

*Facta non solum verba*

ESTONIAN  
ACADEMY OF SCIENCES  
YEAR BOOK

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## **FOREWORD**

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The Estonian science and the Academy of Sciences have experienced hard times and bearable times. During about the quarter of the century that has elapsed after regaining independence, our scientific landscape has changed radically. The lion's share of research work is integrated with providing university education. The targets for the following seven years were defined at the very start of the year, in the document adopted by Riigikogu (Parliament) on January 22, 2014 and entitled "Estonian research and development and innovation strategy 2014-2020. Knowledge-based Estonia". It starts with the acknowledgement familiar to all of us that the number and complexity of challenges faced by the society is ever increasing. It no longer suffices to boost competitiveness of the economy; that effort must be seconded by effective interaction of the whole society.

The said strategy recalls to mind, that we have to reappraise our current activities and seek new avenues to make headway. The farther we progress, the higher science policy standards we should request. Such setbacks like the present crisis of the research funding system as was distinctly revealed at the conference in Estonian Biocentre on February 14, 2014 are largely the product of our own complacency. It shows that focussing solely on research or exclusively on efficiency of the scientific landscape or its individual parts is clearly not enough. Literally speaking: if the Academy is merely a centrepiece of the scientific landscape, it is situated in hinterland of the present social structure. We have a long way to go to perceive the larger picture and also visualise the eventual outcome of moves seemingly correct when examined separately.

Although there is some leeway in how the scientists and the Academy may position themselves in the society, we are part and parcel of the society, the arena of reverberation of societal processes, and in a sense also its cross-cut. If we are to contribute to efficient performance of the society, we must be open towards the society; we must first and foremost conceive what the society expects from the scientific community and science. A strategic step in that direction was founding of the Institute for Advanced Study in the preceding year (in 2013). The four first working groups focussed on important points, have done their job out of enthusiasm and inherent sense of responsibility. The contribution of Members of Academy comprising them, and the efforts of involved experts are already crystallising into solid working documents designed to ease shaping scientific careers and to launch the centres of excellence.

Hopefully the first document completed with adequate funding at the turn of the year and presented in January 2015 titled “Strategy of research and development and innovation of the Estonian health system 2015-2020” will soon be followed by several foresights of the same calibre.

The importance of perennial academic values for the society was testified to by the massive media coverage of the election of new leadership of the Academy. A succession of long and profound pieces of writing authored by Members of Academy appeared in several dailies and cultural issues during the whole year. There is no better proof to the effect that the opinion of Members of Academy is important to the society.

It has lately become a tradition at the Academy that major changes in the leadership occur once a decade. Apparently that is too long a period, within which many younger and up-and-going Members of Academy would find other challenges. Such long time-lag would inevitably tend to generate some inter-generational interference in conveying the message during communication. We are living in a turbulent and rapidly changing world, and certain reorganisations are certainly necessary; however it is important to retain and safeguard all positive achievements attained by the previous leadership. To quote the Dalai Lama Tenzin Gyatso “Do not dwell in the past, do not dream of the future, concentrate the mind on the present moment“ – we too often live in repentance of the past and worrying about the future, therefore the present tends to slip through our fingers like fine sand. I dare summarise the developments in the Academy during past decades as follows: both the leadership and the staff have acted assured they got the Academy on interest-free credit from their successors, not as legacy bequeathed to them by their predecessors.

Any complicated and problem-festered epoch has its own peculiar charm. We have managed to find means for completing many spectacular undertakings. Several aspects inherent to the value-based society like education, science and culture are incredibly, even anomalously strong given the small size of our state and the low numbers of our people. They rightfully belong to the absolute top of the world. In that sense, a highlight of the Academy for 2014 was October 15, when Member of Academy Arvo Pärt was awarded the Japanese Imperial cultural prize *Praemium Imperiale*, often compared to the Nobel Prize. We are happy to be so clearly visible in the cultural space of the whole world.

*Tarmo Soomere*

## CHRONICLE

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January 20 – Board at its meeting discussed the Academy’s Action Plan 2014 and preparation of a conference focusing on the natural resources of Estonia and utilisation of available reserves; approved the work reports of the Academy Research Professors Tõnis Timmusk, Rein Ahas and Anu Realo; decided to confer the Paul Ariste Memorial Medal on Arvo Krikmann.

January 28-30 – Helmut Schwarz, Foreign Member of the Academy and President of the Humboldt Foundation, visited Tallinn as a guest of the Academy. During his stay, he paid a visit to Tallinn University, had a meeting with Estonian Humboldt Club Members at the Embassy of Germany in Estonia and gave a lecture “Chemistry with methane. A cold approach to a hot problem” at Tallinn University of Technology.

January 30 – Chair of the Academy Committee on Marine Sciences Tarmo Soomere participated in a meeting of the European Marine Board (EMB) Executive Committee in Brussels.

February 4 – Seminar in the Sparking Seminar Series of the Academy Committee on Marine Sciences was held on the premises of the Estonian Marine Institute, University of Tartu. Tarmo Soomere gave a presentation “Waves in the Baltic Sea in the vortex of changes”.

February 14 – Board at its meeting approved the Academy’s Action Plan 2014 and decided to confer the Wilhelm Ostwald Memorial Medal on Mati Karelson (Member of the Academy). Head of the Division of Informatics and Engineering Tarmo Soomere presented information about a possible merger between two journals of the Academy – Estonian Journal of Engineering and Proceedings of the Estonian Academy of Sciences. The proposed merger was considered and approved by the Board.

February 14 – Seminar “The Prospects for Research Quality in Estonia” was organised by the Academy at the Estonian Biocentre’s new laboratory building.

March 17 – Board at its meeting approved the financial activities of the Academy in 2013 and its 2014 budget; determined the agenda for the Annual General Assembly. After hearing a brief report from President Richard Villemson on the upcoming new funding round for Centres of Excellence, the Board resolved to authorise the Institute for Advanced Study to participate in preparing the principles and required documents for the new CoEs funding round as well as in establishing cross institutional working groups tasked with solving complex problems, e.g. the consistency of R&D funding levels and a long-term strategy for research career path development. Announcement of the 2014 Student Research Paper Contest was determined.

March 20-22 – Vice-President Jüri Engelbrecht participated in the conference “Transition to a New Society” organised by the World Academy of Art and Science (WAAS) in Podgorica (Montenegro), moderated one of the sessions and gave a presentation “Networks, mobility and young researchers”.

March 24 – Follow-up event of the Academy’s Science Day in Võru County was held at the Võru Gymnasium.

March 27 – Chair of the Academy Committee on Marine Sciences Tarmo Soomere participated in a meeting of the EASAC Environment Steering Panel in Brussels, Belgium.

April 1 – Raivo Uibo attended a meeting of the ALLEA Permanent Working Group on Science & Ethics in Budapest, Hungary.

April 4 – Conference Hall of the University of Tartu Library was the venue for a debate on the topic “In quest for dark matter” between two Members of the Academy – Jaan Einasto and Martti Raidal. The debate was moderated by Mart Noorma, best known as the originator of the satellite EstCube-1.

April 11 – Joint delegation of the Academy and the Estonian Association of Engineers visited Iru Power Plant of Eesti Energia Ltd.

April 23 – Activities of the Academy in 2013 were summed up at the Annual General Meeting. Reports were made by Heads of Divisions Jaak Aaviksoo, Tarmo Soomere, Ilmar Koppel and Urmas Varblane, and a generalised summary by President Richard Villems. Secretary General Leo Mõtus reported on budget implementation in 2013 and the 2014 budget, the General Assembly approved both. Recently elected fellows were introduced to the General Assembly and the Paul Ariste Memorial Medal was handed over to Arvo Krikmann. Ain Heinaru (University of Tartu), one of the National Science Prize laureates in 2013, presented a scientific paper.

April 24-25 – Vice-President Jüri Engelbrecht represented the Academy at the festive General Assembly Meeting of the European Federation of National Academies of Sciences and Humanities “All European Academies” (ALLEA) dedicated to the 20th anniversary of ALLEA, and the preceding scientific symposium “Enabling Early Career Researchers – Needs for Training of a New Generation” in Oslo, Norway.

May 5 – Seminar in the Sparkling Seminar Series of the Academy Committee on Marine Sciences was held at the Ministry of the Environment. Henn Ojaveer (University of Tartu) gave a presentation “Invasions of alien species: fighting a losing battle or nursing a glimmering hope?”

May 12 – Chair of the Academy Committee on Marine Sciences Tarmo Soomere participated in a meeting of the EMB Executive Committee and the following EMB spring plenary meeting (May 13-15) in Brest, France.

May 19 – Board at its meeting discussed a report about the work of the Committee “Rational and Economically Efficient Use and Sustainable Conservation of Estonian Natural Resources and their Reserves” presented by Chair of the Committee Dimitri Kaljo (Member of the Academy). The Board recommended that the Estonian Government suspend the formation of the Nabala Ecological Reserve within the boundaries that had been applied for and, if necessary, conduct a further science and evidence-based assessment. Vice-President Jüri Engelbrecht briefed the Board about issues that had been high on the agenda at the ALLEA scientific symposium and General Assembly Meeting on April 24-25, 2014 in Oslo. The proposal of the Estonian Cooperation Assembly for updating their Charter was supported; Ülo Niine was confirmed to his next five-year term as Director of the Estonian Academy Publishers; the enlarged jury panel of the Student Research Paper Contest was approved.

May 19 – Academy House hosted a seminar “Estonia in International Scientific Organisations” initiated and organised by the Academy.

May 22-23 – Academy’s Science Days were held in Saare County. The programme included presentations by several Members of the Academy: Jüri Engelbrecht, Jaan Einasto, Valter Lang, Tarmo Soomere, Martin Zobel, Enn Tõugu, Urmas Varblane, Mihkel Veiderma, and Academy Research Professor Rein Ahas.

May 22-23 – Secretary General Leo Mõtus participated in a meeting of the European Academies’ Science Advisory Council (EASAC) in Riga, Latvia.

May 29 – Academy House was the venue for a seminar “Nanoparticles in the Environment: Fate and Effects”.

June 10-11 – Foreign Relations Manager Ülle Raud attended a Bridgeheads Meeting of the European Network of Service Centres EURAXESS in Brussels, Belgium.

June 12-14 – President Richard Villems participated as an invited speaker in an international scientific conference “Science, Technology and Innovative Technologies in the Prosperous Epoch of the Powerful State” organised by the Academy of Sciences of Turkmenistan in Ashgabat, Turkmenistan.

June 16 – Board at its meeting coordinated activities in relation to election of new Board members; appointed representatives of the Academy: Professor Rein Vaikmäe (Tallinn University of Technology) to the WG on the Arctic Council activities and Ülo Niinemets (Member of the Academy) to the Council for the project “Development of the National Adaptation Strategy and a Draft Implementation Plan for Climate Change Impacts in Estonia”.

June 16 – Presentation of the book “Eesti Vabariigi teaduspreemiad 2014” (National Science Prizes 2014) at the Academy House.



July 1-3 – Chair of the Academy Committee on Marine Sciences Tarmo Soomere participated in a Marine Sustainability WG Meeting of the European Academies' Science Advisory Council (EASAC) in Ispra, Italy.

August 12 – Memorial bas-relief plaque commemorating Member of the Academy Karl Rebane (1926-2007) was unveiled on a wall of the apartment building at Tina 21A in Kadriorg.

September 5 – Tarmo Soomere participated in a meeting of the EMB Executive Committee in Brussels, Belgium.

September 15 – Board at its meeting discussed the reports on the activities of the Academy's standing committees and councils; appointed representatives of the Academy: Mart Saarma to the Board of Governors of Tallinn University of Technology and Urmas Varblane to the Research Funding WG at the Ministry of Education and Research. Pursuant to a proposal from the Editorial Board of the Estonian Journal of Ecology and a supporting opinion by the Academy's Publishing Council, the Board decided to merge two scientific journals (Estonian Journal of Ecology and Estonian Journal of Earth Sciences) with the Proceedings of the Estonian Academy of Sciences as of January 2015. The agenda for the General Assembly Meeting of October 15 was approved.

September 17 – Seminar "Population, Security Risks and Environment" was held at the Academy House as a follow-up event of the Academy's Science Day in Võru County.

September 24-25 – Tarmo Soomere participated in a meeting of the EASAC Environment Steering Panel in Brussels, Belgium.

September 26 – Musical Science Café opened its doors at the Academy House within the events programme of the Researchers' Night 2014.

September 29 – Raimund Johannes Ubar – Nikolai Alumäe Memorial Medal Laureate in 2013 – gave the Nikolai Alumäe Lecture at Tallinn University of Technology.

October 7-9 – Tarmo Soomere participated in a panel discussion "Addressing Complex Seas and Oceans Challenges: How Can We Cross the Disciplines More Effectively" at the conference EurOCEAN2014 in Rome, Italy.

October 9-10 – Tarmo Soomere participated in the European Marine Board (EMB) autumn plenary meeting in Rome, Italy.

October 15 – Tarmo Soomere was elected the President of the Academy for the next five years at the General Assembly meeting. The Academy's Memorial Medals were conferred: the Harald Keres medal on Ülo Lepik and the Wilhelm Ostwald medal on Mati Karelson.

October 17 – Raivo Uibo attended an ALLEA Science & Ethics Permanent WG meeting in Barcelona, Spain.

October 27 – Board at its meeting approved the new Scientific Council composition of the Under and Tuglas Literature Centre and decided to announce a call for nominations for the Director position of the Under and Tuglas Literature Centre for the term 2015-2019. Member of the Academy Tarmo Soomere was appointed to represent the Academy in the organising committee responsible for preparing the anniversary programme to mark the Centenary of the Republic of Estonia. The agenda for the General Assembly Meeting of December 3 was determined. The President-elect briefed the Board about core principles that would underpin the activities of the Academy in the following five years.

October 27 – Conference of the Student Research Paper Contest Laureates where several winning papers were delivered by the authors was held at the Academy House. The conference concluded with the conferral of diplomas.

October 29 – Follow-up event of the Academy's Science Day was held at Parksepa Secondary School.

November 5-7 – Vice-President Jüri Engelbrecht attended a conference “New Paradigm of Sustainable Human Development” organised under the aegis of the World Academy of Art and Science (WAAS) in Almaty, Kazakhstan. He spoke on the topic “Drivers and Barriers” and was a panelist in the session “New Paradigm in Education”.

November 20-21 – Secretary General Leo Mõtus participated in a meeting of the European Academies' Science Advisory Council (EASAC) in Geneva, Switzerland.

November 25-26 – Foreign Relations Manager Ülle Raud attended a Bridgeheads Meeting of the European Network of Service Centres (EURAXESS) in Brussels, Belgium.

November 26 – Mati Karelson gave a public academic lecture in the Omicum Auditorium of the Estonian Biocentre in Tartu on the topic “Challenges in modern drug design”.

December 3 – General Assembly at its meeting gave thoughtful attention to an overview made by President Richard Villems about his two terms of presidency. The following Members of the Academy were elected to the new Board: Vice-President – Ergo Nõmmiste; Vice-President – Mart Kalm; Secretary General – Margus Lopp; Head, Division of Astronomy and Physics – Jaak Aaviksoo; Head, Division of Informatics and Engineering – Jakob Kübarsepp; Head, Division of Biology, Geology and Chemistry – Toomas Asser; Head, Division of Humanities and Social Sciences – Urmas Varblane; non-executive Members – Jüri Engelbrecht, Jaak Järv, Valter Lang, Ülo Niinemets, Karl Pajusalu, Martti Raidal, Peeter Saari, Andres Öpik. Employment contract was signed with Tarmo Soomere as President.

December 15 – Board at its meeting discussed the 2nd year work reports and 3rd year work plans presented by Research Professors of the Academy Tõnis Timmusk and Rein Ahas, and concluded to open their 3rd year funding. The Board resolved on starting the transfer process of land-use rights over the property at Vabaduse Ave. 12/Väikese Illimari 12 to the Under and Tuglas Literature Centre, and on terminating the activities of the Estonian National Committee for the UNESCO International Hydrological Programme (IHP) as a standing committee of the Academy. President Tarmo Soomere outlined the core principles for organising the Board's work in 2015.

December 17 – Foreign Relations Manager Ülle Raud attended at the invitation of the EURAXESS Greek organisers an international conference marking the 10th anniversary of EURAXESS that was held in Athens, Greece.

## **MEMBERSHIP OF THE ACADEMY**

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The membership of the Estonian Academy of Sciences (79 Members and 18 Foreign Members) in 2014 was distributed among four divisions as follows:

### **DIVISION OF ASTRONOMY AND PHYSICS**

(18 Members, 5 Foreign Members)

Members: Jaan Aarik, Jaak Aaviksoo (Head of Division), Jaan Einasto, Ene Ergma, Vladimir Hižnjakov, Arvi Freiberg, Georg Liidja, Ülo Lumiste, Tšeslav Luštšik, Ergo Nõmmiste, Eve Oja, Martti Raidal, Enn Saar, Peeter Saari, Mart Saarma, Arved-Ervin Sapar, Gennadi Vainikko, Richard Villems.

Foreign Members: Richard R.Ernst, Charles Gabriel Kurland, Jaan Laane, Jaak Peetre, Alar Toomre.

### **DIVISION OF INFORMATICS AND ENGINEERING**

(19 Members, 4 Foreign Members)

Members: Olav Aarna, Hillar Aben, Jüri Engelbrecht, Ülo Jaaksoo, Lembit Krumm, Valdek Kulbach, Jakob Kübarsepp (Head of Division), Rein Küttner, Ülo Lepik, Enn Lust, Enn Mellikov, Leo Mõtus, Arvo Ots, Tarmo Soomere, Enn Tõugu, Raimund-Johannes Ubar, Tarmo Uustalu, Jaak Vilo, Andres Öpik.

Foreign Members: Steven R.Bishop, Antero Jahkola, Gérard A.Maugin, Michael Godfrey Rodd.

### **DIVISION OF BIOLOGY, GEOLOGY AND CHEMISTRY**

(23 Members, 5 Foreign Members)

Members: Toomas Asser (Head of Division), Jaak Järv, Ain-Elmar Kaasik, Dimitri Kaljo, Mati Karelson, Ilmar Koppel, Urmas Kõljalg, Hans Küüts, Agu Laisk, Ülo Lille, Margus Lopp, Udo Margna, Jüri Martin, Andres Metspalu, Ülo Niinemets, Anto Raukas, Valdur Saks, Martin Zobel, Hans-Voldemar Trass, Raivo Uibo, Mart Ustav, Eero Vasar, Mihkel Veiderma.

Foreign Members: Carl-Olof Jacobson, Pekka T.Männistö, Matti Saarnisto, Helmut Schwarz, Jānis Stradiņš.

### **DIVISION OF HUMANITIES AND SOCIAL SCIENCES**

(18 Members, 4 Foreign Members)

Members: Jüri Allik, Mihhail Bronštein, Raimund Hagelberg, Mart Kalm, Arvo Krikmann, Armo Kõörna, Valter Lang, Lauri Mälksoo, Karl Pajusalu, Arvo Pärt, Jaan Ross, Hando Runnel, Huno Rätsep, Karl Siilivask, Peeter Tulviste, Jaan Undusk, Urmas Varblane (Head of Division), Haldur Õim.

Foreign Members: Yuri Berezkin, Els Oksaar, Päiviö Tommila, Endel Tulving, Henn-Jüri Uibopuu.

Affiliation of Endel Lippmaa to the Division of Astronomy and Physics was suspended starting 14 December 2010 pursuant to his application.

During 2014 the majority of Members of the Estonian Academy of Sciences proceeded with their research and academic activities as leading experts in their fields of study.

Ene Ergma served as President of the Riigikogu (up to March) and Jaak Aaviksoo as Minister of Education and Research (up to March). Both of them continued work as Members of the Riigikogu.

Many Members of the Academy were acting as experts and advisers complementary to their principal occupation. The following Members of the Academy sat on expert panels and councils of national significance:

- President's Academic Advisory Board – Peeter Saari, Richard Villems;
- Board of President of the Republic's Cultural Foundation – Jaan Undusk;
- Government of the Republic Research and Development Council – Jaak Aaviksoo (up to March), Mart Saarma, Richard Villems;
- Government of the Republic Sustainable Development Committee – Margus Lopp;
- Prime Minister's Scientific Adviser – Mati Karelson (up to March);
- National Science Prize Committee – Richard Villems (Chairman up to December), Tarmo Soomere (Chairman since December), Jaak Järv, Valter Lang, Lauri Mälksoo, Ergo Nõmmiste, Martin Zobel, Enn Tõugu, Jaan Undusk, Urmas Varblane, Andres Õpik;
- Board of Estonian Research Council – Mart Ustav (since March);
- Estonian Research Council's Evaluation Committee – Enn Mellikov, Martti Raidal, Jaan Ross (up to May), Eero Vasar, Jaak Vilo;
- Estonian Science Communication Award Appraisal Panel at Estonian Research Council – Enn Tõugu (Chair);
- Council of the Foundation Estonian Cooperation Assembly – Urmas Varblane;
- Estonian Higher Education Quality Agency's Quality Assessment Council for Higher Education – Olav Aarna (up to August), Andres Õpik;
- Supervisory Board of Eesti Pank – Urmas Varblane.

Several others were involved in the work of expert panels reporting to a particular ministry.

Ministry of Education and Research:

- Research Policy Advisory Committee – Jaak Aaviksoo (up to April), Leo Mõtus, Ülo Niinemets and Urmas Varblane;
- Steering Council for Research and Innovation Policy Monitoring Programme – Jüri Engelbrecht and Urmas Varblane;
- Steering Committee for Internationalisation of Research Programme – Jüri Engelbrecht;

Steering Committees of National R&D Programmes: Language Technology Support for the Estonian Language (2011-2017) – Jaak Vilo (Chairman), Supporting Terminology in Estonian (2013-2017) – Valter Lang, Compilation and Publishing of Textbooks in Estonian for Higher Education (2013-2017) – Margus Lopp.

Adult Education Council – Olav Aarna;

Expert Council for Science Collections Programme – Urmas Kõljalg;

Estonian Language Council – Karl Pajusalu;

Estonian Space Policy Working Group – Ene Ergma (Chairman) and Ülo Jaaksoo.

Ministry of Economic Affairs and Communications:

Space Affairs Council – Ene Ergma (Chairperson);

Information Society Council – Ülo Jaaksoo (up to June).

Ministry of Finance:

Cohesion Policy Operational Programme Monitoring Committee – Richard Villems (up to December).

Ministry of the Environment:

Gene Technology Committee – Eero Vasar.

Ministry of Defence:

Research Council – Leo Mõtus (Vice Chairman) and Jaak Vilo.

Estonian Centres of Excellence in Research were headed by nine Members of the Academy: Raimund-Johannes Ubar – Centre for Integrated Electronic Systems and Biomedical Engineering; Martin Zobel – Frontiers in Biodiversity Research; Eero Vasar – Centre of Excellence for Translational Medicine; Tarmo Uustalu – Estonian Excellence in Computer Science; Valter Lang – Centre of Excellence in Cultural Theory; Vladimir Hižnjakov – Mesosystems – Theory and Applications; Enn Lust – High-technology Materials for Sustainable Development; Martti Raidal – Dark Matter in (Astro)particle Physics and Cosmology; Jüri Engelbrecht – Centre for Nonlinear Studies.

Four Members of the Academy belonged to decision making bodies of doctoral schools: Jüri Engelbrecht (Chairman of the Council) – Graduate School of Civil Engineering; Jaan Ross (Director) – Graduate School of Culture Studies and Arts; Karl Pajusalu (Chairman of the Council) – Graduate School of Linguistics, Philosophy and Semiotics; Eve Oja (Chairman of the Council) – Estonian Graduate School in Mathematics and Statistics.

Quite a few members of the Academy were involved in the activities of international scientific organisations as well as on editorial boards of scholarly journals.

Eve Oja was granted the National Science Prize in the category of exact sciences (see p. 63).

Tarmo Soomere was granted the Order of the White Star, 3rd Class (see p. 64).

Various institutions, associations and organisations gave recognition to Members of the Academy in the form of awards and honorary titles as well as by electing them to honorary membership:

Toomas Asser received the Grand Star of Tartu;

Jaan Einasto was granted with the prestigious Gruber Cosmology Prize;

Jüri Engelbrecht received a Letter of Appreciation from Tallinn University of Technology;

Ülo Jaaksoo was nominated Honorary Member by the Estonian Association of Information Technology and Telecommunications. He was also acknowledged with a Letter of Appreciation from Minister of Economic Affairs Urve Palo for his contribution in the work of the Estonian Informatics Council and developing of the Estonian information society;

Endel Lippmaa was elected Foreign Member by the Latvian Academy of Sciences;

Ülo Lumiste was granted the Small Medal of the University of Tartu;

Udo Margna received the Annual Award of the Estonian Academic Society of Pharmacy;

Jüri Martin was nominated Honorary Member of Viimsi Parish;

Arvo Pärt was nominated Honorary Doctor of St. Vladimir's Orthodox Theological Seminary (USA). He was acknowledged with the *Praemium Imperiale* for Music award presented by the Japanese imperial family through the Japan Art Association, and the Lifetime Achievement Award for extraordinary contributions of artistic and cultural significance by the Estonian American National Council (USA);

Anto Raukas received a Letter of Appreciation from the Shota Rustaveli National Science Foundation (Georgia) and from the Lithuanian Nature Research Centre for long standing activities in the Scientific Committee of the international journal *Baltica*. He was honoured with the Homeowner's Friend title by the Estonian Homeowners' Association; he deserved the 2013 Best Article of the Year award of the journal "Elektriala" (Electricity Field);

Peeter Saari was nominated Honorary Citizen of Tartu and received the Grand Star of Tartu;

Mihkel Veiderma received a Letter of Appreciation from the Estonian Academy of Sciences and from Tallinn University of Technology;

Jaak Vilo was acknowledged with the "Aasta Tegija 2013" (ITT Promoter of the Year 2013) award by the Estonian Association of Information Technology and Telecommunications.

Foreign Members continued participating in the activities of the Academy and research institutions of Estonia in compliance with time-honoured collegial relationships, scientific collaborations and research alliances.

# **GENERAL ASSEMBLY, BOARD, DIVISIONS, COUNCILS, COMMITTEES**

## **GENERAL ASSEMBLY**

The General Assembly of the Academy convened three times in 2014:

- |            |  |
|------------|--|
| April 23   | Annual Meeting   |
|            | <ul style="list-style-type: none"><li>• Talk by the Estonian Science Prize awardee Ain Hein-aru “Are we smarter than bacteria – biodegradation in and around us”</li><li>• Reports by Heads of Divisions Urmas Varblane, Ilmar Koppel and Tarmo Soomere, Member of the Division of Astronomy and Physics Peeter Saari and President Richard Villems on the activities of the Academy in 2013</li><li>• Report by Secretary General Leo Mõtus on the financial activities of the Academy in 2013 and the budget 2014</li><li>• Assigning of member allowances for the period 1.05.2014-30.04.2015</li></ul> |
| October 15 | Meeting  |
|            | <ul style="list-style-type: none"><li>• Election of President of the Academy</li></ul>   |
| December 3 | Meeting  |
|            | <ul style="list-style-type: none"><li>• Summary by President Richard Villems on his presidential activities in 2004-2014</li><li>• Elections of Vice Presidents, Secretary General and non-executive members of the Board</li><li>• Signing of employment contract with President-Elect Tarmo Soomere</li></ul>  |

The Annual Meeting in April focussed on summing up the activities of the Academy in 2013. Detailed data on those activities were made available in the “Estonian Academy of Sciences Year Book” XXIX (46), mailed to all Members in advance.

At the beginning of the meeting President Richard Villems handed over the Memorial Medals of the Academy: the Paul Ariste Memorial Medal to Member of the Academy Arvo Krikmann and the Harald Keres Memorial Medal to Member of the Academy Ülo Lepik.

Thereafter President presented new Members, elected in December 2013 – Jaan Aarik, Lauri Mälksoo, Ülo Niinemets and Andres Öpik.



Minister of Education and Research Jevgeni Ossinovski was given the floor for address.

Laureate of National Science Prize 2014 for long-standing achievements in research and development, Professor of the University of Tartu Ain Heinaru delivered a talk “Are we smarter than bacteria – biodegradation in and around us”.

President of Estonian Association of Engineers Arvi Hamburg expressed his thanks for support and help to the Board of the Academy. He handed over to Member of the Academy Leo Mõtus the prize for long activities as President of the Association.

Heads of Divisions Urmas Varblane, Ilmar Koppel and Tarmo Soomere and Member of Division of Astronomy and Physics Peeter Saari reported on the activities of their corresponding Divisions. President Richard Villems summarised the reports. Based on the reports and supplementary information in the Year Book, the General Assembly, on the proposal of Secretary General Leo Mõtus, approved the Academy’s annual report 2013.

Secretary General Leo Mõtus reported on implementation of the 2013 budget and presented the 2014 budget. Both were approved by the General Assembly.

Secretary General Leo Mõtus introduced a plan for assigning member allowances in the period 1.05.2014-30.04.2015. The General Assembly decided to distribute the allocated amount among all Members of the Academy on an equal basis.

In the process of discussion, Members of the Academy Endel Lippmaa, Dimitri Kaljo and Hillar Aben took the floor.

At the October Meeting, presidential elections were on agenda.

At the beginning, President Richard Villems handed over to Member of the Academy Mati Karelson the Wilhelm Ostwald Memorial Medal and to Member of the Academy Ülo Lepik the Harald Keres Memorial Medal.

Thereafter, floor was given to representatives of the Divisions that had presented the nominees for Presidency. Member of the Academy Jakob Kübarsepp characterised Tarmo Soomere, the candidate of the Division of Informatics and Engineering. Head of Division of Biology, Geology and Chemistry Ilmar Koppel spoke on the qualities of the candidate from his Division Mart Ustav.

The meeting attended to the platform speeches of Tarmo Soomere and Mart Ustav. As a result of the ballot, Member of the Academy Tarmo Soomere was elected President of the Academy for the following five years.

The third General Assembly Meeting, held in December, was convened for elections of the new Board of the Academy.

President Richard Villems gave an overview on changes in the world, primarily those related to science, within the past decade.

The President-Elect Tarmo Soomere proposed the new Board to be comprised of 16 members. General Assembly approved the structure of the Board. Tarmo Soomere presented his proposal: to elect Ergo Nõmmiste and Mart Kalm as Vice Presidents, Margus Lopp as Secretary General, Martti Raidal and Peeter Saari (Division of Physics and Astronomy), Jüri Engelbrecht and Andres Öpik (Division of Informatics and Engineering), Jaak Järv and Ülo Niinemets (Division of Biology, Geology and Chemistry) Valter Lang and Karl Pajusalu (Division of Humanities and Social Sciences) as non-executive members of the Board. A proposal was made to add Tarmo Uustalu to the list of non-executive members. The nominee withheld his consent. As a result of ballot, Ergo Nõmmiste and Mart Kalm were elected Vice Presidents, Margus Lopp was elected Secretary General and the nominees presented by President Tarmo Soomere (as above) were elected non-executive members.

General Assembly took notice of the fact that the Board comprises also the Heads of Divisions earlier elected at Divisions: in the Division of Physics and Astronomy – Jaak Aaviksoo; in the Division of Informatics and Engineering – Jakob Kübarsepp; in the Division of Biology, Geology and Chemistry – Toomas Asser and in the Division of Humanities and Social Sciences – Urmas Varblane.

Empowered by the General Assembly, the oldest Member of the Academy attending the meeting Ülo Lepik signed the employment contract with the President-Elect Tarmo Soomere.

Member of the Academy Urmas Varblane delivered a greeting from Member of the Academy Hando Runnel to the General Assembly – the 16th part of the passage “Retaining spirituality as a lifelong obligation”.

President Richard Villems and the President-Elect Tarmo Soomere delivered concluding remarks.

## **BOARD**

The Board of the Estonian Academy of Sciences worked in 2014 (until expiration of its powers on December 14) in the following composition:

President	<i>Richard Villems</i>
Vice President	<i>Jüri Engelbrecht</i>
Vice President	<i>Mart Ustav</i>
Secretary General	<i>Leo Mõtus</i>
Head of Division of Physics and Astronomy	<i>Jaak Aaviksoo</i>
Head of Division of Informatics and Engineering	<i>Tarmo Soomere</i>
Head of Division of Biology, Geology and Chemistry	<i>Ilmar Koppel</i>
Head of Division of Humanities and Social Sciences	<i>Urmas Varblane</i>

Non-executive members

*Ene Ergma  
Ain-Elmar Kaasik  
Mati Karelson  
Endel Lippmaa  
Enn Mellikov  
Peeter Saari  
Peeter Tulviste  
Enn Tõugu*

From December 15, 2014 Board of the Academy proceeded in the following composition:

President	<i>Tarmo Soomere</i>
Vice President	<i>Ergo Nõmmiste</i>
Vice President	<i>Mart Kalm</i>
Secretary General	<i>Margus Lopp</i>
Head of Division of Physics and Astronomy	<i>Jaak Aaviksoo</i>
Head of Division of Informatics and Engineering	<i>Jakob Kübarsepp</i>
Head of Division of Biology, Geology and Chemistry	<i>Toomas Asser</i>
Head of Division of Humanities and Social Sciences	<i>Urmas Varblane</i>
Non-executive members	<i>Jüri Engelbrecht Jaak Järv Valter Lang Ülo Niinemets Karl Pajusalu Martti Raidal Peeter Saari Andres Öpik</i>

The Board held 8 working meetings during the year. Once, the decision was passed under the procedure of electronic poll.

At the beginning of the year the Board, reckoning with the proposals of the Divisions, considered and approved the Academy's calendar schedule of events for 2014.

Due to the approaching elections of the Board, the election-related issues were repeatedly discussed at the Board meetings, reports of the Division meetings were heard, as well as election results of Heads of Divisions and proposals on Presidential nominees. At the end of the year President-Elect Tarmo Soomere put to discussion the plans on composition of the next Board, basing on opinions and propositions of former Board members. After the new Board had been elected, President suggested changes in its work organisation, considering expediency of combining Board meetings with seminars or conferences and holding such meetings also outside the Academy, aiming to attract a wider audience for the related event.

In spring, the Board decided to announce the Student Research Paper Contest and approved the composition of the contest jury (chaired by Georg Liidja). On October 27 Georg Liidja informed the Board about the results of the contest. The meeting was followed by a conference, where three laureates gave talks on their prize-winning papers, and by an award ceremony (see p. 41).

In January, the Board heard the first-year reports of Research Professors Tõnis Timmusk, Rein Ahas and Anu Realo and approved the plans and budgets for their second working year. At the end of that year, Research Professors Tõnis Timmusk and Rein Ahas reported to the Board again; the Board approved their reports as well as the plans and budgets for their third working year. The report of Research Professor Anu Realo was postponed to the January-February 2015 however the Board decided to provisionally open funding for her third working year.

Board approved the draft amendment of the Order no. 640 of Minister of Education and Research of July 28, 2006 “Approval of R&D classification scheme used in the Estonian Research Portal”.

The Board considered in detail the problem of rational and economically efficient use and sustainable conservation of Estonian natural resources. At the beginning of year, a respective committee (under supervision of Member of the Academy Dimitri Kaljo) had been set up to devise a science-based position. At the May meeting, a report of the committee was heard. The Board decided to recommend the Government to suspend the creation of Nabala Ecological Reserve within the confines requested, setting as the goal the achievement of a compromise between use of mineral deposits and preservation of natural objects actually in need of protection.

The Board authorised the Institute for Advanced Study to participate at drafting the principles and documentation of the new round of Centres of Excellence and for setting up other inter-institutional working groups, viz. for tackling the continuity problems of R&D funding and long-term strategy for the researcher career.

Discussions and decision-making in issues related to current work required a significant amount of time of the Board. In April the Board considered and submitted to the General Assembly for approval the implementation of the consolidated budget for 2013 and the budget 2014. The Board heard activity reports of standing committees and councils of the Academy. It was decided to terminate the activity of Estonian National Committee of the UNESCO International Hydrology Programme as a standing committee of the Academy, due to the transfer of its functions to the Ministry of the Environment. The Board re-appointed Ülo Niine the Director of the Academy Publishers for the following five years and approved the composition of research council of the Under and Tuglas Literature Centre. The employment contract of Director of

the Centre was about to expire, so the Board announced a vacancy. The Board assigned the usufructuary rights over the property situated at Vabaduse Rd 12/ Väikese Illimari St 12, to the Under and Tuglas Literature Centre. The Board was informed about use of the yield of the Estonian Academy of Sciences sub-foundation at Estonian National Culture Foundation. It was decided to award the Paul Ariste Memorial Medal to Member of the Academy Arvo Krikmann and the Wilhelm Ostwald Memorial Medal to Member of the Academy Mati Karelson.

Upon proposal of editorial boards of the concerned journals, the Board decided to merge the Estonian Journal of Engineering with the Proceedings of the Estonian Academy of Sciences and the Estonian Journal of Ecology with the Estonian Journal of Earth Sciences and Proceedings of the Estonian Academy of Sciences.

The Board nominated candidates for membership in the evaluation committee of the Estonian Research Council: senior researcher of the Estonian Literary Museum Mari Sarv, Head of Institute of History and Archaeology of the University of Tartu Anti Selart and Associate Professor of History of Culture of Tallinn University Marek Tamm. Member of the Academy Mart Saarma was nominated into composition of Board of Governors of Tallinn University of Technology. Professor of Tallinn University of Technology Rein Vaikmäe was appointed to represent the Academy in the working group analysing the options of observer status for Estonia at the Arctic Council. Member of the Academy Urmas Varblane was nominated into working group on research funding, to be created at Ministry of Education and Research. Member of the Academy Tarmo Soomere was nominated representative of the Academy to the governmental committee formed for the centenary celebrations of the Republic of Estonia. Member of the Academy Ülo Niinemets was appointed to represent the Academy in the council of the project “Estonian national climate change adaptation strategy and elaboration of the proposal of implementation plan”. The Board decided to support the ideas presented by the council of the Estonian Cooperation Assembly on renewal of the ECA’s foundation document (the Charter); however nomination of the member from the Academy in the council was postponed. The Board took notice of the proposal made by the Tina St. 21A house committee to set up the memorial bas-relief of Member of the Academy Karl Rebane who had resided in that building in 1985-2007.

## DIVISIONS<sup>1</sup>

### DIVISION OF ASTRONOMY AND PHYSICS

The Division of Astronomy and Physics held two meetings in 2014: in February and September. The nomination for the Harald Keres Medal, organisation of scientific meetings for the youth, electing the President of the Academy and some other issues were under consideration. The Division proposed to the Board to award the Harald Keres Medal to Member of the Academy Ülo Lepik.

April 4 – an event to those interested in physics was held in the conference hall of the University of Tartu Library. Dispute on the topic “In quest for dark matter” was held by Members of the Academy Jaan Einasto and Martti Raidal. A leader of the Estonian satellite (ESTCube-1) project Mart Noorma moderated the event.

June 30 – seminar dedicated to the 85th anniversary of Member of the Academy Ülo Lumiste.

August 25–26 – festive opening of the new building of Institute of Physics (Physicum) in Tartu, seconded by the conference “40 years of spectral notching”.

September 23 – the Division participated actively at the debate with Presidential nominees arranged by Division of Humanities and Social Sciences in the conference hall of the University of Tartu Library.

Members of the Division represented the Academy in several decision-making and advisory bodies for science administration (see “Membership”).

### DIVISION OF INFORMATICS AND ENGINEERING

In 2014, there was one electronic Division assembly, and two meetings of the Division assembly.

February 5-6 – the Division assembly in the form of electronic poll was held. On the agenda was the issue of merging the Estonian Journal of Engineering (EJE) with the Proceedings of the Estonian Academy of Sciences (PEAS). The PEAS is reflected in practically all databases, where the EJE is reflected, moreover also in the Thomson Reuters Web of Science (formerly ISI Web of Knowledge) database. In case of a merger the frequency of release will increase and total administration costs will decrease. The EJE editors and editorial board will be included *in corpore* into numbers of the PEAS editors and members of editorial board; the articles in engineering will be published in the PEAS under a separate section “Engineering” in the same annual

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<sup>1</sup> Composed according to materials submitted by Heads of Divisions Jaak Aaviksoo, Tarmo Soomere, Ilmar Koppel and Urmas Varblane.

volume, as the present volume of articles of the EJE. The procedure of compiling special issues will stay as it is, and the agreed special issues are released as the PEAS special issues. The essential work and process of publishing will not change and all present agreements with the EJE will transfer to the PEAS. Members of the Division were asked for their opinion whether such merger under above conditions would be feasible or should the release of the Estonian Journal of Engineering continue as is.

September 3 – regular Division assembly meeting was held. Andrus Salupere reported on the activities in 2009-2014 of the Estonian National Committee for Mechanics. The Committee had organised the days of mechanics and Nikolai Alumäe lectures on a regular basis, and was representing Estonia in International Union of Theoretical and Applied Mechanics (IUTAM). Moving to Estonia of the IUTAM symposium (Complexity of Nonlinear Waves, in September 2014) was considered of singular importance. The assembly deemed it necessary to renovate membership of the Committee and to organise longer days of mechanics attracting wider audience, for the purpose of consolidating the younger scientists active in the area. It was considered expedient to seek setting up of a doctoral school in mechanics in the new structural funds period. The assembly discussed nomination of candidates for presidential elections of the Academy and reached a consensus on proposing Tarmo Soomere as the nominee for Presidency. It recommended defining 2-3 essential tasks for the new leadership of the Academy to be focused on, and also formulating the composing principles of the new leadership in greater detail. The assembly reminisced about the tenets of partnership of the Academy of Sciences and Tallinn University of Technology. The respective protocol decision had been made in the Division in 2011. The first joint event had been a discussion on the quality of doctoral studies in the University in March 2012, followed by a public seminar in the Academy of Sciences in autumn of the same year. In January and November 2013, pointed discussions had taken place on reform of research funding and introduction of the system of institutional and personal research grants. The eventual outcome of those discussions was the forum in Tartu in February 2014. As a new form of partnership, Member of the Academy Raimund Ubar (Laureate of the Nikolai Alumäe Medal) gave a talk “Reverence for science” in the main building of Tallinn University of Technology on September 29. The assembly judged it necessary for this kind of initiative to evolve, in the longer perspective, into partnership of the Academy and (all) universities. The assembly considered the possibility of organising joint discussions with Ministries of key areas, representatives of scientific unions and large industry. It took cognisance of the facts that Member of the Academy Mart Saarma had been nominated a member of the Board of Governors of Tallinn University of Technology, that Minister of Education and Research contemplated the idea of a small *ad hoc* working group (including also a representative of the Academy) designed for analysis of the funding

related issues. The assembly compared the research fields classification scheme presently in use in Estonia and the actual scientific landscape. Members of the Division unanimously agreed that integration of natural sciences and engineering into one classification entity had not been reasonable nor was it sustainable. It was in the best interests of Estonian science to keep engineering apart from natural sciences. It was deemed expedient to follow the principles employed in the international classifier (so-called Frascati manual) widely used in Europe and in Estonia, and also the practice as set down in the Acts of two leading Estonian universities (the University of Tartu and Tallinn University of Technology), under which engineering is referred to a separate domain.

November 20 – regular Division assembly meeting, electing Jakob Kübarsepp Head of Division and supporting candidacy of Jüri Engelbrecht to the vacancy of non-executive member of the Academy Board. The assembly felt it necessary that an expert in information and telecommunication sciences should be on the Board, Tarmo Uustalu and Jaak Vilo being considered as the suitable candidates. In the context of coming Rector election of Tallinn University of Technology, the assembly put emphasis on the strategic importance for the Estonian state and economy of that University, training a majority of present and future engineers employed in Estonia, and being simultaneously a research university. Therefore, at electing a new rector, the need to bolster up both these aspects must prevail: the scope and quality of engineering education and the related research. The assembly discussed the latest developments in Estonian-Finnish consultations in respect to building the LNG regional terminal and gas pipe Balticconnector. Chairman of the Academy Energy Council Arvi Hamburg informed the assembly about the proceedings starting from 2008. It was acknowledged that the leading experts in the domain (Tallinn University of Technology, the Academy, and the Energy Council) had knowingly not been consulted before the developments in question. Apparently a dramatically novel situation had emerged (regional terminal in Finland, gas-holder in Latvia, another terminal in Lithuania), drastically differing from the past recommendations delivered to the European Commission by internationally acclaimed experts (e.g. Booz&Co, 2012). In fact, no analysis of the situation on hand exists, wherefore the decisions of the Prime Minister and the steps taken cannot be presently either criticised or supported. The assembly however voiced concern over the fact that the relevant decisions had been taken without the science-based considerations.

September 17 – seminar “Population, Security Risks and Environment” held in the Academy Hall co-organised by the Division. As the key issue, the talkers tackled possibilities for quantification and assessment of the extent of risk from various sources that people could be exposed to.

The Academy is represented in European Marine Board (Tarmo Soomere), in European Academies’ Science Advisory Council (EASAC, Leo Mõtus), in



EASAC Environment Steering Panel (Tarmo Soomere) and EASAC Energy Steering Panel (Enn Lust). In cooperation with the Committee on Marine Sciences of the Academy, the Division continued organising Sparkling Seminars focusing on marine, lake and coastal science (February 4 – Tarmo Soomere “Waves of the Baltic Sea in the vortex of changes” at the Estonian Marine Institute of the University of Tartu; May 5 – Henn Ojaveer “Invasions of alien species: fighting a losing battle or nursing a glimmering hope?” at the Ministry of the Environment). At autumn semester, three marine and coastal science crash-course days were organised (on March 3 and September 22 at Institute of Cybernetics of Tallinn University of Technology, on December 8 on the Academy premises).

The Division organised several events in Estonia. Centre of Excellence CEBE (Raimund Ubar) held the conference “Necessary techniques to support the integral e-health” (October 9). The network of European Schools for Advanced Engineering Education and Research (CESAER; unites over 50 universities of technology and classical universities with engineering departments from 25 countries) held its annual three-days-long events (October 15-17) in Estonia for the first time. The events were of major importance to Estonian engineering and respective higher education; they included a scientific seminar “Widening Participation” (Chairman of the Steering Committee Jakob Kübarsepp). Centre of Excellence CENS (Jüri Engelbrecht) and Institute of Cybernetics of Tallinn University of Technology organised the IUTAM symposium “Complexity of Nonlinear Waves” (September 8-12) that drew 60 participants from 18 countries. Proceedings of the Symposium will be published in the Proceedings of the Estonian Academy of Sciences in 2015. Arvo Ots was member of the organising committee of the 7th Baltic Heat Transfer Conference (August 24-26, Tallinn). Photo-Elasticity Laboratory of the Institute of Cybernetics of Tallinn University of Technology (Hillar Aben) and OÜ Glasstress organised in Tallinn the 14th International Glass Stress Summer School. The 19th Estonian Winter School in Computer Science (EWSCS 14) at Palmse and the Estonian Computer Science Theory Days at Narva Jõesuu were organised by Tarmo Uustalu.

