

DOE Hydrogen and Fuel Cells Program  
and Vehicle Technologies Office

# 2017 ANNUAL MERIT REVIEW AND PEER EVALUATION MEETING

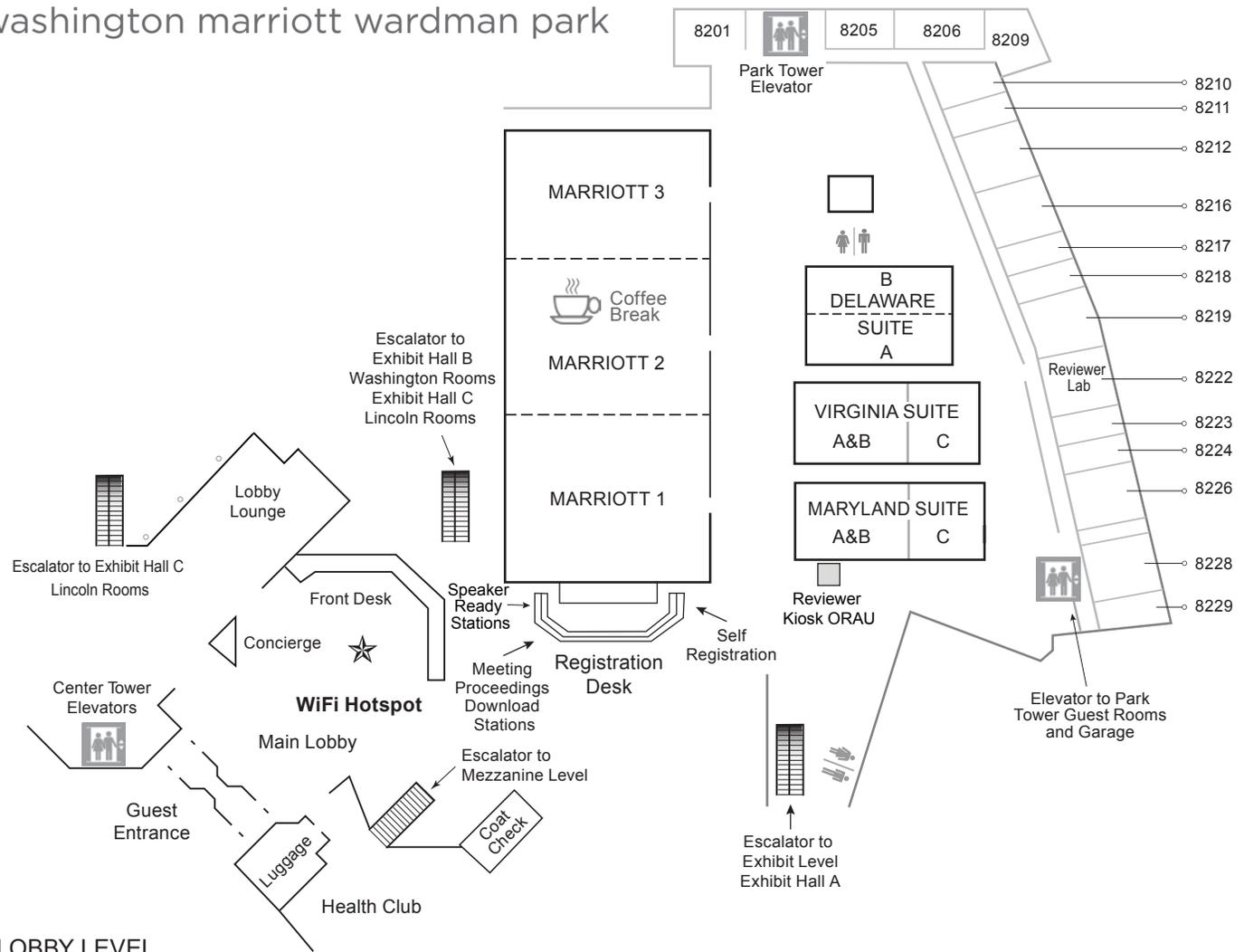
June 5 – 9, 2017 | Washington, D.C.

meeting program

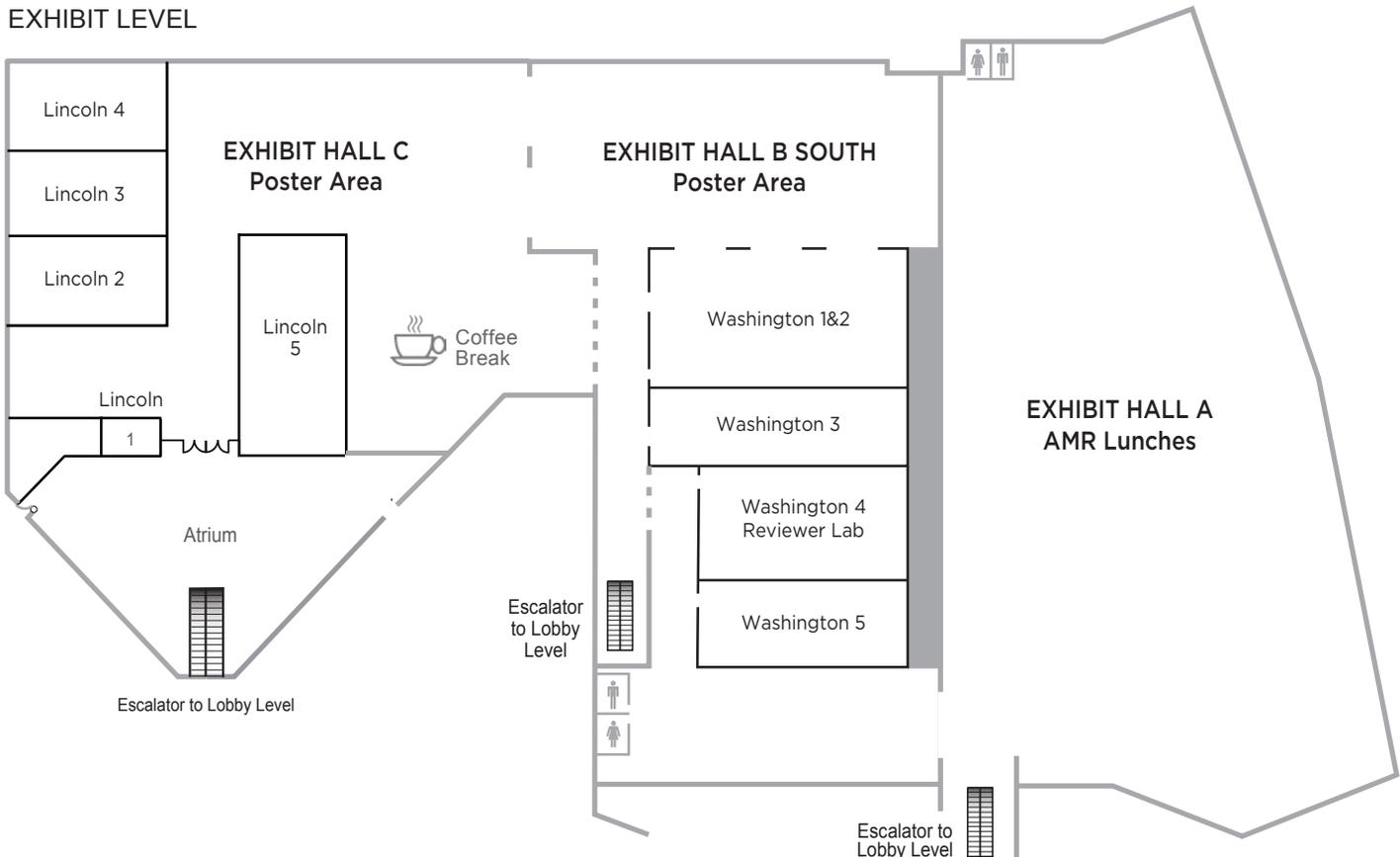


U.S. DEPARTMENT OF  
**ENERGY**

# washington marriott wardman park



## EXHIBIT LEVEL





Connor Mallon, Smithsonian's National Zoo

DOE Hydrogen and Fuel Cells Program and Vehicle Technologies Office

## 2017 ANNUAL MERIT REVIEW AND PEER EVALUATION MEETING

June 5 – 9, 2017

Washington Marriott Wardman Park, Washington, D.C.

Tweet using #H2AMR and #VTOAMR

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In order to reduce the AMR's environmental impact, practice more responsible use of our natural resources, and minimize the carbon footprint, we placed the full program and other materials online for download to your smart device. We encourage participants to assist in minimizing the AMR's environmental impacts by opting out of receiving a printed program. For 2017, the AMR badge holder and lanyard are 100% recyclable. The badge holder is constructed of EVA, a PVC-free material which is BPA and phthalates-free, and the lanyard is 100% recycled PET and is dyed with water-based inks.

Recycling bins are provided throughout the meeting hotel. Please deposit your recyclable badge holder and lanyard in the designated receptacles at the registration area when you are done with them.

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## meeting information

### BADGE & REGISTRATION

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

The registration desk is located on the lobby level. All attendees and presenters must visit the registration desk upon arrival to pick up their name badges and registration materials.

#### REGISTRATION DESK HOURS

Sunday, June 4	4:00 PM–7:00 PM
Monday, June 5	8:00 AM–8:00 PM
Tuesday, June 6	7:30 AM–7:00 PM
Wednesday, June 7	7:30 AM–7:00 PM
Thursday, June 8	7:30 AM–7:00 PM
Friday, June 9	7:30 AM–11:30 AM

### GENERAL INFORMATION

#### Internet Access

There is complimentary Wi-Fi in the hotel lobby. Please refer to the lobby level hotel floor plan for location.

#### 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.

Photography or the electronic capture of presentations in session rooms or exhibit halls is not permitted.

#### Special Needs

Please visit the registration desk in person during registration hours if you have any special needs requests.

#### Meals

If you requested a special meal, including vegetarian, you will receive a meal card when obtaining your badge at the registration desk. Your ticket must be placed by your coffee cup at the lunch table. Servers will provide the standard meal to any attendee without a special meal ticket. Please refer to the email sent to you prior to the AMR for menu assignments specific to your needs.

### MEETING PROCEEDINGS

#### Proceedings Available for Download during the AMR

Oral and poster presentations can be downloaded to your USB-capable device using the USB drives located in the registration area.

#### Proceedings on the Web

Plenary, oral, and poster presentations will be available within two weeks after the meeting on the following websites:

- [https://www.hydrogen.energy.gov/annual\\_review.html](https://www.hydrogen.energy.gov/annual_review.html)
- <http://energy.gov/eere/vehicles/vehicle-technologies-office-annual-merit-review-presentations>

## speaker instructions

### SPEAKER READY STATION

The Speaker Ready Station is located at the Registration Desk on the lobby level. **Speakers are not permitted to use their own computers for their presentations.** Each session room will be equipped with a laptop, laser pointer, and microphone in the session rooms.

#### SPEAKER READY STATION HOURS

Monday, June 5	8:00 AM–8:00 PM
Tuesday, June 6	7:30 AM–7:00 PM
Wednesday, June 7	7:30 AM–7:00 PM
Thursday, June 8	7:30 AM–7:00 PM
Friday, June 9	7:30 AM–11:30 AM

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 identical software to those in the session rooms.

#### Oral Presenters

The computers in the session rooms will be preloaded with presentations. Audio/visual technicians will be available in all session rooms to provide assistance if necessary. Each presenter will be given 20 minutes to present his/her work followed by a 10 minute question and answer period. **Time limits will be strictly enforced.**

#### Poster Presenters

All poster sessions will take place in the exhibit halls (lower level). 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 at least 90 minutes prior to the start of the poster session. 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 instructions

Reviewer orientation will be held at 1:00 PM and 6:45 PM on Monday, June 5 in **MARYLAND A/B**. Reviewer labs are at **PARK TOWER 8222** on the lobby level and **WASHINGTON 4** on the exhibit level. ORAU staff will also be stationed at a kiosk outside Maryland A/B on the lobby level to assist reviewers during technical sessions.

