CONFERENCE PROGRAM ISPEM 2023 (13 - 15 September 2023)

Day I (13.09.2023)

18:00	21:00	**Welcome dinner (Piwnica Świdnicka: Rynek Ratusz 1A 50-106 Wrocław)**

Day II (14.09.2023) Building H-14, wybrzeże Stanisława Wyspiańskiego 40

8:00	9:00	**Registration**
9:00	9:30	**Opening of the conference**

Session 1k: Keynote Session		Room	Chairman: A.D. Batako
9:30	10:05	**Keynote 1**	**M. Anthony Xavior, School of Mechanical Engineering at Vellore Institute of Technology (VIT), India:**
10:05	10:15		**"Metal Additive Manufacturing with a focus on specific metallic materials"**
10:15	10:50	**Keynote 2**	**Kondo H. Adjallah, Institut Nationale Polytechnique de Lorraine, France:**
10:50	11:00		**"Toward the development of self-healing intelligent machine tools"**

11:00	11:30	**Coffee break**

Session 1a			Room Chairmans: Suthep Butdee and Zbigniew Banaszak
11:30	11:50	Yuliia Denysenko	Statistical Methods for Decision-Making Regarding Technological Systems
11:50	12:10	Mehmet Cem Yildiz	Integrated Modelling of Electrical Resistance Spot Welded Joints (online)
12:10	12:30	Fu Ping	Micromagnetic quantitative prediction of stress in DH steel
12:30	12:50	He Cunfu	Development of acoustic beam deflection electromagnetic acoustic transducer for surface crack detection of wind turbine main shaft
12:50	13:10	Ziping Wang	Research on f-k Domain Modal Separation Method for Guided Wave Array Non-destructive Testing

Session 1b			Room Chairmans: Monika Chaszczewska and Przemysław Prządka
11:30	11:50	Ying Luo	Laser ultrasonic Lamb wave damage detection method based on the single transmitter and multiple receivers circular array
11:50	12:10	Amila Thibbotuwawa	Location suitability for the implementation of unmanned aerial vehicles in the vaccine supply chain
12:10	12:30	Andrzej Golachowski	Ultrasound tissue differentiation (UTC) in prevention and healing monitoring tendon problems in race horses
12:30	12:50	Jianguo Zhu	Defects detection in thermal barrier coatings using long pulse and vibro-thermography
12:50	13:10	Christophe Magalhães	Web Application for the Learning of Emotions in Children with Autism Spectrum Disorder (online)

13:10	14:00	**Lunch**

Session 2a			Room Chairmans: Luboslav Dulina and Niles Perera
14:00	14:20	Phatchani Srikhumsuk	Energy assessment for automotive rubber parts using fuzzy AHP
14:20	14:40	Vidosav Majstorovic	Development of the cloud ERP model and its application in smart mining
14:40	15:00	Lyu Yan	SOC evaluation of lithium-ion battery based on MFC sensors
15:00	15:20	Mavin De Silva	Modeling the Impact of Leadership on Change Management Decisions using System Dynamics Simulation
15:20	15:40	Jakub Gapsa	Evaluation of Live-Line Work Procedure in Virtual Reality
15:40	16:00	Michaela Bodingerová	Virtual Training at ELLA Platform – The Case Study

Session 2b			Room Chairmans: Ziping Wang and Vitalii Ivanov
14:00	14:20	Song Guorong	Development of a creep crack detection system for the inner and outer walls of high temperature hydrogen furnace tubes
14:20	14:40	João Cruz	An augmented system based on machine learning for Boccia assisted gameplay (online)
14:40	15:00	Salem Udoh	The Mediating Role of Auditing in Shared Value Optimization through Big Data Analytics: A Conceptual Review
15:00	15:20	Suthep Butdee	Performance evaluation model for sub-contractors in automotive rubber part supply chain management
15:20	15:40	Katarzyna Kowalczewska	Managing production for mass customized manufacturing – case studies
15:40	16:00	Zhou Xinhua	Two Kinds of New Flexible Eddy Current Sensors for Curved Surface Defect Detection

16:00	17:45	**Poster Session with Coffee break with visiting CAMT research laboratories (Buliding B-4, I. Łukasiewicza 5)**
From	18:00	**Banquet** (Summer Restaurant at the ZOO ul. Wróblewskiego 1-5), In the meantime touring AFRICARIUM

