

Association of Moravian Institutes of the CAS



The Czech Academy
of Sciences



Association of Moravian Institutes of the CAS

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Introduction

The CZECH ACADEMY OF SCIENCES is an organization focusing primarily on basic scientific research. It consists of 53 scientific institutes employing over 7,500 people. Headquartered in Prague, its individual branches are established on the entire territory of the Czech Republic, including the Moravian region, especially Brno and Ostrava. Brno hosts eight independent institutes and 17 field offices. The Institute of Geonics is headquartered in Ostrava, with a branch office of Brno.

The CAS institutes conduct basic research in a wide range of natural, technical, humanities and social sciences, acquire, process and disseminate scientific information and publish professional publications, journals and anthologies, provide scientific expertise, opinions and recommendations and carry out consultancy and popularizing activities. Their basic research program consists of research tasks, complemented by a number of domestic and international projects and grants. Academic institutions form joint institutes with universities, research centers and centers of excellence while contributing significantly to the education of students carrying out doctoral studies and educating researchers.

Academic institutions are heavily involved in international cooperation. They contribute significantly to the 8th Framework Programme of the EU, in OPVK projects, and they are comprehensively involved in the European research.

History

The CZECH ACADEMY OF SCIENCES is the successor of the Czechoslovak Academy of Sciences. It builds upon the Academy project, developed in 1861-1863 by Jan Evangelista Purkyně, and upon more than two centuries of earlier scientific institutions, particularly the Royal Czech Society of Sciences, founded in 1784. It also takes up the activities of the CZECH ACADEMY OF SCIENCES and Arts, which was established thanks to the financial support of the architect and builder Josef Hlávka in 1890, and the German Society for the Promotion of Science, Arts and Literature in Bohemia (1891-1945). The Czechoslovak Academy of Sciences was formed in 1953 from 21 institutions. Excellent research in engineering, science and social sciences has concentrated in the CSAS for over 50 years, allowing the emergence of other institutions. After 1989, CSAS was transformed into a modern organization built upon democratic principles and engaged in basic and applied research. After the dissolution of the federation, the tasks of the CSAS were taken over by the CZECH ACADEMY OF SCIENCES (CAS).

The history of the CAS dates back mostly to the 1950s, when re-

search in selected fields was concentrated in the South Moravian Region. Some institutes, however, are much older. For example, the roots of the Brno Institute of Ethnology of the Czech Republic dates back to 1905, when a working committee for the Czech national song in Moravia and Silesia was established under the presidency of Leos Janacek.

CAS Institutes in Brno and Ostrava

The Association of Moravian institutes of the CZECH ACADEMY OF SCIENCES consists of the CAS institutes based in Brno and Ostrava and institutes that have detached units in Brno, Ostrava and the South Moravian Region. The association was created by the Treaty of directors of institutions involved in the CAS on April 15, 2013. However, its roots are deeper, dating back to the Association of CAS Institutes founded on November 21, 2002. The aim of the Association of Moravian Institutes consists in particular in presentation, promotion and popularization of non-university type of science and training in the basics of scientific work. It also seeks to coordinate interdisciplinary projects in CAS institutions in the Moravian region. It also contributes to mutual awareness, cooperation and assistance to member institutes in organizational matters, consulting their common challenges and problems and presenting proposals and demands to the academy-level and other authorities. It also represents the member institutions with the municipal authorities of Brno and Ostrava, the South Moravian and Silesian Region, universities and media in the region.

The managing body of the Association is the Council, an association consisting of directors of Brno and Ostrava institutes, heads of field offices in Brno and members of the Academic and Scientific Council of the Czech Republic in Brno and Ostrava. The Council is headed by the President of the Association and two vice-presidents, who are elected from among the members of the Council for a four year term. Organizational and administrative affairs of the Association are administered by the Council office located in Brno, Čechyňská 19.

On the national scale, the institutions of the Academy of Sciences are categorized into three fields of science - inanimate nature, life sciences and chemistry, and social sciences. From Brno and Ostrava institutes, the Institute of Materials Physics, the Institute of Scientific Instruments and the Institute of Geonics, and the branch office of the Mathematical Institute fall into the first field of science. The second field of science includes the Institute of Biophysics, the Center for Global Change Research, the Institute of Analytical Chemistry and the Institute of Vertebrate Biology in Brno and the Institute of Animal Physiology and Genetics, and the Institute of Botany.

The third field of science includes the Archaeological Institute and the Institute of Psychology, and the Brno branches of the Institute of Ethnology, the Institute of History, the Institute for Contemporary History, the Institute of Art History, the Czech Language Institute and the Institute for Czech literature. This group also includes the Brno branch of the Masaryk Institute and Archive and the CAS Library, which perform mainly servicing tasks.

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Overview

The Institute focuses on basic research into prehistoric and medieval history of Moravia, Czech Silesia and the wider middle Danube area. It examines the most significant Moravian sites, especially the Stone Age, the Roman era and early Middle Ages (Dolní Věstonice, Musov, Mikulčice).

Organizational structure

As an organization authorized by law, it collects data on all archaeological sites and events, provides expert services in protection of archaeological finds and coordinates archaeological activities in Moravia and Silesia.

It directs its core research activities with regard to the possibility of a significant impact in addressing historical and archaeological issues in the wider European and global context.

Three basic research centers, oriented on Paleolithic era and paleoethnology, the Roman era, the Migration Period and Slavonic and medieval archeology are complemented by the department of Moravian-Silesian prehistory and archaeological prospection:

Centre for Paleolithic Research and Paleoethnology (Base for Paleolithic Research in Dolní Věstonice) - Centre for Roman Era Archaeology and the Migration Period (Base for research of Roman military intervention in Dolní Dunajovice) - Center for Slavic and medieval archeology (Base for the Great Moravian period research in Mikulčice) - Department of Moravian-Silesian prehistory - Department of archaeological prospection - Detached department in Opava - Archive - Library - Technical and Economic Administration - Secretariat - Department of publishing activities.

Research activities, projects, grants

Currently, the Institute examines: 1) initial anatomically modern human populations (*Homo sapiens*), especially shaping of their the cultural, economic and social structures; 2) historical development of the Central European area at key stages of the expansion of the ancient Roman Empire and migratory movements between antiquity and the Middle Ages; 3) period from the arrival of the Slavs in the 6th century until the High Middle Ages, especially early

state formations in Central Europe in 8th to 10th century. Individual problem areas are studied in broad interdisciplinary and international cooperation in the context of many research projects while applying advanced scientific methods. The results are published in the editorial lines of the Institute.

International cooperation

The issues the institute deals with significantly interfere with international discussions in the field, there is intensive cooperation with European and overseas institutions, including organization of joint research and international conferences, mutual internships, exchange of scientific information and preparation of joint publications.

Cooperation with universities

The institute, together with universities, trains new scientists in accredited doctoral studies, cooperations in numerous research projects are also frequent.

Public services

The institute performs advanced conservation and reconstruction of archaeological finds and provides expertise, consulting and advisory services for government authorities and other entities. The institute library is the most comprehensive of its kind in the country, also serving external visitors and students. Likewise, the institute archive collects all archaeological information from Moravia and Czech Silesia and is available to the general public.



