

# IRSA 2023 PROGRAMM



## 4. International Railway Symposium Aachen

22. bis 23. November 2023 im Eurogress, Aachen

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VERANSTALTER



PARTNER





22.11.2023

## BRUSSELS HALL

- 09.30**      **Opening Remarks**  
*Prof. Dr. Christian Schindler, RWTH Aachen*  
*Manuel Bosch, DVV Media Group GmbH*
- 
- 9.45**      **Prospects for rail transport in Germany and the political framework**  
*Prof. Dr. Corinna Salander, Bundesministerium für Digitales und Verkehr (BMDV)*
- 
- 10.10**     **Creativity – Innovative power – Value creation – How engineers shape the future**  
*Prof. Dr. Lutz Eckstein, VDI e.V.*
- 
- 10.30**     *Coffee Break*
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- 11.00**     **All signals point to the future!**  
**Deutsche Bahn's long-distance transport strategy**  
*Dr. Thomas Hempe, DB Fernverkehr AG*
- 
- 11.30**     **Less complexity – more rail**  
*Daniel Scherrer, SBB CFF FFS*
- 
- 12.15**     *Lunch*

## ROOM K1 (GERMAN TALKS, SIMULTANEOUS TRANSLATION)

13.30 – 13.55	Future of Rail Transport	<b>Deutschland-Takt: Sprinting and being on time – is that possible?</b> <i>Dr. Felix Berschin, Ramboll Deutschland GmbH</i>
13.55 – 14.20	Future of Rail Transport	<b>Artificial intelligence in rail applications – new attack vectors and protective mechanisms</b> <i>Jan Malte Hilgefort, ESE Engineering und Software-Entwicklung GmbH</i>
14.20 – 14.45	Future of Rail Transport	<b>Reversing under ETCS L2 in commercial operation</b> <i>Dr. David Grabowski, SBB AG</i>
14.45		Coffee Break
15.15 – 15.40	Timetable Design	<b>A new approach to creating robust, low-disruption operational concepts in highly Congested networks</b> <i>Giorgio Medeossi, Trenolab Srl</i>
15.40 – 16.05	Timetable Design	<b>Supplementing track capacity planning processes with railway operations science approaches</b> <i>Dr. Alexander Kuckelberg, VIA Consulting &amp; Development GmbH</i>
16.05 – 16.30	Timetable Design	<b>Rolling week-by-week construction planning from the perspective of an infrastructure manager and a railway undertaking - effects and advantages from the perspective of DB Netz and DB Fernverkehr</b> <i>Tobias Mohn, DB Fernverkehr AG</i> <i>Dr. Daniel Pöhle, DB Netz AG</i>
16.30		Coffee Break
17.00 – 17.25	Wheel-Rail II	<b>Practical wheel wear forecast for the series 423 – the digital twin as an approach to information value creation</b> <i>Sebastian Wilbrecht, Technische Universität Dresden</i>
17.25 – 17.50	Wheel-Rail II	<b>Investigations of friction behavior in the wheel-rail contact when using railhead conditioning agents</b> <i>Roland Weinhart, Lubricant Consult GmbH</i>
19.00		Dinner Reception

## ROOM K2 (GERMAN TALKS, SIMULTANEOUS TRANSLATION)

13.30–13.55	Automation	<b>Digital monitoring and automation in rail freight transport</b> <i>Günter Petschnig, PJ Monitoring GmbH</i>
13.55–14.20	Automation	<b>Operational Impacts of ETCS and ATO using the Example of a non-federally owned railway</b> <i>Frederic Raths, Rurtalbahn GmbH</i>
14.20–14.45	Automation	<b>The Assisted Brake Test as a Bridge to Full Automation of Rail Freight Transport</b> <i>Prof. Dr. Manfred Enning, FH Aachen</i> <i>Rudolf Hilgers, Funktionaler Gutachter und Eisenbahnbetriebsleiter</i>
14.45		Coffee Break
15.15–15.40	Energy Supply	<b>Innovative Rail Energy Supply for the rapid electrification of the Eifel Routes</b> <i>Jan Pape, Technische Universität Dresden</i>
15.40–16.05	Energy Supply	<b>Use of Liquid Organic Hydrogen Carriers in Rail Vehicles</b> <i>Dr. Julian Kadar, Helmholtz-Institut Erlangen-Nürnberg für Erneuerbare Energien (HI ERN)</i>
16.05–16.30	Energy Supply	<b>HYPP (Hydrogen Power Pack) – A second life with a green heart</b> <i>Gregor Reitz, ISATEC GmbH</i>
16.30		Coffee Break
17.00–17.25	Vehicle Technology I	<b>Track maintenance vehicle on the path to autonomy</b> <i>Dr. Bernhard Wilhelm Lichtberger, System7 railsupport GmbH</i>
17.25–17.50	Vehicle Technology I	<b>Intelligent primary spring level – from condition monitoring of system-critical components to predictive maintenance concepts</b> <i>Dr. Bernhard Kager, Engenium GmbH</i>
19.00		Dinner Reception