Day III (15.09.2023) Building H-14, wybrzeże Stanisława Wyspiańskiego 40

Session 2k: Keynote Session			Room	Chairman: José Machado
9:00	9:35	Presentation	Keynote 3	Vitalii Ivanov, Faculty of Technical Systems and Energy Efficient Technologies of Sumy State University, Ukraine:
9:35	9:45	Discussion		"Production Planning in Smart Manufacturing: Fixture Design Case Study"
9:45	10:20	Presentation	Keynote 4	YongKeun (Paul) Park, KAIST, Department of Physics, Advanced Institute of Science and Technology, Korea:
10:20	10:30	Discussion		"Holotomography and artificial intelligence: label-free 3D imaging, classification, and inference of live cells and organoids" - online

10:30   10:50   **Coffee break**

Session 3a			Room	Chairmans: Jacek Diakun and Robert Waszkowski
10:50	11:10	Jakub Pizoń		Vertical Integration Principles in the Age of the Industry 5.0 and Mass Personalization
11:10	11:30	Arkadiusz Żuczek		The concept of an energy-efficient, modular hydraulic device that increases work safety and reduces labor intensity in the construction of large-scale
11:30	11:50	Piotr Piotrowicz		Energy efficiency of production processes in terms of European standards and legal requirements
11:50	12:10	Konrad Kluwak		Vision systems in industrial applications
12:10	12:30	Adam Kowalski		Business continuity management of production processes of steel structures for offshore wind energy industry

Session 3b			Room	Chairmans: Ying Luo and Vidosav Majstorovic
10:50	11:10	Wiktor Nocoń		Topology optimization and FEA analysis of brake pedal for additive manufacturing
11:10	11:30	Jinmiao Wang		Determining the Range of Image Base of ARM Firmware (online)
11:30	11:50	Olga Tsesliv		Implementation of Industry 4.0 solutions in the agricultural field of Ukraine (online)
11:50	12:10	José Machado		Analysis of Basic Characteristics of Textile Yarn using Image Processing Techniques
12:10	12:30	Oliver Ulerich		Design of customized shoe soles using lattice structures fabricated by additive manufacturing

12:30   12:50   **Coffee break**

Session 4a			Room	Chairmans: Lyu Yan and Cezary Grabowik
12:50	13:10	Mengshuai Ning		Micromagnetic automatic detection method for mechanical properties of automobile B-pillar
13:10	13:30	Paweł Radzik		The concept of a system for predicting emergency states of a hydropneumatic rocker arm by using nitrogen pressure measurement
13:30	13:50	Wojciech Łapa		Integrated quality control vision system for aerosol jet printing
13:50	14:10	Raphael Olaniyi		Additive Manufacturing and 3D Printing Technology
14:10	14:30	Mariusz Galiński		Analysis of production parameters of a hydraulic drive designated to work in low temperatures
14:30	14:50	Wojciech Majewski		Application of artificial neural networks in the prediction of tire manufacturing defects

Session 4b			Room	Chairmans: Katarzyna Antosz and Sebastian Saniuk
12:50	13:10	Paula Kolbusz		Assessment of the effectiveness of Six Sigma methodology implementation - a literature review
13:10	13:30	Ewelina Wyczewska		Value stream mapping and process indicators supporting sustainable development in organizations – a systematic literature review
13:30	13:50	Liudmyla Shulhina		Performance Marketing in the Management of Supply Chains Sustainable Development
13:50	14:10	Saichol Chudjuarjeen		ANFIS model for robotic welding process on a bus body structure
14:10	14:30	Yizheng Zhang		Measurements of stress based on the surface wave by acoustic microscopy system
14:30	14:50	Cezary Grabowik		Mechanical properties of PLA Printed Samples in Different Printing Directions and Orientations using Fused Filament Fabrication

14:50	15:00	**Closing ceremony**

15:00   16:00   **Lunch**

16:00	17:45	**Poster Session with Coffee break with visiting CAMT research laboratories; Chairmans: Katarzyna Antosz, Justyna Trojanowska and Saichol Chudjuarjeen and Phatchani Srikhumsuk**

