Cluster 6

Food, Bioeconomy, Natural Resources, Agriculture and Environment

This cluster aims at reducing environmental degradation, halting and reversing the decline of biodiversity on land, inland waters and sea and better managing natural resources through transformative changes of the economy and society in both urban and rural areas.

It will ensure food and nutrition security for all within planetary boundaries through knowledge, innovation and digitalisation in agriculture, fisheries, aquaculture and food systems and steer and accelerate the transition to a low carbon, resource efficient circular economy and sustainable bioeconomy, including forestry.

AREAS OF INTERVENTION

- environmental observation
- biodiversity and natural resources
- agriculture, forestry and rural areas
- seas, oceans and inland waters
- food systems
- bio-based innovation systems in the EU's bioeconomy
- circular systems

Source: Cluster 6

PhD, DSc
Oskar Kowalewski
RESEARCH LABORATORY OF ADVANCED STUDIES

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EXPERTISE

Our laboratory is focused on research in the field of finance, in particular in the fields of corporate governance, banking, and new technologies (fin-tech). In the last area, the subject of study is the impact of innovation on the activities of financial intermediaries. The research carried out by the team is also interdisciplinary in nature, combining elements of finance, in particular banking, with agro-economics, and analyzes of the impact of climate change on the financial sector.

SEEKING FOR COLLABORATION WITHIN

finance, corporate governance, fintech, climate finance, agro-economics

RELEVANT PROJECTS

FINEXCA

Drought

PhD, DSc
Krzysztof Niedziałkowski
ENVIRONMENTAL SOCIOLOGY LAB

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EXPERTISE

Our laboratory is focused on the sociological and political analyses of the interactions between society and the environment. In particular, we are interested in the development of environmental governance and policies over time and the impact of human agency, social structures, culture, and environmental changes on the institutions regulating socio-ecological systems. We work on such policy areas as biodiversity conservation, forest policy, land use planning, and climate policy.

SEEKING FOR COLLABORATION WITHIN

environmental policy and governance, biodiversity, water, food, energy, climate nexus

RELEVANT PROJECTS

LEARNFORCLIMATE

LINKAGE

Max Planck Society funded project

NCN/OPUS

PhD, DSc
Katarzyna Zawalińska
LABORATORY OF ECONOMIC MODELLING

INSTITUTE OF RURAL AND AGRICULTURAL DEVELOPMENT, PAS
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EXPERTISE

The laboratory is focused on research and evaluation of policy instruments aimed at performance of farming systems and delivery of their functions. In particular, we are interested in resilience and sustainability of farming and seek to support its thrive towards ecologisation, climate-neutrality and environmental friendliness. In our research we employ both quan-titative and qualitative approaches within economic, social, environmental and institutional dimensions.

SEEKING FOR COLLABORATION WITHIN

agriculture, resilience, sustainability, food production, farming practices, policy evaluation

RELEVANT PROJECTS

SURE-Farm

LIFT

BioMonitor4CAP

SoilValues

PhD, DSc
Paweł Chmieliński
LABORATORY ON SUSTAINABLE EUROPEAN FOOD SYSTEMS

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EXPERTISE

The team is focused on studying local and regional food systems, as well as small to medium sized farms. We mobilize data, research, and university resources to advocate for more sustainable, equitable food systems. We explore how food systems interact with public health, economics, society, and the environment and convene and connect researchers, community partners, food system stakeholders and consumers to mobilize for societal change.

SEEKING FOR COLLABORATION WITHIN

sustainable food systems, agriculture, public policy, governance, research and innovation, CEECs

RELEVANT PROJECTS

FoodPathS
BIOEASTsUP

PhD
Anna Rosa
RESEARCH TEAM ON REGENERATIVE AGRICULTURE

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EXPERTISE

The team focuses on disseminating the idea of sustainable farming systems (regenerative agriculture) encompassing both productive, economic, and, social aspects. Our research considers all of them. Trends related to environmental protection and respect for the climate force agriculture to conduct production using the latest technologies, minimisation of mineral fertilisation and pesticide use, reduction of energy consumption in production, and maintaining the transparency of operations.

SEEKING FOR COLLABORATION WITHIN

regenerative agriculture, biologization, sustainable development, adaptability to climate change

RELEVANT PROJECTS

Biologization

PhD, DSc
Edyta Kiedrzyńska
RESEARCH TEAM: WASTEWATER PURIFICATION

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EXPERTISE

The main focus of our research is on quantifying the transfer of nutrients, xenobiotics, and pharmaceutics along the river continuum from source to estuary, evaluating the influence of Wastewater Treatment Plants (WWTPs) on the eutrophication and contamination of rivers and the Baltic Sea, and developing innovative Nature-Based Solutions for enhancing the efficiency of small and medium-sized WWTPs.

SEEKING FOR COLLABORATION WITHIN

WWTP, P, N, xenobiotics, pharmaceuticals, ecohydrology, nature-based solutions

RELEVANT PROJECTS

NEURON
FARMIKRO
AZOSTOP

PhD, DSc
Katarzyna Izydorczyk
RESEARCH TEAM: WATER MANAGEMENT IN AGRICULTURE BASIN

EUROPEAN REGIONAL CENTRE FOR ECOHYDROLOGY, PAS
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EXPERTISE

The main study area of our team is the holistic approach to water management in agricultural landscapes, with a special emphasis on developing Nature-Based Solutions for reducing non-point source pollution output into the water catchment, and creating means for local cooperation between landowners, farmers, and authorities. Our research and networking also serve to develop, test, assess, and implement Nature-Based Solutions on local and regional scale.

SEEKING FOR COLLABORATION WITHIN

agriculture landscape, non-point source pollutions, nitrogen, phosphorus, land/water ecotones

RELEVANT PROJECTS

EKOROB
WATERDRIVE
RECONECT

Professor
Joanna Mankiewicz-Boczek
LABORATORY OF MOLECULAR ECOHYDROLOGY

EUROPEAN REGIONAL CENTRE FOR ECOHYDROLOGY, PAS
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EXPERTISE

Our Lab is focused on gaining knowledge about the diversity and role of microorganisms in both the cycling of N and P and the interaction of micro-organisms in aquatic ecosystems in order to better understand their interrelationships, and consequently the benefits as well as the threat to the environment. We are in- terested in interactions between microorganisms associated with toxic cyanobacterial blooms, in terms of both threat management and searching for bio-technological solutions involving microorganisms.

SEEKING FOR COLLABORATION WITHIN

microorganisms, toxic cyanobacterial harmful algal bloom, genetic tools, environment, ecohydrology

RELEVANT PROJECTS

ALGICYDY
NCBR/TANGO
CYANOCOST

Professor
Magdalena Urbaniak
PLANT-BACTERIA PARTNERSHIP RESEARCH GROUP

EUROPEAN REGIONAL CENTRE FOR ECOHYDROLOGY, PAS
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EXPERTISE

Our team is focused on investigating the plant–-bacteria partnership for the purposes of effective removal of xenobiotics (POPs, CECs) from the environment. In particular we are interested in elucidating the orchestrated net of interactions between bacteria, plants, and plant exudates and har-nessing these for the detoxification of soil and water. Our aim is to integrate phyto- and bioremediation (rhizobacteria- or endophyte-assisted phytoreme-diation) methods for xenobiotics removal.

SEEKING FOR COLLABORATION WITHIN

bioremediation, phytoremediation, persistent organic pollutants, compounds of emerging concern

RELEVANT PROJECTS

Ministry funded project
NCN funded project
CHEMFELLS4UCTP

PhD

Kinga Krauze

RESEARCH TEAM: SOCIO-ECOHYDROLOGY AND ECOSYSTEM SERVICES

EUROPEAN REGIONAL CENTRE FOR ECOHYDROLOGY, PAS

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EXPERTISE

Our laboratory is focused on social, economic, and ecological drivers of natural capital and water management issues, from the perspective of both resource quality and availability and people's conflicting needs (nexus) and attitudes. In particular, we are interested in long-term processes at the nature--human interface. We work on ecosystem services assessment, implementation of Nature-Based So- lutions in rural and urban areas, and biodiversity and risk assessment.