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Overview

The Institute was founded in 1955 as an independent unit of the Czechoslovak Academy of Sciences focusing on the research of physical properties of biological systems. This primary focus has been preserved until today, when the institute addresses a wide variety of research projects. Main research topics:

- spatial arrangement of DNA and chromosomes of the genome with respect to function, pathology and evolution of cells;
- reaction of DNA with proteins and anticancer substances containing metals;
- development of electrochemical biosensors for research and diagnosis;
- architecture of the cell nucleus, chromatin structure and modifications;
- relationships between cell differentiation and oncogenic transformation, influence of exogenous regulators of proliferation;
- DNA repair processes in living cells at the epigenome level
- transmission of cellular signals and changes in cytokinetics, effects of lipid constituents of nutrition and xenobiotics
- pathophysiological effects of reactive oxygen and nitrogen species
- computer simulations of the dynamic structure of biomolecules and their reactions with biologically active substances.

Organizational structure

The research activity takes place in 9 department, five of which are focused on molecular biophysics, three on cellular biophysics and one is theoretical.

Projects and grants

The institute coordinates: 1) three „Excellence projects“ focused on i) dynamics and organization of chromosomes in cell cycle and differentiation in normal and pathological conditions, ii) new approaches to bioactivity and molecular diagnosis, and iii) evolution and function of complex genomes in plants; 2) two projects within the Operational Programme Education for Competitiveness, focusing on development of human resources and modern trends in

experimental and cell biology. The Institute also addresses more than 60 projects funded by national and international grant agencies.

International cooperation

International cooperation is diverse - participation in two projects of the EU framework programs and many other international grant projects (COST, KONTAKT, etc.). The Institute cooperates with many foreign institutions and regularly organizes thematic international conference in the country.

Cooperation with universities

Cooperation with universities in teaching takes place both within the Biophysics Center (contract between MU Brno and IBP CAS) in the implementation of all forms of studies in biophysics and also in the implementation of doctoral programs (biophysics, genetics, physiology and developmental biology of animals, immunology and molecular and Cellular Biology) at the Faculty of Science of the Masaryk University under the granted co-accreditation. Researchers of the Institute are members of scientific advisory boards and councils of universities in Brno, Olomouc, Hradec Králové and Prague. Scientific research collaboration is carried out in joint projects of various grant agencies.

Public services

Public services are focused on technical expertise, particularly in the field of biomedicine, breeding and ecology, as well as engagement in public discussions on current topics and activities.



Institute of Psychology CAS, v. v. i.

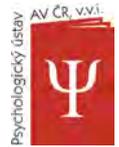
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Overview

Research in the institute focuses on psychology of personality and social psychology, cognitive psychology and health psychology. It also develops methodologies for psychological research.

Organizational structure

The institute consists of three departments, whose members come from Brno and Prague: Department of personality psychology and social psychology, Department of cognitive psychology and Department of psychological methodology. The Prague branch resides at Hybernská 8.

Research program, projects, grants

The research program of the Institute focuses on the study of optimum conditions for human development in a lifelong perspective and includes in particular the following themes: personal dispositions, cognitive processes, including language acquisition, the issue of 'ego', identity, narrative modus of reality reflection, adaptive functioning of the individual, psychosocial determinants of healthy personality, life satisfaction, ways of coping with difficult situations, resilience (psychological resistance), strengths and personality factors threatening the healthy development and functioning of personality. An important part of research is the development and cultivation of quantitative and qualitative methods (e.g. psychosemantic and psycholinguistic approaches, longitudinal studies, but also questionnaire researches or experiments).

International cooperation

The department staff participated in several international research projects as principal investigators and co-investigators (e.g. *Democratic Citizenship and Social and Cultural Construction in Two Cultures or Social and Health Assessment - SAHA*). The results of the international cooperation include, among others, joint publication of journals and books. The institute's staff are members of various international professional bodies (e.g. European Science Foundation - ESF and the European Federation of Psychologists' Associations - EFPA), members of the editorial boards of international journals, some teach at universities abroad.

Cooperation with universities

Employees of the Institute of Psychology lead training courses at the Masaryk University and other universities in Brno, Olomouc and Prague; they are members of scientific and professional councils and other professional committees at these institutions. The universities also maintain close cooperation in research activities in the form of joint grant projects.

Public services

The Institute of Psychology publishes the *Czechoslovak Psychology* journal, which focuses not only on psychological research and theory, but also on psychological practice. It has been published since 1957. It is the only Czech psychological journal with the impact factor.

Institute of Analytical Chemistry CAS, v. v. i.

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The Institute of Analytical Chemistry is headquartered at Veveří 97, Brno.

Overview

The institute is focused on the development of advanced methods and analytical chemistry instrumentation to detect type and amount of chemicals in solid, liquid and gaseous samples for medical research, clinical analysis, environmental protection, industrial manufacturing, food and pharmaceutical industries. Electromigration, chromatographic, spectroscopic and separation of compressed fluids methods are developed. The latest research trend is system miniaturization and nanotechnology, the research focuses on environmental monitoring, proteomics, genomics and drug analysis. Since 2004, the institute organizes the Central European Capillary Electrophoresis (CECE) international conference every year.

Organizational structure

Department of environmental analytical chemistry
Department of bioanalytical instrumentation
Department of separation by compressed fluids
Department of separation in the liquid phase
Department of electromigration methods
Department of proteomics and glycomics
Department of trace elements and speciation analysis, branch office in Prague

Orientation of research, projects, grants

Basic research is focused on the issues of separation and spectral methods. Spectral methods utilize electric field, sorption, fluid flow and density dependence of its solvating ability, force field or chemical reactions as their driving power. Spectroscopic methods include mass and atomic spectroscopy and optical detection techniques including new chemical marking for increasing the specificity and limit of detection. Instrumentation effort is also aimed at miniaturization of separation and detection devices („laboratory on a chip“) and the use of nanomaterials and nanotechnologies.

The institute is an investigator of research projects supported by Czech grant agencies and European funding. For all projects being implemented we could mention the „Study of transport of inhaled nanoparticles (Pb, Cd) and their localization in the body“, „Quick decision-making systems for food safety“, „Development of instrumental methodologies for rapid detection and identification of biological agents in real samples“, „New methods for the analysis of proteins and their glycosylation in cancer - a combination of electrochemistry, microfluidic biosensors and mass spectrometry“, „Centre for Advanced Biotechnologies“ and also „Protection of book and document collections by application of essential oils“.

International cooperation

International cooperation in research and development is implemented through projects based on international agreements. Staffers lecture abroad at conferences and in scientific institutions, they are members of editorial boards of international journals and non-governmental international research and development organizations. The institute participates in international conferences and it is often visited by top foreign researchers. It provides scientific assessments, consulting and advisory services.

Cooperation with universities and research institutions

The institute participates in teaching and education of graduate and postgraduate students, in cooperation with universities in Brno, Olomouc, Prague and Pardubice. The institute collaborates with other research institutions and enterprises.

Public services

The institute regularly organizes *Open Days* with demonstrations and laboratory excursions for the general public. Within the popularization event called *Science and Technology Week*, the staff gives lectures for the public.



Open Day at the Department of separation with compressed fluids at the subcritical water extraction device designed by the Institute of Analytical Chemistry.

Institute of Vertebrate Biology CAS, v. v. i.

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Overview

The institute is engaged in research of wild vertebrates, especially at the level of populations and communities, the nature of the species and the nature of hybrid zones, breeding strategies, population dynamics, mechanisms of evolutionary adaptation, foraging strategies, analysis of trends and changes in communities in natural and disturbed environment, including also modeling and forecasts. It conducts research on warm-blooded vertebrates and their parasites as hosts, vectors and reservoirs of human and animal infections in natural foci. It also focuses on biodiversity of vertebrates at the genetic, species and ecosystem levels, development of methods of protection including proposals for the protection of species and restoration of degraded habitats and ecosystems.

