

**Latvia University of Agriculture, Faculty of Engineering**  
**Latvia Academy of Agricultural and Forestry Sciences, Division of Engineering**



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

**PROGRAMME**

Supported by



*Conference languages – English, Latvian, Russian*

**Jelgava, Latvia, May 24 – 25, 2012**

## **PROGRAM COMMITTEE**

### **Chairman:**

*Ainars Galins*, Assoc. prof., Dr.sc.ing. Latvia University of Agriculture

### **Members:**

*Maris Kirsis*, Prof., Dr.sc.ing. Latvia University of Agriculture  
*Andris Sniders*, Prof., Dr.habil.sc.ing. Latvia University of Agriculture  
*Kaspars Vartukapteinis*, Prof., Dr.sc.ing. Latvia University of Agriculture  
*Genadijs Moskvins*, Prof., Dr. habil sc.ing. Latvia University of Agriculture  
*Gvidonas Labeckas*, Prof., Dr.sc.ing. Aleksandro Stulginskio University, Lithuania  
*Aleksandras Kirka*, Prof., Dr.sc.ing. Aleksandro Stulginskio University, Lithuania  
*Andres Annuk*, Prof., Dr.sc.ing. Estonian University of Life Sciences  
*Milan Brozek*, Prof., Dr.sc.ing. Czech University of Life Sciences Prague  
*Gints Birzietis*, Prof., Dr.sc.ing. Latvia University of Agriculture  
*Simon Popescu*, Prof., Ph.D. Transilvania University of Brasov, Romania  
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*Vikentij Rusan*, Prof., Dr.sc.techn. Belorussian Agrar Technical University, Belarus  
*Vasily Sudacenko*, Head of dep., Dr.sc.ing. Russian Academy of Agricultural Sciences, Russia  
*Dainis Berjoza*, Assoc. prof., Dr.sc.ing. Latvia University of Agriculture  
*Raimunds Selegovskis*, Assoc. prof., Dr.sc.ing. Latvia University of Agriculture

## **ORGANISING COMMITTEE**

### **Chairman:**

*Aigars Laizans*, Assist.prof., Dr.sc.ing.

### **Members:**

*Ilmars Zanis Klegeris*, Assoc. prof., Dr.sc.ing., Dr.paed.  
*Indulis Straume*, Lecturer, Mg.sc.ing.  
*Liene Kancevica*, Lecturer, Mg.sc.ing.  
*Vitalijs Osadcuks*, Lecturer, Mg.sc.ing.  
*Aldis Lojans*, Lecturer, Mg.sc.ing.  
*Aldes Pecka*, B.sc.  
*Andris Ozols*,  
*Rasma Studente*

## Thursday, May 24

- 9<sup>15</sup> – 10<sup>00</sup>** Registration of participants,  
Faculty of Engineering, LUA, 5, J.Cakstes boulv., 2<sup>nd</sup> floor
- 10<sup>00</sup> – 12<sup>00</sup>** Plenary session  
Faculty of Engineering, Room 429
- 10<sup>00</sup> – 10<sup>10</sup>** **OPENING SPEECH**  
Maris Kirsis  
*Dean of the Faculty of Engineering, Latvia University of Agriculture*
- 10<sup>10</sup> – 10<sup>35</sup>** **RESEARCH IN ELECTRO AND INTERNAL COMBUSTION ENGINE  
MOTOR VEHICLE ENERGY COSTS**  
Dainis Berjoza, Inara Jurgena, Kaspars Vartukapteinis  
*Latvia University of Agriculture*
- 10<sup>35</sup> – 11<sup>00</sup>** **INTEGRATED ENERGY SYSTEMS**  
Andres Annuk  
*Estonian University of Life Sciences, Estonia*
- 11<sup>00</sup> – 11<sup>25</sup>** **INFLUENCE OF DIFFERENT BIOMASS TREATMENT TECHNOLOGIES ON  
EFFICIENCY OF BIOGAS PRODUCTION**  
Kestutis Navickas, Kestutis Venslauskas, Vidmantas Zuperka, Arvydas  
Nekrosius, Tadas Kulikauskas  
*Aleksandras Stulginskis University, Lithuania*
- 11<sup>25</sup> – 11<sup>50</sup>** **ENGINEERING EDUCATION, KNOWLEDGE – K-ECONOMY SPECIFICS**  
Aigars Laizans  
*Latvia University of Agriculture*
- 11<sup>50</sup> – 12<sup>00</sup>** **ABOUT THE CONFERENCE PROGRAMME**  
Aigars Laizans  
*Chairman of the Organising Committee of the Conference*
- 12<sup>00</sup> – 13<sup>00</sup>** Lunch
- 13<sup>00</sup> – 15<sup>30</sup>** Work in sections
- 15<sup>30</sup> – 16<sup>00</sup>** Coffee break
- 16<sup>00</sup> – 19<sup>00</sup>** Work in sections  
**Regulations: *Presentations – 15 minutes***  
***Discussions – 5 minutes***
- 19<sup>30</sup>** Conference “Get Together” dinner at Faculty of Engineering, LUA,  
5, J.Cakstes boulv., 254. auditorium, 2<sup>nd</sup> floor

## Section 1: AGRICULTURAL MACHINERY

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5, J. Cakstes boulv., Room 212

Chairperson: Prof., Dr.sc.ing. K. Vartukapteinis, Latvia University of Agriculture

