

Graz/Spielberg, June 1-2, 2022

Electrification & All-Wheel Drive Congress

Congress Program - June 1, 2022



Venue: Seifenfabrik, Angergasse 43, 8010 Graz, Austria



Tuesday May 31, 2022 - Welcome reception

17:30 - 21:00	Registration
18:30	Out-of-the-Box Lecture: Artificial Intelligence - Will we stay smarter than robots? Dr. Boris Nikolai Konrad, Neuroscientist and Guinness World Record Holder
19:30	Exhibition & Styrian Evening with flying buffet and wine and spirits tastings by local producers Seifenfabrik, Angergasse 43, 8010 Graz, Austria
21:30	Event End

Wednesday June 1, 2022 - Congress Day 1

07:30 - 08:30	Registration	
08:30 - 10:10	Plenary: Keynotes: The Smart Powertrain: A New Era for eAWD Performance Session Chair: Klaus Lippitsch	
08:30 - 08:50	Welcome & official Opening Tom Rucker, Magna Powertrain and Provincial Government of Styria and City of Graz	
08:50 - 09:10	Keynote: The Rimac Story Matija Renić, Bugatti Rimac d.o.o.	
09:10 - 09:30	Keynote: Driving a cleaner, more sustainable world - eDrive System Optimization & Sustainability Approach Dr. Dirk Kesselgruber, GKN Automotive	
09:30 - 09:50	Keynote: Control strategies to optimize efficiency, safety and performance in EV AWD systems Dr. Michael Wagner, BorgWarner Drivetrain Systems	
09:50 - 10:10	Keynote: Power to the Wheels - Intelligent eDrives push the limits of possibility Dr. Harald Naunheimer, Magna Powertrain	
10:10 - 10:25	Short Break	
10:25 - 11:00	Panel Discussion - „The smart powertrain: a new era of eAWD performance“	
11:30 - 13:00	Forum A: Modern eAWD Concepts 1 Session Chair: Gabriel Beldie, BorgWarner	Forum B: Electrification-Specific Component Development 1 Session Chair: Professor Dr. Stefano Melzi, Politecnico di Milano
11:30 - 12:00	Ultra-compact and highly integrated coaxial 3-in-1 eDrive unit Achim Schmeink, GKN Automotive	Optimization of EV Drive Utilizing Chain Drives Matthew Crump, BorgWarner Morse Systems
12:00 - 12:30	Mercedes-AMG ePerformance - The high performance all-wheel drive hybrid Felix Diehl, Mercedes-AMG GmbH	Development of Shift Function for Clutchless Unsynchronised E-Transmission for Commercial Vehicles Christopher Kneißl, Technische Universität Graz
12:30 - 13:00	Magna eBeam: electrifying trucks and commercial vehicles without compromise Mike Dowsett, Magna Powertrain	The role of smart tyres in the EAWD segment Massimiliano Sallusti, Pirelli & C. S.p.A
13:00 - 14:00	Lunch Break	
14:00 - 15:30	Forum A: Powertrain/E&E Architecture, Operating Strategies of eAWD Vehicles Session Chair: Andreas Mair, GKN	Forum B: Simulation and Testing 1 Session Chair: Professor Dr. Karsten Stahl, Technical University Munich
14:00 - 14:30	Electric AWD in context of vehicle energy management and operating strategy development Michael Martin, Magna Steyr	AVL Excite Virtual Development of Transmissions and E-Drives Saša Bukovnik, AVL List
14:30 - 15:00	Development process of a B segment battery electric vehicle powertrain: The 500e Alberto Peña, GKN Automotive	Leverage big fleet data to enable proactive AWD control strategies Johan Brynäs, NIRA Dynamics AB
15:00 - 15:30	Comparison of All Wheel Drive Battery Electric Vehicles Architectures Mattias Magnusson, BorgWarner	Actuator Solutions Supporting Mobility Shift Aline Radimersky, Robert Bosch GmbH
15:30 - 16:00	Coffee Break	
16:00 - 17:30	Forum A: Modern eAWD Concepts 2 Session Chair: Mario Brunner, AVL	Forum B: Electrification-Specific Component Development 2 Session Chair: Professor Dr. Peter Fischer, Technical University Graz
16:00 - 16:30	High Power Cost Efficient 48V P4 Solution Christian Schmidt, AVL List	An Optimal Cooperative Brake Distribution Strategy for In-Wheel-Motors Vehicle Accounting for Electric and Friction Braking Torques Michele Vignati, Politecnico di Milano
16:30 - 17:00	GKN's highly efficient components for future allwheel drive systems Jan Haupt, GKN global	Determination of Friction and Shudder Behavior of Slip-Controlled Wet Multi-Plate Clutches Stefan Stehle, Technische Universität München
17:00 - 17:30	High Performance, Efficient and Sustainable Electric Drive Systems for Future E-mobility Dr. Hans Aulin, BorgWarner	Superior performance friction systems for multiple E-axle architectures Christoph Hagauer, Miba Frictec GmbH
17:30 - 17:45	Short Break	
17:45 - 18:30	Plenary: Closing Keynote Session Chair: Klaus Lippitsch, Magna Powertrain	
17:45 - 18:30	Rebirth of a Brand: LOTUS, 74 years of innovation	
18:30	End of the First Congress Day	
19:30	Evening Reception - Old University Graz, Hofgasse 14, 8010 Graz, Austria	

