

SUOMALAINEN TIEDEAKATEMIA FINNISH ACADEMY OF SCIENCE AND LETTERS ACADEMIA SCIENTIARUM FENNICA

Suomalainen Tiedeakatemia

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2023

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G REETINGS

For the benefit of science, for the good of society 2023 Tuula Linna

The humanities on sustainability

Greeting from the President

The first thing that comes to mind from the word sustainability is not the humanities, but, quite rightly, climate change and its indicators and top scientists, such as Academician of Science Markku Kulmala. He is one of the world's leading researchers in physics and chemistry, an award-winning scholar who, together with his team, has greatly improved our understanding of the interactions between the atmosphere and ecosystems. Several other fields of science have also made an undeniable contribution to verifying and modelling the threats of climate change. But what about the role of the humanities in sustainable development? In posing this question, I do not mean to gauge the value of the humaniora versus the formal and natural sciences, but to seek collaboration to address our greatest challenges.

Sustainable development has several dimensions, which can be grouped as follows, for example: ecological sustainability (climate and nature), economic sustainability (production and livelihood), sociocultural sustainability (peace, equality and human rights) and political sustainability (democracy, rule of law and good governance). The areas of sustainability are in many ways layered and mutually interactive. For example, sharing the costs of ecological sustainability between states and individuals is an issue of international politics and social justice. The preconditions for economic sustainability may be linked to various cultural, social and political elements of sustainability, such as respecting human rights and other due diligence obligations of companies.

Sustainability in a wider 'Brundtlandian' sense offers the humanities an opening to engage in sustainability research. Gro Harlem Brundtland chaired the commission convened by the UN, which in 1987 published a report on sustainable development entitled *Report of the World Commission on Environment and Development: Our Common Future.* Section 27 of the report states: "Humanity has the ability to make development sustainable to ensure



that it meets the needs of the present without compromising the ability of future generations to meet their own needs."

This sentence seems to speak directly to the *humaniora* and invites us to discuss values regarding people's needs, preserving resources for future generations and justice. The debate on values creates a foundation for aligning actions with values – walking the talk. But then again, we know what humans are like. People are not necessarily willing to put their own interests aside, not even to ensure the living conditions of future generations. A sanction mechanism and organised coercion are necessary, alongside individual and communal value-based actions, for us to manage the great challenges that we face.

Often, this means the juridification of these challenges. For example, companies first started to pursue the green transition voluntarily according to the laws of the market economy when they noticed that it improves their financial performance. However, some companies chose to merely try to appear green, a practice known as greenwashing. The legislators of the European Union interfered and banned green marketing without proof. But before reaching this point, we needed a lot of research in the humanities and social sciences on human behaviour, the mechanisms underpinning the formation of perceptions and the logic of purchase decisions. Although green scepticism also rose among consumers, it was not enough to force companies to give up their misleading marketing and making false green claims for financial gain. Nowadays, companies are more often required to undergo a real green transition in their operations and their value chains.

In their book Aika haastaa humanistit (2023), Professor Tuomas Heikkilä and

Academician of Science Ilkka Niiniluoto argue that humanists play an important role in addressing our greatest challenges. "Climate warming and biodiversity loss are collective harms caused by human actions. They are the frequently unintended consequences of the choices made by states, cities, companies and citizens. That is why, in order to prevent them, we need knowledge in the human sciences on the preconditions for human rationality and moral responsibility."¹

I myself also believe that the humanities, including philosophy, history, languages, theology and law, which can be classified as part of the humanities in a broader sense, can help humanity gain the understanding necessary for ethical choices and actions. It all comes down to strengthening the understanding and knowledge that serves as the basis for knowledge-based decision-making and choices, both in terms of societies and the individual. The key idea is that decisions are made not based on ideology, but knowledge. Knowledge is not used selectively to justify an existing political position, but knowledge is what drives decision-making.²

However, since the sum of all the rationality and moral responsibility in humans and humanity is not enough nor has it been enough to prevent climate change and biodiversity loss, we need social coercion alongside education, instruction and voluntariness. This is implemented in constitutional states by a democratically elected legislative body, together with courts of law and a law enforcement system that enforce the provisions.

Although the position of the traditional discipline of law as a field of study in the humanities can be disputed, it is worth noting that, due to climate litigation, it is gaining an important role in ensuring sustainable development. A major milestone was reached when the European Court of Human Rights ruled against Switzerland in the case Verein KlimaSeniorinnen Schweiz and Others v. Switzerland (judgement issued on 9 April 2024). The Court found it to be a matter of fact that there are sufficiently reliable indications that climate change exists, and that it poses a serious current and future threat to the enjoyment of human rights. The Court also noted that states are aware of this and capable of taking measures to address the issue effectively, and that the threat is projected to be lower if the rise in temperature is limited to 1.5°C above pre-industrial levels. The Court called for urgent and effective action to combat climate change.

All available knowledge should be harnessed to address climate change and other great challenges. There have been times when knowledge in some area of the humanities has been deemed useless. The uselessness and importance of knowledge is always assessed on the basis of existing information and values — but: everything flows. There is no such thing as useless knowledge.³ Knowledge that is considered useless or redundant may not only prove valuable later but also inspire contemporary researchers even in an entirely different field. Sources of inspiration should not be underestimated.

The purpose of highlighting the significance of the humanities is not to prove our self-worth, but to genuinely lend the knowledge of the *humaniora* – if not ancient then at least the knowledge accumulated since the time of Socrates – on the past and present of humanity for the benefit of future generations.

> 8 May 2024 Tuula Linna

- ¹ Heikkilä, Tuomas & Niiniluoto, Ilkka (ed.) 2023: Aika haastaa humanistit. Puheenvuoroja humanistisen tutkimuksen puolesta, pp. 30–31. Gaudeamus.
- ² Jaakko Kuosmanen 2023: Tietopohjainen päätöksenteko ja humanistien supervoimat. In Aika haastaa humanistit, p. 189. Ed. Tuomas Heikkilä & Ilkka Niiniluoto.
- ³ This topic has recently been discussed e.g. by Saarikivi, Taina & Saarikivi Janne 2022: Turhan tiedon kirja – Tutkimuksista pois jätettyjä sivuja. 2nd edition. SKS Kirjat.

Pekka Aula

Artificial intelligence in science: From opportunities to ethical challenges

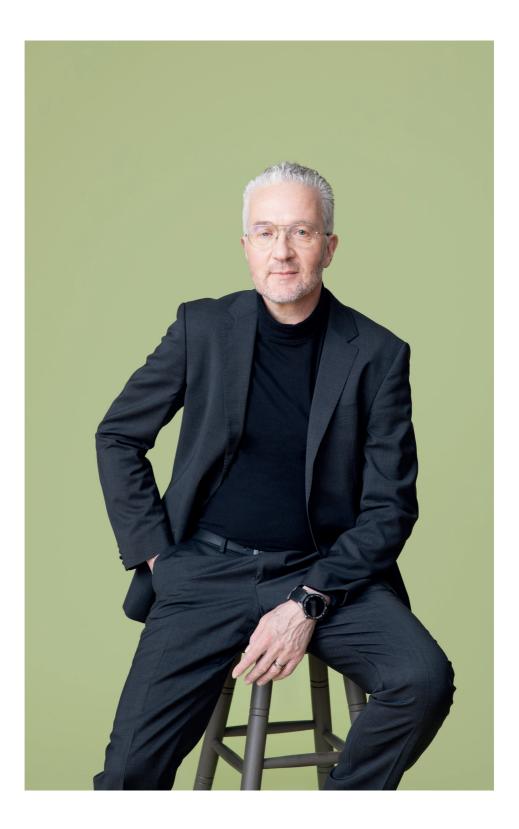
Greeting from the Secretary General

The recent advancements in artificial intelligence (AI) and especially the easy access to new AI applications and services has opened up a plethora of new opportunities for scientific research. Machine learning and generative language models allow researchers to perform complex tasks faster and more efficiently than before. A recent Nature survey of more than 1,600 researchers sheds light on the integration of AI in the scientific community.¹ According to the survey, many scientists consider AI a valuable tool in terms of data processing and speeding up computations, for example. However, there are obvious concerns about the risks of AI, such as the proliferation of misinformation and the rise of scientific fraud. Large language models, in particular, can produce inaccurate or misleading results in research, if their performance is not analysed critically.

The role of AI can be limited to that of a research assistant, but it has the potential to be much more than that. Science has enormous masses of data at its disposal, and AI has proven to be an effective tool for analysing them. For example, genetic sequence analysis and climate change modelling are areas of research in which using AI has resulted in significant advantages, which were previously beyond the reach of scientists.

As the *Nature* survey also shows, the use of AI in science is not entirely unproblematic. The biggest risk is that knowledge based on AI will begin to shift the scientific consensus in a misleading direction. This danger becomes real if AI is trained on insufficient or biased data masses. Such misleading data could strengthen false impressions or stereotypes, for example.

The ethics of scientific research requires that the critical review of AI is not limited to technical details alone. It is necessary to openly discuss how and to what extent AI is used, to whose advantage and with what consequences. It is up to the scientific community to ensure that AI is used responsibly and ethically to facilitate scientific pro-



gress while also respecting human dignity and individual rights.

This spring, we at the Finnish Academy of Science and Letters conducted several trials where we applied AI in a variety of tasks, such as communication and various forms of scientific advice. In addition, we organised our employees into learning pairs who meet regularly to discuss the risks and opportunities of AI and to share new ideas and potential applications. We also put together our own ethical guidelines for the use of AI.

The *Nature* survey also revealed, somewhat unsurprisingly, that the importance of AI in research will increase. More than half of the respondents expect AI tools to be "very useful" or "essential" for researchers in their field in the upcoming years. It is important for the scientific community to define clear guidelines for the use of AI, to increase transparency and to maintain a constant dialogue on how the technology can be utilized fairly and efficiently. Scientific research is not detached from social values or ethical considerations. AI-modified science should also modify AI in return – ethically, purposefully and for the greater good. Science and humanity can thus continue to progress side by side.

> 6 May 2024 Pekka Aula

¹Van Noorden, Richard & Perkel, Jeffrey M. 2023: AI and science: what 1,600 researchers think. Nature 621, pp. 672–675.



SUOMALAINEN TIEDEAKATEMIA NISH ACADEMY OF SCIENCE AND LETTERS





Secretary General Pekka Aula thanked those attending the Science Gala held by the Finnish Academy of Science and Letters in April.

S Ш PRIZ S AWARD AND

The Academy awards prizes each year to both experienced scholars in recognition of their life's work and researchers at an early stage in their career who have already achieved international reputation.

Lea Pulkkinen

Professor Lea Pulkkinen has had an impressive international career as a professor of psychology, working mainly at the University of Jyväskylä. In recognition of her scientific career, the Finnish Academy of Science and Letters awarded her the Academy Award. The award sum is 30 000 euros.

As a young student, she originally studied psychology as a minor subject, but Introduction to Psychology by Professor Martti Takala opened a window into scientific thinking, and she switched her major to psychology.

"Aiming to understand how we acquire information has been the most significant aspect of my career. Psychology is an empirical science that collects information from the people by listening to them and observing them. This information allows us to understand how people act and how they think. The utilization of information based on research has been a strong priority in my life."

Pulkkinen is one of the most distinguished researchers in the field of development psychology in Europe and has made Finnish psychology research more interna-

tional. Pulkkinen's doctoral dissertation in 1968 launched a unique and still ongoing longitudinal study of the growth and development of children into adulthood. In the late 1960s, and long after, emotions and reason were considered as separate from each other, but Pulkkinen realized that the differences in people's behavior could be explained by emotional regulation. The continued monitoring of the same group of people from primary school until middle age demonstrates the importance of emotional and behavioral regulation in terms of personal development in various areas, such as personality, education and working career, personal relationships, wellbeing and health, health behavior, and social adaptation. The study is known internationally as the Jyväskylä Longitudinal Study of Personality and Social Development (JYLS). Pulkkinen is grateful to her students and colleagues for their cooperation and to those who have participated in the study for donating their time to research.

Pulkkinen has worked as a visiting researcher and professor at the University

Lea Pulkkinen is one the most distinguished researchers in the field of development psychology in Europe.



of California, Berkeley, Arizona State University, the University of North Carolina at Chapel Hill, and the University of Cambridge in England. In 1991–1996, she served as the president of the International Society for the Study of Behavioural Development.

Alongside her international career as a scientist, Pulkkinen has wielded significant social influence and actively advocated for children, and she has been able to utilize the information obtained through research for the development of the society in an exemplary manner. Through multiple decades, she has been asked to weigh in on plans, decisions, and proposed legislation concerning children, and her objective has been to raise the cause of children and homes above party politics and day-to-day policy. In the 1970s, Pulkkinen participated in the planning of the educational goals for municipal daycare and raised con-

cerns about childhood loneliness during the service cutbacks in the 1990s. In the 2000s, she headed a trial intended to develop the structure of school days toward a more integrative direction by introducing enjoyable recreational and supervised leisure activities. This resulted in the inclusion of before- and after-school activities in the Finnish Basic Education Act. In 2015, Pulkkinen was invited by the Ministry of Education and Culture to examine effective practices for flexible school days, and her work produced a list of suggestions for establishing the concept. She is delighted by the fact that an addendum on the Finnish Model for Leisure Activities was introduced to the Youth Act at the beginning of 2023.

Her challenge for the future is also related to children.

"I would like to see society become more child oriented. The fact that a good childhood can carry far in life is also demonstrated by my own research. Child-orientation means that the psychological needs of children are taken into account. They need a lot of love, experiences of success, and the sense that they know what is expected of them. Love, structures, and encouragement. And the greatest of these is love."

The internationally respected and experienced scientist sees worrying signs

in our time concerning the future of Finnish science.

"We have harnessed science for practical needs and strategic guidance, which means that scientists are forced to chase grants, trying to jump from one field to another. This offers little chance of substantial Eureka moments. We need robust fundamental research. International mentoring and connections are also important, as they encourage and inspire us to innovate."



The 2023 Academy Award was awarded to Professor Lea Pulkkinen.

Juhani Knuuti

The Pro Scientia prize is awarded by the Finnish Academy of Science and Letters to a person or instance noted for speaking out, writing or engaging in other activities to the benefit of scientific study and research, thereby promoting the role of science in society. In 2023, the prize was awarded to MD and Professor Juhani Knuuti. The value of the prize is 10 000 euros.

Professor Juhani Knuuti works as the director and chief physician of the Turku PET Centre, a research institute operated jointly by the University of Turku, Åbo Akademi and Turku University Hospital.

Knuuti has especially studied blood circulation and metabolism of the heart muscle in relation to coronary artery disease and cardiac failure.

In addition to his successful career in research, Knuuti has gained renown as a staunch health educator and populariser and defender of science. Knuuti corrects erroneous and sometimes even untrue health-related claims in his presentations, works, blogs and on social media. He has a popularising column called Tiede & Terveys [Science & Health] on the website of the newspaper *Turun Sanomat* and he writes on *Uusi Suomi*'s Puheenvuoro column platform. Furthermore, he also regularly contributes to other publications, such as the Professor Blog of the Finnish Union of University Professors.

"The importance of science is regularly emphasised in speeches. But it is the strong experience of scientists that science and especially the freedom of scientists must be constantly defended. At present, there seems to be considerable pressure to politically or ideologically control the choice of research topics. Objective criticism is an integral part of science. The problem, however, is that criticism, especially in social media, is largely irrelevant and superficial. One solution to this problem lies in the hands of scientists themselves: improving research communication. A good place to start is with the title and public description of the project. Researchers should consider

Juhani Knuuti is an extremely meritorious advocate of science.



what the public description looks like from outside their own scientific sandbox," says Knuuti.

The Finnish Academy of Science and Letters considers Professor Juhani Knuuti to be an extremely meritorious advocate of science: Knuuti helps Finns find correct information. Bringing forth scientific knowledge in relation to various healthrelated claims also helps to stabilise society.

The purpose of the Pro Scientia prize is to highlight such valuable work in the cause of science that is often easily overlooked by the media and the general public. Professor Knuuti's work is an excellent example of selfless behaviour for the betterment of science and society.

Image: Mikael Soininen

Christian Hakulinen

The Prize for the Humanities is awarded to a scholar of humanistic sciences in the beginning of their career, who has already earned international renown. Prize for the Humanities is worth 15,000 euros. In 2023 the prize went to Christian Hakulinen who works as a university researcher in the Department of Psychology and Logopedics of the Faculty of Medicine, University of Helsinki.

In his research, Christian Hakulinen has focused on mental health disorders and their long-term effects on, for example, socioeconomic status, school success, relationships and work careers. Hakulinen received his doctorate in the field of psychology at the University of Helsinki in 2013. In his dissertation, Hakulinen examined the influence of the early family environment and the serotonin system on a person's hostility and anger, their development, and the health risk factors and social problems they may cause. After his dissertation, Hakulinen has researched, among other things, the importance of personality traits and social relationships in explaining health behaviour and health.

"I became interested in mental health disorders during my psychology studies. As a part of my studies, I completed an internship in a department of a psychiatric hospital, and while working on my dissertation, I worked in part-time positions in adult psychiatry before moving on to teaching and research," says Hakulinen.

"Clinical experience, and especially the increased understanding gained through research, reinforced the idea that the significance of mental health disorders for the individual, their loved ones and the wider community is often quite considerable. This is why I find it important to study them."

Hakulinen is currently leading the 1.5-million-euro, five-year-long ERC Starting Grant project "Effects of mental disorders on the wellbeing and prosperity of family members and friends", funded by the European Research Council. The project uses multidisciplinary methods to

In his research Christian Hakulinen has focused on mental health disorders.



investigate the effects of mental health disorders on social networks – especially the way mental health disorders affect the well-being of family members and loved ones, as well as socioeconomic factors. The project is based on extensive Finnish register materials.

"I consider myself lucky, because I get to research topics that I find extremely interesting," says Hakulinen.

"It has been my dream to establish my own research group, and I am very pleased that it has become reality. Of course, I hope that we will continue to receive research funding in the future, so that we can continue our current research activities." Hakulinen has a prominent internatio nal career, and he has published more than 90 scientific articles. He sees the future of psychological research in Finland as promising:

"Over the last ten years, psychology researchers have noticed that the results of classic studies tend to not be repeatable when re-examined using new, better materials. Consequently, it has been discovered that we can make even better science by improving certain methods used in the past. We also keep coming up with better ways of measuring psychological issues, and more and more extensive data is becoming available."

VÄISÄLÄ PRIZE

Anu Kankainen

Väisälä Prizes are awarded annually to distinguished scientists in mathematics and science who are in the active part of their careers. The prizes are worth 15,000 euros.

Professor Anu Kankainen's field of research, nuclear astrophysics, aims to examine the origin of elements in the universe. In her research, Kankainen has focused especially on the precision mass measurements of radioactive isotopes. Through these masses, we can gain information on nuclear binding energies and how much energy is released in nuclear reactions in stars, which in turn affects the probability of nuclear reactions.

Kankainen defended her doctoral thesis in 2006 in the Department of Physics at the University of Jyväskylä and then worked as a postdoctoral researcher at the Academy of Finland and an Academy Research Fellow at the University of Jyväskylä. From 2013 to 2014, Kankainen worked as a researcher at the University of Edinburgh in Scotland. "Following a series of twists and turns, I ended up studying physics at the University of Jyväskylä and during the course of my studies, I got more and more excited about research," says Kankainen. "Towards the end of my studies, I completed a course in nuclear physics, which put me on the path to becoming a nuclear physicist: the course was extremely inspiring and, among other things, led me to become a summer trainee at the Accelerator Laboratory of the University of Jyväskylä. Soon after this, I applied for doctoral studies."

In 2017, Kankainen received the esteemed and generous ERC Consolidator Grant from the European Research Council for her research project MAIDEN (Masses, Isomers and Decay Studies for Elemental Nucleosynthesis). She was appointed Associate Professor in 2019 and Professor in 2022.

Kankainen is one of the most distinguished young experts in her field of research and has an extensive international cooperation network in Europe and the Anu Kankainen's field of research aims to examine the origin of elements in the universe,



United States. She has published almost 200 research articles, including several publications in leading journals in her field. In addition, she holds several positions of trust related to research.

"Research in nuclear astrophysics is very international by nature. We conduct measurements in large research groups, for one to two weeks at a time," says Kankainen. "The best part about my job are the measurements and what we may discover through them, and working together with all kinds of people."

Experimental research led by Kankainen has been conducted mainly at the Accelerator Laboratory of the University of Jyväskylä, but also in other leading research centres in the field, such as CERN, GSI-FAIR and NSCL Michigan State University. This research has produced extremely precise mass and binding energy data for more than one hundred rare radioisotopes and several metastable nuclear states.

"It always feels great to discover something that nobody else has discovered before. There is currently a lot going on internationally in nuclear astrophysics research. For example, a new accelerator laboratory has just been opened in the United States, which can produce extremely neutron-rich nuclei and study their properties. My personal dreams have to do with how much we can discover in the years to come."

Image: Petteri Kivimäki

VÄISÄLÄ PRIZE

Lauri Oksanen

Väisälä Prizes are awarded annually to distinguished scientists in mathematics and science who are in the active part of their careers. The prizes are worth 15,000 euros.

Professor Lauri Oksanen's research deals with inverse problems. Oksanen's research is applied, for example, when there is a need to know what is inside an object in medical or soil imaging. Oksanen studies the mathematical methods needed to produce such images.

Oksanen earned his Master of Science degree in 2008 and his PhD in 2012. Following this doctoral thesis, he went on to work briefly as a post doc researcher at the University of Washington and then in 2013 as a lecturer at the University College London where he was appointed permanent Professor of Mathematics in 2020. In 2021, it was time to move to Finland to become Professor of Applied Mathematics at the University of Helsinki.

Oksanen became interested in mathematics at a young age for several reasons. "Ever since comprehensive school, I've had excellent mathematics teachers. I've definitely also had some natural inclination towards the field, in addition to a group of friends who are interested in mathematics. When I was younger, I enjoyed computer programming as a hobby, which is a lot like mathematics: both require logical thinking and the ability to express yourself in formal languages and enjoy this type of expression," says Oksanen.

Oksanen's research is exceptionally broad in scope and he is one of the world's leading researchers in numerical methods for inverse problems. He has studied numerical methods for partial differential equations, especially element methods, and his studies on discretization have attracted wide attention. Oksanen has also achieved interesting results with medical imaging methods combining different physical models, for example in photoacoustic imaging.

"My working days are quite varied. When I'm working remotely, I do a lot of reading and thinking, whereas when I'm at the university, I meet with my research

Lauri Oksanen's research deals with inverse problems



group and have lots of conversations with people, which stimulates my thinking on remote working days. Both sides are important."

Oksanen's work has gained remarkable visibility around the world, and he has been invited to speak at a number of international conferences. He has also received major funding for his research, including the ERC Consolidator Grant from the European Research Council for the years 2023–2028. This funding is aimed at distinguished researchers for consolidating their research group and establishing an impactful career in Europe. Oksanen also serves as the principal investigator at the Centre of Excellence of Inverse Modelling and Imaging of the Academy of Finland (2023–2025). As for the future of mathematics in Finland, Oksanen feels optimistic: "We in Finland have extremely good, top-notch research groups and can conduct research in mathematics at the highest international level. Looking at the field more broadly, I wish that education in mathematics would lean slightly more towards computer science. The processing of large data sets and machine learning models, which are the hot topics today, sit largely in the intersection between mathematics, computer science and statistics."

Oksanen's dreams for the future have to do with solving certain mathematical problems, but the researcher does not want to give away too much: "Probably every mathematician has a favourite problem that they dream of solving."

Image: Maarit Kytöharju

ACTIVITIES

The Academy is committed to supporting high-quality research, improving the esteem in which academic work is held and increasing scholars' interaction with each other and with society at large.

Annual report of the Finnish Academy of Science and Letters

GOVERNING BOARD AND SECRETARY GENERAL

The year 2023 was the 116th year of operation of the Finnish Academy of Science and Letters. The President of the Governing Board in 2023 was Kimmo Kaski and the Vice President was Tuula Linna. Pekka Ilmakunnas continued as Treasurer of the Board, Juha Kinnunen as Secretary of the Section of Science and Päivi Pahta as Secretary of the Section of Humanities. The ordinary members were Riitta Julkunen-Tiitto, Tiina Kinnunen, Heikki Mannila and Jukka Westermarck. The Governing Board held nine meetings during the year. Pekka Aula continued as Secretary General.

The members of the Governing Board served during the year as trustees of the Emil Öhmann Foundation and the Hilkka and Otto Brusiin Foundation.

The compositions of the committees and working groups set up by the Governing Board were as follows:

 Financial Management Committee: Kimmo Kaski (chairman), Tuula Linna, Pekka Ilmakunnas, Pekka Aula, Juha Kinnunen, Päivi Pahta, and expert advisory members Anders Ekholm and Ralf Sunell. The secretary was Pekka Ilmakunnas.

- Prizes Committee: Kimmo Kaski (chairman), Juha Kinnunen, Päivi Pahta, Tiina Kinnunen and Heikki Mannila. The secretary of the committee was Leila Sarajärvi.
- Publications Committee: editors-inchief Anna Mauranen and Risto Nieminen, Secretary General Pekka Aula, Kimmo Kaski (chairman), Päivi Pahta (vice chairman), Jari Eloranta, Jaakko Husa, Heta Pyrhönen, Tapio Salmi, Hannu Sariola and Erkki Tomppo. The secretary of the committee was Anna Chydenius.
- Ethics Committee: Tuula Linna and Juha Kinnunen. The secretary of the committee was Leila Sarajärvi.
- Trustees of the Emil Aaltonen Fund: Kimmo Kaski (chairman), Pekka Ilmakunnas and Secretary General Pekka Aula, together with Olavi Nevanlinna as the representative of the Emil Aaltonen Foundation.



Outgoing President Kimmo Kaski presented the president's gold watch to his successor Tuula Linna at the end of December. The watch has been passed from one president to another for almost a hundred years.

The members of the Selection Committee for the Section of the Humanities up until the Autumn Meeting 2023 were Tuomas Forsberg, Heikki Halila, Anne Kovalainen, Marja-Kristiina Lerkkanen, Pirjo Markkola, Martti Nissinen (chairman), Minna Palander-Collin and Sirkka Saarinen. Halila and Kovalainen stepped down in the Autumn Meeting and Ilkka Arminen and Petri Kuoppamäki were elected as new members of the Selection Committee.

The members of the Selection Committee for the Section of Science up until the Autumn Meeting 2023 were Kari Enqvist, Jyrki Heino, Olli Ikkala, Sirpa Jalkanen, Jouko Korppi-Tommola, Ilkka Norros, Kaisa Poutanen and Kristiina Wähälä. Ikkala, Korppi-Tommola and Wähälä stepped down in the Autumn Meeting and Matti Hämäläinen, Riitta Keiski and Pekka Niemelä were elected as new members of the Selection Committee.

MEMBERSHIP

The Finnish Academy of Science and Letters had 843 Finnish members and 161 external members at the end of 2023.

Altogether 29 new Finnish members were elected in the Spring Meeting on 28 April. No new external members were elected.

The new members elected to the Section of Science were Tero Aittokallio (OCBE, Norway), Anu Kankainen (University of Jyväskylä), Timo Lakka (University of Eastern Finland), Jyri-Pekka Mikkola (Åbo Akademi University and Umeå

GOVERNING BOA	ARD 2023
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Member	Position	Term
Kimmo Kaski	President, chairman of the Governing Board	2022-2023
Tuula Linna	Vice President, vice chairman of the Governing Board	2022-2023
Pekka Ilmakunnas	Treasurer	2019-2023
Päivi Pahta	Secretary, Section of Humanities	2022-2023
Juha Kinnunen	Secretary, Section of Science	2019-2023
Riitta Julkunen-Tiitto	Member	2023 (1st term)
Tiina Kinnunen	Member	2023 (1st term)
Heikki Mannila	Member	2023 (1st term)
Jukka Westermarck	Member	2023 (3rd term)

University, Sweden), Marko Mäkelä (University of Turku), Mikko Möttönen (Aalto University and VTT), Marko Salmi (University of Turku), Tiina Sikanen (University of Helsinki), André Sourander (University of Turku), Liisa Tyrväinen (Natural Resources Institute Finland), Pekka Vallittu (University of Turku), Baoru Yang (University of Turku) and Monika Österberg (Aalto University).

The new members elected to the Section of the Humanities were Pertti Ahonen (University of Jyväskylä), Sarah Green (University of Helsinki), Henrietta Grönlund (University of Helsinki), Tuomas Heikkilä (University of Helsinki), Jari Hietanen (Tampere University), Timo Kivimäki (University of Bath, UK), Laura Kolbe (University of Helsinki), Tomi Laamanen (University of St. Gallen, Switzerland), Esa Lehtinen (University of Jyväskylä), Petri Luomanen (University of Helsinki), Sakari Melander (University of Helsinki), Kai Mikkonen (University of Helsinki), Tuomas Ojanen (University of Helsinki), Taina Pihlajarinne (University of Helsinki), Ville Pönkä (University of Helsinki) and Camilla Wide (University of Turku).

The Academy mourned the deaths of the following ordinary members: Aulis Aarnio, Bengt Broms, Jussi Huttunen, Jaakko Hämeen-Anttila, Sören Illman, Kai Krohn, Eino Murtorinne, Olli Mäkelä, Matti Nuorteva, Risto Näätänen, Kalevi Pyörälä, Viljo Rasila, Eero Saksela, Seppo Siirilä, Liisa Simola, Tauno Turunen and Pentti Virrankoski.

News was also received of the death of external members Alexander Andreev, Stefan Arnborg, Raimo Anttila, Ulf Bernitz, Nils-Arvid Bringéus, Bengt Fuglede, Ernesto Garzón Valdés, Allen Noble, Olof Ruin, Naz Ahmed Shaikh and Roman Teisseyre.

The facilities of the Academy on the 2nd floor at Mariankatu were available to members and they were frequently reserved over the course of the year.

GRANTS

The Finnish Academy of Science and Letters distributed over 2.6 million euros in grants in 2023. The majority of these grants were for young post-graduate researchers.

Grant applications were reviewed by experts appointed by the Governing Board of the Academy, who then prepared recommendations on the grants to be awarded. The final decisions were made by the Board on the basis of the reviewers' recommendations. The possible incompetence of grant reviewers and the board members have been taken into account when processing the grants of the funds and foundations administered by the Academy.

A full-year grant for post-graduate study was worth 26,000 euros. No grants were awarded to Academy members.

