

CALL FOR
PAPERS

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XXVIII International Symposium on Automotive Engineering



SIMEA

2021

Mobility Revolution in Society 5.0

SIMEA 2021 – Themes

Digital Transformation

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

Advanced Vehicle Driveline and Energy Management

Electric and Hybrid Drivelines; Advanced Internal Combustion Engines; Driveline Design and Simulation Based Optimization and Control; Renewable and Synthetic Fuel Combustion and Mixture Formation, Fuel Injection and Sprays; Rightsizing of Engines for New Roles in Electrified Vehicle Powertrains; Advanced Transmission Concepts; Advanced Battery System Technologies; New Concepts and Control of Electric Motors and Power Electronics; Fuel Cells and Fuel Cell Systems, Hydrogen Technologies; Smart charging solutions.

Emissions and Pollutants Caused by Vehicles

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



Conventional and Alternative Fuels and Lubricants

Advancement of Conventional Fuels; New synthetic fuels; Engine Lubricant & Compatibility Tests; Interaction between New Fuels and After-Treatment Devices; Driveline Lubricants; Fuel Economy and Advanced Automotive Lubricants; Alternative Fuels and Propulsion Technology; Hydrogen as a Fuel; Additives in Fuels & Lubrication; WTW Analysis.

Mobility Comfort

Powertrain and vehicle NVH; Aero-Acoustic Wind Noise; Intake & Exhaust Noise; Mechanism of Tire and Road Noise; Incab & Passby Noise; Thermal Comfort and HVAC Systems; NVH in xEV Vehicles; Passive and Active Controls of NVH Problem; NVH Measurement, Simulation, and Analysis; Ergonomics.

Automated and Connected Mobility

Highly Automated Driving/Autonomous Driving / Driverless Vehicles; Advanced Driver Assistance Systems; Testing of systems of automated driving (virtual tests, simulators, HiL/SiL/MiL, proving ground, FOT, NDS); Sensors and Signal Fusion; Situation Representation and Awareness (Object recognition ...); Voice and Motion Recognition; Autonomous Vehicle Control; Networks for Connected Vehicles; V2X Communication; Cloud-Connected and Teleoperated Vehicles.

Vehicle Dynamics and Controls

Vehicle Dynamics, Modelling and Simulation; Integrated Chassis Control; Adaptive Chassis Systems; Human Vehicle Interface; Heavy Duty Vehicle Control; Sensors and Actuators; Intelligent Tire; Ride comfort & Handling; Suspension, Steering & Brakes; Holistic Approach to Vehicle Predictive Control.



Passive and Integral Safety

Accident Statistics, Analysis and Reconstruction Technologies; Biomechanics & Human models; Occupant, Child and Elderly Safety Protection; Protection of Vulnerable Road Users; Vehicle Structure Crashworthiness; Crashworthiness of Light Frame Design with New Materials; Crash Avoidance or Mitigation Systems; Emergency Call System; International Regulations and New Car Assessment Program; Test Methods.

Vehicle Electronics and Software

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

Manufacturing, Materials and Lightweight Solutions

Industry 4.0 in Vehicle Manufacturing and Maintenance; Novel/Emerging Manufacturing Technologies; Weight Reduction Technology & Materials in Automotive Industry; Forming processes; Applications of Non-Metallic Materials (Rubber, Polymer, Composite); Fatigue, Fracture and Failure of Traditional and Lightweight Materials; Welding and Joining/Fastening of Traditional and Lightweight Materials; Coating, Wear, Corrosion Protection and Surface Engineering; Lightweight body design; Platforming.



Schedule

Deadline for submitting abstracts: July 17th, 2020

New Abstracts approval: July 22nd, 2020

Deadline for submitting final paper: August 8th, 2020

Deadline for changes on final paper by authors: November 06th, 2020

Publication of paper acceptance: January 29th, 2021

Abstracts - Instructions

The rules for an abstract submission are:

Abstracts Submission

The authors should complete the registration form, including an abstract with no more than 1,300 characters. The abstract should be original and should be written in English.

The abstract approval will be later notified to the author, through email and the website.

Selection And Ranking Criteria

The abstracts and the final paper analysis will consider:

- At least one of the authors must have a bachelor's degree in Engineering or similar courses;
- The paper must be unpublished, meaning it has not been presented before at other Congress or technical publication;
- The article's content must be technical and do not include excessive mentions (more than two) of products or companies brand names;
- The paper's organization is essential for its analysis, so the indicated template must be used;
- The paper should be innovative, with some technical or scientific innovation and it should be related to the mobility area.



Copyright

In order for the final papers to be published in PDF format in the open access Blucher Proceedings system, authors are requested to authorize the disclosure.

Authorization shall be carried out by means of signature of the authors in the term to be issued by the AEA.

Awards

The papers will be ranked by SIMEA's Technical Committee and by the attendees. The best papers will receive the AEA award.

For additional information contact:

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The logo for the Associação Brasileira de Engenharia Automotiva (AEA) features the letters 'AEA' in a bold, italicized, sans-serif font. A horizontal line cuts through the middle of the letters, creating a sense of motion and modernity.

**Associação Brasileira
de Engenharia Automotiva**