Members of the Division were among initiators of several events held abroad. Tarmo Soomere was invited a panel speaker to the major European marine science policy conference EurOCEAN 2014 (Rome, October 2014) and participated in the task force for drafting the so-called Rome Declaration adopted at this conference. He was also the main promoter of the competence transfer events (under Tempus programme SESREMO) held on November 1 and 14 in Tallinn and on November 2 and 13 in Klaipeda. Jakob Kübarsepp was member of international scientific committee of the 23rd International Baltic Conference on Materials Engineering (Kaunas, Lithuania, in October). Arvo Ots was member of the steering committee of annual international con-

ference “Plant Maintenance Life & Performance” (held in Stockholm, this year). Leo Mõtus was on the programme committee of the IEEE International Multi-Disciplinary Conference on Cognitive Methods in Situation Awareness and Decision Support (CogSIMA; San Antonio, Texas, US; in March 2014); he delivered a keynote speech. Raimund Ubar was co-promoter of the IEEE East-West Design & Test Symposium (EWDTS; Kiev, Ukraine, in September 2014) and member of programme committees of several international conferences. Tarmo Uustalu was member of programme committees of the 15th International Symposium on Trends in Functional Programming (TFP14; Soesterberg, the Netherlands, in May 2014) and the 26th Nordic Workshop on Programming Theory (NWPT 14; Halmstadt, Sweden, in October 2014).

Members of the Division continued their activities in research as well as in various organisations and assemblies responsible for R&D administration, policy and funding at national and European levels; see “Membership” and “International Foreign Relations”. They continued vigorous cooperation with the Estonian Association of Engineers, and participated in devising the Research and Technology Pact.

The work of the Academy and Members of the Academy towards raising visibility of the Academy in the Estonian media yielded significant results. The newspapers Sirp, Postimees and Eesti Päevaleht released several pieces of writing and essays by Jüri Engelbrecht, Raimund Ubar, Tarmo Soomere and Tarmo Uustalu. Professor Andres Õpik spoke on KUKU radio in July and in October 2014, presenting the solar energy research done at Tallinn University of Technology, and the Baltic Polymer Symposium 2014.

#### DIVISION OF BIOLOGY, GEOLOGY AND CHEMISTRY

In 2014, three extended Board meetings and two Division meetings (one of them online) were held.

January 3-11 – the online meeting discussed the report for 2013 and approved the plan of major events in 2014.

September 11 – the meeting took a vote on nominating Member of the Academy Mart Ustav as candidate for Presidency of the Academy. The vote resulted in the decision to support Mart Ustav as presidential candidate. At the same meeting, Member of the Academy Toomas Asser was elected new Head of the Division for the period December 15, 2014 - December 14, 2019.

January 20 – upon proposal of the Division, the Board of the Academy set up an expert committee for analysing stock and employment of Estonian natural resources, particularly in view of governmental intentions of setting up Nabala Ecological Reserve, as pointed out by Minister of Education Jaak Aaviksoo. The committee was approved in the composition Urmas Tartes, Ülo Niinemets, Kalle Kirsimäe, Dimitri Kaljo, Anto Raukas, Enno Reinsalu

and Martin Zobel. Dimitri Kaljo was nominated to chair the committee. The results were summed up at the Board meeting of the Academy on May 19. The Board decided to advise the Government to suspend creation of Nabala Ecological Reserve within the borders presently applied for, setting as the goal the achievement of a compromise between use of mineral deposits and preservation of natural objects actually in need of protection. The decision was despatched to the Government, Parliament (Riigikogu) and Members of the Academy. The Government took the final decision on Nabala Ecological Reserve on November 15, approving formation of the said Reserve.

December 3 – General Assembly of the Academy elected Margus Lopp from the Division as Secretary General, Jaak Järv and Ülo Niinemets as non-executive members of the Academy Board. Toomas Asser as Head of Division is *ex officio* also member of the Academy Board.

Members of the Division represented the Academy in several decision-making bodies for science administration (see “Membership”).

#### DIVISION OF HUMANITIES AND SOCIAL SCIENCES

In 2014, the Division held three meetings. Poll, conducted in February and the meeting held on September 23 focussed on awarding the Paul Ariste Medal, current work issues and discussions on candidate for Presidency of the Academy. In anticipation of the final decision, a public debate was held at the University of Tartu Library with Presidential nominees. Representatives of all Divisions attended.

January 6 – representatives of the Võru County Government visited the Tartu office of the Division, in order to coordinate the details of follow-up to the Academy Science Day.

February 17 – a similar visit occurred in the Academy House and at Literature Centre in Väikese Illimari St.

March 23 – a follow-up to the Science Day moderated by Member of the Academy Urmas Varblane at Võru Fr.R.Kreutzwald Gymnasium, focusing on topical issues of the world economy and career opportunities. Professors Maaja Vadi and Raul Eamets (University of Tartu) delivered talks.

May 22-23 – the Academy Science Day at Saaremaa was held, organised by the Division. After the lectures, the Kudjape cemetery, the company Sporrong Eesti OÜ, the Angla Heritage Culture Centre, the Maasi Fort-Castle and the boat building company Alunaut OÜ were visited.

August 18 – the Academy House hosted the symposium “Scala Naturae: Symposium in Honour of Arvo Krikmann’s 75th Birthday”. Foreign Member of the Academy Yuri Berezkin made a speech and so did Arvo Krikmann’s students and other international colleagues.

September 17 – the seminar “Population, Security Risks and Environment” organised jointly with the Division of Informatics and Engineering. The seminar was attended by representatives of schools and municipalities of Võru County.

October 29 – the meeting “Geography at Service of the Society” was held at Parksepa Secondary School in Võru County. Members of Research Professor Rein Ahas's working group spoke on the topic.

The Division presented Member of the Academy Arvo Krikmann to be awarded the Paul Ariste Medal.

Members of the Division represented the Academy in several decision-making bodies for science administration (see “Membership”).

## **COUNCILS, COMMITTEES**

### **COMMITTEE ON METEORITICS**

Set up in 1954

Chairman Jüri Plado, PhD

In Estonia, research in meteoritics is carried out at the University of Tartu, Institute of Geology of Tallinn University of Technology and Geological Survey of Estonia. The main objects explored in 2014 were:

- Geological and geophysical research of the Kaali material and meteorite crater (Department of Geology of the University of Tartu);
- Seismic surveys of the Dobeles meteorite crater in Latvia (Department of Geology of the University of Tartu);
- Sedimentological research of L-chondrite meteorite fallout dating 470 million years back (Department of Geology of the University of Tartu).

In that year, the following graduation papers on meteoritics were defended in the University of Tartu: R.Hantson on the topic “Sulphide mineralisation in the North Eastern part of the circumvallation of the Kärddla crater” (supervisor M.Gaškov) and K. Tamm on the topic “Eventual use of the Kaali meteorite in Saaremaa’s smithies” (supervisor J.Plado).

May 20-22 – Kalle Kirsimäe and Rudolf Välja participated at the conference “Biosignatures Across Space and Time” held at Bergen University.

August 24-31 – field works at the Kaali crater were attended by 9 doctoral students and scientists from the USA, Austria, Estonia, Poland and Sweden. Seismic surveys of the Dobeles meteorite crater in Latvia were carried out under supervision of Argo Jõelet.

During the year the employees of the Natural History Museum and Department of Geology (University of Tartu), Institute of Geology (Tallinn Univer-

sity of Technology) and Geological Survey of Estonia gave consultations on various meteoritics related issues to citizens and officials.

## COMMITTEE ON NATURE CONSERVATION

Set up in 1955

Chairman Urmas Tartes, Professor

The Committee on Nature Conservation at the Estonian Academy of Sciences continued working on the premises of the Baer House (Veski St 4) belonging to the Estonian University of Life Sciences. The Committee experienced the loss of an active member, a well-know scientist in silviculture, nature conservation activist, historian of forestry Malev Marguse. At the end of the year the Committee had 25 members.

June 12 – the traditional day on the topic “Employment and protection of the bowels of the earth”. Presentations were delivered by researchers of stature (Rein Raudsep, Enn-Aavo Pirrus, Anne Põldvere, Oive Tinn, Urmas Tartes, Kaie Metsaots, Kalev Sepp, Rein Einasto and Kaupo Vipp).

The Erik Kumari Nature Conservation Prize with the Gold Badge of Distinction for nature conservation was awarded to the internationally known ornithologist Aivar Leito – student and collaborator of Kumari, on whose initiative radio and satellite monitoring of birds was implemented in Estonia.

In the Baer House, the interested visitors had a chance to see the exposition dedicated to the 80th anniversary of the journal “Eesti Loodus”, the exposition dedicated to the 135th anniversary of author and school teacher Mats Mõtslane (Mart Kiirats, 1884-1956) and the memorial exposition of the lecturer of the Department of Grassland Cultivation and Botany of the Estonian University of Life Sciences Silvi Eilart (1937-2014).

Daily work of members of the Committee is prevalently nature conservation or closely related matters.

Members of the Committee Ann Marvet, Uudo Timm, Urmas Tartes, Enn Aavo Pirrus, Vaike Hang and others participated in composing and editing the collection released in 2014 titled “The century of nature conservation. Estonian nature protection 1910-2010”. Toomas Frey continued determining the load of pollutants and monitoring the environmental state. Nikolai Laanetu gave consultations on the beaver behaviour and restoration of rivers. Enn Pirrus registered several newly discovered large boulders. Aleksander Maastik (with co-authors) compiled a textbook “Waste recycling and soil remediation”. Ann Marvet released the reference book of Estonian plant communities “Woods, bog and meadow primer”. Vilma Kuusk participated at field seminars organised by Ministry of the Environment, teaching knowledge of plants on Nedremaa park meadow, at a field seminar on water, on Tahkuranna golf course and observing on the coast meadow the state of protected plant species still surviving.

Urmas Tartes spoke at nature nights in various places of Estonia – the Sagadi nature school, the Sõmeru parish, Tallinn Zoo, Tallinn National Library, the Rāpina Gardening School, the Illuka basic school and at nature nights of the Environmental Authority at Jõgeva and Võru and at the Käsnu summer school. He held a workshop on energy consumption by plants and animals at the conference on environmental education organised by the Environmental Authority at Tartu, he supervised the bug camp of the Lilli nature house.

U.Tartes also participated in the work of the Committee set up by the Academy on rational and economically efficient use and sustainable conservation of Estonian natural resources (minerals of the bowels of earth, woods, water etc.) and their stocks. He worked on evaluation panel of contests Nature Photo of the Year, photo competition of the journal Eesti Loodus, photo competition organised by VVVS “Notice me!” and he composed the exposition on butterflies in the Sagadi forest museum. Jointly with Erki Õunap he completed the book “Estonian butterflies”.

The Committee cooperates with Ministry of the Environment and its structural institutions, Estonian Ornithologists’ Society, Estonian Naturalists’ Society, and Estonian Society for Nature Conservation.

#### ENERGY COUNCIL

Set up in 1998

Chairman Arvi Hamburg, Professor

The Energy Council held four meetings in 2014: on May 7, June 5, September 15 and November 20.

May 7 – options for development of oil-shale industry by the Eesti Energia AS in Estonia and abroad were on agenda. Chairman of Board of Eesti Energia Sandor Liive reported on strategy of Eesti Energia; Head of Development Division Indrek Aarna reported on launching the Enefit280 oil plant and pilot tests with the Utah oil-shale. The Council recommended Eesti Energia to postpone building of the distilling equipment until all bottlenecks of the Enefit280 technology would have been analysed and solutions for improvement found. The Council held it expedient to continue the R&D works in the area of hydrogenation of shale oil. The Council warned that dismembering of the concern Eesti Energia or dislocation of its essential parts would not be motivated in the absence of the prior detailed analysis.

July 5 – Arvi Hamburg presented the results of evaluation of energy sciences in 2008-2012 and recommendations contained in the report by foreign experts to Estonian energy researchers. The Council analysed the current state and discussed the promising directions. The Council decided to recommend Ministry of Economy and Communications (MKM) and Ministry of Education and Research (HTM) to initiate the energy research programme as the follow-

up to the energy technology programme or to design jointly with companies, for practical outcome, the directions and goals of the energy related development works. As another document, A.Hamburg presented the current state of the long-term development plan for Estonian energy sector (ENMAK) and the R&D chapter underway, the R&D plan of Ministry of the Environment and the national strategy TAI (R&D activity and Innovation). Members of the Energy Council pointed out that the R&D chapter of ENMAK is too much biased in favour of renewable energy. Front running the rate of development of renewable energy by ENMAK would erode the competitiveness of the economy. ENMAK should visualise a diversified energy portfolio and conduce to purposeful cooperation of different agencies at wider and prospective strategic handling of energy.

September 15 – taxation of oil shale industry on agenda. Papers were delivered by Aire Rihe (Counsellor to Ministry of the Environment (KKM)) “Ideology and goal of increasing the pollution and environmental charges by KKM”, Valdur Lahtvee (senior expert, Tallinn Centre of Stockholm Environment Institute, programme leader) “Review of the survey Impact analysis of environmental charges”, Lili Kirikal (Ernst & Young Baltic AS) “Contribution of oil-shale industry to the Estonian economy at changes of external factors (price of CO<sub>2</sub> and oil) and internal factors (tax system)” and Rein Perens (Counsellor to Hydrogeology Department of the Estonian Geological Survey) “Formation of mine water and impact of oil-shale excavation on groundwater”. The invited guests from oil-shale industries Priit Rohumaa (Chairman of Board of the VKG Grupp), Marti Hääl (Chairman of Board of the Alexela Energia AS), Jaanus Arukaevu (Counsellor to EE Board) and Rein Voog (Chairman of Board of the Union Estonian Mining Industry Companies) also got the floor. Position of Ministry of the Environment was motivated by Head of Division Kaupo Heinma. The Council took the position that the policy of systematic increasing of the environmental charges would stall the development of the oil shale energy sector and deprive the investor of investment security. The Council recommended KKM to compose much longer-term and more elaborately charted strategies (2030+) for Estonian oil shale and other natural resources. Considering the goals of the Estonian state, conclusions of studies made and basing on knowledge of its members, the Energy Council decided to advise the Government to refrain from imposing new environmental charges before the analysis of long-term impact would prove that implementation of new rates would not deteriorate the Estonian oil-shale industry’s sustainability and the energy security of Estonia.

November 20 – the meeting discussed the LNG terminal and gas system and the oil-shale industry’s sustainability. Arvi Hamburg made a review of the matters relating to the LNG terminal, starting from 2009. Marti Hääl, Chairman of Board of the Alexela Energia AS, gave an overview of the current situation. The Council admitted that the LNG regional terminal was necessary

to Estonia and technically, marine-wise and from the environmental aspect, the most suitable location was Paldiski. Balticconnector would in no case substitute the additional supply source LNG terminal. The Council was of the opinion that agreement of Estonian and Finnish Prime Ministers to build the LNG terminal in Finland and Balticconnector in Estonia implied the loss of three years to us, under the most optimistic version. It was also found that the price of gas delivered from the LNG SOS terminal was not affordable to our consumers even in the crisis situation and the Lithuania's Klaipeda floating terminal was not a feasible additional supply source to Estonia due to the price and applicable regulation of Lithuania.

Discussion on the oil-shale industry's sustainability started with presentation of the document of the European Council (October 23-24, 2014) "2030+ framework for climate and energy policy". National long-term development plan for energy sector (ENMAK) and national framework of environmental charges for 2016-2025 was a further issue brought up. Council Members concentrated on analysis of impact factors of climate changes as a complicated stochastic system, on securing the balance of uncontrollable energy production and random consumption, on Estonian energy security and price for the end consumer.

The Council agreed that the climatic phenomena must be studied with the help of complicated stochastic models, yielding more reliable results of research. The Council declared that the priorities of our energy policy were formation of the broadest possible energy portfolio, the strategy of mineral resources and the optimum sparing of resources. The Council emphasised the energy performance and efficiency as our highest priority, calling for new technologies and subsidy schemes. Oil-shale industry must be handled and optimised as an integral chain, appreciating the appropriate actions and environmental impacts. In respect of the oil industry, the Council recommended promoting new technologies; co-products of oil production, both the pyrolysis gas and waste heat of flue gas and ashes must be recovered and utilised for production of power and/or heat. Ashes must be used as raw material for cement or building materials and the phenolic water as raw material for chemistry products. Regarding the R&D, the Council recommended research in all energy domains: to develop technology, engineering devices, systems research and theory and methods of optimal management of energy systems and optimal planning of development. The Council suggested the idea of re-establishment of the Energy Research Institute. It acknowledged that Estonian oil-shale research can be exported. Our objective is securing the energy independence and the energy price affordable to the end consumer.

Members of the Energy Council participated at the joint visit by Members of the Estonian Academy of Sciences and researchers of Tallinn University of Technology to the Iru power plant of Eesti Energia AS on April 11.



## COMMITTEE ON PHYLOGENY AND TAXONOMY

Set up in 2007

Chairman Urmas Kõljalg, Member of the Academy

Committee on Phylogeny and Taxonomy participates in international and national research and development work. On the international plane, participation in the activities of the Consortium of European Taxonomic Facilities (CETAF AISBL, [www.cetaf.org](http://www.cetaf.org)) is the most important. CETAF brings together European R&D institutions owning archives related to biological diversity and geosciences. The Committee plays essentially the same role in Estonia as CETAF in Europe. The Committee coordinates the work of natural sciences collections, incl. their digitalisation.

### INTERNATIONAL ACTIVITY

Vice-Chairman of the Committee Olle Hints represented Estonia at the CETAF 36th general meeting in Austria, at Vienna Museum of Natural Science on October 14-15; 57 participants from 30 states attended. Most important items on agenda were organisational and administrative issues (hearing and approving the reports of steering bodies and working groups, deliberations on amendments of the Statute, voting etc.), discussion of strategy for the coming decade, as well as a number of specific questions, incl. impact on research of Nagoya protocol of Convention on Biological Diversity, the status and future of the European Journal of Taxonomy, the global SciColl network and the register of bio-repositories coordinated by them (through which global acronyms of institutions and collections are registered), the unique identifiers of samples etc.

The CETAF 36th general meeting was preceded by one-day seminar “Earth Sciences in CETAF” at Vienna Museum of Natural Science on October 13, with more than 30 geoscientists from Europe attending. The discussions focused on digitising geocollections and on databases in various countries and museums and the eventual pan-European cooperation projects. The participants also speculated on the share and role of geo-scientific collections and respective competence in CETAF generally. The Estonian geocollections and national database were presented in two papers, which met with ample interest.

Chairman of the Committee Urmas Kõljalg participated, since autumn 2014, in drafting the new ESFRI (The European Strategy Forum on Research Infrastructures) roadmap. The roadmap pursues the aim of creating a world leading research centre of natural science archives, being among main activities of CETAF in 2014 and 2015. U.Kõljalg also participated in the project EU BON ([www.eubon.eu](http://www.eubon.eu), European Biodiversity Observation Network), aimed at establishing for Europe a single information system and platform for sharing biodiversity data. Estonia is responsible for the work package, concerned with software development and data mobilisation.

#### INTRA-ESTONIAN ACTIVITY

The Committee continues participation in the work of the Estonian Research Infrastructures Roadmap NATARC ([natarc.ut.ee](http://natarc.ut.ee)). Urmas Kõljalg is also Chairman of the NATARC Council. Vice Chairman of the Committee Olle Hints also belongs to the NATARC Council. In 2014, a number of meetings took place with representatives of the Ministry of the Environment and Land Board. Under issue was availability of data on Estonian biological diversity and geography, incl. the open data problems. Integrated availability of natural science data for researchers and state agencies is of great importance nationally. There is no single system, enabling search and analysis of data from the same source. In 2014, the association PlutoF cloud ([plutof.ut.ee](http://plutof.ut.ee)) and EELIS ([loodus.keskkonnainfo.ee/eelis/default.aspx](http://loodus.keskkonnainfo.ee/eelis/default.aspx)) were created for simultaneous use between information systems of database of taxon names and classification of living nature. It enables saving money and is the first stage in attaining cohesion of scientific and national information of biological diversity. The Committee in cooperation with NATARC roadmap and state institutions will be tackling the information availability issues also in 2015.

Members of the Committee participated in the work of expert panel for the national programme Collections of Humanities and Natural Sciences at the Ministry of Education and Research. Olle Hints chairs the panel and Urmas Kõljalg is a member. The panel is tasked with advising the ministry on improving and funding the work of natural science archives.

Work of the Committee as keeper and promoter of Estonian natural science archives network is nationally vital.

#### COMMITTEE ON MARINE SCIENCES

Set up in 2007

Chairman Tarmo Soomere, Member of the Academy

The Committee followed the regular routine of electronic meetings in daily work. The members also met in conjunction with the Sparkling Seminars. Members of the Committee were kept informed about the news and plenary meetings of the European Marine Board (EMB).

There were three electronic polls.

- February 1 – the report of the Committee for 2013 was despatched electronically to the members;
- March 13-14 – members of the Committee discussed the possibility of finding an expert for the working group of Marine Graduate Training to be created by EMB;
- August 28-29 – discussion on principles of the Rome Declaration.

The Committee organised two Sparkling Seminars focussing on marine, lake and coastal science: on February 4, at the Estonian Marine Institute of the University of Tartu (speaker Tarmo Soomere, “Waves of the Baltic Sea in the

vortex of changes”) and on April 5, at Ministry of the Environment (speaker Henn Ojaveer, “Invasion of alien species: fighting a losing battle or nursing a glimmering hope?”). The concept of seminars is to present the very best and most visible part of the Estonian marine science. The target group are younger researchers and aspirants to science who need a condense overview of the matters on cutting edge of research.

Three marine and coastal science crash-course days were organised (on March 3, September 22 and December 8).

Chairman of the Committee Tarmo Soomere participated at the Executive Committee meeting of the European Marine Board in Brussels (in January), at the Executive Committee meeting and summer plenary meeting in Brest, France (in May), at the meetings of the Executive Committee and the Rome Declaration drafting team in Brussels (in September), at autumn plenary meeting in Rome (in October). A singular token of recognition was the invitation extended to Tarmo Soomere to participate in the panel discussion “Addressing complex seas and oceans challenges: how can we cross the disciplines more effectively” at the European marine science policy conference EurOCEAN-2014 (in October).

Within framework of the visit to Estonia by Crown Princess of Sweden Victoria, Tarmo Soomere met with Minister of Higher Education and Research of Sweden Helene Hellmark Knutsson, with whom he discussed the possible membership of Sweden in the European Marine Board. At meetings of T. Soomere with the Rector of Klaipėda University Professor Eimutis Juzeliūnas and Vice Rector Saulius Gulbinskis (in November) the parties discussed the perspectives for cooperation of Estonia and Lithuania in marine sciences and the representation of Lithuania in the European Marine Board.

T. Soomere was nominated by the Estonian Academy of Sciences to the Environmental Panel of the European Academies’ Science Advisory Council (EASAC). He participated at March and September meetings of the Panel, at the meeting of working group on Marine Sustainability (Ispra, Italy, June) and at giving the final touch to the report of that working group. In 2013, Estonia had joined the Joint Programming Initiatives Oceans, Climate and Water. Official Estonian partner is the Ministry of the Environment. Vice Chairman of the Committee Kalle Olli was nominated one of Estonian representatives in the JPI Oceans. Member of the Committee Urmas Lips coordinated events of the Gulf of Finland Year 2014 on part of Estonia. For his contribution to the sustainability of the Gulf of Finland environment, Urmas Lips was awarded the Finnish White Rose Knighthood Cross, 1st Class.

Members of the Committee attended science policy conferences in the Baltic Sea region. Tarmo Soomere gave an opening speech “Seaborne risks on Estonian coast” at the seminar “Population, Security Risks and Environment” (Tallinn, Academy of Sciences, September 17). At the Baltic Earth initiative

and Gulf of Finland Year 2014 joint meeting “Using Modelling as a Tool to Ensure Sustainable Development of the Gulf of Finland-Baltic Sea Ecosystem” (Helsinki, Finnish Environment Institute SYKE, in November), T.Soomere and U.Lips delivered keynote talks (“Major natural hazards in the Gulf of Finland”; “General physical forcing of the Gulf of Finland area, and how the forcing affects the ecosystems”).

Chairman of the Committee T.Soomere is an observer at the inter-ministerial coordination committee on marine, sea protection and pollution prevention issues, set up by the Ministry of the Environment. Marine Environment Division of the Ministry invited members of the Committee to advise their officers on devising the concept of the Marine Environment Use and Protection Act.

The Committee has continually fulfilled its main tasks, representing the Estonian marine science in the European Marine Board, and excellence of marine science at the European academic landscape; since this year also in Joint Programming Initiative Ocean, and also forwarding messages about the marine science to the society and – if necessary – advising the Government. Those activities have enlarged the opportunities to influence and design the European marine science policy; also to heighten the visibility of marine science of the Baltic Sea countries and Estonia. Nationally, the visibility of marine science – by and large through activity of the Committee – is presently excellent. The series of Sparkling Seminars and organisation of crash-course days of sea and coastal science provide splendid opportunities to realise the potential of Estonian sea and coastal science and limnology, and also to consolidate the existing competence and make it heard loud and strong.

#### STANDING COMMITTEE ON MEDICAL SCIENCE AND HEALTH STRATEGY

Set up in 2011

Chairman Eero Vasar, Member of the Academy

In 2014, the Committee put main emphasis on participation in charting the Health RD&I Strategy 2015-2020. The Committee acted in the advisory role for the task force that had been set up at the Academy of Sciences and supervised by Kitty Kubo. The task force had been established as a project-based submeasure of the Health Promotion Research Programme TerVE. The TerVE programme mainly concentrates on activities aimed at advancing the national health care system, including the quality of health information. The programme has been designed to enhance R&D capacities in the health care, aiming to raise health consciousness among population and to sustainably improve the nation’s health indicators on the basis of the best science-based knowledge.

The programme has been funded by the Ministry of Social Affairs and Estonian Research Council from EU structural funds. The cost of this particular

project was 100 000 euros; it lasted from November 1, 2013 until January 31, 2015.

The following discussions were held in 2014:

- Health science and innovation strategy – discussion on aims, challenges, terms of reference (February 7);
- Workshop: State as a smart client in health care (April 1);
- Workshop: Challenges of antibiotic resistance and R&D capacity (April 28);
- Workshop: Physician, medical research and innovation (May 27);
- Workshop: Estonian health care programme. Lessons learned (May 30);
- Workshop: Registers and databases (June 17);
- Workshop: Trends affecting the future of health care; their implications (August 21);
- Workshop: Impediments of innovative companies of the health sphere; the ways of solution (August 21);
- Workshop: What is to be done for the progress of clinical medications research in Estonia? (September 3);
- Joint meeting of the Committee and the project Steering Committee discussed the concept of goals of the strategy and considered observations stemming from the discussions and analysis stage of the strategy process (October 22);
- Joint meeting of the Committee and the project Steering Committee discussed the pilot project for implementation of personalised medicine in health care (December 1).

As the next stage, the results of the work done will be analysed and synthesised into the strategy. Draft of the strategy is available at [tervistaistrateegia.ee/1653775417878/materjalid](http://tervistaistrateegia.ee/1653775417878/materjalid).

#### COUNCIL FOR ESTONIAN CENTRES OF EXCELLENCE IN RESEARCH

Set up in 2012

Chairman Jüri Engelbrecht, Member of the Academy

In April-May of 2014 the Centres of Excellence held online consultations, discussing the essence of the Centres, in order to coordinate ideas about principles of the new Regulation on Centres of Excellence (intended to guide the following period, starting in 2015). For drafting the Regulation, a working group had been set up at the Institute for Advanced Study (IAS). The team comprised the heads of three Centres of Excellence – Martin Zobel (in charge of the task), Valter Lang, Jüri Engelbrecht; several researchers involved in the Centres of Excellence, officials of Ministry of Education and Research. Summary of the consultations was forwarded to the IAS working group:

- Quality of research i.e. excellence as comparable globally within the confines of the respective domain (speciality) is to be primary; no standards of absolute value to be imposed.
- Earlier activity (incl. collaborative research of the teams) and the re-research programme should be considered relevant; interdisciplinarity must be valued.
- Funding for Centres of Excellence has to be kept apart from other financing instruments (infrastructure, roadmap, programmes, etc.).
- Nationally important areas must be covered with national programmes.
- To avoid agglomeration, Centres of Excellence ought to be distributed among areas of research and this definitely calls for prior decisions; areas of research would dictate the selection of foreign reviewers.
- The two-stage application process should be applied (lack of time is no excuse!); at stage two, the evaluation should include *in situ* visits.

Basing on above positions, the definition of a research group of the Centre of Excellence was specified as not being rigidly pegged to the former funding units. Within the summary score covering quality of previous research and quality of action plan, the ratio of excellence has been raised and highlighted, in contrast with the former Regulation. In the meaning of the area coverage, it is the quality that matters, however not as an absolute ranking, in order to avoid prevalence of a given area. As a consequence of consultations held by the Centres of Excellence as well as discussions at a meeting of the Division of Informatics and Engineering of the Academy (on September 3), the proposal was made to separate the engineering from natural sciences in the research areas classification scheme used by Estonian Research Portal (see also Tallinn University of Technology Act). As it is the representation of area determines the selection of reviewers. The present version features the diversity of areas and the quality requirement. The two-stage principle is implemented with letter of intention and the following detailed application and two-stage evaluation process. Deplorably the *in-situ* visits have not been envisaged. The final wording of the Regulation will be available in the beginning of 2015 and the Ministry of Education and Research hopes to open the call for applications for the new Centres of Excellence in March 2015.

An important area of activities beside the work of Centres of Excellence is communication with the society and presentation of research results. Under an agreement with the magazine Horisont, a series of review articles was contemplated to present the work of Centres of Excellence. In 2014 three review articles were published (CENS, ENVIRON, FIBIR) and two are pending publication. Margus Maidla authored a book presenting Members of the Academy (“Academy of Sciences – collective brains of Estonia”); the book includes sections with short reports on Centres of Excellence. During the European Researchers’ Night Festival (September) representatives of almost

all Centres of Excellence visited schools and talked about the novel results of their studies.

#### STANDING COMMITTEE ON CYBER SECURITY

Set up in 2012

Chairman Leo Mõtus, Member of the Academy

The Committee includes Members of the Academy and representatives from several state agencies (Ministry of Justice, Ministry of Defence, Ministry of Economic Affairs and Communications, Ministry of the Interior, Government Office, and Estonian Information System Authority) and institutions (AS Cybernetica, EMT, Trustcorp, Institute of Cybernetics at Tallinn University of Technology) that are relevant in the context of cyber security.

The Standing Committee as an impartial and competent expert body studies strategic developments in cyber security both in and out of Estonia, estimates practical measures for providing cyber security in Estonia; attends to international cybersecurity cooperation, monitors education of specialists in the area, promotes (within its limits) relevant scientific research and improving pertinent competences in Estonian society.

The Committee continued cooperation with other institutions and commissions engaged in the process of composing and analysis of the Estonian Cyber Security Strategy (2014-2017); the final version of the strategy was completed in June 2014. The Standing Committee held the following meetings in 2014:

- February 25 – representatives of the Committee participated at a meeting of Cyber Security Council at Ministry of Economy and Communications. The meeting approved the final necessary alterations in the draft of the Estonian Cyber Security Strategy (2014-2017). The text of the Strategy was approved in June 2014.
- June 6 – representatives of the Committee participated at specifying the capacity building plan of the National Cyber Defence League.
- In the period June 2014 – December 2014, a dialogue and discussions on strategy issues between the Committee members and the steering group for the project “Cybersecurity research – a vision for the UK” (the Royal Society of London) was held. The dialogue will carry on. As an interim result, the Committee reached a conclusion that Estonia lacked a plan of strategic research on cyber defence, no coordinating body nor funding system existed for such research. Applied research and development, trainings and exercises are well organised in Estonia and this is indeed necessary. However, tending to emergences does not, in the long run, significantly improve our capability for early detection and mitigation of attacks.
- September-December 2014 – the Committee members exchanged opinions electronically and elaborated recommendations upon the interim

report “State-of-the-Art of Secure ICT Landscape”, a deliverable (analysis) related to European Commission Network and Information Security Platform. The members thought it necessary and beneficial for Estonia to involve Estonian experts in the working group on Secure ICT Roadmap. Due to lack of funds, no interested specialists emerged.

- October 16 – the Committee meeting discussed the measures essential for implementation of the new national Cyber Security Strategy and organisation (or rather, present lack of organisation) of the cooperation with NATO and the European Defence Agency.
- December 11 – the Committee meeting heard the review on two projects aimed at setting up a Virtual Crisis Room. The first project had been completed already; the other one was an application for the follow-up project within Horizon 2020. The project in preparation had 16 partner organisations from 5 countries. The meeting emphasised the need for Estonia to implement the follow-up project at any rate, independent of evaluation results.



## ACADEMY EVENTS

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### CONFERENCES

June 12-13 – Academy House was the venue for the conference THE APPROACHES OF LIBERAL AND ILLIBERAL GOVERNMENTS TO INTERNATIONAL LAW that was held to mark 25 years since the collapse of communist regimes in Central and Eastern European countries. The opening address was given by Lauri Mälksoo, Member of the Academy. The two-day conference comprised 21 presentations and was attended by participants from 15 countries.

27 October – Academy House was the venue for the STUDENT RESEARCH PAPER CONTEST LAUREATES CONFERENCE and award ceremony. The conference was traditionally opened by the President of the Academy Richard Villems and moderated by the chair of the jury Georg Liidja.

When the Academy initiated the Student Research Paper Contest in 1994 for finding bright young talents on the verge of their major career decisions, its primary objective was to inspire their further studies and introduce them to wider public. Now, twenty years later, nearly a dozen prize awardees of all-time have gained renown as key players in Estonian research, among them National Science Prize laureates Sulev Kõks (1994, Science Prize 2004), Anu Realo (1995, Science Prize 2010), Rainer Kattel (1996, Science Prize 2013), Indrek Ots (1996, 1997, Science Prize 2002), Hannes Kollist (1997, Science Prize 2010) and Marko Vendelin (1997, Science Prize 2008), as well as a Member of the Estonian Academy of Sciences – Lauri Mälksoo (1999, elected 2013).

The prizes were awarded to 12 young authors whose papers had been chosen from among the total of 74 works submitted to the contest.

Three young authors, presenting their prize winning papers (master's theses) at the conference, addressed a broad variety of topics ranging from genetic methods for studying mental disorders through mathematical models for nanocomposite design to impact assessment of Estonian pension system changes.

Conference papers were presented by:

*Laura Tamberg*, Tallinn University of Technology, Modelling of Pitt-Hopkins syndrome in *Drosophila melanogaster*

*Taavi Repän*, University of Tartu, Sub-wavelength imaging with hyperbolic metamaterials

*Magnus Piirits*, University of Tartu, Impact of pension system reforms in Estonia – analysis with a simulation method.

## SEMINARS

February 14 – Academy organised the seminar “The Prospects for Research Quality in Estonia” on the premises of the Estonian Biocentre’s new laboratory building. Opening addresses were given by Richard Villems, President of the Academy and Jaak Aaviksoo, Minister of Education and Research. R.Villems made some opening remarks for the following discussion over main topical issues encountered by Estonian research today with the principal aim of analysing its current status and development perspectives. He clarified the purpose and aim for launching the consequential, future-oriented process.

The range of discussants was chiefly determined by the focus of the seminar seeking to offer the key stakeholders in R&D activities an opportunity to understand current research needs more accurately and to grasp a cross-institutional overview of the actual settings in Estonian science. Invited presentations were provided by several Members of the Academy, namely Peeter Saari, Tarmo Soomere, Ilmar Koppel, Martin Zobel, Urmas Varblane, Martti Raidal, Jaan Ross and Jüri Engelbrecht, as well as by professors Irja Lutsar and Meelis Pärtel from the University of Tartu. No doubt, all of them are top level scientists, subjects for funding instruments and applicants of research grants, leaders of larger or smaller research teams.

Several questions and short talks broadened the context of problems under consideration prior to the final discussion. Short talks were given by Members of the Academy Jaak Vilo, Arved-Ervin Sapar and Jüri Allik, Head of the Estonian Research Council Andres Koppel, Director of the National Institute of Chemical Physics and Biophysics Raivo Stern, Director of the Institute of the Estonian Language Urmas Sutrop and Rector of the University of Tartu Volli Kalm.

The President of the Academy emphasised in his concluding comments the necessity for organising such meetings at least once a year in the future as well.

May 19 – Academy House hosted the seminar ESTONIA IN INTERNATIONAL SCIENTIFIC ORGANISATIONS. Jüri Engelbrecht gave a general overview of larger international science organisations where the Estonian Academy of Sciences was currently (or had been earlier) a member and whose activities it supported. Succeeding presentations approached specific aspects in the work of particular science organisations (both at European and universal levels).

Presentations were given by:

*Jüri Engelbrecht*, International scientific organisations

*Leo Mõtus*, European Academies’ Science Advisory Council (EASAC)

*Rein Vaikmäe*, Estonian Polar Research Committee

*Laurits Leedjärv*, Estonian National Committee on Astronomy  
*Tarmo Soomere*, European Marine Board

Possible positive outcomes from participating in international science organisations were contemplated in the course of a lively discussion moderated by Jüri Engelbrecht.

May 29 – Academy House was the venue for the seminar NANOPARTICLES IN THE ENVIRONMENT: FATE AND EFFECTS that was jointly organised by the Estonian Academy of Sciences, Graduate School “Functional Materials and Technologies” and the National Institute of Chemical Physics and Biophysics (NICPB). The opening address was given by Andres Õpik, Member of the Academy. The seminar approached the effects of waste-to-energy plants on air quality (based on the example of Italy), the quality of air in Estonia, nanoparticles at large and, with greater detail, their effect on living organisms. Invited presentations included:

Nanoparticles and nanotechnologies

*Anne Kahru*, NICPB, Tallinn

Biological effects of nanoparticles

*Paride Mantecca*, University of Milano-Bicocca, Milan

Air emissions from waste-to-energy plants: fine and ultrafine particles

*Giorgio Buonanno*, University of Cassino and Southern Lazio, Cassino

Estonian ambient air quality: fine and ultrafine particles

*Hans Orru*, University of Tartu

Presentations were followed by intense discussion and debate.

September 17– follow-up seminar of the Academy’s Science Day in Võru County was held at the Academy House under the title POPULATION, SECURITY RISKS AND ENVIRONMENT. The opening speech was made by Leo Mõtus, Secretary General of the Academy. Presentations discussed:

Threats emanating from the seas in the context of Estonian coastal zone

*Tarmo Soomere*, Member of the Academy

To what extent are inhabitants of Tallinn daily exposed to risk factors?

*Rein Ahas*, Research Professor, Estonian Academy of Sciences

Using passive mobile positioning data to estimate temporary population size

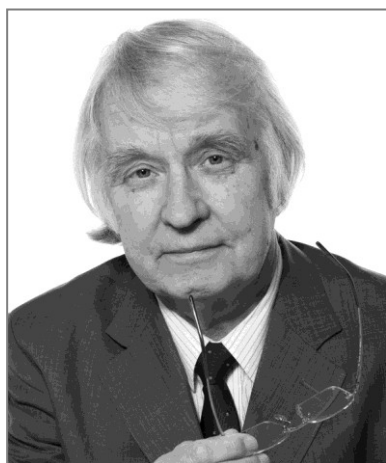
*Margus Tiru* and *Erki Saluveer*, PhD students, University of Tartu

Changes in the geographic distribution of Estonia’s population according to 2011 Census

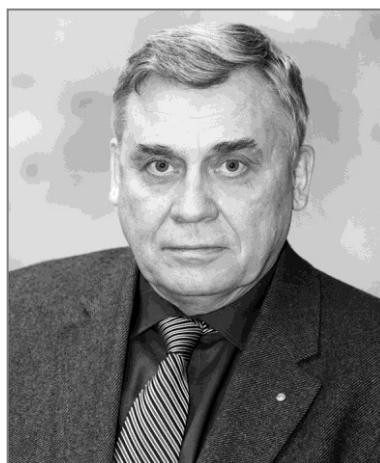
*Tiit Tammaru*, Professor, University of Tartu

The seminar was rounded off with a discussion.

## PUBLIC ACADEMIC LECTURES



September 29  
*Raimund Johannes Ubar*  
2013 Laureate of the Nikolai Alumäe  
Memorial Medal  
“Reverence for science”  
Venue: Tallinn University of  
Technology



November 27  
*Mati Karelson*  
“Challenges in modern drug  
design”  
Venue: Estonian Biocentre,  
Tartu

## MEETINGS-DISCUSSIONS

March 24 – series of lectures were organised at Võru Fr.R.Kreutzwald Gymnasium as follow-ups of the Academy’s Science Day in Võru County. The lecturers were: Urmas Varblane, Member of the Academy, Raul Eamets and Maaja Vadi, Professors, Faculty of Economics and Business Administration, the University of Tartu. The audience was primarily composed of students and teachers from various schools nearby, e.g. Võru Fr.R.Kreutzwald and Antsla Gymnasiums, Parksepa Secondary School, Meremäe and Kuldre Schools, Võru County Vocational Training Centre, plus several local government employees. Urmas Varblane spoke about the changes in global economy and in conditions for consumption, Raul Eamets focused on the conformity of Estonian educational system to the labour market and Maaja Vadi viewed working life from the angle of professional career.

April 4 – Conference Hall of the University of Tartu Library was the venue for a debate between two Members of the Academy – cosmologist Jaan Einasto and particle physicist Martti Raidal, on the topic “In search of dark matter”. The debate was moderated by Mart Noorma, project supervisor of the Estonian Student Satellite ESTCube-1 programme.

The audience was composed of research staff members of the University of Tartu, AHHA Science Centre and Tõravere Observatory; students and teachers of Tartu Hugo Treffner, Jaan Poska and Miina Härma Gymnasiums, Mart Reinik School and Kambja Basic School.

April 11 – delegation of the Estonian Academy of Sciences paid a visit to the Iru Power Plant of Eesti Energia Ltd., where they were received by Raine Pajo, Member of the Management Board of Eesti Energia for Energy Production, and Urmo Heinam, Development Manager of the Iru Power Plant. Members of the Academy watched a presentation introducing the Iru Power Plant and its waste-to-energy power unit, finished in 2013. They were also shown around the plant’s premises and had a closer look at the waste-to-energy power unit.

In addition to Members of the Academy Lembit Krumm, Leo Mõtus, Tarmo Soomere, Enn Tõugu and Mihkel Veiderma, the visit was attended by several researchers from Tallinn University of Technology and the National Institute of Chemical Physics and Biophysics, as well as members of the Academy’s Energy Council and the Estonian Association of Engineers.

May 22-23 – traditional Academy’s Science Days, organised every year alternately in one of the Estonian counties, were held for the fifteenth year and for the second time in Saare County. The Science Day at the Kuressaare Adults’ Gymnasium started with opening addresses by Governor of Saare County Kaido Kaasik and Vice-President of the Academy Jüri Engelbrecht. Presentations were given by Members of the Academy: Enn Tõugu “Mischiefs in cyberspace”, Urmas Varblane “European money: from charm to harm”, Tarmo Soomere “The coastline in dialogue with the wave”, Valter Lang “At the origins of Finno-Ugric heritage”, Jaan Einasto “The structure and development of the Earth”, Martin Zobel “Biodiversity studies at present and in the future”, Mihkel Veiderma “Ivar Karl Ugi, Foreign Member of the Estonian Academy of Sciences”, and Rein Ahas, Research Professor of the Academy “How do mobile phones benefit public administration?”. The first day ended with a walk around the historic Kudjape cemetery and laying flowers on the gravesites of Aleksander Paldrok, one of the first twelve Members of the Academy, and a renowned surgeon of Saaremaa Ants Haavel.

The programme of the second day included visiting of Sporrong OÜ (LLC) – Estonian facility of one of Sweden’s oldest companies, the Heritage Culture Centre of Angla Windmill Park, St.Catherine’s Church in Karja, Maasi Fort-

Castle and Alunaut OÜ (LLC) – a small Estonian boat building company. Besides the above-mentioned Members of the Academy, the Science Days were attended by Arvi Freiberg, Ain-Elmar Kaasik, Margus Lopp and Peeter Saari.

October 29 – follow-up event of the Science Day in Võru County was held at Parksepa Secondary School under the title “Geography at Service of the Society”. Four young researchers of the Department of Geography, University of Tartu – Kadri Leetma, Edgar Sepp, Laura Altin and Janika Raun, got into a thought-provoking conversation with an audience composed of upper secondary students from several Võru County schools.

# **POPULARISATION OF SCIENCE**

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## **SCIENCE PROGRAMME “THE FALLING APPLE”**

“The Falling Apple”, a weekly science programme on Radio KUKU, was produced in cooperation with the Estonian Academy of Sciences, the University of Tartu, Tallinn University of Technology, the Estonian University of Life Sciences, Tallinn University and INCORP Holding LLC. The editor and main host of the programme was Margus Maidla, whereas 11 broadcasts were hosted by Arko Olesk. The total number of broadcasts in 2014 was 52 and through the year the programme was attended by 84 invited guests.

“The Falling Apple” was broadcast at Radio KUKU frequencies

- originally on the air on Sundays from 15:00 to 16:00
- replay of broadcasts at <http://podcast.kuku.ee/saated/kukkuv-oun/>

The weekly listening ratings of the programme, incl. repeat broadcasts, amounted to approx. 18 000 listeners per broadcast (according to EMOR diary-inquiry), Podcast downloading stayed at the previous year level – close to 20 000 downloads per month.

The topics of the programme were clustered into several larger thematic blocks:

### SCIENCE POLICY AND ORGANISATION OF SCIENCE

Focused interviews with guests from:

Estonian Academy of Sciences: Peeter Saari, Tarmo Soomere, Martti Raidal, Jüri Engelbrecht, Mart Kalm, Margus Lopp, Richard Villems;  
Tallinn University of Technology (TUT) – Erkki Truve (Vice-Rector for Research) and Jakob Kübarsepp (Vice-Rector for Academic Affairs); University of Tartu (UT) – Marco Kirm (Vice-Rector for Research), Irja Lutsar (Professor of Medical Microbiology); Estonian University of Life Sciences (EULS) – Ülle Jaakma (Vice-Rector of Research); Tallinn University (TLU) – Marek Tamm (Senior Research Fellow); Estonian Academy of Arts (EAA) – Signe Kivi (Rector), Toomas Tammiss (Dean, Faculty of Architecture); Institute of the Estonian Language – Urmas Sutrop (Director).

### INTRODUCTION OF ESTONIAN RESEARCH INSTITUTIONS AND MEMBERS OF THE SCIENTIFIC COMMUNITY

Discussions with new Members of the Academy elected in 2013: Andres Õpik (Professor of Physical Chemistry, TUT); Ülo Niinemets (Professor of Plant Physiology, EULS; Head, Centre of Excellence in Research on Adjusting to Environmental Changes); Jaan Aarik (Professor of Solid State Technology,

Institute of Physics, UT); Lauri Mälksoo (Executive Director, Estonian Foreign Policy Institute; Professor of International Law, UT).

Several discussion partners were affiliated with other institutions as well:

Estonian University of Life Sciences – Rando Värnik (Director, Institute of Economics and Social Sciences); Rein Drenkhan (Assistant Professor of Forest Pathology); Tallinn University – Tõnu Laas (Professor of Applied Physics), Tiiu Koff (Professor of Geoecology; Senior Researcher, Institute of Ecology); Tallinn University of Technology – Toomas Paalme (Professor of Food Processing); University of Tartu – Jaak Kikas (Director, Institute of Physics) and Ergo Nõmmiste (Professor of Spectroscopy), Jüri Saar (Professor of Criminology).