Organizational structure

Research is conducted by research teams who focus their work on four basic directions. Most researchers are investigators in national and international projects, within which they conduct basic and applied research.

Field offices:

Field office Studenec 122 675 02 Koněšín
Field office Valtice, Klášterní 2, 691 42 Valtice



Research programs and projects

1) Evolutionary ecology

Research in evolutionary ecology involves the study of evolutionary mechanisms that apply in intra- and inter-species relations among vertebrates (especially fish, amphibians and birds).

2) Biodiversity

The current era is considered a „biodiversity crisis.“ In the institute, all three basic levels of biodiversity (ecosystem, species and genetic) are studied, including factors that affect and form biodiversity at different levels.

3) Applied ecology

Vertebrates are an important component of the ecosystem and are also crucially important for humans. Applied ecological research focuses on the interaction between man and vertebrates, for example in agriculture, forestry and fisheries. The results of the research are directed to fisheries, conservation of freshwater ecosystems, revitalization of water streams, management of forest environments, game management, protection against rodents, and to conservation.

4) Medical and veterinary zoology

At a time of global change, research on the ecology of zoonotic microbial pathogens causing human and animal infections, including (re)emergent infections is increasing in importance. The role of wild endothermic vertebrates (hosts and reservoirs of zoonotic agents) and blood-sucking arthropods is studied at the institute in particular.

International cooperation

The institute publishes *Folia Zoologica* (an international journal), organizes and co-organizes national and international conferences, takes part in many projects including the 7th Framework Programme of the EU. It cooperates with scientific institutions in Europe and overseas.

Cooperation with universities

Researchers of the institute lecture at the Charles University in Prague, the Masaryk University and the Mendel University in Brno, the University of West Bohemia in Pilsen and the Palacky University in Olomouc. They advise over 100 graduate and PhD students from eight universities in the Czech Republic and Slovakia.

Public services

The institute pays great attention to popularization - publishing articles and books and lectures for the general public, as well as *Open Days*. The institute owns an extensive collection of vertebrate skeletal material (over 100,000 items), serving domestic and foreign scientists, and it also has a unique library of scientific literature consisting of thousands of items of journals and books.



Institute of Physics of Materials CAS, v. v. i.

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Overview

The Institute of Physics of Materials concentrates its research on the physics of materials and material sciences with a focus on the behavior and properties of metallic and non-metallic materials in relation to their structure. The focus of activities of the department consists of basic research and promotion of the use of new knowledge in the application domain. The institute contributes to raising the level of knowledge and education and the use of research results in practice. It acquires, processes and disseminates scientific information, publishes journals, organizes scientific meetings and conferences, publishes anthologies, provides scientific assessments, opinions and recommendations, provides consulting and advisory services, and contributes to normalization and standardization in the field of materials physics and materials science. It offers postgraduate studies in doctoral programs and training of scientists, promotes international cooperation and organizes conferences and seminars. It performs its tasks both independently and in collaboration with universities and other institutions in the Czech Republic and abroad.

Organizational structure

The institute employs approximately 120 people, a third of them with scientific qualifications. It is divided into three scientific departments and one service department. The scientific departments (department of mechanical properties, department of structure and CEITEC IPM department) are further divided into workgroups.

Long-term conceptual development of the research organization

The goal of long-term conceptual development of the institute is to contribute to increasing knowledge of the relationship between the microstructure in the bulk and on the surfaces and interfaces on the one hand, and properties of materials on the other hand. New findings allow to optimize both the microstructure and properties, and on this basis to improve existing materials, or design completely new materials. Specifically, the research focuses on ultra-fine grain, microcrystalline, nanocrystalline and amorphous materials, intermetallics, monocrystals and polycrystals of superalloys, advanced steels, advanced

magnesium alloys, advanced iron-nickel alloys, shape-memory alloys, composite and nanocomposite materials, metallic laminates, lead-free solders, magnetic semiconductors and metalloid magnets, magnetic multilayers and silicides of transition metals. Studied relevant physical properties include mechanical properties (creep, fatigue, and brittle fracture) and selected electric and magnetic properties. The Central European Institute of Technology – CEITEC, in which the Institute is one of the partners, is an important project that integrates scientific research base in the region.

International cooperation

The Institute is involved in many international projects, including European, it regularly organizes international conferences and seminars. In 2010, it organized the Fatigue 2010 international congress.

Cooperation with universities

The Institute maintains an extensive and traditionally fruitful cooperation with universities in doctoral programs, master's, and bachelor's degrees. At the Brno University of Technology, CEITEC and together with the Masaryk University in Brno, the Institute has joint accreditations in the fields of doctoral programs. The Institute also collaborates on diploma theses of BUT and MU students.

Public services

Cooperation with businesses is based on grants, agreements and economic contracts. The volume of this cooperation is constantly growing.



Institute of Scientific Instruments CAS, v. v. i.

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Overview

The Institute of Scientific Instruments of the CAS, v.v.i., is a non-profit public research institution that has focused on finding new practices in the areas of advanced technologies and diagnostic methods since 1957. The Institute activities concentrate especially on the field of electron microscopy and lithography, magnetic resonance tomography, laser spectroscopy and nanometrology, micromanipulation techniques, special technologies for application of nanolayers and processing of materials, behavior of materials under cryogenic conditions, scanning and digital signal processing.

The institute's work covers basic and applied research, as well as realization of unique equipment and measurements.

Organizational structure

The research activities are concentrated in 14 research groups, grouped into six research departments:

- Special technologies
- Electron microscopy
- Magnetic resonance and cryogenics
- Medical signals
- Optical micromanipulation techniques
- Coherent optics



95 researchers operate in scientific departments. Service activities are provided by the financial department, IT, library, technical and project management. Contact information for heads of departments are available at the institute website.

Research projects and grants

The Institute was awarded one program of the VAVPI Operational Programme called Application and development laboratories of advanced microtechnology and nanotechnology (ALISI), which allowed the institute to significantly upgrade its infrastructure and to launch new directions in its research. The institute investigates almost 40 research projects of domestic and foreign providers focused in all areas of interest. The current list can be found on the institute website.

International cooperation

The institute collaborates with foreign institutions within the framework of international projects, agreements or informally through personal contacts of researchers. Long-term cooperation exists for example with the Mayo Clinic in Rochester (USA), the University of Toyama (Japan), the University of St. Andrews (UK), the Shimadzu Research Laboratory (UK), the University of York (UK), CERN, and the Institute of Biodiagnostics, Winnipeg (Canada).

Cooperation with universities

On the basis of awarded accreditations, the institute participates in postgraduate doctoral studies in collaboration with the Faculty of Science, Masaryk University, Faculty of Electrical Engineering and Communication, and with Faculty of Mechanical Engineering of the Technical University. Almost thirty PhD students prepare their doctoral dissertations at the institute, as well as 15 students (on average) who work on their diploma theses. Close cooperation also takes place in many areas of basic and applied research on joint research projects. In the field of medical diagnostics, there is a very fruitful cooperation with the University Hospital U sv. Anny.

