

Latvia University of Agriculture
Faculty of Engineering

Latvian Academy of Agricultural and Forestry Sciences
Division of Engineering



12th International Scientific Conference

ENGINEERING FOR RURAL DEVELOPMENT

PROGRAMME

The Conference is supported by



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Conference languages – English, Russian, Latvian

Jelgava, Latvia, May 23 – 24, 2013

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Assistant Emīls Pudāns, Latvia University of Agriculture, Latvia
Researcher Edgars Repša, Latvia University of Agriculture, Latvia
Researcher Andris Kronbergs, Latvia University of Agriculture, Latvia

Thursday, 23 May

- 9⁰⁰ – 10⁰⁰** Registration of participants,
Faculty of Engineering, LUA, 5 J. Cakstes blvd., 2nd floor, Room 254.
- 10⁰⁰ – 12⁰⁰** Opening of the conference and plenary session
Faculty of Engineering, Room 429

10⁰⁰ – 10⁰⁵	Kaspars Vārtukapteinis <i>Dean of the Faculty of Engineering, Latvia University of Agriculture</i> OPENING SPEECH
10⁰⁵ – 10³⁵	Richard J. Godwin <i>Visiting Professor of the Harper Adams University</i> PLANNING AND EXECUTION OF RESEARCH PROJECTS IN ENGINEERING FOR AGRICULTURE AND RURAL DEVELOPMENT
10³⁵ – 11⁰⁵	Guntra Matisa <i>Communication Manager, Fortum Corporate Communications</i> BIOMASS COMBINED HEAT AND POWER PROJECT IN JELGAVA
11⁰⁵ – 11³⁵	Jiri Masek, <i>Vicedean of Faculty of Engineering, Czech University of Life Sciences Prague</i> Co-authors: Milan Kroulik, Petr Novak UTILIZATION OF GPS GUIDANCE SYSTEMS IN CONTROLLED TRAFFIC FARMING
11³⁵ – 12⁰⁵	Alfred Wong <i>Arbokem Inc., Vancouver, Canada</i> ESTABLISHMENT OF A TECHNOLOGY DEVELOPMENT BANK AS A MEANS TO FACILATE ECONOMIC DEVELOPMENT IN RURAL LATVIA

- 12⁰⁵ – 13⁰⁰** Lunch
- 13⁰⁰ – 15⁰⁰** Work in sections
- 15⁰⁰ – 15³⁰** Coffee break, Room 254
- 15³⁰ – 17³⁰** Work in sections
- Regulations:** *Presentations – 10 minutes*
 Discussions – 5 minutes
- 17³⁰ – 18⁴⁵** Opportunity to listen “SINFONIETTA RĪGA” music of the Baroque period.
Beginning of the concert 17³⁰, entrance free!
Jelgava Palace, hall
- 19⁰⁰** Conference dinner
5 J.Cakstes blvd., Room 254

Section 1: AGRICULTURAL MACHINERY

5 J.Cakstes blvd., Room 212

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

Vice-chairman: Mg.sc.ing. Janis Laceklis-Bertmanis, *Latvia University of Agriculture*

1. **Ricardas Butkus, Gediminas Vasiliauskas**
Aleksandras Stulginskis University
RESEARCH OF VIBRO-ACOUSTIC ENVIRONMENT IN CABS OF AGRICULTURAL TRACTORS
2. **Vaclovas Kurkauskas, Algirdas Janulevičius, Gediminas Pupinis, Vidas Damanauskas**
Aleksandras Stulginskis University
INTERACTION BETWEEN DRIVING WHEEL AND ROAD SURFACE OF ALL WHEELED DRIVEN TRACTOR
3. **David Hoffmann, Petr Hermanek, Adolf Rybka, Ivo Honzik**
Czech University of Life Sciences Prague
DESIGN FOR DRIVE OF INTERAXLE MECHANICAL CUTTER USED IN LOW TRELLIS SYSTEMS
4. **Lubomir Vent, Adolf Rybka, Petr Hermanek, Ivo Honzik, Bohuslav Jost, Jiri Masek**
Czech University of Life Sciences Prague
TENSILE STRENGTH OF HOP TRAINING WIRES AND THEIR ATTACHMENTS
5. **Janis Laceklis-Bertmanis, Eriks Kronbergs**
Latvia University of Agriculture
MATHEMATICAL MODEL OF TRACTOR AGGREGATE
6. **Janis Laceklis-Bertmanis, Eriks Kronbergs**
Latvia University of Agriculture
MODEL OF HYDROPNEUMATIC THREE POINT HITCH
7. **Aleksandras Kirka**
Aleksandras Stulginskis University
RESEARCH IN SPEED STABILIZATION OF HYDRAULIC MOTORS
8. **Vytautas Kucinskas, Anicetas Straksas, Algirdas Jasinskas**
Aleksandras Stulginskis University
INFLUENCE OF PLANT OIL USE FOR FUEL SUPPLY AND HYDRAULIC SYSTEMS OF TRACTOR ENGINE
9. **Dainius Steponavicius, Vidmantas Butkus, Valdas Kiniulis, Tautvydas Karitonas, Laimis Bausa, Edvinas Puzauskas**
Aleksandras Stulginskis University
INFLUENCE OF INERTIA MOMENTUM OF CYLINDER ON POWER CONSUMPTION DURING CORN EAR THRESHING
10. **Remigijus Zinkevicius, Dalius Vitunskas**
Aleksandras Stulginskis University, Lithuania
ASSESSMENT OF OPERATOR EFFECT ON MACHINE PERFORMANCE OF “PONSSE BUFFALO DUAL” HARWARDER
11. **Egidijus Sarauskis¹, Laura Masilionyte^{1,2}, Kestutis Romaneckas¹, Zita Kriauciuniene¹, Algirdas Jasinskas¹, Davut Karayel³**
¹Aleksandras Stulginskis University, Lithuania; ²Institute of Agriculture Lithuanian Research Centre for Agriculture and Forestry, Lithuania; ³Akdeniz University, Turkey
EFFECT OF DIFFERENT DESIGN COULTERS ON SEEDBED HARDNESS
12. **Egidijus Sarauskis, Kestutis Romaneckas, Kristina Vaitauskiene, Antanas Sakalauskas, Edvardas Vaiciukevicius, Remigijus Petrauskas**
Aleksandras Stulginskis University
INFLUENCE OF SOIL HARDNESS ON TRACTION FORCE OF DIFFERENT DESIGN COULTERS

