



ESTONIAN  
ACADEMY OF SCIENCES  
YEAR BOOK

XIX (46)

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2013

*Facta non solum verba*

ESTONIAN  
ACADEMY OF SCIENCES  
YEAR BOOK

ANNALES  
ACADEMIAE SCIENTIARUM  
ESTONICAE

XIX (46)

2013

TALLINN 2014

ESTONIAN ACADEMY OF SCIENCES

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## FOREWORD

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The redaction of 2010 of the Academy Act has made it possible, in the recent years to significantly improve the coverage by specialities of the Academy membership and its age structure, hence also its capability of solving the tasks necessary for the country and the society. The tasks assigned by lawmaker to the Academy have not changed in the past couple of decades, while the interest displayed by representatives of the state to making use of the competence of the Academy has diminished. This is evidenced by the state subsidy (budget) drawn to a minute detail, in particular its size, putting restraints on the Academy's initiative and giving little leeway for normal organisation of work – for instance, even sending two students to the traditional conference of the Nobel Prize winners necessitates a special request for subsidy from structural funds, because the Academy lacks disposable resources to send two people on a mission.

At the same time, the Academy is markedly desirous of participating more effectively in the life of society and the country. This is shown by discussions held in the Academy on principles of funding the research in Estonia and the readiness to participate in drawing background research needed to support the strategic and tactical decisions of the government and Parliament. To carry out such work the Academy has established the Institute for Advances Study, having already made its first tangible agreement. It needs to be acknowledged however that the governmental structures are not eagerly calling for research-based analysis and assistance at preparing their strategic decisions.

The sustainable funding of research has become predominantly project-based, so has the repair of houses and purchase of equipment. The Academy Office has been successful at tenders of the projects – we managed to improve the fire safety of the Academy House with support from structural funds and to enable access to the Academy House also by handicapped people. At the same time, we failed to upgrade the technological infrastructure.

*Leo Mõtus*

## CHRONICLE

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January 21 – Board at its meeting discussed the Academy’s Action Plan 2013, approved the new composition of the Committee on Phylogeny and Taxonomy and appointed Ülo Mander to the Evaluation Committee of the Estonian Research Council.

January 23 – First discussion meeting “Science and the Institutional Research Funding System” was held under partnership agreement between the Estonian Academy of Sciences and Tallinn University of Technology.

January 28-29 – Academy House was the venue for the 13th Baltic Conference on Intellectual Co-operation “European Research Area and Small Countries”.

January 30 – Chair of the Academy’s Committee on Marine Sciences Tarmo Soomere, concurrently vice-Chair and Executive Committee Member of the European Marine Board (EMB), attended an EMB meeting in Brussels.

February 11 – Board at its meeting heard a report about the unique original materials of exceptional scholarly value in the holdings of the Under and Tuglas Literature Centre. The report was presented by Olle Hints, Chair of the Expert Council on Science Collections at the Ministry of Education and Research. Jaan Undusk, Director of the Centre provided further insight into the current state of collections.

February 20-21 – Raivo Uiibo represented the Academy in a regular meeting of the ALLEA Permanent Working Group on Science and Ethics in Stockholm. Among other topics (rules of procedure, plans for the future, etc.), the WG considered a preliminary version of the Statement on Ethics Education in Science.

March 4-7 – Vice-President Jüri Engelbrecht attended the forum “Impact of Science and Technology on Society and Economy” organised by the World Academy of Art and Science (WAAS) in Trieste, Italy. The forum sought to offer a new paradigm for addressing key global challenges facing the humanity with comprehensive, integrated, transdisciplinary solutions. J.Engelbrecht introduced the session “The Network Society” that focused on the rising importance of networks in modern society, among other issues the role of complexity studies in understanding and analysing network behaviour.

March 11 – Brett Makens (Economic and Commercial Officer) and Taimi Alas (Environment, Science, Technology and Health Specialist) from the Embassy of the United States in Tallinn visited the Academy and had a meeting with Vice-President Jüri Engelbrecht, where the background of ongoing co-operation and potential areas for future collaboration were discussed.

March 14 – Division of the Humanities and Social Sciences organised a day of public lectures at Narva College of the University of Tartu.

March 18 – Board at its meeting approved the financial activities of the Academy in 2012 and budget for 2013; determined the agenda for the Annual General Assembly; announced the 2013 Student Research Paper Contest; decided to submit a proposal to the General Assembly for opening four Academy membership vacancies, whereas the election date was left to be set by the Board.

April 22-24 – Foreign Relations Manager Ülle Raud attended a biannual conference EURAXESS Network in Dubrovnik, Croatia. Discussions covered the activities and future plans of EURAXESS. Several parallel sessions addressed topics related to the main theme, e.g., relations with industry, social media, mentoring, professional training courses/workshops, cross-cultural communication, EURAXESS offices in third countries.

April 23-25 – Chair of the Academy's Committee on Marine Sciences Tarmo Soomere participated in the meeting of the EMB Executive Committee and the following EMB spring plenary meeting in Bergen, Norway. Among other issues, a decision on establishing two new Working Groups was made. An Estonian researcher (Alar Rosentau, University of Tartu) has been invited to work as an expert for one of them (WG SUBLAND).

April 24 – Activities of the Academy in 2012 were summed up at the General Assembly Meeting. Reports were provided by Heads of Divisions Jaak Aaviksoo, Tarmo Soomere, Ilmar Koppel and Urmas Varblane, and a conclusive overview by President Richard Villems. Secretary General Leo Mõtus presented the report on budget execution in 2012 and the 2013 budget the General Assembly approved both. Recently elected fellows were introduced to the General Assembly Academy. Andres Tvauri (University of Tartu), one of the the Estonian Science Prize Laureates in 2013, presented a scientific paper. President Richard Villems briefed the General Assembly on the Board's proposal for election of four new members to the Academy.

April 29-30 – Vice-President Jüri Engelbrecht represented the Academy in a symposium exploring digitisation of archives and scholarly sources in the humanities under the title "Management of Large Data in Corpore" organised by the European Federation of National Academies of Sciences and Humanities "All European Academies" (ALLEA), and the following General Assembly Meeting in Berlin, Germany. The General Assembly heard the reports of working groups; discussed the activities, funding and administration of ALLEA, which had changed owing to transfer of the secretariat from Amsterdam to Berlin.

May 2 – Academy's Science Day in Jõgeva County.

May 8 – Tarmo Soomere gave a public academic lecture in the Academy Hall on the topic “The Baltic Sea coast under human and environmental pressure”.

May 22-16 – Peeter Tulviste attended as the delegate of the Academy the General Assembly of the *Union Académique Internationale* (UAI) in Mainz, Germany. On the agenda were reports from committees (incl. the Committee on External Relations, whose member is P.Tulviste), scientific sessions and lectures.

