come applications
- Heat staking and the need to have good process control to achieve consistency and strong rivets.

16:20 – 17:00

Afternoon Networking Break

Tea, Coffee, Soft Drinks, Donuts, Snacks

17:00 – 17:20

WHAT ARE THE MAIN PARAMETERS TO BE CONSIDERED IN BATTERY-PACK HEAT MANAGEMENT?

- Battery pack heat management is a primary element of overall thermal management systems (TMSs), which ensures proper cooling within the entire system, allowing cooling products to circulate and heat insulations between different parts.
- Achieving homogeneity of the temperature within the battery pack in a range between 3c-4c, in ambient conditions that range from -35c > -50c
- Cooling plates vs thermal conductive materials.
- Controlling potential hazards related to thermal runaway
- Thermal life cycle analysis

17:20 – 17:40

BATTERY TEST SIMULATION 'SOLVING THERMAL CHALLENGES OF ELECTRIC VEHICLE FAST-CHARGING

Punnet Sinha

Director New Mobility, *Siemens*

- Understanding the cycle life effects of fast charging and extreme fast charging
- The key cathode aging modes and the potential pathways to mitigate them
- Ultra-capacitors and their role in future powertrains: Increasing power density for

enhanced vehicle performance and reduced battery size

- New battery materials and design for greater energy density and efficiency
- Solid-State batteries and their commercialization
- Lithium-Ion innovation developing a battery that operates optimally across a wide range of temperatures
- Battery packing: Thermal dissipation materials for assembling the battery

17:40 – 18:00

TOMORROW'S BEV BATTERIES WILL BE INTENTIONALLY RUN AT HIGHER TEMPERATURES

Eric Rountree PhD

Head, Business Development & Special Projects, R&D – *EC Power LLC*

- The benefits in high-temperature design for safety
- The benefits in high-temperature design for battery lifetime
- The benefits in high-temperature design for fast charging
- The benefits in high-temperature cell design for battery pack design
- Using thermally modulated cells to simplify high-temperature operation logistics

18:00 – 18:20

- Increasing Your Drivetrain Performance With A Wireless Battery Management System (wBMS)
- How to gain a new competitive edge across the whole batteries life; starting from when the battery module is assembled, to operation,

beyond disposal – and even if needed – into the battery's second life

- Wired Battery connections – the costly, heavy, and complex approach
- The disadvantage of a wired BMS
- Wireless BMS a new smart approach
- Battery assembly advantages with wBMS
- Servicing, Second life, Disposal, Data management
- Complete solutions for wireless battery management systems
- Lifetime management of the value of the battery

18:20 – 18:30

CHAIRS SUMMARY

Bob Galyen

CTO NAATBatt, Retired CTO – *CATL*

- Overview of the key industrial challenges discussed during the day
- Summary of the various technologies and technological areas covered
- Highlighting of any further topics, innovations or conversations that can be progressed

18:30 – 19:30

ALL-ATTENDEE DRINKS RECEPTION & EVENING NETWORKING EVENT

“THE BATTERY THERMAL MANAGEMENT INNOVATION CONFERENCE HOSTED BY WEAUTOMOTIVE WAS A WONDERFUL CROSS-SECTION OF THE ENTIRE INDUSTRY TECHNICAL PROFESSIONALS, BUSINESS LEADERS AND OTHERS WHICH CREATED A LEARNING ENVIRONMENT FOR ALL. A GOOD MIX OF TECHNOLOGY AND REALITY WAS SURELY ONE OF THE BEST FEATURES OF THIS ONE DAY EVENT. DUE TO THE CRITICAL NATURE OF THIS TOPIC, THE EVENT WILL BECOME INCREASINGLY IN IMPORTANCE AND SOCIETAL CONTRIBUTION VIA THE COLLABORATIVE ENVIRONMENT IT PRODUCES.”

