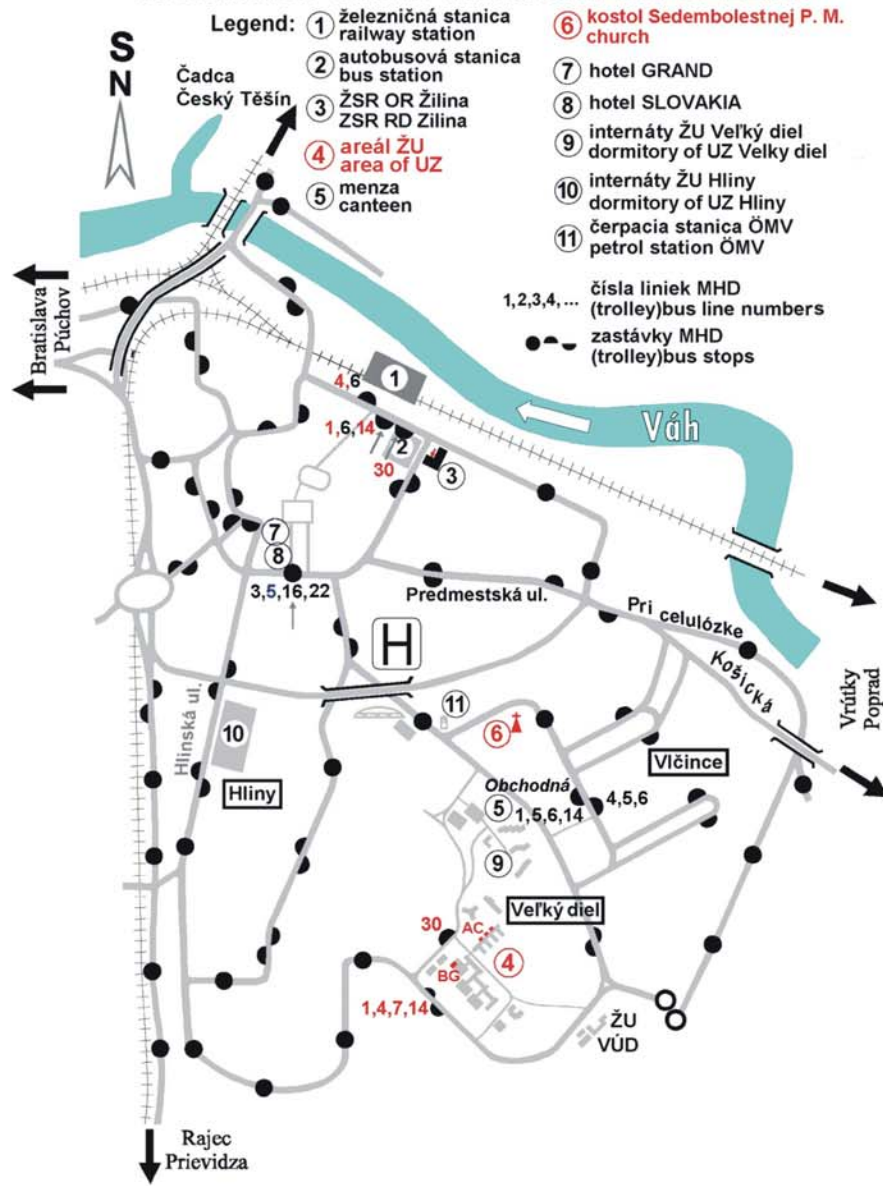


ORIENTAČNÁ MAPA MHD ŽILINY
INFORMATION URBAN TRANSPORT MAP OF ŽILINA

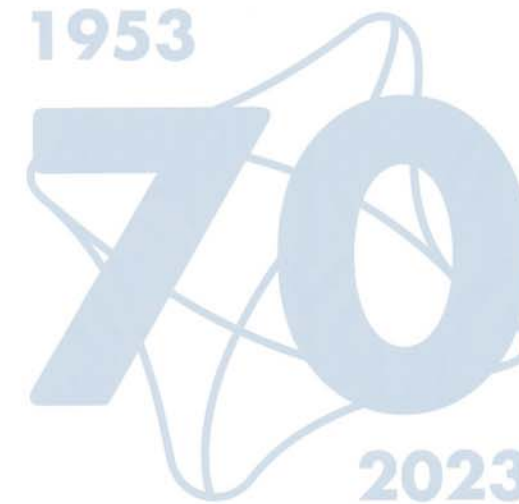


VEDECKO-TECHNICKÁ SPOLOČNOSŤ PRI
ŽILINSKEJ UNIVERZITE V ŽILINE
SCIENTIFIC AND TECHNICAL SOCIETY AT
THE UNIVERSITY OF ŽILINA