SEEKING FOR COLLABORATION WITHIN

NBS, coupled human and nature systems (CHANS), water management, modelling

RELEVANT PROJECTS

eLTER PPP

BioAgora

Eupolis

ATENAS

Assoc. Prof.

Adam Jurgoński

BIOLOGICAL FUNCTION OF FOOD TEAM

INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

A.JURGONSKI@PAN.OLSZTYN.PL

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EXPERTISE

Elucidating the physiological and molecular mechanisms through which both well-known and novel dietary components influence gut function and metabolic health. The team conducts controlled feeding experiments using animal models of disorders characteristic of diet-related diseases. The research to date has focused on: • phenolic extracts and fiber–phenolic preparations, • prebiotic preparations and food additives, • unconventional sources of unsaturated fatty acids, • trace minerals in nanoparticle form.

SEEKING FOR COLLABORATION WITHIN

preparation, chemical analysis, evaluation of the properties of novel food ingredients

RELEVANT PROJECTS

NCN/OPUS

NCN/OPUS

NCN/SONATA

Assoc. Prof.

Radosław Kowalski

AQUATIC ORGANISM REPRODUCTIVE BIOTECHNOLOGY TEAM

INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

R.KOWALSKI@PAN.OLSZTYN.PL

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EXPERTISE

The research interests focus broadly on the reproduction of aquatic organisms and its support under controlled conditions. This includes understanding physiological and biochemical mechanisms underlying gamete function, as well as developing and optimizing methods that enhance reproductive success in both experimental and applied contexts, including aquaculture and conservation programs. Specific expertise: sperm motility and kinematic analysis, seminal plasma biochemistry and functional biomarkers, sperm cryopreservation and long-term storage of genetic resources.

SEEKING FOR COLLABORATION WITHIN

genetic and genomic analyses, molecular data, reproductive processes

RELEVANT PROJECTS

Salmocross

Professor
Izabela Wocławek-Potocka
EMBRYO BIOLOGY TEAM

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EXPERTISE

We research advanced reproductive biotechnology in cattle, focusing on pre-implantation embryo development and oocyte quality markers to assess embryo viability. Our core method is in vitro embryo production (IVP), supporting micromanipulation, gene expression analysis, immunofluorescence, embryo culture, cryopreservation, and transfer. We study oocytes collected post-mortem and in vivo (OPU) from mature and immature animals, including young cattle to accelerate genetic progress. Our findings are translated into practical field applications for veterinarians and cattle breeders.

SEEKING FOR COLLABORATION WITHIN

embryotransfer, in vitro embryo production, veterinary

RELEVANT PROJECTS

NCN OPUS Lap
NCN OPUS
NCN OPUS

Professor
Iwona Grabowska
BIOELECTROANALYTICS TEAM

INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS
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EXPERTISE

Studying the interactions between biomolecules using electroanalytical methods to develop innovative analytical systems that can be applied in medicine, veterinary science, food analysis, and environmental protection. We are particularly interested in: • testing of antibodies, single-stranded nucleic acids (ssDNA, ssRNA), and aptamers as recognition element in electrochemical biosensors, • exploring new carbon or gold nanomaterials as transducer element in biosensors, • systems for targeted and controlled delivery of therapeutically significant compounds to cancer cells.

SEEKING FOR COLLABORATION WITHIN

electrochemical biosensors, aptasensors, immunosensors, genosensors, biomarkers

RELEVANT PROJECTS

ADEVASCO
NCN OPUS
NCN OPUS

Professor
Jaroslaw Olav Horbańczuk
DEPARTMENT OF BIOTECHNOLOGY AND NUTRIGENOMICS

INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS
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EXPERTISE

Our team is focused on improving food quality of animal origin in sustainable production systems with reference to bioactive components, nutrigenomics and biotechnology. We work on the genetic aspect of food quality improvement and the influence of feeding and housing systems on modifying the chemical composition and nutritive value of milk, meat, and eggs, with special reference to bioactive components.

SEEKING FOR COLLABORATION WITHIN

nutrigenomics, epigenetics, biotechnology, food quality of animal origin

RELEVANT PROJECTS

BIOFOOD
Centre of Excellence
Bio-Centre

PhD, DSc

Joanna Marchewka

DEPARTMENT OF ANIMAL BEHAVIOR AND WELFARE

INSTITUTE OF GENETICS AND ANIMAL BIOTECHNOLOGY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

J.MARCHEWKA@IGBZPAN.PL

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EXPERTISE

Our team is focused on research in farm animal behavior, animal welfare and neurobiology. In particular, we are interested in assessing and improving animals' welfare through understanding of their needs and reactions to stressors. We work on developing animal welfare indicators, social bonds, activity and use of resources, as well as basic research on stress genetics and effects. We investigate animals reared in various production systems, from intensive to organic.

SEEKING FOR COLLABORATION WITHIN

immunology, microbiome, nutrition, ITsolutions, data handling, economy of animal production & welfare

RELEVANT PROJECTS

mEATquality

aWISH

Best Practice Hens

PhD, DSc

Irene Camerlink

ANIMAL SOCIAL BEHAVIOR GROUP, DEPARTMENT OF ANIMAL BEHAVIOR AND WELFARE

INSTITUTE OF GENETICS AND ANIMAL BIOTECHNOLOGY, PAS

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EXPERTISE

Our group focuses on animal social behavior, with studies dealing with animal cognition, social inter-actions, and physiology. The main study animal is the pig, as a versatile research model with rele-vance to human science and animal welfare. Our team members have backgrounds in ethology, ani-mal sciences, and evolutionary biology. Strong international collaboration, mainly with European countries, facilitate large-scale data collection and the use of novel techniques.

SEEKING FOR COLLABORATION WITHIN

animal behavior, animal welfare, oxytocin, cognition, social behavior, ethology

RELEVANT PROJECTS

aWISH

LIFT

NCN/OPUS20

FORMAS funded project

PhD, DSc

Hiroaki Taniguchi

TEAM FOR GENOME EDITING AND TRANSCRIPTIONAL REGULATION/DEPARTMENT OF EXPERIMENTAL EMBRYOLOGY

INSTITUTE OF GENETICS AND ANIMAL BIOTECHNOLOGY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

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EXPERTISE

With expertise in the field of genome and molecular biology in humans and animals, our group is one of the very few laboratories in Poland that are uniquely positioned to make exciting new contributions to this field of study using CRISPR-mediated gene editing. Our research mission is to prove novel mechanisms in which genetic and epigenetic and transcriptional regulation play essential roles in regulating genetic diseases in animals using recent gene editing tools.

SEEKING FOR COLLABORATION WITHIN

Cancer Biology, Neuronal Disease, Transcription Factors, Functional Annotation of Mammalian Genome

RELEVANT PROJECTS

BOVREG

NCN/PRELUDIUMBIS

NCN/OPUS13

Professor
Iwona Żur
GROUP OF MICROSPORE EMBRYOGENESIS

INSTITUTE OF PLANT PHYSIOLOGY, PAS

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EXPERTISE

Our laboratory is focused on the mechanisms regulating the process of microspore embryogenesis (ME) in agronomically important plant species. In particular, we are interested in the physiological, molecular, and (epi)genetic background of the for-mation of embryo-like structures and their regeneration into haploid/doubled haploid plants. We seek to identify factors determining the efficiency of ME induction in both responsive (e.g. rapeseed, barley) and recalcitrant crops (e.g. rye).

