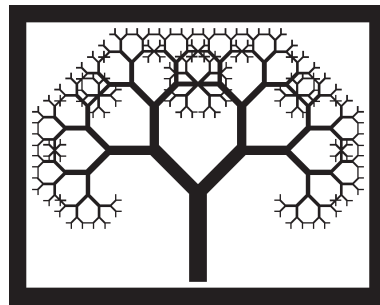


Programme

**The Seventh International Conference on
Railway Technology:
Research, Development and Maintenance**

incorporating

**The 11th International Symposium on
Speed-up and Sustainable Technology for Railway and
Maglev Systems**



23-26 August 2026
Budapest, Hungary

How to find a paper in the conference proceedings

The contributed papers are published in a summary volume with the full papers available as follows:

- **Volume RW**

<https://www.ctresources.info/ccc/pub.html?f=v15rw26>

Proceedings of the Seventh International Conference on Railway Technology: Research, Development and Maintenance

J. Pombo (Editor)

Civil-Comp Press, 2026

In this programme the letters immediately preceding a paper title refer to the volume identifier given above. For example RW.2.2 refers to the second paper in the second section of Volume RW, *Proceedings of the Seventh International Conference on Railway Technology: Research, Development and Maintenance*.

Online version of the program

<https://rw26.neotrace.it/>



A note for authors presenting papers and chairmen

All authors should meet at the front of the meeting room for their session at least 10 minutes before the session starts. Each contributed paper has been allocated 20 minutes for presentation and questions. Chairmen should indicate when 15 minutes have passed and again after 17 minutes that the presenter should immediately finish. Three minutes are available for questions and comments.

Invited lectures have been allocated 40 minutes in total, of which 5 minutes may be used for questions.

Authors are kindly asked to keep to the time allocated to them by the Chairmen. Authors are discouraged from using their own laptops for presentation unless absolutely necessary, in which case they should ensure that they can quickly and efficiently start their presentation when requested by the Chairmen.

Chairmen are requested to keep to the timetable. Changes to the programme will be indicated at the entrance to each of the rooms.

As a courtesy and in politeness to all speakers and other participants, please turn off your mobile phone whenever you enter any of the meeting and lecture rooms.

The contributed papers can be freely downloaded during the conference and until 1st December 2026. After that date, a small charge will be applied for paper downloads. **Conference participants should download any papers that they require for their records no later than 1st December 2026.**

Conference timetable summary

Day 1: Sunday, 23rd August 2026

16:00–18:30 Conference session (*Approximate time; individual session times may vary.*)

18:30–20:00 Welcome buffet

Day 2: Monday, 24th August 2026

08:40–10:40 Conference session (*Approximate time; individual session times may vary.*)

10:40–11:10 Coffee break

11:10–13:10 Conference session (*Approximate time; individual session times may vary.*)

12:50–14:00 Lunch

14:00–16:00 Conference session (*Approximate time; individual session times may vary.*)

15:40–16:20 Coffee break

16:10–18:10 Conference session (*Approximate time; individual session times may vary.*)

Day 3: Tuesday, 25th August 2026

08:40–10:40 Conference session (*Approximate time; individual session times may vary.*)

10:40–11:10 Coffee break

11:10–13:10 Conference session (*Approximate time; individual session times may vary.*)

12:50–14:00 Lunch

14:00–16:00 Conference session (*Approximate time; individual session times may vary.*)

15:40–16:20 Coffee break

16:10–17:50 Conference session (*Approximate time; individual session times may vary.*)

19:30–22:00 Conference dinner – admission only by ticket

Information about the venue can be found on the ticket and an information page has been attached to the certificate of participants, who has registered for the dinner.

Day 4: Wednesday, 26th August 2026

09:00–10:20 Conference session (*Approximate time; individual session times may vary.*)

10:20–10:50 Coffee break

10:50–12:10 Conference session (*Approximate time; individual session times may vary.*)

12:10–13:10 Lunch

Conference timetable summary

Day 1, Sunday, 23rd August
Zsolnay I+II+III
16:00–18:30 Opening Lectures
page 9
18:30–20:00 Welcome buffet

Conference timetable summary

Day 2, Monday, 24th August				
Zsolnay I	Zsolnay II	Zsolnay III	Rákóczi I	Rákóczi II
09:00–10:40 Railway Dynamics page 10	09:00–10:40 AI-Data Driven Predictive Assessment of Railway Infrastructure page 11	08:40–10:40 Automatic Train Operations and Virtual Coupling page 12	09:00–10:40 Railway System Strategy, Regulation and Efficiency: Safety, Performance and Harmonisation page 13	09:00–10:20 Power Supply, Environment & Sustainability page 14
10:40–11:10 Coffee break				
11:10–13:10 Railway Dynamics page 15	11:10–12:30 AI-Data Driven Predictive Assessment of Railway Infrastructure page 16	11:10–12:50 Maglev and Hyperloop Systems page 17	11:10–12:50 Railway System Strategy, Regulation and Efficiency: Safety, Performance and Harmonisation page 18	11:10–12:30 Power Supply, Environment & Sustainability page 19
12:50–14:00 Lunch				
14:00–16:00 Wheel-Rail Contact Mechanics and Related Problems page 20	14:00–15:40 Sustainable Railway Infrastructure page 21	14:00–15:40 Railway Aerodynamics page 22	14:00–16:00 Bridging Physics & Data: Modelling Railway Wear and Degradation page 23	14:00–15:40 Pantograph-Catenary Systems page 24
15:40–16:20 Coffee break				
16:10–17:50 Switches and Crossings page 25	16:10–17:50 Sustainable Railway Infrastructure page 26	16:10–17:50 Railway Aerodynamics page 27	16:10–18:10 Heavy-Haul Railway Engineering page 28	

Conference timetable summary

Day 3, Tuesday, 25th August				
Zsolnay I	Zsolnay II	Zsolnay III	Rákóczi I	Rákóczi II
08:40–10:40 Wheel-Rail Contact Mechanics and Related Problems page 29	08:40–10:40 Health/Condition Monitoring and Railway Asset Management page 30	09:00–10:40 Maglev and Hyperloop Systems page 31	08:40–10:40 Geotechnics & Geosynthetics in Rail-Track Performance page 32	09:00–10:40 Pantograph- Catenary Systems page 33
10:40–11:10 Coffee break				
11:10–12:50 Wheel-Rail Contact Mechanics and Related Problems page 34	11:10–13:10 Health/Condition Monitoring and Railway Asset Management page 35	11:10–12:50 Maglev and Hyperloop Systems page 36	11:10–13:10 Traction & Braking: Control, Safety and Energy Recovery page 37	11:10–12:50 Pantograph- Catenary Systems page 38
12:50–14:00 Lunch				
14:00–15:40 Railway Dynamics page 39	14:00–15:40 Digital Twins & AI for Railway Asset Management page 40	14:00–15:40 Maglev and Hyperloop Systems page 41	14:00–16:00 Traction & Braking: Control, Safety and Energy Recovery page 42	14:00–15:20 Innovative Materials, Manufacturing & Testing page 43
15:40–16:20 Coffee break				
16:10–17:50 Switches and Crossings page 44	16:10–17:30 Digital Twins & AI for Railway Asset Management page 45	16:10–17:50 Railway Aerodynamics page 46	16:10–17:50 Railway Bridges page 47	16:10–17:50 Railway Noise and Vibration page 48

Conference timetable summary

Day 4, Wednesday, 26th August		
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09:00–10:20 Switches and Crossings page 49	09:00–10:20 Railway Noise and Vibration page 50	09:00–10:20 Signalling & Communication page 51
10:20–10:50 Coffee break		
10:50–11:50 Railway Bridges Future of Freight page 52	10:50–12:10 Digital Twins & AI for Railway Asset Management page 53	10:50–11:50 Cybersecurity and Immersive Technologies (VR & AR) page 54
12:10–13:10 Lunch		

Day 1: Sunday, 23rd August 2026 - Room: Zsolnay I+II+III

16:00–18:30

Chaired by: Joao Pombo and Hitoshi Tsunashima

Opening Lectures

RW.1.1 Boots Off Ballast: Transforming Railway Inspection, Maintenance, and Operations
S.S. Hsu and R. Ellison

RW.1.2 Current Status and Future Prospects of Driverless Train Operation (DTO): Advancing Energy-Efficient Research and Implementation in Japan
T. Koseki

RW.1.3 Inverse estimation of catenary geometry from pantograph-catenary contact force
M. Tur, N. Aldaz, J. Gil, S. Gregori, A.M. Pedrosa and F.J. Fuenmayor

