

ISBN 978-83-935232-8-3

Transport Problems 2016

VIII INTERNATIONAL
SCIENTIFIC
CONFERENCE

29.06-01.07 2016

Katowice
Wałbrzych

V INTERNATIONAL
SYMPOSIUM OF YOUNG
RESEARCHERS

27 - 28 June 2016

Katowice



Conference
proceedings



Faculty of Transport
Silesian University of Technology

Silesian University of Technology
Faculty of Transport



Transport Problems 2016

Proceedings

VIII International Scientific Conference

V International Symposium of Young Researchers

UNDER THE HONORARY
PATRONAGE OF THE SILESIAN GOVERNOR
AND MAYOR OF KATOWICE CITY

ISBN 978-83-935232-8-3

Transport Problems
International Scientific Journal



Silesian University of Technology
Publication
Faculty of Transport

Edition and reviews

Prof. Aleksander Śladkowski

Technical edition

Prof. Piotr Czech

Dr. Tomasz Haniszewski

Dr. Łukasz Konieczny

Dr. Damian Gąska

Dr. Grzegorz Peruń



Silesian University of Technology
Faculty of Transport
40-019 Katowice, Krasińskiego st. 8, room 111
tel. +48 32 603 41 46
mail: tp@polsl.pl

VIII INTERNATIONAL CONFERENCE TRANSPORT PROBLEMS 2016

TABLE OF CONTENTS

No.	Authors, Title	Pages	
		Begin	End
1.	Paweł BANYŚ, Evelin ENGLER, Frank HEYMANN INTERDEPENDENCIES BETWEEN EVALUATION OF COLLISION RISKS AND PERFORMANCE OF SHIPBORNE PNT DATA PROVISION	13	27
2.	Henryk BĄKOWSKI, Bogusław ŚLEZIAK ANALYSIS OF DYNAMIC THE SIDE-MEMBER FRAME	28	33
3.	Henryk BĄKOWSKI, Tomasz HANISZEWSKI, Zbigniew STANIK EXPERIMENTAL TEST STAND FOR WEAR STUDY IN SLIDING AND ROLLING-SLIDING CONTACT UNDER EXTREME OPERATING CONDITION	34	44
4.	Oleg BICHIASHVILI, Otari GELASHVILI, Mikheil ZURIKASHVILI EFFICIENCY OF FUNCTIONING OF TRANSPORTATION COMPANIES	45	49
5.	Krzysztof BIZOŃ, Aleksander ŚLADKOWSKI SOME ASPECTS OF MODELING OF RAIL FASTENING TYPE SB-3	50	59
6.	Borys BODNAR, Yaroslav BOLZHELARSKYI, Igor LAUSHNYK MATHEMATICAL MODEL OF THE DERAILED TRAIN WHEEL MOTION	60	69
7.	Dmitriy BRUSYANIN, Marina ZHURAVSKAYA, Sergey VIKHAREV, Evgeniy SINITSYN THE MATHEMATICAL MODEL OF PUBLIC TRANSPORT NETWORK INDEX	70	75
8.	Julia BULGAKOVA CARGO FLOW MODELING IN THE INTEGRATED PRODUCTION AND TRANSPORTATION SYSTEM	76	85
9.	Jasmina BUNEVSKA TALEVSKA, Marija MALENKOVSKA TODOROVA A COMPARATIVE ANALYSIS OF EDUCATIONALLY DEVELOPED MICROSCOPIC TRAFFIC SIMULATION MODEL - SFSTREETSIMODEL, VERSION 2.1	86	91
10.	Juraj ČAMAJ, Anna DOLINAYOVÁ, Jozef DANIŠ MODELS FOR DETERMINING THE CATCHMENT AREA AT THE TIME DISCRETE TRAIN FORMATION IN SLOVAK CONDITIONS	92	99
11.	Kire DIMANOSKI, Gordan STOJIC, Gligorche VRTANOSKI IMPROVING QUALITY OF RAILWAY PASSENGER SERVICE IN REPUBLIC OF MACEDONIA	100	106
12.	Saidburhan DJABBAROV, Makhamadjan MIRAKHMEDOV, Batyr MARDONOV AERODYNAMIC FIELD MODEL OF HIGH-SPEED TRAIN	107	115

