INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
IEEE REGION 8, RUSSIAN SECTION CHAPTER, MTT/ED
MOSCOW AUTOMOBILE AND ROAD CONSTRUCTION STATE TECHNICAL UNIVERSITY (MADI)
INSTITUTE OF RADIO AND INFORMATION SYSTEMS (IRIS)
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International Scientific Conference

«2021 INTELLIGENT TECHNOLOGIES AND ELECTRONIC DEVICES IN VEHICLE AND ROAD TRANSPORT COMPLEX» (TIRVED-2021)

(IEEE Conference # 53476)

11-12 November 2021

CONFERENCE PROGRAM

Moscow
2021

CONFERENCE ORGANIZERS

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
IEEE REGION 8, RUSSIAN SECTION CHAPTER, MTT/ED
MOSCOW AUTOMOBILE AND ROAD CONSTRUCTION STATE TECHNICAL UNIVERSITY (MADI)
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CONFERENCE CHAPTERS*

Chapter 1. Advanced digital intelligent technologies, robotic and big data systems, machine learning and artificial intelligence
(*Передовые цифровые интеллектуальные технологии, роботизированные системы и системы больших данных, машинное обучение и искусственный интеллект*)

Chapter 2. Intelligent transport systems and monitoring the state of road network objects
(Интеллектуальные транспортные системы и мониторинг состояния объектов дорожной сети)

Chapter 3. Electronic driver assistance systems. Self-driving cars and electric vehicles
(Электронные системы помощи водителю. Самоуправляемые автомобили и электромобили)

Chapter 4. Intelligent and digital systems for design, management and monitoring during the construction and operation of road infrastructure
(Интеллектуальные и цифровые системы для проектирования, управления и мониторинга при строительстве и эксплуатации дорожной инфраструктуры)

Chapter 5. Innovative technologies and materials in mechanical engineering and modeling of complex mechanical systems
(Инновационные технологии и материалы в машиностроении и моделировании сложных механических систем)

Chapter 6. Creation and service of highly efficient road-building, airfield and hoisting-and-transport equipment based on information technologies, robotic and mechatronic systems
(Создание и обслуживание высокоэффективного дорожно-строительного, аэродромного и подъемно-транспортного оборудования на основе информационных технологий, робототехнических и мехатронных систем)

Chapter 7. Digital technologies in logistics
(Цифровые технологии в логистике)

Chapter 8. Intelligent technologies for special-purpose vehicles creation and operation
(Интеллектуальные технологии создания и эксплуатации транспортных средств специального назначения)

* The reports in the program inside the sections are listed in alphabetical order by the name of the first author. By agreement with the chairman of the section, the order of reports may be changed
(*Доклады в программе внутри секций перечислены в алфавитном порядке по фамилии первого автора. По согласованию с председателем секции порядок следования докладов может быть изменен*).

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Pospelov P.I., *Doctor of Technical Sciences, professor, head. Department "Research Methods and Road Design", MADI*

Solntsev A.A., *professor, head. Department "Operation of motor transport and car service", MADI*

CONFERENCE SCHEDULE

11 November 2021

09-45 — 10-00 **Registration of participants** (*регистрация участников*)

1-й поток

10-00 — 10-05 **Opening remarks of Dmitry Borisovich Efimenko, Acting Rector of MADI**
(*вступительное слово и.о. ректора МАДИ Ефименко Дмитрия Борисовича*)

10-05 — 10-15 **Opening remarks of the conference organizers**
(*вступительное слово организаторов конференции*)

10-15 — 16-30 **Conference chapter 1** (*работа секции 1*)

2-й поток

10-15 — 13-00 **Conference chapter 2** (*работа секции 2*)

14-00 — 16-15 **Conference chapter 3** (*работа секции 3*)

12 November 2021

1-й поток

10-00 — 16-45 **Conference chapter 4** (*работа секции 4*)

2-й поток

10-00 — 11-45 **Conference section 5** (*работа секции 5*)

11-45 — 13-45 **Conference section 6** (*работа секции 6*)

14-30 — 16-15 **Conference section 7** (*работа секции 7*)

16-15 — 18-00 **Conference section 8** (*работа секции 8*)

18-00 — 18-15 **Conference results**

November 11, 2021

CHAPTER 1
ADVANCED DIGITAL INTELLIGENT TECHNOLOGIES, ROBOTIC AND BIG DATA SYSTEMS, MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE

CHAIRMEN: **M.V. Yashina,** *Doctor of Technical Sciences, PhD of Physical and Mathematical Sciences, Head of the Department "Higher Mathematics", MADI*

10-15 – 10-30
Daniil D. Chirkov, Artur K. Gaysin, Ivan P. Ashaev
Kazan National Research Technical University named after A. N. Tupolev – KAI, Kazan, Russia
IMPROVING THE ACCURACY OF DCI MESSAGES DECODING METHOD TO ESTIMATE THE INFORMATION LOAD OF THE LTE CELL

10-30 – 10-45
Andrey Yu. Dunin, Leonid N. Golubkov, Elmira U. Akhmetzhanova
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
THE USE OF DIMETHYL ETHER

10-45 – 11-00
D. V. Gadasin, A. V. Shvedov, I. A. Kuzin
Moscow Technical University of Communications and Informatics, Moscow, Russia
RECONSTRUCTION OF A THREE-DIMENSIONAL SCENE FROM ITS PROJECTIONS IN COMPUTER VISION SYSTEMS

11-00 – 11-15
S. N. Gorokhov, T. F. Shcherbakova, S. S. Sedov
Kazan National Research Technical University named after A. N. Tupolev – KAI, Kazan, Russia
ELIMINATION OF ISOLINE DRIFT WHEN ANALYSIS OF THE ELECTROCARDIOSIGNAL OF THE VEHICLE DRIVER

11-15– 11-30
COFFEE BREAK

11-30 – 11-45

N. G. Kuftinova, A. V. Ostroukh, O. I. Maksimychev, I. V. Odinokova

Moscow Automobile and Road State Technical University (MADI), Moscow, Russia

ROAD CONSTRUCTION ENTERPRISE MANAGEMENT MODEL BASED ON HYPERAUTOMATION TECHNOLOGIES

11-45 – 12-00

Ivan A. Kuteynikov,

Moscow Automobile and Road Construction StateTechnical University (MADI), Moscow, Russia

Alexander V. Batishchev

Astra Linux Group of Companies, Moscow, Russia

MOBILE ROAD RUT DETECTION SYSTEM WITH MANDATORY ACCESS CONTROL DATA PROTECTION

12-00 – 12-15

E. I. Makarenko

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

E. A. Karelina

Moscow State University of Technology, Moscow, Russia

SOCIAL RESOURCES REALIZING THE POTENTIAL OF TECHNICAL INTELLIGENTSIA IN THE AUTOMOBILE AND ROAD TRANSPORT COMPLEX

12-15 – 12-30

O. I. Maksimychev, A.V. Volosova, K. N. Mezentsev, A. N. Yakubovich, A. V. Ostroukh

Moscow Automobile and Highway State Technical University (MADI), Moscow, Russia

THE USE INTELLIGENT ELECTRONIC HITCH FOR VEHICLE MANAGEMENT

12-30 – 12-45

Razil R. Mardanov, Aleksey L. Ovchinnikov, Tatyana F. Shcherbakova, Stanislav S. Sedov

Kazan National Research Technical University named after A. N. Tupolev – KAI, Kazan, Russia

DRIVER DROWSINESS WARNING BASED ON ELECTROCARDIOSIGNALS ANALYSIS

12-45– 14-00

DINNER

14-00 – 14-15

Oscar A. Mukhametzyanov, Tatiana F. Shcherbakova, Stanislav S. Sedov
Kazan National Research Technical University named after A. N. Tupolev – KAI, Kazan, Russia

DRIVERS' ELECTROCARDIOSIGNALS ANALYSIS FOR ARRHYTHMIAS' PREDICTORS REGISTRATION

14-15 – 14-30

V. I. Prusova, E. Yu. Kolokolova, M. A. Zhidkova, A. V. Kargina
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

DIFFUSION OF DIGITALIZATION IN THE CUSTOMS SPHERE THROUGH ELECTRONIC DOCUMENT MANAGEMENT

14-30 – 14-45

Z. P. Samokhvalova, L. I.Artanova
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

FINANCIAL ANALYSIS AS A FRANCHISING TOOL IN MODERN CONDITIONS OF DIGITALIZATION OF THE ECONOMY

14-45 – 15-00

Vladimir V. Sinyavski, Alexey V. Krigulski, Mikhail G. Shatrov, Leonid N.Golubkov
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

