Prospective supervisor's form

Name of the supervisor: Robert Bogdanowicz

Academic title: GUT professor

Orcid ID number: https://orcid.org/0000- 0002-7543-2620

Faculty of Electronics, Telecommunication and Informatics

Gdańsk University of Technology **Department of** Metrology and Optoelectronics

Phone: **+48** 58 347 1503

E-mail: rbogdan@eti.pg.edu.pl

Personal web page: https:/ pg.edu.pl/ f9d81ff01a_robert.bogdanowicz

Discipline[i] control, electronic and electrical engineerin | materials engineering [IMa]

Optional

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

electronic sensors

optical sensors

semiconductor synthesis

diamond and nanodiamond

Bibliometric indicators

1. Number of journal publications in WoS/ Scopus: 118 / 126
2. Citations excluding self-citations: WoS 812 Scopus 893
3. Hirsch index: WoS 21 Scopus 22

1. The number of PhD students who have graduated under your supervision: 2
2. The number of PhD students currently supervised:
   a. within the current doctoral school: 2
   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

Prospective supervisor's form

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

• Synthesis of novel materials and components in the PVD and CVD processes.
• Plasma synthesis techniques of semiconductor materials.
• The diamond structures for the purpose sensor technology in liquid environments.
• The structuring of the diamond for electronics.
• NV centres in diamond for photonic devices.
• The conductive composite based on nanodiamond.
• The optical measurements of thin films (spectroscopic ellipsometry).
• Diagnostics of electrical parameters of thin layers.
• New 2D semiconductor – phosphorene
• Optical metasurfaces and metastructures

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.	Bogdanowicz, R., Ficek, M., Sobaszek, M., Nosek, A., Gołuński, Ł., Karczewski, J., ... & Ossowski, T. (2019). Growth and Isolation of Large Area Boron-Doped Nanocrystalline Diamond Sheets: A Route toward Diamond-on-Graphene Heterojunction. Advanced Functional Materials, 29(3), 1805242.	200	2019
2.	Sobaszek, M., Siuzdak, K., Ryl, J., Bogdanowicz, R., & Swain, G. M. (2020). The electrochemical determination of isatin at nanocrystalline boron-doped diamond electrodes: Stress monitoring of animals. Sensors and Actuators B: Chemical, 306, 127592.	140	2020

Prospective supervisor's form

3.	Niedziałkowski, Paweł, Zofia Cebula, Natalia Malinowska, Wioleta Białobrzeska, Michał Sobaszek, Mateusz Ficek, Robert Bogdanowicz, J. Sein Anand, and Tadeusz Ossowski. "Comparison of the paracetamol electrochemical determination using boron-doped diamond electrode and boron-doped carbon nanowalls." Biosensors	200	2019
4.	Dec, B., Sobaszek, M., Jaramillo-Botero, A., Goddard, W. A., & Bogdanowicz, R. (2019). Ligand-Modified Boron-Doped Diamond Surface: DFT Insights into the Electronic Properties of Biofunctionalization. Materials, 12(18), 2910.	140	2019
5.	Bogdanowicz, Robert, Michał Sobaszek, Mirosław Sawczak, G. M. Grigorian, Mateusz Ficek, Piotr Caban, Aleksander Herman, and Adam Cenian. "Enhanced boron doping of thin diamond films grown in deuterium-rich microwave plasma." Diamond and Related Materials 96 (2019): 198-206.	140	2019

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.	DIAMSEC - ultrasensitive sensing platform for rapid detection of epidemiological and pandemic threats", The National centre for Research and Development, TECHMATSTRATEG	2017-2022	PI
2.	2D phosphorene nanostructures - synthesis and analysis of opto-electrochemical properties toward biosensing systems", National Science Centre, SONATA-BIS	2018-2022	PI
3.	"QUantum-effect-based Nanosensing and imaging: Novel glass-diamond photonic approach for the next generation biodiagnostic Applications" – "QUNNA, TEAM-NET, FNP.	2019-2023	PI

Prospective supervisor's form

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

Robert Bogdanowicz received his Ph.D. degree with honours in Electronics from the Gdansk University of Technology. He worked as a post-doc researcher in Ernst-Moritz-Arndt-Universität Greifswald Institut für Physik. He has initiated optical emission imaging of muti-magnetron pulsed plasma and contributed to the development of antibacterial implant coatings deposited by high-power impulse magnetron sputtering. He moved back to the Gdansk University of Technology in 2011, as an assistant professor in the Department of Metrology and Optoelectronics. His current domains of interest include selective CVD diamond growth and nanocrystalline diamond doping for environmental and biochemical nanosensors. In 2015 he held a scholarship Fulbright Senior Scholar Program at the California Institute of Technology (Caltech) in the group of prof. William Goddard (Materials and Process Simulation Center) working on hybrid 3D diamond structures.
He has served on several journal editorial boards, and currently serves as an Associate Editor for 2 JCR journals, and reviewer for over 30 journals and granting agencies. His works were recognized and featured on the 2 covers in JCR journals (e.g. Energy Technology in 2018). He obtained 4 patents and his sensing technology based on diamond surface is already developed in industry.

[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)