



2025

Annual Report

of the Czech Academy of Sciences

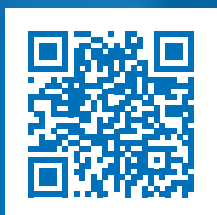
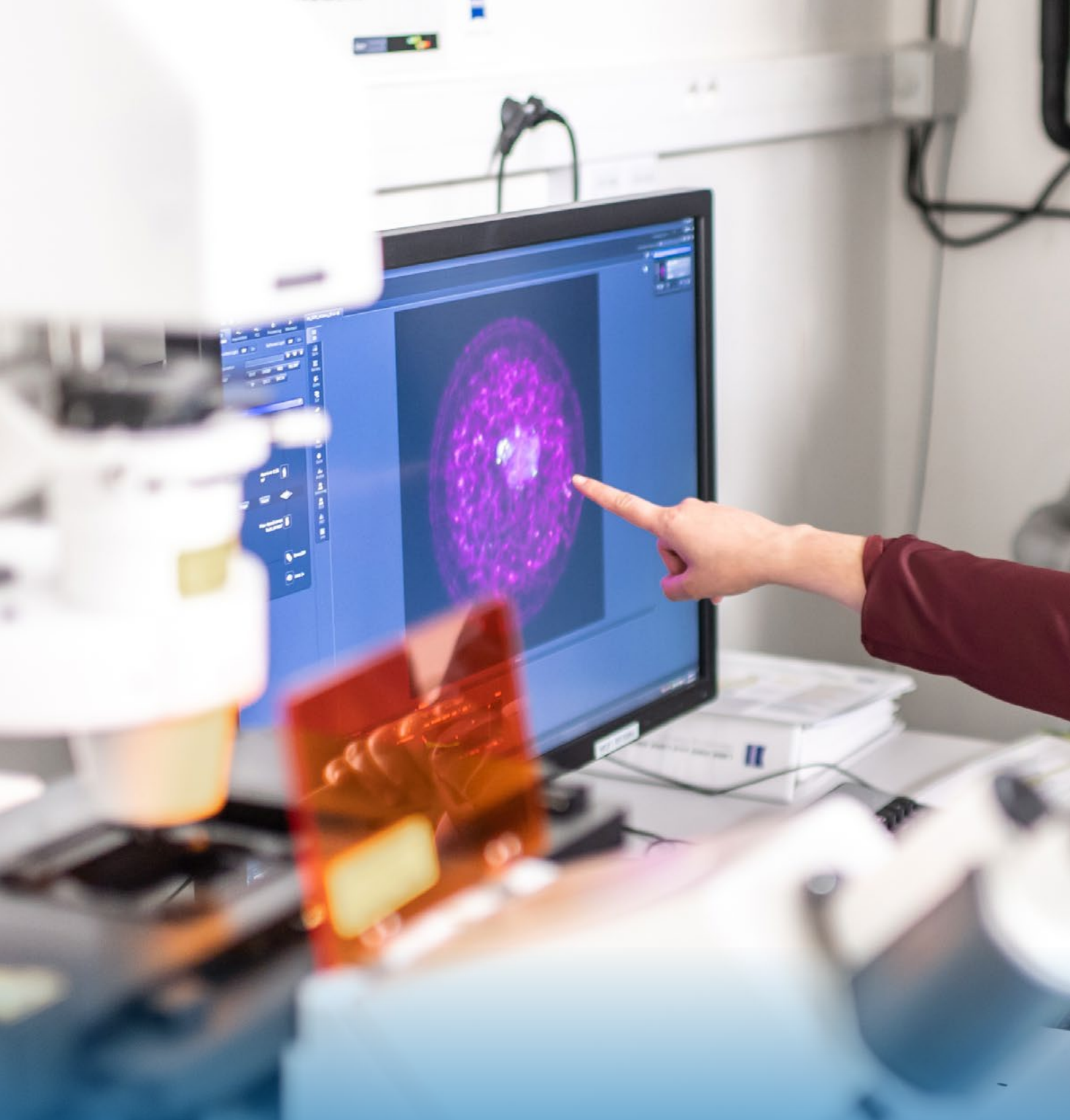


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Dear Readers,

I am pleased to present the 2025 Annual Report of the Czech Academy of Sciences, which provides specific information about our main activities in 2025. We have redesigned the annual report to make it easy to read and visually appealing and to give readers a quick overview of our activities, achievements and overall contributions to society. We believe that this approach - along with major streamlining of sections with technical information - will help readers navigate the text of the annual report.

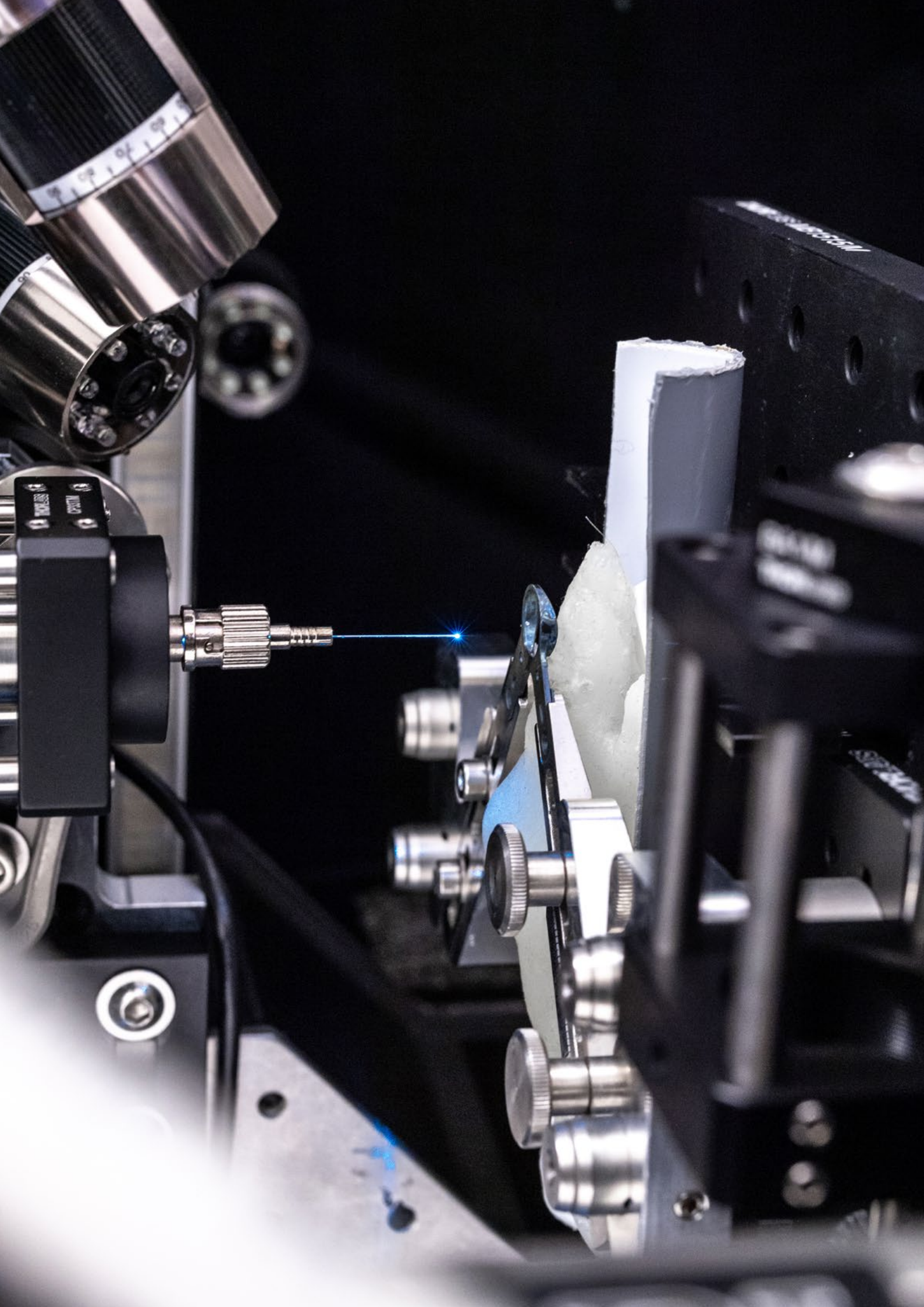
The year 2025 was not the easiest of years for the Czech Academy of Sciences (CAS), as the real decline in institutional funding continued, despite nominal growth in budgetary resources. In constant 2010 prices, which do not reflect subsequent inflation, the real volume of institutional support fell below the 2010 reference level for the third consecutive year. The situation was further exacerbated by unexpected budget cuts at the very end of the fiscal year. As a result, funding for science and research is effectively declining in real terms. The cumulative hidden deficit in institutional funding reached approximately one billion Czech crowns in the last three years alone. Yet this is a key budget item that ensures the stable operation of the Czech Academy of Sciences and creates a foundation that enables CAS institutes to address research tasks in a long-term, systematic manner. These current developments make it very difficult for CAS institutes to engage in conceptual, sustained scientific work.

Despite these financial obstacles, the CAS maintained its position as the highest-performing Czech scientific research institution and achieved a number of significant scientific results in an array of scientific fields. The most important results are highlighted in Chapter 3 of this annual report. To reflect the importance of this part of the annual report, we have increased the

number of presented results significantly. I trust that you will appreciate both the breadth and quality of the CAS' scientific results, as well as the clearly formulated contribution to society. The report will also give you a more comprehensive understanding of the CAS' main areas of activity in 2025. The quality of research at the Czech Academy of Sciences is also evidenced by the number of award-winning researchers. As one example of many, I would like to call attention to Professor Tomáš Jungwirth from the Institute of Physics, whose extraordinary scientific achievements were recognised with a Medal of Merit presented by President Petr Pavel at the October 28th Czechoslovak Independence Day awards ceremony, and Professor Julius Lukeš from the Biology Centre, who received the National Czech Head Award for outstanding lifetime contributions and international recognition in the field of parasitology.

However, science and research in the Czech Republic—including the CAS, which is its most prominent component and which has clearly demonstrated its effectiveness and capacity for further development in recent years—remains significantly underfunded at the institutional level. We therefore consider it essential to continue appealing to the Czech government to view the support of science and research as a legitimate budgetary priority and to fulfil this commitment. I am convinced that guaranteeing financial stability for the Czech Academy of Sciences and key actors in the research, development and innovation system will lead to more effective use of their potential for the benefit of the Czech Republic and its citizens.

Prof. RNDr. Radomír Pánek, Ph.D.
President of the Czech Academy of Sciences

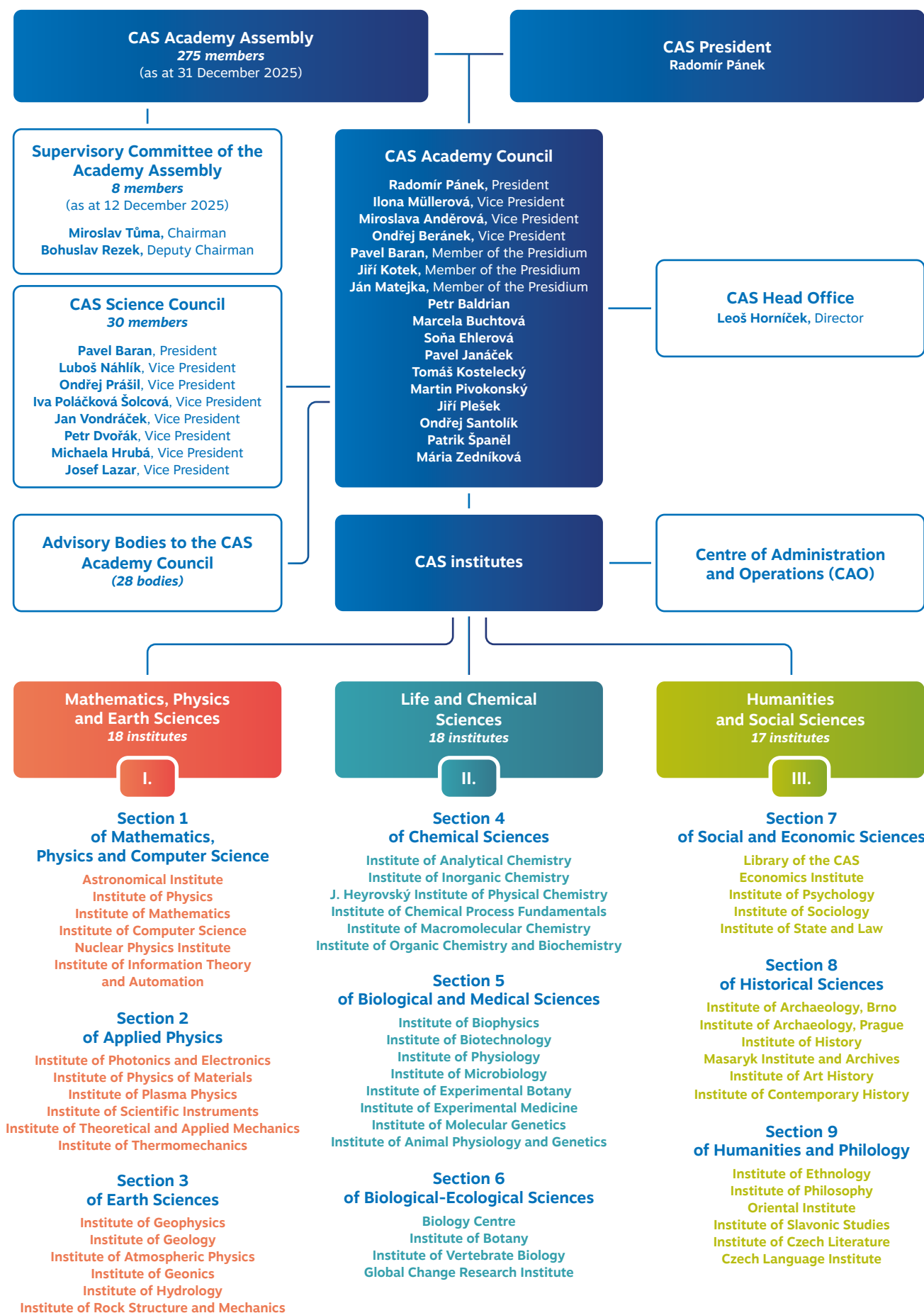




MISSION AND STRUCTURE OF THE CZECH ACADEMY OF SCIENCES

The primary mission of the CAS is to conduct research in the natural, technical and social sciences and the humanities. The CAS' research – both basic and applied – strives to advance human knowledge while responding to the current needs of Czech society and culture.

The CAS conducts research through its institutes which are established as public research institutions. Altogether, more than 12,000 employees work at CAS institutes. In addition to conducting research, CAS institutes support education, primarily by educating young researchers in doctoral study programmes, as well as through university teaching led by CAS researchers. The CAS also develops collaborations with applied research and industry. It is engaged in many international projects and collaborates with numerous international institutions.









SELECTED RESULTS

All 54 research institutes of the CAS contributed to the scientific results achieved in 2025. CAS institutes are grouped into three main research areas: the first area comprises physical sciences, the second area covers life and chemical sciences, and the third area focuses on the humanities and social sciences. CAS scientific research in 2025 produced many compelling results, including the 15 highlighted in this chapter.

HOW A BLACK HOLE REGULATES THE STELLAR WIND: A NEW LOOK AT Cygnus X-1

Astronomical Institute

We discovered a new mechanism for the interaction between a black hole and a massive star in the iconic Cyg X-1 system in the constellation Cygnus. Using precise optical spectroscopic measurements with the Perk telescope, we separated emission from the stellar atmosphere from the outflowing material being accreted by the black hole. The research revealed a significant anticorrelation between the X-ray emission and optical emission. This means that as the X-rays emitted by the incident matter increase around the black hole, the stellar wind of its companion weakens. The black hole thus actively influences the stream of matter, which it subsequently accretes or “swallows”. The result provides new evidence that changes in black hole

activity are not only caused by processes in the accretion disk, but are also related to stellar wind dynamics. The study thus provides valuable insights furthering the understanding of how black holes “feed” and why they transition between different active states.

Bibliographic references:

Brigitte, M., Hadrava, P., Kubátová, B., Cabezas, M., Svoboda, J., Šlechta, M., Skarka, M., Alabarta, K., Maryeva, O., Russell, D. M., Baglio, M. C. Disentangling the stellar atmosphere and the focused wind in different accretion states of Cygnus X-1. *Astronomy & Astrophysics*. 2025, 695 (March), A115. ISSN 0004-6361. E-ISSN 1432-0746.

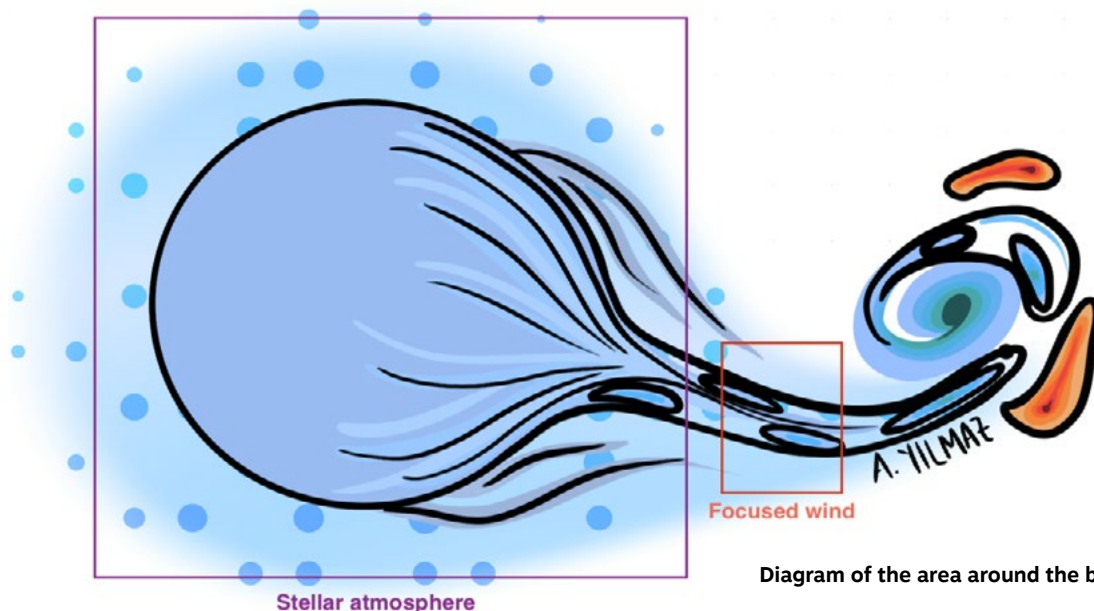
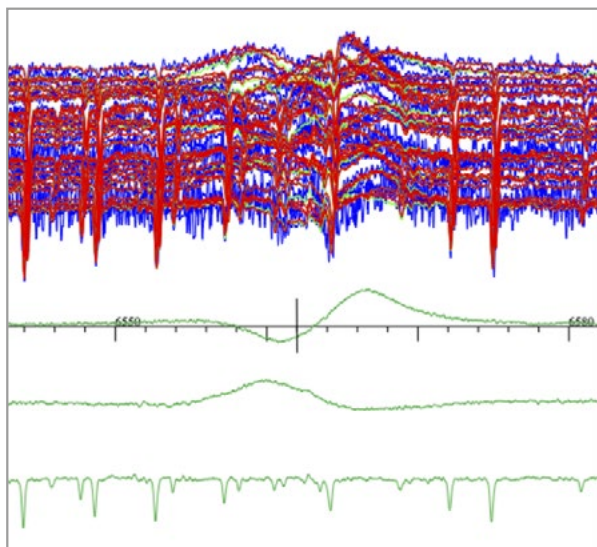


Diagram of the area around the black hole Cyg X-1.

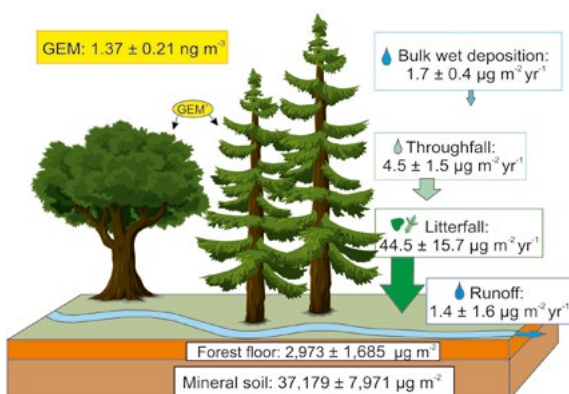


Observations with a 2-meter Perk telescope (top) and the separate components of the radiation (from top to bottom): the stellar atmosphere, gas falling into the accretion disk, and radiation from Earth's atmosphere

MERCURY CYCLING IN CENTRAL EUROPEAN FOREST ECOSYSTEMS

Institute of Geology

In central European forests, mercury is mainly found in soils. Mercurial air concentrations have been low as a consequence of legislative regulations on reduction of atmospheric mercury emissions. We measured increased mercury deposition in soil through forest litterfall. Mercury levels rose during the recent bark beetle infestation. Currently, mercury runoff from forest soils is low; in the future it will depend on the stability of soil organic matter in forest ecosystems.



Bibliographic references:

Navrátil, T., Rohovec, J., Shanley, J. B., Matoušková, Š., Roll, M., Nováková, T., Krám, P., Tesař, M., Myška, O., Oulehle, F. Mercury cycling in the Czech GEOMON network catchments recovering from acid deposition and facing climate change. *Biogeochemistry*. 2025, 168(3), 45. ISSN 0168-2563. E-ISSN 1573-515X.

Mercury fluxes in the central European forest ecosystem

The most important source of mercury in the forest ecosystem is fallen plant material, while wet deposition – precipitation and water from leaves and gaseous elemental mercury (GEM) – is low. Since mercury runoff is low, it accumulates in forest soils. From there it can be mobilised by e.g. forest fires or decomposition of soil organic matter.

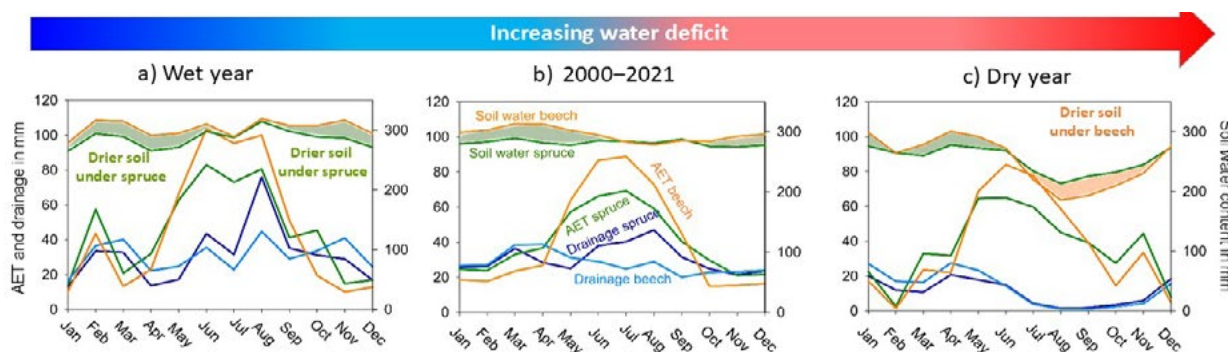
CHANGING WATER BALANCE OF FOREST STANDS: ONSET OF WATER SHORTAGE

Institute of Hydrology

We monitored the impact of climate change on the amount of water in the soil in two dominant forest types – beech and spruce. Soil water measurements showed that the average amount of water beneath the two stands does not differ significantly. However, differences are visible in summer periods which were characterised by above-average temperatures and a lack of precipitation. A smaller quantity of soil water was measured in the beech forest during those periods than in the spruce forest.

Bibliographic references:

Zelíková, N., Toušková, J., Kocum, J., Vlček, L., Tesař, M., Bouda, M., Šípek, V. (2025). Divergent water balance trajectories under two dominant tree species in montane forest catchment shifting from energy- to water-limitation. *Hydrology and Earth System Science*. 29(21), 6003-6021.



Forest water balance

Monthly total evaporation, runoff and average soil profile saturation beneath beech and spruce stands in a wet year (2020) and a dry year (2015), and overall averages (2000–2021), showing increasing differences between the stands in dry periods.

SURFACE PLASMON BIOSENSOR FOR SENSITIVE DETECTION OF microRNA

Institute of Photonics and Electronics

MicroRNAs play a key role in biological processes and are increasingly used as biomarkers, i.e. indicators of disorders or processes, in medical diagnostics. We have developed a rapid, highly sensitive biosensor for detecting microRNAs using large functional nanoparticles and a nanoparticle release assay. Using the biosensor, we detected hsa-miR-451a, a prospective biomarker of myelodysplastic neoplasms (a type of hematopoietic disorder). We were able to detect this molecule even at very low concentrations.

Bibliographic references:

Špringer, T., Bocková, M., Slabý, J., Sohrabi, F., Čapková, M., Homola, J. *Surface plasmon resonance biosensors and their medical applications. Biosensors and Bioelectronics.* 2025, 278(15 June), 117308. ISSN 0956-5663. E-ISSN 1873-4235.

Finocchiario, G., Špringer, T., Krejčík, Z., Bocková, M., Dostálová Merkerová, M., Homola, J. „Large gold nanoparticle release assay for attomolar detection of miRNA related to myelodysplastic neoplasms”, *Talanta* 293, 128037 (2025).



A researcher conducting measurements on the optical biosensor developed in the Optical Biosensors Laboratory.

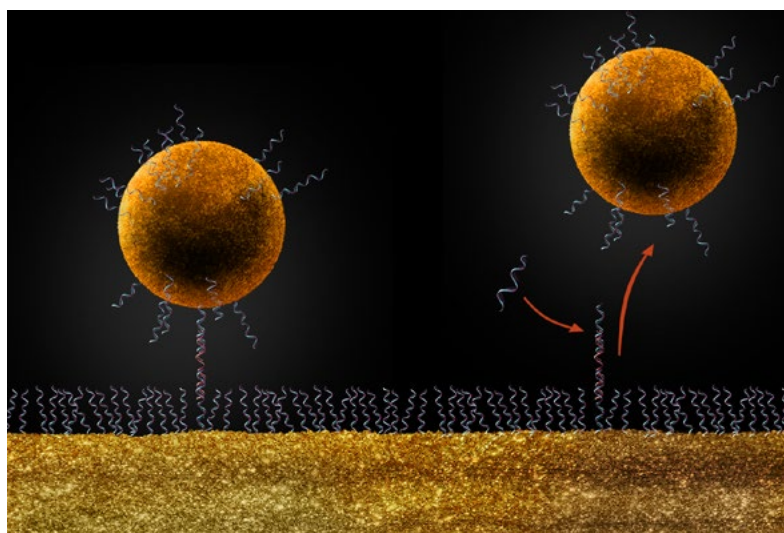


Illustration of the principle of microRNA detection

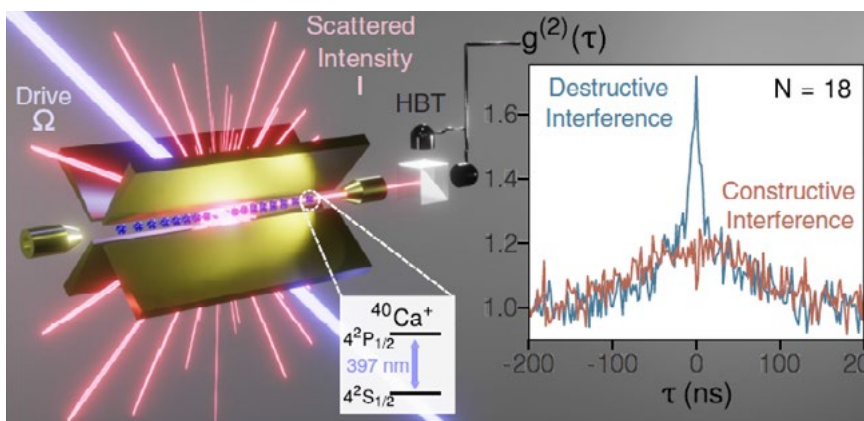
PHOTON CORRELATIONS IN IONIC CRYSTALS

Institute of Scientific Instruments

Quantum technologies are becoming increasingly common and important in many areas, such as quantum cryptography. In partnership with the Department of Optics of Palacký University in Olomouc, we monitored the behaviour of a group of quantum emitters and demonstrated that interference of coherent light scattering on a Coulomb crystal, formed by laser-cooled calcium ions, can influence the resulting photon statistics.