No.	Authors, Title	Pages	
		Begin	End
13.	Anna DOLINAYOVA, Juraj CAMAJ, Jozef DANIS RESEARCH OF COMPETITION IN THE RAIL TRANSPORT MARKET IN SLOVAKIA AND ITS IMPACT ON THE MODAL SPLIT	116	124
14.	Paweł DROŻDZIEL, Monika WIŃSKA, Radovan MADLEŇÁK, Paweł SZUMSKI OPTIMIZATION OF THE POSITION OF THE LOCAL DISTRIBUTION CENTRE OF THE POST LOGISTICS NETWORK FOR THE SELECTED AREA OF THE LUBLIN PROVINCE	125	132
15.	Juraj DUBOVEC, Lucia PANČÍKOVÁ TRAFFIC CONGESTION AND LOSS AVERSION	133	138
16.	Andrea GALIERIKOVÁ, Tomáš KALINA, Jarmila SOSEDOVÁ SAFETY RULES FOR TRANSPORTATION OF LNG ON EUROPEAN INLAND WATERWAYS	139	146
17.	Damian GAŚKA, Maria CIEŚLA COMPARATIVE ANALYSIS OF THE FORWARDER AND DISPATCHER ROLE IN SELECTED POLISH TRANSPORT COMPANIES	147	152
18.	Otar GELASHVILI, Goderdzi TABATADZE, Giorgi BICHIASHVILI PROBLEMS OF EFFECTIVE OPERATION OF MOTOR TRANSPORT IN GEORGIA	153	157
19.	Anežka GROBARČÍKOVÁ, Jarmila SOSEDOVÁ PROPOSAL OF AGENT-BASED MODEL FOR BARGE CONTAINER TRANSPORT	158	164
20.	Martin HROMÁDKA UTILIZATION OF PUBLIC SERVICE OBLIGATION IN THE NEW EU MEMBER STATES	165	173
21.	Nazrilla IBRAGIMOV, Rustam RAHIMOV, Matluba KHADJIMUKHAMETOVA RESEARCH OF DESIGN AND OPERATING CONDITIONS OF CONTAINERS FOR FRUIT AND VEGETABLES	174	181
22.	Rosen IVANOV ANALYTICAL RESEARCH ON THE GRIP VARIATION OF TWO-AXLE CAR	182	190
23.	Rosen IVANOV TIRE WEAR MODELING	191	201
24.	Ján KAPUSTA, Alica KALAŠOVÁ, Simona KUBÍKOVÁ DRIVER-VEHICLE-ENVIRONMENT INTERACTION FROM THE PERSPECTIVE OF ROAD TRANSPORTATION SAFETY	202	209
25.	Pavel KHARLAMOV MODELLING OF ROLLING STOCK	210	218
26.	Galina KHROMOVA, Ziyoda MUKHAMEDOVA, Irina YUTKINA MATHEMATICAL MODEL OF OSCILLATIONS OF BEARING BODY FRAME OF EMERGENCY AND REPAIR RAIL SERVICE CAR WITH VARIABLE STIFFNESS AND MASS PARAMETERS	219	225

