

SUMMARIES

ARTICLES

Szymon Klemba: Digital Model of the Railway Network – Second Stage of Development of a Tool for Passenger Transport Analysing

The article features the outcomes of the second stage of work on a transport network model carried out within a project entitled *Digital Model of Transport Network, Stage 2 Railway Connections Network*. The project concerned the model of railway network extension by a model of the current railway network in Poland and included, among others, the input of data relating to routes, travel time and frequency of different category trains in particular connections. The work resulted in achieving a complex tool useful in present research and commercial projects carried out by the Railway Research Institute as well as taking a next step in the development of this tool.

Keywords: railway transport, transport modelling, transport system

Janusz Poliński: Rail Freight Transport between China and the EU – Transport Corridors, Technique, Strategies and the Role of Poland in This Transport

Rail freight transport between China and the European Union has been steadily growing for several years. Maritime transport plays a dominant role in it, however, due to the long transport time, the need to use rail transport is increasingly recognized. It is implemented via transcontinental corridors, most of which are connected to the Trans Siberian Railway. For the transport of goods there, mainly containers are used, which in addition to protecting cargo against theft and damage, ensure fast and safe transshipment. Forecasts predict a further increase in rail transport. In the article, problems related to this mode of transport are described on the basis of available analytical materials, among others, from the Centre for Eastern Studies, as well as studies commissioned by the Eurasian Economic Union or Eastern railways. The profitability of transport in this direction, resulting from the co-financing by Chinese cantons, means that apart from Polish railways, also Lithuanian, Estonian and Russian railways (Kaliningrad), who see their significant share in the transport of containers to Western Europe, are seeking for them. The article introduces some issues of economic, technical, operational and organizational character, seen from the perspective of Eastern countries. It also refers to studies on high-speed freight solutions intended for trade exchange with China.

Keywords: rail transport, transportation of goods east-west-east, Silk Road

Artur Rojek: Study of the Impact of the Contact Arc Time on the Breaking Time of High-Speed Circuit Breakers

High-speed circuit-breakers (HSCB) are subjected to various research and laboratory tests. Standardization documents specify, among others, such HSCB parameters as opening time and arcing time, the sum of which constitutes the breaking time. The opening time largely depends on the HSCB construction – of the way it is triggered and the mechanism which opens the contacts. The arcing time is also dependent on the HSCB construction. The contacts structure, arc chute parameters and the method of the arc extinguishing as well as the method of magnetic blowout. The time when a low value arc appears is defined as contact arcing time. Standards according to which high-speed circuit breakers' tests are carried out do not characterize and do not include this parameter in their scope, although it is an important factor affecting the speed of breaking the current and the extent of its limitation.

Keywords: high-speed circuit-breaker, break time, arcing time, contact arcing time

Eugeniusz Skrzyński: Stability of Soil Subgrade

The loss of stability of earthworks is one of the most difficult geotechnical problems, and recognition and prevention of them requires a lot of knowledge and experience. Despite advanced construction technologies, landslides are still emerging, as a result of which considerable material damage is caused to the transport infrastructure. Land volumes undergoing landslide movements can vary within very wide limits, from small landslide slopes to huge slopes and runoffs in billions of cubic meters.

The article presents the complexity of assessing the stability of a railway subgrade, resulting from, among others, the history of its construction and data availability on most lines managed by PKP PLK S.A. A significant differentiation of the certainty (safety) coefficients assumed in the assessment of trackbed stability is indicated. Factors causing this diversity are given, among others, limited possibilities to obtain reliable data for calculations. New coefficient values have been proposed. This article does not apply to subsoil on high-speed lines.

Keywords: railway infrastructure, soil subgrade, stability

RECENT EVENTS

Janusz Poliński: International Railway Fair "EXPO 1520", Scherbinka, Russia

The International Fair of Railway Equipment and Technologies EXPO 1520 (2019), is a conference and exhibition event dedicated to rolling stock held every two years for rolling stock on 1520 mm gauge tracks. In 2019, the Fair was organized on 28-31 August at Experimental Ring of JSC Russian Railway Research Institute (VNIIZhT), in Scherbinka near Moscow. Visitors were presented, among others, with the UG Sinara / Siemens ES2G series autonomous (driverless) electric train tested by the VNIIZhT Institute. This train transported around the Ring participants of the conference entitled "Digital Railway. The image of the Future". A spectacular event was also the passage of some of the exposed traction vehicles along the test track of the Ring.

Keywords: rail transport, Railway Fair "EXPO 1520"

Agata Pomykała: International Scientific and Technical Conference "Technical, Operational and Economic Aspects of Hyperloop Technology Development"

The note synthetically describes the issues presented during the international scientific and technical conference entitled *Technical, Operational and Economic Aspects of Hyperloop Technology Development*, which was organized in Krakow on 12 September 2019 in cooperation with the Railway Research Institute, the Faculty of Civil Engineering of the Cracow University of Technology and the International Union of Railways (UIC). The current state of research on new technology and prospects for its practical application were discussed.

Keywords: modern transport, infrastructure, vacuum train, hyperrail, Hyperloop

Agata Pomykała: International Scientific and Technical Conference "High Speed Rail in the World. Trends and Achievements"

On 9–11 September 2019, an international scientific and technical conference *High-speed railways in the world. Trends and achievements* was held in Cracow. The confer-

ence was organized by the International Union of Railways (UIC) and the Faculty of Civil Engineering of the Cracow University of Technology. The aim of the conference was to get acquainted with global trends in high-speed rail transport and to exchange views on the technology and organization of high-speed rail transport.

Keywords: high-speed rail, railway, infrastructure

Iwona Wróbel: In2Stempo Project at a Meeting in CEUTP Concerning Accessibility Improvement in Transport

The note presents the subject matter and course of the second meeting of the cycle entitled *On accessibility in CEUTP – a transport standard in practice*, organized on 27 February 2020 at the Centre for EU Transport Projects in Warsaw. This event brought together various environments and participants of the passenger rail transport market. During the meeting, employees of the Railway Research Institute presented main assumptions of the European In2Stempo project, implemented as part of the Shift2Rail research initiative, as well as the results of surveys carried out in WP8 *Improving access to trains*.

Keywords: accessibility, disabled people, European project

INFORMATION ON PUBLICATIONS

Janusz Poliński: Monograph "Role of Platforms in the Accessibility of Rail Transport"

A contemporary stop-platform is a place that facilitates access or egress from a rail vehicle. This type construction should be well designed, convenient and safe for users, but in reality travellers encounter many difficulties in accessing vehicles. The monograph presents the issue of the accessibility of rail transport (metro, tram, railway) for various groups of travellers, guaranteeing safety and efficient service. The nine chapters of the monograph highlight the main research areas regarding access to the three types of rail transport mentioned. Examples of technical and organizational solutions, areas of legal support and design guidelines have been presented.

Keywords: rail transport, platform, accessibility, gap