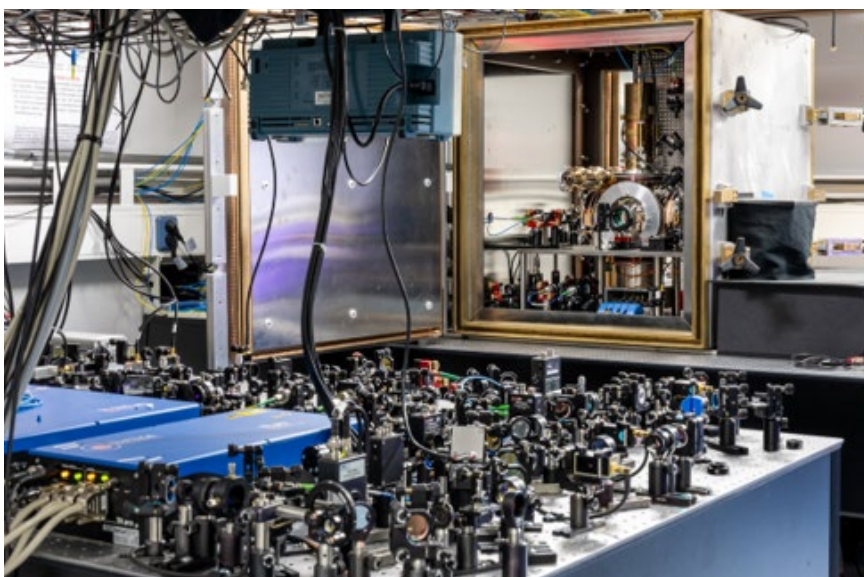
Bibliographic references:

Singh, K., Cidrim, A., Kovalenko, A., Pham, M. T., Číp, O., Slodička, L., Bachelard, R. *Coherent Control of Photon Correlations in Trapped Ion Crystals*. *Physical Review Letters*. 2025, 134(20), 203602. ISSN 0031-9007. E-ISSN 1079-7114.



Principle of coherent control of photon correlations in ionic crystals

The figure shows a schematic description of an experiment where light, scattered by a long chain ($N = 18$) of non-interacting calcium ions, is monitored using a Hanbury Brown-Twiss system with two single-photon avalanche diodes (SPAD) and a detection unit for evaluating the temporal coherence of the detected photons. Weakly excited quantum two-level emitters (ions) create an interference (intensity) pattern from elastically scattered light (pink colour).



View of the laboratory at the Institute of Scientific Instruments of the CAS with equipment for quantum experiments with cooled ions

The upper part of the figure shows a vacuum chamber with an electric trap for trapping ions in an ultra-high-vacuum environment. The lower part shows a view of the optical assembly for generating laser beams of stable wavelengths, which are intended to excite quantum transitions of trapped calcium ions.

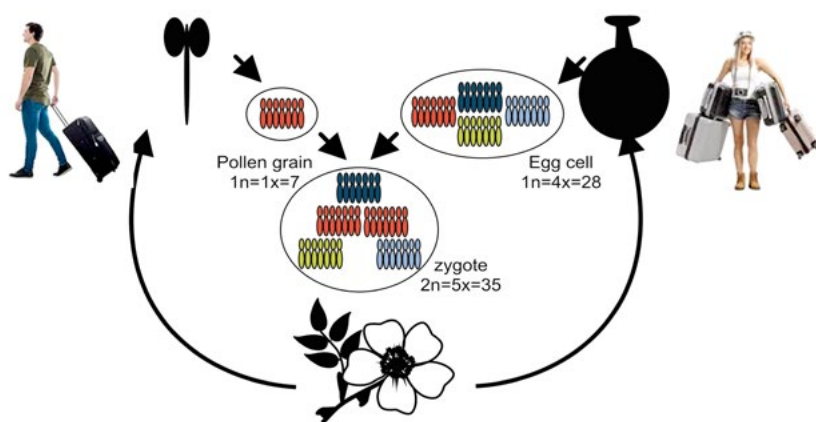
BIMODAL CHARACTER OF CENTROMERES IN PENTAPLOID ROSES

Institute of Biophysics

Dogrose (*Rosa canina*) has an odd number of chromosome sets ($5n$) in the cell nucleus, which gives rise to an interesting genetic phenomenon: how can genetic information be distributed evenly among the offspring during reproduction? We revealed that the explanation lies in the unusual reproductive cycle of dogrose chromosomes, where the size and sequential arrangement of centromeres – the central regions of chromosomes – play key roles. The research findings may be significant for breeding economically important crops, which often exhibit multiplication of chromosome sets in their cell nuclei.

Bibliographic references:

Herklot, V., Zhang, M., Nascimento, T., Kalfusová, R., Lunerová, J., Fuchs, J., Harpke, D., Huettel, B., Pfordt, U., Wissemann, V., Kovařík, A., Marques, A., Ritz, C. M. Bimodal centromeres in pentaploid dogroses shed light on their unique meiosis. *Nature*. 2025, 643(8070), 148–157. ISSN 0028-0836. E-ISSN 1476-4687.



Reproductive cycle of pentaploid dogrose (*Rosa canina*)

The diagram illustrates the unusual reproductive cycle of dogrose, which has five chromosome sets ($5n$) in each somatic cell (e.g., in leaves). Pollen mother cells (gametes) contain only one chromosome set ($1n$), while the egg cells have four sets of chromosomes ($4n$). After the fusion of both sex cells (fertilisation), five chromosome sets (subgenomes) are present in the embryo. We were able to decipher the sequence of each subgenome, which revealed that two subgenomes are almost homologous (red colour), while the remaining three subgenomes are divergent (yellow, dark blue and light blue). During sexual division (meiosis) only homologous subgenome pairs are transmitted through both female and male gametes. In contrast, the three divergent genomes in the egg cells are transmitted only along the maternal line, making the dogrose reproductive system highly matroclinal.



Dogrose – fruit and flower

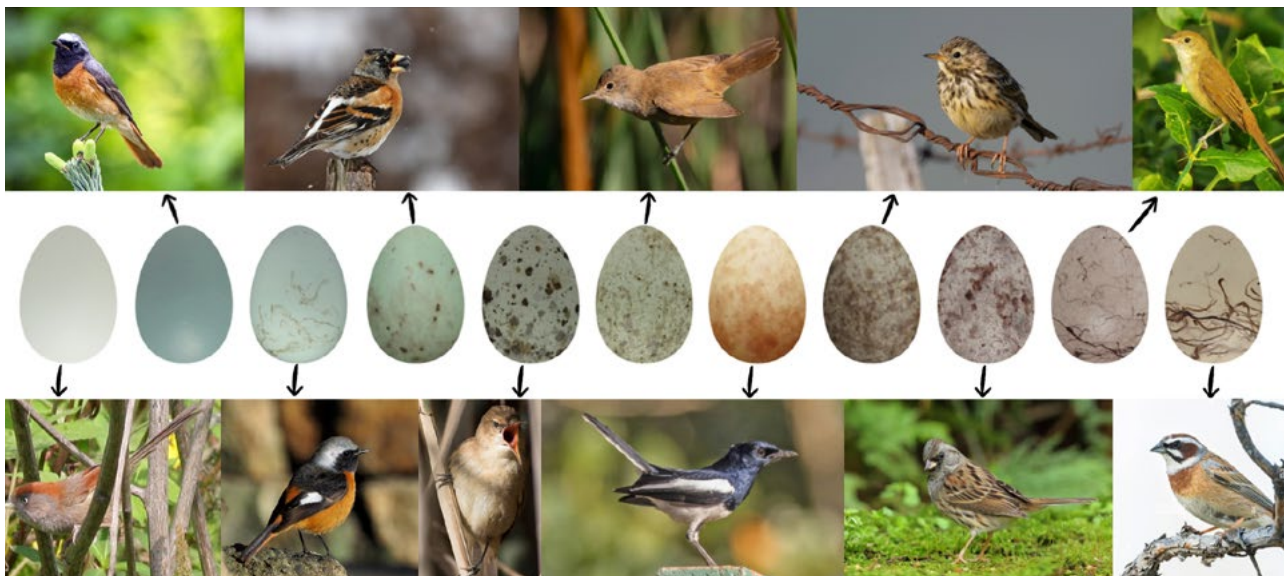
GENETIC MECHANISM DETERMINING THE COLOUR OF CUCKOO EGGS

Institute of Vertebrate Biology

In collaboration with scientists from several countries, we uncovered a rare genetic mechanism underlying a key evolutionary adaptation of parasitic cuckoos – the variable colour of their eggs, which allows them to parasitise different bird species. Using whole-genome analyses of an extensive dataset of common cuckoo blood samples collected from the species' entire breeding range, the study provides the first experimental confirmation that genes controlling cuckoo egg colouration are confined to the female-specific part of the genome, namely the sex chromosome and mtDNA.

Bibliographic references:

Merondun, J., Fossey, F., Meshcheryagina, S., Atkinson, P., Bachurin, G., Bulyuk, V., Fenchuk, V., Golovatin, M., Hewson, C., Honza, M., Markovets, M., Moskát, C., Owens, G. L., Procházka, P., Red'kin, Y., Rutila, J., Šulc, M., Thorup, K., Stokke, B. G., Wolf, J. B. W. Genomic architecture of egg mimicry and its consequences for speciation in parasitic cuckoos. *Science*. 2025, 390(6772), 527–532. ISSN 0036-8075. E-ISSN 1095-9203.



Adaptive colouration of the eggs of the common cuckoo (*Cuculus canorus*)

The appearance of common cuckoo eggs varies depending on which host species a specific cuckoo parasitises. The image shows 11 different cuckoo eggs laid in the nests of the following host species: a) Ashy-throated parrotbill (*Suthora alphonsiana*), b) Common redstart (*Phoenicurus phoenicurus*), c) Daurian redstart (*Phoenicurus aureus*), d) Brambling (*Fringilla montifringilla*), e) Great reed warbler (*Acrocephalus arundinaceus*), f) Eurasian reed warbler (*Acrocephalus scirpaceus*), g) Oriental magpie-robin (*Copsychus saularis*), h) Meadow pipit (*Anthus pratensis*), i) Black-faced bunting (*Emberiza spodocephala*), j) Thick-billed warbler (*Arundinax aedon*) and k) Meadow bunting (*Emberiza cioides*). Source: photo of eggs: Svetlana Meshcheryagina; photo of birds: Creative Commons.

GENOMIC RESOURCES FOR BARLEY RESEARCH AND BREEDING

Institute of Experimental Botany

Cereals are one of the most important crops for human nutrition. Understanding the plant genome, gene transcription and regulation is important for future breeding efforts, for example in the development of more resistant and higher-yielding varieties. We described how barley controls gene activation – i.e. increasing or decreasing gene activity – through remote regulatory DNA sequences in the hereditary information. This is the first comprehensive map of these DNA sites in this type of cereal. We integrated the resulting data in an interactive database intended for the entire cereal community.

Bibliographic references:

Navrátilová, P., Pavlů, S., Zhu, Z., Tulpová, Z., Kopecký, O., Novák, P., Stein, N., Šimková, H. *Epigenome and interactome profiling uncovers principles of distal regulation in the barley genome*. *Cell Genomics*. 2026, 6(1), 101037. ISSN 2666 979X.

Guo, W., Schreiber, M., Marosi, V. B., Bagnaresi, P., Jorgensen, M. E., Braune, K. B., Chalmers, K., Chapman, B., Dang, V., Dockter, C., Fiebig, A., Fincher, G. B., Fricano, A., Fuller, J., Haaning, A., Haberer, G., Himmelbach, A., Jayakodi, M., Jia,

Y., Kamal, N., Langridge, P., Li, C., Lu, Q., Lux, T., Mascher, M., Mayer, K. F. X., McCallum, N., Milne, L., Muehlbauer, G. J., Nielsen, M. T. S., Padmarasu, S., Pedas, P. R., Pillen, K., Pozniak, C., Rasmussen, M. W., Sato, K., Schmutzer, T., Scholz, U., Schüler, D., Šimková, H., Skadhauge, B., Stein, N., Thomsen, N. W., Voss, C., Wang, P., Wonneberger, R., Zhang, X. Q., Zhang, G., Cattivelli, L., Spannagl, M., Bayer, M., Simpson, C., Zhang, R., Waugh, R. *A barley pan transcriptome reveals layers of genotype dependent transcriptional complexity*. *Nature Genetics*. 2025, 57(2), 441–450. ISSN 1061-4036. E-ISSN 1546-1718.

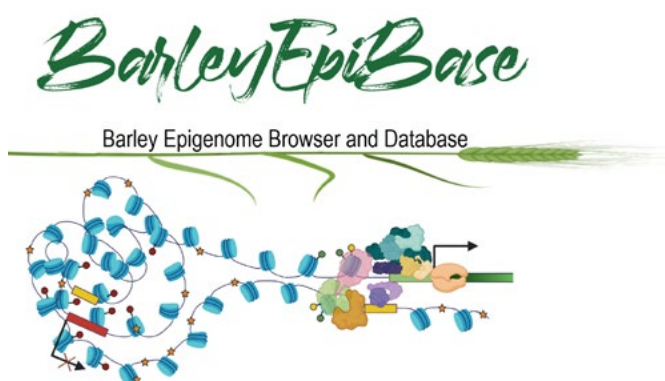
Feng, J. W., Pidon, H., Cuacos, M., Lux, T., Himmelbach, A., Haghi, R., Fuchs, J., Haberer, G., Kuo, Y. T., Guo, Y., Jayakodi, M., Toegelová, H., Harpke, D., Knauf, M., Fiebig, A., Maruschewski, M., Ronen, M., Sharon, A., Šimková, H., Mayer, K. F. X., Spannagl, M., Kumlehn, J., Heckmann, S., Houben, A., Blattner, F. R., Stein, N., Mascher, M. *A haplotype resolved pangenome of the barley wild relative *Hordeum bulbosum**. *Nature*. 2025, 645(8080), 429–438. ISSN 0028-0836. E-ISSN 1476-4687.



The experiments used embryos dissected from maturing barley ears, in which dramatic developmental changes occur under the control of regulatory genomic elements.



The researchers studied the dynamics of the regulatory network at several developmental stages of the embryo and in young barley leaves.



The BarleyEpiBase database, which provides genome-wide maps of epigenetic features, predicted regulatory elements and genomic interactions, is a valuable source of information for exploring transcriptional regulation in cereal crops.

DYNAMIC REGULATION OF mTORC1 BY AMINO ACIDS

Institute of Organic Chemistry and Biochemistry

Understanding the mechanisms that regulate cellular metabolism is important for research into cancer and neurodegenerative diseases. Using cryo-electron microscopy, we determined the structures of the GATOR2 complex with the proteins Sestrin2 and CASTOR1, which serve as sensors for the amino acids leucine and arginine in the mTORC1 signalling pathway. We elucidated how amino acid binding triggers allosteric changes leading to sensor release from the complex and activation of cell growth.



Structure of the GATOR2 complex with amino acid sensors

Cryo-electron microscopy structures of the human GATOR2 complex alone and bound to the amino acid sensors CASTOR1 and Sestrin2. The two sensors bind to different, non-overlapping sites on GATOR2.

Bibliographic references:

Valenstein, M. L., Wranik, M., Lalgudi, P. V., Linde-Garelli, K. Y., Choi, Y., Chivukula, R. R., Sabatini, D. M., Rogala, K. B. Structural basis for the dynamic regulation of mTORC1 by amino acids. *Nature*. 2025, 646(8084), 493–500. ISSN 0028-0836. E-ISSN 1476-4687.

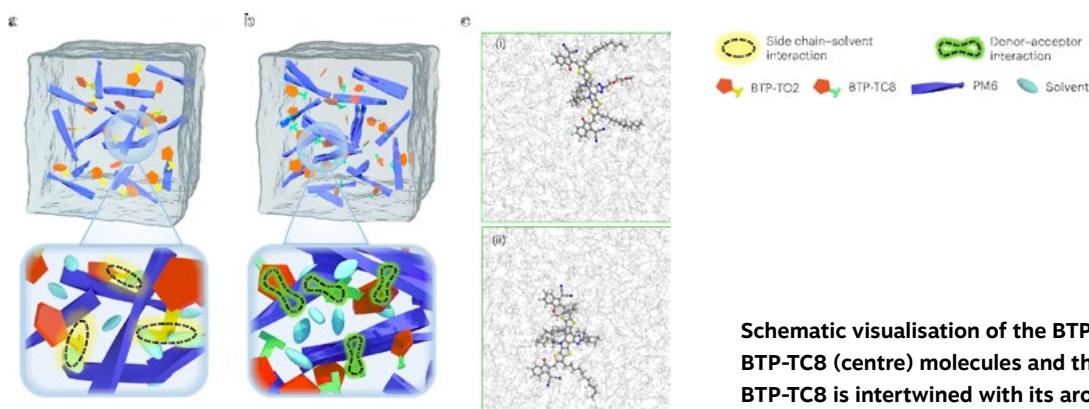
NEW DISCOVERIES IN THE STRUCTURE OF SOLAR CELL MATERIALS

Institute of Macromolecular Chemistry

Organic solar cells are an alternative to the more common silicon cells and could, over time, contribute to the development of low-cost, environmentally friendly solar technology and sustainable energy generation. However, their effectiveness typically depends on the solvent used in production. We contributed to the development of organic solar cells that can achieve the same high efficiency even when using different solvents. By analysing the structure of the active layer and the formation process in detail, we uncovered a unique morphology-control mechanism that ensures stable material behaviour.

Bibliographic references:

Zhang, R., Chen, H., Wang, T., Kobera, L., He, L., Huang, Y., Ding, J., Zhang, B., Khasbaatar, A., Nanayakkara, S., Zheng, J., Chen, W., Diao, Y., Abbrent, S., Bruce, J., Coffey, H., Zhu, A., Zhu, H., Lu, X., Jiang, Q., Coropceanu, V., Bredas, J.-L., Li, Y., Gao, F. Equally high efficiencies of organic solar cells processed from different solvents reveal key factors for morphology control. *Nature Energy*. 2025, 10(1), 124–134. ISSN 2058-7546. E-ISSN 2058-7546.



Schematic visualisation of the BTP-TO2 (left) and BTP-TC8 (centre) molecules and the PM6 polymer; BTP-TC8 is intertwined with its aromatic rings.

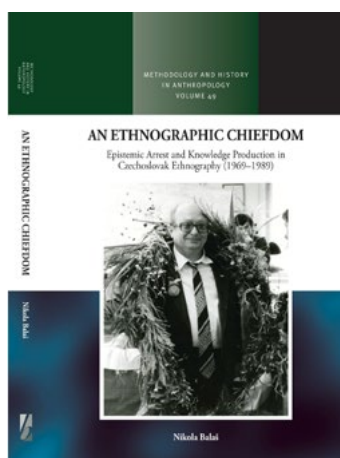
AN ETHNOGRAPHIC CHIEFDOM: EPISTEMIC ARREST AND KNOWLEDGE PRODUCTION IN CZECHOSLOVAK ETHNOGRAPHY (1969–1989)

Institute of Ethnology

The history of Czech ethnology during the socialist period demonstrates how the political power of the late socialist regime systematically shaped the conditions of scholarly work and the production of academic knowledge. The study examines the influence of the Communist Party, the mechanisms of the planned economy, Marxist–Leninist ideology, clientelist networks and internal disciplinary hierarchies, demonstrating how their combined effects in post-1968 Czechoslovakia gradually led to the epistemic lag of the field. The publication thus constitutes a significant contribution not only to the history of Czech ethnology, but also to broader debates on the relationship between power and knowledge and the institutional conditions of scholarly production in state-socialist regimes.

Bibliographic references:

Balaš, N. *An Ethnographic Chieftdom: Epistemic Arrest and Knowledge Production in Czechoslovak Ethnography (1969–1989)*. (New York: Berghahn Books, 2025). ISBN 978-1-80539-674-1.



The cover of the monograph N. Balaš: *An Ethnographic Chieftdom* with a photograph depicting Professor Antonín Robek, former director of the Institute for Ethnography and Folklore Studies of the Czechoslovak Academy of Sciences and Department of Ethnography and Folklore Studies at Charles University in Prague, at his 50th birthday party in 1981. The photo shows Robek both as an official functionary and a “chief” possessing informal powers.

GALEN, ON DEMONSTRATION: RECONSTRUCTION OF A LOST TREATISE FROM GREEK AND ARABIC SOURCES

Institute of Philosophy

Galen’s writings shaped university education for centuries and laid the foundations of medicine as a scientific discipline. His now-lost treatise *On Demonstration* is one of the key works of ancient theories of scientific knowledge. The authors of *Galen, On Demonstration: Reconstruction of a Lost Treatise from Greek and Arabic Sources* systematically collected and analysed all available testimonies to Galen’s treatise, including previously unpublished sources, and on this basis present the most comprehensive reconstruction to date of Galen’s argumentative thought. The book contributes to our understanding of the emergence of the scientific method and its transmission across cultural traditions.

Bibliographic references:

Havrdá, M., Koetschet, P. *Galen, On Demonstration. Reconstruction of a Lost Treatise from Greek and Arabic Sources*. (Berlin: De Gruyter, 2025). ISBN 978-3-11-914989-1.



Cover of the book M. Havrdá, P. Koetschet: *P. Galen, On Demonstration. Reconstruction of a Lost Treatise from Greek and Arabic Sources*

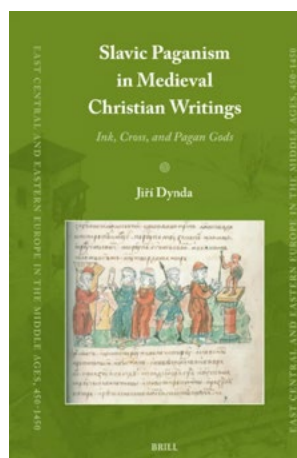
SLAVIC PAGANISM IN MEDIEVAL CHRISTIAN WRITINGS. INK, CROSS, AND PAGAN GODS

Institute of Slavonic Studies

How do we really know what the gods and rituals of the ancient Slavs were like? Our answers come from medieval Christian authors, who often portrayed pagan religion in tendentious and distorted ways. The monograph describes how chronicles, legends and sermons by Christian authors have shaped modern conceptions of Slavic paganism. Through a series of case studies, it uncovers how Christian discourse appropriated and reshaped pagan tradition, offering a new interdisciplinary perspective on the religion of the early Slavs.

Bibliographic references:

Dynda, J. *Slavic Paganism in Medieval Christian Writings: Ink, Cross, and Pagan Gods*. (Leiden: Brill, 2024). ISBN 978-90-04-68880-3.



Cover of the book J. Dynda: *Slavic Paganism in Medieval Christian Writings: Ink, Cross, and Pagan Gods*.

INFORMAL PAYMENTS IN CZECH HEALTHCARE: THE BLURRY LINE BETWEEN GREED, NEED AND GRATITUDE

Institute of Sociology

The study shows that informal payments in Czech healthcare are not limited to bribery, but often include small gifts of gratitude or payments perceived as necessary to secure care. Drawing on interviews, a questionnaire survey and expert workshops, the research reveals how these practices blur the rules of access to healthcare, increase inequalities among patients and weaken trust in the system. The Czech case is part of broader international research on corruption in healthcare.

Bibliographic references:

Bašná, K., Pospíšilová, J., Bureš, R. "Informal Payments in Czech Healthcare: The Blurry Line Between Greed, Need, and Gratitude." *Social Science & Medicine*. 2025, 384 (November). ISSN 0277-9536.



Cover of the journal *Social Science & Medicine*

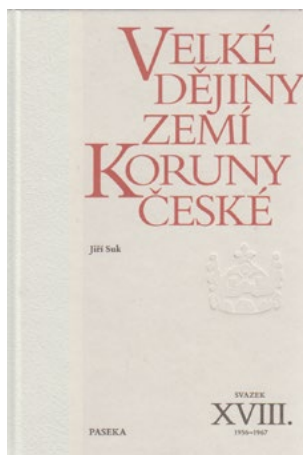
THE GREAT HISTORY OF THE LANDS OF THE BOHEMIAN CROWN XVIII. (1956–1967)

Institute of Contemporary History

“Did we make mistakes, comrades? We did,” declared President Antonín Novotný in 1967, less than 20 years after the political takeover that was meant to demonstrate the infallibility of Marxist–Leninist theory. The first wave of reform, which had emerged in the wake of the exposure of the cult of personality a decade earlier, had still been successfully halted and the voices of reformists suppressed. By the turn of the 1950s and 1960s, the indebted economy continued to lag behind the West, the centrally planned system was failing to meet the expectations of an increasingly consumer-oriented society, people were satisfying their needs through the grey economy, corruption was flourishing, and above all, public demand for exposing the police and judicial arbitrariness of recent years was growing. The 18th volume of *The Great History of the Lands of the Bohemian Crown* offers a comprehensive account of the years 1956–1967, commonly referred to as the “thaw period”. Alongside political, economic, and cultural history, it includes probing insights into everyday life under socialism – from assessments of living standards, housing, work and health care to the intimate spheres of family life and religious belief.

Bibliographic references:

Suk, J. *The Great History of the Lands of the Bohemian Crown*. 18., 1956–1967 (Prague: Paseka, 2025). ISBN 978-0-7637-526-0.



Cover of the book J. Suk: *The Great History of the Lands of the Bohemian Crown XVIII. (1956–1967)*







STRATEGY AV21

Top research in the public interest

Strategy AV21 expresses the CAS' ongoing efforts to help address contemporary societal problems. Strategy AV21 research programmes focus on current issues that are crucially important to society. These issues require broad-based, interdisciplinary research, both between CAS institutes and with external partners. Strategy AV21 research programmes masterfully employ the wide range of research concentrated within the CAS, which gives them the opportunity to create exceptional connections between findings from the natural, technical and social sciences and the humanities. Strategy AV21 goals are closely aligned with the goals of the National Research and Innovation Strategy for Intelligent Specialisation of the Czech Republic (RIS3).

“In the spirit of the motto ‘*Top research in the public interest*’, Strategy AV21 has been seeking to respond to current societal demand through well thought-out collaboration between experts in various scientific disciplines for the past 10 years.”

Strategy AV21 consists of 15 research programmes (RPs). Five new research programmes were launched in 2025, namely RP34 AI: *Artificial Intelligence for Science and Society*, RP35 *Sustainable Food Production and Consumption*, RP36 *The Power of Objects: Materiality between Past and Future*, RP37 *Epicentres of Civilization – Intelligent Households, Technology and Society* and RP38 *Future of Assisted Reproduction (ART)*. Two research programmes were completed: RP24 *Resilient Society for the 21st Century. The Potential of Crisis and Effective Transformation* and RP25 *Virology and Antiviral Therapy*.

Strategy AV21 was impressively presented at the CAS Science Fair in Prague-Letňany, where members of the public could learn about findings from AV21 research programmes through Science Point popular science lectures. In a fun and easy-to-understand way, these lectures conveyed various topics, from the use of astronomical technologies in everyday life, to genetic modifications of crops that could help adapt agriculture to climate change and deepfake technologies.

In 2025, the Strategy AV21 programme celebrated 10 years since the launch of its first research programmes. To mark the anniversary, an interactive exhibition titled *Science in the Service of the Public* was curated in the Science and Art Gallery in the CAS building. The exhibition, which ran from 1 October to 16 November, showcased examples of valuable findings from various research programmes. The exhibition focused on three key topics – energy, the city and the landscape – which were presented in more detail on information panels. The exhibition culminated in CAS Week, which featured related thematic lectures by Strategy AV21 researchers.

The annual Strategy AV21 Conference, subtitled “Top research in the public interest”, was held on 13 October 2025. The conference highlights three research programmes (one from each of the research areas) whose research has been completed or is close to completion. In 2025, RP20 *Water for Life*, RP25 *Virology*

STRATEGIE AV21
Špičkový výzkum ve veřejném zájmu



The exhibition *Science in the Service of the Public* commemorated the 10th anniversary of the launch of the first Strategy AV21 research programmes.

and Antiviral Therapy and RP24 *Resilient Society for the 21st Century. The Potential of Crisis and Effective Transformation* were presented. The presentations attracted substantial interest from both the professional community and decision-makers. Videos of the presentations were posted on YouTube.



The Strategy AV21 Conference highlighted the results of three research programmes.

One significant finding from Strategy AV21 research in 2025 emerged from RP25 *Virology and Antiviral Therapy*, whose researchers demonstrated that tick-borne flaviviruses – such as tick-borne encephalitis virus – are fundamentally different from related viruses transmitted by mosquitoes, contrary to previous ideas. While in most flaviviruses, immature virions are non-infectious,

in tick-borne viruses, even these “immature” particles surprisingly retain full infectivity. This discovery profoundly alters the understanding of the maturation and infectivity of flaviviruses and may hold the key to more effective prevention and treatment strategies.

The research team of RP29 *Towards Precision Medicine and Gene Therapy – A New Hope in the Treatment of Human Diseases* initiated a fruitful collaboration with the private sector on the development and preclinical evaluation of a causal therapy for Netherton syndrome, a rare and life-threatening genetic disease that causes skin barrier dysfunction and consequently severe inflammation, dehydration and high susceptibility to infections. In partnership with the LIFE BioCEEed investment fund, RP29 researchers carried out a successful proof-of-concept of targeted gene therapy, which will enable repair of the defect directly in affected skin cells.

Thirteen Czech scientific and technological experiments will head aboard the International Space Station (ISS) in an upcoming mission with a Czech astronaut. RP31 *Space for Humanity* researchers played a key role in the preparation of five of the experiments, including METRO, which will investigate gas transfer in microgravity, a process that is essential for future space photobioreactors. Photobioreactors could one day help convert carbon dioxide and water into oxygen and food using living organisms such as algae, which would reduce dependence on supplies from Earth.



The METRO experiment may help reduce future astronauts' dependence on supplies from Earth.

