

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



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

**PROGRAMME**

*Conference languages – English, Russian, Latvian*

**Jelgava, Latvia, May 26 – 27, 2011**

## **PROGRAM COMMITTEE**

### **Chairman**

*Gints Birzietis*, Prof., Dr.sc.ing.

Latvia University of Agriculture

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*Maris Kirsis*, Prof., Dr.sc.ing.

Latvia University of Agriculture

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*Stanislaw Winnicki*, Prof., Dr.habil.sc.ing.

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*Simon Popescu*, Prof., Ph.D.

Transilvania University of Brasov, Romania

*Waclaw Romaniuk*, Prof., Dr.habil.sc.ing.

Institute for Building, Mechanization and  
Electrification of Agriculture, Poland

*Dainis Berjoza*, Assoc. prof., Dr.sc.ing.

Latvia University of Agriculture

## **ORGANISING COMMITTEE**

### **Chairman**

*Ruslans Smigins*, Lecturer, Dr.sc.ing.

### **Members:**

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*Aleksandrs Galoburda*, Prof. assist., Dr sc.ing.

*Ilmars Dukulis*, Lecturer, Mg.sc.ing.

*Vilnis Pirs*, Lecturer, Mg.sc.ing.

*Zanis Jesko*, Lecturer, Mg.sc.ing.

*Janis Laceklis-Bertmanis*, Assistant, Mg.sc.ing.

*Una Bunke*, Bc.soc.

## Thursday, 26 May

- 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>** **AGRICULTURAL SCIENCE IN LATVIA**  
Peteris Rivza, Baiba Rivza  
*Latvia University of Agriculture*
- 10<sup>35</sup> – 11<sup>00</sup>** **DEVELOPMENT OF APPLIED HIGHER EDUCATION PROGRAM BIOSYSTEMS ENGINEERING IN ESTONIA**  
Sven Peets, Matis Luik, Arvo Leola  
*Estonian University of Life Sciences*
- 11<sup>00</sup> – 11<sup>25</sup>** **NEW METHODS IN EDUCATION OF “HEATING, VENTILATION AND AIR-CONDITIONING” FOR “EDUCATION AND RESEARCH IN BIOSYSTEMS ENGINEERING IN EUROPE”**  
Pavel Kic, Milan Zajicek  
*Academy of Science of the Czech Republic*
- 11<sup>25</sup> – 11<sup>50</sup>** **DEVELOPMENT OF BIOGAS PRODUCTION IN LATVIA**  
Vilis Dubrovskis  
*Latvia University of Agriculture*
- 11<sup>50</sup> – 12<sup>00</sup>** **ABOUT THE CONFERENCE PROGRAMME**  
Ruslans Smigins  
*Chairman of the Organising Committee of the Conference*
- 12<sup>00</sup> – 13<sup>00</sup>** Lunch
- 13<sup>00</sup> – 15<sup>00</sup>** Work in sections
- 15<sup>00</sup> – 15<sup>30</sup>** Coffee break
- 15<sup>30</sup> – 18<sup>00</sup>** Work in sections
- Regulations:** *Presentations – 15 minutes*  
*Discussions – 5 minutes*
- 19<sup>00</sup>** Conference dinner at Jelgava History and Art Museum  
 (“Academia Petrina”)  
Jelgava, Akademijas street 10

