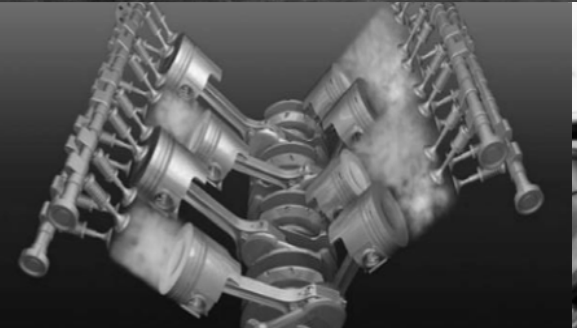
U.S. DEPARTMENT OF
ENERGY

Office of
ENERGY EFFICIENCY &
RENEWABLE ENERGY

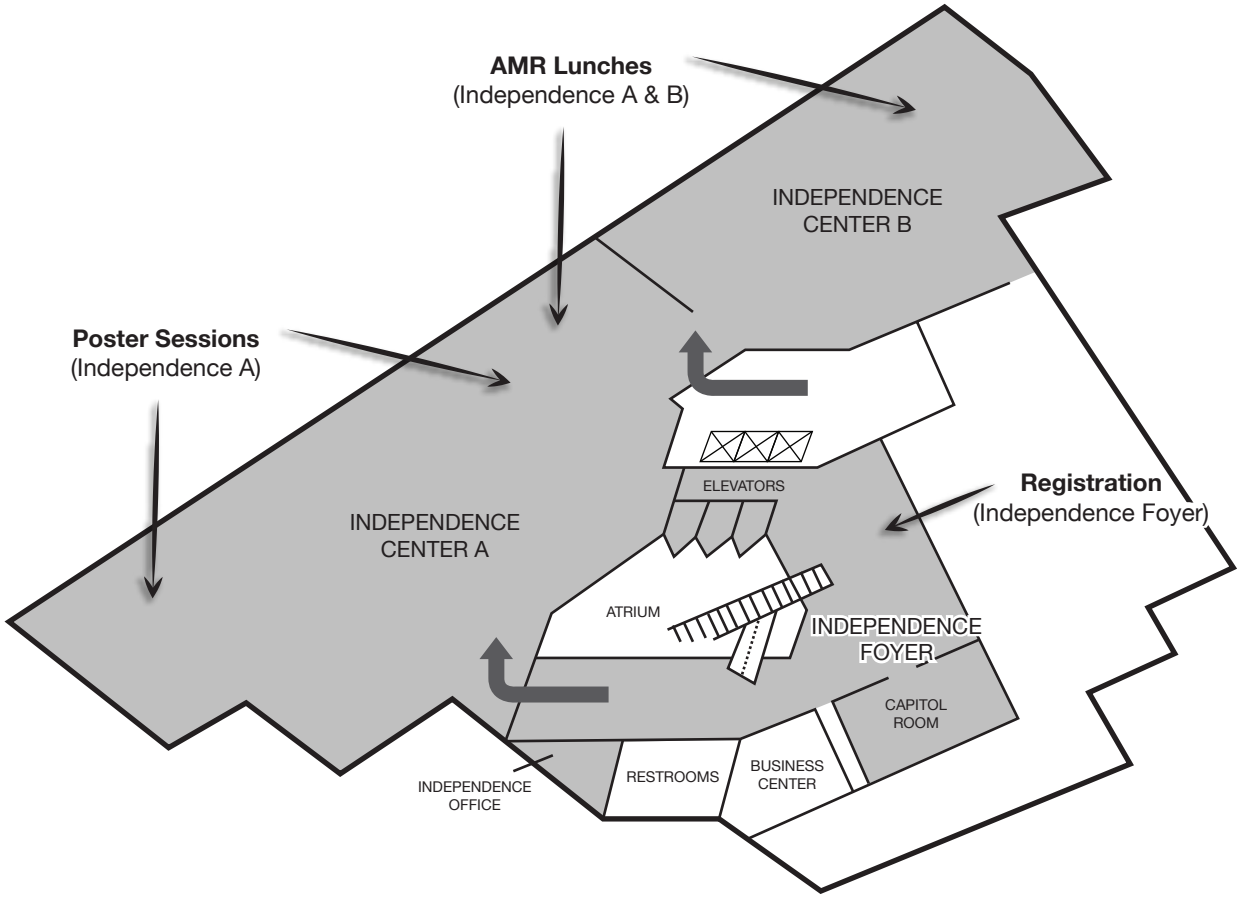
2019 Vehicle Technologies Office Annual Merit Review

Hyatt Regency Crystal City
2799 Jefferson Davis Highway
Arlington, Virginia
June 10-13, 2019

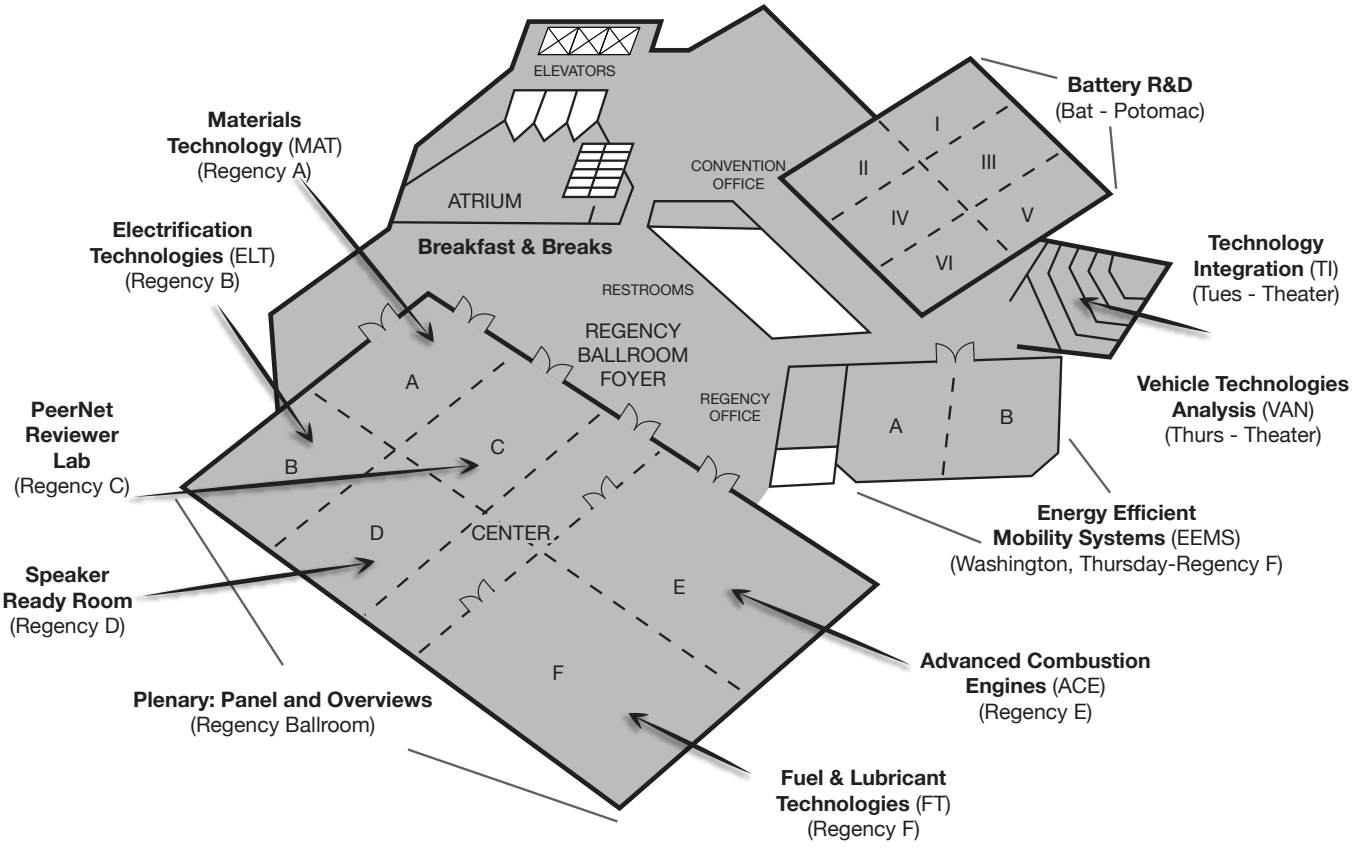


INDEPENDENCE LEVEL (LEVEL E)



BALLROOM LEVEL (LEVEL B)



2019 Vehicle Technologies Office Annual Merit Review

June 10-13, 2019
Hyatt Regency Crystal City, Arlington, Virginia

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Meeting Information

BADGE & REGISTRATION

The Registration Desk is located on Independence Level. All attendees and presenters must visit the Registration Desk upon arrival and pick up their name badges and registration materials.

The official AMR name badge must be worn at all technical sessions (oral and poster) and ancillary events.

REGISTRATION DESK HOURS	
Monday, June 10	10:00AM– 5:30PM
Tuesday, June 11	7:00AM – 5:30PM
Wednesday, June 12	7:00AM – 5:30PM
Thursday, June 13	7:00AM – 1:00PM

GENERAL INFORMATION

Internet Access

There is complimentary Wi-Fi. Select Hyatt Meeting and the WIFI code is 2019AMR.

Recording, Photography, Cell Phone, and Session Etiquette

While you are in a session, please mute all cell phones and other electronic devices. If necessary, please send an email or text, or step out to the hallway to make a call. Unauthorized photography or electronic capture of presentations in session rooms or associated meeting spaces is not permitted.

Special Needs

Please visit the Registration Desk in person during registration hours if you have any special needs requests. A lactation room is available. Visit the Registration Desk for information and access.

Meals

Continental breakfast with one hot protein item, AM/PM coffee breaks, and a buffet lunch will be provided. All items on the buffet will be labeled and indicate if they are vegetarian, gluten free, or vegan. Attendees who have indicated they need a specialty plate for dietary concerns will receive meal cards with their badge. Present the card to hotel staff, and a meal will be provided for you based on your need.

Meeting Proceedings

PROCEEDINGS ON THE WEB

Oral and poster presentations are available on the VT AMR Website.

https://www.energy.gov/eere/vehicles/annual-merit-review.

Speaker Instructions

SPEAKER READY STATION

The Speaker Ready Station will be located in Potomac VI on Monday evening and will then move to Regency D for the remainder of the event. Speakers are not permitted to use their own computers for their presentations. Each session room will be equipped with a laptop, laser pointer, advancer, and microphone.

SPEAKER READY STATION HOURS	
Monday, June 10	5:30PM– 7:00PM
Tuesday, June 11	7:00AM – 5:30PM
Wednesday, June 12	7:00AM – 5:30PM
Thursday, June 13	7:30AM – 4:00PM

If possible, please review your presentation at the Speaker Ready Station prior to the start of your session. Staff will be on hand to help preview your presentation as necessary. **You may not edit your presentation at the meeting.** Computers at the Speaker Ready Station are equipped with software identical to that in the session rooms.