CTO – *CATL*

YES 

I Would Like To Attend

Please register at www.battery-innovation-usa.com

PROGRAM
17 NOVEMBERDAY TWO: **BATTERY TECHNOLOGY, CELLS & SYSTEMS**

7:30 – 8:20

REGISTRATION OPEN

Morning Breakfast & Networking

8:20 – 8.40

CHAIRS OPENING REMARKS**Bob Galyen**

CTO NAATBatt, Retired CTO – CATL

8:40 – 9:00

CONTROL AND SENSING TECHNOLOGIES: HOW DO YOU INFER WHAT YOUR ISSUES ARE IN A COST-EFFECTIVE WAY, AND MANAGE**Karl Plattenberger**

Chief Engineer- Powertrain and Thermal Systems at Mahindra Automotive North America

9:00 – 9:20

PUSH ELECTRIC VEHICLE DESIGNS FORWARD WITH INDUSTRY-LEADING ADHESIVE TECHNOLOGY**Frank Billotto**

Business Development Leader – Americas, DuPont

- The safety, reliability and durability of battery electric vehicles relies in large part on what holds the vehicle and its battery assembly together – namely, adhesives. You will hear about:
- How adhesive technology enhances ride and handling performance, NVH, and crash resistance – while reducing mass that helps extend range
- Creating designs that use fewer components and reduce assembly complexity
- Multifunctional benefits of adhesives including structural attachment of battery components and effective thermal management during

vehicle charging and operation

- Adhesive technology that helps advance high voltage cell-to-pack and cell-to-vehicle designs
- Important adhesive chemistries that are enabling automakers worldwide to achieve benefits resulting in cost-effective production and higher performance of battery electric vehicles that are safe, reliable, and durable

9:20 – 9:40

BATTERY PACKS – LASER WELDING & LASER CLEANING**Pierson Cheng**

Global Key Account Manager Trumpf

- How to achieve tightness, crash safety, productivity and the flexibility requirements for battery, pack and components of a battery system.
- Advanced welding of all interior components, as well as the battery housing – with a high degree of precision & reliability utilizing intelligent sensors.
- Utilizing laser as a precision tool for integration of cooling systems.
- Lazor cut, reshaped and laser welding battery packs

9:40 – 10:00

MULTI-MATERIAL SELECTION & JOINING METHODOLOGIES FOR BATTERY ATTACHMENTS & STRUCTURES**Viral Varshney**

Vice President of Engineering and Quality – ATF Inc.

- Multi-Material selection for battery structures
- Optimizing design choices, multi-material selection & joining techniques for battery structures & enclosures
- Evaluate joining techniques & multi-material selection for battery structures

10:00 – 10:20

BATTERY PACK MATERIAL SELECTION & DESIGN FOR MASS PRODUCTION: HOW NEW PLASTIC COMPOSITES CAN ADVANCE ELECTRIC VEHICLES**Christopher Korson**

Market Segment Manager – Chassis & Structural, BASF

- Polyurethane Composites – When The Sum Is Greater Than Its Parts
- BASF Performance Materials Technology Summary
- PUR composites in diverse automotive applications
- PUR + fiberglass pultrusion introduction and technology overview
- Performance vs metal/other materials, thermal performance
- Development with L&L Products
- Ford Lightning's success story

10:20 – 10:40

RELIABLE LEAK TESTING OF HIGH VOLTAGE BATTERY PACKS

- Testing against water ingress and coolant loss
- Show how a suitable leakage rate specification can be determined and which testing process can be used

10:40 – 11:20

MORNING NETWORK BREAK

11:20 – 11:40

ELECTRIFICATION SOLUTIONS: HOW OEMS RAPIDLY ASSESS SUPPLIER OFFERINGS**Anthony R. Giesey**

SVP of Automotive & Mobility, Evonomy

- Rapidly evolving semiconductor roadmaps (SiC, GaN, IGBT) & ATE tools
- Advancements in CAE, FEA, EDA tools + AI-enablers

- Economy's Data Ecosystem engages 35+ OEMs, 20+ Tier-1s, 400+ suppliers to enable rapid education, assessment, and introduction of supplier solutions which best meet OEM needs

11:40 - 12:00

IMPROVING THE ENERGY DENSITY OF BATTERIES WITH SILICON-BASED ANODES

PANEL DISCUSSION

- Silicone-Anode, lithium-ion batteries for EV applications

12:00 - 12:20

MANUFACTURING OF BATTERY CELLS, PACKS & INTERCONNECTIONS WITH NEW LASER TECHNOLOGIES

Marc Auger

Business Development Manager – COHERENT

- Laser solutions for demanding battery applications: Identifying laser solutions to scale up battery production
- How new laser technologies can help advance your battery pack manufacturing
- Manufacturing solutions for battery cells battery packs and interconnection
- Laser welding solutions for challenging materials such as high thermal conductivity metals and dissimilar materials
- Application examples to demonstrate cost savings and quality improvements
- One partner from process to development