RW.1.4 Curving Performance Enhancement in Link-Type Steering Bogies: Concepts and Applications in Japan
Y. Michitsuji

Day 2: Monday, 24th August 2026 - Room: Zsolnay I

09:00–10:40

Chaired by: Hugo Magalhaes and Roberto Spinola Barbosa

Railway Dynamics

organized by: Dr. Bernd Lubert, Dr. Hugo Magalhães, Prof. Enrico Meli and Prof. Jose Escalona

RW.18.1 On the Influence of Iterative Model Updating on Long-Term Differential Settlement in Ballasted Railway Tracks

J.C.O. Nielsen, B. Zuada Coelho, K. Nasrollahi and D. Wong

RW.18.2 Dynamic Behaviour Analysis of Different Railway Sleeper Types with a Modular and Computationally Efficient Simulation Framework

B. Lubert, G. Prinz, A. De Rosa and J. Fuchs

RW.18.3 Mechanism and Mitigation of Carbody Shaking in Chinese High-Speed Trains

X. Dong, G. Ren, X. Li and Z. Xu

RW.18.4 Effect of Crosswinds on Flange Climb Derailment in Curved Sections Without Anti-Derailment Guards

S. Kishiya and H. Kanemoto

RW.18.5 Simplified Constraint-Based Wheel-Rail Contact Modelling

E.M. Snellman, K. Koskinen and X. Yu

Day 2: Monday, 24th August 2026 - Room: Zsolnay II

09:00–10:40

Chaired by: William Liu and Nalinaksh S. Vyas

AI-Data Driven Predictive Assessment of Railway Infrastructure

organized by: Dr. Liangliang Cheng, Dr. Shaoguang Li, Prof. Duo Liu, Prof. Guoqing Jing and Dr. William Liu

RW.7.1 AI and Automation in Railway Inspection and Maintenance

G. Jing and L. Han

Invited lecture. Presentation time is 40 minutes.

RW.7.2 Data-Driven Forecasting of Track Geometry Degradation

I. La Paglia and H. Tsunashima

RW.7.3 Analytic Temporal Tracker Sensor Monitoring System - Case Study

L. Lopes, J.L.G. Spada, L.C. Pedrosa and D. Trautwein

RW.7.4 Physics-Informed Modelling of Particle-Size Effects on GPR Responses of Railway Ballast Using gprMax Simulations

L. Han, G. Jing, Y. Gao, S. Lu, L. Cheng and H. Wang

Day 2: Monday, 24th August 2026 - Room: Zsolnay III

08:40–10:40

Chaired by: Riccardo Parise and Kevin Mullankuzhy

Automatic Train Operations and Virtual Coupling

organized by: Mr. Riccardo Parise and Mr. Kevin Mullankuzhy

RW.14.1 CPU-Based Real-Time LiDAR Simulation for Automatic Train Operation Scenarios
T. Hofmeier and M. Cichon

RW.14.2 Knowledge-Based Derivation of Relevant Scenario Objects for Testing Automated On-Sight Train Operations
L. Greiner-Fuchs and M. Cichon

RW.14.3 Performance Enhancement of Virtual Coupling Distance Control Under Communication Impairments Using State Estimation
K. Mullankuzhy and R. Parise

RW.14.4 LiDAR-Based Coupling Detection for Automatic Shunting: A Simulation-to-Real-World Transfer Study
A. Schotten, A. Von Stillfried and R. Pfaff

RW.14.5 From Offline Optimization to Real-Time Policy: Multi-Objective Neural Network Controllers for ATO
R. Parise and M. Schenker

RW.14.6 ScATERS Laboratory: A Structured Approach to a Scaled Environment for Railway Automation
R. Kling, T. Hofmeier and M. Cichon

Day 2: Monday, 24th August 2026 - Room: Rákóczi I

09:00–10:40

Chaired by: Akira Matsumoto and Stephen Barber

Railway System Strategy, Regulation and Efficiency: Safety, Performance and Harmonisation

RW.21.1 Multi-Strategy Metro Timetable Recovery: A Unified MIQP Approach Integrating Skip-Stop, Holding and Rescheduling
R. Kumar and M. Miyatake

RW.21.2 Does Social Identity Theory Explain Why So Many Complex Rail Projects Have Cost and Time Overruns?
R. Wales and A. Whyte

RW.21.3 Feasibility of Vision–Language Model–Based Collision Risk Assessment as a Driver Assistance System for Tram Drivers: A Preliminary Study
S. Hovanotayan, W. Wang, K. Nakano, T. Takata, M. Ueda, K. Sakakidani and T. Maeoka

RW.21.4 Supporting Decision-Making via Integrated Visualisation of Railway Operations and Weather / Disaster Information: JEMAPS Use Cases
H. Hatano, Y. Takase, O. Ogushi, R. Sano, K. Furusawa and K. Ogiso

RW.21.5 How Sensor Data from Rail Vehicles to Support Decision-Making for Energy Saving
W. Liu, A. Clark, S. Kapoor, M. Berg, E. Dunkars and J. Forsberg

Day 2: Monday, 24th August 2026 - Room: Rákóczi II

09:00–10:20

Chaired by: Zhongbei Tian and Takafumi Koseki

Power Supply, Environment & Sustainability

RW.23.1 The Role of Environmental Product Declarations in Decarbonizing Railway Infrastructure

E. Frey and B. Milius

RW.23.2 COOPS: A Synchronised Co-Simulation Framework for Integrated Traffic and DC Traction Power Simulation

Q. Peng, Z. Tian, X. Lyu and X. Liu

RW.23.3 Sustainable Asset Replacement Considering Environmental Impacts in Railway Sector

A.H.S. Garmabaki, S. Mahdavinassab, Z. Beg, M. Ganji and S. Mayowa Famurewa

RW.23.4 Development and Test of Metallic Solid-State Hydrogen Storage Module for Hydrogen Energy Locomotive Application

D. Jiang, W. Guo, J. Xiao, C. Guo, Y. Tang, Y. Yan and J. Jiang

Day 2: Monday, 24th August 2026 - Room: Zsolnay I

11:10–13:10

Chaired by: Jens C.O Nielsen and Bernd Lubert

Railway Dynamics

organized by: Dr. Bernd Lubert, Dr. Hugo Magalhães, Prof. Enrico Meli and Prof. Jose Escalona

RW.18.6 Asymmetric Two-Axle Rail Vehicle with Active Wheelset Steering

P. Wikaranadhi, R. Persson and S. Stichel

RW.18.7 Effect of Unsupported Sleepers on Wheel Impact Load Detector Performance

N. Lagata, J.C.O. Nielsen, M. Maglio and T. Vernerstson

RW.18.8 Iterative Finite Element Model Validation of a Railway Track System through Experimental-Numerical Modal Correlation

I. Bravo, A. Astiazaran, J. Nieto and P. Ciáurriz

RW.18.9 Vertical Wheel-Rail Force Identification Using Frequency-Domain Physics-Based Modeling and Data-Driven Priors

R. Liang, W. Liu, Q. Liu, C. Li and S. Kaewunruen

RW.18.10 Macro- and Microscopic Dynamic Responses of Coupled Train-Ballasted Track-Subgrade System via Hybrid MBD-DEM FDM Method

Y. Chen and Y. Xiao

RW.22.1 Enhancement of Rail Wear Resistance and Fatigue Toughness through Discrete Surface Quenching and Low-Temperature Ageing

T. Bai, K. Wang, J. Xu and P. Wang

Day 2: Monday, 24th August 2026 - Room: Zsolnay II

11:10–12:30

Chaired by: Guoqing Jing and William Liu

AI-Data Driven Predictive Assessment of Railway Infrastructure

organized by: Dr. Liangliang Cheng, Dr. Shaoguang Li, Prof. Duo Liu, Prof. Guoqing Jing and Dr. William Liu

RW.7.5 A CNN-Based Rail Classification Platform for Explainable Fault Detection in Weigh-In-Motion and Rolling Stock Monitoring Systems

N.S. Vyas

Invited lecture. Presentation time is 40 minutes.