This was the 59th time that grants for research in mathematics and natural sciences were distributed from the Vilho, Yrjö and Kalle Väisälä Fund. Approximately 1.65 million euros (1.6 million in 2022) was awarded in grants. The fund received a total of 305 (253) applications, with a combined sum of roughly 6.9 (5.7) million euros.

Grants from the Väisälä Fund were awarded to 75 (75) applicants. These included 53 (55) post-graduate grants of 26,000 euros for full-time academic study for a duration of one year and 18 (11) grants for part of a year. No (5) grants were awarded for research costs in addition to post-graduate grants. A total of 4 (12) grants were awarded for short-term research visits abroad.

The first Väisälä projects grants of the Finnish Academy of Science and Letters were awarded during the year. These grants are intended for researchers working in Finland at the early stages of the tenure track to set up their research group and cover the group's research costs. The threeyear project grant worth 150,000 euros was awarded to two researchers.

The Eino Jutikkala Fund distributed grants for research in the humanities for the 16th time. The application fields under the Academy's Section of the Humanities are divided into two baskets, and applications in aesthetics, Finno-Ugric studies, philosophy, pedagogy, linguistics, psychology, art research, theology and religious studies were invited this year. This led to a total of 294 (302 in 2022) applications, amounting to roughly 7.9 (8.2) million euros altogether. Due to the division into baskets, the statistics are not directly comparable between two consecutive years.

Grants from the Jutikkala Fund were awarded to 19 (19) applicants, about 499,640 (504,400) euros in total. A total of 2 (4) grants were awarded for research costs in addition to post-graduate grants. All these grants were for the commencement of doctoral studies.

The Academy's Mathematics Fund distributed roughly 32,440 (114,000) euros in grants and prizes. The Emil Öhmann Foundation, which is administered by the Academy, distributed 57,000 (56,190) euros in grants. The foundation also awarded 2 (1) grantees an Institute grant worth 3,000 (3,000) euros for short-term research at the Finnish Institute in Germany in Berlin. The Hilkka and Otto Brusiin Foundation distributes grants every two years, and no grants were given in 2023.

The year 2023 was the eighth year that the Academy took part in the Finnish Foundations' Post Doc Pool. The sum that was set to be distributed in 2023 was 200,000 euros. The grants awarded in 2023 amounted to 130,000 euros from the Väisälä Fund and 59,000 euros from the Jutikkala Fund. The unawarded sum was transferred to be awarded in 2024.

PRIZES

The 2023 Academy Award of the Finnish Academy of Science and Letters, a sum of 30,000 euros, was presented to Professor of Psychology Lea Pulkkinen for her impressive career. Pulkkinen was also presented with Academy Medal No. 38.

The Finnish Academy of Science and Letters Prize for the Humanities, now awarded for the 13th time and amounting to 15,000 euros, was awarded to University Researcher Christian Hakulinen from the University of Helsinki.

The Academy's Väisälä Prizes 2023 were given to Professor Anu Kankainen from the University of Jyväskylä and Professor Lauri Oksanen from the University of Helsinki. These prizes were now awarded for the 24rd time, and they are worth 15,000 euros each.

Awarded every two years, the Pro Scientia Prize was presented to Professor Juhani Knuuti. The value of the prize is 10,000 euros.

Over the course of the year, the Academy proposed candidates for the following



The new members of the Finnish Academy of Science and Letters in 2023 were celebrated at the House of Nobility in September.

prizes: the Gad Rausing Prize, the Holberg Prize, the Keio Medical Science Prize, the Louis-Jeantet Prize and the Nils Klim Prize.

As for national awards, the Academy proposed candidates during the year for the Alfred Kordelin Prize and the Science Award of the Federation of Finnish Learned Societies.

THE HISTORY OF SCIENCE IN FINLAND

Following the preparations in the previous year, the project entitled The History of Science in Finland was launched during the year under review. The project is coordinated by the Finnish Academy of Science and Letters and the Finnish Society of Science and Letters. The aim of the project is to produce new knowledge, a series of books and an online database on the history of science in Finland during its independence. The project makes extensive use of interview material and recollections, some of which were collected during the year. The project manager is Dr. Stefan Nygård who works at the Academy. The steering group of the project includes representatives from seven organisations.

The Finnish Academy of Science and Letters and the Finnish Society of Science and Letters, together with the Society of Swedish Literature in Finland (Svenska Litteratursällskapet) cover the costs of the first phase of the project.

The opening seminar of the project, "Practice and place in the history of science and knowledge", was held in June.

MEETINGS AND EVENTS

The Finnish Academy of Science and Letters organised public events throughout the year 2023. The thematic meeting in March was held at the House of the Estates, but after renovation of the building began in autumn 2023, the events were moved to the House of Nobility. The events were also streamed live online. The thematic meetings gathered a total of approximately 1,100 participants. The recordings of the events are available for the time being on the website of the Academy.

13 Feb. Thematic meeting: Tekoäly ("Artificial intelligence")

- House of Nobility and live stream online
- Speakers: Associate Professor Riikka Koulu, Professor Petri Myllymäki and Assistant Professor Arno Solin

13 Mar. Thematic meeting: Kvanttiteknologian vaikutukset yhteiskuntaan ("Impact of quantum technology on society")

- House of the Estates and live stream online
- Speakers: Academician Risto Nieminen, Professor Nina Granqvist and Professor Mikko Möttönen

11 Sep. Ilta tieteelle: Näkökulmia kulttuuriantropologiaan ja lastenpsykiatriaan ("Evening dedicated to science: Perspectives on cultural anthropology and paediatric psychiatry")

- House of Nobility and live stream online
- Speakers: Professor Sarah Green and Professor André Sourander

9 Oct. Ilta tieteelle: Kohti pitkäikäisten yhteiskuntaa ("Evening dedicated to science: Towards a longevity society")

- House of Nobility and live stream online
- Discussion by Professor Emeritus Timo Strandberg, Professor Teppo Kröger, Docent Leena Forma and Professor Esa Jämsen
- The Finnish Academy of Science and Letters Prize for the Humanities was presented at the event and the grantees of the Eino Jutikkala Fund and the Emil Öhmann Foundation were announced

13 Nov. Ilta tieteelle: Tekoälyn yhteiskunnalliset vaikutukset ("Evening dedicated to science: Societal impact of artificial intelligence")

- House of Nobility and live stream online
- Discussion by Professor Minna Ruckenstein, Professor Hannu Toivonen and Professor Petri Ylikoski
- The Pro Scientia Prize of the Finnish Academy of Science and Letters was awarded at the event



The keynote speaker at the December event at the House of Nobility was Academician of Science Kari Alitalo. His presentation covered topics such as how cancer develops and how it is studied, and where cancer research in Finland is going at the moment.

11 Dec. Ilta tieteelle: Matemaattis-luonnontieteellinen tutkimus ("Evening dedicated to science: Research in mathematics and the natural sciences")

- House of Nobility and live stream
 online
- The keynote speaker of the evening was Academician of Science Kari Alitalo
- The Väisälä Prizes of the Finnish Academy of Science and Letters were presented at the event and the grantees of the Vilho, Yrjö and Kalle Väisälä Fund were announced

An exclusive "pre-event" was organised before the evenings dedicated to science

for members of the Finnish Academy of Science and Letters in the facilities of the Academy at Mariankatu during the autumn period 2023.

The Finnish Academy of Science and Letters celebrated its 115-year journey on 28 April together with members and invited guests at the Science Gala at the Old Student House.

A Science Matinee was organised for members on 30 May at the Väisälä Hall of the Academy. The theme of the event was multidisciplinarity. The topic was addressed by Academician of Science Riitta Hari, Research Director and Chair of the Finnish Climate Change Panel Markku Ollikainen and Professor of Urban Geography Mari Vaattovaara.

A housewarming party was organised in October at the Mariankatu facilities of the Academy for the members and stakeholders of the Academy; the office of the Academy moved to its current location in spring 2020, but no celebrations were held at the time due to COVID-19.

During the year, the Academy also engaged in extensive cooperation with other parties in the field in terms of events.

14 Jan. "Viestintäkulttuuri ja uuden alku" ("Communication culture and a new beginning")

- Part of the programme of the Science Forum, in cooperation with Suomen Kuvalehti. University of Helsinki and live stream online
- Discussion by Vice President of the Academy, Professor Tuula Linna, Professor Roope Uusitalo, Postdoctoral Researcher Johanna Vuorelma and non-fiction writer, PhD Tiina Raevaara

23 May "Freedom of Research – Contemporary and Transnational Perspectives"

- Panel discussion in cooperation with the Helsinki Collegium for Advanced Studies, University of Helsinki. Think Corner and live stream online
- Discussion by Academician of Science Eva-Mari Aro, University Researcher Andrew Graan, Professor Arto Laitinen and Postdoctoral Researcher Johanna Vuorelma

26 Oct. "Great Nobel debate"

- In cooperation with other academies of science and Helsingin Sanomat. Sanoma House and live stream online
- The event featured presentations on the 2023 Nobel laureates, their research topics and the significance of their research

7 Nov. "TKI-rahoitus kasvaa. Miten potti jaetaan?" ("More funding for RDI. How will the money be divided?")

- Panel discussion in cooperation with the Finnish Society of Sciences and Letters. House of Science and Letters and live stream online
- The topic was addressed by President of the Academy of Finland Paula Eerola, Director of the Confederation of Finnish Industries Riikka Heikinheimo, President of Tampere University Keijo Hämäläinen and Academician of Science Ilkka Niiniluoto

The meetings of the sections of the Finnish Academy of Science and Letters were held in March at the House of the Estates. In terms of regular meetings, the spring meeting was held in April before the Science Gala at the Old Student House and the autumn meeting in November at the Mariankatu facilities of the Academy.

Of the groups of the Academy, the Chemistry group held an event on 28 April entitled "Chemistry in Finland – Solutions to Major Challenges" and the Jurisprudence group held a seminar on 24 November entitled "Oikeustutkimus 2023" ("Legal research 2023"). Both events were organised at the House of Science and Letters.

SCIENCE AND POLICY

In 2023, the Science and Policy activities of the Finnish Academy of Science and Letters grew significantly due to the Phenomenon Map project funded by the Jane and Aatos Erkko Foundation. The Science and Policy team grew from two to five people. During the period, the team produced seven different knowledge syntheses both Over the course of the year, more than 200 researchers and 15 scientific organisations contributed to science and policy activities.

for public debate and directly for the highest political offices in Finland (the Prime Minister and the State Secretary at the Prime Minister's Office). Over the course of the year, more than 200 researchers and 15 scientific organisations contributed to these activities. Ties were strengthened, especially with the Prime Minister's Office, by establishing a framework agreement on the knowledge syntheses produced for the Office. During the year, more than 310 separate stakeholder discussions were held, and 20 speeches on the activities were given at public events in Finland and abroad. The approaches developed in the past few years attracted much interest abroad, including in the European Commission, the UN, international networks, and science academies. For example, the work results were also highlighted in some of the most-read news in Helsingin Sanomat. Surveys and light pilots were launched to examine the use of AI to support the work of the Science and Policy team.

Highlights of the activities in 2023:

 Production of written knowledge syntheses. Seven knowledge syntheses were produced on topics ranging from old age to quantum technology, utilizing various data collection methods and publication formats.

- Data compilation methods, synthesizing different types of knowledge and knowledge formats. The production of written syntheses facilitated the internal development of ways to identify knowledge needs, implement effective data collection methods, systematically synthesize different types of knowledge, and produce easily understandable knowledge formats. A digital knowledge matrix was also produced with the aim of seeking alternative ways to present knowledge to replace the traditional report format.
- Initial assessment and light piloting of the opportunities offered by AI. The potential and limitations of using AI in the field of evidence-informed decision-making were examined. Two light pilots (the AI trial in medical foundations and the updated situational picture of the hydrogen economy) were also carried out to support the strategic planning and targeting of upcoming work.
- Materials to support the impact work of researchers. An online course open to all doctoral students was produced on the basis of the impact training course developed during the Sofi project (2019–2021), and the Researcher's Handbook was put together to support the societal interaction of researchers.
- Consolidating collaboration with the Finnish Government. The ties of the Finnish Academy of Science and Letters with the Finnish Government and especially the Prime Minister's Office have grown significantly stronger over the past five years. During the year under review, the Academy received more than ten

different offers of collaboration and requests for assistance, relations were further strengthened by a framework agreement with the Prime Minister's Office, and discussions were actively held on more intense and systematic forms of cooperation.

• Strengthening dialogue with key international players. Dialogue was intensified with e.g. the Royal Society, the Leopoldina, KNAW in the Netherlands and the European Commission (Scientific Advice Mechanism, SAM) and the Joint Research Centre (JRC).

The following actions and activities also took place during the year under review:

- Science sparring Policy Brief UN STI Forum
- Article: Superpowers of humanists in evidence-informed decision-making
- · Foresight work on biodiversity loss
- Science sparring: Ecological connections in the built environment
- Researchers' discussion on obesity
- Roundtable on science diplomacy
- Roundtable on social psychology
- Societal impact of NATO on Finland, light survey for the Prime Minister's Office
- Impact training course for Young Academy Finland
- Impact training course for the Faculty of Medicine at the University of Helsinki
- Online course: National impact training course for doctoral students
- Impact training course, MOOC course in cooperation with the University of Helsinki
- Specific guidelines on the information needs of a researcher in cooperation with the Prime Minister's Office

INTERNATIONAL ACTIVITIES

The Finnish Academy of Science and Letters strengthened existing and built new international relations, particularly under the Science and Policy theme. The Academy organised several discussions with European academies of science on evidence-informed decision-making and the role of academies of science in future societies. The Academy visited Leopoldina (German National Academy of Sciences) in Germany, KNAW (Royal Netherlands Academy of Arts and Sciences) in the Netherlands, and RSE (The Royal Society of Edinburgh) in Scotland. A remote meeting was held with SCNAT (Swiss Academy of Sciences), and the Estonian Academy of Sciences visited the facilities at Mariankatu. The Academy participated in the Annual Meeting of the European Science Advisors Forum in Vilnius as the Finnish representative. The Academy was an invited guest at the European Commission's JRC (Joint Research Centre), WRR (The Netherlands Scientific Council for Government Policy), and the Cabinet Office in the United Kingdom. Activities were also presented at the Science Advice at Times of Crises conference of SAPEA (Science Advice for Policy by European Academies) in Brussels.

Contacts with international scientific organisations by the Finnish Academy of Science and Letters took place mainly under the auspices of the Council of Finnish Academies (CoFA), the cooperative body for the science academies in Finland. The Academy's President was a member of the executive committee of CoFA and the Academy's Vice President acted as their deputy. The Secretary General was also a member of the executive committee, but



The publication "Tutkijan käsikirja" at the end of 2023 will support researchers in policy-making and promoting the impact of research. It is part of the Academy's work to promote knowledge-based policy making. It was published in English in April 2024 as "Pathways to Impact: Researcher's Handbook on Science-for-Policy".

without a vote. The Academy was represented on CoFA's International Affairs Committee (IAC) by Anna Mauranen, who also acted as the chairman of the committee, and by Olavi Nevanlinna. The chairman of CoFA's Human Rights Committee was Liisa Laakso.

CoFA plays an important role in the reform of the Finnish system of academies of science and will be crucial in determining the direction this system will take in the future. Within the framework of their agreement, the academies of science will participate even more actively in developing the scientific community and its internationalization. Through the medium of CoFA, members of the Finnish Academy of Science and Letters held positions of trust in several international scientific organisations: Mats Gyllenberg, Johanna Mappes, Pirjo Peltonen-Sainio, Craig Primmer, Jukka Seppälä and Maija Tenkanen in EASAC; Anna Mauranen, Ahti Salo and Mari Vaattovaara in ISC; Mika Kajava in UAI; Liisa Laakso in the International Human Rights Network; Krista Varantola and Risto Kunelius in ALLEA; Jukka Seppälä in SAPEA; and Elina Ikonen and Olli Vapalahti in IAP.

The Academy appoints members to various national committees. In the case of the Finnish National Committee of Arctic and Antarctic Research (SCAR, IASC), the Academy's representative was Atte Korhola, with Juha Pekka Lunkka as his deputy. The representative on the National Committee for Astronomy (IAU) was Karri Muinonen. The representatives on the National Committee for Radio Science (URSI) were Esa Kallio and Karri Muinonen, with Ilya Usoskin as the deputy. Kimmo Kahma was the representative on the Finnish National SCOR Committee, Juha Pekka Lunkka on the National Committee for Quaternary Research (INOUA), Ilkka Norros on the National Committee on Theoretical and Applied Mechanics (IUTAM) and Juha Pekka Lunkka on the National Committee for Geology (IUGS).

The Academy was represented by President Kimmo Kaski and Secretary General Pekka Aula at the STS forum in Kyoto, Japan.

YOUNG ACADEMY FINLAND

The year 2023 was the sixth full year of operation for Young Academy Finland (YAF), founded with the aim of promoting science, especially from the viewpoint of young researchers who are just starting their academic careers. The Board of Young Academy Finland was chaired by Olli-Ville Laukkanen until 15 September, followed by Lasse Lehtonen on 16 September. Young Academy Finland had a total of 82 members and 74 alumni during the year.

The establishment of Young Academy Finland was to a large extent made possible by the donation of one million euros in 2017 from the Emil Aaltonen Foundation to the Finnish Academy of Science and Letters for establishing YAF. A separate Emil Aaltonen Fund was set up as a result of this donation. Young Academy Finland works in association with the Finnish Academy of Science and Letters. It issues its own annual report every year and submits it to the Governing Board of the Academy.

PUBLICATIONS

The multidisciplinary publication series of the Finnish Academy of Science and Letters Annales Academiae Scientiarum Fennicae (AASF) consolidated its activities in 2023. The first issue of the series was published in 2022, and according to plan, two issues were published in 2023: AASF 1/2023 in May and AASF 2/2023 in December. Both issues contained eight research articles and featured all three languages of the publication - Finnish, English and Swedish. The publication is freely available online at journal.fi and is also sold at Bookstore Tiedekirja. The editors-inchief of the series are Anna Mauranen and Risto Nieminen and the editorial assistant is Anna Chydenius.

The Year Book of the Academy 2022 was published in 2023 in Finnish and in English. The Year Book is freely available online on the Academy's website. The print version of the Year Book is sent to all members and stakeholders and is also sold at Bookstore Tiedekirja. The editor-in-chief of the publication is Pekka Aula and the editorial assistant is Nina Rapelo.

During the year, the following publications were produced, mainly under the Science and Policy theme: *Suomi muuttuu* ("Finland in change"), a fact sheet for government negotiations; *Ulkomaalaistaustaisten hyvinvointi* ("Wellbeing of people with an immigrant background"), a knowledge synthesis for the Prime Minister's Office; Science brief: Hydrogen in the Green Transition; Science brief: Quantum Technology; Terve vanhuus ("Healthy ageing"), a discussion paper; and Yhteiskunnallisen vaikuttamisen avaimet: Tutkijan käsikirja ("Researcher's Handbook on Science-for-Policy").

The Academy received a government grant of 25,000 (28,000 in 2022) euros for its publications; the grant was for the AASF series. Exchange of the Academy's publications is managed by the Exchange Centre for Scientific Literature run by the Federation of Finnish Learned Societies. The Academy had 53 (53) overseas exchange partners at the end of the year 2023, and a total of 54 (54) publications were sent out in this way.

In 2023, the revenue from publication sales was approximately 9,500 euros (c. 2,500 euros in 2022). The revenue is largely from the sales of the publication that is part of the *Humaniora* series, published near the end of 2022.

A joint publishing committee was established in the beginning of 1996 to coordinate the publications of the Finnish Academy of Science and Letters and the Finnish Society of Sciences and Letters. The committee is elected for a three-year term, and a representative of either the Academy or the Society is elected as chairman of the committee in alternating terms. The chairman for the term 2021–2023 is Jari Ojala who represents the Finnish Academy of Science and Letters.

COMMUNICATIONS

The development of communications continued actively during the year. A newsletter tool was introduced, making it possible to send letters to members of the Academy and invitations to public events by e-mail in a form that is scalable for mobile devices. The letter sent to members was published

Th multidisciplinary publication AASF consolidated its activities in 2023

10 times during the year. An electronic Newsletter was also created for the Academy. It is sent to the stakeholders of the Academy and can be subscribed to on the Academy's website. This Newsletter was published twice during the year.

The website was developed during the year to better meet the requirements of the growing activities. Changes were made especially to the News page, where news can now be filtered by activities and themes. During the year, news were actively published on the website: a total of 97 news were posted. The website had a steady flow of visitors throughout the year, and the number of visits was approximately 33,000 during the year. The most popular contents were the grants and prizes awarded by the Academy.

In addition to the website and the newsletters, the key communication channels of the Academy were Facebook, LinkedIn and the X communication platform and, increasingly, also Instagram. A press release distribution service and a media monitoring tool were used in external communication. Communication was systematically carried out while taking into



The meeting rooms of the Finnish Academy of Science and Letters on the first floor of Mariankatu 5 were in active use during the year.

account the defined target groups, key messages and channels.

Video productions were one of the priorities in communications. There is, in fact, a communications specialist working for the Academy who produces videos for the Academy's needs. During the year, videos were produced, for example, on the winners of the Academy Award, the Prize for the Humanities and the Väisälä Prize. In addition, videos were produced in topics such as quantum technology and questions concerning clean hydrogen. During the course of the year, a short introductory video was also filmed about the activities of the Academy and various videos were produced especially for the needs of the Science and Policy team.

In terms of internal communication, the exchange of information between different teams was at the focus during the year. Communications were planned and implemented widely in the Communications Team, which also includes individuals from the Administrative Team and the Science and Policy team.

FINANCES AND PROPERTY MANAGEMENT

The Financial Management Committee, the advisory body of the Governing Board on financial matters, consisted in 2023 of Kimmo Kaski, Tuula Linna, Juha Kinnunen, Päivi Pahta, Pekka Ilmakunnas and Pekka Aula. Anders Ekholm and Ralf Sunell served as expert advisors. The Academy's assets were managed in accordance with the investment strategy for the Academy itself, its funds and the foundations under its administration. This strategy was updated in 2021.

The total value of the assets held by the Academy and its various funds at the end of 2023 was approximately 208 million euros (198 million euros at the end of the previous year), with a further sum of 4.6 million euros held by the foundations under the Academy's administration at the end of 2023.

These assets, comprising portfolios of shares and bonds, shares in Vaisala Oyj, and alternative investments, were managed by Nordea and Evli. All the offices in the property at Mariankatu 5 are directly owned by the Academy, while otherwise most of the Academy's financial investments are in eQ unit trusts. The other alternative investments are in private equity funds, principally the Hamilton Lane Club Fund.

In the year under review, the total return on assets, including dividends, interests, rents and changes in the value of assets, but excluding the Vaisala Oyj shares, was about 8% (about -10% in the previous year). Vaisala Oyj shares fell more than other shares, and the overall return for the year, including these shares, was approx. 6% (-17% in the previous year).

The auditor of the Academy's accounts and administrative procedures in 2023 was KHT auditor Riku Kärnä, with KHT auditor Helena Sinisalo as his deputy. The auditors' report and the report on financial management will be published with this yearbook.

STAFF

The Academy's Secretary General was Professor Pekka Aula. The Administrative Manager of the Academy was Leila Sarajärvi, the Administrative Secretary Nina Rapelo, and the Administrative Assistant Suvi Salmi until March and Emilia Lähde as of April. The Head of Communications was Anna Chydenius and the Communications Specialist was Aleksi Kylmälahti. The part-time Science Coordinator of Young Academy Finland was Riikka Hiltunen. The project "Meet a Researcher" was led by Kim Krappala.

The Science and Policy team consisted of Academy Secretary Jaakko Kuosmanen, Knowledge Broker Nanna Särkkä in January and Knowledge Broker Iiris Koivulehto from March. The Phenomenon Map project involved Knowledge Brokers Vaula Helin from January, Linda Lammensalo from March, Iiris Koivulehto until February and Antti Kailio from November fulltime and, for part of the year, Tomi Kärkkäinen and Janne Starck.

During the year under review, the Science and Policy team included interns Visa Mäntyneva and Joakim Westrén-Doll, in addition to Anna Koskela as a communications intern.

The staff of the Academy attended a wide variety of training events and seminars. Occupational wellbeing events were also organised during the year.

During the year under review, the Academy paid a salary or remuneration to 41 individuals in total.

OTHER ACTIVITIES

The Finnish Academy of Science and Letters issued two comments, by request, during the year: on the draft of the Government Decree on the Research and Innovation Council and on the Decree on the Finnish Nature Panel and on the granting of a discretionary government grant for fulfilling the mandate of the Nature Panel. Jaakko Kuosmanen was heard as a representative of the Academy at the Parliament's Committee for the Future on quantum technology and at the Human Rights Centre as an expert on science and foresight.

During the year, the Governing Board of the Academy proposed members for several working groups and bodies by request. The Academy has representatives in several institutions and organisations both in Finland and abroad.

Anna Mauranen was a member in the International Affairs Forum for Higher Education and Research set up by the Ministry of Education and Culture for the term 2020–2023.

The Academy is a member of the Association of Finnish Foundations and the Federation of Finnish Learned Societies (TSV). It was represented on the board of TSV by Heta Pyrhönen (deputy Johanna Mappes) and Anna Mauranen (deputy Kimmo Kaski).

Pekka Ilmakunnas represented the Academy at TSV's spring meeting in March and its autumn meeting in September, and Risto Nieminen was the Academy's representative on the Steering Group of the Publication Forum.

The Academy was represented on the Board of Directors of the Alfred Kordelin Foundation by Jukka Seppälä (deputy Keijo Hämäläinen until 6 Nov. and Kimmo Kaski as of 7 Nov.) and Anna Mauranen (Mari Vaattovaara). The representatives in the Foundation's section for science were Sami Pihlström (deputy Tuomas Forsberg) and Tapio Mappes (Gabriel Sandu). The representative in the section for public education was Markku Löytönen (Risto Nieminen), and in the section for literature Sari Kivistö (Tomi Huttunen). Helmi Järviluoma-Mäkelä (Arto Haapala) sat in the section for arts.

The Academy's representatives on the Finnish Zoological and Botanical Publishing Board were Jaana Bäck and Riitta Julkunen-Tiitto, while Tapio Raunio represented the Academy in the Foundation for Foreign Policy Research. The Academy's representative in the Finnish Foundations' Post Doc Pool was Anna Mauranen, with Kaisa Nyberg as her deputy, and Secretary General Pekka Aula served as the Academy's representative on the national LUMA Advisory Board. Anna Mauranen was nominated by the Academy as a member of the Board of Directors of the Finnish Research Impact Foundation.

The following members of the Academy sat on the scientific councils of the Research Council of Finland at the end of 2023: Petri Karonen and Matti Miestamo on the Scientific Council for Social Sciences and Humanities; Ari Jokinen, Timo Repo and Marjo Yliperttula on the Scientific Council for Natural Sciences and Engineering; and Jussi Kukkonen, Toni Laaksonen, Jorma Palvimo and Anne Toppinen on the Scientific Council for Biosciences, Health and the Environment. Petri Karonen and Jussi Kukkonen also acted as chairs of their respective councils. Klaus Elenius, Johanna Myllyharju as chair and Kirsi Tirri have served on the Board of the Research Council of Finland. Anne Kovalainen has been a member of the Strategic Research Council.

Pekka Aula represented the Academy at the annual general meeting of the Mariankatu 5–7 property company in March. Pekka Ilmakunnas sat on the board of the property company and also served as chair of the board.

Risto Nieminen was the Academy's representative at the annual meeting of the Finnish Zoological and Botanical Publishing Board in March. The Academy was represented by Päivi Pahta at the spring meeting of the Association of Finnish Foundations and by Pekka Aula at the autumn meeting. Pekka Ilmakunnas represented the Academy at the shareholders' meeting of Vaisala Oyj in March.

Kimmo Kaski represented the Academy on the Programme Committee of the Science Forum, and Pekka Aula in its steering group.

Research knowledge for the benefit of society – Finnish Academy of Science and Letters as a forerunner

The Finnish Academy of Science and Letters has in recent years been profiled as a national forerunner in promoting evidence-informed policy-making. The year 2023 was particularly significant in this respect: collaboration with the Prime Minister's Office further intensified and the new knowledge brokering models developed by the Academy were widely commended.

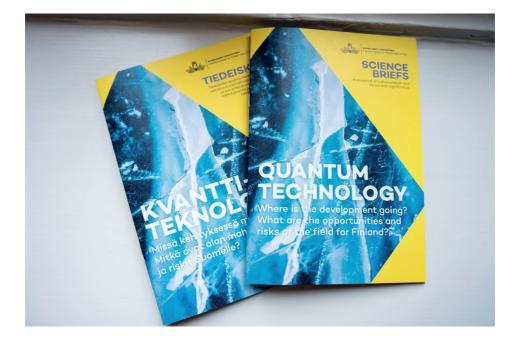
GLOBAL LEADER IN EVIDENCE-INFORMED POLICY-MAKING

More scientific knowledge is constantly available to inform policy-making, but the abundance of knowledge makes it challenging to find and utilize relevant information. In addition, policy-making often involves dealing with complex themes, and policy-makers need support to form an overall view of the science underlying issues. The statutory function of the Academy is to promote evidence-informed policymaking. The vision is to position Finland as the global leader in evidence-informed policy-making.

The Academy strengthened its competence in curating and synthesising knowledge through new recruitments in 2023. Two permanent employees now work in the Science and Policy team. In addition to them, three specialists were recruited for the Phenomenon maps project, funded by the Jane and Aatos Erkko Foundation.

SIMPLER, FASTER, MORE INTERACTIVE

In 2023, the efforts to strengthen the knowledge base for policy-making aimed to address changes identified in the operating environment and to make research knowledge available to policy-makers in ways that are even faster, simpler and more interactive than before. This has



The Finnish Academy of Science and Letters brings together in Science Briefs a general scientific view on areas that are expected to have a major impact on the development of society. The Quantum Technology Science Brief unpacked the importance and potential of quantum technology.

required new approaches and close cooperation with both researchers and policymakers.

Over the course of the year, the Academy produced a total of seven knowledge syntheses on topics ranging from the ageing society to quantum technology. The syntheses were produced using systematic knowledge compilation methods, which have been actively developed. Reliable knowledge for knowledge syntheses can be compiled in just one week.

The production of knowledge syntheses has required the careful identification and specification of knowledge needs. For this purpose, new approaches have been built and existing ones, such as *Science sparring*, have been further developed. As the aim is to compile knowledge that serves the needs of policy-making as well as possible, facilitating a closer dialogue between researchers and policy-makers can be tremendously useful.