## 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: Ph.D. J. Masek, Czech University of Life Sciences Prague

- 1. ENGINEERING PROBLEMS DURING PULLING-DOWN OF HOP STRINGS AND THEIR ATTACHMENTS**  
Petr Hermanek, Adolf Rybka, Ivo Honzik, Jiri Masek, Lubomir Vent  
*Czech University of Life Sciences Prague*
- 2. TECHNICAL PROJECT FOR HOP CUTTING EQUIPMENT IN LOW TRELLIS SYSTEM**  
David Hoffmann, Adolf Rybka, Petr Hermanek, Ivo Honzik  
*Czech University of Life Sciences Prague*
- 3. INVESTIGATION INTO FILM CONSUMPTION FOR SEALING SQUARE SILAGE BALES**  
Semjons Ivanovs<sup>1</sup>, Stanislaw Gach<sup>2</sup>, Ireneusz Skonieczny<sup>2</sup>  
*<sup>1</sup>Latvia University of Agriculture; <sup>2</sup>Warsaw Agricultural University, Poland*
- 4. EFFECT OF DIFFERENCES IN REGULATED AND UNREGULATED FACTORS IN SOIL ARABLE AND SUBSOIL LAYERS ON YIELD OF WINTER WHEAT AND WINTER OIL SEED RAPE**  
Dainis Lapins, Janis Kopmanis, Aigars Plume, Janis Gmizo  
*Latvia University of Agriculture*
- 5. YIELD DETERMINATION OF FORAGE CROPS BY ROUND BALERS PRESSING**  
Jiri Masek, Milan Kroulik, Zdenek Kviz, Vaclav Prosek  
*Czech University of Life Sciences Prague*
- 6. MEASUREMENT OF SOIL RESISTANCE TO WATER EROSION IN THREE WAYS OF ESTABLISHING MAIZE CROP**  
Petr Novak<sup>1</sup>, Pavel Kovaricek<sup>2</sup>, Jiri Masek<sup>1</sup>, Josef Hula<sup>1,2</sup>  
*<sup>1</sup>Czech University of Life Sciences Prague, <sup>2</sup>Research Institute of Agricultural Engineering, Czech Republic*
- 7. CONSUMPTION OF CONCENTRATED FEED FOR MILK COWS IN CONDITIONS OF ROBOTIZED TECHNOLOGY**  
Janis Latvietis, Juris Priekulis  
*Latvia University of Agriculture*
- 8. AUTOMATIC MILKING SYSTEMS AND MILKING INTERVALS VARIABILITY**  
Armins Laurs, Juris Priekulis  
*Latvia University of Agriculture*
- 9. PREPARATION AND DISTRIBUTION OF FORAGE MIX USING MOBILE MACHINERY**  
Ansis Salins, Maris Freimanis, Juris Priekulis  
*Latvia University of Agriculture*
- 10. EMISSION OF AMMONIA IN PIGSTIES**  
Oliver Sada, Boris Reppo  
*Estonian University of Life Sciences*
- 11. EFFECT OF ENVIRONMENTALLY FRIENDLY TILLAGE MACHINERY ON SOIL PROPERTIES**  
Egidijus Sarauskis<sup>1</sup>, Kestutis Romaneckas<sup>1</sup>, Edvardas Vaiciukevicius<sup>1</sup>, Algirdas Jasinskas<sup>1</sup>, Antanas Sakalauskas<sup>1</sup>, Sidona Buragiene<sup>1</sup>, Evaldas Katkevicius<sup>1</sup>, Davut Karayel<sup>2</sup>  
*<sup>1</sup>Lithuanian University of Agriculture; <sup>2</sup>Akdeniz University, Turkey*
- 12. DETERMINATION OF RATIONAL VALUES OF INCLINATION ANGLES OF STRAW WALKER SECTIONS**  
Dainius Steponavicius, Sigitas Petkevicius, Rolandas Domeika  
*Lithuanian University of Agriculture*
- 13. REVIEW OF STUDIES ON PRESS MANURE REMOVAL**  
Taavi Leola, Mati Heinloo  
*Estonian University of Life Sciences*

## Section 2: ENGINEERING TECHNOLOGIES

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5 J. Cakstes boulv., Room 326

Chairperson: Lead. researcher, Dr.sc.ing. A. Aboltins, Latvia University of Agriculture  
Vice-chairperson: Assoc. prof., Dr.sc.ing. J. Palabinskis, Latvia University of Agriculture

- 1. MATHEMATICAL MODEL OF CARROT SLICES DRYING**  
Aivars Aboltins, Andris Upitis  
*Latvia University of Agriculture*
- 2. ALGORITHM FOR GRANULAR MATERIAL FLOW RECOGNITION USING VISUAL DATA**  
Edgars Rudzroga  
*Latvia University of Agriculture*
- 3. TOWARDS APPLICATION OF METABOLIC MODEL OF *SACCHAROMYCES CEREVISIAE* IN BIOPROCESS CONTROL ALGORITHM**  
Sandis Vilums  
*Latvia University of Agriculture*
- 4. FORECAST OF NUMERICAL OPTIMIZATION PROGRESS OF BIOCHEMICAL NETWORKS**  
Ivars Mozga, Andrejs Kostromins, Egils Stalidzans  
*Latvia University of Agriculture*
- 5. IMPROVING PRECISION AGRICULTURE METHODS WITH MULTIAGENT SYSTEMS IN LATVIAN AGRICULTURAL FIELD**  
Agris Pentjuss, Aleksejs Zacepins, Aleksandrs Gailums  
*Latvia University of Agriculture*
- 6. DEVELOPMENT OF CHEMOSTAT SUPPLY SYSTEM DURING FERMENTATION PROCESS**  
Jurijs Meitalovs  
*Latvia University of Agriculture*
- 7. SIMULATION OF IMPACT SENSORS FOR PRECISION AGRICULTURE**  
Monika Hromasova, Miloslav Linda  
*Czech University of Life Sciences Prague*
- 8. MEASURING INFORMATIONAL SYSTEM BY SATELLITE USED FOR OBTAINING OF SOME EXPERIMENTAL MODELS OF AGRICULTURAL PRODUCTION MAPS IN THE PRECISION AGRICULTURE CONCEPT**  
Iulian Voicea<sup>1</sup>, Ion Pirna<sup>1</sup>, Valentin Vladut<sup>1</sup>, Mihai Matache<sup>1</sup>, Sorin Bungescu<sup>2</sup>  
<sup>1</sup>*INMA Bucharest*, <sup>2</sup>*USAMVB Timisoara, Romania*
- 9. INTEGRATION OF SOIL SPECIFIC PARAMETERS IN DESIGNING DECISION SUPPORT SYSTEM IN PRECISION AGRICULTURE**  
Ciprian George Pirna, Simona Lache  
*University "Transilvania" of Brasov, Romania*
- 10. EXPERIMENTAL RESEARCH ON MECHANIZED HARVESTING OF PEANUTS IN ROMANIA**  
Tudor Alexandru<sup>1</sup>, Mihnea Glodeanu<sup>1</sup>, Sorin Boruz<sup>1</sup>, Simion Popescu<sup>2</sup>  
<sup>1</sup>*University of Craiova, Romania*; <sup>2</sup>*Transilvania University of Brasov, Romania*
- 11. EXPERIMENTAL RESEARCH ON ELECTRONIC SYSTEM FOR AUTOMATIC ADJUSTMENT OF WORKING FLOW AND MOVING VELOCITY IN AGRICULTURAL SPRAYING MACHINES**  
Mihnea Glodeanu<sup>1</sup>, Tudor Alexandru<sup>1</sup>, Sorin Boruz<sup>1</sup>, Simion Popescu<sup>2</sup>  
<sup>1</sup>*University of Craiova, Romania*; <sup>2</sup>*Transilvania University of Brasov, Romania*