Oral Presenters

Presentations are of varying lengths with corresponding time for Q&A: 15-minute presentations are 10 minutes to present and 5 minutes for Q&A; 30-minute presentations are 20 minutes to present and 10 minutes for Q&A; 45-minute presentations are 30 minutes to present and 15 minutes for Q&A. **Time limits will be strictly enforced.**

Poster Presenters

All poster sessions will take place in Independence A. Please mount your poster on the poster board labeled with your project ID (poster maps are included in this program). The boards will be available after 4:00 PM on Tuesday and Wednesday. Please complete set up of your poster at least 30 minutes prior to the start of the poster session and be ready to present your poster 10 minutes prior to the start of your assigned poster session. Presenters are expected to remain with the poster to answer questions for the duration of the session. Please remove your poster after the session ends.

Reviewer Lab

Reviewer orientation will be held at 5:45 PM on Monday, June 10, in the Washington Room.

REVIEWER LAB HOURS	
Tuesday, June 11	7:00 AM – 5:00 PM
Wednesday, June 12	7:00 AM – 5:00 PM
Thursday, June 13	7:00 AM – 4:00 PM

AMR Feedback

Please provide your feedback on the logistics, content, and format of this year's AMR to assist with the planning of future AMR meetings. Your feedback can be provided via the survey at the following link

https://tinyurl.com/2019VTOAMREval

For 2019, the AMR badge and holder and lanyard are 100% recyclable. The badge holder is constructed of EVA, a PVC-free material that is BPA and phthalates-free, and the lanyard is 100% recycled PET and is dyed with water-based inks.

Please deposit your recyclable badge holder and lanyard in the designated receptacles at the registration area when you are done with them.

Dates for 2020 Vehicle Technologies Office Annual Merit Review

Please join us for the 2020 Vehicle Technologies Office Annual Merit Review at the Hyatt Regency Crystal City, 2799 Jefferson Davis Highway, Arlington, VA 22202, on the following dates.

2020 Annual Merit Review - June1-4, 2020

VTO-funded U.S. DOE National Laboratories

Laboratory Name	Location
Ames Laboratory	Ames, Iowa
Argonne National Laboratory (ANL)	Argonne, Illinois
Brookhaven National Laboratory (BNL)	Upton, New York
Idaho National Laboratory (INL)	Idaho Falls, Idaho
Lawrence Berkeley National Laboratory (LBNL)	Berkeley, California
National Renewable Energy Laboratory (NREL)	Golden, Colorado
Oak Ridge National Laboratory (ORNL)	Oak Ridge, Tennessee
Pacific Northwest National Laboratory (PNNL)	Richland, Washington
Sandia National Laboratories (SNL)	Livermore, California
SLAC National Accelerator Laboratory	Stanford, California

Monday, June 10 - Thursday, June 13

Program at a Glance

Monday, June 10, 2019	
1:00-2:00 PM	DOE and VTO Leadership Presentations
2:00-3:00 PM	Collaboration Opportunities Across Energy Sectors Panel Discussion
3:00 PM	Break
3:30-4:10 PM	Partnerships, Engines and Fuels, and Materials Panel
4:15-4:50 PM	Batteries and Electrification Panel
4:55-5:25 PM	Energy Effecient Mobility Systems, Analysis, Technology Integration
5:25-5:30 PM	Wrap-Up

	ORAL TECHNICAL SESSIONS																							
	Advanced Combustion Engines (ACE)	Technology Integration (TI)	Electrification Technologies (ELT)	Materials Technology (MAT)	Battery R&D (BAT)	Energy Efficient Mobility Systems (EEMS)	Advanced Combustion Engines (ACE)	Fuel and Lubricant Technologies (FT)	Electrification Technologies (ELT)	Materials Technology (MAT)	Battery R&D (BAT)	Energy Efficient Mobility Systems (EEMS)	Advanced Combustion Engines (ACE)	Fuel and Lubricant Technologies (FT)	Electrification Technologies (ELT)	Materials Technology (MAT)	Battery R&D (BAT)	Energy Efficient Mobility Systems (EEMS)	Vehicle Technologies Analysis (VAN)					
	Regency E	Theater	Regency B	Regency A	Potomac	Washington	Regency E	Regency F	Regency B	Regency A	Potomac	Washington	Regency E	Regency F	Regency B	Regency A	Potomac	Regency F	Theater					
	Tuesday, June 11						Wednesday, June 12						Thursday, June 13											
7:00 AM	Continental Breakfast						Continental Breakfast						Continental Breakfast											
8:00 AM	ACE054	TI000	ELT000	MAT124	BAT337	EEMS056			ELT082	MAT139		EEMS016			ELT198	MAT157	BAT276	EEMS029	VAN000					
8:15 AM						EEMS057											BAT327							
8:30 AM	ACE013	TI086	ELT089	MAT125	BAT252		ACE022	FT037	ELT092	MAT138	BAT338	EEMS017	ACE001		ELT199	MAT126	BAT326	EEMS032	VAN026					
8:45 AM						EEMS011											BAT272							
9:00 AM	ACE012	TI087	ELT208	MAT118	BAT253		ACE023	FT067	ELT093	MAT136	BAT339	EEMS033	ACE131		ELT205	MAT158	Panel Discussion	EEMS028	VAN028					
9:15 AM																								
9:30 AM	ACE006	TI088	ELT209	MAT119	BAT374	EEMS058	ACE085	FT069	ELT094	MAT137	BAT340	EEMS059	ACE132		ELT206	MAT129	BAT330		VAN019					
9:45 AM																	BAT230							
10:00 AM	ACE084	TI089	ELT210	MAT120	BAT183		ACE033	FT070	ELT095	MAT131	BAT371	EEMS020	ACE133	FT079	ELT207	MAT144	Panel Discussion		VAN021					
10:15 AM						Panel Disc																		
10:30 AM	Break						Break						Break											
11:00 AM	ACE005	TI090	ELT211	MAT146	BAT375	EEMS035	ACE118	FT071	ELT202	MAT152	BAT383	EEMS027	ACE121	FT086	ELT197	MAT069	BAT312		VAN023					
11:15 AM										MAT153							BAT322							
11:30 AM	ACE010		ELT212	MAT117	BAT376	EEMS007	ACE027	FT072	ELT201	MAT132	BAT384	EEMS034	ACE123	FT080	ELT235	MAT159	BAT365		VAN029					
11:45 AM																	BAT389							
12:00 PM	ACE125		ELT213	MAT101	BAT377	EEMS019	ACE119	FT073	ELT200	MAT133		EEMS060		FT081	ELT204	MAT160	Panel Discussion		VAN031					
12:15 PM											BAT386													
12:30 PM	Lunch						Lunch						Lunch											
2:00 PM	ACE126		ELT214	MAT147	BAT379	EEMS039	ACE056	FT074	ELT190	MAT154	BAT387	EEMS037	ACE100	FT082	ELT239	MAT161	BAT054							
2:15 PM				MAT148												MAT162	BAT309							
2:30 PM	ACE017		ELT215		BAT380	EEMS044	ACE032	FT075	ELT189	MAT155		EEMS061	ACE101	FT083	ELT240	MAT163	BAT329							
2:45 PM				MAT122							BAT388					MAT164	BAT091							
3:00 PM	ACE015		ELT216		BAT381	EEMS040	ACE128	FT076	ELT191	MAT134		EEMS062	ACE102	FT084	ELT241	MAT057	Panel Discussion							
3:15 PM				MAT149	BAT382																			
3:30 PM	Break						Break						Break											
4:00 PM	ACE004		Panel Discussion	MAT127	BAT265	EEMS043	ACE129	FT077	ELT158	MAT156	BAT108	EEMS041	ACE103	FT085	ELT236		BAT370								
4:15 PM					BAT266					MAT142					ELT237		BAT225							
4:30 PM	ACE127			MAT143	BAT264	EEMS023	ACE130	FT078	ELT187		EEMS045		ACE124		ELT238		BAT085							
4:45 PM					BAT263					MAT165	BAT317				Panel Discussion		BAT226							
5:00 PM				MAT150					ELT188								Panel Discussion							
5:15 PM				MAT151																				
5:30-7:30 PM	Poster Session I -- ACE, BAT (Part 1), EEMS, ELT						Poster Session II -- BAT (Part 2), VAN																	

2019 Annual Merit Review Plenary Session Monday, June 10, 2019 Regency Ballroom		
Time	**Presentations**	**Speaker**
1:00 - 1:05 PM	Welcoming Remarks	David Howell, Acting Director, Vehicle Technologies Office
1:05 - 1:15 PM	Office of Energy Efficiency and Renewable Energy Leadership Vision	Daniel Simmons, Assistant Secretary
1:15 - 1:30 PM	Priorities for the Sustainable Transportation Sector	Michael Berube, Acting Deputy Assistant Secretary for Sustainable Transportation, EERE
1:30 - 2:00 PM	Vehicle Technologies Office Priorities: Goals, Key Targets, and Notable R&D Outcomes	David Howell, Acting Director
2:00 - 3:00 PM	Facilitated Panel -- Collaboration Opportunities Across Energy Sectors	Michael Berube, Acting Deputy Assistant Secretary for Sustainable Transportation, EERE
	● Water Power Technologies Office/Advanced Energy Storage Initiative	Alejandro Moreno, Director
	● Office of Electricity	Eric Hsieh, Director, Grid Components and Systems
	● Advanced Manufacturing Office	Valri Lightner, Acting Director
	● Bioenergy Technologies Office	Jonathan Male, Director
3:00 - 3:30 PM	**Break**	
3:30 - 4:10 PM	Panel 1 --Partnerships, Engines and Fuels, and Materials	
	● U.S. DRIVE Partnership	Christy Cooper, Director, U.S. DRIVE Partnership
	● 21st Century Truck Partnership	Ken Howden, Director, 21st Century Truck Partnership
	● Overview of Advanced Combustion Engines and Fuel Technologies	Gurpreet Singh, Program Manager
	¤ Advanced Light-Duty Combustion Consortium	Michael Weismiller, Technology Manager
	¤ Co-Optimization of Fuels and Engines Initiative	Kevin Stork, Technology Manager
	¤ Natural Gas for Transportation	Kevin Stork, Technology Manager
	¤ Low-Temperature Combustion and Emission Control	Ken Howden, Technology Manager
	● Overview of Materials Technology	Gurpreet Singh, Acting Program Manager
	¤ LightMAT Consortium and Joining Lightweight Materials R&D	Sarah Kleinbaum, Technology Manager
	¤ Carbon Fiber Composites	Felix Wu, Technology Manager
	¤ Propulsion Materials R&D	Jerry Gibbs, Technology Manager
4:15 - 4:50 PM	Panel 2 -- Batteries and Electrification	
	● Overview of Batteries and Electrification R&D	Steven Boyd, Program Manager
	¤ Advanced Battery Cost Reduction and R&D Focus	Brian Cunningham, Technology Manager
	¤ Low-/No-Cobalt Cathodes	Peter Faguy, Technology Manager
	¤ Lithium-Ion Battery Recycling and Extreme Fast Charging R&D	Samm Gillard, Technology Manager
	¤ Beyond Lithium-Ion Battery Materials Research	Tien Duong, Technology Manager
	● Electric Drive Research Consortium	Susan Rogers, Technology Manager
	● Electric Vehicle Charging Infrastructure and Grid R&D	Lee Slezak, Technology Manager
4:55 - 5:25 PM	Panel 3 -- Energy Efficient Mobility Systems, Technology Integration, and Analysis	
	● Overview of Energy Efficient Mobility Systems	David Anderson, Program Manager
	¤ SMART Mobility Modeling Workflow	Erin Boyd, Technology Manager
	¤ Mobility Energy Productivity Metric	Prasad Gupte, Technology Manager
	¤ Value of Energy Efficient Mobility Systems	Heather Croteau, Technology Manager
	● Overview of Technology Integration	Mark Smith, Program Manager
	¤ Technology Integration Tools, Data, and Technical Assistance	Dennis Smith, Technology Manager
	¤ Technology Integration Stakeholder Support and Portfolio	Linda Bluestein, Technology Manager
	¤ EcoCAR Mobility Challenge	Connie Bezanson, Education and Outreach Manager
	● Analysis	Jacob Ward, Technology Manager
5:25 - 5:30 PM	Wrap-Up	David Howell, Acting Director, Vehicle Technologies Office