One example of effective knowledge transfer is the FUNBRUSH® technology developed within RP26 *Breakthrough Technologies for the Future – Sensing, Digitisation, Artificial Intelligence and Quantum Technologies*. FUNBRUSH® is a patented antifouling nanolayer that enables reliable detection of pathogenic microorganisms and other analytes in challenging real-world samples, such as undiluted human blood, food samples or aquatic environments. In

2025, the FUNBRUSH® viral and pathogen detection technology for blood and food samples entered the commercialisation phase (i.e. establishing a start-up).

As a service for the scientific community, a series of workshops titled *Using LLMs in Research Workflows* was organized with RP34 *AI: Artificial Intelligence for Science and Society*. The webinars, which presented ways of using available general and “scientifically” specialised AI tools in different research phases – from formulating hypotheses to data analysis and public promotion – attracted 900 participants from the CAS and other institutions.

Researchers from RP27 *Sustainable Energy* contributed to an expert opinion issued by the EASAC (European Academies Science Advisory Council) titled *Security of Sustainable Energy Resources*, which has the potential to influence European-wide public policies. The expert opinion stresses that transitioning to domestic renewable sources is a key pillar of Europe's security and strategic autonomy. It also warns against replacing dependence on Russian fossil fuels with new risks (reliance on imports of technology and critical raw materials). The authors outline a path to strengthen Europe's resilience by diversifying supply chains, increasing the flexibility of energy systems and thoroughly protecting infrastructure from growing cyber threats.

Researchers in RP37 *Epicentres of Civilization – Smart Homes, Technology, and Society* created a prototype of a transverse truss system. This functional sample is intended for lightweight roofing, typically made of shingle or straw. The prototype can be used in contexts where archaic truss structures are suitable, such as construction of new buildings in archaeological museums or repair of existing structures. The Curia Vítkov Archaeological Open-Air Museum houses a functional sample of the transverse truss structure.

As a public health protection measure, researchers from RP35 *Sustainable Food Production and Consumption* conducted research into the concentration of per- and polyfluorinated substances (PFAS), often referred to as “forever chemicals”, in fish populations. The study found that fish from the lower reaches of Czech rivers often contain PFAS concentrations that exceed the recommended limits for safe consumption. In contrast, fish from Czech aquaculture facilities show significantly lower levels, confirming the significance of regulated farming for the protection of both consumer health and aquatic ecosystems.

Researchers from RP38 *The Future of Assisted Reproduction (ART)* engaged in an international research

project also made an important finding, demonstrating that it is possible to reverse signs of aging in oocytes (eggs) and repair damaged DNA. This work fundamentally shifts our current understanding of the aging of germ cells and opens up new avenues for research into cell-based therapies that could, in the future, reduce the risk of chromosomal abnormalities in embryos, increase the success rate of assisted reproduction and lead to major advances in the conservation of endangered species.

Another socially applicable outcome was produced by RP24 *Resilient Society for the 21st Century. The Potential of Crisis and Effective Transformation*, whose researchers worked with the Association of Civics and Social Science Teachers (Občankaři.cz) to prepare lesson materials (videos and lesson planning worksheets) on social resilience.

In collaboration with Charles University, scientists from RP32 *Identities in the World of Wars and Crises* created a seven-part podcast called *(Un)safe Science*, which aims to cultivate our understanding of how power interests – particularly in authoritarian regimes – permeate academia. Targeting scientists, politicians and the general public, the podcast outlined risks that have not been viewed as serious concerns to date, and proposed ways that scientific institutions could improve internal rules to enhance transparent collaboration and vetting of partners.

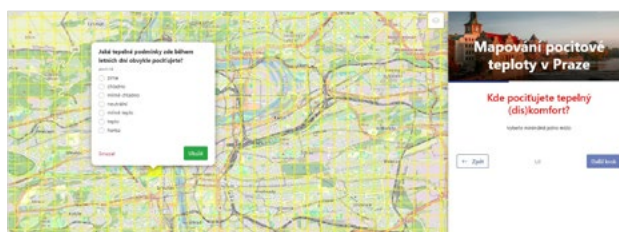


A special issue of the *Academix revue* titled *Oligarchy and Inequality* addressed the issue of oligarchy as a political and cultural phenomenon.

Strengthening social resilience and identifying risks for democracy in the 21st century were key themes at the international *Philosophy and Social Science* conference organised in connection with RP28 *Anatomy of European Society, History, Tradition, Culture, Identity*. The conference explored issues such as oligarchy and plutocracy and how these forms can be asserted even in democratic systems. A by-product of the conference was a special issue of the journal *Academix revue Oligarchy and Inequality*, which provided a lay explanation of how

oligarchy, in addition to being an economic problem, is also a deeply political and cultural phenomenon.

Using advanced statistical modelling and a database of heat wave warning plans from 14 European countries, RP30 *Dynamic Planet Earth* researchers found that the implementation of warning systems resulted in a 25% decrease in heat-related deaths in the monitored countries. The research findings may be particularly useful to urban designers and urban planning professionals designing blue-green infrastructure. The results were presented to audiences including the Environment Department of the OECD (Organization for Economic Co-operation and Development) in Paris. Research on a similar topic – perceptions of the urban environment during hot weather – was conducted by researchers from RP36 *The Power of Objects: Materiality between Past and Future*, who engaged members of the public in mapping perceived temperatures in Prague through an interactive map.



Public engagement in mapping thermal (dis)comfort in Prague.

Members of the public were also involved in research conducted through RP33 *Fungi – New Threats and Opportunities*, which focused on studying the rodent mycobiome. Through the project, scientists are investigating the origin and spread of skin diseases that can be transmitted from rodents to humans and pets. In a targeted campaign, the public was invited to collect samples from found rodents using toothbrushes. Scientists can use the samples to determine where fungi causing skin diseases are concealed to enhance protection of human and animal health.

Another important output of Strategy AV21 are expert opinions for legislative bodies, known as AVexes. The following three AVexes were released in 2025: *Natural Reclamation of Mines and Quarries*, *Water Resource Protection Zones in the Czech Republic: Why Are Current Practices Not Enough?* and *Natural Fires and Their Impacts on the Environment and Society*. Two Strategy AV21 expert brochures were published by the Academia publishing house: *Electricity from Nuclear Fusion and The Crimea Phenomenon. Tracing Memory in Ancient Myths and War Violence*.

List of **Strategy AV21** research programmes and coordinators for 2025

VP24 **Resilient Society for the 21st Century. The Potential of Crisis and Effective Transformation**
Assoc. Prof. Mgr. Martin Nitsche, Ph.D.
Institute of Philosophy
09/ 02/ 2021 – 31/ 12/ 2025

VP25 **Virology and Antiviral Therapy**
Assoc. Prof. RNDr. Daniel Růžek, Ph.D.
Biology Centre
09/ 02/ 2021 – 31/ 12/ 2025

VP26 **Breakthrough Technologies for the Future – Sensing, Digitalisation, Artificial Intelligence and Quantum Technologies**
Prof. Ing. Dr. Josef Lazar
Institute of Scientific Instruments and Institute of Physics
01/ 01/ 2022 – 31/ 12/ 2026

VP27 **Sustainable Energy**
Assoc. Prof. Miroslav Chomát, CSc.
Institute of Thermomechanics and Institute of Plasma Physics
01/ 01/ 2022 – 31/ 12/ 2026

VP28 **Anatomy of European Society, History, Tradition, Culture, Identity**
Mgr. Jana Maříková Kubková, Ph.D.
Institute of Archaeology
01/ 01/ 2022 – 31/ 12/ 2026

VP29 **Towards Precision Medicine and Gene Therapy - A New Hope in the Treatment of Human Diseases**
Assoc. Prof. Dr. Radislav Sedláček, Ph.D.
Institute of Molecular Genetics
01/ 01/ 2022 – 31/ 12/ 2026

VP30 **Dynamic Planet Earth**
RNDr. Aleš Špičák, CSc.
Institute of Geophysics
01/ 01/ 2023 – 31/ 12/ 2027

VP31 **Space for Mankind**
RNDr. Jiří Svoboda, Ph.D.
Astronomical Institute
01/ 01/ 2024 – 31/ 12/ 2028

VP32 **Identities in the World of Wars and Crises**
PhDr. Martin Klečáček, Ph.D.
Masaryk Institute and Archives
01/ 01/ 2024 – 31/ 12/ 2028

VP33 **Fungi - New Threats and Opportunities**
Mgr. Miroslav Kolařík, Ph.D.
Institute of Microbiology
01/ 01/ 2024 – 31/ 12/ 2028

VP34 **AI: Artificial Intelligence for Science and Society**
Mgr. Martin Víta, Ph.D.
Institute of Computer Science
01/ 01/ 2025 – 31/ 12/ 2029

VP35 **Sustainable Food Production and Consumption**
Prof. RNDr. Ondřej Prášil, Ph.D.
Institute of Microbiology
01/ 01/ 2025 – 31/ 12/ 2029

VP36 **The Power of Objects: Materiality between Past and Future**
PhDr. Adéla Gjuričová, Ph.D.
Institute of Contemporary History
01/ 01/ 2025 – 31/ 12/ 2029

VP37 **Epicentres of Civilization – Smart Homes, Technology, and Society**
Assoc. Prof. PhDr. Dana Dvořáčková, Ph.D.
Institute of History and Institute of Microbiology
01/ 01/ 2025 – 31/ 12/ 2029

VP38 **Future of Assisted Reproduction (ART)**
Ing. Michal Kubelka, CSc.
Institute of Animal Physiology and Genetics
01/ 01/ 2025 – 31/ 12/ 2029

Strategy AV21 Supporting Activities
Ing. Tomáš Wencel, MBA
Centre of Administration and Operations of the Academy of Sciences
01/ 01/ 2025 – 31/12/ 2025





PRACTICAL APPLICATION OF RESEARCH

Knowledge and technology transfer at the Czech Academy of Sciences means the application of scientific research findings from CAS institutes in relation to the introduction of new technologies and services, effective use of natural resources, creation of new jobs, and support of legislation and relevant public policies. The CAS accentuates the transfer of scientific results into practice, supports various transfer initiatives and introduces new ones. The CAS Technology Transfer Office (TTO) is a key intermediary in the support of scientific teams. The Programme for Application Development and Commercialisation (PADC) helps CAS institutes and researchers apply their inventions. To date, PADC has received over 130 project applications and 73 projects have been awarded support.

“In 2025, the Czech Academy of Sciences laid the groundwork to set up a new company called CAS Innovations. The company will significantly expand the creation of spin-off companies that aim to market technologies designed by CAS institutes and deepen collaboration with industry and other application partners.”

Supporting institutes in the practical application of research

The CAS has created a comprehensive system of knowledge and technology transfer support that it continues to develop long-term. The core of the CAS transfer support system is the unified coordination office, which carries out clearly defined tasks to support CAS institutes' research teams. In 2025, transfer support focused on preparing CAS institutes' research findings for practical application and on creating and mediating funding sources for technology development and knowledge application, typically in close cooperation with the application partner.

For the past ten years, the CAS Technology Transfer Office (hereinafter also the “TTO”) has been vigorously supporting CAS institutes in the application of research findings; the number of projects supported by the TTO continues to grow. The TTO's services cover a wide range of topics and transfer phases, from evaluation of the application potential of a specific research finding, through transfer plan design, to securing relevant funding and implementation support.

The TTO also runs educational programming for CAS institutes. The TTO has offered the TT Boost educational programme for many years. In addition, the TTO organised a number of other educational and awareness-raising events in 2025 on current topics such as the regulation of medical devices, EIT hub activities in Central Europe, and the application of knowledge with social impact.

Practical aspects of transfer

The internal Programme for Development of Application and Commercialisation (PADC), which provides direct support to research teams seeking to transfer their research findings, was a mainstay of the transfer support system throughout 2025. Since the program's inception to the end of 2025, more than 130 unique research findings from CAS institutes with great application potential have been assessed in the PADC programme and total support of CZK 36 million has been awarded to 73 of them.

In 2025, the CAS Academy Council approved the creation of the Science4Policy initiative, which aligns with the CAS concept for the systematic application of research with socio-economic impact. Science4Policy's key focus is expanding collaboration between CAS institutes and the decision-making sphere in the Czech Republic.

An increasing number of research findings are being practically applied through spin-offs. To streamline the spin-off establishment process, in March 2025 the CAS approved a plan to set up a specialised company that will establish spin-offs on behalf of CAS institutes and also work closely with private partners and investors. This new entity (the joint-stock company CAS Innovations) was established in early 2026.

CAS representatives are members of national expert platforms, such as the Research, Development and Innovation Council's working group on technology transfer and CzechInvest's working group on startup support, engage actively in the Transfera association, and strengthen relationships with application partners, particularly through the Confederation of Industry of the Czech Republic, Association of Small and Medium-Sized Enterprises, and the Czech Startup Association.



Selected examples of research results for practical application in 2025

Selected examples of research results for practical application are divided into the following thematic areas: health, society, environment, technology, industry and agriculture.

Health



Institute of Biophysics: Research into hyaluronic acid treatment of joint diseases (Ministry of Industry and Trade, in partnership with Contipro a.s.)

Biology Centre: The patented invention “modified tRNA for the treatment of genetic diseases caused by premature codon termination” is a new approach to the treatment of hereditary diseases, including cystic fibrosis, Duchenne

muscular dystrophy and hereditary vision disorders.

Institute of Biotechnology: An international patent application for the invention of targeted anti-tumour therapy (a special enzyme and genetic information for enzyme production), which can supplement or enhance existing treatment procedures.

Institute of Physiology: The patented invention “3alpha-5beta neuroactive steroids for the treatment of epilepsy and seizure disorders” (EP3947410), which is a set of compounds that affect the activity of nerve cells in the body and help suppress excessive electrical activity in the brain.

Institute of Microbiology: The patent solution “Lipophosphonoxins, their preparation and use” (No. 4072681), which consists of research into the development of new antibacterial agents.

Institute of Experimental Medicine: An internationally patented medicinal product for the prevention and treatment of inflammatory and degenerative diseases of the cornea and/or retina of the eye (No. EP3582797).

Institute of Physics of Materials: A new implant for the treatment of severe pelvic injuries (e.g. in “open book” injuries, in which the symphysis and SI joint are simultaneously damaged).

Institute of Molecular Genetics: The active substance and related pharmaceutical preparations “Oligonucleotides and pharmaceutical preparations for the treatment of retinitis pigmentosa associated with mutations in the PRPF31 gene”, focused on a new treatment method for inherited eye disease leading to vision loss.

Institute of Organic Chemistry and Biochemistry: “Small molecule inhibitors of neutral sphingomyelinase 2 (nSMase2)” with potential application for alleviating diseases such as Alzheimer’s disease, multiple sclerosis and ALS (US patent 1219545); newly discovered compounds that can destroy even antibiotic-resistant bacteria - patent solution “Lipophosphonoxins, their preparation and use” (No. 4072681).

Institute of Rock Structure and Mechanics: “Absorbable composite bandage made of polymer reinforcement and collagen matrix” (utility model CZ 38 337) for the treatment of blood vessels with minimal bodily impact.

Society



Institute of Archaeology, Brno: A certified methodology for preventive conservation of highly valuable archaeological finds (for the Ministry of Culture); detailed documentation to support the protection of the significant Korolevo archeological site (background material for establishment of a protection zone around the oldest known human settlement in Europe from the Early Stone Age).

Economics Institute: Expert comments and recommendations on the draft Final Report of the ex-post Regulatory Impact Assessment (RIA) on parental allowance and other related legislation (discussed by the Legislative Council of the Government of the Czech Republic).

Institute of Ethnology: A policy paper titled “The Invisible Lives of Waste” drawing on many years of field research at landfills and collection yards.

Oriental Institute: A policy paper titled “Intercultural Openness of the Prague Labour Office” (responses to the growing number of foreign clients and recommendations on improving communication with foreigners).

Institute of Psychology: A presentation at a Government Council for Gender Equality seminar (results of a survey among Czech employees regarding psychosocial risks at work and gender inequality in the Czech Republic).

Institute of Sociology: A document titled Concept of Socio-economic Indicators for the Siting the Deep Geological Repository in the Czech Republic (for the Radioactive Waste Repository Administration).

Institute of Contemporary History: Membership in the working group on the Policy of Architecture and Building Culture of the Czech Republic (Ministry for Regional Development).

Global Change Research Institute: A methodology for the precise description of fire behaviour for the entire Czech Republic (approved by the Ministry of the Environment; serves as a unified national tool for fire protection prevention, operational management and strategic planning; part of the TransAdapt Program project, Ministry of the Environment).

Environment



Institute of Botany: A network in the floodplain forests of South Moravia for monitoring plant vegetation, insects, birds and trees (in partnership with the Biology Centre).

Institute of Ethnology: Expertise for the Nature and Landscape Protection Agency of the Czech Republic regarding tramping and its cultural-historical, memory-related and ethnological expressions.

Institute of Geophysics: Operation of the Czech Regional Seismic Network, which continuously monitors earthquakes and seismic tremors in the Czech Republic.

Institute of Hydrology: The “Soil Water Extractor” utility model (No. 38892) for extracting water from soil for scientific analysis without disturbing the natural composition of the water.

Institute of Microbiology: Pilot production and decomposition of ecological packaging made of biodegradable plastics (international collaboration).

Institute of Analytical Chemistry: A device for fast and accurate measurement of nitrogen dioxide concentration in the air in real time (utility model no. 38837).

Institute of Inorganic Chemistry: Gentle and sustainable filtration systems that can effectively remove pesticides and other hazardous substances from water (in collaboration with Jan Evangelista Purkyně University and Nano SPACE technology).

Institute of Vertebrate Biology: Participation in the Joint Danube Survey 5 monitoring network – an ichthyological survey of the lower reaches of the Morava and Dyje rivers and collection of samples for monitoring microplastics.

Institute of Atmospheric Physics: An expert report on the causes and progress of floods in the Czech Republic and Central Europe in September 2024.

Institute of State and Law: A legal analysis of the current legislation on protection against light pollution (for the Ministry of the Environment) was incorporated into a draft major amendment to the Nature and Landscape Protection Act.

Technology



J. Heyrovský Institute of Physical Chemistry: “UV-VIS spectroelectrochemical cell with replaceable electrodes”, i.e. simple and affordable laboratory equipment for advanced chemical measurements.

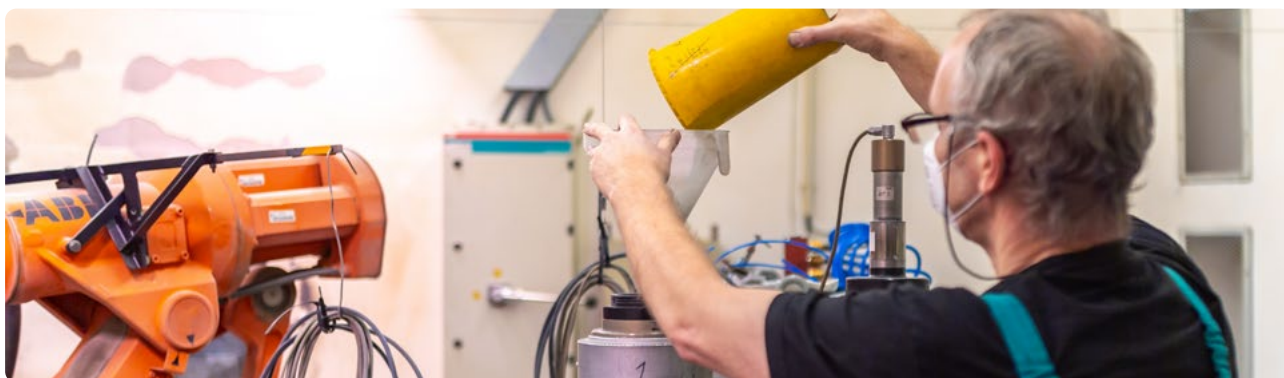
Institute of Nuclear Physics: Testing and calibration of cosmic ray detectors intended for satellites (international collaboration between Timepix and Medipix, supported by the European Space Agency).

Institute of Macromolecular Chemistry: EDIFF software module in the international repository (in collaboration with partner organisation Thermo Fisher Scientific Brno s.r.o. as part of the project Centre of Advanced Electron and Photonic Optics, TA CR).

Institute of Scientific Instruments: Special equipment for continuous monitoring and stabilisation of optical fibres (utility model CZ 39012, in collaboration with the CESNET association of legal entities as part of a project supported by the Ministry of the Interior).

Institute of Information Theory and Automation: An expert study titled “Analysis and outlook of computer image processing possibilities in military applications” for the Ministry of Defense and the Army of the Czech Republic.

Industry



Institute of Physics: A special optical assembly that enables changing the colour (wavelength) of powerful laser light to improve fine material processing (as part of a TA CR project in collaboration with the company CRYTUR).

Institute of Physics of Materials: A patent solution (EP 4673399) titled “Liquid phase exfoliation method and exfoliation medium” for the production of very thin layers of advanced materials (2D materials).

Institute of Plasma Physics: Development of LiDAR technologies, plasma gasification of biowaste from the food industry, a new method of producing very fine nanoparticles from carbon and metal (international patent application PCT/CZ2025/050095).

Institute of Chemical Processes: Equipment for using fly ash from municipal waste incineration as a secondary raw

material (under the TA CR programme National Center for Energy II in collaboration with industrial partners; utility model no. PUV 38965 / 2025-43375).

Institute of Macromolecular Chemistry: “Catalytic layer for an electrode-membrane-electrode system with improved electrocatalytic properties” for hydrogen fuel cells (utility model PUV 2025-43131).

Institute of Thermomechanics: A new propane-based air conditioning and heating system for hydrogen buses (TA CR Transport 2020+ project in collaboration with industrial partners), “Equipment for electrical energy transfer between a turbine and a compressor in a gas-cooled small modular reactor” (utility model U1-38439), which provides a safe and controlled energy transfer method in modern nuclear systems.

Agriculture



Biology Centre: A patented solution for a natural preparation to support plant growth and protection against harmful fungal diseases that uses the proven fungal strain *Trichoderma harzianum* CCM 9213.

Institute of Hydrology: In collaboration with the Czech Development Agency and the People in Need Foundation, a landscape and agricultural management plan for the Halaba and Silte areas in Ethiopia, which are threatened by climate change.

Institute of Experimental Botany: “Bacteriophage-based product for the protection of greenhouse tomatoes against bacterial diseases” (utility model no. PUV2025-43267), an alternative to chemical products that is primarily focused on suppression of diseases caused by the bacteria *Pseudomonas syringae*.





SUPPORT OF EXCELLENCE AND CAREER GROWTH



Supporting excellent research at CAS institutes and career growth is an important priority of the scientific policy of the Czech Academy of Sciences. The CAS currently provides this support through five programmes targeting researchers at different stages of their careers. The CAS is also developing new forms of support, including centralised support for European Research Council (ERC) grant applicants.

“Programmes supporting excellence and career growth at the Czech Academy of Sciences provide moral and financial support for cutting-edge research at CAS institutes through support for researchers.”

In 2025, the CAS continued all five of its longstanding programmes that support scientists at different stages of their careers: the Academic Premium (Praemium Academiae), Lumina Quaeruntur Fellowship, Otto Wichterle Award, Programme to Support Prospective Human Resources, and the Josef Dobrovský Fellowship. An evaluation of these programmes' impacts and operation was also carried out, which led to initiation of preparations to restructure the excellence support system. The new Academy of the Future programme was also introduced.

The Academy of the Future is developing seven new programmes, four of which were launched at the end of 2025. These new programmes focus on internships at leading international institutes for scientists at various

career stages as well as research management and project department employees, and on supporting the return of scientists from career breaks due to parental leave or caring for a loved one. Systematic support for ERC grant applicants at national level continued in 2025 through various training and consultation activities conducted by an expert group run collaboratively by Charles University, the CAS and the Technology Centre Prague. The CAS also continued to financially support ERC project applicants through its own incentive grants (PERC) in 2025, awarding total funding of CZK 800,000 to eight applicants. Additionally, a centralised support programme for European Research Council (ERC) grant applicants and their institutes was developed that will be launched in early 2026.

Praemium Academiae – Academic Premium

The Academic Premium is the Czech Academy of Sciences' most eminent form of support for scientific excellence. It is awarded to brilliant scientists who excel in their fields, providing them with financial and moral support for further scientific work at a globally comparable level. The Academic Premium award funding of up to CZK 30 million is intended to help recipients cover research costs for six years, thus providing long-term support for the work of their scientific teams, and acquire necessary new equipment.

The 2025 Academic Premium award-winners include:



Dr. rer. nat. Lukáš Palatinus
(Institute of Physics)

Lukáš Palatinus is an expert in electron crystallography. In the coming years, he and his team aim to achieve significant advances in three areas of structural analysis with a key impact on material, chemical and pharmaceutical research.

First, he plans on incorporating machine learning methods into the solution of crystal structures in order to obtain a crystallographic model for complex substances with low-quality crystals.

The team's second goal is to develop electron crystallography methods for imperfect crystals and poorly crystalline substances. This work builds on the notable achievements the team has already made in electron crystallography.

The third and biggest challenge is 3D imaging of non-periodic material at atomic resolution. Lukáš Palatinus' team plans to address this challenge by developing electron ptychography and ptychotomography methods. In electron ptychography, a very narrow

beam of electrons is moved across the surface of the sample, recording a complete two-dimensional diffraction image at each point. The result is a four-dimensional dataset (two image dimensions and two dimensions in diffraction space). Electron ptychotomography works on a simple principle: the recording of the aforementioned dataset and subsequent ptychographic reconstruction can be performed at different sample inclinations. A three-dimensional image of the examined material is obtained by combining various projections.



Prof. Ing. Jiří Neužil, CSc.
(*Institute of Biotechnology*)

Jiří Neužil is an expert in molecular biology. The Academy Premium will support his TransMit project, which focuses on the molecular regulation of horizontal mitochondrial transfer (HMT) and its role in the development and progression of cancer. This part of the research will be the highest priority. One of the research team's tasks will be to investigate the molecular mechanism of mitochondrial movement using tunneling nanotubes (TNTs, membrane channels that connect cells and enable the transfer of various organelles between them). It has been proven that horizontal mitochondrial transfer is directly related to the movement of mitochondria in TNT between healthy (host) and tumour cells (i.e., that tumour cells are able to steal mitochondria from other cells to obtain more energy). The team also wants to explore new cancer treatment options.

Although cancer research will be the team's top priority, the researchers will also engage in research of neurons and bones. They are interested in how HMT affects neuronal health and how to suppress neurodegenerative diseases. Previous research suggests that TNTs are the main means of intercellular "transport" between neurons and supporting cells. Studying the role of HMTs in bone physiology may uncover ways of supporting bone reconstruction. It is becoming clear that HMT is important for bone cell function and that mitochondria from supporting cells migrate into primary bone cells (osteocytes), thereby supporting bone quality, which deteriorates with age.

A group of Czech scientists who comprise the Czech HMT School will be the main collaborators on the TransMit project.



Ing. Petr Škrdla, Ph.D., DSc.
(*Institute of Archaeology, Brno*)

Petr Škrdla is a Pleistocene archaeologist. His Academy Premium project will explore the evolutionary drama of the last ice age. It was during this period that anatomically modern humans gradually replaced the Neanderthal population in Europe, and the Czech lands are crucial for understanding this clash of cultures and its demise.

Petr Škrdla's team seeks to determine whether specific technological complexes (prehistoric cultures, sets of flaked stone tools produced using the same technology) from that critical period can be linked to anatomically modern humans. The challenge, therefore, is to bridge traditionally perceived archaeology, which is based on chronology and cultures, with current findings in the natural sciences: to elevate archaeology beyond its roots in the humanities and render it a bridge between the natural and human sciences. The research focuses on identifying new sites and genetic material from the period under investigation (the transition from the Middle to the Upper Paleolithic, or the Initial/Early Upper Paleolithic) and revisiting some older sites. The research team plans to collaborate closely with the natural sciences, using advanced methods, including advanced statistics,

3D scanning and artificial intelligence. A comparison of materials from different locations around the world will also aid the team's work.

Petr Škrdla was probably the first archaeologist in the Czech Republic to introduce systematic floatation of the entire volume of excavated sediments. He plans on using this approach again in the project funded by the Academy Premium to re-examine sediments from older archaeological surveys that are now piled up in front of the Švédův stůl cave.



The prestigious Academic Premium and Lumina Quaeruntur Fellowship awards ceremony took place on 29 October, 2025, in the hall of the Library of the Czech Academy of Sciences.

Lumina Quaeruntur Fellowship

The Lumina Quaeruntur Fellowship provides financial aid to promising researchers, enabling them to compose their own research teams and support their work for up to five years with funding of up to CZK 20 million. Both Czech and foreign researchers are eligible for the fellowship.

2025 Lumina Quaeruntur Fellowship recipients include:



Ing. Filip Křížek, Ph.D.
(Institute of Physics)

Filip Křížek specialises in the development of hybrid material systems for quantum technologies. His goal is to design a new generation of quantum components based on previously little-explored combinations of superconductors, magnets and semiconductors. The basic idea is to incorporate magnetic elements and spintronic concepts into established superconducting-semiconductor devices. The proposed hybrid systems will provide a universal platform for studying interactions between superconductivity and altermagnetism, which is a newly described form of magnetism.