## Section 3: MOTOR VEHICLE

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5 J. Cakstes boulv., Room 241

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

Vice-chairperson: Lecturer, Mg.sc.ing. V. Pirs, Latvia University of Agriculture

- 1. THEORETICAL INVESTIGATIONS OF VEHICLE OPERATING WITH AUXILIARY DRIVING WHEELS WITH HYDROSTATIC TRANSMISSION**  
Antanas Lapinskas<sup>1</sup>, Aleksandras Kirka<sup>1</sup>, Valentina Lapinskiene<sup>2</sup>  
*<sup>1</sup>Lithuanian University of Agriculture; <sup>2</sup>ISC Hi Steel, Kaunas, Lithuania*
- 2. RESEARCH IN INCREASING THE PERFORMANCE OF HIGH HYDRAULIC POWER SYSTEMS**  
Aleksandras Kirka  
*Lithuanian University of Agriculture*
- 3. STIFFNESS AND DAMPING CONSTANT ADJUSTMENT FOR TRACTOR HYDRAULIC HITCH – SYSTEM MODEL**  
Janis Laceklis-Bertmanis, Eriks Kronbergs  
*Latvia University of Agriculture*
- 4. SIMULATION OF BEHAVIOR OF VEHICLE GAGE PANEL**  
Aleksandrs Janushevskis<sup>1</sup>, Anatolijs Melnikovs<sup>1</sup>, Janis Auzins<sup>1</sup>, Anita Gerina-Ancane<sup>1</sup>, Helmut Klumass<sup>2</sup>  
*<sup>1</sup>Riga Technical University, Latvia; <sup>2</sup>MERPRO Ltd, Latvia*
- 5. AUTOMOBILE FUEL CONSUMPTION CHANGES AS AFFECT OF LOAD**  
Uldis Putnieks  
*Latvia University of Agriculture*
- 6. RESEARCH IN INFLUENCE OF ENGINE AIR FILTER REPLACEMENT PERIODICITY**  
Maris Gailis, Vilnis Pirs  
*Latvia University of Agriculture*
- 7. ECONOMIC EFFECT OF ELECTRIC VEHICLES**  
Dainis Berjoza, Inara Jurgena  
*Latvia University of Agriculture*
- 8. DYNAMICS OF SLOW-MOVING ELECTRIC VEHICLES**  
Dainis Berjoza  
*Latvia University of Agriculture*
- 9. GLOBAL POSITIONING SYSTEM UTILIZATION FOR MONITORING OF ENERGETIC BIOMASS LOGISTIC PROCESSES**  
David Blazej, Jiri Soucek  
*Czech University of Life Sciences Prague*
- 10. THE MAINTENANCE COSTS OF ESTONIAN TRACTOR-FLEET**  
Juri Olt, Ulo Traat  
*Estonian University of Life Sciences*
- 11. METHODOLOGICAL ASPECTS FOR ESTIMATION OF IMPACT OF MODERNISATION OF FLEET OF TRACTORS UPON POLLUTING EMISSIONS IN THE AIR**  
Dainis Viesturs<sup>1</sup>, Nikolajs Kopiks<sup>1</sup>, Ligita Melece<sup>2</sup>, Ilmars Zakis<sup>3</sup>  
*<sup>1</sup>Latvia University of Agriculture, <sup>2</sup>Latvian State Institute of Agrarian Economics, <sup>3</sup>State Ltd. "Certifying and Testing Centre", Latvia*
- 12. COMPOSITES WITH NONLINEAR MATRIX FOR TRANSPORT MEANS - EXPERIMENTAL AND COMPUTATIONAL MODELING**  
Jan Krmela, Vladimira Tomanova  
*<sup>1</sup>University of Pardubice, Czech Republic; <sup>2</sup>Trencín University of Alexander Dubcek, Slovakia*