Tuesday, June 11

Oral Presentations

Tuesday, June 11, Oral Presentations		
Time	**Advanced Combustion Engines (ACE)**	**Technology Integration (TI)**
	Regency E	**Theater**
7:00 AM	Continental Breakfast	
8:00 AM	ACE054: Rapid Compression Machine (RCM) Studies to Understand Autoignition Fundamentals Scott Goldsborough, ANL	TI000: Technology Integration -- Data and Systems Research Overview Mark Smith, DOE
8:15 AM		
8:30 AM	ACE013: Chemical Kinetic Models for Advanced Engine Combustion Bill Pitz, LLNL	TI086: Collaborative Approaches to Foster Energy Efficient Logistics in the Albany - New York City Corridor Jose Holguin-Veras, Rensselaer Polytechnic Institute
8:45 AM		
9:00 AM	ACE012: Model Development and Analysis of Clean and Efficient Engine Combustion Russell Whitesides, LLNL	TI087: Electric Last-Mile Project Grant Fisher, Pecan Street Inc.
9:15 AM		
9:30 AM	ACE006: Advanced Ignition for Gasoline Combustion Isaac Ekoto, SNL	TI088: Making the Business Case for Smart, Shared, and Sustainable Mobility Services Shannon Walker, City of Seattle Department of Transportation
9:45 AM		
10:00 AM	ACE084: Development and Validation of Simulation Tools for Advanced Ignition Systems Riccardo Scarcelli, ANL	TI089: Accelerating Alternative Fuel Adoption in Mid-America Kelly Gilbert, Metropolitan Energy Center Inc.
10:15 AM		
10:30 AM	**Break**	
11:00 AM	ACE005: Spray Combustion and Soot Formation: Cross-Cut Engine Research Scott Skeen, SNL	TI090: Southeast Alternative Fuel Deployment Partnership Will Manget, Center for Transportation and the Environment
11:15 AM		
11:30 AM	ACE010: Fuel Injection and Spray Research Using X-Ray Diagnostics Christopher Powell, ANL	
11:45 AM		
12:00 PM	ACE125: Model Development of Fundamental Combustion Processes Tuan Nguyen, SNL	
12:15 PM		
12:30 PM	**Lunch**	
2:00 PM	ACE126: Developing a Framework for Performing High-Fidelity Engine Simulations using Nek5000 Code for Exascale Computing Muhsin Ameen, ANL	
2:15 PM		
2:30 PM	ACE017: Accelerating Predictive Simulation of Internal Combustion Engines (ICEs) with High-Performance Computing (HPC) K. Dean Edwards, ORNL	
2:45 PM		
3:00 PM	ACE015: Stretch Efficiency for Combustion Engines: Exploiting New High-Dilution Combustion Regimes James Szybist, ORNL	
3:15 PM		
3:30 PM	**Break**	
4:00 PM	ACE004: Low-Temperature Gasoline Combustion (LTGC) Engine Research John Dec, SNL	
4:15 PM		
4:30 PM	ACE127: Advanced Combustion Concepts for High-Efficiency Gasoline Engines Scott Curran, ORNL	
4:45 PM		
5:00 PM		
5:15 PM		
5:30 - 7:30 PM	Poster Session I -- ACE, BAT (Part 1), EEMS, ELT	

Oral Presentations-continued

Tuesday, June 11, Oral Presentations		
Time	**Electrification Technologies (ELT)**	**Materials Technology (MAT)**
	Regency B	**Regency A**
7:00 AM	**Continental Breakfast**	
8:00 AM	ELT000: DOE Electric Drive Technologies Overview Susan Rogers, DOE	MAT124: Integrated Computational Materials Engineering (ICME) Predictive Tools for Low-Cost Carbon Fiber for Lightweight Vehicles Xiadong Li, University of Virginia
8:15 AM		
8:30 AM	ELT089: Assessing the North American Supply Chain for Traction-Drive Inverters, Motors, and Batteries for Class 3-8 Hybrid Electric and Plug-In Electric Commercial Vehicles Chris Whaling, Synthesis Partners	MAT125: Integrated Computational Materials Engineering (ICME) Predictive Tools for Low-Cost Carbon Fiber Don Collins, Western Research Institute
8:45 AM		
9:00 AM	ELT208: Highly Integrated Power Module Emre Gurpinar, ORNL	MAT118: Functionally Designed Ultra-Lightweight Carbon Fiber Reinforced Thermoplastic Composites Door Assembly Srikanth Pilla, Clemson University
9:15 AM		
9:30 AM	ELT209: High-Voltage, High-Power Density Traction Drive Inverter Gui-Jia Su, ORNL	MAT119: Ultra-Light Hybrid Composite Door Design, Manufacturing, and Demonstration Nate Gravelle, TPI
9:45 AM		
10:00 AM	ELT210: Development of Next-Generation Vertical Gallium-Nitride Devices for High-Power Density Electric Drivetrain Greg Pickrell, SNL	MAT120: Ultra-Light Door Design, Manufacturing, and Demonstration Tim Skszek, Vehma
10:15 AM		
10:30 AM	**Break**	
11:00 AM	ELT211: Power Electronics Thermal Management Gilbert Moreno, NREL	MAT146: Ultra-Lightweight, Ductile Carbon Fiber Reinforced Composites Vlastimil Kunc, ORNL
11:15 AM		
11:30 AM	ELT212: Non-Heavy Rare-Earth High-Speed Motors Tsarafidy Raminosoa, ORNL	MAT117: Development and Integration of Predictive Models for Manufacturing and Structural Performance of Carbon Fiber Composites in Automotive Applications Venkat Aitharaju, General Motors
11:45 AM		
12:00 PM	ELT213: High-Fidelity Multiphysics Material Models for Electric Motors Jason Pries, ORNL	MAT101: Integrated Computational Materials Engineering (ICME) Development of Carbon Fiber Composites for Lightweight Vehicles Xuming Su, Ford
12:15 PM		
12:30 PM	**Lunch**	
2:00 PM	ELT214: Electric Motor Thermal Management Kevin Bennion, NREL	MAT147: Continuous Fiber, Malleable Thermoset Composites with Sub-1-Minute Dwell Times: Validation of Impact Performance and Evaluation of the Efficacy of the Compression-Forming Process Philip Taynton, Mallinda
2:15 PM		MAT148: Spider Silk Proteins as Carbon Fiber Precursors Pol Grappe, 4X Technologies
2:30 PM	ELT215: Permanent Magnets without Critical Rare Earths to Enable Electric Drive Motors with Exceptional Power Density Iver Anderson, Ames Laboratory	
2:45 PM		MAT122: Close-Proximity Electromagnetic Carbonization (CPEC) Felix Paulauskas, ORNL
3:00 PM	ELT216: Isotropic, Bottom-Up Soft Magnetic Composites for Rotating Machines Todd Monson, SNL	
3:15 PM		MAT149: Non-Rare Earth Magnesium Bumper Beams Scott Whalen, PNNL
3:30 PM	**Break**	
4:00 PM	Panel Discussion: Electric Drive Technologies Innovations	MAT127: USAMP Low-Cost Magnesium Sheet Component Development and Demonstration Project Randy Gerken, Fiat Chrysler Automotive
4:15 PM		
4:30 PM		MAT143: Mitigating Corrosion in Magnesium Sheet in Conjunction with a Sheet-Joining Method that Satisfies Structural Requirements within Subassemblies Saumyadeep Jana, PNNL
4:45 PM		
5:00 PM		MAT150: Low-Cost Corrosion Protection for Magnesium Aashish Rohatgi, PNNL
5:15 PM		MAT151: Phase-Field Modeling of Corrosion for Design of Next-Generation Magnesium-Aluminum Vehicle Joints Adam Powell, Worcester Polytechnic Institute
5:30 - 7:30 PM	Poster Session I -- ACE, BAT (Part 1), EEMS, ELT	

