7:30 a.m.  Registration and Continental Breakfast

8:30 a.m.  Welcome and Thermal Megatrends Overview
Sean Osborne, Director
The ITB Group (U.S.A.)

11:00 a.m.  Thermal Management Challenges and Opportunities in EVs and PHEVs
Technical Director, Co-founder
Computational Sciences Experts Group (U.S.A.)
Electrified vehicles pose unique challenges. For plug-in hybrid vehicles, multiple sub-systems require thermal management with widely varying operating temperatures. In electric vehicles, drive conditions and cabin comfort put a high demand on the battery. Using examples of the BMW i3 BEV and Chevy Volt PHEV, this presentation provides insights into energy and temperature demands and proposes potential solutions to thermal challenges.

8:45 a.m.  Technology Assessment for Greenhouse Gas Reductions in Light Duty Vehicles
Office of Transportation and Air Quality
U.S. Environmental Protection Agency (U.S.A.)
As technologies are introduced into the fleet and new technologies developed for future applications, EPA is continuously evaluating the potential for reductions in GHG emissions. This presentation will provide an overview of EPA's technology assessment approach for both current and future fleets.

11:30 a.m.  Technologies in Transition - A Live Survey

9:15 a.m.  KEYNOTE PRESENTATION
Thermal System Innovation
Executive Vice President, Business Development
Gentherm (U.S.A.)
Increased global requirements for CO₂ reductions present opportunities and challenges for innovative thermal solutions. Both traditional ICE and electrified powertrains require more efficient HVAC systems that deliver equivalent occupant thermal comfort. Electrification and autonomous vehicles present new challenges. New vehicle level thermal solutions must be developed to maintain the balance of occupant comfort and vehicle reliability.

12:00 p.m.  Lunch

9:45 a.m.  Thermal System Simulation from Conventional to Electrified Vehicles
Chief Engineer
Honda R&D (Japan)
The objectives of thermal management vary depending on targeted vehicle types, from conventional to electrified powertrains. The fidelity of thermal system simulations need to be determined in accordance with the objectives and development phase. An overview of simulation approaches, including model specific data and results will be highlighted.

1:20 p.m.  New Generation of Coolant Resistant High Performance Materials
Director Business Development
Toray Resin Company (U.S.A.)
To meet the growing demand of applications in thermal management, Toray has developed a new generation of enhanced coolant resistant materials. The development process, including test methods, and a discussion regarding the differentiation of new generation materials will be presented.

10:15 a.m.  Networking Break

1:40 p.m.  Material Developments to Improve or Inhibit Heat Transfer
Business Development Manager-PPS
Sun Chemical Corporation (U.S.A.)
PPS grades for temperature regulating components used in transmissions, engines and electric/hybrid drivetrains will be introduced. New technologies developed to address the ever increasing demands for improved fuel efficiency and lower emissions through material advancements will be highlighted.
2:00 p.m. Thermoplastic Cooling Lines: Efficient Solutions for Current and New Powertrains
Director OEM Marketing and Segment Manager Automotive and Mobility Evonik (Germany and U.S.A.)
This presentation will preview changes in coolant line materials for thermal system improvements. In Western Europe, more vehicle manufacturers are implementing dedicated plastic materials for targeted coolant line applications as a substitute for rubber hose and metal tubing. Key drivers for these changes include weight reduction and packaging requirements. These drivers are even more important for electrified vehicle applications.

2:20 p.m. Dynamic Vibration Behavior of Vehicle Heat Exchanger: Correlation of CAE Analysis with Experimental Results
CAE Cooling Engineer and CAE Cooling Supervisor Ford Motor Company (U.S.A.)
This study evaluated the vibrational behavior of a vehicle heat exchanger with both experimental and simulation analysis approaches. CAE modal analysis was performed to extract natural frequencies/mode shapes and CAE analysis results showed correlation with the experiments. Optimizing CAE models reduced analysis time by 90-95%.

2:40 p.m. Networking Break

3:15 p.m. Smart Quick Connect Coupling for New Thermal Management Architecture
R&D and Innovation Director Europe ARaymond Fluid Connection (France)
For maximum performance of electric and hybrid vehicles, optimum temperature control of the battery is essential. To ensure optimum temperature conditions, fluid distribution systems must be leak-tight and maintenance free for the service life of the vehicle. Furthermore the connection technology must be simple and safe. Modular connection and distribution systems that meet these requirements and are compatible with the wide range of applications are introduced.

3:45 p.m. Unlocking the Full Potential of Climatized Seats: Fuel Efficiency and Range Impact
Senior Manager Advanced Engineering Gentherm (U.S.A.)
Climate controlled seats have been shown to improve the fuel efficiency of conventional vehicles, with higher impact than actively ventilated seats. Climatized seats increase product value through a combination of superior passenger comfort and CO₂ regulatory credit value. For electrified vehicles, climatized seats increase electric-only driving range by reducing HVAC energy consumption. The results of analyses for ICE and XEV cases will be presented along with the discussion of mapping these results onto the regulatory roadmaps for the US, EU, and China.

4:15 p.m. Fuel Saving HVAC Technologies
R&D Engineer Denso (U.S.A.)
Denso COA HVAC provides a compact package with leading performance that enables fuel savings and CO₂ reduction. Through enabling technologies such as 2-layer flow, energy storage heat exchangers, driver concentration capability, and ejector technology, fuel economy gains and off-cycle benefits can be achieved.

4:45 p.m. Performance Optimization Methods for EV Heat Pump Systems
R&D Manager, Technical Product Lines Valeo Thermal Systems (France)
Since electric powertrains are very efficient, there is almost no waste heat for cabin heating. Therefore, electric heaters are used which require energy from the traction battery; however, this may lead to 50% lower driving range in cold ambient conditions. Heat pump systems for cabin heating help to decrease this impact on driving autonomy. This presentation describes possible performance optimization of direct and indirect heat pump system designs through system architecture and control enhancements.

5:15 p.m. Closing Remarks and Cocktail Reception
Developing / Implementing Strategic Vision
- Creating sustainable value
- Identify appropriate activities - product / customer portfolio optimization
- Globalization strategy
- Technology selection

Technology Feasibility Analysis
- Voice of the customer
- Market trends
- Competitive environment
- Apparent value

Capitalizing on Legislative Trends
- Fuel consumption & GHG developments
- Safety
- Emissions (exhaust and evaporative)

Optimizing Customer Base & Product Portfolios
- Value proposition (what and how products are offered)
- Resource optimization
- Customer portfolio
- Identify threats & opportunities

Leveraging Opportunities in the Competitor and Supply Base Arenas
- Competitor analysis
- Supply base optimization
- Make and buy decisions
- Tier One or Two positioning (tiering strategy)

Creating New Relationships
- M & A - target identification, due diligence & implementation assistance
- Technology licensing
- Product partnering
- Consortiums

Conference Schedule
Plan now to participate in ITB’s upcoming automotive events. Opportunities to present, sponsor and/or exhibit are available.

- Smart Automotive Surfaces - October 10 and 11, 2018. Novi, Michigan, U.S.A.

For more information, please contact Bryan Eldredge, Program Manager at: beldredge@itbgroup.com or (1) 248-380-6310.