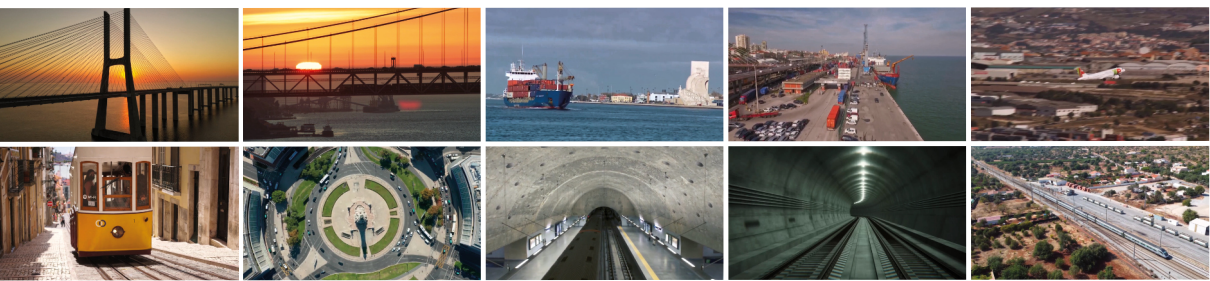


TS2025

1st International Conference
On Transportation Systems



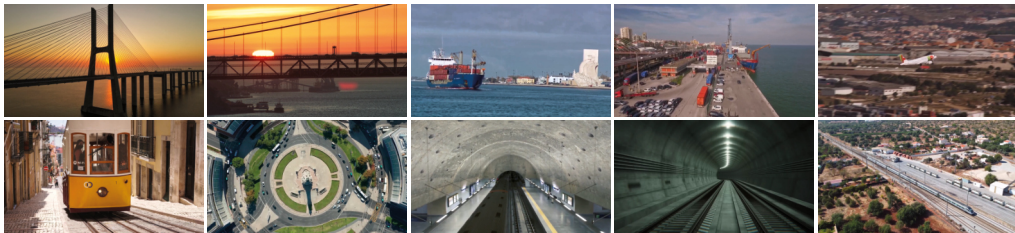
16 - 18 JUNE 2025 | Instituto Superior Técnico | Lisboa | Portugal

CONFERENCE PROGRAM



TS2025

1st International Conference
On Transportation Systems



16 - 18 JUNE 2025 | Instituto Superior Técnico | Lisboa | Portugal

CONFERENCE PROGRAM



TÉCNICO
LISBOA



Title:

CONFERENCE PROGRAM

TS2025 - 1st International Conference on Transportation Systems

Edited by:

Virgínia Infante

IST/IDMEC

António Andrade

IST/IDMEC

Abílio de Jesus

FEUP

Pedro Aires Montenegro

FEUP

June 2025

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Avenida Rovisco Pais, 1

1049-001 LISBOA

Graphic Design:

Luís Barros

luisbarrosdesign@gmail.com



Welcome

Join us at the **1st International Conference in Transportation Systems (TS2025)**, where we will explore and discuss the most recent innovative results from national and international projects in Transportation Systems.

The first edition of the conference appears as a joint action by **IDMEC** and **FEUP** to disseminate an emerging topic such as Transportation System. It will be held in the Congress Center of Instituto Superior Técnico, University of Lisbon, Lisboa, Portugal, from June 16 to 18, 2025.

TS2025 focuses on all aspects and scales of transportation systems, from the basics to future trends, covering all types of topics within sustainable transport, logistics, production and productive processes in transportation systems, railway systems, aviation and aerospace systems, urban mobility, energy and efficiency in transportation, health monitoring, reliability, risk, safety, security, and resilience in transportation systems.

This year's main theme - "Railways as the backbone of the transportation system" highlights the key role of the railways in the transportation system, in urban mobility and regional transport in passengers and freight transportation.

The conference will be a forum to discuss current research trends in different engineering sectors where transportation systems is a key concern.

Thank you for participating in the **1st International Conference in Transportation Systems**.

Lisbon, June 2025

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Xinxin Liu | Tampere Univ. | *Finland*

Zili Li | TU-Delft | *Netherlands*

CONFERENCE INFORMATION

Endorsed by

IDMEC - Instituto de Engenharia Mecânica

Técnico Lisboa - Instituto Superior Técnico

FEUP - Faculdade de Engenharia, Universidade Porto

Conference Venue

1st International Conference on Transportation Systems takes place in Instituto Superior Técnico (IST) Congress Center, situated at the Civil Engineering Building (Pavilhão de Civil).

Secretariat Open Hours

- Monday, 16 June 2025 > 08:00 - 18:00

- Tuesday, 17 June 2025 > 08:45 - 18:00

- Wednesday, 18 June 2025 > 08:45 - 13:00

Congress Center (Civil Engineering Building) Ground -1

Certificate of Participation

Certificates will be sent by e-mail after the conference upon request to: ts2025@tecnico.ulisboa.pt

Name Badges

Please use your name badge at all times, including technical sessions, lunches and social events.

Coffee Breaks

The coffee breaks will take place in the hall -2 (2nd Basement) of the conference center (see map of the conference center) and will be open to all participants. Kindly wear your name badge.

Lunches

The Lunch Tickets included in the package received during the registration will be accepted in the restaurant, whose location is highlighted in the map. The restaurant opens at 13:00 pm and offers a few choices for lunch in self-service, including a daily vegetarian option. Note that the lunch tickets have different colors for the different days and are valid only for the day printed in the front.