SEEKING FOR COLLABORATION WITHIN

cell death, gene/transcriptome regulation, gene editing, post-translational modification, signaling

RELEVANT PROJECTS

NCN funded project
NCN funded project
NCN funded project

Professor
Anna Janeczko
GROUP OF PLANT STRESS: STEROIDS

INSTITUTE OF PLANT PHYSIOLOGY, PAS

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EXPERTISE

This laboratory is focused on: (1) uncovering the physiological function and metabolism of brassinosteroids in the context of the acclimation and deacclimation of crop plants in changing climate conditions; (2) studying the presence and physiological activity of mammalian steroid hormones and ecdysteroids (insect hormones) in plants.

SEEKING FOR COLLABORATION WITHIN

climate changes & plant stress, crop plants, hormonal regulation, hormone crosstalk, photosynthesis

RELEVANT PROJECTS

NCN funded project
NCN funded project
NCN funded project
NCN funded project

PhD, DSc
Ilona Czyczyło-Mysza
GROUP OF PLANT STRESS: ROLE OF EPICUTICULAR WAX

INSTITUTE OF PLANT PHYSIOLOGY, PAS

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EXPERTISE

The laboratory is focused on the role of the wax layer in rye resistance to drought stress, including its chemical composition and crystal morphology; to study the mechanisms of drought resistance, including physiological, biochemical, and genetic aspects; to characterize developmental, stage-dependent, physiological, biochemical and molecular characteristics of ears, stems, flag leaves, and grains during abiotic stress.

SEEKING FOR COLLABORATION WITHIN

drought, gene expression, genetic mapping, phenotyping, photosynthesis, proteome, wax, yield

RELEVANT PROJECTS

NCN/WaxyGen

Professor
Ewa Niewiadomska
ABIOTIC STRESS RESEARCH: REDOX SIGNALS

INSTITUTE OF PLANT PHYSIOLOGY, PAS

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E.NIEWIADOMSKA@IFR-PAN.EDU.PL
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EXPERTISE

Our aim is to elucidate the multi-level acclimation of plants' photosynthetic machinery to salinity and drought. This includes the structural and functional modifications of photosynthetic apparatus for efficient photochemical reactions (rearrangement of photosynthetic antennae, mechanism of switching between the linear and cyclic electron flows, updating of ROS production and scavenging, redox signaling from chloroplasts), as well as for optimal CO_2 fixation. We are also interested in redox-regulated modulation of primary and secondary metabolite production.

SEEKING FOR COLLABORATION WITHIN

drought, photosynthesis, redox signaling, salinity, secondary metabolites

RELEVANT PROJECTS

NCN/Miniatura
DAAD-MNiSW funded project
NCN funded project
NCN funded project

Professor
Ireneusz Ślesak
CYANOBACTERIA AND ALGAE RESEARCH

INSTITUTE OF PLANT PHYSIOLOGY, PAS

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I.SLESAK@IFR-PAN.EDU.PL
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EXPERTISE

Our research group focuses on the metabolism of cyanobacteria and microalgae. We are interested in photosynthetic activity in response to selected abiotic stress factors, e.g. UV radiation and cosmic-ray components, and in possible inducers of the biosynthesis of nutrients/proteins in cyano-bacteria and algae. In addition, analyses using molecular phylogenetics are carried out to reveal the evolution of oxygenic photosynthesis in the early stages of the evolution of life on Earth.

SEEKING FOR COLLABORATION WITHIN

abiotic stress, algae, cosmic rays, cyanobacteria, nutrients, oxygenic photosynthesis, UV radiation

RELEVANT PROJECTS

Project
NCN/MINIATURA 5

PhD, DSc
Ewa Surówka
ABIOTIC STRESS RESEARCH: HALOPHYTES AND GLYCOPHYTES IN AGRICULTURE AND BIOECONOMY

INSTITUTE OF PLANT PHYSIOLOGY, PAS

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EXPERTISE

Our research focuses on halo-/glycophytes performing C3, C4, or CAM metabolism, including native and invasive species and crops. Our interests include: physiological, biochemical, and molecular resistance mechanisms and signal transduction at the plant, organ, and cellular levels under (a)biotic stresses (e.g. drought, salinity), the interaction of halo- and glycophytes – including in the root system, and the use of halophytes and in- vasive species in soil remediation (e.g. for agriculture) as well as in the bioeconomy.

SEEKING FOR COLLABORATION WITHIN

arid & saline environment, bioactive compounds, genes, oxidative stress, photosynthesis, transcript

RELEVANT PROJECTS

NCN funded project
NCN funded project
NCN funded project
NCN funded project

PhD
Łukasz Kajtoch
DEPARTMENT OF MOLECULAR BIODIVERSITY

INSTITUTE OF SYSTEMATICS AND EVOLUTION OF ANIMALS, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
KAJTOCH@ISEZ.PAN.KRAKOW.PL
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EXPERTISE

Our research is focused on the evolution and ecology of insects. In particular, we are interested in the use of molecular information for solving phylogenetic, population genetic, or ecological questions. We work on taxa that are of particular interest for reasons of a taxonomic (for systematic revisions, barcoding, delimitation, etc.), evolutionary (for speciation and hybridization studies), population genetic (for conservation or management) or ecological (e.g. interactions among organisms) nature.

SEEKING FOR COLLABORATION WITHIN

barcoding, integrative taxonomy, molecular ecology, phylogenetics, population & conservation genetics

RELEVANT PROJECTS

NCN/OPUS 22

PhD
Dawid Moroń
DEPARTMENT OF ECOLOGY

INSTITUTE OF SYSTEMATICS AND EVOLUTION OF ANIMALS, PAS
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EXPERTISE

Our research strives to expand the comprehensive understanding of the impact of global change on the ecological processes affecting organisms living in the Anthropocene. Our team background includes pollinator ecology and related ecosystem services. The questions considered in our projects concern environmental factors acting at the level of organisms (such as stressors), communities (invasive species), the landscape (habitat fragmentation) and the globe (climate change).

SEEKING FOR COLLABORATION WITHIN

bees, biological conservation, climate change, ecosystem services, farmland, landscape, pollination

RELEVANT PROJECTS

NCN/OPUS 19

NCN/OPUS 21

Professor
Arkadiusz Derkowski
CLAY MINERALS RESEARCH GROUP

INSTITUTE OF GEOLOGICAL SCIENCES, PAS
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EXPERTISE

The ClayLab is one of few in the world and the only one in Poland laboratory fully equipped with all tools used to study clay minerals and other layered aluminosilicates. Experimental and analytical facilities are employed in pursuing questions in paleogeography, thermal transformations of clay minerals, and clean energy transition, including nuclear waste disposal, CO2 sequestration, natural H2 exploration. The team develops its own methodology to analyze qualitative and quantitative composition of sedimentary rocks and soils, and the properties of clay materials.

SEEKING FOR COLLABORATION WITHIN

nuclear waste disposal, CO2 sequestration, natural H2 exploration, clay minerals, analysis of sedimentary rocks

RELEVANT PROJECTS

NCN no. 2019/35/D/ST10/02814

NCN no. 2025/57/B/ST10/01022

NCN no. 2020/37/B/ST10/01697

NCN no. 2021/41/B/ST10/01951

DSc, Associate Professor

Krzysztof Lamorski

DEPARTMENT OF METROLOGY AND MODELLING OF AGROPHYSICAL PROCESSES

INSTITUTE OF AGROPHYSICS, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

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EXPERTISE

Modeling of climate change adaptation measures; modeling of the soil transport processes and hydrological properties of soil; development of dielectric methods for soil and other material moisture measurement; data fusion procedures for soil moisture measurements (various temporal and spatial scales); studying the relationship between soil water status and the crop cover status /gas exchange; biophysical modeling for agricultural policy impact assessment (agent-based modeling).