13. **Sorin-Stefan Biris, Nicoleta Ungureanu, Valentin Vladut, Ioan Ganea**
Politehnica University of Bucharest
STUDY ON THE DEVELOPMENT OF AN ADAPTIVE TIRE FOR AGRICULTURAL TRAILERS
14. **Dainis Lapins, Paulis Paskausks, Gundega Putniece, Aigars Putnieks**
Latvia University of Agriculture
SOIL COLOUR SPECTRAL ANALYSIS
15. **Dainis Lapins¹, Gundega Putniece¹, Janis Kopmanis²**
¹Latvia University of Agriculture, ²Institute of Soil and Plant Sciences, Latvia
EFFECT OF RELIEF ON WINTER WHEAT AND WINTER OIL SEED RAPE GROWING AND
POSSIBILITIES TO USE IT IN EFFECTIVE CROP GROWING TECHNOLOGIES
16. **Ligita Balezentiene, Uzupis Arnoldas**
Aleksandras Stulginskis University
ENVIRONMENT IMPACT ON CROP-SCALE RESPIRATION
17. **Juraj Ruzbarsky, Tomas Duranik, Andrej Ulicny**
Technical University of Košice
TECHNOLOGY SOLUTION OF DECONTAMINATION PROCESS OF SOIL
18. **Jan Chyba, Milan Kroulik, Patrik Vitek, Frantisek Kumhala**
Czech University of Life Sciences Prague
PROPOSALS FOR FIELD WORK RIDES AND THEIR OPTIMIZATION ACCORDING TO SHAPE OF
LAND
19. **Volodimir Bulgakov¹, Nikolaj Boris¹, Semjons Ivanovs²**
¹National University of Life and Environmental Sciences of Ukraine; ²Latvia University of Agriculture
MATHEMATICAL MODEL OF INTERACTION OF OPERATING ELEMENT OF TOP REMOVER
WITH HEAD OF ROOT CROP

Section 2: ENGINEERING TECHNOLOGIES AND POLICIES

5 J. Cakstes blvd., Room 403

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

Vice-chairman: Dr.sc.ing. Pavel Kic
Czech University of Life Sciences Prague

1. **Pavel Kic¹, Aivars Aboltins²**
¹Czech University of Life Sciences Prague, ²Latvia University of Agriculture
CONVECTIVE DRYING OF POULTRY MANURE BY DIFFERENT AIR SPEEDS
2. **Aleksejs Zacepins, Toms Karasha**
Latvia University of Agriculture
APPLICATION OF TEMPERATURE MEASUREMENTS FOR BEE COLONY MONITORING: A
REVIEW
3. **Arvo Leola, Mart Reinvee, Matis Luik, Regina Lensment, Taavi Leola**
Estonian University of Life Sciences
ASSESSING ERGONOMICNESS OF PIPELINE MILKING MACHINES – METHODOLOGICAL
APPROACH
4. **Sergey Rakutko, Alex Patsukov**
*North-West Research Institute of Agricultural Engineering and Electrification (SZNIIMESH) of the Russian
Academy of Agricultural Sciences*
COMPARATIVE APPLICATION EFFICIENCY OF OPTICAL FLUX DELIVERED FROM LED AND
GAS-DISCHARGE SOURCES IN INDOOR PLANT CULTIVATION

