2024 Vehicle Technologies Office Annual Merit Review
Batteries R&D (BAT) Posters (1/2)
Tuesday, June 4 at 6:00-8:00 PM

BAT272: Pre-Lithiation of High-Capacity Battery Electrodes, Yi Cui, Stanford University
BAT275: Lithium Dendrite Prevention for Lithium Batteries, Wu Xu, PNNL
BAT280: Novel Chemistry: Lithium-Selenium and Selenium-Sulfur Couple, Khalil Amine, ANL
BAT282: Development of High-Energy Lithium-Sulfur Batteries, Dongping Lu, PNNL
BAT285: Investigation of Sulfur Reaction Mechanisms, Enyuan Hu, BNL
BAT286: Lithium-Air Batteries, Khalil Amine, ANL
BAT287: Advanced In Situ Diagnostic Techniques for Battery Materials, Xiao-Qing Yang, BNL
BAT230: Nanostructured Design of Sulfur Cathode for High-Energy Lithium-Sulfur Batteries, Yi Cui, Stanford University
BAT054:Modeling of Amorphous Solid-State Conductors, Gerbrand Ceder, UC Berkeley
BAT309: Electrode Materials Design and Failure Prediction, Venkat Srinivasan, ANL
BAT091: Characterization and Modeling of Lithium-Metal Batteries: First-Principles Modeling and Machine Learning, Kristin Persson, LBNL
BAT225: Model System Diagnostics for High-Energy Cathode Development, Guoying Chen, LBNL
BAT085: Interfacial Processes, Robert Kostecki, LBNL
BAT226: Probing Interfacial Processes Controlled Electrode Stability in Rechargeable Batteries, Chongmin Wang, PNNL
BAT420: Lithium Oxygen Battery Design and Predictions, Larry A. Curtiss, ANL
BAT423: Development of New Electrolytes for Lithium-Sulfur Batteries, Gao Liu, LBNL
BAT424: Multiscale Modeling of Solid-State Electrolytes for Next-Generation Lithium Batteries, Anh Ngo, Larry A. Curtiss, and Venkat Srinivasan, ANL
BAT427: In Situ and Operando Thermal Diagnostics of Buried Interfaces in Beyond Lithium-Ion Cells, Sumajeet Kaur, LBNL
BAT428: High-Capacity, Low-Voltage Titanate Anodes for Sodium-Ion Batteries, Marca Doeff, LBNL
BAT429: Electrolytes and Interfaces for Stable High Energy Sodium-Ion Batteries, Phung Le, PNNL
BAT430: Development of a High-Energy Sodium-Ion Battery with Long Life, Chris Johnson and Khalil Amine, ANL
BAT584: Integrated Atomic-, Meso-, and Micro-Scale Diagnostics of Solid-State Batteries, Yi Cui and William Chueh, Stanford University/SLAC National Accelerator
BAT585: Anode-Free Lithium Batteries, Ji-Guang Zhang and Xia Cao, PNNL
BAT569: Earth-abundant Cathode Active Materials for Li-Ion Batteries: Program Overview, Jason Croy, ANL
BAT586: Earth-abundant Cathode Active Materials for Li-Ion Batteries: Cathode Design and Synthesis, Jason Croy and Arturo Gutierrez, ANL
BAT587: Earth-abundant Cathode Active Materials for Li-Ion Batteries: Theory and Modeling, Hakim Iddir, ANL
BAT588: Earth-abundant Cathode Active Materials for Li-Ion Batteries: System Analysis, Daniel Abraham, ANL
BAT570: Cation-disordered Cathode Materials (DRX+) - Overview and Progress Update, Gerd Ceder, LBNL
BAT589: Cation-disordered Cathode Materials (DRX+) - Synthesis, Scale-up and Cell Testing, Guoying Chen, LBNL
BAT597: Cation-disordered Cathode Materials (DRX+) - Electrolyte Innovation and High-voltage Stability, Bryan McCloskey, LBNL
BAT598: Cation-disordered Cathode Materials (DRX+) - Coatings and Electrode Design, Robert Kostecki, LBNL
BAT028: Materials Benchmarking Activities for Cell Analysis, Modeling, and Prototyping (CAMP) Facility, Wenquan Lu, ANL
BAT030: Electrode Prototyping Activities in ANL's Cell Analysis, Modeling and Prototyping (CAMP) Facility, Steve Trask, ANL
BAT592: Advanced Anode Manufacturing Through Ultra Thin Li Deposition, Subramanya Herle, Applied Materials, Inc.
BAT167: Process Development and Scale-Up of Advanced Active Battery Materials, Ozge Kahvecioglu, ANL
BAT470: Process R&D Using Supercritical Fluid Reactors, Youngho Shin, ANL
BAT168: Process Development and Scale-Up of Critical Battery Materials - Continuous Flow-Produced Materials, Trevor L. Dzwiniel and Krzysztof Pupek, ANL
BAT315: Process R&D for Droplet-Produced Powdered Materials, Joe Libera, ANL
BAT232: High Energy Density Electrodes via Modifications to the Inactive Components and Processing Conditions, Vincent Battaglia, LBNL
BAT164: Advanced Processing Science for Novel Battery Electrode Architectures, Jianlin Li, ORNL
BAT475: Towards Solventless Processing of Thick Electron-Beam (EB) Cured Lithium-Ion Battery Cathodes, Zhijia Du, ORNL
BAT593: Strategies to Enable Lean Electrolytes for High Loading and Stable Lithium-Sulfur Pouch, Shirley Meng, UC San Diego
BAT594: New Engineering Concepts to High Energy Density Li-S Batteries, Prashant Kumta, University of Pittsburgh