- 13. MODERN TECHNOLOGIES OF TECHNICAL SERVICE OF CATERPILLAR RUNNING PART**  
Sergey Inshakov, Sergey Ishchenko, Maxim Osipov, Julia Klepcova  
*Primorskaya State Academy of Agriculture, Russia*
- 14. STUDY OF MODEL WITH SINGLE DEGREE OF FREEDOM FOR TRACTORS**  
Mihaela Florentina David, Edmond Maican  
*“Politehnica” University of Bucharest, Romania*
- 15. FEM MODEL TO STUDY THE INFLUENCE OF TIRE PRESSURE ON AGRICULTURAL TRACTOR WHEEL DEFORMATIONS**  
Sorin-Stefan Biris, Nicoleta Ungureanu, Edmond Maican, Erol Murad, Valentin Vladut  
*University “Politehnica” of Bucharest, Romania*
- 16. CONTRIBUTIONS TO DEVELOPMENT AND TESTING OF CENTRALIZED CONTROL SYSTEM OF INFLATION PRESSURE IN AGRICULTURAL TRACTOR TYRES ACCORDING TO SOIL AND WORKING CONDITIONS**  
Simion Popescu<sup>1</sup>, Sorin Boruz<sup>2</sup>, Mihnea Glodeanu<sup>2</sup>, Tudor Alexandru<sup>2</sup>, Florin Loghin<sup>1</sup>  
*<sup>1</sup>Transilvania University of Brasov, Romania; <sup>2</sup>University of Craiova, Romania*

## Section 4: FUELS AND FUEL SYSTEMS

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5 J. Cakstes boulv., Room 238

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

Vice-chairperson: Prof., Dr.sc.ing. G. Labeckas, Lithuanian University of Agriculture

- 1. EXPERIMENTAL INVESTIGATION ON INJECTION CHARACTERISTICS OF RAPESEED OIL AS FUEL FOR DIESEL ENGINES**  
Birute Skukauskaite, Stasys Slavinskas  
*Lithuanian University of Agriculture*
- 2. EMISSION AND FUEL CONSUMPTION STUDIES USING SEPARATED AT LOW TEMPERATURES PURE RAPESEED OIL**  
Vladimir Baks, Ilmars Dukulis, Aivars Birkavs  
*Latvia University of Agriculture*
- 3. SCHEME OF TECHNOLOGY FOR CONGRUENT DEHYDRATION OF BIOETHANOL IN SEMI-ARID WAY**  
Gunars Bremers<sup>1</sup>, Gints Birzietis<sup>1</sup>, Anita Blija<sup>1</sup>, Aleksejs Danilevics<sup>2</sup>, Arnolds Skele<sup>1</sup>  
<sup>1</sup>*Latvia University of Agriculture*, <sup>2</sup>*Latvia University*
- 4. ETHANOL AS AN ADDITIVE FUEL FOR DIESEL ENGINES**  
Juri Olt, Villu Mikita, Risto Ilves, Arne Kuut  
*Estonian University of Life Sciences*
- 5. IMPACT OF ETHANOL ON FUEL INJECTION PUMP OF DIESEL ENGINE**  
Juri Olt, Villu Mikita, Risto Ilves, Arne Küüt, Marten Madissoo  
*Estonian University of Life Sciences*
- 6. IMPACT OF ETHER/ETHANOL AND BIODIESEL BLENDS ON COMBUSTION PROCESS OF COMPRESSION IGNITION ENGINE**  
Krzysztof Gorski<sup>1</sup>, Ruslans Smigins<sup>2</sup>  
<sup>1</sup>*Technical University of Radom, Poland*; <sup>2</sup>*Latvia University of Agriculture*
- 7. PERFORMANCE AND EMISSION CHARACTERISTICS OF DIESEL ENGINE FUELLED WITH ETHANOL-DIESEL-BIODIESEL BLEND**  
Gvidonas Labeckas, Stasys Slavinskas, Marius Mazeika, Kastytis Laurinaitis  
*Lithuanian University of Agriculture*
- 8. IN SILICO ENGINEERING OF BIOCHEMICAL NETWORK OF *ZYMO MONAS MOBILIS* ADAPTATION FOR GLYCEROL CONVERSION INTO BIOETHANOL**  
Ilona Odzina<sup>1</sup>, Reinis Rutkis<sup>2</sup>, Uldis Kalnenieks<sup>2</sup>  
<sup>1</sup>*Latvia University of Agriculture*; <sup>2</sup>*Latvia University*
- 9. MOST WIDESPREAD TRUCK FUEL SYSTEMS IN LATVIA**  
Janis Mistris, Gints Birzietis  
*Latvia University of Agriculture*
- 10. PERSPECTIVE MOST WIDESPREAD USED VEHICLE FUEL SYSTEMS IN LATVIA**  
Janis Mistris, Gints Birzietis  
*Latvia University of Agriculture*
- 11. NEW BIODEGRADABLE OILS USED IN AGRICULTURE**  
Valentin Vladut<sup>1</sup>, Mihai Matache<sup>1</sup>, Iulian Voicea<sup>1</sup>, Lucretia Popa<sup>1</sup>, Sorin Biris<sup>2</sup>, Gigel Paraschiv<sup>2</sup>, Edmond Maican<sup>2</sup>  
<sup>1</sup>*INMA Bucharest, Romania*; <sup>2</sup>*USAMVB Timisoara, Romania*



