
ika
RWTH AACHEN UNIVERSITY
vka
cmp
RWTH AACHEN UNIVERSITY
fka
FEV
30.
AACHEN
COLLOQUIUM
SUSTAINABLE MOBILITY
Eurogress Aachen,
Germany
October 4th-6th, 2021

30. AACHEN COLLOQUIUM
SUSTAINABLE MOBILITY

Version: October 3rd, 2021

Note: This document is a digital program booklet. Accordingly, it is updated regularly. The current version of this document can always be found on the Colloquium website:
https://www.aachener-kolloquium.de/en/information/program/lecture-program.html

30. AACHEN COLLOQUIUM SUSTAINABLE MOBILITY

Developing Solutions Together

The Aachen Colloquium Sustainable Mobility celebrates its 30th anniversary this year. Under the scientific management of Prof. Dr. techn. Franz Pischinger and Prof. Dr.-Ing. Jürgen Helling, the first "Aachen Colloquium Automobile and Engine Technology" took place in 1987. The underlying idea of treating the two topics of engine and automobile together and searching for solutions in joint efforts generated great enthusiasm among the international participants.

Today, more than 30 years later, we are expanding the basic idea of interdisciplinary collaboration, as it has proven to be right and important. At this year's Aachen Colloquium, we are not only looking at the automobile and its engine, but at the topic of mobility as a whole, with findings from research and industry. An important focus is the development of sustainable solutions for efficient, safe and environmentally friendly mobility of the future.

The 30th Aachen Colloquium Sustainable Mobility

This year, you can look forward again to 100 specialist presentations from renowned companies and institutes. In our detailed program overview you will find innovative topics as mobility and vehicle concepts of tomorrow, automated and connected driving, fuel cells, battery systems and electric drive units. This is rounded off by the red-hot subject of hydrogen, zero-impact emissions, life cycle analyses and strategy considerations in the automotive industry.
The plenary lectures by selected experts will be a special highlight of the event. Markus Duesmann, chairman of the bord of AUDI AG, will speak on the topic of electromobility as an opportunity and driver for growth. Dr.-Ing. Stefan Hartung, member of the board of management of Robert Bosch GmbH, will give an outlook on the mobility of the future in his presentation. Prof. Dr. Ralf G. Herrtwich, Senior Director of NVIDIA, will deal with the intelligence of cars and Dr. Ahn, Senior Vice President, will offer an insight into the future vision of electric vehicles at Hyundai Mobis.
Outside of the lecture halls, you can expect numerous well-known companies who will personally present their innovations and answer your questions. As in each year, the Aachen Colloquium offers various opportunities for discussion and direct exchange with experts from all over the world. For the 30th anniversary, you can also look forward to other interesting program items.

We look forward to your participation in the anniversary event 30th Aachen Colloquium Sustainable Mobility!

Univ.-Prof. Dr.-Ing. Stefan Pischinger
Director of Institute VKA
RWTH Aachen University

Univ.-Prof. Dr.-Ing. Lutz Eckstein
Director of Institute ika
RWTH Aachen University


Conference Agenda


Keynote Speakers


Technical
Presentation Program


Speakers & Session Chairs

30. Aachen Colloquium Sustainable Mobility

	Europa	Berlin	Lissabon	Brüssel	K1 Aachen
Monday, October 4th, 2021					
18:00	Lobby: Welcome Reception & Opening of the Technical Exhibition				
18:45		Poster presentations			
Tuesday, October 5th, 2021					
08:30	Opening Plenary Session				
10:00	Break				
10:30	Battery Systems	Automotive Strategy Concepts I	Thermal Management	Automated Driving – Architecture & Impact	Chassis – Virtual Development Methods
12:00	Lunch Break				
13:30	Fuel Cells I	Life Cycle Assessment	Transmission Concepts for Electrified Drives	Sensor Technologies for Automated Driving	Brake Systems
15:30	Break				
16:30	Zero Impact Emission Concepts	Battery Cooling	Heavy Duty Emission Concepts	Mobility & Vehicle Concepts I	Chassis Systems
Wednesday, October 6th 2021					
08:30	Hybrid & Range-Extender-Concepts	Application of Alternative Fuels	Reports from FVV-Projects	Electric Motors	HMI & User Experience
10:00	Break				
11:00	New Engine Technologies	Automotive Strategy Concepts II	Fuel Cells II	Verification & Validation of Automated Driving	Power Electronics
13:00	Lunch Break				
14:00	Hydrogen Combustion Engine	48V Technologies	Commercial Vehicle & All-Wheel Drive Technologies	Data for Automated Driving	Mobility & Vehicle Concepts II
15:30	Break				
16:00	Closing Plenary Session				

Dipl.-Ing. Markus Duesmann

Chairman of the Board of Management and Board of Management Member for Product Lines at AUDI AG

Markus Duesmann was born on June 23, 1969 in Heek, North Rhine-Westphalia. In 1991, he completed his studies of mechanical engineering at Steinfurt University of Applied Sciences with a degree in engineering. He began his career in 1992 as a design engineer for a V12 series-production engine at Mercedes-Benz in Stuttgart. In 1995, he moved to the development service provider FEV GmbH in Aachen, where he held various positions, the last of which was head of the engine mechanics division.

In 2004, he took over the position of main department manager for new diesel engines at DaimlerChrysler AG in Stuttgart, and in 2005 became head of Formula 1 development at Mercedes-Benz in Brixworth in the United Kingdom.

In 2007, Markus Duesmann moved to BMW AG as head of Formula 1 powertrain. After holding several responsible positions at that company, he was Board of Management Member for Purchasing and Supplier Network at BMW AG from October 2016 until July 2018.

The Supervisory Board of AUDI AG appointed Markus Duesmann as Chairman of the Board of Management of AUDI AG effective April 1, 2020. Since then, he has also had Board of Management responsibility for Volkswagen Group Research and Development. Additionally he is entrusted with responsibility for the China business of the AUDI AG and with Board of Management responsibility for Product Lines at AUDI AG.

Dr.-Ing. Stefan Hartung

Member of the Board of Management, Robert Bosch GmbH

Dr. Stefan Hartung has been a member of the board of management of Robert Bosch GmbH since January 2013. Since January 2019, he has been chairman of the Mobility Solutions business sector, and responsible for the Powertrain Solutions and Electrical Drives divisions. Prior to this, he was responsible for the Energy and Building Technology as well as the Industrial Technology business sectors, in addition to the Bosch Connected Industry business unit.

Born in Dortmund in 1966, Stefan Hartung is married and has two children. He studied mechanical engineering, specializing in manufacturing technology, at RWTH Aachen, where he also submitted his PhD on quality management methods in 1993.

He joined Bosch und Siemens Hausgeräte GmbH in Munich in 2004. Before that, he worked for the Fraunhofer Society and the management consultants McKinsey & Company in Düsseldorf.

Prof. Dr. Ralf G. Herrtwich

Senior Director Automotive Software
NVIDIA, Berlin

Ralf G. Herrtwich runs automotive software development for NVIDIA in Europe. He currently focusses on artificial intelligence for autonomous vehicles and new automotive computing architectures. Past assignments in Dr. Herrtwich's career include managing the Automotive and Services Business Units of HERE Technologies as well as developing self-driving vehicles for Mercedes-Benz. In 2013, his team made an S-Class re-enact the world's first overland drive, covering the historic 65-miles Bertha Benz Route autonomously in regular traffic.
A computer scientist by education, Dr. Herrtwich started his career in academia at TU Berlin and UC Berkeley. He then held management positions with IBM and several telecommunication start-ups before joining Daimler in 1998 to manage its Advanced Engineering Centers on Telematics & Infotainment and, later, Driver Assistance & Chassis Systems.
Since 2009, he also is honorary professor for vehicle information technology at the Technical University of Berlin. In recognition of his contributions to computing innovations in the car industry, he was named Fellow of the German Computer Science Society in 2019.

