

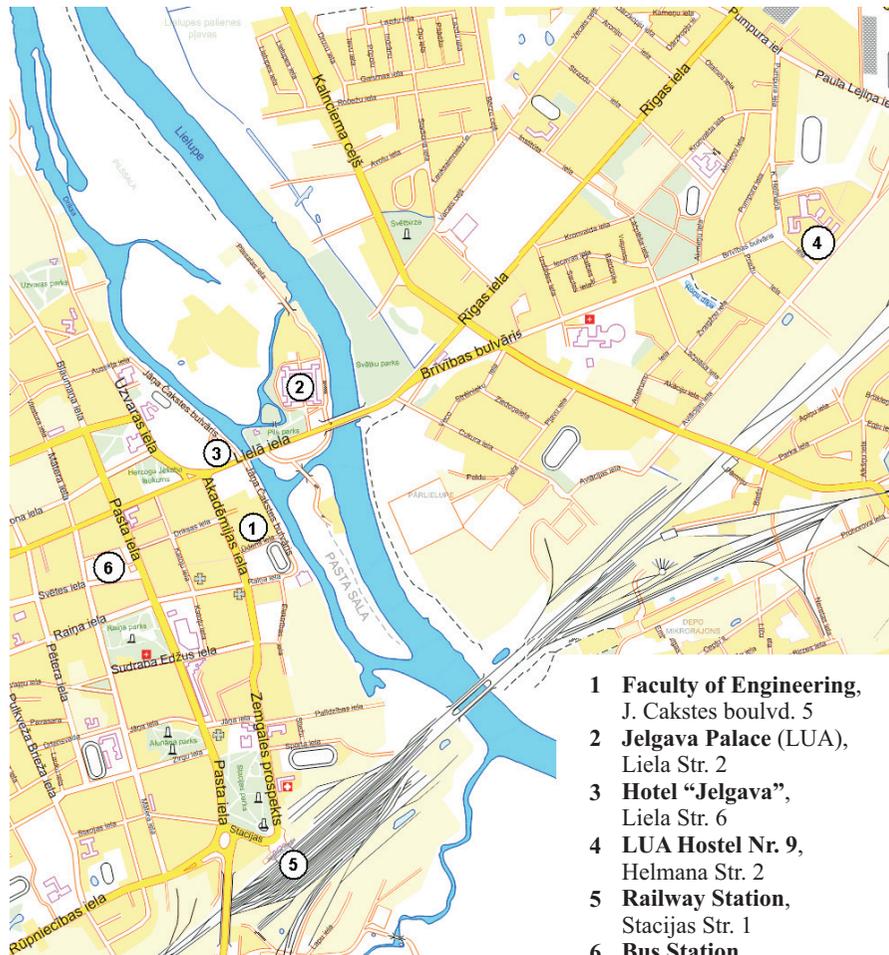
Latvia University of Life Sciences and Technologies  
Faculty of Engineering  
Latvian Academy of Agricultural and Forestry Sciences



17<sup>th</sup> International Scientific Conference

# ENGINEERING FOR RURAL DEVELOPMENT

## PROGRAMME



- 1 Faculty of Engineering,  
J. Cakstes boulvd. 5
- 2 Jelgava Palace (LUA),  
Liela Str. 2
- 3 Hotel "Jelgava",  
Liela Str. 6
- 4 LUA Hostel Nr. 9,  
Helmana Str. 2
- 5 Railway Station,  
Stacijas Str. 1
- 6 Bus Station,  
Pasta Str. 26



Jelgava, Latvia, May 23 – 25, 2018

**Latvia University of Life Sciences and Technologies  
Faculty of Engineering  
Latvian Academy of Agricultural and Forestry Sciences**

**17<sup>th</sup> International Scientific Conference  
ENGINEERING FOR RURAL  
DEVELOPMENT  
PROGRAMME**

**Jelgava, Latvia, May 23 – 25, 2018**

## Program Committee, Organising Committee

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### PROGRAM COMMITTEE

- Chairman:** Aivars Aboltins, *Latvia University of Life Sciences and Technologies, Latvia*
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Dainis Viesturs, *Latvia University of Life Sciences and Technologies, Latvia*  
Mareks Šmits, *Latvia University of Life Sciences and Technologies, Latvia*

## Timetable

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### Wednesday, May 23

- 16<sup>00</sup> – 18<sup>00</sup> Registration, welcome party, coffee and snacks,  
Faculty of Engineering, LUA, 5 J. Cakstes blvd., 2<sup>nd</sup> floor, Room 254

### Thursday, May 24

- 9<sup>00</sup> – 10<sup>00</sup> Registration of participants,  
Faculty of Engineering, LUA, 5 J. Cakstes blvd., 2<sup>nd</sup> floor, Room 254
- 10<sup>00</sup> – 12<sup>10</sup> Opening of the conference and plenary session  
Faculty of Engineering, LUA, 5 J. Cakstes blvd., 4<sup>th</sup> floor, Room 429
- Chairman:** Dr.sc.ing. Aivars Aboltins, *Latvia University of Life Sciences and Technologies*  
**Vice-chairman:** Dr. sc.ing. Janis Palabinskis, *Latvia University of Life Sciences and Technologies*
- 10<sup>00</sup> – 10<sup>05</sup> WELCOME SPEECH, SOME FACTS ABOUT CONFERENCE  
**Aivars Aboltins**, *Program committee chairman*
- 10<sup>05</sup> – 10<sup>15</sup> OPENING WELCOME  
**Irina Pilvere**, *Rector, Latvia University of Life Sciences and Technologies*
- 10<sup>15</sup> – 10<sup>20</sup> OPENING WELCOME  
**Ilmars Dukulis**, *Dean, Faculty of Engineering, Latvia University of Life Sciences and Technologies*
- 10<sup>20</sup> – 10<sup>50</sup> ATTITUDES OF LATVIAN CONSUMERS TO TRADITIONAL AND ECO-FRIENDLY FOOD PACKAGING MATERIALS: A 10-YEAR COMPARISON  
**Sandra Muizniece-Brasava, Asnate Kirse**,  
*Latvia University of Life Sciences and Technologies*
- 10<sup>50</sup> – 11<sup>20</sup> OVERVIEW OF COMBINE HARVESTER AND TRACTOR STRUCTURE ON FARMS IN THE CZECH REPUBLIC  
**Jiri Masek, Petr Novak**, *Czech University of Life Sciences Prague*
- 11<sup>20</sup> – 11<sup>50</sup> SCIENTIFIC SUBSTANTIATION OF THE TILLAGE SYSTEM BASED ON THE PHENOMENON OF TERMOELECTROKINEZIS  
**Andrei Kalinin, Igor Teplinsky, Vyacheslav Ruzhev**,  
*Saint-Petersburg State Agrarian University, Russia*
- 11<sup>50</sup> – 13<sup>00</sup> Photo, Lunch
- 13<sup>00</sup> – 15<sup>30</sup> Work in sections: *presentations 10 minutes, discussions 5 minutes*
- 15<sup>30</sup> – 16<sup>00</sup> Coffee break
- 16<sup>00</sup> – 18<sup>30</sup> Work in sections: *presentations 10 minutes, discussions 5 minutes*
- 19<sup>00</sup> Conference dinner.  
5 J. Cakstes blvd., Room 254