No.	Authors, Title	Pages	
		Begin	End
27.	Ivana KIRSCHNEROVÁ PRODUCT ANALYSIS OF BUSINESS AVIATION COMPANIES: A TWO-DIMENSIONAL APPROACH	226	233
28.	Deimena KIYAK, Erika ŽUPERKIENĖ EXPRESSION OF THE TRANSPORT SECTOR OPERATIONAL EFFICIENCY EVALUATION METHODOLOGY (TRENDS) AT DIFFERENT STAGES OF THE ECONOMIC CYCLE	234	243
29.	Igor KOLESNIKOV, Sergey DANILCHENKO, Elena KOLOSOVA, Mikhail CHEBAKOV, Alexander LYAPIN MODELLING OF THERMOELASTIC TRANSIENT CONTACT INTERACTION FOR BINARY BEARING TAKING INTO ACCOUNT CONVECTION	244	251
30.	Łukasz KONIECZNY EVALUATION OF THE TECHNICAL CONDITION OF CAR SHOCK ABSORBER USING PHASE ANGLE	252	257
31.	Leonid KROUPNIK, Roza ABDYKALYKOVA, Kasym ELEMESOV, Aleksander ŚLADKOWSKI, Yuri SHAPOSHNIK, Sergeyi SHAPOSHNIK COMBINED PIPELINE TRANSPORT FOR HARDENING FILLING MIXTURES	258	265
32.	Lionginas LIUDVINAVIČIUS, Stasys DAILYDKA THE NEW AUTOMATIC CONTROL SYSTEMS (ACS) OF SHUNTING LOCOMOTIVE TRACTION GENERATOR	266	274
33.	Lionginas LIUDVINAVIČIUS, Stasys DAILYDKA, Gintautas BUREIKA, Žilvinas URBUTIS NEW RAILWAY SWITCHES TRANSPORTATION POSSIBILITIES	275	285
34.	Nikolay LOBOV, Dmitriy REPETSKIY, Dmitriy MALTSEV, Evgenii GENSON IMPROVEMENT OF ORGANIZATION SOLID MUNICIPAL WASTE TRANSPORTATION PROCESS BY AUTOMOBILE TRANSPORT	286	295
35.	Blaž LUIN, Stojan PETELIN IMPACT OF ROAD GEOMETRY ON THE VEHICLE ENERGY CONSUMPTION	296	304
36.	Olegas LUNYS, Stasys DAILYDKA, Stasys STEIŠŪNAS, Gintautas BUREIKA, Rimantas SUBAČIUS INVESTIGATION OF THE SPECIFICS OF FREIGHT WAGON SPEED CONTROL BY MEANS OF SLIDING BLOCKS AT A MARSHALLING HUB	305	313
37.	Elżbieta MACIOSZEK ANALYSIS OF OPPORTUNITIES OF USING THE HCM 2010 METHODOLOGY FOR EVALUATION OF TRAFFIC CAPACITY AT THE ENTRIES TO TURBO ROUNDABOUTS	314	326
38.	Irina MAKAROVA, Rifat KHABIBULLIN, Eduard BELYAEV, Eduard MUKHAMETDINOV PREDICTION OF THE VEHICLE OPERATIONAL RELIABILITY USING THE LOGICAL-PROBABILISTIC METHOD	327	339

