VII International conference

BALTTRIB' 2015

CONFERENCE PROGRAMME

Aleksandras Stulginskis University
Akademija, Kaunas

26-27 November 2015

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

Contacts:
Phone: +370 37 752263, 752398
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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 “BALTTRIB’2015”
Institute of Power and Transport Machinery Engineering
Aleksandras Stulginskis University (ASU)
Studentu 15, Akademija
LT-53362 Kauno r.
LITHUANIA

Phone: +370 37 752263, 752398
Fax: +370 37 752271
E-mail: balttrib@asu.lt

Internet: http://www.balttrib.info
Conference sessions
Venue: 4th Building of ASU, Universiteto 8A, Akademija

26 November 2015

07:30  Registration
09:00  Opening Session
09:30  Plenary Session
12:00  Coffee break
12:30  Poster presentations
13:30  Lunch
14:30  Scientific sections
   Section 1 Surface processing and surface science
   Section 2 Tribological materials
16:50  Coffee break
17:20  Scientific sections
   Section 3 Friction and wear in tribosystems
   Section 4 Lubricants and lubrication
19:20  Get together (Lobby, 1st floor)

27 November 2015

09:00  Plenary Session
11:30  Coffee break
12:00  Exhibition (presentations of enterprises)
13:00  Discussions; Closing remarks
13:15  Lunch
14:00  Tour to Tribology laboratory at the Institute of Power and Transport Machinery Engineering
       and Open access centre at the ASU
15:30  Free time in Kaunas downtown.

Cultural programme

27 November 2015

18:00  Performance at Kaunas Philharmonic. XX International contemporary music festival. AMBER
       SOUND SYMPHONY ORCHESTRA OF LIEPOJA (Latvia).

28 November 2015

07:30  Departure for Cultural programme in Northern Lithuania
19:00  Return to 4th building of ASU.

REMARK:
Participation in cultural programme (tickets for Kaunas State Philharmonic and cultural programme in
Northern Lithuania) is charged separately from conference fee.
PLENARY LECTURES

26 November 2015

09:30 – 12:00
Conference Hall of 4th building of ASU (Room 214)

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

POLYMER COMPOSITES IN TRIBOLOGY
N.K. Myshkin, S.S. Pesetskii, A.Ya. Grigoriev, V.A. Belyi Metal Polymer Research Institute of National Academy of Sciences of Belarus, Belarus

RUNNING-IN PHENOMENA IN LUBRIFICATED METAL-METAL CONTACTS
M. Scherge, Fraunhofer Institute for Mechanics of Materials IWM, Germany

THE BENEFICIAL EFFECT OF GRAPHENE NANOFILLERS ON THE TRIBOLOGICAL PROPERTIES OF CERAMICS
M. Belmonte, J. Llorente, M. I. Osendi, P. Miranzo, Institute of Ceramics and Glass (ICV-CSIC), Spain

METHOD OF DIMENSIONALITY REDUCTION IN CONTACT MECHANICS: APPLICATIONS FOR STRUCTURAL DAMPING, WEAR AND ADHESION
V. L. Popov, M. Heß, Berlin University of Technology, Germany, M. Popov, Berlin University of Technology, Germany, National Research Tomsk Polytechnic University, Russia

27 November 2015

09:00 – 11:30
Conference Hall of 4th building of ASU (Room 214)

Chairmen: W.J. Bartz, Co-chairman S. Asadauskas

TRIBOLOGICAL ASPECTS OF FUTURE ENERGY PRODUCTION BY WIND AND WATER
W.J. Bartz, Technische Akademie Esslingen e.V., Germany

TRIBOLOGICAL EVALUATION OF HARD COATINGS FOR PIEZOELECTRIC MOTORS
R. Rukuiža, J. Padgurskas, A. Žunda, A. Andriušis, V. Jankauskas, Aleksandras Stulginskis University, Lithuania

THEORETICAL CALCULUS MODEL FOR THE FINITE LENGTH RAYLEIGH STEP BEARING LUBRICATED WITH GREASES
A. V. Radulescu, University “POLITEHNICA” Bucharest, Romania