## Timetable

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### Friday, May 25

- 10<sup>00</sup> – 11<sup>00</sup> Marathon of Electric Vehicles, presentation of Electric Vehicles and charging possibilities from alternative energy charging station.
- 11<sup>00</sup> – 17<sup>00</sup> Excursion to Tervete

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## Section 1: Agricultural machinery and husbandry

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5 J.Čakstes blvd., Room 403

Chairman: Dr.sc.ing. **Semjons Ivanovs**, *Latvia University of Agriculture, Latvia*

Vice-chairman: Dr.sc.ing. **Atilgan Atilgan**, *Suleyman Demirel University, Turkey*

- 1 FIELD EXPERIMENTAL INVESTIGATIONS OF PERFORMANCE-AND-TECHNOLOGICAL INDICATORS OF OPERATION OF SWATH HEADER ASYMMETRIC MACHINE-AND-TRACTOR AGGREGATE  
**Volodymyr Bulgakov, Volodymyr Nadykto, Hryhorij Kaletnik, Semjons Ivanovs**  
*National University of Life and Environmental Sciences of Ukraine, Ukraine; Tavria State Agrotechnological University, Ukraine; Vinnytsia National Agrarian University, Ukraine; Latvia University of Life Sciences and Technologies, Latvia*
- 2 STABILITY ANALYSIS OF PLATFORMS FOR PICKING FRUIT ACCORDING TO FORTHCOMING STANDARD EN 16952: A CASE STUDY  
**Francesco Santoro, Edmund Lorencowicz, Alexandros Sotirios Anifantis, Simone Pascuzzi**  
*University of Bari Aldo Moro, Italy; University of Life Sciences in Lublin, Poland*
- 3 UNMANNED AERIAL VEHICLE USED FOR REMOTE SENSING ON AN APULIAN FARM IN SOUTHERN ITALY  
**Simone Pascuzzi, Alexandros Sotirios Anifantis, Vincenzo Cimino, Francesco Santoro**  
*University of Bari Aldo Moro, Italy*
- 4 ANALYSIS OF SOIL TILLAGE BY PLOUGHS AND OPTIMISATION OF THEIR AGGREGATION  
**Iryna Novakovska, Volodymyr Bulgakov, Adolfs Rucins, Ilmars Dukulis**  
*National Aviation University, Ukraine; National University of Life and Environmental Sciences of Ukraine, Ukraine; Latvia University of Life Sciences and Technologies, Latvia*
- 5 MATHEMATICAL DESCRIPTION OF TRACTOR SLIPPAGE WITH VARIABLE TIRE INFLATION PRESSURE  
**Algirdas Janulevicius, Gediminas Pupinis, Antanas Juostas**  
*Aleksandras Stulginskis University, Lithuania*
- 6 EFFECT OF BIOLOGICAL PREPARATION ON CHANGES IN SOIL ORGANIC CARBON AND ITS ENVIRONMENTAL IMPACT APPLYING PRECISION FARMING  
**Darius Juknevičius, Egidijus Sarauskis, Daiva Rimkuvienė, Julija Rukaite, Davut Karayel**  
*Aleksandras Stulginskis University, Lithuania; Akdeniz University, Turkey*
- 7 IMPACT OF SOIL TILLAGE INTENSITY ON FABA BEAN CULTIVATION  
**Kestutis Romanekas, Rasa Kimbirauskienė, Aida Adamaviciene, Algirdas Jasinskas, Egidijus Sarauskis**  
*Aleksandras Stulginskis University, Lithuania*
- 8 ACTIVATORS OF BIOLOGICAL TRANSFORMATION AND THEIR EFFECT ON MANURE QUALITY  
**Oldrich Latal, Petr Novak, Petr Sarec**  
*Agrovýzkum Rapotín s.r.o., Czech Republic; Czech University of Life Sciences Prague, Czech Republic*

## Section 1: Agricultural machinery and husbandry

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- 9 CHANGES IN TECHNICAL SUPPORT ON FARMS OF LATVIA  
**Nikolajs Kopiks, Dainis Viesturs, Adolfs Rucins**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 10 INFLUENCE OF HOUSING TECHNOLOGY ON DUST LEVEL IN COWSHEDS  
**Pavel Kic**  
*Czech University of Life Sciences Prague, Czech Republic*
- 11 SUBSTANTIATION OF TILLAGE METHODS AIMED AT RATIONAL USAGE OF WATER RESOURCES  
**Andrei Kalinin, Igor Teplinsky, Anatoly Ustroev**  
*Saint-Petersburg State Agrarian University, Russia; Institute for Engineering and Environmental Problems in Agricultural Production, Russia*
- 12 DETERMINATION OF HEATING AND COOLING DEGREE-DAY VALUES AND HEATING AND COOLING-DAYS IN BROILER HUSBANDRY: CENTRAL ANATOLIAN CASE  
**Atilgan Atilgan, Ali Yucel, Burak Saltuk**  
*Suleyman Demirel University, Turkey; Osmaniye Korkut Ata University, Turkey; Siirt University, Turkey*
- 13 INFLUENCE OF CONTROLLED FIELD TRAFFIC ON SOIL QUALITY INDICATORS  
**Dumitru Gutu, Josef Hula, Petr Novak, Stanislav Kovar**  
*Czech University of Life Sciences Prague, Czech Republic*
- 14 RESEARCH IN RAKE TINES WEAR  
**Jan Kaminski, Michal Sypula, Jaroslaw Chlebowski, Tomasz Nowakowski**  
*Warsaw University of Life Sciences, Poland*
- 15 AMMONIA EMISSIONS REDUCTION POSSIBILITIES FROM DAIRY FARMS  
**Juris Priekulis, Ligita Melece**  
*Latvia University of Life Sciences and Technologies, Latvia; Institute of Agricultural Resources and Economics, Latvia*
- 16 PROFITABILITY OF USAGE OF AUTOMATIC MILKING SYSTEMS  
**Juris Priekulis, Armins Laurs, Maris Rozentals, Kristaps Cinglers**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 17 RESEARCH IN MILKING INTERVALS APPLYING DIFFERENT TYPES OF MILKING PARLOURS  
**Armins Laurs, Juris Priekulis, Maris Rozentals**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 18 EVALUATION OF IMPACT OF COVER MATERIALS ON REDUCTION OF WATER EROSION OF SOIL IN VINEYARDS  
**Patrik Burg, Vladimir Masan, Alice Cizkova, Vladimir Visacki**  
*Mendel University in Brno, Czech Republic; University of Novi Sad, Serbia*

