



Important announcements

| <b>DAY 1</b><br><b>Monday, 22 June 2026</b>   |                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Time</b>                                   | <b>Programme</b>                                                                                                                                                                                                                                                                    |
| 08:00                                         | <b>Registration</b>                                                                                                                                                                                                                                                                 |
| <b>ROOM 10AC</b><br><b>CONFERENCE OPENING</b> |                                                                                                                                                                                                                                                                                     |
| 09:00                                         | <b>Official Opening of the XVIII International Conference “Young Researchers in Energy Conference”</b> <ul style="list-style-type: none"> <li>• Chair of the Organizing Committee</li> <li>• Dean of the Doctoral School at Wrocław University of Science and Technology</li> </ul> |
| 09:30                                         | <b>Keynote Lecture</b> – Łukasz Sterczewski DSc, PhD<br><b>Passion for invisible light: a journey from optical sensing to organic materials of the future</b>                                                                                                                       |
| 10:15                                         | <b>Group Photo</b>                                                                                                                                                                                                                                                                  |
| 10:30                                         | <b>Coffee Break</b>                                                                                                                                                                                                                                                                 |
| <b>SESSION I</b>                              |                                                                                                                                                                                                                                                                                     |
|                                               | <b>ROOM 10AC</b><br><b>Block 1: Energy Systems and Energy Transition</b><br><br>Chair: Artur Machalski, PhD Eng.                                                                                                                                                                    |
| 10:45                                         | Michał Budzisz, Jakub Jurasz, Sebastian Svanström<br><b>System Benefits of Electric Boilers in the Polish District Heating Sector</b>                                                                                                                                               |
| 11:00                                         | Gideon Dsouza, Ziemowit Malecha, Wojciech Gizicki<br><b>Microclimatic and Kinetic Impacts of Large-Scale Wind Farms</b>                                                                                                                                                             |
| 11:15                                         | Yuting Cui, Jakub Jurasz<br><b>When the Worst Year Plans Best: Long-Term Robustness of Single-Year Capacity Sizing Under Energy Drought Conditions</b>                                                                                                                              |
| 11:30                                         | Filip Korzekwa<br><b>Potential of Airborne Wind Energy Systems as an Emerging Renewable Energy Technology</b>                                                                                                                                                                       |
| 11:45                                         | Jianyang Sun, Jakub Jurasz<br><b>Capacity Planning of Hybrid Wind, Solar Photovoltaics, and Pumped Hydro Storage Systems Across European Day-Ahead Markets</b>                                                                                                                      |
| 12:00                                         | Dawid Trzeciak<br><b>Analysis of the Technical Alignment of the Capacity Market Mechanism with Flexibility Needs of the National Power System</b>                                                                                                                                   |
| 12:15                                         | <b>Coffee Break</b>                                                                                                                                                                                                                                                                 |

## SESSION II

|       | <b>ROOM 10AC</b><br><b>Block 2: Water Management and Hydrology</b><br><br>Chair: Izabela Sówka DSc, PhD, Eng.                                                    | <b>ROOM 10D</b><br><b>Block 3: Combustion, Hydrogen, and Alternative Fuels</b><br><br>Chair: Michał Ostrycharczyk PhD, Eng.                         |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| 12:30 | Karol Dykiert, Wojciech Cieżak, Piotr Bródka<br><b>Optimization of Water Distribution Network Pressure Utilizing Artificial Intelligence</b>                     | Wojciech Cygański<br><b>Efficient and Low-Emission Combustion of Natural Gas and Hydrogen Blends in a Catalytic Burner</b>                          |
| 12:45 | Hubert Jamry, Marcin Wdowikowski, Bartosz Kaźmierczak<br><b>Machine Learning in Flash Flood Modeling: Performance, Reliability and Limitations</b>               | Michał Grzebyk, Tomasz Hardy<br><b>Conversion of a Diesel Engine to Hydrogen Co-Fueling: Concept, Experimental Platform and Research Progress</b>   |
| 13:00 | Thomas Liberski, Jakub Jurasz<br><b>Water Production: An Artificial Neural Network-Based Hourly Simulation</b>                                                   | Małgorzata Mielczarek<br><b>Modular AEM Electrolyzer for Alkaline Electrolysis of Impure Water</b>                                                  |
| 13:15 | Kornelia Przestrzelska, Katarzyna Wartalska, Bartosz Bogusławski, Bartosz Kaźmierczak<br><b>An Overview of Parameters Calibrated in Urban Sewerage Modelling</b> | Andi Azizah, Arkadiusz Szydelko, Wojciech Moroń<br><b>Effect of Mixing Ratio, Temperature and Aeration on pH Evolution During Composting</b>        |
| 13:30 | Mikołaj Ostraszewski, Jakub Jurasz<br><b>Estimating Free-Water Evaporation for Brownfield Pumped Hydro Storage in Poland</b>                                     | Uzeru Haruna Kun, Ewelina Ksepko, Rui Zhang<br><b>Thermogravimetric Gasification Approach for Enhanced CO Production from Municipal Solid Waste</b> |
| 13:45 | <b>Lunch Break</b>                                                                                                                                               |                                                                                                                                                     |



