



4th INTERNATIONAL SCIENTIFIC CONFERENCE ON ECOLOGICAL AND ENVIRONMENTAL ENGINEERING



14-17 May 2024
Beja, PORTUGAL

<https://coee.urk.edu.pl>

Conference Program

CONFERENCE PROGRAMME

May 14, 2024 - Tuesday

17.00 – 19.00 Early registration of participants (Beja Park Hotel)

19.00 – 21.00 Welcome drink (Beja Park Hotel)

May 15, 2024 - Wednesday

08.00 – 09.00 Registration of participants (Presidency Building)

09.00 – 09.30 Opening of the conference (Presidency Auditorium)

- **Maria de Fátima Carvalho**, President of the Polytechnic University of Beja (in confirmation)
- **Maria João Carvalho**, Director of School of Agriculture, Polytechnic University of Beja
- **Adelaide Almeida**, President of the Organizing Committee, Polytechnic University of Beja
- **Krzysztof Józwiakowski**, President of the Scientific Committee, University of Life Sciences in Lublin, Poland
- **Magdalena Gajewska**, Gdańsk University of Technology, Poland

09.30 – 10.30 Plenary session (Presidency Auditorium)

Chair: Anabela Durão; Magdalena Gajewska

Environmental aspects of water and wastewater management in food production and food service activities.

- **Wojciech Janczukowicz**, University of Warmia and Mazury in Olsztyn, Poland

Biogas Solutions in overcoming the energy and climate crisis in EU and Ukraine.

- **Iryna Vaskina**, Poznań University of Life Sciences, Poland | Sumy State University, Ukraine

10.30 – 11.00 Coffee break + Poster Session

Chair: Flávia Silva; Patrycja Pochwatka

11.00 – 12.30

Parallel sessions:

I – Water and wastewater management (Presidency Auditorium)

Chair: Renata Ferreira; Anna Szymczak-Graczyk

1. **J. Czajkowska**, A. Knap-Bałdyga, M. Żubrowska-Sudoł. The influence of coagulation on the fertilizing properties of treated wastewater.
2. A. Marzo, **S. Barresi**, V. Scavera, F. Licciardello, A. Trovato, M. Milani, G.L. Cirelli. Nature-Based Solutions for urban wastewater treatment and agricultural reuse in Mediterranean region: the case study of Scicli (Sicily, Italy).
3. M. Szewczyk, M. Wiatkowski, **P. Tomczyk**. Assessment of the state of use of selected reservoirs intended to supply drinking water to the population in the Lower Silesian Voivodeship (Poland).
4. **J. Garcia**. Full-scale Nature-Based Solutions for water reuse.
5. A. Grzywna, J. Grabić, **M. Różańska-Boczula**. Modification of water quality index based on principal component analysis and its impact on the assessment of drinking water quality in the Danube River, Serbia.

II – Waste management and circular economy (Education School Auditorium)

Chair: Humberto Chaves; Krzysztof Czerwionka

1. **J. Dzieciół, O. Szlachetka**. Comprehensive analysis of expanded perlite as a sustainable building material.
2. **A. Pardal**, A. Katengue, I. Casotti-Rienda. Challenges in bio-waste management in Portugal.
3. **A. Wilinska-Lisowska**, D. Muchowska, K. Czerwionka. Co-fermentation of flotate from the dairy industry with sewage sludge.
4. **W. Bojarski**, W. Czekala, M. Nowak, M. Bełka, J. Dach, P. Pochwatka. The influence of *Trichoderma* fungi on the composting process of logging residues.