## Section 5: ENERGETICS

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5 J. Cakstes boulv., Room 312

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

Vice-chairperson: Lecturer, Mg.sc.ing. V. Osadcuks, Latvia University of Agriculture

- 1. CUTTING WIND GENERATOR POWER CHART PEAKS TO MITIGATE POWER FORECAST ERROR**  
Kaupo Toom<sup>1</sup>, Kuno Jurjenson<sup>1</sup>, Tauno Juhanson<sup>2</sup>, Andres Annuk<sup>1</sup>  
*<sup>1</sup>Estonian University of Life Sciences; <sup>2</sup>Eesti Energia AS, Estonia*
- 2. CONFIGURATION OF INTEGRATED ENERGY SYSTEM ACCORDING TO PROBABILISTIC INFORMATION**  
Andres Annuk<sup>1</sup>, Timo Tamm<sup>1</sup>, Terje Hoim<sup>1</sup>, Yiannis A. Katsigiannis<sup>2</sup>, Veli Palge<sup>1</sup>  
*<sup>1</sup>Estonian University of Life Sciences; <sup>2</sup>Technological Educational Institute of Crete, Greece*
- 3. COMPENSATED SINGLE-PHASE RECTIFIER**  
Ivars Rankis<sup>1</sup>, Janis Donins<sup>1</sup>, Vytautas Beniusis<sup>2</sup>  
*<sup>1</sup>Riga Technical University, Latvia; <sup>2</sup>Klaipeda University, Lithuania*
- 4. HARDWARE AND SOFTWARE ENVIRONMENT FOR EVALUATION OF CONTROL ALGORITHMS AND STRATEGIES OF HYBRID POWER SYSTEMS**  
Vitalijs Osadcuks, Aldis Pecka, Aldis Lojans  
*Latvia University of Agriculture*
- 5. POWER EFFICIENCY IMPROVEMENT OF HEATING SUBSTATION USING PUMP MOTOR SPEED RATE REGULATION**  
Dmitrij Shirkin, Ivars Rankis  
*Riga Technical University, Latvia*
- 6. EXPERIMENTAL STUDY OF DYNAMIC BEHAVIOR OF DIFFERENT FLEXIBLE SYSTEMS FOR REACTIVE POWER COMPENSATION**  
Janis Zakis<sup>1</sup>, Dmitri Vinnikov<sup>2</sup>, Juhan Laugis<sup>2</sup>, Ivars Rankis<sup>1</sup>  
*<sup>1</sup>Riga Technical University, Latvia; <sup>2</sup>Tallinn University of Technology, Estonia*
- 7. SUBSTANTIATION FOR CONSTRUCTION OF SOLAR COLLECTOR WITH REFLECTORS**  
Liene Kancevica, Aivars Aboltins  
*Latvia University of Agriculture*
- 8. DIFFERENT MATERIAL INVESTIGATIONS IN AIR-HEATING FLAT-PLATE SOLAR COLLECTOR**  
Guntis Ruskis, Aivars Aboltins, Janis Palabinskis  
*Latvia University of Agriculture*
- 9. ANALYSIS OF SYSTEM OF BIOMASS DRYING BY USE OF EXPERIMENTAL DRYER WITH SOLAR COLLECTOR**  
Tatiana Ivanova<sup>1</sup>, Bohumil Havrland<sup>1</sup>, Victor Pobedinsky<sup>2</sup>, Alexandru Muntean<sup>2</sup>  
*<sup>1</sup>Czech University of Life Sciences Prague; <sup>2</sup>State Agrarian University of Moldova*
- 10. RESEARCH ON POSSIBILITIES FOR DECREASING HEAT LOSSES IN BUILDINGS**  
Edmunds Visockis, Peteris Vucenlzdans, Vita Ansone, Ilga Morozova  
*Rezekne Higher Education Institution, Latvia*
- 11. HEAT ENERGY CONSUMPTION ANALYSIS IN RIGA CITY NOT RENOVATED PUBLIC BUILDINGS AND IN BUILDINGS AFTER PARTIAL RENOVATION**  
Eriks Krumins<sup>1</sup>, Ilze Dimdina<sup>2</sup>, Arturs Lesinskis<sup>2</sup>  
*<sup>1</sup>Latvia University of Agriculture; <sup>2</sup>Riga Technical University, Latvia*
- 12. WATER CURATIVE TREATMENT DEVICE**  
Janis Fridrihsons  
*Latvia University of Agriculture*

