

IX International conference



BALTTRIB' 2017

CONFERENCE PROGRAMME

Aleksandras Stulginskis University
Akademija, Kaunas

16-17 November 2017

Conference venue:

4th building of Aleksandras Stulginskis University (ASU)
Universiteto 8A, Akademija
LT-53345 Kauno r.
LITHUANIA

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CONFERENCE ORGANISED BY:



Aleksandras Stulginskis University



Lithuanian Scientific Society Department „Tribologija“



International Tribology Council

Conference topics:

- Friction and wear of friction pairs in agricultural, transport and industrial machinery;
- Lubrication;
- Micro- and nano-scale tribology;
- Tribochemistry;
- Bio-tribology;
- Environmental issues in tribology;
- Surface science and coating engineering;
- Tribology in metal processing;
- Simulation of tribological processes;
- Experimental methods in tribology.

Address:

International Conference “BALTRIB’2017”
Institute of Power and Transport Machinery Engineering
Aleksandras Stulginskis University (ASU)
Studentu 15, Akademija
LT-53362 Kauno r.
LITHUANIA

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CONFERENCE PROGRAMME

16 November 2017

Venue: 4th Building of ASU, Universiteto 8A, Akademija

07:30	Registration	4 th Building of ASU, lobby
09:00	Opening Session	Conference Hall (Room 214)
09:15	Plenary Session	Conference Hall (Room 214)
11:45	Coffee break	
12:00	Poster presentations	
13:00	Lunch	
14:00	Exhibition (presentations of enterprises)	
15:00	Scientific sections	
	Section 1 Surface processing and surface science I	Conference Hall (Room 214)
	Section 2 Tribological materials	Room 211
	Section 3 Friction and wear in tribosystems I	Room 204
16:40	Coffee break	
17:00	Scientific sections	
	Section 4 Surface processing and surface science II	Conference Hall (Room 214)
	Section 5 Lubricants and lubrication	Room 211
	Section 6 Friction and wear in tribosystems II	Room 204
19:00	Get-together. Interactive authentic and modern folklore program by musical group "Aldai	(Lobby, 1 st floor)

17 November 2017

Venue: Central building of ASU, Studentų 11, Akademija

09:00	Plenary Session	Conference Hall (Room 217)
11:00	Coffee break	
11:30	Plenary Session	
12:50	Discussions; Closing remarks	
13:00	Lunch	
14:00	Tour to Tribology laboratory at the Institute of Power and Transport Machinery Engineering	
15:30	Free time in Kaunas downtown.	

Cultural programme

18 November 2017

07:00	Departure for Cultural programme in Southern Lithuania (from hotel Ibis Kaunas Centre 7:00, from ASU guestrooms 7:15)
20:00	Return to hotel Ibis Kaunas Centre and ASU guestrooms.

REMARK:

Participation in cultural programme in Southern Lithuania is charged separately from conference fee. Content of cultural programme is presented at the end of the conference programme.

PLENARY LECTURES & EXHIBITION

16 November 2017

09:15 – 11:45 Conference Hall of 4th building of ASU (Room 214)

Chairmen: **R. Rukuiža**, Co-chairman **J. Padgurskas**

NANOTRIBOLOGY, NANOMECHANICS AND MATERIALS CHARACTERIZATION STUDIES AND APPLICATIONS TO BIO/NANOTECHNOLOGY

B. Bhushan, *The Ohio State University, USA*

INFLUENCE OF SURFACE TEXTURING IN HYDRODYNAMIC BEARINGS

M. Fillon, *University of Poitiers, France*

CREATING SUSTAINABLE PRODUCTS – CLOSING THE LOOP APPROACH; THE EXAMPLE OF CUTTING OIL EMULSIONS

S. V. Kailas, *Indian Institute of Science, India*

THREE-BODY MIXED LUBRICATION AND ITS APPLICATIONS IN MECHANICAL PARTS

J.H. Horng, *National Formosa University, Taiwan*

EXHIBITION

Sum Frequency Spectroscopy by EKSPLA for in-situ investigation of friction surfaces and their contact interface

R. Januškevičius, *JSC EKSPLA, Lithuania*

Bruker UMT-Tribolab: A “Swiss Army knife” platform and still dedicated applications

P. Markus, *BRUKER, USA*

17 November 2017

09:00 – 13:00 Central building of ASU, Studentų 11, Akademija (Room 217)

