



SERBIATRIB '25

19th International Conference on Tribology

14 – 16 May 2025, Kragujevac, Serbia

PROCEEDINGS



Serbian Tribology Society



University of Kragujevac
Faculty of Engineering

SERBIATRIB '25

19th International Conference on Tribology

14 – 16 May 2025, Kragujevac, Serbia

PROCEEDINGS

EDITOR: Slobodan Mitrović



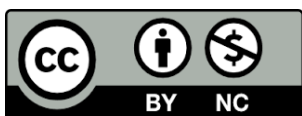
SERBIATRIB '25

19th International Conference on Tribology – SERBIATRIB '25

ISBN: 978-86-6335-128-8

- Editor:** **Slobodan Mitrović**
Faculty of Engineering, University of Kragujevac
- Secretary:** **Dragan Džunić**
Faculty of Engineering, University of Kragujevac
- Publisher:** **Faculty of Engineering, University of Kragujevac**
Sestre Janjić 6, 34000 Kragujevac, Serbia
- For the Publisher:** **Slobodan Savić**
Faculty of Engineering, University of Kragujevac
- Technical editor:** **Dragan Džunić, Živana Jovanović Pešić**
Faculty of Engineering, University of Kragujevac
- Printed by:** **Inter Print**
Jurija Gagarina 12, 34000 Kragujevac, Serbia
- Circulation:** 200 copies

Copyright © 2025 by Faculty of Engineering, University of Kragujevac



This book is published online with Open Access and distributed under the terms of the Creative Commons Attribution Non-Commercial License 4.0 (CC BY-NC 4.0).

The publication of this Proceedings was financially supported by the Ministry of Science, Technological Development and Innovation, Republic of Serbia.

Conference Founder

Branko Ivković

Serbian Tribology Society

Program Committee

Alessandro Ruggiero	University of Salerno (Italy)
Andreas Rosenkranz	University of Chile (Chile)
Bharat Bhushan	Ohio State University (USA)
Đorđe Vukelić	University of Novi Sad (Serbia)
Gencaga Purcek	Karadeniz Technical University (Turkey)
Hakan Kaleli	Yildiz Technical University (Turkey)
Konstantinos-D. Bouzakis	Aristotle University of Thessaloniki (Greece)
Lorena Deleanu	University Dunarea de Jos of Galati (Romania)
Mara Kandeve	Technical University of Sofia (Bulgaria)
Miroslav Babić	Serbian Tribology Society
Nikolai Myshkin	National Academy of Sciences of Belarus (Belarus)
Razvan George Ripeanu	Petroleum-Gas University of Ploiesti (Romania)
Sergey V. Fedorov	Kaliningrad State Technical University (Russia)
Valentin L. Popov	Berlin University of Technology (Germany)
Zulfiqar Khan	Bournemouth University (United Kingdom)

Scientific Committee

Adolfo Senatore	University of Salerno (Italy)
Aleksandar Marinković	University of Belgrade (Serbia)
Aleksandar Venci	University of Belgrade (Serbia)
Andrei Tudor	University Politehnica of Bucharest (Romania)
Blaža Stojanović	University of Kragujevac (Serbia)
Branko Škorić	University of Novi Sad (Serbia)
Carsten Gachot	Vienna University of Technology (TUW) (Austria)
Dragan Džunić	University of Kragujevac (Serbia)
Dušan Stamenković	University of Niš (Serbia)
Emile van der Heide	University of Twente (Netherlands)
Emilia Assenova	Society of Bulgarian Tribologists (Bulgaria)
Fatima Živić	University of Kragujevac (Serbia)
Gordana Globočki Lakić	University of Banja Luka (Bosnia and Herzegovina)
Igor Budak	University of Novi Sad (Serbia)
J. Paulo Davim	University of Aveiro (Portugal)
Mehmet Baki Karamis	Erciyes University (Turkey)
Michel Fillon	University of Poitiers (France)
Michele Scaraggi	University of Salento (Italy)
Mitjan Kalin	University of Ljubljana (Slovenia)
Nikolaos M. Vaxevanidis	School of Pedagogical and Technological Education (Greece)
Pantelis G. Nikolakopoulos	University of Patras (Greece)
Patrick De Baets	Ghent University (Belgium)