5. **Egidijus Zvicevičius, Henrikas Novošinskas, Aušra Čiplienė, Ona Ragažinskienė, Vaidas Bartusevičius**
Aleksandras Stulginskis University, Vytautas Magnus university
DIFFERENCES IN DRYING PROCESSES OF MORPHOLOGICAL PARTS OF PURPLE
CONEFLOWER (ECHINACEA PURPUREA (L.) MOENCH)
6. **Vitalijs Komasilovs**
Latvia University of Agriculture
SOFTWARE MODULES FOR OPTIMIZATION OF SPECIFICATION OF HETEROGENEOUS MULTI-
ROBOT SYSTEM
7. **Aivars Aboltins**
Latvia University of Agriculture
THEORETICAL STUDY OF MATERIAL DRYING COEFFICIENT
8. **Ilze Pelece**
Latvia University of Agriculture
CALCULATIONS OF SEMI-SPHERICAL SOLAR COLLECTOR WITH REFLECTOR
9. **Aleksejs Zacepins, Egils Stalidzans, Toms Karasha**
Latvia University of Agriculture
PROFITABILITY RANKING OF PRECISION AGRICULTURE MEASUREMENT SYSTEM
IMPLEMENTATION
10. **Ausra Arlauskienė, Danguolė Nemeikienė, Alvyra Slepetienė**
Joniškėlis Experimental Station of the Lithuanian Research Centre for Agriculture and Forestry
INNOVATIVE GREEN MANURE TECHNOLOGIES ON ORGANIC FARMING
11. **Antanas Pocius, Eglė Jotautienė, Vidmantas Butkus, Algirdas Jasinskas**
Aleksandras Stulginskis University, Lithuania
ASSESSMENT OF BREWER'S GRAINS UTILIZATION TECHNOLOGICAL PROCESS AND
CHARACTERISTICS OF THE OBTAINED GRANULATED PRODUCT
12. **Tomas Sima¹, Ladislav Nozdrovický¹, Josef Krupicka², Monika Dubenova¹, Koloman Kristof¹**
¹Slovak University of Agriculture in Nitra; ²Czech University of Life Sciences Prague
EFFECT OF NITRIFICATION INHIBITORS ON ELECTRICAL CONDUCTIVITY OF DASA[®] 26/13
AND ENSIN[®] FERTILIZERS
13. **Tomas Sima¹, Ladislav Nozdrovický¹, Monika Dubenova¹, Koloman Kristof¹, Josef Krupicka²**
¹Slovak University of Agriculture in Nitra; ²Czech University of Life Sciences Prague
EFFECT OF MANUAL NAVIGATION ON QUALITY OF WORK OF KUHN AXERA1102 H-EMC
FERTILISER SPREADER
14. **Zdenek Kviz, Milan Kroulik, Frantisek Kumlhala, Jiri Masek**
Czech University of Life Sciences Prague
POST HARVEST STRAW MANAGEMENT AS DECISIVE PARAMETER FOR FINAL YIELD OF CROPS
15. **Andrei Gudima, Gregore Marian**
State Agrarian University of Moldova, Republic of Moldova
THE ENERGY POTENTIAL OF BIOMASS CHARACTERISTIC FOR THE REPUBLIC OF MOLDOVA
16. **Milan Zajicek¹, Pavel Kic²**
¹Academy of Science of the Czech Republic; ²Czech University of Life Sciences
LONGITUDINAL VENTILATION OF BROILER HOUSE – SIMULATION OF VARIANTS
17. **Petr Novak, Jiri Masek, Josef Hula, Stanislav Petrsek**
Czech University of Life Sciences Prague
ASPECTS OF GROWING WIDE-ROW CROPS ON SLOPES
18. **Ansis Salins, Aivars Aboltins, Maris Freimanis**
Latvia University of Agriculture
IMPROVEMENT OF CONCENTRATED FEED CONVEYER OPERATION EFFICIENCY
19. **Janis Latvietis, Juris Priekulis, Ansis Salins**
Latvia University of Agriculture
SOLUTIONS OF CONCENTRATED FEED CONSUMPTION BY COWS IN CONDITIONS OF
ROBOTISED MILKING

Section 3: MATERIAL SCIENCES

5 J. Cakstes blvd., Room 429.

Chairman: Dr. sc. ing. Daina Kanaška
Latvia University of Agriculture

Vice-chairman: Mg. sc. ing. Valdis Kleinbergs
Latvia University of Agriculture

1. **Gunars Verdins, Daina Kanaska, Valdis Kleinbergs**
Latvia University of Agriculture
SELECTION OF THE METHOD OF HARDNESS TEST
2. **Galina Harjkova¹, Marcin Barburksi^{2,3}, Stepan V. Lomov³, Olga Kononova¹**
¹Riga Technical University, Latvia; ²Technical University of Lodz, Poland; ³KU Leuven, Belgium
MICRO-CT ANALYSIS OF GLASS KNITTED FABRIC STRUCTURE
3. **Stefan Michna, Sylvia Kusmierczak**
Jan Evangelista Purkyně University in Ústí nad Labem, Czech Republic
CHANGES IN STRUCTURE OF TWO-PHASE TITANIUM ALLOYS IN FORGING
4. **Petr Valasek, Petr Chocholous**
Czech University of Life Sciences Prague
MECHANICAL PROPERTIES OF EPOXY RESINS WITH ORGANIC FILLER - WOOD FLOUR
5. **Petr Valasek, Miroslav Muller**
Czech University of Life Sciences Prague
RECYCLATION OF WASTE MICROPARTICLES IN INTERACTION WITH POLYMERIC MATRIX – MULTIPHASE COMPOSITE
6. **Miroslav Muller, Jan Cidlina, Petr Valasek**
Czech University of Life Sciences Prague
MODERN TECHNOLOGY OF BONDING METAL SHEETS – TECHNOLOGIC QUALITIES OF ADHESIVE BONDS
7. **Jaroslava Svobodova, Sylvia Kusmierczak**
Jan Evangelista Purkyně University in Ústí nad Labem, Czech Republic
ANALYSIS OF STATE OF LACQUERED LAYER OF METAL SHEET AFTER CORROSION LOAD
8. **Dalia Girdauskiene, Arnoldas Uzupis**
Aleksandras Stulginskis University
AMORPHIZATION AND STRESS KINETICS IN ION IMPLANTED CRYSTALLINE SOLIDS
9. **Juozas Navickas, Dalia Kasperiuonaite, Feliksas Mikuckis**
Aleksandras Stulginskis University
THERMO PHYSICAL PROPERTIES OF SAMPLES MADE OF UNBURNT CLAYEY SOIL AND SAPROPEL MIXTURE
10. **Marina Griscenko, Janis Viba, Maris Eiduks**
Riga Technical University
USING PENALTY FUNCTION METHOD FOR ANALYSIS OF DYNAMIC BEHAVIOUR OF VISCOELASTIC MATERIALS
11. **Egle Jotautiene, Stanislovas Merkevicus, Antanas Pocius, Andrius Senkus**
Aleksandras Stulginskis University
ESTIMATION ELASTIC JUNCTION INFLUENCE ON PARTS AND JOINTS USING MECHANICAL IMPEDANCE METHOD
12. **Vitalijs Lulis, Galina Harjkova, Arturs Macanovskis, Olga Kononova, Andrejs Krasnikovs**
Riga Technical University
FRACTURE OF LAYERED FIBERCONCRETE WITH NON-HOMOGENEOUS FIBER DISTRIBUTION

