



Lublin University of Technology, Faculty of Mechanical Engineering

Program of the 10th International Scientific Symposium

“Advances in techniques of production and machine construction”

May 26-29, Lublin, Poland

Venue: Faculty of Mechanical Engineering & Ibis Styles, Solidarności 7.

May 26, 2024 (Sunday)

Hotel Ibis Styles Lublin Stare Miasto

19:30	Dinner for registered members at the hotel
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May 27, 2024 (Monday)

Faculty of Mechanical Engineering – Lecture hall A1

08:45	Hydrogen bus transfer from hotel Ibis to Faculty of Mechanical Engineering
09.00 - 10.00	Registration
10.00 - 10.30	Opening Ceremony

Invited Lecture 1

Chair: dr hab. inż. Sylwester SAMBORSKI, prof. PL

10.30 - 11.00	<u>Filip GÓRSKI</u> , Yuliia DENYSENKO , Wiesław KUCZKO, Magdalena ŻUKOWSKA, Radosław WICHNIAREK, Przemysław ZAWADZKI, Justyna RYBARCZYK - Poznan University of Technology, Poland <i>Individualized 3D Printed Orthopaedic and Prosthetic Devices Using AutoMedPrint Technology: Methodologies and Examples</i>
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10th International Scientific Symposium, 26-29 May 2024, Lublin, Poland

Session 1

Chair: dr hab. inż. Sylwester SAMBORSKI, prof. PL, mgr inż. Damian Kostyła

11.00 - 11.15	Ilmars BLUMBERGS <i>Recent Advances in Nanocoatings of Magnesium Alloys</i>
11.15 - 11.30	Paolo S. VALVO <i>Nonlinear analysis of soft elastic membranes using the position-based finite element formulation</i>
11.30 - 11.45	Łukasz RZEPKA <i>Repeatbility of measuring head for CNC machine in relation to calibration artifacts</i>
11.45 - 12.00	Kuba ROSŁANIEC <i>Stability of Thin-Walled Composite Structures with Closed Sections Under Compression</i>

12.00 - 12.30	Coffee break
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Invited Lecture 2

chair: prof. dr hab. inż. Rafał RUSINEK

12.30 - 13.00	Serhii KHARCHENKO, Sylwester SAMBORSKI, Farida KHARCHENKO, Ihor KOTLIAREVSKYI - Sumy National Agrarian University, Ukraine <i>Declogging of blocked holes of perforated sifting surfaces of separation equipment</i>
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Session 2

Chair: prof. dr hab. inż. Rafał RUSINEK, mgr inż. Alicja Zielonka

13.00 - 13.15	Marian BARTOSZUK, Piotr LOSCHNER <i>The importance of material model parameters in simulation studies of the cutting process</i>
13.15 - 13.30	Magdalena ŻUKOWSKA <i>Automation of the design and evaluation of lower limb orthoses adapted for use in long-term rehabilitation processes</i>
13.30 - 13.45	Wiktoria ŁOKCZEWSKA <i>Influence of outdoor conditions on energy efficiency of heating system with forecast control</i>
13.45 - 14.00	Katarzyna MRÓZ <i>Application of selected machine learning methods for selected features prediction and identification from biological neural networks</i>

14.00 - 15.00	LUNCH - restaurant "Lanczomania"
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15.00 - 16.30	Laboratories tour - Centre for Innovation and Advanced Technologies
16.30 - 17.00	Hydrogen bus transfer to the Ibis hotel
19.00 - 00.00	Gala dinner



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May 28, 2024 (Tuesday)

Hotel Ibis Styles Lublin Stare Miasto

Session 3 - Chair: dr hab. inż. Marian BARTOSZUK, prof. PO

10.00 - 10.30	Robert KACZMARCZYK, Smart Solutions Sp. z o.o. <i>Latest measurement systems for quality controll</i>
10.30 - 11.00	Dawid PIJOCHA, Shim-pol <i>Innowacyjne techniki badań nieniszczących dla rozwoju technologii redukcji masy i kontroli jakości w zaawansowanych systemach produkcyjnych dla branży transportowej</i>
11.00 - 11.15	Mariusz KAMIŃSKI <i>Application of Machine Learning in Classifying Ion-Implanted Fuel Injector Valves Based on Surface Roughness Parameters</i>
11.15 - 11.30	Krzysztof CIECIELĄG <i>Machining of composite materials and analysis of surface layer</i>

