Accelerating The Future Of Mobility

Reunite with the global mobility community as the industry’s leading event returns to the Motor City.

APRIL 5-7, 2022
DETROIT, MICHIGAN

Be Part of the Future
The Driving Force Behind Innovation

As the largest technical mobility event in North America, WCX™ World Congress Experience brings together the brightest, forward-thinking minds across the mobility-engineering field. Uniting suppliers and manufacturers for critical conversations, this is where you’ll find unlimited opportunities to stand shoulder-to-shoulder with technical experts, source state-of-the-art solutions and stay current on the latest in propulsion, autonomous vehicles, smart architecture, systems engineering and safety.

Hear from progressive keynote speakers, experience next-level networking and collaborate with the entire industry to navigate the future of mobility.

Who Will You Find at WCX?

Join colleagues in automotive and ground mobility as they descend on the Motor City for three days of incredible networking and education.

A New View in 2022

From captivating keynotes to award-winning vehicles, you won’t want to miss all that’s new in 2022.

Keynote Speakers

Explore the power of innovation and use of technology to create exceptional experiences with incredible thought leaders, including:

Jon Snoddy
Senior Vice President R&D, Show, Ride & Technology at Walt Disney Imagineering

Presentation Title: Designing Stories
April 5, 2022
8:30 - 9:30 a.m.

Jeff DeGraff
Dean of Innovation and Founder of Innovatium

Presentation Title: The Innovator’s Mindset in the New World of Work
April 6, 2022
8:30 - 9:30 a.m.

Sponsored by

2022 Ford Maverick Vehicle Event*

Wednesday, April 6 | 5:30 p.m. – 8:30 p.m.
Huntington Place, Detroit

WDX attendees are invited to join members of the SAE Detroit Section and members of the Ford Team for a look at the ALL-NEW Ford Maverick and hear more about what was involved in the development of the 2022 North American Truck of the Year award winner.

*Ticket can be purchased when registering for WCX.

Sae.org/wcx | WCX

Sae.org/wcx | WCX
Education Engineered to Meet Your Needs

With an extraordinary lineup of advanced knowledge and proven expertise across a broad spectrum of specialties, WCX is where the industry races towards a brighter future.

Technical Program

Developed by engineers for engineers, WCX’s premier education program includes nine tracks and 200 sessions designed to help the entire mobility community overcome today’s most significant challenges and stay ahead of tomorrow’s trends. Explore topics like:

• Advanced Propulsion
• Electronics / Connectivity / IOT / Smart City
• Body / Chassis / Safety / Structure
• Motorsports Engineering
• NVH
• Design and Manufacturing
• Materials and Lightweighting
• Military Ground Vehicles
• Emissions / Environment / Sustainability / Thermal Management

SAE 2022 Sustainable Low Impact Combustion Engine Symposium (SLICES)*

Formerly known as the High Efficiency IC Engine Symposium, SLICES features in-depth discussions on current technology, including the use of e-fuels like hydrogen, ammonia, methanol and others to reduce carbon footprints and emissions across all transportation sectors.

Introducing the SAE Pavillion

Stop by the new reimagined SAE Pavillion to:

• Meet with SAE book authors and other VIPs within the mobility industry.
• Build STEM project kits for kids in SAE International’s A World In Motion® (AWIM®) program.
• Relax and recharge in the Member and Volunteer Lounge to connect with industry peers during the networking lunch or during afternoon coffee.
• Become a member for a discounted price at only $99.
• Discover how you can engage in our member and volunteer communities.
• Check out the mobility history exhibit, a curated collection of vehicles on display that highlight technologies of the past, which contribute to our automotive present and vision for the future of mobility. There will be several vehicles on-site, ranging from a 1911 Baker Electric Car to a Mustang Mach-E.

Pre-Conference Professional Development Courses*

As the leader in technical learning for the mobility industry, SAE International offers high-impact, industry-applicable training programs to support the growth of business professionals worldwide. Pre-conference, WCX attendees have the opportunity to engage with top experts and global peers during one or two-day professional development in the following areas:

• Accident reconstruction
• Tolerance stacks
• Highly automated vehicles
• Automated vehicle safety

*Additional costs required
The Road to Success Begins at WCX

Put the challenges of the past few years in your rearview with the awe-inspiring innovation, powerful presentations and dynamic discussions found in the specialty pavilions and collaboration spaces throughout the event.