	5. K. Paweška , Sz.Kilian, E. Burszta-Adamiak. The possibilities of greywater management in single-Family building.
12.30 – 14.00	Lunch
14.00 – 15.30	<p>Plenary session (<u>Presidency Auditorium</u>)</p> <p><u>Chair</u>: Adelaide Almeida; Klaudia Borowiak</p> <p>Innovative approaches vision to achieve circular economy in waste management to promote effective strategies in (un)certain future.</p> <ul style="list-style-type: none"> - Elizabeth Duarte, University of Lisbon, Portugal <p>Mitigation of air pollution from animal farming systems: What methodological challenges for research?</p> <ul style="list-style-type: none"> - Mélynda Hassouna, National Research Institute for Agriculture, Food and the Environment, France <p>The modern era of Ecological Engineering: examples and case studies of circular wastewater management</p> <ul style="list-style-type: none"> - Alexandros Stefanakis, Technical University of Crete, Greece
15.30 – 16.30	<p>Coffee break + Poster Session</p> <p><u>Chair</u>: Júnia Alves; Tomasz Tymiński</p>
16.30 – 18.00	<p>Parallel sessions:</p> <p><i>I – Water and wastewater management (Presidency Auditorium)</i></p> <p><u>Chair</u>: Guiseppe Cirelli; Petros Gikas</p> <ol style="list-style-type: none"> 1. A. Almeida, N. Camará, C. Ribeiro, A. Afonso, A. Lopes, A. Fernandes, F. Carvalho, R.A. Ferreira. Olive mill wastewater treated by phytoremediation with two different substrates: Olive stone and LECA®. 2. A. Afonso, R.A. Ferreira, F. Carvalho, C. Ribeiro, A. Fernandes, A. Lopes, A. Almeida. Phytoremediation potential for final tuning of pre-treated cheese whey wastewater. 3. T. Grabowski, A. Bochniak, T. Siwec, K. Józwiakowski. Efficiency of the Pollutant Removal in the Rainwater Treatment Installation in the Roztocze National Park (Poland). 4. A. Baía, A.I. Arroyo-Escoto, N. Ramos, M.C. Fernandes, A. Lopes, A. Fernandes. Microbial resistance to winery wastewaters growth inhibitors aiming extracellular electron transfer enhancement. 5. M. Kasprzyk, M. Gajewska. Analysis of nutrient removal from a hybrid treatment wetland with a polishing treatment using reactive materials. <p><i>II – Air Pollution and Climate Change (Education School Auditorium)</i></p> <p><u>Chair</u>: Teresa Carvalhos; Małgorzata Biniak-Pieróg</p> <ol style="list-style-type: none"> 1. W. Kosek. Several-year oscillations in the Earth's climate changes indices. 2. M. Kasprzyk, G. Gałęzowska, M. Gajewska. Treatment capacity and ecosystem service provided by rain gardens for precipitation in urban areas. 3. M. Tomé. Air quality modelling over tens of kilometers: Estimating concentrations across multiple orders of magnitude with Computational Fluid Dynamics (CFD) and Gaussian model. 4. A. Kubik-Komar, K. Piotrowska-Weryszko, I. Kuna-Broniowska, E. Weryszko-Chmielewska, B. Michał Kaszewski. Changes in the start of birch pollen seasons due to meteorological factors. 5. K. Ramm. Risk analysis in water recovery and reuse for local, urban purposes - case study for Poland
20.00	Gala dinner
May 16, 2024 - Thursday	
09.00 – 10.30	Parallel sessions:

	<p><i>I – Water and wastewater management</i> (<u>Presidency Auditorium</u>)</p> <p><u>Chair:</u> Mário Tomé; Katarzyna Pawęska)</p> <ol style="list-style-type: none"> 1. <u>L. Cesoniene</u>, D. Sileikiene. The influence of intensive and organic agriculture activity on the quality of ground and surface water. 2. <u>A.M.T. Mata</u>, D. Galhanas, P. Chainho, N. Borges, R. Salgado. Organic matter evaluation in sea waters: COD alternative method development. 3. <u>D. Galhanas</u>, A.M.T. Mata, N. Borges, M. Simões, M.M. Silva, R. Salgado. Effect of oyster pseudofaeces on water and oyster quality during the cultivation process. 4. <u>R.A. Ferreira</u>, F.M.O. Silva, J.M.R. Tavares, K. Migdał, A. Almeida. Ibuprofen removal by a vertical flow constructed wetland planted with <i>Vetiveria zizanioides</i>. 5. <u>C.G. Carneiro</u>, F.H. de Souza, A.L.B. Buck, E. Borga, M.L. Sens, J.M.R. Tavares. Advancements in water treatment systems for remote locations: Case study applied to rural regions in the South of Brazil. <p><i>II – Renewable Energy and Carbon Footprint</i> (<u>Education School Auditorium</u>)</p> <p><u>Chair:</u> Ana Pardal; Jacek Dach</p> <ol style="list-style-type: none"> 1. A. Manali, K. Tsamoutsoglou, <u>P. Gikas</u>. Utilization of microsieved biosolids for the production of electric energy through gasification. 2. <u>P. Ferreira</u>, A.C. Braga. Exploring wind and solar power complementarity in Portugal. 3. D. Serrão, J.F. Sousa, <u>A. Durão</u>. A Contribution to the decarbonization resulting from the public road transport system. 4. <u>M. Nowak</u>, W. Czekala, W. Bojarski. Economic and energy efficiency analysis of the biogas plant digestate management methods.
10.30 – 11.30	<p>Coffee break + Poster Session</p> <p><u>Chair:</u> Albertina Raposo; Magda Kasprzyk</p>
11.30 – 13.00	<p>Parallel sessions:</p> <p><i>I – Waste Management and Circular Economy</i> (<u>Presidency Auditorium</u>)</p> <p><u>Chair:</u> Jorge M R Tavares; Monika Żubrowska-Sudoł</p> <ol style="list-style-type: none"> 1. <u>J. Diatta</u>, K. Otremba, S. Jurczyński, E. Bieniara, M. Piwecki, J. Komisarek (Late), K. Wiatrowska. Regreening trials and carbon sequestration of bottom ash dumping site – scaling the efficiency of soil substitute. 2. <u>A. Gholipour</u>, R. Fragoso, A. Galvão, E. Duarte. Can worms enhance the efficiency of sludge treatment reed beds in a Mediterranean climate? 3. <u>K. Lejcuś</u>, D. Marczak, J. Misiewicz, M. Śpitalniak. Turning waste into soil additives – case of biodegradable water absorbing geocomposite (BioWAG). 4. <u>P. Esperanço</u>, A. Costa, S. Barbosa, V. Oliveira, C. Rodrigues. Application of calcium oxide and dregs to swine wastewater 5. <u>I. Silva</u>, N. Lapa, H. Ribeiro, E. Duarte. Bioreactor feeding strategies to improve biogas production and pig slurry management flexibility. <p><i>II – Geoinformation and Remote Sensing</i> (<u>Education School Auditorium</u>)</p> <p><u>Chair:</u> Elsa Rodrigues; Andrzej Bochniak</p> <ol style="list-style-type: none"> 1. <u>F.M.O. Silva</u>, Z. J. Campos, U. Fofana, T. Borralho, N. S. A. Pereira. Satellite remote sensing for environmental analysis: the use of Sentinel Missions 5P and 2A/B in Alentejo Region. 2. <u>J.A. Kamińska</u>, J.K. Kazak. Mobility patterns around the world - long-term analyses. 3. <u>V. Bytyqi</u>. Artificial surface and rivers – A GIS analysis from Kosovo. 4. <u>B. Warzecha</u>, J. Dudek-Klimiuk. Climate change related threats versus adaptation strategy. Case study from Sweden.
13.00 – 14.00	<p>Lunch + Network meetings</p>
14.15 – 17.00	<p>Technical visit 1 - Water Treatment and Wastewater Treatment Plants – Águas do Alentejo, Beja (Maximum number of registrations: 40)</p> <p>Technical visit 2 - Herdade da Figueirinha (Sustainable wine and olive oil production)</p>