## Section 1: Agricultural machinery and husbandry

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- 19 EFFECTS OF TOMATO HARVEST RESIDUE DERIVED BIOCHARS OBTAINED FROM DIFFERENT PYROLYSIS TEMPERATURE AND DURATION ON PLANT GROWTH AND NUTRIENT CONCENTRATIONS OF CORN  
**Ibrahim Erdal, Murat Memici, Ahmet Dogan, Cennet Yaylaci, Kamil Ekinci**  
*University of Suleyman Demirel, Turkey*
- 20 INFLUENCE OF REAR NOZZLE ON SPRINKLER IRRIGATION UNIFORMITY  
**Wieslaw Ptach, Stanislaw Rolbiecki, Roman Rolbiecki, Vilda Grybauskiene, Barbara Jagosz**  
*Warsaw University of Life Sciences, Poland; UTP University of Science and Technology in Bydgoszcz, Poland; Aleksandras Stulginskis University, Lithuania; University of Agriculture in Krakow, Poland*
- 21 MANIFESTATION OF EFFECT OF FLUCTUATING ASYMMETRY OF BILATERAL TRAITS OF TOMATO GROWING IN INDUSTRIAL GREENHOUSES  
**Sergey Rakutko, Ina Alsina, Ansis Avotins, Kristina Berzina**  
*Institute for Engineering and Environmental Problems in Agricultural Production, Russia; Latvia University of Life Sciences and Technologies, Latvia; Riga Technical University, Latvia*

## Section 2: Renewable and conventional energy, GHG emission

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5 J.Cakstes blvd., Room 429

Chairman: Dr.sc.ing. **Imants Ziemelis**, *Latvia University of Agriculture, Latvia*  
Vice-chairman: Dr.sc.ing. **Andres Annuk**, *Estonian University of Life Sciences, Estonia*

- 1 PERFORMANCE OF PHOTOVOLTAIC AND GROUND SOURCE HEAT PUMP SYSTEM FOR DAYTIME COOLING OF MUSHROOM GREENHOUSE DURING SUMMER: PRELIMINARY ANALYSIS  
**Alexandros Sotirios Anifantis, Artur Przywara, Simone Pascuzzi, Francesco Santoro**  
*University of Bari Aldo Moro, Italy; University of Life Sciences in Lublin, Poland*
- 2 GREENHOUSE GAS EMISSION FROM POLISH AGRICULTURE IN YEARS 2007-2016  
**Paulina Mielcarek, Wojciech Rzeznik**  
*Institute of Technology and Life Sciences, Poland*
- 3 AGRICULTURAL BIOGAS PLANTS IN POLAND  
**Wojciech Rzeznik, Paulina Mielcarek**  
*Institute of Technology and Life Sciences, Poland*
- 4 EVALUATION OF FODDER BEAN WASTE UTILIZATION FOR ENERGY PURPOSES  
**Aleksandra Minajeva, Algirdas Jasinskas, Kestutis Romaneckas, Aivars Aboltins**  
*Vilnius College of Technologies and Design, Lithuania; Aleksandras Stulginskis University, Lithuania; Latvia University of Life Sciences and Technologies, Latvia*
- 5 AGGREGATOR AS COST OPTIMIZATION TOOL FOR ENERGY DEMAND  
**Madara Zvirgzdina, Olga Bogdanova, Jurijs Spiridonovs**  
*Riga Technical University, Latvia; Riga International School of Economics and Business Administration, Latvia*
- 6 INVOLVING RENEWABLE ENERGY SOURCES IN GENERATING PROCESS: EXAMPLE OF KAZAKHSTAN  
**Vladislav Zavadskiy, Gita Revalde**  
*Almaty University of Power Engineering and Telecommunication, Kazakhstan; Riga Technical University, Latvia*
- 7 PERFORMANCE COMPARISON BETWEEN FUEL CELL COUPLED WITH GEOTHERMAL SOURCE HEAT PUMP AND GEOTHERMAL SOURCE GAS ENGINE HEAT PUMP SYSTEM FOR GREENHOUSE HEATING: A MATHEMATICAL STUDY  
**Alexandros Sotirios Anifantis, Simone Pascuzzi, Francesco Santoro**  
*University of Bari Aldo Moro, Italy*
- 8 INVESTIGATIONS OF BIOGAS PRODUCTION POTENTIAL FROM GRASS HAY PELLETS  
**Vilis Dubrovskis, Imants Plume, Indulis Straume**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 9 METHANE PRODUCTION FROM BREAD KURSU AND POTATOES VINETA WASTE AND EFFECT OF CATALYST METAFERM  
**Vilis Dubrovskis, Imants Plume, Indulis Straume**  
*Latvia University of Life Sciences and Technologies, Latvia*

## Section 2: Renewable and conventional energy, GHG emission

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- 10 CO-FERMENTATION OF CARROTS, GRAIN RESIDUES AND POTATO CHIPS  
**Vilis Dubrovskis, Imants Plume, Indulis Straume**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 11 INFLUENCE OF NITROGEN FERTILIZER ON GRASS BIOMASS YIELD AND AMOUNT OF ENERGY GAINED PER AREA UNIT  
**Aleksandrs Adamovics, Rasma Platace, Inguna Gulbe**  
*Latvia University of Life Sciences and Technologies, Latvia; Institute of Agricultural Resources and Economics - "Priekuli", Latvia*
- 12 USE OF PV PANELS FOR WATER HEATING IN ULBROKA RESEARCH CENTRE  
**Ilze Pelece, Imants Ziemelis, Henriks Putans, Liene Kancevica**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 13 AERIAL SOLAR COLLECTOR USAGE IN DRYING TECHNOLOGIES OF MEDICINAL AND SPICE PLANTS  
**Ausra Cipliene, Egidijus Zvicevicius, Algirdas Raila**  
*Aleksandras Stulginskis University, Lithuania*
- 14 SOLAR TECHNOLOGIES APPLICATION IN MILK PRODUCTION  
**Andrejs Snegirjovs, Kristina Lebedeva, Galina Kashkarova, Peteris Shipkovs**  
*Institute of Physical Energetics, Latvia*
- 15 INDICATOR-BASED ANALYSIS OF SOCIALLY SENSITIVE AND TERRITORIAALLY SUSTAINABLE DEVELOPMENT IN RELATION TO HOUSEHOLD ENERGY CONSUMPTION  
**Jan Kazak, Halina Dziezyc, Iwona Forys, Szymon Szewranski**  
*Wroclaw University of Science and Technology, Poland; University of Szczecin, Poland*
- 16 RURAL BIOENERGY SUSTAINABLE DEVELOPMENT THROUGH TRANSITION TO TRIGENERATIONS  
**Dmitrijs Rusovs, Sigurds Jaundalders, Peteris Stanka**  
*Riga Technical University, Latvia*
- 17 COMPARATIVE ANALYSIS OF REACTIVE ENERGY REGULATIONS  
**Arvids Jakusenoks, Aigars Laizans**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 18 SOLAR TRACKING STAND FOR SOLAR PANELS AND COLLECTORS  
**Henriks Putans, Imants Ziemelis, Ilze Pelece, Andrejs Snegovs**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 19 EVALUATING ELECTRICITY SELF-CONSUMPTION IN DIFFERENT RENEWABLE ENERGY SUPPLY CONDITIONS  
**Andres Annuk, Erkki Jogi, Janar Kalder, Alo Allik**  
*Estonian University of Life Sciences, Estonia*
- 20 ANALYSIS OF LOCAL AGRICULTURAL BIOMASS RESOURCES IN WARMIA AND MAZURY VOIVODSHIP  
**Stanislaw Bielski, Marek Marks**  
*University of Warmia and Mazury in Olsztyn, Poland*

