

Together we can do more for science, technology, engineering, and education.

**June 4, 2024 | University of West Bohemia, Faculty of Mechanical Engineering (Address: Univerzitní 2762/22, 301 00, Pilsen)**

14:00-15:00	Welcome Reception. Meeting point: Faculty of Mechanical Engineering (Address: Univerzitní 2762/22)
15:00-16:30	University Tour (Regional Technological Institute and Research Laboratories)
18:00-19:30	City Center Tour. Meeting point: Tourist Information Centre Pilsen (Address: nám. Republiky 290/41)

**June 5, 2024 | Daikin Industries Czech Republic s.r.o. (Address: U Nové Hospody 1155/1, 301 00, Pilsen)**

08:00-09:00	Registration	
09:00-09:30	Opening Ceremony	
09:30-11:00	Keynote Session I   Session Chair: Olaf Cizak	
09:30-10:00	Arkadiusz Gola. Challenges in Manufacturing Systems Designing in the Aspect of Industry 4.0 and Industry 5.0 Assumptions	
10:00-10:30	Foivos Psarommatis. Quality Management in the Era of Industry 4.0/5.0 Towards Zero Defect Manufacturing	
10:30-11:00	Francisco J.G. Silva. Green Automation	
11:00-11:30	Coffee Break	
11:30-13:00	Business to Science   Session Chair: Milan Edl	
11:30-11:35	Introduction	
11:35-11:50	Miroslav Zetek. Use of Metal Additive Manufacturing in Toolmaking	
11:50-12:05	Tomáš Cholinský. Pilsen Regional Ecosystem	
12:05-12:20	Gerhard Meindl. Linking Industry and Research Initiatives in the Rural Area of the WUNsiede	
12:20-12:35	Belal Dawoud. RCER – University Research for Enterprise and Innovation in Energy	
12:35-12:50	Andy Gradel. Hydrogen – A Triangle of Research Organizations for the Development of Our Region	
12:50-13:00	Discussion & Summary	
13:00-13:10	Official Conference Photo	
13:10-14:00	Lunch	
14:00-15:00	Session 1   Chair: Andre Batako	Session 2   Chair: Natalia Hornakova
14:00-14:15	Tanel Aruväli, Matteo De Marchi, Erwin Rauch and Dominik T. Matt. Cyber-Physical Production System Design Decomposition for Internal Disruption Avoidance	Vitaliy Dzhemelinkiy, Matej Hruska, Bohdan Mordyuk, Daniel Grochala and Dmytro Lesyk. Surface Hardness Improvement of AISI D2 Tool Steel by Laser Transformation Hardening Process Using High-Power Disk Laser
14:15-14:30	Foivos Psarommatis, Fotios K. Konstantinidis, Victor Azamfirei and Gökan May. Advancing Circular Economy: The Product Circularity Index as a Tool for Sustainable Design	Iuliia Medvid, Oleh Onysko, Lolita Pituley, Zinovii Odosii and Olena Kornuta. The Influence of the Geometry of High-Performance Cutters on the Profile Accuracy of Large-Pitch Tapered Threads: Theoretical Study
14:30-14:45	Unais Sait, Marco Frego, Antonella De Angeli and Angelika Peer. Simulation Driven Evaluation of Reward Systems in Activity-Based Manufacturing Environments	Pichai Janmanee and Suthep Butdee. Spindle Vibration Prediction for the CNC Machining Center Using ANFIS System
14:45-15:00	Bohdan Haidabras. Generative AI in Agile, Project, and Delivery Management	Serhii Kononenko, Sergey Dobrotvorskiy, Yevheniia Basova, Oleksandr Kharchenko and Dmytro Trubin. Adaptive Fluid Jet Support Technique for Variable Stiffness Thin-Walled Parts End Milling
15:00-15:15	Coffee Break	
15:15-16:00	Session 3   Session Chair: Justyna Trojanowska	Session 4   Session Chair: Katarzyna Antosz
15:15-15:30	Monika Kulisz, Katarzyna Antosz and Edward Kozłowski. Integration of Statistical Analysis and Machine Learning Techniques for Enhanced Quality Control in Candle Oil Cartridge Manufacturing	Francisca Nogueira, André Pedroso, Francisco Silva, Raul Campilho and Rita Sales-Contini. An Analysis of Machined Surface Quality Using TiAlTiN-Coated Tools in AMPCO® Milling Operations
15:30-15:45	Ievgen Medvediev, Dmitriy Muzylyov, Vitalii Ivanov, Jakub Montewka and Justyna Trojanowska. Risk Assessment at Unsignalized Intersections Based on Human-Road-Environment-Vehicle System Applying Fuzzy Logic	Mykhaylo Frolov, Volodymyr Tsyganov and Vasyl Solokha. Empirical Data-Based Failure Rate Assessment Methodology for Metal Cutting Tools
15:45-16:00	Natalya Shramenko, Christoph Hupfer, Vladyslav Shramenko and Piotr Trojanowski. Green Logistics System: Cargo Bikes as an Alternative to Cars	Suthep Butdee and Uten Khanawapee. ANFIS System for Stress Prediction of Cold Heading Fastener Body Process for a Steel Base Composite Aluminium
16:00-16:30	Bus Transfer to Pilsner Urquell Brewery	
16:30-18:00	Social Program – Pilsner Urquell Brewery Tour (Address: U Prazdroje 64/7)	
18:00-22:00	Social Program – Get Together Party – Restaurant Na Spilce (Address: U Prazdroje 64/7)	