ESTIMATION OF NITROGEN OXIDE EMISSION REDUCTION IN A BOOSTED TRUCK DIESEL ENGINE WITH TWO-STAGE CHARGING AND MILLER CYCLE

15-00– 15-15
COFFEE BREAK

15-15 – 15-30

Elena A. Spirina
Kazan National Research Technical University named after A. N. Tupolev – KAI, Kazan, Russia

DATA TRANSMISSION ALGORITHM IN THE IP COMMUNICATION NETWORKS INTEGRATED OPTIMIZATION METHOD

15-30 – 15-45

Yu. V. Trofimenko, V. I. Komkov
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

FORECAST OF DECARBONIZATION OF ROAD TRANSPORT IN RUSSIA UNTIL 2050 IN THE CONTEXT OF DIGITALIZATION AND EXPANSION OF THE USE OF UNMANNED VEHICLES

15-45 – 16-00

Anatoly N. Yakubovich, Irina A. Yakubovich, Yuriy V. Trofimenko
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

INVESTIGATION OF THE CONVERGENCE DOMAIN OF THE BACKPROPAGATION ALGORITHM FOR TRAINING THE PERCEPTRON IN PATTERN RECOGNITION IN THE PROBLEMS OF TECHNOSPHERIC SAFETY OF TRANSPORT SYSTEMS

16-00 – 16-15

Marina V. Yashina, Alexander G. Tatashev
Moscow Automobile and Road Construction State Technical University (MADI);
Moscow Technical University of Communications and Informatics, Moscow, Russia
Nikolay P. Susoev
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

SIMULATION MODEL OF LANE CHANGE MANEUVERS BASED ON GENERALIZATION OF ECA 184 AND DETERMINISTIC-STOCHASTIC APPROACH

16-15 – 16-30
DISCUSSION AND QUESTIONS

November 11, 2021

CHAPTER 2.
INTELLIGENT TRANSPORT SYSTEMS AND MONITORING THE STATE OF ROAD NETWORK OBJECTS

CHAIRMENS: Yu.E. Vasiliev, *Doctor of Technical Sciences, Head of the Department "Road Construction Materials", MADI*

A.V. Ostroukh, *Doctor of Technical Sciences, Professor of the Department "Automated Control Systems", MADI*

10-15 – 10-30
I.V. Demiyanushko
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
THE VIRTUAL DIGITAL PROVING GROUND FOR CARRYING OUT TESTS OF ROAD ARRANGEMENT ELEMENTS AT ARRIVALS OF VEHICLES

10-30 – 10-45
M. G. Gorodnichev, K. A. Polyantseva, M. S. Moseva, A. V. Sheremetev, R. A. Gematudinov
Moscow Technical University of Communications and Informatics, Moscow, Russia
INTELLIGENT SYSTEM FOR RECOGNIZING THE MAIN CHARACTERISTICS OF THE TRAFFIC FLOW

10-45 – 11-00
Eduard V. Kotlyarskiy, Yuri E. Vasiliev, Maria A. Fineeva, Sergey V. Varshavskiy, Alexey A. Tsesar
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
DATABASE OF THE RESULTS OF MONITORING THE STREET AND ROAD NETWORK FACILITIES

11-00 – 11-15
M. S. Moseva, M. G. Gorodnichev, K. A. Polyantseva, A. V. Sheremetev, Kh. A. Dzhabrailov
Moscow Technical University of Communications and Informatics, Moscow, Russia
DEVELOPMENT OF A PLATFORM FOR ROAD INFRASTRUCTURE DIGITAL CERTIFICATION

11-15 – 11-30

V. S. Nadezhdin, I. V. Demiyanushko, A. S. Gruzdev, O. V. Titov

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

USE OF POLYMER MATERIALS FOR TEMPORARY DRIVEWAYS

11-30 – 11-45

COFFEE BREAK

11-45– 12-00

A.V. Ostroukh, N. G. Kuftinova, O. I. Maksimychev, I. V. Odinokova

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

HYPERAUTOMATION OF CONSTRUCTION MATERIALS ENTERPRISE

12-00 – 12-15

Sergey V. Varshavskiy, Yuri E. Vasiliev, Maria A. Fineeva, Igor Yu. Sarichev, Alexey A. Tsesar

