

Contents – Volume 2

The Back Ring Light Element (BRLE) – Where User Experience Meets Safety	1
<i>Anne-Marie Zühlsdorff, Jonas Bott, Marcus T. Kandler, Dr.-Ing. Lisa Diwischek, and Daniel Alt</i>	
Challenges and Opportunities of Integrating a Stowable Steering Column with a Steer-by-wire Handwheel Actuator	15
<i>Keyur R. Patel, Zachery Schultz, Michael Hales, and Patrik Ryne</i>	
Decouplable Steering System with the Possibility of Same- and Opposite-Direction Wheel Engagement	31
<i>Fabian Weitz, Dr.-Ing. Michael Frey, and Prof. Dr. rer. nat. Frank Gauterin</i>	
Basic Safety Guidelines for Steer-By-Wire for a New DIN Standard	43
<i>Dr. Matthias Schölzel, Michael Scholand, Christian Kleiner, Maximilian Wesche, Alexander Ein Waldt, and Oliver Nehls</i>	
Application of Digital Twins in EPS/SbW-Development	58
<i>Dr. Stefan Kirschstein, Dirk Vieker, Kamil Zajac, and Adrian Roguski</i>	
Enhancement of Subjective Steering Feel in Driver-In-The- Loop Simulators	68
<i>Michael Naylor, Jonathan Maybin, Tom Lee, and Richard Hill</i>	
Evaluation of Steering Feel with Different Feedback Actuators in Driving Simulators	82
<i>Florian Goy, Matthias Niegl, and Maximilian Böhle</i>	
Implications of Brake System Concepts without Wheel Individual Rear Axle Brakes with Focus on Differential Gearboxes	100
<i>Tobias Loss, Simon Peter, Armin Verhagen, and Daniel Görjes</i>	
Embedding Brake Corners in a Vehicle Environment Using Hardware-in-the-Loop Dyno-in-the-Loop	114
<i>Marco Zessinger, Carlos Agudelo, and Barry Purtymun</i>	
Real-Driving Residual-Drag-Torque of Disc Brakes	127
<i>Philipp Huchtkötter, Jens Neubeck, Andreas Wagner, and Christian Wittke</i>	

Next Evolution in the Development of Brake Emission Testing	147
<i>Christof Danner</i>	
Redundant Brake Systems for Full by-Wire Applications	161
<i>Holger Schmidt, Vandit Goyal, and Martin Baechle</i>	
Virtual Vehicle Development Approach to Optimize Energy Efficiency and Vehicle Stability of Electrified Vehicles Using Brake Blending	174
<i>Dr.-Ing. Steven Yan, Ole Behnke, and Dr.-Ing. Alexander Ahlert</i>	
Tire Road Wear Particles (TRWP) from Measurements to Stakes	188
<i>T. Charbouillot, F. Biesse, I. Beynier, J. M. Boulat, DCettour Janet, P. Schaal, and A. Grandchamp</i>	
New Inner Drum Test Bench for Dynamic Tests of PLT and Truck Tires	198
<i>Martin Gießler, Frank Gauterin, Michael Frey, and Hans-Joachim Unrau</i>	
Innovation on Wheels: How New Mobility and the Focus on Sustainability Will Change Wheel Design	214
<i>Ralf Duning</i>	
Study on the Relationship Between Wheel Stiffness and Driving Stability – An Examination of Wheel Stiffness Optimization Using Tire Contact Patch Analysis	226
<i>Atsushi Hirano</i>	
Wheel Concepts for Extending the Range of Battery-EVs and Upgrading the Premium Wheel Design	245
<i>Günter Leister and Georg Scharpenack</i>	
Tire Performance Optimization Using Intercoupled T.R.I.C.K., ThermoRIDE and WeaRIDE Physical Models	256
<i>Flavio Farroni, Andrea Sammartino, Guido Napolitano Dell'Annunziata, and Damiano Capra</i>	
Efficient Tire/Handling Development by Applying Virtual Vehicle- and Tire Layout	269
<i>Carsten Schröder, Christian Marschler, Christian Gasthaus, Konstantin Sedlan, and Eric Koch</i>	