Dr. Byung-Ki Ahn

Senior Vice President der Electric Powertrain BU,
Hyundai MOBIS, Korea

Dr. Byung-Ki Ahn, born in 1963, studied Mechanical Engineering at the Seoul National University in Korea. In 1991, Dr. Ahn moved to the USA, where he obtained his doctoral degree at Virginia Tech, followed by occupations as Senior Research Scientist at the Pacific Northwest Nat'l Lab and as Senior Engineer at UTC Fuel Cells.
In 2004, he returned to Korea to begin his career at Hyundai MOBIS as Chief Researcher. From 2006 until 2017, Dr. Ahn directed the Fuel Cell and Eco-friendly vehicle Performance Development groups at Hyundai Motor, before returning to Hyundai MOBIS.
Currently, Dr. Ahn fulfils the position as Senior Vice President of the Electric Powertrain BU at Hyundai MOBIS in Korea.

30. AACHEN COLLOQUIUM SUSTAINABLE MOBILITY

Poster presentations Monday, October 4th 2021, 18:45

Berlin

Session chair of the poster presentation
Prof. Dr. Hermann Rottengruber, IMS, Otto-von-Guericke University

Poster 1 **Lukas Laarmann, FH Aachen**

Human Hybrids, Shared Vehicle and Airtaxis – Facing Sustainable Future with Mobility Thinking

Poster 2 **Daniel Sigmund, TH Köln**

eWheel2Car - A New Approach of Retrofitting Cars

Poster 3 **Prof. Dr. Vinod Rajamani, FH Dortmund**

Technology Enabers for the Hydrogen Combustion Engine

Poster 4 **Tobias Brinkmann, VKA RWTH Aachen**

Traffic-efficient and Energy-Optimized Longitudinal Control of an Autonomous Vehicle Using Deep Reinforcement Learning

Poster 5 **Swantje Konradt, Otto-von-Guericke-Universität Magdeburg**

Energetic Optimization of a PEM Fuel Cell Vehicle

Poster 6 **Pia Sophie Charlotte Dautzenberg, ika, RWTH Aachen**

Identification and Evaluation of Trust-Relevant Driving Situation Factors for Automated Driving (SAE Level4/5)

30. AACHEN COLLOQUIUM SUSTAINABLE MOBILITY

Opening Plenary Session at the Europa Hall

08:30 Welcome

Univ.-Prof. Dr. rer. nat. Dr. h.c. mult.
Ulrich Rüdiger
Rector, RWTH Aachen University

08:40 Introduction to the 30th Aachen Colloquium

Univ.-Prof. Dr.-Ing.
Stefan Pischinger
Director, VKA, RWTH Aachen University

Univ.-Prof. Dr.-Ing.
Lutz Eckstein
Director, ika, RWTH Aachen University

09:00 Electromobility – Opportunity and Driver for Growth

Dipl.-Ing.
Markus Duesmann
Chairman of the Board of Management and Board of Management Member for Product Lines at AUDI AG

09:20 Future of Mobility

Dr.-Ing.
Stefan Hartung
Member of the Board of Management, Robert Bosch GmbH

09:40 Plenary Discussion

30. Aachen Colloquium Sustainable Mobility

Technical Presentations Program Tuesday, October 5th, 2021 Session 1

	Europa	Berlin	Lissabon	Brüssel	K1 Aachen
	Session Chair Prof. Dr. Henning Wallentowitz ika, RWTH Aachen University	Session Chair Dr. Jens Kotte fka GmbH	Session Chair Dr. Christoph Menne FEV Europe GmbH	Session Chair Prof. Andre Seeck Bundesanstalt für Straßenwesen (BASt)	Session Chair Univ.-Prof. Dr.-Ing. Christian Schindler ifs, RWTH Aachen University
	Battery Systems	**Automotive Strategy Concepts I**	**Thermal Management**	**Automated Driving – Architecture & Impact**	**Chassis – Virtual Development Methods**
10:30	**Ultra-Fast Charging Urban Delivery Vehicles** M. Bassett, J. Hall – MAHLE Powertrain Ltd. P. Wilson – Allotrope Energy Ltd.	**Smartphones on Wheels – How OEMs and Suppliers can Win the Race for Software Domination** C. Koehler, A. Neumann – Strategy Engineers GmbH & Co. KG	**Multiphysics Design and Analysis of Electric Vehicles** W. Seeley, K. Illa, K. Voonna, F. Ross – Siemens Digital Industries Software F. Bet – InDesA GmbH	**UNICARagil – Agile Development of Self-Driving Vehicles** R. van Kempen, T. Woopen, L. Eckstein – ika, RWTH Aachen University	**Systematic Integration of Simulation and Driving Test to Evaluate Rollover Behavior of SUVs** F. Chang, M. Frost, C. Schimmel – AUDI AG
11:00	**Future Battery Systems – Affordable, Safe and Highly Integrated** M. Teuber, M. Stapelbroek, R. Beykirch – FEV Europe GmbH C. Kürten, O. Lück, H. Wenzel – FEV Vehicle GmbH	**Future Automotive Value Creation Strategies** J. Berking, S. Schnurrer, M. Gavrila, B. Schoenberger – Oliver Wyman	**Integrated Thermal Management System for Battery Electric Vehicles (BEV)** L. Art, M. Boger, M. Jung – MAHLE Behr GmbH & Co. KG	**Integration of a Vehicle Operating Mode Management into UNICARagil's Automotive Service-oriented Software Architecture** I. Jatzkowski, T. Stolte, M.Maurer – TU Braunschweig M. Buchholz, K. Dietmayer – Ulm University A. Kampmann, B. Alrifaee – RWTH Aachen	**Frequency-Dependent Categorization of Vehicle Vertical Dynamics Regard to Subjective Human Perception** J. Kreibich, L. Mahlknecht m. Lienkamp – TU München K. Riedel – CARIAD SE A. Noll – AUDI AG
11:30	**Next Generation Batteries for Mobility in Korea: Technical Trends, Patent Filings and Legal Issues** S.-E. Kim, I.A. Kwon – Kim & Chang	**Vehicle Platforms for Future Mobility – Convergence or Divergence of Architectures?** C. Burkard, C. Harter, I. Olschewski – fka GmbH L. Eckstein – ika, RWTH Aachen University	**Self-Adapting Comfort Models for Comfort-Based HVAC Control** S. Möller, A. Rauch, A. Kospach, M. Waltenberger – VIRTUAL VEHICLE research GmbH	**The L3Pilot Impact Assessment** H. Weber, J. Hiller, L. Eckstein – ika, RWTH Aachen University A. Zlocki – fka GmbH	**Model Based Quality Management for Virtual Prototypes considering Uncertainties** D. Frerichs, S. Schultz, K. M. Hahn, S. David – Stellantis

