

Name of the advisor: Kamila Żelechowska**Academic title:** Ph.D., D.Sc., Eng., associate professorOrcid ID number: <http://orcid.org/0000-0002-5271-8730>**Department of** Solid State Physics**Faculty of** Applied Physics and Mathematics**Gdańsk University of Technology****Phone:** 0048 58 348 66 16**E-mail:** kamila.zelechowska@pg.edu.pl**Personal web page:** https://pg.edu.pl/1b008416bb_kamila.zelechowska**Disciplineⁱ** materials engineering**Bibliometric indicators**

1.	Number of journal publications in WoS/ Scopus	34
2.	Citations (WoS/Scopus) excluding self-citations	426(WoS)/469 Scopus
3.	Hirsch index (WoS/Scopus)	11(WoS)/11 Scopus
4.	Hirsch index in Google Scholar	13
5.	Citations in Google Scholar	614

1. The number of PhD students who have graduated under your supervision: 0

2. The number of PhD students currently supervised: 1

3. Are you currently accepting new PhD students:

a. Polish Yes

b. Foreign Yes

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

New materials for biofuel cells

Biofuel cells employ biocatalysts (such as microbes, organelles or enzymes) to convert chemical energy into electrical energy. Important features of biofuel cells are the selectivity of processes occurring at the enzymatically modified electrodes and the ability to operate at room temperature and at pH close to neutral. Moreover, open construction of the device, allows the utilization of dioxygen and glucose (fuel) from the surrounding environment, such as blood tissue and makes biofuel cells the potential source of power for implantable devices such as pacemakers, sensors or micropumps. Among others, carbon nanostructures (carbon nanotubes, graphene derivatives etc.) possess excellent properties for biocathodes construction, as they are electrical conductors, they have high specific surface and they lower dioxygen reduction overpotential. The studies are focused on the functionalization of carbon nanostructures in order to enhance bioelectrodes performance.

Functionalization of carbon nanostructures

Carbonaceous nanomaterials, especially carbon nanotubes and graphene derivatives have gained immense interest, because of their outstanding properties. However, some of their applications are hindered, mainly due to their low solubility. This problem can be overcome by tailored functionalization. Chemical functionalization of carbon nanostructures alters their physico-chemical properties, widening their applications spectrum. However, the maximum of their potential will be exploited after developing an efficient and economically viable synthesis method and performing detailed analysis of their properties. Studies on new synthetic pathways are needed.

PhD Advisor form

Funding or special equipment needed to carry out a PhD projectⁱⁱⁱ:

1. Is funding available for experimental work: No
2. Is the equipment needed to complete a PhD project available in your lab/department: Yes

Most recent publications in WoS/SCOPUS journal – no more than 5 published after 1.01.2017

No	Authors/title/journal	Journal IF/Quartile – for WoS and SNIP/ CiteScore for SCOPUS	Publication year
1.	Łelechowska K. et al. Oxygen biosensor based on carbon nanotubes directly grown on graphitic substrate. <i>Sens. Act. B</i> 240; 1308–1313	IF 5.667/Q1, 1.453/CiteScore 5.67	(2017)
2.	Golec P., Łelechowska K. et al. Bacteriophages as factories for Eu2O3 nanoparticle synthesis. <i>Bioconjugate Chem.</i> 28; 1834-1841	IF 4.485/Q1, 0.984/CiteScore 4.4	(2017)
3.	Łelechowska K. et al. Fully scalable, one-pot method for phosphonic graphene derivative. <i>Beilstein. J. Nanotech.</i> 8; 1094–1103.	IF 2.968/Q1/1.233/ CiteScore 3.32	(2017)
4.	Kondratowicz I. et al. Comprehensive study on graphene hydrogels synthesis and their ability. <i>Coll. Surf. A.</i> 528, 65–73	IF 2.829/ Q2, 1.016/CiteScore 2.84	(2017)
5.	Kondratowicz I. et al. Tailoring properties of reduced graphene oxide by oxygen plasma treatment. <i>Appl. Surf. Sci.</i> 440, 651-659	IF 4.439/Q1, 1.328/CiteScore 4.22	(2018)

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

No	Project title, the name of the Princ. Investigator (PI) and the institution the project was carried out	Year awarded	Role in the project
1.	(Nr 2016/23/D/ST5/02800. K. Łelechowska, Synthesis and properties of carbonaceous nanomaterials functionalized with phosphonic groups. Gdańsk University of Technology	(2017)	PI
2.	(POLONIUM” PPN/BIL/2018/1/00204 K. Łelechowska. Biofuel cells implanted into the living body as power source for other implantable devices. Optimization study. Gdańsk University of Technology and Laboratoire TIMC-IMAG, Grenoble University	(2018)	PI
3.	UMO-2014/13/B/ST5/04117. „Charakterystyka fizykochemiczna cyklodekstryn dostosowanych do pH-zależnej terapii celowanej lekami antracyklinowymi" Warsaw University	(2015)	R

PhD Advisor form

Additional relevant information – (no more than 1600 characters)^{iv}

Two students, who graduated under my supervision received the prize Diploma of the Year (M. Nadolska in 2017 and R. Kozio³ in 2018). Another two students were honoured with Professor Romuald Szczęsny Prize: I. Kondratowicz in 2015 and D. Koperkiewicz in 2016. I. Kondratowicz and N. Nadolska, who realize PhD under my supervision are laureates of number of scholarships, e.g. Rector's Scholarship, POWR, conferences grants etc. I encourage my students to participate in research courses in different European countries and help them to organize their stay in foreign institution. I collaborate with universities in NewCastle, Grenoble, L'Aquila.

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 300 words

ⁱⁱⁱ Leave only one answer

^{iv} Add any other relevant information eg. awards for PHD students whom you supervised (no more than 200 words)