Reviewers

Aleksandar Đorđević	University of Kragujevac (Serbia)
Vladimir Kočović	University of Kragujevac (Serbia)
Dragan Džunić	University of Kragujevac (Serbia)
Đorđe Vukelić	University of Novi Sad (Serbia)
Marko Pantić	University of Priština in Kosovska Mitrovica (Serbia)
Miladin Stefanović	University of Kragujevac (Serbia)
Milan Erić	University of Kragujevac (Serbia)
Pal Terek	University of Novi Sad (Serbia)
Slobodan Mitrović	University of Kragujevac (Serbia)
Suzana Petrović Savić	University of Kragujevac (Serbia)

Organising Committee

President:

Slobodan Mitrović	University of Kragujevac (Serbia)
-------------------	-----------------------------------

Conference Secretary:

Dragan Džunić	University of Kragujevac (Serbia)
---------------	-----------------------------------

Members:

Fatima Živić	University of Kragujevac (Serbia)
Suzana Petrović Savić	University of Kragujevac (Serbia)
Vladimir Kočović	University of Kragujevac (Serbia)
Živana Jovanović Pešić	University of Kragujevac (Serbia)
Nikola Kotorčević	University of Kragujevac (Serbia)
Stefan Miletić	University of Kragujevac (Serbia)
Milan Ivković	University of Kragujevac (Serbia)

Supported by



Ministry of Science, Technological Development and Innovation, Republic of Serbia

Sponsors:



Media Partners:



Preface

The International Conference on Tribology – SERBIATRIB is a well-established scientific event, traditionally organized by the Serbian Tribology Society every two years since 1989. Over the decades, the conference has been hosted in several prominent locations across Serbia and the region, including Kragujevac (1989, 1991, 1993, 1999, 2005, 2007, 2011, 2013, 2017, 2019, and 2023), Herceg Novi (1995), Kopaonik (1997), and Belgrade (2001, 2003, 2009, 2015). Continuing this tradition, the 19th International Conference on Tribology – SERBIATRIB '25 will take place in Kragujevac from May 14 to 16, 2025, bringing together researchers, academics, and industry professionals from around the world to share their latest findings and innovations in the field of tribology.

This Conference is organized by the Faculty of Engineering, University of Kragujevac, in collaboration with the Serbian Tribology Society (STS). Through organizing scientific conferences such as SERBIATRIB, STS plays a vital role in promoting the fundamentals of tribology and providing a platform for engineers and researchers to share their knowledge, present innovative solutions, and discuss the latest research developments in the field.

The scope of the 19th International Conference on Tribology – SERBIATRIB '25 encompasses the current state-of-the-art and emerging trends in tribology research and its applications. Two key aspects of modern tribological practice deserve particular attention. Firstly, the demand for increased machinery productivity requires equipment to operate under higher loads, speeds, and temperatures—making it crucial to identify effective tribological solutions that can ensure performance, durability, and reliability. Secondly, advancing tribological knowledge significantly contributes to the conservation of both materials and energy, aligning with global efforts toward sustainability and efficient resource use.

The Conference program typically covers a wide range of topics, including: fundamentals of friction and wear; tribological properties of solid materials; surface engineering and coating tribology; lubricants and lubrication; tribotesting and tribosystem monitoring; tribology in machine elements; tribology in manufacturing processes; tribology in transportation engineering; design and analysis of tribological contacts; sealing tribology; biotribology; nano- and microtribology, as well as other areas closely related to tribology.

Highlighting the global relevance of tribology, a total of 92 abstracts and 75 papers authored by researchers from 35 countries — including Algeria, Australia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Brazil, Bulgaria, China, Croatia, Czechia, Germany, Greece, Hungary, India, Iraq, Italy, Jordan, Kuwait, Lithuania, Malaysia, Mexico, Montenegro, Netherlands, Nigeria, Pakistan, Poland, Portugal, Romania, Russia, Serbia, Slovenia, Turkey and Ukraine — have been published in the Book of Abstracts and the Proceedings.