Different types of knowledge have also been highlighted in new ways in the production of knowledge syntheses. The aim of the scientific overviews has been to combine, for example, peer-reviewed research, expert reviews and statistical data. Combining several types of knowledge enables the utilization of the full scope of researchers' expertise in policy-making.

COLLABORATION WITH PRIME MINISTER'S OFFICE PLAYS A KEY ROLE

One of the key partners in strengthening the knowledge base for policy-making at the Academy has been the Prime Minister's Office. In spring 2023, a multidisciplinary overview of the effects of Russia's attack on Ukraine on the Finnish society was produced at the request of the Prime Minister's Office to support the government negotiations. This knowledge synthesis was a good example of a work related to the rapidly changing developments in society that required not only peer-reviewed research and statistics, but also forward-looking expert knowledge from researchers.

The formulation of knowledge in the overview of the effects of Russia's offensive war was widely commended, and the structuring of knowledge types has been further developed in subsequent works.

In autumn 2023, relations with the Prime Minister's Office further intensified as the Academy signed a two-year framework agreement with the Office on research compilations produced for the Prime Minister. As a result of this agreement, the Academy consolidated its position as a trusted knowledge partner of the Prime Minister's Office. The close cooperation can be seen in practice in the form of new knowledge requests where the experts at the Academy compiled research knowledge directly for the needs of the Prime Minister's Office. Towards the end of 2023, a brief knowledge synthesis was produced within a short timeframe for the Prime Minister's Office on the position and well-being of people with an immigrant background in Finland. Data collection and structuring methods and interaction regarding the clarification of knowledge needs were further developed as part of the work under the concept *Tiedettä tiiviisti (Science in Brief)*.

A digital knowledge matrix was also tested in 2023 as an alternative to traditional report formats. Continuous development and new openings also ensure that the Academy will remain a forerunner in Finland in evidence-informed policy-making in the years to come.

TOWARDS AN EVEN GREATER

The work of the Finnish Academy of Science and Letters to promote evidenceinformed policy-making will continue to the same extent by means of funding from the Jane and Aatos Erkko Foundation until the year 2026.

In the near future, knowledge brokerage models will be developed by the Science and Policy team, for example by utilizing artificial intelligence and by including even broader multidisciplinary research collectives in the production of knowledge. The goal is to adhere to an experimental and innovative approach while also strengthening the impact of operations.



The Finnish Academy of Science and Letters' October event discussed the preconditions for healthy ageing and the societal issues related to increasing longevity in connection with the discussion paper Terve vanhuus ("Healthy ageing"). Discussants were Professor Teppo Kroeger, Associate Professor Leena Forma and Professor Esa Jämsen.





Science Gala

The Old Student House, Helsinki 28 April 2023





Members of the Finnish Academy of Science and Letters and representatives of key stakeholders celebrated the Academy's 115th anniversary at the Science Gala in April.





The evening featured performances by the Sibelius High School Chamber Choir and Compañía Kaari & Roni Martin goes ROOTS, with music by The Mojitos.



Väisälä project grant of the Finnish Academy of Science and Letters

The Finnish Academy of Science and Letters introduced a new form of funding in 2023, the Väisälä project grant ("Suomalaisen Tiedeakatemian Väisälä-hankeapuraha"). The first ever application period for this grant took place in spring 2023. The piloted project grant is intended for researchers working in Finland at the early stages of the tenure track (assistant professor level) to set up their research group and cover the group's research costs. The funding provided by the Academy is flexible and can be tailored to the applicant's needs.

"Forms of support for setting up your own research group are generally quite rare in Finland. We are pleased to now be able to support this crucial step in the career of a researcher," said President of the Governing Board of the Academy Professor Kimmo Kaski. "Every year, the Finnish Academy of Science and Letters awards more than two million euros in grants to a wide range of disciplines, especially to researchers working on their doctoral thesis. This new grant allows us to support the career path of researchers even more extensively than before."

Eligible disciplines are the fields under the Vilho, Yrjö and Kalle Väisälä Fund of the Academy: physics, geophysics, mathematics, meteorology and astronomy. The promotion of multidisciplinarity was considered an advantage in the applications.

The three-year project grant worth 150,000 euros was awarded to two researchers. The awarded grants will be used to study the physics of soft, living and fluid materials, and the internal structures of celestial bodies.



The first Väisälä project grants were awarded to Matilda Backholm and Joonas Ilmavirta.

The awarded grants will be used to study the physics of soft materials, and the internal structures of celestial bodies.



MATILDA BACKHOLM

JOONAS ILMAVIRTA

Matilda Backholm works as an assistant professor at the Department of Applied Physics, Aalto University. Her research group, Living Matter, examines the physics of soft, living and fluid materials.

Backholm's research group develops new, experimental methods and theoretical models for studying the forces, flows and dynamics of small living organisms. The goal is to address big questions at the interface between physics and biology. The results of the research could enable the development of new technologies that mimic biological systems for the medical field and the development of food production in cooperation with plant breeding companies.

"As a new assistant professor, this project grant is extremely important to me. It allows me to expedite my research and expand my research group, in addition to venturing into a new and exciting area of research, the dynamics of microscopic plant roots," says Backholm. "I am extremely grateful for this opportunity." Joonas Ilmavirta works as an assistant professor at the Department of Mathematics and Statistics, University of Jyväskylä. The aim of Ilmavirta's project is to build a mathematical theory that would enable the reliable deduction of the internal structures of other celestial bodies besides our home planet. The focus is on seismic measurements and how seismic wave behaviour depends on the type of planet and its impact on the theory of indirect measurements. Seismic measuring data is actually already available from several planets and moons.

"The Väisälä project grant provides an opening to a new direction that combines the mathematical theory of inversion problems with extraterrestrial seismology. Such research would be more difficult to fund with more conservative funding models," says Ilmavirta. "This bridge-building serves both fields and allows them to benefit from each other in the long run."



Grants

EINO JUTIKKALA FUND 9 OCTOBER

- MEc, MSS Lotta Allemand, University of Helsinki, 26 000. Lapset puheeksi -menetelmä, koulun ja kodin välinen yhteistyö sekä lasten/nuorten hyvinvointi. (pedagogy)
- MA Selcen Erten, University of Turku, 26 000. The portrayal of Finland in Turkish media with a focus on Finland's NATO membership: A Corpus-assisted Discourse Study. (linguistics)
- MA Jasmin Flinkman, Tampere University, 26 000. Sodan tunnelmat. Ylisukupolvisen trauman käsittely suomenkielisessä 2010-luvun kaunokirjallisuudessa. (art research)
- MA Dina Gillham, University of Helsinki, 26 000. The Perpetual Virginity of Mary: Origins, Development, and Impact on Gender Expectations. (theology)
- MA Saara Hellström, University of Turku, 26 000. Vertaileva rekisteritutkimus kielenkäytön vaihtelusta monikielisessä Internetissä. (linguistics)

- MSS Andrea Lorenz-Wende, University of Jyväskylä, 26 000. Omaisolettama – rajanvetoa työikäisten omaisten ja julkisen vallan hoivavastuun välillä ikääntyneiden hoivassa. (social sciences)
- MA Arwen Meereboer, Åbo Akademi University, 26 000. Ethical Ecologies: Tove Jansson and Sven Nordqvist as an ecocritical approach to ethics. (philosophy)
- MSS Tero Mäkelä, University of Turku, 26 000. Philosophy of Care. (philosophy)
- MA, MD Nuusa Niskala, University of Helsinki, 26 000. Vallaton valtakunta – kristittyjen anarkistien eletty poliittinen teologia 2000-luvulla. (theology)
- MSS, LLB Berfin Nur Osso, University of Helsinki, 26 000. 'Access to Right to Have Rights': Managing Migration at the EU's External Borders. (jurisprudence)
- MA Birgitta Paranko, University of Turku, 26 000. CHALLENGE: Koulukiusaamisen



Recipients of the Eino Jutikkala Fund and Emil Öhmann Foundation grants were celebrated at the House of Nobility in October.

akuutit ja pitkäaikaiset vaikutukset aivojen rakenteeseen ja toimintaan. (psychology)

- MA, MD Nikolai Paukkonen, University of Helsinki, 26 000. Evaluation of Photogrammetry and Laser Scanning as Archaeological Documentation Tools. (archeology)
- MAT Esa Pavloff-Pelkonen, University of Helsinki, 26 000. Game literacy as an emerging approach for multiliteracy pedagogy. (pedagogy)
- MA Sini Peltokorpi, University of Turku, 29 000. Näkömonivammaisten lasten ja heidän vanhempiensa välinen vuorovaikutus ja sen tukeminen. (social sciences)
- MAT Kukka-Maaria Polso, University of Helsinki, 26 000. Motivated to engage, ready to choose? The interplay of motivational development, behavioral

engagement, and educational choices in adolescence. (pedagogy)

- MA Taneli Puputti, University of Jyväskylä, 28 640. Historical Knowledge as Capital: Early Transmission and Circulation of Flavio Biondo's Decades. (linguistics)
- MA Juho Pystynen, University of Helsinki, 26 000. Innovations in Finnic vocalism. (Finno-Ugric studies)
- MSc Jukka-Pekka Pyylampi, Tampere University, 26 000. Measuring Finnish Output Gap and Rules-Based Fiscal Guidance: Past & Present Estimates. (social sciences)
- MA Milla Virolainen, University of Jyväskylä, 26 000. Parliamentarians Debating Democracy in a Time of Crisis: How was Democracy Viewed and Defined by French Politicians 1927-1940. (history)

VILHO, YRJÖ AND KALLE VÄISÄLÄ FUND 11 DECEMBER

Mathematics

- MA Veeti Ahvonen, Tampere University, 26 000. New directions in Descriptive Complexity. (PhD grant)
- MSc Kalle Alaluusua, Aalto University, 26 000. Community recovery in sparse random graphs. (PhD grant)
- MA Roope Anttila, University of Oulu / University of St Andrews, Scotland, 4 400. Grant for a reasearch visit
- MA Manu Harsu, Tampere University, 13 000. Lyhytkestoiset modulit ja Scottin lyhteet jatkuvassa posetissa. (PhD grant)

- MSc Kai Hippi, Aalto University, 26 000. Quantum chaos on random Riemann surfaces. (PhD grant)
- DSc Toni Karvonen, University of Helsinki / University of Tokyo, Japan, 2 800. Grant for a reasearch visit.
- MA Tuomas Kelomäki, Aalto University, 26 000. Discrete Morse theory for combinatorial homologies. (PhD grant)
- MA Jesse Koivu, University of Jyväskylä, 26 000. Sobolev ja BV-laajennusjoukoista metrisissä mitta-avaruuksissa. (PhD grant)
- MSc Okko Makkonen, Aalto University, 26 000. Turvallisen hajautetun laskennan matemaattinen perusta. (PhD grant)

Lic. Phil. Petteri Nissinen, University of Eastern Finland, 13 000. Itseaffiinien joukkojen Dimensiotarkasteluita, epähomogeenisten graafi-suunnattujen itsesimilaarien joukkojen peitelukumääräfunktion asymptoottinen käyttäytyminen ja Hausdorffin dimension vääristymä kvasiympyröissä. (PhD grant)

Title of Docent Heikki Orelma, Tampere University / University of Aveiro, Portugal, 3 920. Grant for a reasearch visit

- MSc Jaakko Pere, Aalto University, 26 000. On extreme behavior of multivariate and infinite dimensional observations. (PhD grant)
- MSc Angelina Senchukova, LUT University, 19 500. Edge-Preserving Inversion with Heavy-Tailed Bayesian Neural Network Priors. (PhD grant)
- MA Mika Sipilä, University of Jyväskylä, 26 000. Nonlinear blind source separation for spatial and spatio-temporal data. (PhD grant)
- MSc Lauri Särkiö, Aalto University, 26 000. Regularity of parabolic double phase systems. (PhD grant)
- Title of Docent Jari Taskinen, University of Helsinki / University of Toledo, USA / State University of New York at Albany, USA, 4 500. Grant for a reasearch visit

Physics

- MSc Kameyab Raza Abdi, University of Jyväskylä, 26 000. Understanding of Buckling in Two-dimensional Metals. (PhD grant)
- MSc Kristian Arjas, Aalto University, 26 000. Lasing in Bound-states in Continuum with large topological charges. (PhD grant)

MSc Dana Avramescu, University of Jyväskylä, 26 000. Transport of hard probes in the Glasma. (PhD grant)

- MSc Carlisle Aurabelle Casuga, University of Jyväskylä, 26 000. Global Analysis of Non-linear QCD Dynamics in Deep Inelastic Scattering. (PhD grant)
- MA Zhehao Chen, University of Helsinki, 26 000. Säteilyvaurioiden Perusominaisuudet Monen Pääelementin Satunnaisseoksissa (MPEAs). (PhD grant)
- MA Annamaria Fedeli, University of Turku, 26 000. Understandig energy spectra of solar energetic electron events using novel data. (PhD grant)
- MA Markku Hahto, University of Turku, 26 000. Temporal quantum networks. (PhD grant)
- MA Ella Häkkinen, University of Helsinki, 26 000. Novel techniques to understand the chemistry of organic aerosol formation in the atmosphere. (PhD grant)
- MA Noora Jokinen, University of Eastern Finland, 26 000. Biomassoista termisillä menetelmillä saatujen nestejakeiden fraktiointi, analytiikka ja sovellukset. (PhD grant)
- MA Jiri Jäntti, University of Eastern Finland, 26 000. Nanovarjoaine nivelrikon tietokonetomografiassa. (PhD grant)
- MA Elina Kauppinen, University of Jyväskylä, 26 000. Double beta decay and dark matter calculations. (PhD grant)
- MSc Jiaqi Li, Tampere University, 26 000. Ultra-fast high-resolution imaging in the mid-infrared range with spacespectrum-tailored supercontinuity. (PhD grant)
- MSc Ilari Lilja, Aalto University, 26 000. Jatkuvan muuttujan klusteritilojen muodostaminen ja ohjaus Josephsonin parametrisissä systeemeissä. (PhD grant)



The Vilho, Yrjö and Kalle Väisälä Fund grants and the Väisälä prizes were announced at the House of Nobility during the December event. A total of €1.6 million in grants were awarded in the autumn 2023 distribution, to a total of 75 researchers. The recipients work at twelve different universities and research institutes in Finland and abroad.

- MSc Isaac Yair Miranda Valdez, Aalto University, 13 000. Designing functional foams using rheophysics and Bayesian Machine Learning. (PhD grant)
- MA Joose Peitola, University of Eastern Finland, 26 000. Atlas-based muscle forcedriven musculoskeletal finite element modeling platform to optimize rehabilitation planning of patients with osteoarthritis. (PhD grant)
- MSc Laura Piispanen, Aalto University, 17300. Kvanttifysiikkaa osallistavan taiteen ja pelien keinoin. (PhD grant)
- MSc Evgeniia Ponomareva, Aalto University, 26 000. The role of electron-ion interactions in radiation damage analysis and prediction for nuclear fusion materials. (PhD grant)
- MA Aki Ruhtinas, University of Jyväskylä, 26 000. Kvanttilaitteiden valmistaminen heliumionisuihkulla suorakirjoittamalla. (PhD grant)
- MA Jouni Ruotsalainen, University of Jyväskylä, 26 000. Penning trap mass spectrometry of neutron rich nuclei and double-beta decay Q-value measurements. (PhD grant)
- MA lida Räty, University of Eastern Finland, 13 000. Uuden kolmiulotteisen magneettikuvausmenetelmän kehittäminen sydänsairauksien kuvantamiseen. (PhD grant)
- MA Topi Sirkiä, University of Helsinki, 26 000. Uusia rajoja aksioneille ja aksioninkaltaisille hiukkasille suoran havaitsemisen kokeista ja mustien aukkojen superradianssista. (PhD grant)
- MA Alex Stendahl, University of Helsinki, 26 000. Dark Matter direct detection with the COSINUS experiment. (PhD grant)
- MSc Nico Stirling, University of Helsinki, 26 000. Quantum field theoretical

aspects of neutrino oscillations and interactions. (PhD grant)

MA Sasu Tuohino, Aalto University, 26 000. Implementation of multiqubit gates for unimon circuits. (PhD grant)

Astronomy

- MA Varpu Ahlberg, University of Turku, 13 000. Signatures of strong gravity in spectral, timing, and polarization data of accreting compact objects. (PhD grant)
- MA Suvi Korhonen, University of Turku/University of Tartu 26 000. Galaxy filaments: cosmic highways of the matter. (PhD grant)
- MA Emma Mannfors, University of Helsinki, 26 000. Multiscale star formation: from cold cores to galactic haloes. (PhD grant)
- MA Mikko Pöntinen, University of Helsinki, 13 000. ESA Euclid -mission hyödyntäminen asteroidipopulaatioiden mallintamisessa. (PhD grant)
- MA Riku-Petteri Rautio, University of Oulu, 13 000. Origins of ionized gas in the outskirts of galaxies. (PhD grant)
- MA Christian Vassallo, University of Turku, 26 000. Core-Collapse Supernova Rates and Machine Learning Methods in Time-Domain Astronomy. (PhD grant)

Geophysics

- MPhil Benoit Espinola, Finnish Meteorological Institution, 26 000. Ympäristöseurannan tehostaminen merialueilla koneoppimispohjaisella haitallisten aineiden jäljityksellä. (PhD grant)
- MSc Nicholas Larsen, University of Oulu, 13 000. Statistical analysis of space weather effects during GLE events. (PhD grant)

- MSc Toochukwu Ozoji, University of Oulu, 26 000. Alustava tutkimus kaksiulotteisen karakteristisen impedanssin mahdollisuuksista ennustaa kiviräjähdyksiä maanalaisissa rakenteissa. (PhD grant)
- MA Teemu Salminen, University of Eastern Finland, 13 000. Aerosolien ilmastovaikutusten epävarmuuksien vähentäminen hyödyntäen elementti- ja inversiomenetelmiä. (PhD grant)
- MSc Christina Tsarsitalidou, University of Helsinki, 26 000. Focal spot imaging applied to data from dense seismic arrays. (PhD grant)

Meteorology

- MSc Miguel Aldana, IFinnish Meteorological Institution, 13 000. The impact of the Gulfs of Finland and Bothnia and associated Coastal Areas on Thunderstorms in Finland. (PhD grant)
- MSc Marta Fregona, University of Helsinki, 26 000. Modeling greenhouse gas exchanges in freshwater ecosystems. (PhD grant)
- MA Johannes Mikkola, University of Helsinki, 26 000. Aerosol transport to the free troposphere in mountainous regions: combining meteorology, air-chemistry and aerosol physics. (PhD grant)
- MSc Jenna Ritvanen, Finnish Meteorological Institution, 26 000. Konvektiosateen lähihetkiennustaminen kaksoispolarisaatiotutkien ja fysiikkaan perustuvien koneoppimismenetelmien avulla. (PhD grant)
- MA Olli Saranko, Finnish Meteorological Institution, 26 000. Maankäytön vaikutus helteiden kehittymiseen Suomen kaupungeissa. (PhD grant)

Other fields

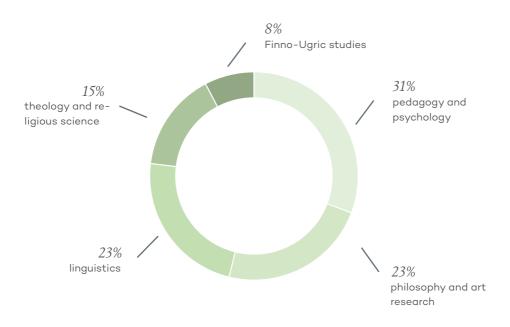
- MA Simone Adinolfi, University of Eastern Finland, 13 000. NRF2 redirects glucose carbons for lipid synthesis and histone acetylation in non-small cell lung cancer. (PhD grant)
- MSc Basheer AL-Anesi, Tampere University, 26 000. Perovskite-Inspired materials for Indoor Photovoltaics – towards global net-zero emissions (InPho). (PhD grant)
- MSc Julio Alejandro Arias Gallegos Aalto University, 26 000. Implementation of machine learning techniques in the analysis of GNSS time series (PhD grant)
- MSc Dominika Bujnakova, University of Oulu, 26 000. Large carnivores and large-scale perspective: studying genetics, morphology, and human perception. (PhD grant)
- MSc Nazli Eskici, University of Helsinki, 13 000. DLK1:n roolin tutkiminen ihmisen GnRH-neuroneiden kehityksessä CRISPR aktivaation ja inhibition avulla. (PhD grant)
- MSc Sara Gröhn, University of Eastern Finland, 26 000. Multidimensional magnetic resonance imaging in the evaluation of ischemic stroke (PhD grant)
- MSc Karoliina Hopia, Tampere University, 26 000. Uudet kudosadhesiiviset biomateriaalit sarveiskalvon haavaumien hoitoon ja 3D-biotulostukseen. (PhD grant)
- MSc Rahul Jagadeesan, Tampere University, 26 000. Gene expression dynamics in operons during energy-driven genomewide stresses. (PhD grant)
- MA Linda Laakso, University of Turku, 26 000. Sudenkorentojen lämmönsäätely. (PhD grant)

- MA Aku Lempelto, University of Jyväskylä, 19 500. Hiilidioksidin katalyyttinen vedyttäminen metanoliksi heterogeenisillä jalometallikatalyyteillä. (PhD grant)
- MSc Liya Merzon, Aalto University, 19 500. Combining Virtual Reality and Machine Learning to Improve ADHD diagnostics. (PhD grant)
- MSc Eero Molkoselkä, University of Oulu, 26 000. Koneoppimiseen perustuva hologrammien takaisinlaskenta jäätävien pilvien pisara-analysaattorille. (PhD grant)
- MA Anu Nyberg, University of Eastern Finland, 26 000. Role of coronary artery disease -associated genetic variation in the regulation of cell type specific enhancer activity. (PhD grant)
- MSc Eloi Schmauch, University of Eastern Finland, 26 000. Multiomics and spatial transcriptomics dissection of cardiac diseases: focus on Atrial Fibrillation, and coronary artery disease. (PhD grant)

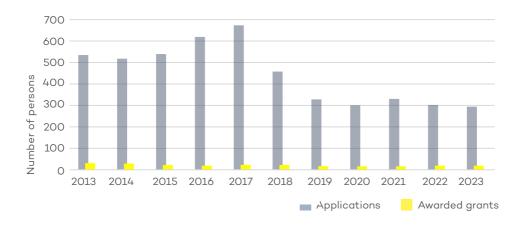
- MSc Linda Sederholm, Aalto University, 13 000. Äärimmäisen korkean paineen menetelmät magneettisten ja suprajohtavien metallioksidien synteesiin ja faasimuutoksiin. (PhD grant)
- MA Joonatan Sipola, Tampere University, 26 000. Enhancing treatment of metastatic castration resistant prostate cancer via analysis of plasma liquid biopsies. (PhD grant)
- MSc Sofia Tauriainen, Aalto University, 26 000. Aktiivisuuden ja tarkkaavuuden häiriön oireiden mittaaminen objektiivisesti luonnollisessa kontekstissa (PhD grant)
- MA Mari Tienhaara, University of Turku, 13 000. Phosphoregulation mechanisms as determinants of drug tolerance in oncogene-addicted cancer. (PhD grant)
- MSc Sami Vesamäki, Tampere University, 26 000. Kosteuden vaikutus atsobentseenien käyttäytymiseen ja ilmiön hyödyntäminen sovelluksissa. (PhD grant)

GRANTS FROM THE EINO JUTIKKALA FUND IN 2023

GRANTS AWARDED BY FIELD OF STUDY

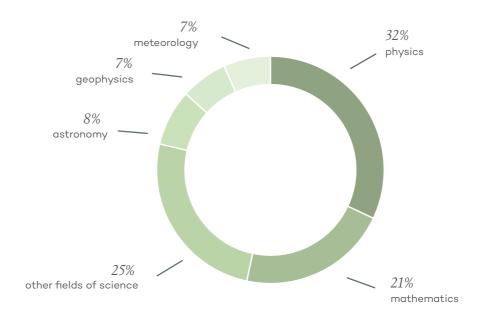


APF' 'CATIONS RECEIVED AND GRANTS AWARDED IN 2013-2023

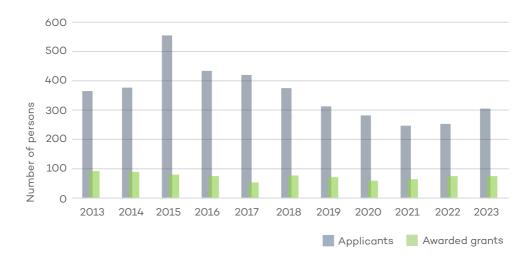


GRANTS FROM THE VILHO, YRJÖ AND KALLE VÄISÄLÄ FUND IN 2023

GRANTS AWARDED FIELD OF STUDY



APPLICATIONS RECEIVED AND GRANTS AWARDED IN 2013-2023



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The Academy pursues its aims by, for example, issuing statements of opinion and proposals for action, supporting better utilisation of highquality research in decisionmaking, and editing, publishing and distributing scientific and other academic publications.

Publications 2023

ANNALES ACADEMIAE SCIENTIARUM FENNICAE AASF 1/2023

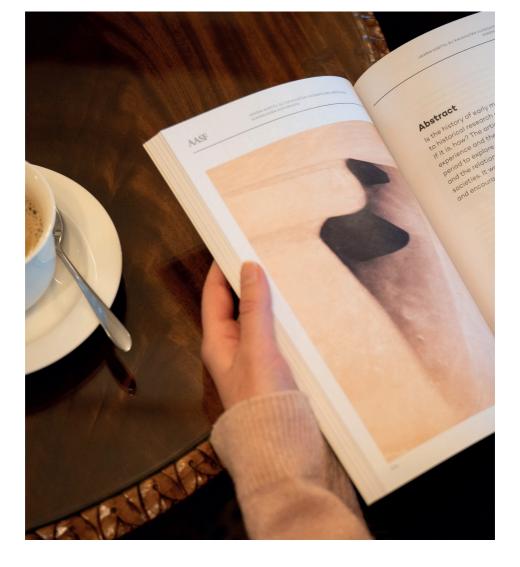
- Robin Dunbar: The Social Brain Hypothesis Thirty Years On: Some Philosophical Pitfalls of Deconstructing Dunbar's Number
- Olli-Pekka Vainio: Mielensä muuttamisesta Kaius Tuori: Pacta sunt servanda
- Helena Korpelainen: Plant genetic resources for food and agriculture: novel materials for adapting to changing environmental conditions
- Niklas Jensen-Eriksen: Yrityshistoria ja kasvuyrittäjyys
- Juha Vaara: Quantum-Chemical Approach to Nuclear Magnetic Resonance of Paramagnetic Systems
- Pasi Ihalainen: Miten edustuksellinen demokratiamme on muuttumassa? Digitaalisen käsitehistorian näkökulma
- Liisa Laakso: Akateeminen vapaus tutkimuskohteena - havaintoja Afrikasta

ANNALES ACADEMIAE SCIENTIARUM FENNICAE AASF 2/2023

Riitta Hari: Kohti konvergenssitutkimusta Lea Pulkkinen: Ihmisen kehityksen tutkimus ia tuntemus

Mikko Laitinen, Masoud Fatemi: Data-intensive sociolinguistics using social media

- Visa Immonen: Urbaani kulttuuriperintö ja fragmentaatioteoria: Esimerkkinä Turun kaupunkiarkeologia
- Pamela Slotte: Om att leva under lagen: några anmärkningar
- Raisa Maria Toivo: Väärin koettu, eli kaukaisten vuosisatojen varoituksia kokemuksen historiasta
- Terhi Utriainen: Katsomukset ja kulttuuriset työkalut modernin elämän palapelissä
- Tommi Mikkonen: Constant Software Updates vs. Public Software Acquisition



OTHER PUBLICATIONS

Year Book 2022, Ed. Pekka Aula

- Yhteiskunnallisen vaikuttamisen avaimet: Tutkijan käsikirja ("Researcher's Handbook on Science-for-Policy")
- Ulkomaalaistaustaisten hyvinvointi ("Wellbeing of people with an immigrant background"), a knowledge synthesis
- Suomi muuttuu ("Finland in change"), a fact sheet for government negotiations
- Terve vanhuus ("Healthy ageing"), a discussion paper

Science brief:

- Hydrogen in the Green Transition
- Quantum Technology

REMBERS

The Academy invites distinguished and widely respected Finnish and foreign scholars to become members. **The list of the members** is also available on the Academy's website (*www.acadsci.fi*). Members are encouraged to report any changes in their personal details to the Academy's office (Finnish Academy of Science and Letters, Mariankatu 5 A, FIN-00170 Helsinki, e-mail acadsci@acadsci.fi, tel. +358-50-4620 889).