13. **Natasa Naprstkova**
Jan Evangelista Purkyně University in Ústí nad Labem, Czech Republic
INFLUENCE OF INOCULATION ALSI7MG0,3 ALLOY ON ROUGHNESS OF MASHING SURFACE
14. **Andris Prizevaitis, Dmitrijs Litvinovs, Eriks Gerins**
Riga Technical University
ANALYSIS OF THERMAL GROWTH INFLUENCE ON V-BELT TRANSMISSION ALIGNMENT PRECISION
15. **Marek Wrobel, Jaroslaw Fraczek, Slawomir Francik, Zbigniew Slipek, Mudryk Krzysztof**
University of Agriculture in Krakow
MODELLING OF UNIT CONTACT SURFACE OF BEAN SEEDS USING ARTIFICIAL NEURAL NETWORKS (ANN)
16. **Krzysztof Mudryk, Slawomir Francik, Jaroslaw Fraczek, Zbigniew Slipek, Marek Wrobel**
University of Agriculture in Krakow
MODEL OF ACTUAL CONTACT AREA OF RYE AND WHEAT GRAINS WITH FLAT SURFACE

Section 4: MOTOR VEHICLES, FUELS AND LOGISTICS

5 J. Cakstes blvd., Room 431

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Vice-chairman: Dr. sc. ing. Ilmārs Dukulis
Latvia University of Agriculture

1. **Uldis Putnieks, Gints Birzietis**
Latvia University of Agriculture
MELEX 963DS ELECTRIC VEHICLE DRIVING RANGE WITH PARTIAL CHARGE
2. **Birute Skukauskaitė, Tomas Mickevicius, Stasys Slavinskis**
Aleksandras Stulginskis University
EXPERIMENTAL INVESTIGATION IN DIESEL FUEL, RAPESEED OIL AND ITS BLEND COMBUSTION IN OFF-ROAD DIESEL ENGINES
3. **Kastytis Laurinaitis, Stasys Slavinskis**
Aleksandras Stulginskis University
INFLUENCE OF FUEL TYPE AND INTAKE AIR PROPERTIES ON COMBUSTION CHARACTERISTICS OF HCCI ENGINE
4. **Gvidonas Labeckas¹, Stasys Slavinskis¹, Valentina Vilutiene²**
¹Aleksandras Stulginskis University, Lithuania; ²General Jonas Zemaitis Military Academy of Lithuania
COMBUSTION, PERFORMANCE AND EMISSION CHARACTERISTICS OF DIESEL ENGINE OPERATING ON JET FUEL TREATED WITH CETANE IMPROVER
5. **Ilmars Dukulis, Aivars Birkavs**
Latvia University of Agriculture
DEVELOPMENT OF MODEL FOR RUNNING DIESEL ENGINE ON RAPESEED OIL FUEL AND ITS BLENDS WITH FOSSIL DIESEL FUEL
6. **Ilmars Dukulis, Dainis Berjoza, Zanis Jesko**
Latvia University of Agriculture
INVESTIGATION OF ELECTRIC BICYCLE ACCELERATION CHARACTERISTICS
7. **Kristaps Sondors**
Latvia University of Agriculture
MICROALGAE CULTIVATION IN LATVIAN CLIMATIC CONDITIONS

8. **Janis Laceklis-Bertmanis, Uldis Putnieks, Janis Mistris, Maris Gailis, Liene Kancevica**
Latvia University of Agriculture
COMPOSITION OF ALTERNATIVE ENERGY BATTERY CHARGING STATION
9. **A.Rucins, K.Zihmane-Ritina, G.Bremers, G.Birzietis, A.Baltins, A. Skele, J.Bergs**
Latvia University of Agriculture,
ENERGY EVALUATION OF WATER ADSORBENT REGENERATION NODE OF BIOETHANOL DEHYDRATION FACILITY
10. **Ugis Sirmelis**
Riga Technical University
ESS SIZING CONSIDERATIONS ACCORDING TO CONTROL STRATEGY
11. **Genadijs Zaleskis, Leonards Latkovskis, Viesturs Brazis**
Riga Technical University
RESEARCH IN ELECTRIC TRANSPORT SUPERCAPACITOR ENERGY STORAGE SYSTEM
12. **Dainis Berjoza, Inara Jurgena**
Latvia University of Agriculture
ECOLOGIC EFFECT OF ELECTRIC VEHICLE
13. **Maris Gailis, Vilnis Pirs**
Latvia University of Agriculture
EXPERIMENTAL STUDY IN GASOLINE ENGINE INJECTOR PERFORMANCE
14. **Mecys Palsauskas, Tadas Mauricas**
Aleksandras Stulginskis University
THE USE OF MIXED BIOFUEL FOR PELLET PRODUCTION