May 20 – Board at its meeting considered statements by Heads of Divisions on the position of their Divisions towards potential specialties for Academy membership vacancies as well as a probable date for elections. Katre Väli, Chairman of the Estonian Semiotics Association reported on the activities of the ESA. Another topic under discussion was increasing the number of Research Professor positions. Alo Adamson and Rein Küttner were excluded from the composition of the Academy’s Energy Council, while Ingo Valgma, Head of the Department of Mining at Tallinn University of Technology, was appointed a new member of the Council. Martti Raidal was nominated to the committee for updating academic staff employment contracts at the Ministry of Education and Research; the nomination of Hannes Kollist, Jüri Sepp, Kaupo Kukli and Piret Kuusk to the expert panel for assessment of institutional research funding applications was decided through consultations with members of the Evaluation Committee of the Estonian Research Council.

May 20 – Academy House was the venue for a discussion on the topic “Trends and policies in regional development of Estonia”.

May 24 – Vice-President Jüri Engelbrecht participated in a meeting of the joint Advisory Board to NETWATCH and ERA-LEARN in Brussels. NETWATCH is the European Commission’s information platform on transnational R&D programme collaboration with current focus on ERA-NETs. ERA-LEARN is an instrument based on investigating and analysing transnational coordination experiences derived from NETWATCH procedures.

June 2 – Vice-President Jüri Engelbrecht attended the conference “Opportunities and Challenges for the 21st Century: Search for New Paradigm” organised by WAAS in Geneva, Switzerland. The conference sought to identify a new global paradigm by searching different aspects of human activity (economy, power industry, ecology, human capital and security policy) for opportunities to reconcile presumably incompatible goals, e.g., common welfare, security, sustainability and social justice.

June 5 – Committee on Nature Conservation at the Estonian Academy of Sciences held its 51st day of public lectures under the title “Restoration of habitats” on the premises of the University of Tartu Botanical Garden.

June 6-7 – Secretary General Leo Mõtus participated in a meeting of the European Academies’ Science Advisory Council (EASAC) in Halle, Germa-



ny. Among the discussed topics were relations between EASAC and the global network of science academies IAP, EASAC's recent publications and other outreach activities, its ongoing and upcoming programmes and projects.

June 10-11 – Foreign Relations Manager Ülle Raud attended a Bridgeheads Meeting of the European Network of Service Centres EURAXESS in Brussels. Key issues included overview of the activities (events, training programmes/workshops), information about the outcomes of studies (content quality of national web portals; researcher's mobility and career ladder) and upcoming initiatives of the European Commission towards research mobility.

June 17 – Board at its meeting gave consideration to pertinent issues with regard to discussion of the Estonian R&D&I Strategy (2014-2020) “Knowledge-based Estonia III” at the Research and Development Council. Enn Kaup reported on the activities of the Estonian Polar Research Committee. The Board approved the national programme “Compilation and Publication of Textbooks in Estonian for Institutions of Higher Education 2013-2017”, placing special emphasis on the importance of making textbooks available in electronic form as well.

Four Academy membership vacancies were announced – in exact sciences, engineering, natural sciences and law (one for each), the election schedule was specified. Chairman of the Council of the Academy's Institute for Advanced Study Mart Ustav provided an overview on the launch process of the Institute.

June 17 – Presentation of the book “Eesti Vabariigi teaduspreemiad 2013” (National Science Prizes 2013) was held at the Academy House.

September 16 – Board at its meeting approved the statutes and new composition of the Estonian Polar Research Committee, and gave attention to information provided by Jaan Undusk concerning the current status of storage conditions for preservation of collections at the Under and Tuglas Literature Centre. Vice-President Mart Ustav gave an account about the earnings of the Estonian Academy of Sciences subsidiary foundation of the Estonian National Culture Foundation. The Tiit Talpsep scholarship was assigned to Liis Henno, MSc student in virology. The Nikolai Alumäe medal was awarded to Raimund-Johannes Ubar (Member of the Academy). On ground of submitted applications, 16 candidates were registered for Academy membership vacancies. The Board was briefed on preparations for the health promotion research programme TerVE, and the conference “Excellence in Research” by Vice-Presidents Mart Ustav and Jüri Engelbreht, respectively. A proposal for combining the student research paper contests of the Academy and the State was discussed.

September 27 – Musical Science Café opened its doors at the Academy House within the events programme of the Researchers' Night 2013.

October 1 – Vice-President Jüri Engelbrecht represented the Academy in an annual meeting held by the Group of the European Members of ICSU (International Council for Science) in Prague, Czech Republic. Executive Director of ICSU Steven Wilson offered an outline of ICSU’s key activity areas. Keynote papers dealt with the current status and future plans of CODATA (Committee on Data for Science and Technology) and RDA (Research Data Alliance). ICSU activities under the Future Earth initiative were also reflected. At present, the future operations of the ICSU European group are not very definite as the mandate of the current Secretariat, located in Finland, will expire in 2014.

October 10-15 – Peeter Tulviste participated as representative of the *Union Académique Internationale* (UAI) in the General Assembly of the International Social Science Council (ISSC) and the following World Social Science Forum 2013 on “Social Transformation and the Digital Age” in Montreal, Canada.

October 14 – Academy House was the venue for the seminar “Science and infrastructure in bioinformatics – is either one conceivable without the other?”

October 15-16 – President Richard Villems visited the Armenian Academy of Sciences and attended celebrations marking its 70th anniversary.

October 22-23 – Academy House was the venue for the international conference “Excellence in Research” that was jointly organised by the Estonian Academy of Sciences, Council of Estonian Centres of Excellence in Research and Estonian Research Council.

October 22-24 – Chair of the Academy’s Committee on Marine Sciences Tarmo Soomere participated in an EMB Executive Committee meeting and the following EMB Autumn Plenary Session in Lisbon, Portugal.

October 25 – Chair of the Academy’s Committee on Marine Sciences Tarmo Soomere attended the opening session of the new composition of the Environment Steering Panel at EASAC in Brussels.

October 31 – Expert seminar “Smart Migration Policies”, addressing immigration policy issues in relation to highly-qualified specialists, was held at the Academy House. It was jointly organised by the Centre of Nordic Council of Ministers’ Office in Estonia, University of Tartu, Centre for Migration Studies at Estonian Academy of Security Sciences, and Estonian Academy of Sciences.

November 4 – Board at its meeting decided to submit the Statutes of the Institute for Advanced Study to the General Assembly of the Academy for approval. Information on the results of the Academy’s Student Research Paper Contest in 2013 was presented by Georg Liidja, Chair of the contest panel.

President of the Estonian Naturalists' Society Tõnu Viik gave an overview of the society's recent activities.

November 4 – Conference of the Student Research Paper Contest Winners was held at the Academy House, including papers delivered by laureates and conferral of diplomas.

November 12 – Academy House was the venue for the seminar “Urban and human geographical processes in Estonia”.