Vice-chairperson: Prof., Ph.D. J. Masek, Czech University of Life Sciences Prague

- 1. PROPER UTILIZATION OF SOIL STRUCTURE FOR CROPS TODAY AND CONSERVATION FOR FUTURE GENERATIONS**  
Jan Barwicki<sup>1</sup>, Stanislaw Gach<sup>2</sup>, Semjons Ivanovs<sup>3</sup>  
*<sup>1</sup>Institute of Technology and Life Sciences in Falenty, Warsaw Branch, Poland; <sup>2</sup>Warsaw Agricultural University, Poland; <sup>3</sup>Latvia University of Agriculture*
- 2. EXPERIMENTAL RESEARCHES ON INFLUENCE OF FUNCTIONAL PARAMETERS OF GRAVITY SEPARATOR ON QUALITY INDICATORS OF SEPARATION PROCESS WITH APPLICATION ON CLEANING OF WHEAT SEEDS**  
Carmen Bracacescu<sup>1</sup>, Ion Pirna<sup>1</sup>, Cristian Sorica<sup>1</sup>, Simion Popescu<sup>2</sup>, Octavian Stan<sup>2</sup>  
*<sup>1</sup>National Institute of Research-Development for Machines and Installations designed to Agriculture and Food Industry- INMA, Bucharest, Romania; <sup>2</sup>Transylvania University of Braşov, Romania*
- 3. STUDIES REGARDING THE WORKING PROCESS EXECUTED ON PLOUGHSHARE OF PLANTING MACHINES**  
Cristian Poenaru Ion, Gigel Paraschiv, Voicu Gheorghe, Georgiana Moiceanu, Stefan Biris Sorin, Valentin Vladut  
*Politehnica University of Bucharest, Romania*
- 4. DESIGN OF MECHANICAL PRUNER SET USED FOR LOW TRELLIS**  
David Hoffmann, Adolf Rybka, Petr Hermanek, Ivo Honzik  
*Czech University of Life Sciences Prague*
- 5. EVALUATION OF SHEET DEGRADATION WITH SURFACE TREATMENT**  
Sylvia Kusmierczak, Natasa Naprstkova, Jaroslava Svobodova  
*Jan Evangelista Purkyně University in Ústí nad Labem, Czech Republic*
- 6. INFLUENCE OF DIFFERENT SOIL TILLAGE TECHNOLOGIES ON CROP RESIDUE MANAGEMENT**  
Jiri Masek, Milan Kroulik, Zdenek Kviz, Petr Novak  
*Czech University of Life Sciences Prague*
- 7. RESEARCH IN ROTARY PARLOUR OPERATION**  
Aigars Ozolins, Juris Priekulis, Armins Laurs  
*Latvia University of Agriculture*
- 8. RESEARCH IN AUTOMATIC MILKING SYSTEM CAPACITY**  
Juris Priekulis, Armins Laurs  
*Latvia University of Agriculture*
- 9. WORKING TIME, FUEL CONSUMPTION AND ECONOMIC ANALYSIS OF DIFFERENT TILLAGE AND SOWING SYSTEMS IN LITHUANIA**  
Egidijus Sarauskis<sup>1</sup>, Sidona Buragiene<sup>1</sup>, Kestutis Romaneckas<sup>1</sup>, Antanas Sakalauskas<sup>1</sup>, Algirdas Jasinskas<sup>1</sup>, Edvardas Vaiciukevicius<sup>1</sup>, Davut Karayel<sup>2</sup>  
*<sup>1</sup>Aleksandras Stulginskis University, Lithuania; <sup>2</sup>Akdeniz University, Turkey*
- 10. CINEMATIC ANALYSIS OF PARTICLE OF IMPURITY IN CONDITIONING PROCESS OF GRAINS INTO INDENTED CYLINDER SEPARATORS**  
Cristian Sorica, Ion Pirna, Carmen Bracacescu, Eugen Marin, Elena Postelnicu  
*National Institute Of Research - Development For Machines and Installations Designed to Agriculture And Food Industry - INMA, Romania*
- 11. DEVELOPMENT OF AGRICULTURAL MECHANICS**  
Arvids Vilde, Adolfs Rucins  
*Latvia University of Agriculture*
- 12. INVESTIGATIONS IN PRECISE AGRICULTURE: RESULTS, PROBLEMS, PERSPECTIVE DEVELOPMENT**

Arvids Vilde, Dainis Lapins, Gundega Dinaburga, Sandris Cesnieks, Oskars Valainis  
*Latvia University of Agriculture*

**13. PROFILOGRAMS OF SHARE-MOULDBOARDS SURFACES OF SOME TYPICAL PLOUGH BODIES**

Arvids Vilde  
*Latvia University of Agriculture*

**14. TRIBOTECHNICAL DIAGNOSTICS OF AGRICULTURAL MACHINES**

Zdenek Ales, Martin Pexa, Jindrich Pavlu  
*Czech University of Life Sciences Prague*

**Section 2: ENGINEERING TECHNOLOGIES AND POLICIES**

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5, J. Cakstes boulv., Room 429

Chairperson: Prof., Dr.hab.sc.ing. G. Moskvins, Latvia University of Agriculture

Vice-chairperson: Leading researcher, Dr.sc.ing. A. Aboltins, Latvia University of  
Agriculture