Public services

The institute is regularly and very actively involved in events raising public awareness of science (Science Festival, Science Week, cooperation with the Amazing Physics Theater - ÚDIF). Every year, approximately 900 people visit the laboratories during the Science Week organized by the Academy of Sciences. Researchers at the institute provide expertise and regularly appear in the media where they talk about their activities and results to the general public. Laboratories of the institute offer a wide range of methods for displaying and analyzing various preparations, implementing unique technological processes at the macro and micro level.



The Institute

Institute of Botany CAS, v. v. i. Department of Vegetation Ecology

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Overview

The Department of Vegetation Ecology of the Institute of Botany, CAS, is focused on basic and applied research in the field of diversity and vegetation dynamics of temperate and tropical regions. The focus is on three areas: paleoecology, historical ecology and recent vegetation ecology. Paleoecology is the traditional field of work at the department that has been successfully developed for five decades. The aim is knowledge of the vegetation development in the last few millennia, from the Czech Republic to polar regions of northern Russia. Historical ecology, linking the work of specialists in history, archeology and botany is, in contrast, a relatively new field of study. It brings important insights into the historical influence of humans on nature and helps in strategic decisions about ecosystem management. Ecology of recent vegetation completes and further develops the long-term effort to study the diversity of our vegetation. Using the latest approaches, it examines the mechanisms governing the composition and dynamics of local and tropical vegetation.

Organizational structure

Organization-wise, the Department of Vegetation Ecology falls under the scientific research section I headquartered in Průhonice. The institute includes a palynological laboratory providing service to paleo-ecological research, while the analytical laboratory enables basic analysis of soil and plant material.

Projects and grants

In 2012, ten grant projects were investigated at the institute. For current and completed projects, go to <http://ekolbrno.ibot.cas.cz/index.php/cs/projekty.html>. The most important current project is the ERC grant no. 278065 - Long-term Dynamics of Forests in Central Europe: from estimates to a realistic model, investigated between 2012 and 2016.

International cooperation

International cooperation is an essential part of most projects undertaken in the institute. In addition to formal and informal cooperations with a number of European scientific institutions (Slovakia, Austria, Germany) there is an active collaboration with colleagues from partner institutions in countries outside Europe (USA, Brunei).

Cooperation with universities

There exists a contract on joint work between the Department of Vegetation Ecology and the Institute of Botany and Zoology, Faculty of Science, MU. This agreement facilitates research synergy involving the common use of material and immaterial equipment and strengthening cooperation on research projects. In addition, there is an informal collaboration between the department and the majority of similarly oriented university centers in the Czech Republic. Expert investigators of the Botanical Institute also act as external trainers and lecturers at universities.

Public services

Public services consist mainly in popularization of scientific knowledge in the form of journal articles (Živa, Vesmír, Ochrana přírody) and lectures. The long-term close cooperation with government conservation agencies, currently represented by the Agency for Nature Conservation and Landscape and management of national parks, can also be considered a public service.



Part of the archives of the profiles used for paleo-ecological research.

Institute of Botany CAS, v. v. i.

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Overview

The activity is focused on the research and development of technologies that lead to the early detection of cyanobacteria and cyanotoxins, reduction of mass development of cyanobacterial water bloom, but it also deals with the research of technologies leading to prevention, such as wastewater cleaning using algae, cyanobacteria toxins effects on other organisms, monitored by ecotoxicological bioassays, and of tissue cultures to evaluate the effects of chemicals. Tumor promoting effects and mechanisms of action of cyanotoxins and other important environmental contaminants such as estrogenic substances and pharmaceuticals are studied as well. Nanotechnology, nanomaterials and biotechnological processes are examined to find ways to remove these contaminants.

Cutting edge analytical methods are used, such as tandem mass spectrometry associated with liquid chromatography (LCMS/MS) and flow cytometry.

Organizational structure

The Department of Experimental Phycology and Ecotoxicology is a division of the Institute of Botany CAS based in Průhonice, Zámek 1

Ecotoxicology Section - Technological Section - Analytical Section - Popularization and Environmental Education Section

Selected projects and grants

MPO FR-T13/196 - NANORADI - Advanced nanotechnologies for sanitary and toxicological safeguarding of effluents from wastewater treatment plants - (2011-2014; principal investigator ASIO Ltd., Brno-Slatina, co-investigators - **Institute of Botany CAS**; Rawat Consulting Ltd. and Palacký University Olomouc)

MPO FR-T13/778 - BIOSTREAM - Wastewater treatment system in an integrated biotechnological system (2011-2014; principal investigator DEKONTA, Prague, co-investigators - Institute of Experimental Botany CAS, **Institute of Botany CAS** and VÚT Brno)

MŠMT LH12034 - CHEMOPREV - A new *in vitro* approach for identifying chemopreventive effects and mechanisms of phytochemicals (project in LH - KONTAKT II programme - 2012-2014; principal investigator - Department of Experimental Phycology and Ecotoxicology, Institute of Botany, CAS, co-investigator - Dpt. Of Pediatrics and Human Development, Michigan State University, East Lansing, MI, USA);

SoMoPro 2SGA2858 - A new approach for monitoring and evaluation of toxicity and risk assessment of cyanobacterial toxins - using passive samplers (2011-2013);

TAČR TA01010356 - NANAPL10 - Suitable materials for nanotechnological applications in water and air treatment - (2011-2014; principal investigator ASIO Ltd., Brno-Slatina, co-investigators Centre for Organic Chemistry Ltd., Rybitví; SPUR as Zlín; **Institute of Botany CAS** and Mendel University in Brno)

International cooperation

Michigan State University, Department of Pediatrics and Human Development, University of Michigan, Department of Biologic & Materials Sciences, University of Hyogo, Dept. of Materials Science and Chemistry, Humboldt University of Berlin, Dresden University of Technology, University of Gent etc.

Cooperation with universities

FS MU - RECETOX Research Centre for Toxic Compounds in the Environment,

UP Olomouc - RCPTM Regional Centre of Advanced Technologies and Materials

Public services

The department is involved in popularization of topics for the general public within the Science and Technology Week, Earth Day and Brno Days for Health. Department staff are open to consultation with the public, which is often used.

Ethnological Institute CAS, v. v. i.

Brno branch

Veveří 97, 602 00 Brno
URL: <http://www.eu.cas.cz>
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Fax: +420 532 290 297
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The Institute of Ethnology studies traditional folk culture and everyday culture of inhabitants of the Czech Republic in the context of Central Europe at present and in the past. The Brno branch is dedicated to investigation of spiritual and social culture, with territorial focus mainly on Moravia and Silesia. The investigations are focused on the culture of everyday life in rural areas and in the city, interethnic relations and culture of everyday Czech and German inhabitants of Brno, on ethnic minorities, on Czechs abroad and on the history of the field. Individual employees are oriented on musical, verbal and children's folklore, youth subcultures, rites, customs, community and social life. Its activities include field research with video documentation and dissemination and processing of scientific information in the field of ethnology and ethnomusicology, publishing monographs and studies, popularization of the field, organizing conferences and consulting.

Organizational structure

The institute is an integral part of the Institute of Ethnology CAS, based in Prague 1, Na Florenci 3.

Projects

The central research theme of the institute - Socio-cultural changes and their impact on ethno-cultural profile of human communities and their everyday life (2012 - 2016) is dealt with by investigating local, regional, national and minority cultures with a focus on contemporary ethnic and cultural traditions, as well as ethno-revitalizing processes in urban and rural environments. Other projects are devoted, for instance, to folklore works of Leoš Janáček, cultural and social transformations in Brno, Czech ethnic identity-forming processes in geographic-historical territory of the Romanian and Serbian Banat.