30. Aachen Colloquium Sustainable Mobility

Technical Presentations Program Tuesday, October 5th, 2021 Session 2

	Europa	Berlin	Lissabon	Brüssel	K1 Aachen
	Session Chair Univ.-Prof. Dr.-Ing. Lutz Eckstein ika, RWTH Aachen University	Session Chair Prof. Dr. Jan-Welm Biermann RWTH Aachen University	Session Chair Prof. Dr. Thomas Form Volkswagen Commercial Vehicles	Session Chair Prof. Dr. Dirk Abel IRT, RWTH Aachen University	Session Chair Prof. Dr. Pim van der Jagt AB Dynamics Europe GmbH
	Fuel Cells I	**Life Cycle Assessment**	**Transmission Concepts for Electrified Drives**	**Sensor Technologies for Automated Driving**	**Brake Systems**
13:30	**Toyota's Strategy for Fuel Cell Technology and the Progress in the Second Generation Mirai** T. Hayashi, T. Paquet – Toyota Motor Europe K. Yoshida, T. Imanishi, T. Takahashi, N. Kobayashi – Toyota Motor Corp.	**The Carbon Footprint of Volvo XC40 BEV and ICE – Presented With Transparency** R. Palm, I. Råde, C. Krewer, K.-H. Hagdahl, A. Egeskog– Volvo Cars L. Bolin - Polestar L. Dahllöf - IVL Swedish Environmental Research Institute	**New CVT Products, Valuable Solutions for the Diversified Powertrain Future** G.-J. Van Spijk, F. Van der Sluis, – Bosch Transmission Technology Z. Cai – Bosch Trading (Shanghai) Co. Ltd.	**LiDAR for Increasing Safety and Comfort** K. Bronowski, F. Geuens, K. De Meester – XenomatiX	**Operating Strategy for Autonomous Vehicles in Case of Failures in the Brake System** H.C. Schlimme – Volkswagen AG J. Iatropoulos, J. Sterthoff, R. Henze – IfF, TU Braunschweig
14:00	**Hydrogen Powertrain Designs for European Long-Haul Trucks** K. Godard, L. Chauvin, C. Vacquier, T. Justin – Symbio G. Queney – Faurecia	**Life Cycle Assessment of Electric Vehicles** M. Y. Song, W. B. Lee, J. W. Choung – Hyundai Motors D. H. Kim, G. Han, T. Hur – Konkuk University	**Modular Propulsion System Design as Cornerstone for Agility for Global Electrified Platforms** K. Smolders, S. Heeren, G. Bismans – Punch Powertrain	**LIDAR Sensor Calibration without the Need of Physical Targets** A. Engelbert, J. Poppe – HORIBA Europe GmbH T. Ost – DEKRA SE	**Optimization of the Brake- and Driving-Stability by Strategic Wheel Alignment for Motorsport Purpose** D. Mertens – Mertens Motorsport M. Plante – PRAE
14:30	**Fuel Cell Freeze Start – From Simulation and Benchmarking to System Optimization** M. Zubel, M. Walters – FEV Europe GmbH M. Schmitz – VKA, RWTH Aachen University	**Holistic Evaluation of Components & Systems for xEV – Life Cycle Assessment as Decisive Factor in the Innovation and Development Process?** A. Busse – fka GmbH D. Thirunavukkarasu, G. Witham, J. Hemsen S. Spohr, L. Eckstein – ika, RWTH Aachen University	**Development of a Shiftable High-Speed E-Drive with a Complex-Compound Planetary Gear Set** F.-T. Mitterer, R. Subramanian – MAHLE ZG Transmissions GmbH G. Witham, J. Hemsen – ika, RWTH Aachen University	**How to Build a Highly Accurate Digital Twin – Intelligent Infrastructure in the Corridor for New Mobility – ACCorD** L. Kloeker, A. Kloeker, F. Thomsen, A. Erraji, L. Eckstein – ika, RWTH Aachen University	**Accuracy Requirements for the Road Friction Coefficient Estimation of a Friction-adaptive Automatic Emergency Brake (AEB)** T. Ahrenhold, J. Iatropoulos, C. Pethe, R. Henze, F. Küçükay – IfF, TU Braunschweig
15:00	**The EKPO NM 12 Stack Module – A Modular Stack Platform for HD-Applications** J. Kraft – EKPO Fuel Cell Technologies	**Green NCAP, Evaluation of the Exhaust Gas Behaviour and the Energy Efficiency of Modern Cars under Demanding Conditions** A. Damyanov – Vienna University of Technology U. Ellmers – Federal Highway Research Institute (BASt)	**2DHT – The Answer to Highest Requirements on Sustainable Drivetrains for HEV/PHEV** J. Trumpff – GETEC Getriebe Technik GmbH	**Real-Time Traffic Environment Perception by Using LiDAR Sensors and AI Software** Y. Ji, F. Frauendorfer – LiangDao GmbH	**Brake Wear Particle Emissions – An Emerging Challenge** M. Huber, P. Fischer – FTG, TU Graz G. Steiner, A. Mamakos, A. Klug, G. Steiner – AVL List GmbH

30. AACHEN COLLOQUIUM SUSTAINABLE MOBILITY

Technical Presentations Program Tuesday, October 5th, 2021 Session 3

	Session Chair Prof. Dr.-Ing. Michael Bargende IFS, University of Stuttgart	Session Chair Dr. Johannes Scharf FEV Europe GmbH	Session Chair Prof. Dr. Thomas Koch Karlsruher Institut für Technologie	Session Chair Prof. Dr. Peter Urban ika, RWTH Aachen University	Session Chair Prof. Dr.-Ing. Stefan Gies
	Zero Impact Emission Concepts	**Battery Cooling**	**Heavy Duty Emission Concepts**	**Mobility & Vehicle Concepts I**	**Chassis Systems**
	Europa	**Berlin**	**Lissabon**	**Brüssel**	**K1 Aachen**
16:30	**Aftertreatment Technologies Supporting the Path Towards Zero-Impact Emissions** D. Rose, T. Boger,P, Nicolin, F. Jung – Corning GmbH T. A. Collins, R. I. Ogunwumi – Corning Inc.	**How Battery Pack Safety can be Improved with an Innovative Fluid for Thermal Management** N. Champagne – TOTAL	**Future Regulatory Technology Options to Reduce Risk in Application for Heavy-Duty Diesel Engines** C. Webb, P. Stephenson, M. Meijer, A. Coumans – Paccar Technical Center J. Kramer, R. Brueck – Vitesco Technologies Emitec GmbH	**Development of an Autonomous Family Vehicle using a Scenario-Based Design Approach** T. Schräder, R. Graubohm, T. Stolte, M. Maurer – TU Braunschweig	**Steer-by-Wire – Experience, Potentials and Solutions for Future Mobility** H. Hügle, M. Dann – Schaeffler Paravan Technologie GmbH & Co. KG T. Sandmann, D. Wegener , P. Ziemann, L. Eckstein – fka GmbH
17:00	**Zero Impact Pollutant Emissions and 50 % Real-World Efficiency – The Future of CI Powertrains** C. Menne, M. Ehrly, R. Zegers, P. Recker – FEV Europe GmbH T. Körfer, H. Busch – FEV Group GmbH	**Thermal Management System Tipping Points for High Power Charging of Battery Electric Vehicles** J. Wong, R. Pearson, J. Salkeld – bp T. Rachow, D. Schwarzmann – Bosch	**Challenges for CV Powertrains Meeting Strict Future Low-Emission Regulations – Will Electrification Be the Solution?** S. Maufroy, Y. Frekers, J. Schatorjé, A. Balaji, T. Eymann, J. Weber, O. Hermann, G. Coolen, A. Aghababaei – DENSO Automotive Deutschland GmbH	**A Matrix-Based Model for the Systematic Transfer of Requirements into Vehicle Modules and Functions** A. Riddoch, T. Roß, A. Twer, H. Gronau – AUDI AG C. Sieg, F. Küçükay – TU Braunschweig F. Mantwill – Helmut Schmidt Universität Hamburg	**Modular and Scalable System Integration for Electric Vehicles: The Integrated Axle Module (IAM) by BENTELER and Bosch** M. Kollmeier, U. Hammelmaier – Benteler Automobiltechnik GmbH
17:30	**Modelling of Exhaust Emissions from a PHEV Hybrid Vehicle** F. Nicolas, M. Loszka, I. Cheimariotis, V. Prevost, S. Zinola, G. Font – IFPEN S. Loussaief, M. Groisil – Siemens Industry Software	**Innovative Battery Cooling System Using Immersion Cooling for Mainstream BEV** C. Rouaud – RICARDO M. Lashbrook – M&I Materials Ltd. S. Charmer – WMG, University of Warwick	**Ultra-Low NOx Emissions with Close-Coupled Emission Control System on a Heavy-Duty Truck Application** P. Mendoza, J. Demuynck, D. Bosteels – AECC aisbl T. Wilkes, L. Robb, P. Recker – FEV Europe GmbH	**Participatory Development of an Inter-Age Mobile Station- A Real-Lab Appoach in a Residential Neighbourhood in Zwickau.** P. Ziegert, T. Teich, T. Neumann, D. Kretz, S. Junghans – Westsächsische Hochschule Zwickau E. Höhne, S. Leonhardt – Stadt Zwickau	**Impact of Tyre Modelling on Vehicle Soiling** D. Mutlyashki, T. Linden – 3DS