**1. EXPERIMENTAL AND THEORETICAL INVESTIGATION OF AGRICULTURAL MATERIAL DRYING PROCESS**

Aivars Aboltins, Andris Upitis  
*Latvia University of Agriculture*

**2. ECONOMIC IMPROVEMENT IN FARM BREEDING OF ANTELOPES IN THE CZECH UNIVERSITY OF LIFE SCIENCES FARM IN LÁNY**

Lucie Ackermann Blazkova  
*Czech University of Life Sciences Prague*

**3. AGRICULTURAL TRADE IN EXAMPLE OF MILK FROM PERSPECTIVE OF MULTI-CRITERIA ANALYSIS**

Vitezslav Doubek, Jaroslav Svasta  
*Czech University of Life Sciences Prague*

**4. ECONOMIC EVALUATION OF ANIMAL FEED MIX DISTRIBUTION TECHNOLOGIES**

Maris Freimanis, Ansis Salins, Juris Priekulis  
*Latvia University of Agriculture*

**5. PLANT SPECTRAL LIGHTING AND SPRINKLING WATER ACTIVATION DEVICE**

Janis Fridrihsons, Ina Alsina, Aldis Lojans  
*Latvia University of Agriculture*

**6. SEPARATION OF IMPURITIES FROM DRY HOPS**

Petr Hermanek, Adolf Rybka, Ivo Honzik, Lubomir Vent, Bohuslav Jost  
*Czech University of Life Sciences Prague*

**7. ELIMINATION OF OUTSIDE AIR HEAT PUMP EVAPORATORS ICING**

Andrievs Ilsters, Imants Ziemelis  
*Latvia University of Agriculture*

**8. SUNFLOWER MARKET ASSESSMENT IN THE REPUBLIC OF MOLDOVA**

Alexander Kandakov<sup>1</sup>, Bohumil Havrland<sup>1</sup>, Constantin Ojog<sup>2</sup>, Tatiana Ivanova<sup>1</sup>  
<sup>1</sup>*Czech University of Life Sciences Prague*; <sup>2</sup>*National Agency for Rural Development ACSA, Moldova*

**9. IMPROVEMENT OF HEAT BALANCE OF FAMILY HOUSE**

Pavel Kic, Boleslav Kadlecek  
*Czech University of Life Sciences Prague*

10. **EFFICACY OF SOIL DEEP LOOSENING IF GROWING WINTER OIL SEED RAPE AND WINTER WHEAT IN CONDITIONS OF UNEVEN RELIEF**  
Dainis Lapins, Janis Kopmanis, Gundega Dinaburga, Andris Berzins, Aigars Plume, Indulis Melngalvis  
*Latvia University of Agriculture*
11. **TEMPERATURE MEASUREMENT IN TECHNICAL APPLICATIONS**  
Miloslav Linda, Gunnar Kunzel, Monika Hromasova  
*Czech University of Life Sciences Prague*
12. **EVALUATION OF ENVIRONMENT FACTORS INFLUENCING ROBOTS IN GREENHOUSES**  
Aldis Lojans, Aivars Kakitis  
*Latvia University of Agriculture*
13. **DEVELOPMENT OF NANOTECHNOLOGY IN AGRICULTURE FOR SMALL NORTHERN EUROPEAN COUNTRY**  
Genadijs Moskvins<sup>1</sup>, Evelina Spakovica<sup>1</sup>, Artjoms Moskvins<sup>1</sup>, Anastasija Shakhtarina<sup>1</sup>, Vidvuds Beldavs<sup>2</sup>  
*<sup>1</sup>Latvia University of Agriculture; <sup>2</sup>Kaija Consulting Ltd., Latvia*
14. **LAPLACE MODEL OF TRANSFORMATION FOR OPTIMIZATION OF MEASURING SIGNAL IN NON-UNIFORM FLOW OF LIQUID**  
Genadijs Moskvins, Evelina Spakovica, Artjoms Moskvins, Anastasija Sahtarina  
*Latvia University of Agriculture*
15. **PACKING OPTIMIZATION WITH EMPHASIS ON SUSTAINABLE PROGRESS IN SPHERE OF WASTE PRODUCTION**  
Miroslav Muller, Kristyna Hyksova, Petr Valasek  
*Czech University of Life Sciences Prague*
16. **METHODS OF CROP STAND ESTABLISHMENT IN TERMS OF RESISTANCE TO WATER EROSION**  
Petr Novak, Jiri Masek, Josef Hula  
*Czech University of Life Sciences Prague*
17. **ENVIRONMENTAL PROBLEMS OF INDUSTRIAL POLLUTION OF ENVIRONMENT**  
Svetlana Pavlova  
*Northwest Institute of Printing, Department of APO, Saint-Petersburg, Russia*
18. **MULTI AGENT GENOME-SCALE METABOLIC RECONSTRUCTION MODELING SOFTWARE SCHEMA**  
Agris Pentjuss, Ilona Odzina, Aleksandrs Gailums  
*Latvia University of Agriculture*
19. **REED CANARY GRASS (*PHALARIS ARUNDINACEA* L.) PRODUCTIVITY AND QUALITY DEPENDING ON AGRO-METEOROLOGICAL CONDITIONS**  
Rasma Platace, Liena Poisa, Aleksandrs Adamovics  
*Latvia University of Agriculture*
20. **INTENSIFICATION OF CROP PRODUCTION DRYING USING SOLAR RADIATION POWER**  
Algirdas Raila, Egidijus Zvicevicius, Arvydas Bocys, Ausra Cipliene  
*Aleksandras Stulginskis University, Lithuania*

