

Name and surname:	Beata Malczewska
Academic Degree:	dr hab. inż. (DSc.)
Institute/Department:	Institute of Environmental Engineering
e-mail address:	beata.malczewska@upwr.edu.pl
ORCID:	https://orcid.org/0000-0003-4652-2165
UPWr Base of Knowledge - link:	https://bazawiedzy.upwr.edu.pl/info/author/UPWr9f39e5badb5e4f6187b8e21bbc55a5b1/Person%2Bprofile%2B%25E2%2580%2593%2BBeata%2BMalczewska%2B%25E2%2580%2593%2BWroc%25C5%2582aw%2BUniversity%2Bof%2BEnvironmental%2Band%2BLife%2BSciences?r=author&tab=&lang=en
Researchgate:	
Personal website / Working group website:	
Participation in projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	<ol style="list-style-type: none"> 1. Development of innovative technology to reduce the migration of saline groundwater to surface watercourses in the area of the Mining Waste Disposal Facility (OUOW) Żelazny Most", 2022 (RF) 2. Pre-deposited dynamic membrane filtration for the removal of natura organic matter from water (RF) 3. Modified adsorptive electrospun nanofiber membrane for the removal of contaminants from water (RF) 4. Direct biofiltration as a Pretreatment to Control Reverse Osmosis Fouling in Drinking Water Treatment 2019 (RF) 5. Evaluation of the and effectiveness of Natural Organic Matter removal and fouling mechanism (RF) 2019 6. Facilitating the use of Heated Aluminium Oxide Particles (HAOPS) to remove NOM from water 2019
Do you plan to engage support of second supervisor or auxiliary supervisor?	YES
	Second supervisor (from other discipline, Polish or international research unit)
Name and surname:	Xianshe Feng
Academic Degree:	Prof.
Faculty, Institute/Department:	University of Waterloo, Chemical Engineering
e-mail address:	xfeng@uwaterloo.ca
ORCID:	
UPWr Base of Knowledge - link or most important publications from last 3 year (JCR) / patents from last 3 years (maximum 5):	<p>Five representative publications (past 3 yrs):</p> <ul style="list-style-type: none"> •K. Jin, K. Hou, J. Wang, S. Zhai, Z. Fan, Y. Zhao, K. Xie, Z. Cai, X. Feng (2023), "Composite membranes with multifunctionalities for processing textile wastewater: Simultaneous oil/water separation and dye adsorption/ degradation," Separation and Purification Technology, 320, 124176. •Z. Li, K. Hu, X. Feng (2022), "Co-depositing polyvinylamine and dopamine to enhance membrane performance for concentration of KAc solutions via sweeping air pervaporation," Journal of Membrane Science, 656, 120664. •B. Zhang, X. Feng (2022), "Assessment of pervaporative concentration of dairy solutions vs ultrafiltration, nanofiltration and reverse osmosis," Separation and Purification Technology, 292, 120990. •X. Cao, K. Wang, X. Feng (2021), "Removal of phenolic contaminants from water by pervaporation," Journal of Membrane Science, 623, 119043. •Y. Huang, M.U. Farooq, P. Kundu, S. Hazarika, X. Feng (2021), "Use of fibroin polypeptide from silk processing waste as an effective biosorbent for heavy metal removal," Canadian Journal of Chemical Engineering, 99, S605–S615. <p>Patents (past 3 yrs):</p> <ul style="list-style-type: none"> •X. Feng, I.G. Towe, A. Hamza and J. Perez, "Gas separation process using gel membrane with liquid replenishment," Canada Patent No. 2,838,602 (granted May 25, 2021). •X. Feng, I.G. Towe, A. Hamza and J. Perez, "Replenishing liquid material to membrane," European Patent EP 2717996 (granted Jan 5, 2022) •X. Feng, K. Vasarais, J. Hughes, "Processes for fractionating a gaseous material with a facilitated transport membrane," US Patent Pub No. US20230219869, Jul 13, 2023.
Researchgate:	https://www.researchgate.net/profile/Xianshe-Feng
Personal website / Working group website:	https://uwaterloo.ca/chemical-engineering/profile/xfeng
Participation projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	<ul style="list-style-type: none"> •Advanced facilitated transport membranes for olefin/paraffin separation •Removal and capture of aromatic contaminants from wastewater using pervaporation •Nonthermal processes for concentration of dairy solutions and aroma recovery •Creating wealth from waste – Biopolymers for capture of heavy metal contaminants from wastewater
PhD topic:	Polymer-enhanced ultrafiltration - materials for water and wastewater treatment
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):	<p>One of the cornerstones of environmental protection in Europe is protection of the water resources of fresh and saltwater ecosystems and ensuring the access to drinking water of good quality. At the same time, water scarcity and drought are increasingly frequent and widespread phenomena in various locations. Therefore, there is a need to find efficient technology to remove contaminants from water. That should be characterized by lower energy consumption and a higher percentage of the input water is produced as a product. This PhD project builds on ongoing research projects in the area of filtration at IIS UPWr. Current work will be expanded to improvement of membrane separation processes in water and brine generated by process mining companies. Different materials will be examined with the target of achieving good removal and selectivity and reduction of membrane fouling. First of all, adding a water-soluble polymer that can "bond" the solute molecules, to the feed solutions will be tested. Conduct experimental studies to synthesize and characterize ultrafiltration membranes in detail extending to assembling and testing. The PhD project will include the integration and optimization of membrane filtration processes to maintain and improve sustainable water treatment processes and assess the performance and analyze the efficacies of water recovered from various membrane filtration units.</p>

Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters):	Education in environmental engineering/chemistry or related. Knowledge in the field of filtration purification technologies. Laboratory analysis experience (water chemistry/analytical) Performs analysis of wastewater samples using standard laboratory procedures and techniques within well-established guidelines, including generation of sample reports. Participates in validation and other performance testing, including set-up, operation, and data collection. 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.
a) Project title:	none
b) Agreement number:	none
c) Number of months in the project to support PhD student (in months; starting from 1st of October 2024):	33
Project website:	