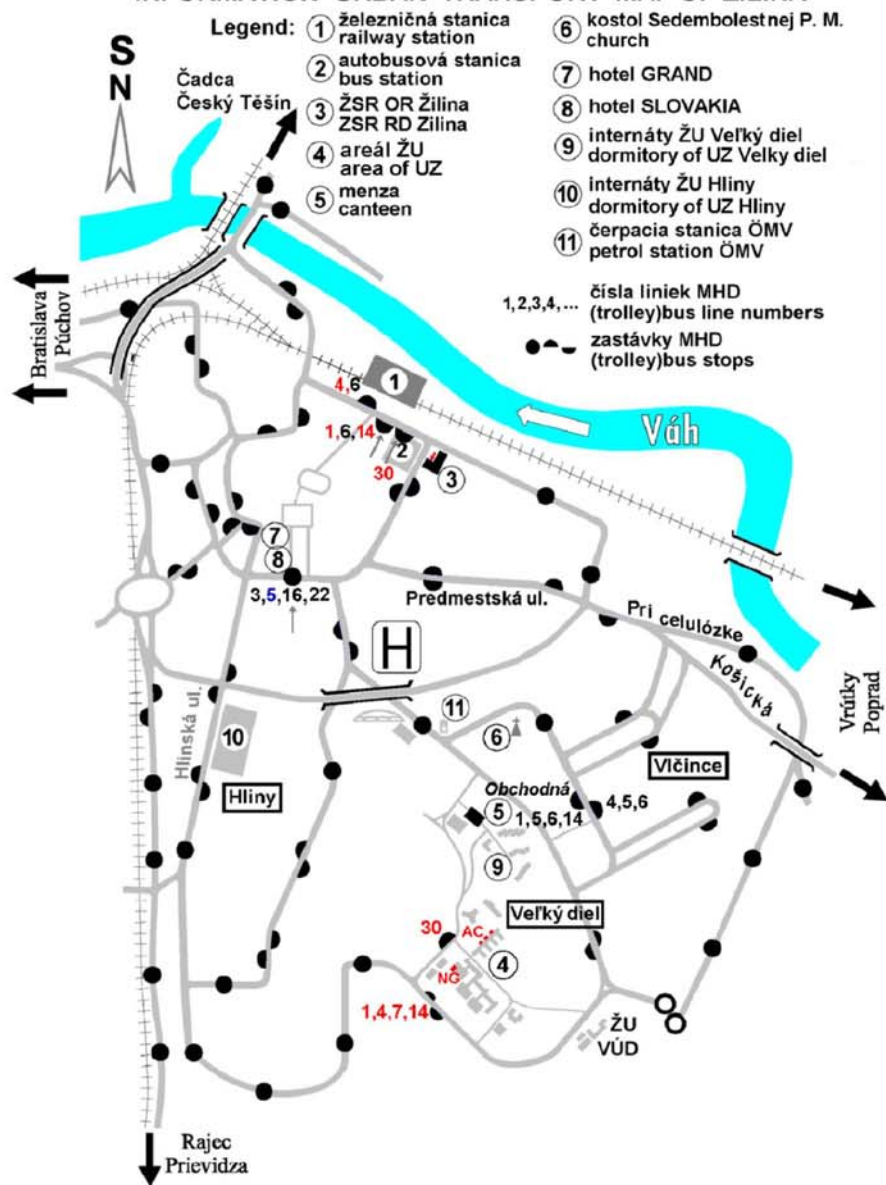


ORIENTAČNÁ MAPA MHD ŽILINY
INFORMATION URBAN TRANSPORT MAP OF ŽILINA



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



XXIV. MEDZINÁRODNÁ KONFERENCIA
SÚČASNÉ PROBLÉMY V
KOĽAJOVÝCH VOZIDLÁCH

24th INTERNATIONAL CONFERENCE
CURRENT PROBLEMS
IN RAIL VEHICLES



POZVÁNKA

INVITATION

ŽILINA, 17. - 19. 9. 2019, SLOVENSKO
ŽILINA, SEPTEMBER 17 - 19, 2019, SLOVAKIA

PARTNERI KONFERENCIE PRORAIL 2019
PARTNERS OF THE CONFERENCE PRORAIL 2019

	Železničná spoločnosť Slovensko, a.s. Rožňavská 1, 832 72 BRATISLAVA SLOVAKIA
	Železničná spoločnosť Cargo Slovakia, a.s. Drieňova 24, 820 09 Bratislava SLOVAKIA
	CZ LOKO, a.s. Semanínska 580, 560 02 ČESKÁ TŘEBOVÁ CZECH REPUBLIC