# 17<sup>TH</sup> YOUNG RESEARCHERS IN ENERGY CONFERENCE

Wrocław, 22–24 of June 2026, Faculty of Mechanical and Power Engineering, Faculty of Environmental Engineering, Wrocław University of Science and Technology



## POSTER SESSION

|       |                                                                                                                                                                                                                                                                                                            |
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|       | Chair: Marcin Wdowikowski PhD, Eng.                                                                                                                                                                                                                                                                        |
| 15:00 | Julia Szymańska and Jakub Jurasz: <b>Deforestation Impacts of Wind Farm Infrastructure: GIS Evidence from 20 German Wind Parks</b>                                                                                                                                                                         |
| 15:00 | Wiktoria Białas, Anna Pipa, Julia Paroń, Kamil Banaszkiewicz, Iwona Pasiecznik: <b>Disposable E-Cigarettes: Small Size, Huge Recycling Challenge</b>                                                                                                                                                       |
| 15:00 | Wiktoria Dominiak: <b>Thermodynamic and Environmental Potential of the Biomethane-Fueled Allam Cycle in Maritime Transport</b>                                                                                                                                                                             |
| 15:00 | Rafał Krycia and Szymon Madra: <b>Concept for Implementing Blue-Green Infrastructure in the City of Nysa</b>                                                                                                                                                                                               |
| 15:00 | Aleksandra Mika, Maciej Belcik, Marcin Wdowikowski: <b>Micro-Retention as an Example of Drought Mitigation in a Mountain Catchment</b>                                                                                                                                                                     |
| 15:00 | Julia Paroń, Marcin Wdowikowski: <b>Assessment of River Anthropogenic Disturbance in the Prudnik Catchment</b>                                                                                                                                                                                             |
| 15:00 | Magdalena Żabińska, Łukasz Szalata, Marcin Wdowikowski: <b>Impact of Surface Sealing on Urban Runoff</b>                                                                                                                                                                                                   |
| 15:00 | Magdalena Żabińska, Łukasz Szalata, Marcin Wdowikowski: <b>Urban Climate Adaptation Index as a Spatial Tool for Assessing Local Climate Resilience</b>                                                                                                                                                     |
| 15:00 | Martyna Łobodziec, Joanna Jaworska, Natasza Kobuszko, Szymon Madra, Maria Szwałek, Thomas Liberski, Magdalena Żabińska, Julia Paroń, Łukasz Klosa, Hubert Jamry, Oliwia Ratajczak, Marcin Wdowikowski, Agnieszka Urbanowska: <b>Long-Term Variability of Monthly River Discharge in Poland (1951–2024)</b> |
| 15:00 | Monika Kołodziej, Gabriela Bęben-Kucharska, Robert Mulka, Bartosz Zajęczkowski: <b>Heat Transfer in Laminar Ferronanofluid Flow Under an Axially Distributed Magnet Array</b>                                                                                                                              |
| 15:00 | Adam Molczan, Ziemowit Malecha, Wojciech Zacharczuk: <b>Surrogate Modelling of PWR Reactor Criticality Using Monte Carlo and Gaussian Processes</b>                                                                                                                                                        |
| 15:00 | Wiktor S. Muehsam, Amelia Łopata: <b>Potential Usage of Nuclear Propulsion Systems in Civil Vessels</b>                                                                                                                                                                                                    |
| 15:00 | Jakub Pielczyk, Julia Fibich, Adam Romanowski: <b>SMR Technology Overview: A Case Study of the BWRX-300</b>                                                                                                                                                                                                |
| 15:00 | Damian Sazon: <b>What Caused the Explosions at Chernobyl? An Overview of Proposed Theories</b>                                                                                                                                                                                                             |
| 15:00 | Nadia Parwaty Wijanarko, Sindu Daniarta, Piotr Kolasiński: <b>Characteristics of a PEG-Based Phase Change Material for Latent Heat Thermal Energy Storage</b>                                                                                                                                              |
| 15:00 | Ewelina Ksepko and Rafał Łysowski: <b>Insights Gained from the “Gepard” Project</b>                                                                                                                                                                                                                        |
| 15:00 | Dawid Wachnicki and Ewelina Ksepko: <b>Studies on the Phase Composition of Selected Hard Coal Ashes by XRD</b>                                                                                                                                                                                             |
| 15:00 | Wiesław Wędrychowicz, Piotr Piechota, Piotr Synowiec, Elżbieta Wróblewska, Artur Andruszkiewicz: <b>Identification of Water-Air Two-Phase Flow Structures Using Ultrasonic Flaw Detection</b>                                                                                                              |
| 16:00 | <b>Closing of Day 1</b>                                                                                                                                                                                                                                                                                    |