Leadership Summit
Join executives from top global organizations like Toyota, Rivian, Ford Motor Company, GM, Stellantis and more as they share insights on everything from technology development to consumer acceptance during engaging roundtable discussions.

Tuesday, April 5
10:00 - 10:15 a.m.
Welcome

10:15 - 11:30 a.m.
Data - Navigating Complex and Conflicting Forces
If there’s a common thread that will weave the future of safe, automated and connected vehicles together, it’s data. As vehicles become even more connected and everything and everyone will be generating data we will soon be drowning in data from all around. Buried in that data are incredibly valuable insights worth potentially billions of dollars, which is fueling an arms race in data collection in the industry. On the other hand, governments are increasingly demanding transparency from industry with increasing calls and mandates for data reporting. What are we to do? How can we manage and navigate these complex and conflicting forces?

1:00 - 2:15 p.m.
Going to the Gemba: We have learned, and where we are going
The focus of this discussion is on the current state of SAE Level 2 based upon what we know now and how we are going to move forward in advancing customer utilization and acceptance for this level of automation. Discussion will include current state of ADAS technology, challenges of HMI, communication protocols, calibration/algorithms, AI, global deployment, as well as regulatory landscape.

2:45 - 4:00 p.m.
This session will include frontline leaders of advanced automation technology, product creation, design and manufacturing processes that are using racing and performance to solve problems, demonstrate technology and inspire the next generation of STEM and STEAM leaders around world. Topics will include the Indy Autonomous Challenge, Automated Driving, Military and Aerospace Technology Transfer, Generative Design and Additive Manufacturing programs and projects driving real-world Automobile 5.0 applications.

Wednesday, April 6
10:00 - 10:15 a.m.
Welcome

10:15 - 11:30 a.m.
Sustainability... It’s in Everyone’s Business Interest
SAE has opened an Office of Sustainable Energy with the goal of assisting the mobility industry to getting to a zero-impact vehicle. Board members of this office will address the critical issues of manufacturing, material sourcing, end of life, infrastructure, and the idea of developing a set of standards on “levels of vehicle sustainability”.

1:00 - 2:15 p.m.
EV Chargers and Electric Infrastructure
Smart Charging and Charging EMC/EMI needs to be concerned with issues and impacts to the grid. The panel addresses the latest advances in EV charging infrastructure, including integration with the electric grid, focusing on upstream aspects of grid and utilities, coalition and partnership activities and ways consumers will access this infrastructure. Panelists to discuss Demand Charge Rates, Deployment Optimization for EVSE infrastructure - OEM and Utility engagement/perspective on top of site host/retail.

Thursday, April 7
10:00 - 10:15 a.m.
Welcome

10:15 - 11:30 a.m.
The Future Powertrain-Propulsion Portfolio Challenge
Managing your Powertrain-Propulsion Portfolio? We have multiple choices for propulsion today and tomorrow - Traditional ICE, Hybrid, Hybrid-Electric, and Electric but how do you manage that for a successful future? What are the business and technology challenges that industry is going to face in the next 10 years? What impact will regulation, consumer acceptance, executive action, and continued low fuel prices have on the goal line for when industry moves to a minimum of all hybrid vehicle platforms? Come hear executives from OEMs and technology developers discuss when we will see that mass deployment and what regulatory, business and technology impacts need to occur in order to make that happen.

1:00 - 2:15 p.m.
Electrifying Drivelines and Transmissions: Balancing Today’s Solutions with Tomorrow’s Technology
Transmission and driveline innovations are integral to development of more fuel efficient, lower-emitting, and customer-pleasing vehicles. This panel will address new power-transmission solutions helping to make hybrid and battery-electric propulsion mainstream across global mobility markets. Additional conversation on how Electrification has become a dominant theme in new planetary automatics and e-axles, with a variety of motor-position choices (from P1 to P4) offering engineers greater flexibility for 2wd, 4wd and AWD development. Finally, discussion will address how fully electric drive modules incorporating transmission, e-motor, and inverter, are driving new approaches to propulsion-system packaging, while development of novel dual-clutch, continuously-variable, and automated-manual types continues at a heightened pace.

