**CMES 2026 General Programme**

**Wednesday, 18.11.2026**

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| **8.00** | Tour bus departure from Lublin University of Technology to Uroczysko Spa & Wellness Hotel in Cedzyna near Kielce, Poland |
| **12.30–13.00** | Opening of the conference and welcome speeches |
| **13.00–13.30** | Plenary Lecture I |
| **13.30–14.00** | Plenary Lecture II |
| **14.00 – 14.15** | Group photo |
| **14.15–15.00** | Lunch break |
| **15.00–15.30** | Plenary Lecture III |
| **15.30–16.45** | Special Session |
| **16.45–17.00** | Coffee break |
| **17.00–18.15** | Session I |
| **18.15–19.15** | Poster Session I |
| **20.00** | Gala Dinner |

**Thursday, 19.11.2026**

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| **7.30-8.15** | Active Start: CMES Jogging Session. *"Follow the Science!"* |
| **8.30** | Registration |
| **9.00-9.30** | Plenary Lecture IV |
| **9.30-10.00** | Plenary Lecture V |
| **10.00-10.15** | Coffee break |
| **10.15-11.45** | Session II |
| **11.45-12.00** | Coffee break |
| **12.00-13.30** | Poster Session II |
| **13.30-14.30** | Lunch break |

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| **14.30-15.30** | Session III |
| **15.30-15.45** | Coffee break |
| **15.45-17.30** | Session IV |
| **17.30-17.45** | Coffee break |
| **17.45-19.00** | Poster session III |
| **19.30** | Dinner |

**Friday, 20.11.2026**

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| **9.00-9.45** | Poster session IV |
| **9.45-10.00** | Summary and conference closure |
| **10.30-14.00** | Academic visit to the CENWIS laboratories at the Kielce University of Technology |
| **14.30-15.30** | Lunch break |
| **16.00** | Departure to Lublin via conference bus |

| **Wednesday 18.11.2026** | | |
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| **8.00** | **Tour bus departure from Lublin University of Technology to Uroczysko Spa & Wellness Hotel in Cedzyna near Kielce, Poland** | |
| **12.30-13.00** | **Opening of Conference and Welcome Speeches –** conference room at Hotel Uroczysko Spa & Wellness Hotel | |
| **13.00-13.30** | **Plenary Lecture I** *DATA AND MODELS USED IN ENGINEERING APPLICATIONS– Hasilova Kamila, Ph.D.* | |
| **13.30-14.00** | **Plenary Lecture II** *EVALUATION OF THE EFFECTIVENESS OF RADAR DRONE DETECTION: THE APPLICATION OF COMPUTER SIMULATIONS – Przemysław Turos, Symkom Sp. z o.o.* | |
| **14.00-14.15** | **Group photo** | |
| **14.15-15.00** | **Lunch** | |
| **15.00-15.30** | **Plenary Lecture III** *LIVING ON THE EDGE: EDGE AI FOR SPEED, PRIVACY, AND SELF-GOVERNANCE – Marcin Badurowicz, Ph.D. Eng.* | |
| **15.30-16.45** | **Special Session** *RECONSTRUCTION AND AERODYNAMIC INVESTIGATION OF THE LUBLIN R-XIIID AIRCRAFT – CURRENT PROGRESS AND PROJECT DEVELOPMENT* **Chairs:** Hubert Dębski, Tomasz Jachowicz | |
| | Jarosław Mądro, Hubert Dębski | THE LUBLIN R-XIIID AIRCRAFT – HISTORICAL BACKGROUND AND STRUCTURAL CHARACTERISTICS |
| | Konrad Pietrykowski, Paweł Magryta, Rafał Kliza, Zbigniew Czyż | WIND TUNNEL AERODYNAMIC EXPERIMENTAL RESULTS OF THE LUBLIN R-XIIID AIRCRAFT MODEL |
| | Rafał Kliza, Zbigniew Czyż, Konrad Pietrykowski, Paweł Magryta | NUMERICAL INVESTIGATION OF THE AERODYNAMIC CHARACTERISTICS OF THE LUBLIN R-XIIID AIRCRAFT |
| | Paweł Wysmulski, Konrad Pietrykowski, Hubert Dębski, Michał Rogala, Jakub Paśnik, Mirosław Ferdynus, Kuba Rosłaniec | DEVELOPMENT OF A DIGITAL CAD MODEL OF THE LUBLIN R-XIIID AIRCRAFT |
| **16.45-17.00** | **Coffee break** | |
| **17.00-18.15** | **Session I "Artificial and computational intelligence"** Chairs: **Łukasz Gierz, Quirino Estrada-Barbosa** | |
| | Mariusz Kamiński | MACHINE LEARNING CLASSIFICATION OF ION-IMPLANTED INCONEL 718 |
| | Filip Wątorek; Patryk Lorenc; Ireneusz Dominik | NON-DESTRUCTIVE ANCHOR CONDITION CLASSIFICATION IN UNDERGROUND MINING USING FFT ANALYSIS AND TRANSFER LEARNING |