**June 6, 2024 | Daikin Industries Czech Republic s.r.o. (Address: U Nové Hospody 1155/1, 301 00, Pilsen)**

10:00-11:00	Keynote Session II   Session Chair: Vitalii Ivanov	
10:00-10:30	Jinyang Xu. Machining of Composite/Metal Stacks: Challenges, Principles and Solutions	
10:30-11:00	Andre Batako. Development of Advanced Machine Tools for Machining New Hard-to-Machine Aerospace Composite Materials Including Notorious Abrasive CMC/MMC and their Derivatives	
11:00-11:30	Coffee Break	
11:30-13:00	Workshop / Networking & Ideas Exchange	
11:30-13:00	Bohdan Haidabras. Industrial Agile	Katarzyna Antosz. Machine Learning: Theory and Practice
13:00-14:00	Lunch	
14:00-15:00	Session 5   Chair: Francisco J.G. Silva	Session 6   Chair: Dagmar Caganova
14:00-14:15	Liliana-Laura Badita-Voicu, Adrian-Catalin Voicu and Aurel Zapciu. Tribological Tests of Nanometric Coatings Used for Mechatronic Components With Increased Wear-Resistance	Peter Arras and Galyna Tabunshchik. Designing the Educational Content for the Industry 4.0 Competency Model
14:15-14:30	Anastasiia Symonova, Volodymyr Drahobetskiy and Viktoriia Kulynyc. Enhancing Service Life and Durability of Machine Parts Through Surface Plastic Deformation	Jozef Trojan and Milan Filo. Statistical Comparison of Manual and Automatic Sampling at Enterprises
14:30-14:45	Naiara Sebbe, Filipe Fernandes, Rúben Costa, Rita Sales-Contini and André Pedroso. Wear Behaviour and Machining Performance in Milling of INCONEL® 718 of TiAlVN and TiAlN/TiAlVN Coated Tools: A Comparative Study	Kavitha Wickramaarachchi, W. Madushan Fernando, Amila Thibbotuwawa, H. Niles Perera and Peter Nielsen. Optimizing the Process of Obtaining and Maintaining Rainforest Alliance Certification in the Sri Lankan Supply Chain
14:45-15:00	Dmytro Lesyk, Silvia Martinez, Bohdan Mordyuk, Vitaliy Dzhemelinkiy and Aitzol Lamikiz. Surface Morphology and Microstructural Features of LPBF-Printed Superalloy Turbine Blade Subjected to HIP, Heat Treatment and Shot Peening	Peter Trebuňa, Marek Mizerák, Miriam Pekarčíková and Jozef Trojan. Creation of a Localization Project in RTLS Studio for the Need of an Industrial Data Collection Application
15:00-15:15	Coffee Break	
15:15-16:45	Session 7   Session Chair: Oleh Onysko	Session 8   Session Chair: Ivan Pavlenko
15:15-15:30	Jakub Sikora and Jan Gorecki. Dynamic Analysis of a Tennis Ball Launcher System	Praveena Somaweera, Dilina Kosgoda and H. Niles Perera. Assessing External Supply Risk: Perspectives from a Low Middle-Income Country
15:30-15:45	Mykhaylo Stepanov, Leonid Polonsky, Volodymyr Kornienko, Tetyana Tretyak and Maryna Ivanova. Evaluation of Cutting Fluid Penetration into the Cutting Zone During Grinding of Rolling Rolls	P.M. Fernando, Ranil Sugathadasa, M. Mavin De Silva, Amila Thibbotuwawa and T. Sivakumar. Real Time Driver Drowsiness Detection Using Transfer Learning
15:45-16:00	Ruslan Ostroha, Mykola Yukhymenko, Artem Evtuhov, Ivan Dehtiarov and Jozef Bocko. Thermodynamic and Exergetic Analysis of the Coolers for Mineral Fertilizers	Vitaliy Korendiy, Pavlo Krot, Oleksandr Kachur and Volodymyr Gurskiy. Analyzing the Locomotion Conditions of a Wheeled Vibration-Driven System with a V-Shaped Suspension
16:00-16:15	Yaroslav Kusyi, Nazarii Kusen, Andrii Slipchuk, Iryna Schuliar and Lolita Pituley. Design of the Technological Routes for Sustainable Machining of Functional Surfaces for the Automotive Engineering Parts	Maksym Kunitsyn, Anatoly Usov and Yuriy Zaychuk. The Influence of Cutting Forces on the Cracks Formation during the Grinding of Products from Materials Prone to Defect Formation
16:15-16:30	Ivan Dehtiarov, Vitalii Ivanov, Artem Evtuhov, Ruslan Ostroha and Olaf Cizak. Research of Static Stiffness of Flexible Fixtures for Y-Fork Type Parts	Petro Luzan, Olena Titova, Iryna Mosia, Tetiana Pashchenko and Gulshan Navruzova. The Model for Professional Competence Development of Engineering Teachers at Colleges
16:30-16:45	Oleksandr Sokolov, Sandor Csikos, Alexander Hosovsky, Jozsef Sarosi and Serhii Sokolov. Hysteresis Compensation of Pneumatic Artificial Muscles Using Correctional Curve Offset: Case Study	Dmytro Gorovyi, Yevheniia Basova, Olena Lynnyk, Ivan Pavlenko and Justyna Trojanowska. Management of Information Resources at Industrial Companies
16:45-17:00	Discussion & Summary	
17:00-17:30	Awards & Closing Ceremony	
19:30-23:00	Gala Dinner – Švejk Restaurant (Address: Klatovská tř. 125)	