Chairmen: **B. Bhushan**, Co-chairman **S. Asadauskas**

TRIBOLOGICAL CHARACTERISTICS OF PIEZOELECTRIC ACTUATORS USING THE FRICTION SURFACE MODIFICATION

R. Rukuiža, **J. Padgurskas**, **A. Žunda**, **A. Andriušis**, *Aleksandras Stulginskis University, Lithuania*

BIOINSPIRED MECHANICALLY DURABLE, SUPERLIQUIPHILIC/PHOBIC, SELF-CLEANING/ANTIFOULING AND LOW DRAG SURFACES

B. Bhushan, *The Ohio State University, USA*

NEW ROUTE IN NANOTRIBOLOGY AND NANOMECHANICS RESEARCH: HYBRIDIZATION OF SCANNING PROBE MICROSCOPY AND NANOPHOTONICS

V. Snitka, *Research Center for Microsystems and Nanotechnology, Kaunas University of Technology, Lithuania*

11:00 – 11:30 COFFEE BREAK

THE TRIBOLOGICAL PROPERTIES OF PTFE MODIFIED WITH CHALCOPYRITE

D. Gventsadze, *R.Dvali Institute of Machine Mechanics, Georgia*, **E. Kutelia**, **L. Nadaraia**, **L. Gventsadze**, **O. Tsursumia**, *Georgian Technical University, Georgia*, **J. Padgurskas**, *Aleksandras Stulginskis University, Lithuania*

TRENDS IN IRON-GROUP BASED PROTECTIVE COATINGS: THE ROLE OF HYDROFOBICITY

H. Cesulius, **A. Nicolenco**, *Vilnius University, Lithuania*, **N. Tsyntsaru**, *Vilnius University, Lithuania*, *Institute of Applied Physics of ASM, Moldova*

SCIENTIFIC SECTIONS

16 November 2017

Section 1

SURFACE PROCESSING AND SURFACE SCIENCE I

15:00 – 16:40

Conference Hall (Room 214)

Chairmen: **C. Figueiredo-Pina**, Co-chairman **A. Žunda**

PROBING ATOMIC LEVEL INTERACTIONS IN Ni NANORODS AND AFM CANTILEVER USING ATOMIC FORCE MICROSCOPY BASED F-D SPECTROSCOPY

Sudipta Dutta, Mahesh Kumar Singh and M S Bobji, Indian Institute of Science, India

EFFECTS OF ELECTROLYTE AND Ti LAYERS ON STATIC AND DYNAMIC FRICTION OF ANODIZED ALUMINA

T.Matijošius, P.Gečys, Center for Physical Sciences and Technology, Lithuania, D.Vozgirdaitė, Vilnius University, Lithuania, S.Asadauskas, Center for Physical Sciences and Technology, Lithuania

WEAR RESISTANCE OF Al-12 wt % Si REINFORCED WITH NbC PARTICLES BY LASER CLADDING

M. Lopes, Instituto Politécnico de Setúbal, Portugal, A. Ramalho, Universidade de Coimbra, Portugal, R. Anandkumar,

A. Almeida, R. Vilar, Universidade de Lisboa, Portugal, C. Figueiredo-Pina, Instituto Politécnico de Setúbal, Universidade de Lisboa, Portugal

TRIBOTECHNICAL CHARACTERISTICS OF FLUORINE-CONTAINING COATINGS

Y.Auchynnika, Yanka Kupala State University of Grodno, Belarus, V.Gubanov, Institute of synthetic rubber, Russia, M. Juciene, Kaunas University of Technology, Lithuania, Y. Eisymont, Yanka Kupala State University of Grodno, Belarus

EVALUATION OF CORROSION AND TRIBOLOGICAL BEHAVIOR OF ELECTRODEPOSITED TUNGSTEN ALLOYS

E. Vernickaite, H. Cesulius, Vilnius University, Lithuania, N. Tsyntsaru, Vilnius University, Lithuania, Institute of Applied Physics of ASM, Moldova

Section 2

TRIBOLOGICAL MATERIALS

15:00 – 16:40

Room 211

Chairmen: **W. Brostow**, Co-chairman **G. Reškevičius**

TRIBOLOGICAL PROPERTIES OF IMPREGNATED GLOVES FOR HIGH TEMPERATURE APPLICATIONS

W. Brostow, H. E. Hagg Lobland, S. Lohse, A. T. Osmanson, R. Ravi, University of North Texas, USA, S. Sayana, Columbia University, USA, V. Shi, A. Singh, University of North Texas, USA

RESEARCH OF MECHANICAL AND TRIBOLOGICAL PROPERTIES OF ELECTROSPARK DEPOSITION COATING

E. Katinas, V. Jankauskas, Aleksandras Stulginskis University, Lithuania, V. Michailov, Institute of Applied Physics of ASM, Moldova

TRIBOLOGICAL ANALYSIS OF PROTEINS MODIFIED EPOXY RESINS

I. Graur, Dunărea de Jos University of Galați, Diagnose and Measurement Group srl, România, R. Chihai, I.-G. Bîrsan, C.-I. Bichescu, A. Cojan, Dunărea de Jos University of Galați, România, A. Circumar, Dunărea de Jos University of Galați, Diagnose and Measurement Group srl, România

EVALUATION OF TRIBOTECHNICAL PARAMETERS OF FRICTION CONTACT BETWEEN COATED CUTTING TOOL AND MATERIAL BEING MACHINED, GIVEN INFLUENCE OF TEMPERATURES TYPICAL FOR CUTTING PROCESS