#### REVIEWER LAB AND KIOSK HOURS

Monday, June 5	1:00 PM–7:00 PM
Tuesday, June 6	7:30 AM–6:30 PM
Wednesday, June 7	7:30 AM–6:30 PM
Thursday, June 8	7:30 AM–6:30 PM
Friday, June 9	7:30 AM–12:30 PM

## key to commonly used abbreviations

VEHICLE TECHNOLOGIES OFFICE PROGRAM AREAS		HYDROGEN & FUEL CELLS PROGRAM AREAS	
ACS	Advanced Combustion Systems	FC	Fuel Cells
EDT	Electric Drive Technologies	H2IN	Hydrogen Infrastructure
EEMS	Energy-Efficient Mobility Systems	H2S	H2@Scale
ES	Electrochemical Storage	MN	Manufacturing R&D
FT	Fuel & Lubricant Technologies	MT	Market Transformation
GI	Grid and Infrastructure R&D	PD	Hydrogen Production & Delivery
LM	Lightweight Materials	SA	Systems Analysis
PM	Propulsion Materials	SCS	Safety, Codes & Standards
TI	Technology Integration	ST	Hydrogen Storage
VAN	Vehicle Technologies Analysis	TV	Technology Validation
ORGANIZATIONS			
ANL	Argonne National Laboratory	NREL	National Renewable Energy Laboratory
BES	DOE Office of Basic Energy Sciences	ORNL	Oak Ridge National Laboratory
BNL	Brookhaven National Laboratory	PNNL	Pacific Northwest National Laboratory
DOE	U.S. Department of Energy	SCAQMD	South Coast Air Quality Management District
EPRI	Electric Power Research Institute	SNL	Sandia National Laboratories
FCA	Fiat Chrysler Automobiles	SRNL	Savannah River National Laboratory
GTI	Gas Technology Institute	SUNY	State University of New York
INL	Idaho National Laboratory	SwRI	Southwest Research Institute®
LANL	Los Alamos National Laboratory	UCLA	University of California, Los Angeles
LBNL	Lawrence Berkeley National Laboratory	USABC	U.S. Advanced Battery Consortium LLC
LLNL	Lawrence Livermore National Laboratory	USAMP	U.S. Automotive Materials Partnership LLC
NIST	National Institute of Standards and Technology	UTRC	United Technologies Research Center

### AMR FEEDBACK

Your feedback on the logistics, content, and format of the AMR is appreciated and will be considered in the planning of future AMR meetings. Please offer your comments at <http://tinyurl.com/2017AMRfeedback>.



Smithsonian's National Zoo

# program at a glance

## MONDAY JUNE 5 plenary, overviews, awards, and posters

1:00 PM	Reviewer Orientation (Maryland A/B)
2:00 PM	Plenary Session (Marriott 2 & 3): Guest Speakers and Awards
4:15 PM	Break (Convention Registration Foyer)
	<b>Marriott 3</b> <span style="float: right;"><b>Marriott 1</b></span>
4:45 PM	Vehicle Technologies Analysis Overview <span style="float: right;">Hydrogen Production &amp; Delivery Overview</span>
5:15 PM	Energy-Efficient Mobility Systems Overview <span style="float: right;">Hydrogen Storage Overview</span>
5:45 PM	Materials Overview <span style="float: right;">Fuel Cells Overview</span>
6:15 PM	Electrochemical Energy Storage Overview <span style="float: right;">Manufacturing R&amp;D Overview</span>
6:45 PM	Reviewer Orientation (Maryland A/B)
7:00 PM	<b>POSTER SESSION I</b> (Exhibit Halls B & C, Lower Level, 7:00–9:00 PM): Fuel Cells with ARPA-E; H2 Refuel; Manufacturing R&D

## TUESDAY JUNE 6 overviews

	<b>Marriott 3</b> <span style="float: right;"><b>Marriott 1</b></span>
8:30 AM	Electric Drive/Grid/Charging R&D Overview <span style="float: right;">Technology Validation Overview</span>
9:00 AM	Advanced Combustion Systems Overview <span style="float: right;">Market Transformation Overview</span>
9:30 AM	Fuel and Lubricant Technologies R&D Overview <span style="float: right;">Safety, Codes &amp; Standards Overview</span>
10:00 AM	Technology Integration Overview <span style="float: right;">Systems Analysis Overview</span>
10:30 AM	Break (Marriott 2 and Exhibit Hall C)

## TUESDAY JUNE 6 – FRIDAY JUNE 9 Oral Technical Sessions

	TUESDAY June 6										WEDNESDAY June 7										THURSDAY June 8										FRIDAY June 9				
Session Rooms	Maryland A/B	Virginia A/B	Marriott 3	Delaware A	Delaware B	Marriott 1	Washington 5	Washington 3	Lincoln 5	Maryland C	Maryland A/B	Maryland C	Virginia A/B	Marriott 3	Delaware A	Delaware B	Marriott 1	Washington 5	Washington 3	Lincoln 5	Maryland A/B	Maryland C	Virginia A/B	Marriott 3	Delaware A	Delaware B	Marriott 1	Washington 5	Washington 3	Lincoln 5	Maryland A/B				
7:15 AM	Continental Breakfast (Marriott 2)										Continental Breakfast (Marriott 2, Exhibit Hall C)										Continental Breakfast (Marriott 2, Exhibit Hall C)										Cont. Breakfast (Marriott 2)				
8:00 AM											ACS			ES	LM	GI							ACS					EEMS							PM
8:30 AM											ACS			EDT	ES	LM	GI	FC	PD	MT	ST	ACS	ACS	FT	ES		EEMS	FC	PD	H2S	ST	ACS			
9:00 AM											ACS			EDT	ES	LM	GI					ACS	ACS	FT	ES	LM	EEMS	FC	PD	H2S	ST	PM			
9:30 AM											ACS			EDT	ES	LM	GI	FC	PD	MT	ST	ACS	ACS	FT	ES	LM	EEMS	FC	PD	H2S	ST	ACS			
10:00 AM											ACS			EDT	ES	LM	GI	FC	PD	MT	ST	ACS	ACS	FT	ES	LM	EEMS	FC	PD	H2S	ST	PM			
10:30 AM	Break (Marriott 2, Exhibit Hall C)										Break (Marriott 2, Exhibit Hall C)										Break (Marriott 2, Exhibit Hall C)										Break (Marriott 2)				
11:00 AM	ACS	EDT	ES	LM	GI	FC	PD	SCS	SA	MN	ACS			EDT	ES	LM	GI	FC	PD	MT	ST	PM			FT	ES	TI	EEMS	FC	PD	H2S	ST	PM		
11:30 AM	ACS	EDT	ES	LM	GI	FC	PD	SCS	SA	MN	ACS			EDT	ES	LM	GI	FC	PD	MT	ST	PM			FT	ES	TI	EEMS	FC	PD		ST	ACS		
12:00 PM	ACS	EDT	ES	LM	GI	FC	PD	SCS	SA	MN	ACS			EDT	ES	LM	GI	FC	PD	SCS	ST	PM			FT	ES	TI	EEMS	FC			ST	PM		
12:30 PM	Lunch Exhibit Hall A, 12:30–1:45 PM										Lunch Exhibit Hall A, 12:30–1:45 PM										Lunch Exhibit Hall A, 12:30–1:45 PM														
1:45 PM	ACS	EDT	ES	LM	GI	FC	PD	SCS	SA	MN	ACS			FT	ES	LM	ACS	FC	PD	TV	ST	ACS			FT	ES	TI		FC		H2IN	ST			
2:15 PM	ACS	EDT	ES	LM	GI	FC	PD	SCS	SA	MN	ACS			FT	ES	LM	ACS	FC	PD	TV	ST	ACS			FT	ES	TI	VAN	FC	PD	H2IN	ST			
2:45 PM	ACS	EDT	ES	LM	GI	FC	PD	SCS	SA	MN	ACS			FT	ES	LM	ACS	FC	PD	TV	ST	ACS			FT	ES	TI	VAN	FC	PD	H2IN	ST			
3:15 PM	ACS	EDT	ES	LM	GI	FC		SCS	SA	MN	ACS			FT	ES	LM	ACS	FC	PD	TV	ST	ACS			FT		TI	VAN	FC	PD	H2IN	ST			
3:45 PM	Break (Marriott 2, Exhibit Hall C)										Break (Marriott 2, Exhibit Hall C)										Break (Marriott 2, Exhibit Hall C)														
4:15 PM	ACS	EDT	ES	LM	GI	FC	PD	SCS	SA	MN	ACS	ACS	FT	ES	LM	EEMS	FC	PD			ST	ACS					ES	TI	VAN			H2IN	ST		
4:45 PM	ACS	EDT	ES	LM	GI	FC	PD	SCS	SA		ACS	ACS	FT	ES	LM	EEMS	FC	PD	TV	ST	ACS					ES		VAN			H2IN	ST			
5:15 PM			ES	LM	GI	FC	PD	SCS	SA		ACS	ACS	FT	ES	LM	EEMS			PD	TV	ST	ACS					ES		VAN			H2IN			
5:45 PM			ES		GI	FC		SCS			ACS	ACS	FT	ES		EEMS				TV	ST	ACS							VAN			H2IN			
6:15 PM																																			
6:30 PM – 8:30 PM											<b>POSTER SESSION II</b> (Exhibit Halls B & C, Lower Level, 6:30–8:30 PM): Advanced Combustion Systems; Electrochemical Energy Storage Part I; Energy-Efficient Mobility Systems; Hydrogen Production & Delivery with Basic Energy Sciences; Technology Integration; Technology Validation										<b>POSTER SESSION III</b> (Exhibit Halls B & C, Lower Level, 6:30–8:30 PM): Electrochemical Energy Storage Part II; Vehicle Technologies Analysis														

## MONDAY JUNE 5 plenary

Marriott 2 & 3	
2:00 PM	Moderator <i>Reuben Sarkar, Deputy Assistant Secretary for Sustainable Transportation, DOE</i> Welcome Remarks <i>Daniel Simmons, Acting Assistant Secretary for Energy Efficiency and Renewable Energy</i>
2:15 PM	Keynote Remarks <i>Jon Lauckner, Chief Technology Officer, Vice President of Research &amp; Development, and President, GM Ventures, General Motors</i>
2:30 PM	Keynote Remarks <i>Dr. Joe Powell, Chief Scientist – Chemical Engineering, Shell</i>
2:45 PM	Fireside Chat Discussion Session Moderator: <i>Reuben Sarkar</i> Other panelists: <i>Joe Powell and Jon Lauckner</i>
3:15 PM	Vehicle Technologies Office Overview <i>Michael Berube, Director, Vehicle Technologies Office</i>
3:35 PM	DOE Hydrogen and Fuel Cells Program Overview <i>Sunita Satyapal, Director, Fuel Cell Technologies Office</i>
3:55 PM	AMR Award Ceremony <i>Michael Berube and Sunita Satyapal</i>
4:15 PM	<b>BREAK – Adjourn main plenary session</b>

## MONDAY JUNE 5 program overviews

	HYDROGEN AND FUEL CELLS PROGRAM	VEHICLE TECHNOLOGIES OFFICE
	Marriott 1	Marriott 3
4:45 PM	Hydrogen Production & Delivery Overview <i>Eric Miller, DOE</i>	Vehicle Technologies Analysis Overview <i>Rachael Nealer, DOE</i>
5:15 PM	Hydrogen Storage Overview <i>Ned Stetson, DOE</i>	Energy-Efficient Mobility Systems Overview <i>David Anderson, DOE</i>
5:45 PM	Fuel Cells Overview <i>Dimitrios Papageorgopoulos, DOE</i>	Materials Overview <i>Felix Wu, DOE</i>
6:15 PM	Manufacturing R&D Overview <i>Nancy Garland, DOE</i>	Electrochemical Energy Storage Overview <i>David Howell, DOE</i>

