Prospective supervisor's form

Name of the supervisor: Jędrzej Szmytkowski

Academic title: dr hab. inż.

Orcid ID number: https://orcid.org/0000- 0002-6494-1307

Faculty of Applied Physics and Mathematics

Gdańsk University of Technology **Department of** Physics of Electronic Phenomena

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Personal web page: https:/ pg.edu.pl/ web/d98fe21bb3_jedrzej.szmytkowski

Discipline[i] physical sciences [NF] none

Optional

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

molecular physics

photovoltaics

organic electronics

spectroscopy

Bibliometric indicators

1. Number of journal publications in WoS/ Scopus 33 / 33
2. Citations excluding self-citations WoS 600 Scopus 633
3. Hirsch index WoS 14 Scopus 14

1. The number of PhD students who have graduated under your supervision: 1
2. The number of PhD students currently supervised:
   a. within the current doctoral school 0
   b. within doctoral studies (previous system 0
3. Are you currently accepting new PhD students:
   a. Polish *Yes/No* Yes
   b. Foreign *Yes/No* No

Prospective supervisor's form

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

The studies of electrical and photoelectrical properties of organic and perovskite materials (and structures based on them) which are used in solar cells and, in general, in optoelectronics. These investigations will be realized using both theoretical and experimental methods. The aim is to recognize and understand the phenomena which influence the functionality of photovoltaic devices. This knowledge is important to construct more efficient solar cells.

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.	Szmytkowski J. / A simple model of the trap-assisted recombination with the excitonic Auger mechanism / European Physical Journal Plus 135(1),37	70	2020
2.	Głowienka D., Zhang D., Di Giacomo F., Najafi M., Veenstra S., Szmytkowski J., Galagan Y. / Role of surface recombination in perovskite solar cells at the interface of HTL/CH3NH3PbI3 / Nano Energy 67,104186	200	2020

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3.	Głowienka D., Szmytkowski J. / Numerical modeling of exciton impact in two crystalographic phases of the organo-lead halide perovskite (CH3NH3PbI3) solar cell / Semiconductor Science and Technology 34(3),035018	70	2019
4.	Martynow M., Głowienka D., Szmytkowski J., Galagan Y., Guthmuller J. / Influence of Orientational Disorder on the Optical Absorption Properties of the Hybrid Metal-Halide Perovskite CH3NH3PbI3 / ChemPhysChem 20(23), pp. 3228-3237	100	2019
5.	Głowienka D., Szmytkowski J. / Influence of excitons interaction with charge carriers on photovoltaic parameters in organic solar cells / Chemical Physics 503, pp. 31-38	70	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.	Investigation of recombination effects in hybrid solar cells based on perovskite materials - Grant Preludium / D. Głowienka / Gdańsk University of Technology	2019-2021	Co-I
2.			PI
3.			PI

Prospective supervisor's form

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

My PhD student (currently dr inż. Damian Głowienka) obtained Grant "Preludium" funded by NCN and also spent several months in photovoltaic laboratory Solliance in Eindhoven, The Netherlands.

[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)