International cooperation

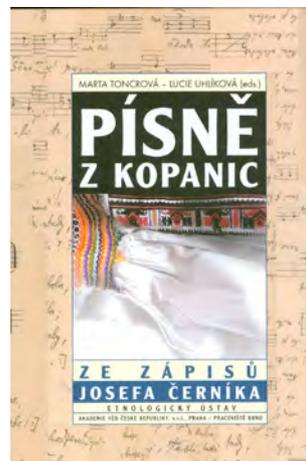
The branch staffers cooperate with colleagues in Germany, Poland, Austria, Russia, Slovakia, Slovenia and Serbia. They participate in international projects and conferences, provide consultations and exchange knowledge and literature.

Cooperation with universities

The institute staffers teach at the Masaryk University, they lead, examine and consult diploma and doctoral theses, they are members of various committees. The institute is a partner of the Masaryk University Institute of European Ethnology in the Development and Upgrading of Research Competencies in the Network of Ethnological Institutions project funded from EU structural funds, which extends thematic and financial safeguarding of field research for students.

Public services

Documentation collection at the institute contains manuscripts, music, audiovisual and photographic documents. The song collection contains 80 thousand items and is the largest song fund in our country; it is also used by the public, especially college students and folklore ensembles. The library contains 15,000 volumes accessible to scientific and general public.



Historical Institute CAS, v. v. i.

Brno branch

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Fax: +420 532 290 511
E-mail: stefanova@brno.avcr.cz



Overview

The branch employees focus on Czech and Eastern European history from the Middle Ages to World War II, while paying particular attention Moravia, the nineteenth century, historical Slavic studies and the history of the Balkans.

Organizational structure

The branch is an integral part of the Historical Institute of the Czech Republic, which is based in Prague 9, Prosecká 76; its employees are members of expert departments - medieval history, 19th century history, 20th century history and biographical studies.

Projects and grants

The branch is involved in large residential projects such as editions of medieval sources, synthetic processing of the history of the Czech lands in the 19th century, Czech-Balkan relations, Biographical Dictionary of the Czech Lands, *Academic Atlas of Czech History* or *Academic encyclopedia of Czech History*. The branch staffers participate in the grant project *TG Masaryk and Slavs, Morava on the Road to Civil Society* and they participate in the excellence grant project *Historical Geography Research Center*.

International cooperation

The branch collaborates with academic and university centers in Slovakia, Austria, Poland, Croatia and Slovenia. In the framework of international projects, the focus is on analogies and differences in the historical development of Central, Eastern and Southeastern European countries; these include such topics as *Formation of Modern Nations: national mythology and collective identities* and *Czech Image of Russia and Russian Image of Czech Lands over the Centuries*.

Cooperation with universities

Teaching at the Masaryk University (Faculty of Arts and Faculty of Education) and the University of Pardubice; participation in research plans of various universities, education of researchers, including training of PhD students; membership in academic scientific boards, expert boards and expert committees.

Public services

The branch collects, processes and disseminates scientific information from national and world history, organizes national and international meetings, prepares expertise, opinions and recommendations and provides professional consulting services. The branch staffers provide are editors of the *Slavic Overview* journal. The library offers over 22,000 scientific volumes accessible to scholars and general public.



Joseph II = view of the Grand Place (náměstí Svobody today) over the statue of Joseph II in the early 20th century



Franz Richter = Františkov (Denisovy sady today); lithograph by Franz Richter, mid-19th century

Mathematical Institute CAS, v. v. i.

Brno branch

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Fax: +420 541 218 657
E-mail: hakl@math.cas.cz



Overview

Research in the branch is focused in three directions. Most attention is devoted to the qualitative theory of differential and difference equations, especially the issues of solvability of boundary value problems, stability and asymptotic properties of their solutions. Another direction involves selected areas of theoretical computer science, e.g. the theory of supervision management of automata and timed automata with an emphasis on decentralized, hierarchical coordination and management, computing and descriptive complexity, and theory of grammars and formal languages. The third direction is the geometry and topology of G -structures on differentiable manifolds, reduction of principal fibered spaces for different subgroups their structural groups. Since 2003, the branch regularly hosts a seminar on *Qualitative theory of ordinary and functional differential equations*. The speakers present their own results and interesting results emerging in the literature.

Organizational structure

The Brno branch is a division of the Mathematical Institute CAS based in Prague, Žitná 25.

Projects and grants

Currently, the branch is involved in the A-Math-Net project under the Operational Programme Education for Competitiveness co-financed by the European Social Fund and the state budget. The branch also works on projects supported by the Grant Agency of the Czech Republic.

International cooperation

The branch works with a number of foreign research institutions and regularly organizes international conferences and seminars.

Cooperation with universities

Most staffers work at Brno universities, either as employees or external staff, they supervise doctoral students and act as external members of the state exam committee. Occasionally they lecture at universities abroad.

Public services

The Brno branch staffers are members of editorial boards of international journals, they regularly organize Open Days in the framework of the Week of Science and Technology and they co-organize mathematical competitions.

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Overview

The branch is focused primarily on editing of the *Works of Art in Moravia and Silesia*, which deals with creations of artistic nature located in the historically defined territory in the time range from the Slavic settlement of the country until now.

They focus on urbanism of settlements, buildings, including their interior furnishings, sculptural and artistic works and creations of art and craft. The explanations are selectively documented by photographs and plans of urban complexes, individual buildings and details, as well as index of artists with basic biographical data. The staffers are also involved in the research of sub topics related to their areas of expertise, namely Baroque painting and sculpting in Moravia, baroque graphic arts, Latin epigraphy and crafts.

Organizational structure

The department is part of the Department of Art History CAS located in Prague 1, Husova 4.

Origins of the academic art history department in Moravia date back to the intention of the former Czechoslovak Academy of Sciences to establish a branch of the former Institute of Art History and Theory in Brno. At the time when the edition of *Artistic Monuments in Bohemia* came to its final volumes, it proved necessary to adequately handle Moravia and Silesia. In 1991, therefore, was based academic center for art-historical research in Moravia and Silesia.

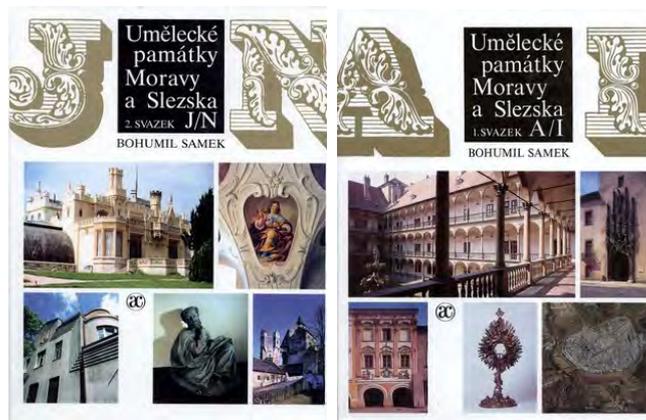
Research project and grants

Completion of the topographic project supported by GA ČR no. 408/03/0059 remains the essential mission of the institute; in addition, individual employees participated and continue to participate in large-scale research projects of the Institute of Art History (11th century art in the Czech lands) and its other activities (Project entitled *Sculptor Andrew Schweigl, the role of the artist and transformation of art at the outset of the modern era*, supported by GA ČR, no. P409/120,617).

