

## PERSONAL INFORMATION

**Yelizaveta Chernysh**

Associate Professor, Doctor of Science

Sumy State University

Affiliated Senior Researcher

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Sex F | Date of birth 18/12/1987 | Nationality Ukraine

## WORK EXPERIENCE

## Professional Experience

## Teaching and Academic Engagement

2025	<b>Key Lecture and Expert</b> under the course “Scientific Writing” within the project “Supporting Ukrainian Refugees through Academic Collaboration between Universities in Moldova and the Czech Republic”, Czech government support provided by the Ministry of Foreign Affairs of the Czech Republic, Czech University of Life Sciences Prague, Czech Republic
2019 – Present	<b>Associate Professor</b> at the Department of Ecology and Environmental Protection Technologies, Sumy State University, Ukraine
2016 – 2019	<b>Senior Lecturer</b> at the Department of Applied Ecology, Sumy State University, Ukraine
2013 – 2016	<b>Assistant</b> at the Department of Applied Ecology, Sumy State University, Ukraine

Disciplines: Safety of Vital Activity, Biotechnologies, Sustainable Biotechnology and Environmental Protection, Environmental Protection Technologies, Municipal Environmental Activities, Scientific Research in Ecology, International Cooperation in Ecology.

## Research and Development (R&amp;D) Roles

June 2025– Present	<b>Visiting Scientist</b> Chemistry Department, Muğla Sıtkı Koçman University, Turkey. <i>Funding: TÜBİTAK 2221 – Fellowships for Visiting Scientists and Scientists on Sabbatical Leave</i>
May 2025 – Present	<b>Senior Researcher</b> under the project Development of Technological Foundations for Obtaining Complex Mixed Fertilizers with Monodisperse Composition (State Reg. No. 0125U000500), Sumy State University, funded by the Ministry of Education and Science of Ukraine, 2025-2027.
May 2025 – Present	<b>Affiliated Senior Researcher, BioResources and Technology (BRT) Division</b> , Czech University of Life Sciences Prague, Czech Republic.
May 2022 – April 2025	<b>Senior Researcher, BioResources and Technology (BRT) Division</b> , Czech University of Life Sciences Prague, Czech Republic. The project “Phosphogypsum Processing to Critical Raw Materials”(PG2CRM) ERA-MIN3 action, under the Horizon 2020 Programme (European Commission Grant Agreement No. 101003575). <i>Marie Skłodowska-Curie Postdoctoral Fellowship (MSCA-PF)</i> with funding from the European Union under the MSCA4Ukraine framework (2023-2025). Working with phosphogypsum recycling, bio-based products, bioenergy, research collaboration.
May 2022 – 2025	<b>Guest researcher</b> at the Department of Wastewater and Water Treatment, T.G. Masaryk Water Research Institute in Prague, Czech Republic.

October 2020 – September 2021	<b>Research team's member</b> of the project “The kinds of liquide fraction poultry litter digestate application as fertilizer depending on distances from biogase complex”, Czech government support provided by the Ministry of Foreign Affairs of the Czech Republic, which allowed this scientific cooperation to start within the project “Strengthening scientific capacities and cooperation of Ukrainian universities in AgriSciences”.
November 2019 – January 2020	<b>Visiting Scientist</b> , Laboratory of Bioprocess Engineering, Department of Biotechnology, Technische Universität Berlin (TU Berlin), Germany. Seminars were organized and held to develop a strategy for international project cooperation at the level of EU grants. Studies on the effect of phosphogypsum on the process of dark fermentation.
July – October 2019	<b>Visiting Scientist</b> , the Hasegawa Laboratory, College of Bioscience & Biotechnology at the Chubu University, Japan Research focused on methodology formation for phosphogypsum recycling in biotechnologies with special attention being paid to study of phosphogypsum as substrate for bacteria growth with genetic tools using. The experience exchange of research methods and delivering presentation of research.
April and May 2018	<b>Visiting Scientist</b> , Institute of Environmental Engineering, Faculty of Civil Engineering, Technical University of Kosice, Slovak Republic Research focused on environmental safe technologies of waste recycling and life cycle assessment.
2016 – 2018	<b>Post-Doc Researcher</b> , Department of Applied Ecology, Sumy State University (SSU), Ukraine Research focused on environmental safe technologies of waste recycling with special attention being paid to biochemical intensification of wastes treatment with production of biofuel and other bio-based products; environmental safety of biotechnologies processes.
2010 – 2013	<b>PhD student</b> , Sumy State University, Sumy, Ukraine. Developed biotechnological process of waste utilization.