17.15 – 20.00	City tour – Beja / Free night (<u>Municipal Theatre Pax Julia - city centre</u>)
May 17, 2024 - Friday	
09.00 – 09.30	<p>Plenary session</p> <p><u>Chair</u>: Patricia Palma; Krzysztof Józwiakowski</p> <p>Microplastics in terrestrial and aquatic environments: Green analytical protocols, vectors of pharmaceuticals and risk to biota.</p> <ul style="list-style-type: none"> - Damià Barceló Cullerès, Institute of Environmental Assessment and Water Research, Spain
09.30 – 11.00	<p>Parallel sessions:</p> <p><i>I – Risk Assessment and Environmental Toxicology</i> (<u>Presidency Auditorium</u>)</p> <p><u>Chair</u>: Matilde Moreira Santos; Piotr Bugajski</p> <ol style="list-style-type: none"> 1. A. Catarino, I. Martins, C. Mourinha, P. Anastácio, P. Palma. Ecotoxicological tools used to improve the ecological assessment of a reservoir in a hydro-agricultural area. 2. S. Afonso, J. Nogueira, C. Cavaleiro, F.M.L. Ferreira, M. Moreira-Santos. Ecotoxicity of <i>Thymus mastichina</i> and <i>Helichrysum italicum</i> essential oils: comparative lethal toxicity to non-target aquatic invertebrates. 3. G. Galezowska, M. Kasprzyk, K. Kolecka, M. Gajewska. A novel approach to environmental risk assessment: a case study on the distribution of PFAS in wastewater treatment plants. 4. P. Esperanco, V. Oliveira, C. Rodrigues, A.L. Amaral. <i>Daphnia</i> spp. inhibition in clarifiers of urban wastewater plants using sodium hypochlorite. 5. J. Jaskuła, T. Dysarz, M. Sojka, J. Wicher-Dysarz, T. Agaj, A. Cakaj, M. Siepak. Spatial distribution and risk assessment of heavy metals contamination in the Stare Miasto reservoir with two-stage construction. <p><i>II – Environmental Engineering 4.0</i> (<u>Education School Auditorium</u>)</p> <p><u>Chair</u>: Ana Mata; Joan Garcia</p> <ol style="list-style-type: none"> 1. T. Filewood, A.J. Rea, G. Kaur, A. Hadley, G.R. Agnes, B.D. Gates. Investigation of zeolite zyntheses for tunable pore size filters. 2. L. Sciuto, A. Cristaudo, V. Scavera, F. Licciardello, S. Barbagallo, A. Marzo, G.L. Cirelli. Nature-Based Solutions for the ecological restoration in Mediterranean climate: the case study of the Alcantara river (Sicily, Italy). 3. U. Bronowicka-Mielniczuk, J. Mielniczuk, P. Skowron, B. Jurga. Imputation Methods for Addressing Missing Data in Long-Term Groundwater Monitoring 4. J.M.R. Tavares, J.C. Lopes, J. Bento, E.A. Mabécula, P. Belli Filho, A. Coldebella, P.A.V. de Oliveira. Mathematical models to estimate water consumption in different pig production systems at Minas Gerais, Brazil: A pathway to smart future in livestock sector.
11.00 – 11.30	<p>Coffee break + Poster Session</p> <p><u>Chair</u>: Carla Rodrigues; Grazyna Galezowska</p>
11.30 – 12.15	Reward ceremony and closing remarks