SPONZORI KONFERENCIE PRORAIL 2019
SPONSORS OF THE CONFERENCE PRORAIL 2019

	BONATRANS GROUP a.s. Revoluční 1234, 735 94 BOHUMÍN CZECH REPUBLIC
	DEWETRON - PRAHA spol. s r.o. Tehovská 25/1237, 100 00 PRAHA CZECH REPUBLIC
	DPOV, a.s. Husova 635/1b, 751 52 PŘEROV CZECH REPUBLIC
	HMM s.r.o. Tavarikova osada 39, 841 02 BRATISLAVA 42 SLOVAKIA
	MB Idea SK, s.r.o. Nová 134, 017 01 POVAŽSKÁ BYSTRICA SLOVAKIA
	MEDCOM Sp. z o.o. Jutrzenki 78 A, 02-230 WARSZAWA POLAND
	TATRAVAGÓNKA a.s. Štefánikova 887/53, 058 01 POPRAD SLOVAKIA

	WESTERCOM s.r.o. Veleslavín, Na Okraji 42, 160 00 PRAHA 6 CZECH REPUBLIC
	ŽOS Vrútky a.s. Dielenská Kružná 2, 038 61 VRÚTKY SLOVAKIA

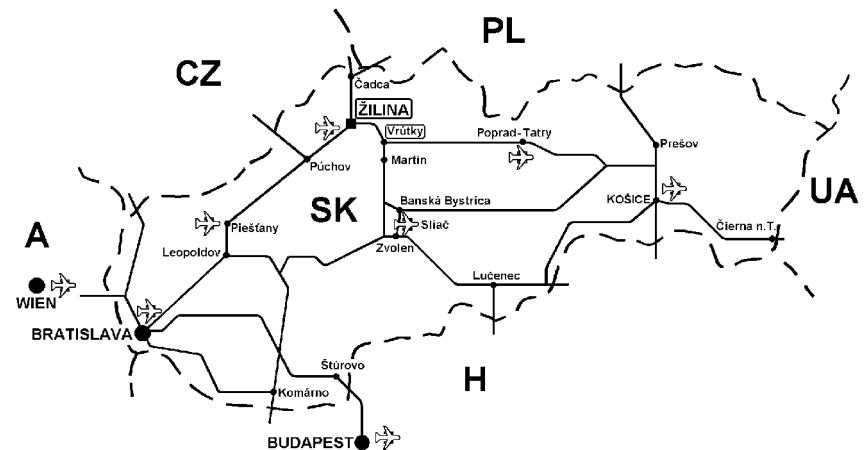
Súčasťou 24. medzinárodnej konferencie "Súčasný problémy v koľajových vozidlách - PRORAIL 2019" je aj **exkurzia do ŽOS Vrútky a.s.** spojená s návštevou historickej expozície.

*The part of the 24th International Conference "Current problems in rail vehicles - PRORAIL 2019" is the excursion to **the company ŽOS Vrútky a.s.** linked with visit of the historical exposition.*

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. Zasláním 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.



Fees include only printing of advertisements delivered in the suitable form. Black&white or two color advertisements should be delivered in electronical form (WordPerfect, MSWord, AmiPro) including pictures (*.pcx, *cdr, *.bmp, *.pgl, *.wpg) and/or in printed form. Full color advertisement should be delivered in an electronical form. All additional expenses connected with necessary treatment of advertisement will be charged in addition to base fees stated before.

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	95 EUR,
Exhibition of your own panel	55 EUR,
Free exhibition area	55 EUR/1 m ² .

If you are interested in advertising your company in the Conference PRORAIL 2019, please fill in enclosed order and send it (including text and pictures of advertisement) **no later than on August 16, 2019** to address:

Prof. Ing. Daniel KALINČÁK, PhD.

VTS pri Žilinskej univerzite

Univerzitná 1

010 26 ŽILINA

SLOVAKIA

Phone: +421 (0)41 513 2650, Fax: +421 (0)41 5254 440, mobil: +421 (0)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 2019 till the end of October 2019.

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 24th International Conference CURRENT PROBLEMS IN RAIL VEHICLES PRORAIL 2019



under the auspices of

Minister of Transport and Construction of the Slovak Republic

PaedDr. Arpád ÉRSEK,

Rector of the University of Zilina

Prof. Ing. Jozef JANDAČKA, Ph.D.,

Chairman of the Board of Directors and Director General of Railway
Company Slovensko, j.s.c.

Mgr. Filip HLUBOCKÝ,

Chairman of the Board of Directors and Director General of Railway
Company Cargo Slovakia, j.s.c.