## Section 3: Engineering technologies and material sciences

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- 5 J.Cakstes blvd., Room 410  
Chairman: Dr.sc.ing. **Ainars Galins**, *Latvia University of Agriculture, Latvia*  
Vice-chairman: Dr. hab.sc.ing. **Tomasz Lipinski**, *University of Warmia and Mazury in Olsztyn, Poland*
- 1 REVIEW ON STRUCTURAL HEALTH INTERROGATION USING FIBER BRAGG GRATING SENSORS  
**Peteris Skels, Rims Janeliukstis, Viktors Haritonovs**  
*Riga Technical University, Latvia*
  - 2 THE CONTENT OF CARBON AND HYDROGEN IN GRASS BIOMASS AND ITS INFLUENCE ON HEATING VALUE  
**Aleksandrs Adamovics, Rasma Platace, Inguna Gulbe, Semjons Ivanovs**  
*Latvia University of Life Sciences and Technologies, Latvia; Institute of Agricultural Resources and Economics - "Priekuli", Latvia*
  - 3 AUTOMATED 3D RECONSTRUCTION OF RURAL BUILDINGS FROM STRUCTURE-FROM-MOTION (SFM) PHOTOGRAMMETRY APPROACH  
**Andrea Pezzuolo, Domenico Giora, Luigi Sartori, Stefano Guercini**  
*University of Padova, Italy*
  - 4 4G NETWORK PERFORMANCE ANALYSIS FOR REAL-TIME TELEMETRY DATA TRANSMITTING TO MOBILE AGRICULTURAL ROBOT  
**Andris Roberts, Aldis Pecka**  
*Latvia University of Life Sciences and Technologies, Latvia*
  - 5 HIGH FREQUENCY TWO-PLATE CAPACITIVE WIRELESS POWER TRANSFER SYSTEM  
**Kaspars Kroics, Janis Voitkans**  
*Riga Technical University, Latvia*
  - 6 EVALUATION OF USE OF BIOGAS PLANT DIGESTATE AS FERTILIZER IN ALFALFA AND WINTER WHEAT  
**Milan Koszel, Artur Przywara, Francesco Santoro, Alexandros Sotirios Anifantis**  
*University of Life Sciences in Lublin, Poland; University of Bari Aldo Moro, Italy*
  - 7 POWER INVERTERS IN FORM OF MICROMODULE WITH DIRECT LIQUID COOLING  
**Alexander Krainyukov, Rodions Saltanovs**  
*SIA "ElGoo Tech", Latvia; Riga Technical University, Latvia*
  - 8 UNINTERRUPTED POWER SUPPLY BATTERY LIFE CYCLE SYSTEM DEVELOPMENT  
**Guntars Strods, Aldis Pecka**  
*Latvia University of Life Sciences and Technologies, Latvia*
  - 9 USE OF REMOTELY PILOTED AERIAL SYSTEMS (R.P.A.S.) FOR WILDLIFE MONITORING  
**Veronica Racanelli, Sara Bartolozzi, Emanuele Sorbetti Guerri, Francesco Sorbetti Guerri**  
*University of Florence, Italy*
  - 10 INFLUENCE OF SIZE AND DISTANCES BETWEEN IMPURITIES ON FATIGUE STRENGTH STRUCTURAL STEEL FOR AGRICULTURAL MACHINES  
**Tomasz Lipinski**  
*University of Warmia and Mazury in Olsztyn, Poland*

### Section 3: Engineering technologies and material sciences

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- 11 ASSESSMENT OF ORGANIC GRANULATED MANURE FERTILIZERS FRICTIONAL PROPERTIES  
**Egle Jotautiene, Vaidas Bivainis, Raimonda Zinkeviciene, Aivars Aboltins**  
*Aleksandras Stulginskis University, Lithuania; Kaunas University of Technology, Lithuania; Latvia University of Life Sciences and Technologies, Latvia*
- 12 HARDENING OF PARTS OF AGRICULTURAL MACHINERY WITH LASER MICROALLOYING  
**Alexander Pastukhov, Olga Sharaya, Nataliia Vodolazskaya, Alexan Minasyan**  
*Belgorod State Agricultural University named after V. Gorin, Russia*
- 13 INDIRECT INDUCTION MOTOR STATOR WINDING TEMPERATURE ESTIMATION  
**Aleksejs Gedzurs**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 14 NANOCOMPOSITES AND THEIR USE IN TECHNICAL PRACTICE  
**Jan Novotny, Martin Jaskevic**  
*J. E. Purkyne University in Usti nad Labem, Czech Republic*
- 15 COMPARISON OF PRODUCTIVITY OF STANDARD AND ACCUMULATING FORWARDER GRAPPLE IN THINNING  
**Guna Petaja, Santa Kaleja, Agris Zimelis, Andis Lazdins**  
*Latvian State Forest Research Institute "Silava", Latvia*
- 16 INCREASE OF FORWARDING PRODUCTIVITY AND REDUCTION OF TREE DAMAGES IN THINNING BY USE OF LOADING GRAPPLE WITH TILT FUNCTION  
**Santa Kaleja, Guna Petaja, Agris Zimelis, Kalvis Puzuls**  
*Latvian State Forest Research Institute "Silava", Latvia*
- 17 SIMPLIFIED METHOD FOR PREDICTING AND PREVENTING WELDING JOINTS INDUCED TRANSVERSE DEFORMATION IN PLATES  
**Gunars Verdins, Valdis Kleinbergs, Martins Ziemelis**  
*Latvia University of Life Sciences and Technologies, Latvia; "Evecra" Ltd, Latvia*
- 18 TECHNOLOGY AND ENERGY BALANCE IN STUMP HARVESTING WITH MCR500  
**Agris Zimelis, Linards Sisenis, Ziedonis Sarmulis, Sergey Ariko**  
*Latvian State Forest Research Institute "Silava", Latvia; Latvia University of Life Sciences and Technologies, Latvia; Belarusian State Technological University, Belarus*
- 19 POTENTIAL FOR IMPROVING OPERATIONAL EFFICIENCY OF ROBOTIC SYSTEMS UTILIZING COST EFFECTIVE CORE-LESS WIRELESS CHARGING SYSTEMS  
**Leslie R. Adrian, Aivars Rubenis**  
*"Lesla" Ltd, Latvia; Riga Technical University, Latvia*
- 20 POTENTIAL FOR IMPROVING ECONOMIC FEASIBILITY OF AUTONOMOUS ROBOTIC SYSTEMS BY USING WIRELESS CHARGING SYSTEMS  
**Aivars Rubenis, Leslie R. Adrian, Aigars Laizans**  
*"Lesla" Ltd, Latvia; Latvia University of Life Sciences and Technologies, Latvia*

### Section 4: Transport, mechanisms, fuels

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5 J.Cakstes blvd., Room 327

Chairman: Dr.sc.ing. **Gints Birzietis**, *Latvia University of Agriculture, Latvia*

Vice-chairman: Dr.sc.ing. **Irina Belinskaia**, *Saint-Petersburg State Agrarian University, Russia*

