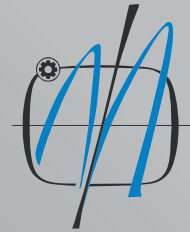




Serbian Tribology Society



University of Belgrade,
Faculty of Mechanical Engineering

10th International Conference on Tribology
BALKANTRIB '20

PROGRAMME



Balkan Tribological
Association

May 20 - 22, 2021, Belgrade, Serbia

Welcome to BALKANTRIB '20

The International Conference on Tribology – BALKANTRIB is supported by the Balkan Tribological Association and is organised every three years since 1993, each time in a different Balkan country. The previous conferences were held in Bulgaria (1993 and 2008), Greece (1996 and 2011), Romania (1999 and 2014), Turkey (2002 and 2017) and Serbia (2005). This 10th jubilee BALKANTRIB conference is organised in Belgrade, by the Serbian Tribology Society and the Faculty of Mechanical Engineering in Belgrade, on May 20-22, 2021. Serbian Tribology Society is a full member of the International Tribology Council (ITC) and Balkan Tribological Association, as well.

The original date of the Conference was on September 24-26, 2020, but it was postponed due to the COVID-19 pandemic. Since the pandemic still significantly affects the world and makes travelling difficult and unsafe it was decided to hold the 10th International Conference on Tribology – BALKANTRIB '20 entirely online.

Due to the postponing of the BALKANTRIB '20 conference there was an overlap with the SERBIATRIB '21 conference, which is also organised by the Serbian Tribology Society. The International Conference on Tribology – SERBIATRIB is organised every two years since 1989. The previous conferences were held in Kragujevac (1989, 1991, 1993, 1999, 2005, 2007, 2011, 2013, 2017 and 2019), Herceg Novi (1995), Kopaonik (1997) and Belgrade (2001, 2003, 2009 and 2015). Therefore, this year the 17th International Conference on Tribology – SERBIATRIB '21 is organised in the same period and included in the BALKANTRIB '20 conference.

Altogether 96 presentations of authors from 33 countries (Argentina, Austria, Bangladesh, Belgium, Bosnia and Herzegovina, Bulgaria, Canada, China, Czechia, Denmark, Egypt, France, Germany, Greece, India, Japan, Latvia, Lithuania, Mexico, Montenegro, Netherlands, Poland, Portugal, Romania, Russia, Serbia, Slovenia, Spain, Sweden, Taiwan, Turkey, Ukraine and USA) have been accepted for Conference. Approximately 58 presentations were submitted by the authors from Balkan countries and approx. 38 presentations by authors from the rest of the World.

I would like to thank all authors and participants of the Conference, members of the Scientific and the Organising Committee, reviewers and sponsors and all those who have helped in making this Conference better. It was a great pleasure and new experience for me to organise this Conference and I hope that the Conference, bringing together specialists, research scientists and industrial technologists, will stimulate new ideas and concepts, promoting further advances in the field of tribology.

Belgrade, May 2021

Aleksandar Venci



President of the Organising Committee

International Scientific Committee

President:

Aleksandar Venci University of Belgrade (Serbia)

Members:

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Gordana Globočki Lakić University of Banja Luka (Bosnia and Herzegovina)
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Nyagol Manolov Society of Bulgarian Tribologists (Bulgaria)
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Konstantinos-Dionysios Bouzakis Aristotle University of Thessaloniki | Turkish-German University (Greece | Turkey)
Nikolaos M. Vaxevanidis School of Pedagogical and Technological Education (Greece)
Pantelis G. Nikolakopoulos University of Patras (Greece)
Gabriella Bognár University of Miskolc (Hungary)
Kristina Jakimovska Ss. Cyril and Methodius University (North Macedonia)
Wojciech Zębala Cracow University of Technology (Poland)
Lorena Deleanu "Dunărea de Jos" University of Galați (Romania)
Minodora Ripa "Dunărea de Jos" University of Galați (Romania)
Răzvan George Rîpeanu Petroleum-Gas University of Ploiești (Romania)
Marius Pustan Technical University of Cluj-Napoca (Romania)
Andrei Tudor University Politehnica of Bucharest (Romania)
Elena Zadorozhnaya South Ural State University (Russia)
Miroslav Babić Serbian Tribology Society (Serbia)
Aleksandar Rac Serbian Tribology Society (Serbia)
Aleksandar Marinković University of Belgrade (Serbia)
Slobodan Mitrović University of Kragujevac (Serbia)
Blaža Stojanović University of Kragujevac (Serbia)
Dušan Stamenković University of Niš (Serbia)
Branko Škorić University of Novi Sad (Serbia)
Pavol Hvizdoš Slovak Academy of Sciences (Slovakia)
Marcela Pokusová Slovak University of Technology in Bratislava (Slovakia)
Andreas Almqvist Luleå University of Technology (Sweden)
Mehmet Baki Karamiş Erciyes University (Turkey)
Hakan Kaleli Yıldız Technical University (Turkey)
Ali Erdemir Texas A&M University (USA)
Bharat Bhushan The Ohio State University (USA)