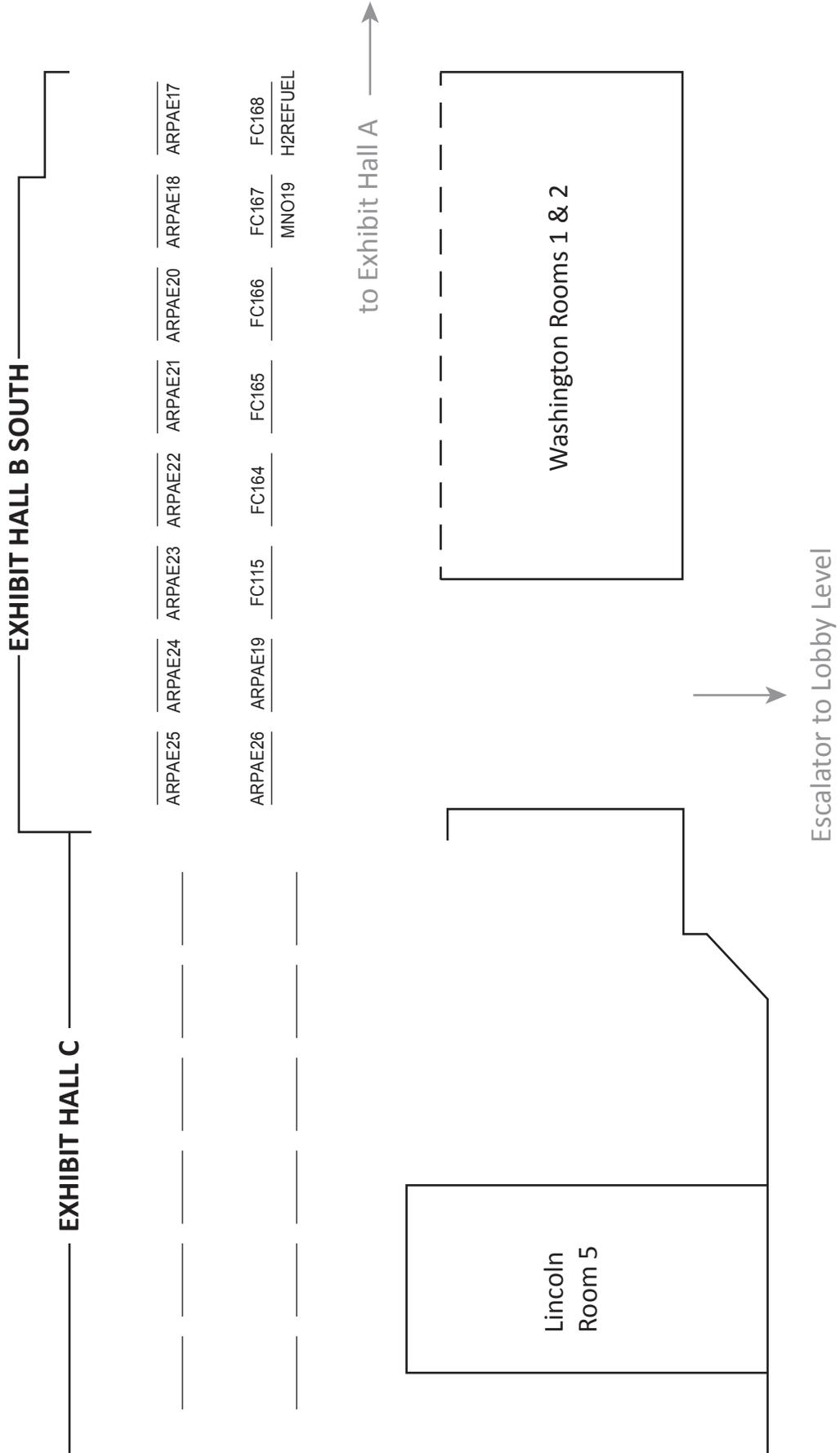
## TUESDAY JUNE 6 program overviews

	HYDROGEN AND FUEL CELLS PROGRAM	VEHICLE TECHNOLOGIES OFFICE
	Marriott 1	Marriott 3
8:30 AM	Technology Validation Overview <i>Jim Alkire, DOE</i>	Electric Drive/Grid/Charging R&D Overview <i>Steven Boyd, DOE</i>
9:00 AM	Market Transformation Overview <i>Pete Devlin, DOE</i>	Advanced Combustion Systems Overview <i>Gurpreet Singh, DOE</i>
9:30 AM	Safety, Codes & Standards Overview <i>Will James, DOE</i>	Fuel and Lubricant Technologies R&D Overview <i>Kevin Stork, DOE</i>
10:00 AM	Systems Analysis Overview <i>Fred Joseck, DOE</i>	Technology Integration Overview <i>Linda Bluestein, DOE</i>

## MONDAY JUNE 5 poster presentations (7:00–9:00 PM, Exhibit Halls B & C)

HYDROGEN AND FUEL CELLS PROGRAM – ARPA-E		
ARPAE17	A Novel Intermediate-Temperature Fuel Cell Tailored for Efficient Utilization of Methane	Meilin Liu, Georgia Tech
ARPAE18	Nanocomposite Electrodes for a Solid Acid Fuel Cell Stack Operating on Reformate	Tom Zawodzinski, ORNL/U. of Tennessee, Knoxville
ARPAE19	Low Temperature Solid Oxide Fuel Cells for Transformational Energy Conversion	Bryan Blackburn, Redox Power Systems
ARPAE20	Solid Acid Fuel Cell Stack for Distributed Generation Applications	Calum Chisholm, SAFCell
ARPAE21	Fuel Cells with Dynamic Response Capability Based on Energy Storage Electrodes with Catalytic Function	Yunfeng Lu, UCLA
ARPAE22	A Bifunctional Ceramic Fuel Cell Energy System	Kevin Huang, U. of South Carolina
ARPAE23	Development of an Intermediate Temperature Metal Supported Proton Conducting Solid Oxide Fuel Cell Stack	Tianli Zhu, UTRC
ARPAE24	Intermediate Temperature Hybrid Fuel Cell System for the Conversion of Natural Gas to Electricity, Liquid Fuels, and Chemicals	Ted Krause, ANL
ARPAE25	Dual Mode Intermediate Temperature Fuel Cell: Liquid Fuels and Electricity	Carl Willman, FuelCell Energy
ARPAE26	Intermediate-Temperature Electrogenerative Cells for Flexible Cogeneration of Power and Liquid Fuel	Greg Tao, MSRI
HYDROGEN AND FUEL CELLS PROGRAM – FUEL CELLS		
FC052	Technical Assistance to Developers	Tommy Rockward, LANL
FC115	Affordable, High Performance, Intermediate Temperature Solid Oxide Fuel Cells	Bryan Blackburn, Redox Power Systems
FC164	Development of Corrosion Resistant Carbon Support for Ultra-low PGM Catalysts	Prabhu Ganesan, Greenway Energy, LLC
FC165	Mesoporous Non-Carbon Catalyst Supports of PEMFC	Jacob Coppage-Gross, Certaintech, Inc.
FC166	Development of Durable Active supports for Low Platinum Group Metal Catalysts	Barr Halevi, Pajarito Powder
FC167	Multi-Functional Catalyst Support	Minette Ocampo, pH Matter LLC
FC168	Highly Robust Low-PGM MEAs Based upon Composite Supports	Arrelaine Dameron, Forge Nano
HYDROGEN AND FUEL CELLS PROGRAM – H2 REFUEL		
H2REFUEL	H2 Refuel	Darryl Pollica, SimpleFuel
HYDROGEN AND FUEL CELLS PROGRAM – MANUFACTURING R&D		
MN019	Material-Process-Performance Relationships for R2R Coated PEM Electrodes	Scott Mauger, NREL

**MONDAY JUNE 5 poster presentations map**



## TUESDAY JUNE 6 oral presentations

	MARYLAND A/B	VIRGINIA A/B	MARRIOTT 3
11:00 AM	ACS001: Heavy-Duty Low-Temperature and Diesel Combustion & Heavy-Duty Combustion Modeling <i>Mark Musculus, SNL</i>	EDT074: Non-Rare Earth Electric Motors <i>Tim Burress, ORNL</i>	ES297: Computer-Aided Engineering of Batteries (CAEBAT) Program Introduction <i>Brian Cunningham, DOE</i>
11:30 AM	ACS002: Light-Duty Diesel Combustion <i>Stephen Busch, SNL</i>	EDT075: Electric Motor Thermal Management <i>Kevin Bennion, NREL</i>	ES298: Efficient Simulation and Abuse Modeling of Mechanical-Electrochemical-Thermal Phenomena in Lithium-Ion Batteries <i>Shriram Santhanagopalan, NREL</i>
12:00 PM	ACS004: Low-Temperature Gasoline Combustion (LTGC) Engine Research <i>John Dec, SNL</i>	EDT015: Development of Radically Enhanced alnico Magnets (DREaM) for Traction Drive Motors <i>Iver Anderson, Ames Laboratory</i>	ES299: Microstructure Characterization and Modeling for Improved Electrode Design <i>Kandler Smith, NREL</i>
12:30 PM	LUNCH	LUNCH	LUNCH
1:45 PM	ACS006: Gasoline Combustion Fundamentals <i>Isaac Ekoto, SNL</i>	EDT076: Electric Drive Inverters <i>Madhu Chinthavali, ORNL</i>	ES300: Enhancement and Deployment of VIBE, the Open Architecture Software (OAS) Environment <i>Srikanth Allu, ORNL</i>
2:15 PM	ACS084: Advanced Ignition Systems for Gasoline Direct Injection (GDI) Engines <i>Riccardo Scarcelli, ANL</i>	EDT077: Wireless Power Transfer Integrated Chargers <i>Veda Galigekere, ORNL</i>	ES301: Experiments and Models for the Mechanical Behavior of Battery Materials <i>Sergiy Kalnaus, ORNL</i>
2:45 PM	ACS011: Advances in High-Efficiency Gasoline Compression Ignition <i>Steve Ciatti, ANL</i>	EDT078: Power Electronics Thermal Management <i>Gilbert Moreno, NREL</i>	ES302: Microstructure Imaging and Electrolyte Transport Property Measurements for Mathematical Modeling <i>Venkat Srinivasan, ANL</i>
3:15 PM	ACS016: High-Efficiency Clean Combustion in Multi-Cylinder Light-Duty Engines <i>Scott Curran, ORNL</i>	EDT087: Electrical Performance, Reliability Analysis, and Characterization <i>Tim Burress, ORNL</i>	ES303: Exploring How Electrode Structure Affects Electrode-Scale Properties Using 3-D Mesoscale Simulations <i>Scott Roberts, SNL</i>
3:45 PM	BREAK	BREAK	BREAK
4:15 PM	ACS015: Stretch Efficiency for Combustion Engines: Exploiting New Combustion Regimes <i>Jim Szybist, ORNL</i>	EDT079: Materials for Advanced Packaging <i>Andy Wereszczak, ORNL</i>	ES296: Development and Validation of a Simulation Tool to Predict the Combined Structural, Electrical, Electrochemical, and Thermal Responses of Automotive Batteries <i>Chulheung Bae, Ford Motor Co.</i>
4:45 PM	ACS017: Accelerating Predictive Simulation of IC Engines with High Performance Computing <i>K. Dean Edwards, ORNL</i>	EDT080: Performance and Reliability of Bonded Interfaces for High-Temperature Packaging <i>Paul Paret, NREL</i>	ES304: Extreme Fast Charge and Battery Cost Implications <i>Shabbir Ahmed, ANL</i>
5:15 PM			ES305: Extreme Fast Charging - A Battery Technology Gap Assessment <i>Ira Bloom, ANL</i>
5:45 PM			ES306: Thermal Implications for Extreme Fast Charge <i>Matthew Keyser, NREL</i>

## TUESDAY JUNE 6 oral presentations

	DELAWARE A	DELAWARE B	MARRIOTT 1
11:00 AM	LM080: Integrated Computational Materials Engineering Approach to Development of Lightweight 3GAHSS Vehicle Assembly <i>Lou Hector, USAMP</i>	GI029: Advanced Vehicle Testing & Evaluation <i>Jeremy Diez, Intertek</i>	FC135: FC-PAD: Fuel Cell Performance and Durability Consortium <i>Rod Borup, LANL</i>
11:30 AM	LM106: Enhanced Sheared Edge Stretchability of AHSS/UHSS <i>Kyoo Sil Choi, PNNL</i>	GI030: Advanced Technology Vehicle Lab Benchmarking (Level 1 & Level 2) <i>Henning Lohse-Busch, ANL</i>	FC136: FC-PAD: Components and Characterization <i>Karren More, ORNL</i>
12:00 PM	LM107: Optimizing Heat Treatment Parameters for Third Generation AHSS Using an Integrated Experimental-Computational Framework <i>Xiaohua Hu, PNNL</i>	GI001: Medium- and Heavy-Duty Vehicle Field Evaluations <i>Robert Prohaska, NREL</i>	FC137: FC-PAD: Electrode Layers and Optimization <i>Adam Weber, LBNL</i>
<b>12:30 PM</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>
1:45 PM	LM089: High-Strength Electroformed Nanostructured Aluminum for Lightweight Automotive Applications <i>Robert Hilty, Xtalic Corporation</i>	GI187: Comprehensive Assessment of On- and Off-Board Vehicle-to-Grid Technology Performance and Impacts on Battery and the Grid <i>Sunil Chhaya, EPRI</i>	FC155: Novel Ionomers & Electrode Structures for Improved PEMFC Electrode Performance at Low PGM Loadings <i>Andrew Haug, 3M</i>
2:15 PM	LM108: Development of Low Cost, High Strength Automotive Aluminum Sheet <i>Russell Long, Arconic</i>	GI188: Bi-Directional Wireless Power Flow for Medium Duty Vehicle-Grid Connectivity <i>Jasna Tomic, CALSTART</i>	FC156: Durable High-Power Membrane Electrode Assemblies with Low-Pt-Loading <i>Swami Kumaraguru, General Motors</i>
2:45 PM	LM109: High-Throughput Combinatorial Development of High-Entropy Alloys for Lightweight Structural Applications <i>Jeroen van Duren, Intermolecular</i>	GI095: EV-Smart Grid Research and Interoperability Activities <i>Keith Hardy, ANL</i>	FC157: High performance PEFC Electrode Structures <i>Mike Perry, UTRC</i>
3:15 PM	LM110: In-Situ Investigation of Microstructural Evolution During Solidification and Heat Treatment in a Die-Cast Magnesium Alloy <i>Aashish Rohatgi, PNNL</i>	GI096: Wireless & Conductive Charging Testing to Support Code & Standards <i>Barney Carlson, INL</i>	FC158: Fuel Cell Membrane-Electrode-Assemblies with Ultra-Low Pt Nanofiber Electrodes <i>Peter Pintau, Vanderbilt U.</i>
<b>3:45 PM</b>	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
4:15 PM	LM111: Phase Transformation Kinetics and Alloy Microsegregation in High-Pressure Die Cast Magnesium Alloys <i>John Allison, U. of Michigan</i>	GI135: Advanced Climate Systems for EV Extended Range (ACSforEVER) <i>John Meyer, Hanon Systems</i>	FC105: Novel Structured Metal Bipolar Plates for Low Cost Manufacturing <i>C.H. Wang, TreadStone Technologies, Inc.</i>
4:45 PM	LM112: Cost-Effective Magnesium Extrusion <i>Vineet Joshi, PNNL</i>	GI136: ePATHS - electrical PCM Assisted Thermal Heating System <i>Mingyu Wang, Mahle Behr USA, Inc.</i>	FC021: Neutron Imaging Study of the Water Transport in Operating Fuel Cells <i>David Jacobson, NIST</i>
5:15 PM	LM113: Magnesium Corrosion Characterization and Prevention <i>Donovan Leonard, ORNL</i>	GI157: UTEMPRA - Unitary Thermal Energy Management for Propulsion Range Augmentation <i>Sourav Chowdhury, Mahle Behr USA, Inc.</i>	FC128: Facilitated Direct Liquid Fuel Cells with High Temperature Membrane Electrode Assemblies <i>Emory DeCastro, Advent Technologies, Inc.</i>
5:45 PM		GI165: Design and Implementation of a Thermal Load Reduction System in a Hyundai PHEV <i>Cory Kreutzer, NREL</i>	FC129: Advanced Catalysts and MEAs for Reversible Alkaline Membrane Fuel Cells <i>Hui Xu, Giner, Inc.</i>