All papers presented at the conference are organized into eleven thematic chapters:

- Fundamentals of friction and wear
- Tribological properties of solid materials
- Surface engineering and coating tribology
- Lubricants and lubrication
- Tribology in machine elements
- Tribology in manufacturing processes
- Design and calculation of tribocontacts
- Biotribology
- Other topics related to tribology

It was a great pleasure for us to organize this Conference. We hope that bringing together specialists, research scientists, and industrial technologists, as well as the publication of the Book of Abstracts and the Proceedings, will inspire new ideas and concepts and promote further advancements in the field of tribology.

I would like to express my sincere gratitude to the Scientific and Organizing Committees, as well as to everyone who contributed to making this Conference a success.

The Conference is financially supported by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia, Lotrič Metrology and Ansar-Analitika Instrumenti.

We wish all participants a pleasant stay in Kragujevac and look forward to welcoming you all at the 20th International Conference on Tribology – SERBIATRIB '27.

Kragujevac, May 2025



Editor
Slobodan Mitrović

A handwritten signature in blue ink, appearing to read "S. Mitrović".

NOTE:

The authors have full responsibility for the originality and content of their own papers.

Contents

Fundamentals of friction and wear

1. **THE INFLUENCE OF GRIT SIZE AND FIBER LENGTH ON THE FRICTIONAL PERFORMANCE OF COIR FIBER-REINFORCED POLYMER COMPOSITE**
Abdullah Shalwan, Saad Alsubaie, B. F. Yousif 3
2. **METHODOLOGICAL APPROACH TO THE DEVELOPMENT PROCESS OF SINTERED FRICTION MATERIALS**
A.Ph. Ilyushchanka, A.V. Liashok, A.N. Rogovoy 13
3. **CONTACT, FRICTION AND SEISMIC WAVES DURING SEISMOTECTONIC PROCESSES IN THE EARTH'S CRUST**
Emilia Assenova, Evgenia Kozhoukharova 18
4. **OPTIMIZATION OF WEAR PARTICLE AND DEBRIS CLASSIFICATION**
Jiri Stodola 27
5. **AlSi10Mg POWDER CHARACTERISTICS AND WEAR MECHANISM OF PARTS FABRICATED THROUGH LASER POWDER BED FUSION TECHNIQUE**
Ram Krishna Upadhyay 34
6. **RESEARCH PROGRESS OF METAL-ORGANIC FRAMEWORK IN TRIBOLOGY**
Hanglin Li, Xudong Sui, Pablo Ayala, Carsten Gachot, Jiusheng Li 39
7. **PRESSURE DROP ANALYSIS IN SOLENOID-TYPE VALVES: DISCREPANCIES BETWEEN EXPERIMENTAL RESULTS AND MANUFACTURER DATA**
Emanuel Alexander Moreno Aldana, Maurício Nogueira Frota 43
8. **THE INFLUENCE OF SOIL ABRASIVE MASS PH ON STEEL WEAR PROCESSES**
Marcin Kowalewski, Jerzy Napiórkowski, Łukasz Konat 50
9. **OVERVIEW OF TRIBOLOGY AS AN INTERDISCIPLINARY SCIENCE**
Gabriela Kotseva, Nikolay Stoimenov 57
10. **INFLUENCE OF SURFACE TEXTURE ON THE GENERATION INTENSITY OF AIRBORNE WEAR PARTICLES OF POLYMER MATERIALS FOR SLIDING BEARINGS**
Wojciech Tarasiuk, Aleksander Kosarac, Tomasz Węgrzyn,
Bożena Szczucka-Lasota, Jan Piwnik 72
11. **PHYSICS-BASED SIMPLE ANALYTICAL MODEL OF WATER FLOW THROUGH MICRO-POROUS FILTER**
Nikola Kotorcevic, Fatima Zivic, Strahinja Milenkovic, Nenad Grujovic,
Nikola Milivojevic 77
12. **STRUCTURAL-ENERGY CONSTANTS OF THE EVOLUTION OF THE FRICTION CONTACT**
Sergey Vasiliy Fedorov 84

