

Preface

Strategies for the sustainable development of road transport like those described in the European white paper are built on two major long-term visions: zero road fatalities and a shift away from conventionally fuelled vehicles. Such goals will significantly influence the priorities of public funding programs for research and innovation as well as the regulatory framework related to road transport, and thus have an impact on the activities of the automotive industry. From the perspective of policy makers, electric vehicles appear to be the most promising alternative power train option, and it can be argued that autonomous vehicles would seriously increase road safety. The introduction of these technologies, however, faces hurdles in terms of liability and customer acceptance. Hence, from the point of view of the automotive industry, a broader portfolio of technologies has to be developed and deployed at the right time, supported by appropriate incentives, legal frameworks and infrastructures. A well-balanced match of policy goals and industrial priorities is reflected, e.g. in the focus of the European Green Vehicles Initiative Public–Private Partnership on energy efficiency of vehicles and alternative powertrains.

The automobile of the future will particularly embrace innovations from three major automotive technology fields: driver assistance systems, vehicle networking and alternative propulsion. Smart systems such as adaptive ICT components and MEMS devices, novel network architectures, integrated sensor systems, intelligent interfaces and functional materials form the basis of these features and permit their successful and synergetic integration. They appear to be the key enabling technologies for safe and green vehicles including autonomous and electric vehicles, and they may play a key role where the two worlds meet, e.g. in safety systems like electronic stability control adapted to hybrid or electric power trains. Representing a domain of particular strength of the European industry, they may significantly contribute to the unique selling proposition of the automobile made in Europe in the future.

For more than 15 years the International Forum on Advanced Microsystems for Automotive Applications (AMAA) has been successful in detecting novel trends and in discussing the technological implications from early on. The topic of the AMAA 2013, held in Berlin on June 17–18, 2013, is “Smart Systems for Safe and Green Vehicles”. The organisers are VDI/VDE Innovation + Technik GmbH and

the European Technology Platform on Smart Systems Integration (EPoSS), supported by the EU-funded Coordination Actions CAPIRE and Smart EV-VC.

This book contains peer-reviewed papers written by leading engineers and researchers who presented their ongoing research and novel developments at the AMAA 2013 conference. It is published worldwide as part of the new book series Lecture Notes in Mobility that reports on the latest advances in research, development and innovations for the intelligent, connected and sustainable transportation systems of the future.

In our roles as co-chairman and chairman of the AMAA 2013 we would like to thank all the authors for preparing most excellent contributions to the conference and to the book. We gratefully acknowledge the important help by the members of the AMAA Steering Committee in selecting the best papers for this publication. And, last but not least we would like to point out that the conference and this book are built on the tremendous support we received from our colleagues at VDI/VDE-IT, in particular Beate Müller, Frauke Bierau and Christian Martin.

Berlin, June 2013

Jan Fischer-Wolfarth
Gereon Meyer

<http://www.springer.com/978-3-319-00475-4>

Advanced Microsystems for Automotive Applications

2013

Smart Systems for Safe and Green Vehicles

Fischer-Wolfarth, J.; Meyer, G. (Eds.)

2013, XXIV, 401 p. 223 illus., 201 illus. in color.,

Hardcover

ISBN: 978-3-319-00475-4