Ing. Jindřich Borka

Bezkontaktní technologie v odbavovacích systémech
Contactless technologies in ticket collection systems

The text introduces a systemic view of ticket collection systems, it presents a ticket collection system architecture and its individual components. The paper defines the role played by contactless technologies and explains the principle of their implementation in modern ticket collection systems.

Ing. Petr Brouček

Řešení energetické bilance vozů osobní dopravy
Solution of energy balance of passenger rail cars

The paper deals with the issue of increasing energy demand of both new and upgraded passenger cars and points out limited possibilities from the viewpoint of their power supply capacity. This fact forces both designers and users of passenger cars to focus on effective savings of electric energy. These savings are outlined in the paper and are further discussed especially in terms of their possible application. The author refers to requirements of the UIC leaflets and technical specifications for interoperability (TSI).

doc. Ing. Radovan Doleček, Ph.D.

Metodika zkratových zkoušek na AC soustavě pro měření nebezpečných napětí
Methodology of short-circuit tests for dangerous voltage measurement on AC traction systems

The paper deals with the arising of dangerous voltages (accessible voltage and touch voltage) after application of earth wires or wires connecting the masts of overhead contact lines to rails. The method for verification of generation of these voltages is described and two charts of measuring circuits are presented. The electric values measured are summarised in the literature (Bibliography, no. 2).

Ing. Jan Hlaváček – Ing. Michal Musil, Ph.D. – Ing. Jakub Vágner, Ph.D.

Hlukové emise a vibrace v systému železnice – výsledky projektu "NOVIBRAIL"
Noise emissions and vibrations in the railway system – results of the "NOVIBRAIL" project

VUZ is the project leader and coordinator for the NOVIBRAIL project (2011-2013) in which Jan Perner Transport Faculty of the University of Pardubice and VÚKV, j.s.c. are cooperating partners. The paper introduces main project goals and results in evaluation of contemporary anti-noise and anti-vibration measures achieved up to now. Jan Perner Transport Faculty introduces requirements on simulation vibroacoustic models and a survey of simulation methods. They explore the possibility of using simulation models in the field of design and optimisation of vehicles and in the areas of verifying noise properties of vehicles. Verification of simulation models of vehicles is an integral part of the solution and is carried out by comparing the model outputs with actual measurements of vibrations and noise emissions of vehicles.

Ing. Tomáš Horák – Ing. Martina Lánská, Ph.D.

Návrh parametrů synergie letecké a vysokorychlostní železniční dopravy
Design of High-Speed Rail and Air Transport Synergy Parameters

This paper focuses on interaction between high-speed railway transport and air transport modes. Such an interaction is not only potentially possible, but it is already happening with every new opened high-speed rail line. Both competition and cooperation patterns emerge within the framework of this interaction. With ever-increasing energy prices, congested airspace, environmental impacts and emerging potential competition from high-speed trains, it seems that more cooperation between airlines and high-speed train operators is eminent. The paper discusses several parameters that determine transport mode choice priorities for passengers and related operating parameters describing background of the transport mode in question.

Ing. Jiří Kaštura

Diagnostika trolejového vedení
Diagnostics of overhead line systems

Diagnostics of overhead line systems is the process by which measurements determine characteristics of the contact line systems. The measurements are performed by an overhead line inspection car, whose technical parameters are given by two main groups of measured parameters of overhead lines, namely geometric and dynamic parameters. The analysis of other defects of the contact line widely uses thermal imaging inspections. All measuring equipment is concentrated in this inspection car.

Ing. Mgr. David Krásenský – Michal Sklenář

Veřejná doprava Jihomoravského kraje: deset let systémové a technologické integrace IDS JMK
Public transportation of the South-Moravian Region: Ten years of system and technological integration of the JMK IDS

Integrated transport systems (“IDS”, in the UK “Transport Association”, in German speaking countries “Verkehrsverbund” with the same meaning) comprise a unified system of passenger transport in a given urban, metropolitan, or regional area with a unified pricing system (fare policy), and a perfectly interconnected network of lines and connections. Therefore they offer a viable alternative to individual car transport. The authors of this paper summarise 10 years of the KORDIS JMK company, which coordinates the Integrated transport system of the South-Moravian Region of the Czech Republic (“JMK IDS”), whose result is a sophisticated network of interconnected lines and connections, controlled in a unified way with the use of modern ICT technologies, for identification of the precise position of trains, whether by using the Central Dispatching System (ISOŘ CDS) of the infrastructure manager or generally the GPS positioning system.