13.	LIFETIME PREDICTION MODEL OF RECIPROCATING SEAL CONSIDERING VARIABLE SPEED PROFILE	
	Yunhao Zhang, Chao Zhang, Shaoping Wang, Rentong Chen, Jiashan Gao	99
14.	ANALYSIS OF DATASETS GENERATED DURING TRIBOLOGICAL TESTS AT NANOTRIBOMETER BY USING NONLINEAR REGRESSION ANALYSIS	
	Petar Todorovic, Nikola Kotorcevic, Fatima Zivic	106
15.	MATERIAL SELECTION FOR TRIBOLOGICALLY LOADED COMPONENTS	
	Dragan Adamovic, Dusan Arsic, Vesna Mandic, Djordje Ivkovic, Marko Delic, Nada Ratkovic	112

Tribological properties of solid materials

16.	EFFECT OF ADDITIVE ELEMENTS ON ABRASION WEAR OF AA7075 BASED ZrO₂/GNP ADDED HYBRID COMPOSITES	
	Şükran Katmer, Muharrem Pul, Ulvi Şeker	127
17.	EFFECTS OF AGING AND SEVERE PLASTIC DEFORMATION ON TRIBOLOGICAL BEHAVIOR OF AL 7075 ALLOY	
	Melih Ustalar, Muhammet Uzun, Harun Yanar, Muhammet Demirtas, Gencaga Purcek	133
18.	BEHAVIOR OF THE EROSION WEAR OF A STEEL PIPELINE SECTION API 5L-X52 BY SOLID PARTICLES OF ALUMINUM OXIDE (AL₂O₃)	
	Javier Alejandro Frias-Flores, Manuel Vite-Torres, Ezequiel Alberto Gallardo-Hernandez	137
19.	INFLUENCE OF CONTINUOUSLY VARIABLE LATERAL FORCE ON THICKNESS OF THE MATERIAL DURING STRIP THINNING	
	Slavisa Djacic, Srblav Aleksandrovic, Dusan Arsic, Marko Delic, Djordje Ivkovic, Milan Djordjevic	146
20.	DYNAMICS OF Pb EMERGENCE TO THE SURFACE IN SELF-LUBRICATING COMPOSITE MATERIALS AT ELEVATED OPERATING TEMPERATURES	
	Petya Tabakova, Anna Petrova, Snezhana Atanasova, Hristo Kolev, Feyzim Hodjaoglu, Reni Andreeva, Ivan Zahariev, Georgi Avdeev, Korneli Grigorov	151
21.	INFLUENCE OF B₄C CONTENT AND PROCESSING CONDITIONS ON WEAR RESISTANCE OF ALUMINUM	
	Sandra Gajevic, Slavica Miladinovic, Onur Güler, Serdar Özkaya, Lozica Ivanovic, Jelena Jovanovic, Blaza Stojanovic	160
22.	EXPERIMENTAL STUDY ON RUBBER-GRANITE FRICTION IN DRY AND CONTAMINATED CONTACT	
	Ionut Marius Nazarie, Ilie Musca, Ionut Cristian Romanu, Irina Besliu-Bancescu	168
23.	THE INFLUENCE OF OXYGEN ON CORROSION AND TRIBOCORROSION OF LOW CARBON STEEL IN HYDROGEN SULFIDE ENVIRONMENT	
	Myroslav Khoma, Marian Chuchman, Chrystyna Vasylyv, Vasyl Ivashkiv, Nadija Ratska, Oleh Vasylyv	176

