



ESTONIAN
ACADEMY
OF SCIENCES
IN 2024



Board

13 members:
the President, the Vice Presidents,
the Secretary General,
the Heads of Divisions and
the non-executive members

Expert Panels

thematic councils and committees
operating at the Academy
that bring together Estonia's top
independent experts

Members of the Academy

divided into four divisions: the
Division of Astronomy and Physics,
the Division of Informatics and
Engineering, the Division of Biology,
Geology and Chemistry, the Division
of Humanities and Social Sciences

Research Professors

the programme was established
to allow internationally recognised
scientists in their fields to focus
more on their scientific work
for a certain period of time

Constitutional Law Foundation

develops constitutional law,
as well as promotes and
advances research in the field
of constitutional law

Under and Tuglas Literature Centre

a research and development institution
whose primary mission is the study
and theoretical modelling
of the entire body of Estonian-language
literary culture, as well as
the multilingual Baltic-German
literary culture in the territory
of Estonia from earlier periods

Estonian Academy Publishers

issues 7 peer-reviewed,
open-access scientific journals
that have an international
editorial board

7 Associated Institutions

research, development and cultural institutions,
as well as scientific societies whose activities and
goals align with those of the Academy.
Association is carried out on the basis of bilateral
agreements that stipulate the goals,
mutual tasks and obligations.

26 Associated Organisations

7 International Organisations

the Academy is a member of: the International
Science Council (ISC), the InterAcademy
Partnership (IAP), the European Federation
of Academies of Sciences and Humanities
(ALLEA), the European Academies' Science
Advisory Council (EASAC), the International
Union of Academies (UAI), the European Science
Advisors Forum (ESAF), the Union of European
Academies for Sciences Applied to Agriculture,
Food and Nature (UEAA)

OVERVIEW OF THE ESTONIAN ACADEMY OF SCIENCES

The first academies of sciences were founded in Europe in the 17th century. It was the rulers' desire to get science advice that led to the establishment of academies. The concept of an academy of sciences can be expressed in several ways. Probably the most well-known is the definition of the French Academy of Sciences: the academy has a dual mission – to advance science and support its country.

The Estonian Academy of Sciences is relatively closely linked to the state and has been intended to serve the interests of society from the very beginning. This is already evident from the text written in 1938 by Konstantin Päts, the head of state, stating that the Academy was established 'due to an urgent national need'.

The Estonian Academy of Sciences is a learned academy, an independent body of leading scientists and distinguished creative individuals who are elected based on their achievements. The Academy develops and represents Estonian science and supports the country in solving important social and economic development issues. The mission of the Academy is to contribute to the application of excellent science for the improvement of the overall quality of life of the Estonian people, as well as to promote the value of science and scientific way of thinking in Estonia. The Academy interacts closely with society, collects, preserves and disseminates the best knowledge available, and supports advancement of the evidence-based worldview.

The Academy has four thematic divisions, 73 members and 19 foreign members (as of 1 January 2025). The Academy is led by the President, the Vice Presidents, the Secretary General and the Board, which, in addition to the aforementioned, includes the Heads of Divisions and the non-executive members. The new Board, elected in 2024, comprises 13 academy members.

By the Estonian Academy of Sciences Act, the Academy can have up to 60 members under the age of 75. There is no limit to the number of members who have exceeded this age, but the Board has considered it reasonable to limit membership to a maximum of 80. Membership in the Academy is for life.

If there are vacancies within the specified limits, the Academy has to elect new members at least once every three years. An open call is announced for this purpose and candidates can be nominated by Estonian universities, research institutions and societies, as well as by creative associations and unions, and the members of the Academy. From the nominated candidates, the current members of the Academy make the selection by secret ballot. Prior to the election, the candidates introduce themselves and their scientific work at a conference.

SELECTION OF THE ACADEMY'S ACTIVITIES IN 2024

Science Afternoons

On 26 January, the Science Afternoon (XXVIII) on *Socially Inclusive and Broad-Based Renovation of Buildings* was held in cooperation with the Estonian Young Academy of Sciences and the Energy Efficiency Centre of Excellence.

