



International Conference
TRANSBALTICA:
Transportation Science and Technology

Conference Programme



18–19 September 2025, Vilnius, Lithuania



Time (EEST, UTC+3)	18 September 2025: First Day of the Conference		
9:30 – 10:00	Welcome Coffee and Registration (Auditorium P2-156)		
10:00 – 12:00	PLENARY SESSION (<i>In-Person</i> : Auditorium P2-156) <i>Virtual Room</i> : https://liedm.zoom.us/my/transbaltica1		
	Opening Speech	🚗 Assoc. Prof. Kamilė Taujanskaitė , Vice-Dean for Research and Communications of the VILNIUS TECH Faculty of Transport Engineering	
	Welcome Speech	🚗 Prof. Olegas Prentkovskis , Dean of the VILNIUS TECH Faculty of Transport Engineering	
	<i>Plenary Session Speakers:</i> 🚗 Prof. Dr. Irina Yatskiv (Jackiva) , Chairwoman of the Transport and Telecommunication Institute Board. Topic: “ Digital Skills for a Human-Centred Mobility Future ” 🚗 Dr. Armando Carrillo Zanuy , Secretary General of the EURNEX. Topic: “ Towards FP10 - Academic Networks in European Rail Research ” 🚗 Dr. Viktor Skrickij , Director of the VILNIUS TECH Transport and Logistics Competence Centre. Topic: “ Motion Control of Multi-Actuated Ground Vehicles ”		
	12:00 – 12:30		
12:30 – 14:30	Break: Refreshments and Snacks (Auditorium: P2-156)		
	PARALLEL SESSIONS (see information below)		
	<i>In-Person Section 1</i> : Auditorium P2-156 Transportation Science and Technology	<i>Virtual Room 1</i> : Combustion in Engines, Fuels and Emissions https://liedm.zoom.us/my/transbaltica2	<i>Virtual Room 3</i> : Logistics and Transportation https://liedm.zoom.us/my/transbaltica4
	<i>In-Person Section 2</i> : Auditorium P1-315 Special Section for Academic Consortium in Rail Industry https://liedm.zoom.us/my/transbaltica1	<i>Virtual Room 2</i> : Combustion in Engines, Fuels and Emissions https://liedm.zoom.us/my/transbaltica3	<i>Virtual Room 4</i> : Logistics and Transportation https://liedm.zoom.us/my/transbaltica5
14:30 – 17:30	<i>In-Person Section 3</i> : Auditorium P1-309 Logistics and Transportation		
	Tour to the <i>Auto Museum Vilnius</i> : https://automuziejus.lt/en or Tour to the <i>Railway Museum</i> : https://ltgmuziejus.lt/en/home		
18:00	Conference Dinner (Campus Cafe CONFETTI)		

Time (EEST, UTC+3)	19 September 2025: Second Day of the Conference		
9:30 – 10:00	Welcome Coffee (Auditorium: P2-156)		
10:00 – 12:00	PARALLEL SESSIONS (see information below)		
	<i>In-Person 4:</i> Auditorium P2-156 Transportation Science and Technology	<i>Virtual Room 5:</i> Vehicle Engineering and Dynamics https://liedm.zoom.us/my/transbaltica6	<i>Virtual Room 7:</i> Autonomous Vehicles and Systems, Maritime Transport https://liedm.zoom.us/my/transbaltica7
	<i>In-Person 5:</i> Auditorium P2-412 Transportation Science and Technology https://liedm.zoom.us/my/transbaltica2025	<i>Virtual Room 6:</i> Railway and Road Transport, Safety and Infrastructure https://liedm.zoom.us/my/transbaltica3	
12:00	Lunch and Closing Remarks (Campus Cafe CONFETTI)		

PARALLEL SESSIONS (18 September 2025, 12:30 – 14:30)

In-Person Section 1: Auditorium P2-156 Transportation Science and Technology Chairman: Dr. Paulius Skačkauskas Co-Chairman: Dr. Michał Stosiak	In-Person Section 2: Auditorium P1-315 Special Section for Academic Consortium in Rail Industry Chairman: Prof. Gintautas Bureika Co-Chairman: MSc Paulius Kojis https://lledm.zoom.us/my/transbaltica1	In-Person Section 3: Auditorium P1-309 Logistics and Transportation Chairman: Dr. Mykola Karpenko Co-Chairman: Dr. Lijana Maskeliūnaitė