Paper No.	Names of the Authors	Title
7	Olexiy Pavlenko, Dmitriy Muzylyov, Justyna Trojanowska, Vitalii Ivanov	Rational Logistics of Engineering Products to the European Union
13	Przemysław Przadka, Zdzisław Kiełbowicz and Joanna Tunikowska	NIRF imaging with indocyanine green (ICG) in a veterinary minimally invasive surgery
20	Anna Bluszcz and Marcin Chabior	Modern trends in project management – selected issues – case study
21	Jerzy Stanik and Jarosław Napiórkowski	Cyber Resilience as a new strategy to reduce the impact of cyber threats
24	Erika Ottaviano, Pierluigi Rea and Lorenzo Miele	Simulation, Sensorization and Testing of a Hybrid Inspection Robot
27	Joanna Krajewska-Śpiewak	Prediction of the wear intensity of rolling guides with the use of a neural network
29	Beata Starzyńska and Izabela Rojek	Supporting the selection of quality tools using neural networks
33	Erika Ottaviano and Pierluigi Rea	Design and Simulation of a Cable-Driven Parallel Manipulator for Monitoring and Inspection of Structures
35	Vira Shendryk, Petro Pavlenko, Justyna Trojanowska	Information Design Management of Machining Parts on Metal Cutting Machines
43	Madushan Madhava Jayalath, Amila Thibbotuwawa, R.M. Chandima Ratnayake and H. Niles Perera	Application of Swimlane Modelling for the Digital Transformation of Vegetable Supply Chains: A Case Study from a Developing Economy
45	Krzysztof Nowacki, Iwo Podloch	Lean Manufacturing knowledge correlation model
46	Andrzej Miranowicz, Krzysztof Nowacki and Joanna Furman	Impact of technical parameters on repair time of injection molding machines
51	Nikila Dharmadasa, M. Mavin De Silva, Amila Thibbotuwawa, Tadachika Nakayama and Izabela Ewa Nielsen	Using an ISO 9001 based framework as a benchmark to identify best practices used by Sri Lankan practitioners when selecting suppliers
52	Sebastian Saniuk and Sandra Grabowska	Skills and competencies of industrial employees in the Industry 5.0 environment
53	Jarosław Chrobot	Requirements for Flow Control Systems for Discrete Production of Mechanical Products
55	Ayesha Sooriyarachchi, P.T.R.S. Sugathadasa, Oshadhi K. Herath, Amila Tibbotuwawa, Izabela Nielsen and Tadachika Nakayama	Revolutionizing Sri Lankan Tea Industry: A Comprehensive Analysis of the Economic Viability of Implementing IoT Applications
56	Oleksandr Sokolov, Alexander Hosovsky, Olaf Ciszak, Vitalii Ivanov and Ivan Pavlenko	A Digital Twin of the Soft Robot with a Pneumatic Muscle Actuator
62	Sławomir Kłos and Mariusz Michalski	Predictive maintenance of vacuum furnace for carburizing process
65	Bartosz Poskart, Grzegorz Iskierka and Kamil Krot	Logistics 4.0 - monitoring of transport trolley in the factory through vision systems using the YOLO model based on convolutional neural networks
66	Bartosz Poskart, Grzegorz Iskierka and Kamil Krot	Location of obstacles on transport routes in a centralized multi-agent system
67	Francisco Morais, Nuno Soares, João Bessa, José Vicente, José Machado and Ricardo J. Machado	Converging Data Mesh and Microservice Principles into a Unified Logical Architecture
70	Jozef Husár and Lucia Knapčíková	Lean Management Training Game Methodology as a Tool for Preparing Students for Industry 5.0
72	Anna Dudkowiak, Ewa Dostatni, Filip Górski, Karolina Krzyżanek and Aleksander Tomczak	Development and comparative analysis of IT tools supporting data processing in custom manufacturing of orthoses
77	Hugo Silva, André S. Santos, Leonilde R. Varela, Justyna Trojanowska, Kristina Berladir	Design of Experiments: An Overview and Future Paths
82	Artur Meller, Mariusz Piechowski and Arkadiusz Gola	Indicators of Hierarchical Structure Model of Supporting the Production Management Process – a Framework
84	Mateusz Molasy, Maria Rosienkiewicz, Joanna Helman and Mariusz Cholewa	Gamification-based crowdsourcing as a tool for new product development in manufacturing companies
85	Julia Giera, Ewa Kulińska and Małgorzata Dendera Gruszka	Analysis safety and quality of products for internal supply chains
89	Małgorzata Dendera-Gruszka, Ewa Kulińska and Julia Giera	Concepts of supply chains in Industry 5.0.
90	Beata Oleksiak, Roksana Poloczek	Selected Aspects of the Environmental Analysis of HDPE Film Using the LCA Method
91	Dariusz Masłowski, Ewa Kulińska and Maria Działa	Modern methods of unloading goods in the FMCG industry
92	Kamil Krot, Bartosz Poskart and Grzegorz Iskierka	Monitoring energy consumption of workstations in production processes using IIoT
93	Agnieszka Tubis, Juni Rohman, Anna Smok and Dominika Dopart	Analysis of human errors in the traditional and automated order-picking system
101	Robert Waszkowski and Maciej Dybowski	Generating complex dynamic forms in low-code development platforms
102	Robert Waszkowski and Marcin Sirant	Optimizing the form data presentation in low-code platforms with the use of artificial intelligence
103	Tadeusz Nowicki, Maksymilian Górko and Piotr Jakubowski	System integration in the SAP environment in finance modules using artificial intelligence: challenges and benefits
104	Tadeusz Nowicki and Patryk Wicherek	Algorithm for the assignment of courses and instructors in class planning