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| | Mateusz Walo;<br>Dariusz Majerek | A FINE-TUNED MULTI-AGENT LARGE LANGUAGE MODEL PLATFORM WITH RETRIEVAL-AUGMENTED GENERATION FOR CLINICAL CASE REPORT ANALYSIS |
| | Grzegorz Jabłoński;<br>Mariusz Michalski;<br>Norbert Grzesik;<br>Marcin Markiewicz | FUZZY LOGIC CONTROLLER FOR AUTONOMOUS OBSTACLE AVOIDANCE IN A QUADROTOR UNMANNED AERIAL VEHICLE |
| | Mateusz Gogola;<br>Jan Górecki | A DETERMINISTIC MEMORY ARCHITECTURE FOR LARGE LANGUAGE MODELS (LLM) WITH KNOWLEDGE LIFECYCLE MANAGEMENT (KLM) |
| **18.15-19.15** | **Poster Session I**<br>**Chairs:** Maria Skublewska-Paszkowska, Grzegorz Kozieł | |
| **P – 1** | **Piotr Maciak, Eryc Witkowski**<br>INFLUENCE OF SKIN MATERIAL AND SURFACE TREATMENT ON AERODYNAMIC PERFORMANCE | |
| **P – 2** | **Anna Olszewicz, Jakub Kordowski**<br>MODELING AND ANALYSIS OF WING ICING ON A BOEING 737-800 AIRCRAFT USING ANSYS | |
| **P – 3** | **Adam Deptuła, Patryk Machnik**<br>AN INTEGRATED BWM-FUZZY TOPSIS MODEL FOR STEEL STRUCTURE MANUFACTURER SELECTION: A CASE STUDY | |
| **P – 4** | **Łukasz Grabowski, Jan Pytka, Zbigniew Czyż, Krzysztof Skiba**<br>MACHINE LEARNING-BASED PREDICTION OF AERODYNAMIC CHARACTERISTICS OF AN ELECTRIC UAV PROPULSION SYSTEM | |
| **P – 5** | **Robert Bąbel**<br>CFD-BASED ANALYSIS OF LIFT AND DRAG CHARACTERISTICS OF A UAV SEAPLANE IN TRANSITIONAL FLOW REGIMES | |
| **P – 6** | **Aleksandra Zarubajko, Łukasz Omen, Maciej Majcher, Michał Frant, Andrzej J. Panas**<br>CFD MODELING OF WATER AEROSOL FLOW IN AN ICING WIND TUNNEL | |
| **P – 7** | **Mariusz Mazurek, Tomasz Rymarczyk, Marcin Dziadosz, Dariusz Wójcik, Michał Oleszek**<br>DIRECT NEURAL RECONSTRUCTION OF URINARY BLADDER IMAGES FROM WEARABLE ELECTRICAL IMPEDANCE TOMOGRAPHY DATA | |
| **P – 8** | **Tomasz Rymarczyk, Marcin Dziadosz, Dariusz Wójcik, Mariusz Mazurek, Paweł Tchórzewski**<br>MONTE CARLO MODELLING OF LIGHT TRANSPORT FOR OPTICAL TOMOGRAPHY IN HETEROGENEOUS MEDIA | |
| **P – 9** | **Dariusz Majerek, Dariusz Wójcik, Tomasz Rymarczyk**<br>PHYSICS-CONSTRAINED UNROLLED RECONSTRUCTION OF SLOWNESS MAPS IN ULTRASOUND TRANSMISSION TOMOGRAPHY | |
| **P – 10** | **Dariusz Wójcik, Tomasz Rymarczyk, Michał Gołąbek, Barbara Stefaniak, Oleksii Hyka**<br>MATRIX-FREE RECONSTRUCTION FOR PORTABLE 3D ULTRASONIC NDE | |
| **P – 11** | **Barbara Stefaniak, Dariusz Wójcik, Tomasz Rymarczyk**<br>STABLE CLASS-CONDITIONED QUANTISED VAE FOR SYNTHETIC LUNG DISEASE VOLUMES | |
| **P – 12** | **Mariusz Mazurek, Tomasz Rymarczyk, Dariusz Wójcik, Marcin Dziadosz**<br>MULTIMODAL NEURAL RECONSTRUCTION FOR HYBRID ULTRASOUND-IMPEDANCE TOMOGRAPHY OF THE LOWER URINARY TRACT | |