**RNDr. Michal Hrbek, Ph.D.***(Institute of Mathematics)*

The goal of Michal Hrbek's project is to significantly deepen our understanding of tensor triangular geometry by investigating Balmer spectrum filtration models and decompositions. This research project bridges various disciplines by expanding the extensive theory of deviating objects and derived equivalences, which is well established in representation theory and recently studied in commutative algebra, to the broader framework of tensor triangular geometry.

**Aniruddha Mitra, Ph.D.***(Institute of Biotechnology)*

Aniruddha Mitra aims to uncover the principles that govern the dense "traffic" in eukaryotic cells. He will focus on sensory cilia, which are antenna-like organelles that play a key role in regulating signal transmission, making them essential for many developmental and physiological processes.

**Mgr. Barbora Pafčo, Ph.D.***(Institute of Vertebrate Biology)*

Barbora Pafčo will focus on the dynamics of parasite transmission between different hosts in tropical regions. The research is part of the international One Health concept, which links human, animal and ecosystem health. It includes both modern genomic analyses and historical studies of paleoparasitology, allowing for a comprehensive mapping of infection diversity and drug resistance evolution. The goals are to advance research, contribute to the effective protection of wild species and improve public health.

**Mgr. Jaroslav Bartík, Ph.D.***(Institute of Archaeology, Brno)*

Jaroslav Bartík focuses on the process of using stone raw materials, from mining through primary processing to subsequent distribution and use. He employs a multidisciplinary and diachronic approach that enables him to track developments over time and link knowledge from various scientific fields. He concentrates on the technical, economic, environmental and social aspects of these processes and examines how they influenced the hierarchisation of prehistoric societies, development of distribution networks and transfer of technologies.



Mgr. Václav Smyčka, Ph.D. et Ph.D.
(Institute of Czech Literature)

Václav Smyčka's research focuses on how women writers engaged in feminist and/or national movements in Central Europe during the long 19th century. He will trace their networks and contacts, as well as how women's work responded to or deviated from male-dominated national canons. His research will be the first to describe and explain the relationships between nationalism and women's emancipation from a transnational perspective.

Otto Wichterle Award

This award is intended for selected, extraordinarily talented, promising CAS scientists up to 35 years of age. The award bears the name of Professor Otto Wichterle, an outstanding world-class Czech chemist, who was appointed President of the Czechoslovak Academy of Sciences after the Velvet Revolution in November 1989. The aim of the Otto Wichterle Award is to encourage young CAS scientists whose excellent results contribute to the development of their scientific disciplines.

The 2025 Otto Wichterle award-winners include:

I Mathematics, Physics and Earth Sciences

Mgr. Ondřej Zelenka, Ph.D.
(Astronomical Institute)
RNDr. Petr Hruška, Ph.D.
(Institute of Physics)
Ing. Jan Kaufman, Ph.D.
(Institute of Physics)
Ing. David Vojna, Ph.D.
(Institute of Physics)
Ing. Eliška Zmeškalová, Ph.D.
(Institute of Physics)
Ing. Martin Schäfer, Ph.D.
(Institute of Nuclear Physics)
Ing. Ondřej Ficker, Ph.D.
(Institute of Plasma Physics)
Ing. Tomas Grabec, Ph.D.
(Institute of Thermomechanics)

II Life Sciences and Chemical Sciences

Agnieszka Monika Kornas, Ph.D., MSc.
(J. Heyrovský Institute of Physical Chemistry)
RNDr. Eva Bednářová, Ph.D.
(Institute of Organic Chemistry and Biochemistry)
Dr. Tito Damiani
(Institute of Organic Chemistry and Biochemistry)
Mgr. Hana Polášek-Sedláčková, Ph.D.
(Institute of Biophysics)
Mgr. Adéla Wennrich, Ph.D.
(Institute of Microbiology)
RNDr. Klara Vokacova, Ph.D.
(Institute of Experimental Medicine)
Michael John Hammond, Ph.D., MSc.
(Biology Centre)
RNDr. Petr Kozel, Ph.D.
(Biology Centre)
Mgr. Anna Mrázová, Ph.D.
(Biology Centre)
RNDr. Mgr. Ivana Vejříková, Ph.D.
(Biology Centre)

RNDr. Ing. Tomáš Figura, Ph.D.
(Institute of Botany)

Mgr. Jan Řehoř, Ph.D.
(Global Change Research Institute)

III Humanities and Social Sciences

Sebastian Ottinger, Ph.D.
(Economics Institute)
PhDr. Marek Urban, Ph.D.
(Institute of Psychology)
Mgr. Jitka Močíčková, Ph.D.
(Institute of History)
PhDr. Boris Moskovič, Ph.D.
(Masaryk Institute and Archives)
Mgr. Václav Rameš, Ph.D.
(Institute of Contemporary History)





The recipients of the Otto Wichterle Award gathered in Nové Hradky in early September 2025, where the CAS Centre of Administration and Operations organised the Wichterle Camp for them. It was an opportunity for the researchers to get to know each other in an informal setting, and above all a chance for them to discuss the challenges of research and gain inspiration and new professional knowledge that they will apply in their careers.

Programme for Supporting Prospective Human Resources – Postdoctoral Fellows

This programme is intended for starting postdoctoral researchers (within two years of the defence of their Ph.D. dissertation or equivalent, or four years in the case of long-term study abroad or parental leave).

Under the 2025 Programme call, 26 fellows were supported in the 24th call and 27 fellows in the 25th call (with funding commencing on 1 January 2025, and 1 July 2025). 2025 saw the last round of centralised selection of project proposals by the Programme Commission. Beginning in 2026, a new method of supporting postdoctoral researchers at CAS institutes will be launched, where CAS institutes will use an internal selection process to allocate funds to finance post-doctoral researchers (with funding from 1 January 2027).

Josef Dobrovský Fellowship Programme

This programme helps young foreign researchers who need to study the historical, cultural, artistic, linguistic, geographical or natural context in the Czech Republic for their scientific research. In 2025, total funding of CZK 886,000 was provided for 23 study visits at eight CAS institutes.

Dr. Miha Zobec

(Institute of History)

Prof. Anders E. B. Blomqvist, Ph.D.

(Masaryk Institute and Archives)

Christopher Brennan, Ph.D.

(Masaryk Institute and Archives)

Kornelia Kończal, M.A., Ph.D.

(Masaryk Institute and Archives)

Prof. D. Phil. Matthew Stibbe

(Masaryk Institute and Archive)

M.A. Martina Baraldi

(Institute of Art History)

Prof. Dr. phil. Sigrid Nieberle

(Institute of Art History)

Miha Valant, Ph.D.

(Institute of Art History)

Dr. phil. Maren Hachmeister

(Institute of Contemporary History)

Dr. John Exalto

(Institute of Philosophy)

Dr. Aleksandra Fostiková

(Institute of Philosophy)

Dr. Isidora Grubacki

(Institute of Philosophy)

M.A. Isabel Jacobs

(Institute of Philosophy)

M.A. Martina Kramarić, DrSc.

(Institute of Slavonic Studies)

Assoc. Prof. Mgr. Marijan Šabić, DrSc.

(Institute of Slavonic Studies)

Mgr. Anna Stefan, Ph.D.

(Institute of Slavonic Studies)

Alex Braslavsky, M.Phil.

(Institute of Czech Literature)

Eve Filée, MA

(Institute of Czech Literature)

Mathieu Lericq, Ph.D.

(Institute of Czech Literature)

Mgr. Adriána Pešková

(Institute of Czech Literature)

Mgr. Martina Kotvanová

(Czech Language Institute)

Mgr. Magdalena Matkowska-Jerzyk,

Ph.D. (Czech Language Institute)

Urška Vranjek Ošlak, Ph.D.

(Czech Language Institute)





INTERNATIONAL COOPERATION

In alignment with European research policy, the Czech Academy of Sciences focused primarily on monitoring progress on the new FP10 framework programme and exploring opportunities to take part in its development. An important step was the CAS' full-fledged involvement in the European partnership for Resilient Cultural Heritage, which cultivates international collaboration and development of scientific capacity in cultural heritage preservation, thus strengthening the CAS' strategic position within the European research ecosystem. The CAS continued to engage in bilateral and multilateral cooperation with international research institutions. The CAS' key objective remained supporting international mobility with particular emphasis on young researchers.

“In 2025, the Czech Academy of Sciences supported dozens of scientists in need through the Researchers at Risk Fellowship and added more countries to the second round of the programme.”

CAS participation in international activities



As in previous years, the CAS participated in activities related to membership in international scientific organisations and networks, thus amplifying the voice of Czech science in the international arena.

At the end of 2025 there were more than 2,200 foreign researchers employed at CAS institutes, including doctoral students, which corresponds to more than 27% of the CAS employees in this category. Their most common countries of origin were Slovakia (more than 440), India (more than 270) and Ukraine (more than 190).

In 2025, CAS staff and officers took part in a number of international events. In June, the scientific prizes of the French Embassy in Prague for doctoral students and postdoctoral researchers under 33 years of age were presented. Six Ph.D. candidates from the Czech Academy of Sciences received prizes. In September, the Czech Academy of Sciences and the Saxon Academy of Sciences in Leipzig (SAW) held their second scientific symposium in Leipzig. Key topics of discussion included climate change, artificial intelligence and a resilient society. In October, the Czech-Taiwanese Technology Days took place, organised jointly by the Czech Academy of



Sciences, the Technology Agency of the Czech Republic and the Taipei Economic and Cultural Office, Prague. The main topics were laser technologies and AI and cybersecurity. In November, the Academy of Science of South Africa and the Czech Academy of Sciences held a webinar on “Intraseasonal Climate Variability and Its Impact on Society: South Africa and the Czech Republic in Partnership”. Also in November, the management teams of the CAS and the Slovak Academy of Sciences held their traditional annual meeting in Smolenice. The new presidents of both academies presented their visions; discussions also centred on society’s perception of science, the academies’ involvement in shaping national science policy, effective international cooperation, and the ERC CZ programme; and the director of the CAS Global Change Research Institute introduced his institute.

The CAS received a number of prominent foreign visitors in 2025, from ambassadors of foreign embassies to delegations of foreign partners, e.g. from France, Germany, Mongolia and Taiwan. Additionally, in order to reinforce scientific collaboration and forge new contacts, CAS officers made several trips abroad, namely to France, Belgium, Hungary and Japan.



Membership in international organisations

In regard to membership in international non-governmental organisations and networks, the CAS continued to develop collaborative ties with ALLEA (All European Academies), EASAC (European Academies Science Advisory Council), IAP (InterAcademy Partnership), UAI (Union Académique Internationale) and IHRN (International Human Rights Network of Academies and Scholarly Societies). The CAS participated in European Union initiative calls such as SAPEA (Science Advice for Policy by European Academies) and made significant contributions to European groups such as ENRIO (European Network of Research Integrity Offices). A number of experts from CAS institutes were nominated and appointed to working groups, committees and peer review positions in these initiatives. At the turn of June and July, the 74th annual gathering of young scientists with Nobel Prize winners took place in Lindau. The theme was chemistry. The CAS, as the guarantor for the Czech Republic, nominated six candidates to attend. The Lindau Committee selected four of them, including two from the CAS. Lindau also hosted the 8th annual gathering with economics Nobel Prize winners in 2025. Six researchers were nominated, five of whom were selected, including one from the Czech Academy of Sciences.

Bilateral and Multilateral Collaboration

In 2025, the CAS continued to collaborate with both European and non-European partners on bilateral and multilateral international projects through joint research programmes. It continued to update contractual agreements, extended existing collaborative ties and entered into new bilateral agreements on scientific collaboration. New bilateral agreements on scientific cooperation were signed with the Jordanian National Center for Research and Development and the Korean National Research Council of Science and Technology, both CAS partners in scientific research mobility projects. The CAS also renewed agreements with the Taiwanese Industrial Technology Research Institute, the Brazilian National Service for Industrial Training and the Romanian Academy.

In 2025, the Czech Academy of Sciences supported a total of 100 bilateral projects totalling CZK 12.5 million. In a new tender for projects supporting researcher mobility, 38 projects from 12 countries were supported

out of a total of 127 submitted proposals. In 2025, the second round of the CAS international Researchers at Risk Fellowship supported 36 researchers in need with total support of CZK 22 million. Additionally, a third round of the programme was announced for 2026. In the SEA-EUROPE JFS multilateral cooperation programme, two projects were supported under the 9th call that will begin implementation in 2026, and ongoing projects were supported with a total of CZK 1.7 million. The CAS did not participate in the upcoming 12th call of the ongoing EIG CONCERT-Japan cooperation initiative, and terminated its participation in the initiative as of the last day of 2025, primarily to eliminate duplicate Czech participation, as the Ministry of Education, Youth and Sports of the Czech Republic is engaged, and also because scientists from CAS institutes have shown minimal interest in submitting proposals through the CAS. However, in 2025 the Czech Academy of Sciences joined the emerging co-funded European Partnership Resilient Cultural Heritage, which is part of Cluster 2 of Pillar II and will enable collaborations with almost 80 partners from 31 countries.

ERA Cooperation

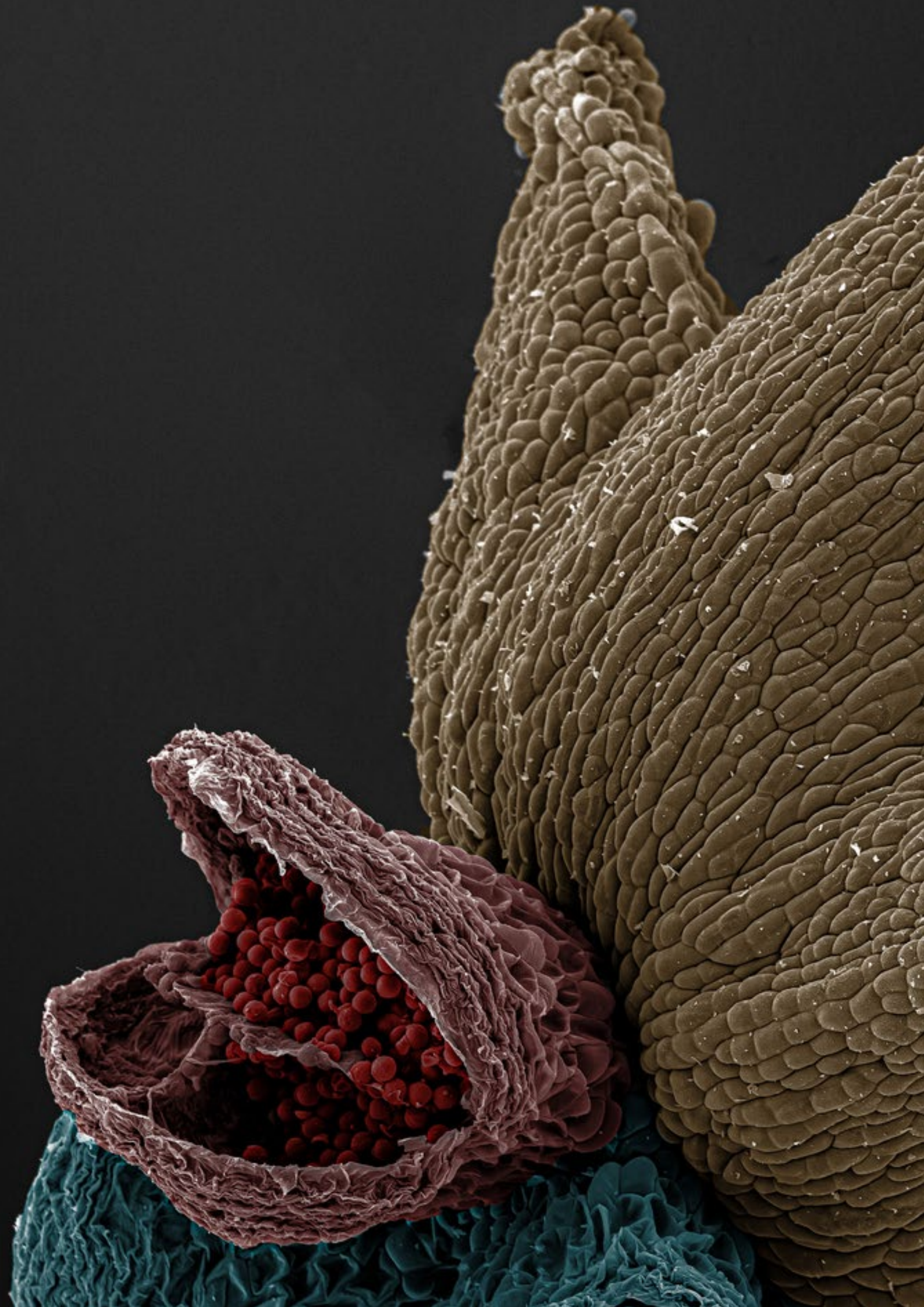
The CAS continuously strives to engage in activities supporting the European Research Area (ERA) and takes advantage of the opportunities offered by Horizon Europe, the EU framework programme for research and innovation. In addition to direct involvement in research initiatives at EU level, CAS representatives also helped shape European science policies.

In 2025, CAS institutes participated in 214 teams in 203 projects in EU framework programmes with a funding volume of EUR 20.01 million (not including ERC projects). In 2025, four researchers from CAS institutes were awarded ERC grants in the enormously competitive international selection process. Jan Zouplna from the Oriental Institute received a Synergy Grant, Deborah Nadal from the Institute of Ethnology was awarded a Consolidator Grant, and two scientists, Leoš Valášek from the Institute of Microbiology and Julius Lukeš from the Biology Centre, were awarded a Synergy Grant for the same project.

CEFRES platform cooperation

The French-Czech CEFRES Platform, which oversees cooperation between the CAS, the French National Centre for Scientific Research (CNRS), Charles University and the French Embassy in the Czech Republic, a selection procedure was held in 2025 for a new two-year TANDEM project, which has an implementation period from February 2026 to January 2028. The CEFRES Research Support Committee proposed awarding support to the project of researchers Giedrė Šabasevičiūtė (Oriental Institute of the CAS) and Hélène Martinelli (CNRS), which is entitled “Paper Bonds: Bookmaking for Kin, Friends and the Self in Europe and the Middle East”. Total funding of CZK 1.2 million will be awarded for the project. In addition, a two-year project by Martin Ďurďovič (Institute of Sociology of the CAS) and Gilles Lepesant (CNRS) entitled “Contested Energy Transitions. Conflicts and Social Innovations in the Czech Republic, Slovakia, Germany, and France” continued. It received support of CZK 1.2 million in 2025.







REGIONAL COOPERATION

The Czech Academy of Sciences helps Czech regions and microregions improve their quality of life through jointly funded research and application projects. In 2025, 28 new projects were initiated, with funding according to agreements between CAS institutes and their regional partners.

“Collaboration between CAS institutes and regional partners in the Czech Republic – such as regions, micro-regions, municipalities, contributory organisations and companies – focuses on addressing social, economic, ecological, natural and cultural issues through basic research and application projects.”

In 2025, institutes from eight of the nine CAS sections – namely from the sections of Mathematics, Physics and Computer Science; Applied Physics; Earth Sciences; Chemical Sciences; Biological and Medical Sciences; Biological-Environmental Sciences; Historical Sciences and Humanities and Philology – engaged in joint projects with regional partners. The projects concerned e.g. the preservation, restoration and public promotion of 20th-century mosaics in public spaces in the capital city of Prague, monitoring bats in the city of Zlín through citizen science, development of an exhibition about Herbert Masaryk at the T. G. M. Museum in Rakovník, and research, documentation and presentation of the process of cessation of villages as a result of the construction and operation of the Dukovany Nuclear Power Plant in the 1970s and 1980s.

These collaborative efforts were rooted in agreements concluded successively with the Association of Municipalities of Orlicko (2003), South Moravian Region (2008), City of Brno (2008, 2023), Prague 1 Municipal District (2009), Pardubice Region (2013), Hradec Králové Region (2013), Vysočina Region (2014), Zlín Region (2015), Ústí nad Labem Region (2015), Central Bohemian Region (2016), Karlovy Vary Region (2016), Olomouc Region (2017), South Bohemian Region (2018), Pilsen Region (2019), Šumava National Park Administration (2019), Liberec Region (2020), Moravian-Silesian Region (2020) and the Capital City of Prague (2022).

In 2025, 28 new projects were initiated which are funded according to agreements between CAS institutes and their regional partners. Ten of these projects fall under the project Central Bohemian Mobility Programme for Excellence in Research, Innovation and Technology (MERIT), which is co-financed by the MSCA-COFUND grant, the budget of the Central Bohemian Region and host organisations.

During 2025, three meetings were held, bringing together representatives of regional authorities, the Chairman of the Commission for the Regional Cooperation of the CAS, and a representative of the TTO.

The aim of the meetings was to discuss the possibilities of further development of the CAS Regional Cooperation Programme with regard to the *CAS Knowledge Transfer and Valuation Concept*, which stresses the potential of the social sciences and humanities. The meetings resulted in closer communication between the Czech Academy of Sciences and representatives of regional authorities, which will enable greater consideration of the needs of potential users of regional cooperation projects.

Work on these joint projects includes a regular annual meeting, which is held alternately in Prague and Brno and attended by representatives of the CAS and of the regional authorities of the Czech Republic. These meetings provide researchers and representatives of regional and local governments with information, inspiration and space for discussion. Five joint projects completed in 2024 were selected by the Commission for the Regional Cooperation of the CAS for presentation and evaluation at the 2025 annual meeting, which took place in Brno on 19 June 2025:

1. Optimisation of nutrient solution for cultivation of leafy vegetables and herbs in a hydroponic production system and monitoring product safety, Institute of Experimental Botany of the CAS, GreenVille Tech s.r.o.,

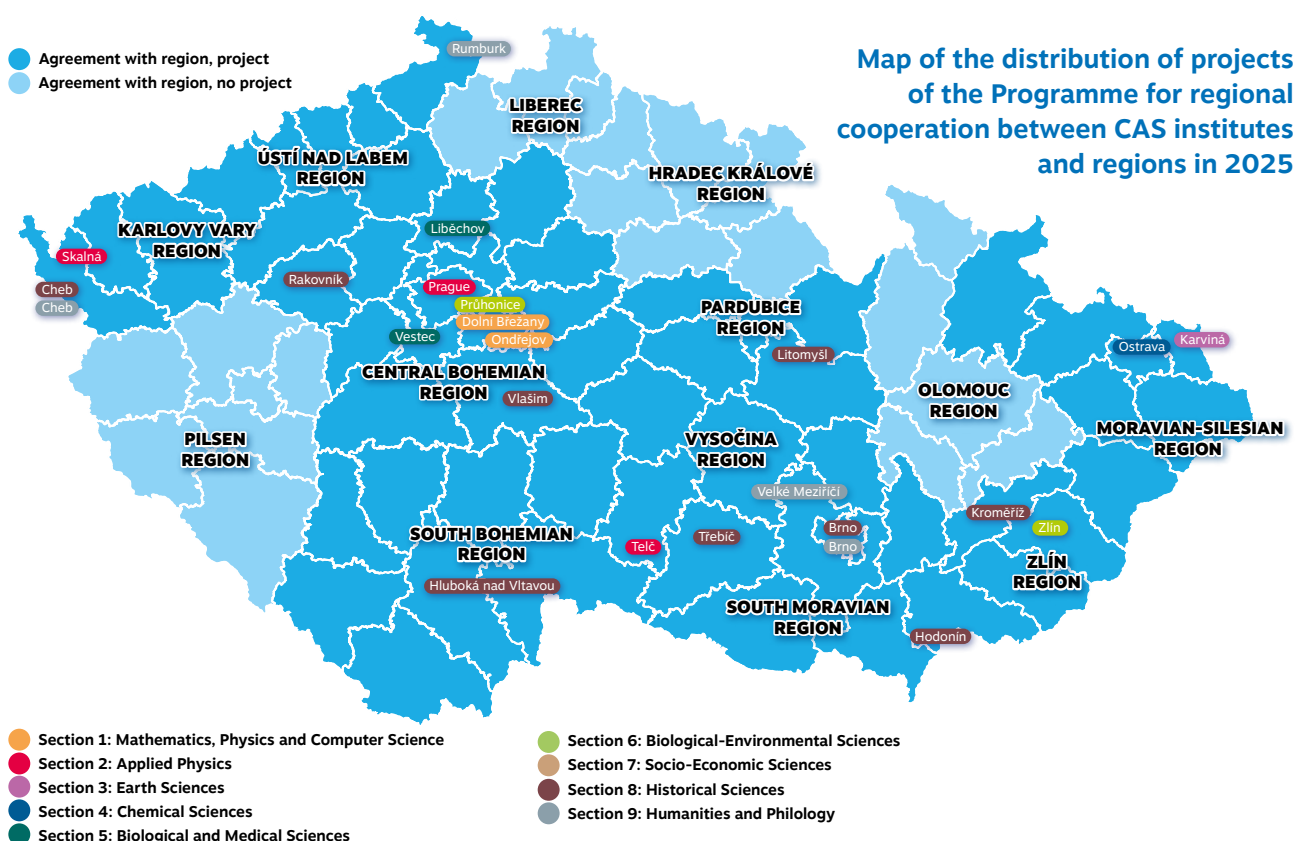
2. Monitoring of biologically active substances of selected plant species of the Asteraceae family – chamomile and new genotypes of the genus Echinacea, Institute of Analytical Chemistry of the CAS, Mendel University in Brno,

3. Mammoth hunters in Milovice – processing of the finds from the Milovice IV site for the presentation and public promotion of the archaeological heritage of the village, Institute of Archaeology of the CAS, Brno, Milovice village,

4. Medieval and Early Renaissance books from Olomouc: new perspectives and insights, Masaryk Institute and Archives of the CAS, Regional Museum in Olomouc,

5. Social and spatial accessibility of secondary education in the Karlovy Vary Region, Institute of Sociology of the CAS, Karlovy Vary Region.





List of sections whose institutes received grants in 2025

Section 1: Mathematics, Physics and Computer Science

- High Energy Lasers for Prevention of Hydrogen Embrittlement in Stainless Steels [Dolní Břežany].
- CORonal magnetic field diagnostics Using Spectropolarimetry (CORUS) [Ondřejov].
- Mapping material diversity of meteoroids in the solar system using meteor spectroscopy [Ondřejov].

Section 2: Applied Physics

- From Rags to Riches: The Restoration of Mosaics in Prague's Public Spaces [Prague].
- Know-how of the Institute of Geophysics of the Czech Academy of Sciences for the "Social and Geoscientific Center of Western Bohemia at the Upper Castle in Skalná" [Skalná].
- Multidisciplinary research on the ruins of Janštejn Castle in the geological context of the Vysočina Geopark [Telč].

Section 3: Earth Sciences

- Monitoring of ground surface displacements caused by the flooding of closed mines in the Ostrava and Petřvald sub-basins [Karviná].

Section 4: Chemical Sciences

- The combustion of solid fuels in boilers used for residential heating in the Moravian-Silesian Region. What are the actual emissions from residential chimneys? [Ostrava].

Section 5: Biological and Medical Sciences

- Understanding structure-dynamics relation of dynamically unstable branching actin networks [Vestec].
- Mechanisms underlying Isl1 dependent epigenetic changes and their role in alpha and beta cell development, maturation and maintenance [Vestec].
- Neuro-immune Cross-talk in Neuropathic Pain: The role of Macrophages Migration Inhibitory Factor (MIF) [Vestec].
- AINSL – Ambient ion soft landing as reproducible sample deposition on grids for cryo-electron microscopy [Vestec].
- MINED – Unlocking the potential of Cameroonian Actinomycetes for Antimicrobial Leads Discovery [Vestec].
- Clivavole – Investigating genomic mechanisms underlying adaptation and vulnerability to climate change using wild mammal populations [Liběchov].

Section 6: Biological-Environmental Sciences

- Statistical analyses to unravel climatic effects on vegetation [Prácheň].
- Bats in Urban Environments – Issues Related to Their Coexistence with Humans in Cities [Zlín].

Section 8: Historical Sciences

- Exhibition: The Story of the Sauerzack Mine: Nature, Machines, People [Cheb].
- Abandoned Settlements Near the Dukovany Nuclear Power Plant, Their Legacy, and Their Imprint on the Cultural Landscape [Třebíč].
- The Potential of the Posázaví Region for Research into the Lifestyle of Hunters and Gatherers at the End of the Paleolithic and During the Mesolithic [Vlašim].
- Herbert Masaryk. Artist, Athlete, and Son [Rakovník].
- "The Iranian Pilgrim" Back Home: An exhibition marking the 140th anniversary of the birth of orientalist Jan Rypka (1886–1968) [Kroměříž].
- An integrated model of citizen science in archaeology: professional collaboration, application, and knowledge transfer in the South Moravian Region [Brno].
- The spiritual world of Great Moravia [Hodonín].
- Spaces of Art. Works of Art and Artifacts as Part of the Environment of the South Bohemian Region after 1918 [Hluboká nad Vltavou].
- Scientists in the Whirlwind of Musical Passion (2025) and Nature Through the Eyes of Science and Art (2026) [Litomyšl].