POSTER SESSION

1. Water and wastewater management

1. L. Osmanaj, **V. Krasniqi**, L. Kusari, V. Hajdari. Establishing a groundwater quality and quantity monitoring system as a prerequisite for the determination of protection zones in Lipjan, Kosovo.
2. F. Ahmedi, **P. Thaqi**, D. Begaj. Behavior of sewage systems in the city of Vitia, Kosovo - Causes of pluvial flooding and mitigation scenarios using nature-based solutions.
3. **L.R.D. Mendes**, D. Morgan, S. Regan, F. Renou-Wilson. Treatment of effluents from degraded peatland catchments by pipe-encased biochar.
4. **I.S. Pitropova**, J. Vollertsen, T. R. Andersen, D. A. Søbørg, S. Storm, K. Aggerlund, T. E. Raabjerg. Crushed concrete – a sustainable medium for phosphorus retention from stormwater runoff. A column study.
5. **K. Migdał**, K. Józwiakowski, W. Czekala, P. Śliz, J. Tavares, A. Almeida. Application of the Monte-Carlo method to assess the operational reliability of a household-constructed wetland with vertical flow.
6. **A. Mielcarek**, J. Rodziejewicz, K. Kłobukowska, W. Janczukowicz. Influence of the flotation process on the quality of the wastewater fed into the biological part of the dairy's wastewater treatment plant.
7. **W. Janczukowicz**, J. Rodziejewicz, A. Mielcarek, K. Kłobukowska. The quality of sludge from a dairy wastewater treatment plant with activated sludge technology.
8. **P. Bugajski**, M. Litwin, K. Józwiakowska, T. Grabowski. The influence of hydraulic load and thermal conditions on the efficiency of operation of a hybrid wetlands treatment plant - a case study.
9. J. Correia, A. Almeida, A. Durão, A. Pardal, **T. Borralho**. Mediterranean running water with characteristics of acid mining drainage (AMD) treated by floating beds.
10. **E. Burszta-Adamiak**, M. Biniak-Pieróg, G. Chrobak. Rain gardens reimaged: a computational approach to urban water retention and infiltration.
11. **M. Biniak-Pieróg**, M. Szymura, E. Burszta-Adamiak, P.D.C. Perera. The effect of rainfall and thermal conditions on vegetation changes in a rain garden - lessons learned from Polish case study.
12. **A. Stec**, D. Słyś. An assessment of the possibility of using rainwater in rest area facilities.
13. **N. Mahmudova**, M. Julinová. The morphology and the structure of keratin-based hydrogels.
14. K. Silvério, A. Catarino, M. Oliveira, M. Santos, I. Rehan, F. Carvalho, **P. Palma**, A. Almeida. Treatment efficiency of urban wastewater by chemical precipitation process.
15. **A. Karczmarczyk**, A. Bus, A. Baryła. Vertical mineral filters for upgrading efficiency of on-site wastewater treatment plant.
16. L. Osmanaj, **A. Berisha**, A. Buçinca. Water abstraction by sources and economic sectors in Kosovo.
17. **D. Galhanas**, V. Gandra, R.S. Ribeiro, P. Chainho, A.M.T. Mata, R. Salgado. Impact assessment of aquaculture activities on water quality.
18. **P. Esperanço**, V. Oliveira, R.P.R. Costa, C. Rodrigues. Comparison of physicochemical and combined strategies for swine wastewater treatment.
19. **I. Gomes**, A. Fernandes, C. Afonso, L. Ciriaco, M.J. Pacheco, C. Rodrigues, A. Lopes. Treatment of livestock effluents by electrochemical oxidation.
20. B. Zawadzka, **T. Siwiec**, L. Reczek, M. Marzec. Sorption of phosphates on Rockfos® materials in low temperature conditions.
21. **R.A. Ferreira**, A. Afonso, C. Ribeiro, A. Almeida. Assessment of the phytoremediation potential on the removal of phenolic compounds from olive mill wastewater.
22. **J. Rodziejewicz**, A. Mielcarek, K. Kłobukowska, W. Janczukowicz. Quantitative and qualitative characteristics of dairy wastewater depending on the production profile and the amount of raw material processed.
23. **P. Śliz**. The influence of selected factors on the efficiency of wastewater treatment in the MBBR reactor model.
24. L. Madeira, **F. Carvalho**, A. Almeida, M. Ribau Teixeira. New strategies for neutralizing high alkaline wastewater by capturing atmospheric CO₂.

