

VI International Conference



BALTTRIB' 2011

CONFERENCE PROGRAMME

Aleksandras Stulginskis University
Kaunas, Lithuania,

17-19 November 2011

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’2011”
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BALTTRIB'2011

CONFERENCE PROGRAMME

16 November 2011

Arrival of conference participants in Aleksandras Stulginskis University (ASU)
Accommodation in ASU hostel No 5 and hotels in Kaunas downtown

17 November 2011

Venue: 4th building of ASU

08:00 – 09:30	Registration	4 th Building of ASU, lobby
09:30 – 10:00	Opening Session	Conference Hall
10:00 – 12:00	Plenary Session	Conference Hall
12:00 – 12:30	Coffee break	
12:30 – 13:30	Poster presentations	
13:30 – 14:30	Lunch	
14:30 – 16:10	Scientific sections	
	Section 1. Lubrication and lubricants	(Conference Hall)
	Section 2. Surface processing and surface science	(Room 201)
	Section 3. Tribological materials	(Room 204)
16:10 – 16:30	Coffee break	
16:30 – 18:10	Scientific sections	
	Section 4. Friction, wear and corrosion in tribosystems	(Conference Hall)
	Section 5. Micro- and nano-scale in tribology	(Room 201)
	Section 6. Tribology of polymers	(Room 204)
18:30	Get together (Lobby, 1 st floor)	

18 November 2011

Venue: Central building of ASU

09:00 – 11:00	Plenary Session	(Room 261)
11:00 – 11:30	Coffee break	
11:30 – 12:30	Exhibition (presentations of enterprises)	
12:30 – 13:00	Discussions; Closing remarks	
13:00 – 14:00	Lunch	
18:00	Cultural performance: 1. choice - Operetta (musical) at Musical Theatre of Kaunas called "Student beggar" by Karl Millöcker; 2. choice - concert at Kaunas Philharmonia "Rock symphony" by Imants Kalnins	

19 November 2011

09:00 Departure from 4th building of ASU for Cultural program on Saturday - the visit to Open Air Museum of Lithuanian countryside in Rumšiškės (<http://www.llbm.lt/eng/>). This program will include excursion in the museum, participation in bread baking, lunch in countryside restaurant.

16:00 Return to 4th building of ASU

REMARK:

Cultural programmes and meals on 18-19 November are not included in conference fee.

PLENARY LECTURES

17 November 2011

10:00 – 12:00

Conference Hall of 4th building of ASU

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

On-board applicable high-resolution wear measurement technique for internal combustion engines. *F. Franek, T. Wopelka, M. Jech (Austria)*

Degradation of lubricants in engines and the survival of antioxidants. *M. Stark (UK)*

Design of an integrated multi-scale multi-functional surface. *St. M. Hsu (USA)*

The green automobile - definition and realization. *W. J. Bartz (Germany)*

18 November 2011

09:00 – 11:00

Room 261 of Central building of ASU

Chairmen: **W. Brostow**, Co-chairman **A. V. Radulescu**

Scientific educational tribology complex based on the self-organisation and its application in industry and transportation. *D. Garkunov, E. Melnikov (Russia)*

Extension of service life of thermoelectric materials and tribological properties of encapsulating polymers. *W. Brostow, T. Datashvili, H. E. Hagg Lobland, T. Hilbig, L. Su, M. Thedford, J. White (USA)*

The global performance passport – an efficient Instrument for characterizing the lubricants properties. *A.V. Radulescu, I. Radulescu (Romania)*

A dynamical test method to compare the tribological behaviour of different oils and elastomers with respect to rotary shaft seals. *M. Wilke, V. Wollesen, O. von Estorff (Germany)*

SCIENTIFIC SECTIONS

17 November 2011

Venue: 4th building of ASU

Section 1

Lubrication and lubricants

14:30 – 16:10

Conference Hall

Chairmen: **S. J. Asadauskas**, Co-chairman **J. Schmidt**

Research of natural antioxidants influence on oxidation stability and tribological properties of rapeseed oil