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Congress Program - June 2, 2022



Venue: Red Bull Ring, 8724 Spielberg/Knittelfeld, Austria

Thursday, June 2, 2022 - Congress Day 2 - Ride & Drives			
08:00 - 09:00	Bus Transfer from Graz to the Red Bull Ring / Spielberg		
09:30 - 10:15	Infield Experience with Special Showcars		
10:15 - 10:30	Short Break		
10:30 - 12:30	Forum A: The Traction Circle is Still Valid Advanced Vehicle Dynamics Session Chair: Walter Sackl, Magna Powertrain	Forum B: Simulation and Testing 2 Session Chair: Carsten Bänder, Magna Powertrain	Meet the Speaker
10:30 - 11:00	Driver Steering Torque Feeling due to Torque Vectoring Control Professor Dr. Stefano Melzi, Politecnico di Milano	Achieving Validation with Simulations and the Effect on Project Development Planning Dr. Michael Leighton, AVL List	1) BorgWarner Drivetrain Systems, M. Crump 2) GKN Automotive, A. Schmeink 3) Magna, M. Martin 4) AVL, S. Bukovnik 5) Universities, C. Kneißl/TU Graz
11:00 - 11:30	Lateral Dynamic Requirements of Electrical Torque-Vectoring Systems Nils Gruner, Volkswagen	A Holistic, multi-objective eDrive System Optimization Approach Konstantin Huber, Magna Powertrain	1) BorgWarner Drivetrain Systems, M. Magnusson 2) GKN Automotive, A. Peña 3) Magna, M. Dowsett 4) AVL, C. Schmidt 5) Universities, S. Stehle/TU Munich
11:30 - 12:00	Vehicle Motion Control by Advanced Wheel Torque Management How Magna is Improving Driveability by Cross-Domain Products Simon Kaimer, Magna Powertrain	Advantages of Seamless 2-Speed eAxle Integrated with Torque Sensor and Multifunctional Shifting Device Dr. Jens Dörner, NSK	1) BorgWarner Drivetrain Systems, Dr. H. Aulin 2) GKN Automotive, J. Haupt 3) Magna, K. Huber 4) AVL, Dr. M. Leighton 5) M. Vignati/Politecnico Milano
12:00 - 12:30		Architecture and Testing of the Speed4E Hyper-High-Speed Electromechanical Powertrain Lukas Pointner-Gabriel, Technische Universität München	
11:30 - 12:30	Lunch Break		
12:30 - 14:30	Forum A: The Traction Circle is Still Valid Advanced Vehicle Dynamics Session Chair: Walter Sackl, Magna Powertrain	Forum B: Simulation and Testing 2 Session Chair: Ron Frawley, Magna Powertrain	
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14:00 - 14:30		Architecture and Testing of the Speed4E Hyper-High-Speed Electromechanical Powertrain Lukas Pointner-Gabriel, Technische Universität München	
14:30 ~ 16:00	Plenary: Closing Keynote Session Chair: Klaus Lippitsch, Magna Powertrain		
14:30 - 14:45	Closing Words Jürgen Schranz, Magna Powertrain		
~ 16:00	Official end of the congress		

Ride & Drives at Driving Center/Offroad/Public Road (Break 12:00 - 13:00) Pit stop at Race Track

Shuttle Busses will run between Graz & Spielberg and Spielberg & Graz Airport / Downtown for the convenience of our participants

08:00	Bus Transfer from Graz to the Red Bull Ring/Spielberg
13:15 / Bus 1	
14:15 / Bus 2	
15:15 / Bus 3	Transfer back to Graz airport / downtown
16:15 / Bus 4	

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