Ing. Martin VOZÁR, MBA

Scientific Committee

Chairmen:

Prof. Ing. Daniel KALINČÁK, PhD., Faculty of Mechanical Engineering, University of Žilina, SK

Members:

Prof. Ing. Bohumil CULEK, CSc., Jan Perner Transport Faculty, University of Pardubice, CZ

Ing. Ondřej FANTA, Ph.D., VUZ - Railway Research Institute, a.s., Prague, CZ

Assoc. Prof. Ing. FAMFULÍK, Ph.D., Institute of Transport, VŠB - TU Ostrava, CZ

Prof. Dr. Ing. Juraj GERLICI, Faculty of Mechanical Engineering, University of Žilina, SK

Assoc. Prof. Ing. Juraj GREŇČÍK, PhD., Faculty of Mechanical Engineering, University of Žilina, SK

prof. Antonio GUGLIOTTA, Politecnico di Torino, I

Prof. Dr.-Ing. Markus HECHT, Institut für Land- und Seeverkehr, TU Berlin, D

Assoc. Prof. Ing. Petr HELLER, CSc., West Bohemian University in Pilsen, CZ

Assoc. Prof. Ing. Július HUDÁK, PhD., ŽOS Trnava, a.s., SK

Prof. Dr. hab. Ing. Andrzej CHUDZIKIEWICZ, Ph.D., D.Sc., Technical University of Warsaw, PL

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

Ing. Martin KOHOUT, Ph.D., Jan Perner Transport Faculty, University of Pardubice, CZ

Assoc. Prof. Ing. Josef KOLÁŘ, CSc., Faculty of Mechanical Engineering, CVUT Prague, CZ

Ing. Jozef KUBIČKO, ŽOS Vrútky, a.s., SK

Ing. Lubomír KUŤKA, Railway Company Cargo Slovakia, a.s., Bratislava, SK

Assoc. prof. Tomáš LACK, PhD., Faculty of Mechanical Engineering, University of Žilina, SK

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

Assoc. Prof. Ing. Michael LATA, Ph.D., Jan Perner Transport Faculty, University of Pardubice, CZ

Ing. Zdeněk MALKOVSKÝ, Ph.D., VÚKV a.s., Prague, CZ

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

Ing. Matěj PÁCHA, PhD., Faculty of Electrical Eng. and Information Technology, University of Žilina, SK

Prof. dr. hab. inž. Marek PAWEŁCZYK, Ph.D., D.Sc., Kielce University of Technology, PL

Ing. Jozef PEŠKO, Railway Company Slovensko, j.s.c., Bratislava, SK

Ing. Jaroslav PLHÁK, CZ LOKO, a.s., Česká Třebová, CZ

Ing. Jan PLOMER, Czech Railways, Prague, CZ

Ing. Jiří Pohl, Siemens Mobility, s.r.o., Prague, CZ

Prof. Ing. Oldřich POLÁCH, PhD., Independent consultant, Neuhausen am Rhf., CH

Ing. Jiří SEGEŤA, ŠKODA VAGONKA a.s., Ostrava, CZ

Assoc. Prof. Ing. Karel SELLNER, CSc., Jan Evangelista Purkyně University in Usti nad Labem, CZ

Prof. dr. hab. inž. Marek SITARZ, Ph.D., D.Sc., Akademia WSB, Dabrowa Gornica, PL

Assoc. Prof. Ing. Josef SOUKUP, CSc., Jan Evangelista Purkyně University in Usti nad Labem, CZ

prof. Dr. Dušan STAMENKOVIĆ, Faculty of Mechanical Engineering, University of Niš, SRB

Bc. Miloš TOMAN, Legios Loco a.s., Prague, CZ

Ing. Jakub VÁGNER, Ph.D., Jan Perner Transport Faculty, Univ.y of Pardubice, CZ

Ing. Jan ZAPLETAL, ŠKODA TRANSPORTATION a.s., Pilsen, CZ

Assoc. Prof. Ing. Jaromír ZELENKA, Ph.D., Jan Perner Transport Faculty, Univ.y of Pardubice, CZ

Prof. Ing. Peter ZVOLENSKÝ, CSc., Faculty of Mechanical Engineering, University of Žilina, SK

Chairman of Organizing Committee:

Ing. Dalibor BARTA, Ph.D., Faculty of Mechanical Engineering, 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.

Members:

Ing. Ján DIŽO, PhD., Faculty of Mechanical Engineering, University of Žilina, SK

Ing. Jana GALLIKOVÁ, PhD., Faculty of Mechanical Engineering, University of Žilina, SK

Ing. Jozef HARUŠINEC, PhD., Faculty of Mechanical Engineering, University of Žilina, SK

Ing. Pavol KURČÍK, Faculty of Mechanical Engineering, University of Žilina, SK

Ing. Peter STRÁŽOVEC, Faculty of Mechanical Engineering, University of Žilina, SK

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

Ing. Pavol ŠŤASTNIAK, 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 wellnessclub.

Price (accommodation including breakfast, WIFI)

single room LUX 70,00 €

double room LUX 101,00 €

Hotel SLOVAKIA *** Žilina

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

Price (accommodation including breakfast, WIFI, parking)

single room 26,00 €

double room 52,00 €

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.

ADVERTISING

We are preparing the 24th International Conference „Current Problems in Rail Vehicles - PRORAIL 2019“, which will take place at the University of Žilina in September 17 - 19, 2019. 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 100,- €

two color page 160,- €

full color page 240,- €.