RW.7.6 On the Importance of Pre-Training and Spatial Context for Corrugation Detection from In-Service Metro Trains

F. Toschi, M. Carman, A. Facchinetti and C. Somaschini

RW.7.7 Data-Driven Models for the Classification and Estimation of Railway Track Irregularities Based on Vehicle Dynamics

M. Nabais, J. Torres, J. Pagaimo, S. Vieira and H. Magalhaes

Day 2: Monday, 24th August 2026 - Room: Zsolnay III

11:10–12:50

Chaired by: Gino D'Ovidio and Guobin Lin

Maglev and Hyperloop Systems

organized by: Prof. Weihua Zhang, Prof. Gino D'Ovidio, Prof. Guobin Lin, Dr. Karel van Dalen, Prof. Zigang Deng, Prof. Weihua Ma and Dr. Fei Ni

RW.11.1 Recursive Radial Basis Neural Network-Based Model Predictive Control of the Maglev Vehicle

H. Wu

RW.11.2 Hyperloop Vehicle Aerodynamics and Shape Design-From Theoretical Investigation to Engineering Practice

B. Qian, C. Cai, L. Li, D. He and T. Wang

RW.11.3 Robust Current Control for High-Speed Maglev Based on Three Step Power Supply Switching Method

W. Chen, Q. Ge, J. Zhu, M. Zhao and L. Zhao

RW.11.4 Study on the Influence of Different Natural Vibration Frequencies of Track Beams on the Vehicle-Bridge Coupling Dynamics of High-Speed Maglev

J. Yang and G. Lin

RW.11.5 Parameter Model of Long Stator Linear Motor Based on Dynamic Differential Permeability and Equivalent Air Gap

R. Gao, Q. Ge, L. Zhao, J. Zhu and B. Zhang

Day 2: Monday, 24th August 2026 - Room: Rákóczi I

11:10–12:50

Chaired by: Akira Matsumoto and Stephen Barber

Railway System Strategy, Regulation and Efficiency: Safety, Performance and Harmonisation

RW.21.6 Metro Network Expansion and Passenger Demand Dynamics: A Comparative Study of Two Urban Systems

L. Egbo, M. Marinov, H.Y. Tong and E. Wanner

RW.21.7 Field Verification of Public Transport Priority System Functions Using Intelligent Transport Systems in Hiroshima City

K. Ejiri, Y. Suda, D. Yamaguchi, M. Ueda, T. Maeoka and T. Nishino

RW.21.8 A Study on Railway Departure Delay Prediction Using a Retrieval-Augmented Time Series Diffusion Model

T. Fukuda, S. Takahashi and H. Nakamura

RW.21.9 Application of Human Error Assessment and Reduction Technique to Learn Organizational Influence and Human Factor Perspectives of Railway Transportation Accidents

H. Peng

Future of Freight

organized by: Prof. Stefano Ricci, Dr. Armando Carrillo, Prof. Andrew Smith, Prof. Nebojsa Bojovic and Dr. Milos Milenkovic

RW.13.1 Europe's Global Gateway Policy: The European Response to BRI in Africa

F. Antoniazzi

Day 2: Monday, 24th August 2026 - Room: Rákóczi II

11:10–12:30

Chaired by: Zhongbei Tian and Takafumi Koseki

Power Supply, Environment & Sustainability

RW.23.5 Comparison of Refueling Methods for Hydrogen Rail Vehicles

L. Br  nner, S. Wieser, A. Ro   and M. B  hm

RW.23.6 Application Potential of Long-Range Battery Electric Multiple Units for Challenging Regional Railway Applications in Germany

S. Herwartz-Polster, M. Schenker and P. Ryll

RW.23.7 Alternative Drive Systems in Regional Rail: Roles, Interfaces, and Technical Dependencies

B. Ebrecht and U. Zimmermann

RW.23.8 A Trackside Magnetic Field Energy Harvester: Coupled Modelling, Load Matching, and Energy Estimation from Train-Passage Measurements

C. Zuo and Y. Kuang

Day 2: Monday, 24th August 2026 - Room: Zsolnay I

14:00–16:00

Chaired by: Zhen Yang and Oldrich Polach

Wheel-Rail Contact Mechanics and Related Problems

organized by: Dr. Zhen Yang, Prof. Roger Lewis, Prof. Zili Li and Dr. Kate Tomlinson

RW.3.12 Study on Fatigue Crack Growth Behavior in Rails Using a Fracture Phase-Field Method
J. Yang, J. Xu and P. Wang

RW.3.13 Development of Monitoring Technology on Wheel Flange Lubrication Condition With PQ Monitoring Bogie in Operation
T. Ueda, J. Kurihara, T. Saito, T. Watanabe, T. Matsuda, M. Tanimoto and E. Miyauchi

RW.3.14 Assessing the Effect of Environmental Conditions on the Performance of Oil-Based Top-of-Rail Friction Modifiers
M. Freisinger, N. Ritter and G. Vuilleme

RW.3.15 Rail Lubrication Management Based on Real-Time Measurement of Forces Occurring Between Rails and Wheels
J. Arima, T. Matsuda and Y. Shimizu

RW.3.16 NTSB Investigations of Vertical Split Rim Failures of Freight Train Wheels
E.M. Mueller and X. Liu

RW.3.17 Numerical Analysis of Wheel/Rail Profile Pairings with Elastic and Plastic Material Behavior
M. Rettl, A. Tarasov, M. Löbl and W. Daves

Day 2: Monday, 24th August 2026 - Room: Zsolnay II

14:00–15:40

Chaired by: A.H.S Garmabaki and Hitoshi Tsunashima

Sustainable Railway Infrastructure

organized by: Dr. Araliya Mosleh, Prof. Diogo Ribeiro, Prof. Amir Garmabaki, Prof. Alfredo Núñez Vicencio, Dr. Miguel Rodriguez Plaza and Prof. Cecilia Vale

RW.4.1 Technical and Economic Advantages of Using UHPFRC for Ballastless Track Systems in Existing Tunnels with Inhomogeneous Subgrade

A. Hochuli, J.-G. Trouillet and E. Brühwiler

RW.4.2 Integrating Life Cycle Assessment Based Key Performance Indicators for Sustainable Railway Asset Management

Z. Beg, S. Mahdavinab, M. Ganji, A. Mosleh and A.H.S. Garmabaki

RW.4.3 Rail Maintenance Solutions for Urban Networks

R. Stock, B. Antony and F. Aulinger

RW.4.4 A Numerical Approach for Predicting Fishplate Stress and Failure at Rail Joints with Unsupported Sleepers

M. Kusuda, T. Tanaka and T. Motono

RW.4.5 High-Speed Rail Milling and Thermo-Mechanical Rail Surface Load Calculations via Automated Iterative Heat Flux and Temperature Exchange Between 2D and 3D Finite Element Models

A. Ambig, T. Klünsner, W. Daves, C. Czettl, W. Kubin and T. Antretter

Day 2: Monday, 24th August 2026 - Room: Zsolnay III

14:00–15:40

Chaired by: James R. Bell and Daniela Heine

Railway Aerodynamics

organized by: Dr. James Bell, Prof. Guowei Yang, Prof. Gisella Tomasini, Prof. Zhenxu Sun, Prof. Tiantian Wang and Prof. Tian Li

RW.5.1 On the Aerodynamics of Freight Trains: Crosswind Stability, Slipstream Effects and Tunnel Overpressure

G. Tomasini, D. Rocchi, P. Schito, C. Somaschini, C. Araya, S. Negri and E. Inghilleri

Invited lecture. Presentation time is 40 minutes.