### Managerial and Administrative Work in R&D

2024-2025	<b>Coordinator of project</b> from Sumy State University “Strengthening AgriSciences in Ukraine: AgriSci-UA” under initiative titled: "AgriSci-UA Platform: Strengthening Research Capacities and Deepening Collaboration Among Ukrainian Universities in Agricultural Sciences. Czech Development Agency funding.
August 2022 – Present	<b>Project Coordinator</b> of the project BIOINWASTE: Bioenergy innovations in waste management: European experience in implementing a circular economy. No 101085172. Jean Monnet Module, Sumy State University
March 2021 – Present	<b>Director</b> of the Innovation and Applied Center “Aquatic Arteria”, Sumy State University, Sumy
October 2021 – December 2022	<b>Senior coordinator</b> of the project “Bioenergy innovations in waste recycling and rational use of natural resources”, joint Ukrainian-Czech R&D project, Ministry of Education and Science of Ukraine
October 2021 – November 2022	<b>Project coordinator</b> of the project "Combined Use of Preatreatment Methods under Anaerobic Digestion”, Czech government support provided by the Ministry of Foreign Affairs of the Czech Republic, which allowed this scientific cooperation to start within the project “Strengthening scientific capacities and cooperation of Ukrainian universities in AgriSciences”.
October 2021 – November 2022	<b>Project coordinator</b> of the project "Co-digestion of poultry litter with cellulose containing substrates”, Czech government support provided by the Ministry of Foreign Affairs of the Czech Republic, which allowed this scientific cooperation to start within the project “Interuniversity cooperation as a tool for enhancement of quality of selected universities in Ukraine”.
October 2020 – September 2021	<b>Project coordinator</b> of the project "Bioenergy processes of waste recycling and utilization as soil amendments in reclaimed minelands" under the grant program for Multidisciplinary research teams from the AgriSciences platform, which includes researchers from Sumy State University, Dnieper State University of Agrarian Economics and Czech University of Life Sciences Prague.

### Memberships and Committees

2025– Present	<b>Guest Editor</b> of the Special Issue entitled "Advances in Agro-Microbiology", Microorganisms (ISSN 2076-2607, IF 4.2)
2022 – Present	Member of the Program Committee of the International Multidisciplinary Conference for Young Researchers (MCYR), Prague, Czech Republic
2021 – 2024	<b>Expert of Section 4</b> "Climate Change, Environment, Clean Building and

	Environmental Management" of the Scientific Council of the Ministry of Education and Science of Ukraine for the examination of projects of scientific works (developments) of young scientists
2020 – 2022	Member of the Program Committee of the International Conference on Sustainable Futures: Environmental, Technological, Social and Economic Matters (ICSF-2021)
2020 – 2021	Member of the Program Committee of InterPartner-2020 (2nd Grabchenko's International Conference on Advanced Manufacturing Processes)
2019 – 2022	<b>Expert of the section "Environmental Protection"</b> of the Scientific Council of the Ministry of Education and Science of Ukraine
2019 – 2021	Member of the Program Committee of "Advances in Design, Simulation and Manufacturing: the Innovation Exchange" (DSMIE-2019, 2020 and 2021)
2019–2020	Member of the Scientific Board of Multidisciplinary Conference for Young Researchers, Bila Tserkva, November 2019, within the framework of the project Support of young university capacity in education and research and science activities in Ukraine, financed by Czech Republic Development Cooperation.
2019—Present	Member of International Association for Technological Development and Innovations (IATDI), Ukraine
2018– 2020	Member of Solid Waste Association of North America (SWANA), USA
2018 – Present	Senior Member of the Hong Kong Chemical, Biological & Environmental Engineering Society (HKCBEEES), China
2017 – Present	Member of Scientific Society of the Faculty of Technical Systems and Energy Efficient Technologies (SumDU), Ukraine
2017– Present	The reviewer for manuscripts: International Journal of Energy for a Clean Environment (ISSN Print: 2150-3621; ISSN Online: 2150-363X); Renewable Energy (ISSN: 0960-1481); the International Journal of Hydrogen Energy (ISSN: 0360-3199); the Journal of Engineering Sciences (ISSN Print: 2312-2498, ISSN Online: 2414-9381).