A. Vereschaka, MSTU STANKIN, Russia, M. Migranov, MSTU STANKIN, Ufa State Aviation Technical University, Russia, G.Oganian, E. Sotova, MSTU STANKIN, Russia

TRIBOLOGICAL CHARACTERIZATION OF SELF-LUBRICATING POLYMERS AT THE DIFFERENT VELOCITY

G. Reškevičius, J. Padgurskas, Aleksandras Stulginskis University, Lithuania, V. Kudrytski, Metal-Polymer Research Institute, Belarus

Section 3

FRICION AND WEAR IN TRIBOSYSTEMS I

15:00 – 16:40

Room 204

Chairmen: **N. Kikuchi**, Co-chairman **N. Tsyntsaru**

FRICION REDUCTION BY THE COMBINATION USE OF MoDTC AND ORGANIC FRICTION MODIFIER (PART 1: INTERFACIAL STRUCTURE)

N. Kikuchi, T. Hirayama, H. Sakamoto, T. Matsuoka, Doshisha University, Japan

FRICION REDUCTION BY THE COMBINATION USE OF MoDTC AND ORGANIC FRICTION MODIFIER (PART 2: NANOTRIBOLOGICAL PROPERTY)

Y. Sasaki, T. Hirayama, H. Sakamoto, T. Matsuoka, Doshisha University, Japan

WEAR MODELING OF SPUR AND WORM GEARS

I. Egorov, Peter the Great St. Petersburg Polytechnic University, Russia

TOOL WEAR AND STRUCTURAL - PHASE TRANSFORMATION IN METALS AT HIGH-SPEED CUTTING

M. Skotnikova, N. Krylov, A. Popov, Peter the Great St. Petersburg Polytechnic University, Russia

WOOD WORKING TOOLS: TRIBOLOGICAL PROBLEMS AND DIRECTIONS OF SOLUTIONS

D. Kazlauskas, V. Jankauskas, Aleksandras Stulginskis University, Lithuania

Section 4

SURFACE PROCESSING AND SURFACE SCIENCE II

17:00 – 18:40

Room 214

Chairmen: **I.N. Kavaliova**, Co-chairman **E. Katinas**

THE INFLUENCE OF GLUCONATE BATH PARAMETERS ON THE RATE OF ELECTRODEPOSITION AND MECHANICAL PROPERTIES OF Co-W COATINGS

S.S. Belevskii, V.A. Buravets, Institute of Applied Physics of ASM, Moldova, **J.I. Bobanova**, Institute of Applied Physics of ASM, Moldova, **Kostroma State University, Russia**, **A.V. Gotelyak, V.V. Danilchuk**, T.G. Shevchenko Pridnestrovie State University, Tiraspol, **S.A. Silkin**, T.G. Shevchenko Pridnestrovie State University, Tiraspol, **Kostroma State University, Russia**, **N.I. Tsyntsaru**, Institute of Applied Physics of ASM, Moldova, **Vilnius University, Lithuania**, **A.I. Dikusar**, Institute of Applied Physics of ASM, Moldova, **T.G. Shevchenko Pridnestrovie State University, Tiraspol**

RESEARCH OF STRENGTHENED PLOUGH POINT BY PLASMA TRANSFERRED ARC WELDING

E. Katinas, V. Jankauskas, P. Kairys, Aleksandras Stulginskis University, Lithuania

WEAR ASSESSMENT OF STELLITE COATING IN SEVERAL CORROSIVE SOLUTIONS

I. Rodrigues, C. Figueiredo-Pina, Instituto Politécnico de Setúbal, Portugal

FRICION AND ADHESION OF MONOMOLECULAR COATINGS

I.N. Kavaliova, Metal-Polymer Research Institute, Belarus, **A. Ya. Kovalev**, Francisk Skorina Gomel State University, Belarus, **E.A., Grigoriev**, Metal-Polymer Research Institute, Belarus

RESEARCH OF INTERPLAY BETWEEN THE COATING AND LIP OIL-SEAL

A. Žunda, Aleksandras Stulginskis University, Lithuania, **K. Babilius**, JSC "Dangų inžinerija", Lithuania, **J. Padgurskas, V. Jankauskas**, Aleksandras Stulginskis University, Lithuania, **R. Leišys, A. Babilius**, JSC "Dangų inžinerija", Lithuania