30. Aachen Colloquium Sustainable Mobility

Technical Presentations Program Wednesday, October 6th, 2021 Session 1

	Session Chair Univ.-Prof. Dr.-Ing. Stefan Pischinger VKA, RWTH Aachen University	Session Chair Prof. Dr. Christian Beidl vkm, TU Darmstadt	Session Chair Dietmar Goericke FVV e.V.	Session Chair Prof. Dr. Jakob Andert VKA, RWTH Aachen University	Session Chair Prof. Dr. Verena Nitsch IAW, RWTH Aachen University
	Hybrid & Range-Extender-Concepts	**Application of Alternative Fuels**	**Reports from FVV-Projects**	**Electric Motors**	**HMI & User Experience**
	Europa	**Berlin**	**Lissabon**	**Brüssel**	**K1 Aachen**
08:30	**The Fourth Generation Plug-In Hybrids Drives at Mercedes-Benz. An Important Milestone on the Road to Transformation** M. Klöpfer – Mercedes-Benz AG	**Prediction and Simulation of Cold Start Emission Behavior using eFuels** J. Villforth, A. C. Kulzer, H.-P. Deeg – Dr. Ing. h.c. F. Porsche AG M. Bargende – Universität Stuttgart	**Low-Temperature NOx Reduction by H2 in the Exhaust of Diesel Engines** S. Kureti, E. Eßer – TU Freiberg P. Eilts, L. Heckemüller – TU Braunschweig T. Morawietz, Schwan Hosseiny, A. Friedrich – DLR Stuttgart	**Design Aspects of Electric Traction Drives Using the Example of an 800 V System** C. Carstensen, C. Neuhaus, M. Heger – paragon electrodrive GmbH	**Human-Machine-Interaction Safety of Level 2 Systems: Development of a Performance-Based Test and Assessment Procedure** A. Wiggerich – Bundesanstalt für Straßenwesen (BASt)
09:00	**Hybrid BEV - A One Platform Solution for Future Passenger Cars** T. Uhlmann, N. Alt, C. Sahr, M. Thewes, A. Balazs, D. Lückmann, C. Kürten, T. Vosshall, A. Müller, M. Uebbing – FEV Europe GmbH	**BorgWarner's Injection System Solutions for Natural Gas and Hydrogen** G. Hoffmann, G. Dober, L. Doradoux, G. Meissonnier, W. Piock, C. Cardon T. Williams– BorgWarner Inc.	**ICE2025+: Ultimate System Efficiency** C. Wouters, S. Pischinger, – VKA, RWTH Aachen University A. Kuznik, C. Beidl – TU Darmstadt F. Negüs, M. Bargende – University of Stuttgard E. Wenz, P. Eilts– TU Braunschweig	**Active Thermal Field Weakening – A new Degree of Freedom to Increase E-Motor Efficiency** K. Herold, R. Beykirch, A. Krings, F. Klute, J. Maiterth – FEV Europe GmbH A. Wahl, A. I. Ramones, C. Monissen, J. Andert – VKA, RWTH Aachen University	**Display of Range Changes in Electric Trucks: HMI Concept Evaluation in a Virtual Reality Simulator Study** A.-L. Köhler, P. Dautzenberg, P. Westerkamp, G. Voß, S. Ladwig – ika, RWTH Aachen University F. Niehaus – Daimler Truck AG
09:30	**The SYTECH Engine Family - Analysis, Testing, Market Applications and Production Planning** R. Tamba, G. Fountain, M. Kavarnos, J. Psonis – SYTECH L. Yang – SYTECH Powertrain Technologies Co. Ltd.	**Effects of Different Low Carbon Fuels on Performance and Emissions of Compression Ignition Engines** F. C. Pesce; A. Vassallo – PUNCH Torino S.p.A. R. P. Durret, M. A. Potter – GM R&D P. Gaillard, V. Gordillo – Aramco Overseas	**Cathode Air Quality Requirements for LT-PEM Fuel Cells** J. Scholta, T. Wagner, M. A. Schmid, V. Valter –ZSW	**Optimizing Electric Motor Controls with Dynamic Motor Drive** Z. Chen, P. Carvell, A. Tripathi, M. Younkins, Z. Islam, S. Leng, A. Singh, A. Arvantis, A. Phillips – Tula Technology	**Efficient Warning Systems: Effects of the Proximity of Audio Warnings on Driving Behavior** J. Hogema – TNO

30. Aachen Colloquium Sustainable Mobility

Technical Presentations Program Wednesday, October 6th, 2021 Session 2

	Session Chair Peter Eilts TU Braunschweig	Session Chair Dirk Adamczyk, ZF Friedrichshafen AG	Session Chair Prof. Dr. Bernhard Geringer TU Wien	Session Chair Prof. Dr. Dieter Moormann FSD, RWTH Aachen University	Session Chair Dr. Norbert W. Alt FEV Group GmbH
	New Engine Technologies	**Automotive Strategy Concepts II**	**Fuel Cells II**	**Verification & Validation of Automated Driving**	**Power Electronics**
	Europa	**Berlin**	**Lissabon**	**Brüssel**	**K1 Aachen**
11:00	**Weight Reduction and Functional Improvement of Future Combustion Engines with Additive Manufacturing and Composite Materials** R. Bey, D. van der Put, R. Jans – FEV Europe GmbH, C. Kayacan, N. Büchau – VKA, RWTH Aachen University	**Battery vs. Fuel Cell** W. Bernhart, M. Baum, C.-S. Ernst – Roland Berger GmbH	**The Air Pathway of a Fuel Cell: Key to Durability** P. Geskes, S. Biba, M. Baumann, M. Berger – MAHLE Filtersysteme GmbH	**Waymo Safety Assurance** T. Victor – Waymo LLC	**400 V Powerelectronic for Highest Efficiency Demands** G. Rösel, S. Baensch, A. Reich, P. Moenius, M. Toens, N. Daun, F. Meyer, R. Weber – Vitesco Technologies GmbH
11:30	**Development of the Second-Generation VC-TURBO, KR15DDT Engine** Y. Tsuchiya, K. Matsuoka, S. Kiga, N. Hiraki, Y. Tanaka – Nissan Motor Co., Ltd.	**Strategies for the Electrification of Commercial Vehicles** C. Foltz, J. Neuhausen, F. Andre, A. Wild – PwC Strategy& (Germany) GmbH	**Simulation-Driven PEM Fuel Cell Compressor Design** J. Klütsch – VKA, RWTH Aachen University M. Walters, D. Lückmann, A. Schloßhauer – FEV Europe GmbH	**Positive Risk Balance as a Maxim for a Safety Oriented Development of Automated Driving** N. Kauffmann, F. Fahrenkrog, L. Drees, F. Raisch – BMW Group	**Analysis and Active Mitigation of Fatigue in Power Electronic Inverters** C. van der Broeck – FEV Europe GmbH
12:00	**Research on Swirl Induced Lean Spark Assisted Compression Ignition of Gasoline** S. Jian, J. Xinghong, Z. Yujia, L. Haipeng, G. Dingwei, Y. Shuhau – Great Wall Motor Co., Ltd.	**Vehicle Cost Analysis for Road Vehicles until 2050** S. Kraus, J. Reul, T. Grube, D. Stolten – Forschungszentrum Jülich GmbH	**Fuel Cell for Sustainable Mobility – The Compressor as a Key Technology for Efficient and Cost Optimized Systems** S. Schnorpfeil, C. Glahn, E.Hartmann, H. Soetje – SEGULA Technologies GmbH P. Terstappen, P. Fröhlich, C. Zwyssig – Celeroton AG	**Testing for Tactical Safety of Autonomous Vehicles** H.-P. Schöner – IFO-Consulting J. Antona-Makoshi – Japan Automobile Research Institute JARA	**DENSOs Novel Development Approach for Power Electronics and Controllers** R. Klink, D. Heintges, S. Aleff – DENSO AUTOMOTIVE Deutschland GmbH R. Scheer, J. Andert – VKA, RWTH Aachen University
12:30	**Additive Manufacturing of High-performance Powertrain Components** F. Ickinger, M. Klampfl – Dr. Ing. h. c. F. Porsche AG V. Schall, D. Abele – Mahle International GmbH	**Accelerate R&D Transformation: An Approach to Close the Engineering Skill Gap** P. Glusk, A. Nase, D. Hußmann, D. Kapur, A. Pantaleo – FEV Consulting GmbH M. Liccardo – Iveco V. Zwicky – CNH Industrial	**Predictive and Heat-Managed Operating Strategy for a Fuel Cell Electric Vehicle** M. Pietruck, C. Massonet, D. Backes, L. Eckstein – ika, RWTH Aachen University	**A Needle in a Haystack – How to Derive Relevant Scenarios for Testing Automated Driving Systems in Urban Areas** N. Weber – Opel Automobile GmbH C. Thiem – Opel Automobile, Stellantis U. Konigorski – TU Darmstadt	**Wide-Bandgap SiC Semiconductors – Advantages and Limitations in EV Drive Applications** M. Schubert – Leadrive Technology Germany GmbH Y. Xia, J. Shen – Leadrive Technology