Estonia must undergo a green transition for 75% of its existing low-energy-efficiency building stock, transforming it into emission-free buildings by 2050, maximising the resulting benefits and improvements in the quality of life.

The Science Afternoon discussed the current condition and trends of Estonia's building stock, as well as the challenges in achieving the goals across Estonia. The best solutions for energy-efficient renovation were also presented.



Academy member Jarek Kurnitski, Head of the Energy Efficiency Centre of Excellence, discussed the impact of the building stock on Estonia's energy use and trends.



Audience at the Science Afternoon.



The Science Afternoon was led by Miina Norvik, a member of the Estonian Young Academy of Sciences, and Sirli Zupping, Head of the Department of Modern Estonian at the Institute of the Estonian Language.

On Mother Tongue Day, 14 March, the Science Afternoon (XXIX) on ***Opportunities and Challenges of the Estonian Scientific Language*** was held in cooperation with the Estonian Young Academy of Sciences and the Institute of the Estonian Language. At the event, a closer look was taken at the current state of the Estonian language in research and higher education, as well as potential future developments in this field.

Language choices and finding a balance, mainly between Estonian and English, have become an inseparable part of Estonian higher education and research. The presentations addressed the topic of scientific and higher education language from different angles. The writing of academic texts in Estonian was discussed both from the perspective of the supervisor and the text researcher. Based on the example of the University of Tartu, the language attitudes of foreign staff and students were analysed. It was also discussed for whom and for what purpose new terminology in Estonian should be developed, as well as the reason for writing university textbooks in Estonian.



Among the speakers was Professor Toivo Maimets, who together with his colleague Sulev Kuuse, received the University of Tartu Language Award 2024 for the compilation of the Estonian-language higher education textbook Cell Biology.

Science Seminar for Secondary School Students in Viitna

On 14–16 August, the Science Seminar for Secondary School Students was held at the Viitna Holiday Centre in Lääne-Viru County. Nearly 70 young people from forms 8–12 gathered for the seminar from various parts of Estonia.

The presentations of the seminar were built around the topic of the difference between **emergence and generation** explored by scientists of different fields from the perspective of their respective disciplines. All presentations were followed by questions and lively discussions by the participating young people.

The tradition of the summer seminars in Viitna dates back to 1980, when the students' scientific society was founded on the initiative of academy member Anto Raukas. Since 2005, the Science Seminars have been held on a continuous basis, and since 2021, they have been again organised by the Estonian Academy of Sciences.



Moments and emotions from the Science Seminar.



The Conference Panel was attended by Yoko Alender, the representative of the Environment Committee of the Parliament; Maarja Öpik, the representative of the Research and Development Council; Taimo Aasma, Deputy Head of the Biodiversity Conservation Department at the Ministry of Climate; Taimar Ala, Director of the Environment Agency; and Heikki Kalle, Chief Operating Officer of Hendrikson & Ko.

Brief Overview of the Activities of the Academy's Expert Panels

The Committee on Environment organised a conference *A Unified Data Space for Estonian Nature* on 15 May. There is no precise overview of the volume of biodiversity and geological data generated by scientists, amateur researchers, government officials and businesses in Estonia. Although a large portion of this data has been created with public funding and should be publicly available, this is often not the case. The conference discussed what kind of unified data space for Estonian nature would be needed and how to achieve it. An important outcome was an agreement between researchers and government officials to continue joint work in this field.



Conference audience.



From left: Olivier Leclère, Deputy Director of the Electoral Operations Office in Geneva; academy member Dan Bogdanov, Chairman of the Standing Committee on Cyber Security; and Juha Mäenalusta, Senior Information Security Specialist at the Finnish Legal Register Centre, during the conference break.

The Committee on Cyber Security organised a conference *On Trust and Reliability* on 28 October, where the Committee's risk analysis of Estonia's election technology was presented. The conference also introduced new election technologies and future trends in the light of quantum computing and post-quantum cryptography. Guests from Finland, Latvia and Switzerland discussed election technologies and the development of e-voting abroad.



The Conference Panel discussed how to conduct a sustainable analysis of security risks for Estonia's e-government services. From left: Arko Olesk, moderator; Tanel Tammet, a member of the Committee on Cyber Security; Irina Klementi, Head of Cyber Risk Management at the Ministry of Economic Affairs and Communications; Liisa Past, a former member of the Committee on Cyber Security; and Ronnie Jaanhold, a board member of Neverhack Estonia.