| DAY 2                 |                                                                                                                                                                                     |                                                                                                                                                                                               |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tuesday, 23 June 2026 |                                                                                                                                                                                     |                                                                                                                                                                                               |
| SESSION III           |                                                                                                                                                                                     |                                                                                                                                                                                               |
|                       | <b>ROOM 10AC</b><br><b>Block 4: Energy Storage and Thermal Systems</b><br><br>Chair: Artur Nemś, DSc. PhD Eng                                                                       |                                                                                                                                                                                               |
| 09:15                 | Nadia Parwaty Wijanarko, Sindu Daniarta, Piotr Kolasiński, Stefanus Manuel<br><b>Thermal Behavior of a Sand-Based Sensible Heat Thermal Energy Storage System with Helical Coil</b> |                                                                                                                                                                                               |
| 09:30                 | Jakub Polański, Magdalena Nemś, Marcin Michalski<br><b>A Concept for Immersion Cooling of Bifacial Photovoltaic Cells</b>                                                           |                                                                                                                                                                                               |
| 09:45                 | Karolina Matuszewska, Magdalena Nemś<br><b>Analysis of Modern Thermal Management Strategies for Lithium-Ion Batteries</b>                                                           |                                                                                                                                                                                               |
| 10:00                 | Marta Ostrowska, Artur Nemś<br><b>Thermal-Flow Analysis of a Solar Air Heater Absorber Manufactured Entirely by Additive 3D Printing</b>                                            |                                                                                                                                                                                               |
| 10:15                 | Christos Karakostas, Bogusław Bialko<br><b>Design and Construction of High-Temperature Absorption Heat Pumps with Ionic Liquids</b>                                                 |                                                                                                                                                                                               |
| 10:30                 | Coffee Break                                                                                                                                                                        |                                                                                                                                                                                               |
| SESSION IV            |                                                                                                                                                                                     |                                                                                                                                                                                               |
|                       | <b>ROOM 10AC</b><br><b>Block 5: Heat Transfer and Energy Recovery</b><br><br>Chair: Magdalena Nemś, DSc. PhD Eng                                                                    | <b>ROOM 10D</b><br><b>Block 6: Urban Environment and Climate</b><br><br>Chair: Prof. Małgorzata Kabsch-Korbutowicz DSc, PhD, Eng.                                                             |
| 10:45                 | Agnieszka Grabka, Sylwia Szcześniak, Sergey Anisimov<br><b>Heat Transfer in a Counter-Flow Heat Recovery Exchanger</b>                                                              | Wiktoria Adamczyk, Małgorzata Kabsh-Korbutowicz, Weronika Urbańska<br><b>Anthropogenic Metal Deposits – Characterization and Resource Potential of a Post-Mining Waste Dump</b>               |
| 11:00                 | Błażej Baran, Ziemowit Malecha<br><b>Flow and Heat Transfer Analysis of Recuperative Heat Exchangers in Mixed-Refrigerant Joule-Thomson Cryocoolers</b>                             | Dagmara Jaworska, Yaroslav Bezyk, Mirosław Zimnoch, Izabela Sówka<br><b>Comparative Assessment of Biospheric Models for Evaluating Biogenic CO<sub>2</sub> Exchange in Urban Green Spaces</b> |