Honorary members 31 December 2023

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- Acjmelacus, *Lars* Jaakko Tapani, b. 1945, elected 2005, Section of the Humanities, ThD, Prof. emer, University of Helsinki
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- Ahti, *Teuvo* Tapio, b. 1934, elected 1977, Section of Science, PhD, Prof. emer., University of Helsinki
- Ahtiala, Kaarlo *Pekka*, b. 1935, elected 1986, Section of the Humanities, PhD, Prof., Tampere University

- Ahvenainen, Jorma Juhani, b. 1930, elected 1984, Section of the Humanities, PhD, Prof. emer, University of Jyväskylä
- Aittokallio, *Tero* Antero, b. 1974, elected 2023, Section of Science, PhD, Prof., University of Oslo
- Aksela, *Helena*, b. 1947, elected 2002, Section of Science, PhD, Prof. emer., University of Oulu
- Alakukku, *Laura* Elina, b. 1958, elected 2013, Section of Science, D.Sc., Prof., University of Helsinki
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- Andersson, Leif, b. 1944, elected 2006, Section of Science, M.D., Prof. emer., University of Helsinki

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Hakonen, *Pertti*, b. 1957, elected 2001, Section of Science, D.Sc. (Tech.), Prof., Aalto University

Hakulinen, *Auli* Talvikki, b. 1941, elected 1999, Section of the Humanities, PhD, Prof. emer., University of Helsinki

Halila, *Heikki* Juhani, b. 1952, elected 2010, Section of the Humanities, LL.D., Prof. emer., University of Helsinki

Hallberg, *Pekka* Ilmari, b. 1944, elected 1992, Section of the Humanities, LL.D., DSocSci, President, retired, Supreme Administrative Court

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Halonen, *Lauri* Olavi, b. 1953, elected 1995, Section of Science, DSc, Prof., University of Helsinki

Haltia, *Matti* Jouko Johannes, b. 1939, elected 1993, Section of Science, M.D., Prof. emer., University of Helsinki

Hantula, Jarkko Ilmari, b. 1961, elected 2013, Section of Science, PhD, Prof., Natural Resources Institute Finland

Hari, *Pertti*, b. 1941, elected 1999, Section of Science, D.Sc., Prof. emer., University of Helsinki

Hari, *Riitta* Kyllikki, b. 1948, elected 1994, Section of Science, M.D., Academician of Science, Prof. emer., Aalto University

Harju, *Tero* Juhani, b. 1952, elected 2009, Section of Science, PhD, Prof., University of Turku

Hartikainen, Helka *Helinä*, b. 1947, elected 2004, Section of Science, D.Sc., Prof. emer., University of Helsinki

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Haukka, Matti Olavi, b. 1964, elected 2019, Section of Science, PhD, Prof., University of Jyväskylä

Hautamäki, Jarkko Juhana, b. 1948, elected 2006, Section of the Humanities, PhD (Psych.), Prof. emer., University of Helsinki

Hautamäki, *Lauri*, b. 1936, elected 1996, Section of Science, PhD, Prof. emer., Tampere University

Hautojärvi, *Pekka* Juhani, b. 1944, elected 1982, Section of Science, D.Sc. (Tech.), Prof. emer., Helsinki University of Technology

Havansi, *Erkki* Elias, b. 1941, elected 1983, Section of the Humanities, LL.D., Prof. emer., University of Helsinki

Hedman, *Klaus* Peter, b. 1953, elected 2012, Section of Science, M.D., Prof., University of Helsinki

Heikkilä, *Markku* Kaarlo Juhani, b. 1945, elected 1989, Section of the Humanities, ThD, Prof. emer., University of Helsinki

Heikkilä, *Tero* Tapio, b. 1974, elected 2017, Section of Science, D.Sc. (Tech.), Prof., University of Jyväskylä

Heikkilä, *Tuomas* Mikael, b. 1972, elected 2023, Section of the Humanities, PhD, Prof., University of Helsinki

Heikkinen, Timo Jaakko *Antero*, b. 1941, elected 1999, Section of the Humanities, PhD, Prof. emer., University of Joensuu

Heininen, *Simo* Kaarle Matias, b. 1943, elected 1989, Section of the Humanities, ThD, Prof. emer., University of Helsinki

Heino, Jyrki Johannes, b. 1958, elected 2011, Section of Science, M.D., Prof., University of Turku

Hanski, *Eero* Johannes, b. 1954, elected 2008, Section of Science, PhD, Prof., University of Oulu

Heinämaa, *Sara*, b. 1960, elected 2022, Section of the Humanities, Prof., University of Jyväskylä

Heiskala, *Risto* Kalevi, b. 1956, elected 2015, Section of the Humanities, DSocSci, Prof., Tampere University

Helander, *Eila* Marjatta, b. 1946, elected 1999, Section of the Humanities, PhD, Prof. emer., University of Helsinki

Helariutta, *Yrjö* Eero, b. 1965, elected 2014, Section of Science, PhD, Prof., University of Cambridge, Academy Prof.

Helasvuo, *Marja-Liisa*, elected 2013, Section of the Humanities, Ph.D., Prof., University of Turku

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Hidén, *Mikael* Juhana Vilhelm, b. 1939, elected 1991, Section of the Humanities, LL.D., Prof. emer., University of Helsinki

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Hilpinen, *Risto* Juhani, b. 1943, elected 1973, Section of the Humanities, PhD, University of Miami

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Hjerppe, *Riitta* Tuulikki, b. 1944, elected 2002, Section of the Humanities, DSocSci, Prof. emer., University of Helsinki

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Honkala, Juha Lauri, b. 1960, elected 2022, Section of Science, PhD, University Research Fellow, University of Turku

Honkala, Johanna *Karoliina*, b. 1973, elected 2020, Section of Science, PhD, Prof., University of Jyväskylä

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Hovi, *Tapani*, b. 1942, elected 2004, Section of Science, M.D., Research Prof., Finnish Institute for Health and Welfare

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Huhtanen, *Pekka* Juhani, b. 1955, elected 2002, Section of Science, D.Sc., Research Prof. emer., Swedish University of Agricultural Sciences

Huhtaniemi, *Ilpo* Tapani, b. 1947, elected 1993, Section of Science, M.D., Prof. emer., Imperial College London. Huikuri, *Heikki* Veli, b. 1952, elected 2013, Section of Science, M.D., Prof., University of Oulu

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Hupa, *Mikko* Markus, b. 1952, elected 2011, Section of Science, D.Sc. (Tech.), Rector, Prof., Åbo Akademi University

Husa, Veikko *Jaakko* Mikael, b. 1966, elected 2018, Section of the Humanities, DSocSci, Prof., University of Helsinki

Huttula, *Timo* Heikki, b. 1952, elected 2012, Section of Science, PhD, Prof. emer., Finnish Environment Institute

Huttunen, *Tomi*, b. 1971, elected 2021, Section of the Humanities, PhD, Prof., University of Helsinki

Huumo, *Tuomas* Johannes, b. 1968, elected 2012, Section of the Humanities, PhD, Prof., University of Turku, University of Tartu

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Hyvärinen, *Aapo* Johannes, b. 1970, elected 2016, Section of Science, PhD, Prof., University of Helsinki

Hyvärinen, *Heikki* Pekka Esaias, b. 1938, elected 1996, Section of Science, PhD, Prof. emer., University of Joensuu

Hyvärinen, Irma Kaarina, b. 1949, elected 2002, Section of the Humanities, PhD, Prof. emer., University of Helsinki

Hyönä, Jukka Uolevi, b. 1957, elected 2019, Section of the Humanities, PhD (Psych.), Prof., University of Turku

Häkkinen, *Hannu* Juhani, b. 1962, elected 2015, Section of Science, PhD, Prof., University of Jyväskylä

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Hämeri, Kaarle Juhani, b. 1964, elected 2022, Section of Science, PhD, Chancellor, Prof., University of Helsinki

Hämet-Ahti, Raija Leena, b. 1931, elected 1991, Section of Science, PhD, Ass. Prof. emer., University of Helsinki

Hämynen, *Tapio* Mikko Juhani, b. 1951, elected 2013, Section of the Humanities, PhD, Prof. emer., University of Eastern Finland

Hämäläinen, *Heikki* Antero, b. 1952, elected 2009, Section of the Humanities, PhD, Prof., University of Turku

Hämäläinen, *Keijo* Johannes, b. 1963, elected 2006, Section of Science, PhD, Rector, Prof., Tampere University

Hämäläinen, *Matti* Sakari, b. 1958, elected 2020, Section of Science, D.Sc. (Tech.), Prof., Aalto University

Hämäläinen, *Pekka*, b. 1967, elected 2021, Section of the Humanities, Prof., University of Oxford

Härmä, Juhani, b. 1949, elected 2001, Section of the Humanities, PhD, Prof. emer., University of Helsinki

Ihalainen, *Pasi* Taneli, b. 1967, elected 2021, Section of the Humanities, PhD, Prof., University of Jyväskylä

Ihamuotila, *Risto* V A, b. 1938, elected 1984, Section of Science, D.Sc., Prof. emer., University of Helsinki

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Ikkala, *Olli* Tapio, b. 1953, elected 2003, Section of Science, D.Sc. (Tech.), Prof., Aalto University

Ikonen, *Elina* Maria, b. 1961, elected 2009, Section of Science, M.D., Prof., University of Helsinki

Ilmakunnas, *Pekka* Jouko Ari, b. 1952, elected 2003, Section of the Humanities, Ph.D., Prof. emer., Aalto University

Ilmoniemi, *Risto* Juhani, b. 1954, elected 2008, Section of Science, D.Sc. (Tech.), Prof., Aalto University Immonen, Visa Aleksis, b. 1977, elected 2020, Section of the Humanities, PhD, Prof., University of Bergen

Itkonen, *Esa* Matti, b. 1944, elected 1993, Section of the Humanities, PhD, Prof. emer., University of Turku

Ivaska, Ari Usko, b. 1946, elected 1998, Section of Science, D.Sc. (Tech.), Prof. emer., Åbo Akademi University

Ivaska, Mari *Johanna*, b. 1972, elected 2016, Section of Science, PhD, Prof., University of Turku

Jaakkola, Antti Olavi, b. 1942, elected 1998, Section of Science, D.Sc., Prof. emer., University of Helsinki

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Julkunen-Tiitto, Maija *Riitta* Kristiina, b. 1954, elected 2016, Section of Science, PhD, Prof. emer., University of Eastern Finland

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Järvenpää, Aino *Maarit*, b. 1968, elected 2019, Section of Science, PhD, Prof., University of Oulu

Järviluoma-Mäkelä, *Helmi*, b. 1960, elected 2018, Section of the Humanities, PhD, Prof. emer., University of Eastern Finland

Jääskeläinen, *Timo* Ensio, b. 1953, elected 2007, Section of Science, PhD, Prof. emer., University of Eastern Finland

Jääskeläinen, *Veikko* Sakari, b. 1931, elected 1974, Section of the Humanities, DEc, Prof. emer., Helsinki School of Economics

Kaarniranta, *Kai*, b. 1968, elected 2020, Section of Science, M.D., Prof., University of Eastern Finland

Kahma, *Kimmo* Kaarlo, b. 1947, elected 2007, Section of Science, PhD, Research Prof. emer., Finnish Meteorological Institute

Kaila, *Kai*, b. 1951, elected 2001, Section of Science, PhD, Prof., University of Helsinki Kaimio, *Maarit*, b. 1941, elected 1982, Section of the Humanities, PhD, Prof. emer., University of Helsinki

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Kairesalo, *Timo* Antero, b. 1951, elected 2004, Section of Science, PhD, Prof. emer., University of Helsinki

Kaisto, Janne Mikael, b. 1969, elected 2021, Section of the Humanities, LL.D., Prof., University of Lapland

Kaivola-Bregenhøj, *Annikki* Irmeli, b. 1939, elected 2003, Section of the Humanities, PhD, Prof. emer., University of Turku

Kajantie, *Keijo* Olavi, b. 1940, elected 1973, Section of Science, PhD, Prof. emer., University of Helsinki

Kajava, *Mika* Ilmari, b. 1959, elected 2008, Section of the Humanities, PhD, Prof., University of Helsinki

Kallio, *Esa* Jukka, b. 1965, elected 2013, Section of Science, PhD, Prof., Aalto University

Kalliokoski, Jyrki Tapio, b. 1956, elected 2008, Section of the Humanities, PhD, Prof., University of Helsinki

Kalliomäki, *Kalevi* Juhani, b. 1941, elected 1979, Section of Science, D.Sc. (Tech.), Prof. emer., University of Oulu

Kallioniemi, *Olli* Pekka, b. 1960, elected 2003, Section of Science, M.D., Director, Science for Life Laboratory

Kalso, *Eija* Anneli, b. 1955, elected 2010, Section of Science, M.D., Prof., University of Helsinki

Kangas, *Annika* Susanna, b. 1965, elected 2020, Section of Science, D.Sc., Research Prof., Natural Resources Institute Finland

Kangas, *Jorma* Iisakki, b. 1940, elected 1979, Section of Science, PhD, Prof. emer., University of Oulu

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Kangasjärvi, *Jaakko* Sakari, b. 1960, elected 2012, Section of Science, Ph.D., Prof., University of Helsinki

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Kankare, Jouko Juhan, b. 1940, elected 1990, Section of Science, PhD, Prof. emer., University of Turku

Kanniainen, *Vesa* Lennart, b. 1948, elected 2002, Section of the Humanities, DSocSci, Prof. emer., University of Helsinki

Kansanen, *Pertti* Johannes, b. 1940, elected 1983, Section of the Humanities, PhD, Prof. emer., University of Helsinki

Kaprio, Jaakko Arthur, b. 1952, elected 2009, Section of Science, M.D., Prof., University of Helsinki; Research Prof., Finnish Institute for Health and Welfare

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Karhu, Juha Kalevi, b. 1953, elected 2001, Section of the Humanities, LL.D., Prof. emer., University of Lapland

Karhumäki, Eero Urho *Juhani*, b. 1949, elected 2000, Section of Science, PhD, Prof., University of Turku

Kari, Jarkko Juhani, b. 1964, elected 2014, Section of Science, PhD, Prof., University of Turku

Karma, *Pekka* Heikki, b. 1944, elected 1995, Section of Science, M.D., Prof. emer., University of Helsinki

Karonen, *Petri* Kalevi, b. 1966, elected 2015, Section of the Humanities, PhD, Prof., University of Jyväskylä

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Keinästö, *Kari* Erik Aslakki, b. 1950, elected 2007, Section of the Humanities, Dr. phil., Prof. emer., University of Turku

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Kettunen, *Pauli* Tapio, b. 1953, elected 2011, Section of the Humanities, DSocSci, Prof. emer., University of Helsinki

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Kinnunen, Juha Kalevi, b. 1966, elected 2014, Section of Science, PhD, Prof., Aalto University

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Korppi-Tommola, Jouko Emil Ilmari, b. 1945, elected 2006, Section of Science, PhD, Prof. emer., University of Jyväskylä

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Koskinen, Ari Mauri Petri, b. 1956, elected 2003, Section of Science, D.Sc. (Tech.), Prof., Aalto University

Koskinen, *Hannu* Erkki Juhani, b. 1954, elected 2006, Section of Science, PhD, Prof., University of Helsinki

Koskinen, *Jarkko* Tapio, b. 1968, elected 2013, Section of Science, D.Sc. (Tech.), Director, Prof., Finnish Geospatial Research Institute

Koskinen, *Kaisa* Anneli, b. 1966, elected 2015, Section of the Humanities, PhD, Prof., Tampere University

Kostiainen, *Mauri*, b. 1980, elected 2021, Section of Science, Prof., Aalto University

Kostiainen, Risto Kalervo, b. 1955, elected 2016, Section of Science, PhD, Prof., University of Helsinki

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Kotiaho, *Janne* Sakari, b. 1969, elected 2019, Section of Science, PhD, Prof., University of Jyväskylä

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Kovanen, *Petri* Tapani, b. 1944, elected 1996, Section of Science, M.D., Director, Prof. emer., Wihuri Research Institute

Krause, Anna *Outi* Inkeri, b. 1948, elected 2008, Section of Science, D.Sc. (Tech.), Prof. emer., Aalto University Krusius, Franz-Mathias *Matti*, b. 1942, elected 1981, Section of Science, D.Sc. (Tech.), Prof. emer., Aalto University

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Krötzl, Kai Christian, b. 1956, elected 2008, Section of the Humanities, PhD, Prof., Tampere University

Kuisma, Eero *Markku* Sakari, b. 1952, elected 2003, Section of the Humanities, PhD, Prof. emer., University of Helsinki

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Kujamäki, *Pekka* Juhani, elected 2022, Section of the Humanities, PhD, Prof., Karl-Franzens-Universität Graz

Kukkonen, *Ilmo* Tapio, b. 1956, elected 2007, Section of Science, D.Sc. (Tech.), Prof., University of Helsinki

Kukkonen, *Jussi* Vilho Kalevi, b. 1962, elected 2009, Section of Science, PhD, Prof., University of Eastern Finland

Kulla, *Heikki* Ilmari, b. 1950, elected 2012, Section of the Humanities, LL.D., Prof. emer., University of Turku

Kulmala, Markku Tapio, b. 1958, elected 2004, Section of Science, PhD, Academician of Science, Prof., University of Helsinki

Kumpulainen, Päivi Kristiina, elected 2019, Section of the Humanities, EdD, Prof., University of Helsinki

Kunelius, *Risto*, b. 1964, elected 2015, Section of the Humanities, Prof., University of Helsinki

Kuoppamäki, *Petri* Jussi, b. 1964, elected 2016, Section of the Humanities, LL.D., Prof., Aalto University

Kupiainen, *Antti* Jukka, b. 1954, elected 1992, Section of Science, Ph.D., Prof., University of Helsinki

Kurki-Suonio, *Reino* Elias Mikael, b. 1937, elected 1992, Section of Science, PhD, Prof. emer., Tampere University of Technology Kurppa, Aarne Herman Juhani, b. 1948, elected 1998, Section of Science, D.Sc., Prof. emer., Agrifood Research Finland

Kurppa, Sirpa Liisa Anneli, b. 1953, elected 2006, Section of Science, D.Sc., Prof., Natural Resources Institute Finland

Kuusi, *Tuomo*, b. 1976, elected 2021, Section of Science, Prof., University of Helsinki

Kuusiniemi, *Kari* Juhani, b. 1960, elected 2014, Section of the Humanities, LL.D., President, Supreme Administrative Court

Kvarnström, *Carita*, b. 1961, elected 2020, Section of Science, PhD, Prof., University of Turku

Kähäri, *Veli-Matti*, b. 1960, elected 2009, Section of Science, M.D., Prof., University of Turku

Kärkkäinen, *Veli-Matti*, b. 1958, elected 2011, Section of the Humanities, ThD, Prof., Fuller Theological Seminary

Kääriäinen, *Leevi* Joel, b. 1935, elected 1985, Section of Science, M.D., Prof. emer., Institute of Biotechnology

Laakso, *Johanna* Marja Leena, b. 1962, elected 2006, Section of the Humanities, PhD, Prof., University of Vienna

Laakso, *Liisa*, b. 1961, elected 2021, Section of the Humanities, Senior Researcher, The Nordic Africa Institute

Laakso, *Markku* Heikki Sakari, b. 1949, elected 1999, Section of Science, M.D., Prof., University of Eastern Finland

Laaksonen, Ari Johannes, b. 1971, elected 2018, Section of Science, PhD, Academy Prof., Finnish Meteorological Institute, part-time Prof., University of Eastern Finland

Laaksonen, *Toni* Kristian, b. 1973, elected 2020, Section of Science, PhD, Prof., University of Turku

Laamanen, *Tomi*, b. 1968, elected 2023, Section of the Humanities, Prof., University of St.Gallen

Laasonen, *Kari* Erik, b. 1963, elected 2007, Section of Science, PhD, Prof., Aalto University

Lagerspetz, Yrjö *Eerik*, b. 1956, elected 2005, Section of the Humanities, DSocSci, Prof., University of Turku Lahesmaa, *Riitta* Liisa Maria, b. 1959, elected 2012, Section of Science, M.D., Director, Prof., Turku Bioscience Centre

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Laine, *Anna-Liisa*, b. 1975, elected 2017, Section of Science, PhD, Prof., University of Helsinki

Laine, *Ilpo* Ensio, b. 1942, elected 1986, Section of Science, PhD, Prof. emer., University of Joensuu

Laine, Janne, b. 1968, elected 2022, Section of Science, Vice Rector, Aalto University

Laine, Ale *Matti* Juhani, b. 1955, elected 2014, Section of the Humanities, PhD, Prof., Åbo Akademi University

Laine, *Tuija* Vappu Hillevi, b. 1964, elected 2017, Section of the Humanities, ThD, Prof., University of Helsinki

Laitinen, *Lea* Marjatta, b. 1946, elected 2003, Section of the Humanities, PhD, Prof. emer., University of Helsinki

Laitinen, *Mikko* Pekka, b. 1973, elected 2022, Section of the Humanities, PhD, Prof., University of Eastern Finland

Laitinen, *Risto* Sakari, b. 1952, elected 2003, Section of Science, D.Sc. (Tech.), Prof., University of Oulu

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Lakka, *Timo*, b. 1963, elected 2023, Section of Science, Prof., University of Eastern Finland

Lamberg, Juha-Antti, elected 2021, Section of the Humanities, Prof., University of Jyväskylä

Lanne, *Markku* Juhani, b. 1965, elected 2014, Section of the Humanities, DSocSci, Prof., University of Helsinki

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Lappalainen, *Pekka* Juhani, b. 1966, elected 2021, Section of Science, PhD, Prof., University of Helsinki, Academy Prof.

Lappi, *Tuomas* Veli Valtteri, b. 1978, elected 2021, Section of Science, PhD, Prof., University of Jyväskylä

Lappi-Seppälä, Sampo *Tapio*, b. 1953, elected 2009, Section of the Humanities, LL.D., Prof., University of Helsinki

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Lavonen, *Jari* Matti Juhani, b. 1958, elected 2014, Section of the Humanities, PhD, Prof., University of Helsinki

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Lehesjoki, Anna-Elina, b. 1960, elected 2013, Section of Science, M.D., Prof., University of Helsinki; Research Director, Prof., Folkhälsan Research Center

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Lehtinen, Erno August, b. 1950, elected 2000, Section of the Humanities, EdD, Prof., University of Turku

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Lehtinen, *Ildikó* Mària, b. 1948, elected 2009, Section of the Humanities, PhD, Adj. Prof., University of Helsinki and University of Turku, Intendant, retired, National Museum of Finland

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Leikola, *Matti* Eino Henrik, b. 1935, elected 1986, Section of Science, D.Sc., Prof. emer., University of Helsinki

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Leino, *Reko* Pekko, b. 1969, elected 2014, Section of Science, D.Sc. (Tech.), Prof., Åbo Akademi University

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Linder, *Markus*, b. 1966, elected 2020, Section of Science, D.Sc. (Tech.), Prof., Aalto University

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- Lindström, Jan Krister, b. 1964, elected 2019, Section of the Humanities, PhD, Prof., University of Helsinki
- Linna, *Tuula* Hannele, b. 1957, elected 2012, Section of the Humanities, LL.D., Prof., University of Helsinki

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Liukkunen, *Ulla*, b. 1966, elected 2022, Section of the Humanities, Prof., University of Helsinki

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Lohi, Eino *Tapani*, b. 1965, elected 2017, Section of the Humanities, LL.D., University Lecturer, University of Helsinki

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Lund, *Peter* David, b. 1957, elected 2018, Section of Science, D.Sc. (Tech.), Prof., Aalto University

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Löytönen, *Markku* Kalervo, b. 1955, elected 2003, Section of Science, PhD, Prof., University of Helsinki

Maalampi, Teuvo *Jukka* Juhani, b. 1950, elected 2009, Section of Science, PhD, Prof., University of Jyväskylä

Majamaa, *Kari* Gunnar, b. 1956, elected 2018, Section of Science, M.D., Prof., University of Oulu

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Salmivalli, Eija *Christina*, b. 1967, elected 2020, Section of the Humanities, PhD (Psych.), Prof., University of Turku

Salo, Ahti Antero, b. 1962, elected 2017, Section of Science, D.Sc. (Tech.), Prof., Aalto University

Salo, Jouko *Heikki* Kalevi, b. 1959, elected 2013, Section of Science, PhD, Prof., University of Oulu

Salo, *Mikko* Johannes, b. 1979, elected 2020, Section of Science, PhD, Prof., University of Jyväskylä

Salo, Tuula Anneli, b. 1958, elected 2010, Section of Science, MDM, Prof., University of Oulu

Salomaa, Arto, elected 1970, Section of Science, PhD, Academician of Science, Prof. emer., University of Turku

Salomaa, Ralf *Rainer* Eerik, b. 1947, elected 2010, Section of Science, D.Sc. (Tech.), Prof. emer., Aalto University

Salomies, *Olli* Ilmari, b. 1951, elected 2001, Section of the Humanities, PhD, Prof., University of Helsinki Salonen, *Kirsi* Leena, b. 1972, elected 2020, Section of the Humanities, PhD, LL.D., Prof., University of Bergen

Salonen, Veli-Pekka, b. 1952, elected 1997, Section of Science, PhD, Prof., University of Helsinki

Sammallahti, *Pekka* Lars Kalervo, b. 1947, elected 1988, Section of the Humanities, PhD, Prof. emer., University of Oulu

Sams, *Mikko* Ensio, b. 1953, elected 2018, Section of the Humanities, PhD, Prof., Aalto University

Sandu, Niculae *Gabriel*, b. 1954, elected 2011, Section of the Humanities, PhD, Prof., University of Helsinki

Sariola, Hannu, b. 1954, elected 2003, Section of Science, M.D., Ph.D., Prof., University of Helsinki

Saukkonen, *Pauli*, b. 1933, elected 1992, Section of the Humanities, PhD, Prof. emer., Institute of the Languages of Finland

Saura, *Anssi* Jaakko Elias, b. 1943, elected 1985, Section of Science, PhD, Prof. emer., Umeå University

Savijärvi, *Hannu* Ilmari, b. 1947, elected 1999, Section of Science, PhD, Prof. emer., University of Helsinki

Savolainen, *Markku* Juhani, b. 1950, elected 2008, Section of Science, M.D., Prof. emer., University of Oulu

Savolainen, *Outi* Anitra, b. 1951, elected 2002, Section of Science, Ph.D., Prof., University of Oulu

Scheinin, *Martin*, b. 1954, elected 2003, Section of the Humanities, LL.D., Prof., University of Oxford, part-time Prof., European University Institute

Scheinin, Mika, b. 1952, elected 2009, Section of Science, M.D., Prof., University of Turku

Schwab, *Ursula* Sonja, b. 1968, elected 2019, Section of Science, PhD, Prof., University of Eastern Finland

Seppä, *Heikki* Tapani, b. 1964, elected 2013, Section of Science, PhD, Prof., University of Helsinki

Seppälä, Jukka Veli, b. 1955, elected 2005, Section of Science, D.Sc. (Tech.), Prof., Aalto University Seppälä, Markku Tapio, b. 1936, elected 1982, Section of Science, M.D., Prof. emer., University of Helsinki

Seppälä, *Risto* Juhani, b. 1943, elected 2001, Section of Science, DSocSci, Prof. emer., Finnish Forest Research Institute

Sihvola, Ari Henrik, b. 1957, elected 2007, Section of Science, D.Sc. (Tech.), Prof., Aalto University

Sihvonen, *Jukka* Veli Olavi, b. 1953, elected 2014, Section of the Humanities, PhD, Prof., University of Turku

Siiskonen, *Harri* Olavi, b. 1956, elected 2005, Section of the Humanities, PhD, Prof., University of Eastern Finland

Sikanen, *Tiina* Marjukka, b. 1978, elected 2023, Section of Science, D.Sc., Ass. Prof., University of Helsinki

Sillanpää, Mika Erik Tapio, elected 2018, Section of Science, D.Sc. (Tech.), Visiting Prof., Florida International University

Sillanpää, *Mika* Antero, b. 1976, elected 2016, Section of Science, PhD, Prof., Aalto University

Siltala, Juha Heikki, b. 1957, elected 2014, Section of the Humanities, PhD, Prof., University of Helsinki

Siltala, *Raimo* Olavi, elected 2022, Section of the Humanities, LL.D., Prof., University of Turku

Siltanen, *Samuli*, b. 1970, elected 2020, Section of Science, D.Sc. (Tech.), Prof., University of Helsinki

Silvennoinen, *Olli* Juhani, b. 1960, elected 2002, Section of Science, M.D., Director, Prof., Tampere University

Simell, *Olli* Gunnar, b. 1945, elected 2003, Section of Science, M.D., Prof. emer., University of Turku

Simola, *Hannu* Jaakko, b. 1950, elected 2014, Section of the Humanities, EdD, Prof. emer., University of Helsinki

Sintonen, *Matti* Tapani, b. 1951, elected 2008, Section of the Humanities, PhD, Prof. emer., University of Helsinki Sipilä, Jorma Jaakko Kalevi, b. 1945, elected 2000, Section of the Humanities, DSocSci, Prof. emer., Tampere University

Siponen, Timo *Mikko* Tapani, b. 1974, elected 2019, Section of Science, PhD, DSocSci, Prof., University of Alabama

Sistonen, *Lea* Tuulikki, b. 1959, elected 2004, Section of Science, PhD, Prof., Åbo Akademi University

Sisula-Tulokas, *Lena*, b. 1945, elected 2001, Section of the Humanities, LL.D., Prof. emer., University of Helsinki

Sivonen, Anna *Kaarina*, b. 1954, elected 2002, Section of Science, D.Sc., Director, University of Helsinki

Slotte, Pamela Paulina, elected 2022, Section of the Humanities, ThD, Prof., Åbo Akademi University

Snellman, *Hanna* Kyllikki, b. 1961, elected 2010, Section of the Humanities, PhD, Prof., University of Helsinki

Soininen, *Hilkka* Sirkku, b. 1950, elected 2010, Section of Science, M.D., Prof. emer., University of Eastern Finland

Solin, *Heikki* Lauri Abel, b. 1938, elected 1983, Section of the Humanities, PhD, Prof. emer., University of Helsinki

Sollamo, *Raija* Tellervo, b. 1942, elected 2006, Section of the Humanities, ThD, Prof. emer., University of Helsinki

Somersalo, *Erkki* Jaakko, b. 1960, elected 2007, Section of Science, PhD, Prof., Case Western Reserve University

Sorjonen, *Marja-Leena*, b. 1956, elected 2015, Section of the Humanities, PhD, Prof., University of Helsinki

Sorsa, *Veikko* Valio, b. 1928, elected 1979, Section of Science, PhD, Prof. emer., University of Helsinki

Sourander, *Andre*, b. 1959, elected 2023, Section of Science, Prof., University of Turku

Stark, *Laura* Michelle, b. 1966, elected 2013, Section of the Humanities, PhD, Prof., University of Jyväskylä Steinby, Eva *Margareta*, b. 1938, elected 2000, Section of the Humanities, PhD, Prof. emer., University of Oxford

Stenbacka, Leif *Rune*, b. 1960, elected 2010, Section of the Humanities, DSocSci, Prof., Hanken School of Economics

Stoddard, Frederick Lothrop Fred, b. 1958, elected 2021, Section of Science, PhD, University Lecturer, University of Helsinki

Strandberg, *Timo* Einar, b. 1953, elected 2013, Section of Science, M.D., Prof., University of Helsinki, University of Oulu

Suhonen, Jouni Tapio, b. 1956, elected 2019, Section of Science, PhD, Prof., University of Jyväskylä

Sulkunen, *Irma* Hilda Tuulikki, b. 1948, elected 2006, Section of the Humanities, PhD, Prof. emer., Tampere University

Sulkunen, *Pekka* Juhani, b. 1948, elected 2002, Section of the Humanities, DSocSci, Prof. emer., University of Helsinki

Sun, Zhipei, b. 1978, elected 2022, Section of Science, Prof., Aalto University

Sundholm, Dage Mats Börje, b. 1957, elected 2015, Section of Science, PhD, Prof., University of Helsinki

Suomela-Härmä, Marja *Elina*, b. 1946, elected 2002, Section of the Humanities, PhD, Prof. emer., University of Helsinki

Suominen, Juha Kalevi, b. 1940, elected 1973, Section of Science, PhD, Prof. emer., University of Helsinki

Suominen, *Kalle-Antti*, b. 1964, elected 2002, Section of Science, PhD, Prof., University of Turku

Syrjälä, *Leena*, b. 1947, elected 2001, Section of the Humanities, PhD, Prof. emer., University of Oulu

Sänkiaho, *Risto* Heikki, b. 1941, elected 2001, Section of the Humanities, DSocSci, Prof. emer., Tampere University

Taalas, Jukka *Petteri*, b. 1961, elected 2009, Section of Science, PhD, Secretary General, WMO

Taavitsainen, *Irma*, elected 2004, Section of the Humanities, PhD, Prof. emer., University of Helsinki Taavitsainen, *Jussi-Pekka*, b. 1951, elected 2004, Section of the Humanities, PhD, Prof., University of Turku

Tahvonen, *Olli* Ilari, b. 1958, elected 2010, Section of the Humanities, DEc, Prof., University of Helsinki

Tainio, *Risto*, b. 1947, elected 1992, Section of the Humanities, DEc, Prof. emer., Aalto University

Taipale, Jussi, b. 1968, elected 2020, Section of Science, Prof., University of Helsinki, Karolinska Institutet, University of Cambridge

Tanila, *Heikki* Juhani, b. 1962, elected 2020, Section of Science, M.D., Prof., University of Eastern Finland

Tanskanen, *Antti* Johannes, b. 1946, elected 1993, Section of the Humanities, PhD (Econ.), Prof., University of Jyväskylä; Director, retired, OP Group

Tanskanen, *Sanna-Kaisa*, b. 1965, elected 2017, Section of the Humanities, PhD, Prof., University of Helsinki

Tarasti, *Eero* Aarne Pekka, b. 1948, elected 1987, Section of the Humanities, PhD, Prof. emer., University of Helsinki

Tarkiainen, *Kari*, b. 1938, elected 2000, Section of the Humanities, PhD, Director, retired, National Archives of Finland, State Archivist emer.