11.30 - 12.00	Coffee break
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Session 4 - Chair: dr hab. inż. Andrzej Kubit, prof. PRz

12.00 - 12.15	Agnieszka SKOCZYLAS <i>The influence of the degree of filling of the working chamber in the vibratory shot peening process on selected properties</i>
12.15 - 12.30	<u>Serhii KHARCHENKO</u> , Sylwester SAMBORSKI, Farida KHARCHENKO, Andrzej MITURA, Jakub PAŚNIK, Andrii STELMAKH <i>Dynamics Of Loose Materials And Oscillations Of Perforated Cylindrical Sifting Surfaces With Volumetric Riffles</i>
12.30 - 12.45	<u>Robert ZABŁOTNI</u> , Rafał RUSINEK, W. DABROWA <i>Numerical Analysis of Double Excitation in Implanted Human Middle Ear using 5 DOF Lumped Parameter Model</i>
12.45- 13.00	Arkadiusz MADETKO <i>Identification and modelling of thixotropy phenomena occuring in thixoforming processes - advances techniques of metal forming</i>
13.00- 13.15	Karolina PŁATEK, Monika NOWAKOWSKA, <u>Leszek ŁATKA</u> <i>The influence of injection mode and spray distance on wear resistance of Al₂O₃+13 wt.% TiO₂ coatings</i>

13.15 - 14.00	Lunch
14.00 - 15.30	Poster session
16.00 - 19.00	Guided tour of Lublin
19.30 - 00.00	Dinner



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May 29, 2024 (Wednesday)

Hotel Ibis Styles Lublin Stare Miasto

Session 5 - Chair: dr hab. inż. Filip Górski, prof. PP

10.00 - 10.15	Karolina PŁATEK <i>The effects of atmospheric plasma spray parameters on structure and mechanical properties of TiO₂ coatings</i>
10.15 - 10.30	Emilia SMOLAREK <i>Partial maxillofacial reconstruction: design and additive manufacturing of individualized pre- and mid- surgery supplies</i>
10.30 - 10.45	Klaudia JAŃCZAK, Filip GÓRSKI, Magdalena ŻUKOWSKA, Tomasz BARTECZKA, Wiesław KUCZKO <i>The Application of Additive Manufacturing Technology in Designing and Producing Individualized Lower Limb Orthoses</i>
10.45 - 11.00	Tomasz ŁUSIAK, Sebastian STABRYN <i>New composite materials used in aviation</i>

11.00 - 11.10	Summary and closing of the Symposium
12.00 - 13.00	Lunch

Poster session:

1. Magdalena Bucior: *Analysis of the effect of Alclad layer on selected properties of the surface layer of aluminium EN AW-2024-T3 for FSW*
2. Barbara Ciecierska, Jacek Mucha: *Analysis of the impact of selected laser processing parameters on wettability and surface free energy of EN-AW 2024 aluminum alloy*
3. Rafał Chatys Mariusz Kłonica, Ilmars Blumbergs: *Mathematical model based on Markov chain theory (MM) to estimate fiber composite strength parameters*
4. Błażej Gabryszewski, Alicja Majewska, Aleksander Wawrzyniak: *Rapid Manufacturing of Physical Models for Breast Self-Examination Teaching*
5. Kamil Gancarczyk, Andrzej Gradzik, Jacek Nawrocki, Marek Poręba: *Evaluation of primary and secondary crystal orientation in single crystal nickel-based turbine blades*
6. Adam Gąska Angelika Jarocho, Wiktor Harmatys, Piotr Gąska, Maciej Gruza, Jerzy Śladek: *Traceability assurance method for measurements performed using hybrid measuring systems consisting of tactile and optical device*
7. Piotr Gąska, Maciej Gruza, Wiktor Harmatys, Adam Gąska: *Geometrical correction of 3D scanning for reverse engineering*
8. Andrzej Gradzik: *Microstructure and mechanical properties of thin-walled components additively manufactured by DED from Hastelloy C-276*
9. Robert Hunek: *Effect of silane and siloxane resins on durability of concrete*
10. Wojciech Jurczak: *Explosive welding in ship construction*
11. Serhii Kharchenko, Sylwester Samborski, Farida Kharchenko, Andrzej Mitura, Jakub Paśnik, Andrii Stelmakh: *Determination Of Hole Blocking Conditions For Perforated Sifting Surfaces*