XXVI. MEDZINÁRODNÁ KONFERENCIA
SÚČASNÉ PROBLÉMY V
KOĽAJOVÝCH VOZIDLÁCH

26th INTERNATIONAL CONFERENCE
CURRENT PROBLEMS
IN RAIL VEHICLES



POZVÁNKA

INVITATION

ŽILINA, 20. - 22. 9. 2023, SLOVENSKO
ŽILINA, SEPTEMBER 20 - 22, 2023, SLOVAKIA

PARTNERI KONFERENCIE PRORAIL 2023 PARTNERS OF THE CONFERENCE PRORAIL 2023	
 Locomotion Excellence®	CZ LOKO, a.s. Semanínska 580, 560 02 ČESKÁ TŘEBOVÁ CZECH REPUBLIC
 ŠKODA Škoda Group	ŠKODA TRANSPORTATION a.s. Emila Škody 2922/1, 301 00 PLZEŇ CZECH REPUBLIC
 ŽELEZNIČNÁ SPOLOČNOSŤ SLOVENSKO NÁRODNÝ DOPRAVCA	Železničná spoločnosť Slovensko, a.s. Rožňavská 1, 832 72 BRATISLAVA SLOVAKIA
 ZSSK CARGO	Železničná spoločnosť Cargo Slovakia, a.s. Tomášikova 28B, 821 01 BRATISLAVA SLOVAKIA
SPONZORI KONFERENCIE PRORAIL 2023 SPONSORS OF THE CONFERENCE PRORAIL 2023	
 DAKO-CZ BRAKE SYSTEMS	DAKO-CZ, a.s. Josefa Daňka 1956, 538 43 TŘEMOŠNICE CZECH REPUBLIC
 HBP měřicí technika	HBP měřicí technika s.r.o. Modřanská 6a, 143 00 PRAHA CZECH REPUBLIC
 MB Idea SK	MB Idea SK, s.r.o. Nová 134, 017 01 POVAŽSKÁ BYSTRICA SLOVAKIA
 MESIT	MESIT holding, a.s. Sokolovská 573, 686 01 UHERSKÉ HRADIŠTĚ CZECH REPUBLIC
 PROCHÁZKA MP manipulační prostředky	Procházka MP s.r.o. Dolní Lhota 99, 678 01 BLANSKO CZECH REPUBLIC
 RAILTRANS RTI Wagon	Railtrans Wagon s.r.o. Kukučínova 22, 831 03 BRATISLAVA SLOVAKIA
 STADLER	Stadler Praha, s.r.o. Kutvirtova 339/8, 150 00 PRAHA 5 CZECH REPUBLIC
 TATRAVAGÓNKA POPRAD	TATRAVAGÓNKA a.s. Štefánikova 887/53, 058 01 POPRAD SLOVAKIA

Súčasťou 26. medzinárodnej konferencie "Súčasný problémy v koľajových vozidlách - PRORAIL 2023" je aj návšteva **Skanzenu v Novej Bystrici - Vychylovke** a **Historickej lesnej úvratňovej železnice vo Vychylovke**.

The part of the 26th International Conference "Current problems in rail vehicles - PRORAIL 2023" is a visit of **the Museum of the Kysuce Village at Nová Bystrica - Vychylovka** and the **Historical Forest Switchback Railway of Vychylovka**.

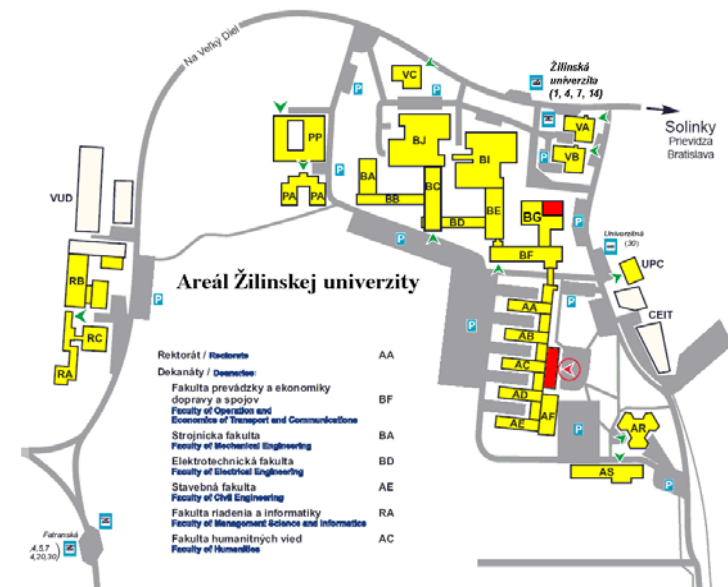


Osobné údaje prihlásených účastníkov konferencie budú spracované podľa podmienok ochrany osobných údajov v súlade s Nariadením Európskeho parlamentu a rady (EÚ) č. 2016/679 z 27. apríla 2016 o ochrane fyzických osôb pri spracúvaní osobných údajov a o voľnom pohybe takýchto údajov a so zákonom č. 18/2018 Z.z. o ochrane osobných údajov a o zmene a doplnení niektorých zákonov.

Zaslaním vyplnenej a podpísanej záväznej prihlášky vyjadrite súhlas so spracovaním vašich osobných údajov pre potreby organizácie konferencie, napr. uverejnenie v zozname účastníkov konferencie v rozsahu meno, priezvisko, tituly, zamestnanie.

The personal data of registered participants will be processed in accordance with the Regulation of the European Parliament and the Council (EU) 2016/679 of 27 April 2016 on protection of individuals with regard to the processing of personal data and on free movement of such data and repealing Directive 95/46/EC.

By sending completing and signed Obligatory application you granting consent with the processing of your personal data for needs of the conference organisation, e.g. publication in the list of participants of the conference etc., in the extent name, surname, degrees and occupation.



ADVERTISING

We are preparing the 26th International Conference „Current Problems in Rail Vehicles - PRORAIL 2023“, which will take place at the University of Žilina in September 20 - 22, 2023. Usually about 200 specialists from the Slovak Republic, the Czech Republic and other countries participate at the Conference.

We offer to Your company possibility to advertise your products and services in the Proceedings of the Conference. The Proceedings will be printed in format B5 (176 x 250 mm). Fees for one page advertisement in the Proceedings are:

black&white page 105,- €

two color page 180,- €

full color page 260,- €.

Fees include only printing of advertisements delivered in the suitable form. The advertisement pages should be delivered in an electronical form.

