

## The Academy of Sciences of the Czech Republic

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### A brief history of the institution

The present-day Academy of Sciences of the Czech Republic in its work continues the research traditions and mission not only of the former Czechoslovak Academy of Sciences but also of its predecessors. The oldest long-lasting learned society was the *Royal Czech Society of Sciences* (founded in 1784) which encompassed both the humanities and the natural sciences. As early as 1861-1863 Jan Evangelista Purkyně proposed in his treatise *Academia* the establishment of an autonomous non-university scientific institution associating research institutes representing the main fields of the science of that time. This idea of an institution engaged in interdisciplinary research corresponds to the concept and structure of the present Academy of Sciences.

By the end of the 19th century, language-differentiated scientific institutions arose in this country: the Czech Academy of Science and the Arts in 1890 and the Association for the Fostering of German Science, Arts and Literature in Bohemia in 1891 were established. The *Czech Academy of Science and the Arts* was founded owing to the significant financial support from the Czech architect and builder, Josef Hlávka who became its first President. The aim of this institution was to promote the development of Czech science and literature and to support Czech arts. The most important work of this Academy was its publication activities. Scholarships and financial support were also provided and smaller research units arose upon its initiative as well.

After the foundation of the independent Czechoslovak Republic in 1918 other scientific institutions were established, such as the Masaryk Academy of Labour and autonomous state institutes, such as the Slavonic, Oriental and Archaeological Institutes.

After the totalitarian regime came to power in Czechoslovakia in 1948, all existing main scientific non-university institutions and learned societies were dissolved and instead the *Czechoslovak Academy of Sciences* was founded in 1953, comprising both a complex of research institutes and a learned society. Despite having been subjected to heavy ideological pressure until the fall of this regime in 1989, Czech science was nevertheless able to maintain its creative energy in a number of instances and to find its way to the world scientific community (although there were disparities with the various fields of sciences at different periods of the regime). This fact was made evident, among others, by the awarding of the Noble Prize to Jaroslav Heyrovský in 1959 and by the worldwide recognition attained by Otto Wichterle for his discovery of contact lenses. Otto Wichterle became the first President of the Academy after the revival of democracy in this country.

The *Academy of Sciences of the Czech Republic (ASCR)* was established by [Act No. 283/1992 Coll.](#) as the Czech successor of the former Czechoslovak Academy of Sciences. It is a public non-university scientific institution of the Czech Republic encompassing a complex of research institutes engaged primarily in basic research. It is set up as a complex of [53 public research institutions](#). The Academy employs about 7,000 employees more than a half of whom are researchers with university degrees. The primary mission of ASCR and its institutes is to conduct basic research in a broad spectrum of the natural, technical and social sciences and the humanities. This research, whether highly specialised or interdisciplinary in nature, aims to advance developments in scientific knowledge at the international level, while also taking into account the specific needs of both Czech society and national culture. Scientists of the Academy institutes also participate in education, particularly through doctoral study programmes for young researchers and by teaching at universities as well. The Academy also fosters collaborations between applied research and industry. The integration of Czech science into the

international context is being promoted by means of numerous joint international research projects and through the exchange of scientists with counterpart institutions abroad.

Political changes in Czechoslovakia after 1989 also had an effect on the country's scientific life. The status of academicians and corresponding members at the Czechoslovak Academy of Sciences was abolished and replaced by a civic association. The *Learned Society of the Czech Republic* was established on May 10, 1994 at a festive session in the Hall of Patriots of Carolinum, the original seat of the Charles University, founded 1348 in Prague. Attending were 36 members of the Foundation for the Restoration of the Learned Society who became its Founding Members. New and Honorary Fellows of the Learned Society are elected at annual General Assemblies, pursuant to the Society's Statutes. The Czech Learned Society membership is comprised of 98 Fellows and 38 Honorary Fellows. The Learned Society of the Czech Republic is a civic association. The status of the Society in scientific life of this country was legally determined by the provision laid down in Section 3, paragraph 4 of Act No. 283/1992 Coll., on the Academy of Sciences of the Czech Republic, in the wording of Act No. 342/2005 Coll., effective from 13 September 2005, according to which the Academy supports the Society which contributes to the free, self-directed advancement of science in the Czech Republic and represents it towards similar foreign scientific institutions. Its executive body is the Council of the Society. The Society is an association of outstanding scientists from all disciplines of science. There shall be two kinds of membership in the Society: regular and honorary. A prerequisite to membership is a member's substantial and creative contribution to science, and moral integrity. In exceptional instances, a recognized person who has made extraordinary contributions to the dissemination of scientific values in society may also become a member of the Society. In general, only scientists active within the territory of the Czech Republic can be elected regular members of the Society and only scientists active abroad can be elected honorary members of the Society. The number of regular members of the Society shall not exceed one hundred and eleven. The number of honorary members of the Society is not limited.

