

THE HUNGARIAN ACADEMY OF SCIENCES

HISTORY

The Hungarian Academy of Sciences has been the focal point of Hungarian science and scholarship ever since its foundation in 1825. Its initial formation is marked by one of the most generous gestures of Hungarian history. Count István Széchenyi offered one year's income of his estates for the purpose of establishing a Learned Society, and his example of generosity was followed by other delegates to the National Assembly. Through their effort the Hungarian Academy of Sciences owes its foundation to public will rather than the will of a monarch or a government decision, and it may as well be the only Academy in the world built up from public donations.

PRESENT ROLE AND STRUCTURE

Today the Hungarian Academy of Sciences is a self-governing public body responsible for the pursuit, support and representation of science. Through its dual structure of a learned society and a network for discovery research governed by the learned society, the Academy of Sciences produces and disseminates scientific results, promotes scientific integrity and the values of science both within the country and worldwide. Committed to the support of cutting-edge research it promotes scientific integrity and the values of science, and aims to connect Hungarian science with international research.

The integrity and independence of the Hungarian Academy of Sciences is highly praised by the Hungarian public. Among all Hungarian public institutions the Academy has been for many years the institution enjoying by far the greatest degree of public confidence in Hungary.

LEARNED SOCIETY

As a learned society the Hungarian Academy of Sciences assembles Hungary's most prominent scientists from the three major fields of study such as mathematics and natural sciences, life sciences, and social sciences. With a membership of 13,000 researchers beyond its full, corresponding, external and honorary members the 11 scientific sections of the Academy also integrate Hungarian scientists who wish to join its public body and contribute to performing its public duties. The Academy is governed by the President. The President and all chief officials of the institution are nominated by members of the Academy and elected by its General Assembly for a term of 3 years.

With its extensive membership the Hungarian Academy of Sciences is the only public institution in the country that has the infrastructure and human potential to investigate policy alternatives related to scientific issues in various strategic areas. To fulfil this role the Academy is free to present reports on selected policy areas relevant to Hungary's future, and discuss such long-term strategy issues as energy or water management, the environment, food safety, demography, the future of education, or social security. The Academy presents a biennial report to the Hungarian Parliament on the current state of scientific research in Hungary.

A NETWORK OF RESEARCH EXCELLENCE

The research network of the Academy comprises 15 legally independent research institutions and 130 research groups at universities co-financed by the Academy. This research network focusing above all on discovery research is unparalleled in Hungary, accounting for one-third of all scientific publications produced in the country. Citation indices of publications posted by the Academy's researchers surpass the Hungarian average by 25.5%.

Bringing Hungarian science to world class pre-eminence has been in the forefront of the operation of the Academy. The present structure of the research network is the outcome of an overarching renewal process that started in 2010 and has resulted in a sustainable, more competitive and more efficient research network with a significant cut in administration costs and a growing potential for self-financing.

MOMENTUM PROGRAMME

The objective of the Academy's Momentum (Lendület) programme is to promote excellent research and fight the brain-drain by providing young talented researchers with an opportunity to build up their own research schools in Hungary so as to set an example for their peers in career development. The impact and success of the model is highly acclaimed and recognised and has provided new career opportunities for researchers in 97 research groups since its launch in 2009. From 2015 on the programme has been extended beyond the fields of discovery science, offering new opportunities in applied sciences for young researchers who would like to work on their ideas in laboratories financed jointly by the Academy and its global and national industrial partners.

INTERNATIONAL RECOGNITION AND ACHIEVEMENTS

Hungarians often take pride in the country's outstanding scientific discoveries, some of which were made by the 13 Hungarian Nobel Laureates. Winners of numerous prestigious European and international research grants and, recently, the international Brain Prize in 2011, or the Abel Prize in 2012, the members and researchers of the Hungarian Academy of Sciences continue to be honoured by the recognition of their exceptional individual performance.

The Hungarian Academy of Sciences takes pride in its high number of ERC Grant holders. The 47 ERC research projects in Hungary in the period from the launch of this programme until 2014 represents 44% of all successful applications made by the 13 new Member States of the European Union.

SCIENCE DIPLOMACY

In terms of a contribution to European and international science policy, the Hungarian Academy of Sciences is dedicated to play an active role extending beyond its size. In addition to its numerous bilateral agreements and co-operative projects, the Academy is the main organiser of the conference series World Science Forum, a major recurring event in global science diplomacy designed in co-operation with UNESCO, ICSU, AAAS, TWAS and EASAC.