WEAR BY FRICTION ANALYSIS OF NITRIDED AND CARBURIZED CONSTRUCTIONAL STEELS
J. Senatorski, J. Tacikowski, P. Mączyński, Institute of Precision Mechanics, Poland
SCIENTIFIC SECTIONS
26 November 2015

Section 1
Surface processing and surface science
14:30 – 16:50 Conference Hall (Room 214)
Chairmen: N.K. Myshkin, Co-chairman N. Tsyntsaru

Effect of bulk current density on tribological properties of Fe-W, Co-W and Ni-W coatings
S.A. Silkin, A.V. Gotelyak, N. Tsyntsaru, A.I. Dikusar, Institute of Applied Physics, Moldova, R. Kreivaitis, J. Padgurskas, Aleksandras Stulginskis University, Lithuania

COMPARING SURFACE ROUGHNESS AND TEXTURE CONCEPTS
A.Ya. Grigoriev, N.K. Myshkin, Metal-Polymer Research Institute, Belarus

TRIBOLOGICAL PROPERTIES OF DUPLEX LAYERS PRODUCED BY VACUUM CHROMIZING PROCESS
B. Bogdanski, Institute of Precision Mechanics, Poland, E. Kasprzycka, Plock University of Technology, Poland

The wear resistance of the electrospark coatings prepared on steel 45, tested with counterbodies from diverse materials
V. Agafii, V. Mihailov, N. Kazak, Institute of Applied Physics, Moldova, J. Padgurskas, A. Andriušis, R. Kreivaitis, Aleksandras Stulginskis University, Lithuania

TRIBOLOGICAL BEHAVIOUR OF Co-W UNDER DRY AND LUBRICANTING CONDITIONS
N. Tsyntsaru Institute of Applied Physics, Moldova, Vilnius University, Lithuania

TRIBOLOGICAL PROPERTIES OF (EN AW-AlCu4MgSi(A)) ALUMINIUM ALLOY SURFACE LAYER AFTER BALL BURNISHING
W. Brostow, University of North Texas, USA, S. Cygan, K. Czechowski, J. Kalisz, J. Laszkiewicz-Łukasik, A. Łetocha, Institute of Advanced Manufacturing Technology (IAMT), Poland

Wear Resistance of ELECTROSPARK HARD Alloys Coatings in Different Abrasion Test Conditions
A.Žunda, E.Šalašavičius, A. Romanov, R. Vereckis, Aleksandras Stulginskis University, Lithuania

Section 2
Tribological materials
14:30 – 16:50 Room 211
Chairmen: C.G. Figueiredo-Pina, Co-chairman H. Cesiulis

COMPARISON OF DUCTILE DAMAGE MODELS DURING SCRATCH TESTS – A NUMERICAL STUDY
A. Mostaani, M.P. Pereira, B.F. Rolfe, Deakin University, Australia

SCRATCH RESISTANCE OF HARD CERAMICS
W. Brostow, N. Hnatchuk, University of North Texas, USA, P. Wyżga, Institute of Advanced Manufacturing Technology (IAMT), Poland

TRIBOLOGICAL BEHAVIOR PREDICTION FOR AN EPOXY ARAMID SYSTEM BASED ON MECHANICAL AND THERMAL PROPERTIES ANALYSES
I. G. Birsan, I. Roman, S. Ciortan, Dunarea de Jos University, Romania

MECHANICAL AND TRIBOLOGICAL PROPERTIES OF SELF-LUBRICATING NANOCOMPOSITES BASED ON POM
J. Padgurskas, G. Reškevičius, Aleksandras Stulginskis University, Lithuania, Janis Zicans, Remo Merihs Meri, Ivan Bochkov, Riga Technical University, Latvia

EFFECT OF MICROSTRUCTURE ON ABRASIVE WEAR BEHAVIOUR
B. Narayanaswamy, P. Hodgson, H. Beladi, Deakin University, Australia
STUDY OF THE IMPACT OF THE BLEACHING WITH 6% H₂O₂ SOLUTION ON TEETH WEAR