Organising Committee

President:

Aleksandar Venci University of Belgrade (Serbia)

Members:

Bojan Gligorijević University of Belgrade (Serbia)
Boris Kosić University of Belgrade (Serbia)
Aleksandar Milivojević University of Belgrade (Serbia)
Aleksandra Stakić University of Kragujevac (Serbia)
Blaža Stojanović University of Kragujevac (Serbia)

Invited Speakers



Prof. Ali Erdemir, Texas A&M University, USA

Professor of Mechanical Engineering and Materials Science and Engineering and President of the International Tribology Council

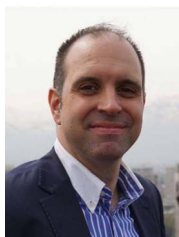
Presentation title: Frontiers of superlubricity research: Recent developments and future prospects



Prof. Jean Michel Martin, University of Lyon, France

Emeritus Professor in LTDS at Ecole Centrale de Lyon and Tribology Gold Medal Laureate

Presentation title: The supreme lubrication power of glycerol for green superlubricity



Univ.-Prof. Dr. Carsten Gachot, Vienna University of Technology, Austria

Head of the Tribology Research Group at the Institute for Engineering Design and Logistics Engineering and Editor-in-Chief for the Industrial Lubrication and Tribology

Presentation title: On the in-situ formation of transition metal disulphides in a lubricated tungsten nitride coating contact



Prof. Andreas Almqvist, Luleå University of Technology, Sweden

Editor-in-Chief for the Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology

Presentation title: Topological optimisation of slider bearing geometry

Conference Proceedings

All accepted papers are published in the Conference proceedings, which is catalogued with appropriate ISBN number, and distributed to the participants. All papers have been peer reviewed and edited. Only unpublished papers were accepted, and the corresponding author was responsible for the originality and content of the paper.

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International
Tribology
Council

Administration:

Professor I. Sherrington
Jost Institute for Tribotechnology
University of Central Lancashire
Preston PR1 2HE
Lancashire, UK

May 6, 2021

Dear Colleagues:

On behalf of the International Tribology Council, it is with great pleasure that I offer my sincere thanks and congratulation to all of you for organizing and participating in the BALKANTRIB '20 – the 10th International Conference on Tribology in Belgrade, Serbia which is being held online in 2021 due to ongoing Pandemic. From its very rich technical program, it is very clear that BALKANTRIB '20 is featuring some of the most exciting research topics in tribology which will undoubtedly help towards our common goal of a clean, green, and sustainable future for generations to come.

As you all know, the global challenges that we are facing in the energy, environment and sustainability fronts are intensifying and potentially threatening the livelihood of whole humanity more than ever. As the world tribology community, we must all rise to these challenges and intensify our efforts to make a positive difference in the lives of not only the people but also all other living species of this planet. In closing, I reiterate my sincere thanks and hearty congratulations to all of you for making the BALKANTRIB '20 Conference another success story. I have no doubt that the outcome of this conference will help strengthen our goal toward a sustainable future that is also ecologically diverse and environmentally sensible.