RESEARCH NETWORK OF THE HUNGARIAN ACADEMY OF SCIENCES

The research network (covering natural and life sciences, social sciences and humanities) of the Hungarian Academy of Sciences (Magyar Tudományos Akadémia, MTA) comprises 10 research centres, 5 research institutes and more than 130 research groups at public institutions, mainly at universities. The research network addresses discovery and targeted research, in cooperation with universities and corporations.

MTA ALFRÉD RÉNYI INSTITUTE OF MATHEMATICS

Budapest | www.renyi.mta.hu

Theoretical studies inspired partly by the internal development of mathematics and partly by applications of mathematics in other sciences. Applied research by cooperating with industrial enterprises.

MTA INSTITUTE FOR COMPUTER SCIENCE AND CONTROL

Budapest | www.sztaki.mta.hu

Information technology, computer science and related fields. Technical-scientific and mathematical issues of informatics related to fundamental issues, potentially endowing them with incentive, disciplinary bases.

MTA RESEARCH CENTRE FOR ASTRONOMY AND EARTH SCIENCES

Sopron, Budapest | www.csfk.mta.hu

GEOGRAPHICAL INSTITUTE

Budapest

Physical, human and regional geography, studies on spatial processes and interrelationships; temporal and spatial survey of the interaction between man and the environment.

INSTITUTE FOR GEOLOGICAL AND GEOCHEMICAL RESEARCH

Budapest

Mineral- and petrogenesis, formation of mineral deposits, isotope, organic and environmental geochemistry. Geochemical cycles of bioessential and toxic elements.

GEODETTIC AND GEOPHYSICAL INSTITUTE

Sopron

Basic research in geodesy and geophysics, establishment and operation of geophysical observatories in the fields of seismology, geodynamics, geomagnetism, the ionosphere and atmospheric electricity, near-Earth phenomena.

KONKOLY THEGE MIKLÓS ASTRONOMICAL INSTITUTE

Budapest

Observational astronomy: physics of the variable stars, galactic structure and solar activity. Operation of an internationally recognized observational network developed during the last three decades.

MTA CENTRE FOR ENERGY RESEARCH

Budapest – www.energia.mta.hu

INSTITUTE FOR ATOMIC ENERGY RESEARCH

Materials chemistry, environmental chemistry. Pyrolytic and chemical recycling of plastic wastes, utilization of biomass materials by thermal methods, environmental technologies, efficient utilization of solar energy, processing of hazardous wastes in thermal plasmas.

INSTITUTE FOR ENERGY SECURITY AND ENVIRONMENTAL SAFETY

Renewable energy, environmental effects of energy conversion technologies, environmentally friendly chemical processes.

INSTITUTE FOR TECHNICAL PHYSICS AND MATERIALS SCIENCE

Complex functional materials and nanometerscale structures, and their application in integrated micro- and nanosystems, and in the development of characterization techniques.

MTA INSTITUTE FOR NUCLEAR RESEARCH

Debrecen | www.atomki.mta.hu

Fundamental research in experimental and theoretical atomic, nuclear and particle physics, and in applying the physical methods and knowledge in other fields of science like materials research, environmental and earth sciences, biological and medical research etc. Practical investigations for industry, agriculture, and medicine.

MTA WIGNER RESEARCH CENTRE FOR PHYSICS

Budapest | www.wigner.mta.hu

INSTITUTE FOR PARTICLE AND NUCLEAR PHYSICS

High energy nuclear and particle physics, heavy ion physics, plasma physics, thermonuclear fusion, physics of cooled atoms, space physics, nuclear solid state physics, materials sciences, computational neuroscience, application of physics in biology. Laser techniques, fusion technology, ion-beam microanalysis, space electronics, fast data processing, optical and X-ray spectroscopy.

INSTITUTE FOR SOLID STATE PHYSICS AND OPTICS

Solid state physics, including the physics of condensed materials, nanostructures, thin films and surfaces and also topics in the field of theoretical and experimental optics, including the physics of optical crystals, nonlinear and quantum optics, and laser physics.

New materials, test methods, new optical crystals, thin film devices and lasers.