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: *SK600900000000076511456*
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	86,00 €
double room	107,00 €

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	80,00 €
double room	111,00 €

Hotel BOSS** Žilina**

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

Price (accommodation including breakfast, parking, internet)

single room	65,00 €
double room	90,00 €
single room LUX	72,00 €
double room LUX	99,00 €



24th INTERNATIONAL CONFERENCE
**CURRENT PROBLEMS IN RAIL
VEHICLES - PRORAIL 2019**
September 17 - 19, 2019, 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 NG). 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.

Organizers are pleased to thank

the Partners:

Railway Company Slovensko a.s.,

Railway Company Cargo Slovakia a.s.

CZ LOKO, a.s.

the sponsors of the Conference:

BONATRANS GROUP a.s., Revoluční 1234, 735 94 Bohumín, CZ,

DEWETRON - PRAHA spol. s r.o., Tehovská 25/1237, 100 00 Praha, CZ,

DPOV, a.s., Husova 635/1b, 751 52 Přerov, CZ,

HMH s.r.o., Tavaríkova osada 39, 841 02 Bratislava 42, SK.

MB Idea SK, s.r.o., Nová 134,017 01 Považská Bystrica, SK,

MEDCOM Sp. z o.o., Jutrzenki 78 A, 02-230 Warszawa, PL

TATRAVAGÓNKA a.s., Štefánikova 887/53, 058 01 Poprad, SK,

WESTERCOM s.r.o., Veleslavín, Na Okraji 42, 160 00 Praha 6, CZ

ŽOS Vrútky a.s., Dielenská Kružná 2, 036 61 Vrútky, SK

and other companies which supported the Conference in different way.

PROGRAMME

September 16, 2019 - Wednesday

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

September 17, 2019 - Thursday

from 7.30 Registration of participants in block NG, University Campus - Veľký diel

9.30 - 10.30 Opening ceremony (lecture hall NG 01)

Opening Speeches

Opening speeches of representatives of the Ministry of Transport and Construction of the Slovak Republic, the Railway Company Slovensko, a.s., the Railway Company 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., SiemensMobility, s.r.o., Praha, CZ

Emission-free railway

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

Noise in freight railway transport - waiting problem?

11.20 - 12.55 Presentation of companies

BONATRANS GROUP a.s., Bohumín, CZ

CZ LOKO, a.s., Česká Třebová, CZ

DEWETRON-PRAHA, spol. s r.o., CZ

HMHs.r.o., Bratislava, SK

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

MEDCOM Sp. z o.o., Warszawa, PL

WESTERCOM s.r.o., Praha, CZ

ŽOS VRÚTKY, a.s., SK

13.00 - 14.30 Lunch

Afternoon work in sessions (Block AC)

WSession A, September 17, 2019

14.30 - 16.10 Lectures

HÁBA Aleš, Ing., Ph.D., ZELENKA Jaromír, doc., Ing., CSc., Jan Perner Transport Faculty, University of Pardubice, **NĚMEC Karel**, DT Výhybkárna a strojírna, a.s., Prostějov, CZ

Tram wheelset passing over single and double crossing with low groove in several operational conditions

ORGANIZATIONAL INSTRUCTIONS

Conference venue: The Conference will be held at the auditoria **NG** and **AC** of the University of Žilina, Veľký diel from September 17 to September 19, 2019.

Registration of participants: September 16, 2019 16.00 - 20.00 at the building of the Regional directorate Žilina of ŽSR, 1. Maja str., No 34.

September 17, 2019 from 7.30 in block „NG“ 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 NG 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 19, 2019** to the address:

Prof. Ing. Daniel Kalinčák, PhD.

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

Phone.: +421 41 513 2650, Fax: +421 41 5254 440, 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 17 and 19 are in the hall under Church Vlčince in front of the Post Office No 8 at the housing estate „Vlčince“, lunch on September 18 is in ŽOS Vrútky.

Social evening: Evening reception will be on September 17, 2019 at 19.00 in the hall under the Church at Vlčince.

Conference fee: Conference fee is **160,- €** (if payment is made by bank transfer) or **(180,- €)** if conference fee is paid in cash at registration. **One of authors of each paper pay** reduced conference fee **110,- €** (payment by bank transfer) or **130,- €** if it is paid in cash. Conference fee covers the registration, Proceedings, excursion to ŽOS Vrútky, and visit the Open air museum in Martin and refreshment. The Conference fee does not cover accommodation.

The current information about the Conference PRORAIL 2019 you can find on:

<http://www.vtszu.sk>

PRELIMINARY SCHEDULE

September 16, 2019 - Monday

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

September 17, 2019 - Tuesday

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

9.30 - 10.30 Opening ceremony and opening speeches (lecture hall „NG 01“)

10.40 - 12.55 Plenary session and presentation of companies (NG 01)

13.00 - 14.30 Lunch (the hall under Church Vlčince)

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

from 19.00 Social Evening at the hall under Church Vlčince in front of the Post Office No 8 at the housing estate “Vlčince”.