### Honours & awards

October 2025 - Present	<b>2221 - Fellowships for Visiting Scientists and Scientists on Sabbatical Leave</b> , Scientific and Technological Research Council of Türkiye (TÜBİTAK); academic mobility, Muğla Sıtkı Koçman University, Turkey
May 2023-April 2025	<b>Marie Skłodowska-Curie Postdoctoral Fellowship</b> (MSCA-PF) with funding from the European Union under the MSCA4Ukraine framework (2023-2025)
September–December 2020	<b>Grant for researchers</b> to Czech Republic (Czech University of Life Sciences Prague) under the Czech government support provided by the Ministry of Foreign Affairs of the Czech Republic, 2020.
November 2019 – February 2020	<b>Research Stays for University Academics and Scientists, German Academic Exchange Service (DAAD) Scholarship Programme</b> Laboratory of Bioprocess Engineering, Department of Biotechnology, Technische Universität Berlin, Germany
July – October 2019	<b>2019 Research Fellowship Program, Matsumae International Foundation</b> Post Doctoral Research stay, College of Bioscience & Biotechnology at the Chubu University, Japan
2018 – 2020	<b>The Scholarship of the Cabinet of Ministers of Ukraine</b> According to the decision of the Presidium of the Committee on State Prizes of Ukraine in Science and Technology.
April and May 2018	<b>The National Scholarship Programme of the Slovak Republic</b> the Teaching and Post Doctoral Research stay during a period of the stay at the Institute of Environmental Engineering, Faculty of Civil Engineering, Technical University of Kosice, Slovak Republic
October 2016	<b>The Scholarship Program of French government</b> for short-term research stay in laboratory automation and technology (Laboratoire d'Automatique et de Génie des Procédés) of Claude Bernard University Lyon I in France.

## EDUCATION

### Academic degrees

2016–2020	<b>Doctor of Science, Ecological Safety</b> , Sumy State University, Sumy, Ukraine. Thesis: “Scientific basis of environmental synergetic approach to phosphogypsum recycling to reduce manmade load on environment” (Diploma DD № 009975).
2010–2014	<b>C.Sc. (Ph.D.), Ecological Safety</b> , Sumy State University, Sumy, Ukraine. Thesis: “Sewage sludge utilization by sulfidogenic association of microorganisms” (Diploma DK № 021303).
2009–2010	<b>Master in Ecology and Environmental Protection</b> , Sumy State University, Sumy, Ukraine. Thesis: “Simulation of sewage sludge biotransformation for energy purposes”.
2006–2009	<b>Bachelor in Ecology</b> , Sumy State University, Sumy, Ukraine. Title: “Environmental aspects of hydrogen energy”.

## LANGUAGE SKILLS

Ukrainian (mother tongue), English (C1), Russian (C1), Czech (B1)