MTA RESEARCH CENTRE FOR NATURAL SCIENCES

Budapest – www.ttk.mta.hu

INSTITUTE OF MATERIALS AND ENVIRONMENTAL CHEMISTRY

Materials chemistry, environmental chemistry; pyrolytic and chemical recycling of plastic wastes, utilization of biomass materials by thermal methods, research in environmental technologies, research on the more efficient utilization of solar energy, processing of hazardous wastes in thermal plasmas.

INSTITUTE OF ENZYMOLOGY

Basic research aimed at elucidating the role of enzymes and other proteins in biological processes, regulation of these processes at the molecular level, the structure-function relationship of proteins. Development of experimental and theoretical techniques to investigate the molecular action and structure of proteins.

INSTITUTE OF COGNITIVE NEUROSCIENCE AND PSYCHOLOGY

Basic research in psychology that contributes to scientific progress and may be applied directly or indirectly. Complex, interdisciplinary psychological studies, fMRI.

INSTITUTE OF ORGANIC CHEMISTRY

Heterocyclic compounds, carbohydrates, polymers, elaboration of novel methodologies (e.g. organocatalysis, supramolecular synthesis). Investigations by NMR spectroscopy, mass spectrometry and single crystal diffractometry.

MTA INSTITUTE OF EXPERIMENTAL MEDICINE

Budapest | www.koki.hu

Primarily a neuroscience centre with a focus on understanding neurotransmission, learning and memory, anxiety and depression, epilepsy, and neural control of the endocrine and immune systems. Gene, molecular, cellular systems, and behavioural levels with foci in pharmacology, endocrinology, cellular and network neurobiology, development, and behavioural neurobiology.

MTA BIOLOGICAL RESEARCH CENTRE, SZEGED

Szeged | www.brc.mta.hu

INSTITUTE OF BIOPHYSICS

Elucidation of the operation of biological systems on physical grounds. Studies focusing on the processes of biological energy conversion, membrane biophysics and neurobiology using modern physical, chemical and biological methods. Regulation processes in living matter primarily by physical methods.

INSTITUTE OF BIOCHEMISTRY

Studies of nucleic acids, proteins and lipids and their complexes on different organizational levels aimed at a better understanding of the chemical and physicochemical nature of living matter, its changes, the regulation of processes taking place in living matter and laws governing life phenomena. Applications in medicine and biotechnology.

INSTITUTE OF GENETICS

Mechanisms of heredity and the processes regulating and influencing the manifestations of hereditary traits on molecular and various other organizational levels by means of the methods of functional genomics.

INSTITUTE OF PLANT BIOLOGY

Identification of genes and molecular mechanisms which determine the development, light perception and utilization, as well as environmental stress responses of plants. Exploration of biotechnical approaches to produce plants with an enhanced agronomical value.

MTA CENTRE FOR AGRICULTURAL RESEARCH

Martonvásár, Budapest | www.agrar.mta.hu

INSTITUTE FOR VETERINARY MEDICAL RESEARCH

Budapest

Investigation of viral, bacterial and parasitic diseases of farm, pet and wild animals (including fishes) by using both classical and state-of-the-art molecular biological approaches. Molecular and genetic characterization of microorganisms. Participation in the improvement of diagnostic and vaccination methods.

AGRICULTURAL INSTITUTE

Martonvásár

Development of new generic plant genotypes to satisfy the needs of the future, based on an internationally acknowledged plant gene pool, and using up-to-date genetic, physiological, cell and reproduction biological, functional genomic, biotechnological, plant

breeding and crop production methods. Gene bank research and pre-breeding activities.
Production technologies and crop environments.

PLANT PROTECTION INSTITUTE

Budapest

Plant pathology, entomology, ecotoxicology, pesticide chemistry, herbology, and the disease resistance of crop plants.

INSTITUTE FOR SOIL SCIENCE AND AGRICULTURAL CHEMISTRY

Budapest

Soil science, agrochemistry, and soil biology.

MTA CENTRE FOR ECOLOGICAL RESEARCH

Tihany, Vácrátót, Budapest | www.okologia.mta.hu

BALATON LIMNOLOGICAL INSTITUTE

Tihany

Ecological research of Lake Balaton, the largest lake in Central Europe. Experimental zoology concentrated on the cellular bases of neuronal regulation in invertebrates, combining neuroanatomical, neurochemical and electrophysiological techniques. Physiological effects of organic pollutants and their effect on neuronal regulation.

DANUBE RESEARCH INSTITUTE

Budapest

Hydrobiology of running waters and hydrobiology of standing waters and wetlands. Long-term surveys related to basic patterns of the river biota; material cycling of the different river sections; impact of environmental factors.