September 18, 2019 - Wednesday

8.00 - 11.20 Parallel Sessions (block AC)

from ca 11.45 Excursion to ŽOS Vrútky. Lunch and visit to the Open air museum in Martin and the transport by buses from Žilina to Vrútky and back.

September 19, 2019 - Thursday

8.00 - 12.40 Parallel Sessions (block AC)

12.40 - 12.50 Closing Plenary Session (block AC)

from 12.40 Lunch

KOHOUT Martin, Ing., Ph.D., ZELENKA Jaromír, doc., Ing., CSc., VÁGNER Jakub, Ing., Ph.D., VOLTR Petr, doc., Ing., Ph.D., MICHÁLEK Tomáš, Ing., Ph.D., HÁBA Aleš, Ing., Ph.D., Jan Perner Transport Faculty, University of Pardubice, CZ

Project S-CODE: Dynamic effects of rail vehicle in S&C

RAIF Lukáš, Ing., KOMÁREK Miroslav, Ing., MAREK Tomáš, Ing., DT – Výhybkárna a strojírna, a.s., Prostějov, **PLÁŠEK Otto, doc., Ing., Ph.D., MAJER Zdeněk, Ing., Ph.D.,** Brno University of Technology, CZ

Project S-CODE: New concepts of railway S&Cs

MICHÁLEK Tomáš, Ing., Ph.D., ŠLAPÁK Jiří, Ing., Jan Perner Transport Faculty, University of Pardubice, **ŠPALEK Petr, Ing., HORA Miroslav, Ing., ŠKODA TRANSPORTATION a.s.,** Plzeň, CZ

Quantification of damaging effects of railway vehicle run on track

GÁLIK Ivan, Ing., WAGON SERVICE travel, s. r. o., Bratislava, SK

Excessive depreciation on wheelsets of coaches

16.10 - 16.30 Coffee break

16.30 - 18.10 Lectures

KRULICH Pavel, Ing., VÚKV a.s., Praha, CZ

Railway vehicles as an object of calculation and testing of running behaviour

CULEK Bohumil, prof., Ing., CSc., ČÁP Jaroslav, prof. Ing., DrSc., Jan Perner Transport Faculty, University of Pardubice, **MALINSKÝ Jiří, Ing.,** VÚKV a.s., Praha, CZ

Experimental Research on the Railway Wheel Testing Device

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

Utilization of the Scaled Roller Rig in the Development of Innovative Railway Running Gears

SOUKUP Jiří, Ing., Railway Research Institute, a.s., Prague, CZ

Bearing test bench II

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

Study of a railway wheel running surface wear by using of simulation tools

WSession B, September 17, 2019

14.30 - 16.10 Lectures

DOKUPIL Jindřich, Ing., KOPAL Jan, Ing., KASALA Michal, Ing., CZ LOKO a. s., Česká Třebová, **NOVÁK Jaroslav, prof., Ing., CSc.,** Jan Perner Transport Faculty, University of Pardubice, CZ

Hybrid locomotive CZ LOKO719.401

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

RegioTrans – cost effective replace of the diesel traction on regional not electrified railways by intermodal battery vehicles

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

The design study of partially low-floor electric rail-bus

ŘÍHA Jiří, Ing., ŠKODA TRANSPORTATION, a.s., Plzeň, **ZÍSKAL Tomáš, Ing.**, VÚKV a.s., Praha, CZ

Low floor tram air suspended bogie with direct driven wheels

HELLER Petr, doc., Ing., CSc., **SCHÖN Jiří, Ing.**, **BENO Jan, Bc.**, **HOFMAN Jiří, Ing.**, Faculty of Mechanical Engineering, University of West Bohemia in Plzeň, CZ

The non-standard narrow gauge tram bogie

16.10 - 16.30 **Coffee break**

16.30 - 18.10 **Lectures**

HAUSER Vladimír, Ing., PhD., **KRAVCHENKO Kateryna, doc., Ing., PhD.**, Faculty of Mechanical Engineering, University of Žilina, SK, **NOZHENKO Olena, doc., Ing. PhD.**, Volodymyr Dahl East Ukrainian National University, Sewerodonetsk, **FOMIN Oleksij, assoc. prof., DrTechSc.**, State University of Infrastructure and Technology, Kyiv, UA

Tram car bogie concept and consideration of his impact to the track

ČERVENKA Zdeněk, Ing., **HORA Miroslav, Ing.**, ŠKODA TRANSPORTATION, a.s., Plzeň, CZ

Design of trailer bogie with inboard frame

HAUPT Lukáš, Ing., CZ LOKO a. s., Česká Třebová, **MICHÁLEK Tomáš, Ing., Ph.D.**, **KOHOUT Martin, Ing., Ph.D.**, **LIBEROVÁ Stanislava, Ing., Ph.D.**, Jan Perner Transport Faculty, University of Pardubice, CZ