November 12 – Assistant Secretary General for Foreign Relations Anne Põitel received a Letter of Appreciation from the Police and Border Guard Board (PBGB), granted to the Estonian EURAXESS Network for contribution to fluent collaboration related to immigration of researchers from third countries.

November 13 – Academy House was the venue for a public academic lecture by Tarmo Uustalu under the title “Hijacked science”.

November 14-15 – Vice-President Jüri Engelbrecht and Assistant Secretary General Galina Varlamova attended an international conference “Invest in Researchers” in Vilnius that was hosted by the Lithuanian Academy of Sciences. Key topics were: funding opportunities from EU sources, doctoral training situation in Europe and research career issues. J.Engelbrecht gave a talk on the role of the Estonian Centres of Excellence in Research.

November 20 – Board of the Academy and the Estonian Association of Engineers paid a joint visit to Paide Machine Factory (PMT) Ltd. and Konesko Ltd. Koeru factory.

November 25 – Meeting with the best high school students in Võru County was held in the village of Kääpa as a follow-up event to an earlier Academy's Science Day in Võru County.

November 27 – Bottleneck problems in research funding were addressed at a seminar organised under partnership agreement between the Estonian Academy of Sciences and Tallinn University of Technology.

December 3-4 – Foreign Relations Manager Ülle Raud attended a Bridgeheads Meeting of the European Network of Service Centres EURAXESS in Brussels. Key topics included the alleged role of EURAXESS in the Horizon 2020, extension plans to new target groups and reports on recently conducted conferences and studies.

December 4 – General Assembly at its meeting approved the Statutes of the Institute for Advanced Study and corresponding amendments to the Statutes of the Estonian Academy of Sciences. The Nikolai Alumäe medal was conferred on Raimund Ubar. Jaan Aarik, Andres Öpik, Ülo Niinemets and Lauri Mälksoo were elected new Members of the Academy.

December 5-6 – Secretary General Leo Mõtus participated in a meeting of the European Academies' Science Advisory Council (EASAC) in Rome, Italy, where several reports (on general activities, topical programmes, etc.) were heard. Discussions also examined upcoming studies and initiatives.

December 9 – Organising team for the Researchers' Night in Estonia (composed of representatives from the AHHA Science Centre, Estonian Academy of Sciences, National Institute of Chemical Physics and Biophysics) held a meeting at the Academy House destined to launch activities for the period 2014-2015. The Researchers' Night is a Europe-wide event aimed at presenting researchers and science related issues to the public.

December 16 – Board at its meeting decided to nominate Vice-President Mart Ustav as a candidate for Board Member of the Estonian Research Council, granted the Harald Keres medal to Ülo Lepik (Member of the Academy) and determined to confer the medal during the General Assembly in April 2014. The Academy's calendar schedule of events and activities for 2014 was briefly discussed.

## MEMBERSHIP OF THE ACADEMY

The General Assembly on 4 December elected four new members to previously announced Academy membership vacancies:



*Jaan Aarik*  
in exact sciences



*Andres Õpik*  
in engineering



*Ülo Niinemets*  
in natural sciences



*Lauri Mälksoo*  
in law

As of February 2014 the Estonian Academy of Sciences numbered 79 Members and 19 Foreign Members, who 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, 5 Foreign Members)

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

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

#### DIVISION OF BIOLOGY, GEOLOGY AND CHEMISTRY

(23 Members, 5 Foreign Members)

Members: Toomas Asser, Jaak Järv, Ain-Elmar Kaasik, Dimitri Kaljo, Mati Karelson, Ilmar Koppel (Head of Division), 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 2013 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 continued as President of the Riigikogu and Jaak Aaviksoo as Minister of Education and Research.

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

- President's Academic Advisory Board – Peeter Saari, Richard Villems;
- Board of the Cultural Foundation of the President of the Republic of Estonia – Jaan Undusk;
- Research and Development Council to the Government of the Republic – Jaak Aaviksoo, Mart Saarma, Richard Villems;
- Sustainable Development Committee to the Government of the Republic – Margus Lopp;
- National Science Prize Committee – Richard Villems (Chairman), Jaak Järv, Valter Lang, Lauri Mälksoo, Ergo Nõmmiste, Martin Zobel, Enn Tõugu, Jaan Undusk, Urmas Varblane, Andres Öpik;
- Scientific Adviser to the Prime Minister – Mati Karelson;
- Evaluation Council of the Estonian Research Council – Enn Mellikov, Martti Raidal, Jaan Ross, Eero Vasar, Jaak Vilo;
- Council of the Foundation Estonian Cooperation Assembly – Urmas Varblane
- Quality Assessment Council to the Estonian Higher Education Quality Agency – Olav Aarna and Jakob Kübarsepp (Head);
- Supervisory Board of Eesti Pank – Urmas Varblane

Jaak Aaviksoo (Chairman), Leo Mõtus, Ülo Niinemets and Urmas Varblane are members of the Research Policy Advisory Committee to the Ministry of Education and Research. Jüri Engelbrecht is a member of the Steering Council for the Research and Innovation Policy Monitoring Programme and the Steering Committee for the Internationalisation of Research Programme. Several Members of the Academy are involved in the Steering Committees of National R&D Programmes: Jaak Vilo (Chairman) – “Language Technology Support for the Estonian Language (2011-2017)”, Jaan Undusk – “Estonian Language and Cultural Memory (2009-2013)”, Valter Lang – “Supporting Terminology in Estonian (2013-2017)” and Ain-Elmar Kaasik – “Compilation and Publishing of Textbooks in Estonian for Higher Education” (first months in 2013). Urmas Kõljalg is a member of the Expert Council for Science Collections Programme. Karl Pajusalu is a member of the Estonian Language Council. Ene Ergma (Chairman) and Ülo Jaaksoo are members of the Estonian Space Policy Working Group.

Ene Ergma is Chairperson of the Space Affairs Council and Ülo Jaaksoo is a member of the Information Society Council at the Ministry of Economic Affairs and Communications.

Eero Vasar is a member of the Gene Technology Committee at the Ministry of the Environment.

Leo Mõtus (Vice Chairman) and Jaak Vilo are members of the Ministry of Defence Research Council.

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

Jaan Ross is Director of the Graduate School of Culture Studies and Arts at the Estonian Academy of Music and Theatre; Karl Pajusalu is Chairman of the Council of the Doctoral School of Linguistics, Philosophy and Semiotics at the University of Tartu; Eve Oja is Chairman of the Council of the Estonian Mathematics and Statistics Doctoral School.

Ain-Elmar Kaasik was Chairman of the Registration Committee of the State Agency of Medicines (up to April 2013).

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

Enn Mellikov was awarded the National Science Prize for Long-standing Achievements in Research and Development (see p. 68). The yearly prize in the category of engineering was bestowed on Tarmo Soomere (see p. 69).