Tarkka, *Lotte* Maria, b. 1963, elected 2012, Section of the Humanities, PhD, Prof., University of Helsinki

Taskinen, *Marja-Riitta*, b. 1940, elected 2002, Section of Science, M.D., Prof. emer., University of Helsinki

Teeri, *Teemu* Heikki, b. 1956, elected 2010, Section of Science, PhD, Prof., University of Helsinki

Tenhu, *Heikki* Juhani, b. 1955, elected 2013, Section of Science, PhD, Prof., University of Helsinki

Tenkanen, Tiina *Maija*, b. 1963, elected 2016, Section of Science, D.Sc. (Tech.), Prof., University of Helsinki

Tepora, *Jarno* Kalervo, b. 1948, elected 2004, Section of the Humanities, LL.D., Prof. emer., University of Helsinki **Tervo-Niemelä**, *Kati*, b. 1972, elected 2017, Section of the Humanities, ThD, Prof., University of Eastern Finland

Thesleff, *Irma* Paula Nathalia, b. 1948, elected 1994, Section of Science, MDM, Academician of Science, Prof. emer., University of Helsinki

Thuneberg, *Erkki* Veikko, b. 1955, elected 2005, Section of Science, D.Sc. (Tech.), Prof. emer., University of Oulu

Tiitinen, *Kari-Pekka*, b. 1944, elected 2005, Section of the Humanities, LL.D., Prof. emer., University of Helsinki

Tiittula, *Liisa* Maria, b. 1950, elected 2009, Section of the Humanities, PhD, Prof. emer., University of Helsinki

Tikkanen, *Matti J*, b. 1943, elected 2003, Section of Science, M.D., Prof. emer., University of Helsinki

Tilvis, *Reijo*, b. 1945, elected 2005, Section of Science, M.D., Prof. emer., University of Helsinki

Tirri, *Kirsi* Anne Helena, b. 1961, elected 2006, Section of the Humanities, EdD, Prof., University of Helsinki

Tkachenko, *Nikolai*, b. 1957, elected 2022, Section of Science, PhD, Prof., Tampere University

Toivanen, *Auli* Marjaana, b. 1938, elected 1991, Section of Science, M.D., Prof. emer., University of Turku

Toivanen, Otto Iisakki, b. 1965, elected 2020, Section of the Humanities, PhD, Prof., Aalto University

Toivanen, *Reetta* Johanna, elected 2021, Section of the Humanities, PhD, Prof., University of Helsinki

Toivo, *Raisa Maria*, b. 1972, elected 2021, Section of the Humanities, PhD, Prof., Tampere University

Toivonen, *Hannu* Tauno Tapani, b. 1967, elected 2015, Section of Science, PhD, Prof., University of Helsinki

Tomppo, *Erkki* Olavi, b. 1947, elected 2002, Section of Science, DSocSci, Research Prof. emer., Natural Resources Institute Finland

Toom, *Auli* Mari Hannele, b. 1975, elected 2020, Section of the Humanities, PhD, Prof., University of Helsinki **Toppari**, *Jorma* Into Kalervo, b. 1958, elected 2013, Section of Science, M.D., Prof., University of Turku

Toppinen, Anne, b. 1966, elected 2020, Section of Science, D.Sc., Prof., University of Helsinki

Tryggvason, *Karl*, b. 1947, elected 1992, Section of Science, M.D., Prof. emer., Karolinska Institutet

Tukia, *Pekka* Pertti, b. 1945, elected 1992, Section of Science, PhD, Prof. emer., University of Helsinki

Tuomala, *Matti*, b. 1949, elected 2001, Section of the Humanities, DSocSci, Prof. emer., Tampere University

Tuomi, Juha Antero, b. 1953, elected 1999, Section of Science, PhD, Prof. emer., University of Oulu

Tuomilehto, Jaakko Olavi Iivari, b. 1946, elected 2004, Section of Science, M.D., Prof. emer., University of Helsinki

Tuomisto, *Hanna* Marjaana, b. 1965, elected 2021, Section of Science, PhD, Prof., University of Turku

Tuomisto, *Jarmo* Juhani, b. 1952, elected 2006, Section of the Humanities, LL.D., Prof., University of Turku

Tuomisto, *Jouko* Juhani, b. 1939, elected 1994, Section of Science, M.D., PhD, Research Prof. emer., National Public Health Institute of Finland

Tuononen, *Heikki* Markus, b. 1978, elected 2021, Section of Science, PhD, Prof., University of Jyväskylä

Tuori, Kaarlo Heikki, b. 1948, elected 1994, Section of the Humanities, LL.D., Prof. emer., University of Helsinki

Tuori, *Kaius* Tapani, b. 1974, elected 2020, Section of the Humanities, LL.D., Prof., University of Helsinki

Tuorila, *Hely* Margareetta, b. 1950, elected 2010, Section of Science, D.Sc., Prof., University of Helsinki

Turpeinen, *Oiva* Paavo, b. 1942, elected 2005, Section of the Humanities, PhD, Prof. h.c.

Tyrväinen, *Liisa*, b. 1963, elected 2023, Section of Science, Research Prof., Natural Resources Institute Finland Törmä, *Päivi*, b. 1969, elected 2006, Section of Science, PhD, Prof., Aalto University

Törmälä, *Pertti* Olavi, b. 1945, elected 1994, Section of Science, PhD, Academy Prof. emer., Tampere University of Technology

Ukkonen, *Esko* Juhani, b. 1950, elected 2000, Section of Science, PhD, Prof. emer., University of Helsinki

Uotila, *Pertti* Johannes, b. 1943, elected 2003, Section of Science, PhD, Director, Prof., retired, University of Helsinki

Urtti, Arto Olavi, b. 1956, elected 2012, Section of Science, D.Sc., Director, Prof., University of Helsinki

Usoskin, *Ilya*, b. 1965, elected 2019, Section of Science, PhD, Prof., University of Oulu

Utriainen, *Terhi* Pepita, elected 2021, Section of the Humanities, PhD, Prof., University of Helsinki

Uusikylä, *Kari* Tapio, b. 1945, elected 1999, Section of the Humanities, PhD, Prof. emer., University of Helsinki

Uusitalo, *Liisa* Anneli, b. 1944, elected 1997, Section of the Humanities, DEc, Prof. emer., Aalto University

Uusitupa, *Matti* Ilmari Julius, b. 1946, elected 2005, Section of Science, M.D., Prof. emer., University of Eastern Finland

Vaara, *Eero*, b. 1968, elected 2022, Section of the Humanities, DEc, Prof., University of Oxford

Vaara, Juha Tapani, b. 1967, elected 2021, Section of Science, PhD, Prof., University of Oulu

Vaarala, Outi Minna Anneli, b. 1962, elected 2014, Section of Science, M.D., Research Director, University of Helsinki; Director, Orion

Vaattovaara, *Mari* Kaarina, b. 1967, elected 2016, Section of the Humanities, PhD, Prof., University of Helsinki

Waenerberg, Leeni *Annika*, b. 1952, elected 2005, Section of the Humanities, PhD, Prof. emer., University of Jyväskylä

Vaheri, Antti Ilmari, b. 1938, elected 1985, Section of Science, M.D., Prof. emer., University of Helsinki

Vahtola, Jouko Olavi, b. 1949, elected 2001, Section of the Humanities, PhD, Prof. emer., University of Oulu Vainio, *Martti*, b. 1960, elected 2020, Section of the Humanities, Prof., University of Helsinki

Vainio, *Olli-Pekka*, b. 1976, elected 2021, Section of the Humanities, ThD, Prof., University of Helsinki

Vainio-Korhonen, *Kirsi* Maaria, b. 1958, elected 2010, Section of the Humanities, PhD, Prof., University of Turku

Valkonen, Jari Pekka Tapani, b. 1964, elected 2004, Section of Science, D.Sc., Prof. emer., University of Helsinki

Valkonen, Yrjö *Tapani*, b. 1941, elected 1991, Section of the Humanities, DSocSci, Prof. emer., University of Helsinki

Wallenius, Ilkka *Jyrki*, b. 1949, elected 2002, Section of the Humanities, DEc, Prof. emer., Aalto University

Vallittu, *Pekka* Kalevi, b. 1965, elected 2023, Section of Science, MDM, Prof., University of Turku

Valmari, *Antti* Arvi, b. 1961, elected 2008, Section of Science, D.Sc. (Tech.), Prof., University of Jyväskylä

Valtonen, Mauri Juhani, b. 1945, elected 2009, Section of Science, Ph.D., Prof. emer., University of Turku

Vanhatalo, *Aila* Orvokki, b. 1960, elected 2016, Section of Science, D.Sc., Prof., University of Helsinki

Vapaatalo, *Heikki* Ilmari, b. 1939, elected 1985, Section of Science, M.D., Prof. emer., University of Helsinki

Vapalahti, *Olli* Pekka, b. 1963, elected 2018, Section of Science, M.D., Prof., University of Helsinki

Varantola, Eeva *Krista* Johanna, b. 1946, elected 2005, Section of the Humanities, PhD, Prof. emer., Tampere University

Vartiainen, *Hannu* Kalevi, b. 1968, elected 2022, Section of the Humanities, DSocSci, Prof., University of Helsinki

Wartiovaara, Anu Elina, b. 1966, elected 2007, Section of Science, M.D., Prof., University of Helsinki, Academy Prof.

Vasander, Harri Tapani, b. 1954, elected 2010, Section of Science, PhD, Prof., University of Helsinki

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Vattulainen, *Ilpo* Tapio, b. 1968, elected 2021, Section of Science, D.Sc. (Tech.), Prof., University of Helsinki

Vauras, *Marja* Merja Sinikka, b. 1953, elected 2013, Section of the Humanities, PhD, Prof., University of Turku

Vehkamäki, Hanna Tuula Katariina, b. 1969, elected 2014, Section of Science, PhD, Prof., University of Helsinki

Vehviläinen, *Olli-Pekka*, b. 1933, elected 1994, Section of the Humanities, Lic. Phil. (diss.), Prof. emer., Tampere University

Veijola, *Riitta*, b. 1960, elected 2021, Section of Science, Prof., University of Oulu

Ventola, *Eija* Maritta, b. 1951, elected 2011, Section of the Humanities, Ph.D., Prof. emer., Aalto University

Vepsäläinen, *Kari* Antero, b. 1942, elected 1984, Section of Science, PhD, Title of Docent, University of Helsinki

Vesala, *Timo* Veikko, b. 1963, elected 2005, Section of Science, PhD, Prof., University of Helsinki

Westermarck, *Jukka*, b. 1969, elected 2017, Section of Science, M.D., Director, Prof., University of Turku

Wiberg, *Matti* Johannes, b. 1954, elected 2003, Section of the Humanities, DSocSci, Prof. emer., University of Turku

Wide, *Camilla* Maria, b. 1967, elected 2023, Section of the Humanities, PhD, Prof., University of Turku

Vihavainen, *Timo* Juhani, b. 1947, elected 2009, Section of the Humanities, PhD, Prof. emer., University of Helsinki

Vihervuori, Aimo *Pekka*, b. 1950, elected 2005, Section of the Humanities, LL.D., President, retired, Supreme Administrative Court

Vihko, *Reijo* Kalevi, b. 1939, elected 1982, Section of Science, M.D., Prof. emer., University of Oulu

Viikari, Jorma Sauli Antero, b. 1947, elected 2004, Section of Science, M.D., Prof. emer., University of Turku

Viisanen, Yrjö Antero, b. 1959, elected 2008, Section of Science, PhD, Research Director, Prof., Finnish meteorological Institute Viljamaa, *Toivo* Matti Johannes, b. 1937, elected 1994, Section of the Humanities, PhD, Prof. emer., University of Turku

Vilkki, Helmi *Johanna*, b. 1956, elected 2006, Section of Science, PhD, Prof. emer., Natural Resources Institute Finland

Vilkuna, *Janne* Tapio, b. 1954, elected 2003, Section of the Humanities, PhD, Prof. emer., University of Jyväskylä

Vilkuna, *Kustaa* Heikki Juhani, b. 1966, elected 2022, Section of the Humanities, PhD, Prof., University of Jyväskylä

Virén, *Matti* Eino Ensio, b. 1948, elected 1997, Section of the Humanities, DSocSci, Prof. emer., University of Turku

Virta, *Marko* Petri Juhani, b. 1968, elected 2022, Section of Science, PhD, Prof., University of Helsinki

Virtanen, *Keijo* Aarre, b. 1945, elected 2000, Section of the Humanities, PhD, Prof. emer., University of Turku

Visakorpi, Jarmo Kustaa, b. 1931, elected 1987, Section of Science, M.D., Prof. emer., Tampere University

Visakorpi, *Tapio*, b. 1965, elected 2007, Section of Science, M.D., Prof., Tampere University

Wrede, Johan Otto Wilhelm, b. 1935, elected 1982, Section of the Humanities, PhD, Prof. emer., University of Helsinki

Vuola, *Elina* Inkeri Tellervo, b. 1960, elected 2019, Section of the Humanities, ThD, Prof., University of Helsinki

Vuorinen, *Aleksi* Risto Johannes, b. 1980, elected 2020, Section of Science, PhD, Ass. Prof., University of Helsinki

Vuorinen, Tapani, b. 1957, elected 2020, Section of Science, Prof., Aalto University

Vuorio, *Eero* Ilkka, b. 1948, elected 1998, Section of Science, M.D., Prof. emer., University of Turku

Wähälä, *Kristiina*, elected 2014, Section of Science, PhD, Prof. emer., University of Helsinki

Väisälä, Jussi Ilmari, b. 1935, elected 1971, Section of Science, PhD, Prof. emer., University of Helsinki Välimäki, Juuso Tapani, b. 1966, elected 2007, Section of the Humanities, PhD, Prof., Aalto University

Väyrynen, *Raimo* Veikko Antero, b. 1947, elected 1992, Section of the Humanities, DSocSci, former Prof., University of Helsinki, University of Notre Dame; former Director, Academy of Finland; Director, retired, Finnish Institute of International Affairs

Väänänen, Jouko Antero, b. 1950, elected 2002, Section of Science, PhD, Prof., University of Helsinki

Väänänen, Heikki *Kalervo*, b. 1952, elected 2000, Section of Science, M.D., Prof., University of Turku

Yang, *Baoru*, b. 1966, elected 2023, Section of Science, PhD, Prof., University of Turku

Yki-Järvinen, *Hannele*, b. 1956, elected 2001, Section of Science, M.D., Prof., University of Helsinki

Yli-Halla, *Markku* Juhani, b. 1956, elected 2020, Section of Science, D.Sc., Prof. emer., University of Helsinki

- Yli-Jokipii, *Pentti* Olavi, b. 1941, elected 1988, Section of Science, PhD, Prof. emer., University of Turku
- Yli-Kauhaluoma, *Jari* Tapani, b. 1966, elected 2020, Section of Science, PhD, Prof., University of Helsinki

Ylikangas, *Heikki* Eemeli, b. 1937, elected 1993, Section of the Humanities, PhD, Prof. emer., University of Helsinki

Ylikorkala, Reino *Olavi*, b. 1942, elected 1996, Section of Science, M.D., Prof. emer., University of Helsinki

Ylikoski, *Jussi* Mika Petteri, b. 1974, elected 2022, Section of the Humanities, PhD, Prof., University of Turku

Yliperttula, *Marjo* Liisa, b. 1960, elected 2019, Section of Science, PhD, Prof., University of Helsinki

Ylä-Herttuala, Seppo Pasi Antero, b. 1957, elected 2006, Section of Science, M.D., Prof., University of Eastern Finland

Ylätalo, Eero *Matti* Olavi, b. 1946, elected 1999, Section of Science, D.Sc., Prof. emer., University of Helsinki

Zetterberg, Seppo Juhani, b. 1945, elected 2006, Section of the Humanities, PhD, Prof. emer., University of Jyväskylä

Zhao, *Guoying*, b. 1977, elected 2022, Section of Science, Ph.D., Prof., University of Oulu, Academy Prof.

Äystö, Juha Heikki Eskeli, b. 1948, elected 1997, Section of Science, PhD, Prof. emer., University of Jyväskylä

Österberg, *Monika*, b. 1969, elected 2023, Section of Science, Prof., Aalto University

External members 31 December 2023

Each member's name, year of birth and year of election to membership are given, followed by the person's academic qualification and present position or last position occupied before retirement.

- Achtenhagen, Frank, b. 1939, elected 1999, Dr. rer. pol., Prof. emer. of economics and business education and management training, University of Göttingen
- Aleskerov, *Fuad*, *b*. 1951, elected 2021, D.Sc., Prof., Head of the Department of Mathematics for Economics, National Research University
- Allik, *Jüri*, *b*. 1949, elected 1997, Ph.D., Prof. of experimental psychology, University of Tartu
- Arter, *David*, b. 1944, elected 2001, Ph.D., Emeritus Prof. of Politics, University of Aberdeen, Research Director (Political Science), University of Tampere

Asiegbu, *Fred* Obioma, b. 1961, elected 2017, Ph.D., Prof. of Forest Pathology, University of Helsinki

Bengtsson, Olof *Lennart, b.* 1935, elected 1998, Dr., Prof. emer. of Geophysics, Max Planck Institute for Meteorology

Bertinetto, *Pier Marco*, b. 1947, elected 2006, Full Prof. of General Linguistics, Scuola Normale Superiore of Pisa

Birmelé, Marc André, b. 1949, elected 2000, Doctorat en Sciences religieuses, Doctorat J'État en théologie, Prof. emer. of Dogmatic Theology, University of Strasbourg

Bova, George Steven, elected 2018, M.D., Prof., personalized cancer medicine, Tampere University

Bradley, *Raymond Stu*art, b. 1948, elected 2008, Distinguished Prof., University of Massachusetts

Bricmont, *Jean Lou*is Joseph, b. 1952, elected 2013, Ph.D., Prof. emeritus of theoretical physics, Universite Catholique de Louvain la Neuve

Buchwald, Vagn Fabritius, b. 1929, elected 1994, D.Sc., Docent, retired, Technical University of Denmark

Bünzli, *Jean-Claude G*, b. 1944, elected 1998, Dr.-Ing. Chem., Prof. of Chemistry, ETH Lausanne

Bäckvall, Jan-Erling, b. 1947, elected 1996, Tekn. Dr., Prof. of Organic Chemistry, Stockholm University

Carleson, *Lennart Axe*l Edvard, b. 1928, elected 1970, Ph.D., Prof. emer., Royal Institute of Technology

de Castro, *Ivo Jos*e, b. 1945, elected 1996, Prof. de História da Língua Portuguesa, University of Lisbon

Chaniotis, Angelos, b. 1959, elected 2009, Dr., Prof. of Ancient History and Classics, Princeton University

Cheeger, *Jeff*, b. 1943, elected 1998, Prof. of Mathematics, New York University

Clark, *Peter Alan*, b. 1944, elected 2006, Ph.D., Prof. emer. of European Urban History, University of Helsinki **Crone**, *Elizabeth Ell*en, b. 1969, elected 2017, Ph.D., Prof. of population ecology and dynamics, Tufts University

Deppermann, Arnulf, b. 1964, elected 2018, Prof. Dr., Prof. of German Linguistics, University of Mannheim

Diamond, Jared Mason, b. 1937, elected 2000, Ph.D., Prof. of Geography, University of California, Los Angeles

Dobaczewski, *Jacek Jan*, b. 1952, elected 2015, Prof. of theoretical nuclear physics, University of York

DuBois, *Thomas*, b. 1960, elected 2016, Ph.D., Halls-Bascom Prof. of Scandinavian Studies, Folklore, and Religious Studies, University of Wisconsin-Madison

Duchhardt, *Heinz, b.* 1943, elected 2003, Prof. Dr., Director, Leibniz Institute of European History

Dunbar, Robin Ian MacDonald, b. 1947, elected 2021, MA, PhD, DSc (Hons), Prof. emer. of evolutionary psychology, University of Oxford

Eck, *Werner*, b. 1939, elected 1998, Prof. ordinarius for Ancient History, University of Cologne

Eldridge, *Richard*, *b*. 1953, elected 2010, Ph.D., Charles and Harriett Cox McDowell Prof. emer. of philosophy, Swarthmore College

Enflo, *Kerstin Sof*ia, b. 1978, elected 2021, Prof. of economic history, Lund University

Engwall, *Gunnel Bir*gitta, b. 1942, elected 2014, fil.dr., Prof. of romance languages, Stockholm University

Engwall, *Lars Otto* Victor, b. 1942, elected 1998, fil.dr., Prof. emer. of business administration, Uppsala University

Enss, *Christian Wal*ter Dietrich, b. 1960, elected 2016, Dr., Full Prof., Kirchhoff-Institute for Physics, Heidelberg University

Eriksson, Ove Jörgen, b. 1956, elected 2014, Prof., Stockholm University

Gaddis, John Lewis, b. 1941, elected 1985, Ph.D., Robert A. Lovett Prof. of History, Yale University

Galdia, *Marcus*, *b*. 1961, elected 2017, Dr.phil., Dr.iur., Associate Prof. of Law, International University of Monaco Gerber, Robert *Benny, b.* 1944, elected 2007, D.Ph., Saerree K. and Louis P. Fiedler Prof. of Chemistry, Hebrew University, Prof. of Chemistry, University of California, Irvine

Giron Alconchel, *José-Luis*, b. 1947, elected 1997, Doctor en Filologia Hispánica, Catedrático de Historia de la Lengua Española, Complutense University of Madrid

Granberg, *Hardy B*, b. 1943, elected 1998, Ph.D., Professeur agrégé, Univeristé de Sherbrooke

Greenlees, *Paul Tho*mas, b. 1973, elected 2018, Ph D, Prof. of Physics, University of Jyväskylä

Groten, Erwin, b. 1935, elected 1997, Dr.-Ing., Prof., Darmstadt University of Technology

Hambraeus, Leif Magnus, b. 1936, elected 1997, Med.Dr., Prof. emer. human nutrition, Uppsala University

Heide, Ola Mikal, b. 1931, elected 1995, Dr. agric., Prof. emer. of Botany, Norwegian University of Life Sciences

Heikkilä, *Walter J*, b. 1928, elected 1977, Prof. emer. of Physics, University of Texas at Dallas

Helenius, Ari, b. 1944, elected 2003, Ph.D., Prof. of Biochemistry, ETH Zürich

Hinkkanen, *Aimo Hei*kki Juhani, b. 1958, elected 2005, PhD., Prof. of Mathematics, University of Illinois at Urbana-Champaign

Holler, *Manfred*, b. 1946, elected 2022, Prof. of economics, University of Hamburg

Holly, *Michael Ann*, b. 1944, elected 2011, Ph.D., Starr Director of Research and Academic Program, Sterling and Francine Clark Art Institute

Holmström, Bengt Robert, b. 1949, elected 2007, Ph.D., Paul A. Samuelson Prof. of Economics, Massachusetts Institute of Technology, MIT

Holsti, *Kalevi J*, b. 1935, elected 2005, Prof. emer. of Political Science, University of British Columbia

Hroch, *Miroslav*, *b*. 1932, elected 1996, Ph.D. h.c., Ph.D., Dr. Sc., emer. University Prof. of History, Charles University Prague

Hugdahl, *Kenneth*, b. 1948, elected 2002, Ph.D., Prof., University of Bergen

Hutcheon, *Linda*, *b*. 1947, elected 2010, Ph.D., Prof. emer. of English and Comparative Literature, University of Toronto

Hånell, *Björn Olo*f, b. 1951, elected 2014, Dr., Prof., Swedish University of Agricultural Sciences

Häyry, *Matti*, elected 2005, Dr. Soc. Sci., Prof. of Philosophy of Management, Aalto University

Hökfelt, *Tomas Gus*tav Magnus, b. 1940, elected 2018, PhD, Prof. emer. of histology, Karolinska Institut

Hösch, *Edgar Joh*ann, b. 1935, elected 1996, Dr. phil., Prof. emer. of history, Ludwig Maximilian University of Munich

Imahori, *Hiroshi*, b. 1961, elected 2018, Prof., Kyoto University

Iwaniec, Tadeusz, b. 1947, elected 2012, Ph.D., FiDiPro Prof., University of Helsinki, John Raymond French Prof. of Mathematics, Syracuse University

Jacobs, Howard Trevor *Howy*, *b*. 1955, elected 2002, Ph.D., Prof. of molecular biology, Tampere University

Jauho, *Antti-Pekka*, b. 1952, elected 2003, Prof. of Theoretical Nanotechnology, Technical University of Denmark

Jeltsch, *Rolf, b.* 1945, elected 2002, Dr., Full Prof., ETH Zürich

Johannessen, Ola M, b. 1938, elected 1997, Prof. emer., University of Bergen, University of Bergen

Johansen, *Hans-Christian*, b. 1935, elected 1997, Dr. Oecon, Prof. emer. of Economic and Social History, University of Southern Denmark

Johansson, Bror *Henning, b.* 1940, elected 1998, Ph.D., Prof. emer. of Education, Jönköping University

Jonson, Mats Sigvard, b. 1947, elected 2013, Ph.D., Prof. of Physics, University of Gothenburg

Jänne, *Pasi A*, b. 1967, elected 2016, MD, PhD, Prof. of medicine, Harvard Medical School

Jänterä-Jareborg, *Maarit, b.* 1954, elected 2008, Jur. dr., Prof. of Private International Law and International Civil Procedure, Uppsala University Jäättelä, *Marja Hel*ena, b. 1963, elected 2016, MD, Ph.D., Head of Research Unit, Danish Cancer Society Research Center

Kanninen, *Markku Tap*ani, b. 1952, elected 2004, Ph. Sci. Agric. For., Prof. of tropical silviculture, University of Helsinki

Kasimov, Nikolay, b. 1946, elected 2021, Dean/ President, Faculty of Geography, Moscow State University

Kenttämaa, *Hilkka Ink*eri, b. 1954, elected 2004, Prof. of Organic and Analytical Chemistry, Purdue University

Kertész, János, elected 2021, Dr. rer. nat., D.Sc., Prof., Head of Department of Network and Data Science, Central European University

Klabbers, Johannes Antonius Maria *Jan, b.* 1963, elected 2014, Dr., Academy Prof. (Martti Ahtisaari Chair), Prof. of International Law, University of Helsinki

Klingemann, *Hans-Dieter Alb*ert Robert, b. 1937, elected 1999, Dr. rer. pol., Prof. emer. of Political Science, Free University of Berlin

Knott, *Kim*, *b*. 1955, elected 2016, Ph.D., Prof. of Religious and Secular Studies, Lancaster University

Kolaitis, *Phokion Ger*asimos, b. 1950, elected 2007, Ph.D., Prof. of Computer Science, University of California, Santa Cruz

Kolstad, *Nils Kri*stoffer, b. 1930, elected 1998, Dr. agric., Prof. emer. of Agriculture, Agricultural University of Norway

Krajcik, Joseph, b. 1952, elected 2021, Prof., Michigan State University

Krosby, *Hans Peter*, b. 1929, elected 1978, Ph.D., Prof. emer. of History, State University of New York at Albany

Kuich, *Werner*, b. 1941, elected 1988, Dr. phil., Dr. h.c., Prof. of Mathematics and Theoretical Informatics, Vienna University of Technology

Kusch, *Martin Paul* Heinrich, b. 1959, elected 2008, Dr., Applied Philosophy of Science and Epistemology, University of Vienna

Kuznetsov, Nikolay, b. 1979, elected 2020, Dr. Sci., Prof. and Head of the Department of Applied Cybernetics, Saint-Petersburg State University; Head of the Laboratory of information and control systems, Russian Academy of Science

Kytö, *Merja-Mai*ja, elected 2016, Prof. of English language, Uppsala University

Landsberg, Joseph John Joe, b. 1938, elected 1999, B.Sc, Ph.D., Adjunct Prof. emer., Charles Sturt University (New South Wales), Prof. emer., The University of Queensland

Lang, Valter, b. 1958, elected 2017, Ph.D., Prof. of Archaeology, University of Tartu and University of Turku

Lepore, *Ernest*, *b*. 1950, elected 2014, Ph.D., Prof. of Philosophy, Rutgers University, Center for Cognitive Science

- Levin, Christoph, b. 1950, elected 2014, Dr. theol., Prof. of Old Testament Studies, Ludwig Maximilian University of Munich
- Ley, *Steven Vic*tor, b. 1945, elected 2007, Ph.D., Prof. of Chemistry, University of Cambridge
- Lloyd, Alan *Christopher, b.* 1950, elected 2016, Ph.D., Emeritus Prof., University of New England

Löfstedt, *Leena*, *b*. 1937, elected 1995, former Prof. of Romance Philology, University of Jyväskylä

Marchello-Nizia, *Christiane Mar*ie, b. 1941, elected 2002, Docteur d'Etat, Prof. emer., École normale supérieure de Lyon

Martin, Gaven John, b. 1958, elected 2016, Ph.D., Distinguished Prof. of Mathematics, Massey University

Maurer, *Hermann, b.* 1941, elected 1996, Dr., Prof. emer. of computer science, Graz University of Technology