- 13. PLANT SPECTRAL LIGHTING AND SPRINKLING WATER A ACTIVATION DEVICE**  
 Janis Fridrihsons, Ina Alsina, Aldis Lojans  
*Latvia University of Agriculture*
- 14. EVALUATE OF HEMP (*CANNABIS SATIVAL*) QUALITY PARAMETERS FOR BIOENERGY PRODUCTION**  
 Liena Poisa, Aleksandrs Adamovics  
*Latvia University of Agriculture*
- 15. TECHNOLOGIES FOR BIOGAS PRODUCTION IN AGRICULTURE OF LATVIA**  
 Vilis Dubrovskis, Eduards Zabarovskis, Vladimirs Kotelenecs  
*Latvia University of Agriculture*
- 16. ANAEROBIC DIGESTION TECHNOLOGIES FOR DRY BIOMASS**  
 Vladimirs Kotelenecs, Vilis Dubrovskis, Eduards Zabarovskis  
*Latvia University of Agriculture*
- 17. BIOGAS PRODUCTION FROM CHEESE WHEY IN TWO PHASE ANAEROBIC DIGESTION**  
 Janis Jasko<sup>1,2</sup>, Eriks Skripsts<sup>1,2</sup>, Vilis Dubrovskis<sup>1</sup>, Eduards Zabarovskis<sup>1</sup>, Vladimirs Kotelenecs<sup>1</sup>  
<sup>1</sup>*Latvia University of Agriculture;* <sup>2</sup>*Institute of Biomechanics and Physical Research, Latvia*
- 18. INVESTIGATION OF BIOGAS PRODUCTION OF CHEESE WHEY IN PROCESSING WITH OZONE BEFORE ANAEROBIC DIGESTION**  
 Eriks Skripsts<sup>1,2</sup>, Vilis Dubrovskis<sup>1</sup>, Janis Jasko<sup>1,2</sup>, Eduards Zabarovskis<sup>1</sup>, Vladimirs Kotelenecs<sup>1</sup>  
<sup>1</sup>*Latvia University of Agriculture;* <sup>2</sup>*Institute of Biomechanics and Physical Research, Latvia*
- 19. ENERGY BALANCE OF BIOGAS PRODUCTION FROM PERENNIAL GRASSES**  
 Kestutis Navickas, Kestutis Venslauskas, Vidmantas Zuperka, Arvydas Nekrosius, Tadas Kulikauskas  
*Lithuanian University of Agriculture*
- 20. BIOGAS PRODUCTION FROM GREATER BURDOCK, LARGELEAF LUPIN AND SOSNOVSKY COW PARSNIP**  
 Vilis Dubrovskis, Aleksandrs Adamovics, Imants Plume, Vladimirs Kotelenecs, Eduards Zabarovskis  
*Latvia University of Agriculture*

## Section 6: MECHANICS AND MATERIAL SCIENCE

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5 J. Cakstes boulv., Room 410