Section 9: Humanities and Philology

- The Life and Work of Václav Fiala (1896–1980) [Cheb].
- Near and Far: Exploring Asia and the Middle East in South Moravia [Brno].
- Expanding Education and Supporting the Learning of High School Students and the Public in the Ústí Region [Rumburk].
- Philosophy Today [Velké Meziříčí].





SUSTAINABILITY

Acting sustainably and integrating environmental, social and governance (ESG) principles into operations are important tenets for every organisation. Sustainability also figures prominently in CAS research bridging the natural, technical and social sciences in areas such as energy transformation, landscape resilience, climate change adaptation, social justice and resource efficiency. The key direct tool for the creation and interdisciplinary integration of knowledge around sustainability are Strategy AV21 programmes. The transfer of sustainability-related scientific knowledge to public administration, practice and education was based on the Science4Policy concept and applied through AVex expert opinions and direct fulfilment of the tasks of the National Climate Change Adaptation Action Plan.

“The Czech Academy of Sciences addresses issues such as biodiversity, landscape resilience and energy transformation, and strives to apply the principles of sustainability in its own operations.”

The Czech Academy of Sciences continued its efforts to apply sustainability principles in its own operations and in the operations of CAS institutes based on the UN's global sustainable development goals and indicators (SDGs), the Strategic Framework Czech Republic 2030, and the principles enshrined in the Code of Ethics for Researchers at the Czech Academy of Sciences. In order to meet sustainability goals, the Commission of the CAS for Sustainability was established as a new advisory body of the CAS Academy Council.

CAS institutes carried out measures supporting sustainable behaviour both as an integrated part of their management, in accordance with the requirements of ISO 14001 certification – environmental management (Global Change Research Institute), and as a natural part of their activities. Examples include the work of the Institute of Hydrology and the Institute of Vertebrate Biology, which touch on many aspects of sustainable behaviour. Other sustainability-related activities were grounded in the efforts of specific employees who associate at their institutes or in groups of multiple institutes, e.g. the Greenclub (Institute of Organic Chemistry and Biochemistry) and the Sustainability Unit of the CAS in Krč (Institute of Physiology, Institute of Microbiology and Institute of Molecular Genetics).

In construction, the CAS prioritised support of projects that helped make buildings more energy efficient or led to the construction of renewable energy sources, e.g. through photovoltaic power plants. Waste reduction efforts such as limiting disposable materials, sorting waste to facilitate recycling, composting of biowaste, etc. also contributed to sustainability, as did the installation of roof gardens, garden offices and gyms to improve working conditions (e.g. Masaryk Institute and Archives, Global Change Research Institute), etc.

In addition to meeting sustainable behaviour goals, the CAS also helps address strategic aspects of sustainability. The CAS' engagement in the Science4Policy initiative, primarily through AVex expert opinions, signal a significant contribution to sustainability. Three expert opinions on sustainability and environmental protection were issued in 2025: *Natural Reclamation of Mines*

and Quarries, Water Resource Protection Zones in the Czech Republic: Why Are Current Practices Not Enough? and Natural Fires and their Impacts on the Environment and Society. An exemplary illustration of the impact of a CAS expert opinion is the amendment to the Pyrotechnics Act (Act No. 344/2025), where CAS expert opinion AVex 2/2023 *Fireworks: A Toxic Show with Unbearable Health Risks* (Institute of Hydrology, Institute of Chemical Processes and Institute of Experimental Medicine) sparked public discourse on the unsustainability of the harmful environmental impacts of fireworks.

The efforts of the sustainability in research team at the Institute of State and Law's Centre for Climate Law and Sustainability, which serve as a pilot for the entire institute, are another good example of Science4Policy. One of the CAS' most important applied research outcomes in 2025 were climate projections informing the development, updating, goal setting, selection of measures and parameters for strategic documents such as the State Environmental Policy, National Energy and Climate Plan of the Czech Republic, Security Strategy and implementation of the EU Critical Entities Resilience Directive, EU Taxonomy Regulation for sustainable investments and many others.

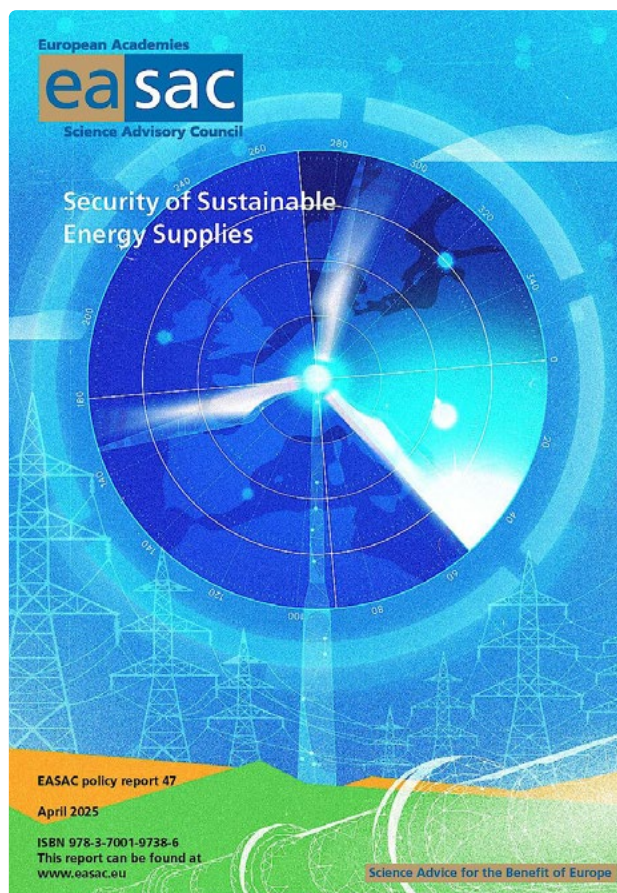
Examples

The strategic document “The Invisible Lives of Waste: Recommendations for the Decision-Making Sphere” (Sosna, Daniel 2025, Prague: CAS Institute of Ethnology & CAS Technology Transfer Office) contains recommendations for waste management policy. Through five key points, the paper recommends that attention be paid to previously overlooked topics, such as the knowledge and experience of people working with waste, informal practices supporting raw material self-sufficiency, ways of controlling informal practices, the informative value of quantitative data and critical reflection on the circular economy. The paper shines a spotlight on issues, which, if addressed, can ultimately contribute to greater sustainability.





The European Academies Science Advisory Council (EASAC) published a report on the security of sustainable energy supplies in 2025, written by experts from European national academies of science. Europe's greatest insecurity stems from its dependence on fossil fuel imports, primarily oil and gas. This dependence exposes the continent to geopolitical blackmail and renders it economically vulnerable. Only a well-managed transition to sustainable domestic energy and innovative technologies produced in Europe can offer a secure and prosperous future. CAS experts, including Antonín Fejfar from the Institute of Physics, head of the Renewable Energy Sources and Decentralized Energy topic of the Strategy AV21 Sustainable Energy research programme, contributed to the report.



Cover of EASAC Report Security of Sustainable Energy Supplies





EDUCATIONAL ACTIVITIES

Educating young scientists and improving the quality of the education system at all levels are important elements of the Czech Academy of Sciences' work and a cornerstone of the Czech Academy of Sciences' mission in society. CAS' educational efforts are grounded in cooperation with universities, with a particular emphasis on education of doctoral students. CAS employees are also directly and extensively involved in teaching and supervising university students. In addition, the CAS organises a range of educational and training programmes for secondary school students and teachers.

“The Czech Academy of Sciences’ collaborative efforts with schools form the foundation of the education of a new generation of scientists.”

Cooperation with universities

The Czech Academy of Sciences’ cooperation with universities in doctoral studies is a key pillar of the education of a new generation of scientists and ensures the quality of doctoral study programmes. Act No. 111/1998 Coll., on Higher Education Institutions, requires that doctoral programmes implemented by universities in cooperation with CAS institutes be accredited by the National Accreditation Bureau. A mandatory part of the accreditation application is a cooperation agreement between the Czech Academy of Sciences and the relevant university on implementation of the given doctoral programme. In 2025, special attention was paid to the preparation, negotiation and conclusion of these agreements, both by the Czech Academy of Sciences and by partner universities.

In 2025, in connection to the amendment of Act No. 111/1998 Coll., representatives of the CAS and universities communicated intensively about adjustments to contractual agreements stemming from the new system of financing doctoral students. These efforts resulted in the signing of six new agreements and one addendum related to collaboration in the education and training of doctoral students, participation in the guaranteed doctoral income and development of dissertations at CAS institutes. Additional agreements and addenda with the remaining universities are currently under development, in various phases of preparation.

Relations between the Czech Academy of Sciences and universities are developed and coordinated by the Council for Cooperation with Higher Education Institutions and the Preparation of Scientific Employees of the CAS, which is an auxiliary body of the Academy Council. In the spring of 2025, a new Council for Cooperation with Higher Education Institutions was established, whose composition was expanded to include more representatives of large Czech universities to strengthen dialogue, coordination and sharing of experiences regarding doctoral studies and contractual cooperation.

The Council members discussed the amendment to the Act on Higher Education Institutions, teaching standards, the doctoral study completion rate and potential impacts of the new rules on students at CAS institutes.

CAS employees also engage directly in teaching at public and private universities. In 2025, CAS staff provided more than 5,000 semester series of lectures, practicals or seminars with a total scope of more than 70,000 hours. CAS institutes thus contribute significantly to student education and supervision of students’ qualification work. In 2025, employees of CAS institutes trained 2,041 doctoral students and also participated in the supervision of bachelor and master programme students. A total of 278 doctoral students trained at CAS institutes completed their studies in 2025.

Table 1: Overview of key areas of cooperation with universities

	2019	2020	2021	2022	2023	2024	2025
Doctoral students trained at CAS institutes	2 046	2 161	2 312	2 259	2 117	2 076	2 041
Newly admitted doctoral students	384	427	395	344	318	365	348
Number of completed doctoral dissertations	242	181	228	199	220	255	278
Number of semestral series of lectures, seminars and practicals	6 909	6 479	6 101	4 556	5 036	3 884	5 071
Number of hours lectured	73 086	69 518	68 176	71 903	74 635	73 494	70 471





Students of the CAS Course on scientific research basics, which took place from 24 to 28 November 2025 in the CAS building at Národní 3 in Prague.

The CAS has also supported the general education of doctoral students for many years through its week-long Course on scientific research basics. The course is intended for beginning doctoral students from various fields and its main objective is to cultivate the key skills students need to thrive in the arduous international research environment. Courses are held regularly in Prague and in Brno. In 2025, a total of 78 students completed the course in Prague in three hybrid courses, while 140 students participated in four in-person courses in Brno. The courses have traditionally been sought out by students training at other institutions as well, which is evidence of their high quality and benefit.

The lecturers include renowned and experienced experts, mainly CAS employees, and the course content is designed to be useful for doctoral students from all disciplines. The main subjects include scientific methodology, ethical principles in scientific work and bioethics, evaluation of scientific work, scientific communication and its written genres, rules of presentation of research findings, editorial aspects of publishing in journals, research writing techniques, rhetoric and the culture of the spoken word, lecturing skills, current information

resources for science, research and education, research funding options and grant proposal development, intellectual property rights and marketing, technology and knowledge transfer, professional writing skills in English, etc.

Based on multiple requests from students, use of artificial intelligence in research, in terms of practical tools, ethics and approaches, has been added to the course topics. Additionally, in response to the growing share of foreign doctoral students at CAS institutes, a pilot course in English is being developed.

Feedback from course participants that is collected and assessed on an ongoing, long-term basis confirms the relevance, high quality and significance of this course for doctoral education.

With the participation of doctoral students from various CAS institutes and universities, the course also naturally serves as a space where students from different disciplines, institutions and research topics connect, supporting interdisciplinary dialogue and helping students forge new professional contacts early in their research careers.

Engagement at Secondary and Primary Schools

Employees of the Czech Academy of Sciences engage in educational activities at primary and secondary schools and offer lectures and other popular science events.

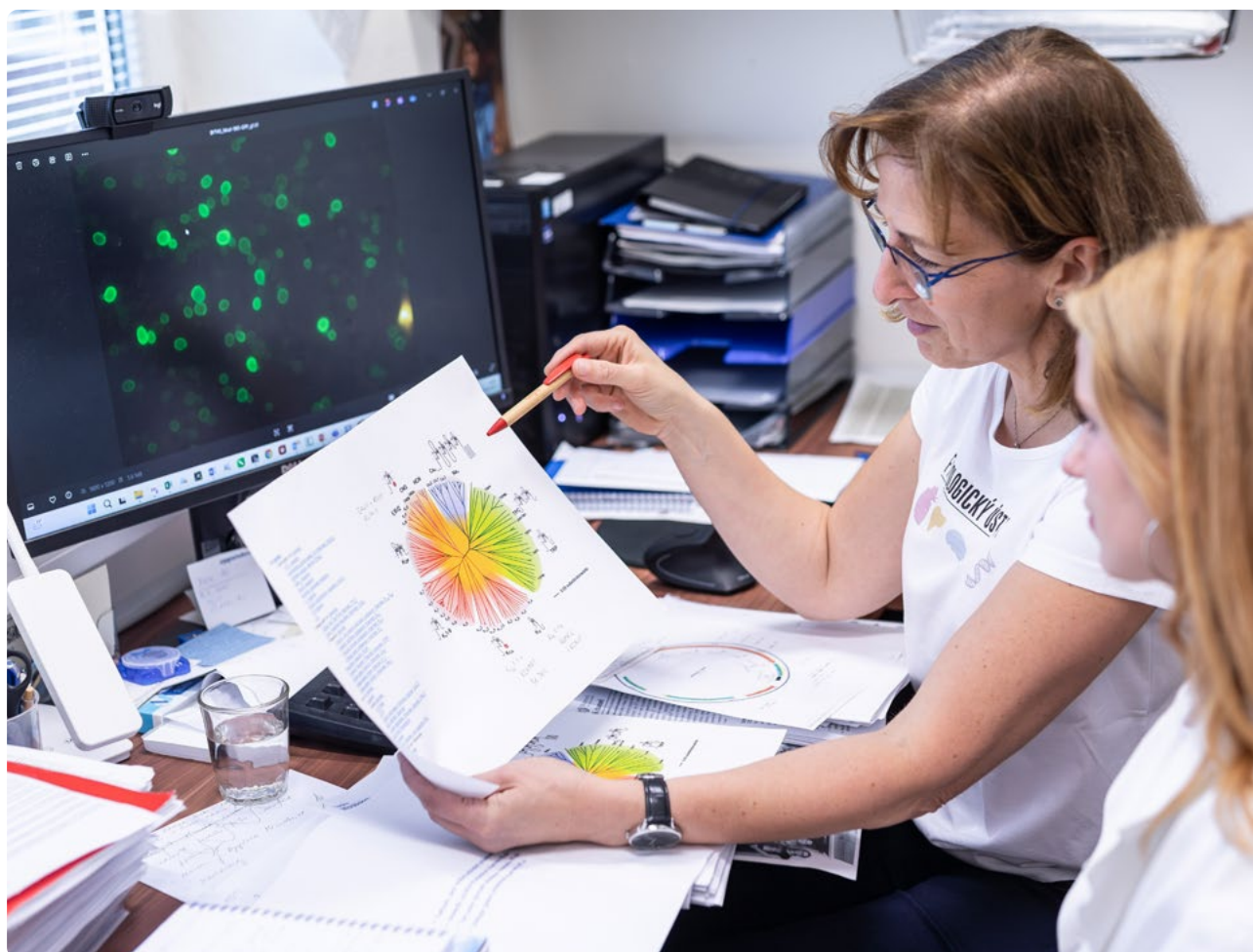
Through the Open Science project, the CAS also offers summer science camps for secondary and primary school natural science teachers, the School of the Czech language and literature for teachers, and courses for

promoters of science. In 2025, the first annual historical sciences summer school took place. In addition to these centrally coordinated activities, various CAS institutes organise their own summer science camps, workshops and other educational events to actively support students' interest in science and research starting from an early school age.

Open Science Project

The CAS offers students of secondary and higher vocational schools the opportunity to participate directly in scientific research through one-year internships at CAS institutes under the guidance of experienced teachers. Open Science student internships have been offered since 2005 and are fully funded by the Czech Academy of Sciences. The internships are one-year long with a minimum of eight hours per month. Travel costs are also covered for students who commute. In 2025, 219

high school students from all over the Czech Republic had the chance to try out science in practice. They received guidance from a total of 107 scientists at 35 CAS institutes. Open Science internships culminate in the fall when the interns present their research findings at a student science conference. In 2025, the final student conference took place from 12 to 14 November 2025 in the CAS building on Národní třída in Prague.



School of Czech Language and Literature for Teachers

This educational course is designed for primary and secondary school Czech language and literature teachers. The 13th annual course took place from 6 to 8 October 2025 at the CAS building on Národní třída in Prague and

was attended by 64 Czech teachers. The course is organised jointly by the Institute of Czech Literature of the CAS, Czech Language Institute and the CAS Centre of Administration and Operations.



Summer Science Camp for Teachers

The summer science camp is intended for primary and secondary school science teachers. In 2025, the camp took place from 3 to 8 August at the Běstvína campground. A total of 34 teachers of chemistry, biology and

physics took part in this multidisciplinary course, which featured 23 workshops led by lecturers from CAS institutes and participating universities.



Summer School of Historical Sciences

From 11 to 14 August 2025, the pilot Summer School of Historical Sciences for primary and secondary school history teachers from across the Czech Republic took place in Dolní Dunajovice and the surrounding area. The Institute of Archaeology of the CAS, Brno provided

professional oversight. The participants attended lectures, excursions and discussions (totalling 24 classroom hours) on selected topics of historical and scientific disciplines from the Paleolithic to the present, led by lecturers from CAS institutes and participating institutions.





PUBLIC OUTREACH

The Czech Academy of Sciences is dedicated to communicating scientific topics through the media and holding science outreach events for the broad public. Scientists and science promoters strive to spark the public's interest in scientific research. They do their utmost to explain to the public CAS research, its purpose and long-term benefits for society. Scientists' expert commentaries on current events or issues elucidate complex phenomena, highlight potential solutions, and introduce new topics to the public discourse.

“In 2025, there were 47,515 media outputs about the CAS in monitored media.”

The Czech Academy of Sciences as a media partner

An essential part of CAS media communications involves working with public service media, namely: Czech Television (CT), Czech Radio (CR) and the Czech Press Agency. Throughout 2025, CAS scientists were regularly invited to take part in Czech Television and Czech Radio broadcasts and asked for interviews to clarify various current topics. For both journalists and the public, CAS scientists were a source of verified information in a wide range of scientific disciplines.

The election of the new President of the Czech Academy of Sciences by the CAS Academy Assembly, the appointment of Radomír Pánek by President Petr Pavel, and the beginning of his term of office at the end of March 2025 were broadly covered in the media.

The CAS also gained significant media visibility through Tomáš Jungwirth from the Institute of Physics: firstly because he was awarded the National Czech Head Award, and secondly due to the publication of his article in the renowned journal *Nature*, which published the first direct microscopic images of the magnetic arrangement in an altermagnet. As the media noted, Tomáš Jungwirth, along with CAS colleagues Petr Baldrian, Tomáš Čajka and Ondřej Novák, rank among the one percent of the most cited scientists in the world (Clarivate Highly Cited Researchers 2025). At the Czechoslovak Independence Day ceremony on 28 October, when Tomáš Jungwirth received the *For Merit Medal* from President Petr Pavel, he once again found himself in the spotlight of many media.

The awarding of prestigious grants also generated media coverage. Four CAS researchers received ERC Consolidator grants, namely Karel Židek from the Institute of Plasma Physics, Tomáš Pluskal from the Institute of Organic Chemistry and Biochemistry, Martin Fott from the Institute of Ethnology, and Elisabeth Hehenberger from the Biology Centre. The media also reported on ERC Synergy grants, two of which were awarded to CAS scientists – one to Jan Zouplna from the Oriental Institute and the other to Leoš Valášek from the Institute of Microbiology and Julius Lukeš from the Biology Centre, and a ERC Consolidator grant, which the Italian anthropologist Deborah Nadal brought to the Institute of Ethnology.

The Czech Academy of Sciences, in cooperation with Charles University, organised a conference called *Science Communication 360°*, which took place at the CAS building on Národní třída in Prague and on the Hybernská campus.

The media also covered the CAS Brain Week festival, which offered more than 80 events across the Czech Republic and was coordinated by the CAS Centre of Administration and Operations. The 2025 Science Fair and the CAS Week festival received extensive publicity, attracting attention on the opening day when it was announced that the Library of the CAS owns the first, most valuable edition of Albrecht Dürer's woodcut *Rhinoceros* from 1515, whose authenticity was confirmed by experts from the Institute of Art History.

The awarding of President of the Czech Science Foundation prizes to Šárka Nečasová from the Institute of Mathematics and Matyáš Havrda from the Institute of Philosophy also resonated in the media. The presentation of the Arnošt Lustig Prize to biochemist Jan Konvalinka, director of the Institute of Organic Chemistry and Biochemistry, for embodying societal values and fighting disinformation during the pandemic, was also well received by the media. In relation to the 2025 National Czech Head Award ceremony, winner Julius Lukeš from the Biology Centre was quoted repeatedly in the media.

CAS research topics

The CAS also communicated with the public through press releases, which numbered four per week on average in 2025. The following news items resonated most strongly in the media:

- analyses by the IDEA think tank at CERGE-EI in the run-up to the elections, regarding issues such as financial support for students, the pension system and support for gifted students as outlined in the election programmes of political parties
- information about columnar structures discovered by a team from the Institute of Archaeology, Prague, along a planned section of the Prague Ring Road



- a report from the Institute of Organic Chemistry and Biochemistry on a new substance that can be used to treat the autoimmune disease alopecia areata
 - a study by a team from the Institute of Biotechnology that demonstrated the key role of horizontal mitochondrial transfer for tumour biology
 - a report on a new system that aims to overcome tumour resistance to treatment (team from the Institute of Microbiology and Institute of Macromolecular Chemistry in collaboration with doctors from the Motol University Hospital)
 - a report by the Institute of Biotechnology on the discovery that the liver uses toxic ammonia to regenerate, which it can convert into the amino acid glutamine
 - a report on how alcohol consumption affects the human body (Institute of Organic Chemistry and Biochemistry)
 - results of an international survey on the long-term effect of tattoos on the immune system (Biology Centre)
 - a report from the Institute of Experimental Medicine, whose team was able to reverse the signs of aging of oocytes (eggs) in mice.
- The CAS also shared information about new topics through videos and short shots. The Division of External Relations Press Section of the CAS Centre of Administration and Operations created 26 videos last year. A special animation created by the Institute of Physiology on implant risks was viewed by over 60,000 people on Facebook.
- Eva Taterová from the Institute of Contemporary History explained the developments in Gaza throughout the year.
 - Hate speech, disinformation and attacks on social networks were elucidated regularly by Tomáš Koblížek from the Institute of Philosophy.
 - Scientists from the Biology Centre, including Radek Šíma, Václav Hönig and Jan Perner, drew attention to ticks on an ongoing basis.
 - The death and funeral of Pope Francis, as well as the election of his successor, were commented on by scientists from the Institute of History, primarily Jaroslav Šebek.
 - Jan Konvalinka from the Institute of Organic Chemistry and Biochemistry spoke about scientists leaving the USA due to restrictions imposed by the Trump administration. Tomáš Kostecký, a member of the CAS Academy Council and a staff member of the Institute of Sociology, also addressed Trump's politics in commentaries.
 - Tomáš Cajthaml from the Institute of Microbiology explained forever chemicals and microplastics in the environment.
 - Pavel Suchan from the Astronomical Institute explained the context of space missions and astronomical phenomena in the media throughout the year.

CAS in current news

CAS scientists regularly comment on various current events and historical contexts through the media. In 2025, the media covered these topics extensively:

- The impacts of climate change were commented on by, for example, Aleš Farda, Miroslav Trnka and Pavel Zahradníček from Czech Globe - the Global Change Research Institute of the CAS.
- In relation to the opening of the envelope with the alleged last words of Tomáš G. Masaryk, Dagmar Hájková from the Masaryk Institute and Archives appeared repeatedly in the media.
- Multiple media reports were issued on the continuing earthquakes in the Cheb region, with numerous commentaries by Jana Doubravová from the Institute of Geophysics.

Other media activities: Strategy AV21 and AVex expert opinions

Three AVex expert opinions were released in 2025: *Natural Reclamation of Mines and Quarries* written by Jan Frouz from the Biology Centre, *Water Resource Protection Zones in the Czech Republic: Why Are Current Practices Not Enough?* prepared by the Institute of State and Law and the Institute of Hydrology in collaboration with Tomáš Bata University, and *Natural Fires and Their Impacts on the Environment and Society* developed by the Institute of Botany.



Public outreach and education

The CAS Centre of Administration and Operations organises public outreach and educational activities for teachers and younger students. Key CAS science promotion events include the Science Fair, CAS Week and Brain Week, while educational activities include the Open

Science Student research internships, School of Czech Language and Literature, Science Summer Camp and the Summer School of Historical Sciences for teachers (discussed in the chapter on education).

Science Fair

The *Science Fair*, the largest public outreach event in the Czech Republic, took place from 5 to 7 June at the PVA EXPO PRAHA arena in Letňany. It featured 90 exhibitors (including 50 CAS institutes) with a total of 97 exhibits, as well as 16 discussion events in the Kepler Hall and 17 lectures at the Science Point. The 9th annual Science Fair in 2025 attracted approximately 50,000 visitors.



CAS Week

The *CAS Week festival* took place from 3 to 9 November 2025. Almost all of the CAS institutes participated in the festival, offering various activities for the public at different locations throughout the Czech Republic. Around 20,000 people visited or watched 350 events organised by 49 CAS institutes and seven research partners.



Brain Week

The 26th annual *Brain Week* festival highlighted the latest findings in brain research and neuroscience. The event, which is part of the international Brain Awareness Week initiative, took place from 10 to 16 March 2025. A total of 83 in-person Brain Week events were held, including 21 lectures at the CAS building in Prague and 62 accompanying events throughout the Czech Republic. The programme featured experts from CAS institutes and the clinical and application spheres. The 2025 Brain Week festival events drew over 6,500 visitors in all.



The Festival of Science and Technology in Brno

The Czech Academy of Sciences participated in the Festival of Science and Technology in Brno, a popular science event that showcases the work of academic, scientific, technical and educational institutions as well as private companies. The 9th annual *Festival of Science and Technology* took place from 5 to 7 September 2025 at the Brno Exhibition Centre. Thirteen CAS institutes participated in the festival, making it one of the most strongly represented institutions. According to the event organiser, over 15,000 visitors attended the show in 2025.

Photogenic Science

The 12th annual *Photogenic Science* photography competition was held in 2025. The purpose of the competition is to bridge the worlds of science and art and present the CAS scientific environment through original photos. Photogenic Science competition photos were featured in an exhibition at the Science and Art Gallery in the CAS building and in the Photogenic Science wall calendar. Altogether 81 employees from 26 CAS institutes participated in the competition, submitting a total of 238 photographs. In addition to the main Photogenic Science category, the 2025 competition included a secondary category called Scientists and a Sense of Humour. Many of the award-winning photographs are contained in this annual report.

Exhibitions at the Science and Art Gallery

In collaboration with the Institute of Physics of Materials, an exhibition called *Genius Material* was held at the Science and Art Gallery. The exhibition revealed the fascinating properties of materials that influence everyday life and technological development. It traced the development of materials from their historical origins to current applications in the medical, energy and aviation sectors. Interactive features enabled exhibition visitors to test the behaviour of materials under load, observe the photoelastic phenomenon, look into a microscope and explore composite materials inspired by nature.

In the autumn, an exhibition titled the Science in the Service of the Public was held in collaboration with 22 CAS institutes. It presented the key findings of

Strategy AV21 research programmes. The exhibition included five thematic areas spotlighting e.g. sustainable energy, hydrogen technologies, nuclear fusion, landscape restoration and urban transformation. An interactive digital exhibition showed how cutting-edge interdisciplinary research helps address current social and environmental challenges.

On Board with Science

In 2025, the On Board with Science popularisation project continued providing its acclaimed science lectures. The purpose of the project is to enable young talented scientists to make in-person visits to secondary schools and grammar schools across the country and lead online sessions with classes. The scientists also share their own professional journey, explaining what led them to their current scientific research at the Czech Academy of Sciences. In 2025, 39 lectures were held.

Science management education for CAS institute directors

This programme offers courses for directors of CAS institutes. It aims to provide education in areas that support their strategic, managerial and communication skills (scientific communication, science promotion, financial management, innovation and technology transfer, crisis management, ethics in science and research, international collaboration, etc.). It supports networking and sharing of experiences through spaces that connect scientists from different disciplines. This year, five gatherings took place in conference centres in Liblice and Třešt.

UNDistorted science

The tenth jubilee series of the *UNDistorted Science* popular science-educational animated series offered ten new episodes covering a broad spectrum of topics from the scientific world, such as nuclear fusion, floods, electricity, the establishment of Czechoslovakia, mushrooms, invasive species and artificial intelligence. Each episode was subtitled in both Czech and English, making the series accessible to international and hearing impaired audiences.