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| **P – 13** | **Michał Styła, Przemysław Adamkiewicz**<br>AMPLITUDE-RANGE REFLECTANCE TOMOGRAPHY FOR ENERGY-EFFICIENT INDOOR OBJECT TRACKING |
| **P – 14** | **Michał Styła, Przemysław Adamkiewicz**<br>ENERGY-EFFICIENT UWB LOCALIZATION WITH MULTILATERATION FOR WAREHOUSE ASSET TRACKING |
| **P – 15** | **Tomasz Rymarczyk, Paweł Kaleta, Marcin Dziadosz, Dariusz Wójcik, Michał Oleszek, Michał Styła**<br>AOA SENSORS AND CLUSTER TRIANGULATION FOR 3D INDOOR LOCALIZATION |
| **P – 16** | **Grzegorz Rybak, Dariusz Wójcik, Tomasz Rymarczyk**<br>A FORMAL GRAPH MODEL OF AN EMBODIED DATA PUMP FOR IOT–MIXED REALITY INTEGRATION |
| **P – 17** | **Jakub Pizoń, Łukasz Kański, Jan Chadam, Arkadiusz Gola**<br>AN AUDITABLE LARGE LANGUAGE MODEL- AND RETRIEVAL-AUGMENTED GENERATION DIGITAL QUALITY TWIN SUPPORTING SIMULATION-BASED VALIDATION AND SAFER DEFECT CONTROL IN INDUSTRY 4.0 AND 5.0 FOR PRODUCTION AND TECHNOLOGY MANAGEMENT |
| **P – 18** | **Jaroslaw Tatarczak, Justyna Baran-Tatarczak**<br>MULTI-CRITERIA OPTIMIZATION OF UAV MEDICAL TRANSPORT CORRIDORS IN URBAN ENVIRONMENTS BASED ON COST SURFACE ANALYSIS |
| **P – 19** | **Aidana Ussenova, Bakhtiyar Rzayev, Mukhtarbek Kakimov, Bauyrzhan Iskakov, Serik Tokayev, Gulnazym Ospankulova, Roza Abisheva, Michał Bembenek**<br>MATHEMATICAL MODELING AND OPTIMIZATION OF DRY FRACTIONATION OF WHEAT FLOUR IN A PNEUMATIC SCREW CLASSIFIER |
| **P – 20** | **Dariusz Kalinko, Marian Łopatka, Piotr Krogul, Rafał Typiak, Jarosław Duda**<br>APPARATUS FOR FIELD TESTING AND VALIDATION OF NUMERICAL MODELS OF MINE-SOIL INTERACTION UNDER WHEEL OR TRACK PRESSURE |
| **P – 21** | **Marcin Matczuk, Łukasz Grabowski, Grzegorz Kozieł, Marta Dziuba-Kozieł, Dominik Strzałka, Piotr Jakliński, Kamil Żyła, Jacek Kęsik**<br>MACHINE LEARNING-BASED ALGORITHM FOR ESTIMATING ENERGY EFFICIENCY OF PHOTOVOLTAIC PANELS IN PUBLIC TRANSPORT: CASE STUDY OF LUBLIN |
| **P – 22** | **Adam Kuśmierowski, Krzysztof Skiba, Dariusz Kuś, Jarosław Sikora**<br>EXPERIMENTAL ANALYSIS OF CURRENT-VOLTAGE CHARACTERISTICS AND STATISTICAL PARAMETERS OF THE EMISSION CURRENT AS A FUNCTION OF TEMPERATURE AND ANODE WORK FUNCTION IN A THERMIONIC ENERGY CONVERTER |
| **P – 23** | **Maciej Kowalski, Łukasz Omen, Andrzej J. Panas**<br>NUMERICAL ANALYSIS OF HEAT TRANSPORT IN DISPERSIVE COMPOSITES WITH MICROENCAPSULATED PCMS: INFLUENCE OF VOLUME FRACTION, ELEMENTARY CELL SIZE AND MODEL DIMENSIONALITY |
| **P – 24** | **Magdalena Paśnikowska-Łukaszuk, Zbigniew Suchorab**<br>EVALUATION OF MOISTURE CONTENT IN 600 AERATED CONCRETE USING TDR SENSORS WITH POLYLACTIDE HOUSING |
| **P – 25** | **Aleksandra Prus, Kamil Jonak, Przemysław Krakowski, Robert Karpiński**<br>EFFECT OF BODY MASS INDEX ON KNEE JOINT VIBROARTHROGRAPHIC SIGNAL PARAMETERS |

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| **P – 26** | **Katarzyna Mróz**<br>RESTING-STATE EEG ACTIVITY AND ITS ASSOCIATIONS WITH SELECTED DIMENSIONS OF PSYCHOLOGICAL FUNCTIONING |
| **P – 27** | **Paweł Dymora, Mirosław Mazurek, Bartosz Nycz**<br>ANOMALY DETECTION IN MAVLINK TELEMETRY LOGS OF UNMANNED AERIAL VEHICLES USING DATA ANALYTICS METHODS |
| **P – 28** | **Wojciech Cel**<br>ASSESSMENT OF THE CARBON FOOTPRINT OF BIOCHAR PRODUCTION FROM SEWAGE SLUDGE USING CALCULATION METHODS |
| **20.00** | **Gala Dinner** |

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| **Thursday, 19.11.2026** | | |
| **7.30-8.15** | Active Start: CMES Jogging Session. *"Follow the Science!"* | |
| **8.30** | Registration opening | |
| **9.00–9.30** | ***Plenary Lecture IV***<br>*MULTIPHYSICS ANALYSIS OF ELECTROMAGNETIC-THERMAL COUPLING IN CST STUDIO SUITE AND CO-SIMULATION WITH ABAQUS –*<br>*Rafał M. Wojciechowski, D.Sc., Technia, Poland*<br>*Dominik Gawle, SIMULIA Sales Representative at Dassault Systèmes* | |
| **9.30-10.00** | ***Plenary Lecture V***<br>*COMPUTATIONAL INTELLIGENCE FOR MANAGING MODERN PRODUCTION SYSTEMS – Jakub Pizoń, PhD, Eng.* | |
| **10.00-10.15** | **Coffee break** | |
| **10.15-11.45** | **Session II "***Material Properties and Structural Performance***"**<br>**Chairs:** Leszek Łatka, Michał Bembenek | |
| | Damian Jokiel;<br>Jan Górecki | PRELIMINARY RESEARCH OF DENSITY INFILL INFLUENCE ON THE TENSILE STRENGTH OF THERMOPLASTIC POLYURETHANE (TPU) 3D PRINTED ELEMENTS IN FUSED DEPOSITION MODELING (FDM) METHOD |
| | Szymon Karski;<br>Dariusz Chocyk;<br>Mirosław Szala | INFLUENCE OF DEPOSITION RATE ON MICROSTRUCTURE AND MECHANICAL PROPERTIES OF TIN LAYERS: EXPERIMENT AND SIMULATION |
| | Jarosław Piątkowski | LASER SURFACE TREATMENT OF AlSi11CuMiMg PISTON ALLOY |
| | Quirino Estrada-Barbosa;<br>Jose Manuel Cuenca Delgado;<br>Eladio Martinez Rayon;<br>Elva Reynoso; Alejandro Rodriguez-Mendez;<br>Aztlan Bastarrachea;<br>Jesus Silva;<br>Manuel Nandayapa | EFFECT OF THE CROSS-SECTION ON THE ENERGY ABSORPTION AND BENDING BEHAVIOR OF BENT TUBES |
| | Jacek Czarnigowski;<br>Jakub Jarosz;<br>Magda Droździel-Jurkiewicz;<br>Adrian Wróbel | MECHANICAL PROPERTIES OF FLAX FIBRE-REINFORCED BIO-COMPOSITES |
| | Mikołaj Sowa;<br>Mirosław Szala | STAINLESS STEEL WELD OVERLAYS PROPERTIES AND ABRASIVE WEAR RESISTANCE |
| **11.45-12.00** | **Coffee break** | |