Toomas Asser was granted the Order of the Estonian Red Cross, 1st Class, Urmas Varblane and Jaak Vilo with the Order of the White Star, 3rd Class (see p. 70)

Likewise, in 2013 many Members of the Academy were given recognition by various institutions, associations and organisations in the form of awards and honorary titles as well as by electing them to honorary membership:

    Jaan Einasto was elected Honorary Doctor by the University of Turku;

    Jüri Martin was elected Honorary Member by the Association of Estonians Abroad;

    Martti Raidal received the University of Tartu Badge of Distinction;



Anto Raukas received a Letter of Appreciation from the Shota Rustaveli National Science Foundation (Georgia) for research quality assessment, and was elected Honorary Member of Tallinn Mustamäe Gymnasium Science Club;

Hando Runnel was elected Honorary Member by the Learned Estonian Society;

Mart Saarma was reappointed for the period 2013-2016 to the Scientific Council of ERC (European Research Council) and to the EMBO (European Molecular Biology Organisation) Council;

Tarmo Soomere was granted the Medal of the Baltic Academies of Sciences, and the Ökul Prize from the Estonian Science Journalists for his contribution to science communication;

Mart Ustav was named Honorary Citizen of Tartu and received the Grand Star of Tartu.

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 twice in 2013:

- |          |                |
|----------|----------------|
| April 24 | Annual Meeting |
|----------|----------------|
- Scientific Paper by a National Science Prize Laureate Andres Tvauri “Famine in Estonia and neighbouring countries in an era between the Early and Late Iron Ages”
  - Reports by Heads of Divisions Jaak Aaviksoo, Ilmar Koppel and Urmas Varblane, a representative of the Division of Informatics and Engineering Jakob Kübarsepp and President Richard Villems “Activities of the Academy in 2012”
  - Report by Secretary General Leo Mõtus “Financial activities of the Academy in 2012 and the budget 2013”
  - Assigning of allowances to Members of the Academy for the period 01.05.2013-30.04.2014
  - Announcing new vacancies
  - Establishment of the Institute for Advanced Study
- 
- |            |         |
|------------|---------|
| December 4 | Meeting |
|------------|---------|
- Approval of the Statutes of the Institute for Advanced Study
  - Approval of amendments to the Statutes of the Academy
  - Election of new Members of the Academy

The Annual Meeting of April 24 customarily focused on summing up the activities of the Academy in 2012. Detailed data on the activities of the Academy were made available in the “Estonian Academy of Sciences Year Book” XVIII (45), mailed to all Members in advance of the meeting.

At the beginning of the meeting President Richard Villems presented new Members – Ergo Nõmmiste, Jaak Vilo, Tõnu-Andrus Tannberg and Hando Runnel, and Foreign Members – Alar Toomre, Steven Bishop, Pekka Mänistö and Yuri Berezkin, who had been elected in December 2012. A Foreign Member Diploma was handed over to Yuri Berezkin.

The 2013 National Science Prize Laureate in the Humanities Andres Tvauri, Senior Researcher, Institute of History and Archaeology, University of Tartu, presented a Scientific Paper “Famine in Estonia and neighbouring countries in an era between the Early and Late Iron Ages”.

Heads of Divisions Jaak Aaviksoo, Ilmar Koppel and Urmas Varblane, and a representative of the Division of Informatics and Engineering Jakob Kübarsepp 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 2012.

Secretary General Leo Mõtus reported on execution of the 2012 budget and presented the 2013 budget, which were approved by the General Assembly.

Secretary General Leo Mõtus introduced a plan for assigning allowances to Members of the Academy in the period 01.05.2013-30.04.2014. The General Assembly decided to distribute the allocated amount among all Members of the Academy on an equal basis.

President Richard Villems briefed the General Assembly on the Board’s proposal for opening 4 vacancies in 2013. The election date was left to be set by the Board. The resolution to open Academy membership vacancies was passed on a show of hands.

Vice President Mart Ustav presented a plan for establishing the Institute for Advanced Study. Arvo Ots, Dimitri Kaljo, Jaan Ross, Udo Margna, Mihkel Veiderma, Andres Metspalu, Agu Laisk, Ülo Jaaksoo and Richard Villems expressed their opinions in the following discussion. Jüri Engelbrecht and Endel Lippmaa commented on the topic. The General Assembly approved the establishing of the Institute for Advanced Study.

In his closing words President Richard Villems summarised the issues discussed at the Annual Meeting and warned against the threatening expansion of bureaucracy in science.

At the second Meeting of December 4, the General Assembly discussed the Draft Statutes of the Institute for Advanced Study, approved the Statutes, tasked the Board with making necessary adjustments to the document according to proposals made by Members of the Academy, and decided to submit the Statutes to the Ministry of Education and Research for registration.

Due to establishment of the Institute for Advanced Study and its inclusion in the structure of the Academy, it became necessary to make corresponding amendments to the Statutes of the Academy as well. The General Assembly approved Amendments to the Statutes of the Academy and decided to submit

the updated Statutes to the Ministry of Education and Research for registration.

Election of new Members to the announced 4 vacancies of Academy membership from among 16 candidates nominated by higher educational and research institutions was the key item on the agenda at the second Meeting of the General Assembly. Voting by ballot gave the following results: Jaan Aarik was elected in exact sciences (from among Jaan Aarik, Jaan Janno and Ago Samoson); Andres Õpik in engineering (from among Kaupo Kukli, Tiit Kutser, Ülo Mander, Andrus Salupere, Marina Trapido and Andres Õpik); Ülo Niinemets in natural sciences (from among Anne Kahru, Maia Kivisaar, Ivo Leito, Ülo Niinemets and Tõnis Timmusk) and Lauri Mälksoo in law (from among Lauri Mälksoo and Jaan Sootak).

In his closing remarks President Richard Villems characterised possible niches for the Institute for Advanced Study to participate in shaping and navigating Estonian economy. He expressed contentment over the election of new Members to the Academy.

## **BOARD**

The Board of the Estonian Academy of Sciences worked in 2013 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, Division of Astronomy and Physics	<i>Jaak Aaviksoo</i>
Head, Division of Informatics and Engineering	<i>Tarmo Soomere</i>
Head, Division of Biology, Geology and Chemistry	<i>Ilmar Koppel</i>
Head, Division of Humanities and Social Sciences	<i>Urmas Varblane</i>
Non-Executive Members	<i>Ene Ergma</i>
	<i>Ain-Elmar Kaasik</i>
	<i>Mati Karelson</i>
	<i>Endel Lippmaa</i>
	<i>Enn Mellikov</i>
	<i>Peeter Saari</i>
	<i>Peeter Tulviste</i>
	<i>Enn Tõugu</i>

The Board held 8 working meetings during the year. Twice, the decision was passed by electronic voting.

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 2013.

