IRSA 2025 PROGRAM

5. International Railway Symposium Aachen

19. – 20. November 2025 at Eurogress, Aachen

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ORGANIZER

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Research Center Railways

RWTH AACHEN UNIVERSITY

19.11.2025

BRUSSELS HALL

09.30 – 09.45	**Opening Remarks** *Prof. Nils Nießen, Institute of Transport Science at RWTH Aachen University*
09.45 – 10.00	**Welcoming words** *Oliver Krischer, Ministry of Environment, Nature and Transport of North Rhine-Westphalia*
10.00 – 10.30	**Keynote** *Prof. Eckhard Roll, Deutsches Zentrum für Schienenverkehrsforschung beim Eisenbahn-Bundesamt*
10.30 – 11.00	Coffee Break
11.00 – 11.30	**Keynote** *Marcel de la Haye, CER Technical Director*
11.30 – 12.00	**Keynote** *Steffen Bobsien, Vice President Locomotives & Passenger Coaches, Siemens Mobility GmbH*
12.00 – 13.30	Lunch Break

ROOM K1

13.30 – 13.55	Capacity I	**Digitalization in railway capacity management: challenges and expectations** *Emanuel von Heel, quattron GmbH*
13.55 – 14.20	Capacity I	**Service-based infrastructure adaptation to optimize planning processes** *Dr. Alexander Kuckelberg, quattron GmbH*
14.20 – 14.45	Capacity I	**Approximation of service systems to determine the performance of railway infrastructure in stations** *Tamme Emunds, Institute of Transport Science at RWTH Aachen University*
14.45 – 15.10	Capacity I	**Capacity and Quality Assessment of Track Groups in Railway Nodes (E)** *Sirikorn Satitrattanashewin, Technical University Dresden*
15.10 – 15.40		Coffee Break
15.40 – 16.05	Railway platforms	**Framework conditions for the implementation of platform barriers and access controls in the German mainline railway system** *Florian Horn, DB InfraGO*
16.05 – 16.30	Railway platforms	**The height difference between the vehicle platform. Boarding situations in German regional rail transport** *Sebastian Herwartz-Polster, German Aerospace Center*
16.30 – 16.50		Coffee to go
16.50 – 17.15	Freight traffic	**Modular principle for sustainable rail freight transport in rural and regional areas** *Prof. Manfred Enning, FH Aachen*
17.15 – 17.40	Freight traffic	**DAK: Quantum leap for rail freight transport or technological dead end** *Dr. Kurt Fuchs, Lawyer Dr. Kurt Fuchs*
19.00		Dinner

(E) lecture in english

ROOM K2

13.30 – 13.55	Condition monitoring	**Development of a condition monitoring system for axles with independent wheels** *Dr. Sven Jenne, Gutehoffnungshütte Radsatz GmbH*
13.55 – 14.20	Condition monitoring	**Efficient EN 50318-compliant simulation model of the interaction between pantographs and overhead catenary line** *Matthias Zelinka, PJ Monitoring GmbH*
14.20 – 14.45	Condition monitoring	**Development of an integrated digital twin based on open data for track maintenance using smartphone sensor technology** *Philipp Leibner, Institute for Rail Vehicles at RWTH Aachen University*
14.45 – 15.10	Condition monitoring	**Wheel/rail adhesion-based support of automated train operation (ATO) (E)** *Dr. Marcus Fischer, Knorr-Bremse Systeme für Schienenfahrzeuge GmbH*
15.10 – 15.40		Coffee Break
15.40 – 16.05	Assisted and automated driving	**Pre-development of camera-based on-sight ATO functions – railhead and switch position detection as well as infrastructure-side Support of clearance gauge monitoring for shunted units a scaled model** *Tobias Hofmeier, Karlsruhe Institute of Technology*
16.05 – 16.30	Assisted and automated driving	**Hybrid 5G real-time transmission in the siding railway in the context of SAMIRA2.0** *Sam Münchow, IKADO GmbH*
16.30 – 16.50		Coffee to go
16.50 – 17.15	Wheel-rail interaction	**Presentation of a new wheel shape to reduce thermally induced residual tensile stresses and their possible consequences in the rim of block-braked wheels** *Sören Barteldes, Bochumer Verein Verkehrstechnik*
17.15 – 17.40	Wheel-rail interaction	**Contactless measurement of wheel-rail forces on rail vehicles** *Jakob Moder, Zyglox GmbH*
19.00		Dinner