Section 5 LUBRICANTS AND LUBRICATION

17:00 – 18:40 Room 211

Chairmen: **A. V. Radulescu**, Co-chairman **H. Cesiulis**

THE RESULTS OF FRICTION DURING CURRENT FLOW IN LUBRICATED FRICTION ZONE

E. Nowiński, *Air Force Institute of Technology, Poland*

SUITABILITY OF BASESTOCKS FROM MEDIUM CHAIN FATTY ACIDS FOR HYDRAULIC FLUIDS

L. Labanauskas, D. Bražinskienė, A. Strakšys, S. Asadauskas, *Center for Physical Sciences and Technology, Lithuania*

OPTIMIZATION OF LITHIUM SOAP-BASED GREASE TESTING METHODOLOGY BASED ON MEASUREMENTS REPEATABILITY

A.V.Radulescu, I. Radulescu, *University POLITEHNICA Bucharest, Romania*

WEAR RESISTANCE OF ELECTRODEPOSITED Fe-W ALLOYS UNDER DRY AND LUBRICATING CONDITIONS

A. Nicolenco, *Vilnius University, Lithuania*, **N. Tsyntaru**, *Vilnius University, Lithuania*, *Institute of Applied Physics of ASM, Moldova*, **T. Matijošius, S. Asadauskas**, *Center for Physical Sciences and Technology, Lithuania* **H. Cesiulis**, *Vilnius University, Lithuania*

RHEOLOGICAL AND TRIBOLOGICAL STUDY OF DIFFERENT CONCENTRATIONS OF BEESWAX BASED GREASE AND MODIFICATION WITH NANO-PARTICLES

E. I. Johns, J. Padgurskas, Aleksandras Stulginskis *University, Lithuania* , **I. Radulescu, A. V. Radulescu**, *University "POLITEHNICA" Bucuresti, Romania*, **R. Rukuiža, R. Kreivaitis, A. Kupčinskas**, *Aleksandras Stulginskis University, Lithuania*.

Section 6 FRICTION AND WEAR IN TRIBOSYSTEMS II

17:00 – 18:40 Room 204

Chairmen: **H. Shinno**, Co-chairman **M. Rukanskis**

IMPROVEMENT OF RUN-OUT CHARACTERISTICS BY PARTIALLY-TEXTURED JOURNAL BEARING AGAINST PERIODIC FLUCTUATING LOAD

H. Shinno, T. Hirayama, T. Matsuoka, *Doshisha University, Japan*, **T. Sasaki**, *Mitsubishi Electric Corporation, Japan*

WEAR BEHAVIOR OF IONIC SUBSTANCES DOPED EPOXY

A. Circiumaru, *Dunărea de Jos University of Galați, Diagnose and Measurement Group srl, România*, **M. Carp, I.-G. Birsan, C.-I. Bichescu, A. Cojan**, *Dunărea de Jos University of Galați, România*, **I. Graur**, *Dunărea de Jos University of Galați, Diagnose and Measurement Group srl, România*

RESEARCH OF TRIBOLOGICAL BEHAVIOR OF LINEAR MECHANISMS

N.I. Smirnov, A.U. Albagachiev, M.V. Prozhega, N.N. Smirnov, *Institute of Machines Science named after A.A.Blagonravov of the RAS, Russia*

FRICTION AND WEAR OF BULK NANOCOMPOSITE MATERIALS AlMg₂/GRAPHITE

A.Aborkin, A.Elkin, A.Sobolkov, *Vladimir State University, Russia*

ENGINEERING AND RESEARCH OF WEARABILITY COATING ON THE BASIS OF HIGH-STRENGTH STEEL

G.Tsvetkova, M.Skotnikova, *Peter the Great St. Petersburg Polytechnic University, Russia*

POSTER PRESENTATIONS

P-1 A NEW APPROACH TO A SCALE-EFFECT PROBLEM SOLVING IN TRIBOLOGY FROM A MODERN PHYSICS PERSPECTIVE

D.N.Lyubimov, LLC Engineering Center LIC, Surgut, Russia, V.L.Patsekha, A.V.Patsekha, Grodno State Agrarian University, Belarus

P-2 NANOSTRUCTURAL SEPARATED TIN-BASED PROTECTIVE COATINGS

S. D. Latushkina, A. G. Zhizhenko, O.I. Posylkina, Physical-Technical Institute of the National Academy of Science

P-3 TRIBOTECHNICAL CHARACTERISTICS OF CARBON-BEARING LUBRICANTS

A.Voznyakovskii, Institute of synthetic rubber, Russia, A. Voznyakovskii, Ioffe Physical Technical Institute, Russia, Y.Auchynnika, V.Liopo, Y.Eisymont, Grodno State Agrarian University, Belarus

P-4 ZIRCONIUM CARBONITRIDE MULTILAYER COMPOSITE COATINGS FOR TRIBOTECHNICAL PURPOSE

Y.Auchynnika, Grodno State Agrarian University, Belarus, N.Chekan, I.Akula, Physical-Technical Institute, Belarus, Y.Eisymont, Grodno State Agrarian University, Belarus

P-5 EXAMINATION OF THE WEAR OF NON-TUNGSTEN ELECTRO-SPARK COATINGS ON HIGH SPEED STEEL

T. Penyashki, G. Kostadinov, Institute of Soil Science Agrotechnologies and Plant Protection "N.Pushkarov", Bulgaria, M. Kandeve, Technical University, Bulgaria