30. AACHEN COLLOQUIUM SUSTAINABLE MOBILITY

Technical Presentations Program Wednesday, October 6th, 2021 Session 3

	Europa	Berlin	Lissabon	Brüssel	K1 Aachen
	Session Chair Prof. Dr. Helmut Eichlseder TU Graz	Session Chair Dr.-Ing. Manfred Crampen fka GmbH	Session Chair Dr. Rupert Niethammer Daimler Truck AG	Session Chair Univ.-Prof. Dr.-Ing. Stefan Kowalewski i11, RWTH Aachen University	Session Chair Univ.-Prof. Dr.-Ing. Tobias Kuhnimhof isb, RWTH Aachen University
	Hydrogen Combustion Engines	**48V Technologies**	**Commercial Vehicle & All-Wheel Drive Technologies**	**Data for Automated Driving**	**Mobility & Vehicle Concepts II**
14:00	**PUNCH H2-ICE & Flybrid KERS for Decarbonizing Off-Highway Applications** S. Scalabrini – PUNCH Hydrocells	**Mild Hybrid Solutions, Concepts and CO_2 Effects** G. Cariccia, S. Brandin – DAYCO EUROPE SRL A. Tonoli – Politecnico of Turin	**Heavy Duty Vehicles with Electric Drive Train and Hydrogen Fuel Cells as Range Extender** L. Börger, G. Sandkühler – FAUN Umwelttechnik GmbH & Co. KG	**Learning Delta Policies for Automated Driving via Reinforcement Learning** M. Templer, J. Kaste, P. Hochrein, B. Mennenga – Volkswagen AG	**EDAG CityBot Ecosystem: A Holistic Mobility System for the Smart City of Tomorrow** J. Barckmann – EDAG
14:30	**The Hydrogen Combustion Engine as Zero Impact Emission Powertrain Concept** V. Huth, L. Virnich, A. Pfortje – FEV Europe GmbH S. Sterlepper, S. Pischinger – VKA, RWTH Aachen University T. Wolff, A. Moreno, E. Georgiadis – Dinex A/S	**Valve Train System for P0 and P1 Hybrid Powertrains** T. Werblinski, W. Christgen, C. Schroeder, P. Traversa – Schaeffler Technologies AG & Co. KG	**Concept ELV² Design of an Electric Drive Axle for Heavy Distribution Traffic** R. Uerlich, S. Köller, L. Eckstein – ika, RWTH Aachen University C. Westphahl – WZL, RWTH Aachen University	**Highly Accurate Scenario and Reference Data for Automated Driving** L. Vater, R. Krajewski, L. Eckstein – ika, RWTH Aachen University T. Moers, J. Bock – fka GmbH	**Info Bee at UNICARagil: Support From Above for Automated Driving** N. Voget, D. Moormann – fsd, RWTH Aachen University J. Holsten, N. Siepenkötter – flyXdrive GmbH
15:00	**Predictive 0D Hydrogen Combustion Simulation** T. Ebert, R.-F. Nobile, D. Leimann – KEYOU GmbH	**Software Intensive Approach for 48 V and E-Drives** M. Uhl, R. Peck, R. Benz, C. Hölzl – SEG Automotive Germany GmbH	**GKN's Higly Efficient Components for Future AWD** J. Haupt, C. Chatenay, T. Gassmann, S. Herber – GKN	**Automated Statistical Validation using Big Data** M. Pavelka, M. Jonis, T. Kletecka, P. Krejci, J. Olšina, M. Zima – Valeo	**UrbANT – An Autonomous Delivery Robot for the Last Mile** M. Reske, M. Daher, P. Dautzenberg, M. Hötter, T. Lennartz, G. Voß, S. Ladwig, C. Brockmeier, P. Urban, L. Eckstein – ika, RWTH Aachen University C. Henke – ifu, RWTH Aachen University

30. AACHEN COLLOQUIUM SUSTAINABLE MOBILITY

Closing Plenary Session in the Europa Hall

16:00 What it Takes to Make Cars More Intelligent

Prof. Dr.
Ralf G. Herrtwich
Senior Director Automotive Software, NVIDIA, Berlin

16:20 Mobis, a Reliable Partner to Share the Future Vision of xEVs

Dr.
Byung-Ki Ahn
Senior Vice President Electric Powertrain BU, Hyundai MOBIS, Korea

16:40 Plenary Discussion

17:00 Closing Address

Univ.-Prof. Dr.-Ing.
Stefan Pischinger
Director, VKA, RWTH Aachen University

Univ.-Prof. Dr.-Ing.
Lutz Eckstein
Director, ika, RWTH Aachen University

17:15 End of Colloquium

Dirk Abel
IRT, RWTH Aachen University
d.abel@irt.rwth-aachen.de

Dirk Adamczyk
ZF Friedrichshafen AG
dirk.adamczyk@zf.com

Tim Ahrenhold
Institut für Fahrzeugtechnik
t.ahrenhold@tu-bs.de

Norbert W. Alt
FEV Group GmbH
alt@fev.com

Jakob Andert
VKA, RWTH Aachen University
andert@vka.rwth-aachen.de

Laurent Art
MAHLE Behr GmbH & Co. KG
laurent.art@mahle.com

Johannes Barckmann
EDAG
johannes.barckmann@edag.com

Michael Bargende
IFS, Universität Stuttgart
michael.bargende@fkfs.de

Michael Bassett
MAHLE Powertrain Limited
mike.bassett@mahle.com

Christian Beidl
vkm, TU Darmstadt
beidl@vkm.tu-darmstadt.de

Johannes Berking
Oliver Wyman
johannes.berking@oliverwyman.com

Wolfgang Bernhart
Roland Berger GmbH
wolfgang.bernhart@rolandberger.com

Ralf Bey
FEV Europe GmbH
bey@fev.com

Jan-Welm Biermann
RWTH Aachen
janwelm.biermann@post.rwth-aachen.de

Gunther Bismans
Punchpowertrain
gunther.bismans@punchpowertrain.com

Tobias Brinkmann
Lehr- und Forschungsgebiet für
Mechatronik in mobilen Antrieben
brinkmann@vka.rwth-aachen.de

Karsten Bronowski
XenomatiX
karsten.bronowski@xenomatix.com

Christian Burkard
fka GmbH
christian.burkard@fka.de

Alexander Busse
fka GmbH
Alexander.Busse@fka.de

Gianluca Cariccia
DAYCO EUROPE SRL
gianluca.cariccia@dayco.com

Christian Carstensen
paragon electrodrive GmbH
christian.carstensen@paragon.ag

Nicolas Champagne
TOTAL
nicolas.champagne@total.com

Fan Chang
AUDI AG
fan.chang@audi.de

Zhiqian Chen
Tula Technology
chenz@tulatech.com

Aleksandar Damyanov
ifa, Vienna University of Technology
aleksandar.damyanov@ifa.tuwien.ac.at

Mutlyashki Daniel
3DS
dmi6@3ds.com

Pia Sophie Charlotte Dautzenberg
ika, RWTH Aachen
pia.dautzenberg@ika.rwth-aachen.de

Thomas Ebert
KEYOU GmbH
thomas.ebert@keyou.de

Helmut Eichlseder
ivt, TU Graz
eichlseder@ivt.tugraz.at

Peter Eilts
ivb, TU Braunschweig
p.eilts@tu-bs.de

Andre Engelbert
HORIBA Europe GmbH
andre.engelbert@horiba.com

Christian Foltz
PwC Strategy& (Germany) GmbH
christian.foltz@strategyand.pwc.com

Thomas Form
Volkswagen Commercial Vehicles
thomas.form@volkswagen.de

Dirk Frerichs
Stellantis
dirk.frerichs@stellantis.com

Bernhard Geringer
Technische Universität Wien
bernhard.geringer@tuwien.ac.at

Peter Geskes
MAHLE Filtersysteme GmbH
peter.geskes@mahle.com

Patrick Glusk
FEV Consulting GmbH
glusk@fev.com

Kevin Godard
Symbio
kevin.godard@symbio.one

Dietmar Goericke
FVV e.V.
goericke@fvv-net.de

Jan Haupt
GKN
jan.haupt@gknautomotive.com

Tomokazu Hayashi
Toyota Motor Europe
Tomokazu.Hayashi@toyota-europe.com

Konrad Herold
FEV Europe GmbH
herold_k@fev.com

Guy Hoffmann
BorgWarner Inc.
GuHoffmann@borgwarner.com

Jeroen Hogema
TNO
jeroen.hogema@tno.nl

Michael Huber
FTG, Technische Universität Graz
michael.huber@tugraz.at

Hubert Hügle, Schaeffler Paravan Technologie GmbH & Co. KG
Hubert.Huegle@schaeffler-paravan.de