### Section 3: MECHANICS AND MATERIAL SCIENCES

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5, J. Cakstes boulv., Room 410

Chairperson: Prof., Dr.sc.ing. E.Kronbergs, Latvia University of Agriculture

Vice-chairperson: Assoc.prof., Dr.sc.ing. A.Kakitis, Latvia University of Agriculture

**1. VISUALIZATION OF THE KINEMATICS OF A MATERIAL POINT**

Aare Aan, Mati Heinloo

*Estonian University of Life Sciences*

**2. WEAR RESISTANCE OF MULTI-LAYER OVERLAYS**

Milan Brozek

*Czech University of Life Sciences Prague*

**3. STUDY OF DYNAMICS OF ELASTOMERIC ELEMENTS**

Maris Eiduks, Janis Viba, Marina Grishchenko, Igors Tipans

*Riga Technical University*

**4. PHYSICAL CHARACTERISTICS OF MISCANTHUS PLANTS AND POWER DEMAND AT GRINDING PROCESS**

Georgiana Moiceanu, Voicu Gheorghe, Gigel Paraschiv, Cristian Poenaru Ion, Edmond Maican

*Politehnica University of Bucharest, Romania*

**5. CABLE TRUSS ANALYSES FOR SUSPENSION BRIDGE**

Vadims Goremikins, Karlis Rocens, Dmitrijs Serdjuks

*Riga Technical University, Latvia*

**6. INCREASING RELIABILITY OF BEARING UNITS OF AGRICULTURAL MACHINERY**

Sergey Inshakov

*Primorsky State Agricultural Academy, Russia*

**7. QUALITY OF MATERIAL DISTRIBUTION IMAGING WITH SEGMENTAL CAPACITIVE SENSOR USING LANDWEBER'S ITERATIVE ALGORITHM**

Jakub Lev, Marie Wohlmuthova, Frantisek Kumhala

*Czech University of Life Sciences Prague*

**8. CUTTING PROPERTIES OF HEMP FIBRE**

Aivars Kakitis, Uldis Berzins, Roberts Berzins, Raitis Brencis

*Latvia University of Agriculture*

**9. GEOMETRIC AND KINEMATIC PARAMETERS OF BIOMASS CUTTER**

Aivars Kakitis, Imants Nulle, Dainis Ancans

*Latvia University of Agriculture*

**10. SIZE REDUCTION OF COMMON REEDS FOR BIOFUEL PRODUCTION**

Andris Kronbergs, Eriks Kronbergs, Ritvars Rozinskis

*Latvia University of Agriculture*

**11. DEGRADATION OF COATINGS IN CAR REPAIR**

Sylvia Kusmierczak, Tomas Briza

*Jan Evangelista Purkyně University in Ústí nad Labem, Czech Republic*

**12. WOOD POLE OVERHEAD LINE STRENGTH PROBLEMS UNDER EXTREME WEATHER LOADS**

Alexander Janushevskis<sup>1</sup>, Janis Auzins<sup>1</sup>, Anatoly Melnikovs<sup>1</sup>, Armands Staltmanis<sup>2</sup>, Ivo Vaicis<sup>1</sup>, Janis Viba<sup>1</sup>

<sup>1</sup>Riga Technical University, Latvia; <sup>2</sup>Latvenergo JSC, Latvia

**13. RESEARCH OF INTERNAL STRUCTURE INFLUENCE ON THE QUALITY OF THE SURFACE DURING LOADING IN THE CORROSIVE ENVIRONMENT FOR BEARING STEEL**

Stefan Michna, Natasa Naprstkova

*Jan Evangelista Purkyně University in Ústí nad Labem, Czech Republic*

- 14. OPTIMALIZATION OF SETTING PARAMETERS OF LASER CUTTING MACHINE**  
Natasia Naprstkova, Stanislav Dubsky  
*Jan Evangelista Purkyně University in Ústí nad Labem, Czech Republic*
- 15. INVESTIGATION OF CONVEYER CHAIN RESISTANCE TO WEAR**  
Emils Pudans, Guntars Uzklings  
*Latvia University of Agriculture*
- 16. EVALUATION OF STRAW PELLETT PRODUCTION PROCESS**  
Algirdas Raila, Vaidas Bartusevicius, Henrikas Novosinskas  
*Aleksandras Stulginskis University, Lithuania*
- 17. FRICTION AFFECT ON COMMON REED BRIQUETTING**  
Edgars Repsa, Eriks Kronbergs  
*Latvia University of Agriculture*
- 18. DENSITY DETERMINATION FOR BIOMASS COMPOSITIONS**  
Mareks Smits, Eriks Kronbergs  
*Latvia University of Agriculture*
- 19. IMPACT STRENGTH OF POLYMER PARTICLE COMPOSITES WITH FILLER ON THE BASIS OF CORUNDUM WASTE**  
Petr Valasek, Miroslav Muller  
*Czech University of Life Sciences Prague*
- 20. DEFORMATIONS OF STEEL CONSTRUCTIONS IN PROCESS OF WELDING BY MAG TECHNOLOGY**  
Gunars Verdins, Daina Kanaska, Valdis Kleinbergs  
*Latvia University of Agriculture*

#### **Section 4: MOTOR VEHICLES, FUELS AND LOGISTICS**

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5, J. Cakstes boulv., Room 241