**June 7, 2024 | Pilsen & Karlštejn**

08:30-10:30	Industry Tour – Daikin Industries Czech Republic s.r.o. Daikin Industries Czech Republic s.r.o. (Address: U Nové Hospody 1155/1)
10:30-11:30	Lunch
11:30-19:00	Cultural Program – Karlštejn Castle (bus transfer Pilsen – Karlštejn – Pilsen)



## Posters / Video Presentations

- 1 **Experimental Justification of the Technological Parameters for the Mobile Branch Trimmer**  
Viktor Sarana, Sergey Fryshev, Volodymyr Vasylyv, Roman Mukoid and Maxim Gudzenko
- 2 **Elastic Bending of a Strip under the Action of Applied Forces**  
Ali Kadhim Ahmed, Serhii Pylypaka, Tetiana Volina, Vyacheslav Hropost and Tetiana Kresan
- 3 **Anti-Friction Products from Composite Materials Based on Lh15 Steel Powder**  
Tetiana Halchuk, Oleksandr Povstyanoy, Roman Polinkevych, Olha Redko and Nataliya Zubovecka
- 4 **An Increase in the Durability of Pumping Equipment**  
Mikhailo Mushtruk, Natalia Slobodianiulk, Yuriy Boyko, Volodymyr Matseiko and Roman Chuiuk
- 5 **The Influence of Texture Discreteness on the Stress-strain State of the Tribosurface after Preliminary Profiling**  
Kostyantyn Holenko, Aleksandr Dykha, Volodymyr Dytyniuk, Maksym Dykha and Orest Horbay
- 6 **Optimization of Surfacing Modes for a Wear-Resistant Alloy**  
Khrystyna Berladir, Tetiana Hovorun, Olena Bilous, Vita Pavlenko and Szymon Wojciechowski
- 7 **Improvement of the Assembly Technology Quality by Determining the Closing Link Size Under Thermal Stress**  
Hanna Hrinchenko, Roman Trishch, Viktoriia Kniazieva and Nataliia Antonenko
- 8 **An Increase in the Service Life and Reliability of Machines' Structural Components Using Innovative Engineering Solutions**  
Olena Deviatko, Mykola Denisenko, Mikhailo Mushtruk, Nataliia Kanivets and Natalia Slobodyanyuk
- 9 **Changing the Output Characteristics of a Planetary Hydraulic Motor**  
Anatolii Panchenko, Angela Voloshina, Aleksandr Fatyeyev, Kseniya Rezvaya and Krzysztof Mudryk
- 10 **Efficient Models of Turbopump Units for Evaluating Dynamic Characteristics**  
Sergey Krasnikov, Andrii Rogovyi, Irina Hrechka, Ivan Chyzyhykov and Olga Viunyk
- 11 **Optimization of the Counterweight Mass of a Passenger Elevator**  
Andrii Boiko, Elena Naidenko, Oleksandr Besarab and Mykyta Brem
- 12 **Investigation of Cylindrical Particles Sphericity and Roundness Based on the Extreme Vertices Model**  
Viktoryia Pasternak, Oleg Zabolotnyi, Dagmar Cagaňová and Yurii Hulchuk
- 13 **Controlling the Gas Mode of a Mold for Producing Thin-Wall Castings**  
Olga Ponomarenko, Nataliia Yevtushenko, Tetiana Berlizieva, Pavlo Shelepko and Yehor Yevtushenko
- 14 **Virtual Device for Assessing the Geometric Parameters' Reliability Control for Mechanical Products Depending on the Tool Accuracy**  
Oleksandr Voichyshen, Serhii Patsera, Vitalii Derbaba and Oleksandr Bohdanov
- 15 **Application of Nanomaterials and Nanotechnologies to Increase the Durability of Agricultural Machinery Working Bodies**  
Mykola Denisenko, Olena Deviatko, Natalia Mushtruk, Mikhailo Tuziuk and Nataliia Kanivets
