

PERNER'S CONTACTS



Electronical technical journal of technology, engineering and logistic in transport

Number: 5 Volume: VI Date of edition: December 2011

ISSN 1801-674X

Number 5, Volume VI, December 2011, 307 pages.

Editors address:

University of Pardubice, Jan Perner Transport Faculty
Department of Transport Technology and Control
Studentská 95, 532 10 Pardubice
Tel.: +420 466 036 199, <http://pernerscontacts.upce.cz/>

General editor:

doc. Ing. Jaromír Široký, Ph.D. – University of Pardubice, Jan Perner Transport Faculty

Editors:

Ing. Petr Nachtigall, Ph.D., Ing. Hana Císařová – University of Pardubice, Jan Perner Transport Faculty

Editorial board:

prof. Dr. Gerhard Bahrenberg – University of Bremen, Fachbereich Sozialwissenschaften,
prof. Ing. Václav Cempírek, Ph.D. – University of Pardubice, Jan Perner Transport faculty,
doc. dr. Zoran Čekerevac – UNION University Beograd, Faculty of Industrial Management,
prof. Dr. Jürgen Deiters – University of Osnabrück, Fachgebiet Geographie,
doc. Ing. Ivo Drahotský, Ph.D. – University of Pardubice, Jan Perner Transport faculty,
Dipl.-Ing. Steffen Dutsch – TU Dresden, Faculty of Transportation and Traffic Sciences “Friedrich List”,
Sven Erichson - Chamber of Commerce and Industry, Magdeburg,
Gábor Heves - The Regional Environmental Center, Szentendre,
doc. Ing. Rudolf Kampf, Ph.D. – University of Pardubice, Jan Perner Transport Faculty,
Ing. Martin Kendra, PhD. – University of Žilina, Faculty of Operation and Economics of Transport and Communications,
doc. Ing. Jaroslav Kleprlík, Ph.D. – University of Pardubice, Jan Perner Transport Faculty,
Ing. Martina Lánská, Ph.D. – Czech Technical University in Prague, Faculty of Transportation Science,
doc. Ing. Radovan Madleňák, PhD. – University of Žilina, Faculty of Operation and Economics of Transport and Communications,
prof. Ing. Jozef Majerčák, PhD. – University of Žilina, Faculty of Operation and Economics of Transport and Communications,
prof. dr hab. Elżbieta Marciszewska – Warsaw School of Economics, Department of Transport,
Wolfgang Mihlan - Chamber of Commerce and Industry, Magdeburg,
Ing. Jana Míková, Ph.D. – VŠB–Technical University of Ostrava, Faculty of Mechanical Engineering,
doc. Ing. Antonín Peltrám, CSc. – Institute for European Integration Prague,
prof. Ing. Miloslav Seidl, PhD. - University of Žilina, Faculty of Special Engineering,
Dipl.-Ing. Dr. techn. Andreas Schöbel, Institute of Transportation, Technical University Vienna,
Dipl.-Ing. Stephan Schröder - Bahnzentrum Ingenieurbüro, Bielefeld,
doc. Ing. Pavel Šaradín, CSc. – College of Logistics Přerov,
doc. Ing. Libor Švadlenka, Ph.D. – University of Pardubice, Jan Perner Transport Faculty,
dr hab. inž. prof. Zenon Zamiar - Military Academy of Land Forces, Faculty of Engineering, Wrocław.

CONTENTS:

MOBILITY RELATED TO POSITIVE IMPACT OF TRANSPORT Petra Bártová, Marcela Nekutová	9
INTERRELATIONSHIPS OF TRANSPORT AND ITS EXTERNAL MILIEU WITH A FOCUS ON THE ENVIRONMENT Helena Becková.....	13
MONOPULSE SECONDARY SURVEILLANCE RADAR ANTENNA FOR AIR TRAFFIC CONTROL Pavel Bezoušek, Vladimír Schejbal	21
THE BASIC ANALYSIS OF CONTROL SYSTEMS ON COMMERCIAL AIRCRAFT Martina Bugaj.....	29
COMPONENTS OF RISK MANAGEMENT IN TRANSPORT COMPANY Katarína Buganová, Mária Lusková.....	36
GAZE TRACKING SYSTEMS FOR HUMAN-COMPUTER INTERFACE Matěj Černý.....	43
THE QUALITY COMPARISSON OF SVD AND DCT BASED IMAGE COMPERSSION METHODS FOR EMBEDDED DEVICES Martin Dobrovolný.....	51
EVALUTION OF TRANSPORT INFRASTRUCTURE IN REGIONS OF THE CZECH REPUBLIC Jana Drahošová	58
INFORMATION TOOLS FOR INTEGRATED PUBLIC PASSENGER TRANSPORT Pavel Drdla	74
SIMULATION MODEL OF THE SINGLECYLINDER COMBUSTION ENGINE MZ125 Pavel Dresler, Michal Richtář	80
IMPACT OF EU-ETS ON EUROPEAN AIRCRAFT OPERATORS Zdeněk Hanuš, Peter Vittek.....	89
BUILDING AND CONTROLLING THE QUADROCOPTER Pavel Chmelař	95
BICYCLE TRANSPORT AND MOBILITY MANAGEMENT IN RELATION TO ALTERNATIVE TRANSPORTATION TYPES Rudolf Kampf, Milan Velechovský	104
FLIGHT LABORATORIES AND FLIGHT DATA RECORDERS Branislav Kandra	111
HOW TO IMPROVE AIRPORT OPERATION Antonín Kazda, Martin Hromádka	118
HUMAN (DRIVER) ERRORS Josef Kocourek, Tomáš Padělek	123
FREE ROUTE AIRSPACE (FRA) IN EUROPE Jakub Kraus	129
THE TRAFFIC SIMULATION IN THE PUBLIC TRANSPORT TERMINAL Michal Krempl	136
CUMULUS AND STRATUS CLOUDS MICROSTRUCTURE Sandra Krollová.....	143

VIDEO ANALYSIS OF CONFLICT SITUATIONS ON PEDESTRIAN CROSSINGS	
Vladislav Křivda	149
ON THE PROBLEM OF HEIGHT ADJUSTMENT OF THE ACTIVELY CONTROLLED DRIVER'S SEAT VIBRATION ISOLATION STAND	
Libor Kupka	157
TRAFFIC CALMING PROBLEMS IN NEIGHBOURHOOD	
Michaela Ledvinová.....	165
A PARAMETRIC IDENTIFICATION OF STOCHASTICALLY LOADED STRUCTURE AND ITS SOFTWARE SUPPORT	
Bohuš Leitner	176
METHODS RESTRICTING EMISSIONS FROM ROAD VEHICLE	
Martin Lindovský	188
SOUND SOURCE LOCATION METHOD	
Michal Mandlík, Vladimír Brázda	197
COMMERCIAL LOGISTICS LEGISLATION IN THE EUROPEAN UNION – BASIC ISSUES	
Daniela Marasová, Vladimír Taraba	205
LEAN PRODUCTION, LEAN VS. MASS PRODUCTION, TPM AS A TOOL OF LEAN PRODUCTION	
Mária Mičietová	210
VERY HIGH SPEED HIGH POWER SEMICONDUCTOR SWITCH OFF CIRCUIT	
Zdeněk Němec, Jiří Blecha	217
THE RESEARCH PROJECT OF THE CENTRE OF EXCELLENCE FOR AIR TRANSPORT	
Andrej Novák	224
QUALITY STANDARDS FOR MEASURING THE LEVEL OF SERVICE IN PUBLIC TRANSPORT	
Ivana Olivková	229
BUSINESS AVIATION IN EUROPE	
Michal Pazourek.....	236
PARALLEL COMPUTING OF CROSS AMBIGUITY FUNCTION WITH BRUTE FORCE METHODS	
Jan Pidanič.....	244
APPROACH TO THE INVESTIGATION OF AIR ACCIDENTS AND ITS IMPACT ON SAFETY	
Vladimír Plos, Peter Vittek	252
TRANSPORT SYSTEM IN RELATION TO EXTERNAL ENVIRONMENT	
Daniel Salava, Libor Švadlenka, Barbora Chromcová.....	259
PROJECTS SUPPORTED BY STRUCTURAL FUNDS OF EU REALIZED AT UNIVERSITY OF ŽILINA IN COOPERATION WITH AIR TRANSPORT DEPARTMENT AND FLIGHT TRAINING ORGANIZATION – AIR SCHOOL OF THE UNIVERSITY OF ŽILINA	
Alena Novák Sedláčková	265
COMPARATIVE STUDY OF DIFFERENT FORMS OF MATERIAL PROCUREMENT WITH RESPECT TO THE LOGISTIC AND PURCHASING ACTIVITIES OF THE MANUFACTURING COMPANY	
Marián Sedliak, Marián Šulgan.....	271
DESIGN OF MOTORCYCLE ACTIVE CHASSIS GEOMETRY CHANGE SYSTEM	
Jakub Šmiraus, Michal Richtář	279