Chairperson: Assoc.prof., Dr.sc.ing. D. Berjoza, Latvia University of Agriculture

Vice-chairperson: Assist.prof., Dr.sc.ing. V. Pirs, Latvia University of Agriculture

- 1. MOTOR VEHICLE SEATS AND THEIR DEFECT CLASSIFICATION**  
Janis Bergs, Daina Kanaska  
*Latvia University of Agriculture*
- 2. INVESTIGATION OF ELECTRIC CAR ACCELERATION CHARACTERISTICS PERFORMING ON-ROAD TESTS**  
Dainis Berjoza, Ilmars Dukulis, Dzidra Cepļa  
*Latvia University of Agriculture*
- 3. AUTOMOBILE TECHNICAL SOLUTIONS AND SELECTION OF PARAMETERS FOR REBUILDING INTO ELECTROMOBILE**  
Dainis Berjoza, Vilnis Pirs  
*Latvia University of Agriculture*
- 4. RESEARCH IN ELECTRO AND INTERNAL COMBUSTION ENGINE MOTOR VEHICLE ENERGY COSTS**  
Dainis Berjoza, Inara Jurgena, Kaspars Vartukapteinis  
*Latvia University of Agriculture*
- 5. EVALUATION OF EMISSIONS OPERATING DIESEL ENGINE WITH RAPESEED OIL AND FOSSIL DIESEL FUEL BLENDS**  
Aivars Birkavs, Gints Birzietis, Ilmars Dukulis  
*Latvia University of Agriculture*



6. **ELECTRIC VEHICLES FROM CAR MANUFACTURERS AND COMPARISON OF THEIR TECHNICAL CHARACTERISTICS**  
Gints Birzietis, Janis Mistris, Aivars Birkavs  
*Latvia University of Agriculture*
7. **ON PREDICTION OF MOTOR VEHICLE BRAKE PAD WEAROUT**  
Maris Gailis, Dainis Berjoza  
*Latvia University of Agriculture*
8. **ELECTRIC VEHICLE CHARGING CHARACTERISTICS**  
Ainars Galins, Uldis Putnieks  
*Latvia University of Agriculture*
9. **IMPACT OF EU BIOFUEL DIRECTIVES POLICIES ON DEVELOPING ECONOMIES**  
Yayan Satyakti<sup>1</sup>, Bohumil Havrland<sup>1</sup>, Victor Pobedischi<sup>2</sup>  
*<sup>1</sup>Czech University of Life Sciences Prague; <sup>2</sup>State Agrarian University of Moldova*
10. **COST OF ETHANOL WHEN USED IN DIESEL ENGINE**  
Arne Kuut, Risto Ilves, Juri Olt  
*Estonian University of Life Sciences*
11. **HYDROPNEUMATIC SUSPENSION FOR TRACTOR IMPLEMENT**  
Janis Laceklis-Bertmanis<sup>1</sup>, Vilnis Pirs<sup>1</sup>, Eriks Kronbergs<sup>1</sup>, Aivars Metla-Rozentals<sup>2</sup>, Maris Metla<sup>2</sup>  
*<sup>1</sup>Latvia University of Agriculture; <sup>2</sup>KONEKESKO, Department of Agriculture Technique, Latvia*
12. **RESEARCH OF RUNNING DISTANCES OF ELECTRIC VEHICLES IN URBAN AND EXTRA URBAN REGIMES**  
Janis Laceklis-Bertmanis, Liene Kancevica, Janis Mistris  
*Latvia University of Agriculture*
13. **EVALUATION OF AVAILABILITY OF REGIONAL PASSENGER TRANSPORT SERVICE IN JELGAVA DISTRICT**  
Janis Mistris, Gints Birzietis  
*Latvia University of Agriculture*
14. **STUDY OF ENERGETIC BALANCE OF REGENERATIVE ELECTRIC VEHICLE IN A CITY DRIVING CYCLE**  
Vitalijs Osadcuks, Aldis Pecka, Raimunds Selegovskis, Liene Kancevica  
*Latvia University of Agriculture*
15. **INVESTIGATION OF DYNAMICAL AND EXPLOITATION PARAMETERS OF SLOW MOVING ELECTRIC CAR ON CHASSIS DYNAMOMETER**  
Vilnis Pirs, Zanis Jesko  
*Latvia University of Agriculture*
16. **ANALYSIS ON ELECTRIC VEHICLE CHARGING INFRASTRUCTURE IN LATVIA**  
Uldis Putnieks, Maris Gailis, Liene Kancevica  
*Latvia University of Agriculture*
17. **EXPLORATION OF TECHNOLOGICAL EQUIPMENT FOR BIOETHANOL DEHYDRATION**  
Adolfs Rucins, Kristine Zihmane-Ritina, Gunars Bremers, Oskars Vilitis, Gints Birzietis, Arturs Baltins, Arnolds Skele, Juris Bergs  
*Latvia University of Agriculture*
18. **COMPARISON OF DIFFERENT PRETREATMENT METHODS ON DEGRADATION OF RYE STRAW**  
Marti Tutt, Timo Kikas, Juri Olt  
*Estonian University of Life Sciences*
19. **PERSPECTIVES OF INCREASING BIODIESEL PRODUCTION THROUGH INTRODUCTION OF *JATROPHA CURCAS* L. INTO SUBSISTENCE FARMING SYSTEMS: EXPERIENCE FROM NORTH SUMATRA, INDONESIA**  
Vladimir Verner, David Herak, Satya Simanjuntak, Ludvik Andert  
*Czech University of Life Sciences Prague*