Adapting Efficient LLMs for Container Logistics: a Case Study on Few-Shot Prompt Engineering (<i>Maksim Ilin, Dmitry Pavlyuk</i>)	Gender Equality in the Railway Sector (<i>María José Bermejo-Barrero, Isabel Ruiz-Mora, Juan J. Castillo-Aguilar</i>)	Decarbonisation Potential of Road Lighting Infrastructure (<i>Piotr Jaskowski</i>)
Unmanned Aerial Vehicles in the Operations of the State Fire Service (<i>Piotr Gładysz, Konrd Mojski, Anna Borucka</i>)	New Definition of Grades of Operational and Tactical Automation in Rail Domain (<i>Jean-Valentin Merlevede, Simon Enjalbert, Frédéric Vanderhaegen, Francesco Flammini, Ronghui Liu, Ariane Wettig, Borna Abramovic, Helen Chalkia</i>)	The Dual Role of Energy Storage: Enhancing Transportation Systems and Securing Critical Infrastructure (<i>Marcin Koniak</i>)
Analysis of Friction Resistance of POM Material for Use as a Sickle Insert in an Internal Gear Pump (<i>Tadeusz Leśniewski, Krzysztof Towarnicki, Justyna Krawczyk, Grzegorz Wszelaczyński</i>)	Advances in Metal Additive Manufacturing for Use in Railway Wheels (<i>Jon Hernandez-Martinez, Javier Santamaria, Aizpea Urresti, Nekane Correa, Ernesto G. Vadillo</i>)	Sustainable Rail-Enabled Urban Logistics from the Czech Republic Perspective (<i>Dominic Kwakye Ampomg, Libor Švadlenka, Tatiana Molková, Libor Bauer</i>)
Artificial Intelligence for Enhanced Bus Flow Management at Riga International Coach Terminal (<i>Vaira Gromule, Juris Pepulis, Irina Yatskiv (Jackiva)</i>)	Risk Assessment Models and Methodologies for Maglev Transportation Systems (<i>Arbra Bardhi, Stefano Ricci</i>)	Prospective Use of Unmanned Aerial Systems for the Resupply Tasks in Conditions of the Slovak Armed Forces (<i>František Gubáš</i>)
Numerical Simulation of Icing on Low Reynolds Number Airfoil Used in Small Fixed-Wing Unmanned Aerial Vehicles (<i>Bartłomiej Dziwowski, Artur Kierzkowski, Krzysztof Kaliszek, Mykola Karpenko, Michał Stosiak</i>)	Development of a Procedure for Ranking of Innovative Technologies for Decarbonization of Rail Transport (<i>Oleksandr Rohovyi, Valerii Samsonkin, Oksana Yurchenko, Gintautas Bureika, Iuliia Bulgakova</i>)	Investigation of Gantry Container Crane Transmission Dynamics During Start Process (<i>Aleksandr Vika, Marijonas Bogdevičius</i>)
Unevenness of Hydraulic Cylinder Speed and Pressure Pulsation Caused by External Mechanical Vibrations (<i>Michał Stosiak, Michał Kołodziński, Paweł Bury, Mykola Karpenko, Paulius Skačkauskas</i>)	New Generation Virtualized ERTMS for Interoperable Railway Infrastructure (<i>Domenico Uomo, Anna Lina Ruscelli, Gabriele Cecchetti, Piero Castoldi</i>)	Challenges of I4.0 Implementation in Supply Chain of the Retail Sector (<i>Donaldas Paulauskas, Aldona Jarašūnienė</i>)
Chinese Unmanned Aerial Vehicles as a Challenge to National Internal Security (<i>Piotr Gładysz, Anna Borucka, Jerzy Merkisz</i>)	Promoting Sustainable Mobility: Guidelines and Best-Practices for European Railway-Focused Doctoral Education and Research (<i>Arbra Bardhi, Stefano Ricci, Armando Carrillo Zanuy, Francesco Flammini, Borna Abramovic</i>)	Conceptual Model for the Deployment of Military Logistics Support During Flood Disasters (<i>Daniel Brezina, Jaroslav Kompan</i>)
