2025 Vehicle Technologies Office Annual Merit Review
Batteries R&D (BAT) Posters (1/2)
Tuesday, June 3 at 6:00-8:00 PM

BAT317: Progress and Status of Battery500 Program, Jun Liu, Pacific Northwest National Laboratory

BAT359: Status and Challenges of Electrode and Electrolyte Materials for High Energy Cells, Stanley Whittingham, Binghamton University

BAT360: Cathodes Beyond Lithium Nickel Manganese Cobalt Oxide (NMC) 811, Arumugam Manthiram, University of Texas at Austin

BAT361: Understanding and Improving Lithium Anode Stability, Yi Cui, Stanford University / SLAC National Accelerator Laboratory

BAT523: Development of Long Life Lithium and sulfurized polyacrylonitrile (SPAN) Cells, Ping Liu, University of California-San Diego

BAT364: Synergistic Effects of Electrode and Electrolyte Materials for High Energy Lithium Cells, Jihui Yang, University of Washington

BAT365: Stabilizing Lithium Metal Anodes by Interfacial Layer and New Electrolytes, Zhenan Bao, Stanford University / SLAC National Accelerator Laboratory

BAT367: Multiscale Characterization Studies of Lithium Metal Batteries, Peter Khalifah, Brookhaven National Laboratory

BAT369: High Energy Rechargeable Lithium-Metal Cells: Design, Fabrication and Testing, Jie Xiao, Pacific Northwest National Laboratory

BAT368: Full Cell Diagnostics and Validation to Achieving High Cycle Life, Eric Dufek, Idaho National Laboratory

BAT524: Advanced Electrolytes for Lithium Metal Batteries, Chunsheng Wang, University of Maryland

BAT553: Understanding solid electrolyte interphase (SEI) reactions in Lithium metal and Lithium-Sulfur batteries, Perla Balbuena, Texas A&M University

BAT362: High Capacity S Cathode Materials, Prashant Kumta, University of Pittsburgh

BAT272: Pre-Lithiation of High-Capacity Battery Electrodes, Yi Cui, Stanford University

BAT275: Lithium Dendrite Prevention for Lithium Batteries, Wu Xu, Pacific Northwest National Laboratory

BAT282: Development of High-Energy Lithium-Sulfur Batteries, Dongping Lu, Pacific Northwest National Laboratory

BAT286: Lithium-Air Batteries, Khalil Amine, Argonne National Laboratory

BAT287: Advanced In Situ Diagnostic Techniques for Battery Materials, Xiao-Qing Yang, Brookhaven National Laboratory

BAT230: Nanostructured Design of Sulfur Cathode for High-Energy Lithium-Sulfur Batteries, Yi Cui, Stanford University

BAT225: Model System Diagnostics for High-Energy Cathode Development, Guoying Chen, Lawrence Berkeley National Laboratory

BAT420: Lithium Oxygen Battery Design and Predictions, Larry A. Curtiss, Argonne National Laboratory

BAT423: Development of New Electrolytes for Lithium-Sulfur Batteries, Gao Liu, Lawrence Berkeley National Laboratory

BAT424: Multiscale Modeling of Solid-State Electrolytes for Next-Generation Lithium Batteries, Anh Ngo, Larry A. Curtiss, and Venkat Srinivasan, Argonne National Laboratory

BAT427: In Situ and Operando Thermal Diagnostics of Buried Interfaces in Beyond Lithium-Ion Cells, Sumajeet Kaur, Lawrence Berkeley National Laboratory

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, Xia Cao, Pacific Northwest National Laboratory

BAT030: Electrode Prototyping Activities in ANL's Cell Analysis, Modeling and Prototyping (CAMP) Facility, Steve Trask, Argonne National Laboratory

BAT232: High Energy Density Electrodes via Modifications to the Inactive Components and Processing Conditions, Vincent Battaglia, Lawrence Berkeley National Laboratory

BAT632: Engineering Electrode Interfaces without Solvents, Jianlian Li and Andrew Jansen, Argonne National Laboratory

BAT475: E-Beam Cured Electrolyte Enables Stable Cycling of Li Metal Batteries with NMC 811 cathode, Georgios Polyzos & Jaswinder Sharma, Oak Ridge National Laboratory

BAT183: In Situ Spectroscopies of Processing Next-Generation Cathode Materials, Feng Wang, Argonne National Laboratory

