



doc. Dr. Ing. Roman Štěrba

**Úvodní slovo předsedy redakční rady
Vědeckotechnického sborníku Českých drah**
**Introductory word of the Chairperson of the Editorial Board of the Scientific
and Technical Collection of Czech Railways**

Ing. Jan Plomer

Alternativní koncepce článkových osobních vozidel
Alternative concept of articulated passenger vehicles

The article presents an alternative concept of articulated vehicles, which is based on specific arrangement of the common bogie. This bogie is briefly described in the article, together with explanation of the feasibility study concerning the use of this bogie for a double-deck two-part passenger carriage, which arose within the framework of a Dissertation at the Faculty of Mechanical Engineering of the Czech Technical University in Prague. The main topic includes also presentation of vehicles which are derived from the feasibility study, whether two-part or multipart vehicles, both single-deck and double-deck models.

Ing. Libor Lochman, Ph.D.

CER – Společenství evropských železničních a infrastrukturních podniků
CER – Community of European Railway and Infrastructure Companies

The Community of European Railway and Infrastructure Companies (CER) is the most important association representing interests of railways towards the EU institutions in Brussels. Its members are all national transport operators, including Czech Railways (ČD), as well as most infrastructure managers (among others also the Railway Infrastructure Administration - SŽDC) and many private companies. The mission of the CER Community is to enforce optimum legislative conditions for an effective development of railways and their position in the intermodal competition.

Ing. Jaroslav Grim, Ph.D. - Ing. Jaroslav Vašátko - Ing. Danuše Marusičová

Historie železničního výzkumu v ČR a jeho současnost
History of railway research in the Czech Republic and its present situation

The contribution in its first part recalls the long history of railway research in the Czech Republic, including international cooperation within the framework of Europe. The second part provides a brief overview of current activities, involvement of the CD Group and its partners in various projects of the EU Framework Programmes, the programme known as Horizon 2020 for the years 2014-2020 and the Shift2Rail initiative for comprehensive development of railways in the years 2014-2020.



Ing. Tomáš Hodr – Ing. Ivo Hruban, Ph.D. – Ing. Ondřej Štěpán

**Laboratoře a Dopravní sál Katedry technologie a řízení dopravy
Dopravní fakulty Jana Pernera Univerzity Pardubice
University of Pardubice Jan Perner Transport Faculty's Laboratories and
Transport Hall**

The article deals with the development of the Transport Hall and its application in the teaching process at the Jan Perner Transport Faculty. The article provides for characteristics of also other laboratories of the Department of Transport Technology and Control, which complement the Transport Hall with their software equipment and enrich practical knowledge and skills of students.

Ing. Miloš Chváta, PhD. – Ing. Pavel Hospodář – Ing. Petr Vrchota, PhD.
– Ing. Nikola Žižkovský - Martin Doleček - Lukáš Vrátil

**Lokomotivní celky
Locomotive entities**

This article is focused on description of the project TA03030465 – Locomotive entities, which is resolved with financial support of the Technological Agency of the Czech Republic. The aim of this project is to develop new locomotive modules for extreme climatic conditions which occur in Nordic countries and in the Far East. The project is divided into locomotive cabs and auxiliary driving units in which the objective is to increase reliability in extreme climatic conditions. The deliverables of the project will include functional samples of a new cabin and auxiliary drives.

Ing. Pavel Ptačovský

**Mobilní aplikace CAPR
CAPR mobile application**

The article describes development of a mobile application for ČD Cargo, a freight railway operator, including the technical design, access security and graphic user interface. This application provides for displaying information about the current status of trains, traction units, wagons and consignments. The application is developed for the operating systems Android and iOS.



Ing. Mgr. Radim Brejcha, Ph.D. - Mgr. Ing. Radek Čech, Ph.D.

Provoz nákladních vlaků o délce až 740 m
Operation of freight trains with a length of up to 740 m

The main topic of this article is the issue of long trains with a length of up to 740 m. It is about possibilities of implementation of Regulation (EU) No 913/2010 of the European Parliament and of the Council. There is a description of the situation in the neighbouring countries and future possibilities of operation of these trains. The authors analyse especially the construction, transport and technological aspects necessary for introduction of this specific operation. The following part describes European freight corridors (RFC) in the context of long freight trains operation and potential commodities with regard to this type of transport in the light of possible cost decreasing for freight operators. The time schedules of feasibility of operation in the SZDC network are determined in the final part of this article.