R. Kreivaitis, K. Kazancev, M. Gumbytė, E. Dambrauskienė, J. Padgurskas (Lithuania)

Fluid qualification tests – correlations between laboratory and application related tests

J. Schmidt, D. Krause (Germany)

Formation of solid residues in bio-based esters during oxidation and their dissolution in organic solvents

I. Liaščukienė, A. Stončius, S. Asadauskas (Lithuania)

Tribological properties of some bio-based greases

R. Rukuiža, J. Padgurskas, V. Talačkaitė, A. Kupčinskas (Lithuania)

Study of tribological efficiency of new type additive to oils

E. Kutelia (Georgia), J. Padgurskas (Lithuania), J. Iosebidze, G. Abramishvili, A. Chkheidze, L. Zurabishvili, M. Khvedelidze (Georgia)

Section 2

Surface processing and surface science

14:30 – 16:10

Room 201

Chairmen: **J. Senatorski**, Co-chairman **A. Žunda**

Surface energy and frictional/ adhesive properties of polymeric resist films

A. Koszewski, D. Jarzabek, Z. Rymuza, I. Obieta (Poland)

Tribological and tribocorrosion tests of Ni-PTFE electrochemical coatings

B. Szeptycka, J. Senatorski (Poland)

Numerical investigation of the influence of surface asperities on tribological parameters in lubricated point contact

M. Vaverka, M. Vrbka, P. Šperka, I. Ficza (Czech Republic)

Influence of copper coatings formation methods on tribological properties of friction couples

V. Jankauskas, G. Kubilius, J. Padgurskas, A. Žunda (Lithuania), V. Michailov (Moldova), V. Vasauskas (Lithuania)

Numerical analysis of elastic contact considering tangential friction

S. Spinu, G. Frunza (Romania)

Section 3

Tribological materials

14:30 – 16:10

Room 204

Chairman: **C.G. Figueiredo Pina**, Co-chairman **R. Rukuiža**

Friction testing of porcine skin in different lubrication conditions

C. G. Figueiredo Pina, D. Leocedio, S. Vicente, P. Silva (Portugal)

Wear performance of WC- and TiC-based ceramic-metallic composites

J. Kùbarsepp, H. Klaasen, A. Tsinjan, T. Roosaar, H. Annuka (Estonia)

On the consideration of aging effects in experimental oil-elastomer investigations

A. Petuchow, V. Wollesen, O. von Estorff (Germany)

Composition and properties of structural steel surface after plasma electrolytic carburizing

P. Belkin, I. Dyakov, S. Kusmanov, A. Naumov (Russia)

Production and properties of aluminum fly ash composites from aluminum chips and fly ash particles

H.Mindivan, R.Vatansever, E.S.Kayali (Turkey)

Section 4

Friction, wear and corrosion in tribosystems

16:30 – 18:10

Conference Hall

Chairman: **F. Franek**, Co-chairman **H. Cesiulis**

Preliminary tribocorrosion study of CoCr and CrNi dental alloys in artificial saliva

C. G. Figueiredo Pina, C. S. Faias, M. R. Frade, C. Santos (Portugal)

Effects of cement contents and hematite concentration on wear of concrete

O. Gencel, F. Koksall (Turkey), W. Brostow (USA)

Tribocorrosion behaviour of titanium dioxide films

T. Maliar (Lithuania), F. Wenger, P. Ponthiaux (France), H. Cesiulis (Lithuania)

Corrosion-wear response of a medical grade stainless steel

C. G. Figueiredo Pina (Portugal), J. Fisher, P. A. Dearnley (UK)

Investigation of hydrodynamic parameters of sliding bearing with inverse friction pair

R. Rukuiža, G. Ulozas (Lithuania)

Section 5

Micro- and nano-scale tribology

16:30 – 18:10

Room 201

Chairman: **St. M. Hsu**, Co-chairman: **N. Tsyntsaru**

Mechanical properties and frictional behaviour of nanoporous anodized aluminium

B. Kavas (Turkey), N. Tsyntsaru (Belgium), M. Urgen (Turkey), J.-P. Celis (Belgium)

Evolution of tribosystem to the nanostructural state and calculation of gear wear