## ROOM K4+5

13.30–13.55	Infrastructure + Operation	<b>Bane NOR's utilisation of network Total condition grade for renewal planning</b> <i>Thomas Benjamin Frogner, Bane NOR</i>
13.55–14.20	Infrastructure + Operation	<b>ACHILLES: handling uncertainty in railway earthworks maintenance and renewals</b> <i>Dr. John Armstrong, University of Southampton</i>
14.20–14.45	Infrastructure + Operation	<b>Analysis of Railway Operation Efficiency: A Case Study of Mixed Operation Services on Thailand's Southern Line</b> <i>Dr. Waessara Weerawat, Mahidol University</i>
14.45		Coffee Break
15.15–15.40	Wheel Rail I	<b>Reduction of wheel and rail wear by application of actuators in the primary suspension of an articulated tram</b> <i>Jan Vrba, Czech Technical University (CTU)</i>
15.40–16.05	Wheel Rail I	<b>Impact prediction of higher operating speeds on wheel wear of a high-speed train</b> <i>Dr. Xin Ding, CRRC CHANGCHUN Germany RailTech GmbH</i>
16.05–16.30	Wheel Rail I	<b>A wheel-rail electrical contact experiment at the laboratory scale</b> <i>Luna Ammar Haydar, Centralesupelec</i>
16.30		Coffee Break
17.00–17.25	Mobility Management	<b>Impact of access to rail transit on mode choice in rural regions of Germany</b> <i>Fabian Kühnel, ISB RWTH Aachen</i>
17.25–17.50	Mobility Management	<b>Optimising service networks for rail freight transport between China and Europe</b> <i>Jing Shan, TU Dresden</i>
19.00		Dinner Reception



23.11.2023

## ROOM K1 (GERMAN TALKS, SIMULTANEOUS TRANSLATION)

**09.00–09.25** Capacity Management I **Determination of the performance capability for train reporting points in railway networks**  
*Alexander Fink, Universität Stuttgart*

**09.25–09.50** Capacity Management I **Determination of railway line capacity considering network effect**  
*Maren Maus, Verkehrswissenschaftliches Institut RWTH Aachen*

**09.50–10.15** Capacity Management I **Extended approaches for determining the additional load on diversion routes for network-wide preventive planning using Infrastructure Utilisation**  
*Jonathan Hecht, VIA Consulting & Development GmbH*

**10.15** Coffee Break

**10.45–11.10** Maintenance of Infrastructure **Impact model and procedure for the development of quality-oriented maintenance strategies in railway infrastructure**  
*Lea Elfert, Karlsruher Institut für Technologie (KIT)*

**11.10–11.35** Maintenance of Infrastructure **Assessment of the infrastructure condition of railway stations – development of a key indicator**  
*Hakan Aktaş, DB Station&Service AG*

**11.35–12.00** Maintenance of Infrastructure **Establish the cause-effect relationship between the use of funds and the network condition score**  
*Dr. Björn Dickenbrok, DB Netz AG*

**12.00–13.00** Lunch

*Continued on next page*

## ROOM K1 (GERMAN TALKS, SIMULTANEOUS TRANSLATION)

<b>13.00–13.25</b>	Capacity Management II	<b>Investigation of the Performance of Route Interchanges in Regular and Disruption Cases – Development of a Methodology for Comparative Analysis of Infrastructure Planning Paradigms in Europe</b> <i>Maïke Krips, DLR Institut für Verkehrssystemtechnik</i>
<b>13.25–13.50</b>	Capacity Management II	<b>Identification of capacity bottlenecks</b> <i>Philipp Scherer, quattron management consulting GmbH</i>
<b>13.50–14.15</b>	Capacity Management II	<b>Development of a dimensioning procedure for marshalling yards based on mathematical optimisation</b> <i>Dr. Jan Eisold, Technische Universität Dresden</i>
<b>14.15–14.40</b>	Capacity Management II	<b>Service-oriented software architecture for railway operations science tasks</b> <i>Alexander Kuckelberg, VIA Consulting &amp; Development GmbH</i>
<b>14.40–14.55</b>		<b>Closing Remarks</b>
<b>14.55</b>		End