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|-------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 11:15 | Dominika Kaczmarek-Piąstka, Tomasz Halon, Bartosz Zajczkowski<br><b>Effect of Tube Spacing on Heat Transfer in Tube Bundles</b> | Niranjala A. D. D. Mudiyansele, Magdalena Wrobel, Justyna Rybak<br><b>Urban Road Dust as a Complex Pollutant Matrix</b>                   |
| 11:30 | Krzysztof Dąbrowski, Mikołaj Matuszczak, Demis Pandelidis<br><b>DPD – Dew Point Distillation</b>                                | Zuzanna Prokopowicz<br><b>Estimating Air Change Rates in Residential Buildings in Urban Areas</b>                                         |
| 11:45 | Jakub Holeniszczy, Piotr Kolasiński<br><b>Impact of Ionic Liquid Presence on Piston Expander Efficiency</b>                     | Anna Szczepanowska-Bialek, Sabina Rosiek<br><b>Analysis of an Alternative Cooling System for Reducing Heat Stress in Cattle</b>           |
| 12:00 | Dawid Sowa, Piotr Kolasiński<br><b>Modelling of ORC-TES Systems with Various Storage Materials and Working Fluids</b>           | Karol Nycz, Arkadiusz Świerczok<br><b>Machine Learning-Based Predictive Optimization Framework for Electrostatic Precipitator Control</b> |
| 12:15 | Lunch Break                                                                                                                     |                                                                                                                                           |

## SESSION V

|       | <b>ROOM 10AC</b><br><b>Block 7: Advanced Systems, Modelling, Measurement Techniques, and Optical Diagnostics</b><br><br>Chair: Przemysław Błasiak, PhD Eng.                                          | <b>ROOM 10D</b><br><b>Block 8: Cryogenics and Two-Phase Flows</b><br><br>Chair: Marcin Opalski, PhD Eng.                                                      |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13:15 | Marta Stempniak, Cezary Czajkowski, Gabriela Statkiewicz-Barabach, Sławomir Pietrowicz<br><b>Distributed Temperature Measurement Using a Calibrated Optical Fiber Sensor in Pulsating Heat Pipes</b> | Krzysztof Kuś, Jarosław Poliński, Ziemowit Malecha<br><b>Numerical Modelling of Selected Emergency States in Cryogenic Infrastructure</b>                     |
| 13:30 | Dominik Mazur, Cezary Czajkowski, Sławomir Pietrowicz<br><b>Asymmetrical Flower Shape Oscillating Heat Pipe in Hypergravity Conditions</b>                                                           | Adrian Kwiatkowski, Jarosław Poliński, Zbigniew Rogala<br><b>Experimental and Modeling Analysis of a Precooled Mixed-Refrigerant Joule-Thomson System</b>     |
| 13:45 | Rafał Siemasz, Krzysztof Tomczuk, Tomasz Banaszkiewicz<br><b>Indirect Measurement of Pulse Wave and Aortic Blood Parameters Using a Pneumatic Pressure Sensor</b>                                    | Natalia Mycan, Jarosław Poliński, Ziemowit Malecha<br><b>Pressure Pulsations Observed During the First-of-Series Cold Test of the Super-FRS Pre-Separator</b> |