Tuesday, June 11

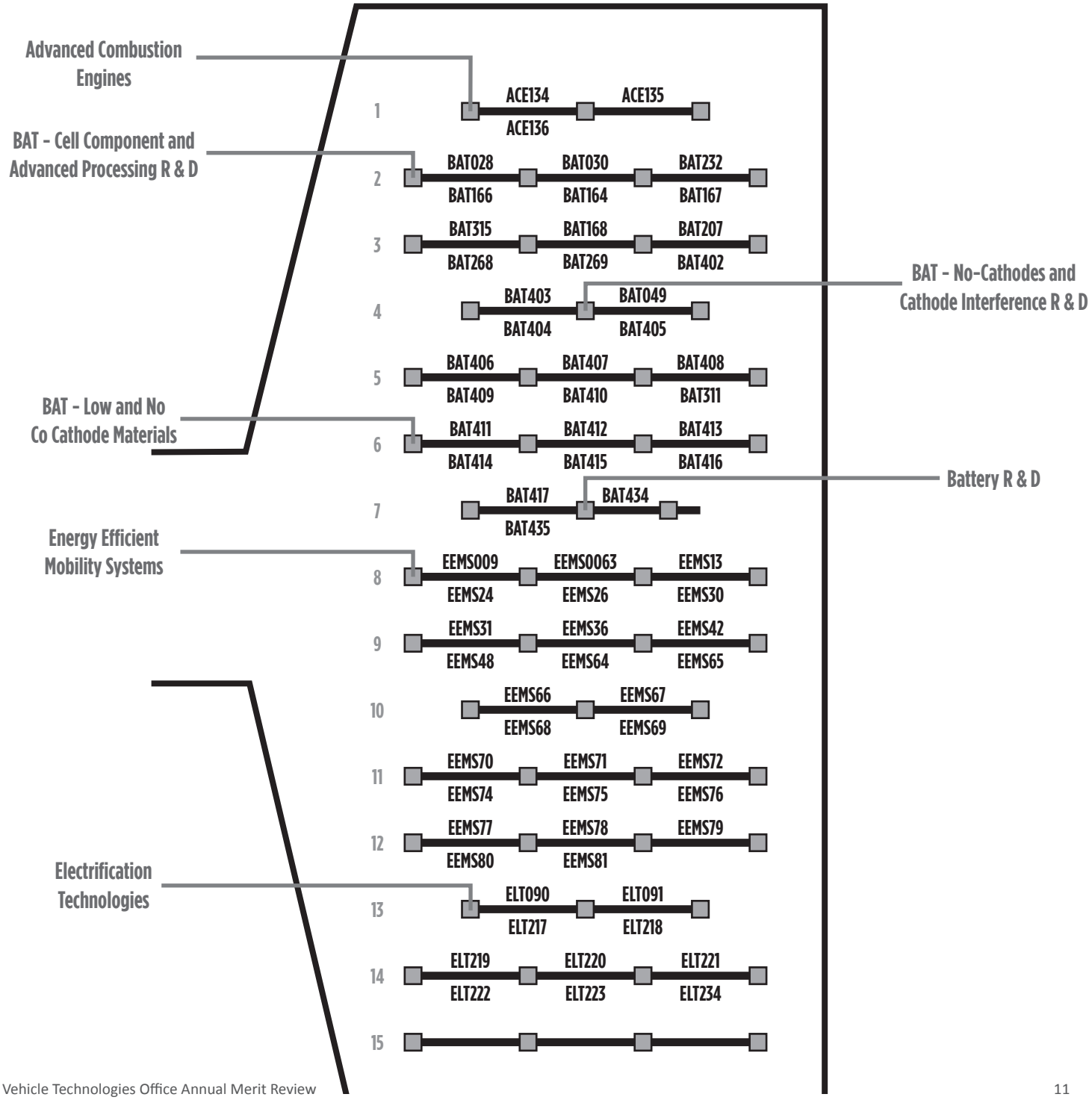
Oral Presentations-continued

Tuesday, June 11, Oral Presentations		
Time	**Battery R&D (BAT)**	**Energy Efficient Mobility Systems (EEMS)**
	Potomac	**Washington**
7:00 AM	**Continental Breakfast**	
8:00 AM	BAT337: The Low Cobalt, Cobalt-Free Initiative for Next-Generation Lithium-Ion Cathode Materials Peter Faguy, DOE	EEMS056: Overview of the Workflow Ann Schlenker, ANL
8:15 AM		EEMS057: Urban Traveler – Changes and Impacts: Mobility Energy Productivity (MEP) Metric Venu Garikapali, NREL
8:30 AM	BAT252: Enabling High-Energy, High-Voltage Lithium-Ion Cells for Transportation Applications: Project Completion Highlights, Part I Jason Croy, ANL	
8:45 AM		EEMS011: Integrated Mesoscale Urban Systems Modeling with Behavior, Energy, Autonomy, and Mobility (BEAM) to Explore Shared and Automated Vehicles and their Impacts on Energy and Mobility Colin Sheppard, LBNL
9:00 AM	BAT253: Enabling High-Energy, High-Voltage Lithium-Ion Cells for Transportation Applications: Project Completion Highlights, Part II Dan Abraham, ANL	
9:15 AM		
9:30 AM	BAT374: Stabilizing Cathode/Electrolyte Interface by New Electrolyte Design John Zhang, ANL	EEMS058: Systems and Modeling for Accelerated Research in Transportation (SMART) Mobility Consortium Tools and Process Development Aymeric Rousseau, ANL
9:45 AM		
10:00 AM	BAT183: In Situ Spectroscopy of Solvothermal Synthesis of Next-Generation Cathode Materials Feng Wang, BNL	
10:15 AM		Panel Discussion
10:30 AM	**Break**	
11:00 AM	BAT375: Deep-Dive into Next-Generation Cathode Materials (2A): Realizing the Potential of Layered Transition-Metal Oxides Jason Croy, ANL	EEMS035: Coupling Land-Use Models and Network-Flow Models Paul Waddell, University of California at Berkeley
11:15 AM		
11:30 AM	BAT376: Deep-Dive into Next Generation Cathode Materials (2B): A New Class of Materials--Disordered Rocksalt Transition-Metal Oxides Gerbrand Ceder, LBNL	EEMS007: Mobility Data and Models Informing Smart Cities Joshua Sperling, NREL
11:45 AM		
12:00 PM	BAT377: Lithium-Ion Recycling Center Overview, Jeff Spangenberger and Linda Gaines, ANL	EEMS019: Smart Urban Signal Infrastructure and Control H.M. Abdul Aziz, ORNL
12:15 PM		
12:30 PM	**Lunch**	
2:00 PM	BAT379: Direct Cathode-to-Cathode Efforts John Vaughey, ANL	EEMS039: Fueling Infrastructure for Future Shared and Shared-Automated Vehicles John Smart, INL
2:15 PM		
2:30 PM	BAT380: Other Materials Separation Kris Pupek, ANL	EEMS044: Quantify National Energy Impact of Electrified Shared Mobility with Infrastructure Support Joann Zhou, ANL
2:45 PM		
3:00 PM	BAT381: Design For Recycling Jianlin Li, ORNL	EEMS040: Dynamic Wireless Power Transfer Feasibility Omer Onar, ORNL
3:15 PM	BAT382: Modeling and Analysis for Recycling Qiang Dai, ANL	
3:30 PM	**Break**	
4:00 PM	BAT265: Miltec: Development of Ultraviolet Curable Binder Technology to Reduce Manufacturing Cost and Improve Performance of Lithium-Ion Battery Electrodes John Arnold, Miltec	EEMS043: Mobility Behavioral Responses to Transportation Network Company Services Alejandro Henao, NREL
4:15 PM	BAT266: Co-Extrusion (CoEx) for Cost Reduction of Advanced High-Energy-and-Power Battery Electrode Manufacturing Ranjeet Rao, PARC	
4:30 PM	BAT264: Vanderbilt: High-Performance Lithium-Ion Battery Anodes from Electrospun Nanoparticle/Conducting Polymer Nanofibers Peter Pintauro, Vanderbilt University	EEMS023: The Whole Traveler Transportation Behavior Study Anna Spurlock, LBNL
4:45 PM	BAT263: PPG: Electrodeposition for Low-Cost, Water-Based Electrode Manufacturing Stuart Hellring, PPG	
5:30 - 7:30 PM	Poster Session I -- ACE, BAT (Part 1), EEMS, ELT	

Tuesday, June 11 - Poster Session Diagram

Independence A

Advanced Combustion Engines (Row 1)
Battery R&D (Rows 2-7)
Energy Efficient Mobility Systems (Rows 8-12)
Electrification Technologies (Rows 13-14)



Tuesday, June 11

Poster Presentations
Independence A (5:30 – 7:30 PM)

Advanced Combustion Engines (ACE)		
ACE134	Multi-Mode Combustion in Light-Duty Spark-Ignition Engines	Toby Rockstroh, ANL
ACE135	Development of Simulations Tools for Compression Ignition Engines	Sibendu Som, ANL
ACE136	Medium-Duty Diesel Combustion	Steven Busch, SNL
Battery R&D (BAT)		
BAT028	Materials Benchmarking Activities for Cell Analysis, Modeling, and Prototyping (CAMP) Facility	Wenquan Lu, ANL
BAT030	Cell Analysis, Modeling, and Prototyping (CAMP) Facility Research Activities	Steve Trask, ANL
BAT049	Tailoring Integrated Layered- and Spinel-Electrode Structures for High-Capacity Lithium-Ion Cells	Jason Croy, ANL
BAT164	Thick, Low-Cost, High-Power Lithium-Ion Electrodes via Aqueous Processing	Jianlin Li, ORNL
BAT166	Post-Test Analysis of Lithium-Battery Materials	Ira Bloom, ANL
BAT167	Process Development and Scale-Up of Advanced Active Battery Materials	Ozge Kahvecioglu, ANL
BAT168	Process Development and Scale-Up of Critical Battery Materials -- Continuous Flow-Produced Materials	Krzysztof Pupek, ANL
BAT207	Toward Solventless Processing of Thick Electron-Beam (EB) Cured Lithium-Ion Battery Cathodes	David Wood, ORNL
BAT232	High Energy Density Electrodes via Modifications to the Inactive Components and Processing Conditions	Vincent Battaglia, LBNL
BAT268	Low-Cost Manufacturing of Advanced Silicon-Based Anode Materials	Henry Costantino, Group14
BAT269	An Integrated Flame-Spray Process for Low-Cost Production of Battery Materials	Chad Xing, University of Missouri
BAT311	Understanding and Mitigating Interfacial Reactivity Between Electrode and Electrolyte	Dusan Strmcnik, ANL
BAT315	Process R&D for Droplet-Produced Powdered Materials	Joe Libera, ANL
BAT402	Improving Battery Performance through Structure-Morphology Optimization	Venkat Srinivasan, ANL
BAT403	A Commercially Viable Approach to Manufacturing Solid-State Batteries	Brandon Wood, LLNL
BAT404	Disordered Rocksalt Transition-Metal Oxides (TMOs): Model Systems and Spectroscopic Characterization	Jagit Nanda, ORNL
BAT405	Advanced Microscopies of Next-Generation Lithium-Ion Battery Cathode Materials	Chongmin Wang, PNNL
BAT406	Disordered Rocksalt Transition-Metal Oxides (TMOs): Synthetic Strategies	Guoying Chen, LBNL
BAT407	Understanding and Modifying Cathode/Electrolyte Interfaces	Jie Xiao, PNNL
BAT408	Interfacial Studies of Emerging Cathode Materials	Marca Doeff, LBNL
BAT409	Molecular-Level Understanding of Cathode/Electrolyte Interfaces	Mike Toney, SLAC
BAT410	Developing Scanning Electrochemical Microscopy (SECM) for Cathode Interfaces	Robert Tenent, NREL

(continued on next page)