## TUESDAY JUNE 6 oral presentations

	WASHINGTON 5	WASHINGTON 3	LINCOLN 5
11:00 AM	PD110: Low Cost Hydrogen Storage at 875 Bar Using Steel Liner and Steel Wire Wrap <i>Ashok Saxena, Wiretough Cylinders</i>	SCS010: R&D for Safety, Codes and Standards: Hydrogen Behavior <i>Ethan Hecht, SNL</i>	SA067: Resource Availability for Hydrogen Production <i>Marc Melaina, NREL</i>
11:30 AM	PD025: Fatigue Performance of High-Strength Pipeline Steels and Their Welds in Hydrogen Gas Service <i>Joe Ronevich, SNL</i>	SCS011: Hydrogen Quantitative Risk Assessment <i>Katrina Groth, SNL</i>	SA063: Regional Supply of Hydrogen <i>Michael Penev, NREL</i>
12:00 PM	PD108: Hydrogen Compression Application of the Linear Motor Reciprocating Compressor (LMRC) <i>Eugene Broerman, SwRI</i>	SCS025: Enabling Hydrogen Infrastructure Through Science-based Codes and Standards <i>Chris LaFleur, SNL</i>	SA066: Life-Cycle Analysis of Air Pollutants Emission for Refinery and Hydrogen Production from SMR <i>Amgad Elgowainy, ANL</i>
<b>12:30 PM</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>
1:45 PM	PD136: Electrochemical Compression <i>Monjid Hamdan, Giner, Inc.</i>	SCS007: Fuel Quality Assurance R&D and Impurity Testing in Support of Codes & Standards <i>Tommy Rockward, LANL</i>	SA039: Regional Water Stress Analysis with Hydrogen Production at Scale <i>Amgad Elgowainy, ANL</i>
2:15 PM	PD137: Hybrid Electrochemical-Metal Hydride Compression <i>Scott Greenway, Greenway Energy, Inc.</i>	SCS028: Diode Laser Sensor for Contaminants in Hydrogen Fuel <i>Mark Paige, Southwest Sciences</i>	SA068: Benefits Analysis of Multi-Fuel/Vehicle Platforms with a Focus on Hydrogen Fuel Cell Electric Vehicles <i>Tom Stephens, ANL</i>
2:45 PM	PD138: Metal Hydride Compression <i>Terry Johnson, SNL</i>	SCS029: Electrochemical Hydrogen Contaminant Detection <i>Trent Molter, Sustainable Innovations</i>	SA059: Sustainability Analysis: Hydrogen Regional Sustainability (HyReS) <i>Elizabeth Connelly, NREL</i>
3:15 PM		SCS021: NREL Hydrogen Sensor Testing Laboratory <i>Bill Buttner, NREL</i>	SA035: Employment Impacts of Hydrogen and Fuel Cell Technologies <i>Marianne Mintz, ANL</i>
<b>3:45 PM</b>	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
4:15 PM	PD100: 700 bar Hydrogen Dispenser Hose Reliability Improvement <i>Owen Smith, NREL</i>	SCS005: R&D for Safety, Codes and Standards: Materials and Components Compatibility <i>Chris San Marchi, SNL</i>	SA044: Cost Benefits Analysis of Technology Improvement in Light Duty Fuel Cell Vehicles <i>Aymeric Rousseau, ANL</i>
4:45 PM	PD146: Advancing Hydrogen Dispenser Technology by Using Innovative Intelligent Networks <i>Chris O'Brien, Ivys Inc.</i>	SCS026: Compatibility of Polymeric Materials Used in the Hydrogen Infrastructure <i>Kevin Simmons, PNNL</i>	SA065: Agent-based Modeling of Consumer Behavior <i>Matthew Mahalik, ANL</i>
5:15 PM	PD135: Liquid Hydrogen Infrastructure Analysis <i>Guillaume Petitpas, LLNL</i>	SCS001: National Codes and Standards Deployment and Outreach <i>Carl Rivkin, NREL</i>	SA064: Greenhouse Gas (GHG) Emissions and Petroleum Use Reduction of Medium- and Heavy-Duty Trucks <i>D-Y Lee, ANL</i>
5:45 PM		SCS022: Fuel Cell & Hydrogen Energy Association Codes and Standards Support <i>Karen Quackenbush, Fuel Cell &amp; Hydrogen Energy Association</i>	

## TUESDAY JUNE 6 oral presentations

MARYLAND C	
11:00 AM	MN001: Fuel Cell MEA Manufacturing R&D <i>Michael Ulsh, NREL</i>
11:30 AM	MN012: Clean Energy Supply Chain and Manufacturing Competitiveness Analysis for Hydrogen and Fuel Cell Technologies <i>Pat Valente, Ohio Fuel Cell Coalition</i>
12:00 PM	MN013: Fuel Cell and Hydrogen Opportunity Center <i>Alleyn Harned, Virginia Clean Cities at James Madison U.</i>
<b>12:30 PM</b>	<b>LUNCH</b>
1:45 PM	MN014: U.S. Clean Energy Hydrogen and Fuel Cell Technologies: A Competiveness Analysis <i>Patrick Fullenkamp, GLWN – Westside Industrial Retention &amp; Expansion Network</i>
2:15 PM	MN015: Continuous Fiber Composite Electrofusion Coupler <i>Brett Kimball, Automated Dynamics</i>
2:45 PM	MN016: In-line Quality Control of PEM Materials <i>Paul Yelvington, Mainstream</i>
3:15 PM	MN017: Manufacturing Competitiveness Analysis for Hydrogen Refueling Stations <i>Ahmad Mayyas, NREL</i>
<b>3:45 PM</b>	<b>BREAK</b>
4:15 PM	MN018: Roll to Roll Advanced Materials Manufacturing Lab Consortium <i>Claus Daniel, ORNL</i>

## WEDNESDAY JUNE 7 oral presentations

	MARYLAND A/B	MARYLAND C	VIRGINIA A/B
8:00 AM	ACS013: Chemical Kinetic Models for Advanced Engine Combustion <i>Bill Pitz, LLNL</i>		
8:30 AM	ACS054: Rapid Compression Machine Studies to Enable Gasoline-Relevant Low-Temperature Combustion <i>Scott Goldsborough, ANL</i>		EDT061: Cost-Effective Fabrication of High-Temperature Ceramic Capacitors for Power Inverters <i>Balu Balachandran, ANL</i>
9:00 AM	ACS076: Improved Solvers for Advanced Engine Combustion Simulation <i>Matthew McNenly, LLNL</i>		EDT059: High Temperature DC-Bus Capacitor Cost Reduction and Performance Improvements <i>Angelo Yializis, Sigma Technologies International</i>
9:30 AM	ACS012: Model Development and Analysis of Clean & Efficient Engine Combustion <i>Russell Whitesides, LLNL</i>		EDT081: Multilayered Film Capacitors for Advanced Power Electronics and Electric Motors for Electric Traction Drives <i>Deepak Langhe, Polymer Plus</i>
10:00 AM	ACS007: Large Eddy Simulation (LES) Applied to Advanced Engine Combustion Research <i>Joe Oefelein, SNL</i>		EDT067: High-Efficiency High-Density GaN-Based 6.6kW Bidirectional On-Board Charger for PEVs <i>Charles Zhu, Delta Products Corporation</i>
<b>10:30 AM</b>	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
11:00 AM	ACS014: 2016 KIVA-hpFE Development: A Robust and Accurate Engine Modeling Software <i>David Carrington, LANL</i>		EDT072: A Disruptive Approach to Electric Vehicle Power Electronics <i>Robert Erickson, U. of Colorado Boulder</i>
11:30 AM	ACS005: Spray Combustion Cross-Cut Engine Research <i>Lyle Pickett, SNL</i>		EDT082: Highly Integrated Wide Bandgap Power Module for Next Generation Plug-In Vehicles <i>Brian Peaslee, General Motors</i>
12:00 PM	ACS010: Fuel Injection and Spray Research Using X-Ray Diagnostics <i>Christopher Powell, ANL</i>		EDT083: 650V SiC Integrated Power Module for Automotive Inverters <i>Monty Hayes, Delphi Automotive Systems, LLC</i>
<b>12:30 PM</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>
1:45 PM	ACS052: Neutron Imaging of Advanced Transportation Technologies <i>Charles Finney, ORNL</i>		FT047: Advanced Lubricant Technology -- Surface and Lubricant Interactions <i>Oyelajo Ajayi, ANL</i>
2:15 PM	ACS075: Advancements in Fuel Spray and Combustion Modeling with High-Performance Computing Resources <i>Sibendu Som, ANL</i>		FT048: Advanced Lubricant Technology -- Technology Innovation, Design, and Synthesis <i>Lelia Cosimbescu, PNNL</i>
2:45 PM	ACS022: Joint Development and Coordination of Emissions Control Data and Models (Cross-cut Lean Exhaust Emissions Reduction Simulations Analysis and Coordination) <i>Josh Pihl, ORNL</i>		FT049: Lubricant Effects on Combustion and Emissions Control <i>John Storey, ORNL</i>
3:15 PM	ACS023: Cross-cut Lean Exhaust Emissions Reduction Simulation: Aftertreatment Modeling and Analysis <i>Yong Wang, PNNL</i>		FT025: Improved Fuel Economy through Formulation Design and Modeling <i>Gefei Wu, Valvoline</i>
<b>3:45 PM</b>	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
4:15 PM	ACS118: Advanced Emission Control for High-Efficiency Engines <i>Yong Wang, PNNL</i>	ACS104: Cavitation Within Fuel Injectors: Development and Multiscale Validation of Euler-Lagrange based Computational Methods for Modeling Cavitation within Fuel Injectors <i>Emily Ryan, Boston U.</i>	FT023: Polyalkylene Glycol (PAG) Based Lubricant for Light- and Medium-Duty Axles <i>Nikolaus Jost, Ford Motor Co.</i>
4:45 PM	ACS119: Development and Optimization of a Multi-Functional SCR-DPF Aftertreatment System for Heavy-Duty NOX and Soot Emission Reduction <i>Ken Rappe, PNNL</i>	ACS105: Turbulent Spray Atomization Model for Diesel Engine Simulations <i>Caroline Genzale, Georgia Tech</i>	FT050: Power-Cylinder Friction Reduction through Coatings, Surface Finish, and Design <i>Arup Gangopadhyay, Ford Motor Co.</i>
5:15 PM	ACS027: Next Generation Selective Catalytic Reduction-Dosing System Investigation <i>Abhijeet Karkamkar, PNNL</i>	ACS106: Multi-Component Fuel Vaporization and Flash Boiling <i>Chia-Fon Lee, U. of Illinois</i>	FT024: A Novel Lubricant Formulation Scheme for 2% Fuel Efficiency Improvement <i>Q. Jane Wang, Northwestern U.</i>
5:45 PM	ACS056: Fuel-Neutral Studies of Particulate Matter Transport Emissions <i>Mark Stewart, PNNL</i>	ACS107: High-Pressure Supercritical Fuel Injection at Diesel Conditions <i>Ajay Agrawal, U. of Alabama</i>	FT061: Methods to Measure, Predict, and Relate Friction, Wear, and Fuel Economy <i>Steve Gravante, Ricardo</i>