It is possible to exhibit some smaller products in mini-exhibition, which will be in the area adjacent to the Conference rooms. For this purpose tables and chairs will be provided. Panels for leaflet displaying, texts, pictures, photos etc. will be available too.

Fees for this ways of presentation are as follows:

Table or panel 105,- EUR,

Exhibition of your own panel 65,- EUR,

Free exhibition area 65,- EUR/1 m².

If you are interested in advertising your company in the Conference PRORAIL 2023, please fill in enclosed order and send it (including text and pictures of advertisement) **no later than on August 10, 2023** to address:

Prof. Ing. Daniel KALINČÁK, PhD.

VTS pri Žilinskej univerzite

Univerzitná 1

010 26 ŽILINA

SLOVAKIA

Mobil: +421 907 586 005, e-mail: daniel.kalincak@fstroj.uniza.sk.

If you order advertisement, we will send you one free copy of Proceedings of the Conference PRORAIL 2023 till the end of October 2023.

Scientific and Technical Society at the University of Žilina
Faculty of Mechanical Engineering of the University of Žilina
The Jan Perner Transport Faculty of the University of Pardubice

INVITATION

for 26th International Conference CURRENT PROBLEMS IN RAIL VEHICLES PRORAIL 2023



under the auspices of

Minister of Transport of the Slovak Republic

Ing. Pavol LANČARIČ, PhD.,

Rector of the University of Žilina

Prof. Ing. Ján ČELKO, CSc.,

Chairman of the Board of Directors and Director General of the
Železničná spoločnosť Slovensko, a.s.

Ing. Roman KOREŇ,

Chairman of the Board of Directors and Director General of the
Železničná spoločnosť Cargo Slovakia, a.s.

Ing. Roman GONA

September 20 - 22, 2023, ŽILINA, SLOVAKIA

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Chairman of Organizing Committee:

Assoc. Prof. Ing. Dalibor BARTA, Ph.D., Faculty of Mech. Eng., University of Žilina, Univerzitna 1, 010 26 ŽILINA, Phone: +421 41 513 2654, M.: +421 918 663 371, e-mail: dalibor.barta@fstroj.uniza.sk.

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Ing. Andrej SUCHÁNEK, PhD., Faculty of Mechanical Engineering, University of Žilina, SK

Ing. Pavol ŠTASTNIAK, PhD., Faculty of Mechanical Engineering, University of Žilina, SK

Conference languages: Slovak, Czech, English.

Hotel GRAND***+ Žilina

- is situated right in the historic town centre. In hotel there is newly opened Grand wellnesclub.

Price (accommodation including breakfast, WiFi)

single room LUX 71,00 €

double room LUX 103,00 €

Hotel SLOVAKIA*** Žilina

- is situated in the city centre. The hotel has a night bar.

Price (accommodation including breakfast, WiFi, parking)

single room 36,00 €

double room 72,00 €

In case of cancellation the order, CK DUOTOUR charges these storno-taxes:

till 5 days before arrival -

without tax

4 - 2 days before arrival -

80% of calculated price

less than 2 days and no cancelled orders -

100% of calculated price.



Payment instructions. All payments should be made NET of bank charges

Please pay in our favour:

Beneficiary: VTS pri Zilinskej univerzite v Ziline, Univerzitna 1, 010 26 Zilina, Slovakia

IBAN: SK6009000000000076511456
var. s. 120, konst. s. 385

Beneficiary's bank: Slovenska sporitelna a.s. Bratislava, SWIFT: GIBASKBX

Reg. number: 30227852.

VAT ID: SK2020668782.

We do not pay VAT.

ENCLOSURES

DUOTOUR, travel agency

013 22 Rosina 405, okr. ŽILINA

Phone: +421 904 692 592, E-mail: ckduotour@gmail.com

offers and secures accommodation for participants of the Conference in hotels:

Hotel DUBNÁ SKALA**** Žilina

Hotel Dubna Skala is the first four-star boutique hotel, located in the historic city centre of Zilina

Price (accommodation including breakfast, parking, internet, Relax centre)

single room 112,00 €

double room 134,00 €

PALACE hotel POLOM****+ Žilina

Exclusive hotel, which has a century tradition. Hotel is situated in the town city centre.

Price (accommodation including breakfast, internet, sauna)

single room 91,00 €

double room 133,00 €

Hotel BOSS**** Žilina

New hotel is situated in the historical city centre near hotel SLOVAKIA.

Price (accommodation including breakfast, parking, internet)

single room LUX 77,00 €

double room LUX 101,00 €



26th INTERNATIONAL CONFERENCE
**CURRENT PROBLEMS IN RAIL
VEHICLES - PRORAIL 2023**
September 20 - 22, 2023, Žilina, Slovakia

Conference objectives

The conference is organized for railway workers, urban transport and factory transport workers, manufacturers and users of rail vehicles and their components, research, development workers, designers, university staff and all people interested in research, development, design, technology, materials, operation and maintenance of rail vehicles.

The aim of the conference is to bring information to participants about state and perspectives of development in field of rail vehicles in broad sense from theoretical achievements, through design, testing, production technologies, material engineering, maintenance to practical operational experience.

Lectures of the conference will be held in three rooms in the building AC of the University of Žilina (with exception of opening ceremony and plenary session which will be in the building BG). Lectures are divided into parallel sessions according to their specialization:

Session A - lectures dedicated to theoretical problems and experimental methods,

Session B - lectures dedicated to design of rail vehicles and their subsystems,

Session C - lectures dedicated to ecology, operation and maintenance, braking systems, bearings, technology and materials.