- 1 COMPARISON OF ELECTRICITY AND FOSSIL FUEL CONSUMPTION IN TROLLEYBUSES AND BUSES  
**Ivana Hurtova, Marie Sejkorova, Jan Verner, Bronislav Sarkan**  
*University of Pardubice, Czech Republic; University of Āzilina, Slovakia*
- 2 DEVELOPMENT OF HEAT EXCHANGE REACTOR FOR PREPARATION OF AIR-FUEL MIXTURE IN SPARK IGNITION ENGINE  
**Veljo Raide, Risto Ilves, Arne Kuut, Juri Olt**  
*Estonian University of Life Sciences, Estonia*
- 3 EFFICACY OF SERPENTINE-TYPE ANTI-FRICTION ADDITIVES IN PERFORMANCE IMPROVEMENT OF FRICTION PAIRS  
**Irina Belinskaia, Alexander Evseev**  
*Saint-Petersburg State Agrarian University, Russia*
- 4 ANALYSIS OF RAIL PROFILE 60 E1 JOINTS WELDED BY MEANS OF MOBILE RAIL WELDING MACHINE  
**Pavel Gavrilov, Viktor Ivanov**  
*Riga Technical University, Latvia*
- 5 TRACKED VEHICLE MOVEMENT MODELLING  
**Michal Sojka, Stefan Cornak**  
*University of Defence in Brno, Czech Republic*
- 6 COMPARISON OF CVS AND PEMS MEASURING DEVICES USED FOR STATING CO<sub>2</sub> EXHAUST EMISSIONS OF LIGHT-DUTY VEHICLES DURING WLTP TESTING PROCEDURE  
**Jan Verner, Marie Sejkorova**  
*University of Pardubice, Czech Republic*
- 7 EXPERIMENTAL STUDY ON INJECTION CHARACTERISTICS OF DIESEL AND BIODIESEL FUEL BLENDS WITH COMMON RAIL INJECTION SYSTEM  
**Stasys Slavinskas, Gvidonas Labeckas, Tomas Mickevicius**  
*Aleksandras Stulginskis University, Lithuania*
- 8 PREFERENCE AND AREA COORDINATION OF PUBLIC TRANSPORT IN MODERN CITY  
**Ivana Hurtova, Marie Sejkorova, Jan Verner, Michal Kucera**  
*University of Pardubice, Czech Republic; University of Defence in Brno, Czech Republic*
- 9 CALCIUM AND ITS USING FOR MODIFICATION OF ALSI7MG0.3 ALLOY FROM VIEW OF FINAL MICROSTRUCTURE AND HARDNESS  
**Natasa Naprstkova, Pavel Kraus, Dana Stancekova**  
*J. E. Purkyne University in Usti nad Labem, Czech Republic; University of Zilina, Slovakia*

#### Section 4: Transport, mechanisms, fuels

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- 10 VIBRATION OF FOUNDATION FOR ROTARY SCREW COMPRESSORS INSTALLED ON SKID MOUNTING  
**Marina Cerpinska, Martins Irbe, Rihards Elmanis-Helmanis**  
*Riga Technical University, Latvia*
- 11 IDENTIFICATION OF OPERATING FLUIDS WITH FINGERPRINT METHOD UTILIZATION  
**Stefan Cornak**  
*University of Defence in Brno, Czech Republic*
- 12 DIESEL GAS DUAL ENGINE WITH LIQUID LPG INJECTION INTO INTAKE MANIFOLD  
**Ales Dittrich, Stanislav Beroun, Tomas Zvolsky**  
*Technical University at Liberec, Czech Republic*
- 13 PRACTICAL METHODOLOGY FOR CALCULATION OF SPECIFIC GASEOUS EMISSIONS  
**Maris Gailis, Ilmars Dukulis, Vilnis Pirs, Gints Birzietis**  
*Riga Technical University, Latvia; Latvia University of Life Sciences and Technologies, Latvia*
- 14 SPECIFIC ASPECTS OF ACTIVE AND SEMI-ACTIVE SUSPENSIONS  
**Martin Maloch, Stefan Cornak**  
*University of Defence in Brno, Czech Republic*
- 15 IMPROVEMENT DRIVING CHARACTERISTICS OF ELECTRIC TRICYCLE  
**Jan Dizo, Dalibor Barta, Miroslav Blatnický**  
*University of Zilina, Slovakia*
- 16 ENERGY USE EFFICIENCY OF ELECTRIC AUTOMOBILE DEPENDING ON TRANSMISSION GEAR RATIO  
**Dainis Berjoza, Vilnis Pirs, Inara Jurgena, Janis Laceklis-Bertmanis**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 17 DEVELOPMENT AND OPTIMIZATION OF SOIL TREATMENT EQUIPMENT  
**Boris Tarasenko, Sergei Oskin**  
*Kuban State Agrarian University, Russia*
- 18 INFLUENCE OF TIME ON PHTHALATE ESTERS CONCENTRATIONS IN VEHICLE PLASTIC MATERIALS DURING VEHICLE OPERATION  
**Michal Kucera, Marcela Jandlova, Alzbeta Jarosova, Stefan Cornak**  
*University of Defence in Brno, Czech Republic; Mendel University in Brno, Czech Republic*
- 19 INVESTIGATIONS OF ENGINE CHARACTERISTICS BY EXHAUST GASES COMPOSITION CHANGE  
**Tamara Salova, Igor Ostyuchenko**  
*Saint-Petersburg State Agrarian University, Russia*
- 20 VEHICLE SPEED AND ROAD LIGHTING LEVEL INFLUENCE ON TRAFFIC SAFETY IN AGGLOMERATIONS AT DARK TIME  
**Ricardas Butkus, Gediminas Vasiliauskas**  
*Aleksandras Stulginskis University, Lithuania*
- 21 ANALYSIS OF IMPACT OF REGISTRATION FEE IN THE CZECH REPUBLIC  
**Frantisek Sejkora**  
*University of Pardubice, Czech Republic*

#### Section 5: CAD technologies, control systems and mathematical modeling

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5 J.Cakstes blvd., Room 212

Chairman: Dr.sc.ing. **Aivars Aboltins**, *Latvia University of Agriculture, Latvia*

Vice-chairman: Dr.hab.math. **Harijs Kalis**, *Institute of Mathematics and Computer Science, Latvia*