#### PRESENTATION OF NATIONAL SCIENCE PRIZE LAUREATES

Interviews with Laureate of the Lifetime Achievement Award – Ain Heinaru (Professor and Head, Chair of Genetics, Institute of Molecular and Cell Biology, UT); annual award winner in social sciences – Ellu Saar (Professor of Sociology, Institute of International and Social Studies, TLU); representatives of the annual award winning research team in engineering – Indrek Roasto and Tanel Jalakas (Senior Researchers, Department of Electrical Engineering, TUT).

#### YOUNG PEOPLE IN RESEARCH – ACHIEVEMENTS AND PROBLEMS

Topics were addressed by Margus Pedaste (Professor of Technology Education, UT), Kertu Saks (Director, Energy Discovery Centre) and Krista Fischer (Senior Researcher, Estonian Genome Center, UT).

#### RESEARCHERS' COMMENTS ON TOPICAL ISSUES HEAVILY COVERED ALL OVER THE WORLD – WHETHER AND HOW CAN THEY AFFECT OUR DAILY LIVES?

Comments were given by researchers from various institutions: University of Tartu – Kairi Kreegipuu (Senior Researcher, Institute of Psychology), Andres Metspalu (Professor of Biotechnology, Member of the Academy), Jaak Vilo (Professor of Bioinformatics, Member of the Academy), Ken Kalling (Lecturer in Medical History, Department of Public Health), Andres Merits (Professor of Applied Virology), Martin Hallik (Vice Rector for Academic Affairs), Marina Semtsenko (Researcher, Institute of Ecology and Earth Sciences), Kadri Ukrainski (Senior Research Fellow in Innovation Management; Head, Chair of Public Economics and Policy), Ilmo Sildos (Leading Research Fellow, Institute of Physics); University of Tallinn – Toomas Karjahärm (Senior Researcher, Institute of History); Tallinn University of Technology – Maarja Kruusmaa (Professor of Biorobotics), Rasmus Raag (Electronics Engineer, Centre of Biorobotics), Mihkel Koel (Leading Researcher, Chair of Analytical Chemistry, Department of Chemistry), Andres Öpik (Professor of Physical Chemistry, Department of Materials Science; Member of the Academy), Sirje Rüütel-Boudinot (Senior Research Scientist, Chair of



Molecular Diagnostics, Department of Gene Technology) and Jaanus Suurväli (Junior Researcher, Chair of Molecular Diagnostics, Department of Gene Technology)); Estonian Research Council – Liis Livin (Project Manager); National Institute of Chemical Physics and Biophysics – Kristjan Kannike (Researcher) and several others.

#### COMPETENCE CENTRES AND APPLIED RESEARCH PROJECTS

Conversations with top specialists affiliated with: Tallinn University of Technology – Jarek Kurnitski (Professor, Department of Structural Design, Faculty of Civil Engineering), Arvo Iital (Professor, Chair of Environmental Protection, Department of Environmental Engineering), Tea Varrak (Vice-Rector for Innovation and Internationalisation, Director for Innovation and Business Center Mektoory); Estonian University of Life Sciences – Helen Agasild (Research Scientist, Centre for Limnology, Institute of Agricultural and Environmental Sciences); University of Tartu – Andres Salumets (Professor, Women's Clinic, Tartu University Hospital), Urmas Varblane (Professor, Chair of International Business and Innovation, Institute of Business Administration, Member of the Academy); Competence Centre on Health Technologies – Signe Altmäe (Researcher); Viru Keemia Grupp (VKG) – Priit Rohumaa (Chairman of the Board).

#### FROM SCIENCE TO SOCIETY: ILLUSTRATIVE EXAMPLES OF SCIENCE CONTRIBUTIONS TO SOCIETAL DEVELOPMENT

Guests included representatives of: Tallinn University – Kristjan Port (Director, Faculty of Health Sciences and Sports), Tiit Land (Rector), Mihkel Kangur (Director, Institute of Ecology), Rea Raus (Head, Centre for Education for Sustainable Development); University of Tartu – Jaanus Harro (Professor, Chair of Psychophysiology, Institute of Psychology), Martin Zobel (Professor, Member of the Academy) and Mari Moora (Senior Researcher, Chair of Plant Ecology, Institute of Ecology and Earth Sciences), Pille Pruulmann-Vengerfeldt (Assoc. Professor, Chair of Media and Communication, Institute of Journalism, Communication and Information Studies), Rünno Lõhmus (Senior Researcher) and Sergei Vlassov (Researcher, Institute of Physics and Estonian Nanotechnologies Competence Center Nanolab); Elmo Tempel (Researcher, Tartu Observatory); Tallinn University of Technology – Margus Lopp (Professor, Chair of Organic Chemistry, Department of Chemistry, Member of the Academy), Andres Krumme (Professor, Head, Chair of Polymer Technology; Director, Department of Polymer Materials), Andres Öpik (Professor, Head, Chair of Physical Chemistry, Faculty of Chemical and Materials Technology, Member of the Academy); Estonian University of Life Sciences – Andres Annuk (Professor, Head, Department of Energy Engineering, Institute of Technology), Tõnu Püssa (Professor, Senior Researcher, Department of Food Hygiene and Control, Institute of Veterinary Medicine and Animal Sciences), Meelis Ots (Professor, Head, Department of Nutrition, Institute of Veterinary Medicine and Animal Sciences), Eve Veromann

(Assoc. Professor, Senior Researcher of Applied Entomology) and Luule Metspalu (Senior Researcher, Department of Plant Protection, Institute of Agricultural and Environmental Sciences); Estonian Academy of Sciences – Head of the Academy’s Provisional Committee for Rational Use of Estonia’s Natural Resources Dimitri Kaljo (Member of the Academy) and a member of the Committee Enno Reinsalu (Professor Emeritus, TUT); Estonian National Museum – Pille Runnel (Director for Research).

## **RESEARCHERS’ NIGHT 2013**

On September 21-26, more than three hundred events of the Researchers’ Night Festival took place all over Estonia. The festival reached its highlights on Friday, September 26 – on the day of the pan-European Researchers’ Night. While the Science Centre AHHAA is the project coordinator and main organiser of the events in Estonia, the Estonian Academy of Sciences and the Estonian Public Broadcasting have been partners in the organising consortium for nine years now.

The activities of 2014 focused on presenting health issues and medical research. On September 26, a Musical Science Cafe “Medicine – Science and Art” was held at the Academy House. The Science Cafe was opened by Vice-President Jüri Engelbrecht. Participants in the debate: Dr. Ain-Elmar Kaasik (Member of the Academy, Professor Emeritus of Neurology, University of Tartu) and his former students, now highly recognised specialists – Dr. Toomas Asser (Member of the Academy, Head of Neurology Clinic, University of Tartu), Dr. Toomas Toomsoo (Head of the Centre of Neurology at East Tallinn Central Hospital). A young science journalist Arko Olesk (PhD student at Tallinn University) moderated the roundtable. Academically free discussion covered several topics: art and medicine; new trends in medicine; doctor-patient contact in a globalising world; virtual and personal medicine, e-health; educational, cultural and linguistic differences, illiteracy and intelligence as components of health behaviour, etc. Musical interludes were presented by young jazz talents from the Estonian Academy of Music and Theatre: Kirke Karja (piano), Martin Kuusk (clarinet), Martin-Eero Kõresaare (bass). The audience had an opportunity to attend a guided tour around the Academy House (19th century nobleman’s town residence).

In addition, the Academy organised a number of events:

- ESTONIAN CENTRES OF EXCELLENCE IN RESEARCH VISITED DIFFERENT (REMOTE COUNTRYSIDE) SCHOOLS ALL OVER ESTONIA.
- FAIR “SCIENCE AND HEALTH” AT SOLARIS SHOPPING CENTRE – in collaboration with various partners (Estonian Health Museum, Tallinn University of Technology Museum, private companies and others), the latest medical research and technical equipment was introduced to wide

public. Additionally to the exposition the Solaris centre hosted the following events:

VIRTUAL EXHIBITION OF SCIENCE PHOTOGRAPHS on a full HD video wall (a slide show programme presenting selected works of Estonian Science Photo Contest 2011-2013);

MUSIC THERAPY CENTRE organised two workshops, introducing the latest research into the matter and demonstrating practical activities with involvement of audience;

CRISIS MANAGEMENT – a psychotherapy lecture on the nature and inevitable phases as well as the constructive force of crisis; traumatic crisis, etc.;

READING CAFE basing on David Lodge “Thinks ...” – a novel, the activities of which revolve around a university and higher education, money, personal relationships in academic world. A brief overview of literary theory was made;

FILM NIGHT – “Searching for the light” documentary premiere accompanied by an exhibition of space photographs.

- OPEN LABS: National Institute of Chemical Physics and Biophysics – guided tour at the Laboratory of Bioenergetics; Department of Gene Technology at Tallinn University of Technology – a guided tour around genetic engineering laboratories; Competence Centre of Food and Fermentation Technologies – insights into laboratory work and methods of healthy food technologies from researchers.

The European Researchers’ Night project is co-funded by the European Commission under the Marie Skłodowska-Curie actions. On September 26, an official observer of the European Commission, Mr. Gauthier Grousset visited Tallinn and was guided through the event locations.

## **ACADEMY MEDALS, AWARDS**

### **MEMORIAL MEDALS OF THE ACADEMY**

In 2014 the Board of the Estonian Academy of Sciences decided to confer the Wilhelm Ostwald Memorial Medal on

*Mati Karelson*

and

the Harald Keres Memorial Medal on

*Ülo Lepik.*

The medals were handed over during the General Assembly Meeting on 15 October.

The Board further decided to confer the Paul Ariste Memorial Medal on

*Arvo Krikman.*

The medal was handed over during the Annual General Assembly on 23 April.

### **STUDENT RESEARCH PAPER PRIZES**

The Academy received 74 works to the 2014 Student Research Paper Contest. The papers were examined by the contest jury, chaired by Georg Liidja (Chair) and including Mati Karelson, Lauri Mälksoo, Enn Tõugu, Jaan Undusk, Gennadi Vainikko and Urmas Varblane as experts.

The Panel decided to grant 12 prizes (á 400 Euro) to the following papers:

*Johannes Heinsoo* (Swiss Federal Institute of Technology Zurich) MSc thesis “High-quality two-qubit quantum operations”

*Kaia Kalev* (Tallinn University of Technology) BSc thesis “Selection of EEG frequency bands for detection of depression”

*Tatjana Kudrjavnseva* (University of Tartu) MA thesis “The role of personality traits and socio-demographic characteristics in customer loyalty by the example of non-alcoholic beverage consumption in Estonia”;

*Meeri Lembinen* (University of Tartu) MSc thesis “Spectral dependence of the orientation and the size of metallic nanorods”;

*Kadi Lõhmussaar* (University of Tartu) BSc thesis “Studying the LGR5 and R-spondin 1 interactions in mammal cells”;

*Sven Oras* (University of Tartu) MSc thesis “Studying the tribological properties of Au and Ag nanoparticles inside a scanning electron microscope”;

*Magnus Piirits* (University of Tartu) MA thesis “Impact of pension system reforms in Estonia – analysis with a simulation method”;

*Hendrick Rang* (University of Tartu) MA thesis “Actualisation of the right to use the Estonian Sign Language in Estonia”;

*Taavi Repän* (University of Tartu) MSc thesis “Sub-wavelength imaging with hyperbolic metamaterials”;

*Laura Tamberg* (Tallinn University of Technology) MSc thesis “Modelling of Pitt-Hopkins Syndrome in *Drosophila melanogaster*”;

*Kaur Tuttelberg* (KTH Royal Institute of Technology) MSc thesis “STORM in Monte Carlo reactor physics calculations”;

*Sergei Veršinin* (University of Tartu) MA thesis “Images of the future devised by the Estonian left-wing parties over the period 1918-1934”.

## **ESTONIAN SCIENCE COMMUNICATION AWARD**

The Estonian Science Communication Award is an annual state award that has been granted since 2006 for science communication activities aimed at Estonian audience. Funded by the Ministry of Education and Research, prizes are jointly awarded by the ministry, the Estonian Academy of Sciences and the Estonian Research Council. The competition was held in 2012 for the ninth year.

The purpose of this award is to give recognition to individuals, groups and organisations, who have succeeded in capturing public’s attention to science and researchers, and have accomplished to attract young people to research profession. Candidates, people and actions alike, are nominated in six categories.

Award winners in all categories of the competition are entitled to use a specific symbol logo designed for nationally renowned science communicators – “Riiklikult tunnustatud teaduse populariseerija”, which is recognised as the mark of quality and trust bestowed on individuals and collectives performing in this area.

This year the Appraisal Panel resolved to refrain from granting the Grand Prize in the category “Popularising science and technology through audio-visual and electronic media” and the Motivation Prize in the category “Best science communicator (researcher, journalist, teacher, etc.)”. The unawarded prize money was reassigned to other categories: an additional Grand Prize in the category “Actions/series of actions for communication of science and technology” and a second Motivation Prize in the category “Popularising science and technology through the written word”.

The Tiiu Sild Memorial Lifetime Achievement Award for long-standing conscientious commitment to public communication of science and technology was granted to

*Viire Sepp*, long-standing contribution to furtherance of activities for supporting gifted children in Estonia

In the category “Popularising science and technology through audiovisual and electronic media”

- Motivation Prize: Jänku Juss ja robootika (Bunny-Juss and robotics), Lasteveeb OÜ, CEO Janika Leoste

In the category “Popularising science and technology through the written word”

- Grand Prize: “Matemaatika õhtuõpik” (Evening companion to maths), authors Juhan Aru, Kristjan Korjus and Elis Saar
- Motivation Prize: “Imekaunis Antarktika, pühendatud teadusele” (Amazing Antarctica, devoted to science), author Enn Kaup
- Motivation Prize: Children’s popular science magazine “Minu Maailm” (My world), publisher Sunwells OÜ, project manager Külli Koort

In the category “Actions/series of actions for communication of science and technology”

- Grand Prize: Reopening of the Energy Discovery Centre – the largest education and visitor centre in Northern Estonia that offers informal education based on experiential learning, with its renovated exposition areas, exhibitions and programmes, Energy Discovery Centre, director Kertu Saks
- Grand Prize: long-standing coordination of the Researchers’ Night Festival, Science Centre AHHAA Foundation, project manager Helin Haga
- Motivation Prize: efficient popularisation of the environmental engineering specialty course taught at Tallinn University of Technology through the project “Päikeseenergiast energiasäästlike hooneteni” (From solar energy to energy efficient buildings), project manager Hendrik Voll

In the category “ Best science communicator (researcher, journalist, teacher, etc.)”

- Grand Prize: Signe Lensment (Kilingi-Nõmme Gymnasium, teacher) – for her resourceful activities targeted at instigating creative thinking and innovativeness among students at various grade levels of her own school as well as several others in Pärnu County

In the category “Best innovative action popularising science and technology”

- Grand Prize: OÜ Kolm Põrsakest (LLC) – science theatre performances for children and adults, science groups for kindergarteners,

organisers Martin Käärik, Ergo Kukk, Kristjan Kingo, Julius Air Kull, Robin Saluoks

- Motivation Prize: populariser of experimental psychology Psühhobuss (Psychobus); OÜ Psühhobuss (LLC), organiser Madis Vasser

The competition's prize money totalled 21,500 Euro in 2014. The Lifetime Achievement Award was worth 6,500 Euro, accompanied by Stanislav Netchvolodov's brass tabletop sculpture "Mobius strip". In all other categories winners were granted: Grand Prize – 2,200 Euro and Motivation Prize – 800 Euro. Results of the competition were announced and prizes were handed over during the Science Communication Conference "Teadus? Läheb tarvis. Päriselt!" (Science? Will come in useful. For real!), held in the Glass Hall of Tallinn Song Festival Grounds on November 20.

## **PUBLICATIONS OF THE ACADEMY**

Publications issued by the Academy in 2014:

- “Estonian Academy of Sciences Year Book XIX (46)” in Estonian and English.
- The eighteenth book in the series “National Science Prizes of the Republic of Estonia” (in Estonian) presenting the laureates in 2014 and offering an overview of their studies.

Electronic versions of these publications are available on the Academy’s website ([www.akadeemia.ee](http://www.akadeemia.ee)).

For information about scientific and scholarly journals published by the Estonian Academy Publishers, see pp. 107-109.



## **INTERNATIONAL SCIENTIFIC RELATIONS**

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The Estonian Academy of Sciences represents Estonia in several INTERNATIONAL SCIENTIFIC ORGANISATIONS bringing together science community on cross-specialty issues at the level of top researchers and science policy makers.

The European Academies' Science Advisory Council (EASAC; [www.easac.eu](http://www.easac.eu)) unites the national science academies of the EU member states, enabling their collaboration in building science into EU policy. The Estonian Academy of Sciences has nominated Secretary General Margus Lopp (up to 2014 December, Leo Mõtus) to EASAC Council. EASAC's work on independent science-based advice for policy-makers is divided into three programmes: Biosciences, Energy and Environment. Each of them is run by a Steering Panel. Chairman of the Academy Committee on Marine Sciences Tarmo Soomere is a member of the Environment Steering Panel. He is also the contact person between the Panel and the European Marine Board contributing towards harmonisation of their activities and exchange of information between them. Enn Lust represents the Academy in the Energy Steering Panel. The panels search potential topics for in-depth scientific analysis and form expert groups that study the issues (incl. EU document drafts) independently of commercial or political bias. The resulting reports forecast trends and potential implications of these trends on the society, aiming to incline policy-makers towards evidence-based decisions. To advance national interests and objectives, more Estonian experts should participate in the working groups. Regrettably the Academy cannot afford to subsidise such assignments due to a restricted budget.

The European Federation of Academies of Sciences and Humanities "ALL European Academies" (ALLEA; [www.allea.org](http://www.allea.org)) brings together scientific academies from more than 40 European countries. ALLEA strives to address a wide range of science strategy and policy issues seeking to generate conditions under which science and scholarship could excel. Among the tackled problems are integrity of science and different autonomy facets of research institutions; recent moves of the European Commission in the matter of research funding streams; intellectual property rights, open access to the research data and digitisation problems; science education, etc. ALLEA's policy work is assisted by several Permanent Working Groups, issue-focused Working Groups and ad hoc Task Forces. Raivo Uibo is a Member in ALLEA Permanent Working Group on Science and Ethics.

The European Science Foundation (ESF; [www.esf.org](http://www.esf.org)) is still undergoing a transformation process; the end of 2015 will see its activities either fully

terminated or continued in some specific areas. The Academy has withdrawn from the ESF. However, we continue as a member of the European Marine Board (EMB; [www.marineboard.eu](http://www.marineboard.eu)), an organisation formerly under the ESF umbrella, but practically independent now. Likewise, we retain our involvement with the European Polar Board that still works under the auspices of the ESF, but is aspiring for self-sufficiency. In the EMB the Academy is represented by Tarmo Soomere, who currently holds the Vice-Chair and Executive Committee (ExCom) Member position. The credibility of the EMB is based on its independence from the European Commission and on balanced representation of different stakeholders. Thus, it offers a tangible platform for moulding consolidated positions of Estonian marine science into influencing factors of science policy decisions at the European level.

Mandated by four Estonian institutions holding natural science collections, the Academy has entered the Consortium of European Taxonomic Facilities (CETAF; [www.cetaf.org](http://www.cetaf.org)). Chairman of the Academy Committee on Phylogeny and Taxonomy Urmas Kõljalg is responsible for coordination national activities.

The Union Académique Internationale (UAI; [www.uai-iaa.org](http://www.uai-iaa.org)) unites academies engaged in the humanities. The Academy's long-time delegate in the UAI was Peeter Tulviste, whom the UAI entrusted with two permanent responsibilities: to act as a member of the External Relations Committee and to maintain contacts between the UAI and the International Social Science Council (ISSC), including participation in ISSC forums.

The Academy also takes part in the work of several other worldwide scientific organisations, such as International Council for Science (ICSU; [www.icsu.org](http://www.icsu.org); representative of the Academy – Board Member Jüri Engelbrecht), a global network of science academies IAP ([www.interacademies.net](http://www.interacademies.net)), etc. Quite a few Academy Members belong to the membership of international science academies and participate in their work. For example, Jüri Engelbrecht sits on the Board of Trustees of the World Academy of Art and Science (WAAS), his main responsibility lies with the WAAS activities in the analysis of global problems.

The Academy continued supporting the contacts of the Estonian scientific community with international scientific unions, whose mission is to provide a forum, synergy, strategy and voice in their areas of knowledge. The Academy gives priority to ICSU member organisations. By means of a targeted allocation from the Ministry of Education and Research, the Academy organised payment of membership fees and supplied the Ministry with a review on the activities of respective national contact organisations (see the list in Appendix 1, pp.202-204). Participation in international scientific unions empowers Estonian scientists to influence the policies and strategies in their areas of expertise. Cooperation activities exercised under the auspices of scientific

unions are intertwined with collaborative projects within EU FPs. The first-mentioned component quite frequently helps to create the environment and preconditions for constructive preparation of a collaborative research project. In May 2014, the Academy organised another one of the seminars dedicated to various aspects of Estonian participation in international scientific organisations (for more detail refer to p.44). Vigorous activities of Estonian representatives in European and worldwide scientific organisations lead to greater visibility and effective image building. On the other hand, they secure the Estonian research community with a gateway to decision-making processes at the European level and, likewise, give them access to international discussion forums with scientific approaches to issues vital for Estonia.

The Estonian Academy of Sciences, similarly to multiple other European academies, supports and finances international mobility of researchers through a SCIENTIFIC EXCHANGE PROGRAMME. Bilateral cooperation agreements (full list of partners is presented in Appendix 2, p.205) serve as the formal basis for exchange of scientists.

The activity of the scientific exchange programme is supervised by the Council for International Exchanges, comprising of representatives of the Academy Divisions and four major public universities – University of Tartu, Tallinn University of Technology, Estonian University of Life Sciences and Tallinn University. The Academy acts on the traditional cost-sharing principle (living expenses in the host country are covered by the receiving party) and gives preference over individual research to reciprocal visits within bilaterally accepted joint projects. As a rule, scientists to be nominated to the host Academy for funding are selected by the sending Academy.

In 2014, a cooperation agreement with the Academy of Sciences of the Czech Republic was renewed. A call for joint research projects was initiated; from among the submitted applications for years 2015-2017, the partners approved three projects, to be implemented under the cooperation agreement. Likewise, a call for joint research projects was announced between Bulgarian and Estonian scientists. Four three-year projects have been selected for implementation; renewal of a cooperation agreement is underway. For more detail, refer to [www.akadeemia.ee/et/suhted/](http://www.akadeemia.ee/et/suhted/).

Inadequacy of funding for hosting visiting scientists, that had its roots in the period of economic recession, caused researchers to seek opportunities from outside the scientific exchange programme. The quantitative dimension of the exchanges has not regained its pre-crisis level. General figures are the following. In 2014 Estonian scientists and scholars made 57 study and conference visits, using the total of 412 days. The total sum of 15,524 euros was expended to cover the living expenses of visiting researchers. The number of hosted scientists and scholars was 49; the visitors worked at Estonian universities and

research institutions for 313 days in total. The average daily expenses were 49.60 euros. Larger Estonian universities (University of Tartu, Tallinn University of Technology) were the most frequent users of the exchange scheme in both directions (outbound from Estonia – inbound to Estonia); their collective share constituted about 60% of the visits.

Although the list of cooperation agreements currently includes 32 partner organisations (as of January 1, 2015), the exchange programme was in actual fact employed with 14 partners; the largest volume of visits was reached with Hungarian, Polish, Czech and Latvian partners. At this point we should take into account the fact that the opportunities for researchers to apply for travel grants have significantly multiplied (FPs, programmes co-financed by Structural Funds, national mobility grants, etc.) by now.

The Academy encourages direct contacts of young scientists with top actors in the world of science. For that purpose the Academy has signed a trilateral cooperation agreement with the Council for the Lindau Nobel Laureate Meetings and the Foundation Lindau Nobelprizewinners Meeting. The mission of annual forums that are organised in the small town of Lindau (Germany) is to educate, inspire and connect. While it is undeniably a meeting place for young talents (numbering around 600), the same can be said of the older generation, the real elite of the science world – Nobel Laureates (37 in 2014). In 2014, the Academy nominated Tanel Visnapuu (doctoral student, Institute of Biomedicine and Translational Medicine, University of Tartu) to the 64th Lindau Meeting in Physiology or Medicine and Allan Teder (doctoral student, Faculty of Economics and Business Administration, University of Tartu) to the 5th Lindau Meeting on Economic Sciences. In the autumn of 2014 the Academy advertised a call for participation in the 65th Lindau Nobel Laureate Interdisciplinary Meeting (Physiology/Medicine, Physics, Chemistry) and presented the best candidates for evaluation by the selection panel of the Lindau Meetings Council.

Representatives of the Academy traditionally visited other academies, attended scientific events, delivered lectures at international scientific forums as invited speakers, met with delegations visiting the Estonian Academy of Sciences, etc. For greater detail see Chronicle (pp.7-12).

Estonia is a natural part of the European Research Area. Under these conditions it is reasonable to lay emphasis on COOPERATION WITH THE EUROPEAN UNION INSTITUTIONS and on active participation in EU initiatives, programmes and projects. For instance, Vice-President Jüri Engelbrecht belonged to the NETWATCH Advisory Board. NETWATCH is the European Commission's information platform on transnational R&D programme collaboration with its current focus on ERA-NETs. The Academy was for the ninth year in succession involved as a partner in the pan-European project series

“Researchers’ Night”, co-financed under Horizon 2020 and aimed at promoting researchers and scientific careers. For greater detail see p.52.

The European Union strives to provide researchers with advantageous career opportunities, including support services for those seeking to advance their careers by moving to another country. Together with the Estonian Research Council as the national coordinator, the Archimedes Foundation, the University of Tartu, Tallinn University of Technology, the University of Life Sciences and Tallinn University, the Academy participates in the EURAXESS Services network. EURAXESS – Researchers in Motion is an initiative of the European Commission, founded to advise relocating researchers and their family members on administrative and practical issues. Service centres offer information on a broad range of queries, e.g. visas, residence and work permits, research vacancies, social insurance, availability of medical aid, daily life utilities, etc. The European Commission assembles the network members for European trainings and conferences, attended among others by the foreign relations staff of the Academy. For greater detail, visit <http://euraxess.ee>.

## **NATIONAL AWARDS TO MEMBERS OF THE ACADEMY**

### **NATIONAL SCIENCE PRIZES**

Based on nominations from the National Science Prize Committee, the Government of the Republic of Estonia by Order No. 61 of 13 February 2014 conferred

ANNUAL AWARD  
IN EXACT SCIENCES



*Eve Oja*

for the series of studies “Operator ideals and tensor equations in the study of Banach space structures”.

**ESTONIAN STATE DECORATIONS  
TO MEMBERS OF THE ACADEMY**

President of the Republic of Estonia by Resolution No. 368 of 5 February  
2014 awarded

the Order of the White Star, 3rd Class



*Tarmo Soomere*

## ANNIVERSARIES

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Anniversaries in 2014:

85th birthday

*Hillar Aben*

*Jaan Einasto*

*Carl-Olof Jacobson*

*Ülo Lumiste*

*Mihkel Veiderma*

80th birthday

*Ain-Elmar Kaasik*

*Udo Margna*

75th birthday

*Jüri Engelbrecht*

*Ülo Jaaksoo*

*Arvo Krikmann*

70th birthday

*Ene Ergma*

*Gerard A. Maugin*

*Enn Saar*

*Richard Villems*

65th birthday

*Jüri Allik*

*Margus Lopp*

*Mart Saarma*

*Mart Ustav*

60th birthday

*Jaak Aaviksoo*

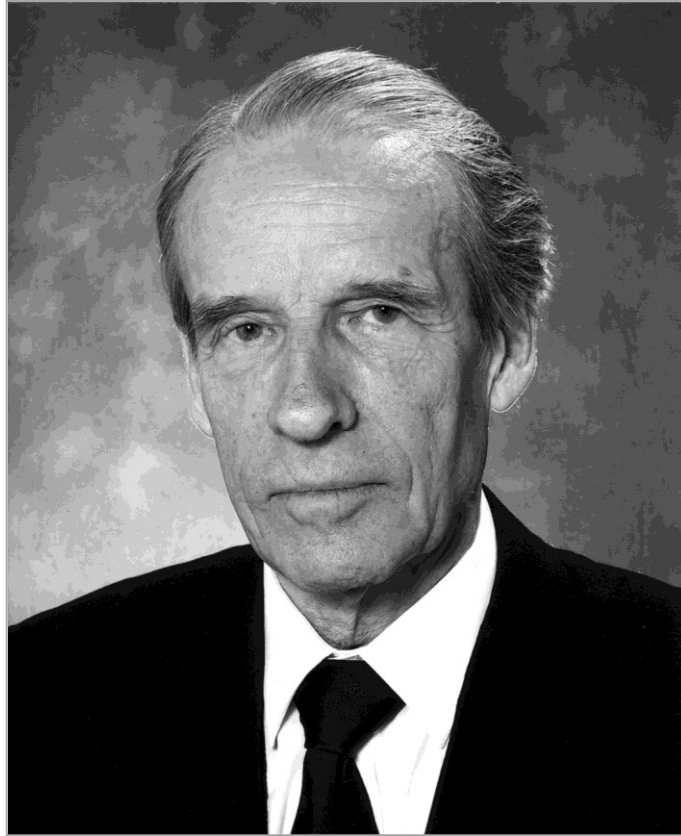
*Toomas Asser*

*Eero Vasar*

45th birthday

*Tarmo Uustalu*





*Hillar Aben*

Hillar Aben was born on December 3, 1929 in Tartu. His mother was a school teacher and his father a lecturer at the University of Tartu and a translator. Hillar Aben has pointed out the decisive role of his parents in the major choices of his life. After graduating from Hugo Treffner Gymnasium in 1948, he proceeded to study civil engineering at Tallinn University of Technology and completed his studies with a diploma in 1953. Photoelasticity problems became his primary area of interest while pursuing a postgraduate programme. Hillar Aben earned his Candidate of Science (PhD) degree in Engineering at the Estonian Academy of Sciences in 1957. He defended his dissertation for the Doctor of Engineering degree at the same institution in 1966 on the topic “The method of characteristic directions in three-dimensional photoelasticity”.

In 1977 Hillar Aben was elected Member of the Estonian Academy of Sciences in the area of mechanical engineering.

Hillar Aben started his professional career in 1956 at the Institute of Building and Construction Materials as Junior Researcher. His further activities have been related with the Institute of Cybernetics; for more than half a century he worked as: Head of the Department of Mechanics and Applied Mathematics (1960-1974), Assistant Director for Research (1967-1976), Director (1976-1988), Head of the Laboratory of Photoelasticity (1989-2013), Extraordinary Leading Research Scientist (2005-2008). Currently, he is Leading Research Scientist (since 2008).

Photoelasticity methodology is nowadays primarily implemented for measuring residual stresses in glass. Under the leadership of Hillar Aben the Laboratory of Photoelasticity, in collaboration with Glasstress Ltd. has gained international renown. Professor Aben and his colleagues have developed the theory, methods and measurement technology for determining residual stresses in glass articles of complicated shapes. By now, over a hundred companies have acquired the high-tech polariscopes manufactured by Glasstress Ltd. The technology they have developed for thickness stress measurement in flat glass is used in many glass factories all over the world. Hillar Aben's professional career path is a good example of consistent research effort leading to technological applications of topmost significance.

Hillar Aben has received the National Science Prize twice: in 1994 in engineering for his monograph "Photoelasticity of glass" (co-authored by C. Guillemet); in 2009 as research team leader the award for outstanding scientific discovery that led to the creation of an innovative product (Theory of integral photoelasticity, development and launch of the measurement method and equipment for measuring residual stress in glass industry).

In 2001 Hillar Aben was granted the Order of the White Star, 3rd class, in 2009 the Nikolai Alumäe Medal and in 2010 the William M. Murray Award of the Society for Experimental Mechanics, (USA).

Hillar Aben is Member of Academia Europaea, European Academy of Sciences and Arts, Finnish Academy of Technical Sciences and several international scientific organisations. He has worked as Visiting Professor at universities in Canada, France and Italy. He has sat on the President of the Republic's Academic Council (1994-2001), National Science Prize Committee (1999-2004) and been a long-time Editor-in-Chief of the Proceedings of the Estonian Academy of Sciences (1995-2007).

Sports (basketball, downhill skiing, artistic gymnastics, fencing) have been a natural part of Hillar Aben's life from the schoolboy years. Tennis remains his favourite and regular hobby today. Although his preferences in music lie with symphonies and opera, he also has a fancy for mellow jazz melodies.



*Jaan Einasto*

Jaan Einasto was born on February 23, 1929 in Tartu as the eldest son in a schoolteacher's family of eight children. In 1947 he graduated from Hugo Treffner Gymnasium. His deep interest in astronomy had become evident by then. At the University of Tartu he studied astronomy according to an individualised programme. Thanks to his supervisor Professor Grigori Kuzmin he could additionally attend lectures at the Sternberg Astronomical Institute, Moscow State University. In 1952 he graduated with a Diploma in Astronomy. He defended his dissertation for the Candidate of Science degree (PhD) in 1955 on the topic "On structures of normal galaxies in major sequence" and earned his Doctor of Science degree in 1972 on the topic "Structure and evolution of normal galaxies".

The professional career of Jaan Einasto started at Tartu Observatory where he held subsequent positions of Research Fellow, Senior Research Fellow, Head of the Astrophysics Group, Head of the Galaxy Physics Group and Head of the Cosmology Group. During the following fifteen years (1980-1994) he was

alternately affiliated with universities in Paris, Cambridge, California and Harvard, participating in various joint research projects abroad. Currently, he works at Tartu Observatory as Senior Researcher (since 2004).

In 1981 Jaan Einasto was elected Member of the Estonian Academy of Sciences. In 1983-1995 he was Head of the Division of Physics, Mathematics and Engineering and later Academic Secretary of the Division of Astronomy and Physics. As a Member of the Academy Board he was closely involved in reforming the research organisation in Estonia during 1988-1995.

Professor Jaan Einasto has focused on topics involved with the structure of galaxy systems and devices monitoring the dynamics, structure and manmade satellites of the planet Earth. In his studies of the hidden mass of the Universe he has proven the evidence of a massive Galactic corona (1970-1974) and the existence of cellular structure of the Universe, i.e. superclusters consisting of galaxy chains and empty spaces (1977-1997). His recent studies are targeted at detecting dark matter and the large scale structure of the Universe.

Jaan Einasto has succeeded in founding his own School in the frames of Tartu Observatory. Nine scientists have defended their doctoral dissertations under his supervision. He is the author of over 300 peer-reviewed scientific articles. In his monograph “Dark Matter and Cosmic Web Story” published in 2013 Jaan Einasto summarises the story about the discovery of dark matter and the structure of the Universe. Scientific contributions of the research team headed by him have been recognised with the Science Prize of the Republic of Estonia thrice: in 1983 for studies on the hidden matter and cellular structure of the Universe, in 1998 for studies on the regularities in the structure of the Universe (award in exact sciences), in 2007 for the scientific discovery that changed the paradigm of the relevant area of research. In 2003 he was bestowed the Science Prize for long-standing achievements in research and development, in 2009 the distinguished Marcel Grossmann Award for his pioneering contributions in the discovery of dark matter and the cosmic web and for fostering research in the historic Tartu Observatory and in 2012 the Viktor Ambartsumian International Prize for his fundamental contributions to the discovery of dark matter and the cosmic web. In 1998 the President of the Republic awarded Jaan Einasto with the Order of the National Coat of Arms, 2nd class. The people of Estonia have elected him among the hundred most influential figures of the 20th century. He has been nominated Honorary Citizen of Tartu and holder of the Grand Star of Tartu.

For leisure Jaan Einasto prefers going to his childhood home in the vicinity of Helme whenever possible. It is the traditional meeting place for the entire family during summertime with enjoyable pastimes, like going to sauna, swimming in the lake, catching fish. He is a passionate listener of classical music and owns a record collection of far beyond five hundred items, incl. vinyl records.



*Carl-Olof Jacobson*

Carl-Olof Jacobson was born on April 24, 1929 in Ör parish, Dalsland, southern Sweden. In 1948 he graduated from the Secondary School in Vänersborg, proceeded to study at Uppsala University and completed his studies in 1952 with a Master's degree in zoology. His following academic degrees (1958 – Licentiate, 1964 – Doctor) were in the same way defended at Uppsala University. After earning his Doctor's degree, Carl-Olof Jacobson continued his research career path at Uppsala University. He belonged to the academic staff of that university for more than forty years. That period included two decades as Professor of Zoomorphology (1970-1989) and for a shorter period the concurrent offices – Dean of the Faculty of Engineering and Natural Sciences and Member of the University Board (1977-1989).

Since 1994 Carl-Olof Jacobson has been participating in research projects as Professor Emeritus at the Department of Physiology and Developmental Biology and Genetics. From 1989 to 1997, for nearly a decade, he worked as

Secretary General at the Royal Swedish Academy of Sciences, sitting also on the Nobel Foundation Board of Directors. Carl-Olof Jacobson has been as a Visiting Fellow at Wistar Biological Institute in Philadelphia and as a Visiting Professor at Texas University in Austin in 1979. Carl-Olof Jacobson's main research areas are involved with applied neurobiology and ecology of clean water. His activities in the area of science organisation, science communication and advancement of scientific cooperation have been of equal significance, to say the least.

Carl-Olof Jacobson is a member of numerous scientific organisations in Sweden, among them the Royal Swedish Academy of Sciences, Royal Swedish Academy of Engineering Sciences, Royal Society of Sciences (Uppsala) and Royal Physiographic Society (Lund), and similarly, outside his native country, e.g. American Association for the Advancement of Science, European Academy of Science, Art and Letters, New York Academy of Sciences, Academia Europaea. He has been a long-time Chairman of the Swedish Linné Society and a member of several professional associations, e.g. International Society of Developmental Biologists, International Society for Differentiation.

In 1995 the Estonian Academy of Sciences elected Carl-Olof Jacobson its Foreign Member in the area of zoological morphology. His long-time work for enhancement of cooperation between the Baltic and Nordic academies was acknowledged with the Medal of the Baltic Academies of Sciences in 2001.



*Ülo Lumiste*

Ülo Lumiste was born on July 30, 1929 in Vändra. He graduated from Vändra Secondary School in 1947 and proceeded with his studies at the University of Tartu, majoring in mathematics. His choice of modern mathematics was largely affected by Professor Gunnar Kangro who invited him to work as Assistant at the Chair of Geometry immediately after he had completed his undergraduate studies in 1952. Shortly after that he was dispatched to Moscow State University to get further professional training (1953-1954) and for enrolment in postgraduate studies (1956), specialising in differential geometry. Ülo Lumiste defended his dissertation for Candidate of Science degree (PhD) in 1958 at Moscow State University and earned his Doctor of Sciences degree in 1969 at Kazan University. In the same year he was granted professorship.

Ülo Lumiste returned to the University of Tartu in 1960 to pursue an academic career. Since then he worked in the positions of: Lecturer and Associate Professor (1959-1969), Head of the Chair of Algebra and Geometry (1969-

1989), Professor at the same Chair (1969-1995) and Dean of the Faculty of Mathematics (1974-1980). Since 1995 he has been Professor Emeritus of the University of Tartu.

In 1993 he was elected Member of the Estonian Academy of Sciences.

The main research area of Ülo Lumiste has been related to the principles of geometry, with particular focus on various aspects of submanifolds. Beside his colleagues, he used to attract both undergraduate and postgraduate students to participate in the projects led by the Chair, thus laying a strong foundation for the emerging School of Estonian Differential Geometry at the beginning of the 1960ies. The history of mathematics is another sphere of interest for Ülo Lumiste. He has published over 260 scientific publications, among them a good few textbooks and monographs. Research outcomes of several decades have been summarised in a voluminous monographic work “Semiparallel Submanifolds in Space Forms” released by Springer Publishers in 2009.

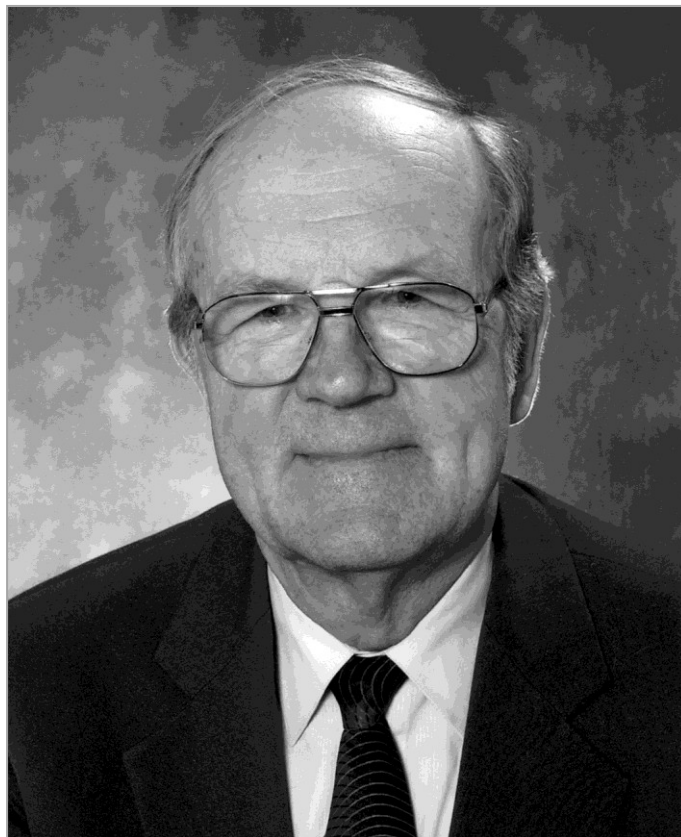
Ülo Lumiste regards his pedagogical work to be of equal importance as his research activities. His lectures have been attended by a vast majority of Estonian mathematicians and teachers of maths at a great number of schools. Fifteen doctoral dissertations, numerous master’s and diploma theses have been defended under his supervision, while on several occasions he has been among dissertation advisers. Ülo Lumiste has been briskly involved in organising professional life as well. He has initiated international scientific conferences, has been a peer reviewer for scholarly journals, opponent of dissertations, participated in the work of several professional councils and associations. He was among founders of the Estonian Mathematical Society (1987) and its first President.

In recognition of his outstanding research contribution Ülo Lumiste has been awarded the Science Prize of the Republic of Estonia twice (1999 in exact sciences and 2012 for long-standing achievements in research and development). He received the Order of the White Star, 3rd class in 1999.

He is Honorary Doctor of Tallinn University (1996), Honorary Member of the Estonian Union of the History and Philosophy of Science (1997) and the Estonian Mathematical Society (2003).

Ülo Lumiste appreciates and observes a moderate, eco-friendly and sportive way of life. His lifelong hobbies from an early age have been choir singing and gymnastics.





*Mihkel Veiderma*

Mihkel Veiderma was born on December 27, 1929 in Tallinn as the fifth child to the family of a renowned figure in Estonian education. His father Aleksander Veiderma was a school principal and an influential politician. Thanks to that, Mihkel Veiderma spent a major part of his early childhood in a learning environment – under the roof of the Girls' Secondary School of Commerce that housed the company apartment they were living in. His education path began at Jakob Westholm Gymnasium, but he graduated from Tallinn Secondary Science School in 1948. When considering options for further studies, Mihkel Veiderma gave a serious thought to majoring in the humanities at the University of Tartu, but finally decided upon chemistry. He graduated from Tallinn University of Technology in 1953, specialising in technology of inorganic substances. In 1965 he defended his dissertation for the Candidate of Science degree (PhD) at the Research Institute of Fertilizers and Insectofungicides in Moscow. He earned his Doctor of Science degree at the same Institute in 1972. He was awarded Professorship in 1973.

In 1975 he was elected Member of the Estonian Academy of Sciences in inorganic chemistry.

After graduating from the university, Mihkel Veiderma worked for seven years at Maardu Chemical Plant (incl. 1956-1960 as Chief Engineer). His next employment was with Tallinn University of Technology, first as Associate Professor at the Chair of Chemical Technology, then as Professor and Head of the Chair of Inorganic and Analytical Chemistry (1972-1997). Concurrently, he was Dean of the Faculty of Chemistry (1978-1983) and Scientific Supervisor of the Laboratory of Mineral Fertilisers (1965-1992). Since 1997 Mihkel Veiderma has been Professor Emeritus of Tallinn University of Technology.

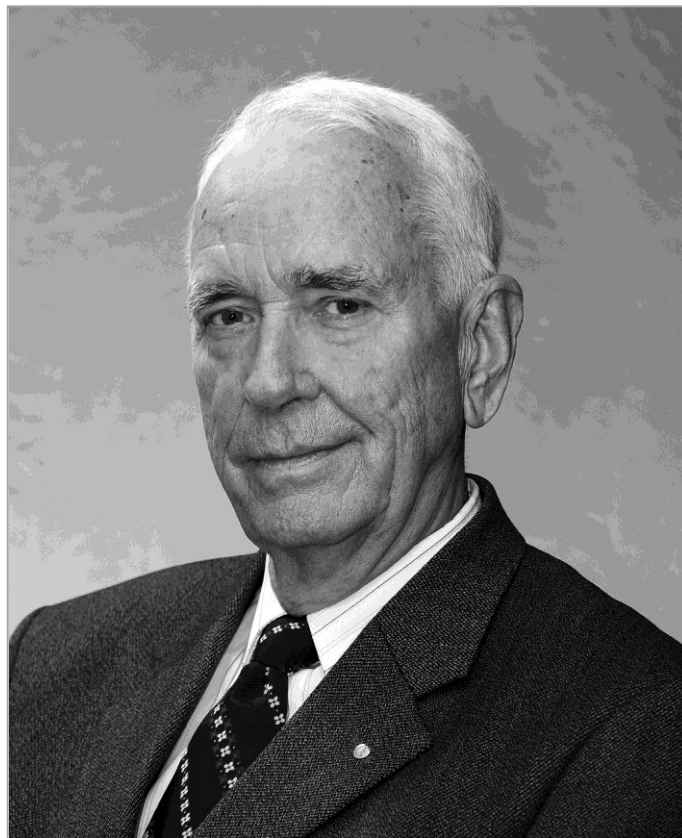
Mihkel Veiderma has held responsible positions in this Academy as well. He was Vice-President of the Estonian Academy of Sciences for the years 1988-1999, Secretary General (1999-2004) and Member of the Board (2004-2009). At the same time, Mihkel Veiderma worked for a period of three years (1992-1994) as Director of the Office of the President of the Republic.

The main research areas of Mihkel Veiderma have been the chemistry and technology of inorganic phosphor compositions. He has studied the composition of natural apatites, their properties and reactions, phase transfers and thermal processes in phosphate containing systems. His focal interests have been new technologies and areas of use, safe disposal and use of industrial waste. The long-term Chairman of the Academy's Energy Council, he has been concerned with key problems relating to the use of Estonian mineral resources (phosphorite, oil shale) and power engineering.

Mihkel Veiderma is the (co-)author of over 250 scientific articles and co-owner of 12 patents. He is also the author, compiler or editor of 11 books and article collections. Among all his acknowledgements for scientific contributions he highlights the K.E.von Baer and P.Kogerman Medals, and also being elected Honorary Member of the Estonian Chemical Society and the Estonian Naturalists' Society, Foreign Member of the Finnish Academy of Technical Science and Corresponding Member of the Finnish Chemical Society. He has sat on the President of the Republic's Academic Council, Sustainable Development Committee and Finnish-Estonian Academic Cooperation Committee on Energetics.