Verena Huth
FEV Europe GmbH
huth_v@fev.com

Frank Ickinger
Porsche AG
frank.ickinger@porsche.de

In-Chan Kwon
Kim & Chang
ickwon@kimchang.com

Inga Jatzkowski
fr, TU Braunschweig
jatzkowski@ifr.ing.tu-bs.de

Yang Ji
LiangDao GmbH
yang.ji@liangdao.de

Sun Jian
Great Wall Motor, China
sun_jian@tju.edu.cn

Nina Kauffmann
BMW Group
Nina.kauffmann@bmw.de

Sung-Eun Kim
Kim & Chang
sekim@Kimchang.com

Roberto Klink
DENSO AUTOMOTIVE Deutschland GmbH
r.klink@eu.denso.com

Laurent Kloeker
ika, RWTH Aachen University
laurent.kloeker@ika.rwth-aachen.de

Matthias Klöpfer
Mercedes-Benz AG
matthias.kloepfer@daimler.com

Johannes Klütsch
VKA, RWTH Aachen University
kluetsch@vka.rwth-aachen.de

Thomas Koch
IFKM, Karlsruher Institut für Technologie
thomas.a.koch@kit.edu

Christian Koehler
Strategy Engineers GmbH & Co. KG
cjk@strategyengineers.com

Anna-Lena Köhler
ika, RWTH Aachen University
anna-lena.koehler@ika.rwth-aachen.de

Marco Kollmeier
Benteler Automobiltechnik GmbH
marco.kollmeier@benteler.com

Swantje Konradt
Otto-von-Guericke-Universität Magdeburg
swantje.konradt@ovgu.de

Jens Kotte
fka GmbH
jens.kotte@fka.de

Stefan Kowalewski
i11, RWTH Aachen University
kowalewski@embedded.rwth-aachen.de

Jürgen Kraft
EKPO Fuel Cell Technologies
Juergen.Kraft@ekpo-fuelcell.com

Stefan Kraus
Forschungszentrum Jülich GmbH
st.kraus@fz-juelich.de

Julian Kreibich
FTM, TU München
kreibich@ftm.mw.tum.de

Ferit Küçükay
IfT, TU Braunschweig
f.kuecuekay@tu-bs.de

Tobias Kuhnimhof
isb, RWTH Aachen University
kuhnimhof@isb.rwth-aachen.de

Sven Kureti
IEC, TU Freiberg
kureti@iec.tu-freiberg.de

Lukas Laarmann
FH Aachen
laarmann@fh-aachen.de

Andreas Lohner
TH Köln
andreas.lohner@th-koeln.de

Stephan Maufroy
DENSO Automotive Deutschland
s.maufroy@eu.denso.com

Pablo Mendoza Villafuerte
AECC (Association for Emissions Control by Catalysts) ASIBL
pablo.mendoza-villafuerte@aecc.eu

Christoph Menne
FEV Europe GmbH
Menne@fev.com

Daniel Mertens
Mertens Motorsport
danielmertens@mertensmotorsport.com

Franz-Thomas Mitterer
MAHLE ZG Transmissions GmbH
mitterer@zg-gmbh.de

Sebastian Möller
VIRTUAL VEHICLE research GmbH
sebastian.moeller@v2c2.at

Dieter Moormann
fsd, RWTH Aachen University
moormann@fsd.rwth-aachen.de

Frédéric Nicolas
IFP Energie Nouvelles
frederic.nicolas@ifpen.fr

Rupert Niethammer
Daimler Truck AG
Rupert.Niethammer@Daimler.com

Verena Nitsch
IAW, RWTH Aachen University
v.nitsch@iaw.rwth-aachen.de

Rei Palm
Volvo Car Corporation
rei.palm@volvocars.com

Marek Pavelka
Valeo
marek.pavelka@valeo.com

Francesco C. Pesce
PUNCH Torino
francesco_concetto.pesce@punchtorino.com

Maximilian Pietruck
ika, RWTH Aachen University
maximilian.pietruck@ika.rwth-aachen.de

Vinod Rajamani
FH Dortmund
vinod.rajamani@fh-dortmund.de

Martin Reske
ika, RWTH Aachen University
martin.reske@ika.rwth-aachen.de

Angus Riddoch
Audi AG
angus.riddoch@audi.de

Dominik Rose
Corning GmbH
rosedw@corning.com

Gerd Rösel
Vitesco Technologies GmbH
gerd.roesel@vitesco.com

Hermann Rottengruber
IMS, Otto-von-Guericke Universität
hermann.rottengruber@ovgu.de

Cedric Rouaud
RICARDO
cedric.rouaud@ricardo.com

Georg Sandkühler
FAUN Umwelttechnik GmbH & Co. KG
georgsandkuehler@faun.com

Stefano Scalabrini
PUNCH Hydrocells
stefano.scalabrini@punchtorino.com

Johannes Scharf
FEV Europe GmbH
scharf@fev.com

Univ.-Prof. Dr.-Ing. Christian Schindler
ifs, RWTH Aachen University
schindler@ifs.rwth-aachen.de

Hauke Christian Schlimme
Volkswagen AG
hauke.christian.schlimme@volkswagen.de

Stephan Schnorpfeil
SEGULA Technologies GmbH
stephanjohannes.schnorpfeil@segulagrp.de

Joachim Scholta
ZSW
joachim.scholta@zsw-bw.de

Hans-Peter Schöner
IFO-Consulting
hans-peter.schoener@gmx.net

Tobias Schräder
ifr, TU Braunschweig
schraeder@ifr.ing.tu-bs.de

Michael Schubert
Leadrive Technology Germany GmbH
michael.schubert@leadrive.com

Ulrich Schulmeister
Robert Bosch GmbH
ulrich.schulmeister@de.bosch.com

Andre Seeck
Bundesanstalt für Straßenwesen
seeck@bast.de

Warren Seeley
Siemens Digital Industries Software
warren.seeley@siemens.com

Mi Yeon Song
HYUNDAI MOTORS
mysong@hyundai.com

Richard Tamba
SYTECH
ric@brtcorp.com.au

Maximilian Templer
Volkswagen AG
maximilian.templer1@volkswagen.de

Moritz Teuber
FEV Europe GmbH
teuber_m@fev.com

Joachim Trumpff
GETEC Getriebe Technik GmbH
joachim.trumpff@getec-gmbh.com

Yorihisa Tsuchiya
Nissan Motor Co., Ltd
yori-tsuchiya@mail.nissan.co.jp

Roland Uerlich
ika, RWTH Aachen University
roland.uerlich@ika.rwth-aachen.de

Marc Uhl
SEG Automotive Germany GmbH
Marc.Uhl@seg-automotive.com

Tolga Uhlmann
FEV Europe GmbH
uhlmann@fev.com

Peter Urban
ika, RWTH Aachen University
peter.urban@ika.rwth-aachen.de

Christoph van der Broeck
FEV Europe GmbH
broeck@fev.com

Pim van der Jagt
AB Dynamics Europe GmbH
pim.vanderjagt@abdynamics.com

Raphael van Kempen
ika, RWTH Aachen University
raphael.vankempen@ika.rwth-aachen.de

Gert-Jan Van Spijk
Bosch Transmission Technology
Gert-Jan.vanSpijk@nl.bosch.com

Lennart Vater
ika, RWTH Aachen University
lennart.vater@ika.rwth-aachen.de

Trent Victor
Waymo LLC
trentvictor@waymo.com

Jonas Villforth
Dr. Ing. h.c. F. Porsche AG
jonas.villforth1@porsche.de

Nicolai Voget
fsd, RWTH Aachen University
voget@fsd.rwth-aachen.de

Henning Wallentowitz
ika, RWTH Aachen University
wallentowitz@ika.rwth-aachen.de

Cynthia Webb
Paccar
Cynthia.Webb@PACCAR.com

Nico Weber
Opel Automobile GmbH
nico.weber@ext.mpsa.com

Hendrik Weber
ika, RWTH Aachen University
hendrik.weber@ika.rwth-aachen.de

Thomas Werblinski
Schaeffler Technologies AG & Co. KG
thomas.werblinski@schaeffler.com

André Wiggerich
Bundesanstalt für Straßenwesen (BASt)
wiggerich@bast.de

Jason Wong
bp
Jason.Wong1@bp.com

Christian Wouters
VKA, RWTH Aachen University
wouters@vka.rwth-aachen.de

Kohei Yoshida
Toyota Motor Corporation
kohei_yoshida@mail.toyota.co.jp

Pauline Ziegert
Westsächsische Hochschule Zwickau
pauline.ziegert.hyv@fh-zwickau.de

Marius Zubel
FEV Europe GmbH
zubel@fev.com

30. AACHEN COLLOQUIUM SUSTAINABLE MOBILITY

Your Participation

Technical Exhibition

Traditional Banquet

General Information

Outlook 2022

30. AACHEN COLLOQUIUM
SUSTAINABLE MOBILITY

Your participation at the 30th Aachen Colloquium

This year we are again planning a face-to-face event at the Eurogress Aachen. Of course, we prepared a hygiene concept and follow the latest regulations to ensure a safe visit to the event. The entire presentation program, the technical exhibition and the banquet will be part of the event. Unfortunately, the test track program will not take place this year.