In view of the Academy Act amendment on the maximum number of Members, the Board decided to continue increasing membership in the Academy by electing new members in 2013 and to submit a proposal for opening four membership vacancies, requesting the General Assembly to leave the election date to be set by the Board. Divisions held different opinions regarding the election date. The Board discussed various issues relating to filling the vacancies at several meetings. On June 17, the announcement of 4 membership vacancies in 2013 (one for every Division) was decided. The Board approved the specialties of vacancies according to the proposals by Divisions. In September, 16 candidates were registered to the announced 4 vacancies for the upcoming elections during the General Assembly Meeting of December 4.

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 November 16 Georg Liidja informed the Board about the results of the contest. The meeting was followed by a conference, where four prize-winning papers were presented laureates, and an award ceremony.

For years two separate Student Research Paper Contests have been held – one by the Academy and the other by the Ministry of Education and Research. The Board considered that it would be expedient to integrate the contests, whereas responsibility for organising the contest could be assigned to the Academy. Secretary General Leo Mõtus briefed the Board about respective proposals made to the Ministry.

Discussion and decision-making with regard to topical issues in management formed a considerable part of the Board's work. In April the Board examined the execution of the consolidated 2012 budget of the Academy and the budget for 2013, which were submitted to the General Assembly for approval. Martti Raidal was nominated to the committee for updating academic staff employment contracts at the Ministry of Education and Research. The Board took notice of information about the use of earnings from the Estonian Academy of Sciences subsidiary foundation of the Estonian National Culture Foundation. Secretary General L.Mõtus briefed the Board about changing the auditor of the Academy and preparing an agreement with the company Assertum Audit LLC. Agendas for the General Assembly Meetings were approved. The Board decided to award the Nikolai Alumäe Memorial Medal to Raimund-Johannes Ubar (Member of the Academy) and the first Harald Keres Memorial Medal, instituted in the previous year, to Ülo Lepik (Member of the Academy). The proposal to nominate Professor Rainer Kattel for the Baltic Assembly Science Prize presented by the Estonian delegation to the Baltic Assembly was supported.

The Board discussed draft amendments of December 27, 2013 to the Regulation No.73 “Conditions and procedure for applying for, awarding and amending the amount of institutional research funding” of the Ministry of Education and Research. The Board specified the conditions under which it would grant an approval to the draft regulation. The National Programme “Compilation and Publishing of Textbooks in Estonian for Higher Education 2013-2017” was approved with the stipulation that textbooks for higher education should be made available in electronic form as well.

At its February meeting the Board discussed a report about the knowledge and expertise acquired from the Call for Personal Research Grant applications in 2012/2013 presented by Head of the Estonian Research Council Andres Koppel. It decided to furnish the Estonian Research Council with supplementary observations on the first round of awards received from Members of the Board.

Following a request from the Estonian Research Council for nomination of candidates to the Evaluation Committee, the Board approved the Academy’s nominations. Professor Ülo Mander of the University of Tartu was nominated to the Evaluation Committee to fill the upcoming vacancy. The nomination of Senior Researcher Hannes Kollist, Professor Jüri Sepp, Leading Researcher Kaupo Kukli and Senior Researcher Piret Kuusk (all of the University of Tartu) to the expert panel for assessment of institutional research funding applications for subsidy was decided through consultations with members of the Evaluation Committee. While discussing potential nominees, President R.Villems suggested that the Academy should advise the Evaluation Committee to consider extending its composition to the maximum number of members stipulated by legislation, as several specialties in chemistry and engineering were inadequately represented. Vice President Mart Ustav was nominated as a candidate to the Board of the Estonian Research Council.

Issues related to the establishment of the Institute for Advanced Study were repeatedly on the agenda. The Board discussed possibilities for enlarging the number of Research Professors and integrating them into the Institute for Advanced Study. The composition of the Council of the Institute for Advanced Study was approved according to the suggestions by Divisions. Chairman of the Council Mart Ustav provided an overview on the launch process of the Institute. Its first important area of activity was associated with the health promotion research programme TerVE. In November, the Board approved the draft Statutes of the Institute for Advanced Study and submitted it to the General Assembly for approval. Reporting on topics discussed at the EASAC meeting, Secretary General L.Mõtus called attention to one issue that had been noted at the meeting as well, namely, the fact that despite the productive publishing achievements of Estonian scientists, not a single one of their research accomplishments that had been published actually managed to produce any noticeable effect on the Estonian economy and society. He further

remarked that the establishment of the Institute for Advanced Study was the first step made by the Academy towards reducing distressful isolation between science and Estonian public sector decision makers, i.e. political leaders and entrepreneurs.

The Board gave attention to reports about the activities of the Estonian Semiotics Association and the Estonian Society for the Study of Religions presented by Chairperson Katre Väli and Member of the Board Ergo-Hart Västriik, respectively. The activities of the Estonian Polar Research Committee were covered by Enn Kaup, the composition of the Committee and its new statutes were approved by the Board. President of the Estonian Naturalists' Society Tõnu Viik reported on the activities of the Society. The Board approved changes in the membership of the Academy's Energy Council and the new composition of the Committee on Phylogeny and Taxonomy.

At its meeting in February the Board heard a report about the unique original materials of exceptional scholarly value in the holdings of the Under and Tuglas Literature Centre. The report was presented by Olle Hints, Chair of the Expert Council on Science Collections at the Ministry of Education and Research. Jaan Undusk, Director of the Centre provided further insight into current state of collections. Half a year later J.Undusk informed the Board about the works that had been performed within the project aimed at restoring the conditions for preservation of science collections at the Centre.

## **DIVISIONS<sup>1</sup>**

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

The Division of Astronomy and Physics held two meetings in 2013: on June 14 and November 8. Main topics discussed at the meetings were related to enlargement of the Academy, e.g. determining the specialty of the vacancy, selecting candidates, etc. Nomination of Ülo Lepik (Member of the Academy) for the Harald Keres Memorial Medal and submission of a respective application to the Board were decided.

May 27-30 – conference was organised to celebrate the 75th birthday of Gennadi Vainikko (Member of the Academy).

September 1-6 – international conference dedicated to the centennial of Professor Gunnar Kangro (1913-1975), an Estonian mathematician and Member of the Academy. Quite a few world-renowned scientists in the area of analysis were among the speakers at the conference, most of them on their first visit to

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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.

Estonia. The seminal event was chiefly organised by Eve Oja (Member of the Academy). The 100th anniversary was also denoted by the book “Mathematician Gunnar Kangro 100”, published in November, and a personal exhibition displayed at the University of Tartu Library.

December 2 – festive presentation of Jaan Einasto’s (Member of the Academy) book “Dark Matter and Cosmic Web Story” was held in the White Hall at the University of Tartu History Museum.

December 4 – the General Assembly elected Professor Jaan Aarik, Institute of Physics at the University of Tartu, to membership of the Academy.

Members of the Division represented the Academy in several decision-making and advisory bodies for science administration.