SEEKING FOR COLLABORATION WITHIN

climate change, biophysical modeling, agrophysical metrology, soil water status, modeling in soil hydrology

RELEVANT PROJECTS

AGRICORE

MACSUR

SoilAqChar, Biostrateg III Project

PhD, DSc, Associate Professor

Katarzyna Szewczuk-Karpisz

DEPARTMENT OF PHYSICAL CHEMISTRY OF POROUS MATERIALS

INSTITUTE OF AGROPHYSICS, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

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EXPERTISE

The laboratory investigates the mechanisms of physicochemical phenomena occurring between solid (clay minerals, organic matter, etc.), liquid (soil solution) and gaseous phases of the soil. We explore interfacial phenomena occurring on the ‘nano’ and ‘micro’ scales to control and manage processes occurring on the ‘macro’ one, which determines proper soil functioning. Soil modification is carried out using safe additives to reduce its degradation, improve quality and decontamination.

SEEKING FOR COLLABORATION WITHIN

soil remediation, soil modification, biochar, zeolite, biopolymer, hydrogel, contamination

RELEVANT PROJECTS

SoilAqChar, Biostrateg III Project

BIOSTRATEG

NCN/OPUS21

NCN/SONATA17

PhD, DSc

Anna Walkiewicz

DEPARTMENT OF NATURAL ENVIRONMENT BIOGEOCHEMISTRY

INSTITUTE OF AGROPHYSICS, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

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EXPERTISE

Investigations of the water erosion of soil, especially first stages (splash erosion and soil surface deformation after raindrop impact). Aim: understand the physical aspects of erosion processes. Our developed instruments and infrastructure (among others set of high-speed cameras and a 3D surface scanner) allow testing the splash events on the leaves of various plants, solid and liquid surfaces. Based on isotopic measurements we are able to trac water origin.

SEEKING FOR COLLABORATION WITHIN

soil water erosion modelling, measurement methods development, erosion prevention by novel materials

RELEVANT PROJECTS

NCN/PRELUDIUM19

NCN/PRELUDIUM16

NCN/SONATA13

NCN/SONATABIS4

NCN/OPUS23

Professor, DSc
Magdalena Frąc
DEPARTMENT OF SOIL AND PLANT SYSTEM

INSTITUTE OF AGROPHYSICS, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
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EXPERTISE

The department is focused on research concerning microorganisms biodiversity and resilient plant. We are interested in soil quality indicators, microbial soil health markers and living labs concept. Our interests concern soil-plant-microbiome interactions inclusive biotic and abiotic stress factors. We conduct work on bioproduct, biofertilizers and biotechnological solutions for agro-ecology, including diagnostics, control and monitoring of pathogens in sustainable agriculture and horticulture.

SEEKING FOR COLLABORATION WITHIN

antimicrobials; microbial diversity; one health; plant holobiont; soil-plant-microbiome interactions

RELEVANT PROJECTS

LEGUMINOSE
SoilCare
iSQAPER
SPIN-FERT

PhD, Assistant Professor
Szymon Swiezewski
LABORATORY OF SEEDS MOLECULAR BIOLOGY

INSTITUTE OF BIOCHEMISTRY AND BIOPHYSICS, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
SSWIEZ@IBB.WAW.PL
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EXPERTISE

Our lab focuses on molecular seed biology. We investigate the expression regulation of a key seed dormancy regulator, DOG1, which we have shown to be regulated by several lncRNAs. Antisense 1GOD suppresses dormancy by inhibiting DOG1 expression, while DOG1 antisense is itself negatively regulated by ABA and DOG1 alternative polyA site selection. PUPPIES are sense lncRNAs that, in response to salt, activate DOG1 expression, delaying germination. PUPPIES activate DOG1 expression by enhancing Pol II pausing.

SEEKING FOR COLLABORATION WITHIN

seed molecular biology, transcription and posttranscriptional gene expression regulation in plants

RELEVANT PROJECTS

OPUS 25
HOMING
TEAM
NCN/SONATABIS8

PhD
Marcin Pietras
DEPARTMENT OF BIOGEOGRAPHY AND SYSTEMATICS

INSTITUTE OF DENDROLOGY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
MPIETRAS@MAN.POZNAN.PL
+48 61 817 00 33

EXPERTISE

Our Department is interested in taxonomy, systematics and biogeography of woody plants and fungi. We use classical taxonomy-based approaches, integrated with well-tested molecular methods (e.g. metabarcoding and population genetics), and also carry out species distribution modeling. We are focused on plant micromorphology, taxonomy and systematics of Rosaceae taxa, dioecious plants, genetic and functional structure of woody plants, and the distribution and ecology of invasive trees and fungi.

SEEKING FOR COLLABORATION WITHIN

seed biology, cryopreservation, redox regulation, chloroplast biogenesis, mitochondrial function

RELEVANT PROJECTS

Projects

Professor

Andrzej M. Jagodziński

DEPARTMENT OF ECOLOGY

INSTITUTE OF DENDROLOGY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

AMJ@MAN.POZNAN.PL

+48 61 817 00 33

EXPERTISE

Our research covers (1) the ecological and ecophysiological mechanisms of woody plant responses to abiotic, biotic, and anthropogenic factors, (2) the structure and functions of plant organs and their impact on the functioning of forest ecosystems in different climatic zones (including functional ecology), and (3) modelling of natural processes in forest ecosystems. We also investigate the effects of forest management practices and conservation strategies on various ecosystems.

SEEKING FOR COLLABORATION WITHIN

forest management, nature conservation, novel ecosystems, tree biology, ecosystem functioning

RELEVANT PROJECTS

Projects

PhD

Emilia Pers-Kamczyc

DEPARTMENT OF GENETICS AND ENVIRONMENTAL INTERACTIONS

INSTITUTE OF DENDROLOGY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

EPK@MAN.POZNAN.PL

+48 61 817 00 33

EXPERTISE

Our team has experience in assessing the genetic variability of the phenotypic traits and local adaptation of economically important woody plant species, in searching for new genetic markers for breeding and genomic selection of forest trees, in assessing the genetic diversity of local populations, and in species restoration. We also study the molecular mechanisms underlying how plants and their reproductive traits respond to environmental conditions, phytoremediation, N deposition, and climate change.

SEEKING FOR COLLABORATION WITHIN

genetic adaptation, genomic selection, seed germination, OMICs, phytoremediation, abiotic stress

RELEVANT PROJECTS

Projects

PhD

Tomasz Leski

DEPARTMENT OF SYMBIOTIC ASSOCIATIONS

INSTITUTE OF DENDROLOGY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

TLESKI@MAN.POZNAN.PL

+48 61 817 00 33

EXPERTISE

Our team studies the diversity and functioning of ectomycorrhizal and arbuscular fungal communities. The factors that shape these communities are investigated, including tree species and genotype, forest community type, pollution, alien and invasive tree species, and nature conservation strategies. Our research also includes the study of fungal and soil microbial biomass and the interactions between woody plants and herbivorous insects.

SEEKING FOR COLLABORATION WITHIN

fungi, mycorrhiza, diversity, forest ecosystems, fungal biomass, soil microorganisms

RELEVANT PROJECTS

Projects

PhD
Ewelina Ratajczak
DEPARTMENT OF DEVELOPMENTAL BIOLOGY

INSTITUTE OF DENDROLOGY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

ERATAJCZ@MAN.POZNAN.PL

+48 61 817 00 33

EXPERTISE

Our research covers all stages of seed handling: collection, storage, dormancy breaking, germination, and quality testing. We focus on exceptional species requiring cryostorage and *in vitro* propagation. Our expertise includes investigating the role of redox regulation in seed viability, identifying key thioredoxin proteins, and Seahorse-based respiratory analysis. We investigate chloroplast biogenesis and metabolic changes that affect seed ageing and longevity.

SEEKING FOR COLLABORATION WITHIN

seed biology, cryopreservation, redox regulation, chloroplast biogenesis, mitochondrial function

RELEVANT PROJECTS

Projects

Professor
Anna Wysocka
DEPOSITIONAL SYSTEMS RESEARCH GROUP (DEPOS)

INSTITUTE OF GEOLOGICAL SCIENCES, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

ANNA.WYSOCKA@TWARDA.PAN.PL

+48 888 496 122

EXPERTISE

DEPOS conducts research on depositional systems from various perspectives and on various scales: from understanding the origin of sedimentary rocks, their depositional environment, paleoenvironmental and paleoclimatic conditions, and subsequent transformations, to reconstructing the provenance of clastic material, analyzing sedimentary basins, and recognizing the architecture of depositional systems. We use both classical and modern interdisciplinary research combining sedimentology with petrographic, mineralogical, and geochemical methods.