## WEDNESDAY JUNE 7 oral presentations

	MARRIOTT 3	DELAWARE A	DELAWARE B
8:00 AM	ES108: Overview and Progress of the Advanced Battery Materials Research (BMR) Program <i>Tien Duong, DOE</i>	LM103: E. coli Derived Spider Silk MaSp1 and MaSp2 Proteins as Carbon Fiber Precursors <i>Randy Lewis, Utah State U.</i>	GI161: Multi-Speed Transmission for Commercial Delivery Medium Duty Plug-In Electric Drive Vehicles <i>Bulent Chavdar, Eaton</i>
8:30 AM	ES232: High Energy Density Electrodes via Modifications to the Inactive Components and Processing Conditions <i>Vincent Battaglia, LBNL</i>	LM101: Integrated Computational Materials Engineering (ICME) Development of Carbon Fiber Composites for Lightweight Vehicles <i>Xuming Su, Ford Motor Co.</i>	GI189: Electric Truck with Range-Extending Engine (ETREE) <i>John Kresse, Cummins</i>
9:00 AM	ES220: Addressing Heterogeneity in Electrode Fabrication Processes <i>Dean Wheeler, Brigham Young U.</i>	LM117: Development and Integration of Predictive Models for Manufacturing and Structural Performance of Carbon Fiber Composites in Automotive Applications <i>Venkat Aitharaju, General Motors</i>	GI190: Medium-Duty Urban Range Extended Connected Powertrain (MURECP) <i>Matt Thorington, Bosch</i>
9:30 AM	ES334: Insights from Mesoscale Characterization Guides Rational LIB Design <i>William Chueh, Stanford U.</i>	LM084: Validation of Material Models for Crash Simulation of Automotive Carbon Fiber Composite Structures (VMM) <i>Anthony Coppola, General Motors</i>	GI115: Zero Emission Drayage Truck Demonstration (ZECT I) <i>Brian Choe, SCAQMD</i>
10:00 AM	ES049: Tailoring Integrated Layered- and Spinel Electrode Structures for High Capacity Lithium-Ion Cells <i>Michael Thackeray, ANL</i>	LM115: Predictive Engineering Tools for Injection-Molded, Long Carbon Fiber Thermoplastic Composites <i>Dave Warren, ORNL</i>	GI158: Zero Emission Cargo Transport II: San Pedro Bay Ports Hybrid & Fuel Cell Electric Vehicle Project <i>Joseph Impullitti, SCAQMD</i>
<b>10:30 AM</b>	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
11:00 AM	ES052: Design of High-Performance, High-Energy Cathode Materials <i>Marca Doeff, LBNL</i>	LM116: Predictive Engineering Tools for Injection-Molded, Long Carbon Fiber Thermoplastic Composites <i>Leo Fifield, PNNL</i>	GI116: Hydrogen Fuel-Cell Electric Hybrid Truck & Zero Emission Delivery Vehicle Deployment <i>Andrew DeCandis, Houston-Galveston Area Council</i>
11:30 AM	ES056: Development of High-Energy Cathode Materials <i>Jason Zhang, PNNL</i>	LM098: Brazing Dissimilar Metals with a Novel Composite Foil <i>Tim Weihs, John Hopkins U.</i>	GI191: Medium Duty Vehicle Powertrain Electrification and Demonstration <i>Wiley McCoy, McLaren</i>
12:00 PM	ES183: In Situ Solvothermal Synthesis of Novel High-Capacity Cathodes <i>Feng Wang, BNL</i>	LM087: Active, Tailorable Adhesives for Dissimilar Material Bonding, Repair, and Assembly <i>Mahmood Haq, Michigan State U.</i>	GI192: Hybridization of Class 8 Line Haul And Regional Refrigeration Trucks CRADA <i>Dean Deter, ORNL</i>
<b>12:30 PM</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>
1:45 PM	ES307: Discovery of High-Energy Lithium-Ion Battery Materials <i>Wei Tong, LBNL</i>	LM104: Solid-State Body-in-White Spot Joining of Aluminum to AHSS at Prototype Scale <i>Zhili Feng, ORNL</i>	ACS113: DOE's Effort to Improve Heavy Vehicle Fuel Efficiency through Improved Aerodynamics <i>Kambiz Salari, LLNL</i>
2:15 PM	ES235: Characterization Studies of High Capacity Composite Electrode Structures <i>Jason Croy, ANL</i>	LM099: High Strength, Dissimilar Alloy Aluminum Tailor-Welded Blanks <i>Piyush Upadhyay, PNNL</i>	ACS114: Improved Tire Efficiency through Elastomeric Polymers Enhanced with Carbon-Based Nanostructured Materials <i>Georgios Polyzos, ORNL</i>
2:45 PM	ES106: High Capacity Multi-Lithium Oxide Cathodes and Oxygen Stability <i>Jagjit Nanda, ORNL</i>	LM105: Friction Stir Scribe Joining of Aluminum to Steel <i>Piyush Upadhyay, PNNL</i>	ACS115: Advanced Bus and Truck Radial Materials for Fuel Efficiency <i>Lucas Dos Santos Freire, PPG</i>
3:15 PM	ES231: High Energy Density Lithium Battery <i>Stanley Whittingham, Binghamton U.-SUNY</i>	LM114: Friction Stir Scribe Joining of Carbon Fiber Reinforced Polymer to Aluminum <i>Blair Carlson, General Motors</i>	ACS116: Advanced Non-Tread Materials for Fuel-Efficient Tires <i>Tim Okel, PPG</i>
<b>3:45 PM</b>	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
4:15 PM	ES085: Interfacial Processes in EES Systems Advanced Diagnostics <i>Robert Kostecky, LBNL</i>	LM118: Functionally Designed Ultra-Lightweight Carbon Fiber Reinforced Thermoplastic Composites Door Assembly <i>Srikanth Pilla, Clemson U.</i>	EEMS001: Energy Impact of Connected and Automated Vehicles <i>Huei Peng, U. of Michigan</i>
4:45 PM	ES059: Advanced In Situ Diagnostic Techniques for Battery Materials <i>Xiao-Qing Yang, BNL</i>	LM119: Ultra-Light Hybrid Composite Door Design, Manufacturing, and Demonstration <i>Nate Gravelle, TPI</i>	EEMS002: SMART Mobility -- Connected and Automated Vehicles <i>Eric Rask, ANL</i>
5:15 PM	ES055: NMR and MRI Studies of SEI, Dendrites, and Electrode Structures <i>Clare Grey, U. of Cambridge</i>	LM120: Ultra-Light Door Design <i>Tim Reaburn, Magna</i>	EEMS003: SMART Mobility -- Advanced Fueling Infrastructure <i>John Smart, INL</i>
5:45 PM	ES091: Predicting and Understanding Novel Electrode Materials From First-Principles <i>Kristin Persson, LBNL</i>		EEMS004: SMART Mobility -- Multi-Modal <i>Diane Davidson, ORNL</i>

## WEDNESDAY JUNE 7 oral presentations

	MARRIOTT 1	WASHINGTON 5
8:30 AM	FC160: ElectroCat (Electrocatalysis Consortium) <i>Piotr Zelenay, LANL</i>	PD130: Improved Hydrogen Liquefaction through Heisenberg Vortex Separation of para and ortho-hydrogen <i>Christopher Ainscough, NREL</i>
9:00 AM		PD131: Magnetocaloric Hydrogen Liquefaction <i>Jamie Holladay, PNNL</i>
9:30 AM	FC140: Tailored High Performance Low-PGM Alloy Cathode Catalysts <i>Vojislav Stamenkovic, ANL</i>	PD031: Renewable Electrolysis Integrated System Development and Testing <i>Michael Peters, NREL</i>
10:00 AM	FC141: Platinum Monolayer Electrocatalysts <i>Radoslav Adzic, BNL</i>	PD103: High-Performance, Long-Lifetime Catalysts for Proton Exchange Membrane Electrolysis <i>Hui Xu, Giner, Inc.</i>
<b>10:30 AM</b>	<b>BREAK</b>	<b>BREAK</b>
11:00 AM	FC142: Extended Surface Electrocatalyst Development <i>Bryan Pivovar, NREL</i>	PD147: Economical Production of Hydrogen Through Development of Novel, High Efficiency Electrocatalysts for Alkaline Membrane Electrolysis <i>Kathy Ayers, Proton Onsite</i>
11:30 AM	FC143: Highly Active, Durable, and Ultra-low PGM NSTF Thin Film ORR Catalysts and Supports <i>Andrew Steinbach, 3M</i>	PD124: Solid Oxide Based Electrolysis and Stack Technology with Ultra-High Electrolysis Current Density (>3A/cm <sup>2</sup> ) and Efficiency <i>Randy Petri, FuelCell Energy</i>
12:00 PM	FC144: Highly-Accessible Catalysts for Durable High-Power Performance <i>Anu Kongkanand, General Motors</i>	PD143: High Temperature Alkaline Water Electrolysis <i>Hui Xu, Giner, Inc.</i>
<b>12:30 PM</b>	<b>LUNCH</b>	<b>LUNCH</b>
1:45 PM	FC145: Corrosion-Resistant Non-Carbon Electrocatalyst Supports for PEMFCs <i>Vijay Ramani, Washington U.</i>	PD144: Multi-Scale Ordered Cell Structure for Cost Effective Production of Hydrogen by HTWS <i>Elango Elangovan, Ceramatec</i>
2:15 PM	FC161: Advanced Electro-Catalysts through Crystallographic Enhancement <i>Jacob Spendelow, LANL</i>	PD038: Biomass to Hydrogen (B2H <sub>2</sub> ) <i>Pin-Ching Maness, NREL</i>
2:45 PM	FC162: Vapor Deposition Process for Engineering of Dispersed PEMFC ORR Pt/NbOx/C Catalysts <i>Jim Waldecker, Ford Motor Co.</i>	PD127: Sweet Hydrogen: High-Yield Production of Hydrogen from Biomass Sugars Catalyzed by in vitro Synthetic Biosystems <i>Y-H Percival Zhang, Virginia Tech</i>
3:15 PM	FC130: Development of PGM-free Catalysts for Hydrogen Oxidation Reaction in Alkaline Media <i>Alexey Serov, U. of New Mexico</i>	PD129: Novel Hybrid Microbial Electrochemical System for Efficient Hydrogen Generation from Biomass <i>Hong Liu, Oregon State U.</i>
<b>3:45 PM</b>	<b>BREAK</b>	<b>BREAK</b>
4:15 PM	FC132: Innovative Non-PGM Catalysts for High-Temperature PEMFCs <i>Sanjeev Mukerjee, Northeastern U.</i>	PD102: Analysis of Advanced H <sub>2</sub> Production Pathways <i>Brian James, Strategic Analysis, Inc.</i>
4:45 PM	FC154: Regenerative Fuel Cell System (SBIR Phase II) <i>Paul Matter, pH Matter LLC</i>	BESH2020: Tailoring Hydrogen Evolution Reaction (HER) Catalysts for Operation at Specific pH Values <i>Bianca Ceballos, U. of California, Irvine</i>
5:15 PM		BESH2022: Hybrid Perovskites and Non-adiabatic Dynamics Simulations: Catching Realistic Aspects of the Charge Recombination Process <i>Joanna Jankowska, U. of Southern California</i>

