Izabela Czekaj

Academic degrees : dr hab. inż.

Position : prof. of CUT

Engineering - technical field

Discipline Chemical engineering

Academic qualifications:

CUT coordinator of Erasmus Mundus Bioref program
Head of research team Design of materials and catalytic processes in biorefineries and alternative fuels

Membership in professional and academic boards :

Member of the Polish Chemical Society and the Swiss Chemical Society,
Member of the Polish Zeolite Society, Member of the Polish Catalysis Club, Member of the Association of Engineers and Technicians of Chemical Industry
Expert of EU Horizon Europe programs and of the Polish NCBiR

Academic merits :

More than 60 scientific publications, more than 80 presentations at scientific conferences, 2 monographs, 2 patents. Many years of experience in scientific work abroad (Switzerland, Paul Scherrer Institute 2005-2013 and Swiss Federal Institute of Technology Zurich, ETHZ 2013-2014) and contacts with foreign scientific groups and industrial partners. Her H-index is 22 (Scopus) and 24 (Google Scholar). She has promoted 3 PhDs (including two theses defended with distinction, 1 with a major award from Cyfronet).

Examples of scientific publications from recent years:

Iron-catalysed cooperative redox mechanism for the simultaneous conversion of nitrous oxide and nitric oxide
Buttignol Filippo, Fischer Jörg W. A., Clark Adam H., Elsener Martin, Garbujo Alberto, Biasi Pierdomenico, Czekaj Izabela, Nachtegaal Maarten, Jeschke Gunnar, Kröcher Oliver
Nature Catalysis (2024) 1-11, doi:10.1038/s41929-024-01231-3

Odors adsorption in zeolites including natural clinoptilolite: theoretical and experimental studies
Czekaj Izabela, Sobuś Natalia
Materials 17 (2024) 1-23, doi:10.3390/ma17133088

Insights into the nature of Zr-species in MFI-type Zr-metallosilicates by using bulk and surface techniques
Yeskendir B., Kurzydym I., Simon P., Nuns N., Marinova M., Vezin H., Courtois C., Lorgouilloux Y., Czekaj I., Paul J.-F.
Microporous and Mesoporous Materials 378 (2024) 1-7, doi:10.1016/j.micromeso.2024.113261

Change in the nature of ZSM-5 zeolite depending on the type of metal adsorbent–the analysis of DOS and orbitals for iron species
Kurzydym Izabela, Garbujo Alberto, Biasi Pierdomenico, Czekaj Izabela
International Journal of Molecular Sciences, 24 (2023) 1-12, doi:10.3390/ijms24043374

Lactic acid conversion into acrylic acid and other products over natural and synthetic zeolite catalysts: theoretical and experimental studies
N.Sobuś and I. Czekaj
Catalysis Today 387 (2022) 172-185, doi: 10.1016/j.cattod.2021.10.021

Examples of scientific projects from recent years:

CET Partnership project “AmMoniA as a ZEro-carbon fuel and H2 carrier” AMAZE (PL consortium leader).
Project ERANet-LAC/3/GreenMol/3/2019 “ Development of green molecules from lignocellulosic biomass for renewable chemistry” (leader), 2021-2022,
Industrial projects with Casale on NOx reduction (manager), 2019-2023

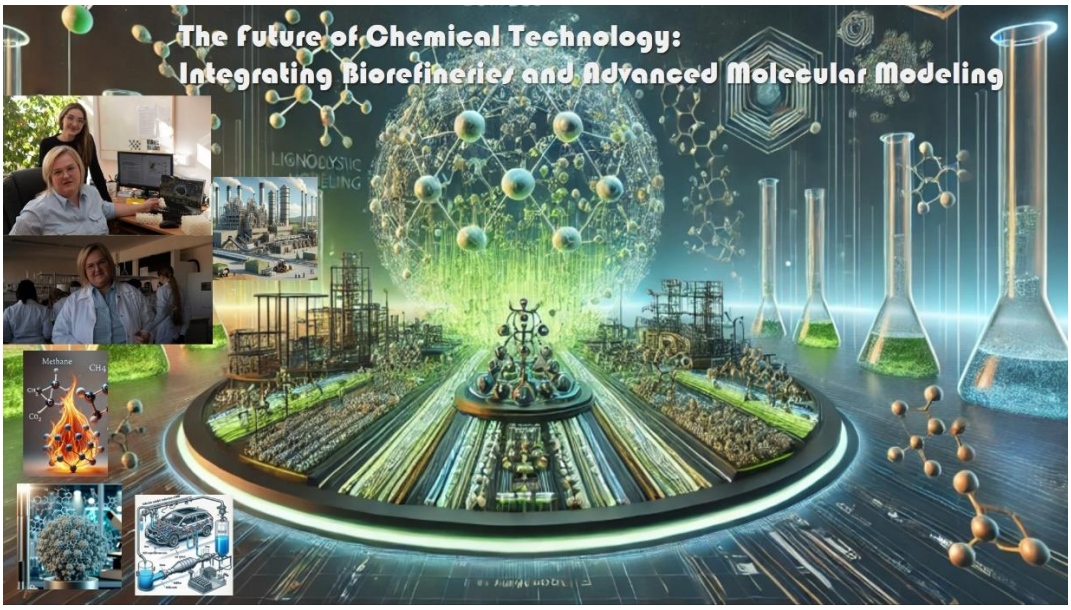
Industrial project with Zeocomplex company “Conducting research and development of zeolite formulations for multiphase deodorization” (chief technologist), 2020-2022
EU MSCA - Polonez-1 project “Nanodesign of zeolite catalysts for selective conversion of biomass into chemical compounds” (manager), 2016-2018

Professional qualifications/language skills

Habilitated doctor in technical sciences in the scientific discipline of chemical technology, doctor of chemical sciences in chemistry, master of engineering in the specialty of Process Engineering.
Foreign languages:
English (fluent)
German (fluent) and Swiss German (basic)
Russian (basic)
French (basic)

Research field :

Design and molecular modeling (DFT, ML) of functional materials for catalysis, electrocatalysis, adsorption and biorefineries applications.
Biorefineries and bioresources, biomass valorization, CO_2 reduction, deNOx methanation, green hydrogen production.
Scaling up chemical and technological processes to industrial levels.



Address

Cracow University of Technology,
Faculty of Chemical Engineering and Technology
Address:
31-155 Krakow
phone . 12 628 21 11
e-mail : izabela.czekaj@gmail.com

Useful links :

https://orcid.org/0000-0001-9322-940X
http://zeodesign-polonez.pk.edu.pl/
Scopus:
https://www.scopus.com/authid/detail.uri?authorId=15131355700
ResearchGate:
https://www.researchgate.net/profile/Izabela-Czekaj
Google Scholar:
https://scholar.google.pl/citations?user=rRuF2koAAAAJ&hl=pl