## **20. METHODOLOGY FOR ESTIMATION OF AMOUNT OF POLLUTING EMISSIONS CREATED BY FLEET OF TRACTORS IN CONNECTION WITH ITS MODERNIZATION**

Dainis Viesturs<sup>1</sup>, Nikolajs Kopiks<sup>1</sup>, Armands Binovskis<sup>2</sup>

<sup>1</sup>Latvia University of Agriculture; <sup>2</sup>State Technical Control Agency, Latvia

### **Section 5: ENERGETICS AND AUTOMATION**

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5, J. Cakstes boulv., Room 314

Chairperson: Assoc.Prof., Dr.sc.ing. A.Galins, Latvia University of Agriculture

Vice-chairperson: Prof., Dr.sc.ing. A. Annuk, Estonian University of Life Sciences

#### **1. EVALUATION OF WIND PARKS OUTPUT POWER FORECAST ERROR AND WAYS TO DECREASE IT**

Kaupo Toom<sup>1</sup>, Andres Annuk<sup>1</sup>, Alo Allik<sup>1</sup>, Jaanus Uiga<sup>1</sup>, Toivo Kabanen<sup>2</sup>

<sup>1</sup>Estonian University of Life Sciences; <sup>2</sup>Tallinn University of Technology Tartu College, Estonia

#### **2. COMPARISON OF SOLID BIOFUEL TYPES FROM LINSEED STEMS**

David Blazej<sup>1</sup>, Jiri Soucek<sup>2</sup>

<sup>1</sup>Czech University of Life Sciences Prague; <sup>2</sup>Research Institute of Agricultural Engineering, Czech Republic

#### **3. USE OF FUZZY CONTROL ELEMENTS IN ROBOT SYSTEM SYNTHESIS**

Anita Gerina, Rihards Prieditis, Guntis Kulikovskis, Janis Viba, Igors Tipans

Riga Technical University

#### **4. DESIGN AND IMPLEMENTATION OF COMPARATOR CIRCUIT MODEL USED AT AUTOMATIC ADJUSTING SYSTEMS WHICH EQUIP SPRINKLING MACHINERY**

Mihnea Glodeanu<sup>1</sup>, Tudor Alexandru<sup>1</sup>, Simion Popescu<sup>2</sup>

<sup>1</sup>University of Craiova, Romania; <sup>2</sup>Transilvania University of Brasov, Romania

#### **5. RESEARCH BENCH FOR ELECTRICAL MACHINES**

Armands Grickus, Agris Treimanis

Research Center of Liepaja branch of Riga Technical University, Latvia

#### **6. APPROXIMATE CALCULATION ALGORITHM FOR SINGLE PHASE BRIDGE RECTIFIER WITH CAPACITOR FILTER**

Armands Grickus, Agris Treimanis

Research Center of Liepaja branch of Riga Technical University, Latvia

#### **7. THEORY AND METHODS OF MAINTENANCE OF HIGH EFFICIENCY USES OF ENERGY BY INDUSTRIAL CONSUMERS**

Toivo Kabanen<sup>1</sup>, Valeri Karpov<sup>2</sup>, Andres Annuk<sup>3</sup>

<sup>1</sup>Tallinn University of Technology Tartu College, Estonia; <sup>2</sup>Saint-Petersburg State Agrarian University, Russia; <sup>3</sup>Estonian University of Life Sciences, Estonia

