

The Automobile and the Environment

The Automobile and the Environment:
International Congress of Automotive
and Transport Engineering CONAT 2010

Edited by

Anghel Chiru

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P U B L I S H I N G

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FOREWORD

The automobile - miracle of this century, and the industries which contribute to its production, incorporate results of the high competitions in engineering creation and innovation, obtained under conditions of severe selections made in conjunction with the values of human society, culture and life style of local communities, sustainable development and environmental protection.

The development of strategic concepts for future automobiles involves a great scientific and technical cooperation between research institutes, manufacturing companies, major universities and local governments. This involves the development of highly complex researches, covering:

- advanced design, modeling and simulation procedures, controlled by powerful information systems;
- new modern materials, innovative manufacturing and assembling technologies that allow to identify the technical solutions for high productivity;
- alternative fuels, sustainable development, recycling and environment protection;
- advanced testing, analysis and validation technologies;
- vehicles with alternative propulsion systems, attractive and environmental responsible; management of the propulsion sources, braking energy recovery, driving facilitate and comfort improvement;
- the mechatronic architectures that facilitate the development of engine systems and automotive engineering;
- performant road traffic and safety with benefits in accident reconstruction; objective perception of the relationship between people-environment-vehicle-road safety assessment;
- lifecycle analysis as a holistic approach; vehicle reliability and risk assessment.

Wishing to respond to major challenges set out by the themes presented, in terms of restructuring the research and innovation policies and programs, of global production capacities resizing, defining new strategic alliances, development of emerging markets, increasing the competitiveness and requirements imposed in projects selection, we selected for this volume 43 scientific papers, from the 260 papers produced and presented by specialists from academic institutions, companies and research institutes from 22

countries, which were held in the sessions of the International Congress for Automotive and Transport Engineering CONAT 2010. The selected papers were focused and structured on four key themes which covered the topics:

- Automotive Powertrains
- Alternative Fuels
- Vehicle Dynamics, Vehicle Systems Design
- Transport, Traffic and Safety.

The scientific and technical information presented are intended for those who design, research, optimize and manufacture automobiles, equipment and components, technologies, innovative materials and processes, road traffic networks and systems, security systems and smart cars. They are also useful for many specialists who create installations, processes and equipment that enable the development of new propulsion sources for future vehicles, alternative fuels recipes, techniques for recycling and environmental protection.

Regarding the International Congress CONAT 2010 (XI-th edition, 27-29 October 2010), organized by SIAR – the Society of Automotive Engineers of Romania, Transilvania University of Braşov and SAE International, under the patronage of FISITA (International Federation of Automotive Engineering Societies) and EAEC (European Automobile Engineers Cooperation), it must be highlighted that this event was dedicated to celebration of 61 years of the Automotive School at Transilvania University and 20 years after founding SIAR.

This book was possible to be realized in this form thanks to the help of Mr. Dinu Covaciu, Ph.D., researcher at Transilvania University of Braşov. In all the activities he has undertaken, from manuscript to final form, I noticed the scientific rigor, determination and organization effectiveness. I wish to thank also for their help to my colleagues: Prof.Eng. Gheorghe Alexandru Radu, Ph.D., eng. Ruxandra Cristina Dica, Ph.D. Candidate, and also to all the collaborators from the Automotive Engineering Department of the Transilvania University.

To Mr. Brigadier ret. Prof. Günter Hohl, EAEC President, and to Mr. Dipl.Ing. Eduard Golovatai-Schmidt, Manager Advance Development Engine Systems at Schaeffler Technologies GmbH & Co.KG, I wish to present my deep gratitude for their interest and involvement in the organization of the CONAT 2010 Congress and the realization of this book.

Braşov, 04.04.2011

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