THE CURRENT SITUATION IN THE EUROPEAN UNION AND THE AUTOMOBILE INDUSTRY

Marián Šulgan, Peter Gajdzík289

USAGE OF TELEMATICS SYSTEMS IN PUBLIC TRANSPORT

Zuzana Švédová294

DEVELOPMENT OF METHODOLOGY FOR CAPACITY CALCULATION IN THE SECTIONS WITH AN INTERMEDIATE JUNCTION

Petr Veselý, Pavel Krýže.....300

Aircraft data Networks – Integrated system

Rudolf Volner.....308

PERNER'S CONTACTS

Number 5, Volume VI, December 2011, 307 pages.

List of papers

- A parametric Identification of stochastically loaded Structure and its Software Support, 176-187
Approach to the investigation of air accidents and its impact on safety, 252-258
Bicycle transport and Mobility Management in Relation to Alternative Transportation Types, 104-110
Building and controlling the Quadrocopter, 95-103
Business Aviation in Europe, 236-243
Commercial logistics Legislation in the European Union – Basic Issues, 205-209
Comparative study of different forms of material procurement with respect to the logistic and purchasing activities of the manufacturing company, 271-278
Components of risk Management in Transport Company, 36-42
Cumulus and stratus Clouds Microstructure, 143-148
Design of motorcycle active Chassis Geometry Change System, 279-288
Development of methodology for capacity calculation in the sections with an intermediate junction, 300-307
Evaluation of Transport Infrastructure in Regions of the Czech Republic, 58-73
Flight Laboratories and Flight Data Recorders, 111-117
Free Route Airspace (FRA) in Europe, 129-135
Gaze tracking systems for Human-Computer Interface, 43-50
How to improve airport operation, 118-122
Human (driver) errors, 123-128
Impact of EU-ETS on European Aircraft Operators, 89-94
Information tools for integrated public passenger transport, 74-79
Interrelationships of Transport and its external Milieu with a Focus on the Environment, 13-20
Lean production, Lean vs. Mass Production, TPM as a tool of Lean Production, 210-216
Methods restricting emissions from road vehicle, 188-196
Mobility related to Positive Impact of Transport, 9-12
Monopulse Secondary Surveillance Radar Antenna for Air Traffic Control, 21-28
On the Problem of Height Adjustment of the Actively Controlled Driver's Seat Vibration Isolation Stand, 157-164
Parallel Computing OF Cross ambiguity function with brute force methods, 244-251
Projects supported by structural funds of EU realized at University of Žilina in cooperation with Air transport department and Flight training organization – Air School of the University of Žilina, 265-270
Quality standards for measuring the level of service in public transport, 229-235
Simulation model of the singlecylinder combustion engine MZ125, 80-88
Sound Source Location Method, 197-204
The Basic Analysis of Control Systems on commercial Aircraft, 29-35
The current situation in the European Union and the automobile industry, 289-293
The Quality Comparison of SVD and DCT based Image Compression methods for embedded Devices, 51-57
The research Project of the Centre of Excellence for Air Transport, 224-228
The Traffic Simulation in the Public Transport Terminal, 136-142

Traffic calming problems in neighbourhood, 165-175
Transport System in Relation to external Environment, 259-264
Usage of Telematics Systems in Public Transport, 294-299
Very high speed high power semiconductor switch off circuit, 217-223
Video analysis of conflict situations on pedestrian crossings, 149-156

PERNER'S CONTACTS

Number 5, Volume VI, December 2011, 307 pages.