Results of development of three-axle bogie CZ LOKO

JÁNOŠ Petr, Ing., Ph.D., MBA, BONATRANS GROUP a.s., Bohumín, **NOVOTNÝ Ondřej, Ing., Ph.D.**, SKF CZ, a.s., Praha, CZ

Wheelsets and bearings dedicated for freight wagons

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

Tapered roller and cylindrical roller bearing units with 1.7 Mkm maintenance interval

WSession C, September 17, 2019

14.30 - 16.10 **Lectures**

ELSTNER Martin, Ing., Ph.D., Czech Railways, a.s., Brno, CZ

How to measure the impact of rolling stock maintenance on rail transport quality

GREŇČÍK Juraj, doc., Ing., PhD., **GALLIKOVÁ Jana, Ing., PhD.**, Faculty of Mechanical Engineering, University of Žilina, **VOLNA Peter, Ing., PhD.**, sféra, a.s., Bratislava, SK

Risk management in the operation and maintenance of railway freight wagons

JELÉNEK Jiří, Ing., VÚKV a.s., Praha, CZ

CSM RA - International cooperation of the assessment bodies ASBO within ERA (European Union Agency for Railways)

WSession B, September 19, 2019

8.00 - 10.00 **Lectures**

GERLICI Juraj, prof., Dr. Ing., **LACK Tomáš, doc., Ing., PhD.**, Faculty of Mechanical Engineering, University of Žilina, SK, **TCHACHENKO Viktor, prof., Dr. Tech. Sc.**, **SAPRONOVA Svitlana, prof., Dr. Tech. Sc.**, University of Infrastructure and Technology, Kyiv, Ukraine

Steerability research of railway vehicles

JETENSKÝ Lukáš, Ing., **HEPTNER Tomáš, Ing.**, **BUCHTA Jan, Ing.**, VÚKV a.s., Praha, CZ

Determination of vehicle gauge by dynamic method

REJDUGA Jozef, Ing., DAPA-Design, s.r.o., Trnava, SK

Development and testing of the Fans-u Infrastructure Wagon

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

Innovative On-track machines – Sleeper and Ballast Carriers

LOVSKA Alyona, assoc. prof., PhD., **BURLATSKI Oleksij**, Ukrainian State University

@ Railway Transport, Kharkiv, **FOMIN Oleksij, assoc. prof., DrTechSc.**, State

University of Infrastructure and Technology, Kyiv, **GORBUNOV Mykola, prof.,**

DrTechSc., Volodymyr Dahl East Ukrainian National University, Sewerodonetsk,

Ukraine, **BUREIKA Gintautas, prof., Dr.**, **STEIŠŪNAS Stasys, assoc. prof., Dr.**,

VAIČIŪNAS Gediminas, assoc. prof., Dr., Vilnius Gediminas Technical University,

Lithuania,

The improved carrying structure of a passenger car for the appropriate strength in train

ferry transportation

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

SK., **MORAVČÍK Marián, Ing., Ph.D.**, Tatragónka a.s., Poprad, SK

Stability investigation of a new balance beam system solution for a 3-axle railway bogie

10.00- 10.20 **Coffee break**

10.20 - 12.20 **Lectures**

RYBNIKOV K. Evgenij, prof., Ing., PhD., **VAKHROMEEVA Tatiana, assoc. prof., Ing., PhD.**, Russian University of Transport, Moscow, Russia

Problems of structure continuity in new electric locomotives design

ŽIŽKOVSKÝ Nikola, Ing., VZLÚ, a.s., Praha, CZ

Use of air curtains for rail vehicles

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

Influence of accident statistics on design elements of tram and rail vehicles

MARTINÁK Josef, Ing., Klüber Lubrication CZ s.r.o., Praha, CZ

Modern lubricants for the buffer contact surfaces of the rail vehicles

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

Overlife vehicle efficiency

KURČÍK Pavol, Ing., Faculty of Mechanical Engineering, University of Žilina, SK

Parking brake design for tests on UIC brake bench

12.40 - 12.40 **Closing Plenary Session**

12.40 **Lunch**

September 19, 2019 - Thursday

WSession A, September 19, 2019

8.00 - 10.00 Lectures

STUHLÍK Radek, Ing., Railway Research Institute, a.s., Prague, CZ

Vibration tests of A/C unit using ITRM system

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

The influence of a control on a frequency composition of phase currents and an electromagnetical torque in simulations of an asynchronous motor powered from an inverter

JOVANOVIĆ Predrag, assist. prof., PhD., KOSTIĆ Dragutin, prof., PhD., University of Belgrade, Serbia

Analysis and Algorithms for Train Traction Energy Measurement and Evaluation

SOBOTKA Ladislav, Dr. Ing., ŠKODA ELECTRIC a.s., Plzeň, CZ

Direct traction drive with IPMSM traction motor and SiC traction converter for Metro Suzhou in China