McLerran, *Larry*, *b*. 1949, elected 2000, Senior Scientist, Brookhaven National Laboratory

McMahon, *April Mary* Scott, b. 1964, elected 2008, Ph.D., Vice-President for Teaching, Learning and Students, University of Manchester

Mieder, Wolfgang, b. 1944, elected 1996, Dr., Prof. of German and Folklore, University of Vermont

Mitra, *Sanjit* Kumar, b. 1935, elected 2013, Ph.D., Research Prof. of Electrical and Computer Engineering, University of California, Santa Barbara Moen, *Asbjörn*, b. 1944, elected 2006, D.Phil., Prof. in Vegetation Ecology and Conservation Biology, Norwegian University of Science and Technology

Mondada, *Lorenza*, b. 1963, elected 2017, Prof. Dr. Dr. h.c., Full Prof. of general linguistics and French linguistics, University of Basel

Moore, John C, b. 1961, elected 2016, Prof., Beijing Normal University and University of Lapland

Morrill, John Stephen, b. 1946, elected 2002, D.Phil., D.Litt., F.B.A, Prof. of British and Irish History, University of Cambridge

Motohashi, *Yoichi, b.* 1944, elected 1999, Ph.D., Ph.D. h.c. (University of Turku), Prof. of Mathematics, Nihon University

Muglia, Louis Joseph, b. 1959, elected 2020, MD, PhD, President and CEO, Burroughs Wellcome Fund, Adj. Prof. of pediatrics, University of Cincinnati

Nakajima, *Hiroshi, b.* 1923, elected 1984, Ed. D. (Hon.), Prof. emer. of Education, Waseda University

Nembach, *Ulrich Rei*nhard, b. 1935, elected 1997, Dr. theol., Dr. iur., Prof. emer. of practical theology, University of Göttingen

Niemann, *Hermann Michael*, b. 1948, elected 2000, Dr. theol.habil., Prof. of Old Testament Studies and Biblical Archaeology, Rostock University

Niemi, *Richard Gene*, b. 1941, elected 2002, Ph.D., Don Alonzo Watson Prof. of emer. political science, University of Rochester

Nilsson, Lars-Göran, b. 1944, elected 1993, Prof. of Psychology, Stockholm University

Norris, *Margot, b.* 1944, elected 2008, Ph.D., Chancellor's Prof. of English and Comparative Literature, University of California, Irvine

Nurmikko, Arto Veikko, b. 1945, elected 2010, Ph.D., Herbert Ballou University Prof. of Engineering and Physics, Brown University

Olesen, *Jens Ejn*ar, b. 1950, elected 2003, Dr. phil., Prof. of Nordic History, Ernst-Moritz-Arndt University Greifswald

Opgenoorth, *Hermann Jos*ef, b. 1951, elected 1997, Prof., Swedish Institute of Space Physics Ott, Hans Rudolf, b. 1940, elected 2005, Prof. emer. of physics, ETH Zürich

Ottersen, *Ole Petter*, b. 1955, elected 2017, MD, Ph.D., Prof., Rector, Karolinska Institute

Pickett, George Richard, b. 1939, elected 1998, D.Phil., Prof. of Low Temperature Physics, Lancaster University

Pulkkinen, Antti, b. 1974, elected 2022, Director of the Heliophysics Science Division, NASA Goddard Space Flight Center

Reedijk, Jan, b. 1943, elected 1997, Prof. of Chemistry, Leiden Institute of Chemistry

Reimann, *Hans-Martin*, b. 1941, elected 1994, Prof. emer. of Mathematics, University of Bern

Rieger, Bernhard, b. 1959, elected 2008, Dr., WACKER-Chair of Macromolecular Chemistry, Director of Institute of Silicon Chemistry, Technical University of Munich

Risku, *Hanna Mar*ia, b. 1967, elected 2016, Dr., University Prof., Department of Translation Studies, University of Vienna

Robinson, *Douglas Jack*, b. 1954, elected 2020, PhD, Prof. of translating and interpreting, Chinese University of Hong Kong

Rojas, Orlando, b. 1962, elected 2017, Ph.D., Prof. of Biobased Materials, Aalto University

Romaine, *Suzanne*, b. 1951, elected 2010, Ph.D., Merton Prof. emer. of English Language, University of Oxford

Rose, *Richard*, *b*. 1933, elected 1985, D.Phil., FBA, Director, Centre for the Study of Public Policy, Prof. of Politics, University of Strathclyde

Rozenberg, *Grzegorz, b.* 1942, elected 1984, Prof. of Computer Science, Leiden University

Ruud, *Kenneth*, *b*. 1969, elected 2014, Dr. Philos., Prof., University of Tromsø - The Arctic University of Norway

Saari, *Donald* Gene, b. 1940, elected 2009, Ph.D., Distinguished Prof. of Mathematics and Economics, University of California, Irvine

Saarma, *Mart, b.* 1949, elected 2000, Ph.D., Director, Finnish Centre of Excellence in Molecular

and Integrative Neuroscience, Prof., University of Helsinki

Salomaa, *Kai* Tapani, elected 2017, Ph.D., Full Prof., Queen's University

Sanaev, Victor Georgievich, b. 1956, elected 2013, Dr. Sc. (Tech.), Rector, Moscow State Forest University

Sannino, Francesco, b. 1968, elected 2015, Ph.D., Director, Prof., University of Southern Denmark

Satz, Helmut, b. 1936, elected 1994, Dr. rer. nat., Prof. emer. of Physics, University of Bielefeld

Schneider, Barbara, b. 1946, elected 2017, Ph.D., John A. Hannah University Distunguished Prof., Michigan State University

Schulze, Winfried, b. 1942, elected 2000, Dr. phil., Prof. emer., Ludwig Maximilian University of Munich

Schwerdtfeger, *Peter, b.* 1955, elected 2022, Prof. of theoretical chemistry, Massey University

Scott, *Dana Ste*wart, b. 1932, elected 1976, Ph.D., Prof. emer. of Computer Science, Mathematical Logic and Philosophy, Carnagie Mellon University

Shallit, Jeffrey Outlaw, b. 1957, elected 2020, PhD, Prof., School of Computer Science, University of Waterloo

Shanmugalingam, Nageswari, elected 2021, PhD, Prof. of mathematics, University of Cincinnati

Sixta, *Herbert*, *b*. 1954, elected 2022, Prof. of forest products technology, Aalto University

Smend, Rudolf, b. 1932, elected 1994, Prof. emer. of biblical exegetics, University of Göttingen

Smith, *Carsten, b.* 1932, elected 1985, Dr. jur., former Chief Justice of the Supreme Court of Norway

Spence, John Richard, b. 1948, elected 2003, Prof. of Insect Ecology, University of Alberta

von Staden, *Heinrich, b.* 1939, elected 2005, Prof. emer. of classics and history of science, Princeton University

Strömholm, Stig Fredrik, b. 1931, elected 1980, Jur. Dr., Dr. jur., Prof. emer. of Private and Private International Law, Rector emer., Uppsala University Stump, Eleonore, b. 1947, elected 1999, Ph.D., Robert J. Henle Prof. of Philosophy, Saint Louis University

Svensson, *Lars* Erik Oskar, b. 1947, elected 1998, Ph.D., Prof. of economics, Stockholm School of Economics

Takala, *Irina*, *el*ected 2018, Ph.D., Prof. (history), Petrozavodsk State University

Terhart, *Ewald*, *b*. 1952, elected 2004, Prof. Dr. phil., Prof. für Schulpädagogik und Allgemeine Didaktik, University of Münster

Tiedemann, Jörg, b. 1972, elected 2019, Prof. of language technology, University of Helsinki

Troe, Hans Jürgen, b. 1940, elected 2012, Prof. Dr. Dr.h.c.mult., Prof. emer. and Niedersachsen Prof. of Physical Chemistry, University of Göttingen, retired Director at the Max Planck Institute for Biophysical Chemistry

Wadhams, *Peter, b.* 1948, elected 2006, Prof. of Ocean Physics, Head of the Polar Ocean Physics Group, University of Cambridge

Weiner, *Bernard*, b. 1935, elected 2001, Dr., Distinguished Prof. of Psychology, University of California, Los Angeles Welker, Michael Armin, b. 1947, elected 2008, Dr. theol., Dr. phil., Prof. of Systematic Theology and Director of the Research Center for International and Interdisciplinary Theology, University of Heidelberg

Vermeer, Martinus *Martin*, *b*. 1953, elected 1993, Ph.D., Prof. of geodesy, Aalto University

Vilonen, *Kari Kal*eva, b. 1955, elected 2004, Ph.D., Prof. of mathematics, University of Melbourne

Wingfield, *Michael J*, b. 1954, elected 2016, PhD, Director, FABI Research Prof., University of Pretoria

Volkov, *Mikhail*, *b*. 1955, elected 2017, D.Sc., Head of the Chair of Algebra and Theoretical Computer Science, Ural Federal University

Volovik, *Grigory E*, b. 1946, elected 2001, Dr., Visiting Prof., Aalto University

Ziolkowski, Jan Michael, b. 1956, elected 2020, Arthur Kingsley Porter Prof. of Medieval Latin, Harvard University

Öhrn, Nils *Yngve, b.* 1934, elected 1982, Ph.D., Prof. emer. of Chemistry and Physics, University of Florida

Österberg, *Eva*, *b*. 1942, elected 1993, Prof. emer. of History, University of Lund

UARIES \cap

The custom for academies to publish obituaries of their deceased members is a tradition that dates back to the 17th century, and one that the Finnish Academy of Science and Letters has observed ever since its foundation.

Aulis Aarnio

* 14.5.1937 + 28.9.2023

Professor Emeritus of Civil Law Aulis Aarnio died on 28 September 2023 in Kangasala, at the age of 86. He was born in Kymi on 14 May 1937. Aarnio was elected a member of the Finnish Academy of Science and Letters in 1975.

Aulis Aarnio earned a Bachelor of Laws degree from the University of Helsinki in 1961, followed by a Licentiate of Laws degree in 1963. He defended his doctoral thesis Perillisen oikeusasemasta ("On the legal status of an heir") in 1967. He was appointed Professor Extraordinary in 1970 and Professor of Civil Law in 1972 at the Faculty of Law, University of Helsinki. Aarnio's doctoral thesis aimed to provide a systematic review of the status of an heir as the owner of an estate. It was theoretically modelled on the work of Simo Zitting, the supervisor of Aarnio's licentiate and doctoral theses, concerning the rights and obligations of an owner, change of ownership and the question of determining the time of ownership transfer. This tied young Aarnio closely to analytical civil law and steered him early on towards the analysis and critical assessment of the linguistic conditions of estate law.

Aarnio's second publication, a respite work, as was the practice of the day, or a so-



called qualifying monograph, was entitled Kysymyksiä testamenttioikeuden alalta. Tutkimus eräistä oikeudellisen käsitteenmuodostuksen peruspiirteistä ("Questions on the law of wills. A study on certain fundamental characteristics of legal concept formulation" 1969). The work was exceptional compared to normative legal dogmatics. Aarnio wished to contest the idea of legal concepts as accurate and definitive solutions to questions of interpretation. The theoretical background of the study lies in the works of Alf Ross, H. L. A. Hart, Kaarle Makkonen, Ludwig Wittgenstein and Georg Henrik von Wright. This study was linked to Aarnio's 1971 work Oikeudellisen ajattelun perusteista ("On the bases of legal thinking"), which launched Aarnio's career as a legal theorist.

Aarnio considered his third monograph uneven, but he attributed this to the research perspective. His idea was to show where the bridge lies between so-called analytical legal theory and the philosophical approach known as the ordinary language philosophy. The common thread in the work was the dominant role of moral judgement in legal argumentation. Aarnio had systematically tried to bridge the gap to reach the philosophers. Academician G. H. von Wright had read the manuscript of the study and encouraged young Aarnio to publish it. Aarnio's collaboration with philosophers begun early, which is no doubt one of the reasons why his legal theory was so closely connected to various approaches in philosophy and the social sciences. As a scholar, Aarnio was very much both a legal philosopher and a legal theorist.

Aarnio's publications in legal theory continued in 1975 with Laki, teko ja tavoite ("Law, act and goal"). Its basic theory was highly Wrightian. The work relied on G. H. von Wright's classics Norm and Action and Explanation and Understanding. This work did not yet raise him to the podium of legal theory, but Aarnio was persistent. In 1977, he published On Legal Reasoning. This was an extensive synthesis of his legal thinking up until then, and the work was clearly meant to serve as his calling card in the international debate on legal theory. It also worked as such. Aarnio had established extremely close ties with Polish legal theorists. The most important among them was Jerzy Wróblewski. Wróblewski had already introduced the international community to Professor Kaarle Makkonen, whose doctoral thesis Zur Problematik der juridischen Entscheidung (1965) remains one of the most brilliant pieces of Finnish legal theory to this day. An even closer partner was Alexander Peczenik who had emigrated to Sweden and remained Aarnio's close colleague for decades.

Aarnio's significance in Finnish legal research was also essentially tied to his role as an educator for researchers. As a young professor, Aarnio gathered a wide circle of students (who later became friends) around him to share not only his personal academic vision on the research of legal

dogmatics and the theory of law, but also his belief in the significance of research. "Aarnio's circle" was exceptional in legal science in that it would later go on to produce a number of professors, scholars and practical experts in legal affairs in different fields. First-generation members of the circle were just under a decade younger than their mentor (Ahti Saarenpää, Heikki E. S. Mattila, Matti Mikkola, Rauno Halttunen). The second group, fifteen years younger than Aarnio, included Urpo Kangas and Markku Helin who would later become professors in the same field, and civil law specialists Thomas Wilhelmsson and Juha Pöyhönen (later Karhu). Chronologically, the last members joined the circle in the 1980s and 1990s (Niilo Jääskinen, Pekka Timonen, Pertti Välimäki, Raimo Siltala). The circle was never exclusive, but anyone interested in common themes was welcome to take part in the discussion. Consensus was not a requirement, but different ways of thinking and approaching topics were appreciated. In this way, Aarnio's legal thinking has lived on in Finnish legal research and in the instruction of legal science for a full generation ever since he stepped aside.

As Professor of Civil Law, Aarnio was responsible for instruction in family law and the law of inheritance and for authoring fundamental works in the field. These duties were time-consuming, but research steered him in a different direction and his fast publication rate also continued in the field of legal theory. The monograph series *Mitä lainoppi on?* ("What is jurisprudence?" 1977), *Legal Point of View* (1978), *Denkweisen der Rechtwissenschaft* (1979), *Oikeussäännösten tulkinnasta. Tutkimus lainopillisen perustelun rationaalisuudesta ja hyväksyttävyydestä* ("On the interpretation of statutes. A study on the rationality and acceptability of legal justification" 1982), *The Rational as Reasonable: A Treatise on Legal Justification* (1977), *Tulkinnan taito* ("The skill of interpretation", 2006) and *Essays on the Doctrinal Study on Law* (2011) have left a permanent mark on Finnish legal theory.

Aarnio's international significance is demonstrated by a Festschrift dedicated to him, The Reasonable as Rational, edited by Werner Krawietz, Robert S. Summers, Ota Weinberger and Georg Henrik von Wright (Duncker & Humbolt 2000). The common thread running through Aarnio's work is analytical hermeneutics and an interest in justifying interpretations and legal argumentation. The doctrine of the sources of law, which he developed together with Alexander Peczenik, can be seen as a synthesis of argumentation theory, the audience theory adopted from Chaim Perelman and the scientific notion of legal dogmatics. Aarnio was involved in the activities of the international Bielefelder Kreis research team since 1983 and was a visiting professor at several universities both in Europe and the United States. Aarnio's last great achievement was the establishment of the Tampere Club in 2000. The club spent fifteen years debating the problems of democracy under the leadership of Aarnio.

Aarnio published a total of eight novels and autobiographical memoirs between 1992 and 2021, in addition to an impressive number of articles in Finnish and international journals during his research career. Against this background, it is no wonder that he did not have much time or interest in full-scale research in the field of his actual professorship. Instead, Aarnio made room for the next generation of scholars and focused on writing 20 plays for Ramppi Theatre, which he ran. He even played in the summer theatre in one of the roles he had written for himself, wearing preaching bands around his neck.

A man of many talents is an apt description of Aulis Aarnio and his role in the scientific community of legal science in Finland. During his "watch", Finnish legal theory gained international recognition and the significance of legal dogmatics as a scientific profession grew in Finland. These achievements cannot be attributed to one man alone, but Aarnio's contribution to both was immense.

> Urpo Kangas and Pekka Timonen

Photo: Jarkko Kähkönen



Bengt Broms

* 16.10.1929 + 4.4.2023

Born in Sortavala on 16 October 1929, Professor Bengt Henry Gabriel Arne Broms died on 4 April 2023. He passed his matriculation examination at the Joensuu upper secondary school in 1947. After obtaining master's degrees in law and political science, he earned a Doctor of Laws at the University of Helsinki in 1959. He also studied at the universities of Uppsala, Michigan (LL.M.) and Cambridge (Diploma in International Law).

Broms was Professor of Constitutional and International Law at the University of Turku since 1962 and one of the founding members of the Law Students' Association Lex Turku and a curator and inspector of the Savo-Karelian Nation of the University of Turku. Broms was appointed Professor of International and Constitutional Law at the University of Helsinki in 1970 and held this chair until 1994. He also served as Dean of the Faculty of Law in Turku and Vice-Dean in Helsinki.

As a scholar, Broms was especially well versed in questions concerning international organisations, beginning with his doctoral thesis, *The Doctrine of Equality of States as Applied in International Organizations* (1959). In 1976, he published the work *Yhdistyneet Kansakunnat*, which was widely used as a textbook and was later also published in English (*The United Nations*, 1990). His other works also dealt with questions concerning the UN law as well as the peaceful settlement of international disputes. His magnum opus was *Kansainvälinen oikeus* (1978).

Broms' research on constitutional law focused on the parliamentary Foreign Affairs Committee and the neutrality of Finland. These topics were also supported by his work as a member of the Åland Delegation and the Åland Committee.

Broms was involved in the operations of the UN in many ways as a member of the Delegation of Finland from 1967 to 1988. He was named Vice-Chair of the Legal Committee of the General Assembly of the UN.

At the same time, he played a key role as Chair of the Special Committee on the Definition of Aggression under the General Assembly, when the Committee fulfilled its mandate. Broms served multiple times as Chair of the UN Charter Review Committee. It was for this role that he was known especially in New York. Every autumn, when he stepped inside the conference hall for the first session of the Committee, a wide group of friends would immediately gather around him. Broms was a member of several international arbitration bodies, including the International Centre for Settlement of Investment Disputes (ICSID), the International Court of Arbitration in Paris and the Permanent Court of Arbitration in The Hague, established in 1899. He was appointed by Finland as a judge ad hoc at the International Court of Justice 1991– 1992 in the case concerning passage through the Great Belt (Finland v. Denmark). His most prestigious role was serving as one of three impartial judges at the Iran United States Claims Tribunal located in The Hague.

Broms was appointed Associate Member of the Institute of International Law (Institut de droit international) in 1973, Member in 1979 and Vice-President in 1997. During his term (1996–1998) as President of the International Law Association (ILA), he brought the Conference of the Association to Helsinki in 1996. He was President of the Finnish Branch of ILA for twenty years. Broms was also actively involved in the activities of PUGWASH.

Broms was a member of the Finnish Academy of Science and Letters since 1980 and was made a Commander of the Finnish Order of the Lion in the same year.

Broms was an outstanding speaker both in Finland and, due to his excellent language skills, also abroad. He would fill lecture halls both in universities and The Hague Academy of International Law. Listeners were especially interested in the cases he described to show how international law had been applied in practice. He used his own experience to encourage students to pursue post-graduate studies, especially abroad. In this respect, he was able to rely on his wide international network of scholars.

Among his hobbies, Broms' favourite was tennis, a sport he had taken up as a schoolboy under his father's guidance in Vyborg. He was later appointed President of the Finnish Tennis Association and Member of the Board of the International Tennis Federation. Broms was a cosmopolite who was interested not only in sports, but also art and different areas of life in general. After the long winters, he would relax with his wife Airi and their three children at the Lamminniemi manor in Liperi.

Erkki Kourula



Jussi Huttunen

* 27.8.1941 + 1.7.2023

Former Director General of the National Public Health Institute (later the Finnish Institute for Health and Welfare), Professor Jussi Huttunen died on 1 July 2023 after struggling with a severe illness. He was 81 years old.

Jussi Huttunen was born in Helsinki on 27 August 1941, during the first months of the Continuation War. His mother, an upper secondary school graduate, was a stay-at-home mother, as was the custom of the day, and his father qualified as a physician and later specialized as a psychiatrist.

Already in primary school, Jussi was an avid reader who carried backpacks filled with books home from the library. This hobby stayed with him throughout his life, and in his retirement, Jussi and his former colleagues had a book club that met every month. Jussi's curious and playful mind was not limited to books only. Even as a child, he learned to enjoy various card games with his maternal grandfather, who lived with the family, and played casino, canasta and, later on, bridge. He passed this skill on to his children and grandchildren.

Jussi Huttunen received the degree of Licentiate in Medicine at the age of 25 and soon after earned a doctorate in Medicine and Surgery from the Department of Medical Chemistry, University of Helsinki. Around the same time, the fast and efficient man married Raili, a soon-to-be specialized nurse, and had two daughters.

Huttunen qualified as a Docent in Medical Chemistry in 1968 and moved with his family to the warmth of California for two years to work in the research team of Professor Dan Steinberg at the University of San Diego. The research focused on regulation of the enzymatic synthesis and breakdown of human lipids and their crucial role in the development of atherosclerosis, i.e. the thickening or hardening of the arteries. This line of research remained one of Huttunen's lifelong scientific interests, although he explored many other themes as well.

After returning to Finland, Jussi Huttunen started working in a hospital and became a Specialist in Internal Medicine at the 3rd Department of Medicine, University of Helsinki. From there, he was persuaded to come to the University of Kuopio in 1975 as Associate Professor of Internal Medicine, initiating and developing research at the Internal Medicine Clinic, especially regarding diabetes. Jussi was known as an inspiring teacher and researcher and a diligent physician who took good care of his patients. Others also had their eyes on the brilliant clinicianresearcher-teacher, and the young man was eventually recruited as Director General of the National Public Health Institute of Finland (KTL) in 1978.

Huttunen made an impressive career as the director of KTL. Under his leadership, KTL transformed from a service and supervising laboratory into what soon became an internationally recognized, toplevel research institute. KTL turned its focus to the impact of risk factors, lifestyles and nutrition on public health and the risk of disease, and the diseases that were targeted included coronary artery disease, cancers and diabetes. Genetic research emerged strongly in the 1990s. Under Huttunen's leadership, KTL invested in epidemiological research platforms and launched controlled prevention studies. The director himself was actively involved in research, and his hand could be seen, for example, in the planning and implementation of the Helsinki Heart Study, focusing on the prevention of coronary heart disease, and the ATBC cancer prevention study. As he retired at the end of his term as Director General, Huttunen was involved in planning the merger of KTL and Stakes to form the new Finnish Institute for Health and Welfare, where the strong research tradition has fortunately been preserved.

Jussi Huttunen was involved in just about every activity within the Finnish Medical Society Duodecim. He was editorin-chief of the *Duodecim* medical journal 2003–2006, chair of the Duodecim Society of Helsinki 1987–1988 and chair of the entire Finnish Medical Society Duodecim 1996–1999. This period also included a term as chair of the Board of the Duodecim Publishing Company Ltd 1996– 1998. On top of all this, after his retirement, Jussi Huttunen continued as the news editor-in-chief of the Duodecim Publishing Company and ran the news service of Duodecim for more than 10 years. Over the decades, Jussi wrote dozens and dozens of articles on health, risk factors and nutrition for the *Duodecim* journal, the Terveyskirjasto health library and the Terveysportti service. In these articles, Huttunen provided current and easily understandable health information for both the general public and professionals in the field.

Jussi Huttunen also served in numerous positions of trust both in Finland and abroad. He served as chair of the boards of the Diabetes Research Foundation, Cancer Research Foundation Finland, Finnish Society of Internal Medicine, Cancer Society of Finland, Finnish Centre for Health Promotion, National Nutrition Council, Finnish Heart Association, Finnish Foundation for Cardiovascular Research, Finnish Mental Health Society, Juho Vainio Foundation and the UKK Institute, among others. Huttunen also had the time to act as chair of the Scientific Council for Health of the Academy of Finland. The Finnish Academy of Science and Letters invited Huttunen, then aged 46, to become its member in 1987.

Huttunen's work gained considerable recognition over the decades. He received the golden medals of the Finnish Diabetes Association and the Finnish Heart Association, the prize of the Finnish Cultural Foundation, prizes from the Paavo Nurmi Foundation and the Jalmari and Rauha Ahokas Foundation, the Pohjola Medical Award and the Information Award for Medical Journalists. Huttunen was invited to become an honorary member of not only the Finnish Medical Society Duodecim, but also the Finnish Society for Nutrition Research and the Finnish Society of Internal Medicine. He was also Honorary Doctor at the University of Kuopio.

Jussi Huttunen rarely refused invitations or requests, but was still able to stay organised and make progress despite his numerous activities. Huttunen's written and spoken texts were easy to follow, and he could easily adjust his words to the reader or the listener. Because of this, Jussi Huttunen was often consulted as an expert on a wide variety of topics, ranging from explaining scientific observations to analysing problems in public health care. The media would also make use of Huttunen's knowledge and skills, for example during the many twists and turns of the Finnish health and social services reform. He was very upset by the fact that the experts' opinion on the number and structure of the areas organising health and social services was not taken into consideration. Throughout all this, one of Huttunen's main priorities was to address the hidden inequalities in health care.

Jussi had a wide range of interests. He kept a close eye not only on developments

in the medical field, but other disciplines as well, read literature and followed current politics. It was perhaps fortunate that, after retirement, he had more time for his hobbies and loved ones. He and Raili reached the sixty-year mark in their marriage, and "Pappa" taught his five grandchildren to enjoy reading. Jussi was a member of several societies and clubs cultivating culture, science and art, and also had a passion for golf and snooker.

Jussi and Raili had a beloved summer house in Vesanto, which they had acquired in the 1970s. Jussi enjoyed manual chores as a counterbalance to his day job, and friends who visited were always offered food and a sauna. When a friend was looking for a rare plant, Jussi would go hunting for it. As a friend, Jussi was peaceable, fiercely loyal and unselfish – he accepted his fellow humans for who they were, without expectations or demands.

Despite leading an exemplary, healthy lifestyle, Jussi was struck by a progressive illness, which had an inevitable impact on the last two years of his life. Fortunately, Jussi's mind and memory remained sharp almost to the very end. And his legacy has been permanently preserved in Finnish health care.

> Kimmo Kontula, Katariina Kainulainen, Matti Huttunen and Risto Ihamuotila

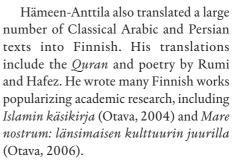
Jaakko Hämeen-Anttila

* 26.2.1963 + 18.12.2023

Jaakko Hämeen-Anttila passed away due to a sudden illness on 18 December 2023 in Edinburgh. Hämeen-Anttila is remembered as a prolific scholar, translator and author who wrote numerous books and articles. He served as Professor of Arabic Language and Islamic Studies at the University of Helsinki 2000–2016 and held a similar chair at the University of Edinburgh 2016–2023.

Hämeen-Anttila studied Classical Arabic, Akkadian, other Semitic languages and Persian, among other things, at the University of Helsinki. He wrote his master's thesis in Assyriology and also began writing his doctoral thesis in this subject. However, Hämeen-Anttila ended up changing the topic of his doctoral thesis and eventually focused on Classical Arabic philological tradition. The thesis was entitled *Lexical ibdāl*, *Part I: Introduction: Source studies: With a reconstruction of Abu Turāb's K. al-I'tiqāb* (Finnish Oriental Society, 1993).

Following his doctoral thesis, Hämeen-Anttila published several English articles in quick succession and edited Arabic texts. He was appointed Professor of Arabic Language and Islamic Studies at the University of Helsinki in 2000.



Hämeen-Anttila's main contributions to international research are his monographs: Maqama: A History of a Genre (Harrassowitz, 2002), The Last Pagans of Iraq: Ibn Waḥshiyya and His Nabatean Agriculture (Brill, 2006), Khwadāynāmag: The Middle Persian Book of Kings (Brill, 2018), and Portrait of an Eighth-Century Gentleman: Khālid ibn Safwān in History and Literature (Brill, 2020). These books and numerous articles demonstrate Hämeen-Anttila's extensive academic expertise. They also display his interest in finding and using sources that other scholars may have overlooked.

The Finnish Academy of Science and Letters invited Jaakko Hämeen-Anttila to become its member in 2005.

In the 2010s, Hämeen-Anttila began looking for academic posts outside Finland. He was appointed Professor of Arabic



and Islamic Culture at the University of Edinburgh in 2016. While in Edinburgh, he gathered a new group of students around him who were interested in Islam and Classical Arabic and Persian literature. Jaakko Hämeen-Anttila's passing was sudden and unexpected. He is missed by his family, friends, colleagues and students in Finland, Scotland and around the world.

Ilkka Lindstedt

Sören Illman

* 12.5.1943 + 31.10.2023

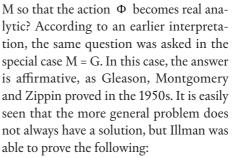
Professor Sören Illman passed away on 31 October 2023 in Helsinki, Finland. He was 80 years old. Having obtained his Master's degree at the University of Helsinki, he won a Fulbright Scholarship and moved to Princeton University, where he defended his doctoral thesis on equivariant algebraic topology in 1972. His advisor was Professor William Browder. Only three years later, he was appointed Professor of Mathematics at the University of Helsinki, where he remained until his retirement in 2011, staying on for a few more years as Professor Emeritus.

A large part of Illman's research pertained to the theory of transformation groups. Perhaps his most remarkable and best-known work is his contribution to Hilbert's fifth problem. The modern interpretation of this problem is hampered by the fact that the concept of a topological manifold was not exactly formalized at the time of Hilbert. Illman used the following interpretation.

Suppose G is a locally euclidean topological group and M is a locally euclidean space, and let

 $\Phi: G \times M \to M$

be a continuous action of G on M. Is it then possible to choose the coordinates in G and



Let G be a Lie group which acts on a C^1 -smooth manifold M by a C^1 -smooth and Cartan action. Then there exists a real analytic structure on M, compatible with the given smooth structure, such that the action of G becomes real analytic.

In short: if a Cartan Lie group action is differentiable, then it can be made real analytic. Here an action of G on M is said to be Cartan if each point x in M has a compact neighborhood A such that the set $G[A] = \{g \in G \mid gA \cap A \neq \emptyset\}$ is a compact subset of G.

