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UPWr Base of Knowledge - link:	https://bazawiedzy.upwr.edu.pl/info/author/UPWr9a785c66df034fa586ba0e4b3c094682?r=author&tab=&title=Profil%2Bosoby%2B%25E2%2580%2593%2BArkadiusz%2BDyjakon%2B%25E2%2580%2593%2BUniwersytet%2BPrzyrodniczy%2Bwe%2BWroc%25C5%2582awiu&lang=pl
Researchgate:	http://www.researcherid.com/rid/D-4312-2019
Personal website / Working group website:	None
Participation in projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	<ol style="list-style-type: none"> 1. Project in the frame of the Interreg Central Europe Programme: Strefowa - Strategies to Reduce and Manage Food Waste in Central Europe, Contractor, (project: 2016-2019) - RF. 2. Replicable business models for modern rural economies (acronym: Rubizmo - 773621). Project H2020-RUR-2016-2017/H2020-RUR-2017-2. Call topic: RUR-09 "Business models for modern rural economies" - Research and Innovation Action. Project duration 2018-2021. Head of the project at the Wrocław University of Environmental and Life Sciences - PI 3. Unlocking the community energy potential to support the market uptake of bioenergy heating technologies (acronym: BECoop - 952930). H2020-LC-SC3-2018-2019-2020/H2020-LC-SC3-2020-RES-IA-CSA. Project H2020: Secure, clean and efficient energy, Call topic: Market Uptake support. Project duration 2020-2023. Head of the project at the Wrocław University of Environmental and Life Sciences - PI 4. Project Erasmus+, Project SOFTEN - Embedding soft skills in stem academic curricula for the transition to sustainable green economy (2022–2025), Coordinator and Head of the project - PI
PhD topic:	Valorization of waste biomass using the torrefaction method
Research discipline in Doctoral School:	Environmental Engineering, Mining and Energy
Short description of the research problem to be solved in the PhD (minimum 1000 characters):	<p>Torrefaction is considered one of the ways to improve the physical-chemical properties of biomass fuels and organic waste in the context of their energy use. Currently, there are many sources of obtaining waste biomass from various industries and agri-food processing that require appropriate management. The problem of biomass is its diverse physical-chemical properties, which affect energy inputs and limited possibilities of energy use. The aim of the research will be to introduce selected biomass fuels to the torrefaction process on a laboratory scale, perform physical-chemical analyzes of the produced torreficates, and then (options):</p> <ul style="list-style-type: none"> - determining the correlation between the type of biomass (lignin, hemicellulose and cellulose content), process temperature and its hydrophobicity, - determining the correlation between the type of waste biomass (lignin, hemicellulose and cellulose content), process temperature and energy demand for its fragmentation, - analyzes of the impact of torrefaction temperature on the pelletization process and the mechanical strength of the produced pellets, - determining the influence of the torrefaction temperature on the ignition temperature of the produced torreficates, - the influence of the torrefaction temperature on the energy demand for milling.
Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters):	A candidate for a doctoral student should have research experience in the field of thermal conversion of solid fuels. Should have education related to thermal energy or process engineering. He should have the ability to conduct research on a laboratory scale and be familiar with the basic research and analytical equipment related to conducting basic physical-chemical analyzes of fuels. Scientific achievements in the form of scientific publications in journals from the JCR list and participation in international conferences are required. Commitment and readiness to undertake internships in a foreign research center are recommended. The candidate's scientific interests should be related to the potential and energetic use of solid biomass, the mechanism of thermal decomposition of organic matter, energy balancing and the issues of its practical processing in technical devices. The candidate should have at least B2 level of knowledge of English.
a) Project title:	None
b) Agreement number:	None
c) Number of months in the project to support PhD student (in months; starting from 1st of October 2024):	0
Project website:	www.upwr.edu.pl