- 1 ASSESSMENT OF OPERABILITY OF COMPRESSOR CRANKSHAFT  
**Alexander Pastukhov, Aleksandr Kolesnikov, Dmitriy Bakharev, Irina Berezhnaya**  
*Belgorod State Agricultural University named after V. Gorin, Russia*
- 2 SOIL SAMPLING AUTOMATION CASE-STUDY USING UNMANNED GROUND VEHICLE  
**Eero Vaeljaots, Meelik Kiiik, Tonu Leemet, Henri Lehiste**  
*Tallinn University of Technology, Estonia; University of Tartu, Estonia; Estonian University of Life Sciences, Estonia*
- 3 MOBILE ROBOT MOVEMENT PLANNING AND CONTROL INTELLIGENT SYSTEM IN UNKNOWN ENVIRONMENT  
**Andrius Nemeiksis, Vitalijs Osadcuks**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 4 COMMON REED BRIQUETTING MODELING  
**Edgars Repsa, Eriks Kronbergs**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 5 LINEAR STABILITY ANALYSIS OF CONVECTIVE FLOW IN PIPE DUE TO RADIALY DISTRIBUTED HEAT SOURCES  
**Valentina Koliskina, Andrei Kolyshkin**  
*Riga Technical University, Latvia*
- 6 DEVELOPMENT OF COMBUSTION DYNAMICS AT CO-COMBUSTION OF STRAW WITH WOOD  
**Harijs Kalis, Antons Kolmickovs, Maksims Marinaki, Liva Ozola**  
*Institute of Mathematics and Computer Science, University of Latvia, Latvia; Institute of Physics, University of Latvia, Latvia*
- 7 INFLUENCE OF ELECTRIC FIELD ON THERMO-CHEMICAL CONVERSION OF MIXTURES OF STRAW PELLETS WITH COAL  
**Harijs Kalis, Maksims Marinaki, Uldis Strautins, Inesa Barmina**  
*Institute of Mathematics and Computer Science, University of Latvia, Latvia; Institute of Physics, University of Latvia, Latvia*
- 8 DYNAMICS ANALYSIS OF FLAPPING WING ACTUATOR  
**Janis Viba, Valters Cipruss, Oskars Ozolins, Janis Gulbis**  
*Riga Technical University, Latvia*
- 9 IOT SOLUTION APPROACH FOR ENERGY CONSUMPTION REDUCTION IN BUILDINGS: PART 2. MEASUREMENT SETUP AND PRACTICAL DATA ANALYSIS  
**Ansis Avotins, Andrejs Podgornovs, Armands Senfelds, Maris Vegeris**  
*Riga Technical University, Latvia; Lattelecom, Latvia*

## Section 5: Mathematical modeling and CAD

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- 10 DEVELOPMENT OF DYNAMIC SIMULATION MODEL FOR BUILDING ENERGY MANAGEMENT SYSTEMS  
**Kristaps Zadeiks, Armands Senfelds, Ansis Avotins, Marcis Dzenis**  
*Riga Technical University, Latvia; Lattelecom, Latvia*
- 11 INFLUENCE OF AIR VELOCITY ON DRYING DYNAMICS OF ALFALFA  
**Aivars Aboltins, Pavel Kic**  
*Latvia University of Life Sciences and Technologies, Latvia; Czech University of Life Sciences Prague, Czech Republic*
- 12 ANALYSIS OF ACCELERATION AND NUMERICAL MODELING OF SKELETON SLED MOTION  
**Martins Irbe, Karlis Agris Gross, Janis Viba, Marina Cerpinska**  
*Riga Technical University, Latvia*
- 13 SPECIFICS OF BEHAVIOR AND CALCULATION OF ELASTOMERIC SHOCK ABSORBER UNDER IMPACT LOADING  
**Svetlana Polukoshko, Vladimirs Gonca, Andris Martinovs**  
*Ventspils University of Applied Sciences, Latvia; Riga Technical University, Latvia; Rezekne Academy of Technologies, Latvia*
- 14 MAIN ASPECTS OF TRAINING IN FIELD OF COMPUTER-AIDED TECHNIQUES (CAX) IN MECHANICAL ENGINEERING  
**Andrzej Lukaszewicz, Grzegorz Skorulski, Ryszard Szczebiot**  
*Bialystok University of Technology, Poland; Lomza State University of Applied Sciences, Poland*
- 15 POSSIBILITY OF APPLYING BIM IN SYRIAN BUILDING PROJECTS  
**Sonia Ahmed, Petr Dlask, Mohamed Shaban, Omar Selim**  
*Czech Technical University in Prague, Czech Republic; BIMarabia, United Kingdom; AL-Baath University, Syria*
- 16 MATHEMATICAL MODELING OF MICROWAVE-VACUUM DRYING OF VEGETATIVE MASS  
**Sergey Braginets, Artem Rukhlyada, Oleg Bakhchevnikov, Viktor Pakhomov**  
*Agricultural Research Centre Donskoy, Russia; Don State Technical University, Russia*
- 17 DESIGN PROCESS OF TECHNOLOGICAL LINE FOR VEGETABLES PACKAGING USING CAX TOOLS  
**Andrzej Lukaszewicz, Kamil Panas, Ryszard Szczebiot**  
*Bialystok University of Technology, Poland; PROMOTECH, Poland; Lomza State University of Applied Sciences, Poland*
- 18 AUTOMATION OF WORK IN COWSHEDS USING MOBILE ROBOTS WITH HAPTIC DEVICES SUPPORTED BY VIRTUAL ZONES OF INFLUENCE  
**Tomasz Kuzmierowski, Roman Trochimczuk**  
*Lomza State University of Applied Sciences, Poland; Bialystok University of Technology, Poland*
- 19 EVALUATION OF TREE HEIGHT AND NUMBER OF TREES USING LIDAR DATA  
**Janis Ivanovs, Andis Lazdins**  
*Latvian State Forest Research Institute "Silava", Latvia*

## Section 6: Engineering education and economics

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5 J.Cakstes blvd., Room 336

Chairman: Dr.paed. **Baiba Briede**, *Latvia University of Agriculture, Latvia*

Vice-chairman: Dr.oec. **Lasma Licite**, *Latvia University of Agriculture, Latvia*

- 1 MUNICIPAL WASTE MANAGEMENT ISSUES  
**Ligita Melece, Janis Brizga, Raimonds Ernsteins**  
*Institute of Agricultural Resources and Economics, Latvia; University of Latvia, Latvia*
- 2 MODELING OF INVESTMENT RISKS ASSOCIATED WITH CHANGES IN LAND RECLAMATION STATUS OF FIRE-DANGEROUS PEATLANDS IN RYAZAN MESHCHERA  
**Inna Davydova, Evgeny Davydov, Yuri Mazhaysky**  
*Ryazan State University, Russia; Dubna State University, Russia*
- 3 IMPLEMENTATION OF QUALITY MANAGEMENT IN SMALL AND MEDIUM ENTERPRISES: PROBLEMS AND SOLUTIONS  
**Daina Vasilevska, Baiba Rivza**  
*Liepaja University, Latvia; Latvia University of Life Sciences and Technologies, Latvia*
- 4 RISK FACTORS OF LAND DEGRADATION IN MANAGEMENT OF STATE ROAD INFRASTRUCTURE  
**Anda Jankava, Aina Palabinska, Darta Konosonoka**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 5 COMPARISON OF BACKWARD AND FORWARD LINKAGES FOR INDUSTRIES IN THE BALTIC STATES AND FINLAND  
**Andrejs Jaunzems, Ilze Balode**  
*Ventspils University of Applied Sciences, Latvia*
- 6 COMPARATIVE DYNAMIC ANALYSIS OF VALUE ADDED CREATED BY INDUSTRY "FORESTRY AND LOGGING" IN THE BALTIC STATES AND FINLAND  
**Andrejs Jaunzems**  
*Ventspils University of Applied Sciences, Latvia*
- 7 VALUATION OF PUBLIC GOODS AND ECOSYSTEM SERVICES PROVIDED BY AGRICULTURE  
**Ligita Melece, Ilze Shena**  
*Institute of Agricultural Resources and Economics, Latvia*
- 8 IMPORTANCE OF LIFE CYCLE COSTING FOR CONSTRUCTION PROJECTS  
**Renata Schneiderova-Heralova**  
*Czech Technical University in Prague, Czech Republic*
- 9 STATE SUPPORT OF AGRICULTURE OF RUSSIA - SEARCH OF APPROACHES TO BUILD MODERN, EFFECTIVE MODEL  
**Dmitriy Loginov, Vladimir Stepanyan**  
*Vyatka State University, Russia*

