Name and surname:	**Sebastian Opaliński**
Academic Degree:	dr hab. inż. (DSc.)
Institute/Department:	Department of Environmental Hygiene and Animal Welfare
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ORCID:	0000-0003-3669-5994
UPWr Base of Knowledge - link:	https://bazawiedzy.upwr.edu.pl/info.seam?ps=20&id=UPWr042d8442ed8e494f97809881607fa68f&lang=en&pn=1&cid=161557
Researchgate:	https://www.researchgate.net/profile/Sebastian-Opalinski
Personal website / Working group website:	https://upwr.edu.pl/en/research/leading-research-group/animal-science-for-future-asc4future
Participation in projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	LivestockSense, "Enhancing environmental sustainability of livestock farms by removing barriers for adoption of ICT technologies", funded by the National Centre for Research and Development (NCBR), agreement no. ICTAGRIFOOD/I/LIVESTOCKSENSE/01/21, within the European Union's Horizon 2020 research and innovation programme under grant agreement No 862665 ERA-NET ICT-AGRI-FOOD. PI; OPUS24: Biochar in the diet of laying hens and the expression of genes and proteins affecting the structure and physicochemical properties of eggs, NCN 2023-2026, PI; ET4D, "Development of a practical data management system with embedded sensors for improved environmental management and transparency of dairy farming" funded by the National Centre for Research and Development (NCBR), agreement no. nr ICTAGRIFOOD/II/95/ET4D/2023, within the European Union's Horizon 2020 research and innovation programme under grant agreement No 862665 ERA-NET ICT-AGRI-FOOD, NCBR 2023-2026, PI.
Do you plan to engage support of second supervisor or auxiliary supervisor?	YES
	Auxiliary supervisor
Name and surname:	Kacper Świechowski
Academic Degree:	dr inż. (Dr. Eng.)
Faculty, Institute/Department:	Department of Applied Bioeconomy
e-mail address:	kacper.swiechowski@upwr.edu.pl
ORCID:	0000-0002-9817-6324
UPWr Base of Knowledge - link or most important publications from last 3 year (JCR) / patents from last 3 years (maximum 5):	https://bazawiedzy.upwr.edu.pl/info.seam?affil=&ps=20&id=UPWr3b0069b3bf904ae4961f074e6a3a7b52&lang=en&pn=1&cid=172767
Researchgate:	https://www.researchgate.net/profile/Kacper-Swiechowski
Personal website / Working group website:	https://upwr.edu.pl/en/research/leading-research-group/waste-and-biomass-valorization-group-wbvg
Projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	PRELUDIUM, Study of the influence of selected properties of biochar made from the substrate on the process of methane fermentation of brewer's spent grain, NCN. 2020-2023, PI. OPUS24: Biochar in the diet of laying hens and the expression of genes and proteins affecting the structure and physicochemical properties of eggs, NCN 2023-2026, RF;
PhD topic:	Biochar in the diet of laying hens and the structure and physicochemical properties of eggs
Research discipline in Doctoral School:	Animal Science and Fisheries
Short description of the research problem to be solved in the PhD (minimum 1000 characters):	Although livestock diet supplementation with biochar has been known for some time, there is a lack of information in the scientific literature on the molecular mechanism of biochar action on livestock, particularly poultry. The explanation of this situation may be that currently, there are many biochars on the market with very different properties. In animal nutrition, it is allowed to use only products obtained by carbonisation of organic vegetal material, so-called vegetal carbon (Commission Regulation (EU) No 68/2013), the tremendous amount of plant substrates as well as the diversified production technology generates products with very different physical and chemical properties. One of the essential features of biochar (BC) is its specific surface area, thanks to which it can modify many processes. The research carried out so far has shown that BC as a feed additive can improve eggshell resistance to crushing and eggshell thickness, which are critical parameters in poultry production. However, the mechanism of biochar influence, both qualitative (surface area) and quantitative (dose), on the eggshell quality (structure and resistance) is still unknown. Therefore, the aim and novelty of the proposed research will be to find correlations between novel functionalized biochar with precisely described properties and the mechanical resistance of eggshells.
Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters):	Higher education in animal science. Interest in scientific work, the ability to work independently and in a group, and communication skills. Necessary skills in planning experiments, data analysis and writing scientific publications. Computer skills in the MS Office environment and the statistical package. Participation in conferences and scientific publications on the issues of livestock farming and breeding. Knowledge of English at the C1 level. The candidate should be ready to complete the min. 4-month internship at a foreign research centre dealing with precision livestock farming methods.

a) Project title:	Biochar in the diet of laying hens and the expression of genes and proteins affecting the structure and physicochemical properties of eggs
b) Agreement number:	UMO-2022/47/B/NZ9/02182
c) Number of months in the project to support PhD student (in months; starting from 1st of October 2024):	22
Project website:	