Battery R&D (BAT)		
BAT411	Aerosol Manufacturing Technology for Production of Cathode Materials	Miki Oljaca, Cabot
BAT412	Lithium-Iron and Aluminum Nickelate, An Advanced Cobalt-Free Cathode Material	Ilias Belharouak, ORNL
BAT413	High-Performance, Low-Cobalt Cathode Materials for Lithium-Ion Batteries	Donghai Wang, Penn State University
BAT414	Enhancing Oxygen Stability In Low-Cobalt Layered Oxide Cathode Materials	Huolin Xin, University of California at Irvine
BAT415	High-Nickel, Cobalt-Free Cathode Materials for Lithium-Ion Batteries	Aramugam Manthiram, University of Texas at Austin
BAT416	Cobalt-Free Cathode Materials and Their Novel Architectures	Shirley Meng, University of California at San Diego
BAT417	Cobalt-Free Cathodes for Next Generation Lithium-Ion Batteries	Neil Kidner, Nexceris
BAT434	ReCell Center Focus Areas: Direct Cathode Recycling and Other Materials Separation	Jeff Spangenberger, ANL
BAT435	ReCell Center Focus Areas: Design for Recycling and Modeling and Analysis	Jeff Spangenberger, ANL
Energy Efficient Mobility Systems (EEMS)		
EEMS009	Modeling and Simulation of Automated Mobility Districts	Venu Garikapati, NREL
EEMS013	ANL Core Tools - Simulation	Aymeric Rousseau, ANL
EEMS024	Market Acceptance of Advanced Automotive Technologies (MA3T) - Mobility Choice: Analyzing the Competition, Synergy, and Adoption of Fuel and Mobility Technologies	Zhenhong Lin, ORNL
EEMS026	Expanding Regional Simulations of Connected and Automated Vehicles (CAVs) to the National Level and Assessing Uncertainties	Tom Stephens, ANL
EEMS030	Experimental Evaluation of Eco-Driving Strategies	Wei-Bin Zhang, LBNL
EEMS031	Traffic Micro-Simulation of Energy Impacts of Connected and Automated Vehicles (CAV) Concepts at Various Market Penetrations	Hau Liu, LBNL
EEMS036	Reinforcement Learning-Based Traffic Control to Optimize Energy Usage and Throughput	Tom Karnowski, ORNL
EEMS042	High-Performance Computing (HPC) Enabled Computation of Demand Models at Scale to Predict the Energy Impacts of Emerging Mobility Solutions	Jane Macfarlane, LBNL
EEMS048	An Analysis of the Spatial Distribution and Impacts of One-Way Car-Sharing Programs on Transit Ridership and Energy Use	Tom Wenzel, LBNL
EEMS063	Ubiquitous Traffic Volume Estimation through Machine Learning Procedure	Venu Garikapati, NREL
EEMS064	Modeling Connected and Automated Vehicles (CAVs) Transitions Dynamics and Identifying Tipping Points	Jeff Gonder, NREL
EEMS065	Analysis of Platooning Trucks to Better Understand Dynamic Air Flow	Michael Lammert, NREL
EEMS066	Livewire Data Platform – A Solution for EEMS Data Sharing	Kay Kelly, NREL
EEMS067	ORNL Connected and Automated Vehicle (CAV) Testbed	Dean Deter, ORNL

(continued on next page)

Tuesday, June 11

Poster Presentations - continued
Independence A (5:30 – 7:30 PM)

Energy Efficient Mobility Systems (EEMS)		
EEMS068	Demonstrate Mobility Energy Productivity (MEP) Benefit of Intelligent Electric Vehicle (EV) Infrastructure Design Using Agent-Based Models (ABM)	Eric Wood, NREL
EEMS069	Next-Generation Intelligent Traffic Signal for Multimodal, Shared, and Automated Future	Andrew Powch, Xtelligent
EEMS070	Development of a Connected and Automated Electric Vehicle with 4-in. Wheel Motors	Jeffrey Wishart, Local Motors
EEMS071	Plug-in Hybrid Vehicle Optimization Using Vehicle-to-Cloud Connectivity	Earl Sharpe, Macchina
EEMS072	Charging Infrastructure for Freight	Yutaka Motoaki, INL
EEMS074	Systems and Modeling for Accelerated Research in Transportation (SMART) Cities Topology – Curbs and Parking	Stanley Young, NREL
EEMS075	General Microsimulation to Meso-Simulation Workflow	Xiao-Yun Lu, LBNL
EEMS076	Workflow to Simulate Connected and Automated Vehicle Control under Realistic Traffic Conditions	Dominik Karbowski, ANL
EEMS077	Transportation System Control for Taxi/Transportation Network Company Simulations	Josh Auld, ANL
EEMS078	Simulation Model Results for Energy and Mobility Impact of Behavioral Scenarios in POLARIS	Josh Auld, ANL
EEMS079	Travel-Time Use and Value With Mobility Services	Paul Leiby, ORNL
EEMS080	Typology of Cities for Systems and Modeling for Accelerated Research in Transportation (SMART) Mobility Consortium	Paty Romero-Lankao, NREL
EEMS081	Nationwide Energy and Mobility Impacts of Connected and Automated Vehicle Technologies	David Gohlke, ANL
Electrification Technologies (ELT)		
ELT090	Dual-Phase, Soft Magnetic Laminates for Low-Cost, Non-Reduced Rare-Earth Containing Electrical Machines	Min Zou, GE Global Research
ELT091	Cost-Effective 6.5% Silicon Steel Laminate for Electric Machines	Jun Cui, Iowa State University
ELT217	Integrated/Traction Drive Thermal Management	Bidzina Kekelia, NREL
ELT218	Advanced Power Electronics Designs -- Reliability and Prognostics	Doug DeVoto, NREL
ELT219	Power Electronics Materials and Bonded Interfaces -- Reliability and Lifetime	Paul Paret, NREL
ELT220	Ultraconducting Copper	Tolga Aytug, ORNL
ELT221	Integrated Electric Drive System	Shajjad Chowdhury, ORNL
ELT222	High-Reliability Ceramic Capacitors to Enable Extreme Power Density Improvements	Jack Flicker, SNL
ELT223	Component Testing, Co-Optimization, and Trade-Space Evaluation	Jason Neely, SNL
ELT234	Soft Magnets to Achieve High-Efficiency Electric Drive Motors of Exceptional Power Density	Matthew Kramer, Ames Laboratory

Wednesday, June 12, Oral Presentations		
Time	**Advanced Combustion Engines (ACE)**	**Fuel and Lubricant Technologies (FT)**
	Regency E	**Regency F**
7:00AM	**Continental Breakfast**	
8:00 AM		
8:15 AM		
8:30 AM	ACE022: Joint Development and Coordination of Emissions Control Data and Models (Cross-cut Lean Exhaust Emissions Reduction Simulations (CLEERS) Analysis and Coordination) Josh Pihl, ORNL	FT037: Co-Optimization of Fuels and Engines (Co-Optima) Robert Wagner, ORNL
8:45 AM		
9:00 AM	ACE023: Fundamentals in Selective Catalytic Reduction (SCR), Filter, and Protocol Yong Wang, PNNL	FT067: Multi-Mode (MM)/Multi-Mode Compression Ignition (MMCI): Fuel Property Characterization and Prediction Gina Fioroni, NREL
9:15 AM		
9:30 AM	ACE085: Low-Temperature Emission Control to Enable Fuel-Efficient Engine Commercialization Todd Toops, ORNL	FT069: MM: Fuel Property Impacts and Limitations on Combustion - Spark Ignition Focus James Szybist, ORNL
9:45 AM		
10:00 AM	ACE033: Emission Control for Lean Gasoline Engines Vitaly Prikhodko, ORNL	FT070: MM: Autoignition in MM/Advanced Compression Ignition (ACI) Combustion, Part 1 Magnus Sjoberg, SNL
10:15 AM		
10:30 AM	**Break**	
11:00 AM	ACE118: CLEERS Passive NOx Adsorber (PNA) Janos Szanyi, PNNL	FT071: MM: Autoignition in MM/ACI Combustion, Part 2 Dean Edwards, ORNL
11:15 AM		
11:30 AM	ACE027: Next-Generation Selective Catalytic Reduction (SCR)-Dosing System Investigation Abhijeet Karkamkar, PNNL	FT072: MM: Autoignition in MM/ACI Combustion, Part 3 Chris Kolodziej, ANL
11:45 AM		
12:00 PM	ACE119: Development and Optimization of a Multi-Functional SCR-DPF (Selective Catalytic Reduction-Diesel Particulate Filter) Aftertreatment System for Heavy-Duty NOx and Soot Emission Reduction Ken Rappe, PNNL	FT073: Co-Optima Emissions and Emissions Control for Spark Ignition /ACI Multi-Mode Combustion Melaine Moses-Debusk, ORNL
12:15 PM		
12:30 PM	**Lunch**	
2:00 PM	ACE056: Low-Temperature Oxidation Yong Wang, PNNL	FT074: MM: GDI Sprays Lyle Pickett, SNL
2:15 PM		
2:30 PM	ACE032: Cummins-ORNL Emissions Cooperative Research and Development Agreement (CRADA): NOx Control and Measurement Technology for Heavy-Duty Diesel Engines, Self-Diagnosing SmartCatalyst Systems Bill Partidge, ORNL	FT075: MM: Fuel Kinetics Scott Goldsborough, ANL
2:45 PM		
3:00 PM	ACE128: Reduced Precious Metal Catalysts for Methane and NOx Emission Control of Natural Gas Vehicles Michael Harold, University of Houston	FT076: Advanced Numerics and Modeling. Matthew McNenly, LLNL
3:15 PM		
3:30 PM	**Break**	
4:00 PM	ACE129: Design and Optimization of Structured Multi-Functional Trapping Catalysts for Conversion of Hydrocarbons and NOx from Diesel and Advanced Combustion Engines Michael Harold, University of Houston	FT077: Heavy-Duty Mixed-Controlled Compression Ignition (MCCI): MCCI and Ducted Fuel Injection, Part 1 Charles Mueller, SNL
4:15 PM		
4:30 PM	ACE130: Development of Passive Hydrocarbon/NOx Trap Catalysts for Low-Temperature Gasoline Applications Mark Crocker, University of Kentucky	FT078: Heavy-Duty MCCI: MCCI and Ducted Fuel Injection Part 2 Christopher Powell, ANL
4:45 PM		
5:00 PM		
5:15 PM		
5:30 - 7:30 PM	Poster Session II -- BAT (Part 2), VAN	

