

Information on a candidate for doctoral students' supervisor in the academic year 2026/2027

Name and surname including academic degree and title
Agnieszka Gil-Świdarska, Doctoral Degree with Habilitation, a University Professor
Field of science, scientific discipline
Natural sciences, mathematics
Specialisations
Applied mathematics, partial differential equations, time series analysis
Supervisor's academic profile (including link to ORCID, link to Research Gate)
ORCID ID: https://orcid.org/0000-0002-1291-5908 RESEARCH GATE: https://www.researchgate.net/profile/Agnieszka-Gil In 2019 habilitation in geophysics, CBK PAN In 2004 PhD in physics, University of Lodz, Poland In 2000 MSc in mathematics, University of Podlasie, Siedlce, Poland
Supervisor's main publications/ monographs issued over the last 5 years (max. 3)
1. Siluszyk A., Gil A., Modzelewska R. et al., Reduction of the space dimension of parameters characterizing geomagnetic storms during the Solar Cycle 24, Scientific Reports, 2026, https://doi.org/10.1038/s41598-026-40415-8 2. Modzelewska R, Gil A, Kozak-Superson D et al.: Rigidity Dependence of the Long-term Galactic Cosmic Ray Variation by AMS-02, Astrophysical Journal, 2025, vol. 990, no. 2, pp.1-18, Article number:178. DOI:10.3847/1538-4357/adf440 3. Gil A., Asvestari E., Mishev A., Larsen N., Usoskin I.: New Anisotropic Cosmic-Ray Enhancement (ACRE) event on 5 November 2023 due to complex heliospheric conditions, Solar Physics, vol. 299, no. 7, 2024, Article number: 97, pp. 1-20, DOI:10.1007/s11207-024-02338-3
Experience in working with doctoral students
- number of defended doctoral dissertations: 0 - number of open doctoral dissertations: 0 - number of dissertation at the doctoral school: 0
Brief description of supervisor's research area (including research methods / techniques) together with a link to the website of the research team, if any
The stunning beauty of mathematics lies in its universality and almost infinite applicability in all aspects of life. Doctoral students are offered two, completely separate directions of research related to the applied mathematics. The first topic gives the opportunity to study the volatility and dependencies of financial markets using an advanced mathematical apparatus. The leading issues include research on the Black-Scholes equation and issues arising from it. The second topic is related to the use of modern mathematical methods in research on the effects and possibilities of forecasting space weather phenomena. Selected research methods and techniques: methods of analytical and numerical solution of partial differential equations, boundary conditions, the problem of the existence and uniqueness of the solutions, statistical methods, machine learning methods, nonlinear methods
Proposed research topics for doctoral students
1. Applications of partial differential equations to research on financial markets 2. Machine learning methods and time series analysis in space weather research
Contact details: Faculty, Institute, E-mail address
Faculty of Natural Sciences, Institute of Mathematics, agnieszka.gil-swiderska@uws.edu.pl

Name and surname including academic degree and title
Andrzej Walendziak Doctoral Degree with Habilitation, a University Professor
Field of science, scientific discipline
Natural sciences, mathematics
Specialisations
algebra
Supervisor's academic profile (including link to ORCID, link to Research Gate)
ORCID ID: https://orcid.org/0000-0002-9866-0781
Google Scholar: https://scholar.google.pl/citations?user=DoRUEewAAAAJ&hl=pl
Scopus Author ID: 6602500503
Supervisor's main publications/ monographs issued over the last 5 years (max. 3)
1. On implicative and positive implicative GE algebras, Bulletin of the Section of Logic 52 (2023), 497-515. 2. On pre-Hilbert and positive pre-Hilbert algebras, Bulletin of the Section of Logic 53 (2024), 345-364. 3. Deductive systems and R-congruences of pre-Hilbert algebras, Soft Computing 29 (2025), 3785-3794.
Experience in working with doctoral students
• number of defended doctoral dissertations: 2
• number of open doctoral dissertations: 0
• number of dissertation at the doctoral school: 0
Brief description of supervisor's research area (including research methods / techniques) together with a link to the website of the research team, if any
Areas of research work: 1) modular and semi-modular lattices, decompositions in lattices; 2) universal algebra; 3) B-algebras and quasigroups; 4) algebras related to logic (BCK-, BCI-, BCH-algebras, implicative algebras, Hilbert algebras and their generalizations).
Proposed research topics for doctoral students
Pre-Hilbert algebras, involutive weak exchange algebras, deductive systems, lattices of congruences, fuzzy sets of some algebras of logic.
Contact details: Faculty, Institute, E-mail address
Faculty of Natural Sciences, Institute of Mathematics, andrzej.walendziak@uws.edu.pl ; walent@interia.pl ; andrzej.walendziak@gmail.com

Imię i nazwisko wraz ze stopniem i tytułem naukowym
Professor Alexey Tretiyakov
Dziedzina nauki, dyscyplina naukowa
Natural sciences, mathematics
Specjalności
mathematics
Profil naukowy promotora (m.in. link do ORCID, link do Research Gate)
https://orcid.org/0000-0003-3474-8458 ; https://www.researchgate.net/profile/Alexey-Tretiyakov
Najważniejsze publikacje/monografie promotora wydane w okresie 5 ostatnich lat (max. 3)
1. Bednarczuk E., Brezhneva O., Leśniewski K., Prusińska A., Tret'yakov A., Towards Nonlinearity: The p-Regularity Theory, Entropy, 2025, DOI: 10.3390/e27050518 2. Brezhneva, O., Evtushenko, Y., Malkova, V., Tret'yakov, A. (2023). The pth-Order Karush-Kuhn-Tucker Type Optimality Conditions for Nonregular Inequality Constrained Optimization Problems. In: Olenov, N., Evtushenko, Y., Jaćimović, M., Khachay, M., Malkova, V. (eds) Optimization and Applications. OPTIMA 2023. Lecture Notes in Computer Science, vol 14395. Springer, Cham. https://doi.org/10.1007/978-3-031-47859-8_2 3. Brezhneva, O.; Prusińska, A.; Tret'yakov, A.A. On the Finite Complexity of Solutions in a Degenerate System of Quadratic Equations: Exact Formula. Entropy 2023, 25, 1112. https://doi.org/10.3390/e25081112
Doświadczenie w pracy z doktorantami
• number of defended doctoral dissertations: 21 • number of open doctoral dissertations: 0 • number of dissertation at the doctoral school: 1
Krótki opis tematyki badawczej prowadzonej przez promotora oraz ewentualny link do strony internetowej zespołu badawczego (z uwzględnieniem metod/technik badawczych)
Describing optimization theory and analysis; Development of optimization methods for singular problems with constraints defined by inequalities; Describing the conditions of finite complexity of solutions to systems of quadratic equations.
Proponowane tematy badawcze dla doktorantów
Developing the theory of p-regularity; Application of p-factor analysis methods in nonlinear differential equations; P-factor method for numerical solution of degenerate nonlinear analysis problems.
Dane kontaktowe: Wydział, Instytut, Adres e-mail
Faculty of Science, Institute of Mathematics, alexey.tretiyakov@uws.edu.pl