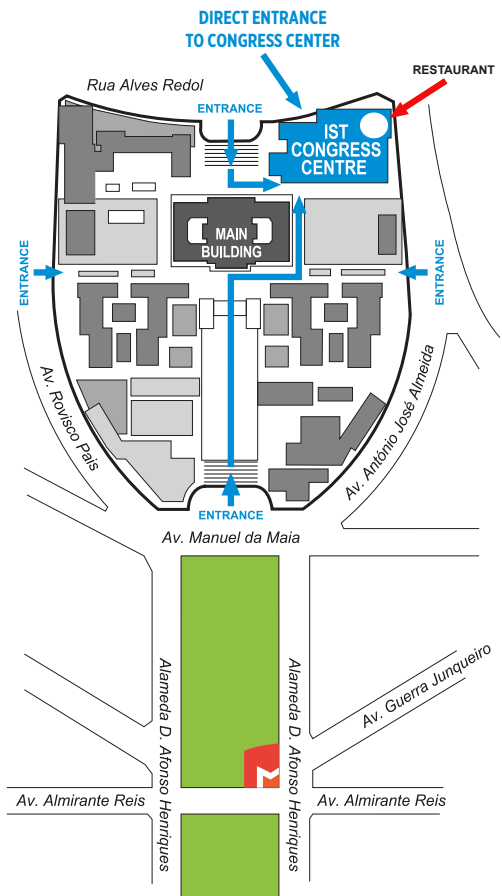


PLANT OF INSTITUTO SUPERIOR TÉCNICO

With the location of the Congress Centre



- Saldanha Underground Station



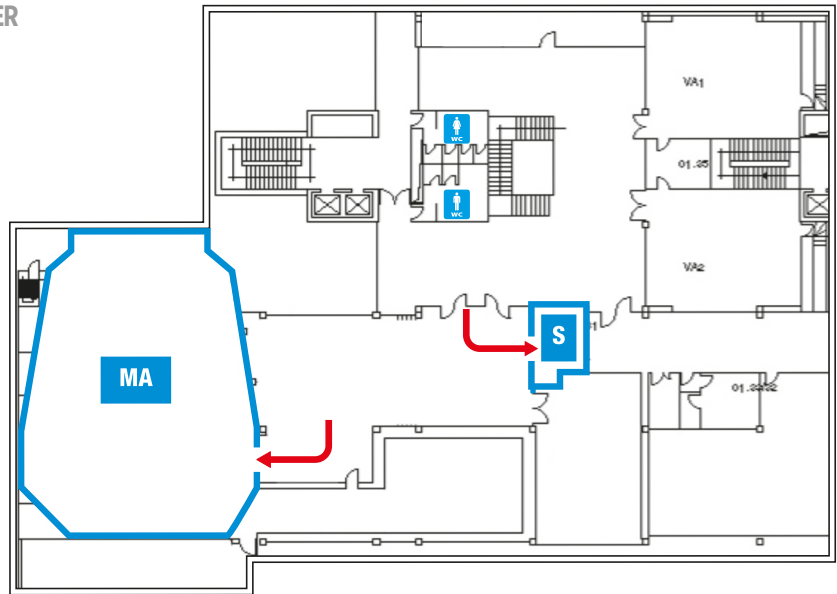
- Alameda Underground Station

CONFERENCE INFORMATION

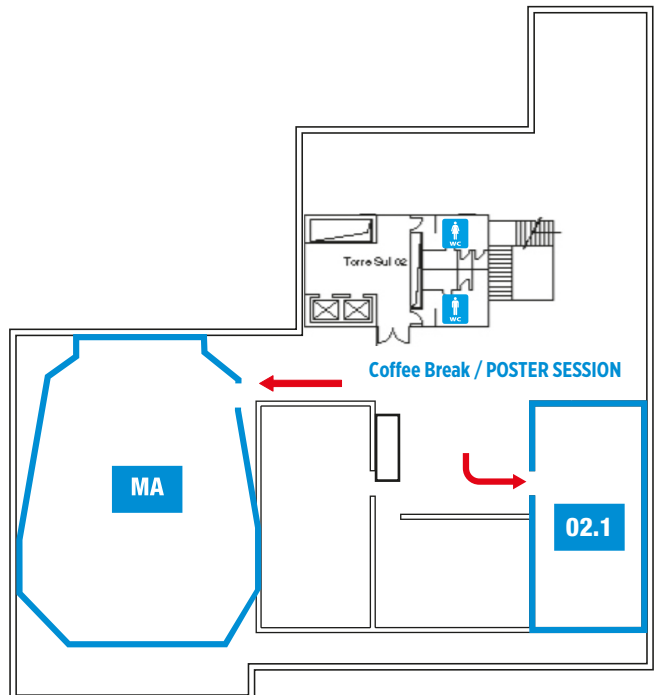
Congress Center Floor Plans

CONGRESS CENTER

Floor -1
(1st Basement)



- MA -** Main Auditorium
- S -** Secretariat
- 02.1 -** Session Room

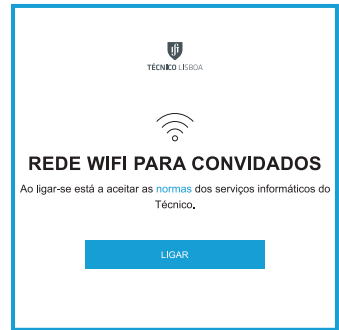
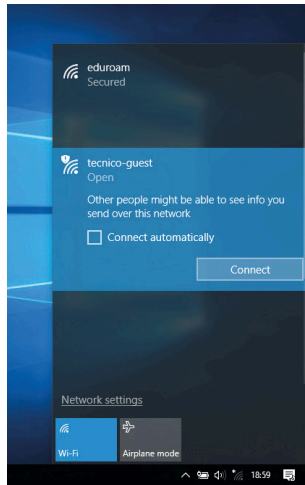
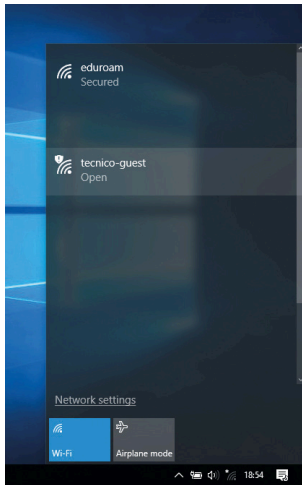


CONGRESS CENTER

Floor -2
(2nd Basement)

CONFERENCE INFORMATION

Wireless Internet Access



Step 1: Browse available wireless networks and select “tecnico-guest”

Step 2: Open your web browser and access the website “wifi.tecnico.ulisboa.pt”
(most of the computers will do it automatically)

Step 3: Click on the (blue) button “Ligar”

Step 4: Enter the following credentials:

Account name: **TS2025**

Password: **tFbNhz**

Instructions for Presenters

- Each Oral presentation will take 15 minutes including discussion.
- The files required for the presentation (PowerPoint or PDF) should be uploaded, and tested to ensure compatibility, during the coffee or lunch breaks before the beginning of the session.
- The lecture rooms contain a Windows PC, with Office and Acrobat PDF Reader, connected to a data projector. The use of personal computers is not recommended.
- Technical support will be provided on-site by the **TS2025** staff to ensure a smooth delivery of all presentations.

SOCIAL PROGRAMME



Welcome Drink > June 16 | 18:15

The Welcome Drink will take place on Monday, June 16, in the hall -2 (2nd Basement) of the IST conference center (see map of the conference center)



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Wine Taste > June 17 | 18:15

The Wine Taste will take place on Tuesday, June 17, in the hall -2 (2nd Basement) of the IST conference center (see map of the conference center)

GENERAL TOURIST INFORMATION



Getting to Lisbon by air

Direct flights from most of European cities, North or South America and Africa land at the Portela Airport, terminal 1. A taxi ride from the airport to IST is about 4-5 km that takes 10-15 min, depending on traffic, and should cost around 8,00€. To downtown, the taxi ride is about 7 km and should cost around 10,00€. 1,60€ is charged for the transportation of luggage or animals.