12:20 - 12:40

EFFECTIVE BMS TESTING THROUGHOUT THE BMS DEVELOPMENT

Grant Gothing

Chief Technology Officer – Bloomy

- BM test techniques to address issues using commercially available cell simulation hardware
- Examining different test applications throughout the BMS development lifecycle from R&D test bench validation throughout the development cycle
- An open systems approach to BMS testing throughout the development cycle

12:40 - 13:00

ONE STEP JOINING FOR RELIABLE ELECTRICAL COMPONENTS: CELL-TO-CELL WITH E-CLINCHING

Troy Waldherr

Vice President Sales and Operations – TOX® PRESSOTECHNIK USA

- The session addresses a simple joining of materials with the highest conductivity joint – keeping electrical resistance (and heat generated) to a minimum – reducing heat, reducing cooling systems energy consumption-in tern contributing to increasing vehicle range.
- Connecting aluminum, copper and other metals to connect leads and cells together
- How to connect different elements of the battery: E Clinching overview
- How the Tox e-clinching process works
- Solutions approach for the clinching process
- Solutions approach to oxide layer challenge
- Solutions approach for contact corrosion challenge
- Application samples
- E-clinching in multi-layer applications beyond two sheets
- How does the contact resistance compare other methods?

13:00 - 13:20

METHODS FOR LEAK TESTING LITHIUM-ION BATTERIES

Christian Freundel

Expert & Senior Application Engineer – ZELTWANGER

- An introduction to battery leak testing outlining the key challenges
- Comparing testing with air vs tracer gases
- Identifying different measurements methods and parameters
- System applications for air and tracer gases

13:20 - 14:20

LUNCHEON

Soup, Salad, Mains, Sides, Desert
Tea, Coffe, Juices, Soft Drinks

14:20 - 14:40

DIGITAL BATTERY SOLUTIONS FOR ALL SCALES

Chin-Wei Chang

SIMULA IP | T&M, Industry Process Expert
Specialist – Dassault Systemes

Dave Mukutmoni

SIMULA IP | T&M, Industry Process Expert
Specialist – Dassault Systemes

- Batteries are highly complex systems, requiring advanced engineering methods at all levels: from chemistry to cell engineering, to module and pack engineering, and finally integration into full vehicles.
- Learn how to harness chemistry modeling capabilities to optimally design battery materials for aging.
- Explore, the aging, thermal, and electrical behaviors of each cell to understand how an entire module of cells behaves.
- Molecular level modeling characteristics; the mechanical, thermal, diffusion, and electrical behavior of the individual cell
- SIMULIA capabilities used on cell and full battery modules to improve strength, stiffness, and safety in abuse test scenarios
- Battery packs integrated into full vehicle models can be simulated for realistic test conditions

14:40 - 15:00

BATTERY PACK MATERIAL SELECTION & DESIGN FOR SCALED MASS PRODUCTION

- How material selection influences tolerances and dimensional stability needed for scaling mass assembly
- Assembly solutions like UV cured adhesives and laser welding from a material perspective

15:00 - 15:20

APPLICATION TECHNOLOGY INNOVATION : SEALING, CASTING & BONDING BATTERY PACKS

- Sealing battery housings – Applying sealing beads to lids or housings
- Bonding battery housings – Structural bonds with joining tools and the necessary surface activation for controlled adhesion
- Casting / Applying gap fillers – reliable casting of highly filled and abrasive materials under atmosphere
- Examples of automated solutions
- Battery cell assembly



I Would Like To Attend

Please register at www.battery-innovation-usa.com

15:20 – 15:40

SELECTING THE BEST FIT AND ROBUST THERMAL INTERFACE MATERIAL (TIM) FOR EFFECTIVE BATTERY COOLING

- Challenging engineering – considering handling, storage, assembly and processing
- How to select such a product?
- What to consider for the specific applications?
- High-performance cooling solutions for complex electronic systems

15:40 – 16:00

IMPROVING ENERGY DENSITY AND PERFORMANCE OF EV BATTERY PACKS WITH THERMAL MANAGEMENT AND COATINGS

Tom Resh

Testing Director – NIKOLA MOTORS

- Battery packing: Thermal dissipation materials for assembling the battery
- How thermal management materials address EV limitations in range, reliability and costs
- Benefits of using a cure-in-place liquid dispense gap filler over a pre-cured thermal pad (also called a gap pad).
- Data from internal testing, as well as third-party testing on significant performance differences between fillers and pads.
- Flame-resistant coating with can help mitigate damage in case of fire and their applications, conclusions and recommendations that include trade-offs and cost, manufacturing and performance.