In addition, we are offering online participation this year, so that participants who are affected by possible travel restrictions can also attend the Aachen Colloquium. For the online event, participants will receive access to an online platform on which the lectures will be streamed live. During the lectures and the following discussion round, questions can be asked via chat. Participants can also visit the exhibitors' pages and get in touch with them. A chat tool offers the opportunity to exchange information and network with all participants on site and online.

This digital program booklet will be continuously updated and supplemented with news. The most recent version is always available on our website.

Registration for participation in Aachen and online is possible on our website. We recommend an early registration.

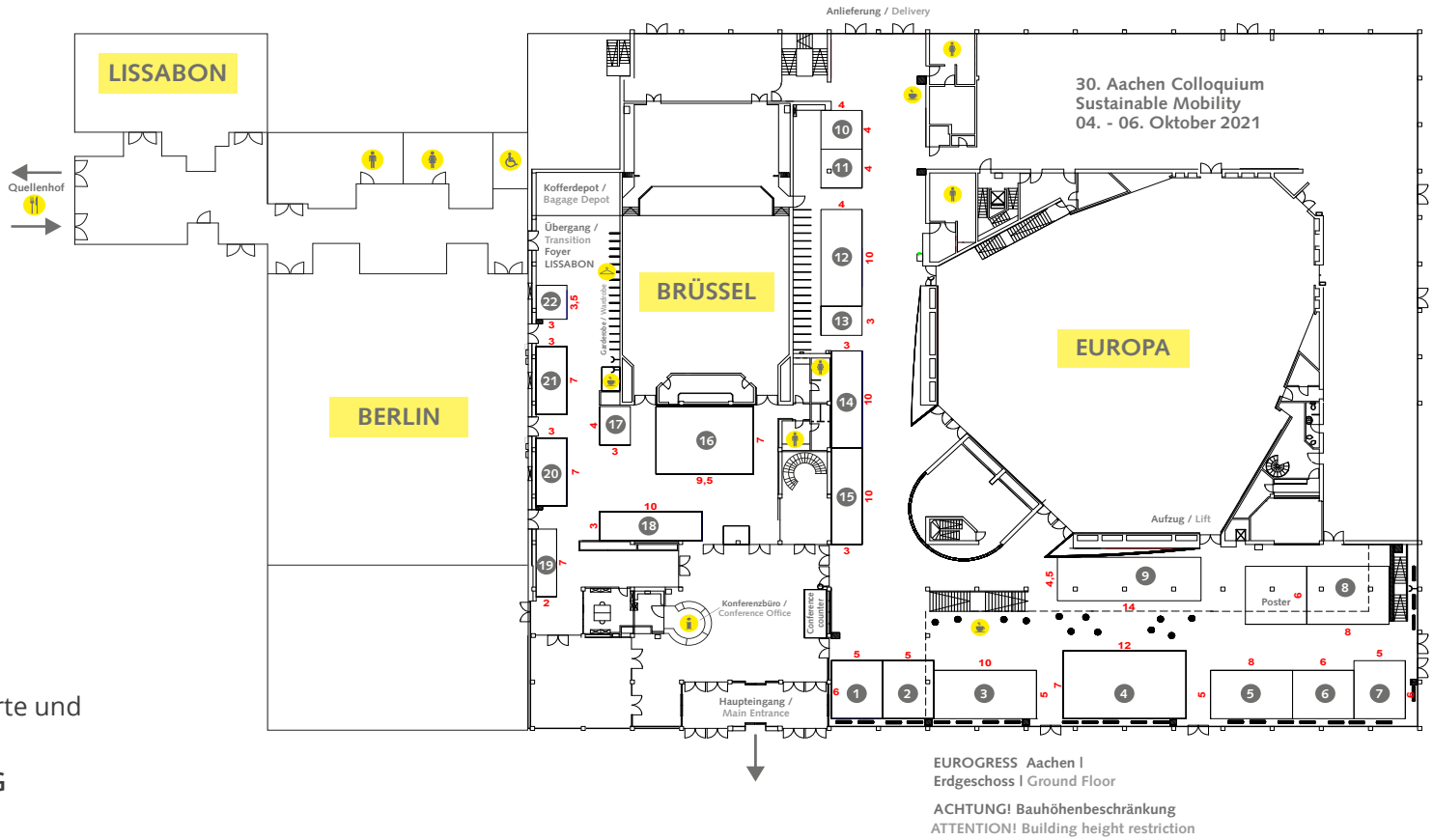
The organizing team is happy to answer your questions regarding your participation. We are looking forward to a successful Colloquium in Aachen and online!
info@aachen-colloquium.com

30. AACHEN COLLOQUIUM SUSTAINABLE MOBILITY

At this year's technical exhibition you have the opportunity to get to know the latest mobility technologies and concepts. International companies present their innovations and are available for direct contact and exchange on site.