SEEKING FOR COLLABORATION WITHIN

analysis of sedimentary basins, provenance of clastic material, bioturbation, diagenesis

RELEVANT PROJECTS

NCN no. 2018/29/N/ST10/02028

NCN no. 2024/53/B/ST10/03806

NCN no. 2024/53/B/ST10/03806

Professor
Stanisław Mazur
DEPOSITIONAL SYSTEMS RESEARCH GROUP

INSTITUTE OF GEOLOGICAL SCIENCES, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

NDMAZUR@CYF-KR.EDU.PL

+48 668 581 910

EXPERTISE

We combine potential field geophysics with seismic and geological data for basic and applied studies. We are interested in tectonics, structural geology in relation to fold-and-thrust belts, sedimentary basins, and passive continental margins. We conduct research related to prospecting for critical raw materials and the geohazard impact on critical infrastructure. Our experience in geophysics and geology allows to create integrated geosystem models at various scales and levels of precision.

SEEKING FOR COLLABORATION WITHIN

geophysics, critical raw materials prospection, tectonics, structural geology, seismology

RELEVANT PROJECTS

Rifting mechanism of cratonic lithosphere

PhD, Associate Professor

Piotr Krzywiec

SEISMIC INTERPRETATION AND BASIN ANALYSIS RESEARCH GROUP (SEISSED)

INSTITUTE OF GEOLOGICAL SCIENCES, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

PIOTR.KRZYWIEC@TWARDA.PAN.PL

+48 502 412 126

EXPERTISE

Our research, mostly based on seismic reflection data, is focused on regional analysis of sedimentary basins, structure and evolution of fold-and-thrust belts, on salt tectonics, and on interplay of tectonic and sedimentary processes. We combine interpretation of seismic data (Kingdom Suite) with seismic forward modelling (Tesseral), cross-section balancing (MOVE) and basin modelling (BasinMod, Dionysos). We currently work on data from Poland, China, Australia, offshore E Africa and Gabon.

SEEKING FOR COLLABORATION WITHIN

studies of fold-and-thrust belts and foreland basis, salt tectonics, carbonate buildups

PhD

Magdalena Szechyńska-Hebda

PLANT BIOLOGY GROUP

W. SZAFER INSTITUTE OF BOTANY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

M.SZECHYNSKA-HEBDA@BOTANY.PL

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EXPERTISE

Our research focuses on plant physiological and ecological responses to environmental stresses, with particular emphasis on climate change. We investigate stress signalling pathways and photosynthetic performance at multiple spatial and temporal scales, integrating satellite and remote sensing, thermal imaging and advanced hyperspectral methods with chlorophyll fluorescence and biochemical analyses. Our innovative tools for environmental monitoring contributes to the creation of smart biotechnological solutions.

SEEKING FOR COLLABORATION WITHIN

biochemistry, biophysics, AI-based solutions, biotechnological applications, system biology

RELEVANT PROJECTS

COUTECH

COOLCITY

PhD

Paweł Kapusta

FUNCTIONAL AND EVOLUTIONARY ECOLOGY GROUP

W. SZAFER INSTITUTE OF BOTANY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

P.KAPUSTA@BOTANY.PL

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EXPERTISE

Our research group aims to explain the relationships between organisms and the environment, and their evolutionary factors and effects. Specifically, we focus on understanding the importance of plant-animal interactions for ecosystem functioning and the plant-soil biota feedback under environmental stresses, such as biological invasions, pollution, and climate change. We also study the spatial aspects of ecological processes and assess environmental quality using bioindicators.

SEEKING FOR COLLABORATION WITHIN

biodiversity, soil microbes, invasive plants, heavy--metal pollution, plant-animal interactions

RELEVANT PROJECTS

NCN/OPUS

NCN/PRELUDIUM

NCN/OPUS

NCN/SONATA

PhD
Adam Flakus
BIODIVERSITY AND EVOLUTION GROUP

W. SZAFER INSTITUTE OF BOTANY, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
A.FLAKUS@BOTANY.PL
+48 12 424 17 11

EXPERTISE

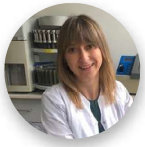
Our team studies the evolution of symbiotic fungal systems in biodiversity hotspots, focusing on molecular phylogeny, climate change, adaptive processes, and systematics of lichen-forming fungi in the tropical Andes. We employ environmental studies, high-throughput sequencing, and bioinformatics, exploring fungi co-occurrence, evolution, host specificity, and biogeography.

SEEKING FOR COLLABORATION WITHIN

lichenology, mycology, molecular biology, biodiversity, evolution, taxonomy, tropics, climate change

RELEVANT PROJECTS

NCN/PRELUDIUM
NCN/OPUS
NCN/OPUS
NCN/OPUS



PhD
Małgorzata Stanek
LABORATORY OF ECOCHEMISTRY AND ENVIRONMENTAL ENGINEERING

W. SZAFER INSTITUTE OF BOTANY, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
M.STANEK@BOTANY.PL
+48 12 346 50 03

EXPERTISE

We specialize in researching plant invasion and soil pollution, particularly soil interactions with plants and microbial communities. We study secondary metabolites in plants, allelopathic properties, and their roles in habitat decomposition and revitalization, using both classical and advanced analytical methods (GC-MS, NGS).

SEEKING FOR COLLABORATION WITHIN

invasive plants, heavy metals, ecosystems, secondary metabolites, plant-soil-microbe interactions

RELEVANT PROJECTS

IMPAWOS
QRUBRA
ToBeLawn
INVASION

PhD
Michał Adamski
FUNCTIONAL AND EVOLUTIONARY ECOLOGY GROUP

W. SZAFER INSTITUTE OF BOTANY, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
M.ADAMSKI@BOTANY.PL
+48 12 424 17 32

EXPERTISE

Our research investigates bioactive compounds synthesized by algae and cyanobacteria, focusing on cyanotoxins, their decomposition, and their impact on cells of living organisms. We explore ecological relationships between microorganisms and aquatic plants, with a focus on phytoremediation and antioxidants.

SEEKING FOR COLLABORATION WITHIN

harmful algal blooms, cyanotoxins, antioxidant systems, phytoremediation, aquatic microorganisms

RELEVANT PROJECTS

ExtrAlgae
NCN/OPUS

PhD
Aleksandra Biedrzycka
DEPARTMENT OF WILDLIFE CONSERVATION

INSTITUTE OF NATURE CONSERVATION, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
BIEDRZYCKA@IOP.KRAKOW.PL
+48 12 370 35 53

EXPERTISE

The genetic diversity of endangered species, the impact of climate and environmental change on genetic diversity, the genetics of species invasions. Novel genomic methods in studying natural selection and species resilience. The genomics of host-parasite interactions. Applying genomic methods to inform conservation policy. Using the genetic metabarcoding approach to study biodiversity and host-parasite relationships.

SEEKING FOR COLLABORATION WITHIN

invasion genomics, conservation genomics, metabarcoding of environmental samples

RELEVANT PROJECTS

NCN 2020
NCN 2014
NN304017240
POMOST

PhD
Magdalena Lenda
ECOLOGY OF AGRICULTURAL LANDSCAPE AND FOOD PRODUCTION

INSTITUTE OF NATURE CONSERVATION, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
LENDA@IOP.KRAKOW.PL
+48 530 344 595

EXPERTISE

My expertise as team leader is in community ecology, with a focus on the ecological impacts of biological invasions. I have worked with a variety of organisms, ranging from plant to insect pollinators to bird communities. My current research emphasis is on using social science research methods to gain a better understanding of how humans influence nature, both to gain a better understanding of the mechanisms and to develop better strategies to improve nature conservation.