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| **12.00-13.30** | **Poster Session II**<br>**Chairs:** Olga Orynycz, Robert Szczepaniak |
| **P – 1** | **Robert Szczepaniak, Zuzanna Wilkosz, Robert Bąbel, Grzegorz Woroniak**<br>THE ROLE OF CARBON ADDITIVES IN SHAPING THE MECHANICAL PROPERTIES OF ABS AND ASA POLYMER FILAMENTS IN THE FDM PROCESS |
| **P – 2** | **Wiktor Łykowski, Łukasz Gierz**<br>RESULTS OF LABORATORY TESTS OF THE STATIC AND DYNAMIC FRICTION COEFFICIENTS OF FERTILIZER GRANULES AGAINST THE STRUCTURAL MATERIALS OF SEED DRILLS USING A ROTARY TEST STAND |
| **P – 3** | **Grzegorz Budzik, Andrzej Paszkiewicz, Lucjan Śnieżek, Mirosław Surowaniec, Kamil Burczy, Dariusz Rączka**<br>A MULTI-LAYER CYBER-PHYSICAL 3D PRINTING SECURITY FRAMEWORK FOR THE AEROSPACE AND DEFENSE INDUSTRY |
| **P – 4** | **Wojciech Pudło, Grzegorz Kozłowski, Mateusz Mucha**<br>EFFECTIVENESS OF SELECTED NDT METHODS FOR INSPECTION OF A 12-PLY AEROSPACE CFRP LAMINATE |
| **P – 5** | **Michał Rogala**<br>COMPOSITE FOAM BASED SANDWICH STRUCTURE SUBJECTED TO LOW-VELOCITY IMPACT |
| **P – 6** | **Jacek Janiszewski, Andrzej Komorek, Rafał Bieńczak, Daniel Śliwiński**<br>THE INFLUENCE OF THE MOLD SIZE ON PROPERTIES OF GFRP MADE BY INFUSION METHOD |
| **P – 7** | **Grzegorz Kłosowski, Tomasz Rymarczyk, Monika Kulisz, Konrad Niderla, Michał Oleszek, Paweł Olszewski**<br>MEASUREMENT-CONSISTENT HYBRID NEURAL RECONSTRUCTION FOR ELECTRICAL IMPEDANCE TOMOGRAPHY |
| **P – 8** | **Monika Kulisz, Grzegorz Kłosowski, Tomasz Rymarczyk, Konrad Niderla**<br>MULTI-HEAD NEURAL RECONSTRUCTION OF 2D EIT IMAGES FOR INDUSTRIAL REACTOR MONITORING |
| **P – 9** | **Mariusz Mazurek, Krzysztof Król, Edward Kozłowski, Monika Kulisz, Konrad Niderla, Grzegorz Kłosowski, Tomasz Rymarczyk**<br>ADAPTIVE INDUSTRIAL TOMOGRAPHIC RECONSTRUCTION THROUGH BIDIRECTIONAL LSTM-GUIDED ENSEMBLE SELECTION |
| **P – 10** | **Barbara Stefaniak, Michał Gołąbek, Dariusz Wójcik, Monika Kulisz, Tomasz Rymarczyk**<br>PORTABLE MULTICHANNEL ULTRASONIC TOMOGRAPHY FOR THREE-DIMENSIONAL IMAGING OF CONCRETE DEFECTS |
| **P – 11** | **Mariusz Mazurek, Krzysztof Król, Tomasz Rymarczyk, Monika Kulisz, Edward Kozłowski, Grzegorz Kłosowski**<br>NAR AND LSTM-DEPENDENT PREDICTION FOR EARLY WARNING OF ERRORS IN PROCESS TOMOGRAPHY |
| **P – 12** | **Dominik Gnaś, Tomasz Rymarczyk, Dariusz Wójcik, Michał Oleszek**<br>MULTIMODAL EITS AND OPTICAL SENSING FOR NON-INVASIVE GLUCOSE MONITORING |
| **P – 13** | **Michał Maj, Tomasz Cieplak, Damian Pliszczuk, Jakub Pizoń**<br>MULTIMODAL AI AND EDGE INTELLIGENCE FOR CONTEXT-AWARE CUSTOMER RELATIONSHIP MANAGEMENT |

