

Prospective supervisor's form

Name of the supervisor: Lidia Jasińska-Walc

Academic title: PhD. DSc. Prof. GUT

Orcid ID number: <https://orcid.org/0000-0001-6793-6936>

Gdańsk University of Technology Faculty of Chemistry

Department of Polymer Technology

Phone: +48 (58) 347 2134

E-mail: lidjasin@pg.edu.pl

Personal web page: <https://pg.edu.pl/>

Discipline: chemical sciences [NCh] none

Optional

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

polymer chemistry

catalysis

spectroscopy

properties of polymers

Bibliometric indicators

1. Number of journal publications in WoS/ Scopus 23 in WoS

2. Citations excluding self-citations WoS 455 Scopus 494

3. Hirsch index WoS 12 Scopus 12

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

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 Yes

Prospective supervisor's form

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

Polymers play a key role in our modern life full of technical advances and a continuous request for new materials with tailored properties for a low price. Their excellent mechanical properties, good processability, chemical stability and low price make polyolefins the polymers of choice for most commodity and some more specialized applications. As a result, polyolefins account for over 65% of the total world demand of plastic materials. However, the major drawback of polyolefins is their lack of functionality, which results in low adhesion with other materials such as inorganic fillers, metals or other polymers. The availability of well-defined functionalized polyolefins will certainly increase the application window of polyolefins even more.

Incorporation of polar functionalities into the polyolefins is believed to enhance the adhesive properties of the polymers and numerous reports describe the synthesis of such products either by reactive extrusion or by catalysis. Yet, little is known about the actual properties of these materials and their potential applications. Many questions remain, like: do functionalized polyolefins indeed show improved adhesion to polar substrates or improved paintability? What functionality level is required to obtain satisfying adhesive properties? How do these functionalities affect the polyolefin properties? Are there other applications for functionalized polyolefins than just improved adhesion?

Over the last years, our team has evaluated the synthesis of functionalized polyolefins prepared by both catalysis and reactive extrusion. These PhD programs will give a clear overview of the properties and potential of functionalized polyolefins and the various challenges that have to be overcome to produce these products in a commercially viable manner.

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.	Lidia Jasinska-Walc, Rob Duchateau, Miloud Bouyahyi, Younes Turki, Akhilesh Tanwar / Randomly Functionalized Polyethylenes: In Quest of Avoiding Catalyst Deactivation / ACS Catalysis / 2019 / 9 / 7779-7790	200	2019
2.	Lidia Jasinska-Walc, Miloud Bouyahyi, Piotr Lorenc, Alexander Leijen Heeneman, Rob Duchateau, Artur Rozanski, Katrien Bernaerts / Synthesis of isotactic polypropylene-block-polystyrene block copolymers as compatibilizers for isotactic polypropylene/polyphenylene oxide blends / Polymer / 2018 / 147 /	100	2018

Prospective supervisor's form

3.			
4.			
5.			

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.	Preparation and use of block and graft copolymers as compatibilizers for polymer blends. (PI) Lidia Jasińska-Walc. Project carried out at the Gdansk University of Technology and Sabic B.V.	2016-2019	PI
2.	Addressing the challenges in bitumen modification using functionalized polyolefins. (PI) Lidia Jasińska-Walc. Project carried out at the Gdansk University of Technology and Sabic B.V.	2018-2022	PI
3.			PI

Prospective supervisor's form

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

Relevant achievements:

- Supervision/promotion: 29 MSc students, 3 Postdoctoral Researchers
- Patents: 11 granted patents, 29 patent applications, 3 SABIC Patent Awards for the Top Inventors
- Business and scientific collaborations established with: SABIC in the Netherlands/KSA/USA/India/China, Max Planck Institut in Mainz, University of the Basque Country San Sebastian, Polish Academy of Science in Lodz, University of Hamburg, Maastricht University, PTG/e, Eindhoven University of Technology

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)