ROOM K3

13.30 – 13.55	Timetable analysis and improvement	**Automated Delay Detection in Railway Networks** *Thomas Graffagnino, Swiss Federal Railways (SFR)* **(E)**
13.55 – 14.20	Timetable analysis and improvement	**Estimation of Train Dwell Times based on Data Driven Approach (E)** *Takuya Kaneko, Tokyo Metro Co Ltd*
14.20 – 14.45	Timetable analysis and improvement	**Improving Timetables by combined Optimization of Buffer Times and Supplements (E)** *Burkhard Franke, trafIT solutions gmbh*
14.45 – 15.10	Timetable analysis and improvement	**Improving operational quality through global optimization of reserve and buffer times (E)** *Dr. Frédéric Weymann, quattron GmbH*
15.10 – 15.40		Coffee Break
15.40 – 16.05	Ride comfort	**The sensitivity of simulated ride comfort of the tail coach in a high-speed EMU to unsteady aerodynamic loading and variation in suspension parameters (E)** *Guozhen Jing, CRRC CHANGCHUN GERMANY RailTech*
16.05 – 16.30	Ride comfort	**Active secondary vertical suspension using low power actuator and variable damper for railway vehicles (E)** *Dr. Yoshiki Sugahara, Railway Technical Research Institute*
16.30 – 16.50		Coffee to go
16.50 – 17.15	Climate Conditions	**Rail resilience to climate change. Impact of extreme weather events on the European rail system (E)** *Idriss Pagand and Eva Valeri, European Union Agency for Railways (ERA)*
17.15 – 17.40	Condition Monitoring	**Landing data science and AI in condition monitoring for bogie components and track (E)** *Dr. Yan Niu, Alstom Transportation Germany GmbH*
19.00		Dinner

(E) lecture in english

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ROOM K1

09.00 – 09.25	Vehicle and chassis	**Optimization of a self-steering single-axle chassis using a genetic algorithm** *Stefan Lipinski, Institute for Rail Vehicles at RWTH Aachen University*
09.25 – 09.50	Vehicle and chassis	**Engineering challenges for the redesign/refurbishment of the Cologne S-Bahn (BR422 and BR423)** *Martin Kuhlins und Leon Beckmann, DB Systemtechnik GmbH*
09.50 – 10.15	Vehicle and chassis	**Digital maintenance regulations at Deutsche Bahn, passenger transport** *Margit Olbrich, DB Systemtechnik GmbH*
10.15 – 10.45		Coffee Break
10.45 – 11.10	Saftey + Level Crossing	**Concepts for off-grid energy supply for alternative level crossing protection** *Carolin Lang, Karlsruhe Institute of Technology*
11.10 – 11.35	Saftey + Level Crossing	**Security management: risk-oriented assessment of physical and cyber attacks on the rail system** *Dr. Matthias Jelinski, IVE - Ingenieurgesellschaft für Verkehrs- und Eisenbahnwesen mbH*
11.35 – 12.00	Saftey + Level Crossing	**Development and field experiment of the safety assisting system for passive level crossings (E)** *Dr. Shota Miyoshi, National Traffic Safety and Environment Laboratory*
12.00 – 13.00		Lunch Break

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(E) lecture in english

ROOM K1

13.00 – 13.25	Technical presentation	**tba** *N.N.*
13.25 – 13.50	Technical presentation	**tba** *N.N.*
13.50 – 14.15	Technical presentation	**tba** *N.N.*
14.15 – 14.25		**Closing words** *Prof. Raphael Pfaff, Institute for Rail Vehicles at RWTH Aachen University*
14.25		End

ROOM K2

09.00 – 09.25	Infrastructure status I	**AI applications for regular monitoring of the railway infrastructure** *Dr. Kira Zschiesche, Fraunhofer Institute for Physical Measurement Techniques IPM*
09.25 – 09.50	Infrastructure status I	**Quantification of the interactions of maintenance and renewal measures on the condition of the rail network** *Felix Lampe, DB InfraGO AG*
09.50 – 10.15	Infrastructure status I	**Determining requirements of DB InfraGO AG – opportunities and challenges of integrating the condition** *Sebastian Ude, DB InfraGO AG*
10.15 – 10.45		Coffee Break
10.45 – 11.10	Data and planning	**LeiDa-D – Versioned, centralized data storage for basic and infrastructure data** *Dennis Götz, quattron GmbH*
11.10 – 11.35	Data and planning	**Traffic Management System (TMS) in Switzerland – New challenges in safety and reliability** *Ernst Zollinger, Enotrac AG*
11.35 – 12.00	Data and planning	**Optimization of operational planning processes at DB Long-Distance to implement the requirements of Annex VII** *Danny Rohrberg und Heiko Güthenke, DB Fernverkehr AG*
12.00 – 13.00		Lunch Break
13.00 – 13.25	Vehicle technology	**Load-dependent influences on rail damage mechanisms – Methodology for wear assessment based on empirical data (E)** *Dieter Knabl, Technical University Graz*
13.25 – 13.50	Vehicle technology	**Proposal of Reliable Onboard Train Localisation Method by Smart Integration of RTK-GNSS, IMU, and Multi One-dimensional LiDAR Sensors (E)** *Kensuke Nagai, The University of Tokyo*
13.50 – 14.15	Vehicle technology	**Small, Lightweight, Driverless Rail Vehicle for Rural Areas in Europe (E)** *Dr. Jens König, German Aerospace Center*
14.15 – 14.25		**Closing words**
14.25		End