- 16 **An Increase in the Vibration Resistance of Finishing and Boring Machines When Cutting Ends Using the Plunge-In Method**  
Anna Balaniuk, Olexandr Badovskyi, Gennadiy Oborskyi, Alexandr Orgiyan and Milan Edl
- 17 **Modernization of the Drive Belt Transmission for the Machining Center**  
Oleg Krol, Vladimir Sokolov, Oleksandr Logunov and Petko Tskankov
- 18 **Design Improvement of the Rotary-Pulsation Device by Resonance Phenomena**  
Kyrylo Samoichuk, Volodymyr Yalpachyk, Iryna Kholobtseva, Dmytro Dmytrevskiy and Vitalii Chervonyi
- 19 **An Approach for Modeling City Defense Means: Sumy Region Case Study**  
Ihor Tytarenko and Ivan Pavlenko
- 20 **Features of the Formation and Characterization of ZrN Coatings Using Vacuum-arc Deposition**  
Nataliia Pinchuk, Mykola Tkachuk, Valentyn Riaboshan and Valentyna Voloshchuk
- 21 **Research of the Stress-Strain State of Anisotropic Parts of Interference Fits Based on the Variational RVR-Method**  
Vladimir Nechiporenko, Valentin Salo, Petro Litovchenko, Yaroslav Pavlov and Valeriya Rakivnenko
- 22 **Study of the Stress-Strain State in the Contact Zone of the Cylinder Liner's Working Surface**  
Ihor Shepelenko, Yakiv Nemyrovskiy, Volodymyr Shumliakivsky, Yaroslav Stephyn and Oleksandr Melnyk
- 23 **Improving a Process for Completing a Positive Connection of Hub-Shaft Type Using Combine Methods**  
Oksana Haponova, Viacheslav Tarellyk, Tomasz Mościcki and Nataliia Tarellyk
- 24 **Assessing the Reliability of a Mathematical Model of Working Processes Occurring in a Hydraulic Drive**  
Volodymyr Kyurchev, Sergey Kiurchev, Kseniya Rezvaya, Aleksandr Fatyeyev and Szymon Glowacki
- 25 **Nanocomposites For Protection Against Thermal Infrared Imaging Detection Systems**  
Vladimir Lebedev, Alina Lytvyn, Iryna Varshamova, Victor Moiseev and Heorhii Popovetskyi
- 26 **Improving the Performance of a Centrifugal Compressor Through Computer-Aided Design and Optimization of Blade Thickness**  
Andrii Rogovyi, Andrii Azarov, Yurii Kukhtenkov, Andrii Avershyn and Serhii Khovanskyi
- 27 **Study of Power Parameters of the Screw Spirals Forming**  
Oleg Lyashuk, Roman Rogatynskiy, Ivan Hevko, Tetiana Navrotska and Andrii Diachun
- 28 **Propagation Speed Simulation of Waves in Polymer Auxetics**  
Olena Mikulich, Natalia Komenda, Oksana Guda and Tetiana Kradinova
- 29 **Use of the Processing Arrays Theory of Experimental Data for the Analysis of the Technological Scheme in the Rolled Metal Production – Controlled Rolling**  
Oleksandr Beketov, Dmytro Laukhin, Nataliia Rott, Eugene Babenko and Valentyn Kozechko
- 30 **Study of Thermophysical Processes in the Thermopressor for Contact Cooling Systems**  
Halina Kobalava, Dmytro Konovalov, Ivan Kalinichenko and Maxim Pyrsunko
- 31 **Deployment and Release Management Process in Agile Digital Projects**  
Janis Grabis, Bohdan Haidabrus, Evgeniy Druzhinin and Kateryna Kolesnikova
- 32 **Comparative Study of Corrosion Resistance of Cold Spraying Aluminum-Based Coatings on Magnesium Alloy**  
Oleksandr Shorinov, Anatolii Dolmatov, Kostyantyn Balushok, Kostiantyn Danko and Yurii Neveshkin
- 33 **Vibroextraction from Pre-Treated Amber by Electro-Impulse Discharges**  
