

**POLISH ACADEMY OF SCIENCES
COMMITTEE OF TRANSPORT**

**ARCHIVES
OF QUARTERLY
TRANSPORT**

ARCHIWUM TRANSPORTU

ISSN 0866-9546

**volume 27-28
issue 3-4
Warsaw 2013**

MOTOR TRANSPORT INSTITUTE

EDITORIAL COMMITTEE

Jerzy Manerowski – Editor-in-Chief
Włodzimierz Choromański – Deputy Editor-in-Chief
Andrzej Wojciechowski – Editorial Secretary
Stanisława Gaca – Editorial Committee Member
Mirosław Luft – Editorial Committee Member
Jacek Żak – Editorial Committee Member

EDITORIAL ADVISORY BOARD

Chairman:

Prof. Marian TRACZ, Cracow University of Technology, Cracow, Poland

Deputy Chairman:

Prof. Jerzy KISIŁOWSKI, University of Technology and Humanities, Radom, Poland

Members:

Prof. Salvatore CAFISO, University of Catania, Italy

Prof. Jan CELKO, University of Zilina, Slovak Republic

Prof. Csaba KOREN, Széchenyi István University of Applied Sciences, Győr, Hungary

Prof. Bogusław LIBERADZKI, Warsaw School of Economics, Warsaw Poland

Prof. Raffaele MAURO, University of Trento, Italy

Prof. Larry RILLETT, University of Nebraska, USA

Prof. Efim N.ROZENBERG, Moscow Institute of Railway Engineering (MIIT), Russia

Prof. Kumares SINHA, Purdue University, Indiana, USA

MAILING ADDRESS

THE ARCHIVES OF TRANSPORT

Motor Transport Institute
80 Jagiellońska St.
03-301 Warsaw, POLAND
www.its.waw.pl
info@its.waw.pl

This publication has been partly supported by the Polish Academy of Sciences using funds of the Ministry of Science and Higher Education and Motor Transport Institute

Circulation 200 copies

Contents

Karol Bagiński, Danuta Jasińska-Choromańska	
Effect of user's individual features on energy consumption of the orthotic robot.....	5
Iwona Balke	
Business situation in the freight road transport in Poland.....	15
Jacek Brdulak, Bartosz Zakrzewski	
Methods for Calculating the Efficiency of Logistics Centres.....	25
Piotr Biernat, Piotr Rumniak, Marek Michalczuk, Andrzej Gałęcki, Lech Grzesiak, Bartłomiej Ufnalski, Arkadiusz Kaszewski	
Powertrain system with the ultracapacitor-based auxiliary energy storage for an urban battery electric vehicle.....	45
Włodzimierz Choromański, Krzysztof Fiok, Andrzej Potyński, Grzegorz Dobrzyński	
Mechatronic simulator of lever driven wheelchairs.....	65
Włodzimierz Choromański, Jerzy Kowara	
Personal rapid transit vehicle with polyurethane wheels – modelling and simulation issues.....	71
Bartłomiej Kamiński, Marcin Nikoniuk, Łukasz Drażikowski	
A concept of propulsion and power supply systems for PRT vehicles.....	81
Maciej Kozłowski, Włodzimierz Choromański	
PRT simulation research.....	95
Maciej Kozłowski, Włodzimierz Choromański	
Simulation research of driveability of the ECO electric car.....	103

Vincenzo P. Giofrè, Michał Maciejewski, Agnieszka Merkisz
Góranowska, Bartłomiej Piątkowski, Vittorio Astarita

Real Road network application of a new microsimulation tool: TRITONE..... 111

Jerzy Mieścinki, Wiktor B. Daszczuk

Proposed benchmarks for PRT networks simulation..... 123