Contents – Volume 1

Integrated Vehicle Dynamics Control - Opening up New Dimensions	1
<i>Helge Westerfeld</i>	
Future Chassis Systems: Evolution or Revolution?	2
<i>Hans-Jörg Feigel</i>	
The Key Role of Virtual Prototypes for the Functional Safety of Software-Defined Vehicles	15
<i>Dipl.-Ing. Steffen Schmidt</i>	
Theoretical and Practical Solutions in Fail Operational Chassis Electronics	29
<i>Axel Freiwald and Marco Cassol</i>	
Autonomous Driving Implication on the Reliability of Modern Braking and Steering Systems	36
<i>Eleftherios Psaltis, Maria Guitart Corominas, Johannes Wimmer, Elena Zhelondz, Florian Waimer, and Amit Mahale</i>	
Vision EQXX – Innovative Chassis System for a Highly Efficient Electric Vehicle	57
<i>Dirk Herkenrath</i>	
Development of Steer-By-Wire System that Assumes Operation Without Changing Grip	64
<i>Kenji Shibata, Toru Takashima, Yoshio Kudo, Yuji Fujita, and Nobuyori Nakajima</i>	
Using DFSS and Autonomy to Aid in Brake-to-Steer Vehicle Performance Characterization	79
<i>Scott Sanford, Clint Schumann, Michael Wyciechowski, and Dr. Thomas Raste</i>	
Mechanical-Hydraulic, Adaptive Stabilizer Bar with Frequency–Selective Damping	93
<i>Serge Vos, Thomas Schrüllkamp, Wim Schop, Maximilian Meissner, Dominik Pech, Andreas Gersmeier, and Daniel Schröder</i>	
Elasto-Kinematic and Structure Design of the Multi-Link Torsion Axle and Its Full-Vehicle Evaluation	106
<i>Jens Olschewski, Tobias Niessing, and Dr.-Ing. Xiangfan Fang</i>	

Innovative and Sustainable Lightweight Solutions While Staying Cost-Competitive	122
<i>Barbara Mundt and Lukas Christopher Schröder</i>	
Comfort Evaluation on a Dynamic Driving Simulator with Advanced Tire, Road and Vehicle Models	130
<i>Benjamin Rieff, Maximilian Böhle, Stefan Vorderobermeier, and Bernhard Schick</i>	
Subjective / Objective Assessment of a Cable-Driven Simulator Immersivity and Realism	144
<i>F. Cheli, M. Gobbi, S. Melzi, G. Prevati, A. Somma, L. Del Linz, and D. Minen</i>	
Gaining Insight into Cross-Functional Vehicle Behavior—Usage of a Vehicle Dynamics Model in Objective and Subjective Full Vehicle Simulation	154
<i>Michael Bidlingmaier, Tobias Bonitz, and Michael Hoffmann</i>	
KPI-Based Attribute Development of Lane Keeping Assist Systems	163
<i>Daniel Neidlein, Matthias Becker, Sebastian Wrodartschik, and Bernhard Schick</i>	
A Modular Framework for Virtual Calibration and Validation of Driver Assistance Systems	178
<i>Moritz Markofsky and Dieter Schramm</i>	
Tool and Methodology Development for LCA Hardware in the Loop Testing ...	194
<i>Federico Alfatti, Lorenzo Lelli, Claudio Annicchiarico, and Renzo Capitani</i>	
Holistic Driver Perception—Unaddressed Challenges in Autonomous Driving Today	203
<i>Kevin Meuer, Andreas Kulesa, and Daniel Fischer</i>	
The Key for Future Vehicles—Development of Chassis Components According to Cybersecurity Regulations	220
<i>Marcus Perner, Christian Wagner, Martin Gebhardt, and Nick Weinhold</i>	
Development of Model Predictive Motion Planning and Control for Autonomous Vehicles	230
<i>Jaume Cartró, James Jackson, Jordi Sanchez, Ricard Fos, and Javier Gutiérrez</i>	

Study on Improving Comfortable Turning Feel by Coordinated Control Between Steering and Suspension (i-LEED Technology)	247
<i>Ken Isshiki and Masayoshi Kimura</i>	
Software as a Product – Road Surface Detection	261
<i>Keyur R. Patel and Michael Story</i>	
Intelligent Combination of Software Calibration and High Responsive Hydraulics Control for a Low-Noise and Cost-Efficient Semi-Active Chassis System	274
<i>Alexander Alonso and Christian Macrì</i>	