BAT402: Improving Battery Performance through Structure-Morphology Optimization, Venkat Srinivasan, Argonne National Laboratory

BAT633: Five MT per year Supercritical Hydrothermal Continuous One-Step Manufacturing Process, Youngho Shin, Argonne National Laboratory

BAT637: Spinel and Layered Cathode Materials for Next-Generation Batteries: Synthesis and Structural Investigations, Amy Marschilok, Brookhaven National Laboratory

BAT594: New Engineering Concepts to High Energy Density Li-S Batteries, Prashant Kumta, University of Pittsburgh

BAT595: Development of Li-S Battery Cells with High Energy Density and Long Cycling Life, Daiwei 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

BAT599: Fluorinated Glyme Solvents to Extend Lithium-Sulfur Battery Life, Thomas Vaid, Navitas Systems

BAT601: Development of Functional Electrolytes for Li-S Battery Cells, Guoxing Li, Penn State University

BAT602: Extending the Operating Range and Safety of Li-Ion Batteries with New Fluorinated Electrolytes, Sarah Guillot, Koura

BAT603: Fluorinated Ester Local High Concentration Electrolytes for Operation of Li-Ion Batteries under Extreme Conditions, Esther Takeuchi, Stony Brook University

BAT604: Novel Organosulfur-Based Electrolytes for Safe Operation of High Voltage Li-Ion Batteries Over a Wide Operating Temperature, Meinan He, General Motors

2025 Vehicle Technologies Office Annual Merit Review
Batteries R&D (BAT) Posters (2/2)
Tuesday, June 3 at 6:00-8:00 PM

BAT536: Polyester-Based Block Copolymer Electrolytes for Lithium Metal Batteries, Nitash Balsara, Lawrence Berkeley National Laboratory

BAT538: Ion conductive high Li+ transference number polymer composites for solid-state batteries, Bryan McCloskey, Lawrence Berkeley National Laboratory

BAT539: 3D Printing of All-Solid-State Lithium Batteries, Jianchao Ye, Lawrence Livermore National Laboratory

BAT540: Synthesis of Composite Electrolytes with Integrated Interface Design, Sanja Tepavcevic, Argonne National Laboratory

BAT541: Optimizing Sulfide based Solid-State Batteries and Cathode Interfacesbstituted Argyrodite Solid Electrolytes and High Capacity Conversion Cathodes for All-Solid-State Batteries, Jagjit Nanda, SLAC

BAT542: Polymer Electrolytes for Stable Low Impedance Solid State Battery Interfaces, Chelsea Chen, Oak Ridge National Laboratory

BAT543: Integrated Multiscale Model for Design of Robust 3-D Solid-state Lithium Batteries, Brandon Wood, Lawrence Livermore National Laboratory

BAT590: Lithium Halide-Based Superionic Solid Electrolyte and High-Voltage Cathode Interfaces, Robert Sacci, Oak Ridge National Laboratory

BAT591: High-Conductivity and Electrochemically Stable Thioborate Solid-State Electrolytes for Practical All-Solid-State Batteries, Yi Cui, SLAC National Accelerator Laboratory

BAT606: VTO High-Performance Computing Cluster, Ray Grout, National Renewable Energy Laboratory

BAT634: A Novel Integrated End-to-end Processing of End-of-Life EV Batteries for Remanufacturing of New EV Cells, Anthony Roger, Cirba Solutions

BAT636: An Environmentally Sustainable Solution to Completely Recycle and Upcycle Lithium-Ion Battery Components, Xiaofang Yang, Princeton NuEnergy

ELT305: Second-life Battery in Mobile EV Charging Application for Rural Transportation (SMART), Pingen Chen, Tennessee Tech University

ELT307: 13MW Pilot Second-Use Batteries Incorporating Module Level Power Conversion to Improve Battery Safety/Performance, Seth Kahn, Element Energy

ELT304: Low-Cost and Scalable Second use Battery Demonstration in Central California for Equitable Domestic Manufacturing and Job Growth, Antoni Tong, Smartville

ELT306: Adaptive Second-Use Battery Utilization with Different Degradation Levels for EV Charging Stations and Power Grid, Jaber Abu Qahouq, University of Alabama

ELT303: Second-Life Battery Solar and Storage Facility Demonstration Enabled by Advanced State of Health Tracking, Joe Lacap, RePurpose Energy