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

HARDWARE AND SOFTWARE COMPLEX FOR MEASURING THE LATERAL ROUGHNESS OF THE ROAD SURFACE – LEADER HSC

12-15 – 12-30

Yuri Emmanuilovich Vasiliev, Maria Andreyevna Fineeva, Eduard Vladimirovich Kotlyarskiy, Igor Yurievich Sarichev

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

INTELLECTUALIZATION OF THE MONITORING PROCESS OF STREET AND ROAD NETWORK OBJECTS

12-30 – 12-45

A. I. Vorobyev, A.V. Zamytskih, N. S. Golubchenko, T. V. Vorobyeva, D. Yu. Morozov

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

ENSURING THE ACCURACY OF DIGITAL ROAD MODEL DATA TO INCREASE SITUATIONAL AWARENESS

12-45– 13-00

S. V. Zhankaziev, Y. A. Korotkova, M. V. Gavrilyuk

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

E. V. Litvin

LTD Stroi Invest Proect, Moscow, Russia

Y. V. Yanko

NPO Transport, Moscow, Russia

QUESTIONS OF TRANSPORT PLANNING ON THE EXAMPLE OF THE NORTHERN AND FAR-EASTERN REGIONS OF THE RUSSIAN FEDERATION

13-00– 14-00

DINNER

November 11, 2021

CHAPTER 3.
ELECTRONIC DRIVER ASSISTANCE SYSTEMS. SELF-DRIVING CARS AND ELECTRIC VEHICLES

CHAIRMENS: A.M. Ivanov, *Doctor of Technical Sciences, Head of the Department "Cars" MADI*

V.I. Stroganov, *Doctor of Technical Sciences, Head of the Department "Electrical Engineering and Electrical Equipment", MADI*

14-00 – 14-15

V. A. Abramov, O. B. Popov, T. V. Chernysheva, V. O. Peruanskiy
Moscow Technical University of Communications and Informatics, Moscow, Russia

INCREASING THE ACCURACY OF SOUND SIGNAL SPECTRAL ESTIMATION ACCORDING TO THE PROPERTIES OF HEARING ANALYZER

14-15 – 14-30

Vitaliy V. Gaevskiy, Nikolay V. Popov, Andrey M. Ivanov, Sergey S. Shadrin
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

LOCALIZATION OF MEANINGFUL INTERFACES "HUMAN – ARTIFICIAL INTELLIGENCE" WITH RESPECT TO HUMAN SAFETY

14-30 – 14-45

Andrey M. Ivanov, Sergey S. Shadrin, Aleksey N. Andreev
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

THE CONCEPT OF CHOOSING METHODS FOR TESTING AUTOMATED DRIVER ASSISTANCE SYSTEMS, TAKING INTO ACCOUNT THEIR IMPACT ON THE ACCIDENT RATE

14-45 – 15-00

V. N. Kozlovsky, A. S. Saksonov, S. V. Petrovsky
Samara State Technical University, Samara, Russia
V. I. Stroganov, A. G. Grishchenko
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

TESTING OF ELECTROMAGNETIC INTERFERENCE LEVEL BY MEANS OF ONBOARD INTELLIGENT MEASURING SYSTEM AS A TOOL FOR ASSESSING OPERATING QUALITY OF PASSENGER CAR ELECTRICAL SYSTEMS

15-00– 15-15
COFFEE BREAK

15-15 – 15-30
Sergey R. Kristalniy, Nikolay V. Popov
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
METHODOLOGY DEVELOPMENT FOR ASSESSING AUTOMATIC EMERGENCY BRAKING SYSTEMS, TAKING INTO ACCOUNT ACCIDENTS STATISTICS ANALYSIS WITH UNPROTECTED ROAD USERS

15-30 – 15-45
S. V. Petrovsky, V. N. Kozlovsky, A. V. Kritsky
Samara State Technical University, Samara, Russia
A. G. Grishchenko, B. N. Sidorov
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
ON-BOARD INTELLIGENT INFORMATION SYSTEM FOR DIAGNOSING FAULTS IN THE IGNITION SYSTEM OF A PASSENGER CAR

