Automotive Energy Storage Systems 2020

March 4 and 5, 2020
Sheraton Detroit Novi Hotel - Novi, Michigan U.S.A.

Register to Attend at www.itbgroup.com
Day 1 Program Agenda - March 4, 2020

7:30 a.m.  Registration and Continental Breakfast

8:45 a.m.  Welcome and Introductory Remarks
Dr. Joel Kopinsky, Managing Director and Co-Founder
The ITB Group (U.S.A.)

9:00 a.m.  Cost-Efficient, Conductive, Low Extractable Multilayer Tubing Systems for The North American Market
Olivier Farges, Director OEM Marketing
Evonik Resource Efficiency (Germany)
A conductive and low extractable multilayer fuel line has been developed that accounts for the manifold performance requirements. Importance was placed on the excellent processing behavior of the system at the shop floor of automotive suppliers. The developed design represents a new and cost-efficient solution for meeting North-American fuel line requirements.

9:20 a.m.  Extruded and Corrugated Filler Pipe
Nicola Fiore, Head of Global Product Development and Roger DeArment, Sales Manager
Fränkische Industrial Pipe (Germany and U.S.A.)
Extruded filler tubes (smooth and corrugated) can play an important role towards enabling vehicles to meet emission requirements. The best technology option for each application has to consider many aspects including performance (routing complexity, filling, weight, permeation, crash) and cost (plant assembly, handling and logistics, piece price and investment).

9:50 a.m.  Specialty Polyamide Technology Continues to Advance to meet the Increasing Demands on Fuel Systems
Adam Toft, Senior Account Manager and Desiree Maurer, Automotive Business Development Engineer
Arkema (U.S.A.)
The superior performance of long-chain polyamides (LCPA) for impact performance, zinc chloride resistance and long-term aging make LCPAs an ideal solution inside or outside the fuel tank. Case studies of current LCPA solutions for the entire fuel system will be presented including the latest advancements in LCPA technology.

10:10 a.m.  Networking Break

11:00 a.m.  Fuel Level Sensor System Solutions
Sonia Espinoza, Product Engineer
Delphi Technologies (U.S.A.)
Fuel level sensing systems, concepts and applications will be highlighted. Focus will be placed on the design development according to market requirements. The latest released fuel level sensing systems will be introduced.

11:25 a.m.  Pressure Sensors for ZEV – Performance in Lifecycle Testing
Martin Kuemmel, Team Leader Business Development
First Sensor Mobility (Germany)
To secure the system function over lifetime it is necessary to test and verify certain aspects of each system component. Testing is done according to various types or DIN, ISO, or OEM standards but each pressure sensor needs to fulfill certain application specific standards. The presentation will review certain specific tests with the focus on fuel systems, SCR and hydrogen.

11:50 a.m.  KEYNOTE PRESENTATION
Winning the Innovation Game
Brian Contat, Global Business Unit Director, Fuel Emissions
Eaton (U.S.A.)
Navigating today’s automotive megatrends represents a significant challenge for fuel tank system and component suppliers. When it comes to innovating in this constrained environment, investment decisions always represent a delicate balance between success today and a bet on tomorrow. This presentation outlines Eaton’s business approaches for managing these trade-offs to ensure long term success for our stakeholders.

12:20 p.m.  Lunch

1:30 p.m.  The Common Use of Fuel Tank Shell for HV (Pressurized Fuel System) and Conventional Systems
Takayuki Yamada, Assistant Manager and Shinsuke Amano, Group Manager
Toyota Motor (Japan)
Fuel tank innovations will be presented including a pressurized fuel tank produced by conventional blow molding, a pressurized fuel tank without heat insulator and an innovative development involving deformation control.

2:00 p.m. **New Materials and Processes for Storage Tank Production**  
*Christoph Ganthaler, Head of Product Line Fluid Solutions and Sammy El-Saleh, Product Manager Fluid Solutions*  
*Röchling Automotive (Italy and U.S.A.)*

To help OEMs in achieving targets in terms of carbon dioxide emission reduction the MuCell technology for DEF and water Injection tanks will be introduced. Furthermore, a new material/production process for motorbike fuel tanks will be described which saves material.

