

# Preface

In the field of creation, manufacturing and testing of modern automobiles are manifested demands and requirements, sometimes contradictory, related to: security, aerodynamics, design, energy efficiency, comfort, noise, vibrations, entertainment, respect for the environment, reliability, preservation of resources, technological optimization, costs and recycling. The automotive industry is characterized, on the other hand, by a strong competition in inventiveness and high technology products. Rapid and large-scale evolution is dependent on the capacity of the research and design departments of the manufacturing companies to assimilate and work with innovative engineering methods. Numeric simulation represents one of the effective environment that support the activities related to:

- New materials engineering
- Product–process interdependency
- Development of future automotive concepts: hybrids, autonomous and interconnected
- Virtual reality: simulation, optimization of process management
- Topological and technological optimization
- Cost efficiency of research and development.

Introduction of RDE (Real Driving Emissions) measure starting from September 2017 for Euro 6c (new models) and Euro 7 (starting with January 2020) is a new challenge for large automotive manufacturers. The advancement in internal combustion engines and electronic systems used in control and analysis constitutes guaranties for future solutions for treating and filtering the noxious and particulate emissions.

To respond to the major challenges faced by the automotive world, the authors of the papers presented in the technical sections of CONAT 2016 International Congress offer their vision and solutions in the following areas:

- Advanced Engineering Methods
- Innovative Solution for Motor Vehicles
- Heavy and Special Vehicles
- Automobile and Environment
- New Materials, Manufacturing Technologies and Logistics
- Advanced Transport Systems and Road Traffic
- Accident Research and Analysis.

The presented papers were selected from 222 proposals submitted. All papers were developed by 218 specialists from 14 countries. Assessment and systematization of presentations were performed by an international scientific committee. They were analyzed for the novelty and scientific content, as well as for the layout of each paper, following the requirements imposed by FISITA, SIAR, SAE International and Springer Publishing.

The initiation, implementation and completion of activities for preparing, collecting and finalizing of the volume containing the Proceedings of CONAT 2016 Congress were possible, thanks to the involvement and professionalism of Dr. Dinu Covaciu, the Coordinator of the Technical Programme of Congress. We thank him for all his efforts.

We also express our gratitude to our colleagues from Transilvania University, and to the members of the scientific committee and reviewers, to organizers and partners from the companies Schaeffler, Renault Romania, Atlassib, Horiba, AVL, Tedata and Brahms, for their support and involvement in all activities of organization of the XIIth edition of the International Congress of Automotive and Transport Engineering CONAT 2016.

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