P-6 INVESTIGATION OF THE PROPERTIES OF NON-TUNGSTEN ELECTRO-SPARK COATINGS ON HIGH SPEED STEEL

T. Penyashki, G. Kostadinov, Institute of Soil Science Agrotechnologies and Plant Protection "N.Pushkarov", Bulgaria, M. Kandeve, Technical University, Bulgaria

P-7 SELECTED ASPECTS OF WEAR AND SURFACE PROPERTIES OF POLYPROPYLENE BASED WOOD-POLYMER COMPOSITES

I. Bochkov, M. Varkale, R. Merijs Meri, J. Zicans, Riga Technical University, Latvia, P. Franciszczak, A. K. Bledzki, West Pomeranian University of Technology Szczecin, Poland

P-8 NON-DESTRUCTIVE TESTING OF JOINTS OF ANTIFRICTION PARTS CRIMPED BY PULSED MAGNETIC DEFORMATION

A.Tatarinov, V.Mironov, D.Rybak, P.Stankevich, Riga Technical University, Latvia

P-9 EFFECT OF THE TEMPORAL PROFILE OF THE FRICTION POWER ON THERMAL STRESSES DURING BRAKING

A. A. Yevtushenko, M. Kuciej, K. Topczewska, Bialystok University of Technology, Poland

P-10 TRIBOLOGICAL PROPERTIES OF DEGRADED THIN FILMS OF METHYL ESTERS

A.Strakšys, S. Asadauskas, Lithuania, Center for Physical Sciences and Technology, Lithuania

P-11 TRIBOLOGICAL PERFORMANCE OF TETRAHEDRAL DIAMOND-LIKE CARBON (TA-C DLC) COATINGS WITH BIODEGRADABLE OIL LUBRICATION

Abdul Mannan, MFM Sabri, MA Kalam, HH Masjuki, University of Malaya, Malaysia

P-12 RAPESEED OIL VERSUS SOYBEAN OIL – RHEOLOGICAL AND TRIBOLOGICAL PROPERTIES

I.Radulescu, A.V.Radulescu, University POLITEHNICA Bucharest, Romania, C.Georgescu, L.Deleanu, University "Dunarea de Jos" Galati, Romania

P-13 STUDY OF THE EFFECT OF H₂O₂ USED IN WHITENING TREATMENTS ON HUMAN ENAMEL WEAR RESISTANCE

A.Branco, Instituto Superior Técnico, Portugal; **M. Polido**, Instituto Superior de Ciências da Saúde Egas Moniz, Portugal; **A. P. Serro**, Instituto Superior Técnico, Portugal; **C. G. Figueiredo-Pina**, Instituto Politécnico de Setúbal, Instituto Superior Técnico, Portugal

P-14 COMPARATIVE TRIBOLOGICAL STUDY OF TWO PROSTHETIC DENTAL MATERIALS: ZIRCONIA AND VITA ENAMIC

A.F. Santos, Instituto Superior Técnico, Portugal; **M. Polido**, Instituto Superior de Ciências da Saúde Egas Moniz, Portugal; **A.P. Serro**, Instituto Superior Técnico, Instituto Superior de Ciências da Saúde Egas Moniz, Portugal; **C.G. Figueiredo-Pina**, Instituto Politécnico de Setúbal, Instituto Superior Técnico, Portugal

P-15 MICRO-SCRATCHING TESTS OF A LEAD-FREE SOLDER ALLOY SAC305 USED IN ELECTRONIC INDUSTRY

A.M. Petrescu, **A.N. Stoica**, **A. Tudor**, **A.V. Rădulescu**, **G.I. Păduraru**, University Politehnica of Bucharest, Romania

P-16 COMPARATIVE STUDY ON THE EFFECT OF FIBRE SUBSTITUTION ON THE PROPERTIES OF COMPOSITE RAILWAY BRAKE SHOE

P.Wasilewski, Bialystok University of Technology, SMiOC FRENOPLAST Bułhak i Cieślowski S.A, Poland, **M.Kuciej**, SMiOC FRENOPLAST Bułhak i Cieślowski S.A, Poland

P-17 TRIBOLOGICAL BEHAVIOR OF ARCING CONTACT MATERIALS BASED ON COPPER INFILTRATED TUNGSTEN COMPOSITES

M.V. Lungu, **E. Enescu**, **M. Lucaci**, **C.D. Cîrstea**, **F. Grigore**, **S. Mitrea**, **D. Pătroi**, **A. Brătuțescu**, **M. Marin**, **N. Stancu**, National Institute for Research and Development in Electrical Engineering ICPE-CA, Romania, **P. Godeanu**, MAIRA MONTAJ SRL, Romania

P-18 THE MODELS OF WEAR IN THE KINEMATIC PAIRS OF AGRICULTURAL MACHINES

O. Shebanov, Kharkiv National Technical University of Agriculture, Ukraine

P-19 INVESTIGATION OF THE CHARACTERISTICS OF FRICTION PAIRS IN THE OSCILLATION REGIME: THE METHOD AND IMPLEMENTATION OF THE MECHATRONIC OSCILLATORY SYSTEM