2:45 - 4:00 p.m.
The Hydrogen Highway
While most of the talk in media and watercooler regarding an alternative powerplant to ICE has been centered around E propulsion, from a portfolio perspective, it is critical to look beyond EVs at other systems that can garner net-zero capabilities. This session would bring in experts to discuss the business models, technology and customer acceptance needed for that mass deployment and what regulatory, business and technology impacts need to occur in order to make that happen.

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Schaefller

Torc

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**Knowledge Bar**

Find what you need to fast-track your strategies when you join the conversation in the Knowledge Bar. Hear from subject matter experts on niche topics, exchange ideas and get answers to your most pressing questions during these engaging, interactive sessions.

### Tuesday, April 5

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>10:00 a.m.</td>
<td><strong>Automotive Manufacturing of Tomorrow</strong></td>
<td>Brian Eggleston, Toyota Motor Corp.</td>
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<tr>
<td>11:00 a.m.</td>
<td><strong>Unsettled Issues AVs and Infrastructure Enablers</strong></td>
<td>Kelley S. Coyner, Mobilitye3</td>
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<tr>
<td>1:00 p.m.</td>
<td><strong>Racing Towards Zero - Developing Sustainable Transportation</strong></td>
<td>Kelly Senecal, Convergent Science Inc.; Felix Leach, University of Oxford</td>
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<td>2:00 p.m.</td>
<td><strong>Reducing carbon footprint while growing your portfolio</strong></td>
<td>Steven Heimermann, The Northern Trust Company</td>
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<tr>
<td>3:00 p.m.</td>
<td><strong>Unsettled Legal Issues Facing In Autonomous, Connected, Electric, and Shared Vehicles</strong></td>
<td>Jennifer Dukarski, Butzel Long</td>
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<td><strong>Communication of Automated Vehicles to Other Road Users</strong></td>
<td>Sven Beiker, Silicon Valley Mobility LLC</td>
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<td>11:00 a.m.</td>
<td><strong>Graphene for Batteries</strong></td>
<td>Terrance Barkan, The Graphene Council</td>
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<td>1:00 p.m.</td>
<td><strong>Battery Testing and Research</strong></td>
<td>Anna Stefanopoulou, University of Michigan</td>
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<tr>
<td>2:00 p.m.</td>
<td><strong>Unsettled Issues Regarding Autonomous Vehicles and Open-source Software</strong></td>
<td>Rahul Razdan, Raztech Research Institute</td>
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<tr>
<td>3:00 p.m.</td>
<td><strong>Final Disposition/End of Life of BEV Batteries</strong></td>
<td>Carla Bailo, Center For Automotive Research</td>
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### Thursday, April 7

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<tr>
<td>10:00 a.m.</td>
<td><strong>Unsettled Issues Facing Automated Vehicles and Facial Recognition</strong></td>
<td>Brittany Eastman, University of Michigan</td>
</tr>
<tr>
<td>11:00 a.m.</td>
<td><strong>Unsettled Issues in Drive-by-Wire and Automated Driving System Availability</strong></td>
<td>Jeff Hemphill, Schaeffler Group USA Inc.</td>
</tr>
<tr>
<td>1:00 p.m.</td>
<td><strong>Steer-by-Wire: Gateway to Advanced Safety &amp; Performance</strong></td>
<td>Alan Davis, Nexteer Automotive</td>
</tr>
<tr>
<td>1:45 p.m.</td>
<td><strong>Unsettled Technology Opportunities for Vehicle Health Management and the Role for Health-Ready Components</strong></td>
<td>Steve Holland, VHM Innovations, LLC</td>
</tr>
<tr>
<td>2:30 p.m.</td>
<td><strong>Unsettled Topics Concerning User Experience and Acceptance of Automated Vehicles</strong></td>
<td>Amine Taleb-Bendiab, Valeo</td>
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**From Metaverse to Motorverse: A Roadmap**

Thursday, April 7, 2022

11:00 a.m. – 12:00 p.m.

Shelly Palmer is the Professor of Advanced Media in Residence at Syracuse University’s S.I. Newhouse School of Public Communications and the CEO of The Palmer Group. How will the metaverse impact the auto industry? What will consumers expect? How will transportation and mobility adapt? Shelly Palmer will offer his perspective on quickly evolving trends including decentralized finance (DeFi), Web3, crypto, NFTs, and the blockchain-related technologies that are reshaping our world.
Learning Lab

Take the future for a spin with unprecedented access to new technology, concepts and services presented in the Learning Lab. Enjoy hands-on demonstrations from established and up-and-coming businesses in the OEM and supply chain communities.