S.V. Fedorov, (Russia)

Nano-scale modeling of automotive pad-disc interface. The influence of structure & composition

A.I.Dmitriev (Russia), W.Oesterle, H.Kloss (Germany)

Tribological behavior of metal nano-suspensions

S.A.Belyaev, I.V.Petrakova, T.V.Rakhmatulina (Russia)

Selection of micro- /nanoparticles in the gas flow

Č. Sipavičius, A. Žunda, R. Rukuiža, J. Padgurskas, V. Jankauskas, E. Zvicevičius (Lithuania)

Section 6

Tribology of polymers

16:30 – 18:10

Room 204

Chairman: **W. Brostow**, Co-chairman: **R. Levinskas**

Improvement of tribological properties in metal matrix composites (MMC) by means of slide burnishing

P. Bednarski, D. Biało (Poland), W. Brostow (USA), K. Czechowski, W. Polowski, P. Rusek (Poland)

Frictional property of polyvinyl alcohol hydrogel blended with α -TCP

K. Asahara, T. Iwai, Y. Shoukaku (Japan)

Abrasive wear of polymeric particle composites with a filler on the basis of waste

P. Valášek, M. Müller (Czech Republic)

Modification of polyolefine blends with nanostructured fillers: microhardness and tribological studies

I. Bochkov, J. Zicans, R. Merijs Meri, A. Grigalovica, J. Grabis, R. Kotsilkova (Latvia)

Properties of polymer nanocomposites on the bases of synthetic gyrolite and epoxy resin

R.Levinskas, I.Lukošiūtė, A. Baltušnikas, K. Baltakys, R. Kriūkienė (Lithuania)

POSTER PRESENTATIONS

17 November 2011

IV Building of ASU, Lobby of 2st floor

Statistical analysis of tribological properties of several chlorinated compounds in mineral oil

A. Pogosian, Ch. Boniatian, M. Stakyan, W. Saroyan (Armenia)

Manufacturing and characterization of nanostructured CuO modified polyvinyl acetate composites

J. Zicans, R. Merijs-Meri, T. Ivanova, J. Bitenieks (Latvia), J. Padgurskas (Lithuania)

Generation of micro- nano particles using different material destruction methods

Č. Sipavičius, A. Žunda, K. Mažeika, J. Padgurskas (Lithuania)

Tribological properties of lard grease with lithium and natrium soap thickeners

A. Kupčinskas, J. Padgurskas, R. Rukuiža, V. Makarevičienė, M. Gumbytė (Lithuania)

Influence of oleic acid and monodiglycerides on tribological properties of rapeseed oil

J. Padgurskas, R. Kreivaitis, V. Jankauskas, A. Andrešiūnas (Lithuania)

Influence of stearic acid and glycerides on rapessed oil tribological properties

R. Kreivaitis, V. Jankauskas, J. Padgurskas, A. Andrešiūnas (Lithuania)

Morphology and surface adhesive properties of PMMA films on PET, glass and PMMA substrates

A. Lazauskas, A. Guobienė, J. Puišo, I. Prosyčevas, S. Ponelytė (Lithuania)

Internal oxidation during steels carburising

M. Cojocar, D. Paun (Romania), V. Mihailov (Moldova)

Study Concerning the Growing Kinetics of Carburized Case Depth for MSRR 6009 Parts Steel

D. Păun, M. Cojocar (Romania), V. Mihailov (Moldova)

Experimental investigation of pure viscous fluids in constant velocity squeeze flow