A sure option is the “Taxi Voucher”, a prepaid taxi service starting at 16,00€, on sale at the “Information Desk” in the arrival terminal. Lisbon Airport has its own Metro Station, Aeroporto - red line (see map of Lisbon with subway lines). Other options are the AeroBus and the Aeroshuttle (4,00€).

Getting to Lisbon by car

Drivers can use highway A1 when coming from the North, highway A2, through the 25 de Abril bridge, when coming from the South, and highway A12, through Vasco da Gama bridge, when coming from the Northeast.

Getting to Lisbon by train

The St. Apolónia station is the terminal for trains arriving from the North of Portugal. Another option is to use the train station Oriente. From the South of Portugal an option is to use the train station Oriente. Connections to the metro lines exist at both stations (St. Apolónia - blue line, Oriente - red line).

Moving around

Taxi:

Lisbon is served by an extensive network of public transportation that can take you anywhere in the city and to its surroundings. Taxis (black and green or beige) are cheap when comparing to most of the European countries. They can be called by phone, picked-up on taxi plazas or stopped on the street. The fare on the taxi meter should start at 3,25€ (daytime pick-up) or 3,90€ (night time). Outside the city limits, city fares are charged per kilometer. 1,60€ is charged for

the transportation of luggage or animals. Before taking a taxi, inquire about the fare.

Metro:

The Lisbon Metro is a very comfortable and an easy way to reach most of the city, from 6:30 to 1:00. The Metro lines reach most of the city being the Metro stations close to IST:

- Alameda (red and green line)
- Saldanha (red and yellow line)

Bus:

The bus routes cover all Lisbon and extend to its outskirts. The tickets can be pre-paid, at the counters of Carris, the surface transportation operator for Lisbon, or bought aboard the bus, electric cars or funiculars. For IST hop off at one of the following bus stops:

- Av. Manuel da Maia
- Av. Róvisco Pais
- Arco do Cego

Metro and Bus Fares:

Reusable card - 0,50 €

METRO/CARRIS - 1,85 €

CARRIS Bus - 2,20 € (on board fare)

Tram - 3,20 € (on board fare)

Trains:

Suburban trains to Estoril and Cascais depart from the Cais do Sodré train station; to the south of the river cities depart from Roma - Areeiro (Entrecampos); and to Sintra depart from Rossio or Oriente train stations.

The ride to Cascais or to Sintra should take about 35-45 min, each way. The train ride to south of the river is a highlight as the train will cross the 25 de Abril bridge with magnificent views of Lisbon.

For IST, the nearby train stations are:

- Roma - Areeiro
- Entrecampos

OTHER GENERAL INFORMATION

- > National emergency number: 112
- > Electricity: 220V, 50 Hz with standard European power sockets
- > Temperature: high 28°C - low 18°C
- > Currency: Euro (€)
- > Banks: working hours are 8:30 – 15:00 (*Monday-Friday*)
- > Pharmacies: 9:00 – 19:00
- > Shops: 9:00 – 19:00
- > Shopping Malls: 10:00 – 23:00

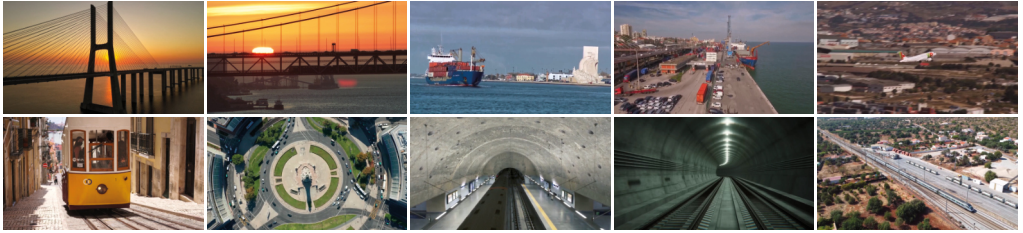


Main Museums in Lisbon:

- > Centro de Arte Moderna
(*Modern Art Museum*)
- > Museu do Oriente
(*Oriente Museum*)
- > Museu Calouste Gulbenkian
(*Calouste Gulbenkian Museum*)
- > Museu dos Coches
(*Coach Museum*)
- > Museu Nacional de Arte Antiga
(*National Museum for Ancient Art*)
- > Coleção Berardo
(*The Berardo Collection*)
- > Museu do Azulejo
(*Tile Museum*)
- > Aqueduto das Águas Livres
(*Águas Livres' Aqueduct*)
- > Basílica da Estrela
(*Estrela Basilica*)
- > Castelo de São Jorge
(*Saint George's Castle*)
- > Sé Patriarcal
(*Patriarchal Church*)
- > Mosteiro dos Jerónimos
(*Jerónimos Monastery*)
- > Padrão dos Descobrimentos
(*Monument to the Overseas Discoveries*)
- > Torre de Belém
(*Belém Tower*)

TS2025

1st International Conference
On Transportation Systems



16 - 18 JUNE 2025 | Instituto Superior Técnico | Lisboa | Portugal

SCIENTIFIC PROGRAM



PROGRAM AT A GLANCE

Monday | June 16 | 2025

08:00 - 09:00	Registration
09:00 - 09:30	Conference Opening
09:30 - 10:30	Room MA SESSION 1
10:30 - 11:00	Coffee Break / POSTER SESSION 1
11:00 - 11:45	Room MA PLENARY SESSION 1 João Pombo
11:45 - 13:15	Room MA SESSION 2
13:15 - 14:30	Lunch
14:30 - 16:00	Room MA SESSION 3
16:00 - 16:30	Coffee Break / POSTER SESSION 1
16:30 - 17:15	Room MA PLENARY SESSION 2 Janet (Jing) Lin
17:15 - 18:15	Room MA SESSION 4
18:15	Welcome Drink

Tuesday | June 17 | 2025

08:45 - 09:00	Registration	
09:00 - 10:30	Room MA SESSION 5A	Room 02.1 SESSION 5B
10:30 - 11:00	Coffee Break / POSTER SESSION 2	
11:00 - 11:45	Room MA PLENARY SESSION 3 Gonalo Correia	
11:45 - 13:15	Room MA SESSION 6A	Room 02.1 SESSION 6B
13:15 - 14:30	Lunch	
14:30 - 16:00	Room MA SESSION 7A	Room 02.1 SESSION 7B
16:00 - 16:30	Coffee Break / POSTER SESSION 2	
16:30 - 17:15	Room MA PLENARY SESSION 4 Miloslav Kepka	
17:15 - 18:15	Room MA SESSION 7A	Room 02.1 SESSION 7B
18:15	Wine Taste	