The following is a list of the basic documents that establish and rule the Academy:

#### ACT on the Academy of Sciences of the Czech Republic

- Act No. 283/1992 Coll., on the Academy of Sciences of the Czech Republic, effective from December 31, 1992 as amended by Act No. 220/2000 Coll., effective from January 1, 2001 and Act No. 342/2005 Coll., effective from September 13, 2005 (full version: <http://www.cas.cz/en/act.php>)

#### ACT on Public Research institutions

- Act No. 341/2005 ([http://www.cas.cz/en/data/vav/act.no\\_341\\_2005.pdf](http://www.cas.cz/en/data/vav/act.no_341_2005.pdf))

#### Statutes of the Academy of Sciences of the Czech Republic

- Resolution No. 614 dated May 24, 2006 of the Government of the Czech Republic, effective from January 1, 2007 (<http://www.cas.cz/en/ostatni.php?m=2-04&ID=162>)

#### Code of Ethics for Researchers of the Academy of Sciences of the Czech Republic,

approved by the Academy Assembly at its XXVIII session held on April 20, 2006 ([http://www.cas.cz/en/code\\_of\\_ethics.php](http://www.cas.cz/en/code_of_ethics.php))

*Career Rules of University-Educated Employees of the Academy of Sciences of the Czech Republic*, approved by the Academy Assembly at its XXVIII session held on April 20, 2006 ([http://www.cas.cz/en/career\\_rules.php](http://www.cas.cz/en/career_rules.php))

## **Structure of the Academy**

**The President** shall be appointed and recalled by the President of the Czech Republic from the members of the Assembly and upon the proposal of the Assembly, which shall be discussed and submitted to the President by the Government of the Czech Republic. The term of office of the President is four years. An individual may serve as the President for a maximum of two successive terms. During the President's absence or because of his/her another engagement, a Vice-President or a Council member authorised by the President shall deputise for him/her. If the President cannot authorise a Vice-President or a Council member to act as his/her deputy, the authorisation shall be issued by the Presidium. The Assembly may elect an Honorary President of the Academy. The Honorary President shall be elected from the ranks of most distinguished scientists for an unlimited term. The Honorary President of the Academy may – at his/her own decision or upon the President's request – participate in deliberations of any body of the Academy in an advisory capacity.

**The Assembly** is the supreme self-governing body of the Academy. It comprises:

- The Directors of the Institutes,
- Representatives of the Institutes who are elected by the Assemblies of Research Workers of the Institutes by a secret ballot; each Institute shall elect one representative for each fifty (or part thereof) of university-educated research workers working at the Institute at the day of the election; the number of research workers shall be converted to full-time workload.
- Up to fifteen representatives of the universities appointed by the appropriate representative body of Czech universities,
- Up to ten representatives of the Government bodies appointed by the Government of the Czech Republic,
- Up to ten representatives of the industry, the business sector and the banks, who shall be elected upon proposals of the Institutes and relevant business associations by a secret ballot as a rule by the previous Assembly at the end of its term,
- Up to twenty-five other distinguished domestic and foreign scientists elected as proposed by the Institutes by a secret ballot as a rule by the previous Assembly at the end of its term.

A member of the Assembly who has been appointed as President, elected as member of the Council or President of the Council for Sciences, retain their membership in the Assembly throughout the duration of their term of office.

The term of office of the Assembly is four years. Assembly membership cannot be delegated to others.

The Assembly shall be convened by the Council as required, but at least, twice a year.

**The Supervisory Committee of the Assembly** is a permanent supervisory body of the Assembly; it shall be accountable to the Assembly.

Members of the Supervisory Committee shall be elected and revoked by the Assembly from its members. The Supervisory Committee of the Assembly shall have at least seven and at most nine members. Membership in the Supervisory Committee of the Assembly is incompatible with the membership in the Council or in the Council for Sciences and with the position of the Director of an Institute. The term of office of the Supervisory Committee of the Assembly is the same as the term of office of the Assembly. Members of the Supervisory Committee of the Assembly shall elect from among

them a chairman and a deputy chairman by secret ballot. The chairman of the Supervisory Committee of the Assembly or the deputy chairman acting as his/her proxy shall be entitled to participate in meetings of the Council. The Supervisory Committee of the Assembly convenes at least twice a year. An extraordinary meeting of the Supervisory Committee of the Assembly must be convened within fifteen days upon a written request of at least three of its members. The Supervisory Committee of the Assembly shall adopt its Rules of Procedure that will regulate the details of its proceedings.

**The Council** is an elected executive body of the Academy. It consists of the President and Vice Presidents of the Academy, the President of the Council for Sciences and of other members of the Council. The Council shall have at most seventeen members.

The members of the Council, with the exception of the President and of the President of the Council for Sciences, shall be elected and recalled by the Assembly from among its members. They shall be elected by secret ballot based on proposals submitted by the Assemblies of Research Workers of the Institutes ensuring proportional representation of the main research areas of the Academy. The term of office of Council members is four years for a maximum of two consecutive terms. Membership in the Council is incompatible with the position of a Director of Institute and with the membership in the Supervisory Committee of the Assembly. Upon the expiration of its term, the Council shall continue performing its duties until a new Council is established.

In urgent cases, the Council may also decide matters reserved for the Assembly. In this case, the Council shall convene the Assembly within thirty days from its decision. If the Assembly does not confirm the Council's decision, the decision becomes invalidated.

**The Council for Sciences** is an elected policy body of the Academy and a permanent advisory body of the Council on matters pertaining to formulating and implementing the Academy research policy. The Council for Sciences encompasses representatives of the Institutes, universities and other research and development institutions as well as distinguished foreign scientists. The Council for Sciences shall have at most thirty members, of whom at least one quarter and at most one third shall be external members including foreign members. Proportional representation of the main research areas of the Academy shall be taken into account when electing members of the Council for Sciences. Council for Sciences members shall be elected and recalled by the Assembly from candidates proposed by the Assemblies of Research Workers of the Institutes.

Membership in the Council for Sciences is incompatible with the offices of the President of the Academy and Council member. The term of office of the Council for Sciences is four years.

The Council for Sciences shall elect from its members and recalls the President and the Vice Presidents of the Council for Sciences. The President of the Council for Sciences shall, by virtue of his/her office, be a member of the Council and its Presidium.