CAS Media

In 2025, four issues of the official quarterly journal of the CAS *A / Magazine* (formerly *A / Science and Research*) were published. Two issues of the popular science magazine *A / Easy* (formerly *AQ / Science for Everyone*) were also published. The theme of the spring issue was memory, while the fall issue focused on physical errors in films. The editorial team published the second English-language version of the official quarterly issue: *A / Magazine*.



News from events at the Czech Academy of Sciences and its institutes are regularly published on the website avcr.cz and social networks. Facebook remained the most followed social network (71,000 followers), followed by Instagram (28,000), LinkedIn (14,500) and Bluesky (more than 900), which has been operating since January 2025. Bluesky is the only academic social network to have

an English version. Since June 2025, the profile of the CAS President Radomír Pánek has been available on LinkedIn. The Czech Academy of Sciences consistently positions itself against the spread of disinformation and hate speech on the Internet, and therefore decided to leave the X platform (formerly Twitter) in September 2025, where it is no longer active.

The *A / Z Akademie* section on the CAS website and the internal CAS newsletter provided information about internal news and events to the staff of CAS institutes.

Audiovisual production

The Czech Academy of Sciences podcast won first place in the Fénix Awards competition (branded podcast category). Since September 2025, the CAS podcast has offered a new feature – video podcasts. They can be watched on the CAS YouTube channel. Some have almost 8,000 views.

In collaboration with CAS institutes, a number of spots promoting the research and discoveries of successful research teams were created in 2025: a video about hyperspectral cameras (in collaboration with the J. Heyrovský Institute of Physical Chemistry), a spot about water treatment (with the Institute of Hydrodynamics), two episodes on patient rights (with the Institute of State and Law), *Metal nonmetal* (with the Institute of Organic Chemistry and Biochemistry), *Rhino in the Library* (with the Library of the CAS and Institute of Art History) and *Water Jet* (with the Institute of Geonics). A pilot episode of a video version of an AVex expert opinion on GMOs was also filmed.

A 26-minute popular science documentary film on AI in the contemporary world was produced. We are standing on the threshold of profound technological changes. What impact do modern technologies have on us? The film was produced with the support of Strategy AV21 in collaboration with the Institute of State and Law.

The year 2025 marked 10 years since the release of the first popular science documentary film produced under the CAS brand. The 2025 Academia Film Olomouc Festival marked the occasion by hosting a retrospective evening during the festival featuring the most popular CAS films. After the screenings, a discussion was held with Václav Moravec and Adéla Gjuričová, which highlighted how CAS popular science documentary films benefit society and their important role in the cultivation of public space.



ACADEMIA
KNIHOVNA







PUBLICATIONS

The Czech Academy of Sciences supports the publication of selected scientific and popular science publications from all scientific disciplines through the Academia publishing house, which is part of the Centre of Administration and Operations, and other CAS institutes. Books by CAS scientists are also published by other prominent Czech and international publishing houses.

“By supporting the publication of high-quality publicly accessible scientific and popular science publications, the Czech Academy of Sciences helps disseminate scientific research findings and advance knowledge.”

The Czech Academy of Sciences supports the publication of books produced in relation to CAS institute research, including original scientific works, critical editions of important sources and significant commemorative works, original popular science publications with a major share of CAS research findings and translations of important scientific and popular science works.

In 2025, based on recommendations from the Committee for the Support of CAS Publishing Activities, the Czech Academy of Sciences supported publishing at the following 12 CAS institutes: the Institute of Archaeology, Brno, Institute of Archaeology, Prague, Institute of Philosophy, Institute of History, Masaryk Institute and Archives, Library of the CAS, Institute of Slavonic Studies, Institute of Art History, Institute of Czech Literature, Institute of Contemporary History, Institute of State and Law, and the Centre of Administration and Operations (Academia Publishing House).

Support totalling CZK 20.9 million enabled publication of 94 books in 2025, including 57 published by the Academia Publishing House and 37 by other CAS institutes, in some cases in co-editions with other publishers. Another 129 books were prepared for publication with CAS support and will be released in 2026.

In 2025, the Publishing Support Programme supported the publication of notable scientific works including: the chronologically first volume of the long-awaited four-volume synthesis *History of the Communist Party of Czechoslovakia* (Academia) by Jiří Kocian, Pavel Marek and Jakub Rákosník, which details the beginnings of the Czechoslovak Communist Party and its progress until the beginning of World War II; a collective monograph by editors Přemysl Houda, Miroslav Filip and Matouš Pilnáček titled *Between Solidarity and Disappointment. The Czech Republic in the Covid and Post-Covid Eras* (Institute for Contemporary History), which examines what Czech institutions' and individuals' reactions to the pandemic reveal about how they function; a critical edition of Ludvík Vaculík's diary novel *The Czech Dream Book* with an accompanying volume of comments and contemporary reviews in the prestigious Czech Library series (Institute of Czech Literature); an atlas edited by Jana Navrátilová, Kateřina Šumberová, Andrea Kučerová and Jan Květ called *Aquatic and Wetland Plants of the Czech Republic* (Academia) intended for a wide range of readers, including professional and amateur conservationists; a monograph titled *Introduction to Platonic Studies. Methodology, Perspectives, Direction*



History of the Communist Party of Czechoslovakia I (1921–1939)
Jiří Kocian, Pavel Marek and Jakub Rákosník



Ludvík Vaculík: The Czech Dream Book, Comments and Reviews on The Czech Dream Book
Petr Šámal, Daniela Iwashita, Michal Kosák and Hana Kosáková (eds.)



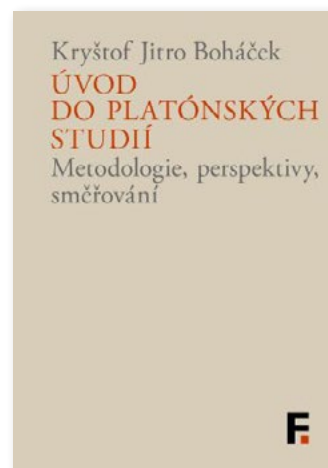
Between Solidarity and Disappointment. The Czech Republic in the Covid and Post-Covid Eras
Přemysl Houda, Miroslav Filip and Matouš Pilnáček (eds.)



On the Periphery of the World of Vikings and Varangians
Pavel Kouřil et al.



Holocaust Monuments and Memorials in Central Europe
Eva Janáčková (ed.)



Introduction to Platonic Studies. Methodology, Perspectives, Direction
Kryštof Jitro Boháček



Aquatic and Wetland Plants of the Czech Republic
Jana Navrátilová,
Kateřina Šumberová,
Andrea Kučerová and Jan Květ (eds.)



Magazine Živa

(Institute of Philosophy), in which Kryštof Jitro Boháček presents a comprehensive overview of Platonic research from the end of the 17th century to current trends and proposes his own approach to Platonic interpretation; a monograph by Pavel Kouřil et al. titled *On the Periphery of the World of Vikings and Varangians* (Institute of Archaeology, Brno), which presents completely new information about the role of foreign early medieval elites in the development of the country, illustrated through the example of Silesia and Moravia in the 10th and 11th centuries; a collective monograph by editor Eva Janáčková titled *Holocaust Monuments and Memorials in Central Europe* (Academia; Institute of Art History), which presents Czech readers with the historical and

art history context of the emergence of commemorative places and their role in the formation of Jewish and Romani identity.

The Academia Publishing House is the largest CAS publishing house and has long held a leading position among Czech publishers. It publishes works from all scientific fields. It also publishes the popular science journal *Živa* and the professional journal *Cybernetics*. In 2025, the Academia Publishing House published a total of 104 books, including 12 reprints, six new brochures and three reprints in the Science Around Us series and two new brochures and five reprints in the Strategy AV21 series. The Strategy AV21 programme supported the publication of five monographs.





COOPERATION WITH SCIENTIFIC ORGANISATIONS

The Czech Academy of Sciences is a long-standing supporter of the activities of scientific societies in the Czech Republic. Scientific societies link renowned experts from universities, the Czech Academy of Sciences and ministerial research institutes, as well as students and other individuals interested in the given scientific disciplines. Many scientific societies are interdisciplinary in nature and some focus on specific disciplines that are not represented in academic or other scientific institutions. Most of the societies are members of international associations in their field that operate on a global or European level.

“The Czech Academy of Sciences supports the activities of scientific societies, including the Learned Society of the Czech Republic and scientific societies associated in the Council of Scientific Societies of the Czech Republic. In 2025, the CAS supported 124 projects in collaboration with the Council of Scientific Societies.”

The CAS provides systematic, long-term support to scientific societies associated in the **Council of Scientific Societies of the Czech Republic** (hereinafter the CSS). Since 2019, the CSS has operated as a registered association. It brings together 93 scientific societies that have more than 28,900 members. In 2025, the Czech Bat Conservation Society and the Theatre Research Society were admitted as new members. Through the CSS, the CAS supported membership in 73 international scientific societies.

In 2025, the societies published a total of 31 internationally noted journals, e.g. *Preslia*, *Fottea*, *Plant Protection Science*, *Journal of Geosciences*, *Geography* and *Chemické listy* (*Chemical Sheets*) as well as 36 national professional journals, 12 web-based journals and 38 bulletins or newsletters. Scientific societies published a total of 21 books in 2025, including *Milan Hlavačka, Das goldene Zeitalter der tschechischen Selbstverwaltung 1848–1918* (The Golden Age of Czech Self-Government 1848–1918) and *Pavel Šturma, Zuzana Trávníčková (eds.), International Justice: New Tasks and Challenges*.

Special activities to commemorate the CSS' 35th anniversary in 2025 included participation in the Science Fair (14 societies associated within the CSS participated in activities at the CSS stand, where the programming of the Czech Speleological Society and the Czech Geological Society drew the most visitors), as well as the release of a commemorative publication titled *35 Years of the Council of Scientific Societies* (the first publication summarising 35 years of the CSS, representing more than 70 scientific societies' activities) and participation in CAS Week.

Scientific societies organised 320 international and national convenings and conferences, such as the: European Conference on African Studies ECAS 2025 *African, Afropean, and Afropolitan Belongings and Identities* (1,500 participants, Prague), *International Category Theory Conference CT2025* (Brno), *21st International Conference on Polysaccharides and Glycoscience* and *Weaponized Psychology: From Serving the Russian Regime to Coerced Adoption of*

Ukrainian Children, *21st Discussions in Structural Molecular Biology* and *8th User Meeting of CIISB*, *18th Biochemical Congress with international guests*, and the *54th Jírovec's Protozoological Days*.

Scientific societies support teaching in all types of schools through regular mathematical, chemical, geographical, natural science and astronomical knowledge competitions, didactic publications (*Mathematics Teacher*, *Mathematical-Physical Perspectives*, *Advances in Mathematics*, *Physics*, and *Astronomy* and others), specialised field courses for high school and university students and teachers, lecturing and science promotion (780 lectures were held in 2025, which was a sizable increase from 450 in 2024), e.g. *Chemistry at the Silesian Ostrava Castle*, *The Ornithologist on the Line* and *Experts for schools*.

Records of all activities of scientific societies associated with the CSS are available in the database rvs.paleontologie.cz, which is accessible from the new website of the Council of Scientific Societies www.rvscr.cz, launched during 2025. A total of 1,936 records of distinct events were entered into this database in 2025.

The Learned Society of the Czech Republic (hereinafter the Society) connects prominent scientists from all disciplines. Its goals are to encourage freedom in the cultivation of science in all its manifestations, foster a drive for knowledge and joy from the quest for knowledge, disseminate scientific findings among the public, help improve educational quality and support development of a creative, rational and humanely responsible environment in Czech society.

The Chairman of the Society is Prof. RNDr. Martin Loebl, CSc. The Society had 108 regular fellows, 48 international fellows and 14 emeritus fellows at the end of 2025. The Society held lectures on current scientific and educational issues and organised 12 lectures at regular plenary sessions open to the public. It also held two off-site convenings, the first in cooperation with the



University of Pardubice, at which six lectures were given, and the second in cooperation with Masaryk University in Brno on the topic of Beautiful Societal Machines, at which five lectures were given.

In 2025, a new project was launched: Learned Society masterclasses, which are off- and online lectures for high school students and the general public. In 2025, two masterclasses were developed. They were prepared by two members of the Learned Society, namely Prof. RNDr. Petr Slavíček, Ph.D. (University of Technology, Prague) and Prof. RNDr. Julius Lukeš, CSc. (Biology Centre of the CAS).

The most important awards presented by the Learned Society of the Czech Republic are the medals *Societas Scientarium Bohemica* and *Ad Laudem et Honorem* for contributions to the development of science, which were bestowed upon five award-winners during the 31st General Assembly of the Learned Society on 19 May 2025. The Learned Society also awarded one prize in the “scientific researcher” category and two prizes in the “Junior scientific researcher” category. It also recognised two teachers for promoting interest in science and research in primary and secondary schools, awarded 13 prizes for secondary school students, two Jiřina Michlová prizes for doctoral students, the “Via Chimica” Prize awarded jointly by the Learned Society of the Czech Republic and the Experientia Foundation, and the Climate Change Communication Prize of the Learned Society of the Czech Republic and the UN Information Centre in Prague.

The Society’s website at www.learned.cz and its Facebook, X and YouTube channels provide information about the activities of the Society and of its members. Lectures or lecture presentations, as well as statements by the Society on current scientific and public issues, are also posted on the website. The Learned Society cooperated with the Czech Academy of Sciences, Charles University, Masaryk University, Institute of Chemical Technology in Prague, Experientia Foundation, UN Information Centre in Prague, IOCB Tech Foundation, Czech Centre of the International PEN Club and other organisations.

T. G. Masaryk Institute

In 2025, there was a significant change in the financing of the T. G. Masaryk Institute, o. p. s. (hereinafter TGMI), which, based on a government decision, is now

financed through the CAS budget chapter. Several donations were also obtained in 2025 (from the National Museum Society, Jaroslav Krejčí Foundation and the Czech Literary Fund Foundation).

The TGMI manages the archives of T. G. Masaryk, Edvard Beneš, the personal archives of their co-workers and family members, and the T. G. Masaryk Library. In 2025, the cataloguing of T. G. Masaryk’s personal archive and the digitisation of the Masaryk photo archive continued. T. G. Masaryk’s correspondence was acquired and restored.

As part of the management of the T. G. Masaryk Library, the cataloguing of the TGM professorial library continued during 2025, with ongoing addition of records to the Union Catalogue of the Czech Republic, which is managed by the National Library. The TGMI also participated in the CAS Week festival.

In 2025, preparations were completed for the publication of the last (40th) volume of the TGM editorial series, which will be the general index to the entire series, and for the editorial processing of František Palacký’s diaries, which will be published in 2026 on the anniversary of his death. Several lectures were held in collaboration with the Masaryk Society.





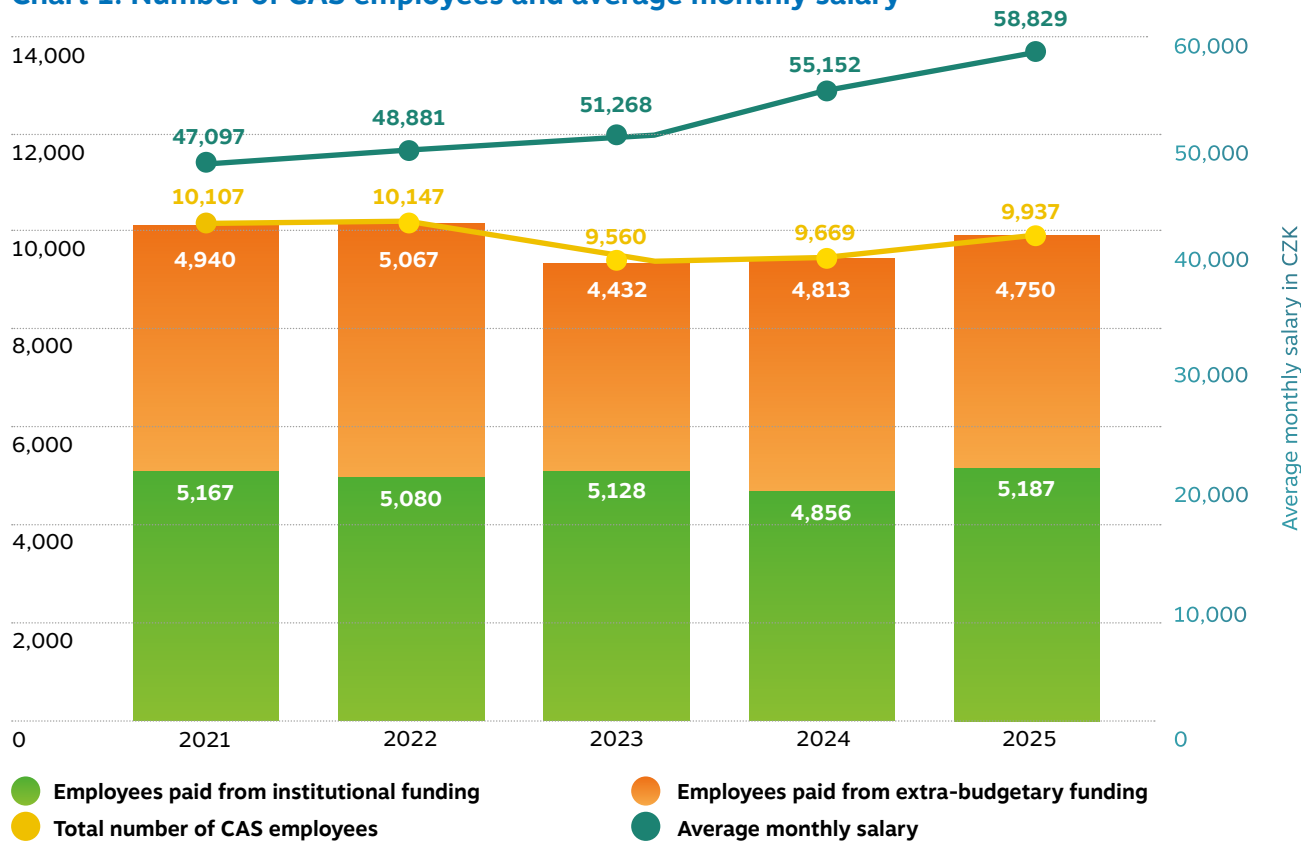


EMPLOYEES AND SALARIES

The total number of CAS employees (listed as the average number of employees calculated in Full Time Equivalent – FTE) increased year-on-year from 9,669 in 2024 to 9,937 in 2025. A total of 4,750 employees are paid through extra-budgetary allocations, which equalled 47.10% in 2025 compared to 49.78% in 2024. The number of research institute employees with university degrees who have passed arduous attestations pursuant to the Career Development Rules for CAS Employees with a University Degree and have been classified in the relevant qualification levels grew year-on-year from 5,978 to 6,165.

The Czech Academy of Sciences and its institutes expended a total of CZK 7,014,867 on salaries and wages and CZK 169,566,000 for other payments for work (OON). The total average monthly salary at the CAS was CZK 58,829 with year-on-year growth of 6.67% from 2024.

Chart 1: Number of CAS employees and average monthly salary



The following table provides a more detailed look at the number of CAS employees categorised into employees of the CAS Head Office and employees of all CAS research institutes.

Table 2: Number of CAS employees (FTE)

Year	2021	2022	2023	2024	2025
CAS public research institutions	10,037	10,080	9,494	9,601	9,868
CAS Head Office	70	67	66	68	69
CAS TOTAL	10,107	10,147	9,560	9,669	9,937

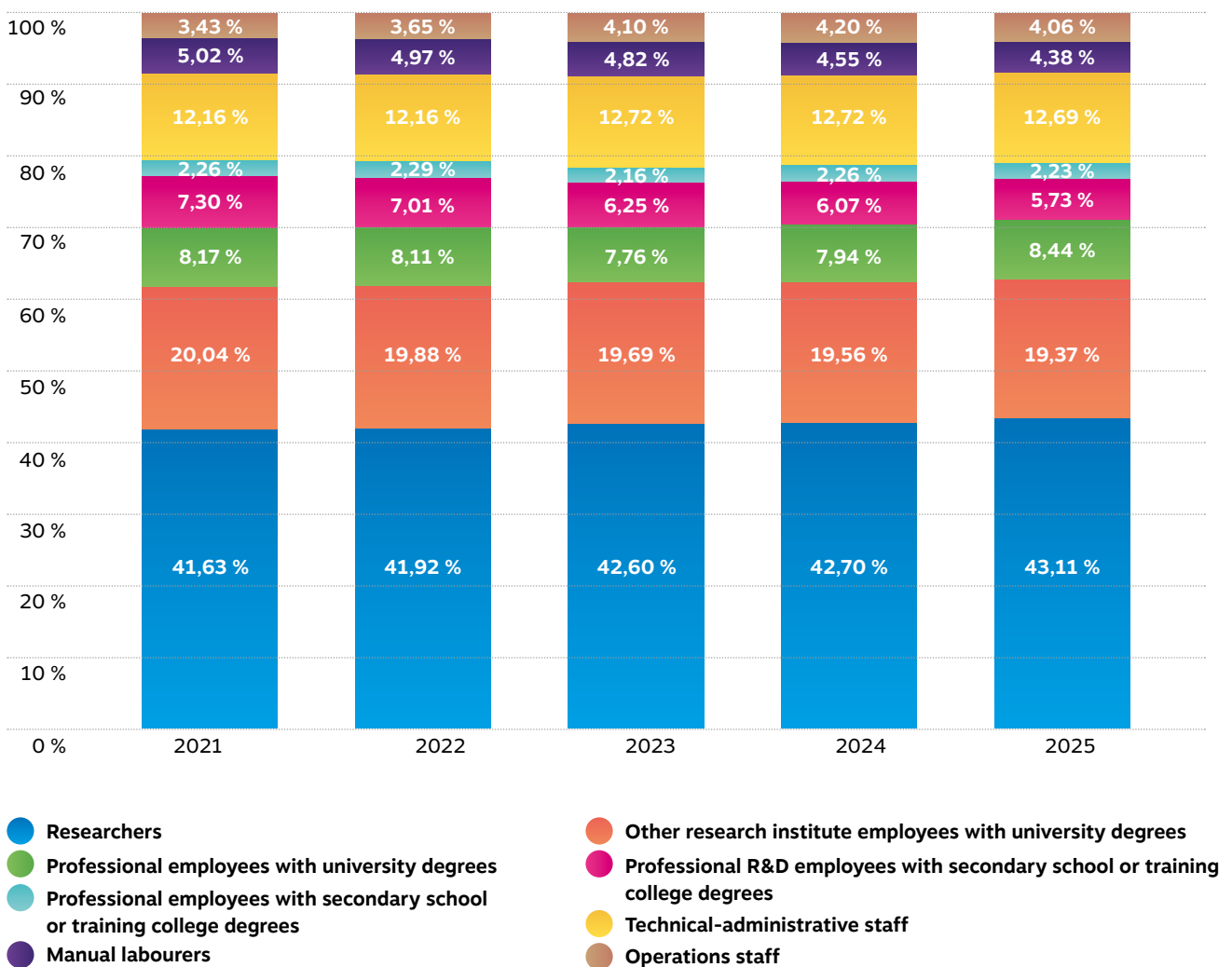
At the CAS Head Office, CZK 57,276,072 was expended for 68.69 employees recalculated as average FTE (of which CZK 46,488,964 for salaries and CZK 10,787,108 for other payments for work performed). Unused funds of CZK 52,459 (of which CZK 6,004 for salaries and CZK 46,455 for other payments for work performed) were transferred to claims from unspent expenditures to 2026. The average monthly salary of CAS Head Office employees in 2025 was CZK 56,399.

In 2025, the total expended for 9,868 employees in all CAS institutes (public research institutions) was CZK 6,968,378 for salaries and CZK 158,779,000 for other payments for work performed. The average monthly salary of employees of CAS public research institutions equalled CZK 58,846.

The table below provides a more detailed look at average monthly salaries at public research institutions (including all funding sources – institutional and extra-budgetary) for each employee category.

Table 3: Number of employees and average monthly salary per category for 2025

Category	Average recalculated number of employees	Average monthly salary in CZK
Researchers	4,254	72,014
Other research institute employees with university degrees	1,911	45,770
Professional employees with university degrees	833	56,731
Professional employees with secondary school/training college degrees	565	44,340
Professional R&D employees with secondary school/training college degrees	220	44,462
Technical and administrative staff	1,252	60,144
Manual labourers	432	35,730
Operations staff	401	35,039
Total	9,868	58,846

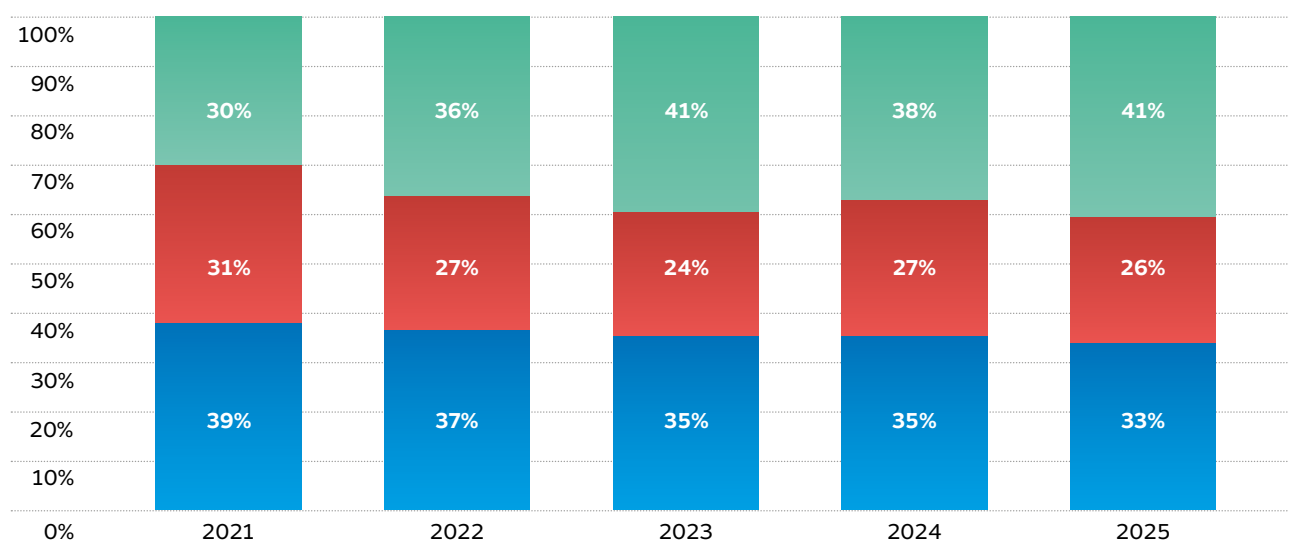
Chart 2: CAS research institute employee categories





FINANCIAL SOURCES AND THEIR USE

In 2025, the Czech Academy of Sciences managed a total of CZK 23,409.93 million, of which CZK 7,717.15 million came from the CAS chapter in the state budget (SB). The funding from the state budget CAS chapter equalled 33% of the CAS' total financial resources in 2025.

Chart 3: CAS Financial resources (in %)

● SB (CAS chapter in state budget) ● SB (resources from other chapters including OP) ● CAS institutes' own resources

Financial resources (for the entire CAS) originating from the CAS budget chapter, grants from other budget chapters and the CAS' own resources are summarised in the following table.

Table 4: Structure of financial resources (actual) in mil. CZK

Type of expenditure	Non-investment resources	Investment resources	Total
Resources from the CAS budget chapter	6,321.35	1,395.80	7,717.15
Grants from other budget chapters	5,338.99	856.53	6,195.52
GA CR projects	1,782.66	5.82	
TA CR projects	597.94	0.00	
Operational programmes	1,340.82	707.46	
Projects managed by other ministries	1,367.70	137.43	
Foreign providers	249.87	5.82	
CAS institutes' own resources	9,497.26		9,497.26
Revenue	4,432.06		
of which: Publication sales	89.72		
Conference fees	27.16		
Licenses	3,547.35		
Commissions related to main activity	767.83		
Other income	730.15		
Other income (fines, penalties, written-off receivables)	88.15		
Interest	302.49		
Exchange rate gains	339.51		
Settlement of funds	785.49		
Reserve Fund (RF)	25.23		
Asset Replacement Fund (ARF)	0.69		
Fund for purpose-bound resources	687.40		
Purpose-bound resources from abroad and monetary donations	340.36		
Social Fund (SF)	72.17		
Other income	1,752.64		
(excluding depreciation of assets acquired from grants)			
Proceeds from the sale of assets, securities, shares and materials	1 796.53		
Contributions received	0,39		
Total resources	21,157.60	2,252.33	23,409.93

As of 31.12.2025, CAS institutes had a gain of CZK 3,316.24 million. Income of CAS institutes totalled CZK 21,157.47 million (including depreciation of assets acquired from grants equalling CZK 1,462.41 million). The total expenditures of CAS institutes amounted to CZK 17,841.23 million. A detailed breakdown of the expenditures of CAS institutes is provided in the following table.