ROOM K3

09.00 – 09.25	Railway Capacity II	**Targeted infrastructure investments for more efficient use of railway capacity by different market segments (E)** *Harald Buschbacher, SCHIG mbH*
09.25 – 09.50	Railway Capacity II	**Evaluating network capacity effects of ETCS L2 in a timetable-based capacity assessment model (E)** *Cédric Kekes, Technical University Dresden*
09.50 – 10.15	Railway Capacity II	**Infrastructure Capacity Evaluation of Modular Freight Train Platoon under ETCS Level 2 Signalling System (E)** *Dr. Zheng NING, Delft University of Technology*
10.15 – 10.45		Coffee Break
10.45 – 11.10	Infrastructure condition II	**Causal Discovery for Railway Health Condition Monitoring – A Case Study (E)** *Dr. Thorsten Neumann, German Aerospace Center*
11.10 – 11.35	Infrastructure condition II	**Monitoring Data Mapping for Infrastructure-oriented Visualization of Railway Track Condition (E)** *Laura Tatiana Rodríguez Bayona, University of Stuttgart*
11.35 – 12.00	Infrastructure condition II	**Decision support for tamping activities – A predictive maintenance approach (E)** *Dr. Ute Gläser, Institute for Transportation and Infrastructure Systems (IVI)*
12.00 – 13.00		Lunch Break
13.00 – 13.25	Railway Operations	**A SUMO-Based Study of Urban Rail Operations on Frankfurt's Corridor A (E)** *Paula von der Heide,TU Braunschweig*
13.25 – 13.50	Railway Operations	**Modelling Rail Carrier Assignment and Relocation in Multimodal Pod System (E)** *Nina D. Versluis, Delft University of Technology*
13.50 – 14.15	Railway Operations	**Impact of incorrect and incomplete transport statistical data (E)** *Wolf-Dietrich Geitz, Railistics GmbH*
14.15 – 14.25		**Closing words**
14.25		End

(E) lecture in english

IRSA 2025 – SESSION-CHAIRS

19. November 2025

Capacity 1	*Dr. Christian Meirich, German Aerospace Center*
Railway Platforms	*Prof. Dr. Nils Nießen, RWTH Aachen University*
Freight Traffic	*Prof. Dr. Nils Nießen, RWTH Aachen University*
Condition Monitoring	*Prof. Dr. Roman Schaal, TH Nürnberg*
Assisted and automated driving	*Prof. Dr. Christian Schindler*
Wheel-rail interaction	*Prof. Dr. Christian Schindler*
Timetable analysis and improvement	*Dr. Gabrio Caimi, SBB*
Ride comfort	*Prof. Dr. Raphael Pfaff, RWTH Aachen University*
Clima Conditions	*Prof. Dr. Raphael Pfaff, RWTH Aachen University*
Condition Monitoring	*Prof. Dr. Raphael Pfaff, RWTH Aachen University*

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Vehicle and chassis	*Heiko Mannsbarth, Alstom*
Saftey + Level Crossing	*N.N., (tba)*
Technical presentation	*Dr. Christoph Gralla*
Infrastructure status I	*Dr. Werner Weigand, DB Netz AG*
Data and planning	*Dr. Alexander Kuckelberg, quattron GmbH*
Vehicle technology	*Dr. Lars Müller, DB Systemtechnik*
Railway Capacity II	*Prof. Dr. Norman Weik, TU Munich*
Infrastructure condition II	*Dr. Björn Dickenbrok, DB Netz AG*
Railway Operations	*Prof. Dr. Norio Tomii, Nihon University*