In 1998 Mihkel Veiderma was awarded the Order of the White Star, 3rd class. His contributions to promoting interacademy cooperation in the Baltic States were acknowledged in 2001 with the Medal of the Baltic Academies of Sciences and in 2006 he received the National Science Prize for long-standing achievements in research and development.

Mihkel Veiderma has been attracted to learning about the history of Estonian science and education from an early age. His other favourite thematic range enfolds the politics, theatre and music of the 20th century.



*Ain-Elmar Kaasik*

Ain-Elmar Kaasik was born on August 2, 1934 in Tallinn to the family of an school board officer. The peculiar intellectual atmosphere of childhood surroundings at Nõmme had a notable impact on his formative years. His education path began at the Rahumäe Elementary School. In 1953 he graduated from Nõmme Gymnasium in Tallinn and enrolled in the Faculty of Medicine at the University of Tartu. He completed his undergraduate studies in 1959 and proceeded to a postgraduate programme in neurology and neurosurgery. He defended his dissertation for a Candidate of Medicine degree (PhD) on brain metabolism related problems in 1967. He earned his Doctor of Medicine degree in 1972 and was awarded Professorship in 1975.

After graduating from the university, Ain-Elmar Kaasik practised for two years at Põltsamaa Regional Hospital. Since 1961 his activities have been associated with the Neurology Clinic at the University of Tartu, where he started as an intensive treatment physician and neurosurgeon. He became a member of the academic staff in 1968 and has held various positions since

then: Assistant, Associate Professor and Professor at the Chair of Neurology and Neurosurgery, Head of Clinic. He has worked as Dean of the Faculty of Complementary Studies for Physicians and Pharmacists (1975-1980), Assistant Dean (1981-1984) and Dean (1984-1989) of the Faculty of Medicine, Head of the Chair. Since 1999 he has been Professor-Emeritus.

In 1993 Ain-Elmar Kaasik was elected Member of the Estonian Academy of Sciences in neurology. He was Vice-President of the Academy in 2004-2009.

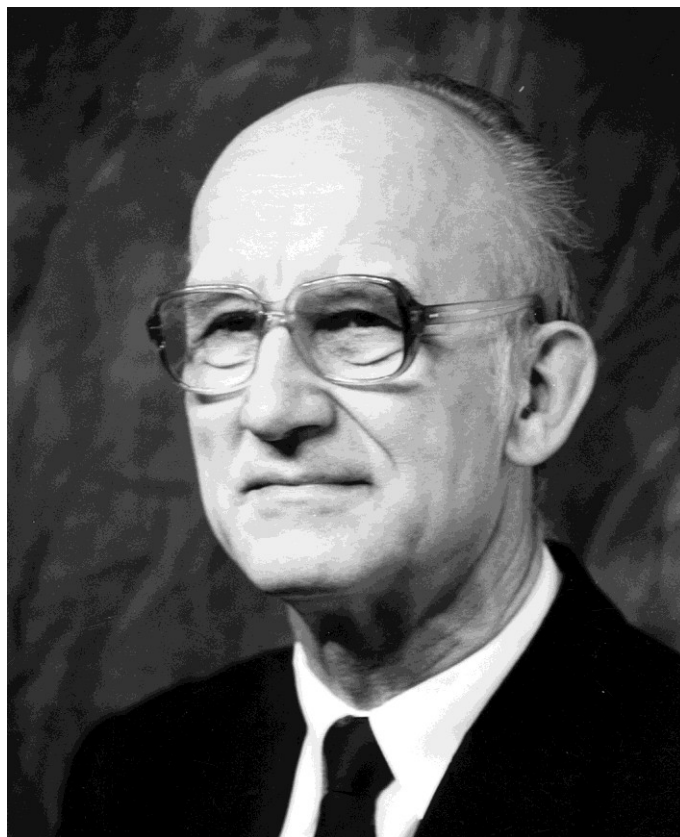
The research activities of Ain-Elmar Kaasik had started alongside his university studies and continued all through his neurosurgery practice. His main research areas include: pathology of blood circulation and metabolism in acute brain damages; vascular pathology of brain; dissemination, diagnosing and treatment of neuropathy, especially the problems of intensive treatment.

Ain-Elmar Kaasik has worked as Visiting Professor at the University of Pennsylvania Neurology Clinic and as Visiting Lecturer at the universities of Uppsala, Copenhagen and Kuopio. Likewise, he has given lectures at the continuing education courses organised for physicians by the Montana-Wyoming Department of the American College of Surgeons. The list of publications by Ain-Elmar Kaasik contains over 500 references, among them ten monographic works (as co-author) and about 280 scholarly articles. He is a patent owner of the invention "Treatment method of Parkinson disease", as many as 16 Doctoral and Candidate of Science dissertations in Medicine have been defended under his supervision.

Professor Kaasik has participated in the work of numerous scientific and professional organisations. He is a member of the Scandinavian Society of Neurosurgeons, American Academy of Neurology, Royal Society of Medicine (UK), European Academy of Sciences and Arts, a foreign member of New York Academy of Sciences and Polish Academy of Medical Science. He has belonged to several bodies of national importance, incl. Estonian Research and Development Council, National Science Prize Committee, Estonian Science Foundation, Estonian Cooperation Forum, Steering Committee of the national programme "Compilation and Publishing of Textbooks in Estonian for Higher Education" and Sustainable Development Committee.

Ain-Elmar Kaasik was named Honorary Doctor of Uppsala University in 1991. He was awarded the Order of the White Star, 3rd class in 1998 and the National Science Prize for long-standing research and development in 2003. He has been acknowledged with a Letter of Appreciation by the Finnish Neurological Association and Ernst Homén Medal (1988), University of Tartu Grand Medal and Ludvig Puusepp Medal (1999), Osvald Schmiedeberg Medal (2002). He was elected Honorary Citizen of Tartu in 2004.

A follower of healthy lifestyle, Ain-Elmar Kaasik finds pleasure in skiing, biking and long-distance running.



*Udo Margna*

Udo Margna was born on November 18, 1934 in Viljandi. In 1952 he graduated from Viljandi Secondary School No.2 in ten years, skipping over the 6th form. He enrolled in the Faculty of Medicine at the University of Tartu to study pharmacy. He completed his studies in 1957 with a Diploma in pharmacy. He and his wife, who was his course-mate, were dispatched to the island of Muhu, where Udo Margna worked as the manager of the local chemist's shop for slightly over two years. It was the first and the last time for him to work in a position corresponding to his diploma.

In 1959 Udo Margna enrolled for a pioneering postgraduate programme on plant biochemistry at the Institute of Experimental Biology, Estonian Academy of Sciences. This was the starting point for his research career. In 1963 he defended his Candidate of Science degree (PhD) in Biology at the Estonian Academy of Sciences. In 1984 he earned his Doctor of Science degree at the Institute of Botany, Georgian Academy of Sciences. The scientific outcomes of his work offer a better understanding of inter-connected metabolic proc-

esses in plants and enable to work out methods for controlling the growth and evolution of plants. The research path of Udo Margna evolved, since 1959 under the roof of the Institute of Experimental Biology in Harku. Within a period of more than 30 years he held various positions from Junior to Chief Research Associate and Head of Laboratory. In the years 1967-1987 he was the Institute's Director for Research.

In 1987, Udo Margna was elected Member of the Estonian Academy of Sciences in plant physiology and biochemistry. In 1990 he was elected Secretary General of the Academy and worked in that office up to 2000.

The studies of Udo Margna were primarily targeted at the metabolic background of biosynthesis and regulation mechanisms of flavonoids. Among his numerous publications special mention should be made of six monographic works and textbooks. The latest book, titled "Phytotherapy. Treatment with plants" (in Estonian), appeared in print in the current year. He has been the supervisor of 7 Doctoral and Master's theses.

For more than 25 years Udo Margna worked as Extraordinary Professor, Scientific Adviser and Visiting Lecturer at the University of Tartu, Tallinn University and Estonian University of Life Sciences. In 1994 he was Visiting Professor at the University of Münster in Germany. Since 2000 Professor Margna has been affiliated with Tallinn Health Care College as Lecturer of Pharmacy and Head of the Chair of Pharmacy. Currently, he is Lecturer Extraordinary (since 2008).

In 1987 Udo Margna was recognised with the highest award of the Estonian Academy of Sciences – the Medal of the Academy. In 1998 he was granted the Karl Ernst von Baer Medal for outstanding achievements in life sciences and geography and the Annual Award of the Estonian Pharmacists' Association for long-standing research. In 2006 he was awarded the Order of the White Star, 4th class. This year, the Estonian Academic Society of Pharmacy acknowledged Udo Margna with its Complimentary Award.

Although science has been the primary mission of Udo Margna, he considers finding a balance between work, family and hobbies of no less importance. The favourite hobby of his schoolboy years was chess, and later on guitar playing. Orienteering has been his favourite sports for more than 25 years.



*Jüri Engelbrecht*

Jüri Engelbrecht was born on 1 August 1939 in Tallinn to a craftsman's family. He graduated from Tallinn Secondary School No.7 in 1957 and from Tallinn University of Technology in 1962 with a Diploma in Engineering. In 1968 he defended his dissertation for the Candidate of Engineering in mechanics. After a postdoc year at the Czech University of Technology in Prague, he started his research career at the Institute of Cybernetics, Estonian Academy of Sciences. He earned his Doctor of Science degree in Physics and Mathematics in 1981 at the Institute of Mechanical Engineering, Ukrainian Academy of Sciences and his Professorship in 1984. He is Honorary Doctor of the Budapest University of Technology since 1999.

Since the beginning of his affiliation with the Institute of Cybernetics in 1962, Jüri Engelbrecht has worked in several positions: Senior Research Associate, Head of Department and Director for Research. Currently, he is Head of the Centre for Nonlinear Studies.

In 1990 Jüri Engelbrecht was elected Member of the Estonian Academy of Sciences in mechanics. He was President of the Academy in 1994-2004 and Vice-President in 2004-2014. Currently he is Member of the Academy Board.

The main topics studied by Jüri Engelbrecht are associated with mathematical physics, biomechanics and nonlinear dynamics. He is also engaged in teaching at Tallinn University of Technology. He has worked as Visiting Professor or Visiting Researcher at various European universities – in Newcastle, Surrey, Cambridge, Paris, Aachen, Torino, Messina, Duisburg-Essen, Budapest, etc. He is the author of about 170 peer-reviewed articles, several monographs and textbooks.

Jüri Engelbrecht has made a notable contribution to the development of Estonian science and research cooperation with other European countries. He has initiated the quality based research funding system in Estonia, launched the centres of excellence in research programme, provided expert advice to the Ministry of Education and Research, etc. He is one of the authors of the strategy paper “Knowledge-based Estonia 2002-2006” and coordinated the preparation of “Knowledge-based Estonia 2007-2013”.

Jüri Engelbrecht is closely involved in international scientific activities at European level and worldwide, e.g. as Governing Council Member of the European Science Foundation (ESF) and Member of the European Research Advisory Board (EURAB). In 2005 he belonged to EC WG for preparing the working principles of the European Research Council (ERC) and its membership. He has also been General Assembly Member of the International Council for Science (ISCU), expert to Organisation for Economic Cooperation and Development (OECD), etc. His engagement in the Federation of All European Academies ALLEA dates back to 1995, in 2006-2011 he was President of ALLEA. He is also a member of European Mechanics Society (Euro-mech), belonged to the Bureau, General Assembly and Congress Committee of the International Union of Theoretical and Applied Mechanics (IUTAM).

Jüri Engelbrecht has been acknowledged with the National Science Prize twice. He has received the A.von Humboldt Research Award, Nikolai Alumäe Memorial Medal, is Foreign Member of Academies of Sciences in Hungary, Latvia and Portugal (Lisbon), a member of Academia Europaea and other distinguished organisations. His contributions to organisation of R&D activities and science policy have been recognised with the Estonian National Coat of Arms, 3rd class and 4th class, as well as Belgian, Finnish, French and Polish state decorations and a variety of medals (from Tallinn University of Technology, Estonian and Bulgarian Academies of Sciences).

A liking for sports has characterised Jüri Engelbrecht since an early age, his long-time favourites are running and skiing. He also enjoys listening to classical music.





*Ülo Jaaksoo*

Ülo Jaaksoo was born on April 16, 1939 in Mõisaküla to the family of employees. In 1957 he graduated from Mõisaküla Secondary School and in the same year he proceeded to study electrical network systems at Tallinn University of Technology. He concluded his undergraduate studies in the area of automation and telematics in 1962. He defended his dissertation for a Candidate of Science degree (PhD) on the topic “Adaptive control systems with active information collection“ in 1969 and earned his Doctor of Engineering degree with a dissertation on the topic “Interactive analysis of multi-dimensional control systems“ at the Institute of Electronics and Computers, Latvian Academy of Sciences in 1982. He was awarded Professorship in 1985 and elected Member of the Estonian Academy in 1986.

In autumn 1961, even before finishing his studies at the University, Ülo Jaaksoo got employed by the Institute of Cybernetics and started his more than 30 years long career at the Institute as Senior Engineer, Junior and Senior Researcher (1961-1979). In 1965 he proceeded to postgraduate study and at the

same time continued to accept professional assignments for working at various research centres, including Moscow Institute of Automation and Telematics, where he determined the topic for his Candidate of Science (PhD) dissertation. Subsequently, Ülo Jaaksoo held the position of Head of Department of Control Systems at the Computer Design Bureau (1980-1984), Director for Research at the Institute of Cybernetics (1984-1989), Director (1989-1997), Chairman of Management Board at Cybernetica Ltd. (1997-2012). Currently, he is Chairman of Supervisory Board at Cybernetics Ltd. (since 2013).

His main interests in research include adaptive systems with active information collection, interactivity analysis of multi-dimensional automatic control systems and security of information systems. Ülo Jaaksoo has taught control theory at Tallinn University of Technology for years. After completion of his Doctoral dissertation he has focused his activities first and foremost on fulfilling administrative functions. In his present-day position he regards development of such a unique company in Estonian context as Cybernetica Ltd. appears to be, a matter of utmost importance. According to his opinion, it could well be the only veritable research and development company in Estonia.

Professor Ülo Jaaksoo has been Vice-President of the Estonian Academy of Sciences (1993-1995), Chairman of Council of Eesti Telekom, Member of Estonian Research and Development Council, Estonian representative to NATO Science Committee, Member of President of the Republic's Academic Council. Presently he is Member of Innovation Policy Committee at Estonian Research and Development Council and Member of Tallinn University of Technology Board of Governors.

In 2004, Ülo Jaaksoo was granted the National Order of the White Star, 3rd class. He has been acknowledged with the Award of Soviet Estonia (1967), Award of the Council of Ministers of Soviet Estonia (1986), Medal of the Estonian Academy of Sciences (1999) and the "Thinking Man" reward of the Mustamäe district (2004).

Ülo Jaaksoo has had an ear for music since his early childhood which led him, among other things, to play in the Horre Zeiger's *Big Band* in his youth. According to his own words, he has become an enthusiastic armchair sportsman by now. His other favourite pastimes are reading fiction and visiting theatre performances.



*Arvo Krikmann*

Arvo Krikmann was born on July 21, 1939 in Virumaa to a farmer's family. In 1957 he graduated from Väike-Maarja Secondary School and in 1962 started to study the Estonian language and literature at the University of Tartu. He completed his undergraduate studies in 1962 and enrolled in a postgraduate programme at the Institute of Language and Literature, Estonian Academy of Sciences. In 1975 he defended his Candidate of Science degree (PhD) in Philology on proverbs. In 1998 Arvo Krikmann earned his Doctor of Science degree in Philosophy at the University of Tartu.

During 1962-1969 Arvo Krikmann worked in the Department of Folklore at the Estonian Literary Museum as Researcher and Senior Researcher. After completing his postgraduate programme he continued his scholarly activities at the Institute of Language and Literature (since 1994 Institute of the Estonian Language) as Junior Researcher, Senior Researcher of Computational Linguistics Group, Senior Researcher, Chief Researcher and Head of Paremiology Group, Senior Researcher and Theme Leader at the Department

of Folkloristics. Currently, Arvo Krikmann holds the position of Senior Researcher at the Estonian Literary Museum (since 2000).

Estonian Academy of Sciences elected Arvo Krikmann to its membership in 1997.

Main areas studied by Arvo Krikmann have been associated with short forms of folklore, geographic spread of folklore, popular humour, figurative speech and humour theory. His folklore studies have been intertwined with the analysis of Old Estonian literary language, figurative speech and dialectic language. Arvo Krikmann's major scholarly achievements are without doubt the academic editions of Estonian proverbs under the title "Proverbia Estonica" (I-V, 1980-1988) and Fenno-Baltic common proverbs "Proverbia septentrionalia" (I-II, 2001-2002; III:1, 2012; III:2; 2013) as well as several other anthologies, textbooks, etc. that have been compiled, prepared and edited under his supervision. Arvo Krikmann may be credited for making the studies on Estonian folklore visible to the public far beyond the borders of Estonia.

Alongside his scholarly studies, Arvo Krikmann has been engaged as Lecturer at the University of Tartu. In the years 1992-2005 he delivered as Extraordinary Professor special courses at the Department of Estonian and Comparative Folklore on short forms of folklore and their provenance, popular humour, semantics of utterances and figurative speech theory. Five Doctoral and five Master's theses have been successfully defended under his supervision.

Professor Krikmann has been a member of several scientific organisations, editorial boards, steering committees and scientific councils in Estonia and abroad. At present he is Member of the Finnish Literary Society, Kalevala Society, Academia Scientiarum et Artium Europaea, Mother Tongue Society and Academic Folklore Society, Honorary Member of the International Society for Folk Narrative Research (ISFNR), Editorial Board Member of the international yearbook "Proverbium" issued in Vermont.

In 1998, Arvo Krikmann's contributions were acknowledged with the Order of the White Star, 3rd class and in 1999 with the National Science Prize in the Humanities. He has been awarded the Baltic Assembly Prize for Science and the Annual Award of the Cultural Endowment of Estonia (2004), the "Kekrinpäivä" (Allhallows) Prize of the Finnish Kalevala Society (2013) and the F.J.Wiedemann Language Prize (2014).

Among his colleagues Arvo Krikmann is well-known for his exceptional relations with computers, Internet and other functionalities of modern information technology, since on average he stays 12 hours per day and night operating in the virtual world.



*Ene Ergma*

Ene Ergma was born on February 29, 1944 in Rakvere to a career serviceman's family. She graduated from Viljandi C.R.Jakobson Secondary School No.1 in 1962 and continued her education at the University of Tartu majoring in physics. From 1964 she proceeded to study at Moscow State University and finished her studies in 1969 with diploma in astronomy.

After graduating from the university, Ene Ergma enrolled in a postgraduate programme at the Astronomical Council of the USSR Academy of Sciences and in 1972 she defended her dissertation for the Candidate of Science degree (PhD) in Physics and Mathematics on the topic "Convection in stars". During 1972-1974 she worked as Junior Researcher at the Institute of Physics and Astronomy, Estonian Academy of Sciences. In 1974 she moved back to Moscow, where she earned her Doctor of Sciences degree in Mathematics and Physics at the Space Research Institute of the USSR Academy of Sciences with the dissertation on the topic "Unstable thermo nuclear burning at late stages of stellar evolution". During the following fourteen years up to 1988

she was professionally affiliated with the Institute of Astronomy at the USSR Academy of Sciences as Junior Researcher, Scientific Secretary, Senior Researcher and Leading Researcher. In 1990 she was awarded professorship by the Higher Attestation Committee in Moscow. After returning to Estonia, Ene Ergma worked as Professor of Astrophysics at the University of Tartu. During the years 1992-1998 she headed the Institute of Theoretical Physics and the Department of Physics. Ene Ergma was Vice-President of the Estonian Academy of Sciences for the term 1999-2004. During 2003-2014 she was President of the Riigikogu (Parliament), except for two years (2006-2007) as Vice-President.

Estonian Academy of Sciences elected Ene Ergma to its membership in 1997.

Ene Ergma is Chair of Space Affairs Council in Estonia and a member of Estonian Physical Society. She also belongs to several international scientific organisations. She is a Member of the International Astronomical Union (IAU) and European Astronomical Society (EAS), Associated Member of the Royal Astronomical Society (London, UK) and a Foreign Member of the Royal Swedish Academy of Engineering Science.

Ene Ergma's major topics in research are associated with physical processes in convective layers of stars; pre-supernova evolution of stars; thermonuclear processes on accreting neutron stars and on the surface of white dwarfs; evolution of low mass gamma-ray binaries.

In 2002, Ene Ergma's scientific contributions were recognised with the National Science Award in exact sciences. She has been honoured with Estonian state decorations twice: Order of the White Star, 4th class in 2001 and Order of the National Coat of Arms, 2nd class in 2008. The list of her awards is manifold: Grand Cross of the Order of Infante Dom Henrique of the Republic of Portugal (2003), Medal of the Estonian Academy of Sciences and Grand Cross of the Order of Merit of the Republic of Italy (2004), Commander of the Order of Merit of the Republic of Poland (2005), Badge of Honour Jüriöö Star, Order of Merit for Services Grand Gold Decoration of Austria and Royal Order of the Polar Star, 1st class of the Kingdom of Sweden (2007), Grand Cross of the Order of Crown of the Kingdom of Belgium, Grand Cross of the Order of Orange-Nassau of the Kingdom of Netherlands and Medal of the Baltic Assembly (2008).

Ene Ergma is a great admirer of classical music, theatre and art. She collects fine art albums and takes delight in good books, memoirs in particular. She is an honorary member of Tartu Academic Tennis Club and tennis has been her greatest passion in sports.



*Gérard A. Maugin*

Gérard A. Maugin was born on December 2, 1944 in Angers, Western France. He graduated from the local *lycée* with a High-school Diploma (French Baccalauréat) in 1962 and proceeded to study mechanical engineering, aeronautical engineering and mathematics in Paris. He continued his studies as an International NASA Fellow (1968-1970) at Princeton University (USA), earned his MA (1969) and PhD (1971) in Aerospace and Aeronautical Engineering. In 1975 Gérard A. Maugin was granted his *Doctorat d'État ès Sciences Mathématiques* at the Pierre et Marie Curie University of Paris VI (UPMC). He received honorary doctorate from Technical University of Darmstadt in 2001 and from Aristotle University in Thessaloniki in 2009.

In 1972 Gérard A. Maugin was admitted to the Centre National de la Recherche Scientifique (CNRS) after national competition. He held successive positions from *Attaché* to *Directeur de Recherche*. In 1979 he was appointed to office with the rank of Full Professor. During 1985-1998 he directed the Group on Continuum Mechanics at the Laboratoire de Mécanique Théorique,

UPMC. In 1999 he became Head of the Laboratoire de Modélisation en Mécanique (LMM). Then, he created (2006) the Institut Jean Le Rond d'Alembert, was its first Director and later Director for Research. At that time Gérard A.Maugin also taught graduate courses in the same institution. Since 2010 he is Emeritus in Service.

The main scientific areas studied by Gérard A.Maugin are related to continuum mechanics. His focal topics are: relativistic continuum mechanics, micromagnetism, electron continuum dynamics, thermomechanics, surface waves and nonlinear waves in continua, lattice dynamics, material equations and biomechanical applications (tissue growth). Some keywords to highlight: solitons, fractals, microstructured and smart materials. His studies are characterised by intertwining of mechanics and physics that enables to construct new mathematical models, especially for dynamic processes. Gérard A.Maugin has published over 480 peer-reviewed articles and is the author or editor of 28 monographic works and textbooks. His colleagues know him as a broad-sighted and eloquent science philosopher.

Professor Maugin started to deliver graduate courses at the UPMC in 1972. He has worked as Visiting Professor at numerous universities in Italy, Japan, Canada, Germany, USA, etc. He has organised around 150 seminars all over the world and given over 180 invited lectures/presentations at international conferences. He has supervised 38 successful doctoral dissertations.

Estonian scientists have enjoyed good partnership relations with Gérard A.Maugin since 1980. The level and extent of mechanical studies in Estonia have been notably influenced by this cooperation. Worth-mentioning are jointly held advanced training courses at the International Centre for Mechanical Sciences in Udine, Italy. Gérard A.Maugin is a long-time Editorial Board Member of the Proceedings of the Estonian Academy of Sciences, series Physics & Mathematics (presently, Proceedings of the Estonian Academy of Sciences). In 2002 he was elected Foreign Member of the Estonian Academy of Sciences in mechanics.

Gérard A.Maugin is Corresponding Member of the Academy of Arts and Letters (Accademia dei Peloritani e Pericolanti) in Messina, Foreign Member of the Polish Academy of Sciences (P.A.N.), Honorary Professor of Lomonosov Moscow State University. He also belongs to several scientific associations, committees and editorial boards of academic journals. Gérard A.Maugin has been acknowledged by his colleagues and partners with the Max Planck Research Award of the German Physical Society (2001), A.C.Eringen Medal of the Society of Engineering Science (SES), USA (2003), etc.

A man of an extremely vast scientific, historical and artistic curiosity, he enjoys discussing various subjects along with a simple dish and a good company. His quick-witted and educated arguments are much appreciated by his colleagues.





*Enn Saar*

Enn Saar was born on March 4, 1944 in the village of Leppneeme, Harju County. In 1962 he graduated from Tallinn Secondary School No.21 and enrolled in the University of Tartu to study astrophysics at the Department of Physics in the Faculty of Mathematics and Physics. The university offered that year for the first time an opportunity for freshmen to major in astrophysics in frames of a specially formed group. Enn Saar completed his undergraduate studies in the area of theoretical physics in 1967.

The professional career of Enn Saar started in 1968 at the Institute of Astrophysics and Atmospheric Physics in Tõravere. At the same time he proceeded with his postgraduate studies at the University of Tartu. Within the following four years he completed his dissertation for the Candidate of Science degree (PhD) in Physics and Mathematics on the topic “Inhomogenities in cosmology” which was defended in 1972. In Tõravere Enn Saar has progressed through all stages of a research career from Junior Researcher to Principal Research Associate. In the years 1991-1992 he headed the Department of

Astrophysics, from 1998 he works as Head of the Cosmology Department and Leading Research Associate of the Cosmology WG. In 1991 he earned a Doctorate in Astronomy at the University of Tartu with his dissertation “Geometry of the large scale structure of the universe”.

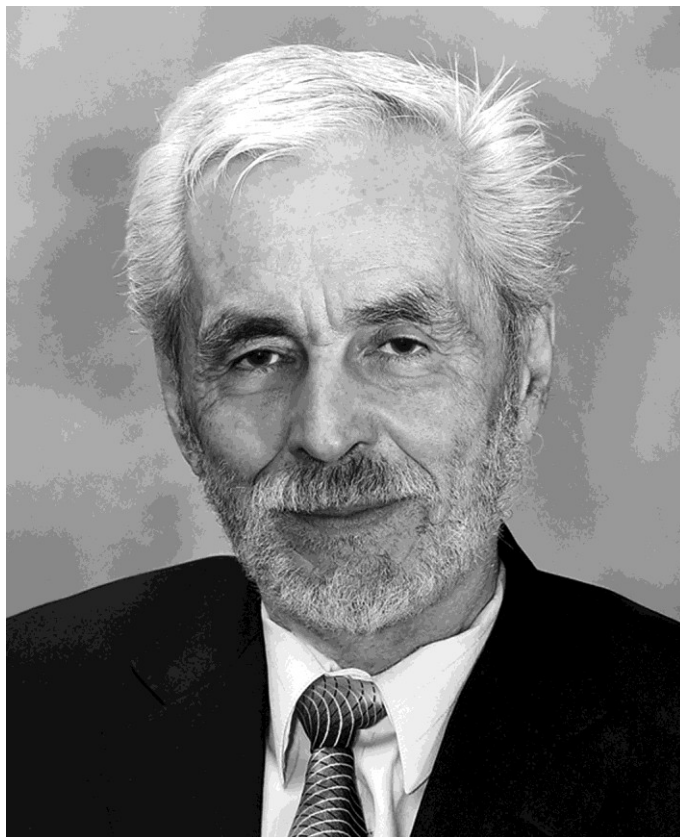
Enn Saar was elected Member of the Estonian Academy of Sciences in 2010.

The main areas studied by Enn Saar are related to cosmology, physics of galaxies and atmospheric physics. His primary focuses in cosmology are: dark matter, formation of structure in the Universe, numerical models and statistics of large-scale structure; in physics of galaxies: formation of galaxies and spiral structure; in atmospheric physics: observations of the atmosphere from cosmos. Enn Saar has made a notable contribution to the discovery of dark matter and cellular structure of the Universe. He has authored the great majority of mathematical methods that have been used by Tartu cosmologists and galactic astronomers in their studies on dark matter and the structure of the Universe. Enn Saar was the initiator in Tõravere of the numerical modelling technique for studying the structure formation in the Universe, dwelling on such a model of the Universe, which additionally to normal and dark matter contained a homogeneous background, known as dark energy. An analysis conducted under his leadership indicated that the structure had multifractal characteristics. In collaboration with astronomers from Spain, France and the USA Enn Saar has made an outstanding contribution to elaboration and implementation of new statistical methods for exploring the structure of the Universe.

Since the second half of the 1970ies, Enn Saar has supervised all the cosmologists working at the Tartu Observatory in problems relating to theoretical, statistical and calculation methodology. One candidate and five doctoral dissertations have been defended under his supervision.

Enn Saar has been recognised with the National Science Prize twice, on both occasions as a member of research team. In 1982 he received the award for the series of studies “Hidden matter and large scale structure of the Universe” and in 2007 for the scientific discovery that changed the paradigm of world view in the relevant area of research, namely, for discovery of dark matter surrounding the galaxies and the honeycomb-like structure of the Universe. In 2006 he was granted the Annual Award by the Estonian Physical Society for his studies on the structure of the Universe.

In his leisure Enn Saar has been an ardent alpinist and has reached instructor’s level in that field, his other long-time favourite among sports is orienteering. He enjoys reading prose in the Spanish language literature and has great admiration for the works of Arturo Pérez-Reverte.



*Richard Villems*

Richard Villems was born on November 28, 1944 in Pärnu. He graduated from Pärnu Secondary School No.2 in 1962, enrolled in the Faculty of Medicine at the University of Tartu and completed his studies in 1968. His choice was largely determined by family traditions – his grandfather had been a surgeon, his aunt a physician and his uncle a neurosurgeon. He proceeded to postgraduate studies at the University of Tartu and defended his dissertation for Candidate of Medicine degree (PhD) in biochemistry (1972). Richard Villems earned his Doctor of Science degree in biology at Moscow State University in 1984. He was awarded professorship in 1987 and was elected Member of the Estonian Academy of Sciences (EAS) in the same year.

After graduating from the university with a Diploma in Physiology in 1968, he practiced medicine at Tallinn and Pärnu municipal hospitals. In 1970-1977 Richard Villems worked as Researcher at the University of Tartu (UT) with temporary assignments to Akademgorodok in Novosibirsk (1972-1973) and Uppsala University (1975-1976). In 1977-1980 he was Scientist at the Institu-

te of Physics (1977-1978 University of Edinburgh), 1981-1986 Senior and Chief Scientist at the Institute of Chemical Physics and Biophysics, 1987-1992 Professor of Molecular Genetics at UT, 1993-1997 Professor of Molecular Biology, 1997-2004 Professor of Evolutionary Biology, since 2004 Professor of Archaeogenetics. Richard Villems was among the founders of the Estonian Biocentre and has been its Director from 1986 onwards. He was President of the Estonian Academy of Sciences for two periods (2004-2014).

His main research areas have been related with molecular biology, molecular evolution and population genetics. Together with the legendary Professor Artur Lind, he was at the end of the 1960ies among the initiators of research and lecturing activities in the field of molecular biology at the UT. This ambition has led to the formation of the Tartu School of Molecular Biology. The first objects studied by Richard Villems were RNA-proteins and ribosomes. In the middle of the 1970ies he switched over to gene technologies and cloning. Later on, during his stay in Edinburgh, he took a special interest in the structure of bacterial plasmids. In 1995 he focused on evolutionary biology that has led to his professorship in archaeogenetics. The most heavily cited publications of Richard Villems are covering topics of wide interest: the origins of peoples and migrations during various phases of history, our genetic evolution and about where and when different mutations arose and paved the way for genetic evolution of humans. His works have proven false quite a few earlier convictions about the origins of the human race.

As President of the Academy, Richard Villems repeatedly underlined the necessity for enlargement of the Academy's role in the society. He initiated amendment of the Estonian Academy of Sciences Act (passed in 2009) that has enabled a considerable rejuvenation of the Academy's membership and given the Academy an opportunity to conduct highly required research in areas of great significance to Estonia.

Professor Villems has contributed to the formation of Estonian R&D organisation by working in numerous scientific organisations and advisory bodies: e.g. President of the Republic's Academic Advisory Board, Research and Development Council, National Science Prize Committee. He is a Member of Erfurt Academy of the Arts and Sciences (1994), Foreign Member of the Royal Swedish Academy of Sciences, Finnish Academy of Science and Letters, Latvian Academy of Sciences and Lithuanian Academy of Sciences. The President of the Republic awarded him the Order of the White Star, 3rd class in 1998 and the Order of the White Star, 2nd class in 2006. He received the Medal of the Estonian Academy of Sciences in 1994 and was elected Honorary Citizen of Tartu in 2000.

As a pleasurable hobby, offering a change from work and reading, Richard Villems once or twice a week affords himself some precious moments for listening/watching classical music on the channel Mezzo.

## MEMBERS OF THE ACADEMY

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As of March 2015<sup>2</sup>

**Jaan AARIK**, born 1.01.1951, elected 2013, exact sciences. University of Tartu 1974. Professor of Solid State Technology (2009), Head, Laboratory of Thin-Film Technology, Institute of Physics, University of Tartu (2008); Ravila 14c, 50411 Tartu ESTONIA, Tel: +372 737 4674, Fax: +372 738 3033, jaan.aarik@ut.ee. HOME ADDRESS -41, 50707 Tartu ESTONIA, Tel: +372 5690 3295. Divorced, daughter and son.

**Olav AARNA**, born 4.11.1942, elected 1990, informatics. Tallinn University of Technology 1965. Vice Rector for Research, Estonian Business School (2014); Lauteri 3, 10114 Tallinn ESTONIA, Tel: +372 665 1382, olav.aarna@ebs.ee. HOME ADDRESS Nooruse 1-45, 76901 Tabasalu, Harku vald, Harjumaa ESTONIA Tel: +372 603 2060. Cohabitant, three sons and daughter.

**Jaak AAVIKSOO**, born 11.01.1954, elected 1994, exact sciences. University of Tartu 1976. Member of Riigikogu (Parliament) (2007), Lossi plats 1a, 15165 Tallinn ESTONIA, Tel: +372 631 6331, Fax: +372 631 6334, jaak.aaviksoo@riigikogu.ee. HOME ADDRESS -7, 50107 Tartu ESTONIA, Tel: +372 734 9000. Widower, two sons and daughter.

**Hillar ABEN**, born 3.12.1929, elected 1977, mechanics. Tallinn University of Technology 1953. Head of Laboratory of Photoelasticity, Institute of Cybernetics at Tallinn University of Technology (1987); Akadeemia tee 21, 12618 Tallinn ESTONIA, Tel: +372 620 4180, Fax: +372 620 4151, aben@cs.ioc.ee. HOME ADDRESS Hiiu-Maleva 30-2, 11619 Tallinn ESTONIA, Tel: +372 657 2407. Married, two sons.

**Jüri ALLIK**, born 3.03.1949, elected 2010, psychology. University of Tartu 1973. Professor of Experimental Psychology, Head, Institute of Psychology,

+372 737 5905, Fax: +372 737 6152, juri.allik@ut.ee. HOME ADDRESS Palu tee 20A, 61505 Tartu ESTONIA, Tel: +372 744 2119. Married, three children.

**Toomas ASSER**, born 14.07.1954, elected 2011, medical science. University of Tartu 1979. Professor of Neurosurgery, University of Tartu (1995); L.Puu-sepa 8, 51014 Tartu ESTONIA, Tel: +372 731 8500, Fax: +372 731 8106, toomas.asser@kliinikum.ee. HOME ADDRESS Kastani 30a, 50409 Tartu ESTONIA, Tel: +372 742 0215. Married, two sons and daughter.

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<sup>2</sup> Research institutions and universities are referred to by their current names.

**Mihhail BRONŠTEIN**, born 23.01.1923, elected 1975, agricultural economics. St. Petersburg State University 1949. Professor emeritus, University of Tartu (1993). HOME ADDRESS Kolde pst 104-44, 10316 Tallinn ESTONIA, Tel: +372 5662 9275. Widower, son and daughter.

**Jaan EINASTO**, born 23.02.1929, elected 1981, astrophysics. University of Tartu 1952. Senior Researcher, Department of Cosmology, Tartu Observatory

+372 696 2538, Fax: +372 696 2555, jaan.einasto@to.ee. HOME ADDRESS Tiigi 6-3, 6 741 0151. Widower, son and two daughters.

**Jüri ENGELBRECHT**, born 1.08.1939, elected 1990, mechanics. Tallinn University of Technology 1962. Lead. Research Fellow, Laboratory of Non-linear Dynamics, Institute of Cybernetics, TUT (2008); Akadeemia tee 21, 12618 Tallinn ESTONIA, Tel: +372 620 4160, Fax: +372 620 4151, je@ioc.ee. HOME ADDRESS Trummi 34J, 12617 Tallinn ESTONIA, Tel: +372 672 6045. Married, son and daughter.

**Ene ERGMA**, born 29.02.1944, elected 1997, exact sciences. Moscow University 1969. Professor emeritus, University of Tartu (2015), ene.ergma@ut.ee. HOME ADDRESS Aleksandri 35-14, 51004 Tartu ESTONIA, Tel: +372 738 1874. Single.

**Arvi FREIBERG**, born 28.06.1948, elected 2009, exact sciences. Tallinn University of Technology 1971. Professor of Biophysics and Plant Physiology, University of Tartu (2003); Riia 23, 51010 Tartu ESTONIA, Tel: +372 5645 3175, arvi.freiberg@ut.ee. HOME ADDRESS Aardla 154-5, 50415 Tartu ESTONIA, Tel: +372 5645 3175. Married, daughter and son.

**Vladimir HIŽNJAKOV**, born 25.05.1938, elected 1977, physics. University of Tartu 1960. Senior Researcher, Institute of Physics at University of Tartu (2004); Ravila 14c, 50411 Tartu ESTONIA, Tel: +372 737 4759, Fax: +372 738 3033, hizh@fi.tartu.ee. HOME ADDRESS Aardla 154-6, 50415 Tartu ESTONIA, Tel: +372 747 5290. Married, son and two daughters.

**Ülo JAAKSOO**, born 16.04.1939, elected 1986, informatics. Tallinn University of Technology 1962. Chairman of Supervisory Board, Cybernetica AS Tallinn ESTONIA, Tel: +372 639 7991, Fax: +372 639 7992, ulo.jaaksoo@cyber.ee. HOME ADDRESS ESTONIA, Tel: +372 672 6009. Married.

**Jaak JÄRV**, born 05.11.1948, elected 1997, natural sciences. University of Tartu 1972. Professor of Organic Chemistry, University of Tartu (1992); Ravila 14a, 50411 Tartu ESTONIA, Tel: +372 737 5246, Fax: +372 737 5247, jaak.jarv@ut.ee. HOME ADDRESS E. Wiiralti 1, 51011 Tartu ESTONIA. Married, son and two daughters.

**Ain-Elmar KAASIK**, born 2.08.1934, elected 1993, neurology. University of Tartu 1959. Professor emeritus, University of Tartu (1999). HOME ADDRESS Supluse pst. 5-1, 11911 Tallinn ESTONIA, Tel: +372 742 5426, ain-elmar.kaasik@kliinikum.ee. Widower, son.

**Dimitri KALJO**, born 12.10.1928, elected 1983, geology. University of Tartu 1953. Senior Researcher, Institute of Geology, TUT (2008); Ehitajate tee 5, 19086 Tallinn ESTONIA, Tel: +372 5648 5523, Fax: +372 620 3011, dimitri.kaljo@gi.ee. HOME ADDRESS Raja 7A-6, 12616 Tallinn ESTONIA, Tel: +372 672 6551, adkaljo@smail.ee. Married, son and daughter.

**Mart KALM**, born 3.09.1961, elected 2010, art history. University of Tartu 1984. Vice President, Estonian Academy of Sciences (2014); Estonia pst. 7, 10143 Tallinn ESTONIA, Tel: +372 626 7302, Fax +372 626 7350, mart.kalm@akadeemia.ee. HOME ADDRESS Ravi 19-13, 10138 Tallinn ESTONIA, Tel: +372 644 0846. Married, son and daughter.

**Mati KARELSON**, born 27.12.1948, elected 2007, natural sciences and medicine. University of Tartu 1972. Professor of Molecular Technology, University of Tartu (2005); Ravila 14a, 50411 Tartu ESTONIA, Tel: +372 737 5255, Fax: +372 737 5264, mati.karelson@ut.ee, HOME ADDRESS 8399.

Married, two sons.

**Ilmar KOPPEL**, born 16.01.1940, elected 1993, natural sciences (physical chemistry). University of Tartu 1963. Lead. Researcher, Ass. Director for Research, Institute of Chemistry, UT (2008); Ravila 14a, 50411, Tartu ESTONIA, Tel: +372 737 5263, Fax: +372 737 5264, ilmar@chem.ut.ee. HOME ADDRESS Kaunase pst 16-10, 50704 Tartu ESTONIA, Tel: +372 748 4351. Married, son.

**Arvo KRIKMANN**, born 21.07.1939, elected 1997, humanities. University of Tartu 1962. HOME ADDRESS Kastani 59-2, 50410 Tartu ESTONIA, Tel: +372 742 0079, krikud@hotmail.ee. Married, three sons.

**Lembit KRUMM**, born 20.07.1928, elected 1987, power engineering. Tallinn University of Technology 1952. HOME ADDRESS Trummi 4-19, 12616 Tallinn ESTONIA, Tel: +372 672 6513, +372 564 4706, lembitkrumm@gmail.com. Married, two sons and two daughters.

**Valdek KULBACH**, born 6.04.1927, elected 1986, mechanics. Tallinn University of Technology 1951. Professor emeritus, Tallinn University of Technology (1998); Ehitajate tee 5, 19086 Tallinn ESTONIA, Tel: +372 620 2408, Fax: +372 620 2405, valdek.kulbach@ttu.ee. HOME ADDRESS -9, 10921 Tallinn ESTONIA, Tel: +372 677 8207, valdek.kulbach@gmail.com. Married, two daughters.

**Urmas KÕLJALG**, born 24.02.1961, elected 2011, biosystematics and ecology. University of Tartu 1988. Professor of Mycology (2001), Director of Natural History Museum and Botanical Garden (2014), UT; Ravila 14a, 50411 Tartu ESTONIA, Tel: +372 737 6235, Fax: +372 737 6222, [urmas.koljalg@ut.ee](mailto:urmas.koljalg@ut.ee).  
HOME ADDRESS Elva 6, 50404 Tartu ESTONIA. Married, son and three daughters.

**Arno KÕÖRNA**, born 2.02.1926, elected 1972, economics. University of Tallinn ESTONIA, Tel/Fax: +372 650 5120. HOME ADDRESS A.Kapi 9-22, 10136 Tallinn ESTONIA, Tel: +372 662 0628, [arno.koorna@mail.ee](mailto:arno.koorna@mail.ee). Widower, son and daughter.

**Jakob KÜBARSEPP**, born 9.02.1947, elected 2011, materials engineering. Tallinn University of Technology 1970. Vice Rector for Academic Affairs, Tallinn University of Technology (2013); Ehitajate tee 5, 19086 Tallinn ESTONIA, Tel: +372 620 2006, Fax: +372 620 2020, [jakob.kubarsepp@ttu.ee](mailto:jakob.kubarsepp@ttu.ee).  
HOME ADDRESS 10921 Tallinn ESTONIA, Tel: +372 672 2281.  
Married, four daughters.

**Rein KÜTTNER**, born 25.11.1940, elected 1997, technical sciences. Tallinn University of Technology 1965. Professor emeritus, University of Tartu (2010). HOME ADDRESS Mooni 107-58, 13424 Tallinn ESTONIA, Tel: +372 652 5503, [rein.kuttner@ttu.ee](mailto:rein.kuttner@ttu.ee). Married, son.

**Hans KÜÜTS**, born 20.12.1932, elected 1994, agricultural sciences. Estonian

Tel: +372 776 6901, Fax: +372 776 6902, [ylle.tamm@etki.ee](mailto:ylle.tamm@etki.ee). HOME ADDRESS  
maa ESTONIA, Tel: +372 772 1375.

Married, three daughters.

**Agu LAISK**, born 3.05.1938, elected 1994, natural sciences. University of Tartu 1961. Senior Researcher of Plant Physiology, University of Tartu (2005); Riia 23, 51010 Tartu ESTONIA, Tel: +372 736 6021, Fax: +372 742 0286, [agu.laisk@ut.ee](mailto:agu.laisk@ut.ee). HOME ADDRESS  
vald, Tartumaa ESTONIA, Tel: +372 749 3228. Married, three sons.

**Valter LANG**, born 26.01.1958, elected 2010, historical sciences. University of Tartu 1981. Professor of A  
18, 50090 Tartu ESTONIA, Tel: +372 737 5652, Fax: +372 737 5345, [valter.lang@ut.ee](mailto:valter.lang@ut.ee). HOME ADDRESS Kuu 12A-2, 50114 Tartu ESTONIA, Tel: +372 529 1843. Married, son and daughter.

**Ülo LEPIK**, born 11.07.1921, elected 1993, mechanics. University of Tartu 1948. Professor emeritus, University of Tartu (1996); J.Liivi 2-426, 50409 Tartu ESTONIA, [ulo.lepik@ut.ee](mailto:ulo.lepik@ut.ee). HOME ADDRESS Lunini 3, 50406 Tartu ESTONIA, Tel: +372 738 0023. Married, two sons and daughter.



**Georg LIIDJA**, born 4.08.1933, elected 1987, physics. University of Tartu 1957. Senior Researcher, National Institute of Chemical Physics and Biophysics (1982); Akadeemia tee 23, 12618 Tallinn ESTONIA, Tel: +372 639 8328, Fax: +372 639 8393, georg.liidja@kbfi.ee. HOME ADDRESS -43, 13919 Tallinn, ESTONIA, Tel: +372 635 5878. Married, son and daughter.

**Ülo LILLE**, born 16.09.1931, elected 1983, biotechnology. Tallinn University of Technology 1955. Senior Researcher, Institute of Chemistry, Tallinn University of Technology (1997); Akadeemia tee 15, 12618 Tallinn ESTONIA, Tel: +372 620 4383, Fax: +372 620 2828, lille@chemnet.ee. HOME ADDRESS Trummi 32P, 12617 Tallinn ESTONIA, Tel: +372 672 6032. Married, two daughters.

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**Ülo NIINEMETS**, born 19.03.1970, elected 2013, natural sciences. University of Tartu 1992. Professor of Plant Physiology, Estonian University of Life Sciences (2009); Kreutzwaldi 1, 51014 Tartu ESTONIA, Tel: +372 731 3140, Fax: +372 731 3738, ylo.niinemets@emu.ee. HOME ADDRESS Pal-lase 6, 51011 Tartu ESTONIA, Tel: +372 5345 7189. Married, 3 daughters.