2024 Vehicle Technologies Office Annual Merit Review
Batteries R&D (BAT) Posters (2/2)
Tuesday, June 4 at 6:00-8:00 PM

BAT595: Development of Li-S Battery Cells with High Energy Density and Long Cycling Life, Donghai Wang, Pennsylvania State University

BAT596: Development of a High-Rate Li-Air Battery using a Gaseous CO2 Reactant, Amin Salehi-Khojin, University of Illinois at Chicago

BAT522: Thin-Film Lithium Metal Manufacture by Room Temperature Electrodeposition, John Hryn, ANL

BAT592: Advanced Anode Manufacturing Through Ultra Thin Li Deposition, Subramanya Herle, Applied Materials, Inc.

BAT386: eXtreme Fast Charge Cell Evaluation of Lithium-Ion Batteries (XCEL)–Overview and Progress Update, Venkat Srinivasan, ANL

BAT575: eXtreme Fast Charge Electrolyte Development Thrust, Bryan McCloskey, UC Berkeley

BAT456: eXtreme Fast Charge Electrode and Cell Design Thrust, Andrew Jansen, ANL

BAT463: eXtreme Fast Charge Electrochemical and Thermal Performance Thrust, Eric Dufek, INL

BAT377: ReCell–Overview and Update, Jeffrey Spangenberger, ANL

BAT571: ReCell Center-Direct Recycling of Materials, Jessica Durham Macholz, ANL

BAT572: ReCell Center-Advanced Resource Recovery, Yaocai Bai, ORNL

BAT573: ReCell Center-Design for Sustainability, Andrew Colclasure, NREL

BAT574: ReCell Center-Modeling and Analysis, Allison Bennett Irion, ANL

BAT544: Machine Learning for Accelerated Life Prediction and Cell Design, Eric Dufek, INL

BAT546: Scaling-Up and Roll-to-Roll Processing of Highly Conductive Sulfide Solid-State Electrolytes, Dongping Lu, PNNL

BAT547: Continuous high yield production of defect-free, ultrathin sulfide glass electrolytes for next generation solid state lithium metal batteries, Tim Fister, ANL

BAT548: Scale-Up of Novel Li-Conducting Halide Solid State Battery Electrolyte, Mike Tucker, LBNL

BAT576: Solid State Batteries with Long Cycle Life and High Energy Density, Haegyum Kim, LBNL

BAT577: Low-Pressure All-Solid State Cells, Annalise Maughan, NREL

BAT578: Stable Solid-State Electrolyte and Interface for High-Energy Density Lithium-Sulfur Battery, Dongping Lu, PNNL

BAT579: Multifunctional Gradient Coatings for Scalable High-Energy Density Sulfide-Based Solid-State Batteries, Justin Connell, ANL