## Section 6: Engineering education and economics

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- 10 BIM OPPORTUNITIES AND CHALLENGES IN CONSTRUCTION STUDY PROGRAMS AT LATVIA UNIVERSITY OF LIFE SCIENCES AND TECHNOLOGIES  
**Sandra Gusta, Silvija Strausa, Janis Freimanis**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 11 STUDENT EXPECTATIONS TOWARDS PHYSICAL ENVIRONMENT IN HIGHER EDUCATION  
**Lasma Licite, Lana Janmere**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 12 STUDY ON ENGINEERING STUDENTS EXPERIENCE IN MATHEMATICS LEARNING IN CONTEXT OF SUSTAINABLE DEVELOPMENT  
**Anna Vintere**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 13 MATHEMATICAL KNOWLEDGE IN ELEMENTARY SCHOOL AND FOR FUTURE ENGINEERS  
**Natalija Sergejeva, Aivars Aboltins, Liene Strupule, Baiba Aboltina**  
*Latvia University of Life Sciences and Technologies, Latvia; University of Latvia, Latvia*
- 14 CONCORDANCES AND HIGH FREQUENCY WORDS IN ENGLISH FOR SPECIFIC PURPOSES CLASSROOM  
**Tatiana Panyшева, Sergey Obukhov**  
*Peter the Great Saint-Petersburg Polytechnic University, Russia; A.F. Ioffe Physical-Technical Institute, Russia*
- 15 PROJECTING VALUE ADDED IN AGRICULTURE IN LATVIA  
**Irina Pilvere, Agnese Krievina, Aleksejs Nipers**  
*Latvia University of Life Sciences and Technologies, Latvia; Institute of Agricultural Resources and Economics, Latvia*
- 16 INFLUENCE OF STUDENTS' SURVEYS ON TEACHING MATHEMATICAL SUBJECTS AT RIGA TECHNICAL UNIVERSITY  
**Iloņa Dzenite, Sarmite Cernajeva, Aleksandrs Matvejevs**  
*Riga Technical University, Latvia*
- 17 PHYSICAL PRINCIPLES IN TECHNICAL EDUCATION  
**Jan Novotny**  
*J. E. Purkyne University in Usti nad Labem, Czech Republic*
- 18 ENVIRONMENTAL CONTEXTS OF PROGRAMMER'S PROFESSIONAL SELF-DEVELOPMENT THROUGH LEARNING: ECOLOGICAL AND SYNERGETIC APPROACH  
**Irena Katane, Edgars Katans**  
*Latvia University of Life Sciences and Technologies, Latvia; IT company "Autentica", Latvia*
- 19 IMPLEMENTATION OF FINDINGS OF GENERATION THEORIES IN ENGINEERING STUDIES  
**Regina Baltusite, Baiba Briede**  
*Latvia University of Life Sciences and Technologies, Latvia*

## Section 6: Engineering education and economics

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- 20 ADAPTATION OF COURSE OF OPERATIONS RESEARCH TO NEEDS OF ENGINEERING STUDY PROGRAMMES BY INCLUDING SPECIFIC MODELS AND EXAMPLES  
**Svetlana Asmuss, Natalja Budkina**  
*University of Latvia, Latvia; Riga Technical University, Latvia*
- 21 TRAINING STAND FOR SIMULATION OF HYBRID ENERGY SYSTEM AND GSM REMOTE CONTROL  
**Alexey Lavrov, Anatolii Lupin**  
*Peter the Great Saint-Petersburg Polytechnic University, Russia*
- 22 BIBLIOMETRIC ANALYSIS OF STUDIES IN MEDICINAL AND AROMATIC PLANTS FOR RURAL DEVELOPMENT  
**Muhittin Kulak**  
*Aralik University, Turkey*
- 23 CONFERENCE WORKFLOW AS LONG-TERM ACTIVITY WITHIN ENGLISH FOR SPECIAL PURPOSES (ESP) COURSE  
**Natalia Bogach, Elena Boitsova, Yuriy Lezhenin, Artyom Zhuikov**  
*Peter the Great Saint-Petersburg Polytechnic University, Russia*
- 24 PROBLEMS OF TECHNICAL EDUCATION AND LACK OF STUDENTS AT CZECH TECHNICAL UNIVERSITIES  
**Vladimira Novakova, Sonia Ahmed, Stanislav Vitasek**  
*Czech Technical University in Prague, Czech Republic; BIMarabia, United Kingdom*

## Section 7: Similar engineering and technology studies

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5 J. Cakstes blvd., Room 312

Chairman: Dr.sc.ing. **Vitalijs Osadcuks**, *Latvia University of Agriculture, Latvia*

Vice-chairman: Dr.sc.ing. **Marina Cerpinska**, *Riga Technical University, Latvia*

- 1 EFFECT OF PRESS CONSTRUCTION ON YIELD OF PRESSING AND SELECTED QUALITY CHARACTERISTICS OF APPLE JUICE  
**Zbigniew Kobus, Rafal Nadulski, Alexandros Sotirios Anifantis, Francesco Santoro**  
*University of Life Sciences in Lublin, Poland; University of Bari Aldo Moro, Italy*
- 2 ASSESSMENT OF EFFICIENCY OF USE OF AGRICULTURAL LAND: EXAMPLE OF SAMARA REGION  
**Velta Parsova, Oksana Mamai, Sergey Zudilin**  
*Latvia University of Life Sciences and Technologies, Latvia; Samara State Agricultural Academy, Russia*
- 3 TRENDS OF DEVELOPMENT OF AGROLANDSCAPES IN SAMARA REGION AS RESULT OF LAND REFORM  
**Gabibulla Khasaev, Alexandr Vlasov, Dariya Vasilieva, Velta Parsova**  
*Samara State University of Economics, Russia; Latvia University of Life Sciences and Technologies, Latvia*
- 4 APPLICATION POSSIBILITIES OF VEGETABLE AND PREBIOTIC COMPONENTS IN FERMENED MILK PRODUCTS  
**Marina Slozhenkina, Olga Druker, Vera Kryuchkova, Elena Zlobina**  
*Volgograd State Technical University, Russia; Volga Region Research Institute of Manufacture and Processing of Meat-And-Milk Production, Russia; Don State Agrarian University, Russia; Volgograd State University, Russia*
- 5 INFLUENCE OF CANOPY HEIGHT MODEL METHODOLOGY ON DETERMINING ABANDONED AGRICULTURAL AREAS  
**Piotr Bozek, Jaroslaw Janus, Przemyslaw Klapa**  
*University of Agriculture in Krakow, Poland*
- 6 APPLICATION OF REMOTE-SENSING TECHNOLOGIES FOR DETERMINATION OF TYPES OF LAND USE  
**Velta Parsova, Armands Celms, Virginija Gurskiene, Evelin Jurgenson**  
*Latvia University of Life Sciences and Technologies, Latvia; Aleksandras Stulginskis University, Lithuania; Estonian University of Life Sciences, Estonia*
- 7 STANDARD ISO 9001:2015, MOST IMPORTANT CHANGES AND THEIR IMPACT ON SUPPLIER COMPLAINTS MANAGEMENT  
**Adela Melicharova**  
*Czech University of Life Sciences Prague, Czech Republic*
- 8 IMPROVEMENT OF COOLING SYSTEM OF ELECTRICAL EQUIPMENT USING SIMULATION OF AIRFLOW AND HEAT TRANSFER  
**Janis Galins, Aigars Laizans, Ainars Galins**  
*Latvia University of Life Sciences and Technologies, Latvia*