2:30 p.m. **AFS – A Pressureless Fuel System for Hybrid Vehicles**  
*Dr. Roman Bouffier, Kautex Textron, Markus Huber and Dr. Emmanuel Arras, BMW, and Markus Kolossa, Kautex Textron (Germany)*

Continuous carbon canister loading and resultant hydrocarbon breakthrough to the environment, is avoided with PHEV fuel systems via the use of costly and complex pressurized tanks. BMW and Kautex have jointly developed an interesting pressureless alternative – the Adaptive Fuel System.

3:00 p.m. **Networking Break**

3:30 p.m. **Ultra-High Flow Fuel Delivery Modules with High Efficiency Auxiliary Side Transfer Systems**  
*Thomas Martin, Product Engineering Supervisor and David Gutierrez, Product Engineering Supervisor*  
*Delphi Technologies (U.S.A.)*

Dual pump ultra-high flow fuel delivery modules equipped with extreme-performance auxiliary side transfer systems for high-performance vehicles are presented. Design development, market trends and technical challenges related with higher system pressure, module packaging for low height saddle tanks and system efficiency are highlighted.

4:00 p.m. **Smart HEV Fuel System Optimization Using Electronic Refueling**  
*Scott McCleary, Product Development Manager, Engineering and Development Plastic Omnium (U.S.A.)*

The use of passive leak detection systems has long been a viable solution for conventional vehicles. With the dawn of HEVs and PHEVs this system was abandoned in favor of active pumps. Through modeling, weather data analysis and physical testing it can be demonstrated that passive leak detection systems can operate for such electrified vehicles.

4:30 p.m. **Numerical Simulation of Fluid-Structure-Interactions in Tank Systems**  
*Dr. Junhong Zhu, Senior CAE Engineer*  
*Kautex Textron (Germany)*

The numerical simulation of FSI (Fluid-Structure-Interaction) in tank systems enables us to predict real slosh phenomenon and evaluate the mechanical strength of the parts inside. This two-way coupled CAE method can shorten the product development cycle by achieving the detailed system behavior even before prototype.

5:00 p.m. **Approximate Thermo-Mechanical Methods for Analysis of Freezing in DEF / Urea / AdBlue / SCR Systems**  
*Dr. Yong Pan, Dr. Aleksandar Filipovski, Biljana Rajic, and Jonathan Rossiter*  
*General Motors (Canada)*

Developments in thermo-mechanical simulation of the phase change (freezing) that occurs in diesel exhaust fluid tanks are described. Although approximate and empirical, the methods provide sufficient accuracy of the structural stress and the liquid pressure caused by the liquid bubble formation.

5:30 p.m. **Cocktail Reception and Networking**
7:30 a.m.  Registration and Continental Breakfast

8:45 a.m.  Welcome and Introductory Remarks
Dr. Joel Kopinsky, Managing Director and Co-Founder
The ITB Group (U.S.A.)

9:00 a.m.  High Energy Battery Thermal Barriers for Electric Vehicles
Brandon Bartling, Product Development Specialist
3M (U.S.A.)
High energy batteries generally have higher nickel content in their cathode chemistries. These chemistries with liquid electrolyte have increased risk of thermal runaway during abnormal operation of the battery or unforeseen events such as an accident. This presentation discusses battery safety risks and materials to mitigate risks involved with battery thermal safety.

9:20 a.m.  Development of High Voltage Battery Housings: Implementing Innovative Manufacturing Technologies into a Lightweight and Cost-Optimized Design Concept with a Focus on Leak Tightness
Dr. Sacheen Bekah, Product Development Manager
KIRCHHOFF Automotive (Canada)
The design of high voltage battery housings encompasses several design steps that include key aspects such as electrical performance, thermal management and structural performance all while ensuring a leak-tight environment. A built-tub concept developed using innovative CNC bending technology with unique advantages in leak tightness, installation space, cost effectiveness and vehicle scalability will be presented.

9:50 a.m.  How Megatrends are Affecting Automotive Propulsion Systems, Technology Segment Market Sizes, and Growth Rates
Sean Osborne, Director
The ITB Group (U.S.A.)
The move towards electrified vehicles will be quantified in terms of segment growth and value comparisons between different propulsion systems. The impacts of various technologies in reducing carbon dioxide emissions and increasing driving range will be elaborated together with the increasing role of software. Organizational barriers continue to hinder efficient introduction of innovations to the market.

