

# 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

### **Keynote 2**

*Prof. Dr. Lutz Eckstein, VDI e.V.*

10.30

Coffee Break

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

<b>13.30–13.55</b>	Future of Rail Transport	<b>Deutschland-Takt: Sprinting and being on time – is that possible?</b> <i>Dr. Felix Berschin, Ramboll Deutschland GmbH</i>
<b>13.55–14.20</b>	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>
<b>14.20–14.45</b>	Future of Rail Transport	<b>Reversing under ETCS L2 in commercial operation</b> <i>Dr. David Grabowski, SBB AG</i>
<b>14.45</b>		Coffee Break
<b>15.15–15.40</b>	Timetable Design	<b>A new approach to creating robust, low-disruption operational concepts in highly Congested networks</b> <i>Giorgio Medeossi, Trenolab Srl</i>
<b>15.40–16.05</b>	Timetable Design	<b>Supplementing track capacity planning processes with railway operations science approaches</b> <i>Dr. Alexander Kuckelberg, VIA Consulting &amp; Development GmbH</i>
<b>16.05–16.30</b>	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>
<b>16.30</b>		Coffee Break
<b>17.00–17.25</b>	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>
<b>17.25–17.50</b>	Wheel-Rail II	<b>Investigations of friction behavior in the wheel-rail contact when using railhead conditioning agents</b> <i>Dr. Dani Bechev, Lubricant Consult GmbH</i>
<b>19.00</b>		Dinner Reception

## ROOM K2

<b>13.30–13.55</b>	Automation	<b>Digital monitoring and automation in rail freight transport</b> <i>Günter Petschnig, PJ Monitoring GmbH</i>
<b>13.55–14.20</b>	Automation	<b>Operational Impacts of ETCS and ATO using the Example of a non-federally owned railway</b> <i>Frederic Rath, Rurtalbahn GmbH</i>
<b>14.20–14.45</b>	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>
<b>14.45</b>		Coffee Break
<b>15.15–15.40</b>	Energy Supply	<b>Innovative Rail Energy Supply for the rapid electrification of the Eifel Routes</b> <i>Jan Pape, Technische Universität Dresden</i>
<b>15.40–16.05</b>	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>
<b>16.05–16.30</b>	Energy Supply	<b>HYPP (Hydrogen Power Pack) – A second life with a green heart</b> <i>Gregor Reitz, ISATEC GmbH</i>
<b>16.30</b>		Coffee Break
<b>17.00–17.25</b>	Vehicle Technology I	<b>Track maintenance vehicle on the path to autonomy</b> <i>Dr. Bernhard Wilhelm Lichtberger, System7 railsupport GmbH</i>
<b>17.25–17.50</b>	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>
<b>19.00</b>		Dinner Reception

## ROOM K4+5

<b>13.30–13.55</b>	Infrastructure + Operation	<b>Bane NOR's utilisation of network Total condition grade for renewal planning</b> <i>Thomas Benjamin Frogner, Bane NOR</i>
<b>13.55–14.20</b>	Infrastructure + Operation	<b>ACHILLES: handling uncertainty in railway earthworks maintenance and renewals</b> <i>Dr. John Armstrong, University of Southampton</i>
<b>14.20–14.45</b>	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>
<b>14.45</b>		Coffee Break
<b>15.15–15.40</b>	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>
<b>15.40–16.05</b>	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>
<b>16.05–16.30</b>	Wheel Rail I	<b>A wheel-rail electrical contact experiment at the laboratory scale</b> <i>Luna Ammar Haydar, Centralesupelec</i>
<b>16.30</b>		Coffee Break
<b>17.00–17.25</b>	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>
<b>17.25–17.50</b>	Mobility Management	<b>Optimising service networks for rail freight transport between China and Europe</b> <i>Jing Shan, TU Dresden</i>
<b>19.00</b>		Dinner Reception



23.11.2023

## ROOM K1

09.00–09.25	Capacity Management I	<b>Determination of the performance capability for train reporting points in railway networks</b> <i>Alexander Fink, Universität Stuttgart</i>
09.25–09.50	Capacity Management I	<b>Determination of railway line capacity considering network effect</b> <i>Maren Maus, Verkehrswissenschaftliches Institut RWTH Aachen</i>
09.50–10.15	Capacity Management I	<b>Extended approaches for determining the additional load on diversion routes for network-wide preventive planning using Infrastructure Utilisation</b> <i>Jonathan Hecht, VIA Consulting &amp; Development GmbH</i>
10.15		Coffee Break
10.45–11.10	Maintenance of Infrastructure	<b>Impact model and procedure for the development of quality-oriented maintenance strategies in railway infrastructure</b> <i>Lea Elfert, Karlsruher Institut für Technologie (KIT)</i>
11.10–11.35	Maintenance of Infrastructure	<b>Assessment of the infrastructure condition of railway stations – development of a key indicator</b> <i>Hakan Aktaş, DB Station&amp;Service AG</i>
11.35–12.00	Maintenance of Infrastructure	<b>Establish the cause-effect relationship between the use of funds and the network condition score</b> <i>Dr. Björn Dickenbrok, DB Netz AG</i>
12.00–13.00		Lunch

Continued on next page 

## ROOM K1

**13.00–13.25**

Capacity  
Management II

**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**  
*Maïke Krips, DLR Institut für Verkehrssystemtechnik*

**13.25–13.50**

Capacity  
Management II

**Identification of capacity bottlenecks**  
*Philipp Scherer, quattron management  
consulting GmbH*

**13.50–14.15**

Capacity  
Management II

**Development of a dimensioning procedure  
for marshalling yards based on mathematical  
optimisation**  
*Dr. Jan Eisold, Technische Universität Dresden*

**14.30–14.45**

**Closing Remarks**

**14.45**

End

## ROOM K2

**09.00–09.25**      Tram Technology      **Optimisation of maintenance for tram tracks through intelligent monitoring using smartphone sensors**  
*Philipp Leibner, RWTH Aachen*  
*Dr. Thomas Hempel, Siemens Mobility GmbH*

**09.25–09.50**      Tram Technology      **Reliability analysis of an AI-supported maintenance system for tram wheels**  
*Timo Schmitz, i4M technologies GmbH*

**09.50–10.15**      Tram Technology      **Acoustic optimisations for low-loise rail vehicle wheels in urban areas with a focus on the effect against rail squealing**  
*Torben Felix Lehnert, Gutehoffnungshütte Radsatz GmbH*

**10.15**      Coffee Break

**10.45–11.10**      Vehicle Technology II      **Simulation-based evaluation of innovative vehicle technologies and their control**  
*Oliver Garack, Hörmann Vehicle Engineering GmbH*

**11.10–11.35**      Vehicle Technology II      **Bogie health monitoring using acoustic data**  
*Dr. Yan Niu, Alstom Transportation Germany GmbH*

**11.35–12.00**      Vehicle Technology II      **Crashworthiness design of a light commuter rail vehicle operating on secondary lines**  
*Nutchanon Prasomsuk, IFS RWTH Aachen*

**12.00–13.00**      Lunch

**13.00–13.25**      Block pending      N.N.

**13.25–13.50**      Block pending      N.N.

**13.50–14.15**      Block pending      N.N.

**14.15**      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>Nicolas Kaiser, 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>Generic description of a shunting yard using the 7-Layer Shunting Model as a basis for the scenario definition of automated shunting functions</b> <i>Lucas Greiner-Fuchs, Technische Hochschule Nürnberg</i>
14.15		End