BAT638: Supplying Refined Battery Materials into the U.S. EV Battery Supply Chain by Synergizing Lithium-Ion Battery Recycling with Mine Waste Reclamation, Lei Pan, Michigan Technical University

BAT600: Liquid Electrolytes for Lithium-Sulfur Batteries with Enhanced Cycle Life and Energy Density Performance, Gaind P. Pandey, Giner Inc

BAT639: Advanced Separation and Processing Technologies for an Integrated Lithium-Ion Battery Recycling System, Ryan Melsert, American Battery Technology Company

BAT640: Expanding Consumer Participation in Consumer Electronics Battery Recycling Programs, Roopali Phadke, Macalester College

BAT641: ZEEBRA: Zoos Educating on Electronics and Battery Recycling Awareness, Lisa Lin, Harris Co. Texas

BAT642: Expanding Consumer Participation in Consumer Electronics Battery Recycling Programs, David Hirschler, Electronic Recyclers International

BAT643: Low-Cost Modular System for Collecting and Recycling Consumer Batteries from MSW Using Artificial Intelligence, Isha Maun, UHV Technologies

BAT644: Shredding and Electrolyte Removal System for Consumer Electronics Battery Transportation and Recycling, Weikang Li, ExPost Technology

BAT645: Novel Design for Disassembly Toolchains and Deployable Robotic Cells, Rob Lawson Shanks, MOLG

BAT646: Low-Temperature Thermal Method to Preprocess the End-of-Life Lithium-Ion Batteries from Consumer Devices, Zhonghua Zhan, Reaction Engineering

BAT647: Demonstrating the Techno-Economic Viability of Automated Characterization and Sorting of Batteries within E-Waste, Carson Potter, AMP Robotics

BAT648: Integrated Automated Sorting and Battery Neutralization to Reduce End-of-Life Logistics Costs for Lithium-Ion Battery Recycling, Zheng Li, Li Industries

BAT649: Enhanced Validation of Advanced Battery Supply Chains (EVALs) Overview Eric Dufek, Idaho National Laboratory

BAT650: Comparing strategies to collect battery-containing devices in states with and without electronics recycling laws Ruby Nguyen, Idaho National Laboratory

BAT496: Silicon Consortium Project: Advanced Characterization of Silicon Electrodes, Robert Kostecki, Lawrence Berkeley National Laboratory

BAT497: Silicon Consortium Project: Electrochemistry of Silicon Electrodes, Christopher Johnson, Argonne National Laboratory

BAT498: Silicon Consortium Project: Next-Gen Materials for Silicon Anodes, Nathan Neale, National Renewable Energy Laboratory

BAT499: Silicon Consortium Project: Mechanical Properties of Silicon Anodes, Katherine Harrison, National Renewable Energy Laboratory

BAT605: Silicon Consortium Project: Next Generation Electrolytes for Silicon Anodes, Gabe Veith, Oak Ridge National Laboratory

BAT501: Integrated Modeling and Machine Learning of Solid-Electrolyte Interface Reactions of the Si Anode, Kristin Persson, Lawrence Berkeley National Laboratory

BAT587: Earth-abundant Cathode Active Materials for Li-Ion Batteries: Theory and Modeling, Hakim Iddir, Argonne National Laboratory

BAT588: Earth-abundant Cathode Active Materials for Li-Ion Batteries: System Analysis, Daniel Abraham, Argonne National Laboratory

2025 Vehicle Technologies Office Annual Merit Review
Batteries(BAT) Posters
Wednesday, June 4 at 6:00-8:00 PM

BAT652: BES01: Aqueous Battery Consortium (ABC) Hub: Probing hydrotrope-driven high concentration aqueous electrolytes for reversible metal anodes using advanced X-ray spectroscopy, Xueli (Sherry) Zheng, SLAC (ABC Hub)

BAT653: BES02: Energy Storage Research Alliance (ESRA) Hub: Accelerating solid state electrochemistry with correlative characterization and machine learning, Shirley Meng, ANL (ESRA Hub)

BAT654: BES 03: Fast and Coopertive Ion Transport in Polumer Electrolytes (FaCT): Mechanistic Studies of Ion Transport Enhancement in Composite Polymer Electrolytes; Chelsea Chen, ORNL (FaCT EFRC)

BAT655: BES04: Mechano-chemical Understanding of Solid Ion Conductors (MUSIC): Bridging mechano-chemical knowledge gaps to enable advanced energy storage solutions, Jeff Sakamoto, Michigan (MUSIC EFRC)

