RESEARCH TOPICS IN THE DISCIPLINE OF PHYSICAL SCIENCE
in the academic year 2022/2023

Lp.	PhD Supervisor	ORCID	Contact	Research topics
1	dr hab. prof. UJK Dariusz Banaś	0000-0003-1566-5446	dariusz.banas@ujk.edu.pl	1. Study of the crystalline structure of layered materials using low-angle X-ray diffraction (GIXRD). 2. Analysis of the properties of chemical compounds/minerals by X-ray photoelectron spectroscopy (XPS). 3. Analysis of nanolayers with the use of X-ray reflectometry (XRR). 4. Study of the surface structure of new materials using scanning probe microscopy (SPM). 5. Characteristics of nanostructures formed by the interactions of highly charged ions with surfaces of various materials.
2	prof. dr hab. Janusz Braziewicz	0000-0002-6972-7027	janusz.braziewicz@ujk.edu.pl	1. Dose distributions in radiotherapy 2. Mathematical models of bioequivalent doses in radiotherapy 3. Effect of radiobiological factors on TCP/NTCP in radiotherapy treatment planning
	prof. dr hab. Wojciech Broniowski	0000-0002-9711-7234	wojciech.broniowski@ujk.edu.pl	Theory of ultra-relativistic nuclear collisions at the LHC and RHIC: - Analysis of the initial state in collisions of light nuclei - Higher-order cumulants of longitudinal correlations in a string model
4	prof. dr hab. Marek Gaździcki	0000-0002-6114-8223	marek.gazdzicki@ujk.edu.pl	Study of relativistic heavy ion collisions

5	dr hab. prof. UJK Francesco Giacosa	0000-0002-7290-9366	fgiacosa@ujk.edu.pl	1. Unconventional mesons: glueballs and tetraquarks 2. Restoration of chiral symmetry at nonzero temperature and density in effective models of QCD 3. Modeling the measurement process in quantum mechanics 4. Non-exponential decay in Quantum Mechanics and in Quantum Field Theory
6	prof. dr hab. Tadeusz Kosztołowicz	0000-0001-5710-2970	tadeusz.kosztolowicz@ujk.edu.pl	1. Modeling of normal and anomalous diffusion processes in biological systems 2. Fractional differential calculus (issues on the border of physics and applications of mathematics)
7	dr hab. prof. UJK Aldona Kubala-Kukuś	0000-0003-1547-3348	a.kubala-kukus@ujk.edu.pl	Investigation of the material properties using the low-angle X-ray spectroscopy
8	prof. dr. hab. Stanisław Mrówczyński	0000-0002-5943-698X	stanislaw.mrowczynski@ncbj.gov.pl	1. Physics of the quark-gluon plasma 2. Models of heavy ion collisions
9	prof. dr hab. Marek Pajek	0000-0002-3888-5209	marek.pajek@ujk.edu.pl	1. Interactions of highly charged ions with surfaces 2. Recombination processes of ions with electrons in the plasma 3. Molecular fragmentation by electron impact 4. Investigations of relaxation of Rydberg hollow atoms by X-ray spectroscopy
10	dr hab. prof. UJK Maciej Rybczyński	0000-0002-3638-3766	maciej.rybczynski@ujk.edu.pl	1. Investigation of multiparticle production processes in high-energy nuclear collisions 2. Study of fluctuations and correlations in particle production processes 3. Multiplicity fluctuations in collisions of relativistic ions
11	prof. dr hab. Jacek Semaniak	0000-0001-6953-6215	jacek.semaniak@ujk.edu.pl	Free electron – molecular ion collisions, atomic collisions, x ray spectrometry, transport processes in membrane systems

12	dr hab. prof. UJK Grzegorz Stefanek	0000-0001-6656-9177	grzegorz.stefanek@ujk.edu.pl	Heavy Ion Physics
13	prof. dr hab. Krzysztof Ślosarek	0000-0002-0559-0180	krzysztof.slosarek@io.gliwice.pl	1. Dose distributions in radiotherapy 2. Mathematical models of bioequivalent doses in radiotherapy 3. Effect of radiobiological factors on TCP/NTCP in radiotherapy treatment planning
14	prof. dr hab. Zbigniew Włodarczyk	0000-0002-5602-9692	zbigniew.wlodarczyk@ujk.edu.pl	Phenomenological description of production processes in heavy-ion collisions