Wednesday, June 12

Oral Presentations - continued

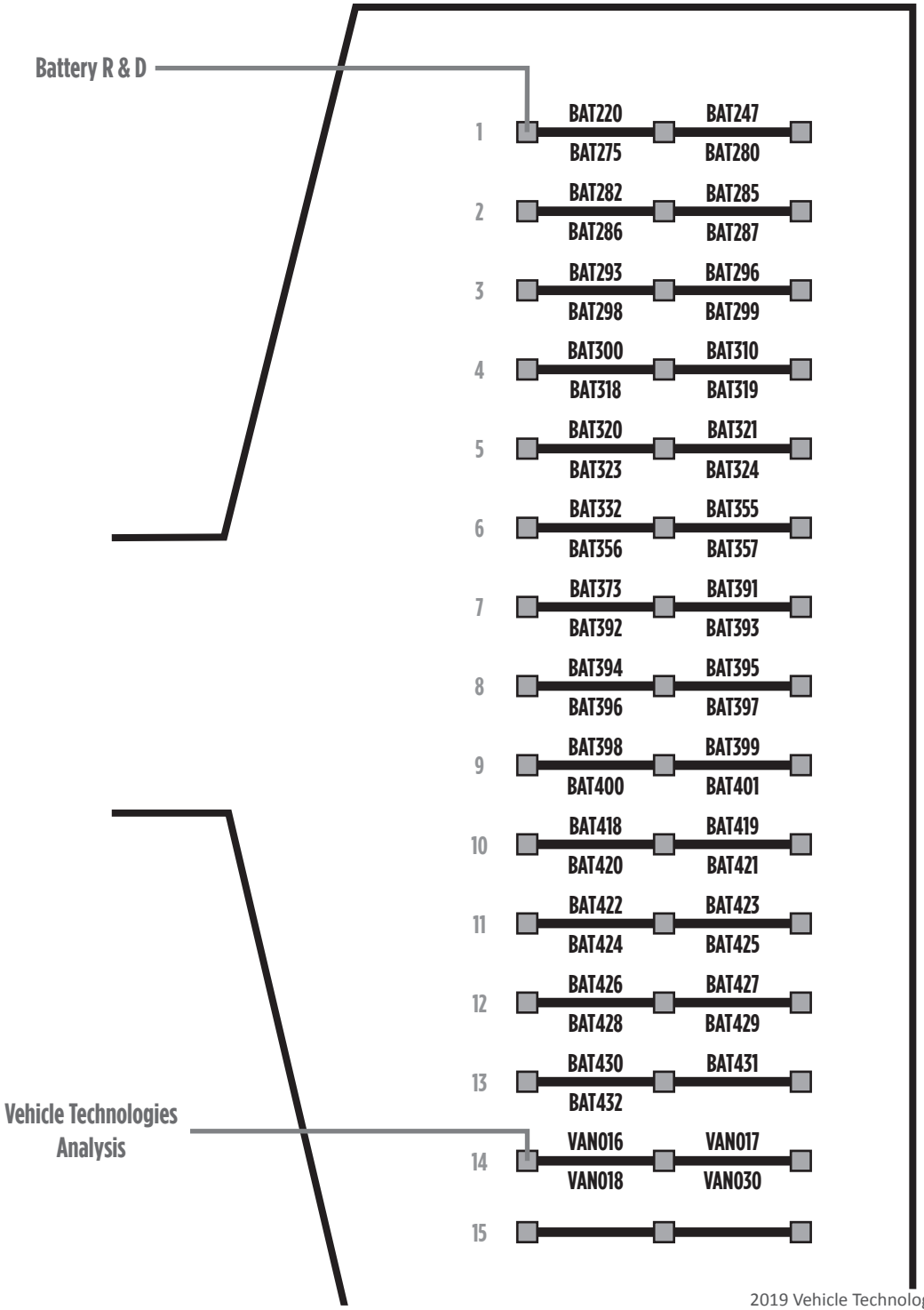
Wednesday, June 12, Oral Presentations		
Time	**Electrification Technologies (ELT)**	**Materials Technology (MAT)**
	Regency B	**Regency A**
7:00AM	**Continental Breakfast**	
8:00 AM	ELT082: Highly Integrated Wide Bandgap Power Module for Next Generation Plug-In Vehicles John Czubay, General Motors	MAT139: Mechanical Joining of Thermoplastic Carbon-Fiber Reinforced Polymer to Die-Cast Magnesium Scott Whalen, PNNL
8:15 AM		
8:30 AM	ELT092: Wound Field and Hybrid Synchronous Machines for Electric Vehicle Traction with Brushless Capacitive Rotor Field Excitation Ian Brown, Illinois Institute of Technology	MAT138: Solid-State Joining of Magnesium Sheet to High-Strength Steel Piyush Upadhyay, PNNL
8:45 AM		
9:00 AM	ELT093: High-Speed Hybrid Reluctance Motor with Anisotropic Materials Edwin Chang, General Motors	MAT136: High-Performance Computing and High-Throughput Characterizations towards Interfaces-by-Design for Dissimilar Materials Joining Xin Sun, ORNL
9:15 AM		
9:30 AM	ELT094: Development and Demonstration of Medium- and Heavy-Duty Plug-In Hybrid Work Trucks John Petras, Odyne Systems	MAT137: Adhesive Bonding of Carbon-Reinforced Plastic to Advanced High-Strength Steel Yong Chae Lim, ORNL
9:45 AM		
10:00 AM	ELT095: Vehicle-to-Grid Electric School Bus Commercialization Project Mike Boggess, Blue Bird Corp.	MAT131: Corrosion Control in Carbon-Fiber Reinforced Polymer Composite-Aluminum Closure Panel Hem Joints Brian Okerberg, PPG
10:15 AM		
10:30 AM	**Break**	
11:00 AM	ELT202: Charging Infrastructure Technologies: Smart Electric Vehicle Charging for a Reliable and Resilient Grid (RECHARGE) - NREL Kevin Walkowicz, NREL	MAT152: A Hybrid Physics-Based, Data-Driven Approach to Model Damage Accumulation in Corrosion of Polymeric Adhesives Roozbeh Dargazany, Michigan State University
11:15 AM		MAT153: Multi-Scale Computational Platform for Predictive Modeling of Corrosion in Aluminum-Steel Joints S. Jack Hu, University of Michigan
11:30 AM	ELT201: Charging Infrastructure Technologies: Smart Vehicle-Grid Integration - ANL Keith Hardy, ANL	MAT132: High-Strength Steel-Aluminum Components by Vaporizing Foil Actuator Welding Glenn Daehn, Ohio State University
11:45 AM		
12:00 PM	ELT200: Scalable Electric Vehicle Smart Charging Using Collaborative Autonomy Steve Chapin, LLNL	MAT133: Corrosion Protection and Dissimilar Material Joining for Next-Generation Lightweight Vehicles DJ Spinella, Arconic
12:15 PM		
12:30 PM	**Lunch**	
2:00 PM	ELT190: Medium-Duty Urban Range Extended Connected Powertrain (MURECP) Alexander Freitag, Bosch	MAT154: Non-Destructive Evaluation of Joints Zhili Feng, ORNL
2:15 PM		
2:30 PM	ELT189: Electric Truck with Range-Extending Engine (ETREE) John Kresse, Cummins	MAT155: Solid-State Body-in-White Spot Joining of Aluminum to Advanced High-Strength Steel at Prototype Scale Zhili Feng, ORNL
2:45 PM		
3:00 PM	ELT191: Medium-Duty Vehicle Powertrain Electrification and Demonstration Wiley McCoy, McLaren	MAT134: Assembly of Dissimilar Aluminum Alloys for Automotive Applications Piyush Upadhyay, PNNL
3:15 PM		
3:30 PM	**Break**	
4:00 PM	ELT158: Zero-Emission Cargo Transport II: San Pedro Bay Ports Hybrid & Fuel-Cell Electric Vehicle Project Seungbum Ha, SCAQMD	MAT156: Improving Tool Durability and Process Robustness in Assembly of Aluminum and Steel Sub-Components using Friction-Assisted Scribe Technology (FAST) Piyush Upadhyay, PNNL
4:15 PM		MAT142: Metal-Matrix Composite Brakes Using Titanium Diboride Glenn Grant, PNNL
4:30 PM	ELT187: Comprehensive Assessment of On- and Off-Board, Vehicle-to-Grid Technology Performance and Impacts on Batteries and the Grid Sunil Chhaya, EPRI	
4:45 PM		MAT165: Direct-Extruded High-Conductivity Copper for Electric Machines Glenn Grant, PNNL
5:00 PM	ELT188: Bi-Directional Wireless Power Flow for Medium-Duty Vehicle-to-Grid Connectivity Steven Sokolsky, CALSTART	
5:15 PM		
5:30 - 7:30 PM	Poster Session II -- BAT (Part 2), VAN	

Wednesday, June 12, Oral Presentations		
Time	**Battery R&D (BAT)**	**Energy Efficient Mobility Systems (EEMS)**
	Potomac	**Washington**
7:00AM	**Continental Breakfast**	
8:00 AM		EEMS016: Energy Efficient Connected and Automated Vehicles (CAVs) Dominik Karbowski, ANL
8:15 AM		
8:30 AM	BAT338: Extreme Fast Charging Cell Development Overview Venkat Srinivasan, ANL	EEMS017: Impact of Connected and Automated Vehicle (CAV) Technologies on Travel Demand and Energy Josh Auld, ANL
8:45 AM		
9:00 AM	BAT339: Impact of Anode Design on Fast-Charge Applications Andrew Jansen, ANL	EEMS033: Truck Cooperative Adaptive Cruise Control Operational Energy Consumption Test at Intersection with Active Traffic Signal Control Xiao-Yun Lu, LBNL
9:15 AM		
9:30 AM	BAT340: Impact of Charging Protocols on Cell Degradation Erik Dufek, INL	EEMS059: Experimental Evaluation of Cooperative Automated Cruise Control (ACC) for Passenger Cars Eric Rask, ANL
9:45 AM		
10:00 AM	BAT371: Understanding Electrode Scale and Electrolyte Effects During Fast Charge Dennis Dees, ANL	EEMS020: Multi-Scenario Assessment of Optimization Opportunities due to Connectivity and Automation Jackeline Rios-Torres, ORNL
10:15 AM		
10:30 AM		Break
11:00 AM	BAT383: Understanding the Impact of Local Heterogeneities During Fast Charge Kandler Smith, NREL	EEMS027: Multi-Modal Energy Analysis for Freight Alicia Birky, NREL
11:15 AM		
11:30 AM	BAT384: Approaches in Detecting Lithium Deposition During Fast Charge Mike Toney, SLAC	EEMS034: Optimization of Intra-City Freight Movement and New Delivery Methods Amy Moore, ORNL; Victor Walker, INL
11:45 AM		
12:00 PM		EEMS060: Agent-Based Model and Data Collection for Inter/Intracity Freight Movement Monique Stinson, ANL
12:15 PM	BAT386: Extreme Fast Charge Cell Evaluation of Lithium-Ion (XCEL) Batteries Venkat Srinivasan, ANL	
12:30 PM		Lunch
2:00 PM	BAT387: Silicon Electrolyte Interface Stabilization Update with Question and Answer Session Anthony Burrell, NREL	EEMS041: ANL Core Tools - Hardware Kevin Stutenberg, ANL
2:15 PM		
2:30 PM		EEMS045: Focused Validation and Data Collection to Support Systems and Modeling for Accelerated Research in Transportation (SMART) Activities Eric Rask, ANL
2:45 PM	BAT388: Silicon Deep-Dive Update with Question and Answer Session John Vaughey, ANL	
3:00 PM		EEMS062: Deep-Learning for Automated Vehicle (AV) Development Robert Patton, ORNL
3:15 PM		
3:30 PM		**Break**
4:00 PM	BAT108: Battery Materials Research (BMR) & Battery500 Consortium Overview Tien Duong, VTO	EEMS037: High-Performance Computing (HPC) and Big Data Solutions for Mobility Design and Planning Jane McFarlane, LBNL
4:15 PM		
4:30 PM		EEMS061: Regional Mobility – Chattanooga Jibonananda Sanyal, ORNL
4:45 PM	BAT317: Battery500 Consortium Update Jun Liu, PNNL	
5:00 PM		
5:15 PM		
5:30 - 7:30 PM	Poster Session II -- BAT (Part 2), VAN	