#### **8. ANALYSIS OF USABILITY OF SHELLS FROM PROCESSING OF PALM NUTS TO PALM OIL AS SOLID FUEL**

Michal Kavalek, Bohumil Havrland, Josef Pecen

Czech University of Life Sciences Prague

#### **9. POSSIBILITIES TO USE PHOTOELECTRIC ENERGY SOURCES IN MICROCLIMATE SYSTEM OF TELECOMMUNICATION STATION**

Antanas Kavolynas, Kestutis Navickas, Egidijus Vaickelionis

Aleksandras Stulginskis University, Lithuania

#### **10. POLLUTION OF INDOOR ENVIRONMENT IN POULTRY HOUSING**

Pavel Kic, Lubomir Ruzek, Zdenek Ledvinka, Lukas Zita, Ivana Gardianova

Czech University of Life Sciences Prague

11. **STATISTICAL ANALYSIS OF MUNICIPAL HEAT SUPPLY**  
Toms Komass, Andris Sniders, Aigars Laizans  
*Latvia University of Agriculture*
12. **EVALUATION OF FLAX (*LINUM USITATISSIMUM* L.) QUALITY PARAMETERS FOR BIOENERGY PRODUCTION**  
Lubova Komlajeva, Aleksandrs Adamovics  
*Latvia University of Agriculture*
13. **COMPARATIVE ANALYSIS OF METHODS FOR FUEL BIOBRIQUETTES PRODUCTION**  
Alexandru Muntean<sup>1</sup>, Tatiana Ivanova<sup>2</sup>, Bohumil Havrand<sup>2</sup>, Victor Pobedinsky<sup>1</sup>  
<sup>1</sup>*State Agrarian University of Moldova*; <sup>2</sup>*Czech University of Life Sciences Prague*
14. **SOFTWARE IN THE LOOP SIMULATION OF AUTONOMOUS HYBRID POWER SYSTEM OF AN AGRICULTURAL FACILITY**  
Vitalijs Osadcuks, Ainars Galins  
*Latvia University of Agriculture*
15. **ASH MELTING BEHAVIOUR OXIDIZING ATMOSPHERE IN ENERGY CROPS**  
Liena Poisa, Aleksandrs Adamovics  
*Latvia University of Agriculture*
16. **DEVELOPMENT OF ALGORITHM AND SOFTWARE ‘MVES-GS 2012’ FOR SELECTION OF NEUTRAL GROUNDING TYPE IN MEDIUM VOLTAGE NETWORKS**  
Ilze Priedite-Razgale<sup>1</sup>, Janis Rozenkrons<sup>2</sup>  
<sup>1</sup>*Institute of Physical Energetics, Latvia*; <sup>2</sup>*Riga Technical University, Latvia*
17. **STRENGTHENING SECURITY OF IP MULTIMEDIA SUBSYSTEM**  
Nauris Paulins  
*Latvia University of Agriculture*
18. **OPTIMIZATION OF POWER TECHNOLOGICAL PROCESSES IN ARTIFICIAL BIOENERGETIC AGRICULTURAL SYSTEM**  
Sergey Rakutko  
*North-West Research Institute of Agricultural Engineering and Electrification (SZNIIMESH) of the Russian Academy of Agricultural Sciences*
19. **NEW INVESTIGATIONS IN SOLAR AIR HEATING COLLECTORS**  
Guntis Ruskis, Aivars Aboltins, Janis Palabinskis  
*Latvia University of Agriculture*
20. **SCANNING AND USE OF TACTILE INFORMATION IN AGRICULTURE BY USING TACTILE ACTIVATOR**  
Filip Skerik  
*Czech University of Life Sciences Prague*
21. **NON-STATIONARY HEATING OF LOW-POWER INDUCTION MOTOR UNDER CONTINUED OVERLOAD**  
Andris Sniders, Alexey Gedzur  
*Latvia University of Agriculture*
22. **COMPARATIVE ECONOMICS OF USING BIOMASS AND NATURAL GAS FOR CO-GENERATION OF STEAM AND POWER FOR PROSPECTIVE INDUSTRIAL ENTERPRISE IN BELARUS**  
Alfred Wong  
*Arbokem Inc., Canada*
23. **CEREAL STRAW SUPPLY AND ITS DEPLOYMENT FOR INDUSTRY-USE CO-GENERATION IN NORTHEASTERN KHARKOV OBLAST**  
Alfred Wong  
*Arbokem Inc., Canada*

## Section 6: BIOGAS ENGINEERING

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5, J. Cakstes boulv., Room 312

Chairperson: Leading researcher, Dr.sc.ing. V.Dubrovskis, Latvia University of Agriculture

Vice-chairperson: Lecturer, Mg.sc.ing. I.Plume, Latvia University of Agriculture

- 1. EVALUATION OF POTENTIAL BIOGAS PRODUCTION IN SICILY**  
Comparetti Antonio<sup>1</sup>, Greco Carlo<sup>1</sup>, Navickas Kestutis<sup>2</sup>, Venslauskas Kestutis<sup>2</sup>  
*<sup>1</sup>University of Palermo, Italy; <sup>2</sup>Aleksandras Stulginskis University, Lithuania*
- 2. BIOMASS COFERMENTATION FOR BIOGAS PRODUCING**  
Vilis Dubrovskis, Vladimirs Kotelenecs, Arvids Celms, Eduards Zabarovskis  
*Latvia University of Agriculture*
- 3. BIOGAS PRODUCTION POTENTIAL FROM AGRICULTURAL BIOMASS AND ORGANIC RESIDUES IN LATVIA**  
Vilis Dubrovskis, Imants Plume, Valters Kazulis, Arvids Celms, Vladimirs Kotelenecs, Eduards Zabarovskis  
*Latvia University of Agriculture*
- 4. SILAGE MAIZE SIZE FRACTIONS EFFECTS ON BIOGAS QUANTITY SUBSTRATE**  
Petr Hajek, Petr Sarec, Ondrej Sarec  
*Czech University of Life Sciences Prague*
- 5. BIOGAS PRODUCTION OF WINEMAKING WASTE IN ANAEROBIC FERMENTATION PROCESS**  
Janis Jasko<sup>1, 2</sup>, Eriks Skripsts<sup>1, 2</sup>, Vilis Dubrovskis<sup>1</sup>  
*<sup>1</sup>Latvia University of Agriculture; <sup>2</sup>Institute of Biomechanics and Physical Research, Latvia*
- 6. PRELIMINARY INVESTIGATION OF PHYSICAL, CHEMICAL AND TECHNOLOGICAL PARAMETERS OF BIOGASIFICATION AND BRIQUETTING OF FRACTIONATED SILAGE**  
Andres Menind, Liis Oper, Liina Nurk  
*Estonian University of Life Sciences*
- 7. INFLUENCE OF DIFFERENT BIOMASS TREATMENT TECHNOLOGIES ON EFFICIENCY OF BIOGAS PRODUCTION**  
Kestutis Navickas, Kestutis Venslauskas, Vidmantas Zuperka, Arvydas Nekrosius, Tadas Kulikauskas  
*Aleksandras Stulginskis University, Lithuania*
- 8. INVESTIGATION OF BIOGAS POTENTIAL IN STOPINI DISTRICT**  
Indulis Straume  
*Latvia University of Agriculture*