16:00 – 16:20

PRODUCTION SOLUTIONS FOR BATTERY MANUFACTURING

- Each type of battery manufactured requires a different production solution: resistance welding, laser welding, laser marking, or laser cutting
- Understanding each category and application, for example, laser welding of dissimilar materials for battery tabs and resistance welding for tab design optimization

16:20 – 17:00

NETWORKING BREAK

Donuts, Snacks, Tea, Coffee, Soft Drinks

17:00 – 17:30

THE ROAD TO A SOLID STATE POWERED FUTURE PANEL DISCUSSION

Sumin Zhu, Founder & CEO – AMPCERA

Rich Byczek, Global Technology Dir.
Transport Technologies – INTERTEK

- Solid-State batteries play a crucial role in the future of electric mobility: Exploring the progress towards commercialization
- Outlining the latest developments in solid-state battery research for EV Applications
- Solid-State Batteries, Solid Electrolytes, Electrode Interfaces And Fuel Cells

17:30 – 17:50

NEW OEM DESIGNS TO OPTIMIZE PACKAGING SPACE AND VEHICLE RANGE

- Optimizing the safety, capacity, and lifespan of lithium-ion batteries with battery management system and battery intelligence innovations

17:50 – 18:10

ENTERPRISE BATTERY INTELLIGENCE: BATTERY ANALYTICS USING BIG DATA AND AI

- Optimizing the safety, capacity, and lifespan of lithium-ion batteries with battery management system and battery intelligence innovations
- Assessing the potential of battery management software to predict and increase performance capacity
- Examining the emerging market of battery analytics using big data and AI to make batteries smarter and more efficient
- Assessing technical strategies for achieving core balance to enhance battery longevity

- Learn how to accelerate product development, ensure that the most robust battery design is identified quickly
- How to provide visibility into manufacturing operations and confirm quality metrics are fully met

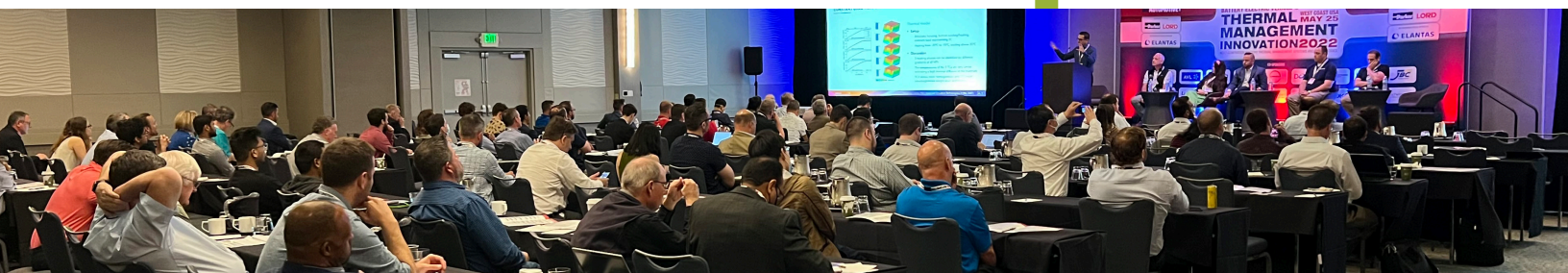
18:10 – 18:30

STRUCTURING A BATTERY FOR RECYCLABILITY: BATTERY RECYCLING & SECOND LIFE

- Different techniques and technologies for recycling
- Battery recycling through extraction of metals from lithium spent batteries
- The recycling process
- Capturing value from spent batteries
- Creating a closed-loop for end-of-life battery metals
- Innovations in lithium-ion cells recycling
- How can we repurpose batteries for second-life usage?

SPEAKING AT AND SPONSORING WEAUTOMOTIVE GROUP'S BATTERY THERMAL MANAGEMENT INNOVATION USA CONFERENCE WAS A GOOD MOVE FOR OUR COMPANY. THE EVENT WAS WELL ORGANIZED AND THE RIGHT PEOPLE ATTENDED FOR US TO REACH OUR TARGET MARKET. WE LOOK FORWARD TO PRESENTING AT THE NEXT WEAUTOMOTIVE EVENT."

