

Candidate supervisor's information summary form
maximum 2 pages – it should be a summary of most important achievements

Name and surname, degree, title: dr hab. inż. Agnieszka Karczmarczyk, prof. SGGW	
Scientific discipline/ disciplines	Environmental engineering, mining and energy
Professional development (degrees and titles) in chronological order	<p>November 19, 2003 - obtaining a doctoral degree in agricultural sciences in the field of environmental management. Faculty of Engineering and Environmental Management, Warsaw University of Life Sciences</p> <p>July 4, 2018 - obtaining the habilitation degree in technical sciences in the field of environmental engineering. Faculty of Civil and Environmental Engineering, Gdańsk University of Technology</p>
Most important publications/ patents in the last 3 years (maximum 10)	<p>Baryła, A., Karczmarczyk, A., Bus, A., & Sas, W. (2023). Water retention and runoff quality of a wildflower meadow green roof with different drainage layers. <i>Ecohydrology & Hydrobiology</i>, 1–10. https://doi.org/10.1016/j.ecohyd.2023.11.008</p> <p>Bus, A., Karczmarczyk, A., & Baryła, A. (2023). Nature-based solutions enhanced by reactive materials for the protection of urban water bodies. <i>Desalination and Water Treatment</i>, 281, 70–77. https://doi.org/10.5004/dwt.2023.28859</p> <p>Karczmarczyk, A., Baryła, A., Szejba, D., Miechowicz, B., Amroziński, R., & Ciuraj, M. (2023). Quantitative, Qualitative and Thermal Aspects of Rainwater Retention on Wetland Roofs. <i>Sustainability</i>, 15, 1–14. https://doi.org/10.3390/su152216018</p> <p>Karczmarczyk A, Bus A, Baryła A. Forms of phosphorus bound to reactive material – results from a flow-through experiment with the focus on P reuse. <i>DESALINATION WATER Treat.</i> 2022;258:261–5.</p> <p>Full list available at https://bw.sggw.edu.pl</p>
Experience in work with doctoral students (defended doctoral dissertations, initiated doctoral programmes/procedures) in chronological order	
Project/grants achievements (in the last 10 years)	<p>Reducing Emissions by Turning Nutrients and Carbon into Benefits (RETURN). 1.12.2017 - 30.06.2018. EU Science for a Better Future of the Baltic Sea Region (BONUS)</p> <p>Testing the leachate from extensive green roofs in terms of the amount of water and phosphate content. 25.07. 2016 – 30.06.2018. Implemented under the cooperation agreement 1 / KKŚ / 2016</p> <p>Effect of biological membrane development on phosphate removal through flow-controlled mineral filters. 01.07.2017 implemented under the cooperation agreement CiiTT / 27/2017</p>

<p>Topic – research problem – for which the candidate supervisor seeks a doctoral student</p>	<p>Literature reports and previously conducted research have shown that blue-green infrastructure, which is an important tool in adapting cities to climate change, may negatively affect the quality of water in urban recipients. The problem concerns structures such as green roofs or rain gardens, through which rainwater flows and acquires the chemical properties of the filter materials used in the installations. Research problem: how to select materials for the substrates of green roofs and rain gardens so as not to increase water pollution in cities. The aim of the research is to analyze the potential of phosphorus release from construction and filtration materials. Research is looking at the release potential of phosphorus from different materials with the focus on the influence of external factors. These tests identify materials that may pose a greater threat to water quality and determine the causes of phosphorus release. Based on the research results, strategies can be developed to minimize the risk of phosphorus release, such as the use of appropriate materials or filtration technologies. Analyzing the potential for phosphorus release from construction and filtration materials is an important step towards protecting water resources and improving water quality. Thanks to such a study, it is possible to effectively prevent the negative effects of the release of phosphorus into waters, such as eutrophication or cyanobacterial blooms.</p> <p>Expectations for a PhD candidate: persistence; insight; willingness to acquire and deepen knowledge; oral and written skills (in English); education in the field of environmental engineering / environmental protection / agriculture / biology / chemistry or related.</p>
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