INSTITUTE OF ECOLOGY AND BOTANY

Vácrátót

Ecology, botany and hydrobiology. Organisation and dynamics of biocoenosis; biodiversity patterns at various scales; hydrobiology of running and standing waters and wetlands; ecological effects of climate and land use changes; conservation biology and restoration ecology; new plant resources; natural vegetation in Hungary; maintenance of the Botanical Garden.

MTA CENTRE FOR SOCIAL SCIENCES

Budapest | www.tk.mta.hu

INSTITUTE FOR LEGAL STUDIES

European law and the Hungarian legal system, current issues of business law and private law, environmental law at the beginning of the 21st century, rule of law and the Hungarian legal order, human rights and international relations in a globalizing world, general questions of the theory of the legal system.

INSTITUTE FOR MINORITY STUDIES

Minorities living in Hungary, Hungarian minorities living in countries neighbouring Hungary, the Hungarian diaspora in Europe and overseas, Roma population in the region. Centre of Jewish Studies, Migration Research Centre.

INSTITUTE FOR POLITICAL SCIENCE

Political science, and related social sciences, e.g. philosophy, social theory, sociology and anthropology. Description and interpretation of the main social and political trends.

INSTITUTE FOR SOCIOLOGY

Empirical study of social processes with an aspiration to develop sociological theories and methodology; various sociological contexts of social policy and economy, in the development of different types of reform concepts including their critical analysis.

MTA RESEARCH CENTRE FOR ECONOMIC AND REGIONAL STUDIES

Pécs, Budapest | www.krtk.mta.hu

INSTITUTE OF ECONOMICS

Budapest

Fundamental and applied research in economics. Analysis of the modern market economy and the transformation of the Hungarian economy.

INSTITUTION FOR REGIONAL STUDIES

Pécs

Regional and local development as the key to a competitive and highly developed Europe.

INSTITUTE OF WORLD ECONOMICS

Budapest

General issues of the world economy. The European integration process. Central, South-Eastern and Eastern Europe: EU integration, modernisation, catching-up and adjustment.

MTA RESEARCH INSTITUTE FOR LINGUISTICS

Budapest | www.nytud.mta.hu

Description of the grammar of Hungarian, research into its history and that of related languages, extensive investigation of the human language capacity, explorations in the theory of grammar study of the properties of linguistic communication, construction of comprehensive language resources, development of language technology.

MTA RESEARCH CENTRE FOR THE HUMANITIES

Budapest | www.btk.mta.hu

INSTITUTE OF PHILOSOPHY

Philosophical questions of the information society. This project is based on broad philosophical foundations and applies traditional philosophical analyses, exploiting the classical philosophical background.

INSTITUTE FOR LITERARY STUDIES

History of Hungarian Literature from its beginnings to the present, literary theory, the history of literary criticism, Central and East European literature. Textology: critical editions of classical oeuvres of Hungarian Literature, the history of Hungarian literary criticism.

INSTITUTE OF ART HISTORY

History, monuments and documents of Hungarian art and art in Hungary from the earliest times to the present day.

INSTITUTE OF ETHNOLOGY

Popular culture of European (especially Hungarian) societies, Asian and African cultures, contemporary problems of the rural population, religious and national minorities. Editing and publishing results of Hungarian ethnological research in comprehensive works, and various book series.

INSTITUTE OF ARCHAEOLOGY

Archaeology of the Carpathian Basin and its historically related areas, and the historical Hungary. Research from the Neolithic to the Late Middle Ages. Research in Central Europe (in all periods), South-Eastern Europe (in the Neolithic and the Middle Ages) and Eastern Europe (in the Migration Period and the Conquest period).

INSTITUTE OF HISTORY

Hungarian history in a regional, European and global context.

INSTITUTE OF MUSICOLOGY

Maintaining the Hungarian Folk Music and Folk Dance Archives, the Bartók Archives, the Ernő Dohnányi Archives, and the Museum of Music History. Music history of Hungary, general music history. Ethno-musicology and ethnochoreology. Hungarian and European folk music and folk dance.

MORE THAN 130 RESEARCH GROUPS AT UNIVERSITIES

Lendület research groups at Hungarian universities

Subsidised research groups

More information about the research network:

www.mta.hu/english/

See: Research Network of MTA

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titkarsag@tki.mta.hu (Office for Research Groups
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