List of authors

Bártová, P., 9-12
Becková, H., 13-20
Bezoušek, P., 21-28
Blecha, J., 217-223
Brázda, V., 197-204
Bugaj, M., 29-35
Bujanová, K., 36-42
Černý, M., 43-50
Dobrovolný, M., 51-57
Drahošová, J., 58-73
Drdla, P., 74-79
Dresler, P., 80-88
Gajdzík, P., 289-293
Hanuš, Z., 89-94
Hromádka, M., 118-122
Chmelář, P., 95-103
Chromcová, B., 259-264
Kampf, R., 104-110
Kandera, B., 111-117
Kazda, A., 118-122
Kocourek, J., 123-128
Kraus, J., 129-135
Kreml, M., 136-142
Krollová, S., 143-148
Kryže, P., 300-307
Křivda, V., 149-156
Kupka, L., 157-164
Ledvinová, M., 165-175
Leitner, B., 176-187
Lindovský, M., 188-196
Lusková, M., 36-42
Mandlik, M., 197-204
Marasová, D., 205-209
Mičietová, M., 210-216
Nekutová, M., 9-12
Němec, Z., 217-223
Novák Sedláčková, A., 265-270
Novák, A., 224-228
Olivková, I., 229-235
Padělek, T., 123-128
Pazourek, M., 236-243
Pidanič, J., 244-251
Plos, V., 252-258
Richtář, M., 80-88, 279-288
Salava, D., 259-264
Sedliak, M., 271-278
Schejbal, V., 21-28
Šmiraus, J., 279-288
Šulgan, M., 271-278, 289-293
Švadlenka, L., 259-264
Švédová, Z., 294-299
Taraba, V., 205-209
Velechovský, M., 104-110
Veselý, P., 300-307
Vittek, P., 89-94, 252-258

PERNER'S CONTACTS

Number 5, Volume VI, December 2011, 307 pages.

List of reviewers

Prof. Ing. Pavel Bezoušek, CSc., University of Pardubice, Faculty of Electrical Engineering and Informatics
doc. Ing. Ladislav Bína, CSc., Czech Technical University in Prague, Transport Faculty
Ing. Pavlína Brožová, Ph.D., University of Pardubice, Jan Perner Transport Faculty
Ing. Eva Brumerčíková, Ph.D., University of Žilina, Faculty of Operation and Economics of Transport and Communications
Ing. Edvard Březina, CSc., Czech Technical University in Prague, Transport Faculty
doc. Ing. Bibiána Buková, Ph.D., University of Žilina, Faculty of Operation and Economics of Transport and Communications
Ing. Josef Bulíček, Ph.D., University of Pardubice, Jan Perner Transport Faculty
prof. Ing. Václav Cempírek, Ph.D., University of Pardubice, Jan Perner Transport Faculty
Ing. Juraj Čamaj, Ph.D., University of Žilina, Faculty of Operation and Economics of Transport and Communications
prof. Ing. Tatiana Čorejová, Ph.D., University of Žilina, Faculty of Operation and Economics of Transport and Communications
Ing. Blanka Dobrkovská, MSc., Czech Airlines
Ing. Anna Dolinayová, Ph.D., University of Žilina, Faculty of Operation and Economics of Transport and Communications
doc. Ing. Ivo Drahotský, Ph.D., University of Pardubice, Jan Perner Transport Faculty
doc. Ing. Pavel Drdla, Ph.D., University of Pardubice, Jan Perner Transport Faculty
Ing. Tomáš Duša, Czech Technical University in Prague, Faculty of Transportation Sciences
prof. Ing. Zdeněk Dvořák, CSc., University of Žilina, Faculty of Special Engineering
Ing. Jan Famfulík, Ph.D., VŠB–Technical University of Ostrava, Faculty of Mechanical Engineering, Institute of Transport
doc. Ing. Jozef Gašparík, Ph.D., University of Žilina, Faculty of Operation and Economics of Transport and Communications
prof. Horst Gondek, DrSc., VŠB–Technical University of Ostrava, Faculty of Mechanical Engineering
prof. Ing. Karel Havel, Ph.D., University of Žilina, Faculty of Operation and Economics of Transport and Communications
Ing. Radomír Havří, Ph.D., Prague Airport
Ing. Libor Havlíček, Ph.D., University of Pardubice, Faculty of Electrical Engineering and Informatics
Ing. Ivana Havlíčková, Veolia Transport Morava, Ostrava
Ing. Nikola Husáková, The Technical University of Košice, Faculty of Mining, Ecology, Process Control and Geotechnology
doc. Ing. Rudolf Kampf, CSc., University of Pardubice, Faculty of Economics and Administration
doc. Ing. Rudolf Kampf, Ph.D., University of Pardubice, Jan Perner Transport Faculty
doc. Ing. Jaroslav Kleprlík, Ph.D., University of Pardubice, Jan Perner Transport Faculty
prof. Ing. Dušan Kevický, CSc., University of Žilina, Faculty of Operation and Economics of Transport and Communications
Ing. Martin Kendra, Ph.D., University of Žilina, Faculty of Operation and Economics of Transport and Communications