RW.5.2 Study of the Pressure Loads on Noise Barriers Using Moving Model Rig Tests

D. Heine, T. Miyachi, G. Heine and Y. Yamauchi

RW.5.4 Effect of the Ground Modeling Method on Aerodynamic Noise Characteristics of High-speed Trains

W. Lu

RW.5.3 Influence of Resonant Cavity Structures on Micro-Pressure Waves of High-Speed Maglev Tunnels

J.H. Song, S. Yao, D. Chen, J. Du, G.B. Li and S. Ding

Day 2: Monday, 24th August 2026 - Room: Rákóczi I

14:00–16:00

Chaired by: Annemieke Meghoe and Borja Rodríguez-Arana

Bridging Physics & Data: Modelling Railway Wear and Degradation

organized by: Dr. Annemieke Meghoe, Dr. Hongrui Wang, Dr. Jonathan Leung, Dr. Mateus Mendes and Dr. Samuel Hawksbee

RW.12.1 Data-Driven Rail Wear Prediction Along the Network

G. Scandola, B. Lubert, S. Scheriau, T. Gschwandl and A. Meierhofer

RW.12.2 Enhancements to Rail Defect Management within the UIC IRS Framework

M. Hosoda

RW.12.3 Ballast Volume Assessment for Ballasted Railways Based on Mobile Laser Scanning System

H. Xu, Q. Mao, K. Zhang, Y. Shi, T. Wang, Y. Mu and G. Wang

RW.12.4 A Fracture Mechanics Framework for Predicting Rail Rolling Contact Fatigue Under Varying Operational Conditions

A. Meghoe and K. Slagter

RW.12.5 Three-Dimensional Finite Element Analysis of Cyclic Deformation of Ballast Beds at Rail Joints Using Grid-Type Sleepers

K. Koro and H. Kanai

RW.12.6 Squat Monitoring Campaign: Set-Up and Results

S.T. Hengeveld, B. Schotsman, H. Slot, D. Leonetti and J. Maljaars

Day 2: Monday, 24th August 2026 - Room: Rákóczi II

14:00–15:40

Chaired by: Alan Facchinetti and Pedro Antunes

Pantograph-Catenary Systems

organized by: Prof. Alan Facchinetti, Dr. Pedro Antunes, Prof. Anders Rønnquist, Prof. Manuel Tur Valiente, Prof. Zhigang Liu, Prof. Yang Song and Prof. Jorge Ambrósio

RW.10.1 Analysis of Abnormal Wear Patterns of Pantograph Strip in Urban Rail Systems Based on Long-Term Maintenance Data

Y. Song

RW.10.2 Indirect Measurement of the Contact Force in Laboratory Pantograph Tests

J. Gil, M. Tur, S. Gregori, A.M. Pedrosa and F.J. Fuenmayor

RW.10.3 A Validated Methodology for Assessing Wind-Induced Effects on Pantograph-Catenary Interaction

J.M. Rebelo, J. Pombo, P. Antunes, J. Santos, F. Jackson, P. Schito, A. Facchinetti, D. Campbell, R. Stainton and M. Askill

RW.10.4 Systematic Mapping of Numerical Models and Methods for Pantograph-Overhead Conductor Rail Interaction Using PRISMA Method

L. Minor, J.-L. Archut and B. Corves

RW.10.5 Influence of Outgoing Feeders on Natural Period of Overhead Contact Line Equipment at Traction Power Supply Facility

M. Tsunemoto, N. Fukushima, T. Saito, Y. Kondo and H. Takahashi

Day 2: Monday, 24th August 2026 - Room: Zsolnay I

16:10–17:50

Chaired by: Björn. A Pålsson and Sin Sin Hsu

Switches and Crossings

organized by: Prof. Björn Pålsson, Prof. Yann Bezin, Prof. Roger Dixon, Dr. Valeri Markine and Dr. Hugo Magalhães

RW.6.1 Thermal Stress Analysis of CWR Switches: Influence of Switch Angle, Sleeper Type, and Rail Profile

J.-F. Ferrellec and C. Eychene

RW.6.2 Impact of Wheel Wear on the Nonlinear Bifurcation Mechanism of Wheelset Hunting Under the Characteristic Switch-Rail Profile

T. Li, J. Xu and P. Wang

RW.6.3 A Stochastic Dynamics–Based Approach for Rapid Prediction of the Bending Fatigue Life of Mixed Passenger–Freight Railway Frogs

X. Zhu, J. Xu and P. Wang

RW.6.4 Long-Term Settlement Behaviour of Turnouts with Different Sleeper Types in Austria

M. Loidolt and A.K. Korenjak

RW.6.5 Dynamic Response of Dual-Gauge Railway Turnouts Under Mixed Traffic: Experimental Validation and Hybrid FEM–DEM Modelling

I. Villalba Sanchis, V. Cioara Avram, P. Salvador Zuriaga and P. Martínez Fernandez

Day 2: Monday, 24th August 2026 - Room: Zsolnay II

16:10–17:50

Chaired by: A.H.S Garmabaki and Hitoshi Tsunashima

Sustainable Railway Infrastructure

organized by: Dr. Araliya Mosleh, Prof. Diogo Ribeiro, Prof. Amir Garmabaki, Prof. Alfredo Núñez Vicencio, Dr. Miguel Rodriguez Plaza and Prof. Cecilia Vale

RW.4.6 Designing the Target Neutral Temperature for Continuous Welded Rail via CUTHI-IDW Spatial Interpolation of Climatological Data

U. Ramírez-Carmona, J.A. Guerrero-Fernández and D. Camacho-Alcocer

RW.4.7 Predicting Isolated Track Defects Using Data-Driven Models for Railway Maintenance Planning

M. Mokhtari, P. Mansouri, C. Vale and A. Mosleh

RW.4.8 A Framework for Visual Nuisance Evaluation in Metro Railway Systems

C. Pyrgidis, D. Georgiadis, A. Anagnostopoulos and E. Manthos

RW.4.9 In-Service Railway Infrastructure Monitoring: Multi-Sensor Instrumentation of a Norwegian Passenger Train

A. Lau and T. Ursin

RW.17.13 Towards Predictive Railway Infrastructure Monitoring Using Axle Box Acceleration: A Case Study of the Otta Bridge

C. Caspersen, M. Skjæveland, T. Ursin and A. Lau

Day 2: Monday, 24th August 2026 - Room: Zsolnay III

16:10–17:50

Chaired by: Gisella Tomasini and James R. Bell

Railway Aerodynamics

organized by: Dr. James Bell, Prof. Guowei Yang, Prof. Gisella Tomasini, Prof. Zhenxu Sun, Prof. Tiantian Wang and Prof. Tian Li

RW.5.5 An Optimized Wind-Tunnel Methodology for Realistic Aerodynamic Investigations of Freight-Trains

J.R. Bell, A. Buhr and L. Siegel

RW.5.6 Optimisation of Sparse Sensor Placement and Real-Time Pressure Field Prediction for High-Speed Trains

W. Qiu, Z. Sun, D. Guo and G. Yang

RW.5.7 Study on Drag Reduction by Air Blowing and Suction for High-speed Maglev Trains

G. Li, J. Du, S. Fu, D. Chen, S. Ding, J.T. Du and N. Liu

RW.5.8 A Study on the Aerodynamic Characteristics and Drag-Reduction Structural Optimisation of Inside-Axle-Box Bogies in High-Speed Trains

D. Luo, T. Wang, Y. Wang and Y. Feng

RW.5.9 Aerodynamic Prediction and Optimization of Vortex Generator for 600km/h Maglev Train Based on Deep Learning

Z. Yang, T. Wang and Y. Wang

Day 2: Monday, 24th August 2026 - Room: Rákóczi I

16:10–18:10

Chaired by: Paulo Kurka and Auteliano Antunes Santos

Heavy-Haul Railway Engineering

organized by: Prof. Paulo Kurka, Prof. Qing Wu and Prof. Auteliano Santos Jr.

RW.16.1 Overview of Key Technological Innovations in the New Generation of Intelligent Heavy-Haul Electric Locomotives
M. Din and X. Meng

RW.16.2 Development and Validation of a Numerical Track Model with Resilient Layers for Heavy Haul Railways
A. Shamohammadi, E. Kassa, A. Bouazza, T. Marolt Čebašek and C. Qiu

RW.16.3 Assessment of Iron Ore Loss in the Rainwater Drainage Process: A Qualitative Approach to Railway Transport
M.G. Vieira, I.F. Souza, A.L.M. Conrado, J.B.C. Florence and F. Bertelli

RW.16.4 Speed Control of a Freight Train Based on an Inverse Simulation Approach
A. McGirr, E. McGookin, D. Thomson and D. Murray-Smith

RW.16.5 Hybrid DEM-FDM Modeling of Heavy-Haul Railway Transition Zone Slope Effects on Ballast Particle Movement and Dynamic Track Responses
Y. Wang and Y. Xiao

RW.16.6 Simulation and Experimental Validation of a Locomotive-Based Weighing System for Industrial Sidings
A. Von Stillfried and R. Pfaff

Day 3: Tuesday, 25th August 2026 - Room: Zsolnay I

08:40–10:40

Chaired by: Sebastian Stichel and Yohei Michitsuji

Wheel-Rail Contact Mechanics and Related Problems

organized by: Dr. Zhen Yang, Prof. Roger Lewis, Prof. Zili Li and Dr. Kate Tomlinson

RW.3.1 Design of a Wheel-Rail Test Rig: A Case Study on Fatigue Assessment of the Frame
S. Suutarinen, P. Salmenperä, H. Luomala and X. Yu

RW.3.2 From Humidity to Squeal: Laboratory Insights into Humidity-Driven Changes in Wheel-Rail Friction
M. Omasta, M. Škubna, M. Valena, R. Galas, I. Křupka and M. Hartl

