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Academic Degree dr inż. (Dr. Eng.) Institute/Department Institute of Environmental Engineering -mail address wieslaw.fialkiewicz@upwr.edu.pl ORCID UPWr Base of Knowledge - link or most important publications from last 3 year (JCR) / patents from last 3 year (Maximum 5) Researchgate https://bazawiedzy.upwr.edu.pl/info.seam?affil=&ps=20&id=UPWr34829da2537f425abb050999f1beff22⟨=en&pn -ts.cid=1896973	Name and surname	
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	PhD topic	1
	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	