15-45 – 16-00
Sergey S. Shadrin, Andrey M. Ivanov, Daria A. Makarova, Nikita A. Maklakov
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
SAFETY ASSESSMENT OF HIGHLY AUTOMATED VEHICLES USING DIGITAL TWIN TECHNOLOGY

16-00 – 16-15
DISCUSSION AND QUESTIONS

November 12, 2021

CHAPTER 4.
INTELLIGENT AND DIGITAL SYSTEMS FOR DESIGN, MANAGEMENT AND MONITORING DURING THE CONSTRUCTION AND OPERATION OF ROAD INFRASTRUCTURE

CHAIRMEN: P.I. Pospelov, *Doctor of Technical Sciences, Head of the Department "Survey and Design of Roads", MADI*

10-00 – 10-15
Mark S. Anastasov, Andrey V. Shestov, Sergey P. Alexandrov, Yulia S. Ryabova
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
ASH AND SLAG WASTE - SECONDARY RAW MATERIALS WITH BENEFITS FOR THE ENVIRONMENT

10-15 – 10-30
Vladimir N. Boykov, Vladimir N. Gulin, Aleksandr A. Neretin
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
IMPORTANT FACTORS TO BE CONCERNED WHEN MOVING TO INFRA BUILDING INFORMATION MODELING IN RUSSIA

10-30 – 10-45
V. A. Dumenko, A. V. Korochkin
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
ANALYSIS OF THE TRANSPORT FACTOR IN THE CALCULATION OF DURABILITY OF ROAD PAVEMENTS

10-45 – 11-00
N. A. Ivanova, E. Chirikanova, N. M. Ulitskaya
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
A.A. Dvoryanchikova
Faculty of Economics and Business KU Leuven
DIGITAL TRANSPORTATION TECHNOLOGIES FOR FORMATION OF BUS ROUTES IN THE CONDITIONS OF A MEGAPOLIS

11-00 – 11-15
A. V. Korochkin
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
PROTECTION OF ROAD PAVEMENT FROM STORM WATER RUNOFF BY MEANS OF A SUBSURFACE STORM SEWER

11-15– 11-30
COFFEE BREAK

11-30 – 11-45

A. V. Kostsov, L. N. Slabkevich, T. K. Komarova

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

THE STUDY OF MOTORCAR TIME INTERVALS AT RAILWAY CROSSINGS

11-45 – 12-00

Yuri V. Kuznetsov, Dmitry A. Moiseenko

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

Pavel V. Plotnikov

Sedatek-Inform LLC, Moscow, Russia

METHOD FOR DETERMINING THE MAXIMUM ALLOWABLE PAVEMENT RUTTING FROM THE CONDITION OF ENSURING THE SAFETY OF TRAFFIC IN RAINY WEATHER

12-00 – 12-15

V. A. Maksimov, N. V. Pozhivilov

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

A. E. Andrianov

SUE Mosgortrans, Moscow, Russia

THE USE OF CAPACITIVE SENSORS WHEN MEASURING FUEL CONSUMPTION FOR WARMING UP ROAD TRANSPORT

12-15 – 12-30

A. L. Mashkin, E. K. Telushkina, N. M. Ulitskaya, M. A. Dreitsen

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

DIGITAL TECHNOLOGIES OF PUBLIC ADMINISTRATION IN TRANSPORT

12-30 – 12-45

D. A. Nikitin, P. D. Nikitin

Saratov State Agrarian University N.I. Vavilova, Saratov, Russia

A. R. Asoyan, A. A. Solntsev

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

S. V. Snarsky

PJSC KAMAZ, Naberezhnye Chelny, Russia

INFLUENCE OF THE PISTON RING SHAPE IN A FREE STATE ON THE EFFICIENCY OF SEALING THE COMBUSTION CHAMBER

12-45– 14-00
DINNER

14-00 – 14-15

V. L. Odintsov (Member IEEE), Z. R. Idiatylov, R. F. Zaripov

Kazan National Research Technical University n.a. A.N. Tupolev – KAI (KNRTU-KAI), Kazan, Russia

V. I. Il'in

Kazan Federal University, Kazan, Russia

ANALYSIS OF THE EFFECTIVENESS OF THE SIMULATION MODEL OF A WIRELESS COMMUNICATION SYSTEM IN QUASI-REAL COMMUNICATION CHANNELS