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**Gérard A. MAUGIN** (France), born 02.12.1944, elected 2002, mechanics. Professor emeritus, University of Pierre and Marie Curie (2010). Institut Jean -55, Case 162, 4 Place Jussieu, F-75252 Paris Cedex 05, FRANCE, Tel: +33 1 4427 5312, Fax: +33 1 4427 5259, gerard.maugin@upmc.fr. HOME ADDRESS - lantines, F-94800 Villejuif, FRANCE, Tel: +33 1 4958 2049. Married.

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Estonian Academy Publishers continued in 2014 regularly issuing eight scientific journals, peer-reviewed and indexed and abstracted in international review publications and databases. All journals have an international editorial board. In the Estonian Research Information System administered by the Estonian Research Council, all journals have been placed in the category 1.1.

As compared to the previous year, the number of journals dropped by one item, because at the beginning of 2014 the Board of the Estonian Academy of Sciences adopted the decision to merge the journal *Estonian Journal of Engineering* with the journal *Proceedings of the Estonian Academy of Sciences*. The Publishers' mission has been to maintain a high standard as regards the contents of journals, their typographic performance, timely release both electronically and in hard copy.

In 2014 the journals were issued in the following volume:

Title	Number of issues per year	Total volume in pages	Format of journal
Acta Historica Tallinnensia	1	192	168×240
Estonian Journal of Archaeology	3 <sup>3</sup>	156/652	168×240
Estonian Journal of Earth Sciences	4	344	210×285
Estonian Journal of Ecology	4	214	168×240
Linguistica Uralica	4	320	168×260
Oil Shale	4	412	168×255
Proceedings of the Estonian Academy of Sciences	5	454	210×285
Trames	4	406	168×240
Total	29	2498/2994	

<sup>3</sup> In the annual volume of the journal *Estonian Journal of Archaeology* a separate issue in German appeared titled Supplementary Volume 18/2S 2014, *Aspekte des Wandels in der Bronzezeit im Ostbaltikum. Die Siedlungen der Asva-Gruppe in Estland* (Changes in the area of eastern coast of the Baltic Sea in the Bronze Age. Asva-type settlements in Estonia)

Full texts of articles having appeared in all journals since 2006 together with information on journals are freely available on the Publishers' website [www.kirj.ee](http://www.kirj.ee). Full texts are distributed also by well known electronic publishers and portals: EBSCO, C.E.E.O.L., The Gale Group Inc., ProQuest LLC, H.W.Wilson (merged with EBSCO), Digital Publication with the Leading Asian Distributor (Airiti Inc.), and Join CNKI Scholar (China). To put the journals up in the above portals, the Publishers produce for the articles the following electronic versions: pdf-files, sgml-files of two types, xml-files of three types and a special file for the electronic library C.E.E.O.L.

Texts of articles of earlier vintages of our journals have been digitised and placed in Internet through mediation of Google. Respective links have been made from the Publishers' website. Such availability of full text in multiple places increases readership and rate of citation.

All scientific articles of the journals have been supplied with the *doi*-indexes (Digital Object Identifiers). Crossref statistics shows that the rate of search for articles by doi increases steadily, in some months it tops one thousand cases.

The articles published in journals are reflected in scores of international review journals, scientific websites and databases.

All eight journals issued by the Publishers have been included in Elsevier BV Bibliographic Database (SCOPUS<sup>®</sup>) used in many countries as the benchmark of efficiency of the research work.

Six journals are reflected in the database of Thomson Reuters Web of Science<sup>®</sup> Core Collection often used as basis of bibliometric information at evaluating research:

- Acta Historica Tallinnensia
- Estonian Journal of Archaeology
- Estonian Journal of Earth Sciences
- Proceedings of the Estonian Academy of Sciences
- Oil Shale (incl. Current Contents<sup>®</sup>is)
- Trames. A Journal of the Humanities and Social Sciences.

Three journals are in the database ERIH:

- Acta Historica Tallinnensia
- Estonian Journal of Archaeology
- Linguistica Uralica.

In 2014 as usual several special issues of journals were released, fewer than in the previous years, however bulkier. It is an internationally recognised way to publish the materials of international conferences, providing an opportunity to document in a compacted way the results of research in certain problems related to Estonia.

There were the following special issues released:

1. Estonian Journal of Archaeology 18/2: Special issue – From shards to streets. Selected papers on later medieval archaeology. Guest editor Erki Russow.
2. Estonian Journal of Archaeology 18/2S: Special issue – Aspekte des Wandels in der Bronzezeit im Ostbaltikum. Die Siedlungen der Asva-Gruppe in Estland. Author Uwe Sperling.
3. Estonian Journal of Earth Sciences 63/4: Special issue – IGCP 591 The Early to Middle Palaeozoic Revolution. Guest editors Kathleen Histon and Živilė Žigaitė.
4. Proceedings of the Estonian Academy of Sciences 63/2S: Special issue on technologies for the electric solar wind sail. Guest editor Jens Dalsgaard Nielsen.
5. Proceedings of the Estonian Academy of Sciences 63/3: Special issue on biomedical engineering. Guest editor Ivo Fridolin.

In 2014, in total 217 pieces of writing were released in 29 issues of eight journals, of them 196 scientific articles and 21 short pieces of writing. All journals in hard copy appeared under schedule. The electronic version appeared on average one month prior to the date set for the hard copy, actually meaning pre-posting of the electronic version.

The number of authors totalled 512, of whom 303 were Estonian authors and 209 foreign authors. The majority of articles appeared in English, except the journal *Linguistica Uralica*, featuring also articles in Russian and German, and Estonian Journal of Archaeology 18/2S, which was in German and *Acta Historica Tallinnensia* in Estonian with comprehensive summaries in English and one article in English.

Besides journals, there appeared, as commissioned, five more publications (total 2078 pages), part of them bulky and important for Estonia:

- Ojaveer, E. Läänemeri. Ökosüsteemid ja elusvarad, nende hindamine ning haldamine [The Baltic Sea. Ecosystems and biota: assessment and management]. Estonian Academy Publishers, Tallinn, 2014, 392 pp.
- Margna, U. Fütoterapia, ravimine taimedega, taimede kasutamine seedetrakti haiguste raviks [Phytotherapy, treatment with medicinal plants, use of herbs in the treatment of the digestive tract]. Estonian Academy Publishers, Tallinn, 2014, 152 pp.
- Klöker, M. Tallinna kirjanduselu 17. sajandi esimesel poolel (1600-1657). Haridusinstituutsioonid ja juhuluuletamine [ Literarisches Leben in Reval in der ersten Hälfte des 17. Jahrhunderts (1600-1657). Institutionen der Gelehrsamkeit und Dichten bei Gelegenheit.]. Translated

from the German by K.Viiding. Estonian Academy Publishers, Tallinn, 2014, 680 pp.

- Mark, K. Soome-ugri rahvaste füüsiline antropoloogia [Physical anthropology of Finno-Ugric peoples]. Compiled, complemented and edited on the basis of manuscript by L. Heapost. In Estonian, with resumes in English and Russian. Estonian Academy Publishers, Tallinn, 2014, 542 pp.
- Emakeele Seltsi aastaraamat 59 (The Yearbook of the Estonian Mother Tongue Society). Estonian Academy Publishers, Tallinn, 2014, 312 pp. (Full texts of the book are also available electronically on the Publishers' website).

In view of the means available and circumstances prevailing in 2014, the year can be considered successful. The main problem is scarcity of funds, in particular at upgrading computers and software.

# **UNDER AND TUGLAS LITERATURE CENTRE OF THE ESTONIAN ACADEMY OF SCIENCES**

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Established in 1993 (affiliate Museum Department in Nõmme, the former Friedebert Tuglas Museum Department, established in 1971)

Personnel: 17, including 13 researchers

Address: Roosikrantsi 6, 10119 Tallinn, ESTONIA, [utkk@utkk.ee](mailto:utkk@utkk.ee)

Museum: Väikese Illimari 12, 11623 Tallinn, ESTONIA, [tuglas@utkk.ee](mailto:tuglas@utkk.ee)  
[www.utkk.ee](http://www.utkk.ee)

Director: Jaan Undusk, Tel: +372 644 3147, Fax +372 644 0177  
[jaan@utkk.ee](mailto:jaan@utkk.ee),

Academic Secretary:

Merlin Kirikal (until 17.08.2014)

Maarja Kalmet (since 18.08.2014) Tel: +372 644 3147  
[maarakalmet@utkk.ee](mailto:maarakalmet@utkk.ee)

Head of the Museum Department, Tel: +372 672 2847:

Lea Eermann (until 28.02.2014)

Elle-Mari Talivee (acting head 1.03.-4.05.2014)

Ülle Reimets (acting head 5.05.-31.12.2014)

Under and Tuglas Literature Centre of the Estonian Academy of Sciences is an institution of research and development of the Estonian Academy of Sciences. Its mission is to study Estonian literature and the local written culture in general, both in historical and theoretical perspectives, within the context of historically multilingual Baltic space as well as world literature. It promotes literary and cultural thought in line with contemporary trends in textual research (discourse analysis, rhetorico-narratological models of culture, postcolonial theory and the theory of cultural transfer, memory and gender studies). Under scrutiny beside fiction and theatrical texts are various historiographical, philosophical, publicist and scientific modes of self-expression in Estonian and German, insofar as they have played a decisive role in the Baltic literary space, as well as relevant texts of European history of ideas, which have influenced the course of thinking both in the universal embrace and in the Baltic. In this context, the history of certain basic concepts and models of thought of the whole of Europe is considered (tradition of antithetic thinking, the concept of infinity, decadence, soliloquy-style of writing, grotesque).

Research work is performed by 13 regular researchers. Until the end of February, Head of the Museum Department of the Literature Centre was Lea Eermann, in March and April the duties of the Head were fulfilled by researcher Elle-Mari Talivee. At the beginning of May, new Head of the Museum Department Ülle Reimets took over the job. In August 2014 Maarja Kalmet joined the team of the Literature Centre and proceeded to fulfil the tasks of the Academic Secretary.

In the process of its development activities, the Literature Centre publishes original researches and source materials of Estonian written culture, maintains the library and art collection of historical value, organises conferences, exhibitions and cultural events of general importance (the ceremony of Friedebert Tuglas prize for the best Estonian short story, annual prizes of the literary magazine *Looming*, events of the Scientists' House etc.). The Museum Department of the Literature Centre in Nõmme administrates the legacy of the writer F.Tuglas and other collections (incl. the Tuglases' literary and art collection, and the library and art collection of Artur Adson and Marie Under, which arrived in Estonia in 1996, the art collection of the Estonian Cultural Foundation in the USA, Paul Reets' literary and art collection), as well as the house and garden of dendrological value attached to it; it carries out lecture-excursions and serves individual researchers and visitors.

The major areas of research of the Literature Centre are:

- Estonian literature and culture in the 20th C. (including the works of F.Tuglas, M.Under and A.Adson),
- Older Estonian and Baltic German written culture in the 13th – 19th C., German legacy in the development of modern Estonian culture,
- Mechanisms of cultural identity (cultural transfer, entangled histories),
- Baltic literary space and Estonian-Latvian-Finnish literary relations,
- Rhetorical and discursive models for description of European and Estonian culture,
- Drama and theatre research.

Since 2014 the Literature Centre has been fulfilling the institutional research topic “Entangled Literatures: Discursive History of Literary Culture in Estonia” (2014-2019, project leader J.Undusk). The emergence and development of literary culture on the Estonian territory is seen as an entangled process (*histoire croisée*), reflecting intertwined relationships between manifold ethnic, colonial, cultural, etc. impulses, involving criss-cross patterns, resistances, and inertias. The character of investigation is predominantly discourse-based and follows the lines of important ‘territories of speech’ (history, religion, environment, intimacy, etc.) apparent in multilingual society. A comprehensive rewriting of the literary history of Estonia in the 13th–19th cc.

is aimed at, while integrating into it the rich German component. Modernity is examined in tension with national strivings as a time of diverse emancipations; attention is paid both to the social figures (decadent, upstart, artist) as well as the figures of thought (autonomy, time, infinity). In the post-Soviet period, the 'multidirectionality' of memory culture is exemplified by fiction, film and theatre.

Since 2014, the Museum Department of the Literature Centre has carried out the research project of the national programme "The Estonian language and cultural memory II" titled "Intellectual heritage of Friedebert Tuglas, Marie Under and Artur Adson in the spatial-temporal context" (2014-2018, project leader Elle-Mari Talivee). It is a follow-up to the project ended in 2013 "Intellectual heritage of Friedebert Tuglas, Marie Under and Artur Adson". The goal of the new project is to mediate the legacy of Tuglas, Under and Adson through preparation and publication of academic editions, by organising art exhibitions, conferences, seminars, cultural events and through museum-pedagogic work. A major goal of the project is completion of the series of F.Tuglas "Collected works", edited textual-critically and supplemented with scholarly forewords and commentaries. In 2014, the "Scientific collections (cultural history collections) of the Under and Tuglas Literature Centre" of the Museum Department were supplied with funds as before, to maintain their scientific-cultural value, to guarantee their organisation, and creation of user-friendly environment in the database MuIS.

Since 2012 U.Plath has held the Estonian Science Foundation's 4-year grant "History of Baltic Food Culture: Production, Consumption and Culture in the Light of Environmental History". The research team of the grant is concerned with the history of regional food culture in cross-national perspective. Innovative dimension of U.Plath's grant in treatment of the Baltic history consists in trimming the history of environment with the food culture. The work of the grant team also has a perceptible international embrace, one of the directions of its activity being strengthening of cooperation with international networks studying the food culture. U.Plath has also made a contribution to development of the activities of the Estonian Centre for Environmental History (KAJAK) (jointly with the Institute of History of Tallinn University). In 2014, researcher of the Museum E.-M.Talivee joined membership of the Centre.

In 2014, the Literature Centre organised several international conferences. May 23-24 – U. Plath represented the Literature Centre in Munich at international conference "Migration and Landscape Change. Changes in the cultural landscape of the 19th and the 20th-century in East and Central Europe", organised in cooperation with KAJAK, the Institute of History of Tallinn University, Collegium Carolinum situated in Munich and Marburg Herder-Institute.



September 10-12 – the international interdisciplinary conference “Bellies, Bodies, “Policey”: Embodied Environments between Catastrophes and Control” (principal promoter U. Plath) was held under grant “History of Baltic Food Culture”.

September 10- 11 – papers were delivered at the Institute of History of Tallinn University, and on September 12 in Johannes Esto House at Tartu. Under consideration were embodied environments over history. Organisers of the conference were, besides the Literature Centre also the University of Tartu and Tallinn University, Rachel Carson Centre for Environment and Society (Munich), Nordost-Institut (Lüneburg) and European Society for Environmental History. Conference was attended with papers by 23 researchers from Germany, Austria, Hungary, England, Finland, the USA and Estonia.

Several events of local importance were also held. Among others, on October 18 Ene Mihkelson’s anniversary conference ““Not the time do seek I, but myself in the time”: Ene Mihkelson 70” (principal promoter Eneken Laanes) organised by the Literature Centre in cooperation with the University of Tartu. 9 researchers from various research institutions of Estonia delivered papers drawing on topics of Ene Mihkelson’s work. At the conference, a talk-shop was organised with translators of E. Mihkelson from Finland and Latvia.

October 21 – Joint seminar titled “Child in literature 2” organised by the Literature Centre with The Estonian Children’s Literature Centre (principal promoter E.-M.Talivee). When the first seminar held in 2013 was focusing on presentation of child in texts of Estonian fiction, then this year 10 researchers delved into presentation of child in the Nordic children literature, much of which has been translated in Estonian in the recent years.

In 2014 regular theoretical seminars by researchers of the Literature Centre continued in Roosikrantsi house, at the Museum Department and elsewhere. Aare Pilv promoted a seminar “Existential and cultural self-poiesis” (31.01). Ulrike Plath spoke on the topic “Gifts of woods on the Baltic German dinner table. The intertwined food culture or cultural transfer?” (21.02). Merlin Kirikal’s seminar topic was ““New woman’s” representations in Johannes Semper’s prose” (31.03). Mirjam Hinrikus deliberated on the topic “Was Tammsaare a feminist?” (30.04). Last working seminar of 2014 on the topic “Multidirectional memory in the 21st C. Estonia: Imbi Paju, Sofi Oksanen, Kristina Norman” was moderated by Eneken Laanes (20.11).

In 2014 the Literature Centre released four books. In October the 25th volume of the series “Collegium litterarum” titled “Autogenesis and Transfer. The Development of Modern Culture in Estonia” (compiler Rein Undusk) appeared. That collective monograph comprises a selection of solid articles written under target-financed research project of the Literature Centre carrying the

same name (2008-2013, project leader J. Undusk). Represented are all principal investigators of the topic (Mirjam Hinrikus, Piret Kruuspere, Eneken Laanes, Liina Lukas, Anneli Mihkelev, Aare Pilv, U.Plath, J.Undusk, and R.Undusk), as well as some investigators, funded from other sources (E.-M.Talivee, Õne Kepp, and Eva-Liisa Linder). All texts are dedicated to researching the problem range of spontaneity and transfer in Estonian culture and broader, in the cultural theoretical meaning; the book is supplied with introduction in English and extensive resumes.

In cooperation with the Võru Institute, at the beginning of the year the Literature Centre released for the first time the collection comprising the whole poetry of Artur Adson titled "Under the shady trees. Poetry. Luulõtusõ." It contains texts from eight collections of verses. Compiler of the collection was Õ.Kepp, who edited it jointly with Tiia Allas. The book is illustrated with Artur Adson's drawings. In October, the 11th volume of Friedebert Tuglas' "Collected works" appeared, containing longer critical essays about various Estonian writers (Eduard Vilde, Ernst Säreava and others) and travelogues and shorter narrative pieces of writing. The book edited by E.-M.Talivee, was supplied by afterword and commentaries by Mall Jõgi, it is illustrated with a lot of photos and Märt Laarmann's woodcuts. In November there appeared, as the eighth book of the series "Cultural History Collections of the Under and Tuglas Literature Centre", the catalogue compiled by J.Undusk and E.-M.Talivee "Word bridge. Books and art from Paul Reets' collection". The centrepiece research of the catalogue was authored by the art historian Jüri Hain. It is accompanied by essays of J.Undusk and Õ.Kepp. The catalogue will be soon available in pdf-format also on the website of the Literature Centre. All three books published in autumn 2014 by the Literature Centre have been designed by Tiiu Pirsko. On December 10, there was presentation of the new books having appeared in autumn, in the hall with black ceiling of Tallinn Writers' House, where the books were presented by their authors and compilers.

The highlight work of 2014 is the ground-breaking monograph by senior researcher of the Literature Centre Martin Klöker "Literary life of Tallinn in the first half of the 17th C. (1600-1657). Educational institutions and impromptu poetry" ["Literarisches Leben in Reval in der ersten Hälfte des 17. Jahrhunderts (1600-1657). Institutionen der Gelehrtensamkeit und Dichten bei Gelegenheit"], translated in Estonian by Professor of Classic Philology of the University of Tartu Kristi Viiding and edited by Katre Kaju. It is a research by Martin Klöker which evolved into his doctoral thesis. It is a most thorough and systematic treatment of the early modern-time literature evidenced in the area of Estonia. The work was presented in April in the Estonian Academy of Sciences house and on October 29 in Tallinn City Archives, witnessing the joint seminar of the Literature Centre and Baltic German Cultural Society, at

which Martin Klöker delivered a paper on unrequited love expounded in the 17th C. letters of residents of Tallinn.

Completed at the end of 2014 and published at the beginning of 2015 was an omnibus work "Estonian word theatre 1965-1985" Volume I, with editor in chief being researcher of the Literature Centre P.Kruuspere. The book comprises reviews of curious phenomena of theatrical process for two decades and 17 stage-director portraits from a dozen authors. The book was completed in cooperation of the Literature Centre with the State Art School of the Estonian Academy of Music and Theatre and the Estonian Theatre Union. Sitting on the editorial board were also Lea Tormis, Luule Epner, Mari Kolk and E.-L.Linder.

In 2014 researchers of Literature Centre delivered 36 scientific papers, of which 19 at international scientific events. Among them were conferences "Kotzebue-Gespräch III" in Berlin, "Carl Gustav Jochmann-Tagung" in Heidelberg, "Narratives of Confinement, Annihilation, and Survival: Camp Literature in a Comparative Perspective" in Hamburg, "Multidirectional Acts of Memory in Post-Soviet Estonian Memory Culture" at Yale University, Center of Baltic Studies in New Haven, at conference of American Comparative Literature Association in New York, conference of the Baltic and Scandinavian Studies in New Haven (Yale University), "NORA Conference – Voices in Nordic Gender Research" in Roskilde, "The Fourth International Conference of EAM" in Helsinki, "La décadence dans tous ses états/States of Decadence" in Halden, 2014 EASLCE-NIES Joint Conference "Framing Nature: Signs, Stories, and Ecologies of Meaning" in Tartu, "Nach der Hybridität II: Transplantation – Transkulturation" in Gießen, "2nd World Conference on Environmental History" in Guimara, "Kansas City 38th Conference of the German Studies Association" in Kansas City, "Baltisch-deutsche Kulturbeziehungen vom 16-19 Jahrhundert. Medien – Institutionen – Akteure" in Heidelberg. From January 1-June 10 senior researcher Eneken Laanes sojourned at a long scientific mission in the USA, Yale University, fulfilling the research topic "Multidirectional Acts of Memory in Baltic Literature, Art and Film".

In 2014 researchers of Literature Centre authored 9 scientific articles in foreign languages and 29 in Estonian.

Researchers of Under and Tuglas Literature Centre are involved in cooperation with Estonian universities in supervising and reviewing BA, MA and PhD theses and delivering courses of lectures (E.Laanes, M.Hinrikus, U.Plath, P.Kruuspere). Research fellows participate in the work of academic council of Academic Library of Tallinn University and in completion of the collections of the Library as well as these of the Estonian National Library, and they also participate in academic council of Estonian Literary Museum.

J.Undusk is member of Cultural Fund of President of the Republic of Estonia (since 2008), member of Prize Panel of National Science Prizes (since 2011), member of National Students' Papers Prize Panel (since 2011), Chairman of Board of F.Tuglas "Collected works" (since 2010). The Literature Centre also participates in the work of several panels on fiction (F.Tuglas short story prize, Jaan Kross literature prize) and other panels (Priit Põldroos Prize). Outstanding among popularising events is the Impressions Night Talk moderated by E.-M.Talivee and J. Undusk about Nikolai Triik, Friedebert Tuglas and Erik Obermann at KUMU Art Museum Department (13.09) within frame of the exposition "Nikolai Triik. Classics of the Period of Modernism".

THE MUSEUM DEPARTMENT continued public lectures. On February 3 the traditional dialectal poetry morning dedicated to Artur Adson was held, with the author Lauri Sommer speaking (organisers Lea Eermann and Õnne Kepp). On March 2, at Friedebert Tuglas 128th anniversary, the Museum announced the victors of Friedebert Tuglas short story prize. The panel composed of Õnne Kepp (Chair), Ülo Mattheus, Triinu Pakk, Jürgen Rooste and Anti Saar decided to award prizes for novels published in 2013 to Maarja Kangro and Madis Kõiv. On June 4, a joint seminar of the Literature Centre (M.Kirikal) and the University of Tartu (Marit Karelson) in the Roosikrantsi house titled "Johannes Semper and the French spirit". Papers were delivered by 8 researchers (incl. E.-M.Talivee and M.Kirikal). When composing the papers, various manuscript and photo material was used drawn from the stock of the Museum Department of the Literature Centre.

On June 18 there was a summer seminar held at the Museum Department with Piret Kruuspere delivering a paper titled "Text and picture in nationalist theatrical story", prompting the public to speculate about connections of text and picture in perpetuating the (nationalist) theatrical story, its construction and mediation. On October 5 there was a lecture-concert held at the Museum Department dedicated to the poetry by Marie Under in cooperation with The Union of Ukrainian Women in Estonia (principal promoter Ü.Reimets), with Õ. Kepp delivering a review of life and work of the poetess. The music to texts by Marie Under was played by Genri Tron. On October 20, on the day of recitation, the actress Katrin Nielsen recited at the Museum Department the Tuglas' travelogues from the newly published 11th volume of the Collected Works.

November 14-December 5 – the main exhibition hall of the Estonian National Library was the venue of exposition "Word bridge. Books and art from Paul Reets' collection", a follow up to the exposition held in 2013 in the Independence Gallery "Nocturnal hour. Estonian art from the collection of Paul Reets". Curator of the exposition was J.Hain, it was composed by J.Hain and J.Undusk. The cultural history collection of the art historian and literary critic P.Reets living in Boston, presently belonging to the Literature Centre, sug-

gests the connection between word and picture, text of the book and illustration. On display were pieces of West-European graphic art of the 17th – 18th C. and the 20th C. (incl. works by Pablo Picasso, Henri Matisse and Joan Miró) and some books of bibliophile value from the 17th C. The exposition was visited by 1240 people.

The Museum Department of the Literature Centre composed in cooperation with Association of Museums of Estonian Authors the travelling exposition “Juhan Liiv and others. Stories about Estonian authors”. In cooperation with the Nonprofit Organisation “Association of Museums of Estonian Authors”, another travelling exposition on Juhan Liiv was composed titled “Juhan Liiv 150”. The Museum Department composed travelling exposition of drawings by Artur Adson, holding on display copies of collections of the Literature Centre and Estonian Literary Museum (compiled by Õ.Kepp, designed by Maarja Undusk). The exposition was on display also at Säanna Culture Manor, at Dr. Fr.R.Kreutzwald Memorial Museum, at Põlva Central Library and at Ahja Library. Three works from arts collection of the Literature Centre were on display at the KUMU exhibition “Nikolai Triik 130” (30.05-28.09) and four works at exhibition of the Adamson-Eric Museum “Enchanted by Norden” (11.04-17.08).

In 2014, E.-M.Talivee and Õ.Kepp held at the Museum Department a series of lectures “On life of M.Under, A.Adson and the Tuglases at Nõmme. Literary and cultural historical background.”. The lectures were visited by 371 people. Visitors of other events of the Museum numbered 130. In 2014, archival holdings of the Museum Department were used for research by 60 scientists; altogether 2128 archival holdings were handed into use. In 2014, the Museum Department had 1671 visitors.

In 2014, 931 archival holdings were entered into the digital database MuIS (Ilona Rosenvald). Added have been digital images of 178 works of art (incl. items of industrial art). Digi-database numbers the total of 19 649 units. In 2014 the Museum Department received as a gift 3 portraits (A.Adson, M.Under, F.Tuglas) from the graphical design artist Vello Paluoja. Collections of the Literature Centre were replenished by Hermann Stock’s manuscript material (39 pp.) from Martin Saarnaki, a digital copy from correspondence of Marie Under, Artur Adson and Paul Reets (correspondence is deposited at the Estonian Literary Museum), manuscripts of two works by Friedebert Tuglas (“Selection of letters” and “Ado Grenzstein’s departure”) and the sound recording carrying the proceedings of the ceremony of 2014 of F. Tuglas short story prize. The Museum Department was donated 37 books, 37 works were bought to the manuscript library.

The Literature Centre has proceeded to text-critically edit the manuscripts of the 14th and the 15th volumes of F.Tuglas’ “Collected Works”, they contain F.Tuglas’ selected letters and the study “Ado Grenzstein’s departure”. Õ.Kepp

is preparing the collection of Marie Under's articles, to appear in 2015. Preparations were also made in anticipation of compiling the P.Reets' collection of articles.

In 2014, the Literature Centre obtained a subsidy from the project of the Centre of Environmental Investments, with the help of which, under supervision of E.-M.Talivee, a standing exposition will be composed in 2015 titled "The garden of the Adsons and the Tuglases". The outcome of this project will be a study trail in the garden of M.Under, A.Adson and the Tuglases. The Estonian campaign for cleaning "Let's do it" held in spring at the garden of the Museum Department (3.05) was attended by 25 people. The Literature Centre is going to make it a traditional event.

## **INSTITUTE FOR ADVANCED STUDY OF THE ESTONIAN ACADEMY OF SCIENCES**

Institute for Advanced Study of the Estonian Academy of Sciences (SUI) was founded by decision of the General Assembly of April 24, 2013. SUI Statutes were approved by the General Assembly on December 4, 2013 and registered by Order of Minister of Education and Research of April 22, 2014.

The main responsibility of the SUI is to carry out high-quality research, in order to reinforce the capacity of the Academy for cooperation with the state and society, assisting the Academy in its statutory advising and analysing mission, viz:

- to perform research necessary for standing committees of the Academy and for drafting the analyses commissioned from the Academy;
- to formulate R&D directions that require high level of scientific and technological competence and are strategically essential to Estonia; to map out the relevant activities and find ways of their implementation in cooperation with the state institutions, international public sector and private sector;
- to take an active part in shaping the Estonian RD&I policy, also in the international division of labour in R&D areas falling within its remit.

Board approved the SUI research council on June 7, 2013. Until the end of 2014 the council worked in the following composition: Members of Academy Mart Ustav (Chairman), Jüri Engelbrecht, Ene Ergma, Mati Karelson, Ilmar Koppel, Enn Lust, Enn Mellikov, Leo Mõtus, Tarmo Soomere, Martin Zobel, Urmas Varblane, Eero Vasar, Jaak Vilo.

Four working groups were established at the SUI:

- Working group for devising the concept of research career (Chairman Ülo Niinemets). Resulting draft version was submitted to Ministry of Education and Research on December 4, 2014.
- Working group for the programme on Centres of Excellence in Research (Chairman Martin Zobel). The WG participated at drafting the Regulation of Minister of Education and Research “Supporting Centres of Excellence in Research for improving the international competitiveness and high quality of research” (in cooperation with the Council of Estonian Centres of Excellence in Research).
- Working group on strategy of R&D funding (Chairman Urmas Varblane). At the meeting held on June 17, 2014 the WG decided to carry on in three main directions: strategic vision on funding research; executive vision on funding research; role of business sector in funding

research. Urmas Varblane represented the Academy in the working group on funding research of Ministry of Education and Research; as the outcome, this WG produced a document “Proposals for organisation of funding research” that has been presented to the scientific community for discussion.

- Core competency working group on the strategic development of science (Chairman Tarmo Soomere).

The Institute carried out a project within the Health Promotion Research Programme TerVE (project supervisor Kitty Kubo), with the general goal of charting a conceptual basis of health R&D strategy and leading the process also involving various stakeholders. As a result, an information and cooperation network uniting various health R&D stakeholders (areas, sectors, institutions) was built up; longer-term health-related RD&I strategy issues were analysed. The project results enhance the capacity of the Ministry of the Social Affairs in implementing the health care R&D policy (see pp. 37-38).



## FINANCIAL ACTIVITIES

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The budget of the Estonian Academy of Sciences for 2014  
and its implementation (EUR)

### INCOME

ALLOCATIONS TO THE ACADEMY OF SCIENCES FROM THE STATE BUDGET	1 306 458
OTHER REVENUE	181 158
ALLOCATIONS TO UNDER AND TUGLAS LITERATURE CENTRE	305 707
<b>TOTAL INCOME</b>	<b>1 793 323</b>

### EXPENDITURES

#### GENERAL BREAKDOWN

Main activities of the Academy (through Academy Office)	652 383
Estonian Academy Publishers	273 582
Allowance to Members of Academy	293 090
Allowance to research professors	100 662
Prizes, grants and medals	8 778
Scholarly Societies	64 600
Incl. Estonian Naturalists' Society	26 800
Mother Tongue Society	6 400
Estonian Geographical Society	5 700
Society of Estonian Areal Studies	5 000
Estonian Union of the Philosophy and History of Science	4 500
Estonian Literary Society	4 500
Learned Estonian Society	4 500
Estonian Musicological Society	4 500
Estonian Physical Society	1 500
Estonian Association of Engineers	1 200
Membership fees to international scientific organisations	43 600
Estonian Naturalists' Society building renovation Project <sup>4</sup>	25 000
National Science Prize Committee	25 000
Under and Tuglas Literature Centre	305 707

**TOTAL EXPENDITURES** 1 789 539

<sup>4</sup> Project under Health Promotion Research Programme TerVE.

## **ASSOCIATED INSTITUTIONS**

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Pursuant to “Estonian Academy of Sciences Act” passed by the Riigikogu in 1997, the research, development and cultural institutions and scientific societies outside the structure of the Academy, whose activities and objectives however conform to the activities and objectives of the Academy can associate themselves with the Academy. The association of institutions with the Academy is effected under bilateral agreements, which specify the purpose of association as well as the tasks and commitments for both parties.

One form of cooperation between the Academy and the institutions associated with it is the reciprocal exchange of information. Surveys of the activities of the institutions associated with the Academy have been published in the Academy Year Book since 1998. Included reviews differ from one another by their structural composition, exposition and scope. They are practically presented in the same form as submitted, with minor modifications, suggested by the editorial board and kindly accepted by respective institution.

Reviews on the 2014 activities of the institutions associated with the Academy have been presented in the chronological order of their association date:

Tartu Observatory .....	124
Institute of Ecology at Tallinn University .....	127
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## TARTU OBSERVATORY

Associated with  
the Estonian Academy of Sciences  
8.05.1998



TARTU OBSERVATORY  
space research centre

Founded: 1808

Personnel: 98, of whom 53 researchers, 19 engineers and technicians engaged  
in research work

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In September 2014 the Tartu Observatory celebrated its 50th anniversary on hill Tõravere. To mark the occasion, we issued in cooperation with the Publishers Aasta Raamat the book on our story “Tartu Observatory at Tõravere 50”, carrying the names of almost 600 people having worked at the Tartu Observatory. We have ample reason to pride ourselves on our achievements. Coincidentally, in that year we finalised the works in the project of renovation of the main building and construction of the laboratories and were able to open our premises to guests and for holding large events.

Within the framework of the science week “The Space connects”, the celebration of the anniversary was seconded by the workshop of space technology students, the international conference on space science and technology, the seminar to entrepreneurs presenting programmes of European Space Agency and the public observation night, to all enthusiasts of the Researchers’ Night 2014. We organised, the next in turn remote sensing days in Tõravere, attracting ca. 100 specialists in the area from all over Estonia, in order to present to colleagues the outcome of our research work and to focus on broader opportunities to use the data of remote sensing in economy and to contribute to cooperation with the European Space Agency. There appeared from print the collection of articles of our researchers “Estonian remote sensing 2014”, published by the Environment Agency.

We attracted the widest possible international attention by organising in Tallinn the Symposium 308 of the International Union of Astronomy “World of Zeldovich 100”, considering the structure of Universe and dark matter, having brought repute to the whole Estonian astronomical science. Attending were the majority of the absolute best of researchers in that area in the world, in-

cluding six laureates of the acclaimed Gruber science prize and understandably two nominees of the prize for that year – Member of the Academy Jaan Einasto and Brent Tully, whose long research into understanding the Universe has resulted in discovery of dark matter and space web.

The journal Nature published at the end of the year as the cover story the analysis of placement and movement of galaxies surrounding the Milky Way. The presentation on that topic was commissioned from an outstanding expert in the area – Elmo Tempel, awarded by President the Young Researcher's Prize last year. That shows clearly that our space researchers are on the correct track with their research!

We did not however do so well at the contest for institutional research subsidies to fund the research activity; the crashing failure of one application showed the vulnerability of the whole funding system. Although in the round of the next year we scrambled out of the major crisis with new applications in cosmology and observational astronomy, we are of necessity to focus on in-house changes in our future activities.

In 2014, the Tartu Observatory continued fulfilling one target-financed research topic and embarked on work within framework of a new institutional research subsidy:

- Quantitative remote sensing of vegetation covers (principal investigator A.Kuusk);
- Development of galaxies in the hierarchic Universe (principal investigator E.Saar). The activities of that topic support also the research work of the Centre of Excellence “Dark matter and (astro) particles in physics and cosmology”.

Through Estonian Research Council, three grants of the Estonian Science Foundation continued to be funded, two personal research projects and one post-doctor project started:

- L.Leedjärv – Research into variability of the brightest stars of the star associations;
- J.Kuusk – Metrologic factors influencing the precision of optical remote sensing measurements;
- A.Tamm – Share of galactic disks and spheroids in the Universe;
- J.Pisek – Structure and seasonal dynamics of surface cover of woods from remote sensing of several directions of view;
- J.Nevalainen – Where did half of baryons get lost?
- T.Tuvikene – Automatic separation of star spectra from digitised photo plates: methods and application.

Besides those we carried out 11 international cooperation projects, 5 different research apparatus and infrastructure development subsidies, participation in 5 environmental protection and technology R&D projects, 2 popularisation and

environmental education projects and fulfilled several smaller Estonian and international agreements.

Published were 42 articles of ETIS category 1.1, and 14 more in other international journals or conference volumes.

A novel method of remote sensing applications was the topic of the doctoral thesis “X-band synthetic aperture radar applications for environmental monitoring” by Kaupo Voormansik, continuing those studies now as researcher of the Tartu Observatory. Hopefully that competence will be applied also for carrying out the applied research of the EU Copernicus programme and for cooperation both with Ministry of the Environment and Ministry of Agriculture.

Negotiations with the European Space Agency led to the decision on accession at the end of the year. We have used our best endeavours jointly with partners to facilitate the initiatives of the programme “Internationalisation of research” – “Participation of Estonia in European Space Agency – Cooperation network of space science and technology GEOKOSMOS” and “Integration of the Estonian programme of space technology and space applications in the European research space – COSMOTECH”.

A thorough overview of activity of the Tartu Observatory appeared in Yearbook 2014 and also in the traditional Observatory calendar 2015.

## **INSTITUTE OF ECOLOGY AT TALLINN UNIVERSITY**



Associated with the Estonian Academy of Sciences  
16.06.1998

Founded 1992

Personnel: 33, of whom 27.5 researchers (estimate on the full-time basis)

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Scientific and Administrative Secretary: Ludmilla Krusta,  
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In 2014, scientific research was carried out within the framework of 62 topics of different level and within the framework of projects, incl. 4 Estonian Science Foundation grants (incl. 1 Mobilitas' grant), 5 fundamental researches and 40 applied cooperation agreements. Research work was also carried out within framework of 6 doctoral theses.

The Institute participated in international cooperation projects and programmes, of which of wider scope were:

- II Post-POLLANDCAL – NordForsk Researcher network, a formal network of palynologists, 2005-
- IGBP (International Geosphere-Biosphere Programme) PAGES Focus4 PHAROS – Land Cover Working Group (M.-J.Gaillard, S.Mooney, S.Sugita), 2008-2023
- Forestry and Water Network (ECOREGION, SKOGSSTYRELSEN), 2011-...
- Research on forest carbon dynamics and forest stand development, Kyoto University, 2012–2016
- Elav rand 2/Den levande kusten 2/The living coast 2, KIMO Baltic Baltic, 2012-2016
- Importance of hydrological conditions to the sedimentation and carbon burial in ponds and small reservoirs. Estonian Research Agency/fin programm PARROT, 2013-2014.
- JPI Vesi/JPI WATER (Joint Programming Initiatives). Ministry of Education and Research, 2013-2016
- Lifelong Learning Programme/LLP-HE4SD. University of Gloucestershire, 2013-2016

The main activity of the Institute was carried out within the framework of the institutional research subsidy project started in 2014 “Environmental Changes and Their Effects on the Coastal Landscape of Estonia: Past, Present and Future – ENCHANTED”, research topic supervisor Shinya Sugita; within the framework of three Estonian Science Foundation grants, research topic supervisors Are Kont, Hannes Tõnisson and Angelika Portsmuth, and the Mobilitas’ top researcher project “Dynamic Landscape Analysis in Southern Estonia (DYLAN-Estonia): Spatial Dynamics of Vegetation and Land Cover through Time”, research topic supervisor Shinya Sugita.

In 2014, the Institute continued participation in two projects of the Estonian environmental protection and technology programme (KESTA): “Dynamics of living systems in the context of nature conservation (EDULOOD)” (jointly with the University of Tartu and Estonian University of Life Sciences) and “Assessment of potential changes of Estonian climatic and environmental situation by reference to the results of dynamic models of atmospheric, marine and fluvial runoff” (EstKliima) (jointly with Tallinn University of Technology). Also ongoing was the Tallinn University research fund project “Elaboration of practices of environmental communication after the example of Kurtna MKA” (KUrtna KEskkonnaKOMMunikatsioon – KUKEKOMM), aimed at elaboration of guidelines to various stakeholders for communication of environment protection issues, in order to find balance and to avoid conflicts on the scale environment protection-recreation-industry, while taking into account the interests of local population and their cultural idiosyncrasy.

The Centre for Sustainability (SAHK), set up in the composition of the Institute continued its work. Task of the Centre is to promote the modern interdisciplinary research directions for advancing sustainable development, education for sustainability, incl. higher education, as well as organising of the activities necessary for launching the relevant training and instruction work.

In the reporting year, three European Economic Space funded projects were launched:

- Coastal habitats – project funded by European Economic Space programme “Elaboration of criteria and monitoring methods of favourable state of coastal (mainland) habitats (Nature Directive Annex I: 1210, 1220, 1230, 1310, 1620, 1640, 2110, 2120, 2130, 2140, 2190 and 2320)” (Rannikas) to continue from May 2014 to April 2016.
- Methodology of determining the ecosystem services – project funded by European Economic Space Financial Mechanism programme 2009-2014 “Exploitation of Integrated Inland Water Bodies and Seas” (EMP) titled “Elaboration of methodology of determining and mapping the ecosystem services of sea and inland reservoirs” (EMP\_OST) to

continue from June 2014 to December 2015 and “Ecosystem-based organisation of marine environment”.

- The project funded by European Economic Space Financial Mechanics programme 2009-2014 “Exploitation of Integrated Inland Water Bodies and Seas” (EMP) titled “Providing assessment for ecosystem-based organisation of marine environment after the example of sea bottom and sediments of the Gulf of Finland” (SedGoF) to continue from July 2014 to April 2016.

Cooperation agreements continue with Environmental Information Centre for use of the programme of “Information system of Estonian nature” (EELIS) and with Forestry and Forest Products Research Institute of Kyoto University (Japan) “Research on forest carbon dynamics and forest stand development”.

Continuing also is the cooperation project of development of infrastructure involving the University of Tartu, Tallinn University of Technology, Estonian University of Life Sciences, Tartu Observatory, and Estonian Institute of Meteorology and Hydrology: “Object of the Estonian road map, the Estonian Environmental Research Observatory” (KKOBS). In the process of its realisation the laboratory-base of North-East Estonian Branch of the Institute of Ecology would be modernised, and will become available. In the North-East Estonian district such field survey base is only maintained by the Institute of Ecology.

Institute of Ecology is involved as partner also in the work of two Centres of Competence:

Health Promotion and Rehabilitation Competence Centre at Haapsalu College of Tallinn University (TERE KK), with the Institute of Ecology engaged in re-establishing the curative mud research in Estonia, helping to equip the respective laboratory, and increasing thereby the laboratory base at disposition of the Institute;

Estonian Oil Shale Competence Centre at Kohtla-Järve College of Tallinn University (PKK), focusing on development of oil shale excavation, chemical industry and energy generation technologies, with the Institute of Ecology vested with the task to supervise the organisation of environmental studies related to that area.

The applied researches were traditionally focusing on advising the industrial enterprises as to how to adapt themselves to environmental protection restrictions in North-East Estonia, and the problems of reclamation of different wetland types.

The Institute organised two international seminars – “The Living Coast Project and Mobility No. 5” and “Regarding the theses composed on the topic of Finnish marches”, and in cooperation with other Institutes of the University



the international conference “Monitoring and Management of Visitors in Recreational and Protected Areas”.

In the reporting year, 38 scientific articles were published by the staff members of the Institute, incl. 25 in peer reviewed international issues. Besides that, 14 abstracts of conference came out. 43 papers were delivered at international conferences and meetings, 12 papers at national events and 19 papers at scientific seminars of the Institute.

Researchers of the Institute were actively involved in teaching at universities – by delivering lectures and supervising undergraduate and postgraduate students at Tallinn University as well as at Euroacademy, Tallinn University of Technology and the University of Tartu.

**ACADEMIC LIBRARY  
OF TALLINN UNIVERSITY**



TALLINNA ÜLIKOOL  
Akadeemiline raamatukogu

Associated with the Estonian Academy of Sciences  
17.06.1998

Founded 1946

Personnel: 110, of whom 3 researchers

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[www.tlulib.ee](http://www.tlulib.ee)

Director: Andres Kollist, Tel: +372 665 9401, Fax +372 665 9400,  
[andres.kollist@tlulib.ee](mailto:andres.kollist@tlulib.ee)

Number of registered users: 47 998

Number of copies in the circulating collection: 2 652 049

In 2014, a number of thematic events focussing on old book were held. An impressive poster and book exposition of Tallinn city printing house was composed, and successful cooperation with Estonian and the foreign partners was continued. A new V-shaped digitising device was acquired, enhancing the possibilities to digitise old books.

Under the aegis of the old book centre, the series of presentation days were continued. Within the series of lectures "Introducing the Baltica collections", Aija Sakova-Merivee and Rene Haljasmäe visited the Rahva Raamat bookstore, located at Viru Centre in March to speak about the Estonian oldest public and personal libraries. In December, researcher of the Library Eero Kangor gave an overview of formation of photographic collection of the Academic Library of Tallinn University and the postcard collection of the collector August Rebane.

The second series of events of the old book centre "Researcher in the Baltica Reading Room" turned out to be a rather international occasion. In May, the centre presented the history of the Japanese-style stationary pound-net fishing in Estonia (pound net is a trap for catching fish, consisting of a system of nets staked upright in the water and a rectangular enclosure or pound from which escape is impossible); in December, papers in German were delivered by old book researchers from Germany and Switzerland. In the first foreign-language lecture Matthias Müller provided an overview of lotteries and literacy in the early modern times. His research was largely based on the Baltica collection. The Baltica scholar of Tallinn University dr. Peter O.Büttner, also engaged in work with the old book collection, discussed on writing skills at the turn of 18th-19th C.

In October, the exposition "Tallinn city and gymnasium printing house (1634-1828)" was opened in a festive atmosphere. That book and poster exhibition

was completed in cooperation with Tallinn City Archives. The event was ushered in with a presentation day, where Tiiu Reimo delivered a paper “380 years from the first Tallinn printed items” and Katre Kaju delved into Tallinn educational printed works dating from the period of the Swedish rule. At the end of the year, the catalogue of the exposition containing research articles and a host of illustrations was issued.

Estonian Expatriate Literature Centre organised a conference “70 years from escape” at Tallinn University on September 18-19. On behalf of the Library, papers were presented by Sander Jürisson and Anne Valmas. The event was attended by guests from Latvia, Germany and Holland.

In November the The Baltica and Old Books Conservation Department of the Academic Library organised, in cooperation with the Institute of Information Sciences of Tallinn University the seminar on Estonian retrospective national bibliography in the foreign languages. The event was attended by Estonian experts in the profession. The Seminar was completed with the roundtable discussion.

In 2014, the Baltica scholarship of Tallinn University was allocated to two researchers of history, with the first, Dr. Peter O.Büttner of Zürich University having proceeded to work with the Baltica books at the beginning of November, and with the second stipendiary, Michael Rocher, a doctoral student of Halle-Wittenberg Martin Luther University, to proceed to work with the Baltica collections at the beginning of 2015. The Baltica scholarship to international researchers is designed to attract those scientists doing research outside Estonia, to the cultural-historical Baltica collections.