Sincerely,

Ali Erdemir

President, the International Tribology Council
Professor and Halliburton Chair in Engineering
Department of Mechanical Engineering and Materials Science and Engineering
Texas A&M University
115 MOB, 3123 TAMU
College Station, TX 77843
USA

**Talking for 10th International Conference on Tribology, May 20, 2021
(BALKANTRIB '20), Serbia**

LADIES and GENTLEMEN

The International Conferences on Tribology 'BALKANTRIB' is supported by the Balkan Tribological Association and is organized, every three years since 1993, in various Balkan countries and aim to stimulate collaboration between Balkan and other countries for developing research and development in tribology, as well as application aspects like innovative products and services.

Unfortunately, because epidemic of Corona virus, 10th International Conference on Tribology – BALKANTRIB '20 have to be as online and the date of the conference postponed from 2020 to 2021 with the hoping for finishing of the virus. However, it is still continuing by causing to the realising of the conference as virtual.

Tribology is a scientific field which covers the total of friction, wear and lubrication. The scientific concept embraces processes at surface and interfaces moving against and affecting each other. Tribology does not only represent the topic of the scientific investigation and the technical application but it also contributes to human life, socially, economically, culturally and intellectually.

Tribology is the key technology that controls functions, performance and reliability of mechanical systems. It is known that tribology supported many technologies in the 20th century. In the 21st century, tribology is anticipated to play an important role in biotechnology, nanotechnology, environmental technology, etc.

Regarding the problem of environment, although the amount of saving energy and materials by the knowledge of tribology is small for individual machine elements, the total sum all through the world is terribly huge. Therefore to keep the environment the earth, it is now time for us to cope with these problems by cooperating with tribologists of all over the world.

In accordance with these reflections the optimum consideration of the field tribology should be educated during the professional education level and should be studied more than present at university level. I believe that all Balkan counties do that appropriate. I think however it is not enough. We must run to ahead for the more comfortable life by solving tribological problem in our countries. Also we have to share the knowledge belong the each other by the conference like this.

Thank you very much to all participant for shearing her/his knowledge in this conference.

Please cheer to the memory of Prof. Ivković, and to Prof. Vencl for the service of this purpose with this well organization.

20.05.2021

Prof. Mehmet Baki KARAMIŞ
President of BTA

Schedule

Day 0 Wednesday, 19.05.2021	
Time CEST (UTC +2)	Activity
09:00 – 11:00	Registration of the participants & Platform testing
16:00 – 18:00	
Day 1 Thursday, 20.05.2021	
Time CEST (UTC +2)	Activity
09:00 – 09:15	Opening of the Conference Ali Erdemir , President of the International Tribology Council Mehmet Baki Karamiş , President of the Balkan Tribological Association Miroslav Babić , President of the Serbian Tribology Society Predrag Elek , Vice Dean for International Cooperation of the Faculty of Mechanical Engineering in Belgrade Aleksandar VencI , President of the Conference Organising Committee
09:15 – 11:15	Plenary section Ali Erdemir , Texas A&M University (USA) Professor of Mechanical Engineering and Materials Science and Engineering and President of the International Tribology Council “Frontiers of superlubricity research: Recent developments and future prospects” Jean Michel Martin , University of Lyon (France) Emeritus Professor in LTDS at Ecole Centrale de Lyon and Tribology Gold Medal Laureate “The supreme lubrication power of glycerol for green superlubricity” Carsten Gachot , Vienna University of Technology (Austria) Head of the Tribology Research Group at the Institute for Engineering Design and Logistics Engineering and Editor-in-Chief for the Industrial Lubrication and Tribology “On the in-situ formation of transition metal disulphides in a lubricated tungsten nitride coating contact” Andreas Almqvist , Luleå University of Technology (Sweden) Editor-in-Chief for the Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology “Topological optimisation of slider bearing geometry”
11:15 – 12:30	Break

Day 1 Thursday, 20.05.2021		
Time CEST (UTC +2)	Activity	
12:30 – 14:30	Section A (Lubricants and lubrication)	Section B (Tribological properties of solid materials/Sealing tribology)
	Presentation of the Company Valvoline Europe, Ellis Enterprises East d.o.o.	
14:30 – 15:00	Short break	
15:00 – 17:30	Section C (Surface engineering and coating tribology)	Section D (Tribological properties of solid materials/Biotribology)