105	Katarzyna Radwan, Dorota Więcek and Dariusz Plinta	The role of Throughput Accounting in making decision in small batch production environment
107	Grzegorz Derlega, Joanna Helman and Anna Burduk	Method of risk analysis in the new product development process
108	Michał Stawowiak and Małgorzata Olender-Skóra	Identification of problems occurring in the steel construction of road machines
109	Leszek Jurdziak, Ryszard Błażej, Agata Kirjanów-Błażej and Aleksandra Rzeszowska	Comparison of different metrics of belt condition used in lignite mines for taking decision about belt segments replacement and refurbishment
110	Aleksandra Rzeszowska, Leszek Jurdziak, Ryszard Błażej and Agata Kirjanów-Błażej	Application of clustering and SOM analysis for identification of conveyor belt damage based on data from the DiagBelt+ magnetic system
111	Małgorzata Olender-Skóra	Improving the workplace for manufacturing of selected elements
112	Katarzyna Antosz, Edward Kozłowski, Sławomir Prucnal and Jaroslaw Sep	Pre-processing signal analysis for cutting tool condition in the milling process
114	Magdalena Dąbrowska, Damian Jurewicz, Anna Burduk, Daniel Medyński, Jose Machado, Piotr Motyka and Krzysztof Kolbusz	Implementation of Total Productive Maintenance (TPM) to improve overall equipment effectiveness (OEE) - case study
119	Glib Mazhara and Viktoriia Melnychuk	Artificial intelligence management in Industry 4.0 - Challenge or Opportunity
120	Joanna Helman	The role of Design Thinking in fostering innovation for Industry 4.0
121	Xenie Lukoszová, Elżbieta Szymańska and Ewa Kulińska	The use of multi-criteria decision-making methods in the outsourcing of logistics services
122	Grzegorz Ćwikła, Krzysztof Kalinowski, Marek Kciuk, Michał Gold, Marek Waluśkiewicz, Michał Sładek, Jarosław Tlołka, Robert Woźnica and Aleksander Wlazło	Integration of industrial automation and IoT devices on the example of the assembly station with the Astorino educational robot
123	Aldona Małgorzata Dereń and Jan Skonieczny	Strategic activities in the area of intellectual property management in the enterprise
125	Danielle Blanco, Leonilde Varela, José Vicente and José Machado	A Systematic Literature Review of Management and Technological Approaches Integration with Industry 4.0
128	Joanna Kochańska	Categorization of production losses in the context of assessing production effectiveness indicators
129	Dagmara Łapczyńska	Fuzzy FMEA in risk assessment of human-factor in production process
130	Anna Woźna, Małgorzata Rusińska and Mateusz Bryłkowski	Impact analysis and evaluation of the COVID-19 pandemic on decision-making processes in enterprises based on Just-In-Time methodology
131	Damian Krenczyk	Digital twins of the manufacturing system based on a simulation model with bi-directional process data exchange
136	Tsesliv Olga	IMPLEMENTATION OF INDUSTRY 4.0 SOLUTIONS IN THE AGRICULTURAL FIELD OF UKRAINE
137	Magdalena Dąbrowska, Paweł Jokiel, Phatchani Srikhumsuk and Jozef Huzar	Eliminating Waste with the Use of Poka Yoke Solutions – an Example of a Selected Manufacturing Company
138	Malgorzata Olender-Skora, Krzysztof Kalinowski and Andriy Zdobytskyi	Scheduling algorithm with simultaneous determination of the batch sizes on the example of 3D printing system
140	Parthkumar Parmar, Anna Burduk and Leszek Jurdziak	Ishikawa diagram indicating potential causes for damage occurring to the rubber conveyor belt operating at coal mining site
142	Anna Burduk, Oleh Pihnastyi, Ewa Kulińska, Magdalena Dąbrowska, Daniel Medyński, Piotr Wrzecioniarz and Krzysztof Kolbusz	Production system risk assessment and loss categorization using simulation models
143	Wioleta Rakowska, Mariusz Galiński, Aleksander Gwiazda, Suthep Butdee and Anthony M Xavior	Analysis of production parameters of a hydraulic drive designated to work in low temperatures
146	Kamil Musiał	Implementing local search algorithms to multi-series production task