The Library held score of tours for various target groups: students of Estonian higher schools, international students, lecturers, and experts in the profession. The Library hosted visitors from Sweden, Poland and Turkey. There was ongoing cooperation with Tallinn German Gymnasium, Haabersti Russian Gymnasium, Tallinn English College, the Tartu University and Tallinn University of Technology.

The reading rooms of the Academic Library and the open access literature are continually replenished and reorganised. In connection with liquidation of the library of the Law Academy, its reading materials and documents were moved to the Academic Library and its Study Centre. At the end of the year, the Academic Library opened a separate reading room on the basis of Professor Rein Müllerson’s personal collection. That year witnessed several other reorganisations: the open access collection of the Humanities reading room was enlarged to merge with the home lending room, the inter-library lending service became part of the home lending, and preparations were made to employ two readers’ study rooms (to be launched in 2015).

Traditionally, in the last week of instruction at the University, the Library organised the Night Library. On May 19-22 the Library was opened until 23.00, the reading rooms were visited by over 300 readers, the majority being students of Tallinn University. Organisation of the Night Library was supported by Tallinn University Development Foundation, and free-of-charge spring water was supplied by the company Eden Springs Estonia OÜ.

In 2014, Estonian Expatriate Literature Centre was allocated from Ministry of Education and Research Compatriots Programme 9 500 euros to the project "Preservation and making available of cultural heritage of Estonians in exile". The extra funds enabled the Library to recruit additional labour at input of data into personal databases and facilitated streamlining of the collection of the off-prints of research works.

In summer, the e-catalogues of Tallinn and Tartu ESTER were merged. In October, the Library transferred to the new library system Sierra, with respective preparatory works having been underway since beginning of the year. In December, the innovative self-service system of book return basing on RFID technology was launched: an automatic device sorts the items returned by the reader according to their location and status.

In 2014, the new V-shaped semi-automatic digitising device was acquired, with the help of which one can scan the documents hard to open. By the end of the reporting year, the Digitisation Centre had digitised the total of 727 396 pages of documents.

Academic Library is member of international organisations Bibliotheca Baltica (Association of Libraries of Baltic Countries), CERL (Consortium of European Research Libraries), EAHIL (European Association for Health Information and Libraries), ICOM (International Council of Museums), IFLA (International Federation of Library Associations), LIBER (Association of European Research Libraries), HIBOLIRE (Nordic-Baltic-Russian Network on the History of Books) and Nonprofit Organisation Consortium of Estonian Libraries ELNET.

## **INSTITUTE OF THE ESTONIAN LANGUAGE**



Associated with  
the Estonian Academy of Sciences  
11.05.1999

Founded 1947

Personnel: 73, of whom 17 researchers

Lexicographers, terminologists and language planners 28

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Institute of the Estonian Language has seven departments:

Department of History of Language and Linguistics, Head Urmas Sutrop

Department of Language Technology, Head Tõnis Nurk

Department of Finno-Ugric Languages and Dialects, Head Mari Uusküla

Department of Language Planning, Head Peeter Päll

Dictionary Department, Head Margit Langemets

Terminology Department, Head Tiina Soon

Personnel and Administration Department, Head Kai Oro

### DEPARTMENT OF HISTORY OF LANGUAGE AND LINGUISTICS

In 2014 it fulfilled the target funded research topic “Word and concept in the development of Estonian vocabulary and place names” (2010-2014), supervised by Dr. phil. Urmas Sutrop.

In the area of cultural vocabulary, the Department brought its attention to bear on the impacts of reformation on the development of cultural vocabulary and on set-up of Agricola’s list of ancient pantheon. The researchers were concerned with elucidation of etymology of cultural words. Respecting the analysis of place names, the manuscript of the book “Estonian toponyms” was completed. In cooperation with Department of Language Planning, the international seminar on research of place names “Liber Census Daniae Revisited” was organised, with the participants delving in the oldest known strata of Estonian place names dating from the 13th C. In the domain of colour names, focus was made on development of psycholinguistic, experimental and statistical methods. Comparative study of colour space of various languages yielded novel results. Jingyi Gao defended his doctoral thesis “Basic Colour

Terms in Chinese: Studies after the Evolutionary Theory of Basic Colour Terms” at the University of Tartu.

Underway was fulfilment of the personal research project “Cultural shift in Estonian at 17th/18th C.”, project leader Dr. Kristiina Ross. Within its framework, the tentative folk songs corpus was compiled after the example of folk songs of the Ambla parish, and the tentative corpus of church hymns basing on a publication of 1728. A comparative analysis was started into cases of difference and coincidence of the lexis of folk songs and church hymns.

The Department also did some research into history of dialects and started compiling the comparative grammar of dialects. It prepared the release of the new complemented and corrected version of the “Small Dictionary of Dialects”.

#### DEPARTMENT OF LANGUAGE TECHNOLOGY

In 2014 it fulfilled the target funded research topic “Modelling intermodal phenomena in Estonian” (2009-2014), supervised by Dr. Meelis Mihkla. The researchers continued study of distinctive phonetic correlates of informative structure of the sentence stress. Apparently it is not feasible to treat the contrastive focus as a separate category in Estonian, basing on prosody.

To mark the textual articulations in the synthetic speech, the manner of reading the audio books was analysed. For finding out the listener’s prosody preferences, perception experiments were carried out, attended by the blind persons, the visually impaired persons and the persons with common eyesight. Basing on results, prosody patterns were composed, to highlight titles and direct speech in synthesised speech.

The Department released a research on the problem range related to emotions triggered by the text; it also considered the semantic motivation of dynamic description of emotions and the diachronic semantics. Researchers finalised the study on acoustics of speech emotions. The studies corroborated the idea that the verbal content of the text has no significant influence on acoustics of speech emotions: given the presence of the text and sound, a person judges over emotions basing on sound. Conceivably, expression and recognition of emotions is expressly culture-specific. The researchers upgraded the statistical methods of determining emotionality of the written text and concluded that the identification percentage depends on text type and the text type can be determined with statistical methods basing on an orthographic passage.

Rene Altrov defended his doctoral thesis “The Creation of the Estonian Emotional Speech Corpus and the Perception of Emotions” at the University of Tartu.

Within the National Programme for Estonian Language Technology (2011-2017) there continued the projects:

- Statistical Models of the Emotionality of Speech and Written Text, project leader Hille Pajupuu  
see [peeter.eki.ee:5000/applications/list/](http://peeter.eki.ee:5000/applications/list/).
- Interfaces for Speech Synthesis, project leader Meelis Mihkla,  
see [heli.eki.ee/](http://heli.eki.ee/).
- Audio books generator and Digar audio interface, project leader Meelis Mihkla
- Implements of Lexical Resources, project leader Ülle Viks.
- Centre of the Estonian Language Resources, project leader Tõnis Nurk,  
see [keeleressursid.ee/et/eesti-keeleressursside-keskus/](http://keeleressursid.ee/et/eesti-keeleressursside-keskus/), partners the University of Tartu, Institute of Cybernetics of Tallinn University of Technology, Institute of the Estonian Language.

#### DEPARTMENT OF FINNO-UGRIC LANGUAGES AND DIALECTS

The Department continued work at compiling and editing the new academic Etymological Dictionary. Latvian, Baltic and Slav loanwords were of especial concern of the Department. The Department also continued compiling the Dictionary of Dialects of Estonian, the 26th fascicle appeared (*matkit-mussis*), see [www.eki.ee/dict/ems/](http://www.eki.ee/dict/ems/). The researchers edited the Udmurt Dictionary and compiled the database of Livonian. They were also engaged in compiling “Hungarian-Estonian-Hungarian dictionary of grammatical collocations”. Within framework of the project of the Hungarian Academy of Sciences and the Estonian Academy of Sciences “Socio-cultural aspects of linguistic variation in the Estonian and Hungarian language areas”, the Estonian party organised a joint seminar on August 25, 2014, drawing the project-related interim summaries.

Collections of the archives of Estonian dialects and cognate languages were replenished. Recorded in registry were 1 185 pages of diaries of Arvo Laanest’s Ingrian expeditions, 1 845 pages of rough manuscripts of dialect transliteration, 3 970 electronic images from Arnold Sergo’s card collection of the Hiiu dialect. Wiedemann’s card collection was scanned for 10 804 cards. The researchers digitised and processed 10 hours of the the sound materials of Estonian dialects, not digitised heretofore. They replenished the electronic databases of the phonothèque, see:

Estonian dialects recordings [www.eki.ee/~indrek/fonoteek/](http://www.eki.ee/~indrek/fonoteek/);  
Expatriate Estonian recordings [www.eki.ee/~indrek/fonoteek\\_valis/](http://www.eki.ee/~indrek/fonoteek_valis/);  
Finno-Ugric language recordings [www.eki.ee/~indrek/sugri\\_lint/](http://www.eki.ee/~indrek/sugri_lint/);  
[www.eki.ee/~indrek/sugri\\_kassett/](http://www.eki.ee/~indrek/sugri_kassett/).

On November 19, 2014 the seminar on Finno-Ugric databases was held titled “Databases of the Finno-Ugric languages and e-lexicography”, with Jussi-Pekka Hakkarainen of Finnish National Library being the key speaker.

Mari Kendla defended the doctoral thesis “Estonian ichthyonyms: formation, spread and bases of naming” at Tallinn University.

#### DEPARTMENT OF LANGUAGE PLANNING

In January 2014 the web-version of “Standard Estonian Dictionary 2013” appeared ([www.eki.ee/dict/qs/](http://www.eki.ee/dict/qs/)). Also completed was the web version of the “Reference Dictionary for Civil Servants”, see [www.eki.ee/dict/ametnik/](http://www.eki.ee/dict/ametnik/). The researchers proceeded to compile the “Standard Estonian Dictionary 2018” and the orthology dictionary to be linked thereto.

The language planners released 11 pieces of writing on the topic Language Care, they delivered ca. 30 papers. Over telephone, language advice was provided to 5994 referrals, supplied an answer was to 2819 e-mails and 3 regular letters. Language advice database contains 153 260 entries, 7 420 entries are available to public (Keelenõuvakk). Language advice website [keeleabi.eki.ee/](http://keeleabi.eki.ee/) has been updated.

In November 2014, a seminar of Estonian and Finnish language planners was held in Helsinki, with the main topic being compilation of e-language planning devices. The department continued presentation to public of the Clear Language principles, it organised jointly with other institutions the contest for the clear message prize. At the end of 2014, it organised together with the Estonian representation of the European Commission and with the daily Postimees the contest of newly coined words.

Conjointly with the Terminology Department, staff training of the EU translators was organised in Luxembourg and Brussels in September 2014, as well as Euro Language Care seminar in Tallinn. A topical collection of clear communication was released.

Updated was the Euro Language Care website <http://eurokeelehoole.eki.ee/>, ongoing was participation at the international clear communication project IC Clear.

#### DICTIONARY DEPARTMENT

In March, 2014 the “The Basic Dictionary of Estonian” appeared in paper format designed for language learners, containing 5 000 commonly used words of Estonian, see [www.eki.ee/dict/psv/](http://www.eki.ee/dict/psv/). The web version is innovative, allowing as it does to look at all forms of words and hear the pronunciation. There appeared the electronic “Estonian sign language – Estonian Dictionary” compiled on the basis of the “Dictionary of Common Estonian”, see [www.eki.ee/dict/viipekeel/](http://www.eki.ee/dict/viipekeel/).

Work on dictionaries continued, notably: 1) the one-volume “(Explanatory) Dictionary of Estonian” (to be completed in 2018, the 100th anniversary of the Republic of Estonia), containing ca. 100 000 entry words; 2) Collocation Dictionary of Estonian (partly funded by the national programme “Estonian



and the cultural memory”, project leader Dr. Jelena Kallas), with the target group being learners of Estonian. The entry words number ca. 10 000, chosen by reference to their frequency in the combined corpus of Estonian and to the daily necessity. The dictionary will be completed in 2018; 3) The base of new words and meanings (in cooperation with lexicographers of Language Planning Department). At end 2014 the base contained ca. 7 000 entries; 4) Underway is the EU joint project “Development of Estonian-Latvian and Latvian-Estonian Dictionary” [Eesti-läti/läti-eesti sõnaraamat.]” Partners: Agency of the Latvian Language (Latviešu valodas aģentūra – LVA), Institute of the Estonian Language. Project leader Dr. Arvi Tavast. The Dictionary is due to appear in April 2015.

All dictionary works are done in the dictionary system EELex.

#### TERMINOLOGY DEPARTMENT

In 2014, the main directions of work of the Terminology Department comprised updating and streamlining of the terminology bases Esterm, Militerm and educational vocabulary, participation in the work of terminology commissions, counselling the terminology commissions and development of euro-terminology.

Esterm. In 2014 the terminology base Esterm received 56 inquiries and correction proposals; in the process of responding to them, 162 entries were overhauled. In the process of updating and streamlining of the Esterm, 1 981 entries were reviewed and new terms totalling 2 784 were added (in five languages), see [mt.legaltext.ee/esterm/](http://mt.legaltext.ee/esterm/).

Militerm. Within the framework of the military and security & defence policy terminology project, 24 terminology commission meetings were held, considering 1 308 entries. In the process of the same project, in 2014 the contest of military words was held receiving 531 word proposals for nine concepts, see [termin.eki.ee/militerm/](http://termin.eki.ee/militerm/).

Within the framework of the project the Department participated at NATO Military Committee terminology commission work meetings in Brussels and Norfolk (USA).

Educational vocabulary. In the process of the educational terminology project, 19 terminology commission meetings were held (discussing 600 entries, with 410 recorded in the terminology base). “Education and upbringing dictionary” was presented in April 2014. The educational terminology base created in the process of compiling the dictionary was made available to public in Internet in November, see [www.eki.ee/dict/haridus/](http://www.eki.ee/dict/haridus/).

Euro-terminology. Within the framework of the Euro-terminology project our expert in terminology worked as a national expert in the Estonian Language Division of the European Commission and handled 460 terminology entries,

counselled euro-translators, attended the terminology discussions and terminology meetings of the EU institutions.

#### PERSONNEL AND ADMINISTRATION DEPARTMENT

Management of the organisation. The plan of structural changes was prepared to be implemented in 2015. In 2014, employment contracts of many researchers ended. It was necessary to effect rescissions of employment contracts, amendments therein, and renewal of considerably more employment contracts than usually. Due to termination of projects 2 employees were made redundant.

Trainings. In 2014, more employees as usually participated at trainings. The basic training topics were management, incl. project leading, personnel work, Labour Law, giving emergency aid, public speaking and self-expression, organisation of state procurement contracts, real property organisation pattern, records management, document management, financial management and accountancy.

Participation in commissions. In pursuance of the guidelines issued by the Research & Innovation Division of the European Commission, the Department proceeded to compile the questionnaire for carrying out the analysis of the organisation, being a prerequisite for accession to European Charter for Researchers and for applying for Quality Mark.

Replenishing of collections and databases. The Library of the Institute was replenished with the linguistic collection of Andrus Saareste. New archival premises were taken to use.

## **ESTONIAN LITERARY MUSEUM**

Associated with Estonian Academy of Sciences  
11.05.1999

Founded in 1909 as the Archive Library of the Estonian National Museum

Personnel: 104, of whom researchers 38, librarians and bibliographers 13

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Director: Janika Kronberg, Tel: +372 737 7701, Fax +372 737 7706  
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Secretary-Information Manager: Krista Ojasaar, Tel: +372 737 7700  
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In 2014, the structural units of the Estonian Literary Museum were the following:

- Archival Library with Department of Bibliography – Head Merike Kii-  
pus;
- Estonian Cultural History Archives – Head Vilve Asmer;
- Estonian Folklore Archives – Head Risto Järv;
- Department of Folklore – Head Mare Kõiva;

Three first departments administer the collections important as regards the cultural history, the archival library lacking its own research topic. The research at the Estonian Cultural History Archives, the Estonian Folklore Archives and the Department of Folklore is carried out, drawing on funds coming from institutional subsidies. Research at the Department of Ethnomusicology has stopped, however the Department has been retained in the structure of the Museum pending allocation of funds.

The publishing needs of the Departments are catered to by the Scientific Publishers of the Estonian Literary Museum, supervised by a special panel. In 2014, the Scientific Publishers released 51 pieces of printed matter incl. e-publications. 38 researchers of the Museum authored altogether 268 works of different categories, among them 127 scientific works. In progress were 30 projects reflected in the Estonian Research Information System, among them the international Nordplus supervised by Leena Kurvet-Käosaar, and the research of toponymic heritage of the memory landscapes funded by Environmental Investments Centre and supervised by Mari-Ann Rimmel. Underway are also a score of other projects supported by Estonian Ministry of Culture, Estonian Cultural Endowment and Compatriots Programme. In the reporting year, ended were the project TAP 33-1, under which sliding shelves were acquired to depositories, and the project TAP 33-2, under which digitising

equipment was acquired. Projects of the new programme for acquiring the scientific apparatus were started: TAP 49-1, under which apparatus was acquired to the photo-studio and the disk pack of the digitising centre KIVIKE [Pebble] was replenished. On account of resources of the programme TAP 49-2, the storage conditions of scientific collections will be improved in the depository block dating from the 1990-ies.

ARCHIVAL LIBRARY was 105 in that year, celebrated by a meeting with papers and an exposition composed by Ave Pill "On two sides of the border: parallels and opposites". On October 24, the 25th conference of Oskar Kallas Day on bibliology was held. On December 5, Kalev Sikk presented the bibliography composed on the basis of sources from the Archival Library "Bibliography of serials released in Estonian periodicals in 1918-1944", an exemplary token of cooperation with the users of extra-institutional collections. In the IT area the Museum transferred from INNOPAC to a new information system SIERRA, heralding an access to an absolutely new working media by employees and the single database ESTER by readers. The collections were steadily replenished with legal deposit copies; especially important among other deposits and donations were the select collection of Enn and Helga Nõu and Evald Kampus, as well as many inscribed books that used to belong to Juri Šumakov. The Library dealt daily with legal deposit copies, old books' stock, press bibliography, restoration, binding and digitising of the books.

Outcome of research of DEPARTMENT OF FOLKLORE were primarily evidenced by tokens of recognition bestowed on the work of researchers. Member of Academy Arvo Krikmann was awarded the F.J.Wiedemann language prize and the much-coveted Paul Ariste Medal, in Haapsalu the Arvo Krikmann memorial bench was opened. Senior researcher Eda Kalmre was conferred the annual folklore prize, and the Brian McConnell book award granted by The International Society for Contemporary Legend Research for her monograph "The Human Sausage Factory. A Study of Post-War Rumour in Tartu". Mare Kõiva and Andres Kuperjanov were invited to the conference of American Folklore Society as editors of the academic journal "Folklore", an upstart electronic edition in the speciality. The journals "Folklore" and "Mäetagused" [Mountainside dwellers] have appeared since 1996 and have now made it to the 59th and the 58th issue. Many researchers of the Department are members of editorial boards of foreign journals; they belong to international working groups and have been incorporated into their steering committees. Promoted by researchers in folklore, three international conferences were held in Estonia in 2014, with the fourth held in Sofia under the Estonian-Bulgarian research project. Upon promotion of Renata Sõukandi and Raivo Kalle, the summer school of European ethno-biologists was held in the island Saaremaa, as well as the 9th conference of the interdisciplinary series Medica, with the centrepiece topic "Town and health". Also of note is the series of training events on the Estonian language for kindergarten teachers organised

jointly with the Ministry of Education and Research, tutored by Piret Voolaid. Among the pieces of printed matter released in cooperation with foreign colleagues and having singular importance are the collection of legends composed by Piret Paal “Halltõbi” [Noble rot], Mare Kõiva’s collection of articles and the collection of articles composed by our Russian colleagues drawing on anthropology of the anti-Putin protests “Мы не немь” [We are not dumb].

Long-time researcher of ESTONIAN FOLKLORE ARCHIVES Olli Kõiva was conferred the Lifetime Achievements Award of the Estonian National Culture Foundation. In 2014 she authored the collection in Estonian and English “Time to Wake. Twenty eight Estonian folk-songs put down by Friedrich Reinhold Kreutzwald of Järvamaa, the Viisu village, in 1828”. In that year, the Department released an exceptional number of pieces of printed matter – besides the scientific articles, another collection “Vana Kannel” [Ancient Lyre] (XI) appeared in the folklore series magnum *Monumenta Estoniae Antiquae*, compiled by Liina Saarlo and Edna Tuvi, edited by Janika Oras and Kristi Salve. In the folk tale series *Monumenta* the second volume of academic issue of “Fairy tales” appeared, compiled by Risto Järv, Mairi-Kaasik and Kärri Toomeos-Orglaan, who were awarded the annual prize of the Estonian Cultural Endowment on popular culture for that work. Released was the folk poem collection “Adaptation of folk poem and the adaptors”, a collection in the Seto language “Seto naisi elolaulu” and the collection compiled by Anu Korb on Siberian Estonians and Latvians. In the series “Sound recordings from the Estonian Folklore Archives”, there appeared, as its 8th issue, the sound and video edition compiled by Ingrid Rütli of the “Saaremaa folk music and habits” and the issue “Songs of Siberian Estonians” updated and complemented with video specimen (compiled by Anu Korb). At the end of the year, released from print was the collection in the Hiiu language compiled by Helen Kõmmus “Emaste Sõruotsa murragus loodud muistendite sari Iiuma vägimihes Leigrisd”, the new edition “Estonians in Russia: lives and stories” of the series “Estonian settlements” (compiled and edited by Anu Korb), Aado Lintrop’s collection of articles “Stories of the creation” and “Virumaa’s ancient ghost-stories” compiled by Mall Hiimäe. Completed were maps “Superb Estonian fairy tales” and the audio-edition “Linda kivist Lilla Daamini” [From Linda Stone to the Lilac Dame] as a cooperation project popularising science, commissioned by members of the Cooperative Loovhoog [Creative drive] and compiled by the fairy-tales working group. A highlight among the events was the folk poem conference and digital humanities seminar promoted by Mari Sarv and Kaisa Kulasalu, within which workshops were organised. In cooperation with the Estonia National Museum, the traditional conference “Voices of Youth” was held in April, and jointly with the Department of Estonian and Comparative Folklore of the University of Tartu – the seminar was held titled “Fabulous world: from folk tales to (children) literature”.

In the first ten months of 2014, the manuscript collection of the Estonian Folklore Archives was replenished by ca. 5000 pages, with the materials of collection contest “Children games 2013” from 77 people, held within Cultural Heritage Year then ended being the most important among them. Eduard Parts donated to the Archives the biographies and memoirs of the families having lived in the first Estonian settlement of Oudova in the Leningrad region, and Ado Seire’s collection of the Soviet-period short stories basing on personal experience. Digital systems of the Archives made a steady progress; the upgrades of the Kivike [Silicon Chip] audio-video module and community module attained the final stage. Completed in the year or being on home stretch (the last period of an activity) were the children-games web medium, the fairy tales database and the popular calendar’s web edition.

The working group engaged in research of the sources of cultural history at the ESTONIAN CULTURAL HISTORY ARCHIVES supervised by Marin Laak continued, supported by the Institutional Research Subsidies programme “Formal and informal literature networks basing on sources of cultural history” its research in biography study, in the 19th C. and 20th C. Estonian cultural history, the Estonian Diaspora, exile literature and digital media. Epp Annus affiliated to the working group was conferred the Vitols prize for the article released in the Journal of Baltic Studies “The Problem of Soviet Colonialism in the Baltics”. The work of the Archives in 2014 focussed around the Nordplus Horizontal family history project. International cooperation was promoted by Leena Kurvet-Käosaar, dedicated to the creation of the web resources, presenting various aspects of the study of family history. There were two conferences held: the seminar focussed on the problem-range of archives held in Riga at the University of Latvia in March 2014 and the conference “Family History: Facilitating Intergenerational and Intercultural Exchange” at Tartu in November. In May, an interdisciplinary seminar was held moderated by Sirje Olesk jointly with Tõnu Tannberg’s working group titled “ESSR culture in the Khrushchev period”, in June the XXI young scientists’ summer school “Seething hinterland” of the Estonian Literary Museum was held at Nüpli promoted by Krista Ojasaar; in October the conference “The liar in quest of truth” was held, promoted by Marin Laak to celebrate the 80th anniversary of the author Helga Nõu.

2014 was the outgoing year of Eve Annuk’s grant “Gender issue in Estonia: the local situation and international impacts”, bringing to a close the first research project in the Estonian scientific landscape dedicated to transdisciplinary analysis of gender. Among other researchers, conspicuously standing out is Vello Paatsis’ archival work on study of the censorship history dating 120 years back, processing ca. 100 000 pages of archival sources at Tartu and in Riga. New data on biography of Faehlmann were unearthed in the Riga archives by Kristi Metste. Sirje Olesk published, drawing on archival materials, 2 groundbreaking articles on history of the Writers Union of Soviet

Estonia. At research of the Diaspora, Triinu Ojamaa's cooperation with Tiina Kirss yielded excellent outcome at editing of the topical issue of the "Journal of Baltic Studies" titled "Three Waves, Three Moments: Baltic Diasporas in Global Perspective".

As a result of the research work, a collection of articles "Literary heritage in cultural history" was released as summing up the then-ended target-financed topic "Sources of cultural history and contextuality of literature"; in cooperation with the Varrak Publishers, Aino Suits' bulky "Diary" appeared with comments by Rutt Hinrikus and Sirje Olesk. In October, released in print was Helga Nõu's jubilee book "Have you read Tammsaare? Literary biographical interview with Helga Nõu" compiled by Rutt Hinrikus. Besides that, there appeared two topical issues of the joint journal of the Archives and the Institute of Cultural Sciences and Arts of the University of Tartu, titled *Methis. Studia humaniora Estonica*.

Among deposited archival heritage, of keynote importance were personal archives of Heino Kiik, Jaan Isotamm, Eha Lättemäe, Evald Kampus, Jüri Šumakov and Valter Heuer, significantly replenished were personal archives of Enn and Helga Nõu, Enn Soosaar, Jüri Arrak and Lea Tormis. There were ample accessions of biographies and also diaries, memoirs and correspondence of interest dating from the start of the 20th C. The 85th anniversary of the Archives was celebrated in April with the collections-based exposition at Literary Museum and the exhibition "Half-an-hour with a writer" at Tartu Arts House. The latter was also on display at Riigikogu in September and at the end of year in Moscow in the building of the Embassy of Estonia. At the end of year, a scientific conference of the Kreutzwald Days was held, with the opening paper delivered by the newly elected President of the Estonian Academy of Sciences Tarmo Soomere. It was dedicated to commemoration of the 100th anniversary of the long-time Director of the Museum Eduard Ertis (retaining that office as long as from 1954-1990!).

**INSTITUTE FOR INTERNATIONAL  
AND SOCIAL STUDIES  
AT TALLINN UNIVERSITY**



Associated with the Estonian Academy of Sciences  
28.01.2003

Founded: 1988

Personnel: 22, of whom 14 researchers

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In the reporting year the Institute fulfilled one topic target-financed by the Ministry of Education and Research, 3 Estonian Science Foundation (ESF) grants (incl. 1 Mobilitas grant) and 18 R&D projects.

Recognition was bestowed on Professor Ellu Saar, who was awarded the national science prize in social sciences for the cycle of researches “Educational stratification and life-long learning”.

The 1st place of a research publication of Tallinn University was won by Katrin Tiidenberg for the article “Bringing sexy back: Reclaiming the body aesthetic via self-shooting”, *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 8(1).

Concluded among the target financed topics was “Changes in Attitudes and Life Styles of Estonian Residents in 1985-2013: horizontal stratification” (principal researcher Airi-Alina Allaste), with relevant topical articles to appear in various journals.

Ongoing was the target financed topic: “Learning Person in Educational System and Labour Market: Inequality as Factor and Outcome of Formation of External and Internal Limits” (responsible researcher Rein Vöormann). In 2014, the team focussed on research of the internal education levels and intra-level barriers.

In international cooperation programmes, there continued work with project of EU 7th framework programme MYPLACE (“Memory, Youth, Political Legacy And Civic Engagement”, responsible researcher in Estonia Airi-Alina Allaste). The Institute (Airi-Alina Allaste) supervises, in the whole project also the working package creating typology of activism, presenting several reports and aimed at integrating quantitative and qualitative data, and the team, integrating the outcome of research with practice (Marti Taru), in the framework of which recommendations have been made on formation of the youth policy.



The Institute participates in the joint monograph, to be published under the project. A special issue of the STSS is in progress, focusing on activism of the Estonian youth in international context.

Ongoing was work with the international project “Education as a Lifelong Process – Comparing Educational Trajectories in Modern Societies” (eduLIFE) (responsible researcher from Estonia Ellu Saar), in the second stage of which gender segregation and inequality in Estonian labour market was compared in the temporal perspective. Also ongoing was the cooperation with the pan-European project SHARE “Survey on Health, Ageing and Retirement in Europe” (responsible researcher from Estonia Luule Sakkeus).

Marge Unt, Marti Taru and Epp Reiska joined the international consortium MYWEB’ (Measuring Youth Well-Being), for the purpose of preparing the methods of the pan-European children and youth longitude research.

In 2014, work under personal research grant of Triin Roosalu “Alternative careers and work organisation: flexibility of post-Communist states” continued according to the plan for that year, the researchers were also engaged with preparing for the polling survey of 2015 and simultaneously collecting the questionnaires. The team focussed on data analysis, planning and writing the articles. Composing of the report on monitoring the gender equality was a laudatory achievement, shared by Triin Roosalu, Katrin Tiidenberg, Kairit Kall and Kadri Aavik, who cooperated with other experts.

Ongoing was the work under ESF grant supervised by Marge Unt “Factors affecting continuation and termination of work in the outgoing career in Estonia in comparative perspective” and GDN grant “Impact of macro-factors on furlough pension and voluntary pensioning-off in the broadened Europe”.

Triin Roosalu joined the project EEMD supervised by researchers of Tallinn University of Technology (Efficiency and equity in matching pre-schools and children: mechanism design approach), considering among others contrastively the national subsidy systems in support of female employment in Eastern and Western European countries. Triin Roosalu is supervising the applied inter-universities project ENEKE focussing on gender-sensitivity of research careers, started in 2014 (Development of a career model to support the female career path). Also completed was the manuscript of a collection edited by Triin Roosalu and Dirk Hofäcker, focussing on labour markets of post-Socialist countries, to be submitted to the Palgrave Publishers in 2015.

At the end of year Triin Roosalu proceeded to supervise the involvement of Estonia in the pan-European cooperation network COST Action “Birth” (Building Intrapartum Research Through Health – an interdisciplinary whole system approach to understanding and contextualising physiological labour and birth), aimed at supporting physiological birth in Europe. Marge Unt proceeded to supervise the involvement of Estonia in the pan-European

cooperation network COST Action “Ageism – a multi-national, interdisciplinary perspective” and Marion Pajumets is continuing work in the international cooperation network COST Action “Gender STE” (Gender, Science, Technology and Environment), focusing on female involvement in exact sciences.

Study on dropouts of Tallinn University within framework of the TULE project under supervision of Eve-Liis Roosma was highlighting why the students drop out and how the dropout percentage could be reduced. The research focussed on interviews with teaching staff, with those persisting in studies under TULE programme and those struck off the rolls, and also on analysis of the data from ÕIS (study information system). In the second research of the TULE project supervised by Kadri Täht and Kristina Lindemann “Skills and working career of those desisting from higher education” the data of PIAAC (Programme for the International Assessment of Adult Competencies) were studied and organised for further analysis.

Since mid-1990s the Institute has collected and analysed data on formation of civic society in Estonia. Of pivotal significance in that process have been national surveys of civic organisations held after every five-year period, the results of which evidence the current situation of those associations and their development trends in a longer perspective. In 2014, the project supervised by Erle Rikman “Institutionalising the civic initiative in Estonia 2014” was carried out, aimed at organising the fourth successive research cycle of that type. In the first stage of the research, data on civic organisations were collected with the help of national questionnaires. In the second stage of the project, funding by public sector was studied in-depth with qualitative methods and also the partnership experience of civic associations. Results of the survey provide better understanding of the problem-range of organising the state funding and development of partnership relations, as visualised from the angle of view of actors in different sectors.

The researchers of the Institute contributed to implementation of the Estonian research language, participating in an applied project supervised by the Centre of the Estonian Language of Tallinn University, in pursuance of development of the mother-tongue research language and specialist terminology.

The researchers attended numerous scientific conferences both in Estonia and abroad and they were active in science organisation events.

At the ISA (International Sociological Association) conference “World Congress of Sociology. Facing an unequal world: challenges for global sociology” (Yokohama, Japan, 13.07-19.07.2014) Airi-Alina Allaste represented the Estonian Association of Sociologists and moderated the session Youth and Social Movements.

Vice-President of the Estonian Association of Sociologists is Airi-Alina Allaste; members of board from among staff of the Institute are Katrin Tiidenberg and Aivar Joorik.

Released was the sixth issue of the journal “Studies of Transition States and Societies”, compiled jointly by the Institute for State Sciences and the Institute for International and Social Studies of Tallinn University.

In 2014, the researchers of the Institute released 49 scientific publications, of which under category 1.1:

Lindemann, K. The effects of ethnicity, language skills, and spatial segregation on labour market entry success in Estonia. *European Sociological Review*, 2014, 30(1), 35-48.

## ESTONIAN NATIONAL MUSEUM

Associated with the Estonian Academy of Sciences  
21.12.2006



Personnel: 107, of whom researchers 16  
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In 2014, of the utmost importance for the Estonian National Museum (ENM) was preparing of new permanent and temporary exhibitions together with educational programmes in the new building. The focusing on completion of new permanent expositions (Estonian cultural history and Finno-Ugric cultures) means that the Research Division of the ENM has concentrated its effort on science-based exhibition activities, instead of research proper. The daily work features first and foremost the issues like where one could procure the suitable audio specimen of broadcasts, on air in the 1970s, delivered by the Radio Free Europe and the 1st programme of the All-Union Radio, or how to present in the exhibition hall the relations between man and environment in the historic perspective.

Creation of the artistic form as subject matter of the new building of the ENM will remain pivotal also in 2015 and 2016, affecting growingly, besides the Research Division the organisation of work of other divisions implementing the essential activities of the Museum – notably conservation of exhibits, drafting the educational programmes or getting collections ready to be moved into new repositories.

The highlight event of the year was the agreement made in November between the ENM and the Estonian National Culture Foundation to institute the memorial foundation of Marje Õunapuu that aims to provide support to individuals who facilitate the Museum to fulfill its role in revealing the implication of special significance of the Estonian culture. The statutory capital of the Fund of 30 000 euros is part of the estate of Marje Õunapuu, deceased in September 2013 in Uppsala, bequeathed to the ENM.

### RESEARCH AND COLLECTION WORK

In 2014 the researchers of the ENM participated in fulfilment of two grant projects supervised by the University of Tartu and in two international co-operation projects. Topics of research converged on information society and nationalism. The researchers released 21 scientific articles and delivered 2 scientific papers at international conferences and 5 scientific papers at national

conferences. Furthermore, a number of papers popularising the scientific work were delivered to the public and stakeholders of the Museum. At the beginning of the year, there appeared the collections of articles presenting the outcome of the research grant “Developing museum communication in the 21st century information environment” ended in 2013 titled “Democratising the Museum: Reflections on Participatory Technologies” (by Peter Lang Verlag Publishers) and “Participation in Museums” designed for the personnel of memory institutions, aimed to sum up the outcome of scientific work in the key of a practical handbook. The third work, completed as a result of mastering the subject matter over many years “Folk costumes of Vana-Tartumaa: from collections of the Estonian National Museum” may also carry the title of a handbook.

The ethnological field works carried out were prompted mainly by the future grand expositions, incl. for instance topical biographical interviews with the residents of the Soviet-period collective farm centres, for the purpose of studying the implementation in the countryside of the urban lifestyle, pursued at that time, as well as the field works, applying the involvement methods, with the school youth for mapping their experience in use of the urban space. In connection with the last mentioned work, the exposition “#niisamalinnas” (#chilling around town) opened at the ENM exhibition laboratory was bestowed recognition for innovative approach (participatory exhibition production) at distributing annual prizes of Estonian museums. The field works carried out in Suur-Pakri and Väike-Pakri islands focussed on video-documentation of repopulating the islands. Besides Estonia, the field works reached out also to Leningrad and Vologda regions in Russia, to the Vepsa people (research topic: registration of nationality at census) and to Khanty-Mansiysk (the goal: to procure the exhibits). The video-matter of the field works carried out in the past year among descendants of the Lutsi people living in the eastern hinterland of Latvia yielded the documentary film “The lost tribe: the story of the Lutsi people”.

In parallel with the field works, other collection methods were implemented, both to replenish the ENM collections and to procure concrete exhibits to new permanent expositions. In quite a few cases the exhibits were meaningful – personal effects of the first Estonian Orthodox Bishop St. Platon, the Laatre cross pine, the historical tower bell of the Järva-Jaani church. The fact of bringing them to the ENM was covered also in the media.

In January, the ENM received to its collections the first 42 cases of manuscript materials from the archival collection of the outstanding Estonian psychologist and memory-researcher Endel Tulving and his spouse Ruth Tulving, an artist. The materials include scientific correspondence with the academic colleagues, scripts for lectures, notes, presentation materials and also the recollections and documents related to the life and development of expatriate Estonians. Organisation of the materials will start in 2015.

#### MUSEUM ACTIVITY AND ORIENTATION TO THE PUBLIC

On the eve of the Anniversary of the Republic a summary was drawn of the collection contest of everyday photos announced within framework of the Year of Cultural Heritage in 2013, where ca. 2 000 photos were sent. As a follow up to the collection contest, in the second half of 2014 there was completed the website Pildiait, welcoming the photos of everyday life taken by the senders. It is the “commonplace” aspects of life recorded on photos which help us to notice, how much and how rapidly the environment around us changes, and we together with it.

Classifying as an event *per se* is the expert assessment of the state of the first Estonian tricolor flag performed at the end of March. The said archival holding, currently under administration of the ENM according to the depositing agreement made with the Estonian Students' Society is routinely kept rolled up under special guard and it is unpacked as rarely as possible. Besides assessment of the state, spectro-photometric measurement of all three colour spans of the flag was carried out.

The most grandiose event of 2014 oriented to the public was participation at the 26th song festival and at the 19th dancing festival “Touched by time – the time to touch”. Raadi Manor Park was the place, where at the sunrise of June 15th the fire of the song and dancing festival was lit, to start its journey towards Tallinn. The ENM was represented also at the song and dancing festival, where the visitors could take part in workshops and folk costumes consultancy centre was opened for singers and dancers.

In the third summer in succession, the ENM continued holding workshops for presentation of the traditional handiwork methods and work techniques. In cooperation with the National Heritage Board and Historical Archives the ENM held the summer children camp “Kirju-mirju Eesti” (Speckled Estonia), oriented to Estonian children of 10-12, residing outside Estonia. Another children and youth event was the city camp in August titled “#kaameragalinnas” (#in town with camera) with the aim to offering to participants an opportunity to consummate the skills of visual documentation of city vision and city environment. The summer was completed by the topping-out ceremony of the new building.

On October 29, 2014 Her Royal Highness Crown Princess of Sweden Victoria and His Royal Highness Prince Daniel visited the Estonian National Museum. The goal of the visit was handing over to the Museum of the collection of Estonian ethnographic items of the *Nordiska Museet*. The ceremony of transfer was followed by the Estonian-Swedish joint seminar on popular art and modern design affected thereby. Out of 234 ethnographic items handed over, the items of textile constitute the bulk, coming mainly from Estonian islands and from the North Estonia. Only the collections related to Estonians were transferred, while the items of Estonian Swedes remained deposited in the *Nordiska Museet*.

## **ESTONIAN CROP RESEARCH INSTITUTE**



Associated with the Estonian Academy of Sciences  
23.09.2008

Founded 1920

Personnel: 155, including 45 researchers

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mati.koppel@etki.ee

Estonian Crop Research Institute is a state research and development institute in the area of governance of the Estonian Ministry of Agriculture. The year 2014 was the first full year of functioning of the Estonian Crop Research Institute, formed after reorganisation of the Estonian Research Institute of Agriculture and the Jõgeva Plant Breeding Institute on 1 July 2013.

Election to the position of director of the institute was held at beginning of the year. Mati Koppel who used to be Director of the Jõgeva Plant Breeding Institute and the Estonian Crop Research Institute will continue in office for the following five years. More than 600m<sup>2</sup> of laboratories and offices were reconstructed in Teaduse 4/6 for modernisation of working conditions in Saku. Researchers and workers who used to work in separate buildings have now gathered together into renovated rooms.

The institute was very successful in the last call of the 7th Framework Program. Institute is involved as partner in implementation of two projects: Healthy Minor Cereals – An integrated approach to diversify the genetic base, improve stress resistance, agronomic management and nutritional/processing quality of minor cereal crops for human nutrition in Europe and EURO-LEGUME – Enhancing of legumes growing in Europe through sustainable cropping for protein supply for food and feed. Additionally the institute participates in project LEGATO – Legumes for the agriculture of tomorrow, as an associated partner.

The year 2014 was very fruitful in variety breeding, with the breeding process concluded in six varieties. Soya bean Laulema has already met with interest in several countries, winter turnip rape Legato is demanded not only in Estonia but also in Finland, winter triticale Ruja has been bred in collaboration with breeders from Latvia, spring wheat Voore has high baking quality, and garden pea Virges and tomato Evelle enhance the selection of vegetable varieties. Four inventions on application of new methods were registered as patents by the Estonian Patent Office.

## **ASSOCIATED ORGANISATIONS**

Organisations from outside the structure of the Academy, whose activities and objectives comply with the activities and objectives of the Academy, may associate with the Academy. Association is effected in the form of a bilateral agreement, specifying the purpose of association as well as the duties and commitments of both parties.

Reviews on the 2014 activities of the institutions associated with the Academy have been presented in the chronological order of their association date:

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## ESTONIAN NATURALISTS' SOCIETY



Associated with  
the Estonian Academy of Sciences  
23.01.1998

Founded 1853

Membership: 15 honorary members, 768 active members, 631 trustees

Subunits: 22

Location: Struve 2, 51003 Tartu, ESTONIA

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President: Tõnu Viik, Tel: +372 734 1935, +372 508 9045

Academic Secretary: Ivar Ojaste, Tel: +372 734 1935

Estonian Naturalists' Society has 22 subunits. Subunits that work as sections are as follows: the section of amateur meteorologists, of anthropology, of botany, of entomology, of forestry, of geology and of theoretical biology; the Commission of Lakes, the Estonian Malacological Society, the Estonian Mycological Society, the Estonian Teriological Society and the Jakob von Uexküll Centre. Commissions with special task focus on the history of natural sciences, the library, natural education, observation networks, the terms of ecology and plant names, and botanical rarities. In addition, the Society has assemblies of ecology, of honorary members and the round table of nature conservation.

In 2014 eight General Assemblies with scientific presentations, and one special meeting were held:

January 30 – Oive Tinn: “Fossils which have exceptional persistence are rare both in Estonia and in World”;

February 27 – “The Baer day”, presentations by Ken Kalling and Mart Viikmaa;

March 27 – Tõnu Oja: “Surrounding landscape is in change”;

April 24 – Eerik Puura: “Excavating of phosphorite in Estonia – if, who and when?” The annual review of the activities in 2013 was presented;

May 29 – Kuulo Kalamees: “How I became a mycologist and main results in my life”;

September 25 – Kaupo Vipp: “World-view in point of its biological-physical aspect”;

October 30 – Tõnu Möls: “New mathematical methods in the study of lake Peipsi”;

November 27 – Tuul Sepp: Game theory in study of animal behaviour”;

December 18 – Kalev Sepp: “Results from IUCN World Parks Congress”.

The 37th Naturalist's Day was held at Ala-Taagepera region in Valga County on June 28-29. Field trips took place to study plants, lichens, stem decay fungi, snails, butterflies and dragonflies. There was a scientific presentation on the topic "Personality among animals". Excursion was organised to Helme and to mausoleum of Barclay de Tolly. In total 64 people participated at that event.

The activities of subunits of ENS during 2014 were the following:

The 10th Autumn School of Geology "Phosphorus – from beginning a World until today" took place at Jäneda, the Lääne-Viru County, on October 17-19. During three days 17 scientific reports were presented and 87 people participated at that event. The book "Phosphorus – from beginning a World until today, Schola Geologica X" was published (128 pages).

The 40th Spring School of the SECTION OF THEORETICAL BIOLOGY "Epigenetic turn" took place at Randivälja, the Pärnu County, on May 9-11. During three days 17 scientific reports were presented and 69 people participated in that event. The book "Epigenetic turn. Schola Biotheoretica XL" was published (111 pages).

In the SECTION OF BOTANY 4 meetings were held:

February 4 – Ülle Kukk: "Population status and conservation of *Laserpitium prutenicum* and *Peucedanum oreoselinum*";

April 23 – Ülle Reier and Sille Holm: "Biodiversity in Africa. Notes from Uganda";

November 12 – Bert Holm: "Project URBANCOWS";

December 10 – Jaak-Albert Metsoja: "How important is invisible to our eyes? Importance of seed reserve in soil when restoration of grasslands takes place".

The field trip for friends of mosses was organised to the islands Aksi and Prangli on May 31 – June 1. There were 30 people who found 133 species of mosses on those islands.

The new issue of the internet journal "Friend of mosses, 17" was compiled ([www.botany.ut.ee/bruulooogia/Samblasober17.pdf](http://www.botany.ut.ee/bruulooogia/Samblasober17.pdf).)

The observers' network in the SECTION OF AMATEUR METEOROLOGISTS continued their work in 59 stations all over Estonia. The data was analysed and most important agrometeorological indexes were found. The observation results of those 59 stations were used together with data of Estonian Meteorological and Hydrological Institute to draw up different meteorological maps ([www.etki.ee](http://www.etki.ee)).

Gathering of amateur meteorologists and thunder observers (72 people participated) took place at Tartu, on July 19th. Four reports by scientists from

the University of Tartu and the Estonian Environmental Agency were presented.

ESTONIAN TERIOLOGICAL SOCIETY organised the 21st Autumn School “Mammalia” at Kaika, Karula National Park, on October 24-26. During those days 13 scientific reports were presented.

The SECTION OF ANTHROPOLOGY celebrated the 75th anniversary of the Section with a meeting where 5 scientific reports were presented. In 2 new issues of the journal Papers on Anthropology XXIII 24 papers were presented.

ESTONIAN MYCOLOGICAL SOCIETY organised two training courses on determination of mushroom species in Otepää Nature Park, the Valga County, on April 25-27 and September 11-14. Meeting of the Mycological Society “Actiones” took place on December 13, where five scientific reports were presented. In that meeting 29 people participated.

Together with the University of Tartu the new issue of Folia Cryptogamica Estonica was published ([www.ut.ee/ial5/fce/index.html](http://www.ut.ee/ial5/fce/index.html)).

The SECTION OF FORESTRY had three scientific seminars during 2014:

April 30 – Ando Lilleleht: “Descriptive features of forest structure and how to use them in forest models”;

June 12 – seminar for celebration of the 100th anniversary of Professor Olev Henno and Docent Peeter Rõigase;

June 18 – presentation of monograph “Pine in Estonia”.