The Council for Sciences, its authorised members and the Committee for Scientific Integrity are entitled to request from other Academy bodies and Institutes essential information and background materials pertaining to the discharge of their respective duties.

The Council for Sciences convenes as required, but at least four times a year. The sessions of the Council for Sciences are convened and presided over by its President; the constitutive session of the Council for Sciences shall be convened by the President of the Academy. The President of the Council for Sciences shall convene a session of the Council for Sciences within twenty days on the written request of at least one fifth of its members.

**The Head Office of the Academy** is an internal organisational unit of the Academy. The Head Office of the Academy accomplishes professional, managerial, inspectional and other organisational tasks as the executive arm of the President, the Council and its members and of other Academy bodies.

The President shall publish, after prior deliberation by the Council, the Rules of Organisation of the Head Office of the Academy specifying the organisational structure of the Head Office.

**The Grant Agency of the Academy** is a subdivision of the Academy in charge of distributing apportioned funds allocated from the Academy budget and possibly from other resources to support grant projects.

**The Institutes founded by the Academy are public research institutions.**

The public research institution is a public entity, whose principal activity is research, including provision of a research infrastructure, as defined by act on research and development support from public funds. Through its principal activity, a public research institution shall provide research supported primarily from public funds in compliance with conditions for granting public support as laid down by the European Community law (see: *Full version of ACT of 28 July 2005 on public research institutions*, [http://www.cas.cz/en/data/vav/act.no\\_341\\_2005.pdf](http://www.cas.cz/en/data/vav/act.no_341_2005.pdf)). As for the *Status and Tasks of the Institutes*, see Statutes of the Academy of Sciences of the Czech Republic (<http://www.cas.cz/en/ostatni.php?m=2-04&ID=162>)

**Research institutes of the Academy (Pt. Three, Art. 49-53).**

The organisational structure of the Institutes is divided into Sections. Individual Sections consist of Institutes specialised in similar scientific and research activities within the framework of three major divisions of science.

Division for Mathematics, Physics and Earth Sciences:

**- Section of Mathematics, Physics and Computer Science**

The domain of mathematical research, computer and information science embraces such highly abstract disciplines as logic, topology, mathematical analysis and numerical modelling, as well as theoretical research in the fields of computational complexity, neural networks, complex systems, advanced signal and data processing, optimising and uncertainty methods. Yet research is often motivated by specific problems of science, or the need for various applications. Applications are sought primarily in fields of economy, banking, environmental protection, earth sciences, biology, medicine and health, etc.

Research in physics includes a broad spectrum of topics from the physics of elementary particles, nuclear physics, including heavy ion collisions, and the application of nuclear methods in interdisciplinary research. In addition, from the perspective of nanosciences, nanostructures and nanotechnologies the following are analysed: low-temperature and laser plasmas, high-power and X-ray lasers, non-linear optics and quantum optical systems, or multifaceted research of properties of condensed systems with diverse atomic and molecular ordering, surfaces, layers and heterostructures.

Astrophysical research is concerned with atmospheres and the environs of stars including the Sun, on compact objects and eruptive processes in the Universe, and on the structure and evolution of galaxies. In other words, the subject of astronomical research is the dynamics and physics of natural and artificial bodies of the solar system and their interaction with the Earth's atmosphere.

The section comprises six institutes with 1,330 employees, of whom 810 are doctoral and graduate research workers.

### **- Section of Applied Physics**

The research of macroscopic properties and new structures of solid substances, and of the behaviour of fluids and plasmas is based on the application of the basic laws of physics. A detailed study of microstructures and microprocesses constitutes the basis for material science, e.g., mechanics and the dynamics of materials defects and materials degradation or the development of new materials, as well as for biomechanics.

Studies of yielding bodies and structures, dynamics and transport phenomena in fluids, including the hydrosphere and the atmosphere, processes in plasmas and their applications are also specifically targeted. The same applies, e.g., to research in the area of power technology, conversion of energy, generation, transmission and processing of photonic, electronic and acoustic signals, or speech analysis and synthesis. Related material research includes the investigation of photonic and optoelectronic structures for chemical or biological sensors and radiation detectors. Research at a specific Centre is focused on problems of safeguarding cultural heritage and mitigation of natural and man-made disasters, including the effects of climate change.

The unique processes using electron and light beams find application in the measurement of very weak forces, manipulation with very small objects, in interferometry and refractometry, in nanolayer technology, electron microscopy of living objects and nanostructured materials, electron beam welding and micro-machining, etc. The laser plasma research centre PALS (Prague Asterix Laser System) makes it possible to study both the fundamental properties of laser-produced or lasing plasmas and their broad applications, but not only in the physical sciences and engineering. High temperature plasma connected with nuclear fusion is studied at the new tokamak COMPASS and utilisation of plasmas for various other processes is also investigated.

The section consists of seven institutes with 810 employees, of whom 450 are doctoral and graduate research workers.

### **- Section of Earth Sciences**

Research in Earth Sciences concentrates on global and continental physical and geological problems relating to the composition, structure and development of the Earth, but more specifically local/regional properties of the inner structure of the Bohemian Massif, in the context of European geology. Growing attention is being devoted to comprehensive research of the geodynamically active area of Western Bohemia and also the study of paleo-ecology, environmental geochemistry and climatic changes in the Earth's past.

Both natural processes and the effects of human activities, changes of the ozone layer, air and soil pollution, induced seismic phenomena and geodynamic processes with environmental effects are investigated. Ecological utilization of organic sediments, clays and selected raw materials and use of geopolymers are studied.

Climate analysis is focused on climate change, extreme weather and climate events. Research of the upper atmosphere and magnetosphere is established on data obtained by using satellites of one's own provenience.