24.	INVESTIGATION OF SHIELDED METAL ARC WELDING (SMAW)WELD INTEGRITY ON A LOW- CARBON STEEL PIPELINE USING DESTRUCTIVE MECHANICAL TESTING TECHNIQUE	
	A. E. Dele, C. V. Ossia, E. O. Diemuodeke	181
25.	INVESTIGATION OF THE TRIBOLOGICAL CHARACTERISTICS OF POLYMER MATERIALS (PLA, PLA+COPPER, AND ABS) UNDER LUBRICATED AND DRY SLIDING CONDITIONS	
	Stefan Miletic, Slobodan Mitrovic, Dragan Dzunic, Marijana Savkovic, Zivana Jovanovic Pesic, Milan Ivkovic	193
26.	APPLICABILITY OF WEAR MODELS FOR MATERIAL PARAMETER PREDICTION BASED ON PIN-ON-DISC WEAR DATA	
	Shivasharanappa V. Gubbewad, Amaresh Raichur	204
27.	TRIBOLOGICAL BEHAVIOR OF ABACA FIBER-REINFORCED EPOXY COMPOSITES: PRELIMINARY INVESTIGATIONS	
	Dragan Dzunic, Marko Milosevic, Zivana Jovanovic Pesic, Vladimir Kocovic, Suzana Petrovic Savic, Aleksandar Djordjevic, Slobodan Mitrovic	210

Surface engineering and coating tribology

28.	DEVELOPMENT OF VACUUM PLASMA STRENGTHENING HARD AND ULTRA HARD 3D AVINIT COATINGS	
	Oleksii Sagalovych, Valentin Popov, Vlad Sagalovych, Stanislav Dudnik	221
29.	STEP WAVES IN FLOWING FILMS	
	Victor Shkadov, Alexander Beloglazkin, Ignat Shishkin	234
30.	EFFECT OF W, Ni, AND Co DOPING ON THE MICROSTRUCTURE, CORROSION RESISTANCE, AND WEAR BEHAVIOR OF IRON-BASED ALLOYS PROCESSED BY SOLID-STATE SINTERING	
	Mebarki Lahcene, Hammoudi Abderrazak, Guendouz Hassan, Ivana Atanasovska	240
31.	WEAR AND SOLDERING PERFORMANCE OF BARE, NITRIDED AND PVD COATED HOT-WORKING TOOL STEEL IN CONTACT WITH Al-ALLOY CASTING	
	Pal Terek, Lazar Kovacevic, Vladimir Terek, Zoran Bobic, Branko Skoric, Marko Zagoricnik, Aljaz Drnovsek	250
32.	THE IMPORTANCE OF SUBSTRATE MATERIAL IN HIGH TEMPERATURE TRIBOLOGICAL TESTING OF PDV COATINGS – A CASE STUDY	
	Vladimir Terek, Lazar Kovacevic, Aljaz Drnovsek, Miha Cekada, Branko Skoric, Zoran Bobic, Pal Terek	259
33.	TRIBOLOGICAL PROPERTIES OF SURFACING WELDED Ni60WC COATING UNDER SIMULATED PLASTICS PROCESSING CONDITIONS	
	Wangping Wu, Sheng Lin, Yang Yang	266
34.	MECHANICAL INTERLOCKING ENABLES ADHESION CONTROL UNDER UNFAVOURABLE ENVIRONMENTAL CONDITIONS	
	Marco Bruno, Luigi Portaluri, Massimo De Vittorio, Stanislav Gorb, Michele Scaraggi	279