14-15 – 14-30

P. I. Pospelov

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

M. V. Yashina *(Member IEEE)***, A. G. Tatashev**

Moscow Automobile and Road Construction State Technical University (MADI); Moscow Technical University of Communications and Informatics, Moscow, Russia

L. N. Slabkevich, D. V. Lyanguzov

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

ALGORITHM FOR CONTROLLED RAILWAY CROSSING CAPACITY EVALUATION UNDER CONDITION OF POISSON TRAFFIC INPUT

14-30 – 14-45

Andrey V. Shestov, Mark S. Anastasov, Nikita V. Suchilin

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

SMART ROAD

14-45 – 15-00

Alexey V. Skvortsov

IndorSoft Ltd., CEO, Tomsk, Russia

Vladimir N. Boykov

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

Sardor Farkhod ugli Sharapov

IndorSoft Ltd., CEO, Tomsk, Russia

BUILDING INFORMATION MODELING OF HIGHWAYS ON MAINTENANCE STAGE

15-00– 15-15

COFFEE BREAK

15-15 – 15-30

Dmitry M. Strokov, Pavel I. Pospelov, Lubov A. Lygina

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

STUDY OF MOTOR VEHICLE TRAFFIC MODES ON SECTIONS OF ROADS PASSING THROUGH SMALL RURAL SETTLEMENTS USING UNMANNED FLYING VEHICLES

15-30 – 15-45

Alexander G. Tatashev

Moscow Automobile and Road Construction State Technical University (MADI);
Moscow Technical University of Communications and Informatics, Moscow, Russia

Pavel I. Pospelov, Le Duc Long

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

Marina V. Yashina

Moscow Automobile and Road Construction State Technical University (MADI);
Moscow Technical University of Communications and Informatics, Moscow, Russia

METHODOLOGY FOR ASSESSING VEHICLES DELAY AT AN UNREGULATED INTERSECTION WITH DEDICATED LANE

15-45 – 16-00

Natalya M. Ulitskaya, Elena K. Telushkina, Elena A. Chirikanova, Nionila A. Ivanova

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

PROBLEMS OF THE DEVELOPMENT OF VEHICLE RECYCLING

16-00 – 16-15

M. P. Ulitsky, E. S. Gogolina, A. L. Mashkin, S. V. Glagoleva

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

DIGITAL TECHNOLOGIES FOR ANALYZING ENVIRONMENTAL RISKS OF TRANSPORT INFRASTRUCTURE

16-15 – 16-30

P. J. Zhunisbekov

Kazakh National Agrarian Research University (KazNIAU), Kazakhstan

A. A. Solntsev

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

T. Y. Matkerimov

Kyrgyz State Technical University. I. Razzakova (KSTU), Kyrgyzstan

Zh. T. Temirbekov

Kyrgyz National Agrarian University named after K.I. Scriabin (KNAU), Kyrgyzstan

COMPARATIVE LEVELS OF AUTOPILOTATION OF TRANSPORTATION AND TECHNOLOGICAL MACHINES

16-30– 16-45

DISCUSSION AND QUESTIONS

November 12, 2021

CHAPTER 5.
Innovative technologies and materials in mechanical engineering and modeling of complex mechanical systems

CHAIRMEN: M.Yu. Karelina, *Doctor of Technical Sciences, Doctor of Pedagogical Sciences, Vice-Rector for Research, Head of the Department "Machine Parts and Mechanism Theory", MADI*

10-00 –10-15

V. S. Ershov
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
S. M. Gaidar
Russian State Agrarian University – Moscow Timiryazev Agricultural Academy, Moscow, Russia
M. Yu. Karelina, A. A. Akulov
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

METHOD OF ALLOYING ENGINE OIL WITH COMPLEX COPPER COMPOUNDS

10-15 – 10-30

S. M. Gaidar
Russian State Agrarian University – Moscow Timiryazev Agricultural Academy, Moscow, Russia
V.S. Ershov, M. Yu. Karelina, A.A. Akulov
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

DEVELOPMENT OF A TEST ALGORITHM AND EVALUATION OF THE PROPERTIES OF A METAL-CLADDING ADDITIVE

10-30 – 10-45

Mariya Yu. Karelina
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
Petr I. Smirnov
Vologda State University, VOGU, Vologda, Russia
Boris S. Subbotin
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

