Preface

The increasing trend towards electric cars issues several challenges for the automobile industry, research institutions and politics as well as for society.

Research and serial development move closer together to meet automotive standards with new components like traction batteries integrated into hybrid and electrical drivetrains. Furthermore, the influence of e-mobility on the daily mobility behavior, the effects on the automotive supply chain and the impact on industrial production have to be taken into account.

According to these complex aspects it is crucial to not only acquire specific knowledge in the particular fields but also to consider their functional interaction. Therefore it seems essential to merge competence from science, economy and politics.

This year, the annual „Conference on Future Automotive Technology“ as the follow-up of the “2. Automobiltechnisches Kolloquium München” sets the focus on the economical realization of widespread automotive electro mobility.

The book at hand contains the papers of the five topics *Energy storage technologies*, *Mobility and Service*, *Powertrain*, *Vehicle concepts and engineering* and *Production* which were presented at the conference.

The energy storage system is the crucial key factor to electro mobility. Low capacity which is directly related to a small range as well as high costs hinder electric vehicles to penetrate into the market. Thus new technologies for range extenders such as zinc-air-batteries and additional flywheel range-extending systems are discussed in this book according to low utilization ratio, reasonableness and efficiency.

In the field of *Mobility and Service* the paper discusses an alternative approach to a clean and affordable mobility for electric vehicles.

The four papers of the topic *Powertrain* controvert the components motor, clutch and transmission.

Especially the design and the operational behavior of a special electric motor as well as the electro mechanically actuated clutch for an optimal friction torque control is discussed. Due to the high rotational speed of electric motors the role of transmissions has to be reconsidered. Thus the need of transmission was reviewed on the conference.

Considering the hybrid electric vehicles (HEV) one paper outlines the possibilities of the powertrain to increase the range of HEV in terms of downsized conventional powertrains and hybrid combustion engines.

Especially the needs and boundaries of electrified cars require new procedures to find the suiting vehicle concepts. Therefore the impacts of electrification on the Vehicle Concept as well as the effects of regional requirements are discussed. Being a pivotal part of the vehicle, the drivetrain offers new possibilities for the architecture of electrified components. One paper discusses the possibilities of free distribution of torque and its effects on the driving dynamics.

Prof. Dr.-Ing. Markus Lienkamp
Institute of Automotive Engineering
Technische Universität München
Garching

http://www.springer.com/978-3-658-01140-6

Conference on Future Automotive Technology
Focus Electro Mobility
Lienkamp, M. (Ed.)
2013, VIII, 195 p. 166 illus., 30 illus. in color., Softcover
ISBN: 978-3-658-01140-6