The organizers are pleased to thank

the Partners:

CZ LOKO, a.s., Česká Třebová, CZ

ŠKODA TRANSPORTATION, a.s., Pilsen, CZ,

Železničná spoločnosť Slovensko, a.s., Bratislava, SK

Železničná spoločnosť Cargo Slovakia a.s., Bratislava, SK

the sponsors of the Conference:

DAKO-CZ, a.s., Třemošnice, CZ

HBP měřicí technika s.r.o., Praha 4, CZ,

MB Idea SK, s.r.o., Považská Bystrica, SK,

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Railtrans Wagon, s.r.o., Bratislava, SK

Stadler Praha, s.r.o., Praha 5, CZ

TATRAVAGÓNKA a.s., Poprad, SK,

and other companies which supported the Conference in different way.

PROGRAMME

September 19, 2023 - Tuesday

- **16.00 - 20.00** **Registration of participants** at building of the Regional Directorate of ŽSR, 1. Maja str., No 34

September 20, 2023 - Wednesday

- **from 7.30** **Registration of participants** in block BG, University Campus - Veľký diel
- **9.30 - 10.30** **Opening ceremony (AULA DATALAN BG2A1)**

Opening Speeches

Opening speeches of representatives of the Ministry of Transport of the Slovak Republic, the Železničná spoločnosť Slovensko, a.s., the Železničná spoločnosť Cargo Slovakia, a.s., the University of Žilina and the Jan Perner Transport Faculty, University of Pardubice.

- **10.30 - 10.40** **Break**
- **10.40 - 11.20** **Plenary session**

POHL Jiří, Ing., Siemens Mobility, s.r.o., Praha, CZ

The role of rail in sustainable multimodal mobility

MICHÁLEK Tomáš, Ing., Ph.D., Jan Perner Transport Faculty, University of Pardubice, **POHL Jiří, Ing.**, Siemens Mobility s.r.o., Praha, **MALKOVSKÝ Zdeněk, Ing., Ph.D.**, VÚKV a.s. Praha, CZ

Digital automatic coupler as an opportunity for generational innovative transformation of freight wagons

- **11.20 - 12.50** **Presentation of companies**

AutoMax Slovakia, s.r.o., Bratislava, SK

Carl Stahl & spol.s r.o., Praha, CZ

DIAGO SF s.r.o., Brezno, SK

HBP měřící technika s.r.o., Praha, CZ

MESIT holding, a.s., Uherské Hradiště, CZ

Railtrans Wagon, s.r.o., Bratislava, SK

- **13.00 - 14.30** **Lunch**

- **Afternoon work in sessions (Block AC)**

▶ **Session A, September 20, 2023**

- **14.30 - 16.10** **Lectures**

RAIF Lukáš, Ing., Ph.D., **KLEMENT Miloslav, Bc.**, **HUŇKA Vladimír, Ing.**,

VÝMOLA Libor, Ing., DT – Výhybkárna a strojírna, a.s., Prostějov, CZ

Flange running of railway vehicles in switches and crossings

ORGANIZATIONAL INSTRUCTIONS

Conference venue: The Conference will be held at the auditoria **BG** and **AC** of the University of Žilina, Veľký diel from September 20 to September 22, 2023.

Registration of participants: September 19, 2023 16.00 - 20.00 at the building of the Regional directorate Žilina of ŽSR, 1. Maja str., No 34.

September 20, 2023 from 7.30 in block „BG“ at University Campus at Veľký diel

Transport: - to **registration in the RD ŽSR**, which is about 200 m from the railway station on left hand side, you can walk (see the map);

- to **registration and conference sessions in blocks BG and AC** you can take trolleybus No 4, stop at the railway station - direction to the housing estate „Hliny“ and „Vlčince“, and get off at bus stop „Žilinská univerzita“. For more detailed information about mass transport in Žilina see <http://www.dpmz.sk/>.

Registration information: Please fill in the enclosed **Obligatory Application** form and mail it by **August 15, 2023** to the address:

Prof. Ing. Daniel Kalinčák, PhD.

VTS pri ŽU, Univerzitna 1, 010 26 ŽILINA, SLOVAKIA

mobile: +421 907 586 005 or send by e-mail:

daniel.kalincak@fstroj.uniza.sk, kalincakd@centrum.sk.

Accommodation: Reservations in the hotels are booked by travel agency DUOTOUR (see enclosed application form for the accommodation), or individually (<http://www.hotel.sk/>, <http://www.limba.sk/>).

Food: Lunches on September 20 and 22 are in the Canteen of the University of Žilina, lunch on September 21 is in Vychylovka.

Social evening: Evening reception will be on September 20, 2023 at 19.00 in the Canteen of the University of Žilina.

Conference fee: Conference fee is **250,- €** which is generally paid by bank transfer on basis of an advance invoice issued by VTS at ŽU. The invoice will be issued on the basis of a binding in which is necessary to indicate the invoicing data of the payer. **One of the authors of each paper pay** reduced conference fee **200,- €**. The conference fee covers the costs of organizing of the conference, its technical equipment, a visit to the open-air museum and the historical forest switchback railway in Vychylovka, preparation and printing of the Proceedings, lunches and refreshment. The Conference fee does not cover accommodation.

In case of questions regarding invoicing, payments, etc, contact Ms. Ing. Janka Gallikova, PhD., M.: +421 948 740 074, email: janka.gallik@gmail.com.