## WEDNESDAY JUNE 7 oral presentations

	WASHINGTON 3	LINCOLN 5
8:30 AM	MT011: Fuel Cell Powered Airport Ground Support Equipment Deployment <i>Jim Petrecky, Plug Power</i>	ST127: HyMARC: A Consortium for Advancing Solid-State Hydrogen Storage Materials <i>Mark Allendorf, SNL</i>
9:00 AM	MT013: Maritime Fuel Cell Generator Project <i>Joe Pratt, SNL</i>	ST129: HyMARC: LLNL Technical Effort <i>Brandon Wood, LLNL</i>
9:30 AM	MT014: Demonstration of Fuel Cell Auxiliary Power Unit (APU) to Power Truck Refrigeration Units (TRUs) in Refrigerated Trucks <i>Kriston Brooks, PNNL</i>	ST130: HyMARC: LBNL's Technical Efforts <i>David Prendergast, LBNL</i>
10:00 AM	MT008: Hydrogen Energy Systems as a Grid Management Tool <i>Mitch Ewan, Hawaii Natural Energy Institute</i>	ST128: HyMARC: Sandia's Technical Effort <i>Vitalie Stavila, SNL</i>
<b>10:30 AM</b>		<b>BREAK</b>
11:00 AM	MT017: FedEx Express Hydrogen Fuel Cell Extended-Range Battery Electric Vehicles <i>Thomas Griffin, FedEx Express</i>	ST137: HyMARC Seedling: Electrolyte Assisted Hydrogen Storage Reactions <i>Channing Ahn, Liox Power</i>
11:30 AM	MT021: Northeast Demonstration and Deployment of FCRx200 <i>Abas Goodarzi, US Hybrid</i>	ST140: HyMARC Seedling: Developing a Novel Hydrogen Sponge with Ideal Binding Energy and High Surface Area for Practical Hydrogen Storage <i>Mike Chung, Penn State</i>
12:00 PM	SCS030: Advancing Fuel Cell Electric Vehicles in San Francisco and Beyond <i>Suzanne Loosen, City and County of San Francisco</i>	ST136: HyMARC Seedling: "Graphene-Wrapped" Complex Hydrides as High-Capacity, Regenerable Hydrogen Storage Materials <i>Di Jia Liu, ANL</i>
<b>12:30 PM</b>		<b>LUNCH</b>
1:45 PM	TV034: Fuel Cell Hybrid Electric Delivery Van Project <i>Jason Hanlin, Center for Transportation and the Environment</i>	ST139: HyMARC Seedling: Fundamental Studies of Surface-Functionalized Mesoporous Carbons for Thermodynamic Stabilization and Reversibility of Metal Hydrides <i>Eric Majzoub, U. of Missouri—St. Louis</i>
2:15 PM	TV008: Fuel Cell Bus Evaluations <i>Leslie Eudy, NREL</i>	ST138: HyMARC Seedling: Development of Magnesium Boride Etherates as Hydrogen Storage Materials <i>Godwin Severa, U. of Hawaii</i>
2:45 PM	TV001: Fuel Cell Electric Vehicle Evaluation <i>Jennifer Kurtz, NREL</i>	ST118: Improving the Kinetics and Thermodynamics of Mg(BH <sub>4</sub> ) <sub>2</sub> for Hydrogen Storage <i>Brandon Wood, LLNL</i>
3:15 PM	TV039: Innovative Advanced Hydrogen Mobile Fueler <i>Spencer Quong, Electricore</i>	ST119: High-capacity Hydrogen Storage Systems via Mechanochemistry <i>Vitalij Pecharsky, Ames Laboratory</i>
<b>3:45 PM</b>	<b>BREAK</b>	<b>BREAK</b>
4:15 PM		ST131: HySCORE: H <sub>2</sub> Storage Characterization and Optimization Research Efforts--NREL's Technical Efforts <i>Thomas Gennett, NREL</i>
4:45 PM	TV029: Performance and Durability Testing of Volumetrically Efficient Cryogenic Vessels and High Pressure Liquid Hydrogen Pump <i>Salvador Aceves, LLNL</i>	ST132: HySCORE: PNNL's Technical Efforts <i>Tom Autrey, PNNL</i>
5:15 PM	TV042: Optimal Stationary Fuel Cell Integration and Control (Energy Dispatch Controller) <i>Genevieve Saur, NREL</i>	ST133: Hydrogen Storage Optimization and Characterization Research Efforts <i>Jeffrey Long, LBNL</i>
5:45 PM	TV037: Hydrogen Meter Benchmark Testing <i>Michael Peters, NREL</i>	ST135: HySCORE: Technical Activities at NIST <i>Mirjana Dimitrievska, NIST</i>

## WEDNESDAY JUNE 7 poster presentations (6:30–8:30 PM, Exhibit Halls B & C)

HYDROGEN AND FUEL CELLS PROGRAM – BASIC ENERGY SCIENCES		
BESH2020P	Tailoring Hydrogen Evolution Reaction (HER) Catalysts for Operation at Specific pH Values	Bianca Ceballos, U. of California, Irvine
BESH2024P	Bioenergetics of Photosynthetic Energy Transduction: Control of Pathways through Redox Biochemistry	David Mulder, NREL
HYDROGEN AND FUEL CELLS PROGRAM – HYDROGEN PRODUCTION & DELIVERY		
PD111	Monolithic Piston-Type Reactor for Hydrogen Production through Rapid Swing of Reforming/ Combustion Reactions	Kenneth Rappe, PNNL
PD118	New Metal Oxides for Efficient Hydrogen Production via Solar Water Splitting	Baicheng Weng, U. of Toledo
PD119	NSF/DOE Solar Hydrogen Fuel: Engineering Surfaces, Interfaces, and Bulk Materials for Unassisted Solar Photoelectrochemical (PEC) Water Splitting	Tom Jaramillo, Stanford U.
PD120	Accelerated Discovery of Advanced RedOx Materials for STWS to Produce Renewable Hydrogen	Charles Musgrave, U. of Colorado Boulder
PD121	Tunable Photoanode-Photocathode-Catalyst Interface Systems for Efficient Solar Water Splitting	G. Charles Dismukes, Rutgers U.
PD123	High Performance Platinum Group Metal Free Membrane Electrode Assemblies Through Control of Interfacial Processes	Katherine Ayers, Proton OnSite
HYDROGEN AND FUEL CELLS PROGRAM – TECHNOLOGY VALIDATION		
TV019	Hydrogen Component Validation	Daniel Terlip, NREL
TV025	Performance Evaluation of Delivered Hydrogen Fueling Stations	Ted Barnes, GTI
TV038	Overview of an Integrated Research Facility for Advancing Hydrogen Infrastructure	Michael Peters, NREL
TV040	High Temperature Electrolysis Test Stand	Richard Boardman, INL
VEHICLE TECHNOLOGIES OFFICE – ADVANCED COMBUSTION SYSTEMS		
ACS117	HD Powertrain Optimization	Paul Chambon, ORNL
VEHICLE TECHNOLOGIES OFFICE – ELECTROCHEMICAL ENERGY STORAGE PART I		
ES201	Electrochemical Performance Testing	Ira Bloom, ANL
ES202	INL Electrochemical Performance Testing	Matt Shirk, INL
ES203	Battery Safety Testing	Leigh Anna Steele, SNL
ES204	Battery Thermal Characterization	Matthew Keyser, NREL
ES240	High Energy Anode Material Development for Lithium-Ion Batteries	Cary Hayner, SiNode Systems
ES241	Advanced High-Performance Batteries for Electric Vehicle (EV) Applications	Ionel Stefan, Amprius
ES243	Dramatically Improve the Safety Performance of Lithium-Ion Battery Separators and Reduce the Manufacturing Cost Using UV Curing and High Precision Coating Technologies	John Arnold, Miltec UV International
ES247	High Energy Lithium Batteries for Electric Vehicles	Herman Lopez, Envia Systems
ES288	Construction of High Energy Density Batteries	Christopher Lang, Physical Sciences Inc.
ES289	Advanced Polyolefin Separators for Lithium-Ion Batteries Used in Vehicle Applications	Weston Wood, Entek
ES290	Hybrid Electrolytes for PHEV Applications	Surya Moganty, NOHMs Technologies
ES291	SAFT-USABC 12V Start-Stop Phase II	Joong Sun Park, Saft
ES293	A Closed Loop Process for the End-of-Life Electric Vehicle Lithium-Ion Batteries	Yan Wang, WPI
ES331	Development of a High Energy Density EV Cell	Mohamed Alamgir, LG Chem Power
ES332	High Electrode Loading EV Cell	William Woodford, 24M Technologies
ES333	Silicon Electrolyte Interface Stabilization Focus Group	Anthony Burrell, NREL

**WEDNESDAY JUNE 7** poster presentations (6:30–8:30 PM, Exhibit Halls B & C)

VEHICLE TECHNOLOGIES OFFICE – ENERGY-EFFICIENT MOBILITY SYSTEMS (CONT.)		
EEMS013	A New System Simulation Framework for SMART Mobility	Phil Sharer, ANL
EEMS014	Agent-Based Transportation System Modeling with POLARIS	Josh Auld, ANL
EEMS015	Calibration of Activity-Based Transportation System Simulation Tools using High-Performance Computing	Vadim Sokolov, George Mason U.
EEMS016	Energy Efficient Connected and Automated Vehicles	Dominik Karbowski, ANL
EEMS017	Impact of CAV Technologies on Travel Demand and Energy	Josh Auld, ANL
EEMS018	Extended Urban Modeling for Smart Mobility	Budhu Bhaduri, ORNL
EEMS019	Smart Urban Signal Infrastructure and Control	H M Abdul Aziz, ORNL
EEMS020	Energy Impact of Different Penetrations of Connected and Automated Vehicles	Jackeline Rios-Torres, ORNL
EEMS022	A Model to Assess Impacts on Fleet-Wide Energy Use from Multi-Modal Opportunities -- Freight Fleet-Level Energy Estimation Tool (FFLEET)	Tim LaClair, ORNL
EEMS023	WholeTraveler Survey on Life Trajectories and Mobility Decisions	Anna Spurlock, LBNL
EEMS024	MA3T-MobilityChoice: Analyzing the Competition, Synergy and Adoption of Fuel and Mobility Technologies	Zhenhong Lin, ORNL
EEMS025	National Scale Multi-Modal Energy and GHG Analysis of Inter-City Freight	Yan Zhou, ANL
EEMS026	Expanding Regional Simulations of CAVs to the National Level and Assessing Uncertainties	Tom Stephens, ANL
EEMS027	Opportunities for Improving the Energy Efficiency of Multi-Modal Intra-City Freight Movement	Kevin Walkowicz, NREL
VEHICLE TECHNOLOGIES OFFICE – TECHNOLOGY INTEGRATION		
TI078	Gaseous Fuel Facility Analysis (Natural Gas and Propane Vehicles)	Myra Blaylock, SNL



## THURSDAY JUNE 8 oral presentations

	MARYLAND A/B	MARYLAND C	VIRGINIA A/B
8:00 AM	ACS024: Ash-Durable Catalyzed Filters for Gasoline Direct Injection (GDI) Engines <i>Hee Je Seong, ANL</i>		
8:30 AM	ACS033: Emissions Control for Lean Gasoline Engines <i>Jim Parks, ORNL</i>	ACS108: Spray-Wall Interaction at High-Pressure and High-Temperature Conditions <i>Seung-Young Lee, Michigan Tech</i>	FT037: Co-Optimization of Fuels and Engines (Co-Optima) -- Overview <i>John Farrell, NREL</i>
9:00 AM	ACS085: Low-Temperature Emission Control to Enable Fuel-Efficient Engine Commercialization <i>Todd Toops, ORNL</i>	ACS109: Predictive Models for In-Cylinder Radiation and Heat Transfer <i>Dan Haworth, Penn State</i>	FT051: Co-Optimization of Fuels and Engines (Co-Optima) -- Fuel Property Characterization and Prediction <i>Robert McCormick, NREL</i>
9:30 AM	ACS032: Cummins-ORNL Emissions CRADA: NOx Control & Measurement Technology for Heavy-Duty Diesel Engines <i>Bill Partridge, ORNL</i>	ACS110: Engine Knock Prediction <i>Seung Hyun Kim, Ohio State U.</i>	FT052: Co-Optimization of Fuels and Engines (Co-Optima) -- Topic 7 - Fuel Kinetics and Its Simulation <i>Matthew McNenly, LLNL</i>
10:00 AM	ACS095: Metal Oxide Nano-Array Catalysts for Low-Temperature Diesel Oxidation <i>Pu-Xian Gao, U. of Connecticut</i>	ACS111: Lagrangian Soot Model Considering Gas Kinetics and Surface Chemistry <i>Sage Kokjohn, U. of Wisconsin</i>	FT053: Co-Optimization of Fuels and Engines (Co-Optima) -- Fuel-Property Impacts on Spark Ignition Efficiency, Part 1: Research Octane Number, Sensitivity, and Heat of Vaporization <i>Jim Szybist, ORNL</i>
<b>10:30 AM</b>	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
11:00 AM	PM066: Innovative SCR Materials and Systems for Low Temperature Aftertreatment <i>Craig DiMaggio, FCA</i>		FT054: Co-Optimization of Fuels and Engines (Co-Optima) -- Fuel-Property Impacts on Spark Ignition Efficiency, Part 2 <i>Chris Kolodziej, ANL</i>
11:30 AM	PM067: Next Generation Three-Way Catalysts for Future, Highly Efficient Gasoline Engines <i>Christine Lambert, Ford Motor Co.</i>		FT055: Co-Optimization of Fuels and Engines (Co-Optima) -- Multimode Lean Spark Ignition: Experiments and Simulation <i>Magnus Sjoberg, SNL</i>
12:00 PM	PM068: Sustained Low Temperature NOx Reduction (SLTNR) <i>Yuhui Zha, Cummins</i>		FT056: Co-Optimization of Fuels and Engines (Co-Optima) -- Exploratory Advanced Compression Ignition Combustion Tasks <i>John Dec, SNL</i>
<b>12:30 PM</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>
1:45 PM	ACS092: High-Efficiency Variable Compression Ratio Engine with Variable Valve Actuation and New Supercharging Technology <i>Charles Mendler, Envera LLC</i>		FT057: Co-Optimization of Fuels and Engines (Co-Optima) -- Emissions, Emission Control, and Sprays <i>Todd Toops, ORNL</i>
2:15 PM	ACS099: Improved Fuel Efficiency through Adaptive Radio Frequency Controls and Diagnostics for Advanced Catalyst Systems <i>Alexander Sappok, Filter Sensing Technologies, Inc.</i>		FT058: High-Efficiency Cost-Effective Natural Gas Engine <i>Steve White, Bosch</i>
2:45 PM	ACS098: Cummins 55% Brake Thermal Efficiency Project <i>Lyle E. Kocher, Cummins</i>		FT059: High BMEP and High Efficiency Micro-Pilot Ignition Natural Gas Engine <i>Jeffrey Naber, Michigan Tech</i>
3:15 PM	ACS097: Affordable Rankine Cycle (ARC) Waste Heat Recovery for Heavy Duty Trucks <i>Swami Subramanian, Eaton</i>		FT060: Single-Fuel Reactivity Controlled Compression Ignition Combustion Enabled by Onboard Fuel Reformation <i>Ben Lawler, Stony Brook U.</i>
<b>3:45 PM</b>	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
4:15 PM	ACS100: Improving Transportation Efficiency through Integrated Vehicle, Engine, and Powertrain Research - SuperTruck II <i>Justin Yee, Daimler Trucks North America</i>		
4:45 PM	ACS101: Volvo SuperTruck 2: Pathway to Cost-Effective Commercialized Freight Efficiency <i>Pascal Amar, Volvo</i>		
5:15 PM	ACS102: Cummins/Peterbilt SuperTruck II <i>Michael Ruth, Cummins</i>		
5:45 PM	ACS103: Development and Demonstration of a Fuel-Efficient Class 8 Tractor & Trailer SuperTruck <i>Russ Zukouski, Navistar</i>		