THE INFLUENCE OF THE CHARACTERISTICS OF THE TRAFFIC FLOW AND THE STRUCTURE OF VEHICLES ON THE ENERGY CONSUMPTION AND ECOLOGICAL SAFETY OF PASSENGER TRANSPORTATION

10-45 – 11-00

Alexandr V. Klimov, Fedor A. Ryabtsev
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia; LLC "Innovation Center "KAMAZ", Moscow, Russia
Alexey A. Akulov
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
Viktor R. Anisimov
LLC "Innovation Center "KAMAZ", Moscow, Russia
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
Viktor A. Klimenko
AVREC; Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

ANALYSIS OF THE TENDENTIOUS DEVELOPING OF THE NEW MATERIALS USED IN THE PRODUCTION OF TRACTION ELECTRIC MOTORS

11-00 – 11-15

L. G. Petrova, P. E. Demin
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

PLASMA NITRIDING OF STEELS IN ELECTROLYTE SOLUTION COMBINED WITH DIFFUSION METALLIZATION

11-15 – 11-30

A.S. Sergeeva, L. G. Petrova, V. M. Vdovin
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

THERMO-CHEMICAL TREATMENT OF STRUCTURAL STEELS IN DIFFERENT TYPES OF DISCHARGE

11-30– 11-45
DISCUSSION AND QUESTIONS

November 12, 2021

CHAPTER 6.
Creation and service of highly efficient road-building, airfield and hoisting-and-transport equipment based on information technologies, robotic and mechatronic systems

CHAIRMENS: G.V. Kustarev, *candidate of technical sciences, head of the department "Road-building machines", MADI*

A.V. Ilyukhin, *Doctor of Technical Sciences, Head of the Department "Automation of Production Processes", MADI*

11-45 – 12-00

Kh. A. Dzhabrailov, M. E. Chantieva
Moscow Automobile and Road Construction State Technical University (MADI); Moscow Technical University of Communications and Informatics, Moscow, Russia
E. V. Marsova, P. A. Selezneva, P. A. Lygin
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
CONCEPT OF DIGITAL LEVELING SYSTEM OF CONSTRUCTION SITES

12-00 – 12-15

L. S. Feofanova, R. I. Salikhov, A. M. Pogonina, T. V. Vorobyeva, E. S. Smolko
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
METHOD FOR CALCULATING THE PARAMETERS OF A CASSETTE BRUSH ASSEMBLY, A CYLINDRICAL BRUSH FOR AIRFIELD USE

12-15 – 12-30

A. N. Kotomchin, V. A.Zorin
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
STUDY OF HIGH-PERFORMANCE CHROMIUM ELECTROLYTE FOR RESTORATION OF AUTOMOBILE AND ROAD-CONSTRUCTION MACHINERY PARTS

12-30 – 12-45

M. V. Kuntsman, A. A. Sultygova, N. A. Shelikhanova
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
METHODOLOGY FOR ANALYSING THE TECHNICAL AND ECONOMIC FACTORS OF MECHANISATION IN AERODROME CONSTRUCTION

12-45 – 13-00

Gennadi V. Kustarev, Sergey A. Pavlov, Roman V. Morozov, Nikita M. Andryukhov
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

INVESTIGATION OF TRACTION AND ADHESION PROPERTIES WHEN USING DEICING MATERIALS

13-00 – 13-15

V. S. Seleznev, E. O. Antonova, A. V. Iluhin, R. A. Gematudinov, L. Yu. Isaeva
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

IMPLEMENTATION ON SOBEL FIELD-PROGRAMMABLE GATE ARRAY DETECTOR FOR IDENTIFICATION OF VEHICLES

13-15 – 13-30

N. K. Tagieva, O. Yu. Ulitich, A. Yu. Gorelov, A. I. Salagubov
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

INFRASTRUCTURE AND MONITORING OF THE STATE OF THE ROAD NETWORK IN THE NORTHERN REGIONS

13-30 – 13-45

V. A. Zorin, Nguyen Trong Minh
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

PREDICTION OF RESIDUAL LIFE OF CONSTRUCTION MACHINERY HYDRAULIC CYLINDERS BY MEANS OF SIMULATION RESULTS

13-45 – 14-30
DINNER

November 12, 2021

CHAPTER 7.
Digital technologies in logistics

CHAIRMENS: D.B. Efimenko, *Doctor of Technical Sciences, Professor, Acting rector of MADI*