Ing. Radek Kratochvíl – doc. PhDr. Mária Jánešová, CSc.

Porovnání finančních ukazatelů Liberecké a Petřínské lanové dráhy
Comparison of financial indicators for Liberec and Petrin funiculars

This paper briefly compares two different types of funiculars, namely the funicular to Petrin and the funicular to Jested, especially regarding passenger transport volumes, direct costs and revenues resulting from operation of the funiculars. The funicular to Petrin is a terrestrial rail funicular operated in the Capital City of Prague, while the funicular to Jested is a cabin aerial funicular running to the top of the hill Jested (1012 m above sea level), the highest point of the Jested ridge area.

Dr. Ing. Aleš Lieskovský – Dr. Ing. Ivo Myslivec – Ing. Jan Patrovský

ETCS a AVV – spolupráce v praxi
ETCS and ATO AVV - cooperation in practice

The paper deals with mutual cooperation between the ETCS train protection system and the AVV automation system, which is the system for automatic train operation (ATO) used on vehicles of Czech Railways. In the scope of the ETCS Pilot Project in the Czech Republic, this interconnection was put into operation, so as AVV can control the train within the range of the limits given and checked by ETCS. Some knowledge that arose from the test operation is presented. Besides this, the paper mentions activities of the UNIFE ATO-TENT workgroup that prepares the basis for standardisation of ATO systems operating under ETCS.

Ing. Adolf Mazurka

Přenosná osobní pokladna - technické řešení
Portable ticket box - technical solution

The paper describes development of HW portable ticket boxes used at Czech Railways, the strengths and weaknesses of various variants of their solutions, functionalities of portable ticket terminals and provides for overview information on the types of portable ticket boxes used by foreign railways.

Ing. Ivan Novák, CSc.

Vývoj kombinované přepravy po železnici
Development of railway combined transport

The positive development of combined transport is demonstrated with the use of consolidated data regarding the Czech Republic and partly also Europe for the period 1993 – 2011. The processing of statistical data for a longer period is rather complicated, as many figures are not compatible, or they are even unavailable. Charts and tables show the growing importance of combined transport on the European transport market and also within the framework of rail freight transport. It is documented by the still growing share of combined transport.

Ing. Jiří Pohl

Systémové řešení hluku železniční dopravy
Systemic solution of railway transport noise

Noise is a side effect of rail transport and consists of several sources. At present, the main noise source of conventional rail is generated by rolling of the wheels on the rails. This source is significantly influenced by driving speed and by surface roughness of wheels and rails. The wheel surface condition affects not only the train noise, but also the rolling resistance of vehicles. Technical measures to reduce the roughness of wheels (such as replacing of cast iron brake pads) lead to a decrease in noise emissions, lower rolling resistance of vehicles and reduction of energy consumption. When evaluating the noise of vehicles, it is necessary to take into account the noise sources with frequency above 20 kHz, which are not heard by adults, but are rather uncomfortable for children.

doc. Dr. Ing. Roman Štěrba

Mezinárodní železniční statistika UIC a sektorové analýzy
International railway statistics of UIC and sector analyses

The paper describes sector statistics used by the International Union of Railways (UIC) from the viewpoint of its mission, activities, publications and the governance of the UIC Statistics Group. The consensual methodological regulations of international railway statistics have crucial importance for comparativeness of data and plausibility of indicators among individual member railway companies. The UIC international railway statistics serves for comparative analyses aimed at supporting managerial corporate governance and implemented transport processes, and it is also an important support tool for creation of strategic goals of railway undertakings.