S.I. Malafeev, Joint Power Co, Ltd, Moscow, Russia, **A.I. Kopeykin**, Vladimir State University named after Alexander and Nikolay Stoletovs, Russia, **S.S. Malafeev**, Vladimir Polytechnic College, Russia

P-20 EXPERIMENTAL STUDY OF THE INFLUENCE OF RUBBER PROPERTIES ON SLIDING FRICTION IN DRY CONTACT

A.V. Morozov, Ishlinsky Institute for Problems in Mechanics RAS, Russia

P-21 FRETTING RESISTANCE OF EXTRAMEDULLARY PLATES FROM NITRIDED AND OXYNITRIDED Ti-6Al-4V TITANIUM ALLOY

I.M. Pohrelyuk, Karpenko Physico-Mechanical Institute of the NAS of Ukraine, Ukraine, **J. Padgurskas**, Aleksandras Stulginskis University, Lithuania, **O.V. Tkachuk**, **A.G. Luk'yanenko**, **V.S. Trush**, **S.M. Lavrys**, Karpenko Physico-Mechanical Institute of the NAS of Ukraine, Lviv, Ukraine

P-22 TOPOGRAPHY, HARDNESS, ELASTIC MODULUS AND WEAR RESISTANCE OF NITRIDE COATINGS ON TITANIUM

I.M. Pohrelyuk, Karpenko Physico-Mechanical Institute of the NAS of Ukraine, Ukraine, **J. Padgurskas**, Aleksandras Stulginskis University, Lithuania, **S.M. Lavrys**, **A.G. Luk'yanenko**, **V.S. Trush**, Karpenko Physico-Mechanical Institute of the NAS of Ukraine, Lviv, Ukraine, **R. Kreivaitis**, Aleksandras Stulginskis University, Kaunas, Lithuania

P-23 WEAR RESISTANCE OF TWO-PHASE TITANIUM ALLOY AFTER DEFORMATION-DIFFUSION TREATMENT

I. M. Pohrelyuk, Karpenko Physico-Mechanical Institute of the NAS of Ukraine, Ukraine, S.E. Sheykin, Bakul Institute for Superhard Materials of the NAS of Ukraine, Ukraine, J. Padgurskas, Aleksandras Stulginskis University, Lithuania, S.M. Lavrys, Karpenko Physico-Mechanical Institute of the NAS of Ukraine, Ukraine

P-24 APPLICATION OF SINTERED POWDER MATERIAL FM-15 IN THE CLUTCH COUPLING OF "BELARUS-3522" TRACTORS

A.P. Ilyushchenko, A.V. Leshok, A.N. Rogovoy, V.O. Rudakovskiy, Belarus

P-25 EFFECT OF FRICTION ASSEMBLIES RUNNING-IN ON INCREASE IN REPLACEMENT AGE OF AUTOMOBILE TRANSMISSION OILS

J. Iosebidge, G. Abramishvili, L. Kakashvili, N. Diasamidze, M. Khvedelidze, D. Aladashvili, D. Pridonashvili, Georgian Technical University, Georgia

P-26 IMPROVEMENT OF TRIBOLOGICAL PROPERTIES OF TOOL STEELS BY MULTISTAGE TREATMENTS

W. Brostow, S. Lohse, A. T. Osmanson, University of North Texas, USA, D. Toboła, Institute of Advanced Manufacturing Technology (IAMT), Poland, D. L. Weathers, University of North Texas, USA, K. Zagórski, AGH University of Science and Technology, Poland

P-27 NEW CLASS OF LUBRICANTS FOR GREEN TRIBOLOGY

I. Mandzyuk, K. Prysiazhna, Khmelnytskyi National University, Ukraine

P-28 TRIBOLOGICAL PROPERTIES OF ENGINE OILS DURING HEAVY LOADING OPERATION

D. Volskis, J. Padgurskas, A. Kupčinskas, R. Rukuiža, Aleksandras Stulginskis University, Lithuania, S. Tučkutė, Lithuanian Energy Institute, Lithuania, N. Basheleishvili, R.Dvali Institute of Machine Mechanics, Georgia

P-29 STUDY OF FE BASED NANOPARTICLES FOR TRIBOSUSPENSIONS.