Exhibitior List – Ground level

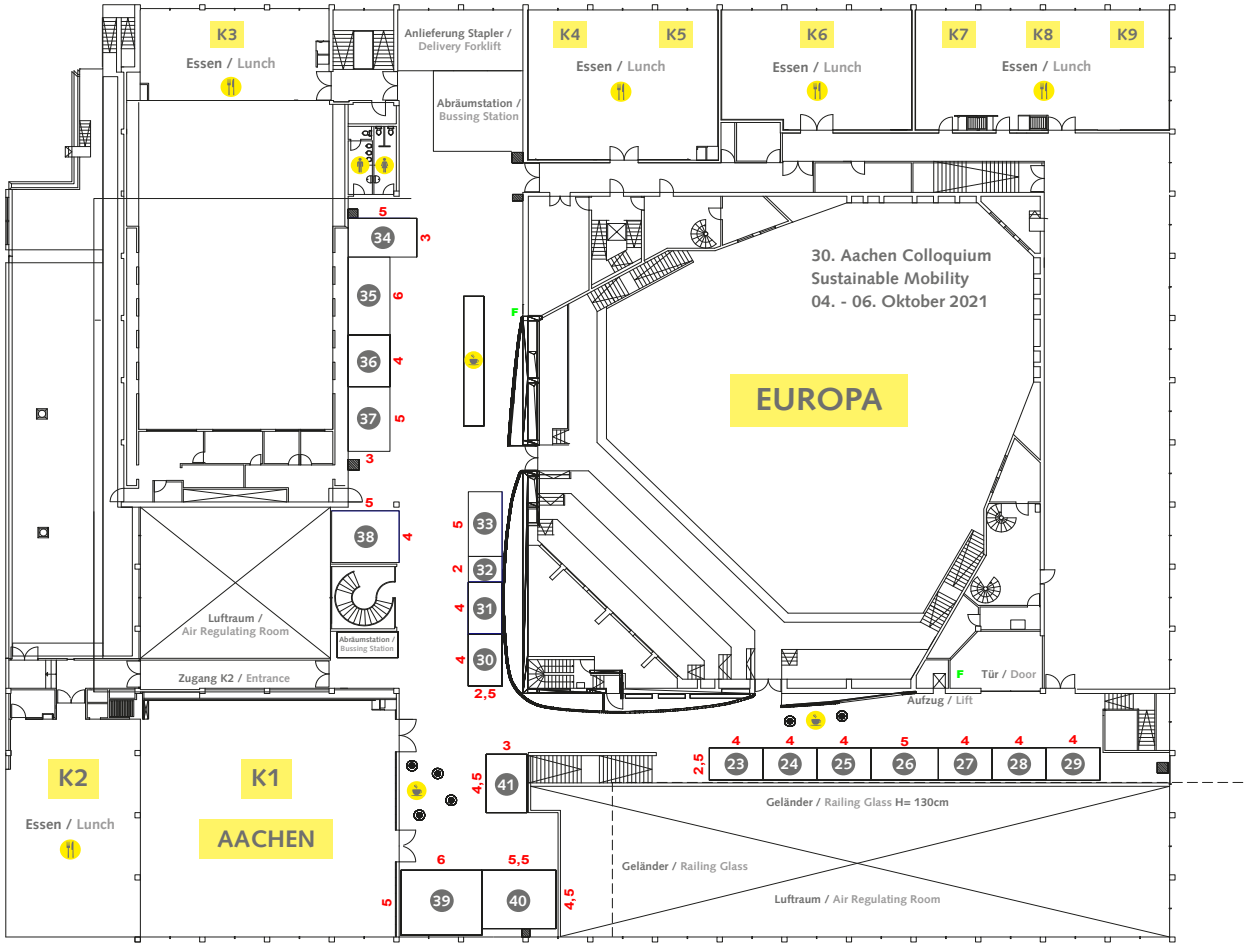
01	**DENSO AUTOMOTIVE Deutschland GmbH**
02	MAHLE GmbH
03	**Faurecia**
04	FEV Europe GmbH
05	**iwis motorsysteme GmbH & Co. KG**
06	Tenneco
07	**Ricardo**
08a	Emotors
8b	**Gates Industrial Europe**
09	Hitachi Astemo
10	**HUSCO Automotive Europe GmbH**
11	HORIBA Europe GmbH
12	**AVL List GmbH**
13	Albonair GmbH
14	**IAV**
15	ElringKlinger AG
16	**fka GmbH**
17	innocam.NRW - Kompetenznetzwerk für automatisierte und vernetzte Mobilität NRW
18	**Schaeffler Technologies AG & Co. KG**
19	Felss Group GmbH
20	**BorgWarner**
21	M.TEC ENGINEERING GmbH
22	**JB CarConcept GmbH**



30. AACHEN COLLOQUIUM SUSTAINABLE MOBILITY

Exhibitior List – 1st Floor

23	**Dassault Systemes Deutschland GmbH**
24	FH Aachen - Faculty of Aerospace Engineering
25	**ELTRO GmbH**
26	IHI Hauzer Techno Coating B.V.
27	**IHS Markit**
28	Leadrive Technology Germany GmbH
29	**Celeroton AG**
30	Freudenberg Performance Materials SE & Co. KG
31	**ETO GmbH**
32	Springer Vieweg | Springer Fachmedien Wiesbaden GmbH
33	**LEE Hydraulische Miniaturkomponenten GmbH**
34	SEGULA Technologies GmbH
35	**Garrett Motion**
36	VEMAC GmbH & Co. KG
37	**Sonceboz SA**
38	Freudenberg FST GmbH
39a	**Aurobay**
39b	t.b.a
40	**KAMAX Automotive GmbH**
41	Miba Group



EUROGRESS Aachen | Obergeschoss | First Floor

ACHTUNG! Bauhöhenbeschränkung
ATTENTION! Building height restriction

30. AACHEN COLLOQUIUM SUSTAINABLE MOBILITY

Traditional Banquet in Aachen

The traditional banquet on Tuesday evening offers culinary and musical delights in the historic buildings around the Aachener market place. Meet your business partners in a relaxed atmosphere to further deepen the impressions of the day together and use the opportunity to create new contacts.

For your agenda

Tuesday,
October, 5th 2021

7.30pm Entrance
8.00pm Start

AAC 2021

AACHEN ACOUSTICS COLLOQUIUM

12th Aachen Acoustics Colloquium

Development and Research in Automotive Acoustics

November 22 – 24, 2021

Parkhotel Quellenhof Aachen, Germany

Topics

- Acoustics of Electric Drives and Hybrid Cars
- Active Sound Design and Active Components
- Drive Train Acoustics (Engine, Gearbox, Drive Shafts)
- Infotainment in the Vehicle
- Multi-Modality – Noise and Vibrations
- Numerical Methods, Simulation, Virtual Reality
- NVH Measurement, System-Analysis, Measurement Technology
- Sound Quality, Trouble-Shooting, Sound Design
- Vehicle Acoustics (Body, Mechatronic Components, Tire Road Noise)

FEV fka HEAD acoustics IHTA RWTH AACHEN UNIVERSITY

www.aachen-acoustics-colloquium.com

30. AACHEN COLLOQUIUM SUSTAINABLE MOBILITY

Next year the Aachen Colloquium will take place for the 31st time. You are warmly invited to submit a lecture proposal on one of the main topics.You will find the submission form on our website from December 2021: www.aachener-kolloquium.de

Important Dates

Deadline for abstracts
February 2022

Notification of the authors
from April 2022

Deadline for submission of the manuscripts for the conference proceedings
July 2022

31th Aachen Colloquium Sustainable Mobility
October 10th – 12th, 2022

Main Topics for 2022

- Alternative Fuels and High Efficiency Combustion Processes
- Automated Driving (Level 3+), Databases & AI
- Battery Systems, Management & Safety
- Vehicle Electrical Systems & 48V Technologies
- Fuel Cells
- Dedicated Hybrid Engines & Transmissions
- Chassis, Vehicle Dynamics & Tire Technology
- Electric Drive Units & Electric Motors
- Energy & Thermal Management
- Driver Assistance & Connected Driving (ADAS)
- HMI & User Experience
- Sustainable Mobility Concepts (incl. Micro Mobility)
- Sustainability, LCA & Balances
- New Vehicles, Architectures & Interior Concepts
- Commercial & Offroad Vehicle Drive Technologies
- Sensors & Perception of Environment in Vehicles and Infrastructure
- Automotive Strategies
- Zero-Impact Emission Concepts

30. AACHEN COLLOQUIUM SUSTAINABLE MOBILITY

Registration

We recommend an early registration. The terms and conditions of the Aachen Kolloquium GbR are available on the event website:
https://aachener-kolloquium.de/en/terms-and-conditions-gtc.html

Procedure of Registration

1) Registration (only online via www.aachener-kolloquium.de/en)
2) Receive confirmation by e-mail
3) Wait and settle the invoice
4) Registration completion after Receipt of payment

Participation Fee

Participation in Aachen:
Participants 1050 € (plus VAT)
University members 525 € (plus VAT)

Participation online:
Participants 750 € (plus VAT)
University members 375 € (plus VAT)

Payment Delays

In accordance with the terms and conditions, the participant fees must be paid by the due date stated on the invoice and at the beginning of the event. Please contact us if you are unable to meet this requirement.

Conference Documents

Licences for single or multiple use of the complete conference proceedings as well as individual papers can only be ordered online via
www.aachener-kolloquium.de/en/conference-documents.html.

Conference Language

The lectures will be simultaneously translated into German and English. Headsets are available for free. The proceedings will be published in English only.

Conference Office

Monday, Oct. 4th, 2021	04:00pm - 07:00pm
Tuesday, Oct. 5th, 2021	07:30am - 06:00pm
Wednesday, Oct. 6th, 2021	07:30am - 05:00pm

Organizer

Aachener Kolloquium
Fahrzeug- und Motorentechnik GbR
P.O. Box 10 02 11
52002 Aachen, Germany

Scientific Management

Univ.-Prof. Dr.-Ing. Stefan Pischinger
Director VKA
RWTH Aachen University

Univ.-Prof. Dr.-Ing. Lutz Eckstein
Director ika
RWTH Aachen University

Organization

Birgit Schaefer-Hamm
Eva Kaussen
Jonas Müller
Robert Maurer
Robin Stupp
Kerstin Uhing
Janice Sievers
Michaela Wacker
Sara Portz

Contact

+49 241 8861 251 (General)
+49 241 8861 120 (Registration)
+49 241 8048 020 (Presentation Program & Technical Exhibition)
info@aachen-colloquium.com