Day 2 Friday, 21.05.2021		
Time CEST (UTC +2)	Activity	
09:00 – 11:00	Section E (Fundamentals of friction and wear/ Lubricants and lubrication)	Section F (Tribotesting and tribosystem monitoring)
	Presentation of the Company Valvoline Europe, Ellis Enterprises East d.o.o.	
11:00 – 11:30	Bruker Workshop (Brake pad material screening with the UMT TriboLab)	
11:30 – 12:30	Break	Board Meeting of the Balkan Tribological Association
12:30 – 14:30	Section G (Tribology of machine elements)	Section H (Tribology of manufacturing processes)
14:30 – 15:00	Short break	
15:00 – 17:30	Section I (Tribology of machine elements/Design and calculation of tribocontacts)	Section J (Tribology of manufacturing processes/Other topics related to tribology)
17:30	Closure of Conference	

Thursday, 20 May 2021, 09:15 – 11:15 CEST (UTC +2)

Plenary section

Chairman: Emilia Assenova

PLE 01	Ali Erdemir Frontiers of superlubricity research: Recent developments and future prospects
PLE 02	Jean Michel Martin, Maria-Isabel De Barros Bouchet, Yun Long The supreme lubrication power of glycerol for green superlubricity
PLE 03	Carsten Gachot On the in-situ formation of transition metal disulphides in a lubricated tungsten nitride coating contact
PLE 04	Andreas Almqvist, Kalle Kalliorinne Topological optimisation of slider bearing geometry

Thursday, 20 May 2021, 12:30 – 14:30 CEST (UTC +2)

Section A (Lubricants and lubrication)

Chairman: Lorena Deleanu

LUB 01	Achill Holzer, Katharina Schmitz About the change of flow factors during the run-in process of lubricated contacts
LUB 02	Dionis Guglea, Traian Florian Ionescu, Constantin Georgescu, Dumitru Dima, Lorena Deleanu Extended test campaign for rapeseed oil on four ball machine
LUB 03	Raimondas Kreivaitis, Milda Gumbytė, Jolanta Treinytė Investigation of tribological properties of environmentally friendly ionic liquids as a potential lubricity improving additives for water-based lubricants
LUB 04	Cătălin Enescu, Petrică Turtoi, Alice Marinescu, Traian Cicone Squeeze flow through a compressible multilayered porous structure
LUB 05	Darko Lovrec, Vito Tič The importance of the electrical properties of hydraulic fluids
LUB 06	Samo Goljat, Vito Tič, Darko Lovrec Prevention of water ingress in hydraulic systems
LUB 07	Rafal Kozdrach, Jolanta Drabik The Stribeck curves and lubrication conditions of different lubricating greases
LUB 08	Presentation of the Company Valvoline Europe, Ellis Enterprises East d.o.o.

Thursday, 20 May 2021, 12:30 – 14:30 CEST (UTC +2)

Section B (Tribological properties of solid materials/Sealing tribology)

Chairman: Pantelis G. Nikolakopoulos

MAT 01	Venkata Kasi Viswanadham Kolipakula, Ravinder Reddy Pinninti, Rakesh Kumar Gunda, Sekhara Kumar Aduru Tribological characteristics of metal GFRP composite filled with SiC and Al₂O₃ particles
MAT 02	Mihail Zagorski, Georgi Todorov, Nikolay Nikolov, Yavor Sofronov, Mara Kandeveva Investigation on wear of biopolymer parts produced by 3D printing in condition of reverse sliding friction
MAT 03	Sandra Gajević, Slavica Miladinović, Blaža Stojanović, Aleksandar Vencl Wear of A356/Al₂O₃ nanocomposites and optimisation of material and operating parameters
MAT 04	Dragan Džunić, Slobodan Mitrović, Darko Pešić, Vladimir Kočović, Marko Pantić, Aleksandra Kokić Arsić Tribological investigation of ZA-27 alloy based micro/nano mixed composites
MAT 05	Blaža Stojanović, Aleksandar Vencl, Nenad Miloradović, Sandra Gajević, Slavica Miladinović Optimization of tribological behaviour of hybrid composites based on A356 and ZA-27 alloys
SEA 01	Lukas Merkle, Matthias Baumann, Frank Bauer Influence of alternating temperature levels on the wear behaviour of radial lip seals: Test rig design and wear analysis
SEA 02	Jeremias Grün, Simon Feldmeth, Frank Bauer The sealing mechanism of radial lip seals: A numerical study of the tangential distortion of the sealing edge
SEA 03	Mihaela Istrate, Nicolae Popa, Viorel Nicolae Considerations on optimizing mechanical face seals to minimize losses