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| **P – 14** | **Michał Maj, Tomasz Cieplak, Damian Pliszczuk, Jakub Pizoń**<br>EXPLAINABLE LOCAL EVALUATION OF FACTUAL CONSISTENCY IN AUTOMATED CLINICAL SUMMARIES AGAINST SOAP REFERENCES |
| **P – 15** | **Łukasz Maciura, Michał Maj, Tomasz Cieplak, Jakub Pizoń**<br>CROSS-SIGNER GENERALIZATION OF VISION-LANGUAGE EMBEDDINGS FOR POLISH FINGERSPELLING RECOGNITION |
| **P – 16** | **Damian Bańkowski, Piotr Młynarczyk, Tomasz Miłek**<br>THE USE OF DIGITAL VOLUME CORRELATION WITH COMPUTED TOMOGRAPHY TO ANALYZE DISPLACEMENT AND WALL THICKNESS OF MULTI-OPERATIONAL PRESSING OF CYLINDRICAL ALUMINUM EXTRUSIONS |
| **P – 17** | **Piotr Młynarczyk, Damian Bańkowski, Wojciech Depczyński**<br>STUDY OF THE INFLUENCE OF ESD PROCESS PARAMETERS AND A COMPARATIVE ANALYSIS OF MICROSCOPY AND COMPUTED TOMOGRAPHY IN THE QUALITATIVE ASSESSMENT OF COPPER COATINGS ON AN ALUMINIUM SUBSTRATE |
| **P – 18** | **Izabela Żaczek, Bernadetta Kowalczyk**<br>DESIGN AND EXPERIMENTAL VALIDATION OF A PROPELLER FOR AN UNMANNED AERIAL VEHICLE WITH MTOW UP TO 25 KG |
| **P – 19** | **Nikola Woźniak, Julia Wójtowicz, Klaudia Tarach, Sebastian Wilczek, Karol Robaczyński, Mirosław Szala**<br>EXTRUSION OF ALUMINIUM ALLOY COMPONENTS AND SURFACE LAYER MODIFICATION |
| **P – 20** | **Bartosz Wieczorek, Weronika Wiatrowska, Aleksandra Świadek, Łukasz Warguła**<br>IMAGE-BASED CONTACT PATCH CHARACTERIZATION OF WHEELCHAIR TIRE–ROLLER INTERACTION USING CONVEX HULL AND ALPHA SHAPE ALGORITHMS |
| **P – 21** | **Weronika Wiatrowska, Aleksandra Świadek, Bartosz Wieczorek, Łukasz Warguła**<br>VERIFICATION OF FOREARM GRID GENERATION METHODS FOR EMG ELECTRODE PLACEMENT DURING WHEELCHAIR PROPULSION STUDIES |
| **P – 22** | **Olga Orynycz, Paweł Ruchała, Wojciech Wawreniuk**<br>SMART VILLAGES: SEASONAL VARIATIONS OF RENEWABLE ENERGY IN POLAND |
| **P – 23** | **Katarzyna Falkowicz, Christopher B. York, Kuba Rosłaniec**<br>MECHANICAL COUPLING, MANUFACTURING DISTORTION AND LENGTH EFFECTS IN HTCS THIN-WALLED CFRP PROFILES |
| **P – 24** | **Mariusz Kłonica, Oskar Sarnecki**<br>IMPLEMENTATION OF ADDITIVE MANUFACTURING TECHNOLOGY IN THREADED FASTENERS |
| **P – 25** | **Żaneta Anna Mierzejewska, Stanisław Dzielak, Anna Falkowska**<br>MICROHARDNESS–TOUGHNESS TRADE-OFF AND ANISOTROPY REDUCTION IN DMLS TI6AL4V INDUCED BY POST-PROCESSING HEAT TREATMENT |
| **P – 26** | **Żaneta Anna Mierzejewska, Nataša Trtić, Radmila Arbutina**<br>DEGRADATION BEHAVIOR OF RESIN-BASED COMPOSITES UNDER SIMULATED ORAL CONDITIONS: A COMPARATIVE STUDY OF MICROHARDNESS, SURFACE ROUGHNESS, AND WATER-RELATED PROPERTIES |

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| **13.30-14.30** | **Lunch break** | |
| **14.30-15.30** | **Session III "Application of computer programs in technology"**<br>Chairs: **Jarosław Piątkowski, Mariusz Kamiński** | |
| | Paweł Suchorab;<br>Ewa Jakowiecka | RESILIENCE ANALYSIS OF A WATER DISTRIBUTION NETWORK UNDER FAILURE SCENARIOS IN THE AQUARDIS VIRTUAL CITY |
| | Weronika Henzler-Grzywna;<br>Jacek Czarnigowski;<br>Łukasz Grabowski | SIMULATION STUDIES OF THE SPRAY WASHING PROCESS |
| | Jan Górecki;<br>Krzysztof Wałęsa | THE EFFECT OF TRANSITION RADIUS ON DRY ICE FLOW AND BOUNDARY FORCE DURING THE EXTRUSION PROCESS: AN ANALYTICAL-NUMERICAL-EXPERIMENTAL STUDY |
| | Dawid Tatarynow | ANALYSIS OF THE POTENTIAL FOR MODIFYING SELECTED COMBUSTION PARAMETERS OF RAPESEED OIL–N-HEXANE BLENDS IN A DIESEL ENGINE BY VARYING THE START-OF-INJECTION ANGLE |
| **15.30-15.45** | **Coffee break** | |
| **15.45-17.30** | **Session IV "Computational fluid dynamics & Finite Element Method"**<br>**Chairs:** Katarzyna Falkowicz, Łukasz Warguła | |
| | Marcin Dejewski;<br>Tomasz Muszyński;<br>Lucjan Śnieżek;<br>Dariusz Kalinko | IDENTIFICATION OF EQUIVALENT STIFFNESS REPRESENTATION IN A SIMULATION MODEL OF A RIBBON PONTOON BRIDGE |
| | Daniel Bronisław Nycz;<br>Rafał Gajda;<br>Jacek Kühnl-Kinel;<br>Adam Spurtacz | FANCY FENCE - A NEW TYPE OF ANTI-TERRORIST RETRACTABLE GATE - DESIGN AND REAL CRASH TEST |
| | Bartłomiej Ambrożkiewicz;<br>Maciej Czarnacki | PHYSICS-INFORMED IDENTIFICATION OF RADIAL CLEARANCE IN A NONLINEAR 4-DOF ROLLING BEARING MODEL |
| | Andrzej Paszkiewicz;<br>Dariusz Rączka | SPATIALLY DETERMINISTIC DUAL-GRID CLUSTERING FOR ENERGY-EFFICIENT WIRELESS SENSOR NETWORKS IN IOT MONITORING |
| | Amar Kouadri;<br>Embarek Douroum;<br>Mokhtar Zaitri;<br>Sofiane Khelladi;<br>Samir Laouedj;<br>Juan Pedro Solano | CFD INVESTIGATION OF THERMAL MIXING ENHANCEMENT OF SHEAR-THINNING FLUIDS IN SHORT PASSIVE TLCCM MICROMIXERS |
| | Embarek Douroum;<br>Amar Kouadri;<br>Sofiane Khelladi;<br>Samir Laouedj;<br>Abdelylah Benazza;<br>Mokhtar Zaitri<br>Juan Pedro Solano | COMPARATIVE ANALYSIS OF PASSIVE PLANAR MICROMIXERS FOR NEWTONIAN AND NON-NEWTONIAN FLUID MIXING: A NUMERICAL STUDY |