TRIBOLOGICAL AND CORROSION PROPERTIES OF IRON-BASED ALLOYS
E. Vernickaite, Vilnius University, Lithuania, Z. Antar, University of Sfax, Tunisia, A. Nicolenco, Institute of Applied Physics, Moldova, Vilnius University, Lithuania, R. Kreivatis, Aleksandras Stulginskis University, Lithuania, N. Tsyntşa, Institute of Applied Physics, Moldova, Vilnius University, Lithuania, H. Cesiulis, Vilnius University, Lithuania

Section 3
Friction and wear in tribosystems
17:20 – 19:00 Conference Hall (Room 214)
Chairmen: V. Kovan Co-chairman A. Žunda

SURFACE INTEGRITY ACHIEVED BY FINISHING PROCESSES ON SVERKER 21 AND VANADIS 6 COLD WORKING TOOL STEELS
W. Brostow, University of North Texas, USA, K. Czechowski, Institute of Advanced Manufacturing Technology (IAMT), Poland, M. Kot, AGH University of Science and Technology, Poland, P. Rusek, D. Tobola, Institute of Advanced Manufacturing Technology (IAMT), Poland

SURFACE ENGINEERING OF SLIDER VALVES OF FLUID POWER MOTORS MADE OF TOOL STEELS BY USING BORIDING SATURATION MIXTURE
V.M. Konstantinov, V.G. Dashkevich, A.V. Kovalchuk, Belorussian national technical university, Belarus

EFFECT OF SURFACE ROUGHNESS ON THE STRENGTH OF 3D PRINTED BUTT JOINTS
V.Kovan, Akdeniz University, Turkey, G.Altan, Pamukkale University, Turkey, E.S.Topal, H.E.Camurlu, Akdeniz University, Turkey

THE TRIBODIAGNOSTICS OF THE TECHNICAL CONDITION OF THE HELICOPTER MAIN REDUCTION GEAR
L. A. Shabalinskaia, V. V. Golovanov, E. S. Bubnova, L. V Milinis., Central Institute of Aviation Motors named after P.I. Baranov, Russia

WEAR MODEL DEVELOPMENT OF SOIL TILLAGE ELEMENT
R. Skirkus, V. Jankauskas, Aleksandras Stulginskis University, Lithuania

Section 4
Lubricants and lubrication
17:20 – 19:00 Room 214
Chairmen: A.Ya. Grigoriev Co-chairman G. Reškevičius

OPTICAL INTERFEROMETRY MEASUREMENT OF BSA ADSORPTION IN HYDRODYNAMIC LUBRICATION
Li X., Guo F., Qingdao Technological University, China, Wong P.L., City University of Hong Kong, China

MINIATURIZATION OF LUBRICANT DEGRADATION TESTING FOR NATURAL GAS ENGINES
D. Bražinskienė, A. Ručinskienė, S. Asadauskas, Center for Physical Sciences & Technology, Lithuania

EVALUATION OF IRON MESOPARTICLES CORROSION IN OILS
J. Ivanova, T. Melenkova, H. Cesilius, Vilnius University, Lithuania

EVALUATION OF CORROSIVENESS OF ALKOXYMETHYLIMIDAZOLIUM IONIC LIQUIDS
T.J. Kaldonski, C. Pakowski, Military University of Technology, Poland

BIOLOGICAL GREASES MATERIALS AND THEIR TRIBOLOGICAL EVALUATION (REVIEW)
Johns Eyioma Izuwah, Aleksandras Stulginskis University, Lithuania
POSTER PRESENTATIONS

P-1. INCREASING WEAR RESISTANCE OF THE 30X13 STAINLESS STEEL BY ELECTROSPARK ALOYING
V. Agafii, V. Mihailov, A. Ianachevici, Institute of Applied Physics, Moldova J. Padgurskas, A. Andriušis, R. Kreivaitis, Aleksandras Stulginskis University, Lithuania

P-2. NANOPARTICLE GENERATION METHODS FOR THE PRODUCTION OF LUBRICANTS
V. Bėčytė, Č. Sipavičius, Center for Physical Sciences & Technology, Lithuania, J. Padgurskas, Aleksandras Stulginskis University, Lithuania

P-3. TRIBOTECHNICAL PROPERTIES OF EDIBLE VEGETABLE OILS
A.Ya. Grigoriev, I.N. Kavaliova, V.A. Belyi Metal-Polymer Research Institute, Belarus, J. Padgurskas, R. Kreivaitis, Aleksandras Stulginskis University, Lithuania