Modeling Mode Choice to University Campus Using Discrete Choice Methods (<i>Nikola Kožul, Luka Novačko, Marjana Petrović, Karlo Babojelić</i>)	Physics-Informed Neural Networks, an Instrument for solving a 3D Wheel-Rail Interface, to Facilitate Prognostics Root Cause Analysis (<i>Alfredo Serafini, Uday Kumar</i>)	Conceptual Employment of Emerging and Disruptive Technologies in Military Mobility Support (<i>Jaroslav Kompan, Daniel Brezina, Michal Hrnčiar, Štefan Krivjanský</i>)
Specific CO ₂ Emissions Analysis in Real Driving Conditions Using Commercial Gasoline and Liquefied Petroleum Gas (<i>Alfredas Rimkus, Edward Kozłowski, Magdalena Zimakowska-Laskowska, Jonas Matijošius, Piotr Wiśninowski</i>)	Predicting Diesel Aftertreatment Efficiency Using Simulation and Machine Learning (<i>Aleksandr Šabanovič, Edgar Sokolovskij, Jonas Matijošius, Aleksandras Chlebnikovas, Artūras Kilikevičius</i>)	Developing a System for Ensuring Stable Operation of a Spark-Ignition Engine on Gasoline-Ethanol Blends at Low Temperatures (<i>Oleksandr Dobrovolskyi, Dmitrij Trifonov, Oleksander Syrota, Pavlo Marchenko, Olena Samar, Yevhenii Shuba, Jonas Matijošius</i>)

Virtual Room 1: Combustion in Engines, Fuels and Emissions Chairman: Dr. Sai Manoj Rayapureddy https://liedm.zoom.us/my/transbaltica2	Virtual Room 2: Combustion in Engines, Fuels and Emissions Chairman: Prof. Vidas Žuraulis https://liedm.zoom.us/my/transbaltica3	Virtual Room 3: Logistics and Transportation Chairman: Dr. Kristina Čižiūnienė https://liedm.zoom.us/my/transbaltica4	Virtual Room 4: Logistics and Transportation Chairman: Dr. Gabrielius Mejeris https://liedm.zoom.us/my/transbaltica5
Generation of Environmentally Hazardous Micro Particles into the Atmosphere Air by Automobile Traffic (<i>Oksana Melnikova, Valentina Iurchenko, Sergey Melnik, Leonid Bagmut</i>)	Aged LFP Electric Vehicle Battery Health Analysis Using Industrial Computed Tomography (<i>Justinas Medzevičius, Stasys Slavinskas</i>)	Automation of Transport Service Management Systems (<i>Kristina Vaičiūtė, Greta Draugelytė, Auguste Šiugždinytė, Gediminas Braziulis</i>)	Marketing, Logistics, and Artificial Intelligence Features (<i>Margarita Išoraitė</i>)
Study of Diesel Engine Fuel Consumption with the Help of a Digital Twin (<i>Oleksii Verbovskiy, Anatolii Lisoval, Hennadiy Zhuk, Valerii Verbovskiy, Anatolii Dzygar</i>)	Energy Absorption Capacity of Novel Luffa-Bioinspired Tubes for Automobile Applications (<i>Quirino Estrada, Tadeusz Majewski, Alejandro Rodriguez-Mendez, Elva Reynoso, Jesus Silva, Aztlán Bastarrachea, Francisco Enriquez, Julio Vergara</i>)	Simulation – as a Method of Studying the Logistics of Cargo Supply Chains in Transport Systems (<i>Georgii Prokudin, Maksym Roi, Oleksii Chupaylenko, Tanya Khobotnia, Irina Prokudina</i>)	Military Transport in the Conditions of the Military Forces of the Slovak Republic (<i>Miriám Karasova, Lubomír Belan, Ivan Majchút</i>)
Assessment of the Prospects for Microalgae-Derived Biodiesel in the Context of the EU's Energy and Environmental Challenges (<i>Maksym Pavlovskiy, Denys Stepankevych, Anna Yakovlieva</i>)	Features of Algorithms for Ensuring Thermal Preparation of an Internal Combustion Engine with a Rapid Warm-Up System, Exhaust Gas Heat Recovery, and a Phase-Change Heat Accumulator (<i>Mykola Bulgakov, Igor Gritsuk, Alla Lysykh</i>)	Evaluation of the Logistical Attractiveness Parameters of Rivers in the Baltic Sea Basin (<i>Vilma Locaitienė, Vytautas Dubra, Ričardas Malkus</i>)	Two-Blade UAV Propeller Simulation Case Study (<i>Mateusz Kucharski, Maciej Milewski</i>)