Public services

The first two volumes of *Artistic monuments in Moravia and Silesia*, presenting a major part of the heritage fund in the surveyed territory, was issued by Academia Publishing in 1994

and 1999; follow-up edition of alphabetically ordered sites is in various stages of completion. There is a large archive of photographs and images available on the topic, as well as regional topographic literature.



Bohumil Samek Art Monuments in Moravia and Silesia A/I (1994), J/N (1999)

Institute of Geonics CAS, v. v. i.

Brno branch

Drobného 28, 602 00 Brno
URL: <http://www.geonika.cz>
Phone: +420 545 422 711
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E-mail: kirchner@geonika.cz



Overview

The branch consists of the environmental geography department and its research activities are focused on the environment and landscape, implementing a comprehensive approach, including the study of natural and social processes and phenomena in the landscape. Investigations are focused on the socio-spatial impacts of brownfield regeneration, environmental and geographic aspects of urban and rural areas, development of the concept of post-industrial landscapes and geo-ecology, assessment of impact of various types of power generation on the landscape, study of extreme natural processes, their historical impact and spatial distribution of using modern instrumentation.

Organizational structure

The department is part of the Institute of Geonics CAS based at Studentská 1768, Ostrava. The branch has 16 researchers and it forms ad hoc teams to deal with individual projects within the research projects, international and national grant projects and activities within economic contracts.

Conceptual plan, projects, grants

Within the conceptual plan of the Institute for the period 2012-2017, the department focuses on environmental geography, highlighting the complex approach to the results of physical and human geography studies. The plan is fulfilled through grant projects, ESF OP projects Education for Competitiveness, international cooperation projects and contract-based research. The results are also directed towards protection of the environment and landscape, regional development and quality of life.

International cooperation

The branch has published Moravian Geographical Reports international journal since 1993. In odd-numbered years, it organizes CONGEO international geographic conference. It participates in EU projects, the Contact Programme, and projects financed by foundations.

Cooperation with universities

The branch staffers cooperate and teach at similar institutes of the Masaryk University and Mendel University in Brno, Palacký University in Olomouc and Ostrava University.

Public services

The branch library contains over 30,000 volumes accessible to professional and general public.

Institute of Czech Literature CAS, v. v. i. Brno branch

Květná 8, 603 00 Brno
URL: <http://www.ucl.cas.cz>
Phone: +420 543 211 868
Fax: +420 543 211 868
E-mail: vrbova@ucl.cas.cz



Overview

The branch focuses on the history of Czech literature and literary theory, with a special focus on literature in other languages produced in the Czech lands since the beginning of literature, generating funds that document its development. The publicly accessible library with over 20,000 volumes is an important fund for study of literature and its reflection; literary journals since 1945 are quite fully represented.

Organizational structure

The department is part of the Institute for Czech literature based at Praha 1, Na Florenci 3. It is divided into the older literature research department, 19th century literature research department, 20th century and contemporary literature research department, theory department, literary culture research department, editorial and textological department, department of literary lexicography, and literary studies information center.

Projects and grants

The ICL is currently exploring the following issues (and works on the following grant projects):

Dictionary of Czech literature after 1945 (on-line) - institutions of post-war literary life, Bibliography Czech literary studies from 1945 to 1960, Readers and reading in the Czech Republic, Literary censorship in outline, History and theory of 19th century Czech verse, Comics: history and theory, Czech literature of the first decade of the 21st century in context and interpretations, the Dictionary of literary structuralism, Jan Mukařovský: life, work, impact, ad.

International cooperation

The branch cooperates with many foreign institutions – the Institute of Slovak literature in Bratislava, Russian Academy of Sciences, University of Pennsylvania, Arizona State University, Interdisciplinary Center for Narratology (ICN) in Hamburg, Institute of Polish philology - Wroclaw University, Le Centre de recherches sur les arts et le langage (CRAL-EHESS-CNRS, Paris), Institut für Slavistik, Universität Wien, Slavisches Seminar der Universität Tübingen ad.

Cooperation with universities

The branch staffers teach at the Faculty of Arts, Masaryk University in Brno, Faculty of Arts, Charles University in Prague, Faculty of Education, Masaryk University, Faculty of Arts, Palacký University, and other universities. They are members of expert boards and grant commissions of the Academy of Sciences and the Ministry of Culture, editorial boards of literary journals, such as *Česká literatura*, *Slovo a slovesnost*, *Host*, etc.

Public services

The Brno Institute produces the *Theoretica & Historica* (CAS) edition, focused on the contemporary international and Czech literary theory. However, the staffers are also involved in publishing of the *Teoretická knihovna* Library edition (*Host*, *Brno*) ad.

Institute of the Czech Language CAS, v. v. i. Etymological department

Veveří 97, 602 00 Brno
URL: <http://www.ujc.cas.cz>
Phone: +420 532 290 519
Fax: +420 549 216 872
E-mail: helena.karlikova@iach.cz



Overview

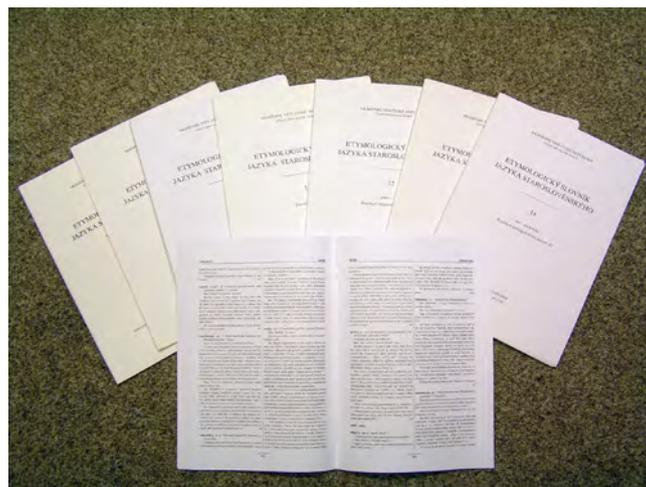
The institute activity is focused on historical and versatile historical-comparative research of Slavic lexicon from the earliest period, since the disintegration of the Indo-European community to the stage of formation of various languages; Special emphasis is placed on Old Church Slavonic and old Czech. The main task of the department is working on the *Etymological Dictionary of Old Slavonic Language*, so far a single dictionary in the world explaining the origins of Old Church Slavonic vocabulary.

Organizational Structure

Etymological department is part of the Institute of the Czech Language of The CZECH ACADEMY OF SCIENCES is based in Prague 1, Letenská 4.

Projects and Grants

The institute activity is closely related with its focus. The employees regularly participate in national and international conferences. The results of their work is published in books, anthologies and journals. Several grant projects are worked on in the institute.



International collaboration

The etymological department gathers, processes and exchanges scientific information in the field of Slavic etymology within the framework of international scientific cooperation, and it organizes international conferences, publishes conference proceedings, books, and scholarly studies. There is very close cooperation with the V. V. Vinogradov Institute of Russian Language in Moscow.

Cooperation with universities

Teaching at the Masaryk University in Brno; participation in education of researchers; membership in scientific, professional and editorial boards and professional committees.

Public services

The department library contains over 12,000 volumes fully accessible to scientists and general public. Popularization and consulting.