Lubricants and lubrication

35. **VISCOMETRY ON SYNTHETIC AND FULLERENE BASED OILS AND A CFD INVESTIGATION ON COMPRESSION PISTON RING**
Elias Tsajiridis, Alexandra Anyfanti,, Pantelis Nikolakopoulos 287
36. **NUMERICAL ANALYSIS OF THE IRONING PROCESS UNDER CONDITIONS OF VARIABLE LATERAL FORCE**
Marko Delic, Slavisa Djacic, Srbislav Aleksandrovic, Vesna Mandic, Dusan Arsic, Djordje Ivkovic, Dragan Adamovic 297
37. **ELUCIDATION OF CHANGES IN THE MICROSTRUCTURE OF VEGETABLE LUBRICANTS BASED ON ANALYSIS OF RHEOLOGICAL PARAMETERS DETERMINED FROM THE MSD CORRELATION FUNCTION CARRIED OUT BY DWS DIFFUSION SPECTROSCOPY AND SPECTRA CARRIED OUT BY RAMAN SPECTROSCOPY**
Rafal Kozdrach, Jolanta Drabik 303
38. **INVESTIGATION OF TRIBOLOGICAL PROPERTIES OF PROTIC IONIC LIQUIDS AS VERSATILE ADDITIVES FOR ENVIRONMENTALLY FRIENDLY WATER-BASED LUBRICANTS**
Raimondas Kreivaitis, Artūras Kupčinskas, Milda Gumbytė, Jolanta Treinytė 314
39. **DESIGN AND SYNERGISTIC INTERACTION OF ETHERAMINE-BASED ASH-FREE ORGANIC FRICTION MODIFIERS WITH ZDDP**
Wenjing Hu, Jiusheng Li 318
40. **CASTOR OIL BASED TERPOLYMER WITH STYRENE AND A-OLEFIN AS BIODEGRADABLE ADDITIVE IN LUBE OIL**
Sayak P Ghosh, Pranab Ghosh 324
41. **COMPARATIVE TRIBOLOGICAL ANALYSIS OF NEW AND USED DIESEL ENGINE OILS**
Vladimir Kocovic, Sonja Kostic, Ljiljana Brzakovic, Suzana Petrovic Savic, Zivana Jovanovic Pesic, Milos Pesic, Slobodan Mitrovic, Dragan Dzunic 330

Tribology in machine elements

42. **NUMERICAL DETERMINATION OF THE HEATING AND WEAR OF BRAKE PADS ON THE BASIS OF EXPERIMENTAL RESEARCHES**
Nadica Stojanovic, Ali Belhocine, Oday I. Abdullah, Zeljko Djuric, Ivan Grujic 339
43. **THE NUMERICAL INVESTIGATION OF THE WEAR AND HEATING OF ENGINE PISTON AND CYLINDER FOR THE CASE OF TRIBOLOGICAL INSERTS APPLICATION**
Ivan Grujic, Zeljko Djuric, Nadica Stojanovic 347
44. **MODIFICATION OF GATE VALVE SEALING ELEMENT TO ENHANCE THE WEAR RESISTANCE**
Jamaladdin Aslanov, Khalig Mammadov 352

45.	ANALYSIS OF PRESSURE DISTRIBUTION IN 3D-PRINTED SLIDING BEARINGS USING HERTZIAN CONTACT THEORY	Ivan Simonovic, Aleksandar Marinkovic	360
46.	INFLUENCE OF OPERATING CONDITIONS ON THE POWER LOSSES OF THE WORM GEARBOX	Aleksandar Skulic, Sandra Gajevic, Sasa Milojevic, Milan Bukvic, Igor Lavrnjic, Blaza Stojanovic	366
47.	CASE STUDY ON SUITABILITY OF RAIL GREASE PERFORMANCE FOR LIGHT RAIL TRANSIT (LRT) KELANA JAYA, MALAYSIA	Nadia Nurul Nabihah Ahmad Fuad, Izzatul Hamimi Abdul Razak, Mohamad Ali Ahmad, Wan Ahmad Syahmi Wan Amir Zaki, Mohamad Nasrulhisyam Sobri, Sabrina Karim	373
48.	EFFECT OF CAVITATION EROSION ON MATERIAL MECHANICAL PROPERTIES AND MACHINE ELEMENTS PERFORMANCE	Pavle Ljubojevic, Tatjana Lazovic, Marina Dojcinovic, Jovana Antic	383
49.	THE ROLE OF TRIBOLOGY IN IMPROVING THE PERFORMANCE OF MACHINERY SYSTEMS	Milica Utvic, Bojan Stojcetovic, Milan Misic, Anja Jovanovic	391
50.	TRIBOLOGICAL ASPECTS OF IDENTIFICATION OF THE KEY CAUSES OF REDUCTION IN THE EFFICIENCY OF AXIAL PISTON WATER HYDRAULIC PUMPS	Nenad Todric, Slobodan Savic, Zivojin Stamenkovic, Blaza Stojanovic	396