Ing. Ivo Hruban, Ph.D. – Ing. Petr Nachtigall, Ph.D. – Ing. Ondřej Štěpán

Přínosy zavedení ETCS z pohledu brzdných křivek
ETCS implementation benefits from the viewpoint of braking curves

The article is focused on the ETCS braking curves. The intensive construction of the ETCS system is underway on the Czech railway infrastructure network of the SZDC company. Not only a well-equipped infrastructure, but also properly equipped vehicles are necessary for the right functioning of the ETCS system. The interaction of these two subsystems – infrastructural and mobile ones is the content of this article. The article offers wider contexts relating to braking curves issues.

doc. Dr. Ing. Roman Štěřba

Půlstoletí integrace veřejné osobní dopravy
Half a century of integration of public passenger transport

The article brings the fifty-year anniversary of the origin of integration of public passenger transport in Hamburg to mind. The integration of public transport has brought unification of supply towards the travelling public and improvement of its competitiveness against individual passenger car transport.



doc. Dr. Ing. Roman Štěrba

**Statistika bezpečnosti UIC a EU
UIC and EU safety statistics**

The article describes the system of registration and monitoring of serious extraordinary events in railway transport, together with their assessment and benchmarking within the framework of the International Union of Railways (UIC) in the context of the EC's Common Safety Indicators and Targets.

Ing. Bc. Martin Švehlík

**Studijní příprava tratí Rychlých spojení v České republice
Study preparation of fast service railway lines in the Czech Republic**

The main topic of this article is preparation of the railway lines for high-speed transport in the Czech Republic. The article describes the legislative framework for the system of rapid service and spatial planning in the context of preparation of high speed railways. Appropriate attention is paid to the issue of sustainable development. The rapid service system is described as an integral part of the public transport system and as a development tool for the entire society. The article includes also some mentions relating to the issue of the draft new technical solutions for application in the design of a high speed railway network.

Ing. Danuše Marusičová

**Technická normalizace v systému železniční dopravy
Technical standardisation in the railway system**

The paper deals with history of technical standardization in the Czech Republic, in Europe, as well as outside of Europe, and with the principles of standards development. It introduces the Technical Standardisation Centre of ACRI – Association of Czech Railway Industry, which for ÚNMZ - The Czech Office for Standards, Metrology and Testing - provides most of the processing and commenting on draft technical standards in the field of railways. It informs on the basic relationship between the technical specifications for interoperability for the EU railway system and railway technical standards. Finally, it explains the basic work of the European Railway Agency, today and tomorrow in sense of the discussion drafts of the EU documents currently undergoing the discussion and comment procedures.



prof. Ing. Vlastislav Mojžíš, CSc. - prof. Ing. Tatiana Molková, Ph.D.

Vize železniční dopravy a jejich realizace v evropském kontextu
Visions of railway transport and their implementation in the European context

The paper deals with a vision of the European railway system which is built upon the White Paper. It includes definition of priorities of development of the Single European Railway Area and instruments through which it is possible to fulfil them. Research and innovations which are to be implemented within the framework of the joint venture Shift2Rail, established in 2014 as a technological initiative in railway transport, should be an important instrument for increasing competitiveness of the European railway industry and for improvement of the position of railway transport in the European transport system. The last part of the contribution outlines core areas of the innovation and research activities.

Ing. Josef Bulíček, Ph.D.

Vybrané aspekty simulace v přestupních uzlech
veřejné hromadné osobní dopravy
Selected aspects of simulation at interchanging nodes of public mass
passenger transport

The paper is focused on reliability of connections in interchanging nodes, especially with an emphasis on connections between railway, regional bus and urban public transport systems. The assessment of reliability is based on a simulation method (model) of an interchanging node. Reliability evaluation is based on comparison with different limits of interchanging times suitable for different ways of interchanging between stations, incl. with regard to barrier-free transport. The method (model) has been tested by using a case study of an interchanging node.

prof. Ing. Vlastislav Mojžíš, CSc. - Ing. Zdeněk Říha, PhD.

Odešel pan profesor Bedřich Duchoň
Professor Bedřich Duchoň is gone

The paper contains the necrology of a rare personality. Prof. Bedřich Duchoň was excellent scientist and pedagogue, founder of the Institute of Economy and Management at the Faculty of Transportation Sciences of the Czech Technical University in Prague. He was a perfect tutor with unique mentoring skills for many highly qualified engineers and doctoral study postgraduates. He was a genuine academician in the real sense of the word.



prof. Ing. Vlastislav Mojžíš, CSc.

**Za panem docentem Antonínem Tuzarem
In memory of University Lecturer Antonín Tuzar**

The necrology of University Lecturer Antonín Tuzar briefly presents his lifetime career. He was an excellent mathematician, working for many years at the Czechoslovak Academy of Sciences, then at the Jan Perner Transport Faculty of the University of Pardubice and at the Faculty of Transportation Sciences of the Czech Technical University in Prague. He was a man of genuine character, great expert in the railway transport sector, especially in the field of steam locomotives.