D. Coblas, M. Hajjam (France), A. Radulescu, C. Balan (Romania)

Improved pressure distribution in circular contacts

M. Glovnea, E. Diaconescu (Romania)

Visualization and measurement of surface contact area by reflectivity

M. Glovnea, E. Diaconescu (Romania)

Generation of synthetic surfaces with roughness parameters

S. Cananau, B. Pavaloiu. (Romania)

Low carbon steel carbonitriding by plasma electrolysis

Dyakov, T. Mukhacheva, S. Kusmanov (Russia)

Slide diamond burnishing of tool steels with adhesive coatings and diffusion layers

W. Brostow (USA), K. Czechowski, W. Polowski, P. Rusek, D. Tobola, I. Wronska (Poland)

Tribological aspects of diagnosis of the drives parts technical state of the aircraft engines

L. Shabalinskaya, L. Milinis, S. Drobot (Russia)

Finite element stress analysis of surface roughness effect on interference fits

V. Kovan, G. Altan (Turkey)

On the specifics of moving rubber contacts

B. Happ (Germany)

A numerical approach to the Cattaneo-Mindlin problem

S. Spinu, G. Frunza (Romania)

Investigation of magneto-rheological fluid damper for laser shutters

A. Bubulis, V. Jurėnas, V. Mačiukienė, S. Navickaitė (Lithuania)

Usage of mechanical impedance method for investigation amplitude frequency characteristics of elastic junction elements

S. Merkevičius, E. Jotautienė, A. Senkus, G. Vasiliauskas (Lithuania)

The influence of plasma spraying parameters on the microstructure and properties of ZrO₂-8Y₂O₃ coatings

K. Brinkienė, A. Žunda, R. Kėželis, V. Mėčius, J. Čėsniėnė, V. Vasauskas (Lithuania)

Effect of some lubricants on the flow characteristics of 'EPDM' rubber under compressive load

A. Mukhopadhyay (India)

INFORMATION FOR SPEAKERS

Duration of oral reports:

- Plenary sessions – 30 min.
- Scientific sessions – 20 min.

Sections' rooms will be equipped for Multimedia and Overhead presentations.

Area of poster presentation should not exceed A0 format.

LANGUAGE

The conference language is English.

ARRIVAL

<http://www.asu.lt/intern/arrivtoLT.html>

There are several possibilities to arrive to Lithuania and Kaunas:

- by flight
 - to **Kaunas airport**. There are number of direct and connecting flights via Riga from all biggest European cities of regular airlines AirBaltic, there are also RyanAir flights to:
 - Belgium (Brussels Charleroi);
 - Finland (Tampere);
 - France (Paris Beauvais);
 - Germany (Frankfurt Hahn);
 - Greece (Kos, Rhodes);
 - Ireland (Dublin);
 - Netherlands (Eindhoven);
 - Norway (Oslo Rygge);
 - Spain (Alicante);
 - Sweden (Gothenburg, Stockholm Skavsta);
 - United Kingdom (Birmingham, Bristol, Edinburgh Leeds, Bradford, Liverpool, London Gatwick, London Stansted, London Luton).
 - to **Vilnius airport** (regular flights from many different European cities);
- by **train** - to Kaunas railway station (info phone: +370 37 221093, 292260) from Riga, Moscow, Warsaw etc;
- by **bus** - to Kaunas bus station (info phone: +370 37 322222) from Minsk, Riga, Warsaw, Praha, Berlin, Munich, Paris, Rome, Athens etc.

There are three means of most popular regular public transport in Lithuanian cities - buses, trolleybuses and minibuses.

Transportation to campus of Aleksandras Stulginskis University (former Lithuanian University of Agriculture) from Kaunas or Vilnius:

1. Transportation from Kaunas railway station or bus station

From Kaunas railway station, bus (terminal) station or Kaunas downtown to Aleksandras Stulginskis University (6-7 km distance from City center) by taking bus No 18 (price 2 Litas, ticket in kiosk or at driver) or by minibus No 56 (price 2.5 Litas, ticket at driver) direction "Akademija" or "ASU (former LŽŪU)". The buses are available at street near bus and railway station buildings (street *Vytauto prospektas*) or in the downtown street *Kęstučio gatvė*. Taking minibus No 56 to University campus (*Aleksandro Stulginskio universitetas*) by stop it by rising hand and asking to stop at bus station "Bendrabučiai" (near the hostel No 5) or "ASU (former LŽŪU) 4 rūmai" (IV building of ASU where conference center is located). Taxi from Kaunas downtown to ASU costs ca 20 Litas.