No.	Authors, Title	Pages	
		Begin	End
39.	Irina MAKAROVA, Rifat KHABIBULLIN, Vadim MAVRIN, Eduard BELYAEV SIMULATION MODELING IN IMPROVING OF PEDESTRIANS SAFETY AT NON-SIGNALIZED CROSSWALKS	340	349
40.	Jerzy MARGIELEWICZ, Tomasz HANISZEWSKI, Damian GĄSKA RESEARCH MODEL OF WHEEL-SUSPENSION ARM SYSTEM	350	357
41.	Jerzy MARGIELEWICZ, Damian GĄSKA, Tomasz HANISZEWSKI RESEARCH OF TRANSIENT STATES ON THE EXAMPLE OF OVERHEAD TRAVELLING CRANE	358	363
42.	Jerzy MARGIELEWICZ, Damian GĄSKA, Tomasz HANISZEWSKI NUMERICAL MODEL ENABLING THE IDENTIFICATION OF HOISTING DYNAMIC FACTOR BASED ON THE ACCELERATION SIGNAL	364	368
43.	Tomasz MATYJA EFFECT OF THE AXIAL FORCE ON FLEXURAL VIBRATIONS OF ROTATING SHAFT	369	376
44.	Dilfuza MAKHMUDOVA, Rashidbek HUDAYKULOV STRENGTH CHARACTERISTICS OF LOESSIAL GROUND OF SOILS OF AUTOMOBILE ROADS IN CONDITIONS OF UZBEKISTAN	377	380
45.	Jelena MILUTINOVIC, Biljana GRGUROVIC, Stevan VELICKOVIC, Slavica STRBAC, Mirjana POPOVIC MODEL FOR ADJUSTING POSTAL ROUTES TO SET REQUIREMENTS	381	388
46.	Michał MIROS, Wojciech MAJEWSKI, Jan PIWNIK, Tomasz WĘGRZYN, Adam KONOPKA COVERED ELECTRODES FOR TRUCK FRAMES WELDING REPAIRS	389	396
47.	Ziyoda MUKHAMEDOVA METHODS OF DESIGN AND CALCULATION OF HYDRAULIC-MECHANICAL DRIVE OF EMERGENCY AND REPAIR RAIL SERVICE CARS	397	401
48.	Dmitri MURAVEV, Aleksandr RAKHMANGULOV TIMELINESS PROVIDING OF TRANSSHIPMENT AT MARINE CONTAINER TERMINALS ON THE BASIS OF DRY PORT IMPLEMENTATION	402	418
49.	Maujuda MUZAFFAROVA, Makhamadjan MIRAKHMEDOV HUMIDITY OF SAND AS BUILDING AND TECHNOLOGICAL CHARACTERISTICS OF NEW RESOURCE- SAVING TECHNOLOGY SOLUTIONS FOR FIXING SHIFTING SANDS	419	423
50.	Vitalii NAUMOV FORMING DELIVERY ROUTES UNDER CONDITIONS OF STOCHASTIC DEMAND FOR TRANSPORTATION SERVICES	424	431
51.	Oleg NIKIFOROV, Tatiana TARASOVA TRANSPORT SUPPORT OF TOURISM INDUSTRY IN MODERN CONDITIONS	432	438

No.	Authors, Title	Pages	
		Begin	End
52.	Stanislav PALÚCH KASTOR - VEHICLE AND CREW SCHEDULING SYSTEM FOR REGULAR BUS PASSENGER TRANSPORT	439	444
53.	Štefan PEŠKO, Tomáš MAJER MINMAX RUNNING BOARD PROBLEM FOR BUS SCHEDULING	445	449
54.	Peter PIALA, Andrej DÁVID TRANSPORTATION OF TEMPERATURE CONTROLLED GOODS	450	455
55.	Jędrzej PILISIEWICZ, Roman KACZYŃSKI PROJECT OF POSITION TO MAKE THE RESEARCH OF TURBULENT TRACE OF THE VERTICAL AXIS WIND TURBINE	456	463
56.	Jędrzej PILISIEWICZ, Roman KACZYŃSKI ANALYSIS OF THE STEERING WHEELS GEOMETRY ON THE BASIS OF TWO STEERING AXLES SYSTEM PROJECT	464	473
57.	Volodymyr PUZYR, Yurii DATSUN THE DEFINITION OF THE INDICATOR OF THE LEVEL OF MISMATCH OF LOCOMOTIVE REPAIR PRODUCTION	474	481
58.	Abdubog'iy QAYUMOV, Rashidbek HUDAYKULOV, Dilshod NURAXMATOV THE HEIGHT BASIS OF FOUNDATION EMBANKMENT FROM SALINE SOILS	482	486
59.	Rustam RAHIMOV, Farida GALIMOVA TECHNICAL ANALYSIS AND STRENGTH RESEARCHES OF BEARING ELEMENTS OF WEIGHT CALIBRATION WAGON BODIES	487	495
60.	Aleksandr RAKHMANGULOV, Dmitri MURAVEV, Pavel MISHKUROV METHOD OF OPTIMAL RFID READERS LOCATION AT RAILWAY NODES FOR COMPLEX RAILCAR TRAFFIC VOLUME CONTROLLING	496	506
61.	Marufjan RASULOV, Makhamadjan MIRAKHMEDOV HIGHER EDUCATION IN UZBEKISTAN: INTEGRATION PROCESSES, INTERNATIONAL EXPERIENCE, NATIONAL TRENDS	507	512
62.	Vladimir SHAPOVALOV, Alexandr LUBJAGOV, Pavel KHARLAMOV, Tatiana SAYAMOVA IMPLEMENTATION OF THEORITICAL BASIS OF TRIBOLOGY FOR ELABORATION OF RESOURCE SAVING SYSTEMS ON RAILWAY TRANSPORT	513	521
63.	Said SHAUMAROV ON THE ISSUE OF INCREASING ENERGETIC EFFICIENCY OF BUILDINGS IN RAILWAY TRANSPORT	522	532
64.	Katarzyna SICINSKA, Maria DABROWSKA-LORANC SEAT BELTS – THE MOST EFFECTIVE WAY TO IMPROVE THE SAFETY OF DRIVERS AND PASSENGERS, INCLUDING CHILDREN	533	542