Wednesday | June 18 | 2025

09:00 - 10:45	Room MA SESSION 9A	Room 02.1 SESSION 9B
10:45 - 11:15	Coffee Break	
11:15 - 12:00	Room MA PLENARY SESSION 5 Armando Zanuy	
12:00 - 13:15	Room MA SESSION 10A	Room 02.1 SESSION 10B
13:15	Closing Remarks	

Monday | **June 16** | 2025

Conference Hall 01			
08:00 - 09:00		Conference Opening	
Main Auditorium			
09:00 - 09:30		Conference Opening	
Main Auditorium			SESSION 1
June 16 (09:30 - 10:30)			Chair: <i>Tiago Farias</i>
TIME	ID	PRESENTING AUTHOR	TITLE
09:30	404	<i>Benjamin Ebrecht</i>	German-Cuban Collaboration: Developing a Retrofit Concept to transform Havana's Suburban Diesel Railcars into Battery-Powered Trains Benjamin Ebrecht Birgit Milius
09:45	406	<i>Bilal Üyümez</i>	Towards a Safe Machine Learning-Driven Continuous Trackside Train Localization System Based on Fiber Optic Sensing Bilal Üyümez Miroslav Pejic Christopher Tauchmann Andreas Oetting Kristian Kersting
10:00	411	<i>Elisa Frey</i>	GHG balancing of railway infrastructure: Data availability for evaluating greenhouse gas emissions of railway construction projects Elisa Frey Lasse Hansen Leyla Sophie Ilknur Öztürk Birgit Milius
10:15	413	<i>Stefano Ricci</i>	Assessment of passenger safety on station platforms: setup of a quantitative method for relevant case studies Cristiano Marinacci Chaitanya Reddy Gummalla Alessandro Baldassarra Stefano Ricci
10:30 - 11:00		Coffee Break / POSTER SESSION 1	
Main Auditorium			PLENARY LECTURE 1
June 16 (11:00 - 11:45)			Chair: <i>Jorge Ambrósio</i>
TIME	ID	PRESENTING AUTHOR	TITLE
11:00	PL	<i>João Pombo</i>	Railway Electrification Cost Reduction for a more Sustainable Train Transportation System
Main Auditorium			SESSION 2
June 16 (11:45 - 13:15)			Chair: <i>Jorge Ambrósio</i>
TIME	ID	PRESENTING AUTHOR	TITLE
11:45	470	<i>Marcel Scharmach</i>	Propulsion and Energy Architecture for Sustainable Lightweight Regional Railway Vehicles: A Simulation-Based Assessment within the Europe's Rail FutuRe Project Marcel Scharmach Benedikt Hertel Amir Torkiharchegani Jens König Mats Alaküla Moritz Schenker
12:00	428	<i>Sveva Marcocci</i>	Train Platforming Problem Giovanni Luca Giacco Sveva Marcocci
12:15	472	<i>Christoph Streuling</i>	Effects of Implementing Weather Data in Life Cycle Cost Calculation of Passenger Trains with Alternative Powertrains Sebastian Herwartz-Polster Johannes Pagenkopf Christoph Streuling
12:30	457	<i>Marek Štorkán</i>	Experience with testing according to European standards Jan Capek Marek Štorkán
12:45	463	<i>Mao Kozaki</i>	A Methodology for Visual Inspection Cycle Optimization: Refinement of Statistical Deterioration Prediction through Cross-Disciplinary Inspection Record Integration Mao Kozaki Kodai Matsuoka Wataru Inaba Kazuki Takahashi Kiyoyuki Kaito
13:00	507	<i>Mafalda Vale</i>	On-Demand Transport and Circular Economy: A Sustainable Approach for Mobility in Low-Density Areas Mafalda Vale Marta Ferreira Dias Jorge Bandeira
13:15 - 14:30		Lunch	

Main Auditorium			SESSION 3
June 16 (14:30 - 16:00)			Chair: <i>Pedro Montenegro</i>
TIME	ID	PRESENTING AUTHOR	TITLE
14:30	469	<i>Robert Winkler-Höhn</i>	Deep sleep on a light European train: Modularity and light-weight as enablers of a profitable night train Nicolai Schmauder Robert Winkler-Höhn Aaron Paz Martinez Dieter Kobel Olaf Schultz
14:45	522	<i>Eduardo Costa</i>	Review of CFD Studies for Analyzing Passenger Train Aerodynamics Eduardo Costa Vishveshwar Mantha João Santos Silva Manuel António Pereira Abílio de Jesus Abel Rouboa
15:00	529	<i>Aida Moreira</i>	Exploring the Impact of Deformation-Induced Martensitic Transformation in the Monotonic and Fatigue Behaviour of the 301L Stainless Steel with Application in Passenger Train Structures Vitor M. G. Gomes Aida B. Moreira C. Diogo Mota Francisca M. de Sousa Baptista Miguel A. V. de Figueiredo João Cruz João D. S. Silva Manuel A. S. Pereira Manuel F. Vieira Abílio M. P. de Jesus
15:15	530	<i>José Vicente</i>	Efficiency and Loss Optimization in Railway Auxiliary Power Converters Using WBG Devices José Vicente Agostinho Rocha Adriano Carvalho Vitor Morais
15:30	517	<i>Tomasz Staskiewicz</i>	Wear Monitoring in the Wheel-Rail Interface: A Real-time Approach Tomasz Staskiewicz Marcin Slowinski Pawel Pawlowski Bartosz Jakubek Karol Grochalski
15:45	537	<i>Rafael Araújo</i>	Overview of the Application of Lightweight Materials in Railway Structural Applications Rafael Araujo Vasco Simões Paulo Alves Paulo Oliveira José Rebola Diogo Alexandre João Cruz Pedro Montenegro Abílio de Jesus

16:00 - 16:30	Coffee Break / POSTER SESSION 1
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Main Auditorium			PLENARY LECTURE 2
June 16 (16:30 - 17:15)			Chair: <i>António Andrade</i>
TIME	ID	PRESENTING AUTHOR	TITLE
16:30	PL	<i>Janet (Jing) Lin</i>	The AI Synergy Revolution: Redefining Railway Reliability for Tomorrow

Main Auditorium			SESSION 4
June 16 (17:15 - 18:00)			Chair: <i>António Andrade</i>
TIME	ID	PRESENTING AUTHOR	TITLE
17:15	420	<i>Serge Chaumette</i>	MICADO: Infrastructure Maintenance through Mapping and Data Serge Chaumette Jonathan Ouoba
17:30	439	<i>Petr Stritesky</i>	Sustainable Energy Management and Eco-Driving Strategies in Autonomous Rail Systems Petr Stritesky Michal Matowicki
17:45	478	<i>Natalia Niño Plata</i>	Assessing the Impact of Rail-Based Transit on Urban Land Value: A Case Study of the Bogotá Metro Juan Pablo Bocarejo Natalia Milena Niño Plata Luis Angel Guzman Hernán Darío Enríquez