COMMISSION OF LAKES made fieldwork on 9 lakes at Kurtna Landscape Reserve to study community of invertebrates in 2014. A book “History of hydrobiology of Estonian inland water” was published in 2014.

Meeting of ESTONIAN MALACOLOGICAL SOCIETY took place on May 8 where 2 scientific reports were presented. The presentation of “Field guide of snails on mainland” was moderated by Toomas Kukk.

The Society participated in fulfilling the projects funded by the Environmental Investment Centre and the Environmental Board.

#### LIBRARY

In December 2014 there were 162 921 printed items in ENS library. Within the year the Library acquired 102 books and items of 199 periodicals. The publications were exchanged in the reporting year with 43 institutions and organisations from 14 countries.

## ESTONIAN GEOGRAPHICAL SOCIETY



Associated with the Estonian Academy of Sciences  
27.01.1998

Founded: 1955

Membership: 213, 23 honorary members, 5 foreign members

Address: Kohtu 6, 10130 Tallinn, ESTONIA, [egs@egs.ee](mailto:egs@egs.ee)

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President: Mihkel Kangur, Tel. +372 619 9800 [mihkel.kangur@tlu.ee](mailto:mihkel.kangur@tlu.ee)

Academic Secretary: Tiit Vaasma, +372 619 9828, +372 525 8651

Estonian Geographical Society is an organisation uniting geographers and people interested in geography. Main avenues of activities of the Society are releasing specialist printed matter, doing scientific research, organising scientific events and dissemination of knowledge in geography.

The Board of Estonian Geographical Society is comprised of the following members: Mihkel Kangur (President), Arvo Järvet (Vice-President), Anto Raukas (Vice-President), Tiit Vaasma (Academic Secretary), Kalev Kukk, Hanna Maran, Hannes Palang, Tiit Petersoo, Anu Printsman, Liisa Puusepp, Mart Reimann, Ulvi Urgard.

The continuity of activity of the Estonian Geographical Society is taken care of by the active Society's Youth Club with its traditional undertakings, directed at involvement of the youth into academic communal activities and learning to know the Estonian geographic conditions, often thereby complementing the internships at the Universities.

In the reporting year the plan of research of the Society featured continually four problems:

- "History of Estonian cartography". Topic: "Maps by A.J.von Krusenstern of the Pacific Ocean", investigator Heino Mardiste;
- "Nature of Raplamaa", investigator Tiit Petersoo;
- "History of Estonian geography", topic leader Arvo Järvet;
- "Considering international environmental projects and issues in geography classes", topic leader Ulvi Urgard.

Estonian Geographical Society has always emphasised propagation of knowledge in the area of geography both in Estonian and in foreign languages. In 2014, Estonian Geographical Society released two collections:

- Järvet, A. (ed.) Yearbook of Estonian Geographical Society Vol. 39. OÜ Vali Press, Tallinn, 2014, 223 pp.;
- Küttim, A., Anderson, A., Mäe, K., Vaasma, T. (eds.). Publications of Estonian Geographical Society XIV. Väikesed pildid Eestist. Geograafia karu-aabits [Minuscule Pictures of Estonia. Bear-primer

of geography]. Collection of articles of autumn symposium of young geographers. Estonian Geographical Society, 2014, 208 pp.

Besides those we wrote articles presenting the Society to the international geographical encyclopaedia “International Encyclopaedia of Geography” and also to the E-Encyclopaedia in Estonian.

At the annual meeting of Estonian Geographical Society on April 13 we heard the scientific paper by Allan Puur, leading researcher of the Institute of Demography of Tallinn University, focussing on processes forming the population of Estonia.

Estonian Geographical Society jointly with the Cultural Endowment of Tartu grants the memorial stipend of the late President of the Society Professor Jaan-Mati Punning, which can be vied for by undergraduates majoring in natural geography and related specialties, master students, doctoral students and young scientists enrolled in post-doctoral studies for achieving their research goals. The stipend of one thousand euro for this year was awarded to the doctoral student Hando Laur Habicht of the University of Tartu, having started as a physicist however presently concerned with development of the Baltic Sea.

On April 17, a platform meeting presenting the sustainable development activities of Canadian and Estonian universities was held within the framework of Green Week at Tallinn University. Speaking were President of the Society Mihkel Kangur (“Green University and the first year of the sustainable development educational centre”), Thomas Falkenberg (Manitoba University, Canada; “Education of sustainable development”) and the Ambassador of Canada H. E. Mr. John Morrison with his exhibition of photos “Secrets of the Arctic”.

In cooperation with Estonian universities, we started with preparations for organising the sixth conference of Nordic geographers “The 6th Nordic Geographers Meeting” ([www.tlu.ee/en/NGM2015](http://www.tlu.ee/en/NGM2015)), to be held on June 15-19, 2015 in Tallinn and Tartu. The conference is titled “Geographical Imagination: Interpretations of Nature, Art and Politics”, and its organisation is supervised by the Society. As of now, 32 sessions and over 350 participants have been registered for the Conference.

This year was exceptionally multifarious and busy for the Society’s Youth Club, also on an international level. There were enough events to span four quarters of the year. The first days of February witnessed a county excursion to Ida-Virumaa, in March young geographers hiked together with EGEA-Tartu (European Geography Association for students and young geographers) in the county of Viljandimaa; the destination of this year’s island-trip was Ruhnu, where young geographers informed themselves as to the history of the island and saw its sights of cultural, natural and environmental value. Several

events organised were attended by many foreign students, providing us an excellent opportunity to acquaint them with the Estonian countryside. Young geographers visited EGEA-Utrecht in Holland. Members of the Youth Club are also visibly present in the core group of EGEA-Tallinn and steer that organisation.

Because the youth are soon to embark on a working career, and they have to decide “Now what?!” they continued with the series of events “Tublilde Tulevik” (TuTuTu) [Future of Smart Students], in the process of which they visited various institutions having to do with geography. Young geographers visited the leading Estonian company of geo-informatics Alpha-GIS, and the Mapaid Ltd. – leader in the area of digital processing of aero-photos.

After an interval of several years, the young geographers organised a trip leading them abroad – to the Tatra Mountains. That trip in the mountains on July 11-24 turned out to be a daring venture. Even the experienced local mountaineers gazed awestruck at our geographers, hearing which steep tracks they had negotiated carrying heavy rucksacks. The young geographers also conquered the highest peak that can be challenged there without special mountain-climbing equipment – Rysy on the border of Poland and Slovakia (2 499 m).

The Society’s annual summer excursion took the busload of geographers to Lithuania, at the end of July. That was a mind-boggling trip where the geographers enjoyed the charming nature of Lithuania and got acquainted with its cultural heritage and history. However it is not an opportune moment to deliberate on the matter of sights at length here, it would take pages. The route of the trip was: Tallinn – Ikškile (Üksküla) – Koknese – Daugavpils – Ignalina – Imeda – Moletai – Vilnius – Kernave – Trakai – Kaunas – Krustu kalns (Ristimägi) – Riga – Tallinn. At Vilnius University we met with the President of Lithuanian Geographical Society and the colleagues, we acquainted one another with respective activities of our Societies and discussed the options for cooperation. Several hosts participated at our bus tour.

The five-day cycle trip in August (a successive leg of a trip round Estonia) started where it had been suspended in the previous year – i.e. from Riisipere, with Tallinn as destination. Normally, the route Riisipere – Tallinn should be passed in a day; there are people who do it as their routine cycling training every day. Our trippers however ignored any short cuts and did it the hard way. From Riisipere they followed the route to Haapsalu. They had raced through every nook and cranny of the peninsulas before they made it to the capital city. Their total mileage was ca. 400 km.

The traditional tenth autumn symposium of students in the specialty of geography of Estonian Universities was held in Tallinn on October 3-5, in the Hall of the Estonian Academy of Sciences. The symposium was titled “Au-

tumn Ball”, inspired by the novel by Mati Unt carrying the same title. 12 young geographers coming from four Estonian Universities presented their directions of research. The papers delivered will be published in a collection of articles in the series of the Society publications. Those articles give to the majority of speakers their first experience of writing a scientific article (after due reviewing and editing), which adds value to them. The main organiser of that superb symposium was Kertu Lepiksaar, head of Youth Club 2014 of the Society.

Members of Society’s school geography section participated at the development of national geography curricula, at compiling the examination tasks and grading the gymnasium state examinations, at preparation of the basic school geography final examination and at doing summaries, at monthly subject sections to geography teachers and at environmental education conference in Tallinn on October 30. They organised national Geographical Olympiads. For young geographers and teachers of geography, the Tatra Mountains were of special appeal as the destination of a trip (15-22.08.2014).

Besides that, there were several events held - seminars, travel nights and day hikes to nature. At club nights (titled “Let’s meet on the third Wednesday” – KoKoKo) the travelling impressions of general interest were heard, as well as news in geography.

## **SOCIETY OF ESTONIAN AREAL STUDIES**

Associated with the Estonian Academy of Sciences  
27.01.1998

Founded 1939  
Membership: 206 members  
Address: Kohtu 6, 10130 Tallinn, ESTONIA,  
ekus@ekus.ee, www.ekus.ee  
Chairman: Andrus Ristkok, Tel: +372 5664 7806  
Secretary: Ene Luka, Tel: +372 644 0475



In 2014 the Society could only employ, for about half a year, the part-time programme leader because it was running short of funds. Board of the Society submitted in early spring an application with request for funds to Ministry of Education and Research, motivating it with the need to organise the youth work, however the application went unrequited and no feedback was received from the Ministry until autumn. Apparently the change of Minister had paralysed the work of that authority and functionaries did not seem to find time to concern themselves with the mundane matters. At long last, we received an answer declining our request.

The Society called for the second time the contest for annual prize for the best publications in areal studies. Out of the researches published in 2013 by members of the Society, known and available to the Board, the winning prize was awarded to the work by Kersti Siim, the recently enrolled active member of the Society for co-authorship of the issue “Järvselja pärandkultuuri radadel” [On paths of the Järvselja heritage culture]. Besides the content, the panel appraising the competition works also pointed out the impeccable completion and appealing design of said publication. The panel also appreciated the highlevel works by Vaike Hang, Jüri Freimann ja Monika-Aino Jõesaar.

Yearbook of the Society of Estonian Areal Studies 2014 (jointly with National Heritage Society and Estonian Genealogical Society) appeared for the first time in colour printing supplied with summary and table of contents in English.

On February 24, the enthusiasts in areal studies of Raplamaa organised the Märjamaa X Local Lore Conference on rural architecture. The Pärnu local lore enthusiasts celebrated Gustav Fabergé’s 200th anniversary with a conference at Pärnu. There were held conferences in areal studies of the school youth in Järvamaa, Pärnumaa and Raplamaa, the majority of them being attended also by the member of Board E.Luka. In May, there was a seminar on history of church in Estonia, attended by a number of enthusiasts in areal studies. For those interested in areal studies, the seminar was the followup to



the multipart study cycle “Sacral and Profane” held in 2010 in cooperation with the Institute of Religion of the Estonian Evangelic Lutheran Church. The parish Rae hosted several events in June to commemorate the opus magnum of the amateur archaeologist Oskar Raudmets. In Koeru parish, there was organised the recitation of “Kalevala” in honour of Elias Lönnrot. Contribution to the organising effort of that event was also made by member of Board of the Society Georgi Särekanno. At the end of August, the day of visiting the Rahumäe cemetery and the tombs of public figures was organised.

On June 28, Board of the Society organised, jointly with the Pärnumaa active members of the Society the field day trip to August Kitzberg’s homestead in the Karksi-Nuia. The meeting was held in A.Kitzberg’s museum at the Maie farmstead, where the enthusiasts of areal studies having arrived were welcomed by the group of local lore enthusiasts – the A. Kitzberg’s Society running the museum. The study day comprised the tour on the topic “A.Kitzberg’s abortive trip to Ruhja” under Asta Jaaksoo’s supervision. They visited several nature beauty spots in North-Latvia, including Ruhja.

Because in 2014 the Society was 75, the Board organised the Internet quiz “EKUS-75”. The questions of the quiz presumed reading the Society year-books and knowledge of their contents. Faultless answers were received from two respondents. According to regulations the victor was determined by casting of lots. Announced the victor was Marika Salu, who was awarded the bulky Volume II of the “History of Estonia” on middle age. The book prize was also conferred on Rein Oras and Eike Riis from Tallinn and Ruth Teder from Kehtna.

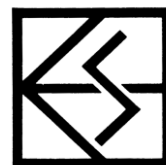
The annual schedule of the largest community of the Society, the Pärnu organisation of enthusiasts of local lore, was crammed as usual. In centre of August, the anniversary of the Heinaste Marine School was held. On September 22, Pärnu hosted the joint conference “In the footprints of Konstantin Päts” of Estonian and Russian schools. The enthusiasts of Pärnu organised several study trips in the year: to Tallinn Seaplane Harbour, the Paide Time Centre, the Lagedi Freedom-Fighters Museum, the Järvakandi Glass Museum; they held numerous meetings with papers for local lore enthusiasts.

General Assembly of the Society convened on April 5 in Tallinn at the Institute of History. For the General Assembly, the popular exposition of the founding member and prolific researcher of the Society Mrs. V. Hang titled “Tõhela – time and people” had been staged. That exposition has stopped over in quite a few places in a couple of recent years; the Board of the Society has moderated it all over Estonia. Author of the exposition delivered explanations at the exhibits. At the meeting, laureate of the annual prize of the Society Kersti Siim presented her prizewinning work.

The Board of the Society has a good overview of the activities of members of the Society at the provinces. Many active members usually send the synopses

of their annual work to the Board, with an indication of how many books, brochures, pieces of writing, manuscripts and CD-recordings with the outcome of research have appeared. Board of the Society forwards the important information on all that matter through its website in Internet.

## **ESTONIAN MOTHER TONGUE SOCIETY**



Associated with the Estonian Academy of Sciences  
4.02.1998

Founded 1920

Membership: 356 active members and 14 honorary members

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Chairperson: Helle Metslang, Tel: +372 522 5074

Academic Secretary: Killu Paldrok, Tel: +372 644 9331

Librarian: Annika Oherde, Tel: +372 644 9331

In 2014, the Society organised 2 conferences, 8 meetings with papers, a youth language camp and 9 language days, incl. the Estonian language days abroad (4). In that year, 116 papers were delivered.

Outside Estonia, with co-organisation of Ministry of Education and Research and local Estonian societies, 4 language days were held (in London, St. Petersburg, Vilnius and Riga). The topics of papers were widely different, in view of the proposals and expectations of local listeners. As usual, a review of the Estonian language policy belonged among papers, this year among others the linguistic zeal of the Estonian public, the language proficiency of Estonian residents and the programme of compatriots. There were also papers delivered on Estonian dialects, the dictionary of orthology ÕS 2013, the net language, being a children' writer and modern literature, education in values, writing skills, development in the world of the Estonian language and culture, links between language and literature, place names, regulating the usage of Estonian and Livonian. Besides the papers, workshops were held. Altogether 21 papers were delivered at the Estonian language days abroad.

In 2014 the Society organised two conferences.

June 28 – Tartu hosted the traditional J.V.Veski language conference. The topic of XLVII J.V.Veski Day was “Describing the structure of Estonian”, with 4 papers on the agenda. The opening paper was delivered by Helle Metslang on the topic “Underway: integrated treatments of Estonian and the academic grammar”. Pire Teras and Eva Liina Asu-Garcia delivered a paper “Integrated treatment of phonetics”. Reet Kasik spoke on the topic of word formation, Ann Veismann cast “A fresh glimpse on a regulation”, Annika Kilgi provided a review “Options for description of morphology”, with Andriela Rääbis and Tiit Hennoste finalising the conference with a review “Oral Estonian. Table of contents of the integrated treatment”.

September 19 – Annual student conference held in the University of Tartu to celebrate the Day of European Languages. Speaking about their language research works were bachelor and master programme students of Tallinn University and the University of Tartu, and a school student from Viljandi State Gymnasium, delivering altogether nine papers.

Mother Tongue Society in cooperation with the Ministry of Education and Research organised the poll for the award of the Linguistic Feat 2013, eventually granted to Reili Argus and Catre Hein for the games supporting linguistic development of a child. The Society co-organised the final event of the Linguistic Feat, held on March 14, 2014 at Saaremaa Co-educational Gymnasium.

March 28 – Annual meeting of the Estonian Mother Tongue Society was held at the University of Tartu, with Reili Argus delivering an academic paper “Child, language and grammar, *viz* what is specific in mastering Estonian”. Report of the Society for its 94th year of activities (2013) was presented by Academic Secretary Killu Paldrok.

April 24 – Language Day of Ferdinand Johann Wiedemann language prize held at the Väike-Maarja community centre. There were 4 papers on agenda. Traditionally, the memorial oak was planted and the paper was delivered by Arvo Krikmann, laureate-elect of the Wiedemann language prize 2014.

At eight meetings with papers (four in Tallinn and four in Tartu) 30 papers were delivered.

March 28 – at annual meeting of the Society the academic paper was delivered by Reili Argus.

January 15 – meetings with papers in Tallinn, dedicated to the 85th anniversary of the teacher of Estonian and expert in methods Viivi Maanso (in cooperation with Tallinn University), with Marga Lvova, Paula Sajavaara, Krista Kerge and the jubilarian speaking.

February 7 – the Day of Profession of Language Editors (in cooperation with the Union of Estonian Language Editors) in Tartu, with Annika Kilgi, Mihkel Mõisnik, Helen Kõrgesaar, Mari-Liis Mürsepp and Maarja Valk and Jaanus Vaiksoo speaking.

March 13 – Mother Tongue Day of the local lore enthusiasts in Tallinn. The activities of the Mother Tongue Society and the Institute of the Estonian Language were presented by Hille Pajupuu, Maire Raadik, Peeter Päll and Jüri Viikberg.

May 12 – Meeting with papers “Half a century in footsteps of Saareste” in Tartu, with Valve-Liivi Kingisepp, Heili Orav and Siim Antso speaking.

May 29 – Meeting with papers in Tartu on sustainability of Estonian in the open world, with a review presented by Martin Ehala, Tõnu Tender, Kadri Koreinik, Anastassia Zabrodskaia and Kristiina Praakli.

August 29 – Meeting with papers in Tartu in honour of Ellen Niit's 70th anniversary and Külli Habicht's 50th anniversary (in cooperation with the University of Tartu), with Pire Teras, Kristiina Ross and Karl Pajusalu speaking.

October 3 – Meeting with papers in Tallinn on sociolinguistics, with Kristiina Bernhardt, Andra Kütt and Anna Verschik speaking.

December 11 – the last meeting with papers of the year in Tallinn, with Maria Tuulik and Kristina Koppel, Jelena Kallas and Tõnis Nurk presenting new dictionaries.

Estonian Mother Tongue Society successfully continued organisation of school language days. In 2014, there were 5 language days held with the total of 13 papers, from every educational institution 1-4 papers.

Speaking at schools were Estonian philologists of different areas; the language days were directed in the first place at school students of the periphery. At Oru basic school, the topic of discussion was names, at Râpina co-educational gymnasium it was the Finno-Ugric languages, at Kuusalu gymnasium it was research into dialects, at Kohtla-Järve gymnasium it was dictionaries, at Lâhte gymnasium it was the Estonian language technology, besides that, at Tallinn Science Gymnasium, Henn Saari was remembered.

October 9 – the conference on occasion of Eduard Leppik's 90th anniversary at Vâike-Maarja, with Marit Alas as representative of the Society delivering a paper "Linguist Eduard Leppik 90 – laureate of F.J.Wiedemann language prize".

November 6 – the Day of Methods of Estonian in Narva, organised by the Society. Plenary paper "Words and grammar as toolbox" was delivered by Tiit Hennoste. The publishers Avita presented a novel e-class teaching aid. There followed 6 workshops in three areas: language, literature and media.

Training seminar of Estonian to kindergarten teachers "Virvipuu, värvipuu, üle metsa mõõdupuu" was held at Narva on November 7, and at Tartu on December 4-5. There were 13 papers delivered.

October 20-22 – A three-day youth-oriented language camp at Äksi "A beautiful sentence in Estonian". It brought together 22 gymnasium students and linguists from Mother Tongue Society, Institute of the Estonian Language, Tallinn University and the University of Tartu. 8 papers were delivered, with linguists of different generations presenting their specialty, discussions, games and contests organised, thoughts exchanged. Participants clearly enjoyed communication. They deliberated in greater detail about mastering the

Estonian sentence, the location of subordinate clause, syntax of Estonian, linguistic etiquette, language typology and the sentence build-up as a stylistic device; the participants were also acquainted with the mother tongue olympiad.

Elder of the Language Working Group of the Estonian Mother Tongue Society has been, since March 28, 2014 Külli Habicht. The Language Working Group includes Reili Argus, Reet Kasik, Krista Kerge, Katrin Kern, Einar Kraut, Helika Mäekivi, Urve Pirso, Peeter Päll, Maire Raadik and Arvi Tavast. The Language Working Group held 2 sessions. Because ÕS appeared at the end of 2013, the year of 2014 ran its course without urgent topics of discussion. There were no normative changes made, however the Working Group prepared the change of the rule of declination of two-part names. Members of the Language Working Group and its Elder spoke at training events designed for teachers and language editors, on language and information days, e.g. on the day of methods of Estonian at Narva College, on language day of Riga, on teachers' training days in Tallinn, Tartu and Viljandi. The public was notified about the latest decisions and topics of discussion through Internet, media issues, the magazine Oma Keel and oral presentations. Members of the Society spoke up in newspapers and on radio and answered the referrals of people and institutions.

Released in 2014 from print were

- Estonian Mother Tongue Society Yearbook 59 (2013). Editor in Chief Mati Erelt, Editor Sirje Mäearu. Estonian Mother Tongue Society of the Estonian Academy of Sciences. Tallinn, 2014, 312 pp.;
- Language Magazine Oma Keel, 2014, 1, 104 pp.;
- Language Magazine Oma Keel, 2014, 2, 100 pp.

The library of the Estonian Mother Tongue Society was replenished in the reporting year by 53 items of printed matter, obtained by exchange, donation and purchase. The library keeps on record 6 417 inventory items of printed matter.

## **ESTONIAN ASSOCIATION OF THE HISTORY AND PHILOSOPHY OF SCIENCE**

Associated with the Estonian Academy of Sciences  
4.02.1998

Founded 1967

Membership: 67 active members, 8 honorary members, 6 collective members

Address: Baer's House, Veski 4, 51005 Tartu, ESTONIA

Chairman: Peeter Mürsepp, Tel: +372 620 4116, peeter.muursepp@ttu.ee

Academic Secretary: Tarmo Kiik, Tel: +372 5344 8546,  
tarmo.kiik@gmail.com

Estonian Association of the History and Philosophy of Science (EAHPS) associated with the Estonian Academy of Sciences is divided into Tallinn and Tartu branches. It is a member of the Baltic Association of the History and Philosophy of Science and a member of both autonomous divisions of the International Union of the History and Philosophy of Science, of which the first embraces the history of science and technology, and the other the logic, methodology, and philosophy of science.

The Executive Board of the Association met once (29th of May). The general meeting was held in Tallinn, at Tallinn University of Technology (Akadeemia tee 3, room 211A) on May 29, 2014. The general meeting approved the activities report of the Association for 2013 and the working plan for 2014. It also extended the powers of the current Executive Board until the next general meeting in 2015. The Executive Board consists of Peeter Mürsepp, Erki Tammiksaar, Rein Vihalemm, and Tarmo Kiik. The late lamented Ülo Kaevats, our beloved associate and Board Member deceased on the 30th of January 2015.

Cooperation project between EAHPS and Wikimedia Estonia for integrating "The Biographical Lexicon of Estonian Science" into Wikipedia continued. A milestone has been reached because all the biographies from the third volume and the majority of biographies from the fourth volume have been inserted into Wikipedia. In order to integrate the first two volumes of the lexicon into Wikipedia, an agreement with former Estonian Encyclopaedia Publishers (EEP) has to be reached (EAHPS has shared authorship for the two volumes). EAHPS has secured contacts with authorised representatives from EEP and a signed contract will follow soon.

EAHPS has also been pursuing cooperation with the Council of Rectors in order to update the biographies of the lexicon and create a user-friendly database. Both counterparts express commitment to the project. As soon as

EAHPS will sign a contract with the representatives of EEP, the updating of biographies and the creation of the database will commence.

The Association supported the publication of the scientific journal *Acta Baltica Historiae et Philosophiae Scientiarum*. In total 4 issues have been published (two in 2013 and two in 2014).

EAHPS supported the organisation of the XXXIII Scientific Instrument Symposium in Tartu (from 25th to 29th of August). EAHPS member Lea Leppik was part of the organising committee and chaired a session. EAHPS member Peeter Mürsepp chaired a session and members Tullio Ilomets (poster presentation), Toomas Pung and Epi Tohvri took part in the symposium with a presentation.

The XXVI International Baltic Conference on the History of Science was held in Helsinki (from 21st to 22nd of August). EAHPS members Jaana Eigi, Enn Kasak, Endla Lõhkivi, Amirouche Moktefi (co-author Ahti-Veikko Pietarinen), Peeter Mürsepp, Leo Näpinen, Edit Talpsepp, Rein Vihalemm, Tarmo Kiik, Lea Leppik and Erki Tammiksaar (co-author Ken Kalling) took part in the conference with a presentation. Peeter Mürsepp was also part of the organising committee.

EAHPS members Peeter Mürsepp and Rein Vihalemm participated in the Annual Conference for the International Society for Philosophy of Chemistry that was hosted at London School of Economics & Political Science (from 7th to 9th of July) with a presentation.

Peeter Mürsepp took part in the Annual Conference for the British Society for the History of Science in St Andrews (from 3rd to 6th of July) with a presentation.

EAHPS members Peeter Mürsepp and Vahur Mägi participated in the 6th European Society for the History of Science Conference in Lisbon (from 4th to 6th of September) with a presentation.

EAHPS members took part in the X Annual Conference of Estonian Philosophy in Tartu (from 25th to 27th of September).

EAHPS member Enn Kasak participated in the conference for the European Society for the Study of Science and Theology in Assisi-Perugia (from 30th of April to 4th of May) with a presentation.

EAHPS member Ahti-Veikko Pietarinen took part in over 30 conferences in Europe, Asia and America.



## **ESTONIAN LEARNED SOCIETY IN SWEDEN**

Associated with Estonian Academy of Sciences 19.03.1999

Founded 1945

Membership: 85 active members and 2 honorary members

Chairman (and the address): Ants Anderson, Ramviksvägen 214, SE-122 64 Stockholm, Sweden, Tel: ++46 8 913833, [eneants61@gmail.com](mailto:eneants61@gmail.com)

Secretary: Taavi Adamberg, Tel: +4673 581 9154, [taavi.adamberg@gmail.com](mailto:taavi.adamberg@gmail.com)

The Southern Swedish Department:

Chairman: Nora Ausmees, Magle Lilla Kyrgogata 17, SE-223 51 Lund, Sweden, Tel: +46 76 631 4049, [nora.ausmees@biol.lu.se](mailto:nora.ausmees@biol.lu.se)

Secretary (and the address): Kristiina Savin, Södra Esplanaden 20 d, SE-223 52 Lund, Sweden, Tel: 46 46 12 2945, [kristiina.savin@kultur.lu.se](mailto:kristiina.savin@kultur.lu.se)

Estonian Learned Society in Sweden incorporates the Estonian scientists in Sweden and is a forum, where they can present their works in Estonian.

In the reporting year, the Society held its annual meeting, six meetings with papers, a mixed mini-symposium for younger scientists, and the annual celebration of the Anniversary of the Estonian University. All these meetings took place at the Estonian House in Stockholm. Further the Society paid a visit to an egyptological exhibition at the Museum of the Mediterranean Cultures in Stockholm.

The meetings dealt with various topics: “Armenia and Georgia – some facts and comparisons” (Maie Martinson), “The Estonian ‘Forest Brothers’ (patriotic partisans) 1941-44-78” (Hain Rebas), “The Tourette syndrome and the ADHD disorder” (Piia Paljak Särlefolk), “The PISA survey of school results” (Martin Vallas), “Estonians who moved to Sweden in the years 1985-1991” (Vilja Palm) and “The need and the possible ways to modernise school lessons” (Taavi Adamberg).

On the 2nd of December the 95th Anniversary of the Estonian University at Tartu was celebrated. The ensemble Sweed Est Song sang Estonian songs. A scientific paper was delivered by Jaak Uibu, MD, on the topic “The development of the population crisis in Estonia, the acknowledgement of it, and measures to take to overcome it”. The Society’s Annals XV will probably be printed before the end of the year 2015.

The Southern Swedish Department of Society held the annual meeting on February 3, with paper delivered by post-doctor in biology of the Lund University Elin Sild on the topic “Oxidative stress and its links to colour and song of birds”.

November 30 – the meeting with papers heard the lecture by senior researcher of the Institute of History of Tallinn University, the archaeologist Marika Mägi on the topic “The role of Estonia in the Vikings’ Eastward expansion”.

## ESTONIAN LITERARY SOCIETY

Associated with the Estonian Academy of Sciences  
23.01.2001

Founded in 1907

Members: 288 members (incl. 35 lifetime members, 9 honorary members and 21 regional representatives)

Address: Vanemuise 19, 51014 Tartu, ESTONIA

[www.kirjandus.ee](http://www.kirjandus.ee)

Chairman: Toomas Liivamägi, Tel: +372 515 3274, [toomas.liivamagi@ut.ee](mailto:toomas.liivamagi@ut.ee)

Academic secretary: Marja Unt, Tel: +372 742 7079, [eks@kirjandus.ee](mailto:eks@kirjandus.ee)

The year of 2014 was, in quite a few aspects, the year of new agreements and setting down directions for the future of the Estonian Literary Society. The process of applying for the title of UNESCO city of literature in Tartu reached the stage of completing the text of the application; although we were not able to submit the application to UNESCO in spring 2014, the completion of the basic materials is appreciably an important interim phase, followed by meetings and discussions organised by the local government of Tartu, with attendance by many organisations and institutions related to literature. The application will be submitted to UNESCO in 2015.

Due to change of the passenger train traffic service provider, the “Rongiluule” [Train Poetry] came to an end: the new service provider was disinterested in the project in the form it was. Instead, the Society proceeded to negotiate with the Tartu local government to launch a similar project in Tartu public transport buses in 2015. Several earlier initiated undertakings still continued, like issuing the series of poetry CDs “Kirjanike hääled” [The Voices of Writers] and quite naturally participation in organising the Tartu International Literary Festival Prima Vista and the interdisciplinary cultural festival “Hullunud Tartu” [Crazy Tartu]. In connection with the latter another new project was initiated as the Society began to prepare, as the main organiser acting in cooperation with the author Jaan Malin, the European poetry-slam championship to take place in 2015 simultaneously with the festival Crazy Tartu.

In March the traditional session of the annual review of literature took place where the Estonian poetry, prose and drama of 2014 were discussed.

In March 14, the Estonian Mother Tongue Day was celebrated together with the Estonian Literary Museum, presenting a new CD in the series The Voices of Writers – Ene Mihkelson’s “Olematuse üheaegsus” [Simultaneity of Nothingness] was released as the fifth CD of the series.

On April 23 Tartu, the Day of Book and Rose was celebrated as a warm-up event of the Literary Festival Prima Vista, the programme of which embraced

a book fair, various book presentations and the announcement of laureate of the literature prize of Prima Vista and Tartu Cultural Endowment “Esimene samm” [The First Step].

At the beginning of May, Tartu House of Literature hosted the presentation of new CDs in the series of records The Voices of Writers being issued by the Society in cooperation with the Estonian Literary Museum– Ain Kaalep’s “Maiseid maastikke” [Mundane Landscapes] and Hando Runnel’s “Armas-tusest rääkida” [To Talk About Love].

9-12 May the 11th Tartu International Literary Festival Prima Vista was held, with the subtitle “Süüta noorus” [Forever Young]. The patron of the festival was Kristiina Ehin and the partner town was Rakvere. The programme included the traditional Park Library, the Prima Vista book fair and also book presentations, lectures, discussions, concerts, exhibitions, film nights and various other events. Over the time Prima Vista has attracted quite a few partners and friends, ranging from various institutes and organisations to communities and individuals, contributing ideas and events to the programme of the festival, sometimes even sub-programmes. The latter were offered in 2014 by Tartu Elektriteater and Anna Haava 7a community. The festival was attended by many Estonian authors, the foreign guests were Russian author Mihhail Veller, Russian singer and poetess Veronika Dolina, winner of the reputed Ingeborg Bachmann literary prize, a German writer of Ukrainian descent Katja Petrowskaja, German writer Klaus-Peter Wolf, writer of German children’s songs Bettina Göschl, Finnish writer Salla Simukka, Hungarian writer György Dragomán, Udumurt writer Arzami Otšei, Polish journalist Mariusz Szczygiel, Czech dramatist Roman Sikora and Belgian poet Jee Kast. Prima Vista is organised by NPO Literature Festival Prima Vista, Estonian Literary Society, Estonian Writers’ Union, Tartu Public Library and the University of Tartu Library.

In summer, two academic seminars co-organised by the Society took place: the spring seminar for the students of literature of the University of Tartu at Liinakuru and the summer school of literary studies at Nüpli.

In October, Jaan Kaplinski’s poetry CD “Kolmes keeles” [In Three Languages] was presented in the Estonian Literary Museum, being the sixth CD in the series The Voices of Writers.

In November, the interdisciplinary international festival “Hullunud Tartu” [Crazy Tartu] was held for the fifth time. The curator of the festival was poet Jaan Malin and co-organisers were the Society and Estonian Writers’ Union.

The festival Crazy Tartu tries to offer the works as lively as possible, so it was also joined by the street artist Edward von Lõngus and several rappers. The performance with sound improvisations was staged by the group Atgruio-FALLA comprising Laura Rimmel, Ivi Rausi and Roomet Jakapi. Also per-

forming at the festival were Estonian writers Jürgen Rooste, Karl Martin Sini-järv, Asko Künnap, Katrin Pärn, Aapo Ilves, Vahur Afanasjev, Triin Soomets, Kaur Riismaa and Sten Öitspuu, Chalice, Tommyboy, Pok, Wst & Skilla and s'Poom. The foreign guests arrived at the festival from Lithuania (Gabriele Laubanauskaite, Darius Jurevičius, Zygimantas Mesijus Kudirka), Finland (Rauhatäti, Esa Hirvonen + Trio Plikat), Spain (Daniel Orviz) and India (Siddhartha Bose). Participating from among artists were Elo-Mai Mikelsaar, August Künnapu, Ilmar Kruusamäe, Alice Kask, Kaarel Kurismaa and KI:WA. The musical part featured the choir piece of a young composer Liis Viira “Ma ei ole su raadio” [I Am Not Your Radio], performed by the mixed choir of memory institutions MaSk; Silver Sepp performed his work on improvised musical instruments. The festival attracted vast audience thus proving unfailing interest towards written text made vocal in the live performance, and in the interfaces of various areas of art.

Published by the Society in 2014:

- Ene Mihkelson, “Olematuse üheaegsus” [Simultaneity of Nothingness], CD
- Jaan Kaplinski “Kolmes keeles” [In Three Languages], CD.

## LEARNED ESTONIAN SOCIETY



Associated with the Estonian Academy of Sciences  
23.01.2001

Founded 1838

Membership: 114 active members, 18 honorary members

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[www.ut.ee/OES](http://www.ut.ee/OES)

Chairman: Marju Luts-Sootak, Tel: +372 737 5396, [marju.luts-sootak@ut.ee](mailto:marju.luts-sootak@ut.ee)

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The Estonian Learned Society is a scientific society operating at the University of Tartu to join humanities and sciences concerning Estonia. The aim of the Society is to present and disseminate the newest investigation results, to provide to scientists, including younger researchers, the possibility for public academic presentations and for publishing their investigation results.

At the annual meeting of 2014, 4 new members were admitted to the Society. Elected Honorary Members were Doctor in History Toomas Karjahärm and Doctor in Theology, Professor Emeritus Kalle Kasemaa. In 2014, Reet Ligi deceased. One person withdrew from the Society.

At the annual meeting, Marju Luts-Sootak was elected Chairman of the Society, Tiit Rosenberg and Heiki Valk were elected Vice-Chairmen.

In the reporting year the Board held 3 meetings. A number of topical issues were also settled through communication by e-mail. The topics of discussions concerned preparation for the annual meeting. Respecting the budget, seeking additional funds was the order of the day. In that connection the action plan for the proximate years was discussed, as well as the schedule of publications in 2015-2018. The guide of references in the Yearbook of the Society was amended. The Board also discussed allocating a scholarship of the Society for the best article released in a publication of the Society, organisation of meetings with papers, etc.

Membership of the Society is more numerous than its core, comprising the members actively attending the events of the Society and regularly paying the membership fees. In 2014, 401 euros from 58 members were received in the Society bank account (in 2013-218 euros from 35 members). The best part of members pay the fee as it falls due, however there are some members having defaulted on that obligation for over three years.

In that year, there were organised 14 meetings with papers and one international scientific seminar jointly with the National Defence College. Meetings

with papers were attended by 368 people, i.e. 24.5 persons per event, on an average.

A highlight event in the past year was the international scientific seminar organised jointly with the National Defence College on November 6, 2014, considering broader political, social and military impacts of the WWI in Europe and the world, as viewed in a general aspect, and also in individual countries like Germany, Sweden, Ukraine, Latvia and Estonia. The seminar heard 10 papers. Professor of Military History of the National Defence College Kaarel Piirimäe spoke about the innovations implemented during the WWI in the doctrines and methods of armed forces; Professor of History of the Lund University Sverker Öredsson emphasised that the war affected dramatically even those countries officially and ostentatiously upholding neutrality in the conflict; Lecturer of the Department of Scandinavian Studies of the University of Tartu Mart Kuldkepp spoke about the impact of war on build-up of the post-war world order and social changes; Associate Professor of International Law of the National Defence College and the University of Tartu René Värk tackled the impact of the WWI on international law; Doctoral student of the University of Latvia Klavs Zarins analysed a piece of writing in history on the WWI which had appeared in Latvia; Researcher of the Institute of History of the Academy of Sciences of Ukraine Oleksandr Kirienko speculated on the complex nature of the war experience of Ukraine; Lector of Military History of the National Defence College Igor Kopõtin delved into impact of the traumatic experience of the WWI on relations between German society, the military and government; Professor of the Estonian History of the University of Tartu Tiit Rosenberg spoke about the activity of the Committee of the Union of Cities of Estonia and the North-Baltic Committee; Senior bibliographer of the Library of the University of Tartu Kersti Taal focused on influence of the WWI on scientific societies of the Baltic provinces. Chief of Department of Studies of the National Defence College Lieutenant Colonel Vitali Lokk enlarged on formation of the Estonian national troops in 1917-1918.

The Learned Estonian Society is extremely thankful to the National Defence College for covering the expenses of the scientific seminar and it also thanks Mart Kuldkepp and Kaarel Piirimäe for having borne the brunt of the organisation work.

In the reporting year, the Yearbook of the Learned Estonian Society 2013 was published. The courteous subsidy for activities extended by the Estonian Academy of Sciences (reduced in 2014 to 4500 euros) is sufficient to either publish the Yearbook or to pay the salary of the Secretary of the Society. Yearbook of the Society is a publication directed at public, putting on display the main activities of the Society and consolidating the repository of Estonian national scientific thinking. As a result of the years-long strenuous effort, a constant rate of publication as been achieved and the high quality criteria have

been met, to obtain the ETIS 1.2 category. Strengthening of the position of the Yearbook in the Estonian research landscape has contributed much to involvement of younger generation of national researchers into the activities of the Society. Hopefully, that would result in the synergic effect of supporting the scientific communal activity and the breeding of new generation of researchers.

The Society has consistently sought support for publishing the Yearbook also from other sources. It was thanks to the courteous support from the Tartu City Government, Ministry of Education and Research, the University of Tartu and the Estonian Cultural Endowment that the Yearbook 2013 appeared. In 2013 there was released, as *The Papers of the Learned Estonian Society, Vol. 10*, in commemoration of the departed Honorary Member of the Society Silvia Laul her work “The craft and jewellery box from the hill fort of Lõhavere from the early 13th century”.

The Society continued awarding the scholarship established by the Board in 2008 (160 euros) to the author of the best article published in the Yearbook or Proceedings. The scholarship for 2014 was awarded to Madis Maasing, as a token of recognition for his article released in the Yearbook 2013 titled “Relations of Margrave Wilhelm with bishops of Tartu (in 1530-1550)”.

In 2014, the Society carried out the building-related archaeological surveillance at Viljandi, on the property of Ranna pst 20, within the protection zone of the Kauksi village cemetery (the Põlva parish), on the settlement site of Sääsekõrva (the Tartu-Maarja parish) and in Tartu, at pipe conduit works of Toome and Baer St. Major excavations were performed on the building site of Tartu, Jakobi 25, where the surveillance works evolved into emergency excavations. The edge to Jakobi St of the building site embraced the edge of the mediaeval St. Jacob’s cemetery, where ca. 570 skeletons were found, supposedly from the 15th C. There were many graves of communal burial, suggesting the plague, as well as bones of infants. The skeletons had an insignificant quantity of finds attached – brooches, rings, coins and necklaces. A mediaeval stone wall was found, evidently a cemetery border enclosure, and also a later enclosure trench of the cemetery, dating from the 16th-17th C. In the process of surveillance the burials of the same cemetery were also found in Tähtvere St, in the depth over 2 m below the present surface level.

To sum up, the activities of the Society continuously contribute to the development of the humanities with the history sciences and archaeology predominating, as before. The share of philology, first and foremost literature studies, increased.

The Board of the Society estimates the work of the Society in 2014 as quite satisfactory, however the lack of additional stable funding is of some concern, lest we should fail to maintain the level attained.



## ESTONIAN MUSICOLOGICAL SOCIETY

Associated with the Estonian Academy of Sciences

21.06.2004

Founded 1992

Membership: 83 active members (of whom 3 outside Estonia), 1 honorary member (Professor Emeritus of Lund University Folke Bohlin)

Address: Rävala pst. 16, Tallinn 10143, ESTONIA, emts@hot.ee

www.muusikateadus.ee

Chairman: Kerri Kotta, Tel: +372 528 8781, kerri.kotta@gmail.com

Estonian Musicological Society brings together researchers in music and people entertaining the interest to scholarly study of music and supports research in all fields of musicology in Estonia.

A highlight achievement of 2014 was the releasing of the sixth issue of the musicological yearbook *Res Musica* concentrating mostly on the topics of early Estonian music history, in cooperation with Department of Musicology of Estonian Academy of Music and Theatre. *Res Musica* is a periodical issue with international editorial board, publishing peer-reviewed scientific articles from all areas of musicology. The yearbook is open to international cooperation. The issue is prevalently in Estonian; however it includes extended abstracts of articles in English or German.

On January 8-11 – the Seventh International Conference on Music Theory was organised in Tallinn and Pärnu by the Estonian Musicological Society, the Department of Musicology of the Estonian Academy of Music and Theatre, and the Estonian Arnold Schoenberg Society. The conference papers were delivered by outstanding scholars from around the world. Three keynote speeches were made by William Caplin (McGill University, Canada), James Hepokoski (Yale University, USA), and Steven Vande Moortele (University of Toronto). In addition, more than 30 eminent scholars from the USA, Canada, Brazil, Great Britain, Germany, Austria, Belgium, Norway, Finland, Israel, Armenia, and Lithuania participated at the conference.

Upon organisation of the Society, every year there are regularly held two meetings with papers, in spring at Tartu and in autumn in Tallinn. On April 12, the Society's Day of Tartu took place in the Tartu Centre for Creative Industries, and it featured two topics – early Estonian music history and interdisciplinary research with emphasis on music sociology. In the music history panel, the keynote speech was held by Enn Küng (the University of Tartu) followed by papers on music life in Narva and Tallinn delivered by Aleksandra Dolgoplova, Heidi Heinmaa and Anu Schaper. The invited guest of the interdisciplinary panel was a German opera scholar and playwright Bettina

Bartz whose presentation was followed by the papers offered by Hannaliisa Uusma, Tuulike Kivestu, Eerik Jõks, and Mart Humal.

In the autumn Leichter Day in Tallinn on November 24, a new board (Kerri Kotta, Allan Vurma, Kristina Kõrver, Anu Schaper, Saale Konsap) and audit committee (Aleksandra Dolgopolova, Marju Raju, Eerik Jõks) of the Society for the following three years were elected at the regular annual meeting. The meeting also included a presentation of paper – “An Irishman and an Italian Piano Maker in Russia: Mobilities as a Concept of Musical Historiography“ – delivered by Andreas Waczkat (University of Göttingen, Germany). The sixth issue of Res Musica and the collection of articles compiled and edited by Maris Kirme “On music criticism in Estonia before 1944” were presented.

It has been a long tradition of the Society to organise a culture-lore trip at the beginning of September. In 2014 the Society visited Pärnumaa.

## ESTONIAN PHYSICAL SOCIETY



Associated with the Estonian Academy of Sciences

14.06.2005

Founded 1989

Membership: 357 active members, 4 honorary members

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Chairman: Kaido Reivelt, Tel: +372 737 4623, [kaidor@fi.tartu.ee](mailto:kaidor@fi.tartu.ee)

The traditional Estonian Physics Days were held in the reporting year on March 20-21. In the first day, the Day of Education in Physics was held in the science centre AHHA, in the second day, the Science Day at Institute of Technology of the University of Tartu. The Physics Days were organised jointly by Kaido Reivelt, Aile Tamm, and Riina Murulaid. Within framework of the Physics Days, the general meeting of the Society was held on March 21, approving the activities' and economic report of the Board of Society. The working day was consummated with the traditional social evening.

At Physics Days the annual prize of the Society was announced, the laureates being Mart Noorma "For proving the possibility of life in space" and Riina Murulaid "For courageous, devoted and successful activities in promoting the Estonian physical education". The student prize of the Society was assigned to Taavi Pungas as driver of the project "The student to the physics class!"

The Yearbook of Society 2013 was compiled electronically to appear at the address [õpik.füüsika.ee](http://õpik.füüsika.ee).

April 12-13 – at the 61st Physics Olympiad of Estonian school youth, the special prize of the Society (annual subscription to Scientific American) was granted to Oliver Nisumaa (Tallinn School of Sciences and Humanities).

In 2014, 3 new members joined the Society. The Society continued to retain its membership in the European Physical Society.

In 2014, the undertakings of the Society were supported by Institute of Physics of the University of Tartu, national Institute of Chemical Physics and Biophysics, AS Eesti AGA, Estonian Academy of Sciences, Ministry of Education and Research, Centre for Environmental Investments, European Social Fund, University of Tartu, Tartu Observatory, and Institute of the Estonian Language. We appreciate all supporters and look forward to continuation of cooperation.

The list of Society [seltsid.efs@lists.ut.ee](mailto:seltsid.efs@lists.ut.ee) and the website of Society ([www.fyysika.ee/efs](http://www.fyysika.ee/efs)) are administered by Kaido Reivelt.

#### POPULARISING OF SCIENCE

The Science Bus Big Dipper continued its work. Three new performances were worked out. There were 96 Science Bus trips with 14 different programmes. Within the framework of every trip, 1-11 schools or events were visited. Regularly engaged in science theatre performances were ca. 36 students, visiting 81 schools.