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| | Paweł Capała; Monika Ruszak; Zbigniew Czyż; Anna Rudawska | NUMERICAL CFD ANALYSIS OF CATALYTIC BASKETS IN DUAL-BED CATALYTIC REACTORS |
| **17.30-17.45** | **Coffee break** | |
| **17.45-19.00** | **Poster session III**<br>**Chairs:** Marta Dziuba-Kozieł, Bartosz Wieczorek | |
| **P – 1** | **Michał Sąsiadek, Maciej Niedziela, Waldemar Woźniak, Tomasz Jachowicz, Jarosław Jajczyk, Arkadiusz Kozioł, Tomasz Tramś**<br>EFFECT OF MATERIAL COMPOSITION AND EMBOSSING PROCESS PARAMETERS ON THE PUNCTURE RESISTANCE OF THREE-LAYER POLYETHYLENE FILMS WITH RECYCLED CONTENT | |
| **P – 2** | **Waldemar Woźniak, Maciej Niedziela, Michał Sąsiadek, Tomasz Jachowicz, Jarosław Jajczyk, Arkadiusz Kozioł, Tomasz Tramś**<br>DIRECTIONAL ANISOTROPY OF TEAR RESISTANCE IN EMBOSSED THREE-LAYER POLYETHYLENE FILMS CONTAINING RECYCLED MATERIAL | |
| **P – 3** | **Maciej Niedziela, Waldemar Woźniak, Michał Sąsiadek, Tomasz Jachowicz, Jarosław Jajczyk, Arkadiusz Kozioł, Tomasz Tramś**<br>IDENTIFICATION OF A ROBUST EMBOSSING PROCESS WINDOW FOR THREE-LAYER RECYCLED POLYETHYLENE FILMS BASED ON MULTIPLE MECHANICAL PERFORMANCE CRITERIA | |
| **P – 4** | **Łukasz Kański**<br>EXPLAINABLE CNN-BASED BOTTLENECK DIAGNOSIS IN HUMAN–COBOT MANUFACTURING USING PROCESS HEATMAPS: AN OPERATIONS AND QUALITY MANAGEMENT PERSPECTIVE | |
| **P – 5** | **Patryk Organiściak, Arkadiusz Stęchły, Paweł Kuraś, Adam Masłoń, Anna Turek**<br>MACHINE-LEARNING-BASED PREDICTIVE CONTROL OF ANAEROBIC DIGESTION CONSIDERING METEOROLOGICAL CONDITIONS | |
| **P – 6** | **Patryk Organiściak, Mateusz Salach, Alicja Gerka, Krzysztof Demidowski, Paweł Kuraś, Karolina Kisała**<br>SCALABILITY ANALYSIS AND PERFORMANCE EVALUATION OF WEBRTC SYSTEMS USING THE INFRASTRUCTURE AS CODE PARADIGM AND CONTAINERIZED TRAFFIC GENERATORS | |
| **P – 7** | **Marta Dziuba-Kozieł**<br>INVERSE DESIGN OF MULTIRING OPTICAL FIBRES USING MACHINE LEARNING FOR BEAM SHAPING APPLICATIONS | |
| **P – 8** | **Grzegorz Kozieł, Marta Dziuba-Kozieł, Damian Harasim, Piotr Kisała, Sylwester Nowocień**<br>LOW-COST MEASUREMENT OF LIGHT POLARISATION PLANE ROTATION USING DOUBLE TFBG SENSORS WITH POWER-BASED INTERROGATION | |
| **P – 9** | **Bartosz Łata, Jacek Czarnigowski, Miłosz Chwiejczak, Wiktor Iskra, Iga Kopeć**<br>DESIGNING VEHICLE STRUCTURES USING MATERIALS WITH A LOW CARBON FOOTPRINT | |
| **P – 10** | **Radosław Kiciński, Bogdan Szturomski, Jamal Hamoud, Michał Grylewicz**<br>MODEL SIMPLIFICATIONS INFLUENCE ON A SMALL-CALIBRE PROJECTILE ARMOUR PENETRATION SIMULATIONS RESULTS | |