Thursday, 20 May 2021, 15:00 – 17:30 CEST (UTC +2)

Section C (Surface engineering and coating tribology)

Chairman: Aleksandar VencI

COA 01	Louis Rodriguez, Jean-Yves Paris, Marion Balsarin, Philippe Combes, Jean Denape, Karl Delbe Tribological behaviour of a micro-arcs oxidation coating formed on AA 5086 and effect of rectification
COA 02	Lukasz Kolodziejczyk, Witold Szymanski, Diego Martínez-Martínez, Roman Parkhomenko, Oreste De Luca, Mato Knez, Petra Rudolf, Luis Cunha The study of nanoscale tribological properties of carbon- and nitrogen-based thin films prepared by bottom-up approach
COA 03	Sarah S. H. Ibrahim, Nabil S. M. El-Tayeb Effect of nano-silica/alumina hybrid coating on erosion resistance of GFRP for application of wind turbine blades
COA 04	Georgi Kostadinov, Pancho Danailov, Rayna Dimitrova, Mara Kandeve, Todor Penyashki, Valentin Kamburov, Antonio Nikolov, Blagoj Elenov Surface topography and roughness parameters of electrospark coatings on titanium alloy Ti6Al4V
COA 05	Harun Mindivan Pulsed plasma nitriding of high velocity oxy-fuel sprayed Inconel 625 coatings
COA 06	Mara Kandeve, Georgi Kostadinov, Rayna Dimitrova, Todor Penyashki, Valentin Kamburov, Seryoja Valcanov, Antonio Nikolov Abrasive wear resistance of electrospark coatings on titanium alloys
COA 07	Harun Mindivan, Mehmet Sarioglu A comparative study on tribological behaviour of electroless Ni-P-B and Ni-P-B-W coatings
COA 08	Georgiana Chişiu, Roxana-Alexandra Gheţa, Alina Maria Stoica, Nicolae Alexandru Stoica Comparative micro-scale abrasive wear testing of thermal sprayed and hard chromium coatings
COA 09	Angelos Koutsomichalis, George Loukas, Michalis Vardavoulis, George Chondrakis, Nikolaos Vaxevanidis Flexural properties and abrasive wear behaviour of plasma sprayed chromia and titania coatings
COA 10	Vladimir Terek, Aleksandar Miletić, Lazar Kovačević, Branko Škorić, Dragan Kukuruzović, Aljaž Drnovšek, Peter Panjan, Pal Terek Comparison of different high temperature tribological testings of TiAlN coating
COA 11	Dragana Barjaktarević, Veljko Đokić, Sanja Stevanović, Marko Rakin Influence of the electrochemical anodization on the surface roughness of Ti-13Nb-13Zr medical alloy
COA 12	Şengül Danişman, Emin Ersoy, Canan Doğan Investigation of the surface properties of TiN coated Ti6Al4V alloy

Thursday, 20 May 2021, 15:00 – 17:30 CEST (UTC +2)

Section D (Tribological properties of solid materials/Biotribology)