SEEKING FOR COLLABORATION WITHIN

ecology, botany, ornithology, behavioural ecology, environmental psychology, iEcology

RELEVANT PROJECTS

2021/43/D/NZ9/02990

PhD
Agnieszka Bednarska
DEPARTMENT OF BIODIVERSITY

INSTITUTE OF NATURE CONSERVATION, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
BEDNARSKA@IOP.KRAKOW.PL
+48 12 370 35 94

EXPERTISE

I specialize in ecotoxicology, mainly being interested in the effects of stressors (including, but not limited to pesticides) and their interactions on life history traits and physiology of invertebrates (including insect pollinators), and their consequences for population levels and biodiversity. Our team has expertise in acute bioassays and chronic tests, using different exposure routes and both laboratory- and field-based studies.

SEEKING FOR COLLABORATION WITHIN

ecotoxicology, landscape ecology, pollinators, pesticides, TK modelling, agriculture

RELEVANT PROJECTS

PollinERA
EcoStack

PhD
Wojciech Solarz
RESEARCH TEAM - BIOLOGICAL INVASIONS

INSTITUTE OF NATURE CONSERVATION, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
SOLARZ@IOP.KRAKOW.PL
+48 609 440 104

EXPERTISE

The causes and consequences of biological invasions and practical solutions to mitigate this problem. The socio-economic background of human attitudes towards invasive alien species. The role of climate change in escalating the problem. The complexity of existing social networks in natural resources management (i.e. protected vs invasive alien species). Legal aspects of invasive and alien species management. Support for national and local authorities regarding biological invasions management.

SEEKING FOR COLLABORATION WITHIN

alien species, biological invasions, social-ecological systems, conservation social science

RELEVANT PROJECTS

IAS/EcoSystemCARE
NCN 2017/26/D/HS6/00850
PL12-0049 LINKAGE

PhD
Maciej Liro
LABORATORY OF MACROPLASTIC POLLUTION/DEPARTMENT OF GEOCONSERVATION

INSTITUTE OF NATURE CONSERVATION, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
LIRO@IOP.KRAKOW.PL
+48 12 370 35 24

EXPERTISE

Our laboratory investigates the critical issue of macroplastic pollution in mountain rivers and Arctic regions, focusing on the processes of macroplastic delivery, deposition, and fragmentation. Through advanced fieldwork and experiments, we explore how rivers transport, store, and break down macroplastic. Specializing in physical geography and fluvial geomorphology, we aim to develop theories and methodologies that advance scientific understanding of plastic pollution.

SEEKING FOR COLLABORATION WITHIN

macroplastic fragmentation, degradation & storage, secondary microplastic formation, rivers

RELEVANT PROJECTS

Macroplastic storage
The role of woody debris

PhD, DSc
Magdalena Niedziałkowska
MOLECULAR BIOGEOGRAPHY TEAM

MAMMAL RESEARCH INSTITUTE, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
MNIEDZ@IBS.BIALOWIEZA.PL
+48 85 682 77 94

EXPERTISE

Our study focuses on the molecular biogeography and ecology of mammals, particularly ungulates and carnivores. We investigate the genetic diversity and phylogeographic patterns of these species at both regional and continental scales, analysing samples dating back 50,000 years. Our research also examines how factors like climatic oscillations influence population genetics, phylogenetic patterns, and the ecology of Eurasian mammals across various temporal and spatial scales.

SEEKING FOR COLLABORATION WITHIN

biogeography, population genomics, landscape genetics, ecology, GIS analyses, stable isotopes

RELEVANT PROJECTS

NCN/OPUS15
NCN/OPUS6
SPUB-BIOGEAST

PhD, DSc
Dries Kuijper
KUIJPER'S LAB

MAMMAL RESEARCH INSTITUTE, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
DKUIJPER@IBS.BIALOWIEZA.PL
+48 85 682 77 93

EXPERTISE

Our research examines trophic cascades in temperate ecosystems, focusing on large carnivores' effects on prey behaviour and distribution, as well as subsequent impacts on vegetation. We explore how wolves influence meso-carnivore behaviour and structure, integrating the effects of human interactions. Primary research is conducted in the Białowieża Forest, and as wolves recolonize Europe, we investigate human-induced modifications to their ecological impacts.

SEEKING FOR COLLABORATION WITHIN

predator-prey interaction, wolf, human-wildlife interaction, trophic cascades, herbivore-plant interaction

RELEVANT PROJECTS

BIG_PICTURE
DISTANCE
INTACT
NCN funded project

PhD, DSc
Michał Żmihorski
ŻMIHORSKI'S LAB

MAMMAL RESEARCH INSTITUTE, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
ZMIHORSKI@IBS.BIALOWIEZA.PL
+48 85 682 77 50

EXPERTISE

Our research examines spatial and temporal biodiversity patterns, seeking to understand the mechanisms driving population dynamics and declines in species of conservation concern. We aim to develop effective wildlife management strategies and conservation measures, asking questions like: What management approach benefits threatened mammals, birds, or insects the most? When and where should conservation actions be applied? Are conservation measures like agri-environment schemes or organic farming truly effective?

SEEKING FOR COLLABORATION WITHIN

biological conservation, forest management, ecology, applied ecology, biostatistics

RELEVANT PROJECTS

NCN funded project
NCN funded project

PhD
Magdalena Moskal-del Hoyo
PALAEOBOTANY AND PALAEOENVIRONMENT GROUP

W. SZAFER INSTITUTE OF BOTANY, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
M.MOSKAL@BOTANY.PL
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EXPERTISE

Our research focuses on understanding vegetation development in the context of long-term climate shifts, from the Mesozoic to the Holocene. We use fossil plant and fungal remnants from natural and archaeological sites to reconstruct historical flora diversity and study plant-environment interactions and adaptation mechanisms to microclimatic changes.

SEEKING FOR COLLABORATION WITHIN

palaeobotany, archaeobotany, systematics, taxonomy, palaeoenvironment, vegetation reconstruction

RELEVANT PROJECTS

NCN/SONATABIS
NCN/OPUS
NCN/OPUS
NCN/OPUS

PhD, DSc

Maciej Szaleniec

JOINT LABORATORY OF BIOTECHNOLOGY AND ENZYME CATALYSIS

INSTITUTE OF CATALYSIS AND SURFACE CHEMISTRY, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

MACIEJ.SZALENIEC@IKIFP.EDU.PL

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EXPERTISE

Our laboratory is focused on studying enzyme catalysis. We are interested in basic research on reaction mechanisms as well as development of novel biocatalytic methods for industrial appli-cations.We work on enzymes catalyzing the synthesis of al- cohols (alcohol dehydrogenases, molybdenum hydroxylases), the introduction of double bonds in a steroid core (3-ketosteroid dehydrogenases), the formation of C–C bonds and oxidation of aldehydes/reduction of carboxylic acids (tungsten aldehy-de oxidoreductases).

SEEKING FOR COLLABORATION WITHIN

directed evolution of enzymes, rational-based engineering of enzymes, cascade systems

RELEVANT PROJECTS

FAEREACTION

Project

PhD, DSc

Maciej Guzik

BIOPROCESS DEVELOPMENT LABORATORY

INSTITUTE OF CATALYSIS AND SURFACE CHEMISTRY, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

MACIEJ.GUZIK@IKIFP.EDU.PL

+48 737 586 588

EXPERTISE

Our research interests are closely related to a group of bacterial polymers – polyhydroxyalkanoates (PHA). In our research we focus on understanding the processes by which these polymers are produced by microorganisms from various renewable carbon sources. Within our Laboratory, we focus on the search for applications for these polymers. Parallel research concerns PHA monomers; here we develop of a range of new and unique chemical compounds.

