

# Prospective supervisor's form

Name of the supervisor: Michał Mrozowski

Academic title: Professor, Ph.D., D.Sc., Eng.

Orcid ID number: <https://orcid.org/0000-0002-1110-8717>

Gdańsk University of Technology Faculty of Electronics, Telecommunications and Informatics

Department of Microwave and Antenna Engineering

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Discipline: control, electronic and electrical engineering technical informatics and telecommunica

Optional

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

# microwave engineering

# computational electromagnetics

# microwave filters

# scientific computing

## Bibliometric indicators

1. Number of journal publications in WoS/ Scopus 114/129

2. Citations excluding self-citations WoS 1366 Scopus 1743

3. Hirsch index WoS 22 Scopus 25

1. The number of PhD students who have graduated under your supervision: 17

2. The number of PhD students currently supervised:

a. within the current doctoral school 1

b. within doctoral studies (previous s 2

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)<sup>ii</sup>

Basic research:

guided electromagnetic waves, microwave engineering as well as computational electromagnetics, photonics, and parallel/GPU computing, numerical techniques for solving linear and nonlinear eigenvalue problems, fast techniques in the finite-element (FEM) and finite-difference method (both in time and frequency domain), model order reduction, parametrized model order reduction for FEM, rational models for passive microwave circuits, analysis of microwave resonators.

Applied research:

microwave filter design, microwave filter synthesis, surrogate model construction, full-wave optimization, and computer-aided design (CAD). electronic design automation (implemented in CAD/EDA software tools).

### Funding or special equipment needed to carry out a PhD project <sup>iii</sup>:

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.	Balewski, Lukasz, Grzegorz Fotyga, Michal Mrozowski, Martyna Mul, Piotr Sypek, Damian Szypulski, and Adam Lamecki. "Step on It Bringing Fullwave Finite-Element Microwave Filter Design up to Speed." IEEE Microwave Magazine 21, no. 3 (2020): 34-49	140	2020
2.	Jha, Abhishek Kumar, Adam Lamecki, Michal Mrozowski, and Maurizio Bozzi. "A Microwave Sensor with Operating Band Selection to Detect Rotation and Proximity in the Rapid Prototyping Industry." IEEE Transactions on Industrial Electronics (2020).	200	2020

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3.	Mul, Martyna, Valentín de la Rubia, Grzegorz Fotyga, Adam Lamecki, and Michal Mrozowski. "Regularized Local Multivariate Reduced-Order Models With Nonaffine Parameter Dependence." IEEE Transactions on Microwave Theory and Techniques 67, no. 5 (2019): 1778-1789.	140	2019
4.	de la Rubia, Valentín, and Michal Mrozowski. "A compact basis for reliable fast frequency sweep via the reduced-basis method." IEEE Transactions on Microwave Theory and Techniques 66, no. 10 (2018): 4367-4382.	140	2018
5.	Czamiewska, Martyna, Grzegorz Fotyga, Adam Lamecki, and Michal Mrozowski. "Parametrized local reduced-order models with compressed projection basis for fast parameter-dependent finite-element analysis." IEEE Transactions on Microwave Theory and Techniques 66, no. 8 (2018): 3656-3667.	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 <sup>i</sup>
1.	New concepts in microwave filters, phasers and multifunctional passive circuits and their use in future RF systems, PI: M.Mrozowski, Gdansk University of Technology	2020-2023	PI <input type="text"/>
2.	EDISON: Electromagnetic Design of flexible SensOrs, PI: M.Mrozowski, Gdansk University of Technology		PI <input type="text"/>
3.	Krylov subspace techniques for solving medium-scale computational electromagnetics problems using the higher-order finite-element method on memory-constrained multiple-GPU systems, PI: M.Mrozowski, Gdansk University of Technology	2015-2018	PI <input type="text"/>

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### Additional relevant information (no more than 1600 characters)<sup>v</sup>

As many as 15 out of 17 of PhD dissertations which I supervised were found by the reviewers to be outstanding (summa cum laude) and 4 PhDs, all in computational electromagnetics, received the Prime Minister of Poland's awards with a further 7 receiving other awards. Many of my PhD students have received both international fellowships (twice from the IEEE) and national fellowships, including 10 highly competitive Young Scientist Fellowships awarded by the Foundation for Polish Science (FNP). Several MSc students have received awards for the best MSc thesis on microwaves, radiolocation, and antenna technologies organized by the Polish chapter of IEEE MTT/AP.

I was a Principal investigator for more than 15 Polish research grants, 5 projects with various European Union programs, and 4 grants funded by US government agencies or private US companies

Several computational algorithms and computer-aided design techniques, developed in my group in various past research projects, have been implemented in commercial software products.

I am a Fellow of the IEEE, the corresponding member of the Polish Academy of Sciences, and an elected member of two IEEE Microwave Theory and Techniques Society Technical Committees—namely the MTT-1 Technical Committee (CAD) and the MTT-15 Technical Committee (Field Theory).

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

<sup>ii</sup> Observe the limit of not more than 2000 characters

<sup>iii</sup> Leave only one answer

<sup>iv</sup> 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

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