10:10 a.m.  Networking Break

10:45 a.m.  Evap Canister Developments to Meet Emission Targets and Powertrain Trends
Dr. Andrzej Kalina, Engineering Manager, Emission Control Products
Delphi Technologies (Poland)
An overview of global evaporative emission standards is presented with emphasis on control of fuel tank breathing and evap canister requirements. Canister design drivers and solutions are discussed with an examples of global product families tailored to regional specific requirements. Impacts of propulsion electrification are considered.

11:15 a.m.  Mechatronic Concepts for Vapor Control in Pressurized Tanks, and Approach to Improved Purging for Hybrids and Turbocharged Engines
Kabir Bhandari, Director and Amardip Kumar, Senior Manager of Design and Development
Padmini VNA (India)
Patented technologies on fuel tank isolation valves, with novel concepts including stepless control, and purging approaches with a single valve that can precisely meter purge volume at idle and also allow high purge rates when the available pressure differential is low, will be presented. Solenoid valves for fuel tanks will be highlighted.
11:45 a.m.  HEV Evaporative Technologies: Unique Solutions to a Common Problem
Mark Peters  Principal Engineer, Evaporative System Specialist
Stoneridge (U.S.A.)
With the introduction LEV III, China 6 and EU 6d evaporative emission standards, evaporative system efficiencies are now all in excess of 90%. HEV evaporative system architectures present unique challenges where out-of-the-box thinking has resulted in solutions for meeting regulatory targets.

12:15 p.m.  Lunch

Future Markets and Technologies

1:15 p.m.  Introduction to Materials & Solutions for Hydrogen Tank Technology
Kouji Mizokami, VP of Engineering Plastics and Ashley Dowe, New Business Development Engineer
UBE America (U.S.A.)
Polyamide has been used in the production of the world’s first mass-produced fuel cell vehicle since 2014. Thanks to the high performance and exceptional quality of the material, the associated tanks have out-performed industry standards. Appropriate materials and solutions applicable to various tank liner processing methods will be described.

1:35 p.m.  A Cost-Effective Technical Solution for Thermal Engine to Respect Stringent EU7 Regulations for CO₂ Emissions
Jean-Philippe Rolland, Controlled System Application Engineer
Plastic Omnium (France)
Water injection is an effective technical solution for thermal engines to meet future regulations such as Euro 7 and CF=1 RDE limits. The approach offers easy integration on the engine block and enables stoichiometric operation across whole operating range plus combustion temperature control at higher compression ratios.

2:00 p.m.  Innovation and Emerging Technology Perspectives in Hydrogen and Fuel Cells
Efficient and sustainable energy technologies are rapidly evolving with hydrogen and fuel cells emerging as versatile candidates. This presentation provides an overview of the U.S. Department of Energy’s hydrogen and fuel cell vehicle activities within the Office of Energy Efficiency and Renewable Energy (EERE). These efforts address key technical and cost barriers through a comprehensive portfolio of early-stage research and development.

2:25 p.m.  Hydrogen Fuel Cells in the Technology Landscape
Luke Rippelmeyer, Senior Engineer
Toyota Motor North America (U.S.A.)
Hydrogen fuel cell technology offers many benefits in vehicle applications for its scalability, ability to rapidly refuel, and produce zero emissions. This presentation explains Toyota’s view of the role of hydrogen fuel cells in the technology landscape, its scalability with a focus on heavy duty truck applications, and touches on the expansion of hydrogen fueling infrastructure.

2:50 p.m.  The 3 Revolutions in Transportation and What They Mean for Emissions
Dr. Rosa Dominguez-Faus, Program Manager, 3 Revolutions Future Mobility Program
UC Davis (U.S.A.)
Three major innovations (electrification, automation and sharing) are becoming more prevalent in the transportation world, shifts that have been in the making for decades but have only recently seen an explosion in terms of commercial players and widespread adoption. What do the Three Revolutions mean for carbon emissions and the future of transportation?

3:30 p.m.  Closing Remarks
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Wednesday, March 4 and Thursday, March 5, 2020
Sheraton Detroit Novi Hotel • 21111 Haggerty Road, Novi, Michigan 48375

Register On-line to Attend at www.itbgroup.com

$945 (USD) to attend both days
Limited on-site registration