RW.3.3 An Experimental Approach for Investigating Wheel-Rail Friction Behaviour in the Laboratory
M. Valena, R. Galas, M. Omasta, T. Jordan, I. Křupka and M. Hartl

RW.3.4 Statistical Approach to Anomaly Detection of Derailment Coefficient Considering Inner-Rail L/V Correlation
T. Saito, S. Takehara, Y. Terumichi, S. Otsuka and T. Nakano

RW.3.5 Temperature Field Reconstruction in Railway Wheel at Tread Braking via Adjoint-Based Heat Flux Identification
M. De Lara Todt, E. Landström Voortman, R. Lundén and T. Vernersson

RW.3.6 Enhancing Safety Through a New Railway Wheel Design
C. Buchholz and A.A. Santos

Day 3: Tuesday, 25th August 2026 - Room: Zsolnay II

08:40–10:40

Chaired by: Bouillaut Laurent and Hitoshi Tsunashima

Health/Condition Monitoring and Railway Asset Management

organized by: Dr. Richard Loendersloot and Prof. Gareth Tucker

RW.17.1 Establishing Baseline Expectations for Track Defect Detection via Repeatability Mapping of Instrumented Railway Vehicle Signals

A.C. Pires, T.T. Freire and A.A. Santos

RW.17.2 Onboard Monitoring of Vehicle and Track Condition Using Sparse Vibration Fingerprints

D. Prifer, A. Qazizadeh, S. Stichel and J. Leung

RW.17.3 Study on Abnormal Condition Detection Technology for Railway Bogies Using Trackside Sensor

T. Matsuda, M. Kaneko, T. Aiba, Y. Michitsuji, Y. Endo, D. Shinagawa, K. Nagasawa and M. Tanimoto

RW.17.4 Automatic Object Deposits Detection Alongside Railway Tracks with LiDAR Point Cloud Sequences

M. Convert, T. Narayana Swamy, J. Sanchez and B. Salavati

RW.17.5 A Novel Approach to Railway Wheel Defect Detection Using Custom Deep Learning Models for Monocular Depth Estimation

M.Z. Shaikh, B. Abro, E.N. Baro, S. Jatoi, E.B. Blazquez-Parra, B.S. Chowdhry and A. Kolmykova

RW.17.6 Initiatives for Dynamic Track Condition Monitoring on Local Railways Using In-Service Vehicles

H. Ono and N. Shinoda

Day 3: Tuesday, 25th August 2026 - Room: Zsolnay III

09:00–10:40

Chaired by: Gino D'Ovidio and Fei Ni

Maglev and Hyperloop Systems

organized by: Prof. Weihua Zhang, Prof. Gino D'Ovidio, Prof. Guobin Lin, Dr. Karel van Dalen, Prof. Zigang Deng, Prof. Weihua Ma and Dr. Fei Ni

RW.11.6 Pushing the Limits: Challenges for Maglev and Hyperloop Vehicle-Guideway Interaction at High Speeds

K.N. van Dalen, J. Paul, A.B. Fărăgău, R.J. van Leijden, L.H. Huber, K. Gatt and A.V. Metrikine

Invited lecture. Presentation time is 40 minutes.

RW.11.7 Development of SCMaglev Tire Anomaly Detection Model

T. Fujimasu, A. Hibino, M. Sakuma, Y. Himeki, G. Katayose and T. Kokubo

RW.11.8 A Koopman-Theory-Based Data-Driven Modelling and Control Method of High-Speed Maglev Trains

P. Han, J. Xu, Y. Sun, F. Ni, R. Mai, X. Liu and G. Lin

RW.11.9 Analysis of a Novel Levitation Magnet for High-Speed Maglev Train

S. Fu, Y. Zhou and W. Han

Day 3: Tuesday, 25th August 2026 - Room: Rákóczi I

08:40–10:40

Chaired by: Niall Fagan and Leos Hornicek

Geotechnics & Geosynthetics in Rail-Track Performance

organized by: Prof. António Gomes Correia, Dr. Yoshitsugu Momoya, Prof. Xuecheng Bian and Prof. Cholachat Rujikiatkamjorn

RW.15.1 Adapting Innovative Trackbed Investigation Technique for the UK
N. Fagan, Y. Haddani and A. Dhemaied

RW.15.2 Detecting Geotechnical Instability of Railway Embankments Based on Track Measurement Data
W. Meng and V. Zania

RW.15.3 Enhanced Monitoring of Railway Transition Zones: Satellite-Based InSAR for Differential Settlement Detection
J.N. Varandas, Y. Zhang, S. Davies and A. Ferreira

RW.15.4 Assessment of Changes in Granulometry of Cyclically Loaded Aggregate with Geogrid
L. Hornicek, J. Kawalec and P. Mazurowski

RW.15.5 Influence of Spatial Variability in Soft Soil and Deep-Mixed-Columns on Long-Term Settlement in Railways
A. Alenius, A. Nilsson, J. Dijkstra and K. Nasrollahi

RW.15.6 Effect of Traffic-Induced Densification on the Monotonic Strength of Railway Ballast
F. Farivar, D. Danko and F. Pospischil

Day 3: Tuesday, 25th August 2026 - Room: Rákóczi II

09:00–10:40

Chaired by: Manuel Tur and Yang Song

Pantograph-Catenary Systems

organized by: Prof. Alan Facchinetti, Dr. Pedro Antunes, Prof. Anders Rønnquist, Prof. Manuel Tur Valiente, Prof. Zhigang Liu, Prof. Yang Song and Prof. Jorge Ambrósio

RW.10.6 Integrated Framework for Feature Selection and Dynamic Performance Prediction of Overhead Conductor Rail

Z. Hu, L. Chen, Y. Song, P. Antunes, Z. Liu and J. Pombo

RW.10.7 Recycle and Surface Coating of the Scrap Carbon Strips

N. Rezaei Ansaroudi, K. Yildizli, G. Uğuz, Y.Y. Büyüklü, O. Köseoğlu and A. Döndür

RW.10.8 An Augmented Reality and Edge AI Framework for Intelligent Railway Pantograph Maintenance Integrating BIM and CMMS

A. Malta

RW.10.9 Influence of Support Height Assembly Errors on the Pantograph-OCR Contact Force

G. Vallet García, S. Gregori, M. Tur, F.J. Fuenmayor, J. Gil and A.M. Pedrosa

RW.10.10 Characterisation of Pantograph Dynamic Behaviour at Different Operating Heights

J. Santos, P. Antunes, J.M. Rebelo and J. Pombo

Day 3: Tuesday, 25th August 2026 - Room: Zsolnay I

11:10–12:50

Chaired by: Oldrich Polach and Sebastian Stichel

Wheel-Rail Contact Mechanics and Related Problems

organized by: Dr. Zhen Yang, Prof. Roger Lewis, Prof. Zili Li and Dr. Kate Tomlinson

RW.3.7 Comparative Analysis of Dry and Water-Contaminated Twin-Disc Tests for Wheel–Rail Wear Assessment

N. Zani, C. Petrogalli, D. Battini and A. Mazzù

RW.3.8 Machine Learning-Based Estimation of Wheel-Rail Contact Conditions from Instrumented Wheelset Data

K. Nakano, K. Yabuuchi, S. Kuniyuki, W. Wang, K. Iida, T. Tanaka and T. Miyamoto

RW.3.9 Some Tribological Aspects of Interaction of Wheels and Rails

G. Tumanishvili, T. Nadiradze and G.G. Tumanishvili

RW.3.10 Elastic Limit for General Elliptical Contacts in Shakedown Diagrams

M. Harake, S. Harake, J. Maierhofer and W. Daves

RW.3.11 Experimental Validation of the Torque-Modulation-Based Method for Train-Borne Coefficient of Friction Measurement

G. Jayasree Krishnan, Z. Yang, J. Moraal and Z. Li

Day 3: Tuesday, 25th August 2026 - Room: Zsolnay II

11:10–13:10

Chaired by: Bouillaut Laurent and Hitoshi Tsunashima

Health/Condition Monitoring and Railway Asset Management

organized by: Dr. Richard Loendersloot and Prof. Gareth Tucker

RW.17.7 A Mechanico-Statistical Approach for the Assessment of Broken Rail Prevention on the Grand Paris Express

B. Laurent, O. François, A. Panunzio, S. Simon, M. Essadeq, D. Drago, F. Parrennes and M. Cogne

RW.17.8 Continuous Mobile Measurement System for Rail Profile Based on Multi-Line Laser and Combined Navigation