## ADDITIONAL INFORMATION

### The most relevant publications

- Chernysh, Y., Roubík, H. International collaboration in the field of environmental protection: Trend analysis and covid-19 implications. *Sustainability* (Switzerland), 2020, 12(24), 10384.
- Chernysh, Y., Hasegawa, K. Improvement of the Model System to Develop Eco-Friendly Bio-Utilization of Phosphogypsum, *Lecture Notes in Mechanical Engineering*, 2020, 357–366.
- Plyatsuk, L., Balintova, M., Chernysh, Y., Ablieieva, I., Ablieiev, O. The process of environmentally safe biochemical recycling of phosphogypsum, *Lecture Notes in Mechanical Engineering*, 2020, 843–852.
- Chernysh Ye., Balintova M., Roy I., Demcak S. Polymer materials: bibliographic data analysis and trend detection. *Procedia Environmental Science, Engineering and Management*, 2021, 8 (2), 555–563.
- Chernysh Y., Roy I., Chubur V. et al. Co-digestion of poultry litter with cellulose-containing substrates collected in the urban ecosystem. *Biomass Conv. Bioref.* 2021. <https://doi.org/10.1007/s13399-021-01582-y>
- Chernysh, Y., Balintova, M., Shtepa, V., Skvortsova, P., Skydanenko, M., Fukui, M. Integration of Processes of Radionuclide-Contaminated Territories Decontamination in the Framework of their Ecological-Socio-Economic Rehabilitation. *Ecological Engineering and Environmental Technology*, 23 (1), pp. 110-124. January, 2022.
- Shtepa, V., Balintova, M., Chernysh, Y., Chubur, V., Demcak, S., Gautier, M. Rationale for the combined use of biological processes and aops in wastewater treatment tasks. *Applied Sciences*, 11 (16), Article № 7551. August, 2021.
- Chernysh, Y., Yakhnenko, O., Chubur, V., Roubík, H. Phosphogypsum recycling: A review of environmental issues, current trends, and prospects. *Applied Sciences*, 11 (4), Article № 1575, pp. 1-22. February, 2021.
- Chernysh, Y., Roy, I., Chubur, V., Fukui, M., Koziy, I. Stimulation of Anaerobic Fermentation of Wastewater and Sewage Sludge. *Lecture Notes in Mechanical Engineering*, pp. 319-328. August, 2021.
- Chernysh, Y.Yu., Shtepa, V.N., Plyatsuk, L.D., Chubur, V.S., Danylov, D.V. Anaerobic Digestion Combined with Electrolysis of Poultry Manure and Activated Sludge Inoculum. *Problems of the Regional Energetics*, 2 (54), pp. 101-113. May, 2022.
- Chernysh, Y.; Balintova, M.; Shtepa, V.; Chubur, V.; Junakova, N. Effect of Electrolysis on Activated Sludge during the Hydrolysis and Acidogenesis Stages in the Anaerobic Digestion of Poultry Manure. *Sustainability* 2022, 14, 6826. <https://doi.org/10.3390/su14116826>
- Chubur, V.; Danylov, D.; Chernysh, Y.; Plyatsuk, L.; Shtepa, V.; Haneklaus, N.; Roubik, H. Methods for Intensifying Biogas Production from Waste: A Scientometric Review of Cavitation and Electrolysis Treatments. *Fermentation* 2022, 8, 570. <https://doi.org/10.3390/fermentation8100570>
- Haneklaus, N., Barbossa, S., Basallote, M.D., Bertau, M., Bilal, E., Chajduk, E., Chernysh, Y., Chubur, V., Cruz, J., Dziarczykowski, K., Fröhlich, P., Grosseau, P., Mazouz, H., Kiegiel, K., Nieto, J.M., Pavón, S., Pessanha, S., Pryzowicz, A., Roubík, H., Cánovas, C.R., Schmidt, H., Seeling, R., Zakrzewska-Koftuniewicz, G. Closing the upcoming EU gypsum gap with phosphogypsum (2022) Resources, Conservation and Recycling, 182, Article № 106328. July, 2022.
- Shtepa, V.; Balintova, M.; Shykunets, A.; Chernysh, Y.; Chubur, V.; Plyatsuk, L.; Junakova, N. Intensification of Waste Valorization Techniques for Biogas Production on the Example of *Clarias gariepinus* Droppings. *Fermentation* 2023, 9, 225. <https://doi.org/10.3390/fermentation9030225>