Timetables of public transport in Kaunas are available at <http://www.marsrutai.lt/kaunas/en/>

2. Transportation from Kaunas airport

After arrival to Kaunas airport transferring to Kaunas railway and bus stations by bus No 29 and following the transportation instructions above. Taxi to Kaunas downtown or directly to ASU campus is available from Kaunas airport (price ca 50 Litas).

3. Transportation from Vilnius airport

By bus No 1 (<http://www.marsrutai.lt/vilnius/en/#Routes/Bus>) or airport train (costs 2.50 Lt, takes 8 min., timetable of departures: <http://www.litrail.lt>) to Vilnius railway/bus station (the same area).

From railway station take train to Kaunas. Timetable of trains to Kaunas at <http://www.litrail.lt>

From bus station which is in front of railway station taking bus to Kaunas. Buses are leaving every 20-30 min. (timetables: <http://www.autobusubilietai.lt/>).

See instructions in line 1. for further transportation from Kaunas railway or bus station to ASU.

University's campus map at:

<http://www.asu.lt/intern/tsenwhere.html>

Transport information in Lithuania:

<http://www.marsrutai.lt/en/>

Transport information in Kaunas:

- ◇ Kaunas airport information: phone: +370 37 399307,
<http://www.kaunasair.lt/index.php?lang=2&m=2&p=210>
- ◇ Kaunas train station information: phone: +370 37 221093, 292260.
- ◇ Kaunas bus station information: phone: +370 37 409060, 409061; International lines: phone: +370 37 322222.

Booking of RyanAir tickets to Kaunas airport at:

<http://www.ryanair.com/site/LT/>

Touristic information of Kaunas:

<http://visit.kaunas.lt/W3/titulinis?lang=en>

Touristic information of Lithuania:

<http://www.travel.lt>

ACCOMMODATION

Participants can arrange their accommodation in University guestrooms (12-24 EUR/day):

<http://www.lzuu.lt/intern/tsenhot.html>

or in the hotels of Kaunas city:

http://www.hotels.lt/t_kaunas.html

In following hotels You can get remarkable discount, if You will mark in hotel reservation that You are guest of Aleksandras Stulginskis University and participant of BALTTTRIB 2011 conference:

- „Park Inn by Radisson Kaunas Hotel“ (<http://www.parkinn.com/hotel-kaunas>) - You should write the booking message to hotel administrator (Gitana.Labasauskaite@rezidorparkinn.com). Price: ca 50 EUR/night

- „Europa Royale Hotel Kaunas“ (http://www.groupeuropa.com/europa_royale/kaunas_hotel/) - You should write the booking message to hotel conference manager Roberta Janušaitytė (SA.Kaunas@EuropaRoyale.com). Price: ca 45 EUR/night

CULTURAL PROGRAM

18 November 2011

Possibility to participate on cultural performance on Friday evening at 18:00:

1. choice - Operetta (musical) at Musical Theatre of Kaunas called "Student beggar" by Karl Millöcker

(<http://www.muzikinisteatras.lt/?lan=EN>)

2. choice - concert at Kaunas Philharmonia "Rock symphony" by Imants Kalnins,

(<http://www.kaunofilharmonija.lt/en>).

The ticket to one of this performance cost 10 EUR.

19 November 2011

Cultural program on Saturday - the visit to Open Air Museum of Lithuanian countryside in Rumšiškės (<http://www.lbm.lt/eng/>). This program will include excursion in the museum, participation in bread baking, lunch in countryside restaurant.

Departure – at 09:00 from University guestrooms, return – at 16:00

Participation at cultural programme on 19.11.2011 costs 40 EUR.

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