Y. Shi, Q. Mao, H. Xu, W. Hu, Y. Mu and G. Wang

RW.17.9 Composite Severity Score for Heavy-Haul Railway Track Assessment Using Dynamic, Geometric, and Contextual Information

W. Queiroz, P. Pizzigatti Correa, R. Motta, P. Pereira, O. Gogliano and L. Bernucci

RW.17.10 Track Geometry Reconstruction Applying the Unknown Input Observer Algorithm

V.M. Mahieu, M. Santelia, I. La Paglia, E. Di Gialleonardo, S. Alfi and A. Facchinetti

RW.17.11 Low-Power Edge Processing of MFC Sensor Signals for Wayside Railway Monitoring

P. Hadraba, R. Kreck, J. Chalupa, M. Hruzikova, F. Kšica and Z. Hadas

RW.17.12 Instrumented Wheelset on the KTH Roller Rig: A Feasibility Study with Finite Element Analysis

P. Damsongsaeng, M.V.D. Heijden, J.F.W. Leung and A. Qazizadeh

Day 3: Tuesday, 25th August 2026 - Room: Zsolnay III

11:10–12:50

Chaired by: Karel N. van Dalen and Guobin Lin

Maglev and Hyperloop Systems

organized by: Prof. Weihua Zhang, Prof. Gino D'Ovidio, Prof. Guobin Lin, Dr. Karel van Dalen, Prof. Zigang Deng, Prof. Weihua Ma and Dr. Fei Ni

RW.11.10 Numerical Studies on Aerothermal Characteristics and Mitigation Strategies for Vacuum Tube Transportation

Y. Bi, H. Bi, H. Wang and W. Luo

RW.11.11 From Magnetic Field Irregularity to Equivalent Dynamic Excitation: Modeling and Simulation for Permanent Magnet Maglev Guideways

L. Wang, W. Zhang and Z. Deng

RW.11.12 A Regenerative Braking Energy Recovering Scheme for High-Speed Maglev

H. Wang, Y. Zhao, G. Lin, L. Zhang, Y. Luo, Y. Jin and Y. Lin

RW.11.13 Electromechanical Vibration Control of an HTS Maglev Engineering Prototype Using Electromagnetic Shunt Dampers

W. Zhang, M. Yin, G. Dovidio, Z. Deng and H. Li

RW.11.14 Sensitivity Analysis and Optimization of Weighting Coefficients in MPC for 600 km/h High-Speed Maglev Levitation System

D. Zhao, S. Fu, Z. Zhang, Y. Li, A. Kargl and M. Hermle

Day 3: Tuesday, 25th August 2026 - Room: Rákóczi I

11:10–13:10

Chaired by: Mehdi Ahmadian and Yu Pan

Traction & Braking: Control, Safety and Energy Recovery

organized by: Prof. Nicolò Zampieri, Prof. Jianyong Zuo, Prof. Mehdi Ahmadian, Prof. Yu Pan, Prof. Auteliano Santos Jr., Prof. Jingxian Ding and Prof. Nicola Zani

RW.9.1 Experimental and Numerical Study of the Thermal Behaviour in Tread Braked Wheels: Recent Developments

N. Bosso, M. Magelli, R. Pagano and N. Zampieri

Invited lecture. Presentation time is 40 minutes.

RW.9.2 Evaluation for Braking Performance and Mechanical Properties of Alloy Cast Iron Brake Blocks with Slits

K. Ikeuchi and K. Handa

RW.9.3 A Numerical–MLP-Based Framework for Rapid Prediction of EHL Pressure and Film-Thickness Profiles in Wheel–Rail Contact

Z. Dai, J. Zuo, Y. Pan and J. Ding

RW.9.4 Comparative Thermo-Mechanical Analysis of Railway Wheel Treads Incorporating Variable Friction Coefficient Models under Long-duration Braking

J. Zhang, J. Zuo, J. Ding and Y. Pan

RW.9.5 A Roller Rig Evaluation of the Effects of Top-of-Rail Friction Modifiers on Braking Distance and Track Wear

M. Ahmadian and Y. Pan

Day 3: Tuesday, 25th August 2026 - Room: Rákóczi II

11:10–12:50

Chaired by: Alan Facchinetti and Yang Song

Pantograph-Catenary Systems

organized by: Prof. Alan Facchinetti, Dr. Pedro Antunes, Prof. Anders Rønnquist, Prof. Manuel Tur Valiente, Prof. Zhigang Liu, Prof. Yang Song and Prof. Jorge Ambrósio

RW.10.11 Dynamic Assessment of a Tunnel Overhead Contact System with Elastic Arm Support
P. Antunes, J. Ambrósio, M. Santos and J. Colaço

RW.10.12 Image-Based Crack Analysis of Railway Contact Wires Using a Two-Stage U-Net
Y. Yang, W. Liu, J. Liu and T. Xin

RW.10.13 Influence of Overlap Section Design on Dynamic Interaction of Multiple Pantographs with High-Speed Catenary System
M. Mohammadpour, V. Bokaeian and F. Vesali

RW.10.14 Simplified Modelling and Static Validation of Railway Cantilever Structures
S. Sajir, S. Barrans, K. Sztrauch and P. Antunes

RW.10.15 Experimental Investigation of the Correlation Between Contact Wire Gradient and Pantograph Accelerations
B.V. Chennouju, M. Carnevale, C.E.A. Reyes, A. Collina and S. Bruni

Day 3: Tuesday, 25th August 2026 - Room: Zsolnay I

14:00–15:40

Chaired by: Bernd Lubber and Roberto Spinola Barbosa

Railway Dynamics

organized by: Dr. Bernd Lubber, Dr. Hugo Magalhães, Prof. Enrico Meli and Prof. Jose Escalona

RW.18.11 Adhesion Conditions at Wheel-Rail Interface: The Impact of Friction Modifiers on Curving Behaviour and Wear

F. Castellini, M. Santelia, E. Di Gialleonardo and S. Bruni

RW.18.12 Comparative Analysis of Railway Lateral Acceleration Using Inertial Measurement Unit and Global Navigation Satellite System

M. Espindola and P. Kurka

RW.18.13 Development of a Lateral Displacement Mechanism for a Single Wheel Roller Rig

J. Goersch, J. Wagner, N. Jaeger and R. Pfaff

RW.18.14 Asymmetric Wheel–Rail Interaction and Derailment Risk in Curved Railway Tracks with Transition Geometry Considering PSD-Based Track Irregularities

P. Gorai, S.K. Saha and R.K. K

RW.18.15 A Methodology for Generating Track Models with Realistic Rail Wear for Digital Twin Applications

M. Meninas, A. Magno, J. Pagaimo, F. Marques, S. Vieira and H. Magalhaes

Day 3: Tuesday, 25th August 2026 - Room: Zsolnay II

14:00–15:40

Chaired by: Babakalli Alkali and Isidro Durazo-Cardenas

Digital Twins & AI for Railway Asset Management

organized by: Prof. Hongrui Wang, Dr. Isidro Cardenas and Prof. Babakalli Alkali

RW.8.1 Pantograph Failure Analysis and Short-Term Forecasting for EMU Fleet Using Hybrid and Machine Learning Models

B. Alkali, M.M. Rahman, J.P. Gutierrez, A.K. Jain, C. Mcneil and J. Nelson

RW.8.2 Transfer Learning in Railway Health Monitoring: Taxonomy, Applications and Future Directions

A. Sansiñena, B. Rodríguez-Arana and S. Arrizabalaga

RW.8.3 Risk-Based Predictive Maintenance of EMU Autocouplers: A Hybrid AI Modelling Approach

M.M. Rahman, B. Alkali, J.P. Gutierrez, A.K. Jain, C. Mcneil and J. Nelson

RW.8.4 Railway Track Risk-Based Degradation Modelling: A Data-Driven Approach

N.G.D.D. Santos, B. Alkali, A.K. Jain and O. Niculita

RW.8.5 Simulation of Flange Lubrication for Digital Twin Application

D. Kvarda, M. Omasta, I. Křupka and M. Hartl

Day 3: Tuesday, 25th August 2026 - Room: Zsolnay III

14:00–15:40

Chaired by: Karel N. van Dalen and Fei Ni

Maglev and Hyperloop Systems

organized by: Prof. Weihua Zhang, Prof. Gino D'Ovidio, Prof. Guobin Lin, Dr. Karel van Dalen, Prof. Zigang Deng, Prof. Weihua Ma and Dr. Fei Ni