The current information about the Conference PRORAIL 2023 you can find on:

<http://www.vtszu.sk>

PRELIMINARY SCHEDULE

September 19, 2023 - Tuesday

16.00 - 20.00 Registration of participants at the building of the Regional Directorate Zilina of ZSR, 1. Maja str. No 34

September 20, 2023 - Wednesday

from 7.30 Registration of participants at the block „BG“ of the University of Žilina, Veľký diel

9.30 - 10.30 Opening ceremony and opening speeches (AULA DATALAN BG2A1)

10.40 - 12.55 Plenary session and presentation of companies (AULA DATALAN BG2A1)

13.00 - 14.30 Lunch (Canteen of the University of Žilina)

14.30 - 18.10 Parallel Sessions (block AC at Veľký diel)

from 19.00 Social Evening at the Canteen of the University of Žilina.

September 21, 2023 - Thursday

8.00 - 11.20 Parallel Sessions (block AC)

from ca11.45 Lunch, visit of the Museum of the Kysuce Village and the Historical Forest Switchback Railway at Vychylovka.

September 22, 2023 - Friday

8.00 - 12.00 Parallel Sessions (block AC)

12.10 - 12.30 Closing Plenary Session (block AC)

from 12.40 Lunch

KOHOUT Martin, Ing., Ph.D., ZELENKA Jaromír, doc., Ing., CSc., VÁGNER Jakub, RAIF Lukáš, Ing., Ph.D., NAVRÁTIL Petr, Ing., VYHLÍDAL Michal, Ing., DT – Výhybkárna a strojírna, a.s., Prostějov, PLÁŠEK Otto, doc., Ing., Ph.D., Faculty of Civil Engineering Brno University of Technology, CZ

Autonomous diagnostics of switches and crossings based on sensing the dynamic response of the passing vehicle

KOHOUT Martin, Ing., Ph.D., VÁGNER Jakub, Ing., Ph.D., HÁBA Aleš, Ing., Ph.D., Jan Perner Transport Faculty, University of Pardubice, CZ

Dynamic interaction of a moving vehicle with a turnout

PLÁŠEK Otto, doc., Ing., Ph.D., CHUDĚJOVÁ Ludmila, Ing., SCHNEIDER Martin, Ing., FCE, Brno University of Technology, SZABÓ Petr, Ing., Správa železnic s. o., Praha, CZ

Rail wear in curves of small radii

HÁBA Aleš, Ing., Ph.D., Jan Perner Transport Faculty, University of Pardubice, JAROLÍN Zdeněk, Ing., Dopravní podnik města Brna, a.s., CZ

Wheelset–Track Interaction in Very Small Radius Curves

● **16.10 - 16.30 Coffee break**

● **16.30 - 18.10 Lectures**

KALIVODA Jan, Ing., Ph.D., Faculty of Mechanical Engineering, CTU in Prague, CZ

A simple method of wheel profile design for target value of equivalent conicity

SEIDL Jakub, Ing., Faculty of Mechanical Engineering, CTU in Prague, CZ

Research on reducing the consequences of accidents between trams and cars

JEŽDÍK Roman, Ing., VÚKV, a.s., Praha, CZ

Numerical simulation of real collision of locomotive class 742 with electric single-deck unit

PEJŠA Jan, Ing., VÚKV, a.s., Praha, CZ

Simulation of freight wagon derailment

LANG Andrej, Ing., KOPANIČÁK Ľubomír, Ing., ASTRA Rail Project, s.r.o., Poprad, SK

Aspects of the train accident of the Laadrs wagons

▶ Session B, September 20, 2023

● **14.30 - 16.10 Lectures**

KOPAL Jan, Ing., BENICKÝ Michal, Ing., CZ LOKO, a.s., Česká Třebová, CZ

Development of CZ-Loko dual locomotives

ČERNUŠEK Petr, Ing., ŠKVARIDLO Richard, Ing., ŠKODA TRANSPORTATION, a. s., Ostrava, CZ

Current and future projects of single deck units from Panter's family

OPPOLZER Tomáš, Ing., Ph.D., Stadler Praha, s.r.o., CZ

New Stadler vehicles – developments in the rolling stock industry

KUNDRATA Miroslav, Ing., TÍŽEK Jakub, Ing., ŠKODA TRANSPORTATION, a. s., Ostrava, CZ

Actual status of non-traction trainsets Škoda

SÝKORA Radim, Ing., KOPEČNÝ Martin, Ing., ŠKODA TRANSPORTATION, a. s.,
Ostrava, CZ

ŠKODA wide-gauge vehicles for Latvia and Estonia

● **16.10 - 16.30** **Coffee break**

● **16.30 - 18.10** **Lectures**

SÁLA Pavel, Ing., Ph.D., SKRYPACHOV Kyrilo, Ing., ŠKODA
TRANSPORTATION, a. s., Píseň, CZ

Modern metro train for gauge 1435 mm

KAIKKONEN Pasi, Lic. Tech., M. Tech., ŠKODA TRANSTECH, Oy, Oulu, FI

Rolling Stock for Nordic Climate Conditions

KRŠKO Ján, Ing., ŽOS Vrútky, a.s., SK

Production and modernisation of rolling stock in ŽOS Vrútky, a.s.