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12. Rafał Kluz: *Analysis of the impact of tool trajectory error on the load capacity of EN AW-2024-T3 aluminum alloy joints welded using the FSW*
13. Andrzej Kubit, Wojciech Macek, Władysław Zielecki, Paulina Szawara, Mariusz Kłonica: *Three-dimensional fractography for S235JR steel adhesive joints after fatigue shear testing*
14. Andrzej Kubit, Ryszard Perłowski, Magdalena Bucior, Mariusz Kłonica, Rafał Kluz: *Influence of notches and holes made in the front edge of adherends on the fatigue properties of adhesive joints of AA2024 T3*
15. Wiesław Kuczko, Radosław Wichniarek, Dorota Tomczak, Ariadna B. Nowicka, Monika Wojtyłko, Anna Froelich, Tomasz Osmałek, Oktawian Cabański: *Geometrical Accuracy and Strength of Micro-Needles Made of photo-curable resin by PolyJet Method*
16. Monika Kulisz: *Modeling The Optimal Measurement Time With A Probe On The Machine Tool Using Machine Learning Methods*
17. Ignacy Lipowiecki: *Exploring the efficacy of 3D structured light scanners, photogrammetry, and computed tomography for capturing objects with difficult to scan surfaces*
18. Damian Markuszewski, Mariusz Wądołowski, Rafał Chatys, Ilmars Blumbergs: *Identification of mechanical properties for polymer matrix composite profiles based on vibration test*
19. Damian Markuszewski, Kamila Wilczyńska: *Experimental study of the design of strength properties for composite support structures*
20. Jacek Mucha, Barbara Ciecńska: *Analysis of the surface structure achieved by different surface modification technologies*
21. Jacek Nawrocki, Magdalena Meder: *Evaluation of chemical impurities influence on selected properties of high-conductivity oxygen free cooper profiles*
22. Łukasz Rębisz: *Application of the computer simulation method of machining to describe the angularity of the worm wheel surface*
23. Witold Rządowski, Tadeusz Majewski, Jan Tracz, Marco Meraz Antonio, Krzysztof Zawiśliński, Dawid Urbański, Aleksy Figurski, Edyta Ładyżyńska, Ewelina Drelich, Michał Kowalik: *Comparison of quasi-static test methods for aluminum alloy honeycomb impact attenuator. Evaluating the influence of different support bases on forces and energy absorbed*
24. Jakub Rzeczkowski, Sylwester Samborski, Aleksander Czajka: *Experimental investigation of the mode I elastically coupled laminates supported with advanced methods of the acoustic emission*
25. Mirosław Szala, Mariusz Walczak, Małgorzata Grądzka-Dahlke, Dariusz Perkowski, Marzena Tokarewicz, Wojciech J. Nowak, Tadeusz Kubaszek, Andrzej Gradzik: *Effect of Ti Addition on Cavitation Erosion and Corrosion Resistance of High-Entropy Alloys Al_{0.7}CoCrFeNiTi_x*
26. Małgorzata Szymiczek, Monika Chomiak, Michał Gorzym: *Comparison of the acoustic properties of electric guitars*
27. Klaudia Tarach, Nikola Woźniak, Julia Wójtowicz, Mirosław Szala: *Effect of heat treatment on hardness and microstructure of nickel alloys*
28. Radosław Wichniarek, Kornelia Szulc, Wiesław Kuczko, Magdalena Żukowska, Filip Górski: *Automated Design and Rapid Prototyping of Customized Cosmetic Hand Prostheses*
29. Wojciech Żórawski, Otakar Bokuvka, Anna Trelka-Druzic, Anna Góral, Medard Makrenek, Martin Vicen: *Microstructure and Mechanical Properties of Cold Sprayed Amorphous Coatings*
30. Marta Żyłka: *Devices to support the physical activity of astronauts during and after a prolonged stay in space*
31. Wojciech Żyłka: *The Influence of Paint Application Pressure on Light Reflectance Coefficient*



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