RW.11.15 Nonlinear Dynamic Analysis of HTS maglev Train Under Guideway Disturbances
G. Migliaccio, F. D'Annibale, G. Antonini, H. Li, Z. Deng, W. Zhang and G. D'Ovidio

RW.11.16 Capacity Configuration Optimization of High-Speed Maglev Traction Power Supply System Based on DAB and Energy Storage System
L. Zhang, Y. Zhao, G. Lin, H. Wang and Y. Luo

RW.11.17 Superconducting Electromagnetic Suspension Train Electromagnetic Force Calculation Model Based on BP Neural Network
J. Xu, J. Xu, H. Huang, D. Gao, M. Wang and W. Wu

RW.11.18 Target Guidance Gap Reconstruction and Control Optimization for High-Speed Maglev Horizontal Curves
Y. Zhang, J. Xu, H. Li, D. Gao, W. Ji and W. Wang

RW.11.19 Research on Vertical Vibration Characteristics and Vibration Suppression of HTS Maglev Dynamic Test Platform
Y. He, L. Wang, M. Wang, Y. Tan and Z. Deng

Day 3: Tuesday, 25th August 2026 - Room: Rákóczi I

14:00–16:00

Chaired by: Nicolò Zampieri and Nicola Zani

Traction & Braking: Control, Safety and Energy Recovery

organized by: Prof. Nicolò Zampieri, Prof. Jianyong Zuo, Prof. Mehdi Ahmadian, Prof. Yu Pan, Prof. Auteliano Santos Jr., Prof. Jingxian Ding and Prof. Nicola Zani

RW.9.6 A Resilience-Based Metric Framework for Quantifying Dynamic Wheel–Rail Adhesion Recovery

T. Wang, W. Wang, J. Ding and J. Zuo

RW.9.7 Liquid-Cooled Disc Brakes

J.M. André and N.S. Domingues

RW.9.8 Leakage Simulation of Train Brake Pipeline Threaded Joints Based on Contact-Pressure Connectivity Analysis

H. Zhou, J. Zuo, Y. Pan and J. Ding

RW.9.9 Leading-Axle Active Probing of Wheel-Rail Adhesion under Low-Adhesion Braking Conditions

X. Wu, J. Zuo and J. Ding

RW.9.10 Mesh Sensitivity Analysis of Xfem-Based Fatigue Crack Investigation in Railway Brake Discs

J. Shen, J. Zuo and Y. Pan

RW.9.11 Thermal Behaviour of Railway Brake Blocks: On-Track Temperature Measurements for Numerical Model Validation

N. Bosso, G. Borgi, M. Magelli, R. Pagano, L. Sabbatini and N. Zampieri

Day 3: Tuesday, 25th August 2026 - Room: Rákóczi II

14:00–15:20

Chaired by: Simon Barrans and Jose Sainz-Aja

Innovative Materials, Manufacturing & Testing

RW.22.2 Improvement of a Bolt-Retightening-Free Rail Fastening System

S. Tamagawa, A. Matsuo, M. Ueda and S. Matsutani

RW.22.3 Fatigue Performance of Drilled Railway Rails: Integrated Experimental Testing and Finite Element Analysis

J. Sainz-Aja, P. San Roman, J.A. Casado, I. Carrascal, D. Ferreño, R. Moreno, D. Peribañez, H. Vega and S. Diego

RW.22.4 Improved Railway Vibration Mitigation Through Periodic Mass-Infused Rail Pads

I. Pahari, A. Banerjee and B. Manna

Day 3: Tuesday, 25th August 2026 - Room: Zsolnay I

16:10–17:50

Chaired by: Hugo Magalhaes and Jean-Francois Ferellec

Switches and Crossings

organized by: Prof. Björn Pålsson, Prof. Yann Bezin, Prof. Roger Dixon, Dr. Valeri Markine and Dr. Hugo Magalhães

RW.6.6 Localized Substructure Assessment in Railway Turnouts Based on Wavelength-Filtered RMS Indicators

T. Koch

RW.6.7 Influence of Eccentric Wheel–Rail Impact Loading on Rail Stress in Fixed Railway Crossings

H. Vilhelmson, B.A. Pålsson, J.C.O. Nielsen and J. Brouzoulis

RW.6.8 Experimental Investigation of Damage Morphology in High-Speed Railway Crossings with Different Structural Designs

Y. Shirae, F. Aoki and K. Adachi

RW.6.9 Real-Time IoT-Driven Predictive Maintenance: An Integrated Monitoring System for Railway Turnouts and Infrastructure

J.-Y. Shih, C.-M. Kuo, L.-W. Chen, K.-Y. Liu, C.-K. Chen and M. Wang

RW.6.10 Condition Monitoring of Dual Gauge Switches and Crossings for Assessing Their Dynamic Behaviour Under Railway Traffic

P. Salvador Zuriaga, V. Cioara Avram, P. Martínez Fernandez and I. Villalba Sanchis

Day 3: Tuesday, 25th August 2026 - Room: Zsolnay II

16:10–17:30

Chaired by: Babakalli Alkali and Isidro Durazo-Cardenas

Digital Twins & AI for Railway Asset Management

organized by: Prof. Hongrui Wang, Dr. Isidro Cardenas and Prof. Babakalli Alkali

RW.8.6 Assessing Regulatory Readiness for Autonomous Railway Inspection and Maintenance Systems
I. Durazo-Cardenas, D. Bailey, D. Ho, A. Gill, V. Puri, P.S. Phull and A. Hall

RW.8.7 Hybrid Modelling Based on Non Homogeneous Poisson Process for Predictive Maintenance
D. Collot, V. Laurent and O. Vo Van

RW.8.8 Identifying Precursors to Track Buckling for Development of a Continuous Monitoring System
Using Track Geometry Measurement Data
S. Sasaki

RW.8.9 Keeping the Driver in the Loop: How Artificial Intelligence Can Support Railway Safety Without Replacing Human Judgement
D.V. Katkoria and Y. Idmalek

Day 3: Tuesday, 25th August 2026 - Room: Zsolnay III

16:10–17:50

Chaired by: Gisella Tomasini and James R. Bell

Railway Aerodynamics

organized by: Dr. James Bell, Prof. Guowei Yang, Prof. Gisella Tomasini, Prof. Zhenxu Sun, Prof. Tiantian Wang and Prof. Tian Li

RW.5.10 Aerodynamic Forces in Intermodal Container Trains: A Study on the Effect of Wagon Position on Container Drag

L. Corniani, P. Schito, J.R. Bell, J. Pombo and S. Bruni

RW.5.11 KMF-Regio, a Generic Modular Designed Regional Train Model

T. Kowalski, M. Miketta and U. Fey

RW.5.12 Optimization of the Cross-Sectional Shape of the Train Body Considering the Influence of Crosswind on High-Speed Trains

G. Zheng and Y. Yu

RW.5.13 Numerical Analysis of Freight Train-Tunnel Overpressure Through Steady-State CFD Simulations

E. Inghilleri, G. Tomasini, S. Negri and N. Chizzolini

RW.5.14 An Interoperable Railway Vehicle Model for Crosswind Safety Assessment

L. Favaro and G. Tomasini

Day 3: Tuesday, 25th August 2026 - Room: Rákóczi I

16:10–17:50

Chaired by: Pedro Museros and José Nuno Varandas

Railway Bridges

organized by: Prof. Rui Calçada, Prof. José Goicolea, Prof. Anders Rønnquist, Prof. Raid Karoumi, Prof. Pedro Museros Romero and Dr. Pedro Montenegro

RW.2.3 High-Speed Passenger Train Load Model PT60: A Wide-Ranging Dynamic Excitation Source for the Assessment of Railway Bridge Analysis Methods in Moving Load Problems.