18:15	Welcome Drink
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Tuesday | June 17 | 2025

Main Auditorium			SESSION 5A
June 17 (09:00 - 10:30)			Chair: Janet (Jing) Lin
TIME	ID	PRESENTING AUTHOR	TITLE
09:00	448	Abhishek Bhadouria	Evaluating the efficiency of wheelset lathe technicians in freight wagon maintenance Abhishek S. Bhadouria Joaquim A. P. Braga Paulo Alves Rajesh P. Mishra António R. Andrade
09:15	519	Cláudio Horas	An Engineering Perspective on the General Fatigue Normative Framework for Materials Used in Freight Wagons Cláudio Horas Ana Leonor Ribeiro Paulo Alves Abílio de Jesus
09:30	524	Abílio Jesus	Normative and Engineering Framework for the Design of a New Smart Wagon: A Case Study Ana Leonor Ribeiro Cláudio Horas Vasco Simões Paulo Alves Paulo Oliveira José Rebola Diogo Alexandre Pedro Montenegro Abílio de Jesus
09:45	526	Ana Leonor Ribeiro	Static Design of a New Smart Wagon Geometry: A Case Study Ana Leonor Ribeiro Cláudio Horas Vasco Simões Paulo Alves Paulo Oliveira José Rebola Diogo Alexandre Pedro Montenegro Abílio de Jesus
10:00	407	Rita Sousa	Application of FMECA and RCM Methodologies to Freight Transport Wagons Rita Sousa Sandra Fernandes João P. M. Pinto Paulo Alves Paulo Oliveira João Martins José Rebola Diogo Alexandre Pedro Antunes Ana Santos António Andrade Virgínia Infante
10:15	515	Tiago Neves	MK6 Wagon Structure Frontal Impact Analysis Tiago Neves

Room 02.1			SESSION 5B
June 17 (09:00 - 10:15)			Chair: Paulo Peças
TIME	ID	PRESENTING AUTHOR	TITLE
09:00	430	Marco Ferreira	Railways as the Backbone of Transportation Systems through MaaS Platforms and B2B Intermodal Services Marco Ferreira Noman Offel Clemens Gantert Stina Carlstedt Henk Jan Borghuis Nesrine Chatelkhir
09:15	438	Chris Davis	Improving Door-to-Door Journey Times: A new method to overcome the limitations of skip-stop operation for urban public transport Chris Davis Marcelo Blumenfeld Roger Dixon
09:30	452	Nicolai Schmauder	Challenges and concept approach of interfaces for interoperable transport units for seamless transport services Manuel Osebek Nicolai Schmauder Walter Struckl Dirk Winkler
09:45	467	Catarina Ferreira	Passenger Wellbeing in Aircraft Interiors Rui Marcelino André Castro Catarina Ferreira
10:00	483	Fesseha Belay	The Impact of Telework on the Intention to change residential location: An analysis of the Lisbon Metropolitan Area in the Post Covid-19 Era Fesseha Fentahun Belay João de Abreu e Silva

10:30 - 11:00	Coffee Break / POSTER SESSION 2
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Main Auditorium			PLENARY LECTURE 3
June 16 (11:00 - 11:45)			Chair: Virgínia Infante
TIME	ID	PRESENTING AUTHOR	TITLE
11:00	PL	Gonçalo Correia	Transforming Public Transport: Efficient First- and Last-Mile Solutions Across Spatial Scales

Main Auditorium			SESSION 6A
June 17 (11:45 - 13:15)			Chair: <i>Virgínia Infante</i>
TIME	ID	PRESENTING AUTHOR	TITLE
11:45	462	<i>Frederico Alves</i>	Design of an intermodal freight wagon using Multiobjective Optimization F. Alves J. A. Madeira P. Alves P. Oliveira V. Infante
12:00	471	<i>João Pagaimo</i>	Study of the derailment potential of railway vehicles subject to cyclic top irregularities João Pagaimo João Torres Hugo Magalhães Virgínia Infante Jorge Ambrósio Paulo Oliveira
12:15	480	<i>Miguel Marques</i>	Prediction of Cyclic Top Irregularity Growth Induced by Freight Vehicle Operations Miguel Marques Joao Pagaimo João Torres Hugo Magalhães Filipe Marques Paulo Oliveira
12:30	525	<i>Vitor Gonçalves</i>	AI-Driven Method for Detection of Transversely Imbalanced Loads in Freight Wagons using On-board Sensors Vitor Gonçalves Rúben Silva Andreia Meixedo Araliya Mosleh João Fernandes
12:45	520	<i>Pedro Montenegro</i>	Assessment of Running Safety of Railway Vehicles using Acceleration Data from an On-board System António Guedes Rúben Silva Vitor Gonçalves Pedro Montenegro Andreia Meixedo João Fernandes
13:00	527	<i>Vasco Simões</i>	Multiscale Modelling for Boundary Analysis of Bogie Support Ana Leonor Ribeiro Cláudio Horas Vasco Simões Rafael Araújo Paulo Alves Paulo Oliveira José Rebola Diogo Alexandre Frederico Alves Virgínia Infante Pedro Montenegro Abílio de Jesus

Room O2.1			SESSION 6B
June 17 (11:45 - 13:15)			Chair: <i>Aurélio Araújo</i>
TIME	ID	PRESENTING AUTHOR	TITLE
11:45	458	<i>Inês Ribeiro</i>	Sustainable Value Roadmap for AM Driven Supply Chains Gonçalo Cardeal Tobias Alves Oliveira Inês Ribeiro Marco Leite
12:00	459	<i>Pedro Oliveira</i>	Post-Industrial Recycling and Reuse Strategies: A Cost Model Analysis Pedro Oliveira Bruna Torres Ferreira Vitor Paulo Marco Leite
12:15	460	<i>Gonçalo Cardeal</i>	Critical Factors for the Adoption of Additive Manufacturing in Spare Part Supply Chains: Insights from an Industrial Collaboration with The Navigator Company Gonçalo Cardeal Tobias Alves Oliveira Inês Ribeiro Marco Leite
12:30	461	<i>Bruna Ferreira</i>	Understanding the Evolving Landscape of Emergent Technologies in Product Development for Industrial Equipment SMEs Gonçalo Cardeal Mihail Fontul Marco Leite
12:45	486	<i>Andreia Alves</i>	Integration of Intelligent Logistics and Autonomous Fleet Management for Industrial Efficiency Paulo Peças Andreia Alves
13:00	489	<i>Fillipe Ribeiro</i>	Intelligent and Efficient Feeding System for Extrusion Lines: A Digital Transformation Approach Paulo Peças Fillipe Ribeiro Sílvia Ferreira

13:15 – 14:30	Lunch
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Tuesday | **June 17** | 2025

