CONGRESS TOPICS

1. Digital Transformation

1.1	Intelligent and smart mobility solutions
1.2	Digitalization of Vehicle R&D, Design and Testing
1.3	Defining new UX (User Experience) of mobility solutions
1.4	Mobility as a service
1.5	Shared mobility, multimodal mobility, micromobility
1.6	Machine learning
1.7	Artificial Intelligence applied to Future Mobility Concepts
1.8	Cybersecurity
1.9	Vehicle related digital services (e.g. predictive maintenance, etc.)
1.10	Mobility related data storing and processing (e.g. EDR, Data Trustee)

2. Advanced Vehicle Driveline and Energy Management

2.1	Electric and Hybrid Drivelines
2.2	Advanced Internal Combustion Engines
2.3	Driveline Design and Simulation Based Optimization and Control
2.4	Renewable and Synthetic Fuel Combustion and Mixture Formation, Fuel Injection and Sprays
2.5	Rightsizing of Engines for New Roles in Electrified Vehicle Powertrains
2.6	Advanced Transmission Concepts
2.7	Advanced Battery System Technologies
2.8	New Concepts and Control of Electric Motors and Power Electronics
2.9	Fuel Cells and Fuel Cell Systems, Hydrogen Technologies
2.10	Smart charging solutions

3. Emissions and Pollutants Caused by Vehicles

3.1	Environmental impact through complete life-cycle
3.2	After Treatment and Emission Control
3.3	Clean and Efficient Engine Technologies
3.4	Testing Procedures and Cycles
3.5	RDE methodology and practical results, transfer of road results to dynamometer
3.6	Recent Regulations and Future Prospects
3.7	Simulation Approach to Emission Control
3.8	On-board and Remote Diagnostics of Emission Systems
3.9	Identification of Big Polluters in Operation
3.10	Non-combustion Related Emissions

4. Conventional and Alternative Fuels and Lubricants

4.1	Advancement of Conventional Fuels
4.2	New synthetic fuels
4.3	Engine Lubricant & Compatibility Tests
4.4	Interaction between New Fuels and After-Treatment Devices
4.5	Driveline Lubricants
4.6	Fuel Economy and Advanced Automotive Lubricants
4.7	Alternative Fuels and Propulsion Technology
4.8	Hydrogen as a Fuel
4.9	Additives in Fuels & Lubrication
4.10	WTW Analysis

5. Mobility Comfort

5.1	Powertrain and vehicle NVH
5.2	Aero-Acoustic Wind Noise
5.3	Intake & Exhaust Noise
5.4	Mechanism of Tire and Road Noise
5.5	Incab & Passby Noise
5.6	Thermal Comfort and HVAC Systems
5.7	NVH in xEV Vehicles
5.8	Passive and Active Controls of NVH Problem
5.9	NVH Measurement, Simulation, and Analysis
5.10	Ergonomics

6. Automated and Connected Mobility

6.1	Highly Automated Driving/Autonomous Driving / Driverless Vehicles
6.2	Advanced Driver Assistance Systems
6.3	Testing of systems of automated driving (virtual tests, simulators, HiL/SiL/MiL, proving ground, FOT, NDS)
6.4	Sensors and Signal Fusion
6.5	Situation Representation and Awareness (Object recognition …)
6.6	Voice and Motion Recognition
6.7	Autonomous Vehicle Control
6.8	Networks for Connected Vehicles
6.9	V2X Communication
6.10	Cloud-Connected and Teleoperated Vehicles

7. Vehicle Dynamics and Controls

7.1	Vehicle Dynamics, Modelling and Simulation
7.2	Integrated Chassis Control
7.3	Adaptive Chassis Systems
7.4	Human Vehicle Interface
7.5	Heavy Duty Vehicle Control
7.6	Sensors and Actuators
7.7	Intelligent Tire
7.8	Ride comfort & Handling
7.9	Suspension, Steering & Brakes
7.10	Holistic Approach to Vehicle Predictive Control

8. Passive and Integral Safety

8.1	Accident Statistics, Analysis and Reconstruction Technologies
8.2	Biomechanics & Human models
8.3	Occupant, Child and Elderly Safety Protection
8.4	Protection of Vulnerable Road Users
8.5	Vehicle Structure Crashworthiness
8.6	Crashworthiness of Light Frame Design with New Materials
8.7	Crash Avoidance or Mitigation Systems
8.8	Emergency Call System
8.9	International Regulations and New Car Assessment Program
8.10	Test Methods

9. Vehicle Electronics and Software

9.1	E/E Architecture for future vehicles
9.2	Software Development - Design Methods, Testing, Development Processes and Quality management
9.3	Software & Hardware Reliability and Safety (Functional Safety, SOTIF, etc.)
9.4	Model-Based Design, Analysis and Verification
9.5	In-Vehicle Networks
9.6	ECU Consolidation and Multicore ECUs
9.7	Automotive Operating Systems
9.8	AUTOSAR and Software Architecture
9.9	Automotive HMI
9.10	Telematics and Infotainment Systems

10. Manufacturing, Materials and Lightweight Solutions

10.1	Industry 4.0 in Vehicle Manufacturing and Maintenance
10.2	Novel/Emerging Manufacturing Technologies
10.3	Weight Reduction Technology & Materials in Automotive Industry
10.4	Forming processes
10.5	Applications of Non-Metallic Materials (Rubber, Polymer, Composite)
10.6	Fatigue, Fracture and Failure of Traditional and Lightweight Materials
10.7	Welding and Joining/Fastening of Traditional and Lightweight Materials
10.8	Coating, Wear, Corrosion Protection and Surface Engineering
10.9	Lightweight body design
10.10	Platforming