- Essaid Bilal, Hajar Bellefqih, Véronique Bourgier, Hamid Mazouz, Delia-Georgeta Dumitraş, Frédéric Bard, Marie Laborde, Jean Pierre Caspar, Bernard Guilhot, Elena-Luisa Iatan, Moussa Bounakhla, Măruța Aurora Iancu, Ștefan Marincea, Meriem Essakhraoui, Binlin Li, Reymar R. Diwa, Jennyvi D. Ramirez, Yelizaveta Chernysh, Viktoriia Chubur, Hynek Roubík, Horst Schmidt, Redouane Beniazza, Carlos Ruiz Cánovas, José Miguel Nieto, Nils Haneklaus, Phosphogypsum circular economy considerations: A critical review from more than 65 storage sites worldwide, *Journal of Cleaner Production*, Volume 414, 2023, 137561, <https://doi.org/10.1016/j.jclepro.2023.137561>.
- Chernysh, Y.; Chubur, V.; Ablieieva, I.; Skvortsova, P.; Yakhnenko, O.; Skydanenko, M.; Plyatsuk, L.; Roubík, H. Soil Contamination by Heavy Metals and Radionuclides and Related Bioremediation Techniques: A Review. *Soil Syst.* 2024, 8, 36. <https://doi.org/10.3390/soilsystems8020036>
- Boyko, O., Brygadyrenko, V., Chernysh, Y. et al. Possibilities of decontaminating organic waste from swine-farming complexes using anaerobic digestion. *Biomass Conv. Bioref.* (2024). <https://doi.org/10.1007/s13399-024-05914-6>
- Skvortsova P. O., Ablieieva I. Yu., Tonderski K., Chernysh Ye. Yu., Plyatsuk L. D., Sipko I. O., Mykhno H. I. (2024). Synergetic effect of digestate dissolved organic matter and phosphogypsum properties on heavy metals immobilization in soils. *Journal of Engineering Sciences (Ukraine)*, Vol. 11(1), pp. H9–H20. [https://doi.org/10.21272/jes.2024.11\(1\).h2](https://doi.org/10.21272/jes.2024.11(1).h2)
- Chernysh, Y., Stejskalová, L., Soldán, P. et al. Risk Assessment as a Tool to Improve Water Resource Management. *Water Resour Manage*, 2024. <https://doi.org/10.1007/s11269-024-03982-x>
- Chernysh, Y., Chubur, V., Shtepa, V. et al. Anaerobic Digestion of Poultry Manure with Phosphogypsum Using Microbial Electrolysis and Ultrasound: A Neural Network Approach. *Environ. Process.* 12, 52 (2025). <https://doi.org/10.1007/s40710-025-00794-y>
- Cristina Corpa, Ana Balea, Guillermo Nieto, Yelizaveta Chernysh, Lada Stejskalová, Angeles Blanco, M. Concepcion Monte, Bibliometric analysis of emerging contaminants and cytostatic compounds: Understanding the current challenges, *Journal of Hazardous Materials Advances*, Volume 17, 2025, 100538, <https://doi.org/10.1016/j.hazadv.2024.100538>.
- Chernysh, Y., Chubur, V., & Roubík, H. (2025). *Sustainable Biotechnology and Environmental Protection: A Four-pronged Strategy*. Green Energy and Technology. Springer Cham. DOI: 10.1007/978-3-031-89436-7

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### Intellectual property rights

- **Patent of Ukraine for invention 103087**  
*Process for the treatment of organic wastes with removal of heavy metals*. Published on 10.09.2013, bul. № 17
- **Patent of Ukraine for utility model 87422**  
*Installing anaerobic processing of organic waste*. Published on 10.02.2014, bul. № 3
- **Patent of Ukraine for utility model 103687**  
*Method of sulfur compound removal from gas flows*. Published on 25.12.2015, bul. № 24
- **Patent of Ukraine for invention 114664**  
*Method for producing a granulated carrier containing immobilized microorganisms*. Published on 10.07.2017, bul. № 13
- **Patent of Ukraine for utility model 133504**  
*The method of processing of industrial waste with heavy metals removal and obtaining of phosphate fertilizer and biocomposite*. Published on 10.04.2019. № 7
- **Patent of Ukraine for utility model 133505**  
*Method for producing a granulated carrier containing immobilized microorganisms*. Published on 10.04.2019. № 7
- **Patent of Ukraine for invention 122820**  
*Method for the treatment of technogenically contaminated soils with heavy metals*. Published on 06.01.2021. № 1
- **Patent of Ukraine for utility model 149860**  
*Method of obtaining biofuels and biofertilizer from organic waste*. Published on 08.12.2021. № 49
- **Patent of Czech Republik for utility model CZ38584**  
*Směs organického kalu s anorganickou složkou / Mixture of organic sludge with inorganic component CZ38584*, Issued Apr 24, 2025