Institute for Contemporary History CAS, v. v. i. Brno branch

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URL: <http://www.usd.cas.cz>
Phone: +420 541 210 378, +420 607 526 016
Fax: +420 549 216 256
E-mail: pernes@volny.cz kovarik@usd.cas.cz

Overview

The branch investigates Czech, Czechoslovak and world history since 1945. Currently, the research focuses on the communist period in Czechoslovak history and the history of Czechoslovak democratic exile after 1948. The study of the history of exile is related to gathering of estates of important exiled personalities, documents from exile organizations and publications.

Organizational structure

The Brno branch is part of the Institute for Contemporary History of the CAS, based in Prague 1, Vlašská 9.

Projects and grants

The branch staffers are involved in tasks that result from the research focus of the parent institution: comprehensively conceived multi-layered exploration of contemporary history, including social history, everyday life history, history of ideas, economic history and history of international relations. Specifically, they are involved in such projects as *Industrial Workers in the Czech Lands in the years 1938 - 1948*, supported by the Grant Agency of the Czech Republic (GA13-10279S) for the years 2013-2017, and they continue to address issues arising from the recently completed project *Communist Party of Czechoslovakia and Bolshevism*, which was also supported the Grant Agency of the Czech Republic (GA409/08/1621) in the years 2008 - 2012. The branch staffers are also involved in the project *History of the City of Brno*, coordinated by the Faculty of Arts, Masaryk University in Brno.

International cooperation

The branch works with the US Fund for Assistance to Czechoslovakia. In July 2004, it presented an independent block on non-defeatist attitudes of residents of Brno at the turn of the 1960 and 1970 at the World Congress of the Society for Science and Arts in Olomouc. Currently, it is also involved in *ETZ Project Stories - Stories on the border/Geschichte an der Grenze* (Project of the Objective 3 Programme: European Territorial Cooperation Austria - Czech Republic 2007-2013, European Regional Development Fund, realized during the years 2009-2012). The Brno Institute for Contemporary History branch staffers partici-

pated in the international seminar *Die Tschechoslowakei und Österreich 1933/1938 - 1948/1949*, held on April 26, 2012, in Prague, by the contribution entitled *Wilde Vertreibungen „an der englisch-österreichischen Grenz 1945 (Beispiel der der Umsiedlungsaktion Partisanenabteilung unter dem Kommando Oberst Hobza)* and the 5th Czech - Austrian historians days on December 7, 2012 in Raabs an der Thaya (Austria), where they presented a paper on the *Border zone in Czechoslovakia and its impact on economic development and changing cultural landscape near the Czech-Austrian border*.

Cooperation with universities

The branch employees lecture at the Faculty of Arts and Faculty of Social Studies at the Masaryk University in Brno.

Public services

A specialized library and lecture hall serve mainly university students. For prospective students, a collection of documents relating to the history of democratic Czechoslovak exile after 1948 is also available. The branch collaborates with the Center for the Study of Democracy and Culture in Brno (CDK); on September 6, 2004, they jointly organized a conference on *Soviet occupation of Czechoslovakia and its victims* in Brno, on April 18, 2005, a conference dedicated to the 60th anniversary of the end of World War II, and other lectures and seminars.



Overview

The basic objective of CzechGlobe is deep technical knowledge of the problem of global change, adaptation to its effects and development of processes to reduce its impacts on ecosystems and human society. Using advanced techniques and instrumentation, the research focuses on three main segments of global change effects - ATMOSPHERE - evolution of climate and its modeling, ECOSYSTEMS - carbon cycle, impacts of global change on biodiversity and SOCIO-ECONOMIC SYSTEMS - impacts on development and behavior of the society. Activities leading to development of innovative technological processes, draft measures for adaptation and educational activities are integral part of CzechGlobe.

Organizational structure

„CzechGlobe - Global Change Research Centre“ is part of the scientific institute Global Change Research Centre of the CAS, v.v.i. Depending on its focus, it is divided into: Climate analysis and modeling section, Ecosystem analysis section, Impact studies and physiological analyses section, Human dimensions of global impact changes section and Innovation and adaptation techniques section.

Projects and grants

The core project of the CzechGlobe is the structural funds project OP R&DI „CzechGlobe - Center for the Study of the Impact of Global Climate Change.“ The main objective of the project is to build a „center of excellence“, attracting leading experts and cutting edge instrumentation for research on the impact of global change on the atmosphere, terrestrial ecosystems and human society, including understanding the processes of adaptation and development of methods to mitigate these impacts. The second key project of the center is a project of National research infrastructures „CZ-COS/ICOS - National Infrastructure for Carbon Monitoring“, which aims at helping to develop and maintain long-term infrastructure for monitoring carbon fluxes in ecosystems and to ensure experiments aimed to research the impact of elevated CO₂ on ecosystems. CzechGlobe also participates in a number of basic research projects supported mainly by the Grant Agency of the Czech Republic and by the

Ministry of Education, Youth and Sports (COST projects, KONTAKT, etc.), mainly aiming at a deeper understanding of the impact of environmental conditions on ecosystems. A significant part of the CzechGlobe activities is also devoted to applied research, which is supported primarily by the Czech Technology Agency and the National Agency for Agricultural Research. Projects supported by these agencies focus on effective cooperation with the practice in the areas of development of technology and instruments, primarily for monitoring and mitigating the impacts of global change.

International cooperation

CzechGlobe participates in a number of international projects and is a partner in several European research networks. CzechGlobe is a key partner of the ICOS (ESFRI) infrastructure project focused on research of carbon fluxes between ecosystems and the atmosphere. CzechGlobe is also a founding member of the ESFRI project ANAEE, whose goal is to create experimental and analytical networks for research of ecosystems at the European level. Furthermore, CzechGlobe is actively involved in international structures, such as ECRA (European Climate Research Alliance), INTERFACE (Integrated Network for Terrestrial Ecophys Research on Feedbacks to the Atmosphere and Climate) or ESF program CLIMMANI (Climate Change - Manipulation experiments in terrestrial ecosystems). It is also part of a European network for phenotyping of plants EPPN (FP7). In the field of remote Earth sensing, CzechGlobe works on the ESFRI project EUFAR. Cooperation on specific research problems takes place through several bilateral projects.

Cooperation with universities

CzechGlobe has extended accreditation for several doctoral programs at the Mendel University in Brno and the University of South Bohemia in České Budějovice (Applied and Landscape Ecology, Forest Ecology, Biophysics) and the staff supervise dissertations within these study programs. The CzechGlobe staffers guarantee or provide instruction in the bachelor's and master's degree programs at the Mendel University in Brno, the University of South Bohemia in České Budějovice and the University of Ostrava.

Public services

CzechGlobe organizes awareness-raising lectures, excursions and exhibitions for the public with a focus on global change research. CzechGlobe carries out research for the public administration (e.g. Ministry of Environment), which provides objective information for decision making and policy

proposals. CzechGlobe also coordinates the activities of the Regional Contact Organization, which informs about the possibilities of getting financial support from EU projects.