No.	Authors, Title	Pages	
		Begin	End
65.	Gintaras SINKEVIČIUS, Gediminas VAIČIŪNAS, Stasys DAILYDKA STUDY OF RAIL BALTICA SIGNIFICANCE FOR THE DEVELOPMENT OF INTERNATIONALIZATION PROCESSES	543	552
66.	Sebastjan ŠKERLIČ, Robert MUHA STRATEGY FOR REDUCING HUMAN ERRORS IN A COMPANY'S WAREHOUSING PROCESS	553	564
67.	Maryna SOBOLEVSKA, Igor TELYCHKO PASSIVE SAFETY OF A SPEED PASSENGER TRAIN FOR RAILWAYS WITH 1520 MM GAUGE	565	575
68.	Aleksander SOBOTA THE INFLUENCE OF TRAMWAY ON VEHICLE SPEED AT FOUR-APPROACH INTERACTIONS LOCATED ON MULTILANE ARTERIES IN CITIES	576	585
69.	Goran STANKOVIĆ, Stojan PETELIN, Peter VIDMAR, Marko PERKOVIČ INFLUENCE OF IMPLEMENTATION TECHNOLOGICALLY ADVANCED EVACUATION MODELS ON THE PROCESS OF DECREASING THE RISK DURING ACCIDENTS IN LNG TERMINAL	586	600
70.	Zinoviy STOTSKO, Myroslav OLISKEVYCH VEHICLE DRIVING CYCLE OPTIMIZATION ON THE HIGHWAY	601	609
71.	Valeriia VOROPAI DEVELOPMENT OF A DESIGN-EXPERIMENTAL METHOD FOR PREDICTION OF RELIABLE EXPLOITATION OF FREIGHT RAILWAY CARS	610	619
72.	Andrzej N. WIECZOREK POSSIBILITIES OF INCREASING THE DURABILITY OF CHAIN WHEELS OF ARMoured FACE CONVEYORS	620	627
73.	Mirosław WIELGOSZ SELECTED NAVIGATIONAL SAFETY PROBLEMS OF UNMANNED AND REMOTELY SUPERVISED SEA-GOING SHIPS	628	637