Main Auditorium			SESSION 7A
June 17 (14:30 - 16:00)			Chair: <i>Hugo Magalhães</i>
TIME	ID	PRESENTING AUTHOR	TITLE
14:30	511	<i>Francisco Vieira</i>	A floating frame of reference approach to study fracture in multibody systems using peridynamics Francisco Vieira João Pagaimo Paulo Alves Jorge Ambrósio Aurélio Araújo
14:45	512	<i>Emília Paulo</i>	A Peridynamic approach to fatigue crack propagation: critical analysis and comparison with existing methods Emília Paulo Francisco Vieira Paulo Alves Aurélio Araújo
15:00	532	<i>João Oliveira</i>	Smart Sensor Network for Real-Time Anomaly Detection in Railway Freight Wagons João Oliveira Pedro Montenegro Paulo Portugal Paulo Bento Nuno Cruz Pedro Ribeiro
15:15	533	<i>José Furtado</i>	Development of an Energy Harvesting System for Smart Freight Wagons César Silva Joaquim Gabriel Paulo Portugal Pedro Montenegro João Fernandes José Furtado
15:30	534	<i>João Nuno Silva</i>	Fatigue Assessment of the Portuguese Next-Generation Smart Wagons João Nuno Silva Vítor M. G. Gomes Vasco M. Simões Francisca Manso Paulo Alves José A.F.O. Correia Pedro Montenegro Abílio de Jesus
15:45	539	<i>Muhammad Musa</i>	Multibody Dynamics of Passenger Trains: Assessing Running Safety and Comfort on Curved Tracks Muhammad Musa Pedro Montenegro Vítor Gonçalves João Silva Manuel António Abílio M.P. de Jesus Cláudio Horas

Room 02.1			SESSION 7B
June 17 (14:30 - 16:00)			Chair: <i>Marco Leite</i>
TIME	ID	PRESENTING AUTHOR	TITLE
14:30	417	<i>Helry Dias</i>	Sustainable Urban Freight Logistics: A Cost, Global Emissions and Power Consumption Data-Driven Modelling Approach Helry Luvillany Fontenele Dias Erik Jenelius
14:45	426	<i>Chun-Hsing Ho</i>	Evaluating the Impact of Freeze-Thaw Cycles and Moisture Damage on Pavement Performance in Finland Chun-Hsing Ho Pauli Kolisoja
15:00	445	<i>Arménio Correia</i>	On the feasibility of metal-polymer friction stir joining in buttstrap configuration Eduardo Costa Vishveshwar Mantha João Santos Silva Manuel António Pereira Abílio de Jesus Abel Rouboa
15:15	449	<i>Igors Kukjans</i>	Modelling User-Pay and Polluter-Pay Principles-Based State Interventions for Sustainable Transportation Systems Igors Kukjans Inguna Jurgelane-Kaldava Maris Juruss Justina Hudenko
15:30	546	<i>Lars Geese</i>	Improving Train Driving Efficiency by Learning from Past Journeys Lars Geese Cedric Steinbach Andreas Oetting
15:45	464	<i>Julianno Amorim</i>	Commuting burden distribution: the equity effects of the new work dynamics on metropolitan areas Julianno de Menezes Amorim João de Abreu e Silva Jorge Gonçalves

16:00 - 16:30	Coffee Break / POSTER SESSION 2
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Main Auditorium			PLENARY LECTURE 4
June 17 (16:30 - 17:15)			Chair: <i>Abílio Jesus</i>
TIME	ID	PRESENTING AUTHOR	TITLE
16:30	PL	<i>Miloslav Kepka</i>	Experience in solving public R&D projects in the field of railway vehicles in the Czech Republic

Main Auditorium			SESSION 8A
June 17 (17:15 - 18:15)			Chair: <i>Abílio Jesus</i>
TIME	ID	PRESENTING AUTHOR	TITLE
17:15	538	<i>Francisco Portela</i>	Structural Analysis of the Y25 Bogie Chassis for Iberian Railway Gauge Vasco Simões Francisco Portela Andreia Santos Luis Andrade Ferreira Paulo Tavares de Castro Paulo Alves Paulo Oliveira José Rebola Diogo Alexandre Abílio de Jesus
17:30	523	<i>Jorge Martins</i>	Passenger rolling stock frontal crash analysis Jorge Afonso H. C. Martins Francisca Manso João Cruz Dias Alves Abílio de Jesus
17:45	536	<i>Francisca Manso</i>	Rolling Stock Gauge Assessment for Rail Vehicle Design Francisca Manso Vitor M. G. Gomes João Cruz Dias Alves Paulo Alves Paulo Oliveira José Rebola Diogo Alexandre Pedro Montenegro Abílio de Jesus
18:00	521	<i>Vishveshwar Mantha</i>	A 3D CFD Comparative Study of Aerodynamic Performance of Passenger Train Frontal Designs Vishveshwar Mantha Eduardo Costa Rui Marcelino Elizabeth Remelgado João Santos Silva Manuel António Pereira Abílio Jesus Abel Rouboa

Room 02.1			SESSION 8B
June 17 (17:15 - 18:00)			Chair: <i>Inês Ribeiro</i>
TIME	ID	PRESENTING AUTHOR	TITLE
17:15	454	<i>José Pedro da Silva</i>	Optimizing Ornamental Stone Cutting and Machining Equipment Through Mass Decomposition Analysis Marco Leite José Pedro da Silva Alvaro Gouveia
17:30	506	<i>Susana Cravo</i>	Production of Heat Exchangers by Additive Manufacturing: A Bibliometric Analysis S. Cravo L. Neves A. Garcês R. F. Martins R.A. Cláudio
17:45	482	<i>Juan Villermo</i>	Development of accessibility indicators incorporating physical and ICT related components Juan Guillermo Zuluaga Villermo João de Abreu e Silva

18:15	Wine Taste
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Wednesday | **June 18** | 2025

Main Auditorium			SESSION 9A
June 18 (09:00 - 10:45)			Chair: <i>Gonalo Correia</i>
TIME	ID	PRESENTING AUTHOR	TITLE
09:00	412	<i>Guilherme Ribeiro</i>	RAMS in Transportation Systems: a Human-Centric Approach Guilherme Ribeiro Ant3nio Ramos Andrade Virg3nia Infante Nuno Cota
09:15	415	<i>Valdemar Armindo</i>	An Analyse of the Portuguese Power System Operation Considering Electric Vehicles Mass Adoption Valdemar Abril Armindo Cindy P. Guzman Hugo Morais Pedro Carvalho
09:30	433	<i>Jo3o Albuquerque</i>	Bus Network Design with elastic demand Jo3o Pedro Lopes de Albuquerque Ant3nio Ramos Andrade Cristina Marta Castilho Pereira Santos Gomes
09:45	432	<i>Jo3o Torres</i>	On-Board Railway Track Irregularity Detection with Machine Learning Jo3o Torres Jo3o Pagaimo Hugo Magalh3es Susana Vieira
10:00	494	<i>Marta Ferreira</i>	Integrating Value-Added Services in Mobile Ticketing Solutions: The Case of the Anda Application Marta Campos Ferreira Teresa Galv3o
10:15	466	<i>Soraia Felicio</i>	BBAX: An Integration of Blackboard Architecture and Explainable AI for Smart Urban Mobility Soraia Felicio Rui Camacho Teresa Galv3o
10:30	505	<i>Joana Hora</i>	Analyzing Synchronized Timetables in Public Transport Planning Carolina Cruz Torres Teresa Galv3o Joana Hora