doc. Ing. Vladimír Konečný, PhD., University of Žilina, Faculty of Operation and Economics of Transport and Communications
Ing. Vladislav Křivda, Ph.D., Faculty of Civil Engineering, Department of Transport Construction
Ing. Martina Lánská, Ph.D., Czech Technical University in Prague, Transport Faculty
Ing. Lenka Ližbetinová, PhD., University of Žilina, Faculty of Operation and Economics of Transport and Communications
doc. Ing. Radovan Madleňák, PhD., University of Žilina, Faculty of Operation and Economics of Transport and Communications
Ing. Michal Mandlík, University of Pardubice, Faculty of Electrical Engineering and Informatics
Ing. Peter Márton, PhD., University of Žilina, Faculty of Management Science and Informatics
Ing. Jaroslav Matuška, Ph.D., University of Pardubice, Jan Perner Transport Faculty
Ing. Pavol Meško, PhD., University of Žilina, Faculty of Operation and Economics of Transport and Communications
doc. Ing. Tatiana Molková, Ph.D., University of Pardubice, Jan Perner Transport Faculty
Ing. Jana Míková, Ph.D., VŠB - Technical University of Ostrava, Faculty of Mechanical Engineering, Institute of Transport
Ing. Petr Nachtigall, Ph.D., University of Pardubice, Jan Perner Transport Faculty
Ing. Jan Pidanič, University of Pardubice, Faculty of Electrical Engineering and Informatics
doc. Ing. Miloš Poliak, PhD., University of Žilina, Faculty of Operation and Economics of Transport and Communications
Ing. Bibiána Poliaková, PhD., University of Žilina, Faculty of Operation and Economics of Transport and Communications
Mgr. Nataša Pomazalová, Ph.D., Mendel University in Brno
Ing. Stephan Schröder, Bahnzentrum Ingenieurbüro Bielefeld
doc. Ing. Jarmila Sosedová, PhD., University of Žilina, Faculty of Operation and Economics of Transport and Communications
doc. Ing. Jozef Strišš, CSc., University of Žilina, Faculty of Management Science and Informatics
prof. Ing. Miroslav Svítek, Ph.D., Czech Technical University in Prague, Transport Faculty
Mgr. Marek Ščerba, Transport Research Centre Brno
Ing. Ladislav Šíma, Dopravně inženýrská kancelář, Ostravské komunikace, a.s.
doc. Ing. Jaromír Široký, Ph.D., University of Pardubice, Jan Perner Transport Faculty
Ing. David Šourek, Ph.D., University of Pardubice, Jan Perner Transport Faculty
prof. Ing. Marián Šulgan, PhD., University of Žilina, The Faculty of Operation and Economics of Transport and Communications
doc. Ing. Libor Švadlenka, Ph.D., University of Pardubice, Jan Perner Transport Faculty
prof. Ing. Ivan Taufer, DrSc., University of Pardubice, Faculty of Electrical Engineering and Informatics
doc. RNDr. Antonín Tuzar, CSc., Czech Technical University in Prague, Transport Faculty
Ing. Marek Urban, Cross Zlín - Road Traffic Technology
Assoc. Prof. Milan Vaško, PhD., University of Žilina, Faculty of Mechanical Engineering
Ing. Vladislav Zitrický, PhD., University of Žilina, Faculty of Operation and Economics of Transport and Communications