Thanks to his solid mathematical research and the reputation he enjoyed in consequence of his publications, Illman received invitations to some of the most prestigious universities in the world. For periods up to an academic year at a time, he worked at Institute des Hautes Études Scientifiques, Bures-sur-Yvette, France; Math-



ematical Institute, University of Oxford, England; Institute for Mathematical Research, Eidgenössische Technische Hochschule, Zürich, Switzerland; Department of Mathematics, Yale University, New Haven; Research Institute for Mathematical Sciences, Kyoto University, Japan; Max Planck Institute for Mathematics, Bonn, Germany; Princeton University and the University of Cambridge, among others. He gave more than a hundred presentations at various conferences and meetings and was also one of the organisers of symposia on group actions on manifolds.

Sören Illman was elected a member of the Finnish Academy of Science and Letters in 1998. He was also a member of the Finnish Society of Sciences and Letters.

As an academic teacher, Illman contributed to the education of a group of algebraic topologists in Finland. Under his supervision, seven postgraduate students prepared and defended their doctoral theses, most of them concerning the theory of transformation groups. Even after this, he continued to support his former students, introducing them to the international community of transformation group researchers at various conferences.

As a colleague, Sören Illman was generous, considerate and supportive. His innate conviviality was evidently strengthened when he acclimatized to the academic environment in the United States, and after returning to Finland almost half a century ago, he provided a less formal alternative to the culture prevailing at the time in Finnish academia. Conversations with Sören were always interesting, because he had a deep insight into a variety of topics besides mathematics. During his long stays abroad, he studied the cultures of his host countries. This is how he started collecting ukiyo-e woodblock prints during his sojourn in Kyoto. He was also a cinephile and an ardent lover of opera music.

Erik Elfving and Kaj Malm

Kai Krohn

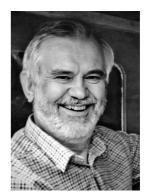
* 29.7.1936 + 11.7.2023

Long-standing Professor of Pathology and Medical Technology at the University of Tampere Kai Krohn died on 11 July 2023 at the age of 86. He was born in Helsinki on 29 July 1936 as the middle child in a family of five children. Krohn's colourful personality and his understanding of future trends played a key role in the development of Tampere University into an international player in medicine and science and paved the way for cooperation between the universities in Tampere. Krohn was a successful researcher and versatile visionary.

As an artistically, mathematically and visually talented person, Krohn originally planned a career as an architect. However, medicine eventually won out and he graduated as a physician from the University of Helsinki in 1962, obtained his PhD in 1968 and became a Specialist in Pathology in 1969. He was appointed the first Professor of Pathology at University of Tampere in 1973 and Professor of Medical Technology in 1995. He retired from this post in 2001, but remained active in his scientific work almost until his death. He was appointed a member of the Finnish Academy of Science and Letters in 1999 and was conferred the title of Honorary Doctor at the University of Tartu in 2009.

Some of the most conspicuous features of Krohn's scientific career were the early recognition of rising research fields and methods, making use of chance findings and boldly diving into new territories. His doctoral thesis was on the mechanisms of autoimmune diseases, i.e. how the human immune system sometimes mistakenly attacks its own tissues. He continued and expanded this pioneering new line of research as a post-doc researcher in New York. Through a series of coincidences, Krohn ended up also studying liver diseases and so-called serum hepatitis at the New York Blood Center. He and his colleagues noticed that this liver disease, which had been assumed to be autoimmune in nature, could be traced back to virus-like particles using an electron microscope. The work was published and contributed to the identification of hepatitis B viruses and many related scientific breakthroughs.

After returning to Finland, Krohn was appointed Professor of Pathology at the newly established Faculty of Medicine at University of Tampere. In this post, he focused his attention on another new field, cancer immunology and the possibility to diagnose and treat cancer using immuno-



logical methods. This led to one of the first randomised controlled trials done in Tampere, where patients with lung cancer were given immunologically targeted experimental therapies in addition to the established therapy. In the early 1980s, Krohn visited the USA to learn about a new technology that had revolutionized medicine, the production of monoclonal antibodies. His research group in Tampere then developed such antibodies against so called neoantigens in breast and ovarian tumours and tested their applicability for various clinical purposes. The results were positive in terms of diagnostics and the monitoring of treatment, but the products were not yet ready therapeutic use. Now, four decades later, immunological cell therapies have developed into highly effective cancer therapies and many new cancer drugs are monoclonal antibodies.

In the early 1980s, medical journals published articles on an alarming new disease that caused loss of immunity and led to death rather quickly, typically due to severe infectious diseases. The disease was named AIDS (acquired immunodeficiency syndrome) and in 1983 it was found to be caused by the HI (human immunodeficiency) virus. Already at this stage, Krohn predicted the global significance of the new disease and shifted the main focus of his research team to HIV research. He spent a sabbatical at the National Institutes of Health in the USA, working in the laboratory of Robert C. Gallo who discovered the HI virus. During this time, Krohn built an extensive network of contacts and partners in the USA, which helped him over the next 20 years as he published an impressive body of research on the pathology and vaccination options of HIV infections. It is specifically for his HIV/AIDS

research and vaccine development that Krohn is best remembered, both in Finland and abroad. Krohn also understood the necessity of applying research in practice and established e.g. a company to develop an AIDS vaccine.

The HIV epidemic led Krohn back to studying viruses, but on the other hand, it also later drove him once again to examine the mechanisms underlying autoimmune diseases. In the background was Krohn's strong focus in his HIV research on the new opportunities offered by molecular biology and gene technology. With the help of these new methods, he saw the opportunity to return to an unanswered research question that he had studied when he was younger: what causes the rare APECED syndrome (autoimmune polyendocrinopathy-candidiasis-ectodermal dystrophy) in children. While working on his doctoral thesis. Krohn learned that children with APECED have similar, but more rapidly progressive tissue damage than the studied laboratory animals. The test methods available at the time were unable to identify the mechanism causing APECED, but gene technology eventually revealed that the disease is caused by a mutation in the autoimmune regulator gene (AIRE). This finding was published in 1997 by a Finnish-Japanese-Swiss team of researchers, coordinated by Krohn, in the renowned Nature Genetics journal. The sense of achievement was obvious, considering that a solution had finally been found to this old problem, 30 years after the question had first been asked.

Universities today emphasize the importance of international relations, but for Krohn, this was a natural and characteristic feature already more than 50 years ago. He himself worked in the USA on

three occasions for a total of about five years, and since the 1980s, his team in Finland almost always had some foreign researchers in it - from the USA, China, Japan, the Baltic countries and elsewhere in Europe. He developed particularly close ties to the research community in Estonia, which included many of his most longstanding partners. He organised numerous international meetings in Finland and coordinated several multinational research networks. International relations - and versatile ones at that - were in Krohn's view a prerequisite for the development of research, and his team was always open to new cultures and ideas.

Basic education in medicine was not Krohn's forte, but he was extremely passionate about the education of young researchers. He supervised about twenty doctoral theses and also mentored master's degree students and post doc researchers. He advised them to think critically and remember that the first thought that comes to mind is not necessarily the right one. As a researcher, he described himself as an eternal contrarian. "I always disagree in principle, even with myself," Krohn is recalled to have said. To a young researcher, this critical attitude provided a memorable lesson - although Krohn's opposition was not always limited to research questions alone and occasionally upset people in the university community.

Bringing education in the natural sciences to Tampere to support medical research and education was Krohn's longterm, well-founded goal, which he eventually achieved. In the early 1990s, in the middle of the deepest depression, the Faculty of Medicine was under threat of closure, but the rescue operation led by Krohn managed to turn the situation around and save the faculty and establish two separate units, the Institute of Medical Technology (IMT) and the Department of Health Sciences. This was a major step for the University of Tampere and, in retrospect, absolutely the right decision from the national perspective as well.

IMT had a clear goal to become a highlevel international research unit, with Krohn boldly recruiting researchers who were on a rising career trajectory. They were given a free hand to conduct ambitious research under a very light administrative structure. This concept proved a success, leading e.g. to the formation of the university's first Academy of Finland Centre of Excellence. IMT adopted several practices that were new not only locally, but also nationally, such as regular evaluation by the Scientific Advisory Board and the related rolling tenure system. Together, these created an environment where researchers could pursue their dreams and visions and where new trends could be embraced quickly. One example of these is the establishment of Finland's first professorship in bioinformatics.

Krohn's open-minded visionary approach and determination to pursue causes that he felt were right, combined with his room-filling personality, served as the cornerstones of IMT's development. As an example of this, Howy Jacobs still recalls his recruitment in what was a fairly conservative Finland in the 1990s. Krohn looked beyond the appearance of the punk rocker and saw an outstanding researcher, one who would later be named Academy Professor and Professor of the Year. Just before his retirement, Krohn managed to get an amendment passed to the Universities Act that also enabled education in the natural sciences at IMT. Already the following autumn, the first students began studying in the new type of study programme, which was based on the idea of having a concrete link to research. Cooperation with the Tampere University of Technology (TUT) began on day one and became concrete when the programme was divided into two degree options, Master of Science (Technology) and Master of Arts, and the word 'Technology' in IMT's name also became justified.

IMT later developed to become part of what is now the Faculty of Medicine and Health Technology and served as a concrete example of the smooth cooperation between the universities in Tampere and the opportunities offered by interdisciplinary activities. One could argue, with good reason, that Krohn's far-reaching vision and active efforts to establish IMT were extremely beneficial for University of Tampere. IMT made high-quality research and education in biomedicine and biotechnology one of the international strengths of Tampere and introduced new ideas to the university's way of doing things. The alumni of this school now hold some of the key leading positions at the university.

Krohn had an astonishingly wide range of interests and skills. He was interested not only in his local environment, but also world affairs. Krohn co-founded a society to protect the ruins of the Church of St. Michael in Pälkäne and helped undertake an archaeological excavation at the site. After retirement, he got involved in politics

on the municipal council of Pälkäne and also learned to play the piano. Having considered a career in architecture as a young man, Krohn's dream came true in the form of a grand log house that he built in Pälkäne. He felled the mighty pines for the house from his own forest with his wife, Professor Annamari Ranki. Many friends and international research colleagues had a chance to enjoy the hospitality and roast lamb on the Iltatähti estate. Krohn's carpentry skills culminated in a boat he built with his own hands, which the family would take out on the waterways of Kustavi. The flow of refugees in the 2000s inspired Krohn to write a book of poetry entitled "Lähtö Afrikasta" ("Leaving Africa"). He also wrote a memoir Oma ja vieras ("Self and non-self"), where the title refers to his career as an immunologist and a virologist, but also the theme from a broader human perspective. The cover of the book features a watercolour painting by the author himself.

As a person, Krohn can be described as the Renaissance man of our times. He was a versatile visionary who recognized future trends and seized them boldly, not letting other people's doubts get in the way. Krohn's students and colleagues remember him as a charismatic, inspiring and dynamic leader whose personality worked like a magnet, pushing people to move new things forward together. Krohn's six children continue his life's work in the fields of medicine, culture and architecture.

> Per Ashorn, Howy Jacobs, Kalle Saksela and Olli Silvennoinen

Eino Murtorinne

* 25.11.1930 + 15.7.2023

Professor Emeritus of Contemporary Church History Eino Murtorinne died on 15 July 2023 at the age of 92. He was born on 25 November 1930. He was invited to the Finnish Academy of Science and Letters in 1973.

Eino Murtorinne took his matriculation examination in 1950 and earned a Bachelor's (Master's) degree in Theology in 1956 at the University of Helsinki. He was ordained a pastor in Kuopio. Later, he had to make a choice between a scientific career and working as a pastor. Murtorinne chose the former.

Murtorinne set out to study the legal struggle during the Period of Oppression around the turn of the 20th century, or the so-called Russification period, from the perspective of the church and clergy. In 1964, he defended his doctoral thesis entitled *Papisto ja esivalta routavuosina 1899– 1906* ("Clergy and the governing authorities during the Period of Oppression 1899– 1906"), which was groundbreaking in that it brought the study of church history fairly close to the present day and also included a political aspect.

While working on his thesis, Murtorinne also worked with so-called profane historians. He was a member of the legendary Tanner seminar, a source of peer support.

The fundamental questions of the Lutheran theology concerning the governing authorities soon pointed Murtorinne to a new path, to study the German church struggle. He was able to collect research material on the relationships between German and Nordic churches during the Third Reich.

The study of the German church struggle produced four notable monographs in total. In them, Murtorinne was able to remain scientifically objective and, despite the topic related to the influence of National Socialism, did not become known as a controversial researcher.

In 1975, Murtorinne was appointed to his dream post, Extraordinary Professor of Contemporary Church History. He began systematically turning his own and his students' attention to the position of the church and clergy in 20th century Finnish society. He coordinated the start of a research project entitled "Suomen kirkko uusimman ajan aatteellisissa, poliittisissa ja sosioekonomisissa muutoksissa" ("The church of Finland during contemporary ideological, political and socioeconomic changes"), funded by the Academy of Finland.



Murtorinne could always sense the spirit of the times, as shown in the mid-1980s by his interest in the position of churches in socialist Eastern European countries, which led him to organise research on this topic. The relevance of the research, focusing on the Soviet Union, Ingria, the Baltic countries, East Germany and the rest of Eastern and Central Europe, was ultimately demonstrated by the fall of the Berlin Wall in 1989.

Murtorinne held all key positions, including chairmanship, in the Finnish Society of Church History. A Festschrift, *Kirkko ja politiikka* ("The church and politics"), was dedicated to him in 1990. He was a key figure in organising the society's 100th anniversary event in 1991. Murtorinne was invited to become an honorary member of the society in 2001.

Murtorinne was invited to become a researcher member of the Finnish Historical Society in 1969. He was a long-time member of the board of the society and its chair in 1984. The then-executive director of the society remembers Murtorinne as an exceptionally kind and considerate supervisor.

As Assistant of the Department of Finnish Church History, Murtorinne developed the general survey of Finnish ecclesiastical tradition. The purpose was, on the one hand, to examine how the old ecclesiastical customs were being lost across Finland while a new way of life was adopted, and, on the other, to examine the impact of Finnish revivalist movements. The survey was translated into Swedish. It drew from the example provided by Hilding Pleijel who was a professor in Lund at the time.

Murtorinne was not only a researcher and a supervisor of research, but also a scientific politician who worked as a member and Vice-Chair of the Scientific Council for the Humanities of the Academy of Finland.

Murtorinne shouldered his share of the responsibility for the ecumenical and international relations of the Lutheran church from the mid-1970s to the early 1990s. He worked under three Archbishops of Finland – Martti Simojoki, Mikko Juva and John Vikström. He was a long-standing member and Chair of Theological Issues under the Department for International Relations of the church.

Based on his education and orientation, Murtorinne was a wide-ranging theologian. He took part in the doctrine discussions of the Lutheran Church of Finland with the Russian Orthodox Church. Murtorinne also made a substantial contribution to the study of the church-state issue and the relations between the church and culture.

The Evangelical Lutheran Church of Finland presented Murtorinne with the Saint Henry Cross in 2014. The highest honour of the Finnish church was awarded to him based on his academic and ecumenical merit.

Hannu Mustakallio

Image: Seppo J. J. Sirkka / The Finnish Society of Church History

Olli Mäkelä

* 31.8.1929 + 27.5.2022

Professor Emeritus of Serology and Bacteriology at the University of Helsinki Valto Eero Olavi (Olli) Mäkelä died in Helsinki on 27 May 2022. He was born in Voikkaa, Kuusankoski, on 31 August 1929. He graduated as a Licentiate of Medicine from the University of Helsinki in 1955 and earned his PhD in 1957. He became Docent in Medical Genetics (the first in Finland) in 1962. Olli Mäkelä was Director of the State Serum Institute 1965-1968, Personal Extraordinary Professor of Immunology at the University of Helsinki 1968-1970 and Research Professor at the Academy of Finland 1970-1977. His main post was his professorship in bacteriology and serology from 1972 to 1995.

The main area of research in Olli Mäkelä's early career was blood groups and blood group immunity, or serology, where blood group antibodies were studied from serum samples. With his wife Pirjo Mäkelä, he studied bacterial genetics and bacteriophages, which he later also used as models in his immunological work. Blood groups were initially identified using lectins extracted from the seeds of various plants. Lectins have specificity to recognize various sugar structures. Many seeds had already been collected in a large trunk at the department by Mäkelä's predecessors, particularly Professor Werner Oswald Streng. Mäkelä later turned his interest towards antibodies, the genetic determination and properties of their structure and function. He continued to pursue this line of research throughout his career. This is no wonder, as antibodies are some of the most complex molecules found in humans. They can be used to identify millions of different structures. How antibodies can be made highly specific for identifying certain structures and, on the other hand, maintain an extremely wide repertoire, without destroying their structures, are some of the key questions in immunology.

Olli Mäkelä made a research visit to the laboratory of Nobel laureate Joshua Lederberg at Stanford University in the early 1960s. There, he conducted research with the Australian (Austria-born) immunologist Gustav Nossal on the genetics underlying the multiplicity of antibodies and the ability of single cells and cell clones to produce antibodies. After this (1963–1965), Mäkelä moved to London (Mill Hill) to work in the laboratory of Nicholas Avrion Mitchison, studying the ability of lymphocytes to produce antibodies. One of Olli Mäkelä's most significant findings was that



one cell only produces one type of antibody. This has proven to be an extremely important immunological feature. Mäkelä's work paved the way for later research on monoclonal antibodies and the generation of antibody genes through somatic recombination and somatic mutations. This "gene roulette" can produce tens of millions of different antibodies. Research on these topics brought the Nobel Prize to Georges Köhler from Germany and César Milstein from Argentina (1984) and Susumu Tonegawa from Japan (1987). A researcher on Mäkelä's team, Matti Kaartinen, even completed his postdoc in César Milstein's laboratory in Cambridge, England. Some of this work was based on the oxazolone antibody model, developed in Mäkelä's laboratory, which Kaartinen transferred to Milstein's laboratory (Kaartinen et al., J Immunol, 1983). César Milstein was appointed Honorary Professor of the University of Helsinki at a conferment ceremony in 2000.

Olli Mäkelä's research was classic basic immunology, but with a focus on fundamental questions and scientific principles. He had an eye for detail, which often gave rise to broader principles. In addition to the antibody specificities mentioned above, he also studied their other properties, the subclasses of IgG antibodies, genetically determined allotypic markers (such as Gm allotypes) and affinity. From England, the Department of Serobacteriology received a traditional, manual DNA sequencing method, developed by Fred Sanger, which was used to read the sequences of antibody genes. One person would read them out loud (ACCGGTT ...), while another would write them down. Mäkelä was interested in immune reactions against small model molecules, so-called haptens (oxazolone, DNP, NIP). Complex phenomena, such as somatic hypermutations, could thus be studied using models that were as simple as possible. This eventually led to one of Olli Mäkelä's own scientific discoveries, so-called heteroclitic antibodies. These are antibodies that react better with a related immunizing antigen than the antigen itself (Mäkelä, J Immunol, 1965). The immunogenetic structures are cross-reactive, but probably due to genetic influence or structural reasons, the immune reaction is stronger towards a similar structure. This showed that the immune reaction does not match the immunizing structure one-to-one.

Mäkelä considered the reliability of immunological research to be important. He helped develop multiple methods for measuring the content and bond strength of various substances and antibodies generated by infections. The antibody avidity research conducted on the initiative of Klaus Hedman has led to many diagnostic applications for distinguishing new infections from old immunity. The demand for accuracy and precision also led Mäkelä to review other people's research, and competitive comparisons were made especially with the immunologists in Turku regarding Yersinia and Legionella bacteria findings and their serology.

Olli Mäkelä's manner of presenting results was exact, albeit somewhat difficult to understand at times. The topics were complex, and Mäkelä did not want to distort reality by simplifying things. For example, one publication included an image of a gel run and a slightly apologetic caption stating that the researcher had forgotten to mark the application points of the samples. The reader should have understood that in isoelectric focusing it does not matter where the samples are originally placed, because the strong electric field will in any case move the molecules to their own isoelectric points. Mäkelä's subtle humour would sometimes emerge in various situations. The title of an early publication concerning blood groups was "A weak B containing anti-B" (Mäkelä & Mäkelä, Ann Med Exp Biol Fenn. 1955). Another memorable incident happened during a lecture when Olli Mäkelä, for lack of a spoon, calmly used a pointer to stir sugar in his coffee in front of the audience so that the thicker end of the stick, 3 metres up in the air, hardly wobbled at all.

Olli Mäkelä had a large network of international contacts. He knew the world's leading figures in immunology and was held in great esteem by basic immunologists. He helped establish the Finnish Society for Immunology (FSI) in 1974 and make it a member of the Scandinavian Society for Immunology (SSI). He was also involved in organising the European Congress of Immunology in Helsinki in 1975 when, due to the OSCE Summit held at short notice at the same time, many of the hotel bookings made by visitors were cancelled. Mäkelä did not hesitate, but welcomed as many guests as he could to his home and left them with many positive memories. The story goes that they tested if you could cook an egg by placing it at head height in the sauna. At work, Olli Mäkelä was a somewhat intimidating figure due to his uncompromising attitude. If you found a note on your desk saying "See Olli", you could never be sure what kind of consultation you were going to get.

Sharing knowledge was important to Olli Mäkelä. His immunology lectures were easy to follow. He initiated and co-authored the first microbiology textbook in Finnish, which also covered immunology (published by *Duodecim*). He published more than 200 scientific articles in international journals and many articles in Finnish in the Duodecim journal to educate medical professionals. The topic of one such article was immunological tolerance, or "accustomization", as he called it (Duodecim 1968).

Olli Mäkelä received recognition for his merits. He was appointed a member of the Finnish Academy of Science and Letters already in 1973. The year before (1972), he received the Matti Äyräpää Prize and gave a lecture on the topic "Regulation of the Immune Response". He received the Medical Society of Finland (Finska Läkaresällskapet) Jubilee Prize in 1985. Olli Mäkelä served as Dean of the Faculty of Medicine at the University of Helsinki 1987–1995.

As is typical for a scientist, Olli Mäkelä was intelligent, honest and a critical thinker, but humble as a person. Before making decisions, he would listen to what others had to say and gather enough information to understand all the different viewpoints and be fair. After retirement, he no longer wanted to be involved in the matters of the department or the faculty, but eagerly cared for, mentored and entertained his children, grandchildren and great-grandchildren together with Pirjo. In terms of work, he dedicated himself to forest management and enjoyed opening the doors of his outbuildings to guests, revealing tractors, each one bigger than the last. Olli Mäkelä had a strong, original personality that is remembered by many. His scientific legacy has been fundamental to the development of vaccines, biological medicines and cancer therapies based on antibodies.

> Seppo Meri, Jukka Pelkonen and Tomi Mäkelä



Matti Nuorteva

* 6.4.1928 + 15.7.2023

Matti Kalevi Nuorteva, Professor Emeritus of Agricultural and Forest Zoology at the University of Helsinki, died in Kauniala Hospital on 15 July 2023 at the age of 95. He was born on 6 April 1928 to a family living in Töölö, Helsinki.

Matti Nuorteva's father Väinö wrote causeries for the newspaper Uusi Suomi under the pseudonym Olli. Growing up with his brother Pekka, Matti's childhood years were happy, but wars cast a shadow over his youth. In 1944, at the age of 15, he volunteered as a Soldier Boy in the antiaircraft defence during the Continuation War in the fields of Viikki, the same place where he would later work. On his initiative, the Viikki Air Defence was erected on the site.

Choosing a career was easy for Nuorteva. Even as a child, he was interested in the professions of a carpenter, a zoologist, an explorer and a forester. Forest zoology was a discipline that allowed him to combine all his interests.

Nuorteva began his scientific journey at the age of 18 by publishing a paper on a square-headed wasp (*Sphecidae*). His extensive scientific work would later focus especially on the ecology and biological control of bark beetles, which are known as

pests. However, the painful war memories from the fields of Viikki as a young schoolboy were locked deep within the recesses of his mind. It was not until the leisurely days of retirement that enough time had passed to deal with these memories, some of which were traumatic. This process was helped along by the active writing of popular and often interdisciplinary articles on animals, geology, amber and various natural phenomena. Nuorteva had developed this habit of writing already in his childhood home as he watched his father write causeries. In many of his publications, Matti Nuorteva followed his original plan and wrote to the general public about the vital importance of forest insects and other invertebrates to the functioning of ecosystems.

Nuorteva played a key role in improving our knowledge of forest pests. He did his life's work at the Viikki campus of the University of Helsinki. Several decades worth of forestry students had a chance to listen to his heart-warming stories about forest pests at the Hyytiälä Forestry Field Station in Juupajoki, where he was first an assistant to his predecessor, Professor of Agricultural and Forest Zoology Esko Kangas, and later a professor in the field. Nuorteva was known as an inspiring and compelling teacher. His solid expertise was combined with a warm, empathetic pedagogical approach. The ultimate goal of his teaching was to help others understand the importance of forest pests and to take them into consideration in practical forestry.

As an avid naturalist, he amassed a large collection of insects over the decades, especially sawflies, bark beetles and long-legged flies (Medetera). He first grew his collections with his brother Pekka, who would later become Professor of Environmental Protection at the University of Helsinki. Later, Matti Nuorteva continued to expand his sawfly collection at his summer house in Vuohiniemi, Hattula, together with his sons. His collections allowed Nuorteva to combine work and leisure, as the resulting long-term monitoring made him the first to demonstrate the impact of the treatment of forests on the biodiversity of forest nature, specifically the size of pest populations.

Matti Nuorteva always strived for fairness and justice in all his duties and interactions, which was also evident in his work as Vice-Dean and Dean of the Faculty of Agriculture and Forestry.

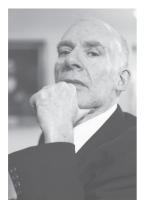
He stood in the front lines in the fight against invasive species when pine wood nematodes that threaten Finnish forests were found in a batch of imported timber. Consequently, a ban was imposed across Europe on the import of untreated wood from North America and areas where the pine wood nematode was known to occur.

As a scientist, Nuorteva kept in close contact with his international colleagues in both the East and the West. In the 1970s, he took a group of forestry students on an excursion to China under Mao, and the University of California, Berkeley invited him as a visiting professor. Nuorteva was invited to become a member of the Finnish Academy of Science and Letters in 1983.

Nuorteva was involved in the activities of numerous branches of science and religious and charitable organisations. Photographing nature and especially forest insects was a dear hobby of his. In his free time, he enjoyed woodwork, repairing things and working with his hands - perhaps because of his childhood dream of becoming a carpenter. He taught his family responsible forest management, independent initiative and a knowledge of natural values, culture and history. The family would go camping together in the summer, often in Lapland or the Nordic countries without forgetting visits to museums. The insect laboratory at the summer cottage made it possible to do research even while spending time with the family.

Matti Nuorteva was married to his spouse Kaija for 69 years and they had four children. Their family was their whole world. As a father, Matti was always there to help and guide his children, teaching them to respect all people as equals and to also appreciate different opinions.

> Kari Heliövaara, Heikki Nuorteva and Jouko Nuorteva



Risto Näätänen

* 14.6.1939 + 5.10.2023

Academy Professor Emeritus Risto Näätänen died of COVID-19 in Helsinki on 5 October 2023, at the age of 84 years.

Risto Näätänen was born in Helsinki on 14 June 1939. He received his MA degree in 1963 and PhD degree in 1968 from the University of Helsinki, where he was appointed Professor of Psychology in 1975. In 1983, he was appointed Academy Professor, followed by an exceptional number of re-appointments. He left this position in 2007, having reached the retirement age of 68. Thereafter, he worked as George Soros Professor of Psychology at the University of Tartu and as Visiting Professor at Aarhus University.

Risto Näätänen was elected a member of the Finnish Academy of Science and Letters in 1980 and served as its president in 2000–2002. He was also a member of Academia Europaea, the Royal Swedish Academy of Sciences, the Russian Academy of Sciences, and the International Academy of Science, and a Fellow of the Association for Psychological Science (USA). He also served as President of the Nordic Psychophysiological Society, the Federation of European Psychophysiology Societies, the Society for Psychophysiological Research (USA), and the International Brain Research Organization. In 2011, he was awarded the Main Scientific Prize of the Finnish Academy of Science and Letters. In addition, he received the first National Science Award of Finland in 1997, the Distinguished Contributions Award of the Society for Psychophysiological Research in 1995, the Award for Contributions to Psychophysiology and Related Neurosciences of the International Organization of Psychophysiology in 2002, and the Nordic Prize for Research within Neurodevelopmental Disorders in 2007 (together with Teija Kujala). He was Honorary Doctor of the Universities of Helsinki, Jyväskylä, Tartu and Barcelona.

Risto Näätänen collected electroencephalography data for his PhD thesis on selective attention and event-related brain potentials (ERPs) at the University of California, Los Angeles. Several years later, in the Netherlands, he and his team observed two ERPs: the mismatch negativity (MMN), related to automatic auditory change detection, and the processing negativity (PN), related to selective auditory attention. In the early 1980s, he continued this research at the Department of Psychology of the University of Helsinki, where his research group evolved into the Cognitive Brain Research Unit with its brain research methods extended to include magnetoencephalography, transcranial magnetic stimulation, positron emission tomography, and functional magnetic resonance imaging.

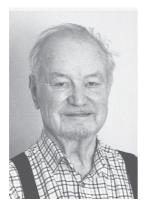
Based on results obtained with the PN, Risto Näätänen developed a novel theory of the neural basis of attention, which he presented in his widely cited review articles and in his book Attention and Brain Function, published in 1992. The MMN, in turn, enabled the study of auditory memory and preattentive predictive coding not only in adults, but even in neonates and fetuses, and even illuminated brain dysfunctions in neurological and psychiatric patients. Risto Näätänen, together with Teija Kujala and Gregory Light, summarized the results on MMN in his 2019 book Mismatch Negativity: A Window to the Human Brain, released on his 80th birthday. The MMN is now a prominent research method used around the world. An international congress on MMN research has been organised since 1998, with the next one in Salamanca in 2024.

Risto Näätänen also carried out research in traffic psychology and wrote a book on the topic *Maantiekuolema: Tutkimus liikenneonnettomuuksista*; "Death on the road: A study on traffic accidents", published in 1972. The President of Finland cited the book in his 1973 New Year's speech, leading to the introduction of permanent speed limits in Finland, which significantly decreased the number of traffic accidents causing deaths and serious injuries. In addition to several original traffic psychology studies, Risto Näätänen also co-authored, with Heikki Summala, the international book *Road-User Behaviour and Traffic Accidents*, published in 1976.