BAT580: Thick Selenium-Sulfur Cathode Supported Ultra-thin Sulfide Electrolytes for High-Energy All-Solid-State Batteries, Guiliang Xu, ANL

BAT581: Precision Control of the Lithium Surface for Solid-State Batteries, Andrew Westover, ORNL

BAT582: Inorganic-Polymer Composite Electrolytes with Architecture Design for Lithium Metal Solid-State Batteries, Enyuan Hu, BNL

BAT583: Development of All-Solid-State Battery Using Anti-Perovskite Electrolyte, Zonghai Chen, ANL

BAT606: VTO High-Performance Computing Cluster, Ray Grout, NREL

BAT607: Processing and scale-up of high energy density cobalt-free cathodes, Ilias Belharouak, ORNL

BAT608: Cathode-Electrolyte Interphase (CEI) Consortium (Thrust 1): Model cathode materials for next-generation Li-ion batteries, Jie Xiao, PNNL

BAT609: Cathode-Electrolyte Interphase (CEI) Consortium (Thrust 2): Electrolytes and CEI at high voltages, Jordi Cabana, ANL

BAT610: Cathode-Electrolyte Interphase (CEI) Consortium (Thrust 3): Characterization and modeling to understand CEI, Amy Marschilok, BNL

BAT611: Low cost magnetic imaging sensors for advanced battery monitoring, Mahshid (Michelle) Roumi, Parthian Energy LLC

BAT612: Optimizing the Silicon Anode Interfacial Stability to Achieve High Energy, Fast Charge Lithium-Ion Electric Vehicle Batteries at Scale, Alexander Warren, Graphenix Development Inc

BAT613: Domestic Halloysite-Derived Silicon as a Low-Cost High-Performance Anode Material for Li-Ion Batteries, Dean Wheeler, Applied Minerals Inc and Brigham Young University

BAT614: Next Generation of High Energy Density Batteries at Low Cost, Parham Rohani, NanoHydroChem, LLC

BAT615: Novel High-Capacity Composite Anodes for the Upcycling of Spent Graphite from End-of-Life Lithium-Ion Batteries (Phase II), Kyle Marcus, Semplastics EHC LLC

2024 Vehicle Technologies Office Annual Merit Review
Electrification R&D (ELT) Posters
Wednesday, June 5 at 6:00-8:00 PM

ELT208: Highly Integrated Power Module, Veda Galigekere, ORNL
ELT223: Component Testing, Co-Optimization, and Trade-Space Evaluation, Jason Neely, Sandia
ELT222: High-Reliability Ceramic Capacitors to Enable Extreme Power Density Improvements Jack Flicker, Sandia
ELT211: Power Electronics Thermal Management, Gilbert Moreno, NREL
ELT214: Electric Motor Thermal Management, Rajneesh Chaudhary, NREL
ELT219: Power Electronics Materials and Bonded Interfaces-Reliability and Lifetime, Paul Paret, NREL
ELT292: Module Precursors and Prognostics, Faisal Khan, NREL
ELT242: Heterogeneous Integration Technologies for High-Temperature, High-Density, Low-Profile Power Modules of Wide Bandgap Devices in Electric-Drive Applications G.Q. Lu, Virginia Tech
ELT243: Integrated Motor and Drive for Traction Applications Bulent Sarlioglu, University of Wisconsin
ELT244: Next-Generation, High-Temperature, High-Frequency, High-Efficiency, High-Power Density Traction System, Robert Pilawa, UC Berkeley
ELT245: Integration Methods for High-Density Integrated Electric Drives, Alan Mantooth, University of Arkansas
ELT246: Implementation of Wide-Bandgap Devices in Circuits, Circuit Topology, System Integration as well as Silicon Carbide Devices, Anant Agarwal, Ohio State University
ELT247: Cost-Competitive, High-Performance, Highly Reliable Power Devices on Silicon Carbide and Gallium Nitride, Anant Agarwal, Ohio State University
ELT248: Multi-Objective Design Optimization of 100-kW Non-Rare-Earth or Reduced-Rare Earth Machines, Scott Sudhoff, Purdue University
ELT249: Rugged Wide Bandgap Devices and Advanced Electric Machines for High-Power Density Automotive Electric Drives, Victor Veliadis, North Carolina State University
ELT250: Design, Optimization, and Control of a 100-kW Electric Traction Motor Meeting or Exceeding DOE 2025 Targets, Ian Brown, Illinois Institute of Technology
ELT251: Device- and System-Level Thermal Packaging for Electric-Drive Technologies, Yogendra Joshi, Georgia Institute of Technology
ELT303: Second-Life Battery Solar and Storage Facility Demonstration Enabled by Advanced State of Health Tracking, Mauricio Castillo, Repurpose Energy
ELT304: Low Cost and Scalable Second Use Battery Demonstration in Central California for Equitable Domestic Manufacturing and Job Growth, Antoni Tong, Smartville Inc.
ELT305: Second-life Battery in Mobile EV Charging Application for Rural Transportation (SMART), Pingen Chen, Tennessee Technological University
ELT306: Adaptive Second-Use Battery Utilization with Different Degradation Levels for EV Charging Stations and Power Grid Support and Resiliency, Jaber Abu Qahouq, University of Alabama
ELT307: 13 MW Pilot of Second-Use Batteries Incorporating Module Level Power Conversion to Improve Battery Safety and Performance, Seth Khan, Element Energy