Wednesday, June 12 - Poster Session Diagram

Independence A

Battery R&D (Rows 1-14)
Vehicle Technologies Analysis (Row 15)



Battery R&D (BAT)		
BAT220	Addressing Heterogeneity in Electrode Fabrication Processes	Dean Wheeler, Brigham Young University
BAT247	High-Energy Lithium Batteries for Electric Vehicles	Herman Lopez, Zenlabs Energy, Inc.
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	Mechanistic Investigation for Rechargeable Lithium-Sulfur Batteries	Deyang Qu, University of Wisconson at Milwaukee
BAT286	Lithium-Air Batteries	Khalil Amine, ANL
BAT287	Exploratory Studies of Novel Sodium-Ion Battery Systems	Xiao-Qing Yang, BNL
BAT293	A Closed-Loop Process for End-of-Life Electric Vehicle Lithium-Ion Batteries	Yan Wang, WPI
BAT296	Development and Validation of a Simulation Tool to Predict the Combined Structural, Electrical, Electrochemical, and Thermal Responses of Automotive Batteries	Chulheung Bae, Ford
BAT298	Efficient Simulation of Mechanical-Electrochemical-Thermal Abuse Phenomena in Lithium-Ion Batteries	Shriram Santhanagopalan, NREL
BAT299	Microstructure Characterization and Modeling for Improved Electrode Design	Kandler Smith, NREL
BAT300	Consortium for Advanced Battery Simulation: Development of Computational Framework for Battery Analysis under Extreme Conditions	Srikanth Allu, ORNL
BAT310	Advancing Solid-State Interfaces in Lithium-Ion Batteries	Nenad Markovic, ANL
BAT318	In Situ Diagnostics of Coupled Electrochemical-Mechanical Properties of Solid Electrolyte Interphases on Lithium Metal for Rechargeable Batteries	Xingcheng Xiao, General Motors
BAT319	Advanced Microscopy and Spectroscopy for Probing and Optimizing Electrode-Electrolyte	Shirley Meng, University of California at San Diego
BAT320	Multi-Functional, Self-Healing Polyelectrolyte Gels for Long-Cycle Life, High-Capacity Sulfur Cathodes in Lithium-Sulfur Batteries	Jihui Yang, University of Washington
BAT321	Development of Ion-Conducting Inorganic Nanofibers and Polymers	Nianqiang Wu, West Virginia University
BAT323	Self-Forming Thin Interphases and Electrodes Enabling 3-D Structured High Energy Density Batteries	Glenn Amatucci, Rutgers University
BAT324	Dual Function Solid-State Battery with Self-Forming, Self-Healing Electrolyte and Separator	Esther Takeuchi, Stony Brook University

(continued on next page)

Wednesday, June 12

Poster Presentations - continued
Independence A (5:30 – 7:30 PM)

Battery R&D (BAT)		
BAT332	High Electrode Loading Electric Vehicle Cell	Mohamed Taggougui, 24M Technologies
BAT355	Development of High-Performance Lithium-Ion Cell Technology for Electric Vehicle Applications	Keith Kepler, Farasis Energy
BAT356	Lithium-Ion Cell Manufacturing Using Directly Recycled Active Materials	Mike Slater, Farasis Energy
BAT357	Thicker Cathode Coatings for Lithium-Ion Electric Vehicle Batteries	Stuart Hellring, PPG
BAT373	First-Principles Modeling and Design of Solid-State Interfaces for the Protection and Use of Lithium-Metal Anodes	Gerbrand Ceder, University of California at Berkeley
BAT391	Lithiation Method for High-Energy, Long-Life Lithium-Ion Battery (L3B)	Andrew Colclasure, NREL
BAT392	Enabling Rapid Charging in Lithium-Ion Batteries via Integrated Acoustofluidics	James Friend, University of California at San Diego
BAT393	Development of an Extreme Fast Charging Battery	Chao-Yang Wang, Penn State University
BAT394	Highly Ordered Hierarchical Anodes for Extreme Fast-Charging Batteries	Neil Dasgupta, University of Michigan
BAT395	Developing Safe, High-Energy, Fast-Charge Batteries for Automobiles	Bryan Yonemoto, Microvast, Inc.
BAT396	Enabling Extreme Fast Charging through Anode Modification	Esther Takeuchi, Stony Brook University
BAT397	Titanium Niobium Oxide-Based Lithium-Ion Batteries for Extreme Fast-Charging Applications	Sheng Dai, University of Tennessee at Knoxville
BAT398	Extreme Fast-Charging Lithium-Ion Batteries	Edward Buiel, Edward Buiel Consulting, LLC
BAT399	High-Quality Natural and Synthetic Graphite for Lithium-Ion Batteries	Edward Buiel, Edward Buiel Consulting, LLC
BAT400	Novel Liquid/Oligomer Hybrid Electrolyte with High Lithium-Ion Transference Number (Hi-LiT) for Extreme Fast Charging	Zhijia Du, ORNL
BAT401	Advanced Electrolytes for Extreme Fast Charging	William Chueh, Stanford University
BAT418	Investigate the Impact of Doping on the Structural Stability and Conductivity of Solid Electrolytes	Zonghai Chen, ANL
BAT419	Designing High Lithium-Ion Transference Number and High Stable Electrolytes for Lithium Batteries	Bryan McCloskey, LBNL
BAT420	Lithium-Oxygen Battery Design and Predictions	Larry Curtiss, ANL
BAT421	3-D Printing of All Solid-State Lithium Batteries	Jianchao Ye, LLNL
BAT422	Synthesis of Superionic Lithium Phosphor Sulfide-Based Conductors and Test With Sulfur	Jagjit Nanda, ORNL

(continued on next page)

Battery R&D (BAT)		
BAT423	Development of New Electrolytes for Lithium-Sulfur Batteries	Gao Liu, LBNL
BAT424	Multi-Scale Modeling of Solid-State Electrolytes for Next-Generation Lithium Batteries	Anh Tuan Ngo, ANL
BAT425	Large-Scale Ab Initio Molecular Dynamics Simulations of Liquid and Solid Electrolytes	Lin-Wang Wang, LBNL
BAT426	Integrated Multiscale Model for Design of Robust 3-D Solid-State Lithium Batteries	Brandon Wood, LLNL
BAT427	In Operando Thermal Diagnostics of Electrochemical Cells	Ravi Prasher, 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	Huilin Pan, PNNL
BAT430	Develop a High Energy Sodium-Ion Battery Systems	Christopher Johnson, ANL
BAT431	Investigation on Lithium Superoxide-Based Batteries	Khalil Amine, ANL
BAT432	Data-Driven Prediction of Battery Cycle Life before Any Capacity Degradation	Stephen Harris, LBNL
Vehicle Technologies Analysis		
VAN016	Transportation Data Program	Stacy Davis, ORNL
VAN017	ANL VTO Analysis Modeling Program	Michael Wang, ANL
VAN018	VTO Program Benefits Analysis	Tom Stephens, ANL
VAN030	Assessing Energy and Cost Impact of Advanced Technologies for Medium- and Heavy-Duty Vehicles	Aymeric Rousseau, ANL

Thursday, June 13

Oral Presentations

Thursday, June 13, Oral Presentations		
Time	**Advanced Combustion Engines (ACE)**	**Fuel and Lubricant Technologies (FT)**
	Regency E	**Regency F**
7:00AM	**Continental Breakfast**	
8:00 AM		
8:15 AM		
8:30 AM	ACE001: Heavy-Duty Diesel Combustion Mark Musculus, SNL	
8:45 AM		
9:00 AM	ACE131: Ducted Fuel Injection (DFI) for Heavy-Duty Engines Charles Mueller, SNL	
9:15 AM		
9:30 AM	ACE132: Heavy-Duty Gasoline Compression Ignition Chris Kolodziej, ANL	
9:45 AM		
10:00 AM	ACE133: Next-Generation Heavy-Duty Powertrains Scott Curran, ORNL	FT079: Expanding the Knock/Emissions/Misfire Limits for the Realization of Ultra-Low Emissions, High-Efficiency, Heavy-Duty Natural Gas Engines Dan Olsen, Colorado State University
10:15 AM		
10:30 AM	Break	
11:00 AM	ACE121: A High Specific Output, Gasoline, Low-Temperature Combustion Engine Hanho Yun, General Motors	FT086: On-Demand Reactivity Enhancement to Enable Low-Temperature Combustion of Natural Gas Will Northrop, University of Minnesota
11:15 AM		
11:30 AM	ACE123: Temperature-Following Thermal Barrier Coatings for High-Efficiency Engines Tobias Schaedler, HRL Laboratories	FT080: Fundamental Advancements in Pre-Chamber Ignition and Emissions Control for Natural Gas Engines Brad Zigler, NREL
11:45 AM		
12:00 PM		FT081: Direct Injection 4.3 L Propane Engine Research, Development, and Testing Brad Zigler, NREL
12:15 PM		
12:30 PM	**Lunch**	
2:00 PM	ACE100: Improving Transportation Efficiency through Integrated Vehicle, Engine, and Powertrain Research - SuperTruck II Derek Rotz, Daimler Trucks North AmerIca	FT082: High-Performance Fluids and Coatings for Off-Road Hydraulic Components George Fenske, ANL
2:15 PM		
2:30 PM	ACE101: Volvo SuperTruck II: Pathway to Cost-Effective Commercialized Freight Efficiency Pascal Amar, Volvo Trucks North America	FT083: Efficient, Compact, and Smooth Variable Propulsion Motor James Van de Ven, University of Minnesota
2:45 PM		
3:00 PM	ACE102: Cummins-Peterbilt SuperTruck II Michael Ruth, Cummins-Peterbilt	FT084: Individual Electro-Hydraulic Drives for Off-Road Vehicles Andrea Vacca, Purdue University
3:15 PM		
3:30 PM	**Break**	
4:00 PM	ACE103: Development and Demonstration of a Fuel-Efficient Class 8 Tractor and Trailer SuperTruck Russell Zukouski, Navistar	FT085: Hybrid Hydraulic-Electric Architecture for Mobile Machines Perry Li, University of Minnesota
4:15 PM		
4:30 PM	ACE124: SuperTruck II - PACCAR Carl Hergart, PACCAR	
4:45 PM		
5:00 PM		
5:15 PM		
5:30 PM		