Observations include permanent monitoring of global and local seismicity, variations of the geomagnetic and gravity fields, meteorological phenomena and the condition of the ionosphere.

The section is made up of five institutes with 460 employees, of whom 280 are graduate research workers.

## Division for Life and Chemical Sciences:

### **- Section of Chemical Sciences**

Research in the section of Chemical Sciences covers a broad area starting from theoretical and quantum chemistry, through organic, inorganic, analytical chemistry and biochemistry, to catalysis and chemical and process engineering. The research projects have an interdisciplinary character and link major fields of activity with biochemical, medicinal, and pharmacological disciplines, molecular electronics and materials research.

The development and application of quantum chemical methods and chemical physics aid in the understanding of structures and properties of ions, molecules and their aggregates. Together with organic and inorganic chemistry it facilitates the design, synthesis and characterization of clusters, composites and various complexes and, consequently, the design of novel structures suitable for the preparation of highly sophisticated materials for practical applications. Much effort has been devoted to finding and/or improving therapeutic, material and animal and plant protection strategies. This led to significant contributions in the betterment of health and the human condition through the design and synthesis of new agents to treat infectious diseases. Excellent examples are three novel drugs, viz., *tenofovir* (Viread®), *adefovir* (Hepsera®), and *cidofovir* (Vistide™), active against AIDS, hepatitis B, and DNA-viruses, respectively, or new polymeric anticancer drugs designed for tumour-specific therapy. Research activities in the field of separation and spectroscopic methods of analytical chemistry reflect new trends, such as, system miniaturization and preparation of ultra high-purity materials. The knowledge of biomacromolecular systems, together with dynamics and self-organization of molecular and supramolecular formations in polymers, results in preparation, characterization and utilization of novel polymer systems with a controlled structure and properties. The integration of molecular-level characteristics with phenomenological knowledge of system behaviour as a function of process conditions makes possible the description of multiphase reacting systems by mathematical models, applicable to optimum process design conforming to environmental requirements.

The section encompasses six institutes with 1112 employees, of whom 721 are graduate research workers.

### **- Section of Biological and Medical Sciences**

The section of Biological and Medical Sciences brings together a wide range of topics under the unifying concept of creating a knowledge base in the area of human health. From the standpoint of a structural hierarchy, it contains all applicable levels from biomolecules to organisms (such as, microorganisms, animals, plants). The research is focused on mechanisms of biological control, the emphasis being on the primary structure of DNA, its conformational properties, interactions with proteins, nucleus architecture, organization and modifications of chromatin, structure and function of nucleoproteins and telomeric complexes, dynamics and the evolution of genomes, endo- and exogenous regulators of gene expression and signaling pathways. Also cell cycle and cell division control are keenly studied and some drugs against proliferative diseases are the outcome of this research. Further aims of the research in this section are to understand cellular structures as a dynamic system, intracellular transport, cell interactions and intercellular transport, formation of cellular domains with specialized developmental functions and some aspects of cellular metabolism. There are also programmes investigating reactions of organisms to stress conditions and the mechanisms of long-term adaptation. These programs involve mainly micro organisms and plants and anticipate climatic changes. Other important fields of research are stem cells, their acquisition, cultivation, differentiation and possible use in human medicine and the regulation of immune processes in infectious, tumor or autoimmune diseases. All these topics present new horizons in clinical therapy. The section also investigates a number of rather specialized topics, such as, neurophysiology, cardiovascular and reproductive physiology, plant hormonology etc. Most of the approaches used are in the fields of genomics and proteomics with bioinformatics used as well. Much of the work done in this section has practical implementation - novel diagnosis and therapy

methods for major diseases are the final aim. Besides new drugs, molecular markers to identify diseases or breeding plants are also the expected outcome.

The section encompasses eight institutes with 1629 employees, of whom 965 are doctoral and graduate research workers.

#### **- Section of Bio-Ecological Sciences**

Research at the Bio-Ecological section is focused primarily on organismal biology and fundamental/applied ecology. The profile, however, is systematically modified in accordance with the contemporary concept of 'integrative biology'. This concept puts a strong emphasis on evolutionary aspects of biology and ecology. To gain insight into the dynamic development of living systems, model systems are studied at all levels, from whole populations and organisms to molecules. The results achieved have had lots of implications for general, environmental, and applied biology as well as evolution/co-evolution of organisms within biodiversity. The subject of ecologically oriented research involved investigation of bio/geo-chemical cycles and processes of transformation of the main biogenic elements in terrestrial and water ecosystems. Investigation of individual processes in the ecosystem is closely connected with an experimental population and behavioural ecology. Systematic studies on relationships between diversity and function in ecological systems are routinely performed. Another area of research is devoted to the study of regulatory mechanisms and their mathematical modelling (Systems Biology). Development of fields connected to molecular biology and genetics is one of the main priorities of the Institutes in the Bio-Ecological Section. In this area, attention is focused principally on the molecular genetics of plants and molecular and population genetics of both invertebrates and vertebrates. Current research approaches have been directed to the study of parasitic/symbiotic organisms focusing on their diversification, evolution and distribution.

The section encompasses four institutes with 818 employees, of whom 418 are doctoral or graduate research workers.

#### Division for the Humanities and Social Sciences:

#### **- Section of Social and Economic Sciences**

Research in economics involves the study of theoretical models of economic behaviour of individuals and institutions and testing these models using econometric methods relying on both micro and macro data. The two guiding principles that connect much of the work are economic transition from central planning to a market economy and integration with the European economy. A joint workplace of Charles University and the ASCR, CERGE-EI (Center for Economic Research and Graduate Education – Economics Institute), provides a Ph.D. program in economics, fully accredited in both the Czech Republic and the United States.