Tribology in manufacturing processes

51.	PERFORMANCE CHARACTERISTICS OF ECO-FRIENDLY AGROBIO-WASTES AS MOLD ADDITIVES ON MECHANICAL PROPERTIES OF AISiMg ALLOY	Maruf Yinka Kolawole, Sefiu Adekunle Bello, Ayodeji Sulaiman Olawore, Tunji Adetayo Owoseni	407
52.	THE INFLUENCE OF THE HARD-FACED LAYERS PATTERN ON THE WEAR RESISTANCE OF THE WHEEL LOADER'S BUCKET TEETH	Djordje Ivkovic, Dusan Arsic, Dragan Adamovic, Marko Delic, Andjela Ivkovic	419
53.	ANALYSIS OF THE INFLUENCE OF HOT FORGING PROCESS PARAMETERS ON TOOL WEAR USING THE FINITE ELEMENT METHOD	Marko Delic, Milos Delic	424
54.	FUNCTIONAL ANALYSIS OF SURFACE ROUGHNESS	Suzana Petrovic Savic, Milos Zivanovic, Marko Pantic, Dragan Dzunic, Vladimir Kocovic, Zivana Jovanovic Pesic, Aleksandar Djordjevic	432
55.	THE INFLUENCE OF CUTTING DEPTH ON SURFACE ROUGHNESS OF 3D PRINTED PARTS	Strahinja Djurovic, Milan Ivkovic, Nikolaj Velikinac, Dragan Lazarevic, Milan Misic, Bojan Stojcetovic, Stefan Miletic	439

56. **INFLUENCE OF CUTTING CONDITIONS ON SURFACE ROUGHNESS OF PA AND PA15**
Milan Ivkovic, Stefan Mihailovic, Strahinja Djurovic, Stefan Miletic,
Bogdan Zivkovic, Bogdan Nedic, Suzana Petrovic Savic 443
57. **ANALYSIS OF THE EFFECTS OF CUTTING SPEED AND FOCUS POSITION ON
OXIDATION MARKS IN FIBER REACTIVE LASER CUTTING**
Milos Madic, Dusan Petkovic, Miroslav Mijajlovic, Milan Banic, Milan Trifunovic 450
58. **FINITE ELEMENT INVESTIGATION OF THE EFFECT OF FRICTION CONDITIONS AND
CUTTING ENVIRONMENT IN TURNING OF AISI H13 HARDENED STEEL**
Nikolaos E. Karkalos, Nikolaos A. Fountas, Nikolaos M. Vaxevanidis 456

Design and calculation of tribocontacts

59. **DESIGN AND TESTING OF PIN ON DISC TRIBOMETER: FINK-POD2025**
Andjela Perovic, Mirjana Piskulic, Stefan Cukic, Milos Matejic, Blaza Stojanovic 465
60. **FINITE ELEMENT ANALYSIS OF STRESS AND CONTACT PRESSURE IN STEEL PLATES
UNDER VARYING FRICTION COEFFICIENTS**
Vladimir Milovanovic, Milos Pesic, Snezana Vulovic, Zivana Jovanovic Pesic,
Miroslav Zivkovic 472
61. **DESIGN AND TESTING OF A MODULAR TRIBOMETER FOR ANTI-FRICTION COATING
ANALYSIS IN OCTG APPLICATIONS**
Igor' Yu. Pyshmintsev, Andrey Golyshev, Alexey Lovyagin 480
62. **A REVIEW OF LINEAR RECIPROCATING TRIBOMETERS: DESIGN AND APPLICATIONS**
Jovana Markovic, Marija Matejic, Milos Matejic, Jasmina Skerlic, Bojan Bogdanovic 486