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| **P – 11** | **Jarosław Zubrzycki, Quirino Estrada, Magda Wlazło**<br>EQUIVALENT STATIC FINITE ELEMENT ANALYSIS OF HUMAN SKULL LOADING UNDER CONDITIONS REPRESENTATIVE OF MOTORCYCLE COLLISIONS |
| **P – 12** | **Dominik Ożóg, Wojciech Łabuński, Natalia Jajko, Eryk Sęk, Bartosz Stala**<br>EVALUATION OF DISTANCE METRICS FOR HUMAN POSE-LANDMARK TRAJECTORIES EXTRACTED WITH DIFFERENT POSE ESTIMATION MODELS |
| **P – 13** | **Łukasz Rykała, Karol Cieślik, Marcin Dejewski, Mirosław Przybysz**<br>ULTRA-WIDEBAND-BASED VELOCITY ESTIMATION WITH KALMAN FILTERING FOR FOLLOW-ME UNMANNED GROUND VEHICLE APPLICATIONS |
| **P – 14** | **Krzysztof Skiba, Robert Bąbel, Zbigniew Czyż, Paweł Karpiński, Bartłomiej Ambrożkiewicz**<br>DESIGN AND DEVELOPMENT OF AN INTEGRATED TEST BENCH FOR VIBRATION ENERGY HARVESTING WITH A MEASUREMENT AND CONTROL SYSTEM |
| **P – 15** | **Mateusz Waśkowicz, Marek Borowiec, Marcin Fronc, Magdalena Przybylska–Fronc**<br>EXPERIMENTAL INVESTIGATION OF NONLINEAR DYNAMICS AND PIEZOELECTRIC RESPONSE OF AN AIRFLOW-INDUCED VIBRATING BEAM |
| **P – 16** | **Marcin Fronc, Krzysztof Kolano, Grzegorz Litak, Magdalena Przybylska–Fronc, Mateusz Waśkowicz**<br>MATHEMATICAL MODELLING AND EXPERIMENTAL INVESTIGATION OF A BLDC-BASED ENERGY HARVESTER UNDER NONLINEAR MECHANICAL EXCITATION |
| **P – 17** | **Magdalena Przybylska–Fronc, Grzegorz Litak, Marek Borowiec, Marcin Fronc, Mateusz Waśkowicz**<br>NUMERICAL AND EXPERIMENTAL INVESTIGATION OF THE DYNAMICS OF COUPLED ELASTIC BEAMS SUBJECTED TO MECHANICAL EXCITATION |
| **P – 18** | **Magdalena Piłat-Rożek, Grzegorz Łagód**<br>MACHINE LEARNING MODELS TRAINED ON MULTIDIMENSIONAL GAS SENSOR SIGNALS WITH EXPLAINABLE AI INTERPRETATION FOR SURFACE WATER AND WASTEWATER CLASSIFICATION |
| **P – 19** | **Diana Morzhak, Magdalena Piłat-Rożek, Aleksandra Piasek, Grzegorz Łagód**<br>THE USE OF SELECTED DEEP LEARNING METHODS FOR THE DETECTION AND CLASSIFICATION OF BIOLOGICAL OBJECTS ON DIGITAL IMAGES |
| **P – 20** | **Albert Raczkiewicz, Magdalena Piłat-Rożek, Aleksandra Piasek, Grzegorz Łagód**<br>ANALYSIS OF MULTIDIMENSIONAL DATA CONTAINING PRECIPITATION VARIABILITY AND THE PRESENCE OF MICROORGANISMS IN THE BYSTRZYCA RIVER FOR ENVIRONMENTAL MONITORING PURPOSES |
| **P – 21** | **Weronika Nadworska, Ewa Łazuka, Magdalena Piłat-Rożek**<br>AUTOENCODER-BASED REPRESENTATIONS FOR CRIME CLUSTERING |
| **P – 22** | **Michał Staniszewski, Aleksandra Piasek, Roman Babko, Grzegorz Łagód**<br>RECOGNIZING TESTACEA USING AUTOMATIC IMAGE ANALYSIS ALGORITHMS – EUGLYPHA AS AN EXAMPLE |

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| | **P – 23** | **Grzegorz Łagód, Dariusz Majerek, Michał Staniszewski, Edyta Wojtaś, Aleksandra Piasek, Konrad Jamka**<br>APPLICATION OF AUTOMATED IMAGE ANALYSIS IN THE BIOINDICATIVE ASSESSMENT OF ACTIVATED SLUDGE PARAMETERS AND THE IMPACT OF TREATMENT PLANTS ON RECEIVING WATERS |
| | **P – 24** | **Aleksandra Piasek, Michał Staniszewski, Roman Babko, Grzegorz Łagód**<br>ENTROPY-BASED ANALYSIS OF ACTIVATED SLUDGE PARAMETERS |
| | **P – 25** | **Natalia Surma, Katarzyna Jaromin-Gleń, Zbigniew Suchorab, Grzegorz Łagód**<br>GIS-BASED AUTOMATION OF INPUT DATA PREPARATION FOR HYDRODYNAMIC STORMWATER SYSTEM MODELING |
| | **P – 26** | **Daniel Plisau, Grzegorz Łagód**<br>ENTROPY-BASED INDICES IN ECONOMIC AND SOCIAL RESEARCH |
| **19.30** | | **Dinner** |

