

Preface

The current economic crisis is cutting the automotive sector to the quick. Public authorities worldwide are now faced with requests for providing loans and accepting guarantees and even for putting large automotive companies under state control. Assessing the long-term benefits of such help and weighing the needs of different sectors against each other poses a major challenge for the national policies. Given the upcoming change of customer preferences and state regulations towards safety, sustainability and comfort of a car, the automotive industry is particularly called to prove its ability to make necessary innovations available in order to accelerate its pace to come out of the crisis. Consequently the Green Car is assuming a prominent role in the current debate.

Various power train concepts are currently under discussion for the Green Car including extremely optimised internal combustion engines, hybrid drives and battery-electric traction. Electrical cars are the most appealing option because they are free of local emissions and provide the opportunity to use primary energy from sources other than crude oil for transport. Well to wheel analysis show that their green-house gas emissions can be rated negligibly small if electricity from renewable sources like wind and solar is used. The mass introduction of electrical cars, however, is still a few years down the road, given the necessity to completely rethink the vehicle's concept: Novel solutions are needed for energy storage, traction, range extension, energy efficiency, power control and the overall system integration. All these are topics of advanced industrial research. Fatally, it is just the industrial research departments doing such work that in times of crisis have to fear to sustain budget cuts.

The promotion of Green Cars, in particular the electrical vehicle, has to rely on joint commitments by the industry and the public authorities. In terms of the electrical vehicle, first steps towards such public private partnership were recently taken by EPoSS, the European Technology Platform on Smart Systems Integration. Starting with an expert workshop on smart systems for the electrical vehicle carried out together with the European Commission in June 2008, EPoSS systematically built-up a basis and provided essential support to the Green Cars Initiative as part of the European Economic Recovery Plan.

The 13th International Forum on Advanced Microsystems for Automotive Applications (AMAA) taking place in Berlin on May 5-6, 2009 is presenting even more of the advanced research work for the way out of the crisis. With EPoSS being one of the organisers of the conference this year the focus is put

on smart miniaturised systems and ICT solutions for future mobility. For the first time in the history of the AMAA a specific topic was chosen: "Smart Systems for Safety, Sustainability and Comfort". With the Enterprise Europe Network (EEN) being the main supporter of this initiative, the role of innovative SMEs in the value chain of future mobility is highlighted.

The papers published in this book were selected from more than 40 submissions. Highlights include presentations on the scope of two European projects related to the Green Car issue: EEVERT aiming at the development of energy efficient vehicles for road transport, and E3Car doing research on nanoelectronics as the key enabler for electrical vehicles. Furthermore, several papers are describing first results of the Intersafe II project that is dealing with cooperative intersection safety. Likewise prominent topics are a detector for left behind occupants, novel driver assistance systems and several other highly integrated components for various applications in the automobile.

I like to thank all authors for submitting very interesting papers and for assisting the editors during the publication process. Furthermore, I like to thank the AMAA Steering Committee for its continuous support and advice. Particular thanks are addressed to EPoSS and to the EEN as well as to the industrial sponsors who helped us to built up the financial backbone for the AMAA 2009.

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