Room 02.1			SESSION 9B
June 18 (09:00 - 10:45)			Chair: <i>Lu3s Sousa</i>
TIME	ID	PRESENTING AUTHOR	TITLE
09:00	476	<i>Pedro Millan</i>	Condition monitoring of railway bogie components using numerical simulations Pedro Millan Jo3o Pagaimo Jo3o Neves Costa Jorge Ambr3sio
09:15	484	<i>Rog3rio Lopes</i>	Lumped parameters updating for model reduction in railway coaches crashworthiness Alexandre Marks L3w Christian Javier Silva Rog3rio Filipe F. Lopes Tiago M. R. M. Domingues Pedro M. G. P. Moreira Jo3o Santos Silva Jo3o Manuel B. Cruz
09:30	503	<i>Job Silva</i>	Evaluation of different damping treatments on fatigue response of freight wagons Alexandre Marks L3w Daniel Jesus Job Santos Silva Tiago M. R. M. Domingues P. M. G. P. Moreira Paulo Alves Paulo Oliveira Jo3o Martins Jos3 Rebola Diogo Alexandre Ana Amorim Pedro Marques
09:45	514	<i>In3s Marques</i>	Tracking Packages and Containers Using RFID In3s Marques Ant3nio Serrador Rog3rio Campos Rebelo
10:00	516	<i>Stefano Alfi</i>	A speed-dependent model-based approach to the monitoring of track irregularity Stefano Alfi Matteo Santelia Ivano La Paglia Egidio Di Gialleonardo Alan Facchinetti
10:15	544	<i>Jo3o Arrojado</i>	Evaluation of Eurocode Dynamic Amplification Factors – Case Study Jo3o Arrojado Jo3o Nuno Silva Cl3udio Horas Pedro Aires Montenegro Jos3 A. F. O. Correia
10:30	485	<i>Vera Dur3o</i>	Cradle-to-cradle environmental LCA of a light electric vehicle prototype Vera Dur3o Ana Mestre Sofia Carvalho Diogo Mata Ricardo Meireles

10:45 - 11:15	Coffee Break
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Main Auditorium			PLENARY LECTURE 5
June 18 (11:15 - 12:00)			Chair: <i>Pedro Montenegro</i>
TIME	ID	PRESENTING AUTHOR	TITLE
11:15	PL	<i>Armando Zanuy</i>	Towards FP10, Academic Networks in European Rail Research, EURNEX, Academics4Rail, PhDs EU-Rail, ERRAC PAG Academia and Rail Research Innovation Agenda

Main Auditorium			SESSION 10A
June 18 (12:00 - 13:15)			Chair: <i>Pedro Montenegro</i>
TIME	ID	PRESENTING AUTHOR	TITLE
12:00	453	<i>João Costa Sousa</i>	Road Accidents Severity Prediction: A Case Study in Portugal Bernardo Firme Tiago Farias Patricia Baptista Susana Vieira João M. C. Sousa
12:15	475	<i>João Cravo</i>	Optimizing Public Transport with Real-Time Passenger Analytics João Cravo Matilde Pato José Simão Nuno Cota
12:30	481	<i>Petru Lucian Sandu</i>	Legacy Vehicles Integration Proposal Using Hybrid C-ITS Architecture Petru Lucian Sandu José Simão Antonio Serrador
12:45	547	<i>Juan Carlos Cortez</i>	Comparative Analysis and Performance Validation of Load and Photovoltaic Generation Forecasting Using Real Residential Data Juan Carlos Cortez Diogo Monteiro Herbert Amezquita Cindy P. Guzman Samuel Matias Francisco Branco Hugo Morais
13:00	473	<i>João Marques</i>	Development of a Passenger Train Seat Structure using Finite Element Analysis and Design Optimization Algorithms Frederico Alves João Marques José Aguiar Madeira Ricardo Baptista Virginia Infante

Room 02.1			SESSION 10B
June 18 (12:00 - 13:15)			Chair: <i>Marta Gomes</i>
TIME	ID	PRESENTING AUTHOR	TITLE
12:00	414	<i>Mohammed Shehu</i>	Effect of Social Costs of Carbon on the economic viability of multimodal freight infrastructure in low-and middle-income countries Mohammed Shehu Marcelo Blumenfeld Holly Foss
12:15	424	<i>Roxana Banabic</i>	Health monitoring of road infrastructures using bender elements embedded in pavements Ionut Dragos Moldovan José Neves Carolina Melendez Manuel Parente Miguel Azenha Roxana Banabic Cosmin Chiorean Helder Silva João Moutinho Erol Tutumluer António Gomes Correia
12:30	436	<i>Carla M. Ferreira</i>	Analysis and Mapping of defects to Predict and Enhance the Performance of AISI10Mg samples Produced by PBF-LB/M Carla M. Ferreira Pedro M. Ferreira João Marques Rodolfo Batalha Anibal Valido António Garcês Luís Reis Ricardo Cláudio
12:45	545	<i>António Mourão</i>	Probabilistic Fatigue Assessment of Riveted Railway Bridge Connections Using Stochastic FEA António M.B.F.S. Mourão José A.F.O. Correia Cláudio C.S. Horas Túlio N. Bittencourt
13:00	450	<i>Felipe Fiorentin</i>	Reducing Railway Track Vibrations by Applying Particle Damping Systems Felipe Klein Fiorentin Arthur Prieto Diniz Cristian Piehowiak Anelize Zomkowski Salvi Yesid Ernesto Asaff Andrea Piga Carboni Abílio de Jesus Thiago Antonio Fiorentin