MORAVČÍK Marián, Ing., Ph.D., Tatravagónka a.s., Poprad, SK

Trends in the development of freight railway vehicles

NOGLÝ Libor, Ing., Ph.D., VTG Rail Europe GmbH., Steinhausen, CH

Electrified freight wagon

▶ **Session C, September 20, 2023**

● **14.30 - 16.10** **Lectures**

MAČÁK Ladislav, Ing., MORAVČÍK, Ing., Ph.D., Tatravagónka a.s., Poprad, SK

Noise in freight railway transport – there is no solution in sight

PHAMOVÁ Lucie, Ing., Ph.D., VÚKV, a.s., Praha, CZ

Experiences from freight wagon noise measurements in compliance with TSI NOI

BĚHÁLEK Vít, Ing., BOHÁČ Tomáš, Ing., BONATRANS GROUP a.s., Bohumín, CZ

Measurement of squealing tram noise in Ostrava

DIŽO Ján, doc., Ing., PhD., BLATNICKÝ Miroslav, doc., Ing., PhD., ISHCHUK
Vadym, Ing., MOLNÁR Denis, Ing., Faculty of Mechanical Engineering, University of Žilina, SK, **MIKHAILOV Evgeny, doc., Ing. PhD., SEMENOV Stanislav, Ing.,**

PhD., Volodymyr Dahl East Ukrainian National University, Kyiv, UA

The NVH analysis in rail vehicles: a literature review

VALENA Martin, Ing., OMASTA Milan, Ing., Ph.D., HARTL Martin, prof., Ing.,
PhD., Faculty of Mechanical Engineering, Brno University of Technology, CZ

Influence of weather conditions on the noise and the traction coefficient in curves with a small radius

● **16.10 - 16.30** **Coffee break**

● **16.30 - 18.10** **Lectures**

MAGDECHOVÁ Katarína, Ing., Ph.D., ZVKV, Bratislava, SK

Changes in the rolling stocks registration – European Vehicle Register

MIŠÚN Miroslav, Ing., MAGDECHOVÁ Katarína, Ing., Ph.D., Railtrans Wagon, s.r.o.,
Bratislava, SK

Return to service and operation from the RTIW keeper perspective

TARAJČÁK Peter, Ing., SEMANČÍK Pavol, Ing., Tatravagónka a.s., Poprad, SK

Experience from approval process of freight railway vehicle after implementation of the 4th Railway Package

DIŽO Ján, doc., Ing., PhD., BLATNICKÝ Miroslav, doc., Ing., PhD., ISHCHUK
Vadym, Ing., MOLNÁR Denis, Ing., Faculty of Mechanical Engineering, University of Žilina, SK

Derivation of a simplified mathematical model of DMU 's powertrain

DIŽO Ján, doc., Ing., PhD., BLATNICKÝ Miroslav, doc., Ing., PhD., ISHCHUK
Vadym, Ing., LOVSKA Alyona, prof., Ing., Dr.Sc. Tech., KRAVCHENKO Oleksandr,
prof., Ing., Dr.Sc.Tech. Faculty of Mechanical Engineering, University of Žilina, SK

Derivation of a simplified mathematical model of a rail vehicle powertrain with hydrodynamic converter

▶ **Session B, September 22, 2023**

● **8.00 - 10.00** **Lectures**

FRIDRICHOVSKÝ Tomáš, Ing., Ph.D., ZÍKA Josef, Bc., Faculty of Mechanical Engineering, CTU in Prague, CZ

Virtual reality as a learning tool on Faculty of mechanical engineering of CTU

KOPAL Tomáš, Ing., Siemens Mobility s.r.o., Praha, CZ

Modern education for the field of rolling stock

PRELL Roman, Ing., Siemens Mobility s.r.o., Praha, CZ

Railway vehicles and infrastructure

HOFMAN Jiří, Ing., Faculty of Mechanical Engineering, University of West Bohemia in Plzeň, CZ

Time-efficient replacement of continental European air transport up to 3000 km with universal fast overnight trains

ŠLAPÁK Jiří, Ing., LOKVENC Michal, Ing., MICHÁLEK Tomáš, Ing., Ph.D., HÁBA
Aleš, Ing., PhD., Jan Perner Transport Faculty, University of Pardubice, CZ, **BÍLEK**
Aleš, Ing., Čiernohorská železnica n.o., Čierny Balog, SK

Operation of EMUs in conditions of Čierny Hron (Electric) Railway

KOSTRZEWSKI Marius, Dr hab., Inż., Warsaw University of Technology, PL

Freight rail transport in Japan – not less exciting than passenger ones

● **10.00- 10.20** **Coffee break**

● **10.20 - 11.40** **Lectures**

PLOMER Jan, Ing., BERAN Josef, Ing., WASSERBAUER Radek, Ing., Siemens Mobility s.r.o., Praha, CZ

Modern long-distance railway transportation

KOZYNETS Ivan, Ing., JAKUBÍK Peter, Ing., Siemens Mobility, s.r.o., Žilina, SK

ATO – Automatic Train Operation

ŠIMONČIČ Martin, Ing., HAVAŠ Ivan, Ing., KUPČOK Slavomír, Ing., DIAGO SF s.r.o., Brezno, SK

DIAGO – Motion in control

ŠMÍDOVÁ Pavla, Ing., ŠOHAJEK Petr, Ing., MACHALÍK Stanislav, Ing., Ph.D.,
GREINER Karel, doc., Ing., Ph.D., Jan Perner Transport Faculty, University of Pardubice, CZ

Distribution of mobile applications to users in the rail transport operation environment

● **12.10 - 12.30** **Closing Plenary Session**

● **12.40** **Lunch**

September 22, 2023 - Friday

► Session A, September 22, 2023

8.00 - 10.00 Lectures

SUCHÁNEK Andrej, Ing., PhD., ŠŤASTNIAK Pavol, Ing., PhD., HARUŠINEC Jozef, Ing., PhD., LOULOVÁ Mária, Ing., PhD., Faculty of Mechanical Engineering, University of Žilina, SK

The mechanism design of a parking brake test device

SUCHÁNEK Andrej, Ing., PhD., ŠŤASTNIAK Pavol, Ing., PhD., HARUŠINEC Jozef, Ing., PhD., LOULOVÁ Mária, Ing., PhD., Faculty of Mechanical Engineering, University of Žilina, SK