Table 5. Structure of non-investment expenditures of CAS institutes (in mil. CZK)

Type of expenditure	2024	2025	Coefficient
Purchase of materials (small tangible assets, purchase of other materials)	1,183.69	1,238.50	1.05
Purchase of power and water	564.29	502.50	0.89
Goods sold	45.40	40.24	0.89
Repairs and maintenance	288.91	286.32	0.99
Travel expenses	264.82	287.33	1.09
Purchase of services (representation costs, technical improvements to small intangible assets, postage, telephone and internet services, purchase of small intangible assets, rent, IT services, guest staff living expenses, conference fees and training, other services)	2,681.69	1,615.68	0.60
Personnel costs	8,729.23	9,557.92	1.09
Statutory social costs	248.45	249.32	1.00
Other social costs	45.88	72.36	1.58
Taxes and fees	12.00	13.92	1.16
Other costs (insurance, other operating costs, Fund for purpose-bound resources, fines, losses, damages, interest, write-off of receivables, donations, etc.)	470.45	474.27	1.01
Exchange rate losses	117.84	550.00	4.67
Depreciation and amortised cost of fixed assets sold	1,688.89	1,788.02	1.06
Securities and shares (sale of)	0.00	1,284.76	0.00
Material sold	0.00	0.94	0.00
Creation and use of provisions and allowances	16.51	-17.33	-1.05
Inventory change - own performance	-3.12	-42.23	13.54
Activation of material, goods, services and property	-77.14	-81.49	1.06
Grants provided	3.12	3.93	1.26
Corporate income tax	610.97	16.28	0.03
CAS institutes expended a total of	16,891.88	17,841.24	1.06

The main sources of investment funding are institutional and targeted grants from the state budget and foreign grants. These funds are used primarily to acquire or improve buildings and equipment, or to maintain and repair buildings and equipment.

Table 6. Investment resources of CAS institutes (in mil. CZK)

Type of expenditure	2024	2025	Coefficient
Resources from the CAS chapter of the state budget	1,573.2	1,395.8	0.89
Resources from other ministries, including operational programmes	926.1	855.9	0.92
Depreciation	255.4	251.0	0.98
Revenue from sale of fixed assets	2.3	37.4	16.26
Other	105.4	96.3	0.91
Total	2,862.4	2,636.4	0.92

Table 7: Use of investment resources by CAS institutes (in mil. CZK)

Type of expenditure	2024	2025	Coefficient
Funding of construction	1,015.3	778.9	0.77
Acquisition of instruments and equipment	1,610.4	1,973.7	1.23
Maintenance and repairs	5.1	20.3	3.98
Other	126.2	140.3	1.11
Total	2,757.0	2,913.2	1.06

Resource generation in 2025 equalled CZK 2,636.4 million and CAS institutes used a total of CZK 2,913.2 million. The difference in the use of investment funds and the resources of CAS institutes, amounting to CZK 276.8 million, was covered by the use of CAS institutes' resources from previous years.

Note: Given the date of this annual report, all financial data related to the operations of CAS institutes (public research institutions) are preliminary. The financial statements of CAS institutes are subject to a mandatory audit.

Projects from Operational Programmes of EU Structural Funds

In 2025, CAS institutes took part in projects under operational programmes co-financed by the European Structural and Investment Funds in the 2021–2027 programming period. Most were projects supported by the Jan Amos Komenský Operational Programme (OP JAK) managed by the Ministry of Education, Youth and Sports. Table 8 provides an overview of CAS institutes' participation in projects during the 2021–2027 programming period, categorised by operational programme.

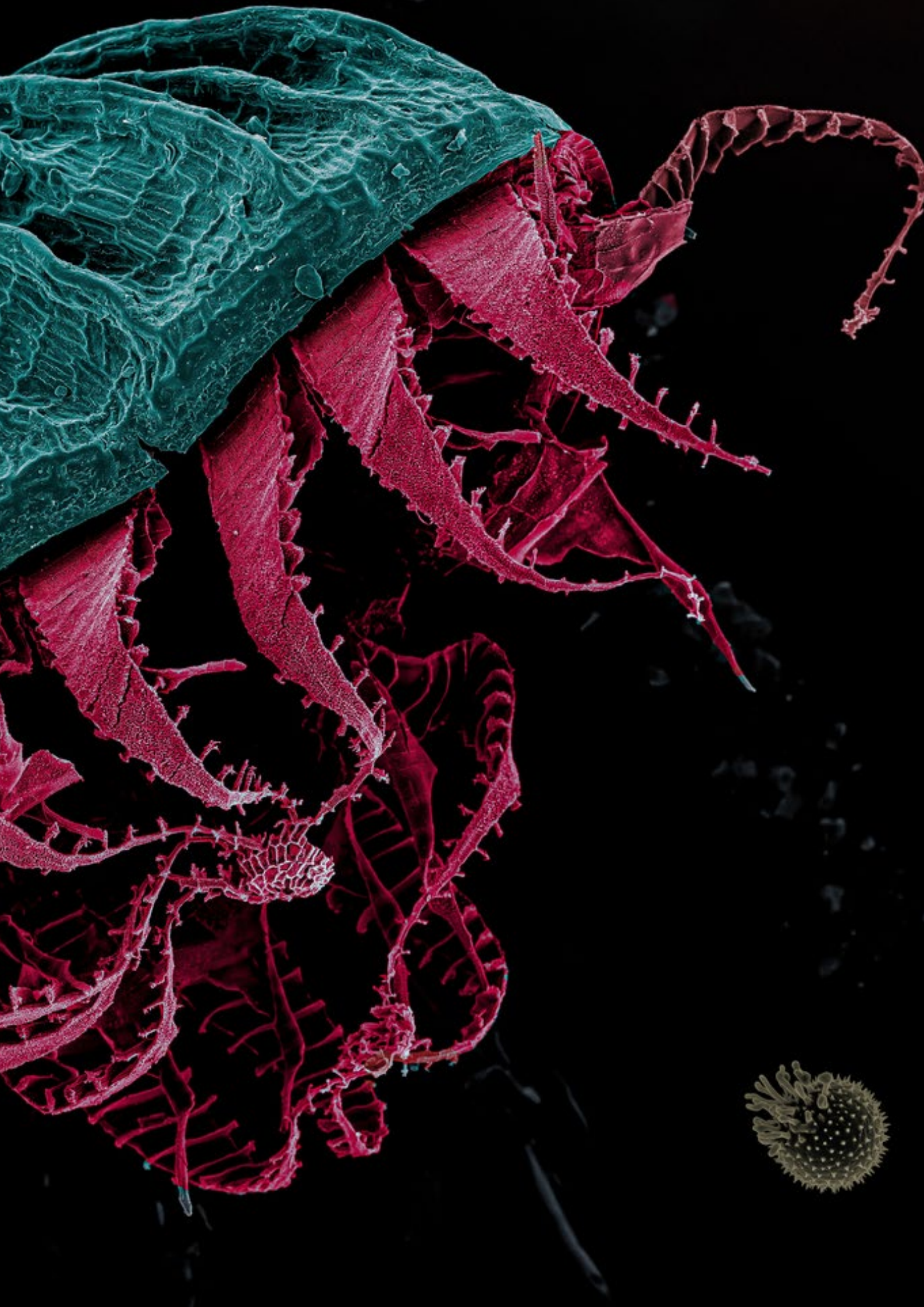
Table 8: Operational programme projects launched in 2025

Beneficiary coordinator	Project	Total approved project support in thousands of CZK
Integrated Regional Operational Programme		
Institute of Botany	Průhonice Park – Restoration, development and revitalisation of UNESCO monument II	19,767
Interreg V-A Austria – Czech Republic		
Biology Centre	AT-CZ OPEN LABS Brno – České Budějovice – Linz – Vienna	25,959
Biology Centre	Bioinsecticides for controlling insect pest populations	12,427
Biology Centre	Nanoparticles for precision medicine	4,305
Institute of Microbiology	Use of sustainable biotechnology in the agricultural and food sectors	8,812
Interreg V-A Slovakia - Czech Republic		
Institute of Vertebrate Biology	Wildcat – a flagship species for biodiversity conservation	16,364
OP Jan Amos Komenský		
Institute of Archaeology	Possibilities and implications of radiocarbon dating of masonry structures	6,713
Institute of Archaeology	The Land Gone Wild: Archaeology and Transdisciplinary Research of Resilience Strategies in the 20th Century	145,835
Astronomical Institute	Strategic development of the Astronomical Institute research environment	33,539
Biology Centre	Biology of hyaluronic acid	99,959
Biology Centre	iBEE – Intelligent beekeeping: Modern biotechnologies for healthy bees	20,460
Biology Centre	MSCA Fellowships – EUROTALENTS	11,342
Biology Centre	PF 2025	20,182
Biology Centre	SUNAL – Using machine learning and nanotechnology in forestry	28,000
Biology Centre	VISION – Research and innovation environment enhancing excellence at the Biology Centre	42,455
Institute of Biotechnology	MSCA Fellowships CZ – Institute of Biotechnology	3,533
Institute of Botany	EXPLANT. International research excellence in the underground life of plants	14,321
Economics Institute	New technologies and changes in education, research and the labour market	146,579
Institute of Philosophy	ArchConcepts	3,904
Institute of Philosophy	Supporting excellent research: Strategic management, professional growth of employees and institutional resilience at the Institute of Philosophy	32,290
Institute of Philosophy	Politics in the Holistic Thinking of Jan Amos Komenský	5,408
Institute of Philosophy	Knowledge in an Age of Mistrust	148,928

Institute of Physics	MSCA Fellowships CZ Institute of Physics IV	24,101
Institute of Microbiology	Microorganisms in ecological restoration – bacteria as cellular factories for controlled bioremediation of ecosystems	99,943
Oriental Institute	Development of the research environment and capacities at the Oriental Institute	37,498
Institute of Psychology	NEXT towards excellence: connecting cutting-edge research with strategic development	35,828
Institute of Psychology	Mediated society	148,729
Institute of Czech Literature	Migration and us: Mobility, refugees and borders in a humanities perspective	145,405
Institute of Experimental Botany	Back2Science	47,334
Institute of Experimental Botany	Work-life balance at the Institute of Experimental Botany	5,492
Institute of Experimental Botany	Innovation and education for the transformation of the research environment at the Institute of Experimental Botany (INOVATE)	24,671
Institute of Experimental Botany	SMART plant biotechnology for sustainable agriculture	92,618
Institute of Photonics and Electronics	TeraProChips: SubTHz metamaterial microfluidic chips with strong interaction with protein nanodevices	3,904
Institute of Photonics and Electronics	Improving the research environment at the Institute of Photonics and Electronics – HR Award	14,971
J. Heyrovský Institute of Physical Chemistry	Supporting mobility in the field of nanoparticles and radiosensitizers (NanoMove)	9,763
Institute of Physics of Materials	Multi-wavelength-sensitive binary TiO ₂ /ZnO mesocrystal for photocatalytic degradation of microplastics	4,510
Institute of Physics of Materials	Partnership for Safety in Sustainable Transport and Energy	99,729
Institute of Plasma Physics	Strategic development and management for excellent research at the Institute of Plasma Physics	60,916
Institute of Chemical Process Fundamentals	HR AWARD Institute of Chemical Process Fundamentals	51,867
Institute of Chemical Process Fundamentals	Institute of Chemical Process Fundamentals Return grants	42,643
Institute of Computer Science	MSCA Fellowships at ICS	9,391
Institute of Analytical Chemistry	Advanced Techniques for Biomedical Diagnostics (ATEBIO)	98,509
Institute of Nuclear Physics	STAR: Strategic development of the environment and capacities for excellent research and development at the Institute of Nuclear Physics	29,743
Institute of Macromolecular Chemistry	Preparation of nanofibrous membranes for use in tissue engineering	4,510
Institute of Organic Chemistry and Biochemistry	ComeBack: Back to science	22,407
Institute of Contemporary History	Urbanity: Inequality, adaptation and urban public space in historical perspective	144,204
Institute of Thermomechanics	Improving the quality of strategic research management at the Institute of Thermomechanics	10,469
Institute of Theoretical and Applied Mechanics	Innovative methods of material diagnostics and monitoring of engineering infrastructure to increase its durability and service life	99,617
OP Employment		
Institute of Experimental Botany	Work-life balance at the Institute of Experimental Botany	5,492









THE CZECH ACADEMY OF SCIENCES IN THE SYSTEM OF RESEARCH, DEVELOPMENT AND INNOVATION

The Czech Academy of Sciences (CAS) is part of a Czech tradition of scientific institutions that dates back almost 300 years, which began with the founding of the first enlightenment society, *Societas incognitorum*, in Olomouc (1746), continued with the Prague-based Private Society of Sciences (1769), which was the basis for the Royal Czech Society of Sciences (1784), and led finally to the founding of the Emperor Franz Josef Czech Academy for Science, Literature and Art (1890–1952), the direct predecessor of the contemporary CAS.

In 2025, the Czech Academy of Sciences continued to engage in research and educational, popularisation and cultural work. Despite unexpected budget cuts during the year, the CAS continued to maintain its position as the highest-performing Czech scientific research institution, making numerous valuable contributions to society. According to data from the Research, Development and Innovation Council (R&D&I Council) for 2018–2024, the CAS produced on average 35% of excellent scientific findings in the Czech Republic per Methodology M17+, even though the CAS has less than 12% of the country's full-time equivalent research staff. Thus, although the CAS encompasses only part of Czech research capacity, it has long been the most effective generator of important research findings in the Czech Republic and the institution with the most fruitful outcomes in the transfer of scientific knowledge into practice.

The CAS dedicated significant efforts to supporting education and advancing partnerships with universities. Systemic linkages were considerably strengthened between the CAS and universities, including the renewal of communication with the Czech Rectors Conference and the Council of Universities. The newly appointed Council for Cooperation with Higher Education Institutions and the Preparation of the Scientific Employees of the CAS focused on developing collaborative ties in relation to doctoral programmes, shared infrastructure and talent support. Consequently, additional representatives from universities and the Council of Universities were added as new members to the Council. This composition will enable closer ties with the academic community and streamline coordination of changes resulting from the amendment to the Higher Education Act, particularly in terms of contractual relationships, financing of doctoral students and alignment of guiding and legal frameworks. During the year, two new partnership agreements were concluded with the University of South Bohemia and the Brno University of Technology, along with two amendments to existing agreements with Charles University and Palacký University in Olomouc, and three memorandums of cooperation with the University of Ostrava and Masaryk University. At the end of the year, the current needs of CAS institutes were mapped to inform the development of the CAS strategy for cooperation with universities in 2026.

In its collaboration with the business sector, the CAS continued supporting knowledge and technology

transfer to practice, and creating a suitable organisational and legal environment. The CAS' transfer efforts were advanced primarily through the Programme for Application Development and Commercialisation (PADC), which is administered by the Technology Transfer Office (TTO). To date, the Academy Council has supported 60 technology transfer projects and the establishment of five spin-off companies at CAS institutes, and more are in development. Another sign of the growing importance of technology and knowledge transfer is the initiation of steps to establish a joint-stock company wholly owned by CAS institutes, whose task will be to further strengthen the commercialisation of research. The CAS also developed a strategic dialogue with businesses to support their engagement in the formulation of research and transfer priorities. Cooperation with the Confederation of Industry and Transport of the Czech Republic, which is a key partner for effective linkages between science and practice, played a significant role in this regard. The CAS' objective is to further streamline implementation and commercialisation of research findings, and thus support development of disciplines with a high added value of knowledge and highly qualified human resources in the Czech economy.

In interdisciplinary and interinstitutional collaboration, the CAS used the full potential of Strategy AV21 programmes, which focus on multidisciplinary solutions to socially relevant topics. Strategy AV21 programmes have gained extraordinary acclaim in the political sphere, business sector and the broader public. CAS institutes forged fruitful collaborative ties based on Strategy AV21 programmes with many academic, business and public entities and further strengthened their engagement in grant and international scientific partnerships. Strategy AV21 research programmes also became more closely linked to existing national strategies, primarily to the Innovation Strategy of the Czech Republic 2019–2030, National RIS3 Strategy, National Research, Development and Innovation Policy of the Czech Republic 2021+ (NRDIP 2021+). These steps further reinforced the importance of Strategy AV21 as an effective framework that connects the research, application and public spheres.

These efforts included the continuation of activities supporting public policies – the CAS further developed cooperation with both chambers of the Parliament of the Czech Republic and with the Government of the Czech Republic. The aim is to provide Parliament, the Government and other state and regional administrative



authorities with qualified expertise to improve the quality of decision-making processes. In this context, 2025 saw the establishment of the Science4Policy initiative, which builds on AVex expert opinions, creating a comprehensive framework for the systematic provision of analyses, expertise and recommendations for the needs of state administration and other public

institutions. This initiative fortifies the role of the Czech Academy of Sciences as an important partner of public administration.

Through these efforts, the CAS further reinforced its role as an institution that produces leading scientific findings and also actively contributes to the development of Czech society and culture.







ORGANIZATIONAL MEASURES

On 24 March 2025, Prof. Eva Zažímalová's second four-year term of office as CAS President and as a member of the CAS Academy Council and the CAS Science Council ended. On 13 March 2025, the President of the Czech Republic appointed Prof. Radomír Pánek as the new CAS President for the 2025–2029 term of office, effective 25 March 2025. At its 65th session held on 18 March 2025, the CAS Academy Assembly elected members of the CAS Academy Council and the CAS Science Council for the term of office 2025–2029 through secret ballot voting

Per rollam voting and sessions of the CAS Academy Assembly in 2025

In 2025, two regular sessions of the highest body of the Czech Academy of Sciences – the Academy Assembly of the Czech Academy of Sciences (hereinafter referred to as the Academy Assembly) – and one per rollam vote of the Academy Assembly took place.

Per rollam voting of the CAS Academy Assembly no. 6

On 5–7 March 2025, the sixth per rollam vote of the Academy Assembly took place, in which the Academy Assembly, in accordance with the Rules of Procedure and Election of the Academy Assembly of the CAS for the 2022–2026 term of office, approved the programme of the 65th session of the Academy Assembly, proposals for specifying secret ballot voting procedures to elect members to the CAS Academy Council and to the CAS Science Council for the 2025–2029 term of office, and added to the composition of two working committees of the Academy Assembly, namely the mandate and election committees, for the remainder of the 2022–2026 term of office.

Selected resolutions of the CAS Academy Assembly in 2025

The 65th session of the CAS Academy Assembly was the body's sixth session in the ninth term of office of 2022–2026. 238 Academy Assembly members (86%) took part in the session, which was held on 18 March 2025 at the National House Vinohrady. The Academy Assembly approved all submitted materials, including the 2024 Annual Report of the Czech Academy of Sciences, 2024 CAS financial report, an excerpt from the 2024 CAS final financial statement, and the Report of the CAS Science Council for the 2021–2025 term of office.

The 66th session of the CAS Academy Assembly was the body's seventh session in the ninth term of office of 2022–2026. The session, held on 9 December 2025 at the National House Vinohrady, was attended by 211 Academy Assembly members (77%). The Academy Assembly approved all submitted materials, including the 2025 CAS financial report and draft 2026 CAS budget.

In addition, the Academy Assembly in point II resolution 1) took note of the information provided by CAS President Prof. Radomír Pánek on the status of the

preparation of the state budget for research, experimental development and innovation (R&D&I) for 2026–2028, 2) expressed disagreement with the proposed budget for Chapter 361 – CAS for 2026 and with the planned decrease in the medium-term outlook for 2027–2028; and stated that the decision to reduce the statutory expenditures for 2025 for this chapter and other R&D&I entities was made without proper justification of the specific changes, 3) appealed to the incoming government of the Czech Republic to ensure that, by the end of its term of office, it increases the share of state budget expenditures on R&D&I in relation to GDP at least to the level of the EU27 average, which was 0.73% of GDP in 2020–2024, and 4) expressed full support for CAS President Prof. Radomír Pánek in negotiations with the Prime Minister and members of the incoming government of the Czech Republic on essential issues of Czech science policy.

Election of members of the CAS Academy Council and CAS Science Council

The agenda of the 65th session of the Academy Assembly included secret ballot voting to elect members of the CAS Academy Council and the CAS Science Council for the 2025–2029 term of office. Both elections were carried out smoothly via the CAS election application without any technical issues. A total of 15 Academy Council members were elected in the secret ballot voting, including 5 members from the physical sciences, 6 from life and chemical sciences, and 4 members from the humanities and social sciences. Thirty members were elected to the Science Council, including 21 internal members (7 from the physical sciences, 7 from life and chemical sciences, and 7 from the humanities and social sciences) and 9 external members.

CAS involvement in inter-ministerial commenting procedures

The CAS took part in inter-ministerial commenting proceedings by assessing and making statements on 193 government materials submitted by ministries or other state bodies via the eKLEP Legislative Process Electronic Library, or the e-Legislation system, which is a new platform for the creation, discussion and promulgation of legal regulations of the Czech Republic. The CAS submitted comments in 17 proceedings (9%), including essential and recommendation comments in



6 proceedings, essential comments in 7 proceedings and recommendation comments in 4 proceedings.

Resolution of the Government of the Czech Republic regarding the Czech Academy of Sciences

In 2025, the Government of the Czech Republic adopted the following resolutions regarding the Czech Academy of Sciences at its sessions:

Resolution of the Government of the Czech Republic No. 31 of 15 January 2025, (MVVI, No. OVA 5/25), by which the Government (i) took note of the proposal of the CAS Academy Assembly to appoint Prof. Radomír Pánek as CAS President from 25 March 2025 to 24 March 2029, for a first four-year term, and (ii) instructed the Prime Minister of the Czech Republic to submit the proposal to the President of the Republic.

Resolution of the Government of the Czech Republic No. 416 of 11 June 2025 (MVVI/RVVI, No. OVA 429/25), by which the Government of the Czech Republic, *inter alia* (i) took note of the proposal for expenditures in Part III of document ref. 429/25 and (ii) tasked the Minister of Finance with increasing expenditures for research, experimental development and innovation against the expenditures approved for 2025 in the draft 2026 state budget and the medium-term outlook for 2027 and 2028.

Resolution of the Government of the Czech Republic No. 458 of 18 June 2025 (MVVI/RVVI, No. OVA 476/25), by which the Government of the Czech Republic, *inter alia* (i) approved the methodology for evaluating research organisations in Part III of document ref. 476/25, (ii) cancelled the Methodology for the Evaluation of Research Organisations and the Evaluation of Targeted Support Programmes for Research, Development and Innovation approved by Government Resolution No. 107 on 8 February 2017, whereby evaluations initiated under this methodology shall be completed in accordance with it; (iii) charged the Minister for Science, Research and Innovation and the Chairman of the R&D&I Council, with, in point III.1, along with other members of the government providing institutional support for long-term conceptual development of the research organisation and, with the CAS President, with proceeding according to the newly approved evaluation methodology when evaluating research organisations.

Resolution of the Government of the Czech Republic No. 610 of 20 August 2025 (Ministry of the Interior, No. OVA 644/25), by which the Government of the Czech

Republic, *inter alia* (i) approved the proposal in Part III of document ref. 644/25 and (ii) in point III invited the CAS President to participate in the training in accordance with the approved proposal.

Resolution of the Government of the Czech Republic No. 717 of 30 September 2025 (MF, No. OVA 718/25), by which the Government of the Czech Republic, *inter alia*, approved the draft Act on the State Budget of the Czech Republic for 2026 with adjustments according to the government's conclusions; in point VI, it recommended the CAS President proceed according to point III/2 of the resolution.

Resolution of the Government of the Czech Republic No. 914 of 19 November 2025 (MF, No. OVA 982/25), by which the Government of the Czech Republic, *inter alia*, reduced the 2025 expenditures of the CAS budget chapter by CZK 141 million in order to secure the necessary expenditures of the Ministry of Education, Youth and Sports and ordered the CAS President to submit requests to the Minister of Finance for budgetary measures according to the resolution by 21 November 2025.

Renewal of bodies of CAS institutes in 2025

Based on the results of selection procedures and nominations from the boards of the relevant CAS institutes, CAS President Prof. Eva Zažímalová appointed two new CAS institute directors in the period from 1 January 2025 to 24 March 2025. CAS President Prof. Radomír Pánek appointed another seven CAS institute directors between 25 March 2025 and 31 December 2025.

Due to expiring mandates or termination of employment, the CAS Academy Council appointed new chairpersons and supervisory board members at CAS institutes in 2025 (4 chairpersons, 4 vice chairpersons and 6 members).

In 2025, the position of Ombudsperson was established at the Czech Academy of Sciences, with a CAS Ombudsperson in office since September 2025.

Patronages granted by CAS Presidents in 2025

Between 1 January 2025 and 24 March 2025, CAS President Prof. Eva Zažímalová granted patronage to two science and research events. Between 25 March 2025 and 31 December 2025, CAS President Prof. Radomír Pánek granted patronage to 12 science and research events.





ACTIVITIES OF THE CAS SCIENCE COUNCIL

The CAS Science Council is an important advisory and policy-making body of the CAS Academy Council. Its activities support the work of the Academy Council, but its role extends beyond the Czech Academy of Sciences and encompasses the development and implementation of the CAS' research policy as well as national research policy.

“The ‘Research Professor’ Degree denotes a particularly high level of scientific qualification demonstrated by the production of significant, scientifically original works that contribute to the advancement of research in a specific scientific field and characterise the awardee as a scientist of distinguished stature. The CAS Science Council decides on the awarding of degrees.”

Following its election by the Academy Assembly, the Science Council began its work in the new 2025–2029 term of office at its inaugural meeting, which took place on 27 March 2025 with the participation of CAS President Prof. Radomír Pánek.

At this meeting, the chairman and members of the Science Council’s presidium were elected. Dr. Pavel Baran was elected Chairman of the Science Council through a secret ballot vote. The Science Council elected seven vice-chairpersons, including: Prof. Luboš Náhlík from the Institute of Physics of Materials of the CAS (vice-chairman for Research area I), Prof. Ondřej Prášil from the Institute of Microbiology of the CAS (vice-chairman for Research area II), Assoc. Prof. Iva Poláčková Šolcová from the Institute of Psychology of the CAS (vice-chairwoman for Research area III); Prof. Jan Vondráček from the Institute of Biophysics of the CAS (vice-chairman of the “Research Professor” Degree), Prof. Petr Dvořák from Masaryk University (vice-chairman for science policy), Prof. Michaela Hrubá from J. E. Purkyně University in Ústí nad Labem (vice-chairwoman for cooperation with universities) and Prof. Josef Lazar from the Institute of Scientific Instruments of the CAS (vice-chairman for knowledge transfer). The vice-chairmen and vice-chairwomen of the Science Council also became members of the auxiliary bodies of the Academy Council for the 2025–2029 term of office.

At the beginning of the new term of office, the Science Council nominated member Dr. Ivana Kolmašová from the Institute of Atmospheric Physics of the CAS as the chairwoman of the Coordination Commission for the Engagement of Employees in the Highest Qualification Level. It also nominated Science Council members Prof. Luboš Náhlík from the Institute of Physics of Materials of the CAS, Assoc. Eduard Petrovský from the Institute of Geophysics of the CAS and Assoc. Prof. Kateřina Valentová from the Institute of Microbiology of the CAS to the Council for Expensive Instruments.

The Science Council maintains a consistent focus on the design of programmes to support excellence at CAS

institutes. Accordingly, at the initiative of Prof. Ondřej Prášil, it established a working group on this topic in the new term of office. The working group prepared a conceptual design for the support of ERC grant applicants at the CAS, which resulted in a plan to establish an ERC incubator at the CAS. Science Council member Dr. Luděk Brož from the Institute of Ethnology of the CAS was proposed as the scientific coordinator of the ERC incubator.

The Science Council also worked closely with Academy Council member Prof. Petr Baldrian on the preparation of a conceptual design for supporting excellence and careers at the Czech Academy of Sciences, including the new Academy of the Future programme. The Science Council discussed the conceptual design for supporting excellence and careers at the CAS at its meeting in October 2025. The comments of Science Council members were subsequently incorporated into the final draft of the conceptual design and submitted to the Academy Council. The Science Council included the topic of supporting excellence at the CAS in its strategic document for the 2025–2029 term of office, which it approved at its November meeting.

The Science Council also dedicated considerable efforts to the preparation of the evaluation of the research and professional activities of CAS institutes in 2020–2024. The vice-chairmen and vice-chairwomen of the Science Council were appointed members of the Evaluation Coordination Council, an auxiliary body of the Academy Council, took part in the nomination of experts to evaluation committees and, along with other Science Council members, became observers in the second phase of the evaluation of CAS institutes.

The Science Council is also responsible for drafting career development rules and conditions for assigning university-educated employees to qualification levels at the Czech Academy of Sciences. In the new term of office, the Science Council established a working group to prepare new career development rules, chaired by Assoc. Prof. Petr Cintula from the Institute of Computer Science of the CAS.



One of the goals of the Strategic Document of the CAS Science Council for the 2025–2029 term of office is to continue advocating for the incorporation of the “Research Professor” Degree in the Act on the Czech Academy of Sciences. The Science Council, at the initiative of Prof. Jan Vondráček, a vice-chairman and also chairman of the Committee for the Research Professor Degree, therefore established a working group for issues related to the awarding of the “Research Professor” Degree.