2. Renewable Energy and Carbon Footprint

1. M. Pitula, **A. Kowalczyk-Juśko**. Influence of co-substrates selection for anaerobic digestion on fertilizing quality of digestate.
2. **A. Operacz**, A. Zachora-Buławska, Z. Gonek, B. Tomaszewska, B. Bielec, T. Operacz, J. Bundschuh. Evaluation of the stability of geothermal water parameters as a major factor guaranteeing the possibility of its use and discharge into the environment: case study from Southern Poland, Europe.
3. **P. Pochwatka**. Modelling of the influence of physical and chemical parameters on methane yield during mesophilic and thermophilic anaerobic digestion process.
4. **K. Borowiak**, M. Lisiak-Zielińska, A. Budka. Perception of renewable energy sources in the agricultural landscape - a case study.
5. **R. Fragoso**, J. Bastos, P. Brito, O. Moreira, E. Duarte. RE-FEED - Renewable Energy production at Farm level for Energy Efficiency and Defossilization.

3. Waste Management and Circular Economy

1. **A. Pardal**, S. Monteiro. Assessment of the PAYT system in the city of Moura- Portugal.
2. **J. Walczak**, M. Żubrowska-Sudoł. Destruction of extracellular polymeric substances by using hydrodynamic disintegration of sewage sludge.
3. **A. Bus**, A. Karczmarczyk, A. Baryła. Thermally-modified eggshell as a phosphorus biosorbent. A circular economy approaches.
4. **O. Hanoshenko**, M. Huber-Humer. The problem of construction waste generated as a result of military actions in Ukraine.
5. A. Mendes, J. Comin, V. Júnior, **T. Borralho**. Study of the effect of swine manure and compound on soils carbon content.
6. **A. Estrelo**, J. Sobreiro, P. Palma, I. Guerreiro, I. Patanita, C. Sempiterno, C. Neto. Physiological and development response to different rates of organic compost in lettuces grown in unfavorable soil conditions.
7. C. Neto, J. Sobreiro, A. Tomaz, **P. Palma**. Short-term soil nitrogen-phosphorous-potassium balance of two-years crop succession, under different irrigated crop management systems.
8. **E. Kulbat**, A.B. Bayu. Agricultural waste as source of nutrients: a part of circular economy.
9. O. K. Roubinek, **A. Wilinska-Lisowska**, M. Jasińska, A. G.Chmielewski, K. Czerwionka. Mono-fermentation of distillery stock, corn silage and cattle manure in a hydromixed bioreactor.
10. **I. Vaskina**, M. Cieslik, R. Vaskin, J. Dach, L. Plyatsuk, D. Hopkalo, M. Skydanenko. Prospects of biogas production from sunflower residues as the regional substrate (case of Ukraine).
11. **A. Afonso**, Teresa Santos, R.A. Ferreira, F. Carvalho, A. Fernandes, A. Lopes, A. Almeida. Valorisation of treated olive mill wastewater products after immediate one-step lime precipitation.
12. **A. Almeida**, M. Oliveira, A. Afonso, I. Lopes, R.A. Ferreira, C. Ribeiro, A. Fernandes, A. Lopes, F. Carvalho. Evaluation of biofertilizer produced from sludge from treated cheese wastewater in olive culture.
13. A. Macedo, C. Ribeiro, R. Fragoso, V. Alves, **E. Duarte**. Membrane separation processes for recovering fruit biowastes.
14. **L. Stasiak-Różańska**, J. Płoska, M. Garbowska, A. Berthold-Pluta. Agri-food waste as substrates for obtaining bacterial cellulose.
15. **V. Oliveira**, E. Rodrigues, F. Miguens, R.L. Pato, M. Arrobas, M.A. Rodrigues, D. Santos. Transforming water hyacinth waste into fertilizer.

4. Air Pollution and Climate Change

1. **F.M.O. Silva**, C. Silva, T. Borralho. Contribution to the study of the impact of agricultural exploitation on ammonia levels, into atmosphere.
2. **A. Budka**, M. Lisiak-Zielińska, K. Borowiak. Relationships between meteorological conditions and the level of air pollution in Poznań in the years 2012-2022.
3. **M. Tomé**, A. Curado, L. Nunes, J. Abrantes, E Gomes, A. Carvalho. Asbestos in construction materials: Still an occupational and air quality problem in Europe after decades of its prohibition.
4. **A. Durão**, T. Carvalhos, M. Silveira, L. Soares, N. Loureiro, A. Healthy Campus: A contribution to the well-being of the academic community.