V.A. Demin, *Doctor of Technical Sciences, Acting head of the department "Logistics"*

14-30 – 14-45
Igor A. Bashmakov, Sergei A. Braginskii, Ekaterina Yu. Faddeeva, Maksim I. Malyshev
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
A TECHNOLOGICAL MANAGEMENT CONCEPT IN DIGITAL LOGISTICS

14-45 – 15-00
V. N. Bogumil, J. E. Kasimov
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
THE USE OF RULES BASED ON FUZZY LOGIC TO AUTOMATE THE WORK OF THE DRIVER TO CONTROL THE MOVEMENT OF THE VEHICLE ALONG THE ROUTE

15-00 – 15-15
Sergey A. Filatov, Tatiana A. Krutova
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
Elena V. Roditelskaya
Russian Customs Academy (RTA), Lyubertsy, Russia
Ekaterina S. Barabanova
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
DIGITAL ANALYTICAL MODEL FOR ESTIMATING SALES SPEED DELIVERY OF FOREIGN TRADE GOODS BY ROAD

15-15 – 15-30

M. I. Malyshev, S. A. Braginsky, E. Yu. Faddeeva, S. S. Gogolin
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

ARTIFICIAL NEURAL NETWORK DETECTION OF DAMAGED GOODS BY PACKAGING STATE

15-30 – 15-45

Valery V. Mashkov, Dmitry G. Moroz, Alexander A. Chernyshev
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

TRANSPORT INDUSTRY DIGITAL DEVELOPMENT INDEX

15-45 – 16-00

Artem I. Zhukov, Dmitry G. Moroz
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

SIMULATION MODELING OF A BUS ROUTE

16-00– 16-15
DISCUSSION AND QUESTIONS

November 12, 2021

CHAPTER 8.
Intelligent technologies for special-purpose vehicles creation and operation

CHAIRMENS: A.N. Sova, *Doctor of Technical Sciences, Professor of the Department "Transport Installations", MADI*

G.S. Mazlumyan, *Candidate of Technical Sciences, Head of the Department "Transport Installations", MADI*

16-15 – 16-30

Sergey A. Eruslankin, Oleg A. Valyaev, Grigory S. Mazlumyan
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

THE ANALYSIS OF PROPERTIES AND FUNCTIONS OF POWER FLUIDS FOR HYDRAULIC SYSTEMS OF SPECIAL PURPOSE VEHICLES

16-30 – 16-45

Aleksandr V. Katarzhin, Sergei A. Zolotoy
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

ANALYSIS OF KNOWN METHODS FOR IMPROVING THE OPERATIONAL CHARACTERISTICS OF ELECTRIC CURRENT RECTIFIERS AND WAYS OF THEIR FURTHER DEVELOPMENT

16-45 – 17-00

Yuri L. Krasnobaev
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia
V. Yu. Meleshko
N. N. Semenov Institute of Chemical Physics of the Russian Academy of Sciences, Moscow, Russia
Sergey A. Yeruslankin
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

CHOOSING TECHNOLOGIES FOR USE IN THE DEVELOPMENT OF SPECIAL-PURPOSE VEHICLES

17-00 – 17-15

Grigory S. Mazlumyan, Sergey A. Eruslankin, Roman V. Yushchuk
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

EVALUATION OF THE EFFECT OF THE WORKING FLUID DENSITY ON THE CHARACTERISTICS OF THE TORQUE CONVERTER

17-15 – 17-30

V. Yu. Meleshko
N. N. Semenov Institute of Chemical Physics of the Russian Academy of Sciences, Moscow, Russia
Yuri L. Krasnobaev, Grigory S. Mazlumyan
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

DEVELOPMENT OF HAZARD CLASS DETERMINATION METHOD FOR SUBSTANCES GENERATED IN OPERATION OF SPECIAL-PURPOSE VEHICLES

17-30 – 17-45

Roman V. Yuschuk, Oleg A. Valyaev, Aleksandr N. Sova
Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

METHODOLOGY FOR COMPARATIVE EVALUATION OF PERFORMANCE OF IMPROVED HYDRAULIC POWER PACKS OF HEAVY-DUTY VEHICLE TRANSMISSIONS

17-45 – 18-00
DISCUSSION AND QUESTIONS

18-00– 18-15
CONFERENCE RESULTS