Chairman: Blaža Stojanović

MAT 06	Fatima Zivic, Dragan Adamovic, Slobodan Mitrovic, Nenad Grujovic, Jovan Tanaskovic, Nina Busarac, Ivan Stojadinovic Friction coefficient during the reciprocating sliding of UHMWPE in different environments
MAT 07	Milan Nikolić, Dušan Stamenković, Milan Banić Investigation of friction in contact off shoe sole rubber on hard substrate
MAT 08	Bogdan Chiriac, Cezara-Mariuca Oprisan, Vlad Carlescu, Dumitru N. Olaru Static and dynamic friction coefficient for glass surfaces
MAT 09	Jerzy Dryzek Temperature studies of subsurface zone in pure titanium exposed to dry sliding test
MAT 10	Manuel Vite-Torres, Arturo Villanueva-Zavala, Ezequiel A. Gallardo Hernández, Marisa Moreno-Ríos, Dario H. Mesa-Grajales Study of cavitation erosion phenomenon at stainless steel 304 base and with SiC coating
BIO 01	Charchit Kumar, Thomas Speck, Vincent Le Houerou Effect of normal load on friction characteristics of bio-inspired elastomeric surfaces
BIO 02	Andrei Călin, Andrei Tudor, Petrică Turtoi, Marilena Stoica Theoretical approach of studying human fingers modelled as inflated membranes and experimental validation of study
BIO 03	Florencio S. Martínez-Cruz, Manuel Vite-Torres, Alejandra Moran-Reyes, Jorge A. Bravo-Mejía Wear and friction characterization of some dental restorative materials
BIO 04	Elena Kornaeva, Ivan Stebakov, Dmitry Stavtsev, Alexey Kornaev, Victor Dremin Tribology and video capillaroscopy methods in application to study flows in blood vessels
BIO 05	Liliana-Laura Badita, Virgil Florescu, Constantin Tiganesteanu, Lucian Capitanu Modularity of total hip prosthesis and its tribological implications
BIO 06	Myron Czerniec, Jarosław Zubrzycki Influence of changes elastic characteristics of UHMW polyethylene on the contact pressure in hip endoprosthesis

Friday, 21 May 2021, 09:00 – 11:00 CEST (UTC +2)

Section E (Fundamentals of friction and wear/Lubricants and lubrication)

Chairman: Elena Zadorozhnaya

FFW 01	Jeng-Haur Horng, Dipto Biswas, Adhitya, Qumrul Ahsan The investigate of running-in process based on surface roughness parameters, real contact area and tribological properties
FFW 02	Sergey V. Fedorov Energy balance of friction and regularities of static and dynamic energy dissipation
LUB 09	Ryosuke Sato, Keigo Nishizawa, Reo Miwa, Norifumi Miyanaga Effect of crossover stress of lithium soap grease on ball bearing torque
LUB 10	Igor Levanov, Elena Zadorozhnaya, Maksim Prudnikov Experimental determination of the wear rate of anti-friction solid-film coating of journal bearings with boundary lubrication
LUB 11	Soh Akuzawa, Reo Miwa, Ryota Ishii, Norifumi Miyanaga, Toshiki Sato, Tatsuya Niimi, Yasuyuki Kanda Effects of dimple depth and processed area on lubrication properties of pad-type thrust bearings
LUB 12	Igor Mukhortov, Igor Levanov, Kseniya Yakunina, Elena Zadorozhnaya Influence of the structure of a hydrocarbon radical on the antifriction properties of phosphorothionates
LUB 13	Mara Kandeve, Zhecho Kalitchin, Elena Zadorozhnaya, Aleksandar Vencel Influence of the amount of metal-containing additive on performance characteristics of lubricant based on rapeseed oil
LUB 14	Presentation of the Company Valvoline Europe, Ellis Enterprises East d.o.o.

Friday, 21 May 2021, 09:00 – 11:00 CEST (UTC +2)

Section F (Tribotesting and tribosystem monitoring)

Chairman: Dušan Stamenković

TTM 01	Alexey Kornaev, Sergey Popov, Nickolay Kornaev, Ivan Stebakov, Elena Kornaeva Software and hardware engineering for rotating machines fault diagnosis
TTM 02	Lorena Deleanu, Traian Florian Ionescu, George Catalin Cristea, Cornel Camil Suci, Constantin Georgescu An analysis of several 3D texture parameters for wear scars obtained in severe regime, on a four-ball tester
TTM 03	Alexandru Valentin Rădulescu, Irina Rădulescu, Florin Petrescu Influence of lubricants degradation level over tribological properties
TTM 04	Khouloud Jlaiel, Malik Yahiaoui, Jean-Yves Paris, Jean Denape Acoustic signature identification of damage mechanisms in a steel/glass sliding contact
TTM 05	Milan Omasta, Václav Navrátil, Tomáš Gabriel, Radovan Galas, Milan Klapka Design of the twin-disc test rig for the study of wheel squeal noise
TTM 06	Milan Banić, Dušan Stamenković, Milan Nikolić, Nikola Korunović Design of linear sliding tribometer
TTM 07	Dirk Drees, Emmanuel Georgiou Materials durability testing by an application related approach to lab-scale tribology testing
TTM 08	Bruker Presentation Scratch and wear testing for coating analysis on the UMT TriboLab