Upon initiative of the team of Science Bus, the Faculty of Natural Sciences and Technology of the University of Tartu was, for the sixth time, the venue of the course “Science in topical lectures”, attended by 17 and finished by 12 students of different specialties. Within the framework of that event the students gained first-hand experience in doing the science theatre and popularising science.

In September, the Society engaged in joint activities with the Rakett69 team, visiting 12 schools and presenting a performance specially staged for that occasion; the youth were urged to register for the broadcast.

The Science Bus participated at autumn and spring Student Days traditionally held in Tartu. For spring the Society had built a unique flying craft, winning the prize for the best performance; in autumn it participated in a science engagement of novel type – Stand-up Science.

The Science Bus participated at opening ceremony of the new physics building with the opening salvo and also organised in the new physics building the Researchers’ Night Festival, where the youth could participate in six different workshops and also see the Science Bus demo-treasury. As usually, the youth of the Science Bus supervised the on-goings in the Science Camp workshops.

In 2014, web outputs of the Society were renovated and upgraded. The news portal ([www.fyysika.ee/uudised](http://www.fyysika.ee/uudised)) of the physics portal ([www.fyysika.ee](http://www.fyysika.ee)) is now connected up, and the result is seen at address [www.fyysika.ee](http://www.fyysika.ee). We regularly mediate scientific news from foreign sources and spur the Estonian scientists to write short articles reporting their research outcome. Besides that we mediate the developments occurring in Estonia in the community of physics. Editor-in-Chief of the news portal is Aile Tamm.

The Society organised the Science Camp of the University of Tartu ([www.teaduslaager.ee](http://www.teaduslaager.ee)). In 2014 the Science Camp was held in two shifts, on July 13-19 and July 20-26 in the Kloogaranna youth camp. Participating in the first shift were 110 5th-7th form students, in the second shift 110 8th-9th form students. In both shifts the students were distributed into five groups, every day featuring one topic. The topics were engineering, chemistry, materials science, anatomy, and robotics. Supervisors were undergraduates, master students and doctoral students of the University of Tartu and Estonian University of Life Sciences. Giving a hand at preparing the camp were also researchers. The camp was supervised by: Joana Jõgela, Eliise Tammekivi, Lau-

ra Puusepp, Jürgen Vahter, Asko Laaniste, Ott Kekišev, Kadi Külasalu, Madis Umalas, Mari Kass, Jaana Lilloja, Adam Erki Enok, Maris Palo, Anu Saarva, Kadi Kolga, Bruno Saar, Oliver Härmson, Ramon Rantsus, Gromet Spaal, Ranel Sarapuu, Karel Sarapuu, Tarvo Metspalu, Juhani Almers, Paap Koemets Priit Laes. Tutors were: Anne-Mai Liigand, Hestia Mirka, Hermo Ausmeel, Janari Schvede, Marit Mäealu, Mari-Liis Olda, Kerstin Kekišev, Virgi Roop, Liis Süda, Karolin Aariste, Julia Vahramejeva, Arnold Rein Tatunts, Triin Metsalu. Chieftains of the camp were Taavi Adamberg, Mari-Liis Jaansalu and Alex Nõomaa.

The Society, acting jointly with Department of Natural Sciences and Technology of the University of Tartu and Science School of the University continued the programme of workshops in physics, chemistry and biology, where smart and motivated students of the 7th-12th forms were offered special training basing on experiments in natural sciences (physics, chemistry and biology), to help make up for differences of possibilities of schools when providing natural science education. There were four programmes in progress (two in physics, one in biology and one in chemistry), every programme being equal to  $8 \times 4 = 32$  hrs. In 2014, over 400 workshops were held; involved were (total for two years of training) over 100 groups, attended by ca. 1 500 students.

#### DIVISION OF TEACHERS OF PHYSICS OF THE SOCIETY

Within the Physics Day, there was training provided to teachers “Nuclei and radiations”, where teachers heard lectures on nuclear energy and economy of nuclear power stations; they informed themselves as to the possibilities of the renovated Tõravere Observatory, with Siim Oks giving an overview about activities of Division of Teachers of the Society. The teachers’ session was moderated by Enn Ööpik.

The summer school of teachers was held jointly with Summer School of Exact Sciences of the Society and the Energy Academy at Neljärve on 1-3 July. 8 teachers participated at CERN training in a national programme and 2 teachers at 3-week CERN summer school together with 52 teachers coming from 29 countries.

Active members of teachers’ community gathered at Puurmani on October 10 and discussed the necessity for physics curricula and level works. It was commonly decided that the gymnasium curriculum of physics should be reviewed, and it was suggested what topics of physics should stay in the new curriculum of the natural science of the 7th form. 21 teachers attended.

The work of network of teachers of physics is reflected on website [www.fysika.ee/vorgustik](http://www.fysika.ee/vorgustik), edited by Jaan Paaver.

#### THE GLOBE PROGRAM IN ESTONIA

Estonian Physical Society organised, throughout the year the activities of GLOBE Estonia ([www.globe.ee](http://www.globe.ee)), using for that purpose the means of Minis-

try of Education and Research and funds of the project of the Centre for Environmental Investments.

On August 11-13 there was the GLOBE summer camp at Nelijärve Leisure Centre (with attendance of 142 teachers and school students from 25 schools). There were 24 supervisors at the camp.

Contest of environmental research 2014 was carried out (28 research works participating, see [www.globe.ee/globe/konkurss/konkurss2014/](http://www.globe.ee/globe/konkurss/konkurss2014/)) and the students' conference GLOBE 2014 was held in Viljandi Gymnasium (see [www.globe.ee/globe/konverents/konverents2014/](http://www.globe.ee/globe/konverents/konverents2014/)).

The Society carried out the first part of the GLOBE air pollution measurement project, supported by the Centre for Environmental Research. Within its framework students of 25 Estonian schools measured air pollution, training events and consultations were held, and cooperation was maintained with the researchers of the University of Tartu (see [www.globe.ee/ohusaaste](http://www.globe.ee/ohusaaste)).

The Society is a partner in COMENIUS programme project "Motivate and Attract Students to Science: Sharing best practices in the use of attractive and effective tools and methods of science education to make teaching science more relevant and accessible to students, with the focus on sustainable development (MASS)". Project No. 539768-LLP-1-2013-1-CZ-COMENIUS-CNWW uniting GLOBE programmes of seven European countries basing on the GLOBE community. Project started in 2013 and will go on until 2016. There has also been held the GLOBE 2014 teachers' seminar (January 5, 2013 Tartu, see programme [www.globe.ee/globe/seminar/seminar2014/](http://www.globe.ee/globe/seminar/seminar2014/)).

#### THE SOCIETY OF PHYSICS STUDENTS

In the year the Society of Physics Students held three general meetings: in January, June and September. The general meetings provided an overview on activity of the organisation, discussed the plans for the future and involved members to the projects. At the first two of them the Society of Physics Students elected the new board, for spring and autumn semesters respectively. Elected to board for the spring semester were Anna-Helena Saarso (Chairman), Liis Kuusik (Treasurer), Markus Loide and Johan-Erik Kõlar, at autumn semester the Society of Physics Students was managed by Markus Loide (Chairman), Viktoria Sorokina (Treasurer), Ann Alice Ehala and Andreas Valdmann.

July 13-15 – the Tartumaa Health Sports Centre hosted the summer school in exact sciences of the Society. November 7-9 – Nelijärve Leisure Centre hosted the autumn school in exact sciences of the Society. Both events were attended by over 50 students, teachers and young researchers from various corners of Estonia. The audience heard over 20 hrs of lectures and seminars on nanotechnology, physics of particles, astronomy and astrophysics, on teaching physics etc. Promoters were Kaido Reivelt, Liis Kuusik, Agnes

Vask, Andreas Valdmann, Anna-Helena Saarso, Annika Pille, Viktoria Sorokina and Markus Loide.

In spring semester the Society of Physics Students continued holding student seminars, which carried on also in the autumn semester. There were altogether 12 hobby seminars: “Applications of Interferometric Synthetic Aperture Radar (InSAR) – elevation models and measurement of surface deformation”, Kaupo Voormansik; “Employment of quantum mechanics in daily life?”, Taavi Vaikjärv; “Energy efficiency in the building”, Tõnu Muring; “European source of neutrons – ESS and the fourth generation synchrotron”, Ergo Nõmmiste; “Structure of the Universe, dark matter and dark energy”, researcher of the Tõravere Observatory Elmo Tempel; “Multi-component superconductivity”, senior researcher of the University of Tartu Teet Örd; “A physician in economy”, Chairman of Estonian Board of Swedbank Robert Kitt; “Validity of laws of physics in business”, founder of electronics-engineer office “Hedgehog” Indrek Rebane; “How to shoot the light slugs round the corner”, doctoral student of the University of Tartu Andreas Valdmann; “Potential of spectroscopy and optics in the materials science and sensors both in military and civil applications”, senior researcher of laboratory of laser spectroscopy of Institute of Physics of the University of Tartu Sven Lange; “Manipulations on nano-scale”, engineer of the laboratory of physics of nanostructures of the University of Tartu Mikk Antsov; “Physics Meets Biology in Photosynthesis Research”, Professor of Laboratory of Biophysics of Institute of Physics of the University of Tartu Jörg Pieper.

March 14 – a field trip of the Society to the Institute of Cybernetics of Tallinn University of Technology. The members informed themselves as to research in various laboratories like laboratory of systems biology, laboratory of photoelasticity, and laboratory of language technology. They also heard the short presentation by Jüri Engelbrecht on CENS, and information by representatives of other laboratories about their research.

March 20-21 – the Society participated at XLIV Estonian Physics Days and at XXXVI Teacher of Physics Days in AHHA Centre and at Institute of Technology of the University of Tartu. On March 20, in the afternoon there was common discussion of students and teachers on teaching physics: the importance of copybook and textbook for teaching physics, the importance or necessity of teaching physics in gymnasium instruction, tests at physics class etc.

March 27 – there was the spring cleaning-up in the leisure room of physics students “Asylum of homeless physics students”, followed by the relaxing sauna night in Tähtvere Leisure Park for participants of the cleaning bee.

April 11 – the second inter-disciplinary seminar-night with materials scientists, chemists and Society of Students of Biosciences was held in the Tartu Writers’ House. There were five speakers: Kadi Tamm – “Solid-oxide fuel

elements”; Mart Noorma – “ESTCube programme 2014-2020”; Hans Priks – “Power production with the help of bacteria”; Martin Järvekülg – “On-goings at Estonian Development Centre of Nano-Technologies”; Taavi Pungas – “Magnetic phenomena in non-metals”. The papers were followed by informal discussion and social get-together.

May 9 – the leisure room of physics students hosted the last event “Night of the Asylum of Homeless Physics Students i.e. Good-bye Tähe 4”, recalling the story of the Asylum of homeless physics students; the students looked at experiments of Koid Timpmann, and visited the basement floors. The event was attended by students and members of faculty, and also by alumni in physics.

May 16 – the Society organised a grand spring-fest in the new Physicum building, welcoming students, staff of the Institute of Physics and those interested in physics. It was designed to introduce researchers to students before moving into common premises. The guests made a tour of the new house; they enjoyed the spring weather, attended the quiz in mixed teams, extended their thanks to lecturers and made their pick at the bar. At night, the mood was set by the ensemble Kruuv!

July 13-15 – the Tartumaa Health Sports Centre hosted the summer school in exact sciences of the Society. November 7-9 – Nelijärve Leisure Centre hosted the autumn school in exact sciences of the Society. Both events were attended by over 50 students, teachers and young researchers from various corners of Estonia. The audience heard over 20 hrs of lectures and seminars on philosophy of science, biophysics, astrophysics, warp drives, chemistry, teaching of physics, nuclear physics, computational neuroscience, the Baltic Sea, etc. The international Estonian students’ satellite team gathered too. Promoters were Kaido Reivelt, Liis Kuusik, Agnes Vask, Andreas Valdmann, Anna-Helena Saarso, Annika Pille, Viktoria Sorokina and Markus Loide.

In summer, the Society renewed the project “The student to the physics class!” within which the students of physics of the University of Tartu go to school as guest teachers in 12th form physics classes. At classes they focus on topical issues in the world of science, they present the issues of concern in science, the issues pending solution and potential applications of their research topics. In autumn, in cooperation with the students of the Centre of School Physics it engaged in training school students and preparation for classes. Five students were involved in the project: Ann Alice Ehala, Andreas Valdmann, Valle Morel, Simo-Jarek Zaranek and Anna-Helena Saarso, who will visited in spring semester 2015 about 20 schools and will deliver almost 60 physics classes.

For the third year running the Society pursued in the University of Tartu the Mentor Programme, a support project designed for the first year students, to facilitate their easing into university life and to enhance the cohesion between



different courses. The Society organised training to mentors, jointly with the Society of Students in Biosciences. Within the programme, groups were set up comprised of three first-year students and two undergraduates majoring in physics, who discussed at their meetings in autumn semester various topics in physics, instruction, student life etc. Common events of several groups were held for educational and socialising purposes, e.g. Megazone laser engagement.

In autumn the Society joined the development programme OLE ROHKEM of the student organisations of Students Representation Foundation of the University of Tartu. It provided the Society an opportunity to participate at various seminars and to get to know the visions of the organisation, formulation of its missions and strategic goals; it presented various organisational structures and how the membership can be more efficiently involved. Within the programme, an individual meeting was organised with Marketing Club, where the Society spoke about sponsorship and how people from outside the University can be involved into the membership. The Programme will continue in spring 2015.

October 22 – the third inter-disciplinary seminar night at Institute of German Culture with students majoring in chemistry and with the Society of Students of Biosciences was held. There were 5 papers: senior researcher of bio-organic chemistry of the Institute of Chemistry of the University of Tartu Uno Mäeorg – “Multiplicity and Multiplication”; Kadi-Liis Veiman – “Cell-penetrating peptides for transportation of impurity molecules: from tissue culture to *in vivo* models”, Kristjan Leiger – “Optical trapping”, assistant of bio-organic chemistry of the Institute of Chemistry of the University of Tartu Olga Mazina – “Biochemistry of signal transfer”, Madis Lõhmus – “STED microscopy”.

In autumn semester 2014, monthly Physicum brainstorming sessions started, organised by Eero Vaher and Ants Aasmaa. The first brainstorming session was held on October 6 and the following brainstorming sessions will be held every second Monday of the month.

On December 18, the Society organised the grand Christmas party at korp! Ugala. It welcomed students and lecturers to bid farewell to the semester. At the party, mentors were honoured, a short brainstorming session was held and the performance of Science Bus was watched.

## **ESTONIAN ASSOCIATION OF ENGINEERS**

Associated with Estonian  
Academy of Sciences  
23.09.2008



Founded 1921 Estonian Union of Engineers  
Re-founded 10.12.1988 Estonian Association of Engineers  
Membership: 18 members (legal entities), incl. 1800 individual members  
Address: Liivalaia 9, Tallinn ESTONIA 10118, inseneronlooja@hot.ee  
www.insener.ee  
President: Arvi Hamburg, Tel: +372 620 3763, +372 523 6500,  
arvi.hamburg@ttu.ee

Estonian Association of Engineers is a non-profit organisation, acting in public interests. The Association is an umbrella organisation, bringing together the professional organisations of engineers, trainers of engineers and innovative employers, and all those interested in developing the engineering knowledge and technology.

MISSION – promotion of Estonian engineering sciences and development, innovation, and respective educational policy.

VISION – knowledge- and innovation-based society.

### MEMBERS OF THE ASSOCIATION IN 2014

Members of the Association promote engineering both jointly through the Association as an integral entity, and in their special domain, in pursuance of Statute of the Association and resolutions of general meeting (General Assembly) of the Association and decisions of the Board. To join membership of the Association, the professional organisations of engineers and trainers of engineers submit a written application to Board of the Association, who will adopt the decision within one month. Membership of the Estonian Association of Engineers comprises 11 professional organisations, 3 higher schools – trainers of engineers and 4 companies of stature.

In 2014, two commercial organisations joined the Association:

GRAFITEK OÜ, incorporated in 1993, with the main area of business the pre-printing activities. The company is involved in international engineering-technical cooperation projects of many years' standing. The certification bodies have given recognition to achievements of the company in standardisation of the printing industry production processes: it was granted the printing quality certificate ISO12647-2/PSO of a package producer, the first in Estonia and the second in the world in its specialty area.

AS AMHOLD has been engaged in the construction activities since 1992. It has become a major specialised company offering building-related services in the Estonian building market. Its main area of business is drawing building designs, management of building works, surveillance, building-related consultations, and expert examinations and survey works in that domain.

In 2014, members of Association and representatives of member organisations were:

- Estonian Society for Biomedical Engineering and Medical Physics, Kristjan Pilt
- Estonian Association of Civil Engineers, Kaupo Koitla
- Estonian Society for Electrical Power Engineering, Maido Märss
- Estonian Transport and Roads Association, Arno Aasma
- Estonian Association of Engineers for Heat Engineering, Uudo-Rein Lehtse
- Estonian Mining Society, Ingo Valgma
- Estonian Association of Systems Engineers, Aleksander Grünstam
- Põlva Association of Engineers, Lea Leivo
- Estonian Electronics Society, Priit Roosipuu
- Estonian Association of Mechanical Engineers, Aigar Hermaste
- Tallinn University of Technology, Toomas Rang
- Estonian University of Life Sciences, Margus Arak
- Tallinn University of Applied Sciences, Lauri Peetrimägi
- KH Energia-Konsult, (representative Tõnis Tasa)
- Viru Keemia Grupp AS, Priit Rohumaa
- ÄF-Consuting AS, Jüri Alasi
- Grafitek OÜ, Enn Kerner
- AS Amhold, Arvu Mägi

In the reporting year, one general meeting and seven meetings of the Board were held, incl. one joint meeting of boards of the Estonian Association of Engineers and the Estonian Society for Electrical Power Engineering.

January 22 – A field day session was held, with a visit to Virumaa College of the Tallinn University of Technology and VKG Grupp AS. The participants looked at the College curricula and gained an overview of agreements on development works of the laboratories of the Oil-Shale Centre of Excellence at VKG Grupp AS.

April 11 – A joint field day with the Estonian Academy of Sciences was held. The participants acquainted themselves with the Iru Power Facility. Of particular interest to them were engineering and environmental issues related to waste incineration.

Priority of the activities in 2014:

VALUATION OF ENGINEERING EDUCATION AND PROFESSION OF ENGINEER.

MAIN ACTIVITIES IN THE REPORTING YEAR

1. Analysis of information on engineering in the Internet media for the purpose of consolidating the information into a single Internet environment. A survey has been composed by reference to research portals and blogs on engineering. A new environment [www.insnener.ee](http://www.insnener.ee) has been created, consolidating the whole systemic information.

2. Planning the 1st and the 2nd stage of the project Technology Leap.

Vision of the project:

- In 3 years – 20% of the youth will enrol at the University to major in science,
- In 10 years – there will be 4 top-notch technology areas in Estonia,
- In 20 years – Estonia will be a high-tech state with 3 global large company development centres,

Mission of the project: Changing the stance on engineering sciences prevalent in the society, and giving in Estonia high priority to the engineering sciences in the next following 20 years.

Main objective of the project: to launch the RESEARCH AND TECHNOLOGY PACT (PACT).

Stage I: Preparation of the Research and Technology Pact and describing the background system, the review on capability of engineer trainers and needs of the labour market. Analysis of information on engineering in the Internet media will be carried out, a new Internet environment will be created, a cooperation network will be designed, and an overview will be composed on engineer trainers and curricula.

Stage II: Monitoring of funding opportunities and making an agreement with the Estonian Research Council, who will coordinate the Research and Technology Pact. The Research and Technology Pact is an understanding between private, public and third sector for common effort to secure sustainability of the domain of engineering and technology. In the first place, the problem must be acknowledged and its root causes must be elucidated, after that a national consensus must be reached, involving the private, public and third sector organisations. It thence transpires that promoters of the Pact should be the Ministry of Economic Affairs and Communication and the Ministry of Education and Research, involving the Ministry of Social Affairs.

3. Participation at composing the draft Professions Act Amendment Act:

- The higher schools will get the right to award the primary profession without competition, by fulfilling the concrete demands and procedures set down in the Professions Act,

- Analysis of the need for labour and the capability of trainers, as well as measures to achieve the balance – the proposals of the Association will be taken into account in the final text.
4. Composing the engineer's professional standards: Building, Power, Heat technology, Mechanics and Mining engineer's professional standards will be approved.
  5. Monitoring of capability and sustainability in the domain: The forecast of the need for labour in power industry as per specialities will be available, for the rest there will be the consolidated survey by PRAXIS as commissioned by the Ministry of Economic Affairs and Communication. The vocational schools, higher schools and universities are presently defaulting on prognosticated need for specialists and managers. The capability of trainers does not meet the needs of the labour market either by structure or by quantity.
  6. In high-tech companies there is a need for R&D work to secure innovation: the needs of the company and its possibilities to participate in the R&D activity will be tested.
  7. Accreditation of curricula of the 1st and 2nd stage higher education in FEANI (Fédération Européenne d'Associations Nationales d'Ingénieurs) and application for the qualification of euro-engineer: the curricula of the building area will be accredited.
  8. Involvement of engineering students in the work of the Association and the Energy Council of the Estonian Academy of Sciences: the students of the Tallinn University of Technology and other students having attended the meetings of the Energy Council of the Estonian Academy of Sciences will be active young members of member-organisations of the Association.

COMPLEMENTARY TOPICS CONSIDERED AT MEETINGS OF THE BOARD OF ASSOCIATION IN 2014

The system of fees to architects and engineers

1. The proposal of the Estonian Society of Interior Architects to tackle the elaboration of hourly rates of engineers. The position of the Association is to elaborate the system to measure and evaluate the engineer's work contribution and its quality. The work is ongoing under coordination of the Estonian Association of Civil Engineers, member of the Association.

Procedure of considering the applications for the status of euro-engineer and accreditation of curricula in FEANI.

2. The Association is the final instance at certifying the qualification of the applicant for the status of euro-engineer and the mediator of accrediting the curricula. The Association will certify the practical work experience of the applicant, meeting the requirements of independent engineer's work of the Estonian authorised engineer and will submit the verified application to the

respective committee of FEANI. Qualification of the euro-engineer can be sought by an authorised engineer.

3. Election of Engineer of the Year 2014 and Engineering Student of the Year 2014. For election of Engineer of the Year 2014, member organisations presented six nominees. Elected Engineer of the Year was Hardi Maybaum, founder of the GrabCad, promoter of the internationally recognised innovative engineers' creative environment and exporter of engineer's services, alumnus of Tallinn University of Technology of 2013.

Elected laureate of the Lifetime Achievement Award was Professor Emeritus of Tallinn University of Technology Mati Valdma, alumnus of Tallinn University of Technology of 1960, promoter of mathematical applications of innovative theoretical knowledge at optimising the operation of power systems.

Out of four nominees, elected the winner of the title Engineering Student of the Year 2014 was Märt Müllerbeck, the fourth year student of Institute of Engineering of the Estonian University of Life Sciences, actively participating at the Society of Students in Engineering, the head of section of mechanics. He was also the main driver and promoter of the Project Pneumobiil 2014.

#### GENERAL ASSEMBLY of FEANI

The General Assembly of FEANI was held in Gdansk on October 08–10 2014, organised by Polish Association of Engineers (NOT).

The General Assembly approved the strategic directions of FEANI and its budget for the next three years. National Forum of FEANI set down the priorities of member states and forms of their cooperation. The academic session determined the general directions of common efforts of labour market and trainers of engineers.

#### EURO-ENGINEERS 2014

In 2014, FEANI awarded to three applicants the qualification of euro-engineer: Raul Kaupmees – heat technology engineer, Monika Kollo – heat technology engineer, Arvu Mägi – building engineer.

#### SUMMARY OF THE YEAR

The festive end-of-the-year meeting of the Association held on December 12 celebrated the Engineers' Day with bestowing honours on best engineers. The topical paper was delivered by President of the Estonian Academy of Sciences Tarmo Soomere "Partnership of the Academy and engineering: common view to the past and to the future".

## **ESTONIAN BIOCHEMICAL SOCIETY**

Associated with the Estonian Academy of Sciences  
13.11.2009

Founded 1959

Membership: 82 active members

Address: Akadeemia 15, 12618, Tallinn, ESTONIA, [info@biokeemiaselts.ee](mailto:info@biokeemiaselts.ee)  
[www.biokeemiaselts.ee](http://www.biokeemiaselts.ee)

President: Peep Palumaa, Tel: +372 620 4410, [peep.palumaa@ttu.ee](mailto:peep.palumaa@ttu.ee)

Academic Secretary: Vello Tõugu, Tel: +372 620 4411, [vello.tougu@ttu.ee](mailto:vello.tougu@ttu.ee)

The goal of activities of the Estonian Biochemical Society is providing support to research work, and promoting teaching effort in biochemistry, contributing to the related theoretical and applied scientific areas, raising public interest in those areas of science, and upholding and protection of scientific interests of members of the Society.

The Estonian biochemists have a long tradition to organise spring schools for members of the Society and the guests interested in the topic. In the reporting year that event was held in Kose-Uuemõisa, Oxforell leisure centre on May 9-10. Those outings are traditionally organised by Tallinn and Tartu biochemists in rotation, with all participants speaking up. The principal promoter of the biochemistry spring school 2014 was the Laboratory of Bioenergetics of the National Institute of Chemical Physics and Biophysics (NICPB), with all papers focusing on bioenergetics. The curator of the spring school was Dr. Tuuli Käämbre of NICPB and the executive organisers were Katrina Laks (Tallinn University of Technology) and Kersti Tepp (NICPB). The annual meeting of the Society was held in the electronic format.

The annual congress of the Federation of the European Biochemical Societies (FEBS), held in Paris, was attended with papers by 3 members of the Society. The work of the FEBS Council held at the end of the Congress was attended, as representative of Estonia, by President of the Society Peep Palumaa.

With the aim to popularising the research activities among students and to spur on to greater efforts the best students, who have succeeded to publish their results even before obtaining the master's degree, the Estonian Biochemical Society has awarded student science prizes since 2007 (guidelines of the contest are available on website of the Society). At the contest of this year the first prize was granted to Riin Kont of the University of Tartu. Recognised with prizes were also students from Tallinn Tarvi Teder (Tallinn University of Technology), and Aljona Kotšubei whose work was completed at the University of Århus.

Members of the Society were effectively involved in translation in Estonian of the textbook of general biochemistry.

## ESTONIAN SEMIOTICS ASSOCIATION

Associated with the Estonian Academy of Sciences

22.12.2010



Founded 1998

Members: 73

[www.semiootika.ee](http://www.semiootika.ee)

Chairman of the board: Eva Lepik, Tel: +372 7375413, [eva.lepik@ut.ee](mailto:eva.lepik@ut.ee)

Vice-chairman of the board: Daniele Monticelli, Tel: +372 5037536,  
[daniele.monticelli@tlu.ee](mailto:daniele.monticelli@tlu.ee)

In 2014, in addition to the traditional Semiotics Autumn School, Estonian Semiotics Association also organised an international conference “Framing Nature” and a lecture series followed by a conference dedicated to the 50th publishing year of the world’s oldest semiotics’ journal *Sign System Studies*. The collection of texts of the seminar series “Semiosalong” (from 2011 to 2014) and the special volume of *Acta Semiotica Estica* were published.

The annual general meeting of Estonian Semiotics Association took place on 6th May. Annual award, Semiotic Print (*Semiootiline Jälg*) for the best semiotic writings was given to Kadri Rood for her diverse cultural criticism. Peeter Torop, Daniele Monticelli, Maarja Vaikmaa, Eva Lepik and Rauno Saidla were appointed as new board members.

From 29th April to 3rd May the international conference “Framing Nature: Signs, Stories and Ecologies of Meaning” took place. The main lecturers were Wendy Wheeler, Ernest W.B.Hess-Lüttich, Steven Hartman and Thomas McGovern.

“Friendly Semiotics: “Semiosalong” Texts from 2011 to 2014”, a collection of texts edited by the organisers of Semiosalong, Piret Karro and Kristin Orav, was published. The book contains essays and articles about art, literature, philosophy, music, and their contact with semiotic thought.

On 1st and 2nd November Semiotics Autumn School “In and out” took place in Peramaa resort in the Tartu County. Talks were given by Ülle Pärli, Elin Sütiste, Jean-Pascal Ollivry, Mihkel Raud, Paavo Piik, Mari Abel and Iris Viirpalu. Semiotics Autumn School was organised in cooperation with the Association of Semiotics’ Students “Semioon”.

On 21st November, a film conference was held within the Black Nights Film Festival titled “To Watch. To Read. To Understand”. It took place in the Tartu New Theatre where Marina Grišakova, Rao Heidmets, Lauri Kärk, Elen Lotman, Kaire Maimets-Volt, Alessandro Nani, Liivo Niglas, Martin Oja, Maarja Ojamaa, Mikk Rand, Teet Teinemaa, Donald Tomberg, Peeter Torop, Peep Pedmanson, Aune Unt and others gave talks.



From September to mid-December the lecture series dedicated to the 50th jubilee of the journal *Sign Systems Studies* took place. Lectures were delivered by Mihhail Lotman, Igor Pilštšikov, Carlo Ginzburg, Märt Läänemets, Peeter Tulviste, Marina Grišakova, Marek Tamm, Ülle Pärli, Indrek Ibrus, Berk Vaher, Daniele Monticelli, Ljubov Kisseljova, Valdur Mikita and Peeter Torop.

From 5th to 6th December an international conference “Creative Continuity” was held, where Edna Andrews delivered the first lecture of Juri Lotman Lectures, titled “The importance of Lotmanian semiotics to sign theory and the cognitive neurosciences”.

The 11th volume of *Acta Semiotica Estica*, a special issue on nomination semiotics, edited by Ülle Pärli and Tanel Pern was published. The concept of integration in sociological and semiotic disquisition on society, socio-cultural categorisation, political rhetoric, the professional identity of lecturers and its relationship with institutional ideology, Estonian history of literature as text, the social modelling function after the example of “Stone On A Stone” by Johannes Semper, poetry of Iosif Brodski, and the narrating strategies used in the book “Burning Flag” by Karl Ristikivi are analysed in the articles.

## ESTONIAN SOCIETY OF HUMAN GENETICS



Associated with Estonian Academy of Sciences  
5.04.2011

Established in 2000

Members: 159

Address: Riia 23, 51010 Tartu, ESTONIA, [estshg@ebc.ee](mailto:estshg@ebc.ee)

[www.estshg.ee](http://www.estshg.ee)

President: Ants Kurg, Tel: +372 737 5018, [akurg@ebc.ee](mailto:akurg@ebc.ee)

Secretary: Maarja Kõiv, Tel: +372 522 9126, [maatjakoiv@gmail.com](mailto:maatjakoiv@gmail.com)

The board of the Estonian Society of Human Genetics includes: President – Ants Kurg, as well as the members of the board – Andres Metspalu, Andres Veske, Aavo-Valdur Mikelsaar, Riin Tamm, and Tiia Reimand.

For already the 16th time, the EstSHG organised its annual conference. The conference took place on the 23th-24th of October at Otepää Gymnasium at Otepää. The composition of the program and the choice of speakers were based upon the principle that the speakers should not have presented papers for the minimum of two years. At this year's conference, the guest speaker with a captivating talk was Professor Joris Vermeesh from KU Leuven Belgium. The speakers included some of the best researchers from Estonia such as Kai Muru, Ingrid Kalev, Ana Rebane, Urmo Võsa, Toomas Haller, Allan-Hermann Pool, Urmas Saarma, Mari Nelis, Piret Laht, Anne Kahru, Ülo Niinemets, Hedi Kaldmäe, Riho Teras, Piret Laidre, Tambet Teesalu and Taavi Päll. Like in the previous years, a competition to find the best poster was organised and Laura Tamberg was announced the best. Preparations for the conference in 2015, October 22-23 at the Estonian Traditional Music Center in Viljandi were started.

**ESTONIAN SOCIETY  
FOR THE STUDY OF RELIGIONS**



Associated with the Estonian Academy of Sciences  
16.06.2011

Founded 2006

Membership: 60 members

[www.eaus.ee](http://www.eaus.ee)

Address: Ülikooli 16, 50090 Tartu, ESTONIA

President: Madis Arukask, Tel: +372 737 5227, [madis.arukask@ut.ee](mailto:madis.arukask@ut.ee)

Academic Secretary: Piret Koosa, Tel: +372 735 0414, [piret.koosa@erm.ee](mailto:piret.koosa@erm.ee)

Estonian Society for the Study of Religions is bringing together researchers involved in academic religion studies in various fields. The Society is member of leading umbrella organisations in the area – International Association for the History of Religions and European Association for the Study of Religions. The main form of work of the Society is holding meetings with papers and conferences. It has become a tradition with the Society to organise topical series of lectures, basically in the University of Tartu. In recent years the Society has, through its undertakings, integrated with the activity of the Centre of Excellence in Cultural Theory.

In 2014, a series of lectures oriented to the public “Sacred and place” was carried out. Within the framework of the series there were held nine meetings with papers, deliberating on connections between the sacred and the place in temporal and spatial aspects, as revealed in different religious traditions. Speaking were Aimar Ventsel (“Sanctuaries as markers of nationalism in Yakutia (Sakha)”), Jüri Metssalu (“Natural sanctuaries in Estonian cultural space after the example of the Juuru parish”), Urmas Nõmmik (“Sanctuaries of Jacob, Moses and Isaiah”), Ülo Valk (“Temples dedicated to Goddess in North-East India”), Kalle Kasemaa (“Sacredness in Judaism”), Tarmo Kulmar (“Holy town Tiahuanaco in the vicinity of the holy lake Titicaca”), Irina Külmoja (“Sanctuary of the Old Believers”), Jaan Lahe (“Mithraeum as sacral universe”) and Art Leete (“Sacred woods of the Komis”).

March 19 – Anastasia Mitrofanova (Moscow) delivered a paper “Religious Radicalism and Anti-European Sentiment in Contemporary Moldova” (cooperation partner Centre for the EU-Russia Studies, the University of Tartu).

May 20 – annual meeting of the Society, hearing the report of the Board about the events of the last year and approving the financial report and report on activities of the previous year.

December 11 – annual conference of the Society “An individual in religion: roles and heroes”, summarising and completing thematically the series of lectures of 2014; within its framework 11 papers were delivered. Speaking were Katre Koppel (“It is extremely hard to put your trust in yourself, if you have been born where the authority has been totally extraneous – body as a device to reach out to your inner self”), Kristel Kivari (“Sanctuaries in the modern energy tradition”), Tatiana Alybina (“The symbology of contemporary Mari religious movement”), Lea Altnurme (“Personal sanctuaries of Estonians in nature”), Jüri Metssalu (“Sacral beings after the example of five Estonian parishes”), Villu Kadakas (“Interface of the sacral and the less sacral space in the Padise cloister”), Teet Toome (“Buddha-fields in Mahayana Buddhism”), Märt Läänemets (“Mount Potalaka as a virtual and physical sacred place in Mahayana Buddhism”), Ain Riistan (“Ukraine as a sacred place: the role of religion and nationalism in the conflict in Ukraine”).

## **ESTONIAN ECONOMIC ASSOCIATION**

Associated with the Estonian Academy of Sciences

16.06.2011

Founded 1930

Re-founded 2002

Members: 121 private individuals and 4 legal persons

Official address: Narva mnt 4, 51009, Tartu, ESTONIA

Postal address: Eesti Pank, Estonia pst 13, 15095, Tallinn, ESTONIA

[www.emselts.ee](http://www.emselts.ee)

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The Estonian Economic Association was re-founded in 2002 and is a non-profit organisation that brings together Estonian economists in order to promote modern economic thinking, encourage discussion on current economic topics, help improve the quality of education in economics, and support cooperation and partnership between institutions working in economic research and teaching. The association organises an annual conference, awards the Professor Vello Vensel prize for research, and distributes information about events at institutions that are members of the association.

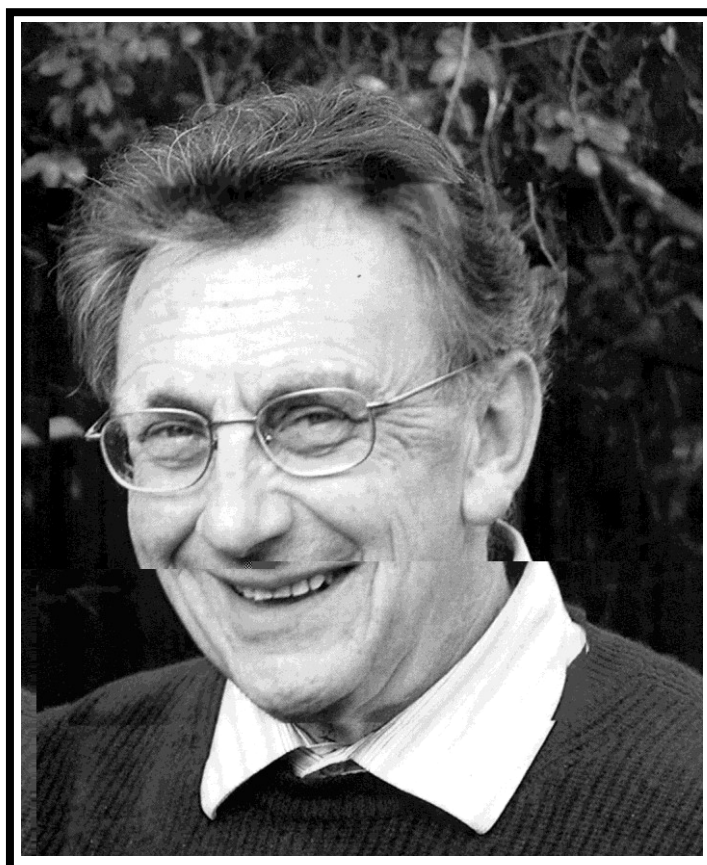
In 2013 the Association continued its long tradition of annual conferences, the first of which was held in 2003 at Toila under the name of the EMS Winter Conference. The conference is now called the annual conference, and has been since 2006 the conference at Pärnu. The ninth annual conference held at the end of January 2014 at Pärnu discussed key questions for the Estonian and European economies and heard a presentation by the renowned economist Professor Fabrizio Zilibotti of the Institute for Empirical Research in Economics on economic conflict theory. There were sessions for presentations and discussion of academic articles and the institutional members of the society spoke on their work in the previous year.

The EMS research prize named after Professor Vello Vensel was once again awarded. The prize is for doctoral students who present their research work at the international summer school that is organised as part of the Doctoral School in Economics and Innovation, and whose research work merits particular reward. The EMS Professor Vello Vensel research prize was awarded for the second time in summer 2014 to Sten Anspal, a doctoral student of the University of Tartu, for his work on the Gender Wage Gap in Estonia: A Non-parametric Decomposition.

In 2014, important advances to look at history from the the present-day vantage point were made by the EMS, including collection and systematisation of information regarding the first period of independence of the Republic of Estonia. Work in this vein will continue in 2015.

## IN MEMORIAM

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Foreign Member of the Academy *Grigori Mints*  
7.07.1939-29.05.2014

Foreign Member of the Estonian Academy of Sciences and Professor of Stanford University Grigori Mints departed this life on May 29 aged 74 years.

Grigori Mints was born on July 7, 1939 in Leningrad (now St.Petersburg). He received his education in mathematics at Leningrad State University (1961), where he also defended his dissertations for Candidate of Science (1965) and Doctor of Science (1990) degrees in Physics and Mathematics.

During 1961-1979 Grigori Mints worked at the Leningrad Division of Steklov Institute of Mathematics where he held the positions of Senior Laborant and

Junior Research Associate. He also gave lectures at Leningrad (St.Peterburg) State University, where he taught most of the graduate logic courses in 1961-1979. He shortly worked as a programmer at a software company writing code in the IBM assembler language and as a translator at the Mir Publishers. In 1980 Grigori Mints got employed by the Institute of Cybernetics, Estonian Academy of Sciences, where he worked as Senior Research Associate until he was elected Professor of Philosophy at Stanford University. He joined the Philosophy Department in 1991 and later he also held courtesy appointments in computer science and mathematics (since 1992 and 1997, respectively).

Grigori Mints was one of the leading members of Leningrad (St.Petersburg) school of proof theory. Together with his colleagues, he created proof search strategies for classical logic and programs implementing these strategies. His works included the first natural deduction program (1964) using natural language interface and a predicate calculus program deciding significant subclasses of formulas. He made major contributions to general proof theory, non-classical logics, constructive mathematics, program verification and proof mining. His studies in proof theory have been applied in computer science, among others in program synthesisers PRIZ and NUT, developed in Estonia.

Closer relations with Estonian science were formed at the beginning of the 1970ies, when Grigori Mints was lecturing at a joint summer school in Elbi (close to Pärnu) organised by the University of Tartu Chair of Programming and the Institute of Cybernetics. He also taught a course in proof theory at the UT Chair of Programming in 1991. However, his impact on the development of computer science and logic in Estonia was greatest during those ten years Grigori Mints spent in Tallinn – he was educating his colleagues in logic, doing research, publishing an easily readable preprint on logical foundation of program synthesis, giving lectures, organising scientific meetings, etc.

Grigori Mints worked as Visiting Professor at distinguished universities, e.g. KTH Royal Institute of Technology in Stockholm, UC Berkeley, Ludwig-Maximilians University Munich, as well as a consultant at Kestrel Institute in Palo Alto, California. He was the supervisor of numerous doctoral dissertations, author and editor of scholarly publications, worked in various programme and organising committees, advisory and editorial boards in his area of expertise. As a distinctive detail of his commitment, it is worth mentioning that he was the author of more than three thousand reviews and referee reports for influential abstract journals *Mathematical Reviews*, *Zentralblatt für Mathematik*, *Computer Abstracts*, *Referativnyi Zhurnal Matematika*, etc.

In 2008 Grigori Mints was elected Foreign Member by the Estonian Academy of Sciences. He was named a fellow of the American Academy of Arts and Sciences in 2010.

Grigori Mints died on May 29, 2014 in Palo Alto, California.



ESTONIAN CONTACT POINTS FOR  
INTERNATIONAL SCIENTIFIC ORGANISATIONS as of 1st March 2015  
(whose membership fees in 2014 were covered  
by the Estonian Academy of Sciences  
from a specific allocation of the Ministry of Education and Research)

Estonian contact organisation	International organisation
Estonian Physical Society (contact: Kaido Reivelt, efs@fysika.ee)	European Physical Society, EPS
Estonian National Geophysical Committee (contact Rein Rõõm, rein.room@ut.ee)	International Union of Geodesy and Geophysics, IUGG
Estonian National Committee for IGU (contact Mihkel Kangur, geograafiaselts@gmail.com)	International Geographical Union, IGU
Estonian National Committee for Geology (contact Dimitri Kaljo, dimitri.kaljo@ttu.ee)	International Union of Geological Sciences, IUGS
Estonian Association of Engineers/ Estonian Systems Engineering Society (contact Sven Nõmm, sven.nomm@ttu.ee)	International Federation of Automatic Control, IFAC
Estonian Mathematical Committee (contact Mati Abel, mati.abel@ut.ee)	International Mathematical Union, IMU
Estonian Polar Research Committee (contact Rein Vaikmäe, rein.vaikmae@ttu.ee)	ESF European Polar Board, EPB
Estonian National Committee on Astronomy (contact Laurits Leedjärv, laurits.leedjarv@to.ee)	International Astronomical Union, IAU
Estonian National Committee for Mechanics (contact Andrus Salupere, salupere@ioc.ee)	International Union of Theoretical and Applied Mechanics, IUTAM

Estonian Research Council (contact Toomas Meressoo, toomas.meressoo@etag.ee)	European Science Foundation, ESF
Estonian Academy of Sciences (contact Jüri Engelbrecht, j.engelbrecht@akadeemia.ee)	International Council for Science, ICSU
Estonian Academy of Sciences (contact Jaan Undusk, jaan@utkk.ee)	Union Académique Internationale, UAI
Estonian Academy of Sciences (contact Jüri Engelbrecht, j.engelbrecht@akadeemia.ee)	European Federation of Academies of Sciences and Humanities ALLEA
Estonian Academy of Sciences (contact Margus Lopp, margus.lope@akadeemia.ee)	European Academies' Science Advisory Council, EASAC
Estonian Academy of Sciences (contact Kristi Viiding, kristi.viiding@ut.ee)	International Commission on <i>Thesaurus Linguae Latinae</i> (TLL)
Committee on Phylogenetics and Systematics, Estonian Academy of Sciences (contact Urmas Kõljalg, urmas.koljalg@ut.ee)	Consortium of European Taxonomic Facilities (CETAF)
Committee on Marine Sciences, Estonian Academy of Sciences (contact Tarmo Soomere, tarmo.soomere@cs.ioc.ee)	European Marine Board
ESTQUA (Estonian National Committee for INQUA) (contact Volli Kalm, tiit.hang@ut.ee)	International Union for Quaternary Research, INQUA
Estonian National Committee of Geomorphologists (contact: Tiit Hang, tiit.hang@ut.ee)	International Association of Geomorphologists, IAG

Estonian National Committee for  
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Department of Philosophy and  
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International Union of Pure and  
Applied Physics, IUPAP

International Union of History and  
Philosophy of Science, Division of  
Logic, Methodology and Philosophy  
of Science, IUHPS/DLMPS

COOPERATION AGREEMENTS WITH PARTNER ORGANISATIONS  
(in brackets, the date of signing the currently valid agreement)

1. Austrian Academy of Sciences (12.11.2007)
2. Academy of Sciences of Bashkortostan (23.06.2012)
3. British Academy (04.08.2011)
4. Berlin-Brandenburg Academy of Sciences and Humanities (16.05.2002)
5. Bulgarian Academy of Sciences (02.04.1996)
6. Georgian National Academy of Sciences (19.10/01.11.2012)
7. Royal Flemish Academy of Belgium for Science and the Arts (26.03.2004)
8. Chinese Academy of Sciences (26.05.2000)
9. Spanish Council for Scientific Research (19.06.2001)
10. Israel Academy of Sciences and Humanities (19.07.1995)
11. Italian National Research Council (23.04.2004)
12. Lithuanian Academy of Sciences (12.11.1991)
13. Council for the Lindau Nobel Laureate Meetings; Foundation Lindau Nobelprizewinners Meeting (21.12.2011)
14. Royal Society of London (30.10.1991)
15. Latvian Academy of Sciences (12.11.1991)
16. Macedonian Academy of Sciences and Arts (16.12.1996)
17. Montenegrin Academy of Sciences and Arts (17.10.2005)
18. Polish Academy of Sciences (17.06.1996)
19. French Academy of Sciences (22.03.1994)
20. Royal Swedish Academy of Letters, History and Antiquities (18.01.1995)
21. Royal Swedish Academy of Sciences (17.11.2005)
22. Slovak Academy of Sciences (28.11.1993)
23. Slovenian Academy of Sciences and Arts (28.04.1997)
24. Academy of Finland (04.01.2007-31.12.2012)
25. Finnish Academy of Science and Letters (10.03.1992)
26. Swiss Academy of Sciences (18.09.1989)
27. Academy of Sciences of the Czech Republic (10.04.1996)
28. National Academy of Sciences of Ukraine (02.10.2000)
29. Hungarian Academy of Sciences (20.06.1995)
30. National Academy of Science of Belarus (18.02.2002)
31. Russian Academy of Sciences (17.02.1993); additional memorandum on cooperation in earth sciences (30.03.2012)

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