#### DIVISION OF INFORMATICS AND ENGINEERING

In 2013, there was one meeting of the Division assembly (in two parts), and two extended meetings under partnership agreement between the Academy of Sciences and Tallinn University of Technology, and two electronic Division assemblies.

In April the Division assembly was held in electronic format. On the agenda was the Division’s position in the area of informatics and engineering, regarding the specialty for the intended vacancy. The overwhelming majority of Division members preferred ‘engineering’.

September 4-9 – Division assembly was held in the format of electronic polling. On the agenda was conferral of the Nikolai Alumäe Memorial Medal. It was decided to make a proposal to the Board of Academy to award the Medal to Raimund-Johannes Ubar (Member of the Academy) for his insightful and influential scientific contributions, for refined applications in the area of testing and diagnostics of computer systems as well as for educating computer scientists of the younger generation in the spirit of diligence and adherence to principles.

October 25 and November 1 – regular Division assembly meetings were composed of two parts. Presentations were given by Tiit Kutser, Marina Trapido, Kaupo Kukli, Ülo Mander, Andrus Salupere and Andres Öpik – candidates, standing for the vacancy in engineering. In the process of discussion they were asked a number of questions about their R&D and science organisation activities. They were to present a vision of their role as a potential Member of the Academy and of possibilities to contribute to the work of the Academy. It was asserted that all candidates met stipulated requirements to become a Member of the Academy regarding the level and scope of their scientific work. As a preference of the Division, it was decided to support the candidacy of Andres Öpik for the vacancy in engineering. The assembly supported the



choice of the Division of Humanities and Social Sciences (Lauri Mälksoo) among scientists standing for the vacancy in law. Among scientists standing for the vacancy in natural sciences, Ülo Niinemets was considered the preferred candidate. For the vacancy in exact sciences support was given to the candidacy of Jaan Janno, whose research performance and bibliometric indices are notably high within his area (mathematics).

January 23 – an extended discussion meeting of the Division with leadership of Tallinn University of Technology, among them Andres Keevallik, Rector of Tallinn University of Technology, Erkki Truve, Vice-Rector for Research, several deans and heads of institutes. The meeting was also attended by great many Members affiliated to other Divisions of Academy. A report on experience of the 1st round of the Call for Institutional Research Funding (institutional research application) was presented by Andres Koppel, Head of the Estonian Research Council and Chair of the Evaluation Committee. The supporting report “Continuity of Estonian research activities” was made by Erkki Truve. Jaan Ross (Member of the Academy) delivered a paper “The Humanities in the general background of Estonian science”. A member of the Evaluation Committee of the Estonian Research Council Martti Raidal (Member of the Academy) spoke about financing the research and Margus Lopp (Member of the Academy) presented a paper “Management and organisation of research”. The following speeches and discussion were moderated by Jakob Kübarsepp and Tarmo Soomere. Discussions indicated a sharp discrepancy in the expectations and judgements towards the instruments for funding R&D activities from the state budget expressed by the Ministry of Education and Research and the Estonian Research Council on the one hand, and the universities and research community on the other hand.

According to the (self) assessment of the Estonian Research Council and its Evaluation Committee the first round of the Call for Institutional Research Funding was ‘Good’. Research funding from the state budget (institutional research funding, personal research grants, baseline funding) constitutes only a fraction of the total R&D financing. Amendment of the R&D Organisation Act underlying the particular Regulation, whereby the terms and procedures for institutional research funding were stipulated, would be of minor significance. Possible few shortcomings, if any, could rather be associated with the Research and Development Council. The primarily quality-based scheme for funding Estonian research from the state budget had found international recognition. The Board of the Estonian Research Council had not been established to make political decisions. The achievement of two opposite goals (quality of research and sustainability of R&D institutions) that satisfied all parties would be impracticable in reality.

The experience of the previous year (2012), when institutional research funding applications were submitted under conditions of belated completion of evaluation guidelines was regarded as a failure of the Estonian Research

Council. Researchers certainly agreed with that judgement. The application round for institutional research funding without evaluation guidelines must not be launched for a second time. Researchers expressed an opinion that distinct separation of the so-called strategically important applications for institutional research funding was problematic.

The concerns of universities and the research community were to some extent similar to the worries of the Ministry of Education and Research. However, they were of wider scope, covering the R&D activities and higher education, with a focus on doctoral studies. The general impression was that integrated adoption/implementation of political decisions aimed at securing sustainability had failed the same way in the areas of research and higher education. Although the Ministry of Education and Research also considered the 1st round of institutional research funding applications unsuccessful and acknowledged a definite need for changes, starting with amendments to the Regulation on Institutional Research Funding (and evaluation guidelines), a significant part of researchers still interpreted the undergoing process for coordinating the Regulation of Institutional Research Funding as a simulacrum activity, distracting attention from the major shortcomings/weaknesses of the system (e.g. the utopian nature of the full cost model). Stability in work had vanished: it was high time to pay the salaries for January, but respective funds had not been allocated yet.

Other areas causing worry for researchers proved to be the workplaces, research career path and its attractiveness. In that context, long-term sustainable funding of research and higher education (doctoral studies in particular) from the state budget was considered a matter of utmost importance with a view to securing the survival of all areas vital for Estonia (both in research and education). General discontent appeared to be an all-pervasive feeling, regardless of fairly plausible respective legislation. Inconsistent and counterproductive signals sent to institutions by different agents/bodies responsible for organising the funding of researchers and science were possibly the main reason for problems in communication.

November 27 – second extended discussion meeting of the Division under partnership agreement between the Academy and Tallinn University of Technology (TUT) was held in the Council Hall of Tallinn University of Technology on the topic “Bottleneck problems in research funding”. TUT was represented in discussions by Rector Andres Keevallik, Vice-Rector for Research Erkki Truve, several deans and heads of institutes. Some Members of the Academy affiliated with other Divisions attended as guests. The total number of participants at the meeting was about 40. A report about the experiences obtained in the 2nd round of Institutional Research Funding applications was made by Andres Koppel, Head of the Estonian Research Council. A supporting report was presented by a member of the Evaluation Committee of the Council Professor Rainer Kattel from TUT. Jaan Undusk

(Member of the Academy) spoke on the topic “Thoughts of a humanities scholar on funding practices in the Humanities” and Rein Kaarli (Ministry of Education and Research) provided an overview of planning the new period for Structural Funds in the area of research and higher education. Subsequent discussions were moderated by Members of the Academy Jakob Kübarsepp and Tarmo Soomere. Recurring topics of the discussion included: 1) research funding in the next programming period, Horizon 2020; 2) volatility revealed in the currently evolving system of research funding; possible sources, impacts and opportunities for mitigation; 3) the need for better reckoning with the particularities of various research disciplines.