SEEKING FOR COLLABORATION WITHIN

bioprocess development, industrial microbiology, chemistry, medicine

RELEVANT PROJECTS

TMS

FunBioMed

Professor

Ksenia Pazdro

MARINE CHEMISTRY & BIOCHEMISTRY DEPARTMENT

INSTITUTE OF OCEANOLOGY, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

PAZDRO@IOPAN.PL

+48 58 731 19 39

EXPERTISE

The Marine Chemistry and Biochemistry Department investigates the following topics in marine eco-systems (the Baltic Sea and Arctic): heavy metals, radionuclides, cycling of organic emerging con-taminants (Marine Geotoxicology Laboratory), C, N, P, O cycling (Marine Biogeochemistry Labo-ratory), mercury cycling, dumped munitions and wrecks containing hazardous materials, sediment/water interface fluxes of pollutants (Laboratory of Contemporary Threats to Marine Ecosystems), and biochemical processes (Marine Biochemistry Laboratory).

SEEKING FOR COLLABORATION WITHIN

pollutants, environmental impact, marine CO_2 system, ocean acidification, Mercury, dumped munition, wrecks

RELEVANT PROJECTS

CHEMSEA

DAIMON

CONTRA

AMMOTRACE

Professor
Maria Włodarska-Kowalczuk
MARINE ECOLOGY DEPARTMENT

INSTITUTE OF OCEANOLOGY, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES
MARIA@IOPAN.PL
+48 58 731 17 81

EXPERTISE

The Department of Marine Ecology focuses on marine diversity and ecosystem function. We are a diverse group with expertise in marine protists, zooplankton, benthic vegetation, and invertebrates. We work in a wide range of marine habitats, including the sea-ice/water interface, water column, sandy beaches and rocky coasts, underwater meadows, and marine sediments from coastal waters to abyssal depths, with a geographical focus on temperate and polar regions.

SEEKING FOR COLLABORATION WITHIN

marine ecology, biodiversity, productivity, blue carbon, plankton, benthos, Arctic, Baltic Sea

RELEVANT PROJECTS

MARBEFES
CoastCarb
ECOTIP
ARICE

Professor
Mirosław Darecki
MARINE PHYSICS DEPARTMENT

INSTITUTE OF OCEANOLOGY, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES
DARECKI@IOPAN.PL
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EXPERTISE

The main research areas are marine optics, bio-optics, remote sensing, and acoustics. We have expertise in conducting optical measurements and analyzing optical and remote sensing data in various marine environments, in developing optical methods for investigating biological and physical processes in the sea and remote sensing algorithms for retrieval of water constituents, and in devising hydroacoustic techniques for classifying benthic habitats, seabed morphometry, and biological organisms.

SEEKING FOR COLLABORATION WITHIN

development of hydroacoustic classification techniques to monitor marine ecosystems and environment

RELEVANT PROJECTS

DAIMON2
AMMOTRACe
ProBaNNt
BONUS OPTIMUS

Professor
Artur Burzyński
GENETICS & MARINE BIOTECHNOLOGY DEPARTMENT

INSTITUTE OF OCEANOLOGY, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES
ABURZYNSKI@IOPAN.PL
+48 58 731 17 64

EXPERTISE

Our research tasks are focused on the biochemistry and genetics of marine organisms. We study the mole-cular mechanisms associated with adaptation to marine environment. Investigating the unique genetic features of model marine organisms, molecular biodiversity, and methods of marine environment pre-servation are our essential scientific goals.

SEEKING FOR COLLABORATION WITHIN

marine biogeography, fish welfare, stress, mitochondrial genome evolution, antibiotic resistance genes

RELEVANT PROJECTS

REDESCHILE
SKINSTRESS

PhD

Agnieszka Gąszczak

LABORATORY OF BIOREACTORS AND BIOCATALYTIC PROCESSES

INSTITUTE OF CHEMICAL ENGINEERING, PAS

DIVISION IV - ENGINEERING SCIENCES

GASZCZAK@IICH.GLIWICE.PL

+48 32 234 69 15

EXPERTISE

Our team is interested in green chemistry and bio-process technologies for ecological pollution management, particularly in the application of xeno-biotics biodegradation for environmental treat-ment. We are experienced in developing biological gas purification technologies. Our activities include both stoichiometric and kinetic tests as well as bioprocess modelling. We pay special attention to process opti-mization and creating a database necessary to design effective bioreactors.

SEEKING FOR COLLABORATION WITHIN

biotechnology, biodegradation of organic compounds, air bio-purification

RELEVANT PROJECTS

INTERACT

PhD, DSc

Magdalena Jabłońska-Czapla

DEPARTMENT OF WASTE MANAGEMENT AND ENVIRONMENTAL ANALYZES

INSTITUTE OF ENVIRONMENTAL ENGINEERING, PAS

DIVISION IV - ENGINEERING SCIENCES

MAGDALENA.CZAPLA@IPISPAN.EDU.PL

+48 32 271 64 81 EXT. 125

EXPERTISE

Our team is interested in environmental analytical chemistry, impact of antropogenic activity on trans-formations and mobility of various elements in the environment. We are particularly interested in me-tal(loid)s (e.g. As, Sb, Cr, Tl, Te, In, Ge) and their species in the water–soil–sediment environment, using ICP-OES, ICP-MS and HPLC-ICP-MS techniques. We are developing new methods for element speciation, fra-ctionation and we use it in environmental research.

SEEKING FOR COLLABORATION WITHIN

environmental and material science, environmental analytical chemistry, electrowaste, photovoltaics

RELEVANT PROJECTS

MOSPESIL

NCN funded project

Professor

Tadeusz Magiera

DEPARTMENT OF ENVIRONMENTAL MAGNETISM AND RECLAMATION

INSTITUTE OF ENVIRONMENTAL ENGINEERING,PAS

DIVISION IV - ENGINEERING SCIENCES

TADEUSZ.MAGIERA@IPISPAN.EDU.PL

+48 32 271 64 81 EXT. 202

EXPERTISE

Our laboratory is focused on the study of soil con-tamination, especially using geophysical methods (e.g. soil magnetometry in line with ISO 21226:2019) and practical implementation of “in situ” methods for the identification and precise location of contaminated areas, as well as the development of guidelines for reclamation and bioremediation of post-industrial areas. We also work on assessing the ecological qua-lity of biomass growing on contaminated soils, used for domestic heating.

SEEKING FOR COLLABORATION WITHIN

soil deal for Europe, living labs & lighthouses, soil pollution monitoring & database development

RELEVANT PROJECTS

IMPACT

NCN funded project

NCN funded project

NCN funded project

PhD

Krzysztof Klejnowski

DEPARTMENT OF AIR PROTECTION
– POLLUTION IMMISSION TEAM

INSTITUTE OF ENVIRONMENTAL ENGINEERING,PAS

DIVISION IV - ENGINEERING SCIENCES

KRZYSZTOF.KLEJNOWSKI@IPISPAN.EDU.PL

+48 32 271 64 81 EXT. 119

EXPERTISE

Our laboratory focuses on the study of the chemical composition of atmospheric aerosols. In particular, we are interested in the carbon fraction. We work on assessing the time-space variability of the chemical composition of atmospheric pollutants, the impact of selected types of source on the state of air quality, and the identification of emission sources based on the chemical profile of aerosols. We cooperate on the use of low-cost sensors to assess and monitor air quality.

SEEKING FOR COLLABORATION WITHIN

aerosols, OC/EC & biomass burning markers analysis, measurement campaigns, low cost samplers

RELEVANT PROJECTS

ACTRIS 2

ACTRIS

ACTRIS PL

NCN funded project

Professor

Marzena Smol

DIVISION OF BIOGENIC RAW MATERIALS

MINERAL AND ENERGY ECONOMY RESEARCH INSTITUTE, PAS

DIVISION IV - ENGINEERING SCIENCES

SMOL@MEERI.PL

+48 12 12 617 16 60

EXPERTISE

Our division focuses on environmental management & engineering. We work on the recovery of raw materials from waste (e.g. phosphorus); fertilizers from waste; water in a circular economy & water footprint; water & wastewater treatment; the technological, legal, environmental & social aspects of biogenic raw material management; eutrophication; recommendations/roadmaps for sustainable & circular management of biogenic resources; education for a circular economy; stakeholders engagement (e.g. farmers).