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

Vice-chairperson: Prof., Dr.sc.ing. G. Verdins, Latvia University of Agriculture

1. **LAYER NUMBER INFLUENCE ON WELD DEPOSIT CHEMICAL COMPOSITION**  
Milan Brozek  
*Czech University of Life Sciences Prague*
2. **METHYLMETACRYLATE (ADHESIVE) – INFLUENCE OF CLIMATIC CONDITIONS ON PROPERTIES OF ADHESIVE BOND**  
Petr Henc, Petr Chocholous, Miroslav Muller, Jiri Kejval  
*Czech University of Life Sciences Prague*
3. **ELASTIC PROPERTIES OF COTTON FABRIC BASED POLYMER COMPOSITIES**  
Galina Kharkova, Olga Kononova, Andrejs Krasnikovs, Maris Eiduks, Edgars Machanovskis, Karlis Dzelzitis  
*Riga Technical University, Latvia*
4. **INVESTIGATION OF VIBROPRESSING PROCESS TECHNOLOGY**  
Agrita Kovalska, Janis Auzins  
*Riga Technical University, Latvia*
5. **RESEARCH OF METALWORKING EFFICIENCY IN DEPENDANCE ON BENCH FACILITIES**  
Gunars Verdins, Daina Kanaska  
*Latvia University of Agriculture*
6. **CUTTING FLUIDS EVALUATION BASED ON OCCUPATIONAL HEALTH AND ENVIRONMENTAL HAZARDS**  
Julia Meciarova, Miroslav Stanovsky  
*Technical University in Zvolen, Slovak Republic*
7. **POLYMERIC COMPOSITES BASED ON  $Al_2O_3$  REINFORCING PARTICLES**  
Miroslav Muller  
*Czech University of Life Sciences Prague*
8. **DEFINITION OF POISSON'S RATIO OF ELASTOMERS**  
Vladimirs Gonca, Yurijs Shvabs  
*Riga Technical University, Latvia*
9. **STRENGTH CHARACTERISTICS OF POLYMER PARTICLE COMPOSITES WITH FILLER ON THE BASIS OF WASTE FROM MECHANICAL SURFACE TREATMENT**  
Petr Valasek  
*Czech University of Life Sciences Prague*
10. **MECHANICAL PROPERTIES OF ENERGY CROPS**  
Aivars Kakitis, Imants Nulle, Dainis Ancans  
*Latvia University of Agriculture*
11. **CUTTING PROPERTIES OF DIFFERENT HEMP VARIETIES IN DEPENDENCE ON THE CUTTER MECHANISM**  
Andris Kronbergs, Eriks Kronbergs, Elgars Siraks, Aleksandrs Adamovics  
*Latvia University of Agriculture*
12. **BRIQUETTING MECHANISM ANALYSIS FOR SOLID BIOFUEL PRODUCTION**  
Edgars Repsa, Eriks Kronbergs, Mareks Smits  
*Latvia University of Agriculture*
13. **SYNTHESIS OF A ROBOT FISH PROTOTYPE**  
Igoris Tipans, Semjons Cifanskis, Janis Viba, Vladimirs Jakushevich, Bruno Grasmanis, Guntis Kulikovskis  
*Riga Technical University, Latvia*

- 14. FLUID FLOW VIBRATION EXCITATION BY THE CONTROL OF INTERACTION SURFACE**  
Maris Eiduks, Janis Viba, Lauris Shtals, Edgars Kovals, Stanislavs Noskovs  
*Riga Technical University, Latvia*
- 15. ANALYSIS OF TRANSPORT SPEED CONTROL BASED ON FUZZY LOGICS ELEMENTS**  
Janis Viba<sup>1</sup>, Anita Gerina-Ancane<sup>1</sup>, Guntis Kulikovskis<sup>1</sup>, Paolo Fiorini<sup>2</sup>, Liene Porina<sup>1</sup>  
*<sup>1</sup>Riga Technical University, Latvia; <sup>2</sup>University of Verona, Italy*
- 16. RESEARCH IN DISMOUNTABLE SLIDE FRICTION PIVOT OPERATION FOR CONVEYOR CHAIN**  
Emils Pudans, Guntars Uzklingsis  
*Latvia University of Agriculture*
- 17. DYNAMIC MODELING OF WORKING SECTIONS OF GRASSLAND OVERSOWING MACHINE MSPD-2.5**  
Florin Loghin, Simion Popescu, Florean Rus  
*Transilvania University of Brasov, Romania*
- 18. CORROSION RESISTANCE OF TITANIUM ALLOY**  
Sylvia Kusmierczak  
*Jan Evangelista Purkyne University in Usti nad Labem, Czech Republic*
- 19. EXPERIMENTS REGARDING MECHANICAL BEHAVIOUR OF ENERGETIC PLANT MISCANTHUS TO CRUSHING AND SHEAR STRESS**  
Gheorghe Voicu, Georgiana Moiceanu, Marin Sandu, Ion Cristian Poenaru, Paula Voicu  
*"Politehnica" University of Bucharest, Romania*

## Section 7: EDUCATIONAL SCIENCES

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5 J. Cakstes boulv., Room 336