**Tuesday, April 5**

10:00 a.m.
**BEV Flexible Vehicle Architecture Framework**
Petros Frantzeskakis, Ford Motor Company

11:00 a.m.
**Smart vehicle diagnostics for passenger cars – Increasing safety with Loose Wheel Indicator**
Ölle Hynen-Ulfsson, NIRA Dynamics AB

11:30 a.m.
**Thermal Runway Sensing Innovation**
Don OBrien, Innovaer Technologies LLC

12:00 p.m.
**Welcome and introduction to GAMIC**
David Stout, Global Electronics Limited

12:05 p.m.
**Full supply chain traceability and transparency for a circular economy**
Mesbah Sabur, Circularise

12:20 p.m.
**Revolutionary deicing technology solutions to combat ice and fog challenges**
Derrick Redding, Betterfrost

12:35 p.m.
**AmpX is developing world’s first onboard combo charger for electric vehicle**
Alireza Khaligh, AmpX Technologies Inc., College Park, MD

12:50 p.m.
**Safe, patented, low cost, high performance energy storage based on the common material zinc that can be paired with different cathodes for various applications**
Michael Frederick Burz, Enzinc Inc.

**Wednesday, April 6**

10:30 a.m.
**Efficiency, Longevity and Sustainability – from a tribometrical point of view**
Gregor Patzer, Optimol Instruments Prüftechnik GmbH

11:00 a.m.
**Leverage virtual sensor fleet data for a safer ride**
Johan Brynås, NIRA Dynamics

11:30 a.m.
**Sustainable innovation vs disruption - The future of autonomous trucking**
Sajjad A. Syed, Torc Robotics

2:30 p.m.
**Electrification Revolution and Enabling Battery Technology**
Venkatoswa Sankaran, Ford Motor Company

**Thursday, April 7**

10:00 a.m.
**The History of General Motors EV1**
Bob Purcell, VIA Motors

10:30 a.m.
**The Dramatic Failure of US Traffic Safety Policy**
Leonard Evans, Science Serving Society

11:00 a.m.
**From Metaverse to Motorverse: A Roadmap**
Shelly Palmer, Guest Speaker Presented by Ford Motor Company
Shift Gears with Inspiring Special Events

There’s no better time to celebrate the resiliency of an industry that has navigated immense changes after three years apart. Enjoy the chance to build meaningful relationships with mobility professionals inside and outside your organizations during WCX’s exclusive social gatherings.

14th Annual Global and Mobility Innovation Challenge (GAMIC)
Monday, April 4 | 12:00 p.m. – 5:30 p.m. | Room 260, Huntington Place, Detroit and Online
Sponsored by MI Innovation Alliance and SAE International, GAMIC invites early-stage automotive and mobility companies to compete for more than $300,000 in prizes, including business development support services. Listen as the 14th Annual GAMIC Challenge finalists present their state-of-the-art technologies and discover tomorrow’s trends and investment perspectives for pre-market automotive products and systems.

WCX Gala
Thursday, April 7 | 5:00 p.m. – 7:00 p.m. | Atrium
Catch up with colleagues, engage with top experts and meet new industry players as you honor mobility leaders and celebrate the return of WCX. This is the perfect opportunity to maximize your networking by gathering in a relaxed environment featuring entertainment and delectable action food stations.

Equitable Mobility for All Breakfast and Panel Discussion
Thursday, April 7 | 8:00 a.m. – 9:45 a.m. | Grand Riverview Ballroom
Exploring the promise of mobility for all, this thought-provoking event will address the challenges users face in the built environment and how to create DEI from a clean sheet perspective.

The Intersection of Mobility and Technology
Race to witness mobility’s future firsthand in the most robust marketplace in the industry. With exclusive access to top-tier suppliers, OEMs, manufacturers and startups, you’ll get hands-on with the products and services steering the future of safety, sustainability and efficiency across the mobility spectrum.

Find it All at WCX.

Reunite with the mobility engineering community in Detroit – the city where it all began — for three days of powerful networking and discovery at WCX 2022 World Congress Experience.

Register Today