SRB Stanislav, Ing., Ph.D., Elektrosignal, a.s., Praha, CZ

Conductive Current Detector for Tractive Vehicle of Electric Traction

BANIĆ Milan, assist. prof., PhD., STAMENKOVIĆ Dušan, prof., MILTENOVIĆ Aleksandar, assist. prof., SIMONOVIĆ Miloš, assist. prof., MILOŠEVIĆ Miloš, prof., University of Niš, Serbia

Design of housing and vibration suppression for obstacle detection system in railways

10.00 - 10.20 Coffee break

10.20 - 12.20 Lectures

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

Aerodynamics of railway vehicles in tunnels

SCHUSTER Milan, Dr. Ing., VZÚ Plzeň s.r.o., CZ

Simulations of train aerodynamics in tunnels

MIKHAILOV Evgeny, doc., Ing., PhD., SEMENOV Stanislav, Ing., PhD., Volodymyr Dahl East Ukrainian National University, Sewerodonetsk Ukraine, **DIŽO Ján, Ing., PhD., BLATNICKÝ Miroslav, Ing., PhD., KRAVCHENKO Kateryna, doc., Ing., PhD.**, Faculty of Mechanical Engineering, University of Žilina, SK

Possibilities of reducing of rail vehicle running resistance by means of new wheel design

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

Measuring and calculation of residual stresses in a railway wheel

STRÁŽOVEC Peter, Ing., Faculty of Mechanical Engineering, University of Žilina, SK

Innovative solution to track gauge change of the rail brake components test stand

BREZÁNI Miloš, Ing., PhD., BARTA Dalibor, doc., Ing., PhD., Faculty of Mechanical Engineering, University of Žilina, SK

Analysis of the issues of failures and cracking of pistons in combustion engines.

ŘEHÁK Radek, Ing., Siemens Mobility s.r.o., Ostrava, **FAMFULÍK Jan, doc., Ing., Ph.D., RICHTÁŘ Michal, Ing., Ph.D., MÍKOVÁ Jana, Ing., Ph.D., ŠIROKÝ Jaromír, Ing., Ph.D.**, Faculty of Mechanical Engineering, VSB – TU of Ostrava, CZ

Assessment of failure criticality by application of FMECA

ZVOLENSKÝ Peter, prof., Ing., CSc., GREŇČÍK Juraj, doc., Ing., PhD., GALLIKOVÁ Janka, Ing., PhD., Faculty of Mechanical Engineering, University of Žilina, SK

ECM certification changes and procedures under the new EU Commission Regulation 2019/779

16.10 - 16.30 Coffee break

16.30 - 18.10 Lectures

DUŠEK Ladislav, Ing., Railway Research Institute, a.s., Prague, CZ

Present topics regarding the performance of state testing

CHVOJAN Jan, Ing., Ph.D., VZÚ Plzeň s.r.o., CZ

Tools and professional activities of the Research and Testing Institute in Pilsen on the field of development and quality increasing of railway stocks and their components

ZVOLENSKÝ Peter, prof., Ing., CSc., LEŠTINSKÝ Lukáš, Ing., Faculty of Mechanical Engineering, University of Žilina, SK

Noise situation in the operation of rail brakes on the slope

FIEDLER Robert, Ing., NOVOTNÝ Zdeněk, Ing., MECAS ESI s.r.o., Plzeň, **PHAMOVÁ Lucie, Ing., Ph.D.**, VÚKV a.s., Praha, CZ

Measurement and simulation of a train Pass by Noise using Raytracing method.

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

Influence of rail dampers to pass-by noise and rail vibration

19.00 Evening reception

September 18, 2019 - Wednesday

WSession A, September 18, 2019

8.00 - 9.40 Lectures

JAROŠ Pavel, Bc., MICHÁLEK Tomáš, Ing., Ph.D., Jan Perner Transport Faculty, University of Pardubice, CZ

On the problems of longitudinal dynamics of freight trains

PULDA Jan, Bc., KOHOUT Martin, Ing., Ph.D., Jan Perner Transport Faculty, University of Pardubice, **WESTFÁL Radek, Ing.**, VÚKV a.s., Praha, CZ

Simulation of a freight wagon slip brake test

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

Creating a four-axle traction vehicle model with individual wheelset drive in running gear configurations - B₀'2', (1A) (A1), B₀'B₀'

SÁLA Pavel, Ing., Ph.D., ČERVENKA Zdeněk, Ing., HORA Miroslav, Ing., ŠKODA TRANSPORTATION, a.s., Plzeň, CZ

Research of running dynamics of bogies type 11Mt of metro car and application of the results on project of metro car

FRIDRICHOVSKÝ Tomáš, Ing., Faculty of Mechanical Engineering, CTU in Prague, CZ

Dynamic properties of partially and fully suspended drives used in modern locomotives