APPLICATIONS ENGINEERING
MANAGER – NEOGRAF SOLUTIONS

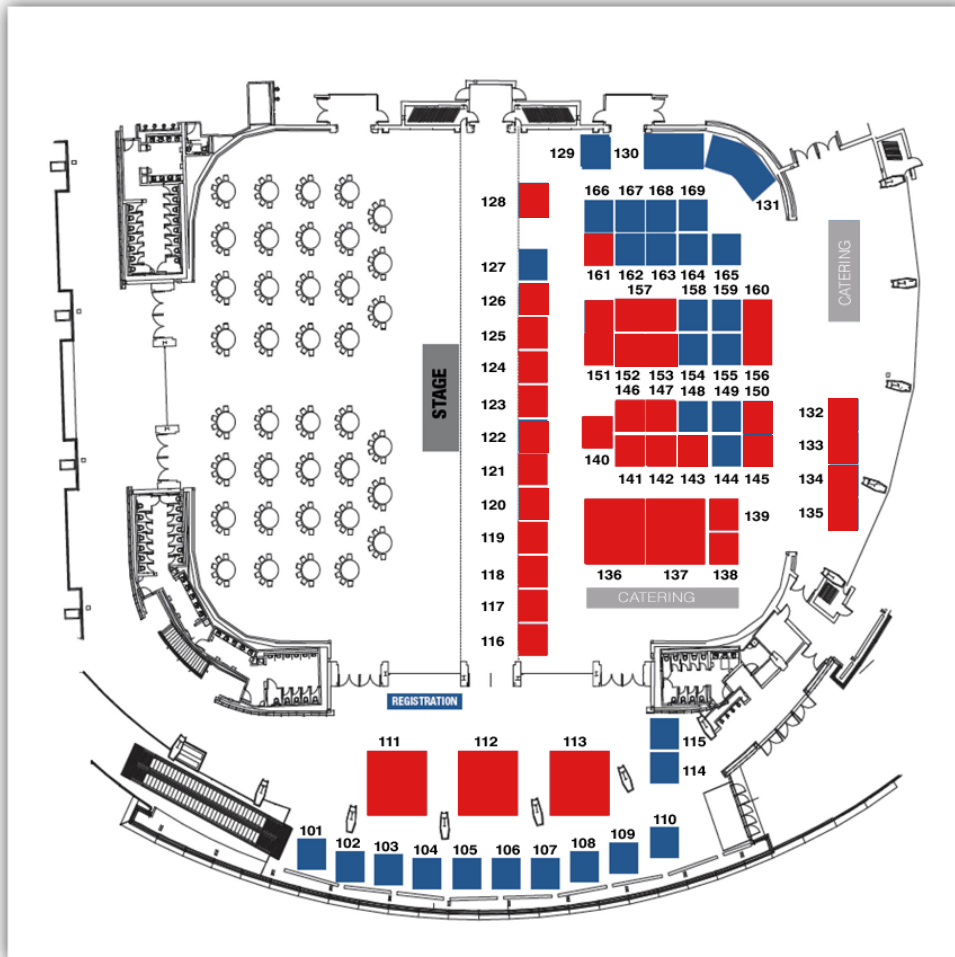


YES

I Would Like To Attend

Please register at www.battery-innovation-usa.com

ADVANCED BATTERY TECHNOLOGY INNOVATION FLOOR PLAN



- 111 - PARKER LORD
- 112 - AKZONOBEL
- 113 - ROGERS CORP
- 115 - CARRAR
- 116 - NEOGRAF
- 117 - AVL
- 118 - INTERTEK
- 119 - ENGINEERING FLUIDS
- 121 - POLYMER SCIENCE
- 122 - EVONOMY
- 123 - TRUMPF
- 124 - AVERY DENNISON
- 125 - DEWESOFT
- 126 - FUJIPOLY
- 128 - ACROLAB
- 132/133 - DASSAULT SYSTEMS
- 134/135 - ATF INC
- 136 - HB FULLER
- 137 - BDTRONIC
- 140 - TOX-PRESSOTECHNIK
- 141 - ZELTWANGER
- 142 - ASPEN AEROGELS
- 143 - MOMENTIVE
- 145 - IPG PHOTONICS
- 146 - COHERENT
- 147 - WACKER
- 150 - DUPONT
- 151 - BASF
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- 157 - VON ROLL

For all enquires regarding sponsorship, speaking opportunities or to exhibit contact

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For marketing, operations & logistics questions please email us on

operations@weconferencegroup.com

EXHIBITOR CATEGORIES

- 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