Chairperson: Prof., Dr.paed. B. Briede, Latvia University of Agriculture

Vice-chairperson: Prof., Dr.paed. A. Zeidmane, Latvia University of Agriculture

**1. TRENDS OF SPECIALISTS COMPETENCE IN WORK SAFETY**

Imants Bertaitis, Baiba Briede, Ludis Peks

*Latvia University of Agriculture*

**2. DEVELOPMENT OF CROSS-CULTURAL COMMUNICATION SKILLS OF ENGINEERING STUDENTS**

Anete Mezote

*Latvia University of Agriculture*

**3. PROMOTION OF ENGINEERING STUDENT COMPETENCES IN EXTRA-CURRICULUM ACTIVITIES**

Larisa Malinovska

*Latvia University of Agriculture*

**4. IMPROVEMENT OF ENGINEERING WEBSITE FOR CROSS-CULTURAL ACCESSIBILITY AND USABILITY**

Gatis Vitols<sup>1</sup>, Irina Arhipova<sup>1</sup>, Yukako Hirata<sup>2</sup>

<sup>1</sup>*Latvia University of Agriculture*; <sup>2</sup>*Hewlett-Packard Japan, Ltd.*

**5. PROBLEMS IN PROFESSIONAL ENGLISH WRITING SKILLS DEVELOPMENT FOR STUDENTS OF ENGINEERING SCIENCES**

Irina Orlova, Anda Zeidmane

*Latvia University of Agriculture*

**6. METHODOLOGICAL BASES FOR EVALUATION OF SPECIALIST COMPETITIVENESS**

Irena Katane

*Latvia University of Agriculture*

**7. PROCESS OF STUDIES EVALUATED BY STUDENTS**

Kaspars Vartukapteinis, Antonina Cukure, Janis Cukurs

*Latvia University of Agriculture*

**8. DEVELOPMENT OF PROFESSIONAL EDUCATION TEACHER COMPETENCES AT THE LATVIA UNIVERSITY OF AGRICULTURE**

Anita Aizsila

*Latvia University of Agriculture*

**9. SOFTWARE DEVELOPMENT QUALITY MODELS IN ENGINEERING EDUCATION**

Sandra Sproge, Rudite Cevere

*Latvia University of Agriculture*

**10. EVALUATION OF TEACHING THE SUBJECT ‘BASIC ENGINEERING TECHNOLOGIES’**

Alexandra Novakova, Milan Brozek

*Czech University of Life Sciences Prague*

**11. SOME THEORETICAL DESCRIPTIONS OF COMPUTER ASSISTED LEARNING**

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-West Branch of the Academy of Information Technologies in Education, Russia*

**12. USING OF CATIA V5 SOFTWARE FOR TEACHING AT FACULTY OF PRODUCTION TECHNOLOGY AND MANAGEMENT**

Natasa Naprstkova

*Jan Evangelista Purkyne University in Usti nad Labem, Czech Republic*

**13. MAKING OF EXPERIMENT FOR STUDENT USAGE**

Natasa Naprstkova

*Jan Evangelista Purkyne University in Usti nad Labem, Czech Republic*

## Friday, 27 May

9<sup>30</sup>     **Bus tour to Riga Motor Museum and guided tour through the Riga Old Town**  
~ 16<sup>00</sup>   **Returning to Jelgava**

On the second day of the conference we would like you to invite to visit **Riga Motor Museum** (<http://www.motormuzejs.lv/pub/>), which is the largest antique vehicle museum in Baltic countries. In the total exhibition space of 3278 m<sup>2</sup> you will have the possibility to see more than 230 different exhibits.



The main exhibition of this museum consists of cars, motorbikes and bicycles from the last decade of 19th to the end of 20th century. You will see the cars of WW 2, race and record cars, midget cars and cars made in Soviet Union.

Museum has also 3 cars, which came as presents to L.Brezhnev (General Secretary of Central Committee of the Communist Party of the Soviet Union) from leaders of other countries: *Rolls – Royce Silver Shadow*, *Lincoln Continental Town Car* and *Mercedes Benz 280 SEL*.

After that you will have a lunch in **LIDO Recreation Centre** (<http://www.lido.lv/>) that is build from log and looks like an old mill house. LIDO is the best example of Latvian cuisine and traditions.

After lunch we would like you to invite for a guided tour through the **Riga Old Town** that is beautiful with its arhitecture of different centuries. Riga's Old Town is situated on the right bank of the River Daugava. It is picturesque with its romantic cobbled and narrow streets, small squares, lovely parks and nicely painted houses.

The tour starts discovering the Black Heads House in Town Hall Square, where you can admire Statue of Roland and Riga City Hall that is located accross the square. Continuing on through the tour you will visit St. Peter's Church, Convent Square, the Large and the Small Guild, Dome Cathedral, the Powder Tower and other sightseeings of the city.

([http://www.riga.lv/LV/Channels/About\\_Riga/default.htm](http://www.riga.lv/LV/Channels/About_Riga/default.htm))





1. Faculty of Engineering, J. Cakstes boulv. 5.
2. Jelgava Palace, Latvia University of Agriculture, 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.
7. Jelgava History and Art Museum, Akademijas str. 10.

*Address of the Conference Committee*

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