Prospective supervisor's form

Name of the supervisor: Wojciech Sadowski

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

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Faculty of Applied Physics and Mathematics

Gdańsk University of Technology **Department of** Solid State Physics

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Discipline[i] materials engineering [IMa] none

Optional

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

plasmonics

metal nanostructures

nanoalloys

crystal growth

Bibliometric indicators

1. Number of journal publications in WoS/ Scopus 118/105
2. Citations excluding self-citations WoS 698 Scopus 635
3. Hirsch index WoS 17 Scopus 16

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) 2
3. Are you currently accepting new PhD students:
   a. Polish *Yes/No* Yes
   b. Foreign *Yes/No* No

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

The research would consist in manufacturing and the physical properties studies of nanoalloys for plasmonic platforms, exhibiting plasmon resonance in a wide range of wavelengths. Such platforms could be used as nanosensors.
For the preparation of nanostructures forming the platform such methods as magnetron sputtering and ALD would be used. Nanoalloys can be intermixed arrangements of their constituent elements, as in solid solutions and ordered alloys, or phase-separated arrangements, giving, for example, core-shell (a nanoparticle with two properties). Nanoalloys exhibit composition- and size-dependent shapes that are influenced by temperature. They exhibit a variety of structures and properties, which depend both on size and composition, and make them suitable for applications in catalysis, plasmonics, magnetic data storage, and biomedicine.
The structure and physical properties of the platform would be tested using different experimental methods: XRD, SEM, TEM, XPS, UV-Vis spectroscopy.

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

1. Is funding available for experimental work: *Yes/No/not needed* — No
2. Is the equipment needed to complete a PhD project available in your lab/department: *Yes/No/not needed* — Yes

Most important publicat 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.	R. Kozioł, M. Łapiński, P. Syty, D. Koszelow, W. Sadowski, J. E. Sienkiewicz, B. Kościelska, Evolution of Ag nanostructures created from thin films: UV–vis absorption and its theoretical predictions, Beilstein J. Nanotechnol. 11 (2020) 494–507, doi:10.3762/bjnano.11.40	100	2020
2.	M. Łapiński, R. Kozioł, A. Cymann, W. Sadowski, B. Kościelska, Substrate Dependence in the Formation of Au Nanoislands for Plasmonic Platform Application, Plasmonics 15 (2020) 101–107. https://doi.org/10.1007/s11468-019-01021-9	70	2020

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3.	M. Łapiński, M. Walas, A. Gapska, D. Kulik, A. Szmytke, P. Twardowski, W. Sadowski, B. Kościelska, Structure and optical parameters of Eu doped tellurium oxide thin films prepared by reactive magnetron sputtering method, Thin Solid Films 691 (2019) 137592, https://doi.org/10.1016/j.tsf.2019.137592	70	2019
4.	M. Łapiński, A. Synak, A. Gapska, P. Bojarski, W. Sadowski, B. Kościelska, New plasmonic platform for enhanced luminescence of Valrubicin, Opt. Mater. 83 (2018) 225-228. doi:10.1016/j.optmat.2018.05.002	70	2018
5.	A. Gapska, M. Łapiński, P. Syty, W. Sadowski, J. E. Sienkiewicz, B. Kościelska, Au-Si plasmonic platforms: synthesis, structure and FDTD simulation, Beilstein J. Nanotechnol. 9 (2018) 2599–2608. doi:10.3762/bjnano.9.241	100	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.			PI
2.			PI
3.			PI

Prospective supervisor's form

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

[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)