Scientific Review on Physical and Thermodynamic Properties Influencing Particle Dynamics (<i>Sai Manoj Rayapureddy</i>)	Development of the Engineering Information Subsystem of the Catenary Network for Trolleybuses in the City of Vilnius (<i>Vytautas Grigonis, Rima Vaicekauskaitė</i>)	Prospects for the Development of Intermodal Logistics between Lithuania and Ukraine under Hybrid Threats (<i>Liudmyla Maliuta, Vitalii Rudan, Liliya Yakymyshyn, Volodymyr Falovych</i>)	Methodology of Scenario-Based Modeling for the Transport-Oriented Evacuation of the Population of Ukraine (<i>Viktoriia Nykonchuk, Igor Khitrov, Mykola Maiak</i>)
Comparative Analysis of Fuel Cells Technologies and Prospects for Their Application in the Aircraft Power Systems (<i>Vitalii Korovushkin, Sergii Boichenko</i>)	Production of High-Octane Components for Aviation Gasoline from Polymeric Waste via Pyrolysis (<i>Sergii Boichenko, Iryna Shkilniuk, Igor Kuberskyi</i>)	Airport Vulnerability Assessment Model (<i>Eva Sventeková, Michal Sibila</i>)	Application of Artificial Intelligence in Lithuania's Warehousing Sector (<i>Urtė Steponaitė</i>)
The Influence of Rock Transportation on the Variation of Road Construction Material Fractions During The Production Process (<i>Karolis Šemeta, Raimundas Junevičius</i>)	Specific Aspects of Determining the Parameters of a Phase-Change Contact Thermal Accumulator for the Engine within a Combined Heating System (<i>Igor Khudiakov, Nadiia Pohorletska, Andrii Polyvianchuk, Olena Volska, Anatoliy Kotov, Andrii Simanenkov, Artem Ivanov</i>)	Identifying and Prioritizing Collaboration Barriers and Enablers in Digital Platform Ecosystems for Business-to-Business (B2B) Logistics (<i>Danijela Tuljak-Suban, Patricija Bajec, Afroditi Stamelou, Sofoklis Dais, Georgios Barboutidis, Natalia Sobrino Vázquez</i>)	Assessing Post-War Sustainable Transport Development Scenarios in Ukraine via Freight Containerisation (<i>Olena Sokolova, Viktoriia Ivannikova, Kostiantyn Cherednichenko, Ivan Ostroumov, Olha Sushchenko, Yuliya Averyanova, Maksym Zaliskyi, Oleksandr Solomentsev, Yurii Bezkorovainyi, Oleksii Holubnychyi, Borys Kuznetsov, Ihor Bovdii, Tatyana Nikitina, Roman Voliansky</i>)
Sustainable Waste Management in Aviation: Riga Airport Case Study (<i>Christy Oommen Jacob, Irina Yatskiv (Jackiva), Iyad Alomar</i>)	A Design and Optimization of The Structure of a Race Car Spatial Frame (<i>Ján Dižo, Miroslav Blatnický, Alyona Lovska, Paweł Drożdziel, Jacek Caban, Jozef Frič</i>)	Determination of the Load of a Hopper Container at Operating Modes (<i>Juraj Gerlici, Alyona Lovska</i>)	Threat to Transport Infrastructure from Unexploded Ordnance (<i>Zuzana Zvaková, Lucia Figuli</i>)
The Integration of Airplane Health Management to the Ground Handling Operations in De-Icing Case Study (<i>Rustam Togambayev</i>)	Structural-Technical Factors for Assessing the Load-Bearing Capacity of Road Bridges (<i>Ondřej Ryška, Radoslav Gandel</i>)	The Concept of Traffic Risk as a Tool for Railway Timetable Evaluation (<i>Franciszek Jozef Restel</i>)	

PARALLEL SESSIONS (19 September 2025, 10:00 – 12:00)