The air flow for the inertia braking state UIC

VÁCLAVÍK Jaroslav, Ing., MUSILOVÁ Radka, Ing., Ph.D., JOZEFY Roman, Ing., VZÚ Plzeň, s.r.o., CZ

Residual stress measurement in railway axles

GERLICI Juraj, prof., Dr.Ing., LOVSKA Alyona, prof., Dr.Sc.Tech., Faculty of Mechanical Engineering, University of Žilina, SK, **VATULIA Glib, prof. Ing., Dr.Sc.Tech.,** O. M. Beketov National University of Urban Economy in Kharkiv, **FOMIN Oleksij, prof., Ing., Dr.Sc.Tech.,** University of Infrastructure and Technologies, Kyiv, UA, **KRAVCHENKO Oleksandr, prof, Dr,Sc.Tech,** Faculty of Mechanical Engineering, University of Žilina, SK

Research of the strenght of the body of a covered wagon when it is fastened with a new device on the deck of a railway ferry

ZVOLENSKÝ Peter, prof., Ing., CSc., GREŇČÍK Juraj, doc., Ing., PhD., Faculty of Mechanical Engineering, University of Žilina, **ĎUNGEL Ján, Ing., PhD.,** Assco CEIT, a.s., Žilina, SK, **KRIVDA Ján, Mgr.,** RĚTEX a.s., Moravský Krumlov, CZ

New types of acoustically absorbing materials with the possibility of use in railway wagons

BLATNICKÝ Miroslav, doc., Ing., PhD., MOLNÁR Denis, Ing., DIŽO Ján, doc., Ing., PhD., ISHCHUK Vadym, Ing., Faculty of Mechanical Engineering, University of Žilina, SK

Normative analytical calculation of STB technology bolted joint for 661 series railway vehicles

● 10.00 - 10.20 Coffee break

● 10.20 - 12.00 Lectures

GUBAREVYCH Oleg, doc. Ing. PhD., Institute of Railway Transport of State University of Infrastructure and Technologies, Kyiv, UA, **GERLICI Juraj, prof., Dr.Ing., KRAVCHENKO Oleksandr, prof, Dr,Sc.Tech,** SJF Žilinská univerzita v Žiline, SK, **MELKONOV Hryhoriy, doc. PhD.,** Volodymyr Dahl East Ukrainian National University, Kyiv, UA, **LOVSKA Alyona, prof., Dr.Sc.Tech.,** Faculty of Mechanical Engineering, University of Žilina, SK

Formalization of Reliability Indicators of Induction Motors for Electric Drives of Railway Rolling Stock

NOVOTNÝ Ondřej, Ing., Ph.D., BABKA Jan, Ing., SKF CZ, a.s., Praha, CZ

Inboard bearing arrangement – advantageous solution for train builder, challenge for bearing supplier

DYBALA Vojtěch, Ing., Faculty of Mechanical Engineering, CTU in Prague, CZ

An analysis of a resonance excitation sensitivity in a torsion system depending on an excitation frequency and on a resonance passage speed

ŠŤĚPÁNEK Jiří, Ing., CZ LOKO, a.s., Česká Třebová, CZ

Authorisation of locomotives and their changes according to the 4th railway package

NEKOKSA Pavel, Ing., SVOZILÍK Jaroslav, Ing., HŽP a.s., Prostějov, CZ

Refurbishment of coil springs

19.00 Evening reception

September 21, 2023 - Thursday

► Session A, September 21, 2023

● 8.00 - 9.40 Lectures

ČERVENKA Zdeněk, Ing., ŠKODA TRANSPORTATION, a. s., Plzeň, **BYRTUS Miroslav, doc., Ing., Ph.D.,** Faculty of Mechanical Engineering, University of West Bohemia in Plzeň, CZ

Simplified dynamic models in suspension optimization

PULDA Jan, Ing., MUSIL Jan., Ing., VÚKV, a.s., Praha, CZ

Usage of a flexible carbody model within dynamic calculations of vehicle running behaviour: difficulties and questions

VRBA Jan, Ing., Faculty of Mechanical Engineering, CTU in Prague, CZ

Reducing wheel and rail wear with active wheelset steering on articulated trams

KVARDA Daniel, Ing., OMASTA Milan, Ing., Ph.D., GALAS Radovan, Ing., Ph.D., HARTL Martin, prof., Ing., Ph.D., Faculty of Mechanical Engineering, Brno University of Technology, CZ

Third body layer modelling of wheel-rail contact in presence of lubricants'

JENIŠ Filip, Ing., Faculty of Mechanical Engineering, Brno University of Technology, **MICHÁLEK Tomáš, Ing., Ph.D.,** Jan Perner Transport Faculty, University of Pardubice, CZ

The effect of semi-active control of bogie yaw dampers on the railway vehicle critical speed

● 9.40 - 10.00 Coffee break

● 10.00 - 11.20 Lectures

ISHCHUK Vadym, Ing., DIŽO Ján, doc., Ing., PhD., BLATNICKÝ Miroslav, doc., Ing., PhD., MOLNÁR Denis, Ing., SOLČANSKÝ Sebastián, Ing., Faculty of Mechanical Engineering, University of Žilina, SK

Computations and analyses of rail vehicles multibody systems with a flexible body

CULEK Bohumil, prof., Ing., CSc., SCHMIDOVÁ Eva, prof., Ing., Ph.D. CULEK Bohumil, doc., Ing., Ph.D., Jan Perner Transport Faculty, University of Pardubice, **MALINSKÝ Jiří, Ing., PULDA Jan, Ing.,** VÚKV a.s., Praha, CZ

Experimental research of wheel and rail materials on VDP stand of University of Pardubice