Section 5: ENERGETICS AND AUTOMATION

5 J. Cakstes blvd., Room 314

Chairman: Prof, Dr. sc. ing. Ainārs Galiņš
Latvia University of Agriculture

Vice-chairman: Assoc. Prof, Dr. sc. ing. Raimunds Šeļegovskis
Latvia University of Agriculture

1. **Edmunds Visockis¹, Peteris Vucenlzdans¹, Raimunds Šeļegovskis²**
¹ *Rezekne Higher Education Institution,* ² *Latvia University of Agriculture*
INNOVATIVE FLUE GAS HEAT ABSORPTION SYSTEM FOR BUILDINGS WITH BIOMASS FIRED BOILER
2. **Inesa Barmina¹, Agnese Lickrastina¹, Raimonds Valdmanis¹, Maija Zake¹, Alexandr Arshanitsa², Valentin Solodovnik², Galina Telysheva²**
¹ *University of Latvia;* ² *Latvian State Institute of Wood Chemistry*
EFFECTS OF BIOMASS COMPOSITION VARIATIONS ON GASIFICATION AND COMBUSTION CHARACTERISTICS
3. **Toms Komass**
Latvia University of Agriculture
VERTICAL AXIS WIND TURBINE WITH PERMANENT MAGNET SYNCHRONOUS GENERATOR SIMULATION IN MATHLAB SIMULINK
4. **Alo Allik, Jaanus Uiga, Andres Annuk**
Estonian University of Life Sciences
COMPARISON OF VARIOUS CONSUMER WORKLOAD CHARTS TO AVAILABILITY OF RENEWABLE ENERGY PRODUCTION CHARACTERISTICS
5. **Andris Sniders, Toms Komass**
Latvia University of Agriculture
SIMULATION OF MULTI-LINK INVARIANT CONTROL SYSTEM FOR STEAM BOILER

6. **Kestutis Navickas, Kestutis Venslauskas, Arnas Petrauskas, Vidmantas Zuperka**
Aleksandras Stulginskis University
INFLUENCE OF TEMPERATURE VARIATION ON BIOGAS YIELD FROM INDUSTRIAL WASTES AND ENERGY PLANTS
7. **Vladimirs Kotelenecs¹, Vilis Dubrovskis¹, Martins Niklass², Eduards Zabarovskis¹, Valerijs Kotelenecs¹**
¹Latvia University of Agriculture, Institute of Agricultural Energetics; ²ZAAO Ltd., Latvia
INVESTIGATION OF BIOGAS PRODUCTION FROM MSW WITH GARAGE-TYPE BIOREACTOR
8. **Kestutis Navickas, Kestutis Venslauskas, Arnas Petrauskas, Vidmantas Zuperka, Arvydas Nekrosius**
Aleksandras Stulginskis University
BIOGAS PRODUCTION FROM FOOD WASTE
9. **Algirdas Jasinskas, Kestutis Plieskis, Vytautas Kucinskas, Mindaugas Martinkus, Antanas Pocius**
Aleksandras Stulginskis University
RESEARCH OF WILLOW STEM CHAFF DRYING DURING THE COLD SEASON
10. **Aleksandrs Terebkovs¹, Aleksandrs Gasparjan¹, Marija Hramcova¹, Anastasija Ziravecka²**
¹Latvian Maritime Academy, ²Riga Technical University
GENERATOR FOR ALTERNATIVE POWER ENGINEERING WITH REDUCED STARTING RESISTIVE TORQUE
11. **Jurijs Meitalovs, Egils Stalidzans**
Latvia University of Agriculture
CONNECTIVITY ANALYSIS OF METABOLITES IN SYNTHETIC METABOLIC PATHWAYS
12. **Kaspars Kroics, Ugis Sirmelis, Janis Cernovs**
Institute of Physical Energetic, Latvia
DSP BASED BI-DIRECTIONAL INTERLEAVED DC-DC CONVERTER FOR ENERGY STORAGE APPLICATION
13. **Vilis Dubrovskis, Vladimirs Kotelenecs, Eduards Zabarovskis, Arvids Celms, Imants Plume**
Latvia University of Agriculture
BIOGAS PRODUCTION POTENTIAL FROM AGRICULTURAL RESIDUES IN LATVIA
14. **Mihkel Kiviste, Ralf Lindberg, Virpi Leivo**
Tampere University of Technology, Finland
IMPROVING CALCULATIONS OF BUILDING ENERGY CONSUMPTION BASED ON TEN YEAR MEASURED DATA
15. **Ilze Andersone, Aleksis Liekna**
Riga Technical University
ROBOT MAP SIMILARITY EVALUATION FOR NON-IDENTICAL MAPS
16. **Kestutis Navickas, Kestutis Venslauskas, Arnas Petrauskas, Vidmantas Zuperka, Arvydas Nekrosius**
Aleksandras Stulginskis University
ENERGY BALANCES OF BIOGAS PRODUCTION FROM INDUSTRIAL WASTES AND ENERGY PLANTS
17. **Lauma Laurinovica¹, Janis Jasko^{2,3}, Eriks Skripsts^{2,3}, Vilis Dubrovskis³**
¹University of Latvia; ²Institute of Biomechanics and Physical Research, Latvia ; ³Latvia University of Agriculture
BIOCHEMICAL METHANE POTENTIAL OF BIOLOGICALLY AND CHEMICALLY PRETREATED SAWDUST AND STRAW
18. **Janis Jasko^{1,2}, Eriks Skripsts^{1,2}, Vilis Dubrovskis¹, Laila Dubova¹, Ina Alsina¹**
¹Latvia University of Agriculture; ²Institute of Biomechanics and Physical Research, Latvia
ANAEROBIC FERMENTATION OF BIOLOGICALLY PRETREATED SAWDUST FOR ENERGY APPLICATIONS