Biotribology

63. **WEAR IN RESTORATIVE DENTISTRY/TEETH AND DENTAL MATERIALS**
Kivanc Dulger, Gencaga Purcek 495
64. **EFFECT OF ACETABULAR CUP THICKNESS ON THE MAXIMUM CONTACT PRESSURE
IN NITRIDED GRADE2 TDN – UHMWPE HIP ENDOPROSTHESES**
Myron Czerniec, Jerzy Czerniec 514
65. **EFFECT OF ELECTRON BEAM PROCESSING PARAMETERS ON THE SURFACE
ROUGHNESS OF TITANIUM SAMPLES**
Zivana Jovanovic Pesic, Aleksandra Vulovic, Strahinja Milenkovic,
Djordje Ilic, Dragan Dzunic 522

Other topics related to tribology

66. **FLEXURAL, COMPRESSIVE AND FRACTURE TOUGHNESS OF DELONIX REGIA POD-
EGGSHELL PARTICLE REINFORCED VIRGIN LOW-DENSITY POLYETHYLENE
NANOCOMPOSITES**
Sefiu Adekunle Bello, Maruf Yinka Kolawole, Adijat Ashifat, Davina Ajetomobi,
Jeremiah Ponle, Suleiman Danjuma Daudu, Mohammed Kayode Adebayo,
Aisha Mayowa Akintola 529

67.	MODELLING AND STATISTICAL ANALYSIS OF FLANK WEAR DURING TURNING OF Co-Cr-Mo ALLOY	
	Aleksandar Milosevic, Sanda Simunovic, Mario Sokac, Zeljko Santosi, Vladimir Kocovic, Djordje Vukelic	541
68.	HYBRID METAHEURISTIC ALGORITHM: A NOVEL APPROACH FOR INDUSTRIAL OPTIMIZATION CHALLENGES	
	Hammoudi Abderazek, Aissa Laouissi, Mourad Nouioua, Ivana Atanasovska	550
69.	TRIBOCORROSION OF ALUMINUM ALLOY IN A CHLORIDECONTAINING ENVIRONMENT INHIBITED BY A MALTODEXTRIN-BASED COMPOSITION	
	Sergiy Korniy, Marjana Tymus, Ivan Zin, Nadiia Rats'ka, Bogdan Datsko	557
70.	IMPACT TESTS FOR TWO COMPOSITES FOR MARINE APPLICATIONS	
	Ioana Gabriela Chiracu, Constantin Georgescu, George Cătălin Cristea, George Ghiocel Ojoc, Mihail Boțan, Alexandru Viorel Vasiliu, Lorena Deleanu	564
71.	ANALYSIS OF ROLLING RESISTANCE PARAMETERS IN GRAVITY FLOW RACKS FOR HEAVY-DUTY APPLICATIONS	
	Mirjana Piskulic, Rodoljub Vujanac, Nenad Miloradovic	579
72.	IMPACT OF GRAPHENE ON THE PROPERTIES OF PHASE CHANGE MATERIAL	
	Kapilan Natesan, Sriram Mukunda, Vidhya P, Shivarishika K	585
73.	STUDY ON MECHANICAL AND MICROSTRUCTURAL PROPERTIES OF 7075Al/SiC METAL MATRIX COMPOSITES	
	Sriram Mukunda, Kapilan Natesan	592
74.	POSSIBILITIES OF APPLYING ARTIFICIAL INTELLIGENCE IN THE FIELD OF TRIBOLOGICAL RESEARCH	
	Milan Eric, Miladin Stefanovic, Slobodan Mitrovic, Dragan Dzunic, Vladimir Kocovic, Zivana Jovanovic Pesic, Suzana Petrovic Savic, Aleksandar Djordjevic, Marko Pantic	598
75.	INFLUENCE OF PRESS-FIT DIMENSIONS ON REPEATED ASSEMBLY OF BALL BEARINGS INTO 3D PRINTED HOUSINGS	
	Strahinja Milenkovic, Zivana Jovanovic Pesic, Nenad Petrovic, Dalibor Nikolic, Nenad Kostic	609