Thursday, June 13, Oral Presentations		
Time	**Electrification Technologies (ELT)**	**Materials Technology (MAT)**
	Regency B	**Regency A**
7:00AM	**Continental Breakfast**	
8:00 AM	ELT198: Cybersecurity: Securing Vehicle Charging Infrastructure - SNL Jay Johnson, SNL	MAT157: Graphene-Based Solid Lubricant for Automotive Applications Anirudha Sumant, ANL
8:15 AM		
8:30 AM	ELT199: Cybersecurity: Consequence-Driven Cybersecurity for High-Power Charging Infrastructure -INL Richard Barney Carlson, INL	MAT126: Room-Temperature Stamping of High-Strength Aluminum Alloys Aashish Rohatgi, PNNL
8:45 AM		
9:00 AM	ELT205: Cybersecurity for Grid Connected eXtreme Fast Charging (XFC) Station (CyberX) Junho Hong, ABB	MAT158: Overcoming the Barriers to Lightweighting by Enabling Low-Cost and High-Performance Structural Automotive Aluminum Castings Aashish Rohatgi, PNNL
9:15 AM		
9:30 AM	ELT206: Cybersecurity Platform and Certification Framework Development for XFC-Integrated Charging Infrastructure Ecosystem Tobias Whitney, EPRI	MAT129: Optimizing Heat-Treatment Parameters for 3rd Generation Advanced High-Strength Steel Using an Integrated Experimental Computational Framework Erin Baker, PNNL
9:45 AM		
10:00 AM	ELT207: Enabling Secure and Resilient XFC: A Software/Hardware Security Co-Design Approach Ryan Gerdes, Virginia Tech	MAT144: Reducing Mass of Steel Auto Bodies Using Thin, Advanced High-Strength Steel with Carbon-Fiber Reinforced Epoxy Coating Dave Warren, ORNL, Gabriel Ilevbare, INL
10:15 AM		
10:30 AM	**Break**	
11:00 AM	ELT197: High Power and Dynamic Wireless Charging of Electric Vehicles(Evs) Veda Galigekere, ORNL	MAT069: Lightweight High-Temperature Alloys Based on the Aluminum-Iron-Silicon System Michelle Manuel, University of Florida
11:15 AM		
11:30 AM	ELT235: Behind-the-Meter Storage Overview Anthony Burrell, NREL	MAT159: Powertrain Core Program: High-Temperature Lightweight Alloys--Aluminum-/Titanium-Based Alloys Amit Shyam, ORNL
11:45 AM		
12:00 PM	ELT204: Charging Infrastructure Technologies: Development of a Multiport, ≥1 MW Charging System for Medium- and Heavy-Duty Electric Vehicles - NREL Kevin Walkowicz, Representing NREL, ORNL, ANL	MAT160: Powertrain Core Program: Higher Temperature (>550°C) Alloys--Nickel-/Iron-Based Alloys G. Muralidharan, ORNL
12:15 PM		
12:30 PM	**Lunch**	
2:00 PM	ELT239: High-Power Inductive Charging System Development and Integration for Mobility Omer Onar, ORNL	MAT161: Powertrain Core Program: Overview of Exploratory Projects Jerry Gibbs, DOE
2:15 PM		MAT162: Machine Learning and Supercomputing to Predict Corrosion/Oxidation of High-Performance Valve Alloys Dongwon Shin, ORNL
2:30 PM	ELT240: Wireless Extreme Fast Charging for Electric Trucks (WXFC-Trucks) Mike Masquelier, WAVE	MAT163: Multi-Scale Modeling of Corrosion and Oxidation Performance and Their Impact on High-Temperature Fatigue of Automotive Exhaust Manifold Components Mei Li, Ford
2:45 PM		MAT164: Multi-Scale Development and Validation of the Stainless Steel Alloy Corrosion (SStAC) Tool for High-Temperature Engine Materials Michael Tonks, University of Florida
3:00 PM	ELT241: High-Efficiency, Medium-Voltage-Input, Solid-State-Transformer-Based 400-kW/1000-V/400-A Extreme Fast Charger for Electric Vehicles Charles Zhu, Delta Electronics	MAT057: Applied Computational Methods for New Propulsion Materials Charles Finney, ORNL
3:15 PM		
3:30 PM	**Break**	
4:00 PM	ELT236: DC Conversion Equipment Connected to the Medium-Voltage Grid for Extreme Fast Charging (XFS) Utilizing Modular and Interoperable Architecture Watson Collins, EPRI	
4:15 PM	ELT237: Enabling Extreme Fast Charging with Energy Storage Jonathan Kimball, Missouri S&T	
4:30 PM	ELT238: Intelligent, Grid-Friendly, Modular Extreme Fast Charging System with Solid-State DC Protection Srdjan Lukic, North Carolina State University	
4:45 PM	Panel Discussion: Medium-Voltage Extreme Fast Charging Technologies	
5:00 PM		
5:15 PM		
5:30 PM		

Thursday, June 13

Oral Presentations - continued

Thursday, June 13, Oral Presentations		
Time	**Battery R&D (BAT)**	**Energy Efficient Mobility Systems (EEMS)**
	Potomac	**Regency F**
7:00AM	**Continental Breakfast**	
8:00 AM	BAT276: Mechanical Properties at the Protected Lithium Interface Nancy Dudney, ORNL	EEMS029: Boosting Energy Efficiency of Heterogeneous Connected and Automated Vehicle (CAV) Fleets via Anticipative and Cooperative Vehicle Guidance Ardalan Vahidi, Clemson University
8:15 AM	BAT327: Engineering Approaches to Dendrite-Free Lithium Anodes Prashant Kumta, University of Pittsburgh	
8:30 AM	BAT326: Self-Assembling and Self-Healing Rechargeable Lithium Batteries Yet-Ming Chiang, MIT	EEMS032: Evaluating Energy-Efficiency Opportunities from Connected and Automated Vehicle (CAV) Deployments Coupled with Shared Mobility in California Matthew Barth, University of California at Riverside
8:45 AM	BAT272: Pre-Lithiation of High-Capacity Battery Electrodes Yi Cui, SLAC	
9:00 AM	Panel Discussion: Lithium Metal Protection	EEMS028: Developing an Eco-Cooperative Automated Control System (Eco-CAC) Hesham Rakha, Virginia Tech
9:15 AM		
9:30 AM	BAT330: Electrochemically Responsive, Self-Formed, Lithium-Ion Conductors for High-Performance Lithium-Metal Anodes Donghai Wang, Penn State University	
9:45 AM	BAT230: Nanostructured Design of Sulfur Cathode for High-Energy Lithium-Sulfur Batteries Yi Cui, Stanford University	
10:00 AM	Panel Discussion: Sulfur Electrodes	
10:15 AM		
10:30 AM	Break	
11:00 AM	BAT312: Advanced Lithium-Ion Battery Technology: High-Voltage Electrolyte Joe Sunstrom, Daikin America	
11:15 AM	BAT322: High Conductivity and Flexible Hybrid Solid-State Electrolyte Eric Wachsman, University of Maryland	
11:30 AM	BAT365: Stabilizing Lithium-Metal Anode by Interfacial Layer Zhenan Bao, Stanford University/SLAC	
11:45 AM	BAT389: Improving the Stability of Lithium Metal Anodes and Inorganic-Organic Solid Electrolytes Nitash Balsara, LBNL	
12:00 PM	Panel Discussion: Electrolytes	
12:15 PM		
12:30 PM	Lunch	
2:00 PM	BAT054: First Principles Calculations of Existing and Novel Electrode Materials Gerbrand Ceder, LBNL	
2:15 PM	BAT309: Electrode Materials Design and Failure Prediction Venkat Srinivasan, ANL	
2:30 PM	BAT329: Understanding and Strategies for Controlled Interfacial Phenomena in Lithium-Ion Batteries and Beyond Perla Balbuena, Texas A&M University	
2:45 PM	BAT091: Predicting and Understanding Novel Electrode Materials from First Principles Kristin Persson, LBNL	
3:00 PM	Panel Discussion: Modeling	
3:15 PM		
3:30 PM	**Break**	
4:00 PM	BAT370: Advanced Diagnostics of Nickel-Rich, Layered-Oxide Secondary Particles William Chueh, Stanford University/SLAC	
4:15 PM	BAT225: Model System Diagnostics for High-Energy Cathode Development Guoying Chen, LBNL	
4:30 PM	BAT085: Interfacial Processes Robert Kostecki, LBNL	
4:45 PM	BAT226: Microscopy Investigation of the Fading Mechanism of Electrode Materials Chongmin Wang, PNNL	
5:00 PM	Panel Discussion: Diagnostics	
5:15 PM		
5:30		

Thursday, June 13, Oral Presentations	
Time	**Vehicle Technologies Analysis (VAN)**
	Theater
7:00AM	**Continental Breakfast**
8:00 AM	VAN000: Overview of VTO Analysis Program Jacob Ward, DOE
8:15 AM	
8:30 AM	VAN026: Infrastructure Assessment Eric Wood, NREL
8:45 AM	
9:00 AM	VAN028: VTO Program Benefits Analysis Alan Jenn, UC Davis
9:15 AM	
9:30 AM	VAN019: ParaChoice Model Camron Proctor, SNL
9:45 AM	
10:00 AM	VAN021: Transportation Energy Evolution Modeling (TEEM) Program Zhenhong Lin, ORNL
10:15 AM	
10:30 AM	**Break**
11:00 AM	VAN023: Assessing the Energy and Cost Impact of Advanced Technologies of Light-Duty Vehicles Aymeric Rousseau, ANL
11:15 AM	
11:30 AM	VAN029: Battery Recycling Supply Chain Analysis Margaret Mann, NREL
11:45 AM	
12:00 PM	VAN031: Advanced Vehicle Cost and Energy-Use Model (AVCEM) - Overview, Recent Developments, and Preliminary Findings Mark Delucchi, LBNL
12:15 PM	
12:30 PM	Lunch

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