Roundtable of the Committee on Energy on 5 June 2024.

The Committee on Energy organised a roundtable *Affordable Full Electricity Price and Expected Supply Security for Consumers* on 5 June, which was attended by members of the Committee and representatives of business associations, large enterprises and banks. The discussion focused on the impact of energy input in the context of the competitiveness of products and services, and on the assumptions regarding private consumers' ability to cope.

Participants in the roundtable concluded that the choice of development paths for the electricity sector requires fundamental research, clarity of purpose, information to the public and public debate for consumers. Research should also include assessments of impacts, risks and costs, as well as sensitivity analysis of the assumptions underlying the proposed changes. A balanced interaction of all functions of the electricity system ensures the sustainable operation of society and the economy.

The Assembly of Female Academy Members visited the secondary schools of Ida-Viru County and the Virumaa College of Tallinn University of Technology on 20–21 November 2024. Nearly 700 students from different schools in Ida-Viru County came to listen to the speakers at four meetings. Maarja Grossberg-Kuusk and Anne Kahru spoke to the young people about green technologies, Maris Laan and Krista Fischer discussed genetics and biostatistics, Anu Raud and Mare Kõiva explored folklore. The aim of the visit was to provide insights into the research and creative activities of academy members through face-to-face meetings, to bring scientific thinking closer to the grassroots level and to raise students' interest in scientific work. It also aimed to encourage talented and motivated young people from Ida-Viru County to pursue higher education in Tartu and Tallinn with greater confidence.



Women academy members at the Narva Estonian Secondary School.

Photo from left: Maarja Grossberg-Kuusk, Krista Fischer, Anu Raud, Anne Kahru, Mare Kõiva and Maris Laan.



The Researchers' Night debate was chaired by Urmass Vaino (left), who is pictured with presidential candidates Mart Saarma and Maris Laan.

Election of the New President and the Board

The year 2024 marked the election of a new President for the Academy, the tenth in its history. The President is the head of the Academy, serving as *primus inter pares* for academy members – the leader and the first among equals.

On Researchers' Night, 27 September, the Academy's presidential candidates participated in a discussion on the role of the Academy and its President in society, and shared their visions if elected President of the Academy.

At the General Assembly session on 10 October, Mart Saarma was elected President of the Academy. He highlighted the need to raise the quality of Estonian science by paying more attention to innovation and research directly related to Estonia's development. He also stressed the importance of regularly presenting scientific results and technologies to the government, the Parliament and the Estonian people, in order to contribute to evidence-based decision-making process.



Members of the Voting Committee organising the presidential election: academy members Jakob Kübarsepp, Kalle Kirsimäe, Valter Lang and Marco Kirm emptying the ballot papers from the ballot box.

In October and November, the Academy's divisions elected new heads from among its members. At the General Assembly session on 4 December, new Vice Presidents, the Secretary General and the non-executive members of the Board were elected for the Academy.



A moment after the new president is announced.



After the General Assembly session, a large number of journalists gathered in the Academy hall to photograph and interview the new President.



Members of the new Board present at the General Assembly session on 4 December. From left: Tiina Randma-Liiv, Jaak Vilo, Maris Laan, Mart Saarma, Anne Kahru, Jarek Kurnitski, Marco Kirm, Maarja Grossberg-Kuusk, Toomas Asser and Martti Raidal. Anu Realo, Kalle Kirsimäe and Marek Tamm are missing from the photo.

Science in Three Minutes

While the three-minute lecture contest in Estonian has been held since 2015, in 2024, the contest was also held in English for the first time, aimed at international doctoral students studying at Estonian universities. Following the internal university contests, the participants received several trainings to refine their presentation skills. Each doctoral student also wrote a popular science article on their research. The contest concluded with a Gala on 18 October, where the finalists had to summarise their years of research in three minutes in a way that would be interesting and understandable to all listeners, regardless of their background or prior knowledge. Of the 19 finalists, the jury selected the top five. The finalists came from various parts of the world; Azerbaijan, Bangladesh, Brazil, Guatemala, Georgia, Ireland, India, Iran, Italy, Latvia, Nigeria, Finland, Turkey and Ukraine.



