
Rostyslav Domin: Technical and Technological Means to Ensure the Development of Interoperable Transportation Between Ukraine and the EU

The article discusses realistic development trends for effective international railway transportation between Ukraine and the EU countries based on the introduction of results of scientific and technical research on technical support for freight transportation in accordance with the transshipment-free technologies. In particular, there is a brief description of experience with European Automatic Gauge Changeover Systems (AGCS). This article presents information on scientific and technical projects for ensuring intermodal transportation based on technologies that involve the use of AGCS-technology. The prospects of development and practical application of similar systems with a view to accession of Ukraine to the railway transportation network of the European Union are discussed.

Keywords: combined transport, rolling stock, gauge change

Rostyslav Domin, Ganna Cherniak: Assessment of Risks of Derailment by Means of Computer Simulation

The article presents method for assessment of the significance of factors of risk of the rolling stock derailment based on the computer experiment. The purpose of development of the method is to identify the most significant reasons for derailment among the possible mechanical reasons, i.e., those in the absence of which the derailment would not be possible. This includes the use of computer simulation of the dynamics of motion of separate railway rolling stocks and trains in general. Specifically designed dynamic models include the required parameters representing the state of railway rolling stock in operation. The proposed method can be used to analyze the tendency of the vehicle towards derailment according to the quantitative changes in safety parameters. The application of the developed method offer opportunities to find areas of further improvement of the running safety requirements in relation to the state of maintenance of freight cars and track and conditions of their rational operation to ensure an acceptable level of running safety.

Keywords: rolling stock, running safety, derailment, dynamics of motion, computer simulations of derailment factors

Szymon Klemba: The Coefficient Matrix Method of Forecasting of Railway Passenger Flows (Macierzowa metoda wskaźnikowa prognozowania pasażerskich potoków kolejowych)

The main purpose of the paper is to describe the coefficient matrix method of forecasting railway passenger flows, which is used in the Railway Research Institute's works. It presents a formal notation of definitions and operations which are used in the method.

The first stage is to define a shape of analysed transport network and a set of possible relations of passenger travels. Then, it is necessary to collect appropriate data about base values of passenger flows in each means of transport in an analysed transport corridor. Next, the most important factors which have an impact on travels are defined, and the functions describing what their influence is. After that, projected values of passenger flows could be calculated.

The article also presents an example of practical application of the method by describing the case of the Opole – Nysa line reconstruction project. Finally, the main stages of method are summarized, indicating the necessary input data for each stage.

Keywords: railway transport, transport modelling, demand forecast

*Krzysztof Ochociński, Robert Kruk: **Transport of Special Consignments by Rail in Poland***
(Przewozy przesyłek nadzwyczajnych koleją w Polsce)

The article presents the transport of special consignments by rail in Poland, which exceed the loading gauge on tracks of 1435 mm gauge. The article presents the basic notions and classification of special consignments as well as fundamental rules in force during their transport organization. The problems that appear while transporting special consignments are discussed and potential solution to tackle them are shown. The article is complemented with illustrations which also exemplify various types of rolling stock used for this kind of consignments transportation.

Keywords: gauge, freight transport, cargo transportation

*Paweł Podleśko: **Legal Aspects of Marking Standardization of the Passenger Stations in Poland***
(Ustawowe aspekty standaryzacji oznakowania stacji pasażerskich w Polsce)

The purpose of this article is to present and discuss selected consequences connected with the adoption and signing in November 2016 by the President the amendment of the Act on railway transport. The arguments presented in the article support the use of the minister responsible for transport it's competence of issuing the regulation on the marking standards of passenger stations. The latest change in legal basis concerned this matter was also commented. The article discusses the effects of the current legal status of the described matter.

The results of research conducted by non-governmental organizations (NGO's) were also mentioned. The NGO's checked the cohesion and legibility of the information marking that is used in the railway transport. It was made a reference towards the possibility of marking standardization of infrastructure and means of transport that are used in public transport (local transport). The article outlines the need to ensure coherence in the field of marking the passenger stations, which will increase the availability of rail transport.

Keywords: passenger station, railway transport accessibility, standardization of wayfinding, service facility, service facility operator

*Janusz Poliński, Krzysztof Ochociński: **Tactile Elements on Rail Transport Platforms – Assessment of Solutions in the Light of Binding Acts of Law***

Platform accessibility for the visually impaired passengers depends on ensuring conditions for safe movement on their surfaces. This safety is provided for the blind by tactile elements. In Poland there is no standard in force regulating the use of tactile elements in transport. Consequently, various ways of indication against the same danger are encountered. The article defines principles devised for the underground and railways as well as variety of markings in reference to tram platforms. Moreover, encountered errors in marking and the significance of appropriate maintenance of tactile elements as regards providing information for visually impaired and blind persons have been discussed.

Keywords: platform, danger zone, tactile elements

Eugeniusz Skrzyński, Krzysztof Ochociński: IT Systems in Railway Infrastructure (Systemy informatyczne w infrastrukturze kolejowej)

The article presents expert, information and other supporting railway infrastructure management systems. This article contains basic information on the proposed PKP PLK S.A. Infrastructure Management Support System, describes the system assumptions, data and indicators. The article concludes that PKP PLK S.A. mainly uses information systems that provide only descriptive information about railway infrastructure objects and facilities. Therefore there is a need to develop systems that integrate existing applications and allow for more comprehensive use of collected data.

Keywords: railway infrastructure, IT systems, PKP PLK S.A.