| **Friday, 20.11.2026** | |
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| **9.00-9.45** | **Poster session IV**<br>**Chairs:** Monika Kulisz, Zbigniew Czyż |
| **P – 1** | **Łukasz Sobaszek, Bartłomiej Stadnik**<br>AI-BASED OPERATOR BEHAVIOR PREDICTION ALGORITHM FOR HUMAN-ROBOT COOPERATION |
| **P – 2** | **Tomasz Szymczyk, Marcin Badurowicz**<br>ANALYSIS OF THE IMPACT OF NATURAL LANGUAGE SELECTION IN LARGE LANGUAGE MODELS (LLMS) ON ENERGY CONSUMPTION |
| **P – 3** | **Magdalena Lebiocka, Jerzy Montusiewicz, Agnieszka Montusiewicz, Aleksandra Szaja**<br>EVALUATING HYDRODYNAMIC CAVITATION FOR INCREASE OF BIODEGRADABILITY OF HERBAL WASTE: A MULTI-CRITERIA APPROACH |
| **P – 4** | **Małgorzata Iwanek**<br>FEM-BASED ANALYSIS OF SOIL SUFFOSION TRIGGERED BY PIPELINE LEAKAGE |
| **P – 5** | **Kinga Chwaleba, Weronika Wach, Maria Skublewska-Paszkowska, Paweł Powroźnik, Marcin Barszcz**<br>LIMITED-RESOURCE GENERALISATION IN FOLK MUSIC RECOGNITION USING MULTIMODAL ADAPTIVE ATTENTION |
| **P – 6** | **Katarzyna Baran, Kamil Pietrak**<br>THCS-VIT: A HYBRID LIGHTWEIGHT VISION TRANSFORMER WITH MULTI-SCALE FEATURE FUSION FOR THERMAL FACIAL EMOTION RECOGNITION |
| **P – 7** | **Krystian Czajkowski, Maria Skublewska-Paszkowska, Paweł Powroźnik, Marcin Barszcz, Krzysztof Dziedzic, Sylwester Korga**<br>TRAINING MACHINE LEARNING AGENT BEHAVIORS IN UNITY: PROXIMAL POLICY OPTIMIZATION VS. SOFT ACTOR-CRITIC ALGORITHMS |
| **P – 8** | **Jakub Drzał, Daniel Kleczyński, Bartosz Pawłowicz**<br>ADAPTIVE TRAFFIC SIGNAL CONTROL WITH A PPO-TRANSFORMER ARCHITECTURE IN COMPLEX TRAFFIC SYSTEMS |
| **P – 9** | **Łukasz Gierz, Dominik Ryder, Łukasz Warguła, Murat Köklu**<br>ADVANCES IN AUTOMATIC SEEDLING DETECTION AND LOCALIZATION USING CNN-BASED COMPUTER VISION FOR PRECISION WEED CONTROL IN PRECISION AGRICULTURE |
| **P – 10** | **Łukasz Rykała, Arkadiusz Rubiec, Karol Cieślik, Mirosław Przybysz**<br>PARAMETER IDENTIFICATION OF A DYNAMIC SYSTEM UNDER RANDOM EXCITATION USING NEURAL NETWORKS |
| **P – 11** | **Kamil Żelazowski, Wojciech Wojciechewicz, Maria Skublewska-Paszkowska, Paweł Powroźnik**<br>AUTOMATIC METHODS FOR 3D MOTION TRAJECTORIES GAP FILLING: CUSTOM-BASED KALMAN VS. BILSTM |
| **P – 12** | **Michał Cajzner, Leszek Łatka**<br>APPLICATION OF IMAGE ANALYSIS FOR THE ASSESSMENT OF CAVITATION EROSION PHENOMENA FOR THE THERMAL SPRAYED COATINGS |
| **P – 13** | **Krzysztof Dziedzic**<br>CUSTOM RECURRENT-BASED FRICTION PREDICTION IN A WEAR-RESISTANT HARDFACING ALLOY |

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| **P – 14** | **Aleksandra Świadek, Łukasz Warguła, Weronika Wiatrowska, Bartosz Wieczorek**<br>REVIEW OF THE USE OF EMG SIGNALS IN ENGINE CONTROL SYSTEMS FOR ENERGY EFFICIENCY IMPROVEMENT |
| **P – 15** | **Aleksandra Świadek, Łukasz Warguła, Weronika Wiatrowska, Jarosław Gabryelski, Bartosz Wieczorek**<br>FEASIBILITY STUDY OF SEMG-BASED CONTROL SIGNAL ACQUISITION FOR ENERGY-EFFICIENT ADAPTIVE CONTROL OF AN INTERNAL COMBUSTION ENGINE-POWERED WOOD CHIPPER |
| **P – 16** | **Beata Tyszkiewicz, Anastasiia Tarnavska, Barbara Buraczyńska**<br>PASSWORD SECURITY AMONG INTERNET USERS: AN ANALYSIS OF KNOWLEDGE, ATTITUDES, AND PRACTICES |
| **P – 17** | **Joanna Szulżyk-Cieplak, Barbara Buraczyńska, Bogdan Basisty**<br>IMPACT OF WEBSITE INTERACTIVITY AND PERFORMANCE ON USER EXPERIENCE: AN ANALYSIS OF SELECTED WEBSITES |
| **P – 18** | **Michał Cioch, Arkadiusz Gola**<br>ANALYSIS OF FACTORS AFFECTING PRODUCT PRICE MARGINS IN THE DISTRIBUTION CHAIN |
| **P – 19** | **Julia Stępień, Imed El Fray**<br>DETECTION OF ATTACKS ON COMPUTER NETWORKS USING MACHINE LEARNING - PREDICTIVE MODEL |
| **P – 20** | **Bartłomiej Chmielewski, Ireneusz Mrozek, Andrzej Chmielewski**<br>ADAPTIVE TOLERANT V-DETECTOR WITH DETECTOR-SPECIFIC NEIGHBORHOOD SELECTION FOR ANOMALY AND INTRUSION DETECTION |
| **P – 21** | **Hubert Stadnik, Piotr Szpyra**<br>EXPERIMENTAL INVESTIGATION OF USING A LINEAR ARRAY OF PIEZOELECTRIC SENSORS TO DETERMINE THE LOCATION OF A MECHANICAL IMPACT ON THE SURFACE OF A LAMINATE |
| **P – 22** | **Edyta Wojtaś**<br>MONITORING STORM SEWER DISCHARGES AND ASSESSING THE QUALITY OF RECEIVING WATERS USING MULTI-PARAMETER AND ELECTROCHEMICAL PROBES |
| **P – 23** | **Justyna Kujawska, Monika Kulisz**<br>FORECASTING $CO_2$ EMISSIONS FROM SOILS AMENDED WITH SEWAGE SLUDGE BIOCHAR USING ARTIFICIAL NEURAL NETWORKS |
| **P – 24** | **Jerzy Józwik**<br>SUMMARY OF THE ACTIVITIES OF THE POLISH METROLOGICAL UNION |
| **P – 25** | **Michał Leleń**<br>EXPANDING ACCESS TO METROLOGICAL INFRASTRUCTURE AND EDUCATION THROUGH THE POLISH METROLOGICAL UNION |
| **9.45-10.00** | Summary and conference closure |
| **10.30-14.00** | Academic visit to the CENWIS laboratories at the Kielce University of Technology |
| **14.30-15.30** | Lunch break |
| **16.00** | Departure to Lublin via conference bus |