Research activities in psychology deal with personality psychology, cognitive psychology, health psychology and methodology. Recent studies concentrate on examining the individual at different stages of life-span development. The main areas of study are the conditions of coherent functioning of the personality, personality changes in life-span development, and in the socio-cultural context, and the ways and processes of the integration of personal experience.

Sociological studies contribute to complex social processes, relations and mechanisms from a sociological perspective. Public opinion research is pursued in a number of scientific areas and thematic types. The science of politics and law explores the process of harmonisation of law with the European Union and its influence on the legal systems of member states in the context of an information society. Emphasis is placed primarily on the process of correlating Czech law with EU/EC law, and legal-philosophical and theoretical aspects of this process. The scope of research reflects all main spheres of the legal sciences – theory of law, private and public law. The research is carried out taking into account the development and application of legal informatics.

The section encompasses four institutes with 338 employees, of whom 181 with tertiary education.



### **- Section of Historical Sciences**

Archaeological research digs into prehistory, the Middle Ages, and, to a far lesser extent, the Modern Age. All areas of the study of archaeological sources are included, from field-work to formal and spatial structures and models of past societies. Particular attention is focused on the prehistoric and early medieval history of Bohemia, Moravia and the Czech part of Silesia as well as the larger central Danubian region. Research is conducted in the most important localities chiefly those of the Stone Age, the Roman period, and the Early Middle Ages.

Specialized research projects in history, developed in collaboration with historians around the world, are aimed principally at the areas of social and cultural history. Apart from new ways of looking at fundamental questions of national development, this involves ecclesiastical history and questions of the modern history of the Czech Lands and the rest of the world as well as theory and methodology in historical research, and historical geography. Establishing the Institute of Contemporary History in 1990 answered an urgent need for an institution of this kind because contemporary history as a field of academic study had to be established in this country after decades of manipulating history by a regime that used ideological and pressure tactics.

The mission of the Masaryk Institute and Archives is to preserve the cultural and historical heritage in the area, namely, materials from the history of academic institutions and individuals and from the works of the first two presidents of Czechoslovakia, T. G. Masaryk and E. Beneš, as well as carrying out basic archival research, the auxiliary historical sciences, and a history of the nineteenth and twentieth centuries.

Research in art history converges on the fine arts, general theory of art and aesthetics, and questions of architecture and theory and historical conservation, the history of Czech fine arts, Prague Castle, the arts and culture of the period of Emperor Rudolph II, and the art-history topography of Bohemia, Moravia, and Silesia.

The section consists of six institutes with 464 employees, of whom 268 with tertiary education.

### **- Section of Humanities and Philology**

Research in ethnology, social and cultural anthropology and history of music includes creating large synthetic works, such as an ethnographic encyclopaedia or atlas, a new critical edition of Antonín Dvořák's works, editions of traditional music and dances, digitalized sound and written, source-based documents. It also deals with issues of ethnic processes, migration of Czechs to enclaves abroad, comparative field research in Europe and in West Siberian herdsman cultures.

Philosophical research is oriented to contemporary continental and analytic, moral and political philosophy, logic, theory of science and global studies. Closely to philosophical studies are classical and medieval studies and comeniology.

Oriental studies encompassing religions, history, languages, literatures, cultures and civilizations of the countries of Asia and Africa are studied with emphasis on Islam and its comparative manifestations in medieval and modern history, religions and philosophies of South, Southeast and East Asia and history of Asian countries.

Slavonic studies are oriented mainly to the contemporary Slavic languages, literatures and history, but in some respects it also deals with problems of historical nature; this applies especially to Palaeoslavonic and Byzantine studies. The main enterprise in linguistics and lexicography is compiling bilingual lexicons and grammars of contemporary Slavic languages. The Department of Slavic Literatures concentrates mainly on the comparative study of the Slavic literatures in the Central European context.

The research of Czech literature is concentrated on the history of the Czech literature and thought, that is, on literature from the Middle Ages to the present. Research is centred on literary history, specifically the period of 1945-1989, literary theory, lexicography and editology.

Linguistic research of the Czech Language is concerned largely with grammar, style, lexicology, lexicography, dialectology, etymology, onomastics and the historical development of the Czech

language. In addition, consulting services concerning Czech orthography, grammar and language culture are made available.

The section encompasses four institutes with 541 employees, of whom 384 with tertiary education.

### **Centre for Administration and Operations**

The list of the altogether 53 Public Research Institutions: <http://www.cas.cz/en/institutes.php>

As regards the *Cooperation of the Institutes*, see Statutes of the Academy of Sciences of the Czech Republic (<http://www.cas.cz/en/ostatni.php?m=2-04&ID=162>)

### **The budget of the Academy**

The Academy of Sciences of the Czech Republic is financed primarily from the state budget. The pattern of research funding at the Academy conforms to current international standards. In addition to basic institutional financing of research objectives of Academy institutes, target-oriented financing is being more widely practised to carry out research projects and grants selected on the basis of public competition. ASCR was the first institution in the Czech Republic to establish its own Grant Agency which financially supports research projects selected through a peer-review procedure involving reviewers from abroad. Individual Academy institutes obtain additional financial resources by participating in national as well as international research programmes.

The Academy has also been assigned financial responsibility for 71 specialised Czech scientific societies associated with the Council of Scientific Societies.