## Section 7: Similar engineering and technology studies

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- 9 WOOD MODIFICATION WITH FURFURYL ALCOHOL AND FURFURYLATED WOOD DURABILITY IN WATER  
**Andris Morozovs, Anete Keke, Lita Fisere, Uldis Spulle**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 10 PRODUCTIVITY AND COST OF LOGBEAR F4000 FORWARDER IN THINNING DEPENDING ON DRIVING CONDITIONS  
**Santa Kaleja, Gints Spalva, Jelena Stola**  
*Latvian State Forest Research Institute "Silava", Latvia*
- 11 APPLICATION CASE: PROTOTYPE OF RADAR TOWER STRUCTURAL HEALTH MONITORING SYSTEM  
**Deniss Mironovs, Aleksey Mironov, Andris Chate**  
*Riga Technical University, Latvia; SIA "Vibroakustikas laboratorija", Latvia; SIA "D un D centrs", Latvia*
- 12 TECHNOLOGY AND EQUIPMENT FOR ION CHEMICAL-HEAT TREATMENT OF AGRICULTURAL MACHINERY PARTS  
**Mihail Bosyakov, Sergej Bondarenko, Aleksandr Bondarenko, Anton Maiseyenko**  
*Physics and Technology Institute of National Academy of Sciences of Belarus, Belarus*
- 13 EVALUATION OF FUEL PELLETS AS SECONDARY PRODUCT WHEN PRESSING OIL FROM GRAPEVINE SEEDS  
**Vladimir Masan, Patrik Burg, Vladimir Visacki, Ponjican Ondrej**  
*Mendel University in Brno, Czech Republic; University of Novi Sad, Serbia*
- 14 DISPLACEMENT OF SHAFT DURING HYDROPOWER GENERATOR AIR GAP MEASUREMENTS  
**Marina Cerpinska, Martins Irbe, Rihards Elmanis-Helmanis**  
*Riga Technical University, Latvia*
- 15 ANALYSIS OF FLUID FLOW TRANSLATION CONVEYORS  
**Janis Viba, Vitalijs Beresnevich, Maris Eiduks, Lauris Stals, Kaspars Burbeckis**  
*Riga Technical University, Latvia*
- 16 INITIAL EVALUATION OF IMPACT OF EVENNESS OF SPREADING WOOD ASH IN FOREST ON ADDITIONAL RADIAL INCREMENT  
**Modris Okmanis, Toms Kalvis, Dagnija Lazdina**  
*Latvian State Forest Research Institute "Silava", Latvia; Latvia University of Life Sciences and Technologies, Latvia*
- 17 PROCESSED SEAWEED AND WINEMAKING WASTE CO-FERMENTATION FOR BIOGAS EXTRACTION: PILOT STUDY  
**Uldis Zaimis, Roberts Jurmalietis, Anita Jansone**  
*Liepaja University, Latvia*

## Section 7: Similar engineering and technology studies

- 18 THEORETICAL FOUNDATIONS OF OBTAINING EXTRACTS FROM ANTLERS OF NORTH DEER  
**Galina Tupkina, Aleksandr Spesivtsev, Kasim Laishev, Nelya Domshenko**  
*Scientific Research Institute of Agriculture and Ecology of the Arctic, Russia; A.F.Mozhaisky Military Space Engineering Academy, Russia; North-West Centre of Interdisciplinary Researches of Problems of Food Maintenance, Russia; Saint Petersburg State University, Russia*
- 19 COMPARISON OF PEAR TREE WATER NEEDS IN ISPARTA (TURKEY) AND BYDGOSZCZ (POLAND) REGIONS  
**Ulas Senyigit, Roman Rolbiecki, Stanislaw Rolbiecki, Anna Figas, Wieslaw Ptach**  
*Suleyman Demirel University, Turkey; UTP University of Science and Technology in Bydgoszcz, Poland; Warsaw University of Life Sciences, Poland*
- 20 COMPOSITE SANDWICH-TYPE PANEL MADE OF FOAMGYPSUM  
**Santa Soloveiko, Kristaps Pulkis, Juris Skujans, Aivars Aboltins**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 21 STUDY OF DRYING AND REHYDRATION KINETICS OF CARROT CYLINDERS  
**Tatjana Rubina, Aivars Aboltins, Janis Palabinskis, Egle Jotautiene**  
*Latvia University of Life Sciences and Technologies, Latvia; Aleksandras Stulginskis University, Lithuania*
- 22 MODELING OF MECHANISMS OF QUASI-CONSTANT MOVEMENT  
**Imants Nulle, Eriks Kronbergs, Aivars Kakitis, Olafs Vronskis**  
*Latvia University of Life Sciences and Technologies, Latvia*
- 23 COMPARATIVE ANALYSIS OF KNITTED PRESSURE SENSORS  
**Natalija Baribina, Alexander Oks, Ilze Baltina, Peteris Eizentals**  
*Riga Technical University, Latvia*

## Social tour

**Friday, May 25**

- 10<sup>00</sup> – 11<sup>00</sup> Marathon of Electric Vehicles, presentation of Electric Vehicles and charging possibilities from alternative energy charging station, 5 J. Cakstes blvd., inner yard.
- 11<sup>00</sup> – 17<sup>00</sup> **Social tour.** Departure from 5 J. Cakstes blvd., main entrance.

### Tervete Wooden Castle

Tervete Castle one of the most powerful castles of the 13th century in the Baltic region. In Tervete Semigallians have fought for their freedom for a hundred years during Crusade Period. The exposition of the castle tells about the history of Semigallia and Tervete in Iron Age. There is the richest collection in Latvia of Semigallians iron decoration duplications, arms, household objects and garment reconstructions. Semigallian governor's Viestards wax statue and the largest in Latvia exhibition of swords you also can see here. Reconstruction of Tervete Castle based on results of archaeological research on Tervete Castle mound.



### Winery "Tervete wines"

Offers homemade Latvian fruit and berry wines raspberry, apple and quince wines are available to taste and visit the winery. Gooseberry bright and rosé wines, as well as sparkling wines fermented after natural methods are very special in our assortment.



<http://tervetesvini.lv/eng/>

[http://www.lielkenins.lv/Koka\\_Pils/index.html](http://www.lielkenins.lv/Koka_Pils/index.html)

**Address**

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**Address of the Conference Committee**

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