Friday, 21 May 2021, 12:30 – 14:30 CEST (UTC +2)

Section G (Tribology of machine elements)

Chairman: Alexandru Valentin Rădulescu

TME 01	Elena Zadorozhnaya, Vlad Hudyakov, Sergei Sibiryakov, Elizaveta Polyacko Modelling the thermal state of a turbocharger bearing housing when calculating the rotor dynamics at transient modes
TME 02	Alexandru Daniel Marinescu, Alexandru Valentin Rădulescu, Irina Rădulescu, Ana Maria Carla Popescu, Ștefan-Mihai Șefu Monitoring the degradation and contamination levels of hydraulic gear pumps
TME 03	Saša Vasiljević, Jasna Glišović, Blaža Stojanović Technologies of coating the brake disc's friction surface in order to reduce wear intensity and particulate formation
TME 04	Andrei I. Stoicescu, Mihai Stoicescu, Adrian Predescu Numerical simulation of the operation of a viscous coupling
TME 05	Corinna Biethan, Farid Alouahabi, Markus Schneider Influence of surface roughness on 1000 m/s high speed and 200 kA high current electric sliding contacts
TME 06	Grzegorz Olszyna, Vlada Gasić, Andrzej Tytko Methods for quantification of the abrasive wear at steel ropes used in drum devices
TME 07	Miloš Stanković, Nenad Kolarević, Nikola Davidović, Marko Miloš Experimental investigation of the high speed roller bearing assembly lubricated by oil mist
TME 08	Rade Grujičić, Milan Tica, Blaža Stojanović, Lozica Ivanović, Radivoje Mitrović, Radoslav Tomović The lubrication regime factor of rolling bearing

Friday, 21 May 2021, 12:30 – 14:30 CEST (UTC +2)

Section H (Tribology of manufacturing processes)

Chairman: Razvan George Ripeanu

MAN 01	Rakesh Kumar Gunda, Suresh Kumar Reddy Narala Evaluation of tribological studies of solid lubricants on Ti-6Al-4V alloy
MAN 02	Iulian Patirnac, Razvan George Ripeanu, Ibrahim Naim Ramadan Theoretical and experimental studies on the cut zone generated by AWJ process
MAN 03	Marko Delić, Vesna Mandić Analysis of the influence of contact friction on the stability of steel welded tube forming process
MAN 04	Gordana Globočki Lakić, Branislav Sredanović, Goran Jotić, Stefan Gotovac Comparative analysis of milling strategies of complex geometry surfaces
MAN 05	Angel Zyumbilev, Nikolay Tonchev, Emil Yankov, Iliya Zyumbilev, Valentin Gaidarov Investigation of the penetration of the counter-body in the nitride zone of nitrided steels and analysis of concomitant characteristics
MAN 06	Nikolaos Fountas, Kyriaki-Evangelia Aslani, John Kechagias, Panagiotis Kyratsis, Nikolaos Vaxevanidis Experimental and statistical study of surface roughness in CNC slot milling of Al7075 alloy using full and fractional factorial design
MAN 07	Emil Yankov, Roussi Minev, Nikolay Tonchev, Lyubomir Lazov Determination of the optimal mode of laser surface marking of aluminium composite by CO₂ laser
MAN 08	Nikolaos Fountas, Kostas Kitsakis, Kyriaki-Evangelia Aslani, John Kechagias, Nikolaos Vaxevanidis Experimental investigation of surface roughness in 3D printed PLA using design of experiments