## ROOM K2 (GERMAN TALKS, SIMULTANEOUS TRANSLATION)

09.00–09.25	Tram Technology	<b>Optimisation of maintenance for tram tracks through intelligent monitoring using smartphone sensors</b> <i>Philipp Leibner, RWTH Aachen</i> <i>Dr. Thomas Hempel, Siemens Mobility GmbH</i>
09.25–09.50	Tram Technology	<b>Reliability analysis of an AI-supported maintenance system for tram wheels</b> <i>Timo Schmitz, i4M technologies GmbH</i>
09.50–10.15	Tram Technology	<b>Acoustic optimisations for low-loise rail vehicle wheels in urban areas with a focus on the effect against rail squealing</b> <i>Torben Felix Lehnert, Gutehoffnungshütte Radsatz GmbH</i>
10.15		Coffee Break
10.45–11.10	Vehicle Technology II	<b>Simulation-based evaluation of innovative vehicle technologies and their control</b> <i>Oliver Garack, Hörmann Vehicle Engineering GmbH</i>
11.10–11.35	Vehicle Technology II	<b>Bogie health monitoring using acoustic data</b> <i>Dr. Yan Niu, Alstom Transportation Germany GmbH</i>
11.35–12.00	Vehicle Technology II	<b>Crashworthiness design of a light commuter rail vehicle operating on secondary lines</b> <i>Nutchanon Prasomsuk, IFS RWTH Aachen</i>
12.00–13.00		Lunch
13.00–13.25	Practical lectures	<b>Digital Rail Germany – DSD / ETCS equipment of existing vehicles in Germany</b> <i>Steven Bauer / Norman Wenkel, DB AG</i>
13.25–13.50	Practical lectures	<b>SPICEforRail - The process maturity model for rail transport technology</b> <i>Margrith Kruip / Tarik Muratovic, Tagueri AG</i>
13.50–14.15	Practical lectures	<b>Wheel/Rail-Interface Study</b> <i>Uwe Reimann, ALSTOM</i>
14.15–14.40	Practical lectures	<b>DE18 SmarHybrid: A contribution to the decarbonisation of European rail transport</b> <i>Christoph Neeb, Kiepe Electric GmbH</i>
14.40–14.55		Closing Remarks
14.55		End



## ROOM K4+5

09.00–09.25	Hydrogen Technology	<b>Comparison of simulative methods for dimensioning of fuel cell-battery hybrid powertrains in FCH2Rail and Virtual-FCS</b> <i>Marcel Scharmach, Deutsches Zentrum für Luft- und Raumfahrt (DLR)</i>
09.25–09.50	Hydrogen Technology	<b>Development of the world's first hydrogen-powered narrow-gauge train</b> <i>Nikolaus Fleischhacker, FEN Sustain Systems GmbH</i>
09.50–10.15	Hydrogen Technology	<b>Waste Energy AC Technologies in H2 Multiple Units</b> <i>Markus Kordel, Deutsches Zentrum für Luft- und Raumfahrt (DLR)</i>
10.15		Coffee Break
10.45–11.10	Decarbonisation	<b>The role of rail for a decarbonised transport in a changing climate: Balancing capital carbon investment with carbon reduction from modal shift</b> <i>Max Hemmerle, Arup Deutschland GmbH</i>
11.10–11.35	Decarbonisation	<b>Decarbonisation Potential of Passenger Rolling Stock</b> <i>Johannes Wilhelmer, Stadler Rail AG</i>
11.35–12.00	Decarbonisation	<b>Potential of Sodium-ion batteries in the context of rail-bound mobility</b> <i>Sebastian Klick, RWTH Aachen</i>
12.00–13.00		Lunch
13.00–13.25	Freight Traffic Automation	<b>Decoupled integration of automation functions for non-productive operation</b> <i>Prof. Dr. Raphael Pfaff, FH Aachen</i>
13.25–13.50	Freight Traffic Automation	<b>Virtual Reality and Digital System Twins in the Development and Testing of Trainable Highly Automated Driving Decision Making in Shunting Operations</b> <i>Steffen Schäfer, Technische Hochschule Nürnberg</i>
13.50–14.10	Freight Traffic Automation	<b>7-Layer Shunting Model: Generic scenario description of automated shunting functions</b> <i>Lucas Greiner-Fuchs, Technische Hochschule Nürnberg</i>
14.15–14.40	Freight Traffic Automation	<b>The value of digitalization delivered by Railagent X</b> <i>Gerhard Paal, Siemens AG</i>
14.40–14.55		Closing Remarks
14.55		End