LATA Michael, doc., Ing., Ph.D., SÝKORA Petr, Ing., Jan Perner Transport Faculty, University of Pardubice, CZ

Modification of the wheel-rotating rail stand for research on the passage of electrical signals between the wheel and the rail

PULDA Jan, Ing., CULEK Bohumil, prof., Ing., CSc., VOLTR Petr, doc., Ing., Ph.D., Jan Perner Transport Faculty, University of Pardubice, CZ

Experimental proof of spin influence on rail-wheel contact forces: state of present knowledge

► Session B, September 21, 2023

● 8.00 - 9.40 Lectures

HELLER Petr, doc., Ing., CSc., Faculty of Mechanical Engineering, University of West Bohemia in Plzeň, CZ

Single-axle revolving bogie for regional rail vehicle

RÜGER Bernhard, FH-Prof., Dr, Vienna University of Technology, AT

Vehicle interiors - efficiency through customer orientation

BRODSKÝ Jaroslav, Ing., ŠKODA TRANSPORTATION a. s., Plzeň, CZ

Application of 3D print in the construction of rail vehicles

JANOŠ Petr, Ing., Ph.D., MBA, BONATRANS GROUP, a.s., Bohumín, CZ

Design of the wheel - axle press fitting joint

KOLÁŘ Josef, doc., Ing., CSc., Faculty of Mechanical Engineering, CTU in Prague, CZ

Benefits of using two-stage shifting axle-gearbox in light rail vehicles with electric power transmission

● 9.40 - 10.00 Coffee break

● 10.00 - 11.20 Lectures

MACEK Jan, prof., Ing., DrSc. MORKUS Josef, Ing., CSc., Faculty of Mechanical Engineering, CTU in Prague, CZ

Issues of Energy Accumulation for Vehicles

PAWEŁCZYK Marek, dr hab. inż., Politechnika Świętokrzyska, Kielce, PL

Energy storage in railway traction systems

ŠINDEL Radek, Ing., Siemens Mobility, s.r.o., Ostrava, CZ

Possibilities of use battery and hydrogen vehicles on railways

MERGL Emanuel, Ing. VÚKV, a.s., Praha, CZ

Aerodynamic requirements on vehicles in the context of further railway development

► Session C, September 21, 2023

● 8.00 - 9.40 Lectures

ŘEHÁK Radek, Ing., Siemens Mobility, s.r.o., Ostrava, **FAMFULÍK Jan, doc., Ing., Ph.D., RICHTÁŘ Michal, Ing., Ph.D., ŠIROKÝ Jaromír, Ing., Ph.D.,** Institute of Transport, VSB-Technical University of Ostrava, CZ

Functional safety of automatic maintenance of rolling stock

VÁGNER Jakub, Ing., Ph.D., KOHOUT Martin, Ing., Ph.D., VOLTR Petr, doc., Ing., Ph.D. LIBEROVÁ Stanislava, Ing., Ph.D., Jan Perner Transport Faculty, University of Pardubice, **JIRKA Michal,** ŠKODA TRANSPORTATION, a. s., Plzeň, **KOVÁŘ Ondřej, Ing.,** STARMON s.r.o., Choceň, CZ

Wayside diagnostics of running gear of railway vehicles and their contribution to maintenance

STAMENKOVIĆ Dušan, prof., dr., PhD., BANIĆ Milan, assoc. prof., PhD., MILTENOVIC Aleksandar, prof., dr., PhD., SIMONOVIC Miloš, prof., dr. PhD., Faculty of Mechanical Engineering, University of Niš, Serbia

Modern approaches to condition monitoring of railway assets

PANCHENKO Sergii, prof., Ing., Dr.Sc.Tech., Ukrainian State University of Railway Transport, Kharkiv, UA, **GERLICI Juraj, prof., Dr.Ing., LOVSKA Alyona, prof. Ing., Dr.Sc.Tech.,** Faculty of Mechanical Engineering, University of Žilina, SK, **RAVLYUK Vasyi, assoc. prof., Ing., Ph.D.,** Ukrainian State University of Railway Transport, Kharkiv, UA

Substantiation of the environmental efficiency of the device for parallel retraction of brake shoes for freight wagons

STUHLÍK Radek, Ing., SOUKUP Jiří, Ing., BRABEC Jaroslav, Ing., IWE, Výzkumný Ústav Železniční, a.s., Praha, CZ

Rationalization of the Dynamic Test Bench workplace as the main tool to increase work efficiency

● 9.40 - 10.00 Coffee break

● 10.00 - 11.20 Lectures

MOSER Peter, DI(FH), Linsinger Maschinenbau Gesellschaft m.b.H., Steyrermühl, AT

Reducing the wear on the wheels of railway vehicles and increasing the safety of transport through targeted rail maintenance

SLOVAK Bohdana, Dr.-Ing., SCHMEISTER Jörg, Dipl.-Ing., DB Netz AG, München, DE

Metrological assessment of the track geometry measuring systems at DB Netz AG

URDA Ján, Ing., PhD., Railways of the Slovak republic, Research and Development Institute of Railways Žilina, SK

New diagnostic vehicles on Slovak railways

HEJZLAR Lukáš, Ing., KOŠTÁL Martin, DiS., Výzkumný ústav železniční, a.s., Praha, CZ

Expanding the portfolio of tests in the VUZ Testing Laboratory

● 11.45 Departure of the buses from Žilina to Vychylovka

● 12.30 Lunch, visit of the Museum of the Kysuce Village and the Historical Forest Switchback Railway at Vychylovka

● 18.15 Departure of the buses from Vychylovka to Žilina