9.40 - 10.00 Coffee break

10.00 - 11.20 Lectures

KRAUS Václav, Ing., Ph.D., DOUBRAVA Daniel, Ing., ŠKODA TRANSPORTATION, a.s., Plzeň, CZ

Strength analysis of bogie frame

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

Determination of tram windscreen stiffness characteristics

KRAVCHENKO Kateryna, doc., Ing., Ph.D., GERLICI, Juraj, Prof. Dr. Ing., DIŽO Ján, Ing., Ph.D., LACK Tomáš, doc., Ing., Ph.D., BLATNICKÝ Miroslav, Ing., Ph.D., Faculty of Mechanical Engineering, University of Žilina, SK **GORBUNOV Mykola, prof., DrTechSc.**, Volodymyr Dahl East Ukrainian National University, Sewerodonetsk, UA

Method of the detection of a defective damper

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

Lateral characteristic of coil spring

WSession B, September 18, 2019

8.00 - 9.40 Lectures

SELLNER Karel, doc., Ing., CSc., VYSLOUŽILOVÁ Daniela, Ing. et Ing., Ph.D., Faculty of Mechanical Engineering, J. E. Purkyně University in Ústí nad Labem, CZ

Pre-war railcars ČSD and present

MALKOVSKÝ Zdeněk, Ing., Ph.D., HEPTNER Tomáš, Ing., VÚKV a.s., Praha, CZ

Freight wagons for the 21st century. Do the current standards for freight wagons reflect the state of the art

FRANKO Marek, Ing., Ph.D., KUČERA Roman, Ing., BUDAY Jozef, doc., Ing., CSc., EVPÚ a.s., Nová Dubnica, SK

Modernization of the Locomotive Series 365 with Regard to Development of New Components of Traction Equipment

KUČERA Roman, Ing., FRANKO Marek, Ing., Ph.D., BUDAY Jozef, doc., Ing., CSc., KOVÁČ Marek, Ing., EVPÚ a.s., Nová Dubnica, SK

Assessment of interoperability subsystems "Railway vehicle" of series 365 related to the required parameters and tests of traction converter and auxiliary converter

MÁLEK Lukáš, Ing., Siemens Mobility, s.r.o., Praha, CZ

Ergonomics of rolling stocks

9.40 - 10.00 Coffee break

10.00 - 11.20 Lectures

KUNDRATA Miroslav, Ing., TÍŽEK Jakub, Ing., Škoda Vagonka a.s., Ostrava, CZ

Double-deck Push-Pull trainsets ŠKODA

SÝKORA Radim, Ing., Škoda Vagonka a.s., Ostrava, CZ

Structural Design of Long Railway Wagon for Intermodal Transport

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

Energy savings in rail vehicles air conditioning

KRŠKO Ján, Ing., ŽOS Vrútky a.s., SK

STN EN 45545 fire protection standard and its application in passenger rolling stock

WSession C, September 18, 201

8.00 - 9.40 Lectures

KOREJTKO Luděk, Ing., Ph.D., DAKO-CZ, a.s., Třemošnice, CZ

Electromechanical brake system on tram

ŠKARDA Jiří, Ing., KOTÁB Zdeněk, Ing., ŠKODA TRANSPORTATION, a.s., Plzeň, CZ

Automatic brake test of the train set NIM Express

HEJZLAR Lukáš, Ing., Railway Research Institute, a.s., Prague, CZ

European project INNOWAG – Innovative Monitoring and Predictive Maintenance Solutions on Lightweight Wagon

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

ComplexTrans - the global privat-public / rail-road / passengers-goods / city-intercity transportation system

KOSTRZEWSKI Mariusz, D.Sc. PhD., Faculty of Transport, Warsaw University of Technology, **KOSTRZEWSKI Arkadiusz, PhD.**, independent researcher, PL

Transshipment tracks length arrangement

9.40 - 10.00 Coffee break

10.00 - 11.20 Lectures

PLOMER Jan, Ing., Czech Railways., Generální ředitelství, Praha, CZ

ETCS and the renewal of rolling stock

PLOMER Jan, Ing., jun., Cyient s.r.o., Karlovy Vary, CZ

ECM certification - tool to improve operational safety and quality railway freight wagons

PASTOR František, ŽS Slovensko, a. s., Košice, SK PASTOR František, ŽS Slovensko, a. s., Košice, SK

Implementation of ECM in ZSSK CARGO

HRIŇÁK Jozef, Ing., Ph.D., ŽOS Vrútky a.s., **BARTA Dalibor, doc., Ing., Ph.D.**, Faculty of Mechanical Engineering, University of Žilina, SK

Repair and partial modernization of electric locomotives 441 series of „Serbija Voz“ in the company ŽOS Vrútky a.s.

g 11.45 Departure of the buses from Žilina to Vrútky

g 12.30 Excursion to ŽOS Vrútky. Lunch and visit to the Open air museum in Martin

g 18.15 Departure of the buses from Martin to Žilina