V INTERNATIONAL SYMPOSIUM OF YOUNG RESEARCHERS TRANSPORT PROBLEMS 2016

TABLE OF CONTENTS

No.	Authors, Title	Pages	
		Begin	End
1.	Oleksandr BARDAS', Ihor SKOVRON, Yevhen DEMCHENKO, Andrii DOROSH INFLUENCE RESEARCH OF TRAFFIC PREDICTION ACCURACY ON EFFECTIVE MANAGEMENT OF THE TRAINS BREAKING-UP ORDER	638	644
2.	Mária CHOVANCOVÁ, Vladimír Klapita, Veronika GÁBOROVÁ METHODOLOGY OF RATIONALIZATION OF THE INVENTORY LEVEL ON THE BASIS OF PROPOSED SET OF CRITERIA CONSIDERING THE INTERACTION OF THE LOGISTICS CHAIN COMPONENTS	645	652
3.	Maria CIEŚLA, Tadeusz OPASIAK TRANSVERSE METHOD OF CARGO LASHING IN ROAD TRANSPORT	653	662
4.	Tomasz FIGLUS, Konrad ŻURADZKI, Piotr SZAFRANIEC ANALYSIS OF TOLLS IN SELECTED COUNTRY OF THE EUROPEAN UNION	663	668
5.	Tomasz FIGLUS, Piotr SZAFRANIEC, Konrad ŻURADZKI THE INFLUENCE OF HELMET POSITION ON THE SOUND LEVEL REACHING THE MOTORCYCLIST	669	675
6.	Tomasz FIGLUS, Wojciech KURZYCA ANALYSIS OF THE COMPONENTS FAILURE AFFECTING ON THE EMISSION OF TOXIC SUBSTANCES OF THE SELECTED PASSENGER CARS ENGINES	676	679
7.	Hristina GEORGIEVA MODELING OF AIRCRAFT LANDING DYNAMIC	680	686
8.	Tomasz HANISZEWSKI, Jerzy MARGIELEWICZ, Krystian KLUSKA PRELIMINARY MODELLING STUDIES OF THE DYNAMICS OF THE FORMULA STUDENT RACE CAR SUSPENSION	687	698
9.	Ondřej HAVLENA, Martin JACURA, Marián SVETLÍK QUANTIFIABLE BENEFITS OF PUBLIC TRANSPORT PRIORITY MEASURES	699	708
10.	Andrzej HEŁKA CURRENT RESEARCH ON TRAMWAY PANTOGRAPHS WITH TRADITIONAL AND MODERN CONSTRUCTION	709	713
11.	Andrzej HEŁKA MEASUREMENT OF QUALITY OF THE NEW TYPE COLLECTOR SHOE COOPERATION WITH THE CATENARY	714	717