In November 2025, the Science Council discussed seven proposals for Strategy AV21 research programmes, and recommended that three be short-listed in the Academy Council’s final funding selection process.

The Science Council dedicated significant attention to the CAS’ cooperation with universities. It discussed the amendment to the Higher Education Act with Academy Council member Prof. Marcela Buchtová in November 2025.

At the request of the Academy Council, the Science Council discussed a change in the scientific focus of the J. Heyrovský Institute of Physical Chemistry in relation to a proposal to change the name of the institute. The Science Council agreed with the rationale for changing the name of the institute, based primarily on its thematic restructuring.

At the initiative of vice-chairman Prof. Josef Lazar, the Science Council was informed in December 2025 by TTO Director Ing. Martin Smekal about the intention

to establish a legal entity, i.e. a joint-stock company for the commercialisation of research findings from CAS institutes.

The Science Council granted patronage to the “Public Hearing on Open Science”, organised by the J. Heyrovský Institute of Physical Chemistry (as part of the OP JAK AMULET project) on 12 September 2025 at the CAS building at Národní 3 in Prague. The event broadly followed the conference “Scientific Integrity and the Role of Science” organised by the Science Council in September 2024. Following the “Public Hearing on Open Science”, where the issue of Open Access fees and strict CC-BY license requirements of some providers attracted substantial attention, the Science Council joined the “OP JAK Top Research programme project researchers’ statement on the rules for financing Open Access publications”.

As part of the Current Scientific Topic cycle, outstanding experts and holders of the “Research Professor” Degree from the CAS and Charles University gave presentations at Science Council meetings.

The Science Council discussed 25 nominations for the awarding of Czech Academy of Sciences medals which had been submitted by directors of CAS institutes. The Science Council also proposed awarding the honorary medal “De scientia et humanitate optime meritis” to Prof. Stefan M. Newerkla, a leading Austrian, internationally respected Bohemian studies scholar and long-time member of the Science Council and Academy Assembly.

“RESEARCH PROFESSOR” Degree

The “Research Professor” Degree was established by a decision of the 21st CAS Academy Assembly on 18 December 2002 and has been repeatedly confirmed by resolutions of the Government of the Czech Republic on the Statutes of the Czech Academy of Sciences.

In relation to its new term of office, the Science Council elected new members to the Committee for the Research Professor Degree in April 2025. In cooperation with the chairmen of the dissertation defence committees for the awarding of the “Research Professor” Degree and directors of CAS institutes, a restructuring of the committees for the new 2025–2029 term of office took place in 2025. The Committee for the Research Professor Degree subsequently approved the new composition of the dissertation defence committees (a total of 36 committees, of which 33 are

permanent and three are ad hoc committees). A total of 389 members currently work in 36 dissertation defence committees, including 173 members from CAS institutes, 185 members from universities, ten from other scientific institutions in the Czech Republic, nine from foreign universities and 15 from foreign scientific institutions. In addition, three ad hoc committees were established.

The Science Council awarded a total of 12 “Research Professor” Degrees in 2025, including five in the physical and mathematical sciences, two in technical sciences, two in molecular biological and medical sciences, and three in philological sciences. CAS President Prof. Radomír Pánek presented the diplomas to the new research professors at a ceremony held on 24 September 2025 in the hall of the Library of the CAS.

In 2025, the following 12 researchers from the Czech Academy of Sciences and universities were awarded the “Research Professor” Degree:



Assoc. Prof. PhDr. Marcel Černý, Ph.D., Res. Prof.

(Institute of Slavonic Studies of the CAS)

Dissertation: *Belonging and cohesion to mutual recognition: Probes into cultural relations between Czechs and Bulgarians until the formation of Czechoslovakia*

Commission: Bohemian studies

Degree awarded: “Research Professor in Philological Sciences“

Mgr. Vladislav Knoll, Ph.D., Res. Prof.

(Institute of Slavonic Studies of the CAS)

Dissertation: *Church Slavonic in the Late Middle Ages*

Commission: Bohemian studies

Degree awarded: “Research Professor in Philological Sciences“

Prof. PhDr. Jan Županič, Ph.D., Res. Prof.

(Institute of History of the CAS)

Dissertation: *Habsburg nobility. The Transformation of the Elites of the Danube Monarchy in the Long 19th Century*

Commission: General and Czech history

Degree awarded: “Research Professor in Historical Sciences“

Mgr. Martin Horák, Ph.D., Res. Prof.

(Institute of Experimental Medicine of the CAS)

Dissertation: *Regulation of NMDA receptors and their pharmacological modulation*

Commission: Biomedicine

Degree awarded: “Research Professor in Molecular-Biological and Medical Sciences“

RNDr. Pavel Rössner, Ph.D., Res. Prof.

(Institute of Experimental Medicine of the CAS)

Dissertation: *Mechanisms of oxidative stress induction by environmental pollutants in exposed human populations and in vitro cell models*

Commission: Biomedicine

Degree awarded: “Research Professor in Molecular-Biological and Medical Sciences“

RNDr. Aleš Cieplý, CSc., Res. Prof.

(Nuclear Physics Institute of the CAS)

Dissertation: *Chirally motivated Prague model for KbarN and etaN interactions and its applications*

Commission: Nuclear, subnuclear and mathematical physics

Degree awarded: “Research Professor in Physico-Mathematical Sciences“

Assoc. Prof. RNDr. Antonín Slavík, Ph.D., Res. Prof.

(Faculty of Mathematics and Physics, Charles University)

Dissertation: *Diffusion and reaction-diffusion equations on discrete domains*

Commission: Mathematical analysis and related fields

Degree awarded: “Research Professor in Physico-Mathematical Sciences“

Assoc. Prof. Ing. Jan Valdman, Dr. rer. nat., Res. Prof.

(Institute of Information Theory and Automation of the CAS)

Dissertation: *Vectorized implementations of the finite element method and applications to nonlinear domains*

Commission: Mathematical analysis and related fields

Degree awarded: “Research Professor in Physico-Mathematical Sciences“

Mgr. Jan Hladký, Ph.D. and Ph.D., Res. Prof.

(Institute of Computer Science of the CAS)

Dissertation: *Graph limits*

Commission: Mathematical structures

Degree awarded: “Research Professor in Physico-Mathematical Sciences“

Prof. RNDr. Karel Hron, Ph.D., Res. Prof.

(Palacký University in Olomouc)

Dissertation: *Density data analysis in Bayes spaces and its applications*

Commission: Informatics and cybernetics

Degree awarded: “Research Professor in Physico-Mathematical Sciences”

Prof. Ing. Jaromír Říha, CSc., Res. Prof.

(University of Technology in Brno)

Dissertation: *Assessment of safety and failures of hydraulic structures using risk analysis*

Commission: Applied and theoretical mechanics

Degree awarded: “Research Professor in Technical Sciences”

Ing. Václav Vinš, Ph.D., Res. Prof.

(Institute of Thermomechanics of the CAS)

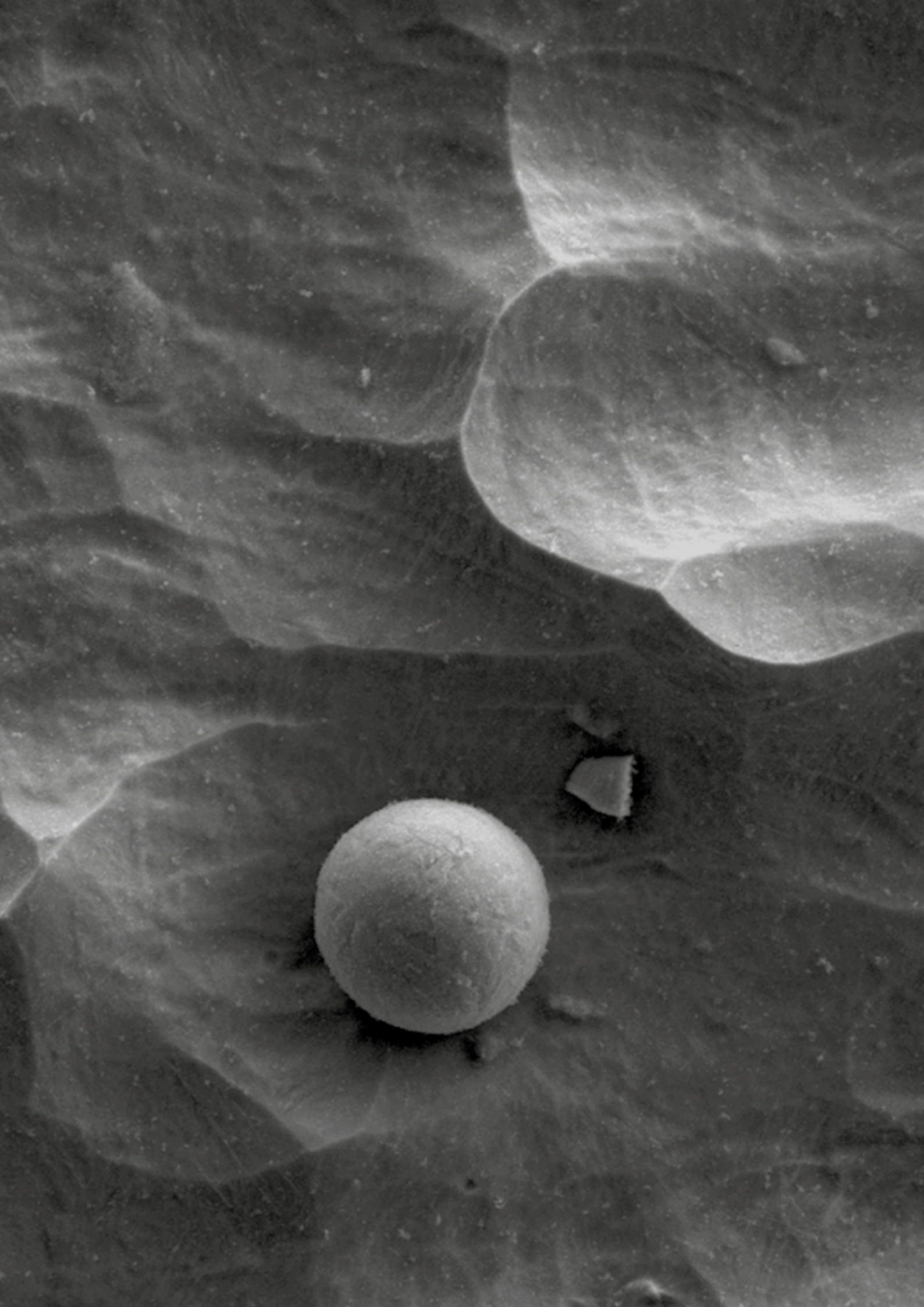
Dissertation: *Experimental Investigation of Surface Tension of Aqueous Systems at Low Temperatures*

Commission: Applied and theoretical mechanics

Degree awarded: “Research Professor in Technical Sciences”



Photos from the “Research Professor” Degree ceremony held on 24 September 2025 in the hall of the Library of the CAS.





EVALUATION OF RESEARCH AND PROFESSIONAL ACTIVITIES OF CAS INSTITUTES

The goal of the evaluation is to increase the quality of CAS institutes' scientific and professional activities. The evaluation also provides a comprehensive picture of the position of CAS institutes in the international context, furnishing knowledge that serves as a basis for the strategic management of the CAS as a whole, including informed decision-making on funding.

The evaluation is based on international peer review principles, which ensure a high degree of independence through the involvement of foreign experts with no conflicts of interest with the CAS. It rests on a qualitative assessment grounded in detailed documentation and data on the activities of each evaluated institute. Both entire institutes and their research teams are evaluated. Emphasis is placed on the formative nature of the process, which provides feedback for subsequent development. The process also stresses consideration of the specific aspects of each scientific field and ensuring the independence of the entire evaluation process.

A central theme of 2025 was the internal evaluation of research and professional activities of CAS institutes for the 2020–2024 period, which will continue in 2026.

The evaluation is based on two methodologies that take into account the research and professional activities of 52 research-oriented CAS institutes, and the professional activities of two research-infrastructure

CAS institutes (the Library of the CAS and Centre of Administration and Operations). 54 evaluation commissions were set up for this purpose. In 2024, a list of 408 teams from research-oriented institutes was approved, and in 2025, 11 professional teams from the Library of the CAS and the Centre of Administration and Operations were added to the evaluation.

Evaluation of research-oriented institutes

The evaluation of 52 research-oriented institutes was carried out in two phases.

Phase I of the evaluation

The institutes delivered supporting materials by 20 March 2025. In the same month, the chairpersons and members of 52 commissions attended online briefings to learn about the Phase I process, schedule and specific tasks. The evaluation itself was launched on 1 April 2025.

This phase consisted of remote evaluation of selected scientific outcomes. CAS institutes submitted a total of 3,941 outcomes, all of which were evaluated. Phase I saw the active engagement of 336 international chairpersons and members of evaluation commissions, mainly from scientifically advanced countries and research institutions. These experts then approached approximately 1,550 independent evaluators, again mainly from abroad. When selecting evaluators, emphasis was placed on precluding conflicts of interest, which is one of the key principles of the entire evaluation.

The results of Phase I were processed into Phase I Reports for each team and were made available to the evaluation commissions and given institutes before the start of Phase II. This evaluation cycle did not include quantitative bibliometric analyses.

Phase II of the evaluation

The institutes delivered supporting materials for Phase II by 20 June 2025. During the preparatory stage, the evaluation commissions were also supplemented, bringing the number of experts taking part in Phase II to 341. Phase II was initiated on 1 September 2025 and

concluded on 6 February 2026. In September 2025, the commissions attended online training about the details of Phase II.

The main approach in Phase II of the evaluation consisted of in-person site visits to institutes, which were carried out between 22 September and 17 October 2025 and lasted one to three days depending on the size of the institute. The Academy Council approved 21 observers to oversee compliance with the site visit methodology and rules.

Starting in October 2025, the commissions gradually submitted final evaluation reports, which were subsequently sent to the given institutes for comments. During 2025, the evaluation of 22 institutes was completed.

Evaluation of the Library of the CAS and the Centre of Administration and Operations

In September 2025, evaluations of the Library of the CAS and the Centre of Administration and Operations were also initiated. For these institutes, the professional activities, services and infrastructure provided to the Czech Academy of Sciences and its research institutes are the priority. Therefore, their outputs were not evaluated in Phase I; instead, a questionnaire survey was conducted on their services and professional activities, which served as input for the evaluation. In-person site visits that included observers were also carried out in these evaluations. Evaluations of both institutes were concluded in 2025.



Involvement in international initiatives related to the evaluation of research and professional activities

In connection with the CAS' membership in the CoARA (Coalition for Advancing Research Assessment), the CAS

is implementing an Action Plan for Research Assessment Reform through the evaluation. The CAS was also awarded support in the CoARA-BOOST call for small one-year science assessment projects and, through the CAS Office, is working on the project "New Assessment Tools for Internal Programs of the Czech Academy of Sciences". The project goal is to create assessment tools for both existing and new programmes that reflect CoARA principles. These assessment tools are gradually being implemented into excellence and career support programmes.







CAS AWARDS

Each year the Czech Academy of Sciences recognises employees for their scientific and science promotion efforts, including both extraordinary research findings and lifetime achievements. Many CAS scientists also received awards for their work from other Czech and international institutions.

Awards of the Czech Academy of Sciences

The CAS President presented the following awards in 2025:

The Award of the Czech Academy of Sciences for outstanding results of research, experimental development and innovations, achieved in the following research projects

- **Assoc. Prof. Ing. Roman Gröger, Ph.D. et Ph.D.,**
Institute of Computer Science of the CAS,
for the scientific research result *Clarification of the atomic mechanism of magnetization reversion and spontaneous phase transition in superparamagnetic nanoparticles,*
- **A team of authors consisting of RNDr. Jitka Štěpánková, CSc., Mgr. Jindřich Chrtek, CSc., Mgr. Zdeněk Kaplan, Ph.D.,**
Institute of Botany of the CAS,
for the monograph *Štěpánková J., Chrtek J. jun. and Kaplan Z. (eds.): Flora of the Czech Republic,*
- **Mgr. Vladislav Knoll, Ph.D., Res. Prof.,**
Institute of Slavonic Studies of the CAS,
for the three-volume monograph *Church Slavonic and the Romanian-speaking Lands I-III.*

The Award of the Czech Academy of Sciences for young researchers for outstanding results of research, experimental development and innovations achieved in research tasks supported by the CAS until the age of 35 years

- **Ing. Radovan Smíšek, Ph.D.,**
Institute of Scientific Instruments of the CAS,
for the scientific research result *VDI Scientific – software to measure ventricular dyssynchrony*
- **Ing. Jakub Poloprudský, Ph.D.,**
Institute of Physics of Materials of the CAS,
for the scientific research result *Water droplet erosion assessment in the initial stages*
- **JUDr. Eva Balounová, Ph.D., LL.M.,**
Institute of State and Law of the CAS,
for the publication *Towards the adoption of climate change acts in the Visegrad Group countries. Review of European, Comparative & International Environmental Law (RECIEL).*

The Award of the President of the Czech Academy of Sciences for promotion or popularisation of research, experimental development and innovations

- **Prof. PharmDr. Alena Sumová, CSc., Res. Prof.,**
Institute of Physiology of the CAS
- **PhDr. Dagmar Hájková, Ph.D.,**
Masaryk Institute and Archives of the CAS
- **Mgr. Tomáš Koblížek, Ph.D.,**
Institute of Philosophy of the CAS

Honorary Medals of the CAS awarded to the Czech and foreign researchers in 2025



The Honorary Medal of the Czech Academy of Sciences “De scientia et humanitate optime meritis”

- **Prof. Steven A. Mansbach**
University of Maryland, USA
- **Univ.-Prof. Mag. Dr. Stefan Michael Newerkla**
University of Vienna, Austria
- **Prof. RNDr. Pavol Šajgalík, DrSc.**
Slovak Academy of Sciences, Bratislava, Slovakia

The Bernard Bolzano Honorary Medal for Merit in Mathematical Sciences

- **Prof. Petr Hájek, Ph.D., DrSc.**
Faculty of Electrical Engineering, Czech Technical University
- **RNDr. Šárka Nečasová, CSc., Res. Prof.**
Institute of Mathematics of the CAS

The Ernst Mach Honorary Medal for Merit in Physical Sciences

- **Dr. Enrico Costa**
APS – INAF, Istituto di Astrofisica e Planetologia Spaziali, Rome
- **Prof. Ing. Jiří Čtyroký, DrSc.**
Institute of Photonics and Electronics of the CAS
- **Prof. RNDr. Jiří Horáček, DrSc.**
Faculty of Mathematics and Physics, Charles University
- **Prof. Ing. Karel Hrbáček, DrSc.**
Institute of Physics of Materials of the CAS
- **Prof. RNDr. Ludvík Kunz, CSc., dr. h. c.**
Institute of Physics of Materials of the CAS
- **Prof. Dr. Hartmut Zohm**
Max-Planck Institute for Plasma Physics, Germany





The ceremony presenting honorary medals to Dr. Enrico Costa and PhDr. Natalie Venclová, DrSc. in their respective fields.

The František Křížík Honorary Medal for Merit in Technical Sciences and for the Implementation of Results of Scientific Research

- **Ing. Jan Blabla, CSc.**
*Institute of Photonics and Electronics of the CAS,
Czech Metrology Institute*

The Jaroslav Heyrovský Honorary Medal for Merit in Chemical Sciences

- **Prof. Ing. Michal Hocek, CSc., Res. Prof.**
*Institute of Organic Chemistry and Biochemistry
of the CAS*

The Gregor Johann Mendel Honorary Medal for Merit in Biological Sciences

- **Assoc. Prof. RNDr. Pavel Dráber, CSc., Res. Prof.**
Institute of Molecular Genetics of the CAS
- **RNDr. Karel Tajovský, CSc.**
Biology Centre of the CAS

The Jan Evangelista Purkyně Honorary Medal for Merit in Biomedical Sciences

- **PD. Dr. rer. nat. habil. Radislav Sedláček**
Institute of Molecular Genetics of the CAS

The Karel Engliš Honorary Medal for Merit in Social and Economic Sciences

- **Prof. RNDr. Filip Matějka, Ph.D.**
Economics Institute of the CAS
- **Prof. JUDr. Jiří Malenovský, CSc.**
Faculty of Law, Masaryk University

The František Palacký Honorary Medal for Merit in Historical Sciences

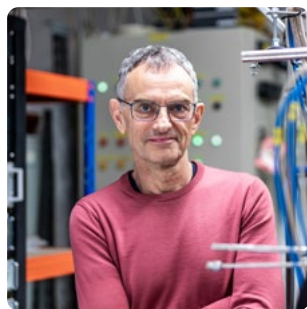
- **Prof. PhDr. Marie Bláhová, DrSc.**
Faculty of Arts, Charles University
- **Prof. Dr. Frank Hadler**
*Leibniz Institute for the History and Culture of
Eastern Europe*
- **PhDr. Natalie Venclová, DrSc.**
Institute of Archaeology of the CAS, Prague
- **PhDr. Lenka Bydžovská, CSc.**
Institute of Art History of the CAS
- **PhDr. Lenka Veselá, Ph.D.**
Library of the CAS

The Vojtěch Náprstek Medal of Honour for Merit in Science Popularisation

- **PhDr. David Černý, Ph.D.**
Institute of Computer Science of the CAS
- **Assoc. Prof. Mgr. Jaroslav Šebek, Ph.D., Res. Prof.**
Institute of History of the CAS

The Jan Patočka Memorial Medal

- **Prof. PhDr. Petr Horák, CSc.**
Institute of Philosophy of the CAS
- **PhDr. Vojtech Čelko, Ph.D.**
Institute of Contemporary History of the CAS



Prof. Mgr. Tomáš Jungwirth, Ph.D.



Prof. RNDr. Julius Lukeš, CSc.

Major Awards Given to CAS Researchers by Other Institutions

State decoration of the President of the Republic – Medal for Merit to the State in the Field of Science

- **Prof. Mgr. Tomáš Jungwirth, Ph.D.**
Institute of Physics

The National Government Czech Head Award

- **Prof. RNDr. Julius Lukeš, CSc.**
Biology Centre

The Neuron Foundation Awards

- **RNDr. Jiří Grygar, CSc.**
Institute of Physics – For promoting a love of science
- **Prof. Pavel Jungwirth, CSc., Res. Prof.**
Institute of Organic Chemistry and Biochemistry – For his lifetime contribution to science
- **Mgr. Tomáš Pluskal, Ph.D.**
Institute of Organic Chemistry and Biochemistry – For young promising scientists in the field of chemistry
- **Mgr. Ota Pavlíček, Ph.D., Th.D.**
Institute of Philosophy – For young promising scientists in the field of social sciences

The Werner von Siemens Award for the Most Significant Result of Basic Research

- **Iryna Ivanko, Ph.D.**
J. Heyrovský Institute of Physical Chemistry
- **Ing. Elena Tomšík, Ph.D.**
Institute of Macromolecular Chemistry

The Gratias Agit Award – For the promotion of the good name of the Czech Republic abroad, as a significant figure in Czech polar research, awarded by the Minister of Foreign Affairs of the Czech Republic

- **Prof. Ing. Josef Elster, CSc.**
Institute of Botany

The Polish state award Złoty Krzyż Zasługi (Golden Cross of Merit) for significant development of Czech-Polish scientific relations

- **Assoc. Prof. PhDr. Roman Baron, Ph.D.**
Institute of History

The Medal for Merit in Diplomacy, awarded by the Minister of Foreign Affairs of the Czech Republic – For the development of Czech-Austrian relations

- **PhDr. Luboš Velek, Ph.D.**
Masaryk Institute and Archives

The Award of the Minister of Education, Youth and Sports for outstanding results in research, experimental development and innovation

- **Mgr. Marek Piliarik, Ph.D.**
Institute of Photonics and Electronics
- **Mgr. Klára Petrželková, Ph.D.**
Institute of Vertebrate Biology

The Minister of Health Award for Medical Research and Development

- **Prof. RNDr. Ivo Rudolf, Ph.D.**
Institute of Vertebrate Biology

The Award of the Minister of Agriculture for Young Scientists

- **Ing. Lenka Kajgrová, Ph.D.**
Biology Centre

The Award of the President of the Czech Science Foundation

- **RNDr. Šárka Nečasová, CSc., Res. Prof.**
Institute of Mathematics
- **Mgr. Matyáš Havrda, Ph.D., Res. Prof.**
Institute of Philosophy

The Medal of the Learned Society of the Czech Republic for Meritorious Contributions to the Advancement of Science

- **Prof. RNDr. Jan Palouš, DrSc.**
Astronomical Institute

The Award of the Learned Society of the Czech Republic in the Junior Researcher Category

- **Mgr. RNDr. Štěpán Coufal, Ph.D.**
Institute of Microbiology



The František Nušl Award, for lifetime scientific, professional, pedagogical, popularisation or organisational work in astronomy and related sciences

- **Prof. RNDr. Vladimír Karas, DrSc.**
Astronomical Institute

The Josef Hlávka Medal for Senior Mentors and Prominent Figures in Czech Science and Art

- **Prof. MUDr. Bohuslav Ošťádal, DrSc.**
Institute of Physiology

The Josef Hlávka Special Award

- **RNDr. Jitka Štěpánková, CSc., Mgr. Jindřich Chrtěk, CSc., and Mgr. Zdeněk Kaplan, Ph.D.**
Institute of Botany

The Josef Hlávka Award for Outstanding Scientific Achievements to Date

- **Ing. Tomas Hostinský, Ph.D.**
Institute of Plasma Physics

The Medal for Merit in Diplomacy, awarded by the Minister of Foreign Affairs, for contributions to the development of international scientific relations, support of scientific diplomacy, and significant representation of Czech science abroad

- **Prof. RNDr. Eva Zažímalová, CSc.**
Institute of Experimental Botany

The Leibniz Medal for Lifetime Research, awarded by the Leibniz Society on Bioactive Compounds

- **Prof. Ing. Miroslav Strnad, CSc., Res. Prof.**
Institute of Experimental Botany

The Turjuman Award, presented by the Sharjah International Book Fair under the patronage of the Ruler of the Emirate of Sharjah. The award supports cultural dialogue between East and West through high-quality translations of Arabic literature into other languages.

- **Mgr. Ondřej Beránek, Ph.D.**
Oriental Institute

The Medal of the Czech Technical University in Prague, 1st degree, for significant contributions to the development of the university

- **Prof. Ing. Martin Nikl, CSc.**
Institute of Physics
- **Prof. RNDr. Pavel Exner, DrSc.**
Nuclear Physics Institute

The Silesia Docta et Culta Medal of the Silesian University in Opava

- **Prof. PhDr. Jiří Kocian, CSc.**
Institute of Contemporary History

L'Oréal-UNESCO Awards for Women in Science

- **Ing. Pavlína Modlitbová, Ph.D.**
Institute of Scientific Instruments

The CEFRES Award for Best Article in Social Sciences and Humanities

- **Nikola Tohma**
Masaryk Institute and Archives

The Medal for Merit to Czech Archival Science, awarded by the Ministry of the Interior of the Czech Republic

- **Prom. hist. Nataša Kmochová**
Masaryk Institute and Archives

The Arnošt Lustig Award for supporting societal values such as courage, humanity and justice, for his significant role in supporting science and defending the truth, especially during the pandemic

- **Prof. RNDr. Jan Konvalinka, CSc.**
Institute of Organic Chemistry and Biochemistry

The Magnesia Litera Prize for Scientific Literature

- **PhDr. Alena Hadravová, CSc., Res. Prof.**
Institute of Contemporary History

Commemorative medal of the Technology Agency of the Czech Republic

- **Ing. Jiří Plešek, CSc.**
Institute of Thermomechanics

The Georgia Agricola Memorial Medal for lifelong scientific research and pedagogical work and significant personal contribution to the development of cooperation between the Institute of Physics and Mathematics of the CAS, VSB – Technical University of Ostrava and the Brno University of Technology

- **Prof. Ing. Ivo Dlouhý, CSc.**
Institute of Physics of Materials

The Annual Report of the Czech Academy of Sciences for the provision of information pursuant to Act No. 106/1999 Coll., on free access to information, as amended, for the period from 1 January to 31 December 2025

a) Number of submitted requests for information	10
Number of decisions issued rejecting an application	4
b) Number of appeals lodged against a decision rejecting an application	1
c) Number of court judgments on review of legality of a decision rejecting an application	0
d) Number of exclusive licences granted	0
e) Number of complaints filed under Section 16a of the Act	0

List of abbreviations used

CAS	Czech Academy of Sciences
CTU	Czech Technical University in Prague
ERC	European Research Council
EU	European Union
GA CR	Czech Science Foundation
MEYS	Ministry of Education, Youth and Sports of the Czech Republic
R&D&I Council	Research, Development and Innovation Council
TA CR	Technology Agency of the Czech Republic
UK	Charles University
R&D	Research and Development
R&D&I	Research, Experimental Development and Innovation

The names of the institutes of the CAS appear in abbreviated form and do not contain the letters "CAS, v. v. i.".

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