ANNOUNCMENT OF AN OPEN POSITION OF A DOCTORAL SCHOLARSHIP RECIPIENT UNDER THE NCN MAESTRO 15 RESEARCH PROJECT „PYROLYSIS-INTEGRATED BIOREFINERIES FOR HOLISTIC WASTE UPCYCLING"

Department: Silesian University of Technology (SUT), Faculty of Energy and Environmental Engineering, Department of Technologies and Installations for Waste Management
Location: Konarskiego Street 18, Gliwice, Poland
Project Title: Pyrolysis-Integrated Biorefineries for Holistic Waste Upcycling
Funding: MEASTRO 15, National Science Center (NCN) Poland
Grant Number: UMO-2023/50/A/ST8/00512
Internal Grant Number: 08/030/PBU24/0141
Position: PhD-student intern
Scholarship period: 3 years from 1st March 2025
Scholarship amount: 1500 PLN per month

Position Overview:
This interdisciplinary research project lies at the cutting edge of sustainable energy and artificial intelligence, targeting innovative solutions to convert biorefinery waste into value-added products while addressing global CO_2 challenges. The successful candidate will explore the integration of CO_2 in thermochemical processes such as pyrolysis to enhance the valorization of biorefinery wastes. Using advanced AI techniques, the research will aim to:

- Model and optimize reaction pathways and process parameters.
- Develop predictive algorithms for performance metrics like carbon efficiency, energy yield, and product selectivity.
- Intensify processes to achieve cost-effective and scalable solutions for CO_2 utilization.

Key Responsibilities / tasks description:
As part of the MAESTRO 15 project, "Pyrolysis-Integrated Biorefineries for Holistic Waste Upcycling," led by Dr. Balal Yousaf, Prof. PS, the Ph.D. student will play a key role in advancing research on CO_2-integrated thermochemical valorization processes. Their responsibilities will include developing and implementing AI-driven models for process optimization, conducting experimental studies to improve the efficiency of biorefinery waste upcycling, and analyzing the integration of CO_2 to enhance process sustainability. The student will actively contribute to the project's goals by exploring innovative, scalable solutions for sustainable waste management and resource recovery, working closely with a multidisciplinary research team.

Key Responsibilities:

- Conduct experimental work on thermochemical conversion technologies.
- Develop and implement AI models for process simulation, optimization, and control.
- Analyze the interaction of CO_2 with diverse feedstocks to assess its impact on reaction mechanisms.
- Collaborate with an interdisciplinary team of researchers in AI, material science, and sustainable energy.
- Publish findings in high-impact journals and present them at international conferences.

Position Requirements:

1. PhD-student status
2. A Master's degree in Chemical Engineering, Environmental Engineering, or a related discipline.

Additional Requirements:

1. Strong interest in sustainable energy, waste management, and AI applications.
2. Prior experience in thermochemical processes, machine learning, or computational modeling is a plus.

Research Facilities:
The selected candidate will have access to state-of-the-art research facilities, including:
Pyrolysis unit, FTIR, py-GCMS and other routine use equipments.

Application Process (deadline and how to apply): 10.02.2025 23:59. All the required documents must be sent to the PI at the following email ID: balal.yousaf@polsl.pl in single PDF file. Awarding deadline: 13.02.2025.

Required documents:

- A cover letter explaining research experience, interests, and fit for the project
- A detailed CV (in English) with a list of publications, in CV, please include RODO clause regarding the consent to the processing of personal data for the purposes of the recruitment process in accordance with the Act of 29 August, 1997 on the Protection of Personal Data (Journal of Laws of 2015, item 2135, as amended)
- Two academic references, who should send recommendation letters directly to the PI at balal.yousaf@polsl.pl
- Information about completed internships, courses and certificates
- Confirmation of Ph.D. student status

The PhD student intern will be selected by a competition committee appointed by the Vice Rector for Science and International Cooperation.

Only shortlisted candidates will be contacted for further steps in the selection process.

This is an excellent opportunity to join an innovative and dynamic research group that is addressing critical challenges in waste management and environmental sustainability. If you are passionate about waste-to-energy technologies and want to contribute to net-zero emission solutions, we encourage you to apply. For any inquiries, please contact: balal.yousaf@polsl.pl.

Incomplete or late offers will not be considered.
Please be informed that we will contact only with the candidates that meet formal requirements.

Informative clause

According to art. 13 of the Regulation on Personal Data Protection of 27 April 2016, please be informed:

1. The controller of your personal data is the Silesian University of Technology with its registered office at .Akademicka 2A St, 44-100 Gliwice,
2. The Silesian University of Technology has appointed the Data Protection Officer who can be contacted via the email address: iod@polsl.pl,
3. Your personal data will be processed in order to carry out the recruitment process for work at the Silesian University of Technology,
4. the basis for the processing of your personal data is art. 221 of the Labour Code and, if you agree to use your CV in future recruitments at the Silesian University of Technology, art. 6 clause 1 point a of the GDPR Regulation shall apply,
5. only employees authorized to process personal data to the necessary extent will have access to your personal data within the organizational structure of the Silesian University of Technology,
6. Your personal data shall not be disclosed to other entities, except in cases provided for by law,
7. Your personal data shall be stored for the period necessary to carry out the recruitment process or for the next 9 months from the end of the recruitment process, if you authorize the processing of personal data in future recruitment processes,
8. You have the right to request the access to the content of your data and, to the extent provided for by applicable regulations, the right to: rectify, delete, limit processing, raise objections; if you consent to the processing of data, you have the right to withdraw your consent at any time,
9. You have the right to lodge a complaint with the President of the Office for Personal Data Protection, if you feel that the processing of your personal data violates the provisions of the General Data Protection Regulation,
10. providing data is voluntary, but necessary to achieve the purposes for which they are collected.

Dziekan Wydzialu Inzynierii Srodowiska i Energetyki

Prof. dr hab. inz. Mariusz Dudziak