Valentyn Chorny, Taras Mysiura, Nataliia Popova and Volodymyr Zavalov
- 34 **Theoretical Justification for Increasing Efficiency of Grinding Technological Processes Based on the Reduction of Cutting Temperature**  
Fedir Novikov, Andrii Hutorov, Oleksii Yermolenko, Oksana Yermolenko and Andrii Ivashura
- 35 **Directions of IT Systems Development in Warehouses Management: Polish Practitioners Viewpoint**  
Ludmila Filina-Dawidowicz, Piotr Trojanowski, Piotr Mrowiński and Anastasiya Troynina
- 36 **Simulation of Thermal Stresses in Multiplayer Plates of Non-Canonical Shape**  
Natalia Smetankina, Serhii Misiura, Ievgeniia Misiura, Tetiana Sychova and Andrii Sychov
- 37 **Implementation of the Methodical System for the Development and Application of Eco-Oriented Pedagogical Technologies**  
Andrii Kalenskiy, Tetiana Gerliand, Oksana Lapa, Tetyana Pyatnichuk and Olha Haiduk
- 38 **The Influence of the Impeller Inter-Blade Channels Rough-ness on the Energy Parameters of the Submersible Pump**  
Vladyslav Kondus, Vladyslav Andrusiak, Mykola Sotnyk, Vadym Polkovnychenko and Maksym Mushtai
- 39 **Motivation Principles of Self-Management in the Professional Training of Engineers under the Conditions of Forming the Creative Competence**  
Viktor Nagayev, Yuliia Sahachko, Galyna Nagayeva, Sergii Chervonyi and Yevhenii Beznos
- 40 **Material Removal Rate Determination Based on a Laser Displacement Sensor**  
Natalia Lishchenko, Garret O'Donnell, Vasily Larshin and Igor Dudarev
- 41 **Studies on Streamlining Processes Using Industry 4.0 Elements**  
Ján Kopec, Miriam Pekarčíková, Marek Kliment and Marek Mizerák
- 42 **Ensuring Tool Run-In When Milling AISI321 Steel in Various Technological Environments**  
Eshreb Dzhemilov, Alper Uysal, Orhan Chakir, Ruslan Dzhemalyadinov and Eldar Vaniev
- 43 **Application of Expanded Perlite in the Composition of Paper for Writing and Printing**  
Liudmyla Andriievskaya, Tetiana Hlushkova, Olga Komakha, Nataliia Marchuk and Volodymyr Komakha
- 44 **Design Improvement and Computer Modeling of the Finger Grain Crusher**  
Nadiia Palianychka, Kyrylo Samoichuk, Oleksandra Chervotkina, Dmytro Tymchak and Vitalii Koshulko
- 45 **Implementation of the Technological Capabilities of the TestBed 4.0 Laboratory in Cooperation with Simulation**  
Marek Kliment, Peter Trebuňa, Matúš Matiscsák and Ján Kopec
- 46 **Analysis of Cooling Air at the Inlet of Marine Engine with Exhaust Gas Recirculation by Ejector and Absorption Refrigeration**  
Maxim Pyrsunko, Roman Radchenko, Victoria Kornienko and Denys Shalapko
- 47 **Methods of Calculating the Basis Reinforced with Horizontal Elements**  
Bohdan Korchevskiy, Inna Kyrtsya, Oleksandr Petrov, Inna Vishtak and Sergey Sukhorukov
- 48 **Stiffness of Underpinning Supports for Fixtures**  
Pavlo Kushnirov, Yuliia Denysenko, Grigore Pop, Bohdan Basov and Oksana Dynnyk
- 49 **Metrological Support of the Thermal Vision Method of Defectoscopy**  
Volodymyr Tonkonogyi, Maryna Holofieieva, Alexandr Orgiyan, Yurii Holofieiev and Oleksii Buriachenko

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