Č. Sipavičius, K. Mažeika, R. Davidonis, Centre for physical sciences and technology, Lithuania, J. Padgurskas, Aleksandras Stulginskis University, Lithuania

P-30 AN INVESTIGATION OF WATER CONTAMINATION IN GRAPHENE BASED LUBRICANT

Ashwani Kumar, Piyush Deval, Ankit Kotia and Subrata Kumar Ghosh, Indian Institute Technology, India

P-31. THE DEVELOPMENT AND THE USE OF THE BALL BEARINGS WITH THE ANTIFRICTIONAL PROTECTIVE LAYER FROM POLYMERIC COMPOSITE MATERIAL

A.I. Burya, S.V. Kalinichenko, I.S. Kashynskiy, Dneprovsk State Technical University, Ukraine J. Padgurskas, Aleksandras Stulginskis University, Lithuania

P-32 CHARACTERISTICS OF CONTACT OF A ROUGH SURFACE WITH A LOW-MODULUS HALF-SPACE

P. Ogar, S. Belokobylsky, D. Gorokhov, V. Elsukov, Bratsk State University, Russia.

P-33 CRITERIA OF PLASTICITY IN CONTACT OF THE SPHERICAL ASPERITIES OF THE ROUGH SURFACE

P. Ogar, S. Belokobylsky, D. Gorokhov, E. Ugrumova, Bratsk State University, Russia

P-34. EVALUATION OF TRIBOLOGICAL, PHYSICAL, AND MECHANICAL PROPERTIES OF OIL-FILLED NANOCOMPOSITES

P. G. Ivanochkin, E. S. Novikov, S. A. Danilchenko, Rostov State Transport University, Russia

P-35 FORMS OF $\varphi_x - S_x$ - DIAGRAMS OF AN AUTOMOBILE TIRE

E.V. Balakina, *Volgograd State Technical University, Russia*

P-36 TRIBOLOGICAL PROBLEMS IN A DEVICE WITH REMOVABLE TRACKS FOR WHEELCHAIR WHEELS. A.Geguchadze, Akaki Tsereteli State University, Georgia

P-37. SLIDING BEARING DIAGNOSTICS

A.A. Novikov, N.F. Solovey, *Open joint-stock company «Gomselmash», Gomel, Belarus, S.V. Korotkevich*, *Republican unitary enterprise «Gomelenergo», Belarus*

P-38 INCREASE OF WEAR RESISTANCE OF Cr18Ni10Ti STAINLESS STEEL BY METHOD OF ELECTRIC-SPARK ALLOYING WITH ELECTRODES OF REFRACTORY METALS AND GRAPHITE

V. Agafii, V. Mihailov, N. Kazak, G. Volodina, C. Cracan, *Institute of Applied Physics, Academy of Sciences of Moldova, Moldova*

P-39 SURFACE LAYER MODIFICATION FOR ENHANCED WEAR RESISTANCE OF VANADIS 8 TOOL STEEL

D. Toboła, J. Cyborń, A. Łętocha, J. Laszkiewicz-Lukasik, *Institute of Advanced Manufacturing Technology (IAMT), Poland, S. Pawęta*, *Lodz University of Technology, Poland*

LANGUAGE

The conference language is English.

INFORMATION FOR SPEAKERS

Duration of oral reports:

- Plenary sessions – 40 min. (including 5-10 minutes discussion)
- Scientific sessions – 20 min. (including discussion)

Sections' rooms will be equipped for **Multimedia presentations**.

Area of poster presentation should not exceed **A0 format**.

ARRIVAL

There are three means of most popular regular public transport in Lithuanian cities - buses, trolleybuses and minibuses. It is possible to buy the ticket at a driver. Bus No 18 and minibus No 56 arrives from city centre to conference venue at Aleksandras Stulginskis University. Comprehensive information about arrival and tickets:

<http://int.asu.lt/arrivtoLT.html>

Arriving from airports:

After arrival to **Kaunas airport** you may transfer to Kaunas railway and bus stations by bus No 29 or go with taxi (price ca 15-20 EUR) to Kaunas downtown or directly to ASU campus. Timetables of public transport in Kaunas are available at

<https://www.stops.lt/kaunas/#kaunas/en>

After arrival to **Vilnius airport** to Vilnius railway and bus stations (same place) is possible by buses No 1, 88 and 3g. Timetables of public transport in Vilnius are available at:

<https://www.stops.lt/vilnius/#vilnius/en>

Timetable of buses from Vilnius to Kaunas (buses every 20-30 min.) at:

<http://www.autobusubilietai.lt/>

Timetable of trains from Vilnius to Kaunas at <https://www.traukiniobilietas.lt/portal/en>

Other transport information:

University's campus map at:

<http://int.asu.lt/tsenwhere.pdf>

Touristic information of Kaunas:

<http://visit.kaunas.lt/en/>

Touristic information of Lithuania:

<http://www.lithuania.travel/en-gb/>

CULTURAL PROGRAM

18 November 2017

Agenda of cultural program in Southern Lithuania

07:00 Departure from hotel Ibis Kaunas Center (Vytauto st. 28, Kaunas)

07:15 Departure from ASU guestrooms (Universiteto st. 8, Akademija)

09:00 Visit at Merkinė village:

- Merkinė mound (<https://www.youtube.com/watch?v=QZtER0Wb1bE>)
- Educational programme of black pottery (<http://www.vienaragiusilas.lt/Veikla/Straipsnis%20Good%20mood%20Travel%20Magazine.pdf>)

11:30 Departure for Druskininkai and programme at Druskininkai resort:

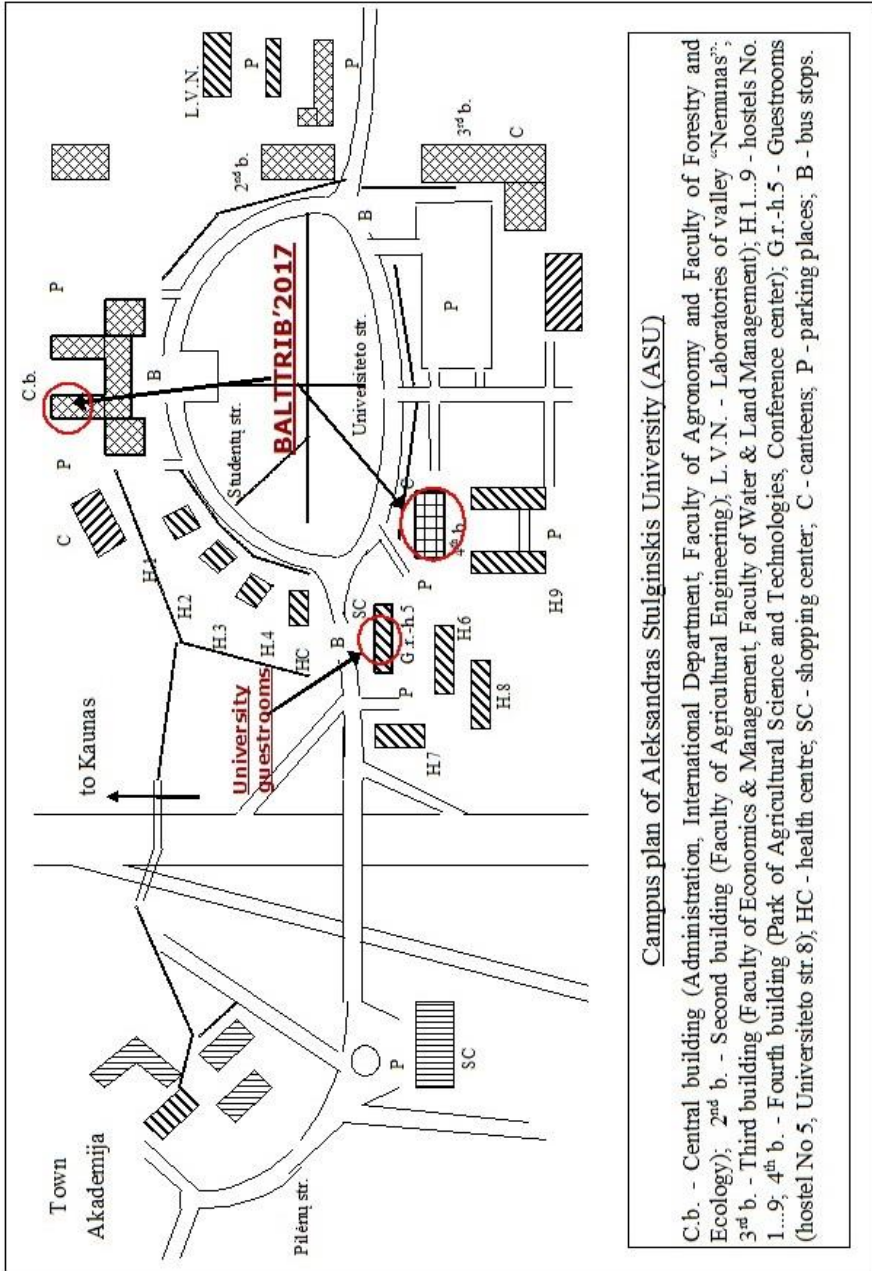
- Visit in the museum of M.K.Čiurlionis (<http://info.druskininkai.lt/new/lt/ka-veikti/lankytinos-vietos/muziejai/item/849-m-k-%C4%8Diurlionio-memorialinis-muziejus>)
- Lunch
- City overlook from funicular cableway (<http://info.druskininkai.lt/new/en/what-to-do/activities/cableway>)
- Sightseeing at Druskininkai

18:00 Departure to ASU.

20:00 Return to hotel Ibis Kaunas Center and ASU guestrooms.

Participation at cultural programme on Saturday costs 50 EUR.

Cultural programme is not included in conference fee and should be paid separately at the registration.



Campus plan of Aleksandras Stulginskis University (ASU)

C.b. - Central building (Administration, International Department, Faculty of Agronomy and Faculty of Forestry and Ecology); 2nd b. - Second building (Faculty of Agricultural Engineering); L.V.N. - Laboratories of valley "Nerminas"; 3rd b. - Third building (Faculty of Economics & Management, Faculty of Water & Land Management); H.1...9 - hostels No. 1...9; 4th b. - Fourth building (Park of Agricultural Science and Technologies, Conference center); G.r.-h.5 - Guestrooms (hostel No 5, Universiteto str.8); HC - health centre; SC - shopping center; C - canteens; P - parking places; B - bus stops.