Friday, 21 May 2021, 15:00 – 17:30 CEST (UTC +2)

Section I (Tribology of machine elements/Design and calculation of tribocontacts)

Chairman: Aleksandar Marinković

CAL 05	Dhanraj Rajaraman, Stijn Hertelé, Dieter Fauconnier Investigation of Lode angle parameter evolution for cutting mechanism of scratch abrasion
TME 09	Alice Marinescu, Traian Cicone Stiffness evaluation of a single-recess hydrostatic thrust bearing with a structurally compliant surface
TME 10	Georgios N. Rossopoulos, Christos I. Papadopoulos A journal bearing performance prediction method utilizing a machine learning technique
TME 11	Aleksandar Marinković, Ivan Simonović, Tatjana Lazović Load capacity for self-lubricating sliding bearings
TME 12	Andrei Zama, Ana Tufescu, Viorel Paleu, Dumitru N. Olaru Simulation program for sliding speeds and friction torque in high speed angular contact ball bearings
CAL 01	Ramin Aghababaei, Kai Zhao Micromechanics of material detachment during adhesive wear: A numerical assessment of Archard's wear model
CAL 02	Jong Hyok Ri, Razvan George Ripeanu, Alin Dinita Erosion modelling of coated gate valves
CAL 03	Egidijus Katinas, Rostislav Chotěborský Wear and stress analysis of soil chisel tine by DEM
CAL 04	Catalin Pirvu, Traian Florian Ionescu, Constantin Georgescu, Lorena Deleanu A simplified FE model of the four ball tester for evaluating the stress and strain distributions
CAL 06	Anastasios Zavos, Pantelis G. Nikolakopoulos Modelling of transient flow of piston ring-liner contact using synthetic lubricants

Friday, 21 May 2021, 15:00 – 17:30 CEST (UTC +2)

Section J (Tribology of manufacturing processes/Other topics related to tribology)

Chairman: Aleksandar Milivojević

MAN 09	Erick Martínez-Méndez, Daniel Antonio-Aguirre, Manuel Vite-Torres, Ezequiel A. Gallardo-Hernández, José F. Márquez-Santiago, Walter R. Tuckart Effect of surface roughness on the behaviour of the galling adhesive severe wear phenomenon between ASTM 6061 aluminium and tool grade D2 steel in the stamping process in automotive manufacturing
OTH 01	Razvan George Ripeanu, Adrian Lospa, Cristian Dudu, Alin Dinita Numerical and experimental evaluations of the elbows corrosion used for the interconnection of the pipes
OTH 02	Maria Tănase, Ibrahim Ramadan Experimental study regarding the corrosion behaviour of heat exchanger copper tubes in the presence of different aggressive environments
OTH 03	Zara Cherkezova-Zheleva, Daniela Paneva, Martin Tsvetkov, Elzhana Encheva Catalytic behaviour of iron-based metallic glasses improved by mechanochemical treatment
OTH 04	Nyagol Manolov, Emilia Assenova, Evgenia Kozhoukharova Contact approach and green tribology in the study of natural processes
OTH 05	Evgenia Kozhoukharova, Emilia Assenova Contact deformations and convergent contacts in geotribological systems
OTH 06	Adelina Miteva, Anna Petrova, Georgi Stefanov Surface oxidation of Al-Si alloys
OTH 07	Anna Petrova, Adelina Miteva, Georgi Stefanov Influence of magnesium addition on properties of rapidly solidified aluminium alloys
OTH 08	Nataša Đorđević, Milica Vlahović, Slavica Mihajlović, Sanja Martinović, Nenad Vušović FTIR spectroscopy analysis of mechanochemically activated Na₂CO₃ during relaxation time
OTH 09	Aleksandar Đorđević, Marko Pantić, Dragan Džunić, Slobodan Mitrović, Milan Erić, Miladin Stefanović, Aleksandra Kokić Arsić Software development solution for prediction on tribological properties of dental glass ceramics based on JavaScript web frameworks
OTH 10	Miroljub Adžić, Aleksandar Milivojević, Vuk Adžić, Bojan Ivljanin Simulation of the aging process of the material from which the flame ports of the burner are made by intensive heat load

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