The ASCR operated with a total of 9012.6 million CZK in the year 2007, 5707.7 million of which came from the organisation's own state budget chapter. Of this sum, 350.0 million CZK was transferred to other R&D institutions, mostly in the form of support for research grants.

The Academy and its institutes spent for their expenditures total of 8662.6 million CZK in the year 2007. The main part of it (55.1 percent) was covered by institutional funds provided for research objectives and for the assurance of the research infrastructure and distributed to the institutes according to evaluation of their scientific performance. The total volume of targeted funds obtained in public tenders for research and development covered 23.3 percent of the total expenses while institutes' own revenues (licences, sales of publications, goods and services, foreign grants etc.) made 21.6 percent.

### **List of periodicals published by the Academy of Sciences of the Czech Republic**

- Acta Comeniana (Institute of Philosophy)
- Acta Geodynamica et Geomaterialia (Institute of Rock Structure and Mechanics)
- Acta onomastica (Institute of the Czech Language)
- Acta Research Reports (Institute of Rock Structure and Mechanics)
- Acta Technica CSAV. Czech Science Advanced Views. (Institute of Thermomechanics)
- Adiktologie (Institute of Psychology)
- Akademický bulletin (Centre for Administration and Operations)
- Applications of Mathematics (Institute of Mathematics)
- Archeologické rozhledy (Institute of Archaeology, Prague)
- Archiv orientální. Quarterly Journal of African and Asian Studies (Oriental Institute)
- Biologia Plantarum (Institute of Experimental Botany)
- Bolletino dell'Istituto Storico Ceco di Roma (Institute of History)
- Bryonora (Institute of Botany)
- Bulletin Psychologického ústavu AV ČR (Institute of Psychology)

- Byzantinoslavica. Revue internationale des études byzantines (Institute of Slavonic Studies)
- Castellologica Bohemica (Institute of Archaeology, Prague)
- Castrum Pragense (Institute of Archaeology, Prague)
- Ceramics – Silikáty (Institute of Inorganic Chemistry)
- Circular Time and Latitude (Astronomical Institute)
- Collection of Czechoslovak Chemical Communications (Institute of Organic Chemistry and Biochemistry)
- Czechoslovak Mathematical Journal (Institute of Mathematics)
- Časopis pro moderní filologii (Institute of the Czech Language)
- Česká literatura (Institute of Czech Literature)
- Československá psychologie (Institute of Psychology)
- Československý časopis pro fyziku (Institute of Physics)
- Český časopis historický. The Czech Historical Review (Institute of History)
- Český lid. Etnologický časopis – Ethnological Journal (Institute of Ethnology)
- Data a výzkum – SDA Info (Institute of Sociology)
- Dějiny – Teorie – Kritika. History – Theory – Criticism (Masaryk Institute – Archives, Institute of Contemporary History)
- Eirene. Studia Graeca et Latina (Institute of Philosophy)
- Ekológia. Ecology (Institute of Systems Biology and Ecology)
- Engineering Mechanics (Institute of Thermomechanics, Institute of Hydrodynamics, Institute of Theoretical and Applied Mechanics)
- Estetika (Institute of Art History)
- European Journal of Entomology (Biology Centre)
- Filosofický časopis (Institute of Philosophy)
- Folia Geobotanica (Institute of Botany)
- Folia Historica Bohemica (Institute of History)
- Folia Mikrobiologica (Institute of Microbiology)
- Folia Parasitologica (Biology Centre)
- Folia Zoologica (Institute of Vertebrate Biology)
- Gender, rovné příležitosti, výzkum (Institute of Sociology)
- Geolines (Institute of Geology)
- Geologica Carpathica (Institute of Geology)
- Germanoslavica. Zeitschrift für germano-slavisches Studien (Institute of Slavonic Studies)
- Historica. Historical Sciences in the Czech Republic (Institute of History)
- Historická demografie (Institute of Sociology)
- Historická geografie (Institute of History)
- Hospodářské dějiny. Economic History (Institute of History)
- Hudební věda. Musicology (Institute of Ethnology)
- IIC Bulletin (Institute of Inorganic Chemistry)
- Informace Knihovny AV ČR (Main Library)
- Jemná mechanika a optika (Institute of Physics)
- Journal of Hydrology and Hydromechanics (Institute of Hydrodynamics)
- Knihy a dějiny (Main Library)
- Kontext: časopis pro gender a vědění (Institute of Sociology)
- Kovové Materiály. Metallic Materials (Institute of Physics of Materials)
- Kybernetika (Institute of Theoretical and Applied Mechanics)
- Linguistica Pragensia (Institute of the Czech Language)
- Listy filologické. Folia philologica (Institute of Philosophy)
- Masarykův sborník (Masaryk Institute – Archives)
- Mathematica Bohemica (Institute of Mathematics)
- Mediaevalia Historica Bohemica (Institute of History)