## THURSDAY JUNE 8 oral presentations

	MARRIOTT 3	DELAWARE A	DELAWARE B
8:00 AM			EEMS005: SMART Mobility -- Mobility Decision Science <i>Anand Gopal, LBNL</i>
8:30 AM	ES226: Microscopy Investigation on the Fading Mechanism of Electrode Materials <i>Chongmin Wang, PNNL</i>		EEMS006: SMART Mobility -- Urban Science <i>Stan Young, NREL</i>
9:00 AM	ES274: Nanoscale Interfacial Engineering for Stable Lithium Metal Anodes <i>Yi Cui, Stanford U.</i>	LM121: Carbon Fiber Technology Facility <i>Amit Naskar, ORNL</i>	EEMS007: Smart Mobility Stakeholders - Curating Urban Data & Models <i>Joshua Sperling, NREL</i>
9:30 AM	ES273: Composite Electrolyte to Stabilize Metallic Lithium Anodes <i>Nancy Dudney, ORNL</i>	LM122: Close Proximity Electromagnetic Carbonization (CPEC) <i>Truman Bonds, RMX Technologies</i>	EEMS008: Impact of Population Shift on Energy Use: Detroit Use Case <i>Josh Auld, ANL</i>
10:00 AM	ES275: Lithium Dendrite Prevention for Lithium-Ion Batteries <i>Wu Xu, PNNL</i>	LM123: Safety Statistical Analysis <i>Tom Wenzel, LBNL</i>	EEMS009: Energy Assessment of Automated Mobility Districts <i>Yuche Chen, NREL</i>
<b>10:30 AM</b>	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
11:00 AM	ES276: Mechanical Properties at the Protected Lithium Interface <i>Nancy Dudney, ORNL</i>	TIO01: VTO Clean Cities Overview <i>Dennis Smith, DOE</i>	EEMS010: Definition of Connected and Automated Vehicle (CAV) Concepts for Evaluation <i>Steven Shladover, LBNL</i>
11:30 AM	ES277: Solid Electrolytes for Solid-State and Lithium-Sulfur Batteries <i>Jeff Sakamoto, U. of Michigan</i>	TIO71: Midwest D.R.I.V.E.S. <i>Matt Stephens-Rich, Clean Fuels Ohio</i>	EEMS011: Multimodal Travel Behavior Modeling in Urban Areas using BEAM <i>Colin Sheppard, LBNL</i>
12:00 PM	ES278: Overcoming Interfacial Impedance in Solid State Batteries <i>Eric Wachsmann, U. of Maryland</i>	TIO72: Penske Truck Leasing Alternative Fuel Vehicle (AFV) Demonstration and Enhanced Driver Experience Project <i>Dean Stapleton, Penske Truck Leasing Co.</i>	EEMS012: Modeling and Analysis of Plug-in Electric Vehicle Charging Infrastructure Supporting Shared Mobility <i>Yan Zhou, ANL</i>
<b>12:30 PM</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>
1:45 PM	ES054: First Principles Calculations of Existing and Novel Electrode Materials <i>Gerbrand Ceder, LBNL</i>	TIO73: Southeast Alternative Fuels Demonstration Initiative (SADI) <i>Andrea Eilers, Triangle J Council of Governments</i>	
2:15 PM	ES309: Electrode Materials Design and Failure Prediction <i>Venkat Srinivasan, ANL</i>	TIO74: Filling Critical Gaps Through Innovative Cradle-To-Grave Training <i>Pamela Burns, North Central Texas Council of Governments</i>	VAN999: Overview of VTO Analysis Program <i>Rachael Nealer, DOE</i>
2:45 PM	ES225: Design and Synthesis of Advanced High-Energy Cathode Materials <i>Guoying Chen, LBNL</i>	TIO75: Creating an Alternative Fuel Training Network for Florida <i>Colleen Kettles, U. of Central Florida</i>	VAN019: ParaChoice Model <i>Brandon Heimer, SNL</i>
3:15 PM		TIO76: Increasing Nationwide ZEV Adoption -- Enhanced Joint Procurement Process for Public Fleets <i>Jasna Tomic, CALSTART</i>	VAN020: Applied Analysis of Connected and Automated Vehicles <i>Tom Stephens, ANL</i>
<b>3:45 PM</b>	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
4:15 PM	ES310: Advancing Solid-State Interfaces in Lithium-Ion Batteries <i>Nenad Markovic, ANL</i>	TIO77: Aggregated Alternative Technology Alliance <i>Philip Kreycik, Meister Consultants Group</i>	VAN021: Transportation Energy Evolution Modeling (TEEM) Program <i>Zhenhong Lin, ORNL</i>
4:45 PM	ES311: Understanding and Mitigating Interfacial Reactivity Between Electrode and Electrolyte <i>Larry Curtiss, ANL</i>		VAN022: Connected and Automated Vehicles <i>Aymeric Rousseau, ANL</i>
5:15 PM	ES312: Daikin Advanced Lithium-Ion Battery Technology -- High-Voltage Electrolyte <i>Joe Sunstrom, Daikin America</i>		VAN024: Considerations for Corridor and Community DC Fast Charging Complex System Design <i>John Smart, INL</i>
5:45 PM			VAN025: Modeling Framework and Results to Inform Charging Infrastructure Investments <i>Marc Melaina, NREL</i>

## THURSDAY JUNE 8 oral presentations

	MARRIOTT 1	WASHINGTON 5	WASHINGTON 3
			<b>Hydrogen at Scale Session</b>
8:30 AM	FC017: Fuel Cell System Modeling and Analysis <i>Rajesh Ahluwalia, ANL</i>	PD113: High Efficiency Solar Thermochemical Reactor for Hydrogen Production <i>Tony McDaniel, SNL</i>	TV044: Introduction to H2@Scale <i>Bryan Pivovar, NREL</i>
9:00 AM	FC163: Fuel Cell Systems Analysis <i>Brian James, Strategic Analysis, Inc.</i>	PD114: Flowing Particle Bed Solarthermal RedOx Process to Split Water <i>Al Weimer, U. of Colorado Boulder</i>	TV045: H2@Scale Analysis <i>Mark Ruth, NREL</i>
9:30 AM	FC081: Fuel Cell Technology Status: Degradation <i>Jennifer Kurtz, NREL</i>	PD115: High-Efficiency Tandem Absorbers for Economical Solar Hydrogen Production <i>Todd Deutsch, NREL</i>	TV043: Integrated Systems Modeling of the Interactions between Stationary Hydrogen, Vehicle, and Grid Resources <i>Samveg Saxena, LBNL</i>
10:00 AM	FC109: New Fuel Cell Membranes with Improved Durability and Performance <i>Michael Yandrasits, 3M</i>	PD116: Wide Bandgap Chalcopyrite Photoelectrodes for Direct Solar Water Splitting <i>Nicolas Gaillard, U. of Hawaii</i>	TV031: Dynamic Modeling and Validation of Electrolyzers in Real Time Grid Simulation <i>Rob Hovsopian, INL</i>
<b>10:30 AM</b>	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
11:00 AM	FC110: Advanced Hybrid Membranes for Next Generation PEMFC Automotive Applications <i>Andrew Herring, Colorado School of Mines</i>	PD125: Tandem Particle-Slurry Batch Reactors for Solar Water Splitting <i>Shane Ardo, U. of California, Irvine</i>	TV041: Modular SOEC System for Efficient H2 Production at High Current Density <i>Hossein Ghezeli-Ayagh, Fuel Cell Energy</i>
11:30 AM	FC116: Smart Matrix Development for Direct Carbonate Fuel Cell <i>A Hilmi, FuelCell Energy</i>	PD148: HydroGEN: A Consortium on Advanced Water Splitting Materials <i>Huyen Dinh, NREL</i>	
12:00 PM	FC117: Ionomer Dispersion Impact on PEM Fuel Cell and Electrolyzer Durability <i>Hui Xu, Giner, Inc.</i>		
<b>12:30 PM</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>
			<b>Hydrogen Infrastructure Session</b>
1:45 PM	FC131: Highly Stable Anion-Exchange Membranes for High-Voltage Redox-Flow Batteries <i>Yushan Yan, U. of Delaware</i>		PD014: Hydrogen Refueling Analysis of Heavy-Duty Fuel Cell Vehicle Fleet <i>Amgad Elgowainy, ANL</i>
2:15 PM	FC146: Advanced Materials for Fully-Integrated MEAs in AEMFCs <i>Yu Seung Kim, LANL</i>	BESH2023: Nano-bio Systems for Light-Driven Hydrogen Production <i>Kara Bren, U. of Rochester</i>	PD133: H2FIRST--Consolidation <i>Daniel Terlip, NREL</i>
2:45 PM	FC147: Advanced Ionomers & MEAs for Alkaline Membrane Fuel Cells <i>Bryan Pivovar, NREL</i>	BESH2024: Mechanistic Investigations on Hydrogen Catalysis by [FeFe]-Hydrogenase <i>David Mulder, NREL</i>	SA062: Hydrogen Financial Analysis Scenario Tool (H2FAST) Updates with Analysis of 101st Station <i>Michael Penev, NREL</i>
3:15 PM	FC148: New High Performance Water Vapor Membranes to Improve Fuel Cell Balance of Plant Efficiency and Lower Costs <i>Earl Wagener, Tetramer Technologies</i>	BESH2025: Reversible Conversion between CO2/H2 and Formic Acid by Molecular Catalysts <i>Etsuko Fujita, BNL</i>	SA055: Hydrogen Analysis with the Sandia ParaChoice Model <i>Rebecca Levinson, SNL</i>
<b>3:45 PM</b>	<b>BREAK</b>	<b>BREAK</b>	<b>BREAK</b>
4:15 PM			SCS019: Hydrogen Safety Panel, Safety Knowledge Tools and First Responder Training Resources <i>Nick Barilo, PNNL</i>
4:45 PM			TV017: Hydrogen Station Data Collection and Analysis <i>Sam Sprick, NREL</i>
5:15 PM			PD139: Reference Station Design, Phase II <i>Ethan Hecht, SNL</i>
5:45 PM			PD140: Dispenser Reliability <i>Mike Peters, NREL</i>

## THURSDAY JUNE 8 oral presentations

LINCOLN 5	
8:30 AM	ST014: Hydrogen Sorbent Measurement Qualification and Characterization <i>Phil Parilla, NREL</i>
9:00 AM	ST120: Design and Synthesis of Materials with High Capacities for Hydrogen Physisorption <i>Channing Ahn, California Institute of Technology</i>
9:30 AM	ST122: Hydrogen Adsorbents with High Volumetric Density: New Materials and System Projections <i>Don Siegel, U. of Michigan</i>
10:00 AM	ST063: Formation and Regeneration of Alane <i>Ragaiy Zidan, SRNL</i>
<b>10:30 AM</b>	<b>BREAK</b>
11:00 AM	ST116: Low-Cost a-Alane for Hydrogen Storage <i>Steve Crouch-Baker, SRI</i>
11:30 AM	ST008: Hydrogen Storage System Modeling: Public Access, Maintenance, and Enhancements <i>Kriston Brooks, PNNL</i>
12:00 PM	ST134: Investigation of Solid State Hydrides for Autonomous Fuel Cell Vehicles <i>Joseph Teprovich, SRNL</i>
<b>12:30 PM</b>	<b>LUNCH</b>
1:45 PM	ST114: Next Generation Hydrogen Storage Vessels Enabled by Carbon Fiber Infusion with a Low Viscosity, High Toughness Resin System <i>Brian Edgecombe, Materia</i>
2:15 PM	ST126: Conformable Hydrogen Storage Coil Reservoir <i>Erik Bigelow, Center for Transportation and the Environment</i>
2:45 PM	ST113: Innovative Development, Selection and Testing to Reduce Cost and Weight of Materials for BOP Components <i>Jon Zimmerman, SNL</i>
3:15 PM	ST141: Integrated Insulation System for Automotive Cryogenic Storage Tanks <i>Barry Meneghelli, Vencore</i>
<b>3:45 PM</b>	<b>BREAK</b>
4:15 PM	ST100: Hydrogen Storage Cost Analysis <i>Brian James, Strategic Analysis, Inc.</i>
4:45 PM	ST001: System Level Analysis of Hydrogen Storage Options <i>Rajesh Ahluwalia, ANL</i>