2024 Vehicle Technologies Office Annual Merit Review
Materials Technology R&D – Joining, Metals, Propulsion Materials (MAT) Posters
Wednesday, June 5 at 6:00-8:00 PM

MAT271: PMCP 2.0: Thrust 1: Electrical Conductors, Amit Shyam and Tom Watkins, ORNL
MAT272: PMCP 2.0: Thrust 2: Magnetic and Electric Motor Materials, Beth Armstrong and Tom Watkins, ORNL
MAT273: PMCP 2.0: Thrust 3: Materials for Non-Electric Low-Carbon Power System, Dean Pierce and Tom Watkins, ORNL
MAT274: PMCP 2.0: Thrust 4: Advanced Characterization and Computational Methods, Tom Watkins, ORNL
MAT275: LMCP 2.0: Thrust 1: Large Scale Giga Casting, Glenn Grant, PNNL
MAT276: LMCP 2.0: Thrust 2: Increased Use of Secondary Metals, Glenn Grant, PNNL
MAT277: LMCP 2.0: Thrust 3: Local Property improvement for Wrought Aluminum and Cast Magnesium, Glenn Grant, PNNL
MAT278: LMCP 2.0: Thrust 4: Magnesium Corrosion Mitigation, Glenn Grant, PNNL
MAT279: LMCP 2.0: Thrust 5: Advanced Characterization and Computational Methods, Glenn Grant, PNNL
MAT238: Advanced Processing and Additive Manufacturing for Electric Vehicle (EV) Propulsion, Ultra Conductor Development for Enhanced EV performance, Keerti Kappagantula, PNNL

2024 Vehicle Technologies Office Annual Merit Review
Vehicle Analysis (VAN) Posters
Wednesday, June 5 at 6:00-8:00 PM

VAN050: Holistic Modeling of Future Transportation Energy Use and Emissions, Matteo Muratori and Paige Jadun, NREL
VAN051: Regional Optimization of Application and Infrastructure Architecture in Heavy Duty Vehicle Electrification, Vivek Sujan, ORNL
VAN054: Managing Increased Electric Vehicle Shares on Decarbonized Bulk Power Systems, Brennan Borlaug, NREL
VAN055: Assessing Opportunities for Travel Demand Management in the Context of Decarbonization and Equity, Chris Hoehne, NREL
VAN033: Analysis of Employment and Other Economic Impacts of Transportation Electrification, Joann Zhou, ANL
VAN058: ACT States Trucking Analysis, Lynn Daniels, RMI
VAN056: Agent Based, Bottom Up Medium and Heavy duty Electric Vehicle Economics, Operation, Charging, and Adoption, Thomas Bradley, Colorado State University
VAN057: Scalable Truck Charging Demand Simulation for Cost-Optimized Infrastructure Planning, Ann Xu, Electrotempo
VAN050: Holistic Modeling of Future Transportation Energy Use and Emissions, Matteo Muratori and Paige Jadun, National Renewable Energy Laboratory
VAN051: Regional Optimization of Application and Infrastructure Architecture in Heavy Duty Vehicle Electrification, Vivek Sujan, ORNL