- Moderní dějiny. Modern History (Institute of History)
- Moravian Geographical Reports (Institute of Geonics)
- Naše řeč (Institute of the Czech Language)
- Naše společnost (Institute of Sociology)
- Neural Network World (Institute of Computer Science)
- newsLetter (Institute of Sociology)
- Nový Orient. Odborný čtvrtletník Orientálního ústavu (Oriental Institute)
- Organon F (Institute of Philosophy)
- Památky archeologické (Institute of Archaeology, Prague)
- Photosynthetica (Institute of Experimental Botany)
- Physiological Research (Institute of Physiology)
- Práce z Archivu Akademie věd (Masaryk Institute – Archives)
- Právnik (ÚSP)
- Přehled výzkumů (Institute of Archaeology, Brno)
- Publications of the Astronomical Institute (Astronomical Institute)
- Scripta Astronomica (Astronomical Institute)
- Slavia. Časopis pro slovanskou filologii (Institute of Slavonic Studies)
- Slovanské historické studie (Institute of History)
- Slovanský přehled. Review for Central, Eastern and Southeastern European History (Institute of History)
- Slovo a slovesnost. A Journal for the Theory of Language and Language Cultivation (Institute of the Czech Language)
- Sociologický časopis. Czech Sociological Review (Institute of Sociology)
- SOCIOweb. Sociologický webzín (Institute of Sociology)
- Soudobé dějiny (Institute of Contemporary History)
- Studia geophysica et geodaetica (Institute of Geophysics)
- Studia Rudolphina (Institute of Art History)
- Studie Archeologického ústavu AV ČR v Brně (Institute of Archaeology, Brno)
- Studie o rukopisech. Studien über Handschriften. Etudes codicologiques (Masaryk Institute – Archives)
- Supplementa Památek archeologických (Institute of Archaeology, Prague)
- Taraxacum Newsletter (Institute of Botany)
- Teorie vědy / Theory of Science (Institute of Philosophy)
- Umění. Art (Institute of Art History)
- Výzkumy v Čechách (Institute of Archaeology, Prague)
- Zprávy (Institute of Psychology)
- Živa (Centre for Administration and Operations)
- Vesmír, a Scholarly Magazine for the Research Community

### **List of prizes and medals that the Academy grants**

The Academy of Sciences of the Czech Republic honours its scientists for outstandingly significant scientific results in research and development achieved while carrying out research objectives, programme and grant projects supported from institutional and target-oriented funds. The awards are given in the following categories:

1. Outstanding scientific results of major significance
2. Young researchers (to age 35) for outstanding achievements
3. Exceptionally successful solution of programme and grant projects

Directors of Institutes of the ASCR, the Council for Sciences of the ASCR, the Grant Agency of the ASCR, and recipients of target-oriented financial support can submit nominations of individuals or research teams as potential recipients of awards of the ASCR in writing by 31 January of the calendar year. Awards are presented by the Academy Council of the ASCR.

The Academy of Sciences of the Czech Republic awards the following **medals**:

1. The Honorary Medal "De Scientia et Humanitate Optime Meritis" (the highest distinction) recognizes Czech as well as foreign personalities for their exceptionally meritorious contributions in the area of science and the promotion of humanitarian ideas.
2. Honorary Medals of Science recognize scientific excellence attained by Czech and foreign scientists in any field of science.
3. The Bernardo Bolzano Honorary Medal for Merit in the Mathematical Sciences
4. The Ernst Mach Honorary Medal for Merit in the Physical Sciences
5. The František Pošepný Honorary Medal for Merit in the Geological Sciences
6. The František Křížik Honorary Medal for Merit in the Technical Sciences and for the implementation of the results of scientific research
7. The Jaroslav Heyrovský Honorary Medal for Merit in the Chemical Sciences
8. The Gregor Johann Mendel Honorary Medal for Merit in the Biological Sciences
9. The Jan Evangelista Purkyně Honorary Medal for Merit in the Biological Sciences (biologico-medical disciplines)
10. The Karel Engliš Honorary Medal for Merit in the Social and Economic Sciences
11. The Josef Dobrovský Honorary Medal for Merit in the Social Sciences (philological and philosophical disciplines)
12. The František Palacký Honorary Medal for Merit in the Social Sciences (historical disciplines)
13. The Jan Patočka Memorial Medal recognizes results of the work of Czech and foreign scientists or persons promoting science.
14. The Vojtěch Náprstek Honorary Medal recognizes the merits of publicists and scientists in the popularisation of science achieved by their ongoing systematic and purposeful activities to publicise information about science.
15. Honorary Medal For Merits in the Academy of Sciences of the Czech Republic recognizes extraordinary activities of scientists and specialists in the field of science organizing and the assurance of infrastructure of research and development.

Boards of Academy institutes and the Council for Sciences of the ASCR submit proposals for awarding the medal "De Scientia et Humanitate Optime Meritis", Medals of Science and The Jan Patočka Memorial Medal. The Council for Sciences of the ASCR, the Council for Science Popularisation of the ASCR and the Editorial Board of the ASCR propose recipients for the Vojtěch Náprstek Honorary Medal for merit in the popularisation of science.

**The Otto Wichterle Award** is an honour given by the Academy of Sciences of the Czech Republic to stimulate and encourage selected, exceptionally outstanding, promising young scientists at the Academy of Sciences of the Czech Republic for their remarkable contributions to the advancement of scientific knowledge in a given area of science. Nominees with scientific degrees (CSc., Dr., Ph.D., DrSc.) are eligible provided that they are not older than 35 in the calendar year when the nominations are submitted. Nominations of candidates for the Award are submitted by directors of research institutes of the ASCR after consultation with the Boards of these institutes. Nominations are sent to the secretariat of the Academy Council of the ASCR, Academy Head Office by 31 March of the calendar year. Submitted nominations are reviewed by a Jury composed of the highest ranking Academy officials which submits its choice to the Academy Council of the ASCR which makes the final decision.