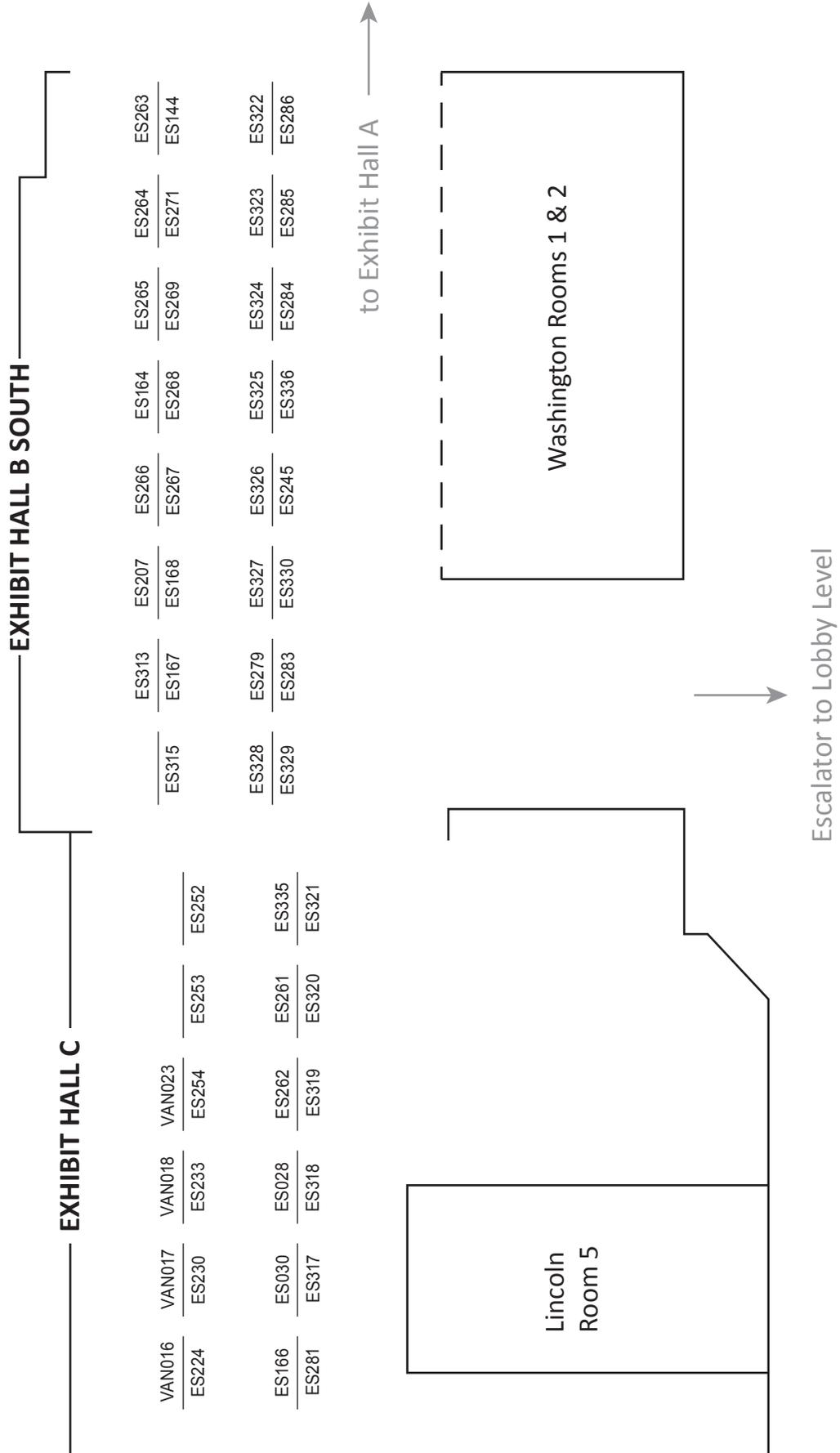
## THURSDAY JUNE 8 poster presentations (6:30–8:30 PM, Exhibit Halls B & C)

VEHICLE TECHNOLOGIES OFFICE – ELECTROCHEMICAL ENERGY STORAGE, PART II		
ES028	Materials Benchmarking Activities For CAMP Facility	Wenquan Lu, ANL
ES030	Cell Analysis, Modeling, and Prototyping (CAMP) Facility Research Activities	Andrew Jansen, ANL
ES144	Stable Operation of Silicon-Based Anode for Lithium-Ion Batteries	Jason Zhang, PNNL
ES164	Thick Low-Cost, High-Power Lithium-Ion Electrodes via Aqueous Processing	Jianlin Li, ORNL
ES166	Post-Test Analysis of Lithium-Ion Battery Materials	Ira Bloom, ANL
ES167	Process Development and Scale-Up of Advanced Active Battery Materials -- Gradient Cathode Materials	Youngho Shin, ANL
ES168	Process Development and Scale-Up of Critical Battery Materials -- Continuous Flow Produced Materials	Krzysztof Puppek, ANL
ES207	Towards Solventless Processing of Thick Electron-Beam (EB) Cured Lithium-Ion Battery Cathodes	David Wood, ORNL
ES224	Fundamental Studies of Lithium-Sulfur Cell Chemistry	Nitash Balsara, LBNL
ES230	Design of Sulfur Cathodes for High Energy Lithium-Sulfur Batteries	Yi Cui, Stanford U.
ES233	Efficient Rechargeable Li/O <sub>2</sub> Batteries Utilizing Stable Inorganic Molten Salt Electrolytes	Vincent Giordani, Liox Power
ES245	Low Cost, Structurally Advanced Novel Electrode and Cell Manufacturing	William Woodford, 24M Technologies
ES252	Enabling High-Energy/Voltage Lithium-Ion Cells: Electrolytes and Additives	Daniel Abraham, ANL
ES253	Enabling High-Energy/Voltage Lithium-Ion Cells: Theory and Modeling	Hakim Iddir, ANL
ES254	Enabling High-Energy/Voltage Lithium-Ion Cells: Materials Characterization	John Vaughey, ANL
ES261	Next Generation Anodes for Lithium-Ion Batteries: Overview	Dennis Dees, ANL
ES262	Next-Generation Anodes for Lithium-Ion Batteries: Fundamental Studies of Si-C Model Systems	Robert Kostecki, LBNL
ES263	Electrodeposition for Low-Cost, Water-Based Electrode Manufacturing	Stuart Hellring, PPG
ES264	Li-Ion Battery Anodes from Electrospun Nanoparticle/Conducting Polymer Nanofibers	Peter Pintauro, Vanderbilt U.
ES265	UV Curable Binder Technology to Reduce Manufacturing Cost and Improve Performance of Lithium-Ion Battery Electrodes	John Arnold, Miltec UV International
ES266	Co-Extrusion (CoEx) for Cost Reduction of Advanced High-Energy-and-Power Battery Electrode Manufacturing	Ranjeet Rao, PARC
ES267	Commercially Scalable Process to Fabricate Porous Silicon	Peter Aurora, Navitas Systems
ES268	Low Cost Manufacturing of Advanced Silicon-Based Anode Materials	Henry Costantino, Group14 Technologies
ES269	An Integrated Flame Spray Process for Low Cost Production of Battery Materials	Yangchuan (Chad) Xing, U. of Missouri
ES271	New Advanced Stable Electrolytes for High Voltage Electrochemical Energy Storage	Peng Du, Silatronix
ES279	New Lamination and Doping Concepts for Enhanced Lithium-Sulfur Battery Performance	Prashant Kumta, U. of Pittsburgh
ES281	Multi-Functional Cathode Additives for Lithium-Sulfur Battery Technology	Hong Gan, BNL
ES283	Addressing Internal "Shuttle" Effect: Electrolyte Design and Cathode Morphology Evolution in Lithium-Sulfur Batteries	Perla Balbuena, Texas A&M
ES284	Statically and Dynamically Stable Lithium-Sulfur Batteries	Arumugam Manthiram, U. of Texas, Austin
ES285	Mechanistic Investigation for the Rechargeable Lithium-Sulfur Batteries	Deyang Qu, UW Milwaukee
ES286	Lithium-Air Batteries	Khalil Amine, ANL
ES313	Performance Effects of Electrode Processing for High-Energy Lithium-Ion Batteries	David Wood, ORNL
ES315	Developing Flame Spray Production Level Process for Active Materials	Greg Krumdick, ANL
ES317	Battery500 Consortium	Jun Liu, PNNL
ES318	In Situ Diagnostics of Coupled Electrochemical-Mechanical Properties of Solid Electrolyte Interphases on Lithium Metal for Rechargeable Batteries	Xingcheng Xiao, General Motors
ES319	Advanced Microscopy and Spectroscopy for Probing and Optimizing Electrode-Electrolyte Interphases in High-Energy Lithium Batteries	Shirley Meng, UC San Diego
ES320	Multifunctional, Self-Healing Polyelectrolyte Gels for Long Cycle Life, High-Capacity Sulfur Cathodes in Lithium-Sulfur Batteries	Jihui Yang, U. of Washington

**THURSDAY JUNE 8** poster presentations (6:30–8:30 PM, Exhibit Halls B & C)

VEHICLE TECHNOLOGIES OFFICE – ELECTROCHEMICAL ENERGY STORAGE, PART II (CONT.)		
ES321	Solid-State Inorganic Nanofiber Network-Polymer Composite Electrolytes for Lithium Batteries	Nianqiang Wu, West Virginia U.
ES322	High Conductivity and Flexible Hybrid Solid State Electrolyte	Eric Wachsman, U. of Maryland
ES323	Self-Forming Thin Interphases and Electrodes Enabling 3-D Structured High Energy Density Batteries	Glenn Amatucci, Rutgers U.
ES324	Dual-Function Solid State Battery with Self-Forming, Self-Healing Electrolyte and Separator	Esther Takeuchi, Stony Brook U.
ES325	Lithium Batteries with Higher Capacity and Voltage	Yutao Li, U. of Texas, Austin
ES326	Self-Assembling Rechargeable Lithium Batteries from Alkali and Alkaline-Earth Halides	Yet-Ming Chiang, MIT
ES327	Engineering Approaches to Dendrite-Free Lithium Anodes	Prashant Kumta, U. of Pittsburgh
ES328	Dendrite Growth Morphology Modeling in Liquid and Solid Electrolytes	Yue Qi, Michigan State U.
ES329	Understanding and Strategies for Controlled Interfacial Phenomena in Lithium-Ion Batteries and Beyond	Perla Balbuena, Texas A&M
ES330	Electrochemically Responsive Self-Formed Lithium-Ion Conductors for High-Performance Lithium-Metal Anodes	Donghai Wang, Penn State
ES335	Next Generation Anodes for Lithium-ion Batteries: Materials Advancements	Zhengcheng Zhang, ANL
ES336	Extreme Fast Charging (XFC) Gap Assessment	Christopher Michelbacher, INL
VEHICLE TECHNOLOGIES OFFICE – VEHICLE TECHNOLOGIES ANALYSIS		
VAN016	Transportation Data Program: A Multi-Lab Coordinated Project	Stacy Davis, ORNL
VAN017	ANL Vehicle Technologies Analysis Modeling Program	Michael Wang, ANL
VAN018	VTO Program Benefits Analysis	Tom Stephens, ANL
VAN023	Assessing the Energy and Cost Impact of Advanced Technologies through Model Based Design	Aymeric Rousseau, ANL

**THURSDAY JUNE 8 poster presentations map**



## FRIDAY JUNE 9 oral presentations

MARYLAND A/B	
8:00 AM	PM057: Applied Computational Methods for New Propulsion Materials: Future Engine Requirements <i>Charles Finney, ORNL</i>
8:30 AM	ACS094: Ultra Efficient Light-Duty Powertrain with Gasoline Low-Temperature Combustion <i>Keith Confer, Delphi Powertrain</i>
9:00 AM	PM061: Computational Design and Development of a New, Lightweight Cast Alloy for Advanced Cylinder Heads in High-Efficiency, Light-Duty Engines <i>Mike Walker, General Motors</i>
9:30 AM	ACS093: Lean Miller Cycle System Development for Light-Duty Vehicles <i>David Sczomak, General Motors</i>
10:00 AM	PM060: ICME Guided Development of Advanced Cast Aluminum Alloys for Automotive Engine Applications <i>Mei Li, Ford Motor Co.</i>
<b>10:30 AM</b>	<b>BREAK</b>
11:00 AM	PM053: High Temperature Engine Materials: Valve Materials Subtask <i>G. Muralidharan, ORNL</i>
11:30 AM	ACS112: Integrated Boosting and Hybridization for Extreme Fuel Economy and Downsizing <i>Chinmaya Patil, Eaton</i>
12:00 PM	PM062: High Performance Cast Aluminum Alloys for Next Generation Passenger Vehicle Engines <i>Amit Shyam, ORNL</i>