Name and surname	**Krzysztof Lejcuś**
Academic Degree	dr hab. (DSc.)
Institute/Department	Institute of Environmental Engineering
e-mail address	krzysztof.lejcus@upwr.edu.pl
ORCID	orcid.org/0000-0001-5440-9854
UPWr Base of Knowledge - link	https://bazawiedzy.upwr.edu.pl/info.seam?id=UPWrd66ea4caf32645989ce400bf2981f03b&affil=&lang=pl
Researchgate	https://www.researchgate.net/profile/Krzysztof-Lejcus
Personal website / Working group website	
Participation in projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca))	1. 2022 - 2026. Symbiotic, circular bioremediation systems and biotechnology solutions for improved environmental, economic and social sustainability in pollution control. Horizon Europe. Task leader. 2. 2017-2021. "Hydrobox2.0 - an innovative technology supporting water saving and plant vegetation". Measure 4.1 "Research and development work", Sub-measure 4.1.4 "Application projects" Project no. POIR.04.01.04-00-0061. Project manager. http://hb2.upwr.edu.pl/ 3. 2020 - present Project manager on the part of UPWr in the project "Adaptation and implementation of an innovative water treatment technology in a closed irrigation system with the use of biological protection agents and biostimulators on the example of large-fruited cranberry". Rural Development Program 2014 - 2020, Measure "Cooperation" - "Supporting innovation, cooperation and development of the knowledge base in rural areas." https://ec.europa.eu/eip/agriculture/en/find-connect/projects/dostosowanie-i-wdro%C5%BCenie-innowacyjna-technologii 4. 2021 - Contractor in the project "Innovation Incubator 4.0" - a program of the Minister of Education and Science implemented by the European Regional Development Fund under the non-competitive project entitled "Support for the management of scientific research and commercialization of R&D results in research units and enterprises". Measure 4.4 Intelligent Development Operational Program 2014-2020. 5. 2020 - now. The contractor in the project "Innovative technology for the production of plug plant and long cane berry seedlings with a high productivity factor on the example of raspberry and thornless blackberry" (contract No. 00032.DDD.6509.00013.2019.07), under Measure 16 "Cooperation" of the Rural Development Program 2014-2020 ". 6. 2019. Member of the Program Council. BioSciUniversity. "Strategy of Excellence - Research University", UPWr. 7. 2009-2014. Coordinator of the project "Water-absorbing geocomposites - innovative technologies supporting plant vegetation (GEOSAP)", European Regional Development Funds under the Operational Program Innovative Economy 2007-2013. www.geosap.up.wroc.pl
Do you plan to engage support of second supervisor or auxiliary supervisor?	YES
	Auxiliary supervisor
Name and surname	Wiesław Fiałkiewicz
Academic Degree	dr inż. (Dr. Eng.)
Faculty, Institute/Department	Institute of Environmental Engineering
e-mail address	wieslaw.fialkiewicz@upwr.edu.pl
ORCID	orcid.org/0000-0002-2517-5064
UPWr Base of Knowledge - link or most important publications from last 3 year (JCR) / patents from last 3 years (maximum 5)	https://bazawiedzy.upwr.edu.pl/info.seam?affil=&ps=20&id=UPWr34829da2537f425abb050999f1beff22&lang=en&pn=1&cid=1896973
Researchgate	https://www.researchgate.net/profile/Wieslaw-Fialkiewicz
Personal website / Working group website	
Projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca))	2022-2026 Leader of the Polish team in the international consortium carrying out the project under the Horizon Europe Framework Programme: SYMBIOREM - Symbiotic, circular bioremediation systems and biotechnology solutions for improved environmental, economic and social sustainability in pollution control (No 101060361) 2020-2024 Leader of the Polish team in the international consortium carrying out the project within the framework of the European Union's Horizon 2020 research and innovation programme: WATERAGRI - Water retention and nutrient recycling in soils and streams for improved agricultural production (No. 858375) 2020-2023 Participant of a project funded by the National Centre for Research and Development through the international joint initiative EIG CONCERT-Japan: SMART-WaterDomain - Framework for Organizational Decision-Making Process in Water Reuse for Smart Cities (No. EIG CONCERT- Japan/2/2020) 2018-2020 Participant of a project under the Infrastructure and Environment Operational Programme 2014-2020: WATER FOOTPRINT OF CITIES – Water Footprint as a tool for education, integration and taking initiatives to protect water resources in cities (Nr POIS.02.04.00-00-0077/16-00) 2018 Participant of a project implemented through the EIT Climate-KIC programme: CHASE - Citizens' behaviour patterns for smart utilities and service management (No. TC2018A_2.1.3-CHASE_P127-1A)
PhD topic	**Sustainable technology of phytoextraction of metals from soils with the use of water absorbing geocomposites**
Research discipline in Doctoral School	Environmental Engineering, Mining and Energy

Short description of the research problem to be solved in the PhD (minimum 1000 characters)	Soil contamination with metals is a global problem, especially in brownfields. One of the methods of soil remadition is phytoextraction. The effectiveness of this method is often limited by the lack of water and nutrients necessary for the growing of plants that participate in the phytoextraction process. The aim of the work is to develop a new technology of phytoextraction of metals from soil with the use of water absorbing geocomposites (WAG) based on sustainable methods and materials. WAG is a patented in the EU and commercialized technology of supporting plant vegetation by retaining water in the soil in a form available to plants. The biodegradable geocomposites also provide nutrients necessary for plants. Thanks to the use of WAG, plants grow faster and are more resistant to water shortages and drought. In order to increase the efficiency of the phytoextraction process, it is planned to use a properly selected set of soil microorganisms. Laboratory, field and model tests for the transport of pollutants in the aeration zone are planned.
Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters)	Education in environmental engineering/protection or related. Knowledge in the field of soil reclamation and remediation, in particular phytorextraction. Readiness for laboratory and field work especially with soils. Knowledge of English at a minimum level of B2 or appropriate. High self-discipline, willingness to work both individually and in a team. Experience in laboratory and field work is welcome. An additional advantage will be having at least one scientific article with an IF impact indicator.
Details of the project to support PhD research	
a) Project title	SYMBIOREM - Symbiotic, circular bioremediation systems and biotechnology solutions for improved environmental, economic and social sustainability in pollution control
b) Agreement number	Topic: HORIZON-CL6-2021-ZEROPOLLUTION-01-10. Type of Action: HORIZON-RIA Proposal number: 101060361. Environmental services: improved bioremediation and revitalization strategies for soil, sediments and water. Project granted, agreement not signed yet.
c) Number of months in the project to support PhD (in months; starting from 1st of October 2022)	33
d) Project website	