Among the proposals made during discussion and thoughts presented, the following were supported by effective consensus:

- Regardless of rhetoric arguments emphasising the vital importance of R&D activities for Estonia in the next funding programming period, the currently forecast numbers of R&D funding, however, indicate an alarming decrease by approx.  $\frac{1}{4}$  in the new period.
- Science usually features both target specific (project specific) and sustainability specific researches. Contrary to the rhetoric of sustainability, research funding in Estonia has actually become project specific throughout (as it was expressly said, for instance, by Rector Volli Kalm). An exception is presented by baseline funding, which constitutes approx. 20% of the general amount of targeted funding/institutional research funding. This has brought about a massive volatility of the system (for example drastic withdrawal of funding for research teams, which have so far shown excellent results), which produces generally a negative impact on the whole R&D system. The meeting deemed it necessary to decrease or mitigate the manifest volatility through science policy decisions on the state level (e.g. increasing the share of sustainability specific funding, in disputable cases uniting assessment of applications with evaluation of team or institution, etc.).
- The meeting suggested, as one possibility to lower volatility, to take into account more specifically the differences between areas of R&D. Tallinn University of Technology deemed necessary to reckon with the differences between natural sciences and engineering (e.g. division of R&D activities into six areas like in the Frascati Manual, instead of former four areas).
- Drawing on concrete examples, several speakers emphasised the quality problems when assessing the applications (among others making decisions on the basis of such criteria, which have not been indicated in the Research and Development Organisation Act, other legal acts or guidelines for assessment; assessment of institutional research applications on the basis of such aspects, which are usual in

case of individual applications, absence of essential feedback, apparently incorrect assertions and conclusions contained in final reviews).

- In view of the foregoing, it was deemed as necessary the delivery of estimates of (external) reviewers to applicants, absent whereof the institutions will find it complicated to improve their R&D quality.

Members of the Division presented two academic papers in the Academy Hall. On May 8, Tarmo Soomere spoke on the topic “The Baltic Sea coast under human and environmental pressure” and on November 13 Tarmo Uustalu spoke on the topic “Hijacked science”. On October 14, Jaak Vilo organised the public seminar on infrastructure of bioinformatics in the Academy Hall. J.Engelbrecht was Editor-in-Chief of the collection of essays and articles about the Academy “Scientific thought in Estonia VIII. Research culture”, containing essays by five Members of the Division (T.Uustalu, T.Soomere, L.Mõtus, R.Ubar and J.Engelbrecht), considering the role of engineering and researchers in the society. J.Engelbrecht organised the conference “Excellence in Research” (Estonian Academy of Sciences, 22-23.10.2013), where a paper was presented by R.Ubar. The 2nd day session of the conference dedicated to Estonian Centres of Excellence in Research offered brief overviews on the results of the Centres of Excellence affiliated with the Division. The Academy was represented in the European Marine Board (T.Soomere), European Academies Science Advisory Council (EASAC, L.Mõtus) and its Environment Steering Panel (T.Soomere) and Energy Steering Panel (E.Lust). At the end of the year (13.12.2013) Estonia signed as the fifth country the ELIXIR (European Life Science Infrastructure for Biological Information) consortium agreement. J.Vilo is Head of the Estonian ELIXIR unit.

Two Iridescent Seminars focusing on marine, lake and coastal science were organised in cooperation with the Committee on Marine Sciences (10.09.2013 Jonne Kotta, “Climate and marine life”, Institute of Cybernetics at TUT and 29.10.2013 Kalle Olli, “Arctic becomes hot”, Department of Marine Systems at TUT); the position of the Academy was formulated regarding the application for survey related to building of the gas pipeline between Estonia and Finland Balticconnector, regarding the documentation of strategic appraisal of environmental impact of spatial planning of network of sea area of German economic zone and regarding the possible locations of liquefied natural gas (LNG) terminal. Members of Division represented Estonia as experts at discussion of potential cross-border environmental impact in appraisal of environmental impact of Inkoo LNG terminal at a meeting between Estonia and Finland (Tallinn, 11.09.2013).

The Division organised several events in Estonia. Centre of Excellence Estonian eXcellence in Computer Science (EXCS) (T.Uustalu, J.Vilo) organised

the 23rd Computer Science Theory Days between Tallinn and Tartu (01-03.02.2013). J.Vilo was main organiser of the 12th Summer School of Estonian Computer and Systems Science (ESSCaSS 2013, Voore, 18-22.08.2013). T.Uustalu was main organiser of the 28th Winter School of Estonian Computer Science (EWSCS 2013, Palmse, 03-08.03.2013), the co-organiser of the 25th Nordic Workshop on Programming Theory, NWPT '13, Tallinn, 20-22.11.2013 and he participated in organising two Computer Science Theory Days (Otepää, Saka). H.Aben was main organiser of the 13th International Glass Stresses Summer School (Tallinn, May 2013). R.Ubar was main organiser of the European-Latin American Summer School on Design, Test and Reliability (Tallinn, 19-21.06.2013).

Members of the Division were among initiators of several events held abroad. T.Uustalu steered the SIGPLAN Special Interest Group of ACM that focuses on Programming Languages, the programme panel of the XVIII International Conference on Functional Programming ICFP'13 (Boston, Massachusetts, 25-27.09.2013) and coordinated compiling the special issue of the Journal of Functional Programming on the basis of best papers of the conference; he also worked on the programme panel of five international conferences and workshops: 19th International Conference on Types for Proofs and Programs TYPES'13 (Toulouse, France, 22-26.03.2013), 24th International Conference on Rewriting Techniques and Applications RTA'13 (Eindhoven, Holland, 24-26.06.2013), 10th International Colloquium on Theoretical Aspects of Computing ICTAC'13 (Shanghai, China, 04-06.09.2013), 15th International ACM SIGPLAN Symposium on Principles and Practice of Declarative Programming PPDP'13 (Madrid, Spain, 16-18.09.2013), 11th Latin American Symposium on Theoretical Informatics LATIN'14 (2014). E.Mellikov was a member of Scientific Committee of the 28th European Photovoltaic Solar Energy Conference and Exhibition (EU PVSEC, Paris, 30.09.2013) and 5th international conference Radiation interaction with material and its use in technologies 2013 (Kaunas, Lithuania). A.Ots was an organising committee member of international scientific conferences Plant Maintenance for Managing Life & Performance, Baltic Heat Transfer Conference and International Fluidized Bed Conference. T.Soomere was an organising committee member of the 8th Baltic Sea Science Congress, Kaunas, Lithuania, 26-30.08.2013). J.Engelbrecht organised an e-conference of WAAS (World Academy of Art and Science) on the role of complex systems in the present society. R.Ubar was a co-organiser of the IEEE annual conference East-West Design & Test Conference EWD&TW and main organiser of the East-European Section of the IEEE Latin-American Test Workshop (Cordoba, Argentina, 02-05.04.2013); he was also a programme panel member of several international conferences (IEEE European Test Symposium, IEEE International Symposium on Quality Electronic Design, IEEE EUROMICRO Conference, IEEE European Dependable Computing Conference, IEEE NORCHIP

Conference, IEEE Latin-American Test Workshop, IEEE Conference on Design and Diagnostics of Electronic Circuits and Systems, IEEE International Conference on Automation, Quality & Testing, Robotics, IEEE East-West Design & Test Conference, International Conference on Mixed Design of VLSI Circuit, International Workshop on Boolean Problems, Baltic Electronics Conference).