Institute of Thermomechanics CAS, v. v. i. Department of Mechatronics

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Fax: +420 541 142 876
E-mail: fuis@fme.vutbr.cz



Overview

The basic job of the Department of Mechatronics staffers is the research and development of mechatronic components and subsystems for controlled dynamic systems, including biomechanical systems. Specifically, the research focuses on the field of robotics, biomechanics and biophysics of heart cells. The institute develops a localization system for the Advée presentation robot, which indicates the position of the robot in an internal environment. The field of biomechanics deals with current problems in clinical practice, namely improving of reliability of ceramic components in joint replacements, which is determined from Weibull's weakest link theory. Furthermore, the institute develops a completely new type of rehabilitation device that is capable of measuring the activity of the patient and on the basis thereof to control the arm brace actuator. The institute also works on computational modeling of the behavior of isolated myocardial cells in order to understand the biophysical actions responsible for the electrical and mechanical activity of heart cells, both in physiological and pathophysiological conditions. In collaboration with the Faculty of Science, Palacký University in Olomouc, it works on numeric modeling of human vocal tract in pronouncing of certain vowels.



Organizational structure

The Department of Mechatronics is a common institute of the Institute of Thermomechanics CAS, Praha 8, Dolejškova 5, and the Faculty of Mechanical Engineering of the Technical University in Brno. The department is part of the D3 section - Dynamics and Vibrations, which is incorporated into the laboratory for modeling of multiphysics problems.

Research plan, projects, grants

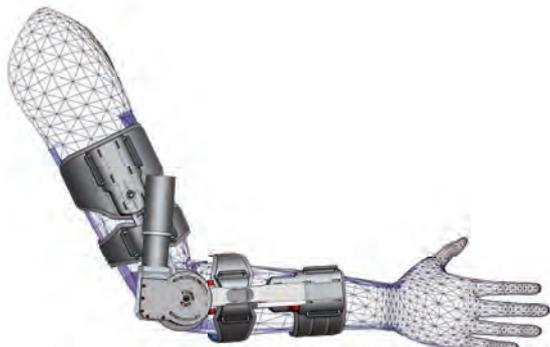
Research in the department is supported by the Research Plan of the Academy of Sciences titled *Complex dynamical systems in thermodynamics, fluid and solid mechanics*, which won by the Institute of Thermomechanics, and the research plan titled *Simulation modeling of mechatronic systems*, which was won by Faculty of Mechanical Engineering. Biomechanical and mechatronic projects of the Czech Grant Agency were also addressed in the institute, in which the department members were applicants or joint applicants.

International cooperation

Cooperation with major institutions – the Faculty of Mechatronics, TU in Warsaw, TU in Gliwice, TU in Izhevsk, Florida Int. University in USA and several technical universities in Germany. Every three years, the department staff are the main organizers of the international conference titled *Engineering Mechanics* and the *Mechatronics, robotics and biomechanics* conference, which is held alternately in the Czech Republic and in Poland. The institute is a co-publisher of the international scientific journal *Engineering Mechanics*.

Cooperation with universities

The branch staffers lecture at the Faculty of Mechanical Engineering in Brno and at the Medical Faculty of Masaryk University in Brno.



Active elbow brace



Advée presentation robot

Institute of Animal Physiology and Genetics CAS, v. v. i. Brno branch

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Phone: +420 532 290 136
Fax: +420 541 212 988
E-mail: matousova@iach.cz



Overview

The research focuses on the origin and evolution of structures in the orofacial area in model species of mammals including monitoring of the role and functions of morphogenetic mechanisms, primarily on the development of teeth and jaws. It also considers the evolution of the *Mus* genus, including various evolutionary aspects of the house mouse (hybridization, population structure, developmental stability, QTL mapping).

Organizational structure

Animal embryology laboratory and Mammal evolutionary genetics laboratory are part of the Department of Animal Physiology and Genetics of the CAS, headquartered in Liběchov, Rumburská 89.

Projects and grants

The research plan of both laboratories is focused on genetic, functional and developmental potential of animal cells, tissues and organisms and their use in medicine, ecology and agriculture. The animal embryology laboratory implements its program in embryology, odontology, molecular and biochemical fields. The research applies comparative aspects of animal organogenesis and histogenesis in the development of orofacial area, cell and tissue differentiations, regeneration and intercellular communication. The Mammal Evolutionary Genetics Laboratory engages in the research of genetic, genomic, population and evolutionary biological processes of phylogeny, phylogeography and evolution of mammals.

International cooperation

The Brno branch of the Institute of Animal Physiology and Genetics prepares and develops solutions to transnational research projects and exchange of students and researchers especially with Great Britain, France, Germany, USA and Japan.

Cooperation with universities

The institute contributes to raising the level of knowledge and education and the application of research results in practice. It participates in pre-graduate studies and also conducts postgraduate studies, doctoral programs and educates young scientists.

Public services

The Brno branch of the Institute of Animal Physiology and Genetics performs technical expertise in the field of dentistry, biomedicine and genetics. The researchers are actively involved in raising the general level of education, in teaching at universities and they participate in public discussions on various topics.



The team at Veveří, Part 1



The team at Veveří, Part

Masaryk Institute and Archive CAS, v. v. i. Brno branch

Jana Uhra 10, 602 00 Brno
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Mailing address
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mua@mua.cas.cz



Overview

Archive of the CAS (as part of the Masaryk Institute and CAS Archive) is an accredited specialized archive established by the Academy of Sciences. It collects and professionally processes selected documents from the activities of institutions and bodies of the CAS and its predecessors, takes care of funds of scientific associations, older academic institutions and private funds of scientists working in the Czech Republic. The archive is responsible for overseeing the filing service throughout the CAS. It also provides retrospective information to its founder and to originators of archived documents.

Its scientific activity focuses on the history of science, especially non-university institutions in the Czech lands. It also maps the life and work of eminent personalities from all disciplines. The MIA, among other things, publishes a peer-reviewed journal *Práce z dějin Akademie Věd*.

The MIA branch in Brno is mainly a consultation and focal point for the Brno branches of the CAS in matters relating to the filing service, i.e. registration of documents, shredding management, etc. It takes over written legacies of leading scientists from the region associated with the Academy of Sciences. The issue of electronic filing service is dealt with by the Archive headquarters in Prague.

Organizational structure

The Brno branch of MIA has organizationally fallen under the Department of Institutional Funds since 1952.

Cooperation with universities

The Brno branch of MIA works closely with archives of Brno universities, with the Brno branch of the Society for the History of Science and Technology and with the Technical Museum in Brno.

Public services

All archival documents are stored in the central archives in Prague. The research center makes the processed archival materials available to researchers in accordance with the applicable law.

The MUA makes written searches from archival funds as a paid service on request, prepares documents for shredding, organizes trainings and provides expert advice on filing service.



Library CAS, v. v. i.

Brno branch

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Phone: +420 532 290 227

E-mail: dolezelova@knav.cz

Overview

The branch serves libraries of institutes in Brno as a consulting and training facility for the registration of publishing activities of the Czech Academy of Sciences.

The branch ensures, together with the Prague branch:

- coordination of data collection from institutes of the CAS in the ASEP bibliographic database (Automated system of publication accounting)
- introduction, setup and maintenance of ARL on-line system (Advanced Rapid Library) for data input and output,
- submission of data from the CAS institutes to the RIV (Index of information on the results is the data area of the research and development information system /ISI VaV/ in which information is collected on the results of research and development projects and research projects supported from public funds),
- ASEP website management - URL: <http://www.lib.cas.cz/ASEP/>,
- development of ASEP analytics web application - URL: <http://www.lib.cas.cz/arl/>,
- organization of seminars and trainings for data processors and library staff.

Organizational structure

The CAS library branch was founded in 1994 and is part of the Department of R&D Results Accounting, Department of Research and Development of the CAS Library based in Prague 1, Národní 3.

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