In-Person 4: Auditorium P2-156 Transportation Science and Technology Chairman: Dr. Viktor Skrickij Co-Chairman: MSc. Tomas Grikenis	In-Person 5: Auditorium P2-412 Transportation Science and Technology Chairman: Dr. Paulius Skačkauskas Co-Chairman: MSc. Pavel Ževžikov https://liedm.zoom.us/my/transbaltica2025	Virtual Room 5: Vehicle Engineering and Dynamics Chairman: Dr. Mykola Karpenko https://liedm.zoom.us/my/transbaltica6	Virtual Room 6: Railway and Road Transport, Safety and Infrastructure Chairman: Prof. Vidas Žuraulis https://liedm.zoom.us/my/transbaltica3	Virtual Room 7: Autonomous Vehicles and Systems, Maritime Transport Chairman: Dr. Algimantas Danilevičius https://liedm.zoom.us/my/transbaltica7
IMF SWARA-ARAS Model for Solving the Location Problem in Goods Delivery (Željko Stević, Eldina Huskanović, Marko Subotić, Živko Erceg)	Numerical Modeling and Analysis of Composite Structure with Graded Polymer Foam (Andrejs Kovalovs, Evgeny Barkanov, Pavel Akishin)	Advancing Dynamic Modelling of Micro-Mobility Vehicles for Safety and Risk Analysis (Mykola Karpenko, Dominykas Eičinas)	Substantiation of the Rational Operation Mode of a Hybrid Powertrain of a Diesel Multiple Unit (Ievgen Riabov, Liliia Overianova, Volodymyr Nescheret, Andrii Podoliak)	Balancing Innovation and Risk: Safety Assessment of Smart Aviation Technologies (Matus Materna, Kristina Kovacikova, Andrej Novak, Alena Novak Sedlackova)
Synergy of Two Energy Sources: Hydrogen Supply System Adaptation for Gasoline-Powered Engines (Saugirdas Pukalskas, Alfredas Rimkus, Romualdas Juknelevičius, Paweł Drożdżel, Andrius Ušinskas, Gabrielius Mejeras, Saulius Stravinskas, Donatas Kriaučiūnas, Tadas Vipartas)	Next-Generation Supply Chain Management: Harnessing IoT for Smart Logistics and Real-Time Monitoring (Pacifique Rukundo, Kristina Čižiūnienė)	Modeling And Analysis of Electric Bus Energy Consumption Considering Topography and Driving Modes (Valerii Dembitskyi, Viktor Samostian, Viktoriia Kotenko, Oleg Sitovsky)	Integration of Digital Terrain Models in High-Speed Railway Infrastructure Design: Experience from Ukraine and Future Perspectives (Evgeniya Ugnenko, Anna Shevchenko, Grygoriy Shariy, Nataliia Bielikova)	Quantitative Estimation of Mid-Air Collision Risk in Controlled Airspace (Oleg Ivashchuk, Ivan Ostroumov)
Public Transport Data Collection and Digitization in Lithuania (Rasa Ušpalytė-Vitkūnienė, Andrius Samuilovas)	Microplastic Removal in Shipboard Wastewater Treatment a Literature Review (Ieva Demjanenko, Ali Arshad)	The Influence of Road Elements on Drivers' Psychophysio-Logical Responses, and Biometric Data Accuracy (Margarita Prokopovič, Kristina Čižiūnienė)	Optimization of the Space of Railway Stations, Taking into Account the Needs of Passengers (Oksana Chernyshova, Aleksandr Stepanchuk, Svitlana Timkina)	Evaluation of Car-Following Models for Intersection Capacity (Liutauras Šuškevičius, Algimantas Danilevičius, Irena Danilevičienė)
Research on the Dynamic and Hydrodynamic Processes of Aircraft Landing Gear (Ugnius Lenkauskas, Marijonas Bogdevičius)	Transient Finite Element Assessment of a Historical Masonry Arch Bridge under Random and Uniform Traffic Loading Patterns (Emre Alpaslan, Metin Mutlu Aydın, Hüseyin Kalkan)	Ergonomic Modeling of the Positive G Force on a Fighter Pilot's Work Process (Nebojsa Radojković, Momcilo Dobrodolac, Olja Cokorilo)	Stress-Strain State of a Geocomposite Reinforced Railway Subgrade (Oleksii Tiutkin, Pavlo Ovchynnykov, Larysa Neduzha)	Integration of Object Detection Algorithms with UAV Navigation Systems (Roman Syzonenko)