P-4. RESEARCH OF THE INFLUENCE FINELY DISPERSED FRICTION MODIFIERS ON THE ANTI-WEAR PROPERTIES OF GREASE LUBRICANTS
V. Medvedeva, M. Skotnikova, N. Krylov, A. Breki, Peter the Great St. Petersburg Polytechnic University, Russia

P-5. TRIBOLOGICAL PROPERTIES OF DUPLEX LAYERS PRODUCED BY VACUUM TITANIZING PROCESS COMBINED WITH THE ELECTROLYTIC DEPOSITION OF COBALT ALLOY
E. Kasprzycka, Warsaw University of Technology, Poland, B. Bogdanski, Institute of Precision Mechanics, Poland

P-6. INVESTIGATION OF THE TRIBOLOGICAL PROPERTIES OF POLYTETRAFLUORETHYLENE MODIFIED WITH METALLIC AND NONMETALLIC NANO PARTICLES
E. Kutelia, Georgian University of Technology, Georgia, D. Gventsadze, R. Dvali Institute of Machine Mechanics, Georgia, J. Padgurskas, Aleksandras Stulginskis University, Lithuania, L. Gventsadze, O. Tsurtsumia, Georgian University of Technology, Georgia

P-7. TRIBOLOGICAL PROPERTIES OF SPUTTER DEPOSITED CARBON-COPPER COMPOSITE FILMS
A. Leitans, N. Bulaha, J. Lungevics, Riga Technical University, Latvia

P-8. PARTICULARITIES OF THE PSEUDO-PLASTIC LUBRICATION, WITH APPLICATION TO THE SINOVIAL LIQUID
I. Radulescu, A. V. Radulescu, University “POLITEHNICA” Bucharest, Romania, J. Javorova, University of Chemical Technology and Metallurgy, Bulgaria

P-9. ESTIMATION OF ROLLING-CONTACT BEARINGS OPERATIONAL PROPERTIES BY ELECTRICAL PROBE METHOD
O. Rekhlitsky, JSC “STCCE”, Belarus, S. Korotkevich, RUP Gomelenergo, Belarus, N. Solovei, D. Rekhlitskaya, JSC “STCCE”, Belarus

P-10. BASE OILS BASES SYNTHESIZED USING TECHNOLOGIES OF RECYCLING WASTE PRODUCTS OF THERMOPLASTICS
I. Mandzyuk, E. Prisyazhnaya Khmelnytskyi National University, Ukraine

P-11. RESEARCH OF AIR FLOW DEBIT WITH NEW CONSTRUCTION INNER LINER
D. Mažeika, A. Bubulis, Kaunas University of Technology, Lithuania, A. Bartkus, JSC MATURE, Lithuania, A. Pauliukas, Aleksandras Stulginskis University, Lithuania
P-12. ELABORATION AND USING OF COMPOSITES BASED ON PHENYLONE AS FRICTION-TYPE BEARINGS OF PLATE CHAINS
A.I. Burya, Ye.A. Yeriomina, O.A. Naberezhnaya, R.L. Lenchenko, Dneprodzerzhinsk State Technical University, Ukraine

P-13. ENZYMATIC SYNTHESIS OF $\alpha$-PROPYLENE GLYCOL WITH (9Z)-OCTADECENOIC ACID BY LIPOLYTIC ENZYME
M. Gumbytė, R. Kreivaitis, Aleksandras Stulginskis University, Lithuania, T. Baležentis, Lithuanian Institute of Agrarian Economics, Lithuania

P-14. TRIBOCORROSION IN DENTAL IMPLANTS: AN IN-VITRO STUDY

P-15. STUDY OF THE FRICTION COEFFICIENT BETWEEN ARTIFICIAL SKIN AND ORTHOPEDIC FOAMS
D.A. Silva, Instituto Superior Técnico, ULisboa, Portugal, A.P. Serro, Instituto Superior Técnico, ULisboa, Centro de investigação Intrerdisciplinar Egas Moniz, Portugal, C.G. Figueiredo-Pina, Instituto Politécnico de Setúbal, Instituto Superior Técnico, ULisboa, Portugal