Section 6: BIOMASS CONDITIONING FOR ENERGY

5 J. Cakstes blvd., Room 410

Chairman: prof., Dr. sc. ing. Ēriks Kronbergs
Latvia University of Agriculture

Vice-chairman: assoc.prof., Dr. sc. ing. Aivars Kaķītis
Latvia University of Agriculture

1. **Andris Kronbergs, Eriks Kronbergs, Edgars Repsa, Mareks Smits**
Latvia University of Agriculture
BALE SHREDDER EFFICIENCY DEPENDENCE ON SETTINGS
2. **Martins Ozollapins, Aivars Kakitis, Imants Nulle**
Latvia University of Agriculture
STALK BIOMASS DRYING RATE EVALUATION
3. **Milan Brozek, Alexandra Novakova**
Czech University of Life Sciences Prague
BRIQUETTES FROM RECOVERED PAPER AND BOARD
4. **Egidijus Zvicevicius, Algirdas Raila, Vaidas Bartusevicius, Tomas Endzelis**
Aleksandras Stulginskis University
IMPACT OF STRAW FRACTIONAL COMPOSITION ON BRIQUETTE QUALITY
5. **Alexandru Muntean¹, Tatiana Ivanova², Bohumil Havrland², Victor Pobedinsky¹, Vasile Vrancean¹**
¹State Agrarian University of Moldova, Chisinau, Republic of Moldova ²Czech University of Life Sciences Prague, Czech Republic
PARTICULARITIES OF BIO-RAW MATERIAL PARTICLE AGGLOMERATION DURING SOLID FUEL PRESSING PROCESS
6. **Michel Kolarikova, Tatiana Ivanova, Bohumil Havrland**
Czech University of Life Sciences Prague
ENERGY BALANCE OF BRIQUETTES MADE OF HEMP (*CANNABIS SATIVA*) CULTIVARS (*FERIMON, BIALOBRZESKIE*) FROM AUTUMN HARVEST TO PRODUCE HEAT FOR HOUSEHOLD USE
7. **Georgiana Moiceanu, Gheorghe Voicu, Gigel Paraschiv, Paula Voicu**
Politehnica University of Bucharest, Romania
CUTTING RESISTANCE OF MISCANTHUS PLANTS USING V SHAPED BLADES WITH OPENING OF 50 DEGREES AND DIFFERENT SHARPENING ANGLES
8. **Dainis Ancans, Aivars Kakitis, Imants Nulle**
Latvia University of Agriculture
PARAMETERS OF THE STALK BIOMASS CUTTER
9. **Rasma Platace, Aleksandrs Adamovics, Inguna Gulbe**
Latvian Academy of Agricultural and Forestry Sciences
EVALUATION OF FACTORS INFLUENCING CALORIFIC VALUE OF REED CANARY GRASS SPRING AND AUTUMN YIELD
10. **Roberts Berzins, Aivars Kakitis, Uldis Berzins, Janis Cukurs**
Latvia University of Agriculture
HEMP FIBER AND SHIVE COEFFICIENT OF FRICTION
11. **Liena Poisa¹, Zofija Jankauskiene², Aleksandrs Adamovics¹, Elvyra Gruzdeviene², Rasma Platace¹, Skaidrite Bumane³**
¹Latvia University of Agriculture; ²Upyte Experimental Station of the Lithuanian Research Centre for Agriculture and Forestry; ³Priekuli Plant Breeding Institute, Latvia
EVALUATION OF FACTORS INFLUENCING ASH MELTING CHARACTERISTICS IN LINSEEDS AND HEMP

12. **Michal Kavalek¹, Bohumil Havrland¹, Tatiana Ivanova¹, Petr Hutla², Pavel Skopec³**
¹*Czech University of Life Sciences Prague;* ²*Research Institute of Agricultural Engineering, Czech Republic;*
³*Czech Technical University in Prague*
 UTILIZATION OF *JATROPHA CURCAS* L. SEED CAKE FOR PRODUCTION OF SOLID BIOFUELS
13. **Havrland Bohumil¹, Ivanova Tatiana¹, Łapczyńska-Kordon Bogusława², Kolaříková Michel¹**
¹*Czech University of Life Sciences Prague, Czech Republic,* ²*Agrarian University of Krakow, Poland*
 COMPARATIVE ANALYSIS OF BIO-RAW MATERIALS AND BIOFUELS
14. **Alfred Wong**
Arbokem Inc., Vancouver, Canada
 IMPACT OF 1986 CHERNOBYL ACCIDENTAL RADIOACTIVE RELEASE ON BIOMASS SUPPLY FOR INDUSTRIAL USE IN CENTRAL WESTERN BELARUS