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|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14:00 | Kalsoom Bano, Vishnu Suresh,<br>Przemysław Janik<br><b>Comparative Evaluation of<br/>Deep-Learning and SARIMA Models<br/>for Short-Term Residential PV Power<br/>Forecasting</b> | Tushar, Zbigniew Rogala, Marek Mysior<br><b>Thermo-Hydraulic Analysis of the<br/>Compression Process of Mixed<br/>Refrigerants</b>                                 |
| 14:15 | Weronika Janowicz, Sławomir Pietrowicz<br><b>The Use of Micro-PIV for the Study of<br/>Gas-Liquid Flows</b>                                                                      | Grzegorz Samborski, Zbigniew Rogala<br><b>Thermal-flow analysis of miniature,<br/>autonomous cooling systems in<br/>terms of energy efficiency<br/>improvement</b> |
| 14:30 | Kamil Kowalski, Przemysław Błasiak,<br>Sławomir Pietrowicz<br><b>Analysis of Flow Structures Using the<br/>PIV Method in a Scraped Surface Heat<br/>Exchanger</b>                | Michał Lepszy, Ziemowit Malecha<br><b>An Experimental Investigation on<br/>the Aerodynamic and Acoustic<br/>Performance of Toroidal Propeller<br/>Geometries</b>   |
| 14:45 | <b>Closing of Day 2</b>                                                                                                                                                          |                                                                                                                                                                    |



| <b>DAY 3</b>                   |                                                                                                                                                           |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wednesday, 24 June 2026</b> |                                                                                                                                                           |
| <b>SESSION VI</b>              |                                                                                                                                                           |
|                                | <b>ROOM 10AC</b><br><b>Block 9: Materials, Biopolymers and Composites</b><br>Chair: Karol Leluk DSc, PhD                                                  |
| 09:00                          | Nazia Parveen, Emilia Rus, Karol Leluk<br><b>Comparative Study of Rigid and Flexible Biopolymers as Modifiers of PE-PP Blends</b>                         |
| 09:15                          | Emilia Rus, Karol Leluk<br><b>Influence of Hemp-Derived Fillers on the Tensile Strength of PBAT-Based Biocomposites</b>                                   |
| 09:30                          | Wiktoria Lada-Kasznia, Tomasz Halon, Bartosz Zajęzkowski<br><b>Vaporization Dynamics of Isopropyl Alcohol Droplets on Heated Metallic Substrates</b>      |
| 09:45                          | Anna Piwowar, Przemysław Jaszak, Marcin Bieganski<br><b>Effect of Sealing Surface Microgeometry on Leakage and Contact Conditions in Static Seals</b>     |
| 10:00                          | <b>Coffee Break</b>                                                                                                                                       |
| <b>SESSION VII</b>             |                                                                                                                                                           |
|                                | <b>ROOM 10AC</b><br><b>Block 10: Flow Machines and Technical Diagnostics</b><br>Chair: Cezary Czajkowski, PhD Eng.                                        |
| 10:30                          | Anna Chernobrova, Ewelina Gryfik<br><b>Influence of Different Volute Casing Designs on Double-Entry Pump and PAT Energy Characteristics</b>               |
| 10:45                          | Szymon Lech, Piotr Kolasiński, Cezary Czajkowski<br><b>Experimental Investigation of Frictional Heat Generation in a Multi-Vane Machine</b>               |
| 11:00                          | Tomasz Duraziński, Andrzej I. Nowak, Sławomir Pietrowicz<br><b>Experimental Investigation of Liquid Film Thickness in Two-Phase Flow in Microchannels</b> |
| 11:15                          | Tymoteusz Michas<br><b>Thermography in Non-Destructive Testing for the Nuclear Industry</b>                                                               |



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| <b>ROOM 10AC</b><br><b>CLOSING CEREMONY</b> |                                              |
|---------------------------------------------|----------------------------------------------|
| 11:30                                       | Announcement of the Best Presentation Awards |
| 12:55                                       | Closing Remarks and Acknowledgements         |
| 12:15                                       | <b>Official Closing</b>                      |