## Section 7: EDUCATIONAL SCIENCES

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5, J. Cakstes boulv., Room 336

Chairperson: Assoc.prof., Dr.sc.ing. R.Selegovskis, Latvia University of Agriculture

Vice-chairperson: Lect., Mg.sc. A.Mezote, Latvia University of Agriculture

- 1. RESULTS OF RESEARCH IN TEACHER FURTHER EDUCATION COURSE QUALITY AT THE LATVIA UNIVERSITY OF AGRICULTURE**  
Anita Aizsila  
*Latvia University of Agriculture*
- 2. EVALUATION OF STUDY PROCESS IN STUDY PROGRAM "AGRICULTURAL ENERGETICS" AT FACULTY OF ENGINEERING**  
Zane Beitere-Selegovska, Raimunds Selegovskis  
*Latvia University of Agriculture*

3. **“REDISCOVERY” OF THE GOLDEN SECTION (RATIO) IN BYZANTINE ART**  
Ludmila Bejenaru<sup>1</sup>, Vladlen Babcinetchi<sup>2</sup>  
*<sup>1</sup>“Al.I.Cuza” University of Iasi, Romania; <sup>2</sup>“Gh.Asachi” Technical University of Iasi, Romania*
4. **PLURILINGUALISM – PRIORITY IN PROMOTING EQUALITY OF CHANCES**  
Ludmila Bejenaru  
*“Al.I.Cuza” University of Iasi, Romania*
5. **PEDAGOGICAL COMPETENCE MODEL FOR WORK SAFETY SPECIALISTS**  
Imants Bertaitis, Baiba Briede, Ludis Peks  
*Latvia University of Agriculture*
6. **PERSONNEL RECRUITMENT METHODOLOGY FOR ENERGY EQUIPMENT SERVICES DEPARTMENTS WITH EMPHASIS ON SYSTEM RELIABILITY**  
Alexander Gushchinsky, Maxim Galchenko  
*Saint-Petersburg State Agrarian University, Russia*
7. **RURAL DEPOPULATION, ALTERNATIVE GREEN ENERGY SOURCES AND THE MEDIA**  
Lulivera Krusteva  
*St.Kl.Ohridski University of Sofia, Bulgaria*
8. **ADOLESCENT BEHAVIOR PROBLEMS AND CODEPENDENCE IN DYSFUNCTIONAL FAMILY CONTEXT**  
Ilona Laizane  
*University of Latvia*
9. **DEVELOPMENT OF ENGINEERING STUDENT SKILLS AND COMPETENCES THROUGH PARTICIPATION AT INTERNATIONAL SCIENTIFIC CONFERENCES**  
Larisa Malinovska  
*Latvia University of Agriculture*
10. **DEVELOPING COMPETENCES FOR COOPERATION WITH FOREIGN PARTNERS AT THE LATVIA UNIVERSITY OF AGRICULTURE**  
Anete Mezote  
*Latvia University of Agriculture*
11. **STUDY OF STUDENTS’ PRESENCE IN LECTURES INFLUENCE ON THEIR EXAMINATION RESULTS**  
Alexandra Novakova, Milan Brozek  
*Czech University of Life Sciences Prague*
12. **WAY OF STUDYING GENERAL LAWS OF NATURE IN UNIVERSITIES**  
Vladimir Romanenko<sup>1</sup>, Galina Nikitina<sup>2</sup>  
*<sup>1</sup>St-Petersburg State University of Technology and Design, Russia; <sup>2</sup>North-Western Branch of the Academy of Information Technologies in Education, Russia*
13. **DEVELOPMENT OF NEW KNOWLEDGE: CHALLENGES AND SOLUTIONS OF 21-ST CENTURY**  
Vladimir Romanenko<sup>1</sup>, Galina Nikitina<sup>2</sup>  
*<sup>1</sup>St-Petersburg State University of Technology and Design, Russia; <sup>2</sup>North-Western Branch of the Academy of Information Technologies in Education, Russia*
14. **ASSESSMENT OF STUDY PROGRAMME QUALITY AT HIGHER EDUCATION INSTITUTION**  
Sandra Sproge, Rudite Cevere  
*Latvia University of Agriculture*
15. **THE DYNAMICS OF ICT INTEGRATION SKILLS DEVELOPMENT OF THE STUDY COURSE “IT IN EDUCATION”**  
Natalia Vronska  
*Latvia University of Agriculture*

## Friday, 25 May

9<sup>30</sup> Bus tour – RUNDĀLE, ETC.  
~ 17<sup>00</sup> Returning to Jelgava

On the second day of the conference we would like you to invite to visit nice places in Zemgale region. First we will go to the farming company Zemgali, where the biogas co-generation station is installed. Then we will visit the Rundale palace, Summer Residence of the Duke of Courland, Ernst Johann Biron, built between 1736-1740 (<http://www.rundale.net>). The Italian architect Francesco Bartolomeo Rastrelli designed Rundāle Palace and supervised construction work. He was also the architect of Jelgava palace, and several palaces in Russia. Rundāle Palace is one of the most outstanding monuments of Baroque and Rococo art in Latvia. The major part of the interior was made in the period between 1765 and 1768. After nice round trip and picnic we expect to return to Jelgava around 17:00

### Jelgava map



*Address of the Conference Committee*

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