5. Risk Assessment and Environmental Toxicology

1. I. Abreu dos Santos, **A. Raposo**. Risk assessment and empowerment of communities towards disaster resilience.
2. **A. Catarino**, I. Martins, C. Mourinha, P. Anastácio, P. Palma. Effect of neonicotinoid imidacloprid on the reproduction of crustacean *Daphnia magna*.
3. **J. Alves-Ferreira**, A. Catarino, I. Martins, C. Mourinha, A. Tomaz, J. das Dores, M. Patanita, P. Palma. Quantification of pesticides in agricultural soils of an irrigated area of Alentejo region (Southern of Portugal).
4. **M. Lisiak-Zielińska**, K. Borowiak, A. Budka, A. Cakaj, A. Hanć. Rare earth element content in relation to land use and landscape pattern - a case study from Poland.
5. **S. Afonso**, A. Estevam, P. Rodrigues, M. Alfaiate, I. Lehmann, M.M. Melosini, L. Guimarães, M. Cristo, R. Ribeiro, J. Ramalho-Santos, S. Santos, **M. Moreira- Santos**. Aquatic toxicity data of terpenes with virucidal activity for SARS-CoV-2.
6. **E. Janicka**, J. Kanclerz, P.T. Agaj. Ecological importance of alkaline phosphatase activity and acid phosphatase activity in lake with different catchment use structures.
7. G. Sokołowska, **A. Jabłońska-Trypuć**, M. Naumowicz, U. Wydro, E. Wołojko, R. Krętowski, M. Cechowska-Pasko, J.E. Mozo. Protective effect of berberine on fungicide-induced injury in human colon fibroblasts and skin fibroblasts.

6. Geoinformation and Remote Sensing

1. V. Krasniqi, **A. Rapuca**. Impact assessment of urban development patterns on land surface temperature and urban heat islands by using remote sensing techniques: a case study of Prishtina, Kosovo.

7. Environmental Engineering 4.0

1. **T. Agaj**, A. Budka, E. Janickz, V. Bytyqi. Using ARIMA and ETS models for forecasting water level changes for sustainable environmental management.
2. **J. Kubicz**, J. Kajewska-Szkudlarek. Characteristics of measurement point and meteorological parameters in hydrogeological drought modelling with regression tree algorithms.
3. **M. Połomski**, M. Wiatkowski. Assessment of the local impact of retention reservoirs - a case study of an existing and planned facility.
4. **K. Józwiakowski**, A. Malik, A. Listosz, M. Marzec, A. Micek, M. Gizińska-Górna, A. Pytka-Woszczyło, A. Myka-Raduj, M. Gajewska. New generation turtle shape hybrid constructed wetland wastewater treatment plant in Polesie National Park, Poland.
5. **M. Hämmerling**, T. Kałuża, T. Tymiński. Use of Multi-Criteria Decision Support Methods for the Selection of the Type of Fish Passage on Lowland River.
6. **S. Zaborowski**, T. Kałuża, P. Strzeliński, M. Hämmerling. Influence of beaver activity on natural retention in lowland river catchment.
7. **T. Tymiński**, T. Kałuża, M. Hämmerling. Laboratory tests of drag force for flexible plants in the riverbed.
8. **T. Tymiński**. Experimental studies of water damming when flowing through the plant zone in the riverbed.
9. **A. Szymczak-Graczyk**, G. Gajewska, B. Ksit, I. Laks, W. Kostrzewski, M. Urbaniak, T. Pawlak. Implementation of experimental results of the influence of humidity on the changes in the thermal conductivity coefficient and the year-round actual temperature distribution for a perlite concrete vertical partition.
10. **A. Zachora-Buławska**. Connecting business and sustainability development goals in geothermal investments in Poland.

CONTACT

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