The objective of **the J. E. Purkyně Fellowship** is to attract outstanding creative scientists from abroad to work in research institutes of the Academy of Sciences of the Czech Republic, both scientists of Czech descent working abroad for an extended period of time and top-ranking scientists from abroad, who generally are younger than 40 years of age, and to ensure adequate salary package for them at Academy institutes. The Fellowship is granted for a maximum of five years. It is anticipated that these scientists will become inspiring leaders in newly formed or already existing working research teams at Academy institutes where they will work. The Fellowship was named after J. E. Purkyně to remind the fact that this outstanding 19<sup>th</sup> century physiologist of Czech origin worked abroad till he was 62 because he had not been given adequate employment in his home country. Applications for the J. E. Purkyně Fellowship are regularly submitted by directors of Academy institutes after consultation with and on the basis of a recommendation of the Board of the respective institute and sent to the secretariat of the President of the ASCR. Applications are considered by the Expert Commission of the ASCR's Academy Council and the ASCR's Council for Sciences headed by the Academy President.

The J. E. Purkyně Fellowship recipient shall be designated for the highest salary class.

**The Fellowship of the Academy of Sciences of the Czech Republic for Foreign Specialists Engaged in Bohemistic Studies** (Czech language and literature, history, culture, ethnology, etc.) seeks to encourage and support research in the Czech cultural heritage and promote its wider knowledge in the world, to facilitate and intensify the cooperation of Czech and foreign scholars who study the Czech cultural heritage, especially the Czech language, literature and history, but in particular the field of cultural history. The Fellowship is designed to provide funds for study stays and research work to Bohemistic scholars from abroad. Applications for the Fellowship, after consideration by the Board of the respective Institute (after 1 January 2007 by the Institute Council), are submitted by directors of host Academy Institutes (using the attached application form). The decision on granting the Fellowship shall be taken by the President of the ASCR on the recommendations of the Vice President of the ASCR responsible for the Social Sciences and the Humanities, the President of the Council for International Affairs of the ASCR and the President of the Council for the Economy of the ASCR.

## **International activities**

International cooperation is an integral part of research and development today, and it has become totally indispensable in pure research. The ASCR and its institutes engage in various forms of cooperation, e.g. hosting international conferences, workshops, etc., supporting the participation of Czech scholars in events abroad, sponsoring internships in foreign institutions. Other cooperation endeavours include the involvement of entire teams in joint international projects, affiliation of the institutes and the Academy with international scientific organizations and associations, and delegation of Czech representatives to their bodies. A traditional framework for sending researchers abroad (including their participation at congresses and other events) and hosting foreign scholars at the institutes of the Academy or at domestic events is provided by bilateral agreements between the Academy and counterpart partner institutions in other countries.

One major challenge was the launch of preparations for the Czech Presidency of the Council of the EU in the first half of 2009. Representatives of the ASCR became actively involved in work in assisting advisory bodies for this Presidency. The priority here is to create a European Research Area without barriers, with opportunities for researchers to move freely and share knowledge and infrastructures.

The ASCR actively monitors the process of legislative amendments concerning research and development. The ASCR also comments on various governmental materials concerning research, development and innovation within the EU, and responded to the stimulus of the European Commission and participated in the preparation of opinions for the needs of Czech negotiations within the EU,

particularly in the area of clarifying procedures towards the European Charter for Researchers and the Code of Conduct for their Recruitment. Among the priorities of the ASCR is the extensive administration in preparation for Operational Programmes (OP) and other fundamental documents for EU structural funds for research and development. The ASCR devotes a great deal of attention to the Seventh Framework Programme on Research and Technological Development in the European Union (the 7<sup>th</sup> FP). ASCR activity is focused on ensuring the maximum support for project submitters so that the funds invested from the state budget and from other sources in the participation of Czech teams in the 7<sup>th</sup> FP could be used as effectively as possible. As part of the NICER II project - the National Information Centre for European Research, the *Technology Centre* provides information for all specific programmes of the 7<sup>th</sup> FP via a network of specialists. The ASCR continues its cooperation with the Czech Liaison Office for Research and Development in Brussels (CZELO), which helps discuss projects with European Commission authorities, ensures partners for research consortia and organises various presentations and publicity events. In a number of cases the Czech Mobility Centre helped solve problems connected with foreign guests in ASCR departments.

Individuals and institutions of the ASCR have been competing successfully for international grants and projects, especially in programs of the EU (COST, COPERNICUS); they have also taken part in projects of the grant agencies of the USA, Germany, etc.

ASCR mediates Czech cooperation with several intergovernmental organizations: CERN – Conseil Européen pour la Recherche Nucléaire ; The Joint Nuclear Research Institute at Dubna; NATO – scientific programme; ESO – European Southern Observatory; ESA – European Space Agency – Czech Republic is affiliated with the Plan for European Cooperating States (PECS); UNESCO – MAB – Man and the Biosphere Programme.

ASCR is member of several non-governmental organizations: ALLEA – All European Academies; EASAC – European Academies Science Advisor Council; ERCIM – European Research Consortium for Informatics and Mathematics; ESF – European Science Foundation; EUSCEA – European Science Events Association; UAI-IUA – International Union of Academies; IAP – InterAcademy Panel; IAMP – InterAcademy Medical Panel; ICSU – International Council for Science.<sup>37</sup> Czech National Committees established by ASCR representing Czech Republic in individual international scientific unions, as well as: IHRN – International Human Rights Network of Academies and Scholarly Societies; ISSC – International Social Science Council; WCRP – World Climate Research Programme; AE – Academia Europaea.

ASCR is represented by engaged Institutes in several international organizations, for example: IAPT – International Association for Plant Taxonomy; BGCI – Botanic Gardens Conservation International; ESF – CRAF – European Science Foundation – Committee on Radio Astronomy Frequencies; EPSO – European Plant Science Organisation; ICA – International Council on Archives; ISC – International Seismological Centre; ILP – International Lithosphere Program; ISAG – International Society of Animal Genetics.etc.

ASCR is active in the cooperation activities within the framework of the Visegrad Group Academies.