BAT656: BES05: Center for Mesoscale Transport Properties, Amy Marschilok, BNL (m2M EFRC)

BAT657: BES06: Direct Reduction of Metal Oxides to Metals for Electrowinning and Energy Storage, Paul Kempler, University of Oregon

BAT658: BES07: Interrogating chemo-mechanics interactions in Na metal electrodes, Bairav S. Vishnuopi, Purdue

BAT659: BES08: Chalcogels and Chalcocarbogels: High-Performance Electrode Materials for Lithium-Ion Batteries, Saiful M. Islam, Jackson State University

BAT660: BES09: Understanding Electrochemical Reactivity under Confinement in Molecularly Pillared Oxides, Veronica Augustyn NCSU

BAT661: BES10: Understanding Solid-Solution-Reaction vs. Solid-Phase-Transformation Competition of Complex Conversion Materials Dominated by Interfacial Kinetics, Chuan-Fu Lin, Catholic University

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

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

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

2025 Vehicle Technologies Office Annual Merit Review
Electrification R&D (ELT) Posters
Wednesday, June 4 at 6:00-8:00 PM

ELT332 Magnetic component innovation through modeling, Todd Monson, SNL
ELT333: Embedded Sensors for Diagnostics and Prognostics, Jason Neely, SNL
ELT334: Power Module Reliability, Paul Paret, NREL
ELT335: High-Voltage High-Power Traction Inverter Thermal Management, Gilbert Moreno, NREL
ELT329: High-Torque Heavy-Rare-Earth-Free Electric Motor Thermal Management, Bidzina Kekelia, NREL
ELT330: Digital Twin Diagnostics and Prognostics, Shuofeng Zhao, NREL
ELT331: Electric Drives Components: Advancements in Power Module Design for Improved Reliability and Extended Lifespan, Shajjad Chowdhury, ORNL

2025 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

MAT323: CCP 2.0, Thrust 1.6 - Natural Fiber Composites with Low Carbon Resin Matrix; Wenbin Kuang, Pacific Northwest National Laboratory	**MAT329:** Cost Efficient Bio-derivable and Lightweight Materials for Vehicle Thermal Management; Robert Allen, National Renewable Energy Laboratory
MAT324: CCP 2.0 Thrust 2.5 - Electrospun Nanofiber Networks for Multifunctional Composites; Christopher Bowland, Oak Ridge National Laboratory	**MAT330:** Low-cost Highly Recyclable Structures composites Utilizing Vitrimers and Natural Fibers (Basalt) Manufactured via a Novel Pultrusion Method for High-volume Applications; Wenbin Kuang, Pacific Northwest National Laboratory
MAT325: CCP 2.0 Thrust 2.6 - Sensing and Fatigue Behavior Characterization of Multifunctional Composites; Maria Feng, Columbia University	**MAT331:** Design of Additive Manufacturable Dual Curing Resin Systems Enabling Circular Composites; Robert Allen, National Renewable Energy Laboratory
MAT326: CCP 2.0 Thrust 4.4 - 3D Printing of High-fidelity Heteroatom Containing Functional Carbons for Thermal Management; Joshua Damron, Oak Ridge National Laboratory	**MAT332:** Recyclable-by-Design Carbon Fiber Composites for Battery Enclosures; Nicholas Rorrer, National Renewable Energy Laboratory
MAT204: New Frontier in Polymer Matrix Composites via Tailored Vitrimer Chemistry; Tomonori Saito, Oak Ridge National Laboratory	**MAT333:** Tunable PAS Polymer System for Thermalplastic Reinforced Reinforced Body Panels; Erik Rognerud, National Renewable Energy Laboratory
MAT174: Carbon-Fiber Technology Facility (CFTF), Daniel Webb, Oak Ridge National Laboratory	**MAT334:** Textile Reinforced Composites with Improved Dynamics Load Management and Flame-Retardancy for Electric Vehicle Battery Enclosures, Christopher Bowland, Oak Ridge National Laboratory
MAT211: Sustainable Lightweight Intelligent Composites (SLIC) for Next-Generation Vehicles, Masato Mizuta, Newport Sensors, Inc.	
MAT212: Integrated Self sufficient Structurally Integrated Multifunctional Sensors for Autonomous Vehicles, Serena Wang, Acellent Technologies, Inc.	**MAT335:** Plasma Surface Treatment, a Technical Implemention for Carbon Fiber Composites; Michael Toomey, Oak Ridge National Laboratory
MAT254: Conductive Lightweight Hybrid Polymer Composites from Recycled Carbon FibersConductive Lightweight Hybrid Polymer Composites from Recycled Carbon Fibers, Yinghua Jin, Rocky Tech Ltd.	**MAT336:** Multifunctional SMC/BMC Formulation for Low-Cost Manufacture of Fire Resistant EMI Shielded battery Lids; Henry Sodano, Trimer Technologies, LLC
MAT257: Changing the Design Rules of Rubber to Create Lighter Weight, More Fuel Efficient Tires, Kurt Swogger, Molecular Rebars, LLC	**MAT337:** Multi-Functional Adaptive Biomimetic High Energy-Density Battery Enclosure; Lorenzo Mencattelli, Helicoid Industries, Inc.
MAT267: Multiscale Bioinspired Enhancement of Natural-Fiber Composites for Green Vehicles, Lorenzo Mencattelli, Helicoid Industries, Inc.	**MAT338:** Multifunctional Composite Laminate Based Structural Battery for Vehicle Applications; Salah Hamim, Structured Ions, LLC
MAT328: High Performance Polymeric Fibers from Renewaables; Logan Kearney, Oak Ridge National Laboratory	
MAT340: CCP 2.0, Thrust 1.1 - Synthesis and Melt Spinning of Renewable Pitch for Low-Cost Carbon Fiber Precursor Michael Toomey, Oak Ridge National Laboratory	**MAT339:** Functionalized 3D Carbon Nanofiber Composites for High-Performance Autonomous Aerial Vehicles; Wonbong Choi, Ark Power Tech., Inc.