Main Auditorium	
13:15	Closing Remarks

Monday | June 16 | 2025

POSTER SESSION 1		10:30 - 11:00 16:00 - 16:30
ID	PRESENTING AUTHOR	TITLE
434	C. G. Figueiredo-Pina	Production And Characterisation Of Epoxy Matrix Composites Reinforced With Kahili Ginger Stems R. Marat- Mendes R. Ferreira R. Galante A. Garcês C. G. Figueiredo-Pina
435	R. Seródio	Bioplastic blends for natural fibre composite matrices for non-structural applications in the aeronautical industry R. Seródio P. F. Mendes A. C. Marques A. Garcês C. G. Figueiredo-Pina
405	Miloslav Kepka	Fatigue tests of vehicles - an important part of their development and engineering education Tetjana Tomaskova Miloslav Kepka
421	Ricardo Oliveira	Decarbonization of Urban Centres through Smart Energy Management and Electric Mobility Strategies: a case study in Guimarães, Portugal Ricardo Oliveira Patrícia Baptista Ricardo Gomes
431	António J. Arsénio Costa	Magnetic contactless non-concentric gear to double the speed on high spin driving João Beltrão Costa António J. Arsénio Costa João F. P. Fernandes Hugo Morais
437	Rodrigo Alpalhão	Analysis of coaxial propulsion system configurations for a multirotor unnamed aerial vehicle application Aníbal Valido Nuno Pereira Nuno Nunes Paulo Moita Ricardo Silva Rodrigo Alpalhão Tiago Ramalho António Relvas Ricardo Cláudio
441	João Pedro de Jesus	Planning Competitive Transportation Networks as HSR is Introduced João Pedro Rosário de Jesus João Pedro Lopes de Albuquerque Sofia Kalakou António Ramos Andrade
443	Bruno Cândido	Uncrewed Ground Vehicles for Bus Malfunction Detection and Infrastructure Surveillance: Exploring the Operational Applicability and Challenges Bruno Cândido Alexandra Moutinho Nuno Pessanha Santos Hugo Martins
468	Joana Fernandes	Decarbonizing transportation infrastructure: a tool for assessing Embodied Carbon in mobility support buildings Miguel Martinho Joana Fernandes Ricardo Gomes Patrícia Baptista Paulo Ferrão Paulo Lourador
492	João T. Fernandes	A Framework for Railway Communications João T. Fernandes Marília Curado Fernando Boavida
495	Marta Ferreira	Designing an Integrated Ride-Hailing Aggregator App: A User-Centric Approach Marta Campos Ferreira Alexandre Oliveira João Tavares
504	Aurélio Araújo	Assessment of active and passive solutions for noise and vibration attenuation in lightweight panels Aurélio Araújo José Madeira Paulo Alves
508	Nuno Afonso	Evaluating Urban Sprawl Through Diversified Entropy Indicators In Urban Systems. Application To The Lisbon Metropolitan Area Nuno Afonso João Abreu e Silva Patrícia C. Melo
510	João Marques	Production of Aeronautical components by Additive Manufacturing in Portugal A.A. Abreu A. Garcês S. Lopez R. Batalha M.J. Carmezim C. Santos C. Pina A. Valido N. Nunes P. Moita J. Simões V. Alcácer C. Fortes C. Ferreira S. Cravo J. Marques R. Cláudio
528	Laura Ribeiro	Fatigue Assessment of S690QL Welded Joints from Miniaturized Specimens Abel Vinha Almeida Aida B. Moreira Jorge Gil Paulo Mendes Laura Ribeiro Abílio de Jesus Pedro Montenegro
541	Luísa Bastos Leite	Main Contributions from a Systematic Literature Review on Public Transport Timetabling Synchronization Luísa Bastos Leite Teresa Galvão Joana Hora

Tuesday | **June 17** | 2025

POSTER SESSION 2		10:30 - 11:00 16:00 - 16:30
ID	PRESENTING AUTHOR	TITLE
419	Bruno M. C. Oliveira	Advances in Materials Technology for Improved Sustainability in Railway Transportation Bruno M. C. Oliveira R. F. Santos D. Alves A. Santos E. Camino L. A. Ferreira
422	Andreia Santos	Railway vehicle and vehicle type authorisation process pursuant to Directive (EU) 2016/797 Andreia Teixeira Santos Bruno M. C. Oliveira Dora Alves Emilio Alberto Camino L. A. Ferreira
423	Dora Alves	Data Management and Analysis: Challenges, Strategies, and the Role of Training in Enhancing Performance in the Railway Sector Dora Alves Bruno M. C. Oliveira Andreia Teixeira Santos Emilio Alberto Camino L. A. Ferreira
446	Rita Sousa	Reliability and Availability of Freight Wagon Components: A Comparative Reliability Block Diagram Analysis When Introducing Sensing Systems Rita Sousa Sandra Fernandes Paulo Alves António Andrade Virgínia Infante
456	Marco Leite	Packaging Concept Development For Sustainability in the Luxury Sector - Vista Alegre Case Study João Dias da Silva Catia Carreira Marco Leite
465	Sandra Fernandes	Optimizing Railway Wheelset Machining Sandra Fernandes Rita Sousa Margarida Pinto André Carvalho Paulo Alves António Andrade Virgínia Infante Pedro Ribeiro Alexandre Couto
490	Fillipe Ribeiro	Advanced Intelligent Warehouse System for Metallic Structures Sector – the Eurogalva case study on the multi-parts warehouse Paulo Peças Fillipe Ribeiro Rafael Saudade
491	Rui Mendes	Online Monitoring of IGBT Degradation for Enhanced Reliability in Railway Traction Systems Rui Mendes Alberto Pereira José Arriscado Pedro Moço Vítor Morais João Fernandes
493	Alberto Pereira	Advancing Railway Electrification: A Test Platform for Traction Power Converter Optimization Alberto Pereira António Martins Rui Mendes Pedro Moço José Arriscado João Fernandes Vítor Morais
497	Paulo Alves	SMARTWAGONS, Development of Production Capacity in Portugal of Intelligent Freight Wagons Paulo Alves Paulo Oliveira João Martins Ana Santos José Rebola Diogo Alexandre Pedro Antunes Pedro Marques Filipe Silva David Martins José Carneirinho
498	Paulo Peças	Produtech R3 Project Paulo Peças
499	Paulo Peças	Lusitano Project Paulo Peças
501	Paulo Peças	VIIAFOOD Project Paulo Peças
518	Virgínia Infante	Alliance for Energy Transition Virgínia Infante António Andrade Guilherme Ribeiro João Albuquerque Nuno Cota José Simão Thiago Sobral
531	Agostinho Rocha	Reliability Assessment of SiC and GaN Power Devices: Challenges, Degradation Mechanisms, and Mitigation Strategies José Vicente Agostinho Rocha Adriano Carvalho Vítor Morais
535	João Nuno Silva	Exploring Fatigue Assessment Guidelines for Railway Freight Vehicles João Nuno Silva Vítor M. G. Gomes Vasco M. Simões Francisca Manso Paulo Alves José A.F.O. Correia Pedro Montenegro Abílio De Jesus
540	Muhammad Musa	Application of the Reliability-Centred Maintenance Approach on Critical Rail Wagon Components Muhammad Musa Andrade Ferreira João Silva Manuel António Soares Paulo Oliveira Abílio M.P de Jesus



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