During his years as Academy Professor, Risto Näätänen belonged to the top 0,5% of the world's most cited living scientists. His more than 400 scientific articles and several books have been cited over 80,000 times (Google Scholar). He supervised over 30 doctoral students and over 20 post-doctoral fellows and maintained close research collaborations with dozens of Finnish and foreign colleagues. Through their work and that of their students and colleagues, his scientific legacy continues to have a profound impact on the future of brain research.

Risto Näätänen had a high work ethic, but his family was still his priority and his wife Marjatta was his pillar. A condition of his many research visits abroad was that his family could accompany him. He taught his younger colleagues that friendships must be nurtured to last. Hirsilinna, the family's vacation home in Hirvensalmi, will be remembered by many international guests for its iconic Finnish landscape and its cordial hosts for their exceptional hospitality. The research community will miss a remarkable scientist and a warm colleague.

> Kimmo Alho, Teija Kujala and Liisa Keltikangas-Järvinen



Kalevi Pyörälä

* 24.4.1930 + 13.2.2023

Professor Kalevi Pyörälä died on 13 February 2023. He was 92 years old, born in Saarijärvi on 24 April 1930. His father, Otto, was a farmer and his mother, Aina (née Ståhlberg), a teacher. Pyörälä graduated from the Jyväskylä Joint Lyceum in 1948. He graduated as a Licentiate of Medicine in 1954 and as a Doctor of Medicine and Surgery (PhD) in 1965 from the University of Helsinki. He was a specialist in both Internal Medicine and Cardiology. He worked as an Assistant Professor of Internal Medicine at the University of Helsinki 1969-75 and as Research Professor at the Academy of Finland 1973-75. In 1976, he became Professor of Internal Medicine at the University of Kuopio and Chief Physician of the Department of Internal Medicine at the Kuopio University Hospital. He retired in 1993.

Pyörälä built a successful Department of Internal Medicine at the University of Kuopio and supervised more than 30 PhD Fellows with their doctoral theses in Medicine as well as dozens of Internal Medicine specialists. Pyörälä's research focused on the epidemiology of cardiovascular diseases and type 2 diabetes. He was the principal investigator of the Helsinki Policemen Study, which he initiated in the 1960s.

Under Pyörälä's leadership, the University of Kuopio developed into an internationally renowned research centre for type 2 diabetes. One of the key findings of the Helsinki Policemen Study was that the risk of coronary artery disease was associated with increased serum insulin levels at fasting and 2 hours after a glucose challenge. Elevated insulin levels reflected peripheral insulin resistance. The discovery was of immense interest to researchers around the world and led to the broader concept of the metabolic syndrome created in the 1980s, which, in addition to insulin resistance, was associated with central obesity, disorders of blood lipid metabolism such as low HDL cholesterol, and high blood pressure.

Pyörälä was a leading figure behind the Finnish Myocardial Infarction Register which was part of the multinational WHO MONICA project. In addition to the Kuopio University Hospital area, similar registers were maintained in three other areas. The Finnish register continued even after the 10-year period of the WHO MONICA project was over.

After his retirement, Pyörälä continued his scientific and international career as an expert in heart disease prevention. His last international scientific article was published in 2013, but his Policemen Study data are still used for international collaborative publications. His two last publications deal with the residual risk of dying from coronary artery disease in patients with coronary artery disease and the role of metabolic risk factors in the onset of heart disease and diabetes. Pyörälä's publishing activities are international and well-recognized. This is in line with his international role and worldwide networking in the prevention of coronary artery disease. He published more than 430 scientific articles and had an h-index of 104 (Scopus 2023).

Pyörälä was also an important figure within the medical profession in Finland in several ways. Early on, he realized the importance of the prevention of cardiovascular diseases. In the 1970s, the importance of prevention was not self-evident even among the medical profession. He worked for a long time as an expert for the Finnish Heart Association and supported the North Karelia Project when it was launched in 1972. Pyörälä was a key figure when the book Guidelines for the Prevention of Coronary Artery Disease in Finland was published in 1986. This book outlined the main lines of action for the prevention of the disease in our country. The "dietary fat debate" still raised strong emotions and caused debate in Finland around that time.

Pyörälä held numerous positions in scientific and other organisations, both nationally and internationally, such as President of the Finnish Cardiac Society and the Finnish Association of Internal Medicine and Vice-President of the European Society of Cardiology. In the 1980s and 1990s, Pyörälä worked as a cardiovascular expert for the WHO. In an obituary in the European Heart Journal in 2023, he was described as one of the European

giants in the epidemiology and prevention of cardiovascular diseases. In 1976, he was active in setting up the Working Group on Epidemiology and Prevention of Cardiovascular Disease within the European Society of Cardiology, and he also served as its Secretary from 1976 to 1979. The group held annual meetings from 1978 to 2004, after which its activities were reorganised. Today, the new organisation, the European Association of Preventive Cardiology is an important part of the large European Society of Cardiology. Pyörälä was also one of the authors in the WHO Expert Committee when the Guidelines for the Prevention of Coronary Heart Disease were created in 1982 (WHO Technical Report Series 678: Prevention of Coronary Heart Disease). He was also active in the work of the European Diabetes Epidemiology Group and, in the 1980s, drafted the first by-laws for this informal scientific organisation which would later become part of the European Association for the Study of Diabetes.

Pyörälä was a member of the Finnish Academy of Science and Letters since 1982 and a member of the Royal College of Physicians, London, since 1990. He received the Pohjola Prize in 1993, the Yrjö Jahnsson Foundation Prize in 1994, and both the Paavo Nurmi Foundation Award and the European Society of Cardiology Gold Medal in 2000. He was awarded the National Heart Health Promotion Award in 2007. He was an honorary member of the Finnish Heart Association.

Pyörälä was musically talented. He played his favourite instrument, the cello, in the Student Union and later in Kuopio in the "Pacemaker" orchestra. He practised choral singing in the Kuopio University Chamber Choir and arranged vocal ensembles. He was a regular attendee at symphony concerts, the Savonlinna Opera Festival, and the Kuhmo Chamber Music Festival. He enjoyed watching the matches of ice hockey team KalPa in Kuopio. He had a summer residence in the municipality of Hartola, but the Lannevesi region of Saarijärvi where he had spent his youth remained his soulscape. In terms of physical activity, walking was Kalevi's favourite form of exercise.

Family was important to Kalevi. His marriage to Ritva lasted almost 65 years. In addition to Ritva, Kalevi will be missed by daughters Sari, Marja, Eeva, and Elina and their families.

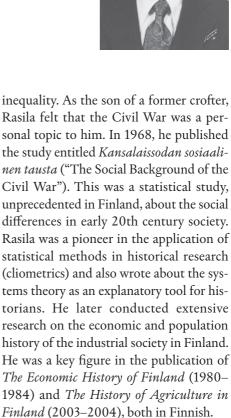
> Matti Uusitupa, Jaakko Tuomilehto, Pekka Puska and Markku Laakso

Viljo Rasila

* 22.1.1926 + 30.7.2023

Professor Viljo Rasila died in Tampere on 30 July 2023 at the age of 97. He was born on 22 January 1926 on a small farm in Ypäjä. Despite limited opportunities to experience life more broadly, Rasila was eventually able to study at the School of Social Sciences (now Tampere University) and earned a doctorate there in 1960. He then held the chair of Professor of Finnish History at the University of Tampere from 1969 to 1989. Rasila became a member of the Finnish Academy of Science and Letters in 1982. In 2007, he received the first Eino Jutikkala History Prize awarded by the Academy, which he considered the most valuable recognition of his work.

Rasila was an advocate for social change, continuing the legacy of Heikki Waris and Eino Jutikkala. Both of these academicians served as key mentors, providing guidance to the young scholar. Rasila's doctoral thesis, on the history of the crofter issue, was given the subtitle 'A Study in the History of Society'. The study attracted widespread attention, as it was published at a time when the causes of the Finnish Civil War of 1918 evoked heated debates. Rasila emphasized that the war was not a rebellion instigated by crofters, but it was nevertheless fuelled by social



Rasila applied statistical methods when linking the macro level changes to the history of "ordinary people's" experiences. He thus continued the social history tradition of the early 20th century and served as an important bridge to so-called new social history, which became a broad and versatile line of research in the 1980s. Although Rasila emphasized strong empiricism in his research, his social background led him to explore general changes, trends, causalities



and, at the same time, diverse aspects of everyday life and the role of the individual.

In his personal life, he emphasized transformation, which he saw in the light of his modest background and academic success. He especially valued – alongside chance – the educational opportunities offered by the Finnish society, which enabled the social climb for his and coming generations. Viljo Rasila was not only a reformer of historical research, but also a product of his time, which he himself saw very clearly and stressed the importance of understanding change.

> Pertti Haapala, Pirjo Markkola and Mervi Kaarninen

> > Image: Tampere University

Eero Saksela

* 6.1.1937 + 16.2.2023

Professor Emeritus of Pathology at the University of Helsinki Eero Juhani Saksela died in Espoo on 16 February 2023 after a long illness. He was 86 years old, born in Helsinki on 6 January 1937. Saksela's father was Professor Niilo Saksela and his mother Aira Penttilä. Saksela completed his matriculation examination at the Töölö Secondary School in 1955. He continued the family tradition and applied and was admitted to study medicine at the University of Helsinki, where he graduated as Licentiate of Medicine in 1962. His interest in research began already as a student and eventually resulted in a doctoral thesis and the title of Doctor of Medicine and Surgery in the very same year. The topic of his research was the influence of external modifiers on the chromosomes of cervical cancer cells.

His research career continued in the United States, at the famous Wistar Institute in Philadelphia, which was one of the world's leading research institutes in genomics. Groundbreaking discoveries had recently been made at Wistar on the limited division capacity of human cells and senescence, phenomena that lead to ageing and a limited life span. It was in this inspiring environment that Saksela, together



with the leader of the research team Paul Moorhead and colleagues, including director of the Wistar Institute Hilary Koprowski and Swedish colleague Jan Ponten, demonstrated how the chromosomes in cells are altered with age and when exposed to carcinogenic viruses. This work led not only to significant conclusions on the effects of carcinogenic factors and senescence on DNA, but also to close friendships with leading researchers around the world. Towards the end of his career, Saksela returned to the topic of this period in his life, for example in his article published in the Duodecim Medical Journal, "Inevitable senile death" (2014). For his accomplishments in research, Saksela was invited to give an Isaac J Wistar Lecture in 1985.

Following his return to Finland, Saksela worked at the Department of Pathology, University of Helsinki, first as an assistant and a clinical lecturer until the year 1969. Having earned his Specialist Degree in Pathology, Saksela served as Head of the Department of Pathology at HUCH Women's Hospital. In 1981 he was appointed as Professor of Pathology at the University of Helsinki, a chair he held for over 20 years, until 2002. For most of this period, he also worked in the hospital as Head of Clinical Pathology.

His research expanded from cytogenetics to histopathology and tumour immunology. This research was inspired by questions such as, 'how is pregnancy even possible?' and 'why does the immune system not reject the growing foetus whose tissue is half-foreign (non-self) to the mother?' The research focused on natural killer cells, so-called NK cells, that are able to hide foetal cells from the reach of the immune system. The topic soon expanded to the field of cancer research when it became apparent that cancer cells can hide from the body's immune surveillance by a similar mechanism.

The method described by Saksela's team to identify and isolate NK cells fuelled the study of natural immunity around the world. Several doctoral theses were written on the topic, for example on factors that stimulate NK cells and the mechanisms that enable NK cells to identify foreign structures and kill cancer cells. Several international researchers in the field visited Saksela's laboratory. The team received a substantial NIH grant, which was rare in Finland at the time, that enabled the long-term operations of the laboratory. In 1983, Saksela was awarded the Matti Äyräpää Prize, the most prestigious award in Finnish medicine. It is rewarding to conclude that, decades after the first findings were made, NK cell research has produced significant results for patients, as laboratory-engineered NK cells are now being used for cancer immunotherapy, alongside other treatments.

Saksela's histopathological research focused especially on gynaecological and head and neck tumours. Saksela had a vast knowledge of morphological diagnostics, and his clinical experience and views were valued when solving diagnostic problems. He served in both Finnish and international pathology organisations, including as the representative for Finland in the Section of Pathology at the Union of European Medical Specialists (UEMS) and in the Finnish Division of the International Academy of Pathology, who invited him to become an honorary member in 2001.

Saksela actively followed the latest news in cutting-edge research and made sure that any scientific discoveries were also shared with the Finnish medical community. He was an editor for the Duodecim Medical Journal 1966-1986 and remained an active member of the Finnish Medical Society Duodecim until the last years of his life. Another important role that he enjoyed was his position as an editor of the journal Int. J. Cancer 1969–1983. Not even retirement diminished his passion for science and new discoveries. He carefully read through the issues of Nature and Science, and visits by the Professor Emeritus livened up the weekly discussions of department seminars.

Saksela especially cherished his interactions with students. Each new class of Bachelors of Medicine were welcomed by the entire faculty and the professor also enjoyed attending recreational events. The premiere of the annual Speksi performance by medical students was an event that he probably never missed. His students greatly appreciated these interactions, as exemplified e.g. by Saksela's recognition as Lecturer of the Year in 1992, his badge of merit and honorary membership in the Medical Students' Association at University of Helsinki and his honorary membership in the medical students' orchestra Valkotakit. He also devoted his energy to student associations; Saksela served as inspector of Wiipurilainen Osakunta 1984–1994 and was elected to honorary membership by the association in 1995.

In addition to having an impressive career in research, Saksela's contribution to the development of research organisations and research infrastructures was just as impressive. Saksela served as a member or a chair in several organisations and committees, including the Scientific Advisory Board of the Wihuri Research Institute, the Board of the Cancer Society of Finland and the Scientific Board of the Finnish Cancer Institute. First envisioned in the 1990s, his goal to establish a new building on the Meilahti Campus that would combine basic research and clinical research deserves a special mention. This goal made Saksela a strong visionary and an advocate. He sat on the building committee and the management group of Biomedicum throughout its planning and construction and even the name of the building was suggested by him. Saksela was also instrumental in the birth of the Finnish Cancer Center and the Finnish Cancer Institute and served as the long-time chair of the Board and Scientific Advisory Board of the Cancer Institute. The Cancer Institute has awarded the Eero Saksela Prize since 2014 to excellent cancer researchers returning to Finland. Saksela was awarded the Cancer Control Silver Medal in 1997 for his achievements in cancer research and prevention.

Saksela was a member of the Finnish Academy of Science and Letters since 1983 and a member of the Norwegian Academy of Science and Letters since 1993.

In spite of his busy workload, he managed to make time for his hobbies. The most important of these were sailing and tennis. Vessels captained by Saksela won Finnish championships in offshore sailing and his accomplishments in the Gotland Runt Offshore Race were impressive. His competitiveness was also apparent on the tennis court where Saksela was an unyielding opponent for whom defeat was unheard of. His sports activities were balanced by culture, especially the visual arts and music, which Saksela enjoyed in various forms with his spouse, textile artist Riitta (Piila) Gyldén.

Eero Saksela's career was exceptional in its versatility and prolificity. He was a visionary leader and a supervisor who found effective solutions even in most challenging situations and earned the trust of both his colleagues and his subordinates with his fair approach and positive attitude. He was a great mentor, an innovator, an organiser, a duodecimian, a clinician and a scholar. He was a role model for a whole generation of pathologists. His manner of leading the community of academics and scholars - with determination and a vision for the future, sincerely rejoicing in the achievements of his students and colleagues - lives on in our memories.

Olli Carpén



Seppo Siirilä

* 2.10.1937 + 26.3.2023

Professor Seppo Siirilä died in Helsinki on 26 March 2023, aged 85.

Seppo Siirilä had a long and successful academic career. His thinking and actions were reflected in many ways in the development of geography and regional studies in Finland. After graduating from high school in 1956, Seppo Siirilä studied geography and biology at the University of Helsinki, graduating with a M.A. in philosophy in 1961, a licentiate in 1965 and a doctorate in 1968. Siirilä's doctoral thesis focused on the functional structure of the city of Tampere and, in line with common practice at the time, he published it as a monograph in German.

Seppo Siirilä's main career was at the University of Tampere. He was appointed Acting Professor of Social and Economic Ecology in 1969 and worked as a full professor from 1971 until his retirement. In 1974, the subject of social and economic ecology was renamed regional studies. In addition to his duties as Professor, Siirilä was Head of the Department, Dean of the Faculty, Vice Rector, and Acting Rector of the University of Tampere. As an academic leader, Siirilä was humane and respected.

Seppo Siirilä conducted research in England in 1971 and in Australia from 1973 to 1974. Early in his career, his research activities focused on issues of urban ecology. His later research focused on regional differences in well-being. Over time, he contributed to the field of regional policy in several specialist positions. In recognition of his many contributions to the development of research and science in Finland, he was invited to become a member of the Finnish Academy of Science and Letters in 1985.

Seppo Siirilä's contribution to the development of regional studies is still visible in many ways today. His activities in the field led to a number of significant research projects and the development of a strong research culture in Tampere. He also developed the department into a recognised educational unit, which was selected four times as a national centre of excellence in high-quality education.

In addition to science and research, Seppo Siirilä always had a place in his heart for orienteering. He was President of the Finnish Orienteering Federation from 1984 to 1991. In 1995 he was made an honorary member of the Orienteering Federation.

Siirilä will be missed by his two sons and a wide circle of relatives and friends.

Markku Sotarauta and Jouni Häkli

Liisa Simola

* 8.6.1938 + 11.2.2023

Professor Emerita of Botany Liisa Kaarina Simola passed away on 11 February 2023 in Helsinki at the age of 84. She was born in Helsinki on 8 June 1938.

Liisa Simola passed her matriculation examination at the Girls' Normal Lyceum in Helsinki in 1957. Already in her school years, she was interested in a career in research. She became familiar with a research and academic atmosphere as a child, because her father Paavo Eevertti Simola and grandfather Evert Fritjof Simola were both professors, while her mother Kerttu Marjatta Simola was a dentist. Liisa Simola went on to study not only botany, but also geology, palontology, genetics and biochemistry at the University of Helsinki, where she earned her Master's degree in 1962 and her Licentiate degree in Philosophy in 1963.

Simola's career in research progressed rapidly and the main focus was on plants. From 1962 to 1968, she worked as an assistant in Botany at the University of Helsinki and from 1968 to 1970 as a research assistant and junior researcher of the Academy of Finland. Simola's doctoral thesis, *Comparative studies on the amino acid pools of three Lathyrus species*, was completed in 1968. In her thesis, she examined e.g. the chemotaxonomy of three *Lathyrus* species. Her main interest was exploring non-protein amino acids that, when present in human food or animal feed, can cause an incurable neurological disease known as lathyrism. After earning her doctorate, Simola worked as Associate Professor of Plant Physiology and Anatomy from 1971 to 1974, and in 1974 she was appointed Professor of Botany at the University of Helsinki. Simola held this professorship until her retirement at the end of 2001.

Already while working as an assistant at the Department of Botany, Simola saw a need to develop teaching and research in plant physiology. The acquisition of new research tools and equipment enabled the introduction of new research methods and the reform of teaching, teaching materials and courses in plant physiology and anatomy.

In 1968, Simola visited the laboratory of Professor Street at the University of Leicester in England to learn about plant cell culture techniques. She was one of the first researchers in Finland to use plant tissue cultures in her research. Through the courses offered by the Department of Botany, plant cell culture techniques spread to other research institutes and universities.



In addition to numerous plant propagation applications, plant cell culture techniques can be used in plant breeding and the production of secondary metabolites. In addition, tissue cultures can be used to study the phenomena that occur in plant cells and whole plants. In her article published in *Luonnon Tutkija* in 1986, Simola provided a practical account of the use of tissue culture techniques in basic research in developmental physiology and applied fields, perhaps dispelling some of the prejudice against them.

Simola utilized aseptic tissue culture techniques in many ways in her own research. One of the major themes of her research was the development of a Norway spruce tissue culture line that produces lignin. This line is still used in research. Especially the connection between the lignin biosynthesis and peroxidases was a topic of interest. In addition to spruce, other major lines of research included the genus Atropa and sphagnum moss (Sphagnum), although there were also many other areas of research, from algae and lichens to forest trees, and several topics, from the sources of nitrogen and polyamines to fatty acids and alkaloids, environmental toxins and somatic embryogenesis.

The fine structure of cells was a key area in which Simola could combine physiological research with the electron microscopical study of plant structures, looking for answers to questions of what was happening in a plant and where.

The results of Simola's broad research have been published in several major international journals. Her love for research did not end with her retirement, but she continued to work in cooperation with the scientific community and her former collaborators and students, as shown by her extensive list of international publications also after 2001.

Liisa Simola also wrote actively for Finnish scientific publications, such as Luonnon Tutkija and the series of various research institutes and professions. She covered a variety of topics, including somatic embryogenesis in plants, the micropropagation of forest trees and the physiology of winter dormancy in plants. She was a keen observer, as is well illustrated by her small article in a 2001 issue of the Vuosaari magazine about the flowering of the sea pea on the shores of Kallahti. She also produced a summary of the rations that were issued to soldiers on the front lines in the latest wars to try to prevent e.g. scurvy. This study was inspired by the work of Liisa's father, Professor of Medical Chemistry Paavo Simola, who was a nutritional advisor to the Finnish Defence Forces during the Continuation War. During the war, the University of Helsinki Department of Medical Chemistry, led by Simola, conducted extensive studies e.g. on the nutritional value of different foods, emergency nutrition, feeding domestic animals and storing foods.

Liisa Simola published several reviews of scientific books written by international authors. In the 1970s, she was also a member of a large group of writers, made up of researchers and teachers, who aimed to revise school biology textbooks. Produced by the group, the biology textbook for upper secondary school was quite progressive in terms of content, covering topics such as protein synthesis. The Scandinavian Plant Physiology Society (SPPS) awarded the SPPS Popularisation Prize to Simola in 1988.

Simola was a member of the Finnish Academy of Science and Letters since 1987.

She served on the boards of several Finnish and international learned societies, including as vice-chair of the Histochemical Society 1974-1976, and vice-chair and chair of the Biological Society of Finland Vanamo 1976-1978, after which she was invited to become an honorary member of Vanamo. Simola represented Finland on the board of the Scandinavian Plant Physiology Society (SPPS) 1979-1985, and was a member of the editorial board of the society's journal, Physiologia Plantarum, 1970-1979 and a member of the journal committee 1983-1995. Simola was also the Finnish correspondent of the International Association for Plant Tissue and Cell Culture.

In addition to botany, Liisa Simola was interested in the arts and wrote e.g. an article on flowers in Shakespeare's plays for the

Tiede 2000 magazine. She drew strength from music and frequently attended concerts. In her old age, she learned to play the kantele. Scouting and parish activities, as well as sponsoring the education of girls in developing countries, were close to her heart. Liisa had a phenomenal memory. She read a lot of books, especially biographies, and would sometimes entertain her circle of friends by talking in length about funny anecdotes from the lives of various cultural figures. After retiring, Liisa acquired a summer house in Vuohiniemi, Hattula, and enjoyed entertaining guests as a generous hostess. She took great pleasure in the natural beauty of the place, the flowers and the birdsong. The yearly trip to Vuohiniemi to plant summer flowers was her cherished tradition to welcome summer.

> Tuomas Sopanen, Anna Happonen and Arja Santanen



Tauno Turunen

* 28.5.1946 + 5.7.2023

Professor Tauno Turunen (b. 28 May 1946) died suddenly on 5 July 2023. He was the Director of the Sodankylä Geophysical Observatory (SGO) 1992–2011. Turunen began studying mathematics at the University of Oulu in 1966. After three years of studying, he was offered a job as an assistant at the Department of Physics. He therefore decided to switch majors from mathematics to physics.

While working as an assistant, Tauno Turunen reformed almost all the laboratory exercises in the discipline of physics. He was also extremely interested in electronics, so much so, in fact, that he was offered the position of associate professor at the Department of Electrical Engineering and Electronics. As it happens, at the same time the Sodankylä Geophysical Observatory, operating under the Finnish Academy of Science and Letters, was looking for a new head for its Ionospheric Station. In the end, Turunen decided to go to Sodankylä and turn down the associate professorship in Oulu.

Tauno Turunen was head of the Aeronomy Unit at the SGO since 1971, working with the ionospheric sounder (ionosonde). He actually repaired the ionosonde used by the SGO as well as the ionosonde of the Finnish Post and Telecommunications Department, which was located in Nurmijärvi. When the planning of the EIS-CAT radar system began in 1975, Turunen was appointed as the representative of Finland on the planning team.

After the EISCAT radar system was inaugurated in 1981, Tauno Turunen delved even deeper into the world of radars. He had a prominent role in the EISCAT Scientific Association, first as a deputy director in charge of technology from 1984 to 1987 and later as the director of the entire association from 1998 to 2002. He was awarded in the Beynon medal in 2003 for his outstanding services to EISCAT.

Tauno Turunen served as the director of the SGO for almost twenty years. The Finnish Academy of Science and Letters made Turunen the director of the observatory in spring 1992, after Eero Kataja had led the observatory for more than 42 years. Turunen became known for his careful financial management and his belief that the financial personnel should, upon request, be able to accurately report the financial position of the observatory down to the penny, even in the middle of the night. During his first years as director, Turunen's main responsibility was to keep the SGO afloat and move its operations under the University of Oulu in August 1997.

The staff learned to trust Turunen in many ways. He had formerly worked as a workplace steward and an employee representative in a trade union. He was therefore well versed in the terms of employment and other personnel matters.

Turunen believed that the director should be able to fill in for any employee at the SGO, regardless of their role. This is something he virtually excelled at. One spring, he had given the canteen matron of the observatory a holiday, despite the fact that a group of more than ten colleagues from abroad was about to arrive for a week-long visit. Tauno changed his suit jacket into an apron and cooked so much sautéed reindeer and mashed potatoes for the group that it lasted them several days.

When Turunen wanted to take a respite from his duties as the director, he turned to his favourite pastime, building measuring instruments for the electronics laboratory. He would sometimes spend days on end in the laboratory, but the results speak for themselves.

Tauno Turunen was extremely skilled at designing and building new measuring instruments, such as the world's most sensitive ELF/VLF receiver, which has been in operation since 1992 and is still, 32 years later, the best in the world. He also developed an ingenious programme algorithm for filtering lightning strokes and power line harmonic radiation (PLHR). It works beautifully and is so clever that nobody has yet been able to copy it, even though Turunen meticulously explained the programme to several international colleagues a few years ago. In 2005, Turunen and Laboratory Manager Aarne Ranta built a new ionosonde together, which, again, became the best in the world and is still, 20 years later, the only ionosonde that performs one sounding per minute. Five years ago, the international "standard" was still one sounding per 10 minutes.

The latest instrument upgrade was the improvement of the pulsation magnetometer in 2010 and 2011. SGO's entire pulsation magnetometer chain was upgraded just a few years ago. Turunen was also planning to upgrade the riometers, but he ended up retiring before starting this new project. Even in his retirement, he was actively involved in the improvement of analysis programmes and kept an eye on the registrations of the observatory on its website. He even attended an international conference in 2018, having been retired already for seven years.

Tauno Turunen was an internationally known and esteemed scholar who had numerous friends all over the world. He was appointed Professor in 2003. He was invited to become a member of the Finnish Academy of Science and Letters in 1998.

One of his beloved hobbies was playing the violin in an ensemble called Sodankylän Pelimannit, with whom Tauno toured and performed in several Nordic countries. In addition to playing music, he was also an excellent lyricist and poet. You can even find a framed account, written in verse on a travel invoice and hung on the wall of the Research Council of Finland, explaining why a taxi has been used in Sodankylä when returning from an official journey.

Another favourite hobby was fishing on the lake Inari and on brown trout rivers and hunting small game. Tauno also enjoyed gardening with his wife Brita in the summers, whenever he was not picking berries. Tauno was also an avid mushroomer whose favourite delicacy was false morel mushrooms. While living in Sweden, he picked several years' worth of false morels in the freezer and was puzzled as to why the Swedes were so afraid of the species that they would not pick them at all. Tauno will be missed by three adult children and their families.

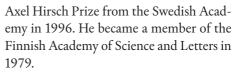
Jyrki Manninen

Pentti Virrankoski

* 20.6.1929 + 20.8.2023

Professor Pentti Virrankoski was born in Vancouver, Canada, on 20 June 1929, and died in Turku on 20 August 2023 at the age of 94. He grew up in Kauhava and graduated from the Kokkola Lyceum in 1948. He first studied chemistry at the Helsinki University of Technology, but switched to history after one year. He graduated as Master of Arts from the University of Helsinki in 1953, majoring in Finnish history. In 1963, he defended his doctoral thesis entitled Myyntiä varten harjoitettu kotiteollisuus Suomessa autonomian ajan alkupuolella ("Finnish Domestic Handicrafts Producing for the Market in the Early Part of the Period of Autonomy"). In the preface to his doctoral thesis, he mentioned that the history of Finnish domestic handicrafts had been a source of fascination for him for a long time.

Two years after his doctorate, Virrankoski was appointed Associate Professor of Finnish History at the University of Turku in 1965, and Professor in 1979, a chair he held until his retirement in 1992. In recognition of his research, he was conferred the title of Honorary Doctor by Åbo Akademi University in 1988. He received the Gustaf III Prize from the Society of Swedish Literature in Finland in the same year and the



As a professor, Pentti Virrankoski studied and supervised research primarily on the economic and social history of Finland under Swedish rule. His main project, which he started with Professor Päiviö Tommila, focused on rural craftsmen in Finland under Swedish rule. Virrankoski outlined his thoughts on the history of ideas in his 1986 biography Anders Chydenius: demokraattinen poliitikko valistuksen vuosisadalta. As portrayed by Virrankoski, Chydenius was a politician inspired by the ideals of the Enlightenment and pietism, whose economic views were widely connected to 18th century social debates. In his work, Virrankoski describes how Chydenius was opposed to legal economic monopolies and defended the freedom of trade, following the lines of early liberals in France and Sweden. On the other hand, Chydenius acknowledged the lack of political rights especially among the working population. The commendable study was also published in Swedish under the title Anders Chydenius: demokratisk politiker i upplysningens tid in 1995.



Pentti Virrankoski wrote his primary testament as a historian in the peace of his retirement years, a history of Finland in two volumes, *Suomen historia 1–2*, published in 2001. At over one thousand pages, the work constitutes an overview of the history of our country, spanning from prehistoric times to the 20th century. In addition to key political, cultural and economic events, the volumes shed light on the history of lifestyles and the everyday and the experiences of individual people.

Kirsi Vainio-Korhonen