SEEKING FOR COLLABORATION WITHIN

nutrients recovery, wastewater, water reuse, circular economy, green deal, phosphorus; education

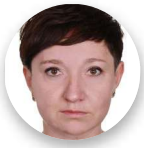
RELEVANT PROJECTS

LEX4BIO

NOVAFERT

Doc-ECE

Water-CE-management



PhD

Alicja Kot-Niewiadomska

DIVISION OF MINERAL POLICY

MINERAL AND ENERGY ECONOMY RESEARCH INSTITUTE, PAS

DIVISION IV - ENGINEERING SCIENCES

A.KN@MIN-PAN.KRAKOW.PL

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EXPERTISE

Our division is focused on the analysis of mineral resource management strategies in Poland, the EU, and worldwide, including trends in critical raw materials demand and supply. We are interested in the broadly understood mineral economy – from sources to end products – in the light of energy transformation and other global events. We work on the economic, environmental, social, and spatial possibilities of resource extraction from primary and secondary sources.

SEEKING FOR COLLABORATION WITHIN

mineral economy, raw materials policy, mineral deposit safeguarding, environmental impact assessment

RELEVANT PROJECTS

NCN/MINATURA2020

MinLand

ROBOMINERS

Associate Professor
Adam Cenian
CENTRE OF PLASMA AND LASER ENGINEERING / DEPARTMENT OF PHYSICAL ASPECTS OF ECOENERGY

INSTITUTE OF FLUID-FLOW MACHINERY, PAS

DIVISION IV - ENGINEERING SCIENCES
CENIAN@IMP.GDA.PL
+48 58 522 52 76

EXPERTISE

Our team specializes in waste anaerobic digestion and pre-treatment methods, bioethanol production from lignocellulosic biomass, and the circular economy. Our expertise includes managing food, industrial and agro- waste, waste plastics. We also focus on biogas purification technologies, recovering nutrients from digestates, preparing fertilizers/soil amendments. Additionally, we verify agronomic effectiveness via glasshouse tests and agri-environmental modelling. Our work extends to microbial bioremediation of polluted soil and water, nano- and micro- aeration of wastewater.

SEEKING FOR COLLABORATION WITHIN

microbial analyses of various bioprocesses and their products, socio-economic aspects of bioenergy

RELEVANT PROJECTS

NURSECOAST-II
CiNURGi
BALTWRECK
WasteMan

PhD, DSc
Krzysztof Grochla
INTERNET OF THINGS GROUP

INSTITUTE OF THEORETICAL AND APPLIED INFORMATICS, PAS

DIVISION IV - ENGINEERING SCIENCES
KGROCHLA@IITIS.PL
+48 32 231 73 19 EXT 215

EXPERTISE

Internet of Things (IoT) research, with emphasis on wireless communication and network protocols. We design and analyze the performance of network protocols, address issues related to interoperability, and the semantic description of data and operation of IoT systems. We investigate auto-configuration, energy consumption minimization, and localization in embedded devices, especially in LP WAN and indoor localization using UWB and BLE AoA.

SEEKING FOR COLLABORATION WITHIN

practical application of IoT, long-range low-power wireless communication and indoor positioning

RELEVANT PROJECTS

Infrastructure Recovery
DOSS
Methodology

PhD
Izabela Sabała
LABORATORY OF PROTEIN ENGINEERING

MOSSAKOWSKI MEDICAL RESEARCH CENTRE, PAS

DIVISION V - MEDICAL SCIENCES
ISABALA@IMDIK.PAN.PL
+48 22 608 64 51

EXPERTISE

We focus on developing novel antibacterials based on bacteriolytic enzymes to target antibiotic resistant pathogens, e.g. *Staphylococcus aureus, Streptococci, Enterococci, Pseudomonas aeruginosa, Klebsiella pneumoniae* and fungi. Each of our novel proteins is engineered to meet the requirements of future applications and tested as a preventive agent or potential drug to treat infectious diseases, e.g., chronic wounds, diabetic foot ulcers, atopic dermatitis, psoriasis, impedigo.

SEEKING FOR COLLABORATION WITHIN

biological antimicrobials, antibiotic resistance, , OneHealth

RELEVANT PROJECTS

Prev-Eco POLNOR19
SafeFoodCtrl POLNOR19

Professor
Magdalena Zielińska
DEPARTMENT OF NEUROTOXICOLOGY

MOSSAKOWSKI MEDICAL RESEARCH CENTRE, PAS

DIVISION V - MEDICAL SCIENCES

MZIELINSKA@IMDIK.PAN.PL

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EXPERTISE

Our research focuses on the mechanisms underlying brain function in hyperammonemic encephalopathies (including rare diseases), anxiety, epilepsy, and metabolic disorders, as well as interorgan crosstalk with the liver and intestine. We combine cell biology, biochemical, and omics approaches with behavioural studies. We aim to decipher the role of the glutamine-glutamate cycle and oxidative stress in the pathobiology of gliomas, in search of therapeutic strategies in collaboration with clinicians and chemists.

SEEKING FOR COLLABORATION WITHIN

hyperammonemic encephalopathies, anxiety, metabolic diseases, epilepsy, gliomas, anticancer drugs

RELEVANT PROJECTS

HEPENTRANS EEA and Norway Grants

NCN/OPUS20,

NCN/OPUS15

NCN/OPUS21

Professor
Edyta Zawisza
EVIRONMENTAL CHANGE - CLIMATE AND HUMAN (PALEO)

INSTITUTE OF GEOLOGICAL SCIENCES, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

EZAWISZA@TWARDA.PAN.PL

+48 22 69 78 813

EXPERTISE

The PALEO research group conducts studies focusing on the environmental changes, evoked by natural factors such climate changes as well as human presence and activity. The studies concern on the processes and phenomena occurring in the last several hundred thousand years (during the Quaternary period). The environmental reconstructions are based on the multi-proxy analyses of lake, peat bog and cave sediments, using the biological (pollen, diatoms, cladocerans, vertebrates, macrofossils) and geochemical (organic matter, stable isotopes) methods as well the archaeological data.

SEEKING FOR COLLABORATION WITHIN

environmental changes, diatomological and palynological analysis, geochemical and isotopic sediment analyses

RELEVANT PROJECTS

NCN no. 2023/49/B/ST10/03175

NCN no. 2021/43/B/HS3/02636

NCN Minitura no. 2021/05/X/ST10/00774

NCN Miniatura no. 2017/01/X/ST10/01216

NCN no. 2012/05/B/ST10/00469

Professor
Jarosław Tyszka
BIOGEOSYSTEM MODELLING GROUP (BIOGEO)

INSTITUTE OF GEOLOGICAL SCIENCES, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

J.TYSZKA@INGPAN.KRAKOW.PL

+48 12 422 19 10

EXPERTISE

The BIOGEO interdisciplinary research team studies multiscale processes at the biosphere–geosphere interface, focusing on marine paleoenvironmental systems. Research spans spatial and temporal scales from molecular to global, aiming to reconstruct past environments and predict future ecosystem changes using a multiscale approach.The team combines *in fossilio*, *in vivo*, and *in silico* methods. Microfossils of *Dinoflagellata* and *Foraminifera* are used for biostratigraphy and reconstructions of palaeobathymetry, sea level, circulation, and temperature, salinity, and pH trends.

SEEKING FOR COLLABORATION WITHIN

environmental modelling, marine environment reconstruction, palaeoclimate and palaeoceanography

RELEVANT PROJECTS

NCN no. 2020/37/B/ST10/01953

NCN no. 2024/53/B/ST10/01311

NCN no. 2022/47/B/ST10/03020

NCN no. 2022/47/D/ST10/01103