2025 Vehicle Technologies Office Annual Merit Review
Vehicle Analysis (VAN) Posters
Wednesday, June 4 at 6:00-8:00 PM

VAN032: Tracking Evolution of Electric Vehicles and New Mobility Technologies, Yan (Joann) Zhou, Argonne National Laboratory

VAN017: ANL VTO Analysis Modeling Program, Michael Wang, Argonne National Laboratory

VAN021: Transportation Energy Evolution Modeling (TEEM) Program, Ruixiao Sun, Oak Ridge National Laboratory

VAN047: Integrated Modeling and Technoeconomic Assessment of Electric Vehicle Community Charging Hubs, Eleftheria Kontou, University of Illinois

VAN059: Deploying Charging Infrastructure to Catalyze Market Adoption of Electric Vehicles and Improve Mobility, Health, and Economic Outcomes in Disadvantaged Communities, Corey Harper, Carnegie Mellon University

VAN060: Quantifying New and Used Plug-in Electric Vehicle Market Dynamics in Disadvantaged Communities, John Helveston, George Washington University

2025 Vehicle Technologies Office Annual Merit Review
Super Track Posters (Technology Integration)
Wednesday, June 4 at 6:00-8:00 PM

TI162: San Francisco and Bay Area Regional Medium- and Heavy-Duty Electrification Roadmap, Lynn Daniels, Rocky Mountain Institute
TI159: First to Last Mile: Creating an Integrated Goods Movement Charging Network Around the I-710 Corridor, Jack Symington, Los Angeles Cleantech Incubator
TI163: Houston to Los Angeles (H2LA) - Interstate 10 (I-10) Hydrogen Corridor Plan, Bart Sowa, Gas Technology Institute
TI161: MD-HD ZEV Infrastructure Planning with Focus on I-80 Midwest (IN-IL-OH) Corridor, Daniel O'Connor,, Cummins Inc.
TI160: Northeast Electric Highways Study, Pedro Jardim, National Grid USA Service Company Inc.

2025 Vehicle Technologies Office Annual Merit Review
Energy Efficient Mobility Systems (EEMS)
Wednesday, June 4 at 6:00-8:00 PM

EEMS148: Blueprinting Electrified Transit System Implementation, Noah Horesh, Colorado State University
EEMS149: Next Generation Transit Mobility System, Jason Hanlin, Flow State Tech
EEMS150: Offline Reinforcement Learning-Based Traffic Management to Improve System Wide Energy Efficiency, Lokendra Pratap Singh Chauhan, Gen AI
EEMS151: Sustainable means of urban transportation for cities, Tony Gale, Swift Trails