

SUMMARIES

ARTICLES

Łukasz John: Photometric and Colorimetric Measurements of Signaling Equipment Used on Railway Lines

This paper presents the research capabilities of the Signaling and Telecommunications Laboratory of the Railway Research Institute in the field of photometric and colorimetric measurements of railway devices used, among other things, for signalling on railway lines. They are used to transmit orders or commands to carry out specific actions referring to train traffic (including movement under train rules of passenger rolling stock, special rolling stock, auxiliary vehicles affecting command control and signalling devices), rolling stock shunting, traffic safety, made in incandescent and LED technology. New measuring stands purchased as part of the RPOWM project (Regional Operational Programme of the Mazovian Voivodeship 2014-2020) are described, i.e. RPMA.01.01.00-14-9845/17-00 "Purchase of modern research and laboratory equipment for the Railway Research Institute", as well as the normative and technical requirements of the Infrastructure Manager are presented.

Keywords: lighting technology, photometry, colorimetry, goniometer

Janusz Poliński: Desirable Directions of Development of Railway Transport in Poland. Part I – Passenger Transport

The article deals with issues related to passenger rail transport in Poland. The general part discusses issues affecting the quality of passenger transport. Statistics of the functioning of licensed passenger operators and their tasks and shares in the transport market are presented. The existing state of individual segments of the passenger rail transport market and rolling stock requirements were outlined, so was their dependence on line infrastructure (tracks) and point infrastructure (stations, passenger stops), constituting commercial points of passenger exchange. The factors determining the quality of the service and the accessibility of the railway to a wide range of potential customers, including people with disabilities, are identified. The required measures for the further development of rail passenger transport are described, indicating the consideration of relevant climate, legal, investment and remedial objectives. Relevant measures of a general, infrastructural and rolling stock nature are indicated, ensuring the assumed future leading role of this mode of transport in passenger transport.

Keywords: rail transport, linear infrastructure, point infrastructure, rolling stock

Janusz Poliński: Exploring the Railway of the Future – Maglev

The technical development of rail transport based on the wheel-rail system has, over the past seventy years, been enriched by unconventional solutions, eliminating the traditional railway route with its main element - the rail track and the wheels of the vehicles. The efforts of some designers have been directed towards exploiting the phenomenon of magnetic levitation. Such solutions were called the Maglev system. In operational practice, it led to replacing the traditional track with a system of electromagnets, and the driving and rolling wheels of the vehicles, together with the suspension system, with magnetic levitation. The article presents the effects of the practical use of magnetic levitation in passenger transport vehicles in Europe, Asia and the USA. Advanced work is also presented on the use of the system in rail passenger transport, eliminating air traffic over short and medium distances, as well as in urban transport, which is part of environmental protection measures.

Keywords: rail transport, high-speed rail, magnetic levitation, maglev system

Eliza Wawrzyn: Railway Research Institute's Participation in the Europe's Rail Joint Undertaking

The Europe's Rail Joint Undertaking (Europe's Rail JU) is a public-private partnership set up to carry out R&D work for the rail sector in the 2021–2027 financial perspective of the Horizon Europe programme. For the purpose of participating in the Europe's Rail JU Partnership, PKP S.A. has formed a consortium of entities, the so-called R&D ecosystem, which has declared its willingness to carry out joint activities within the framework of international research and development (R&D) projects of the Horizon Europe programme. One of the entities in this ecosystem is the Railway Research Institute (IK). Within the framework of the 1st competition of Europe's Rail Partnership, the Institute as an affiliate of the PKP S.A. Company joined the implementation of two Flagship Projects (FP): FP4 "Sustainable and Green Rail System", which was given the acronym Rail4Earth, and FP6 Delivering Innovative Rail Services to Revitalise Capillary Lines and Regional Rail Services' with the acronym FutuRe.

Keywords: Europe's Rail Joint Undertaking, Horizon Europe, research funds

RESEARCH INFORMATION

Iwona Wróbel: Smart City – Transport Quality Indicators

The report describes an internal project, carried out at the Railway Track and Operation Department of the Railway Research Institute, involving the measurement of transport quality indicators in urban centres, in accordance with the requirements of ISO 37120, which determines the level of service and quality of life in cities. The aim and scope of the project and the research methodology used are presented. The work outcomes are outlined and the main conclusions drawn from the analyses and research carried out are cited.

Keywords: sustainable development, smart cities, ISO 37120 standard, urban transport, transport indicators

RECENT EVENTS

Renata Barcikowska: International Scientific Conference Transport of the 21st Century

The aim of the “Transport of the 21st Century” Conference was to present the achievements of national and foreign scientific and research centres, dealing with the issues of rail, road, air and sea transport in the scientific, technical and organisational aspect, and to integrate the environment conducting research and education in the discipline

of civil engineering and transport. This report concerns the papers delivered by specialists from the Railway Research Institute during the above-mentioned Conference.

Keywords: transport, science, new technology

INFORMATION ON PUBLICATIONS

Iwona Wróbel: Rail Transport in The National Recovery and Resilience Plan

The report describes the government document “The National Recovery and Resilience Plan”, intended for the implementation of reforms and investments aimed at rebuilding and creating socio-economic resilience in Poland, to the effects of the crisis caused by the COVID-19 pandemic. The main parts of the document were characterised and the formulated objectives, assumptions and areas of support, the so-called components, through which the assistance will be implemented in line with the EU development direction, were presented. Activities and investments in the railway transport sector were outlined, including those concerning legal regulations, modernisation and electrification of railway lines, access to and equipment of intermodal terminals, purchase of rolling stock and installation of the following systems: command control and signalling, ticketing, passenger information, traffic signalling.

Keywords: government program, investments, railway infrastructure, rolling stock, mobility