P. Museros and C. Riascos

RW.2.4 Machine Learning-Based Prediction of Railway Bridge Vertical Accelerations

P. Galvín, E. Moliner, M.D. Martínez-Rodrigo and A. Romero

RW.2.5 Development of a New Construction Method for Large-Scale Renovation of Concrete Bridges on the Tokaido Shinkansen

S. Taya, K. Saratani, S. Kitada and K. Yoshida

RW.2.6 A GIS-Based, AI-Enhanced Platform for UAS-Driven Railway Bridge Inspections

E. Murgia, A. Galli, A. Vecchi, F. Carmona, N. Lopez and F. Cosi

RW.2.7 Dynamic Characteristics of Railway Bridges in the European Rail Network: Insights for Future Classification Approaches

A. Stollwitzer, M. Reiterer and J. Fink

Day 3: Tuesday, 25th August 2026 - Room: Rákóczi II

16:10–17:50

Chaired by: Aires Colaço and Pedro Galvín

Railway Noise and Vibration

organized by: Dr. Robert Arcos, Dr. Aires Colaço, Dr. Eduardo Latorre Iglesias, Prof. Pedro Galvín, Dr. Kenny Fernando Conto, Prof. Pedro Alves Costa, Dr. Hassan Liravi and Dr. Ahmed Abouelmaty

RW.19.1 Prediction of Railway-Induced Noise and Vibrations in Environmental Impact Studies

A. Colaço, A. Abouelmaty and P. Alves Costa

RW.19.2 Development of Sound Barriers With Perovskite Solar Cells

N. Sugita, S. Taya, K. Yoshida, M. Nishii and T. Hara

RW.19.3 Measurements of Ground Vibrations Near Slab and Ballast Tracks – Influence of the Train Type, Train Speed, Soil, and the Track

L. Auersch

RW.19.4 Open-Source Rail Track Modelling Toolbox: Using Phi-Filter and Multiple Modal Bases for Accelerating Frequency Response Calculation

M. Ammann, M. Meguenni and J. Cugnoni

RW.19.5 A 2.5D Coupled BEM Approach for the Analysis of Low-Height Railway Noise Barriers

R. Velazquez-Mata, P. Galvín, A. Romero and A. Tadeu

Day 4: Wednesday, 26th August 2026 - Room: Zsolnay I

09:00–10:20

Chaired by: Björn. A Pålsson and Hugo Magalhaes

Switches and Crossings

organized by: Prof. Björn Pålsson, Prof. Yann Bezin, Prof. Roger Dixon, Dr. Valeri Markine and Dr. Hugo Magalhães

RW.6.11 Validation of Synthetic Tailored Crossing Frog Geometries by Means of Multibody Simulation
S. Antia-Vallecillo, A. Astiazaran, J. Sagarzazu, B. Rodríguez-Arana, J. Nieto and N. Gil-Negrete

RW.6.12 A Digital Twin Framework and Requirements for Lifecycle-Optimized Turnout Maintenance:
A Crossing Case Study
K. Norberg, B.A. Pålsson, P. Torstensson, K. Odolinski and A. Nissen

RW.6.13 A Data-Driven Chance-Constrained Receding-Horizon Framework for Railway Turnout Maintenance Optimization
M. Saiem, B. Nelain, F. Hnaïen and H. Snoussi

RW.6.14 Field-Calibrated MBS Model for Simulation of Railway Switch Actuation with a Trapped Foreign Object
S.K.K. Bysani, B.A. Pålsson and E. Kabo

Day 4: Wednesday, 26th August 2026 - Room: Zsolnay II

09:00–10:20

Chaired by: Aires Colaço and Lutz Auersch

Railway Noise and Vibration

organized by: Dr. Robert Arcos, Dr. Aires Colaço, Dr. Eduardo Latorre Iglesias, Prof. Pedro Galvín, Dr. Kenny Fernando Conto, Prof. Pedro Alves Costa, Dr. Hassan Liravi and Dr. Ahmed Abouelmaty

RW.19.6 On the Simulation of the Re-Radiated Noise Inside Buildings Using the Meshless Singular Boundary Method

J. Fakhraei, A. Alizadehshiraz, A. Clot and R. Arcos

RW.19.7 Study on a Hybrid Finite Element-Ray Method for Predicting Broadband Interior Structure-Borne Noise

X. Liang, B. Hou, J. Pombo, Y. Zhang, W. Zhou, Q. Zhang and H. Ban

RW.19.8 From Meshless Numerical Methods to Blocked Forces for Railway-Induced Vibration Prediction and Experimental Characterization

R. Arcos, A. Clot and J. Romeu

Invited lecture. Presentation time is 40 minutes.

Day 4: Wednesday, 26th August 2026 - Room: Zsolnay III

09:00–10:20

Chaired by: Howard Parkinson and Yohei Michitsuji

Signalling & Communication

RW.24.1 AI-Assisted Recovery System for Railway Signal Failures: Development and Deployment.

K. Yasuoka, T. Gunji, Y. Yamamoto, H. Endo and Y. Senda

RW.24.2 Applicability of Generative AI to Railway Signalling Control Based on the Evolution of Fail-Safe Design

T. Itagaki, T. Takata, T. Fukuda, H. Mochizuki, S. Takahashi and H. Nakamura

RW.24.3 Experimental Validation of Onboard Train Localization Using Marker Detection and Accelerometer

K. Nagai, W. Ohnishi, T. Koseki, Y. Setoguchi, T. Yamaguchi, S. Morita and K. Tanaka

RW.24.4 Safe Processing for Light Rolling Stocks

M.E.A. Abdullah, S. Collart-Dutilleul and O. Ait Mohamed

Day 4: Wednesday, 26th August 2026 - Room: Zsolnay I

10:50–11:50

Chaired by: Pedro Museros and Stephen Anthony Lloyd

Railway Bridges

organized by: Prof. Rui Calçada, Prof. José Goicolea, Prof. Anders Rønnquist, Prof. Raid Karoumi, Prof. Pedro Museros Romero and Dr. Pedro Montenegro

RW.2.1 Real-Time Damage Assessment of Bridge Strike Events Using a Bayesian Digital Twin
J.-Y. Shih, M. Entezami, N. Zhao, M.R. Salami, Y. Liu, J. Ye, X. Lyu and E. Stewart

RW.2.2 Advanced NDT-Based Assessment of Prestressed Concrete Railway Bridges - A Standardized Multi-Step Procedure
E. Murgia, A. Galli, A. Vecchi, F. Carmona, F. Candiloro and M. Maccaroni

Future of Freight

organized by: Prof. Stefano Ricci, Dr. Armando Carrillo, Prof. Andrew Smith, Prof. Nebojsa Bojovic and Dr. Milos Milenkovic

RW.13.2 Transport Using Shipping Containers
S.A. Lloyd

Day 4: Wednesday, 26th August 2026 - Room: Zsolnay II

10:50–12:10

Chaired by: Babakalli Alkali and Isidro Durazo-Cardenas

Digital Twins & AI for Railway Asset Management

organized by: Prof. Hongrui Wang, Dr. Isidro Cardenas and Prof. Babakalli Alkali

RW.8.10 3D-to-Plan: Automatic Generation of CAD Sketch of Retaining Walls from Trainborne LiDAR Point Clouds

G. Dufau, J. Sanchez, I. El Ghazaly, G. Neveu and B. Salavati

RW.8.11 Feasibility Study on 3D Point Cloud Data Acquisition for Railway Structures: Evaluation of VTOL UAVs and Portable Vehicle-Mounted LiDAR

I. Tsujisawa and M. Myouken

RW.8.12 Concept of Bio-Inspired Cyber-Physical Railway Infrastructure Towards Predictive Maintenance: Distributed Piezoelectric Sensing and Physics-Informed Digital Twins

Z. Hadas, P. Hadraba, F. Kšica, J. Chalupa, M. Mangova, J. Kovar, L. Babic, M. Bim and O. Plasek

RW.8.13 Large-Scale Monitoring of Urban Rail Infrastructure and Operations Using Smartphone Sensing Data

P. Leibner, J. Goersch and R. Pfaff

Day 4: Wednesday, 26th August 2026 - Room: Zsolnay III

10:50–11:50

Chaired by: Howard Parkinson and Gianluca D'Amico

Cybersecurity and Immersive Technologies (VR & AR)

organized by: Dr. Ravdeep Kour, Prof. Simon Parkinson and Dr. Duke Gledhill

RW.20.1 SynDRA-Gen: A Configurable Pipeline for Controlled Synthetic Multi-Modal Data Generation in a Railway Shunting Yard

G. Damico, F. Nesti, M. Marinoni, S. Sabina and G. Buttazzo

RW.20.2 Applying the New IEC 63452 OT Railway Cybersecurity Standard to Operators and System Integrators

H. Parkinson, D. Basher, G. Bamford, S. Parkinson and J. Murray

RW.20.3 Ontology-Driven Scoping and Prioritisation for Railway Penetration Testing

M. Shapoval, V. Deniau, C. Gransart and A. Lang

List of participants

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Mr.	Junta	ARIMA
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	Yunfeng	BI
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	Gianluca	DAMICO
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