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| **Name and surname:** | **Cezary Kabała** |
| Academic Degree: | prof. dr hab. inż. (Prof.) |
| Institute/Department: | Institute of Soil Science, Plant Nutrition and Environmental Protection |
| e-mail address: | cezary.kabala@upwr.edu.pl |
| ORCID: | https://orcid.org/0000-0001-9796-3716 |
| UPWr Base of Knowledge - link: | https://www.webofscience.com/wos/author/record/1635305 |
| Researchgate: | https://www.researchgate.net/profile/Cezary-Kabala |
| Personal website / Working group website: | |
| Participation in projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)): | Origin of chernozemic soils in the loess-covered areas of SW Poland in a context of environmental changes and human expansion in Holocene (2015-2018, NCN, Principal Investigator).<br>Verification of the homogeneity of parent material in the soils developed from crystalline and sedimentary rocks in the zone of loess impacts in SW Poland (2015-2018, NCN, researcher).<br>Origin and transformation of Chernozems in Poland as the result of climate change and human settlement since the Neolithic period (2018-2022, NCN, researcher).<br>Geoarchaeology of buried soils. Transformations of soilscapes in the Silesian loess zone as indicators of prehistoric land-use (2020-2023, NCN, researcher). |
| Do you plan to engage support of second supervisor or auxiliary supervisor? | YES |
| | Auxiliary supervisor |
| Name and surname: | Joanna Kowalska |
| Academic Degree: | dr inż. (Dr.) |
| Faculty, Institute/Department: | Institute of Soil Science, Plant Nutrition and Environmental Protection |
| e-mail address: | joanna.kowalska@upwr.edu.pl |
| ORCID: | https://orcid.org/0000-0002-4086-5696 |
| UPWr Base of Knowledge - link or most important publications from last 3 year (JCR) / patents from last 3 years (maximum 5): | https://www.webofscience.com/wos/author/record/2306802 |
| Researchgate: | |
| Personal website / Working group website: | |
| Projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)): | Pedogenesis and transformation of clay minerals in soils rich in calcium carbonate in the Karpathain Mountains (2018-2020, NCN Principal Investigator)<br>An influence of erosion and allochthonic materials on the direction of Rendzina transformation in the Klodzko Basin (2022-2023, UPWr, PI) |
| PhD topic: | Impact of parent material, landscape and land use on the development, properties and fertility of Vertisols in Poland |
| Research discipline in Doctoral School: | Agriculture and Horticulture |
| Short description of the research problem to be solved in the PhD (minimum 1000 characters): | Vertisols are considered highly productive soils, although their heavy clayey texture and wedge-shaped or prismatic structures are challenges for farmers. The soils are well known from subtropical countries, where extremely seasonally variable humidity support the shrinking-swelling phenomena in soils developed from clay-textured regoliths. Whereas, the presence of Vertisols in Central Europe has been questioned for a long time. Although Vertisols have been recently confirmed in Poland and introduced to national soil classification, their extend, morphological and physicochemical features, as well as agricultural and ecological values under temperate climate remain poorly investigated. The aims of the research are therefore: (a) verification of the spatial spread of Vertisols in Poland, (b) modelling of their position in landscape in relation to parent material, land morphology and land use, (c) analysis of mineralogical, micromorphological, physical and chemical properties influencing their fertility and ecological services in relation to above mentioned environmental factors, (d) assessment of present-day physical activity of Vertisols under temperate climate and its influence on further soil development, including carbon sequestration. The field works are planned in at least six areas located in the south, central and north Poland, selected based on soil texture maps and archival research reports. Two-year-long regular observations of soil moisture, density, structure and cracking will be conducted in at least two verified Vertisols profiles in SW Poland. The conclusions will have crucial importance for understanding the origin, present-day services and future potential of Vertisols in temperate climate zone. The research results will be published in 3-4 papers prepared in collaboration with Polish and foreign experts. |
| Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters): | The candidate should have at least basic experience in soil science (course(es) on academic level or project(s)) and soil analysis, not necessarily concerned on Vertisols. Candidate should speak fluently in English and should have experience in writing the scientific papers. Candidate should be ready for extensive field and laboratory works, and learning of new analytical methods (X-ray fluorescence, X-ray diffractometry, micromorphology, etc.). At least basic experience in software (writing, calculating, drawing graphs and pictures, cropping photos) is required. |
| 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: | |