Transport Mobility of Technical University Students in the Context of Sustainable Urban Development: a Case Study of Wrocław University of Science and Technology (Justyna Krawczyk, Tadeusz Leśniewski)	Sustainable Urban Mobility Plan: Trabzon City Example in Turkey (Metin Mutlu Aydın, Samet Ali Yıldız, Büşra Yazıcı, Fatma Şentürk Onur, Rafet Sema Semercioğlu, Meltem Şan, Hüsnü Üçüncüoğlu)	Prospects for Using Biochar in Asphalt Concrete to Improve the Sustainability of Transport Infrastructure (Kateryna Krayushkina, Vadym Bondarchuk)	Energy-Efficient Liftgate Conforming to Trends of Transport and Logistics Decarbonization (Paweł Zajac, Egidijus Dragasius)	Trends and Technologies in Enhancing the Energy and Environmental Safety of Maritime Transport (Iryna Honcharuk)
Experience of Research on Increasing the Effectiveness of Humanitarian Underwater Demining in Ukraine (Valery Strelec, Pavlo Solovjov, Ihor Soloviov, Viktor Strelets)	Modeling and Static Analysis of a Piezoelectric Cantilever Beam Using Thermal analogy method (Andrejs Kovalovs, Aleksejs Safonovs)	Mathematical Optimization of Communication Networks Merging (Andriy Sverstiuk, Oleg Lyashuk, Taras Dubynyak, Stepan Dubynyak, Aleksandra Manziy, Stanislav Andreychuk)	Protection of Children During Transportation to School as Part of the Soft Target Protection Strategy (Andrej Vefas, Samuel Hubočan, Katarina Kampová, Miroslav Felcan)	Digital Twin Technologies for Prescriptive Maintenance of Maritime Transport: Foundations, Architectures, and Applications (Andrii Holovan)
Integrated Experimental and Numerical Prediction of Combustion in High-Concentration Bioethanol–Gasoline Blends in SI Engine (Gabrielius Mejeras, Alfredas Rimkus, Alytis Gruodis, Jonas Matijošius, Martynas Grybauskas)	AI and VPL Integration within Infrastructure-BIM Workflow: a Case Study (Mattia Intignano, Pietro Serra, Salvatore Antonio Biancardo, Gianluca Dell'Acqua)	Investigation of Locomotive Diesel Engine Operating Modes (Gediminas Vaičiūnas, Stasys Steišūnas, Jokūbas Valiukas)	Optimization of Traffic Flow Distribution on Urban Road Networks to Ensure the Sustainable Development of Urban Ecosystems (Yevhen Samoilenko, Viktor Danchuk, Olena Bakulich, Viktoriia Holodenko, Serhii Taraban)	The Use of AI while Presenting New Vocabulary in Maritime English Teaching (Alona Yurzhenko, Olena Kononova, Alona Leshchenko)
Concept of a Train Driver Assistance System Based on Front-View Image Processing (Mateusz Oziębłowski)	Analysis and Evaluation of the Impact of Constraints on 1435 mm Gauge "Rail Baltica" Railway General Technical Parameters (Rasa Ušpalytė-Vitkūnienė, Mantas Kaušylas)	Vehicle Localization Challenges in Autonomous Vehicles Using LiDAR and High-Precision Positioning Techniques (Aleksandar Stjepanovic, Zeljko Stjepanovic, Mirko Stojic, Goran Kuzmic)	Protecting the Oil and Gas Transport Infrastructure Against Military Threats (Anton Makhinko, Nataliia Makhinko, Serhii Skliarenko, Dmytro Rulov)	Ensuring Shift Work of Drivers in Cyclic Transport and Technological Schemes (Myroslav Stefanovych Oliskevych, Nazar Jaroslav Khomyn, Oleksandr Mastykh)
Human Factor and Decision Making: a Concept of Shipping Safety (Oleksii Reva, Volodymyr Kamyshyn, Pavlo Mamenko, Kostiantyn Kyrychenko, Larysa Saganovska)	Determining Metropolitan Parameters in The Cities of the Baltic Sea region (Gediminas Vaičiūnas, Jonas Matijošius)			