

Advisors of the University of Lodz
Doctoral School of Exact and Natural Sciences
for the academic year 2021/2022

No	Academic staff member	Contact ✉ e-mail ☎ phone 🆔 ORCID	Field of science and research interests	Proposed dissertation subject
biological sciences				
1.	dr Richard Bailey Faculty of Biology and Environmental Protection University of Lodz	✉ richard.bailey@biol.uni.lodz.pl ☎ 42 635-44-33 🆔 0000-0001-9870-410X	Hybridization is common in nature, and hybrids may have reduced fitness if the genomes of their parents are incompatible. However, hybridization can also introduce novel variation into a population and potentially improve ecological adaptation, sometimes even resulting in new hybrid species. My research involves understanding how hybridization changes the evolution of genomes and organisms, and how this contributes to biodiversity. I study birds (usually sparrows) and insects (oak gall wasps and their parasitoids, grasshoppers, and butterflies and moths), and in my future research I will be asking how hybridization affects adaptation to a changing climate and interactions between insects or birds and plants, parasites, parasitoids and pathogens	The influence of hybridization on evolution, species interactions and environmental adaptation in birds and insects.
chemical sciences				
1.	dr hab. Magdalena Małecka, prof. UŁ	✉ magdalena.malecka@chemia.uni.lodz.pl	Crystallography, crystal chemistry, X-ray crystal structures for biologically active	Crystal structure of biologically active compounds.

	Faculty of Chemistry University of Lodz	☎ 42 635 57 31, 602372707 ① 0000-0003-3384-9855	compounds, experimental electron-density studies, intermolecular interactions (including hydrogen bonds).	
physical sciences				
1.	dr hab. Paweł Kowalczyk Faculty of Physics and Applied Informatics University of Lodz	✉ pawel.kowalczyk@uni.lodz.pl ☎ 42 635 56 10 ① 0000-0001-6310-4366	Physics of nanomaterials, two-dimensional materials and their hybrids. Electronic and morphological structure of nanomaterials. Investigations using scanning probe microscopy (STM, STS, AFM), global characterization techniques (XPS, AES, UPS, ARPES). Material growth in UHV conditions.	1. Electronics based on two-dimensional topological materials: effective methods of edge states protecting in two-dimensional topological insulators - bismuthene and antimonene 2. Investigation of resistive switching mechanisms in systems based on transition metals dichalcogens.
2.	prof. dr hab. Krzysztof Kowalski Faculty of Physics and Applied Informatics University of Lodz	✉ kowalski@uni.lodz.pl ☎ 42 635 56 71 ① 0000-0003-2160-0526	Quantization on manifolds with a non-trivial topology with particular attention to coherent states, relativistic quantum mechanics in the area of statistical physics, thermodynamics and Hamiltonian dynamics, problems of quantum evolution, theory of nonlinear dynamical systems	The thesis deals with entropy and entropic uncertainty relations for the quantum mechanics on manifolds with a non-trivial topology. In particular, it is planned to study the Wehrl entropy and entropic uncertainty relations for coherent states of a particle on a circle and sphere.
3.	dr hab. Julian Sitarek Faculty of Physics and Applied Informatics University of Lodz	✉ jsitarek@uni.lodz.pl ☎ 42 635 56 47 ① 0000-0002-1659-5374	very-high-energy gamma rays, cherenkov telescopes	monitoring of active galactic nuclei objects in very-high-energy gamma-ray range with the LST telescopes.
mathematics				
Earth and environmental sciences				
1.	prof. dr hab. Krzysztof Fortuniak Faculty of Geographical	✉ krzysztof.fortuniak@geo.uni.lodz.pl ☎ +48-42-6655954 ① 0000-0001-7043-8751	climatology, in particular: urban climate; processes of mass, energy and momentum exchange between the Earth's surface and the atmosphere; greenhouse gas balance of	The exchange of greenhouse gases between the wetland ecosystem of the Biebrza National Park and the atmosphere based on direct measurements (eddy-covariance

	Sciences University of Lodz		various ecosystems	method) and phenological images.
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