The jury is making the decision. The jury also included George P. Kent, the then U.S. Ambassador to Estonia (in the centre of the photo).



The five best of the contest. From left: Sharib Khan, Mehruba Shabaab Haque, Francis Gracy Arockiaraj, Lucía Mariel Arana Peña and Baiba Brumele.



Laureates from the three Baltic States at the joint awards ceremony in Vilnius on 12 November.

Women in Science

The Academies of Sciences of the Baltic States and the National Commissions for UNESCO organised a joint fellowship competition for women scientists titled *Baltic Women in Science*.

The following Estonian scientists were awarded fellowships in recognition of the work done so far and to support further research in their fields:

- ▶ in the category of PhD in natural sciences, engineering and technology, and medicine – **Mari Tõrv**, Associate Professor of Archaeology at the Institute of History and Archaeology of the University of Tartu and Research Fellow in Analytical and Physical Chemistry at the Institute of Chemistry of the University of Tartu. She explores the biological and cultural diversity of ancient humans, emphasising the duality of the human body.
- ▶ in the category of PhD students in the same fields – **Kadri-Ann Pankratov**, Junior Research Fellow in Technology at the Institute of Technology of the University of Tartu, whose pioneering research focuses on bioinspired soft robotics, reminiscent of science fiction.
- ▶ in the category of PhD in social sciences – **Marju Himma**, Associate Professor of Journalism Studies at the Institute of Social Sciences of the University of Tartu, known for her work in science popularisation and public engagement. In her research she tests the theoretical concept of deliberative science communication and applies a model that research groups and research officials can use in practice.

In Estonia, the organisation of the contest and the fellowships awarded to the laureates were funded by the Ministry of Education and Research.



Watch the videos to see how the laureates present their research projects:



New Research Professors

Research Professor is a position created by the Academy to allow internationally recognised scientists in their fields to focus more on scientific work and mentoring young researchers for a certain period of time.

In 2024, five new Research Professors were selected:

Birute Klaas-Lang, Professor of Estonian as a Foreign Language at the University of Tartu, who studies the language attitudes of Russian-dominant parents during the process of transitioning to Estonian-language education, was selected as Research Professor of Estonian Language and Teaching.

Meelis Kull, Associate Professor of Machine Learning at the University of Tartu, was selected to lead the Research Professorship in Artificial Intelligence. His research group aims to develop a formal framework providing a more systematic approach to the assessment of the uncertainty of artificial intelligence and better identifying the appropriate methods.

Every year, the Academy organises the Conference of Research Professors, where they present their research findings. In the photo: Birute Klaas-Lang and Meelis Kull at the Conference of Research Professors on 10 December 2024.

Gert Hütsi, Senior Research Fellow at the National Institute of Chemical Physics and Biophysics, focuses his research on the formation and evolution of supermassive black holes, primordial black holes and the large-scale structure of the universe.

Andres Krumme, tenured Associate Professor at Tallinn University of Technology and Head of the Laboratory of Biopolymer Technology, conducts research aimed at providing an environmentally sustainable solution for expanding the production of cellulose-based bioplastics.

Hannes Palang, Professor of Human Geography at Tallinn University, conducts a research project that seeks to determine how urbanisation and an urban lifestyle, on the one hand, and an increasingly Anglicised everyday culture, on the other hand, have influenced and changed landscape-related vocabulary, concepts and understanding.



Every year, the Academy organises the Conference of Research Professors, where they present their research findings. In the photo: Birute Klaas-Lang and Meelis Kull at the Conference of Research Professors on 10 December 2024.

International Relations

At the beginning of 2024, the manifesto ***Reclaiming Europe***, developed in collaboration with academies of sciences, was published. The manifesto calls for a renewed and better understanding of Europe, as well as greater attention and support for the development of knowledge in those regions of Europe that have so far been grouped under the name of Eastern Europe.

The creation of the manifesto was prompted by the ongoing war in Ukraine and the related need, keenly felt within the scientific community, to understand and involve scientists from different European regions significantly more than before. It was emphasised that the academic community must take much greater responsibility also at the political level.

