

Prospective supervisor's form

Name of the supervisor: Jacek Mąkinia

Academic title: Full professor

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Discipline: environmental engineering, mining and pow none

Optional

Key words (obligatory four key words describing research interests / expertise):

wastewater treatment

mathematical modeling

nutrient removal

process optimization

Bibliometric indicators

1. Number of journal publications in WoS/ Scopus 64 / 63

2. Citations excluding self-citations WoS 504 Scopus 560

3. Hirsch index WoS 14 Scopus 17

1. The number of PhD students who have graduated under your supervision: 5

2. The number of PhD students currently supervised:

a. within the current doctoral school 0

b. within doctoral studies (previous system) 4

3. Are you currently accepting new PhD students:

a. Polish Yes/No Yes

b. Foreign Yes/No Yes

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Research interests or topics offered for PhD research (no more than 2000 characters)ⁱⁱ

- Experimental investigation of novel processes of nitrogen removal from wastewater, including anammox, deammonification, and commamox (in comparison with the conventional nitrification-denitrification processes), interaction with other biochemical processes, such as phosphorus and sulphur removal,
- Mathematical modeling, computer simulation and optimization of energy consumption in municipal wastewater treatment plants,
- Greenhouse (GHG) gas production/emission, carbon footprint and life-cycle analysis (LCA) in municipal wastewater treatment plants,
- Advanced microbiological techniques for characterization of the microbial communities involved in wastewater treatment processes.

Funding or special equipment needed to carry out a PhD project ⁱⁱⁱ:

1. Is funding available for experimental work: *Yes/No/not needed* Yes

2. Is the equipment needed to complete a PhD project available in your lab/department: *Yes/No/not needed* Yes

Most important publications – no more than 5 published after 1.01.2018

No	Authors/title/journal	Number of points according to the current list of the Ministry of Science and Higher Education	Publication year
1.	Mehrani M-J., Sobotka D., Kowal P., Ciesielski S., Mąkinia J. (2020). The occurrence and role of Nitrospira in nitrogen removal systems. <i>Bioresource Technology</i> , 122936 (doi.org/10.1016/j.biortech.2020.122936).	140	2020
2.	Maktabifard M., Zaborowska E., Makinia J. (2020). Energy Neutrality Versus Carbon Footprint Minimization in Municipal Wastewater Treatment Plants. <i>Bioresource Technology</i> , 122647 (doi.org/10.1016/j.biortech.2019.122647).	140	2020

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3.	Marks S., Małkinia J., Morales F. (2019). Performance of microbial fuel cells operated under anoxic conditions. Applied Energy, 250, 1-6.	200	2019
4.	Zaborowska E., Lu X., Małkinia J. (2019). Strategies for mitigating nitrous oxide production and decreasing the carbon footprint of a full-scale combined nitrogen and phosphorus removal activated sludge system. Water Research, 162, 53-63.	140	2019
5.	Wisniewski K., Kowalski, M., Małkinia J. (2018). Modeling nitrous oxide production by a denitrifying-enhanced biologically phosphorus removing (EBPR) activated sludge in the presence of different carbon sources and electron acceptors. Water Research, 142, 55-64.	140	2018

Most recent externally funded projects you were involved in – no more than 3

No	Project title, the name of the Principal Investigator (PI) and the institution the project was carried out	Years	Role in the project ^{iv}
1.	"Integrated system for Simultaneous Recovery of Energy, organics and Nutrients and generation of valuable products from municipal wastewater (SIREN)", EEA Financial Mechanism and Norwegian Financial Mechanism (Zbysław Dymaczewski, Poznan University of Technology)	2020-2023	Co-I
2.	"Identification, characteristics and modeling of the COMAMMOX process - a new link in the nitrogen cycle in wastewater treatment systems", National Science Center (J. Małkinia, Gdańsk University of Technology)	2018-2021	PI
3.	"A model sludge management practice in a wastewater treatment plant oriented towards increasing renewable energy production and nutrient recovery (MODEON)", Province Fund for Environmental Protection and Water Management, principal investigator (E. Zaborowska, Gdańsk University of Technology)	2017-2020	R

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Additional relevant information – (no more than 1600 characters)^v

- Advisor of Zhixuan Yin, Ph.D. student, who received the “2015 Chinese Government Award for Outstanding Students Abroad” for her stay at GUT under the EU-supported project “CARBALA” (the first case for the stay in Poland).
- Current two international Ph.D. candidates, Mojtaba Maktabifard (Iran) and Hussein Al-Hazmi (Yemen), received Łukasiewicz Foundation (Warsaw) scholarships for the best students from developing countries (2017).
- Former four Ph.D. students (Jakub Drewnowski, Marek Swinarski, Joanna Majtacz and Magdalena Kaszubowska) received „InnoDoktorant” scholarships within the framework of the Operational Program “Human Capacity” (2010 and 2013 editions).
- Jakub Drewnowski and Dominika Sobotka, Ph.D. students, received an award of Gdansk Scientific Society for Research Achievements (2011, 2018).
- Dominika Sobotka, Ph.D. student, was the winner of the Baltic University Programme Award 2019 for best thesis in 2018 in the category Natural Sciences, Technology and Engineering (2019).

ⁱ You may select up to two disciplines out of 12 disciplines represented in the Doctoral School

ⁱⁱ Observe the limit of not more than 2000 characters

ⁱⁱⁱ Leave only one answer

^{iv} Select the role in the project: PI stands for principal investigator (refers to the holder of an independent grant and the lead researcher for the grant project), Co-I for co-investigator (Co-I assists the principal investigator in the management and leadership of the research project), R for researcher

^v Add any other relevant information e.g. awards for PhD students whom you supervised (no more than 1600 characters)