P-16. TRIBOLOGICAL BEHAVIOUR OF IN SITU NANOSTRUCTURED POLYMERS
A. Circiumaru, I. Bosoancu, R. Bosoancu, G. Mihu, M. Bodor, C. Munteniu, I. Mihalache, I. Graur, Romania

P-17. TRIBOLOGICAL BEHAVIOUR OF STRATIFIED COMPOSITES
A. Circiumaru, M. Bunea, I. Bosoancu, R. Bosoancu, G. Mihu, M. Bodor, C. Munteniu, I. Graur, Romania

P-18. WEAR RESISTANCE AND RADIATION TOLERANCE OF NANOSTRUCTURED TiAlN COATINGS
LANGUAGE

The conference language is English.

INFORMATION FOR SPEAKERS

Duration of oral reports:
- Plenary sessions – 40 min. (include 5-10 minutes discussion)
- Scientific sessions – 20 min. (include 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 (price 0.70 EUR) and minibus No 56 (price 0.90 EUR) arrives from city centre to conference venue at Aleksandras Stulginskis University. After arrival to Kaunas airport transferring to Kaunas railway and bus stations is possible by bus No 29.

Taxi costs (daytime):
- Kaunas airport - Kaunas downtown – ca 8-12 EUR
- Kaunas airport - Aleksandras Stulginskis University campus – ca 13-17 EUR
- Kaunas downtown - Aleksandras Stulginskis University campus – ca 7-9 EUR

Timetables of public transport in Kaunas are available at
http://www.trafi.lt/#!tvarkarasciai/kaunas

After arrival to Vilnius airport to Vilnius railway and bus stations (same place) is possible by buses No 1 and 3. Timetables of public transport in Vilnius are available at
http://www.trafi.lt/#!tvarkarasciai/vilnius

Timetable of trains from Vilnius to Kaunas at http://www.litrail.lt

Timetable of buses from Vilnius to Kaunas (buses every 20-30 min.) at:
http://www.autobusubilietai.lt/

More information about transfers in Lithuania to and from Aleksandras Stulginskis University is available at: http://int.asu.lt/arrivtoLT.pdf

University’s campus map at:
http://int.asu.lt/tsenwhere.pdf

Touristic information of Kaunas:
http://www.kaunastic.lt/?lang=en

Touristic information of Lithuania:
http://www.lithuania.travel
ACCOMMODATION

Participants can arrange their accommodation in University guestrooms (15-20 EUR/day):

http://intern.asu.lt/university-guestrooms/

or in the hotels of Kaunas city:


There are some popular hotels in Kaunas downtown:
- „Kaunas Hotel“ (http://www.kaunashotel.lt)
- „Park Inn by Radisson Kaunas Hotel“ (http://www.parkinn.com/hotel-kaunas)
- „Europa Royale Hotel Kaunas“ (http://www.groupeuropa.com/eurpa_royale/kaunas_hotel/)
- „Best Western Santakos hotel“ (http://santakahotel.eu/EN/Kaunas)

CULTURAL PROGRAM

27 November 2015

Possibility to participate on cultural performance on Friday evening:
18:00 – 21:00 – XX International contemporary music festival „Iš arti“ (“Close by”)
AMBER SOUND SYMPHONY ORCHESTRA OF LIEPOJA (Latvia), Chief conductor Atvars Lakstīgala (Latvia)
Venue: Kaunas State Philharmonic, L.Sapiegos str. 5, Kaunas
Ticket costs 7 EUR.

28 November 2015

Cultural program in Northern Lithuania will include:
- Travel to Overlook tower at the karstic lakes (karstic sinkholes) in Biržai Regional Park (http://www.birzuparkas.lt/en/informacija-lankytojams/virtualus-gidas/);
- Visit at Birzai Castle (http://www.birzumuziejus.lt/en): excursion in the castle museum, educational program (Žaldokas Beer);
- Lunch in Restaurant “Pilies skliautai” (Castle Vaults) (http://piliesskiautai.lt/).

Departure – at 07:30 from University guestrooms, return – at 19:00
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 “Nemunas”; 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.