In addition to the ten theses of the manifesto, the phrase ‘Reclaiming Europe’ is also noteworthy. It was chosen as the title of the manifesto to emphasise the need to defend Europe from autocratic regimes and, at the same time, to place at the heart of Europe’s conceptualisation those regions whose significance has remained unnoticed.

Tarmo Soomere, President of the Academy, was among the first signatories of the manifesto, together with representatives of several European academies of sciences and organisations supporting scientific research.

Manifesto
webpage:



Events held
in English in 2024:



FACTS AND FIGURES

- ▶ As of 1 January 2025, the Academy has **73** academy members, **10** of whom are women.
- ▶ Of the **13** members of the Board, **5** are women.
- ▶ There are **43** academy members under the age of **75**, with an average age of 60. There are **30** academy members aged 75 or older.
- ▶ The youngest academy member is **41** years old and the oldest is **7**.

- ▶ Academy members participate as representatives of the Academy or Estonia in **approximately 250** bodies and councils, both in Estonia and abroad.
- ▶ In 2024, members of the Academy published at least **470** scientific publications.
- ▶ Creative contributions in 2024
950 performances of Academy member Arvo Pärt's music were held worldwide.
Academy member Anu Raud's solo exhibitions were organised in Kihnu, Põltsamaa and Järva-Jaani, and she participated in exhibitions in Heimtal, Porvoo and Pärnu. Academy member Elmo Nüganen staged the play *Solaris* at the Drama Theatre, based on the novel by Polish writer Stanisław Lem.
Academy member Hando Runnel's poetry collection *Oh Villages, Oh Taverns* was published.

- ▶ We organise competitions and present awards
 - We organise the selection and public presentation of laureates of national science awards
 - We present the Academy Member Mihhail Bronštein Awards in Economics
 - We present 'Baltic Women in Science' fellowships of the Baltic Academies of Sciences and the National Commissions for UNESCO
 - We present special prizes of the President of the Academy (π -prizes) to secondary school and university students within the framework of national contests
 - We support young researchers' participation in meetings with Nobel Prize laureates in Lindau
 - We support research conducted by young Estonian researchers, master's students and doctoral candidates through the Estonian Academy of Sciences Foundation
 - The Constitutional Law Foundation presents research project grants and scholarships in constitutional law
 - In cooperation with the Estonian Research Council, we present prizes for the popularisation of science in Estonia

- ▶ We support the participation of Estonian researchers in **22** international professional associations.
- ▶ In 2024, within the framework of bilateral agreements between academies, Estonia hosted **30** foreign researchers from **7** countries for a total of **220** days. Around the same number of Estonian researchers visited partner academies.

- ▶ Between 2021 and 2024, a total of **137** opinion pieces written by academy members were published in the *Postimees* column 'Through the Eyes of a Scientist'.
- ▶ In 2024, there were **890** media reports related to the Academy and academy members in the Estonian press, a figure comparable to 2023.
- ▶ In 2024, our posts were viewed by approximately **87,500** Facebook users, an increase of 7,500 compared to 2023.
- ▶ On our YouTube channel, live broadcasts and/or recordings were viewed **24,225** times, more than twice the number recorded in 2023.

- ▶ In 2024, a total of **136** publications were published in the 7 journals of the Estonian Academy Publishers. Of these, **110** were research articles, **4** review articles and **5** short communications. The other writings comprised forewords, announcements, obituaries and jubilee articles. There were **926** authors of the published works, **126** of them in Estonia and **800** abroad.

- ▶ In 2024, researchers of the Under and Tuglas Literature Centre published **33** research articles, **2** special issues of journals and **36** publications aimed at the general public.

Under the leadership of the Under and Tuglas Literature Centre, **12** scientific events were held.

44 presentations were delivered, half of them in Estonia and half abroad.

The museum of the Literature Centre hosted **9** public events, with a total of **600** visitors.

By the end of the year, information on **35,568** books, manuscripts, artworks, photographs or other items belonging to the cultural collection of the Literature Centre was made available to any interested individuals via the Estonian Museum Information System (MuIS).



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