No.	Authors, Title	Pages	
		Begin	End
12.	Damian KOSICKI, Elżbieta PLUCIŃSKA MINIMISING RAIL TRAFFIC DISRUPTIONS DURING TRACKS RENEWAL AND MODERNIZATION	718	727
13.	Dmytro KOZACHENKO, Roman VERNIGORA, Volodymyr BALANOV, Nazar SANNYTSKYI, Nikolay BEREZOVY, Tetiana BOLVANOVSKA IMPROVING METHODS OF ESTIMATION OF THE UNIT TRAINS EFFECTIVENESS	728	738
14.	Irina MAKAROVA, Rifat KHABIBULLIN, Ksenia SHUBENKOVA, Larisa GABSALIKHOVA DESIGNING THE CITY TRANSPORTATION SYSTEM DEVELOPMENT STRATEGY WITH ACCOUNT OF RISKS	739	750
15.	Przemysław MARZEC, Łukasz KUS, Karol GÓRNIK, Henryk BĄKOWSKI PROJECT OF THE MODIFIED MICRO-CNC MILLING MACHINE FOR PERSONALIZED MARKING ELEMENTS PARTS IN MOTOR CAR	751	758
16.	Dijana MISHKOSKA, Jasmina BUNEVSKA TALEVSKA PROPOSED SCENARIO FOR RECONSTRUCTION OF THE CENTRAL URBAN AREA IN PRILEP, MACEDONIA	759	762
17.	Bogna MRÓWCZYŃSKA THE LOCALIZATION OF DISTRIBUTION CENTER OF NETWORK COOP IN THE VICINITY OF VIZOVICE	763	770
18.	Keldim NASRETDINOV, Khusniddin ATABAEV TECHNOLOGY AND LOGISTIC APPROACHES FOR THE CARRIAGE AND OPERATION OF TRANSPORT VEHICLES IN URBAN AREAS	771	775
19.	Martin NOVÁK, Jiří HERGESSEL NON-DESTRUCTIVE TESTING OF A PRIMARY AIRCRAFT STRUCTURE USING THE BOND TESTER	776	782
20.	Alexander NOVIKOV, Andrei KATUNIN, Ivan NOVIKOV, Anastasiya SHEVTSOVA RESEARCH OF ADAPTABILITY OF THE TRAFFIC LIGHTS TO ADVANCED CHARACTERISTICS OF THE TRAFFIC FLOW	783	790
21.	Vojtěch NOVOTNÝ, Ivo NOVOTNÝ, Tomáš JAVOŘÍK TRAFFIC DATA EVALUATION AS PART OF PUBLIC TRANSPORT PRIORITY MEASURES ASSESSMENT	791	800
22.	Piotr NOWAKOWSKI, Krzysztof SZWARC SUPPORTING OF THE MOBILE COLLECTION OF WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT BASED ON A WEB APPLICATION WITH THE INTEGRATED DATABASE	801	810
23.	Piotr NOWAKOWSKI, Andrzej KALA THE ANALYSIS OF LOGISTICS SYSTEM OF WASTE FROM SEPARATE COLLECTION WITH INTERMEDIATE POINTS IN RUDA ŚLĄSKA	811	820

No.	Authors, Title	Pages	
		Begin	End
24.	Piotr NOWAKOWSKI, Mariusz WALA TRANSPORT PROBLEMS IN THE SEPARATE WASTE COLLECTION AFTER INTRODUCING NEW LAW IN POLAND – A CASE STUDY OF RURAL MUNICIPALITY	821	830
25.	Yuri Y. OSENIN, Douma MANSUR AL-MAKHDI, Oksana SERGIENKO, Igor SOSNOV, Aleksey CHESNOKOV PROVIDING STABILITY OF BRAKING OF HIGH-SPEED LAND TRANSPORT	831	839
26.	Yuriy Iv. OSENIN, Larysa DEGTYAREVA, Galyna OSENINA, Oksana SERGIENKO PROVIDING DERAILMENT PREVENTION BY APPLYING A WHEEL PAIR WITH THE COUNTER-FLANGE	840	846
27.	Grzegorz PERUŃ MODELLING OF DYNAMIC PHENOMENA IN TOOTHED GEAR	847	851
28.	Katarzyna SKORUPKA, Tadeusz OPASIAK ORGANIZATION OF LOGISTICS PROCESSES IN PKP PLK FOR GREATER SAFETY	852	859
29.	Paweł SŁOWIŃSKI, Rafał BURDZIK ANALYSIS OF THE PARAMETERS OF DRIVING STYLE WITH REGARD TO FUEL CONSUMPTION AS THE MAIN COMPONENT OF THE COST OF FREIGHT TRANSPORT LOGISTICS	860	868
30.	Kamila SOJKA, Rafał BURDZIK ANALYSIS OF THE INFLUENCE OF HUMAN FACTORS ON THE RELATION OF THE TRANSPORT PROCESSES	869	873
31.	Katarzyna TUROŃ, Piotr CZECH, Maria CIEŚLA THE PROECOLOGICAL PRACTICES IN THE CEP AREA IN POLAND	874	880
32.	Andrzej FELLNER, Adam MAŃKA, Bogdan MAŃKA SAFETY AND SECURITY ASPECTS OF USING REMOTELY PILOTED AIRCRAFT SYSTEMS <i>(referat zgłoszony po terminie)</i>	881	887