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**K. Berns, K. Dreßler, P. Fleischmann, R. Ilsen, B. Jörg,  
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# Preface

Dear Reader,

The organizers are very pleased to present the proceedings of the 4<sup>th</sup> International Commercial Vehicle Technology (CVT) Symposium, which takes place from 8<sup>th</sup> to 10<sup>th</sup> of March 2016 at the campus of the University of Kaiserslautern. The symposium is organized by the Commercial Vehicle Alliance Kaiserslautern (CVA), which is an association of the Center for Commercial Vehicle Technology (ZNT) of the University of Kaiserslautern, the Fraunhofer Innovation Cluster Digital Engineering for Commercial Vehicles (DNT), and the Commercial Vehicle Cluster (CVC).

This year's CVT Symposium is the 4<sup>th</sup> in a series of very successful conferences, which took place every two years starting from 2010. It brings together internationally renowned researchers from universities and research institutes with developers from industry working on different aspects of commercial vehicles. With more than 250 participants, several demonstrations of commercial vehicles and exhibitions from industry, the symposium offers a wide variety of interesting aspects beside the oral and poster presentations. Furthermore, additional workshops will be offered by CVA members on the day before the conference.

To guarantee a very high quality and a large impact the program committee of the conference selected 47 very innovative contributions out of more than 100 submitted papers. In addition, 17 contributions were selected for poster presentation. The high interest in our CVT Symposium is also shown by the international contributions from 6 different countries (Austria, Belgium, Egypt, Sweden, Switzerland and Turkey). To ensure scientific innovation as well as practical benefit, at least 3 reviewers from academia and industry evaluated each paper. We would like to thank all reviewers and members of the program committee for their valuable input.

The plenary talks will be divided into two parallel tracks covering the areas “Automated Systems and Services”, “Driver Assistance Systems”, “Electric Drives”, “Energy and Resource Efficiency”, “Innovative Methods in Development and Production”, “System Simulation”, “Safety, Reliability and Durability” and “Usage and Variant Variability”. All the presentations in German language will be simultaneously translated into English for our foreign guests.

Furthermore, we are also very proud to have 6 high quality keynote speeches. These include

- Thomas Markovic (Daimler AG) — “*Future Truck*”
- Dave Ross (Volvo Construction Equipment) — “*Future Construction Machines*”

- Harald Ludescher (ZIEHL-ABEGG Automotive GmbH) — “*ÖPNV im Wandel - Elektrische Stadtbusse der Zukunft*”
- Mathias Lenz (Daimler AG/Evobus) — “*Stadtbus der Zukunft*”
- Dr. Cristian Dima (John Deere GmbH & Co. KG) — ”*Perception Sensing for Agricultural Automation*“
- Dr. Thomas Tentrup (Dürr Assembly Products GmbH) — ”*Energy and Production Efficient End of Line Test Rigs for Trucks and Tractors in a Final Assembly Plant*“

We are also pleased to welcome three politicians of our state Rhineland-Palatinate, Ms. Malu Dreyer, State Prime Minister, Ms. Eveline Lemke, Minister of Economic Affairs, and Ms. Vera Reiß, Minister of Education and Science, who will offer greetings on each conference day and open the dinner of the symposium.

Finally, we would like to take the opportunity to thank all people which were involved in organizing the CVT 2016. In particular, we would like to thank our platinum sponsor Schaeffler Technologies AG & Co. KG and the gold sponsors BPW Bergische Achsen KG, Daimler AG, John Deere GmbH & Co. KG and Liebherr-International Deutschland GmbH as well as the university board and the government of Rhineland-Palatinate for their kind support.



Prof. Dr. Karsten Berns  
Speaker of the Center for Commercial Vehicle Technology  
Kaiserslautern, March 2016

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