Section 7: EDUCATION, MANAGEMENT AND WORK SAFETY

5 J. Cakstes blvd., Room 336

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

Vice-chairman: prof., Dr. paed. Anda Zeidmane
Latvia University of Agriculture

1. **Jaroslav Svasta, Vitezslav Doubek**
Czech University of Life Sciences Prague
 MODERN SYSTEM APPROACHES IN MANAGEMENT OF FINALIZATION PHASE OF PRODUCT PERFORMANCE VERTICALS
2. **Vladimir Romanenko¹, Galina Nikitina²**
¹*North-Western Institute of Printing Matters, Russia;* ² *North-Western Branch of Academy of Information Technologies in Education, Russia*
 ALGORITHMIC OPERATIONS OF TRAINING PROBLEMS AND STUDENT CREATIVITY
3. **Vladimir Romanenko¹, Galina Nikitina²**
¹*North-Western Institute of Printing Matters, Russia;* ² *North-Western Branch of Academy of Information Technologies in Education, Russia*
 ESTIMATION OF OPTIMAL DEGREE OF STUDENT AUTONOMY IN LABORATORY AND CLASSROOM
4. **Nadezda Cubonova**
University of Zilina, Slovak Republic
 COMPUTER SUPPORT PROGRAMMING OF CONTROL SYSTEM SINUMERIK 840D FOR E-LEARNING EDUCATION
5. **Natasa Naprstkova, Stefan Michna**
Jan Evangelista Purkyně University in Ústí nad Labem, Czech Republic
 IDENTIFICATION AND EVALUATION OF MACHINING PRODUCT DEFECTS IN TEACHING OF STUDENTS AT COLLEGE
6. **Miroslav Dado, Richard Hnilica, Marian Schwarz**
Technical University in Zvolen, Slovak Republic
 DEVELOPMENT OF VIRTUAL LABORATORY FOR EVALUATION AND CONTROL OF WORKPLACE HAZARDS
7. **Richard Hnilica, Martin Jankovsky, Miroslav Dado, Valeria Messingerova**
Technical University in Zvolen, Slovak Republic
 EXPERIMENTAL EVALUATION OF COMBINED EFFECTS OF RISK FACTORS IN WORK ENVIRONMENT

8. **Baiba Briede**
Latvia University of Agriculture
A CONSTRUCTIVIST APPROACH IN ENGINEERING EDUCATION
9. **Inese Jurgena¹, Zigurds Mikainis²**
¹Riga Teacher Training and Educational Management Academy, ²Rezekne Higher Education Institution
HUMAN RIGHTS STUDIES AS AN OPPORTUNITY FOR ADVANCING STUDENTS' CITIZENSHIP EDUCATION
10. **Dace Brizga, Ludis Peks, Imants Bertaitis**
Latvia University of Agriculture
COMPUTER USE IMPACT ON STUDENTS' HEALTH IN THE CONTEXT OF ECOLOGICAL APPROACH TO OCCUPATIONAL SAFETY
11. **Krisjanis Aboltins, Baiba Rivza, Peteris Rivza**
Latvia University of Agriculture
CAR AFTERSALES MARKET DYNAMIC MODEL
12. **Anda Zeidmane, Natalija Sergejeva**
Latvia University of Agriculture
INDIRECT IMPACT OF MATHEMATICS IN ENGINEERING EDUCATION
13. **Irena Katane**
Latvia University of Agriculture
CHANGEABLE EDUCATIONAL ENVIRONMENT OF RURAL SCHOOL FOR SUSTAINABLE DEVELOPMENT
14. **Ludmila Bejenaru**
"A.I.Cuza" University of Iași
ESTABLISHING EUROPEAN AREA OF HIGHER EDUCATION BY ERASMUS MUNDUS PROJECTS

Poster presentations

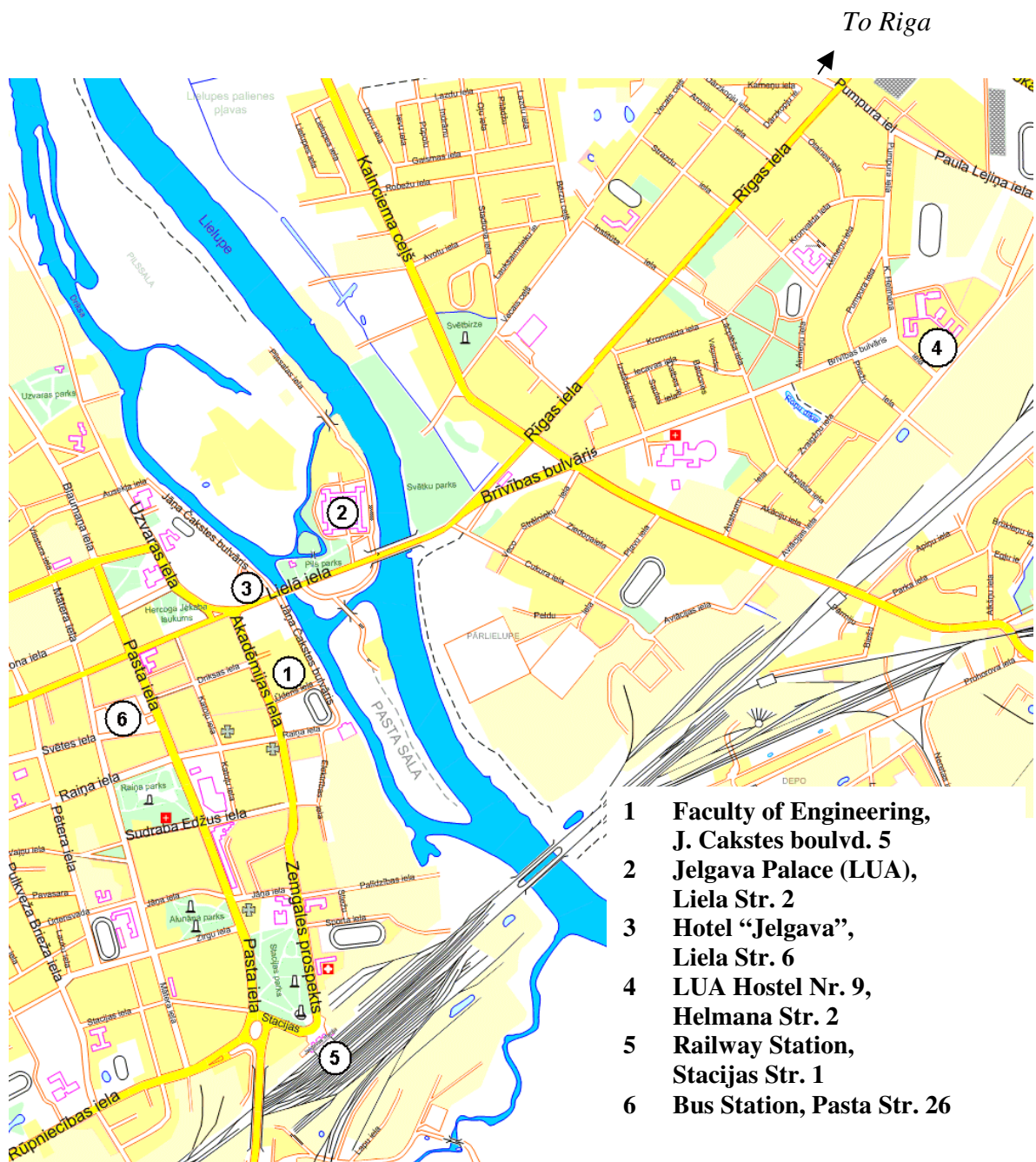
5 J. Cakstes blvd., Room 254

1. **Bogusława Lapczyńska-Kordon¹, Jarosław Fraczek¹, Zbigniew Ślipek¹, Tatiana Ivanowa²**
¹University of Agriculture in Krakow, Poland; ²Czech University of Agriculture in Prague
GENETIC ALGORITHMS IN OPTIMISATION OF DRIED FRUITS AND VEGETABLES QUALITY
2. **Bogusława Łapczyńska, Jarosław Frączek, Zbigniew Ślipek**
University of Agriculture in Krakow
THE EFFECT OF ENERGY CROPS FINENESS ON THE FORCE OF EXTERNAL FRICTION
3. **Monika Abricka, Inesa Barmina, Vera Suzdalenko, Maija Zake**
University of Latvia
COMBUSTION DYNAMICS AT BIOMASS THERMOCHEMICAL CONVERSION DOWNSTREAM OF INTEGRATED GASIFIER AND COMBUSTOR
4. **Rasma Platace, Aleksandrs Adamovics, Inguna Gulbe**
Latvian Academy of Agricultural and Forestry Sciences
ASSESSMENT OF FACTORS INFLUENCING POTASSIUM CONTENT IN OSIER PELLETS
5. **Inesa Barmina, Modris Purmalis, Raimonds Valdmanis, Maija Zake**
University of Latvia
ACTIVE CONTROL OF BIOMASS COMBUSTION CHARACTERISTICS BY HIGH FREQUENCY OSCILLATIONS
6. **Marek Wrobel, Jarosław Fraczek, Sławomir Francik, Zbigniew Ślipek, Mudryk Krzysztof**
University of Agriculture in Krakow
INFLUENCE OF DEGREE OF FRAGMENTATION ON CHOSEN QUALITY PARAMETERS OF BRIQUETTE MADE FROM BIOMASS OF CUP PLANT *SILPHIUM PERFOLIATUM* L.

7. **Krzysztof Mudryk, Jaroslaw Fraczek, Zbigniew Slipek, Slawomir Francik, Marek Wrobel**
University of Agriculture in Krakow
CHOSEN PHYSICO-MECHANICAL PROPERTIES OF CUTLEAF CONEFLOWER (RUDBECKIA LACINIATA L.) SHOOTS
8. **Olafs Vronskis**
Latvia University of Agriculture
DESCRIPTIVE GEOMETRY COMPETENCE IN RURAL ENGINEERING SCIENCE

Friday, 24 May

9⁰⁰ - 17⁰⁰ 5 J. Cakstes blvd., Room 403
Visiting Fortum Jelgava CHP and Company "Tērvete" (Biogas production,
Milking Robot, Horses and degustation of "Tērvete" products)



Address of the Conference Committee

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