Members of the Division continued their activities in research as well as in various organisations and assemblies responsible for R&D administration and funding at national and European level, see “Membership” and “International Foreign Relations”.

#### DIVISION OF BIOLOGY, GEOLOGY AND CHEMISTRY

In 2013, three extended meetings of the Board of the Division and three meetings of the Division (one of them electronic) were held.

The meeting of the Division held on January 11 was preceded by an extended Board meeting in the electronic format on January 3-8, attended by practically all members of the Division. They discussed the report for 2012 and approved the plan of most important events for 2013.

May 2-12 – Board meeting in the electronic format, putting to vote the question, according to a respective decision of the Board of the Academy, whether the new vacancy of the Division would be ‘natural sciences’ or some other narrower speciality. As a result of the voting the members of the Division decided overwhelmingly in favour of ‘natural sciences’, desiring to request up to 3 vacancies, of which the Board of the Academy accepted one vacancy of ‘natural sciences’. For filling that vacancy, 5 applications were received (A.Kahru, M.Kivisaar, I.Leito, T.Timmusk, Ü.Niinemets).

November 13 – Board meeting, attended in person by 13 Members of the Academy. Papers were presented by candidates meeting the profile of the Division. A round of questions and discussion was followed by ballot voting for preference concerning the 5 above mentioned researchers in the range of specialty areas covered by the Division as well as candidates belonging to other Divisions. The preferences of absentees had been sent prior to the meeting by e-mail or letter. Preference among the candidates of the Division was given by a narrow margin to T.Timmusk (6 votes), outrunning Ü.Niinemets (5), A.Kahru and I.Leito (4) and M.Kivisaar (1). In the Division of Astronomy and Physics preference was given to J.Aarik, in the Division of Informatics and Engineering Ü.Mander and in the Division of Humanities and Social Sciences L.Mälksoo. At the General Assembly on December 4, Ü.Niinemets was elected to Academy membership in this Division.

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

Committee on Medical Science and Health Strategy, the Committee on Meteoritics and the Committee on Nature Conservation proceeded with their activities under the auspices of the Division.

## DIVISION OF HUMANITIES AND SOCIAL SCIENCES

In 2013, the Division of Humanities and Social Sciences held two regular meetings: on May 23 and on October 18. In the process of discussions, the members worked out positions of the Division on the upcoming enlargement of the Academy. They discussed the visibility of the Academy in the society and the specialty for the vacancy of Academy membership relating to the Division.

In the period from January to May, the Academy House hosted a series of lectures, organised by Member of Academy Mart Kalm, celebrating the 20th anniversary of the Institute of Art Studies at the Estonian Academy of Arts. Internationally known art historians were invited to speak:

- January 24 – Altti Kuusamo (University of Turku), Iconography or subject, form and force – some thoughts on the fate of iconography;
- February 1 – Alexei Yurchak (University of California, Berkeley), “Lenin’s two bodies: the hidden science of communist sovereignty”;
- February 8 – Keith Moxey (Barnard College, Columbia University, NY), “Contemporaneity, or what time is tomorrow”;
- March 1 – David Crowley (Royal College of Art, London), “Architecture at the limits of critique in the Eastern Bloc in the 1980s”;
- April 15 – Kenneth Frampton (Columbia University, NY) “Five North American Architects”;
- April 30 – Griselda Pollock (University of Leeds), “Did I just dream it or was there once a feminist revolution in art and art history? Aesthetic reflections on the politics of memory in Art History and its futures”;
- May 30 – Kitty Zijlmans (Leiden University), “Potatoes, ears, passports, homes. What can be the contribution of artistic research to World Art Studies?”

January 11 – inauguration of Hando Runnel was celebrated at the historical University Café, Tartu.

January 25 – Mihhail Bronshtein celebrated his 90th birthday at the the Academy House.

February 12 – in a column of the daily Postimees, Tartu University Hospital Children's Fund expressed appreciation to Mihhail Bronshtein for his generous donation of 2,500 euros that had been raised at his birthday.

January 28-29 – Academy House hosted the 13th Baltic Conference on Intellectual Cooperation, where Valter Lang (Member of the Division) delivered a paper.

February 11 – Jaan Undusk initiated a démarche against the potential closure of the Departments of Finno-Ugrian and Scandinavian languages at the University of Groeningen.

February 11 – Board at its meeting discussed problems involving the transfer of collections held by the Under and Tuglas Literature Centre.

March 14 – Day of public lectures on historical topics related to Narva was held by the Division at Narva College of the University of Tartu. Tõnu-Andrus Tannberg was responsible for the scientific programme of the Day. Among the speakers was Research Professor of the Academy Anu Realo. The Day was moderated by Peeter Tulviste.

May 2 – Academy's Science Day in Jõgeva County, organised by the Division. Participants visited the agricultural enterprise located at Pajusi and the Palamuse school museum. The local daily Vooremaa denoted the Science Day by featuring a crossword about academicians.

May 20 – Board at its meeting heard reports on the activities of the Estonian Society for the Study of Religions and the Estonian Semiotics Association.

October 31 – expert seminar of the Nordic Council “Smart migration policy” held at the Academy House was co-organised by the Division.

November 12 – Research Professor Rein Ahas organised the so-called Tallinn Day under the title “Urban and human geographical processes in Estonia”.

November 25 – follow-up to the Science Day in Võru County was held at Kääpa Basic School. A presentation was given by Research Professor Rein Ahas. Participants also visited the enterprise Estelaxe OÜ and the old Lasva water tower.

November 26 – Hando Runnel celebrated his 75th anniversary at Tartu Literature House.

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, Tallinn University of Technology and the Geological Survey of Estonia LLC. The main objects explored in 2013 were:

- Osmussaar's sediment vein mineralogical and micro-paleontological researches (Department of Geology, University of Tartu);
- Seismic surveys of the Dobeles meteorite crater (Latvia) (Department of Geology, University of Tartu);
- Mineralogical surveys of the Pilstvere meteorite (Department of Geology, University of Tartu).

In the accounting year two theses were defended on the topics of meteoritics at the University of Tartu: "Shock distortion mineralogical indicators in Sääksjärvi and Lappajärvi impact rock", MSc thesis by T.Kreitsmann (supervisors J.Kirs and U.Preeden) and "Geochemistry and mineralogy of EL6 enstatite chondrites – the Pilstvere meteorite", BSc thesis by S.Soomer (supervisor K.Kirsimäe).

June 5 – Ulla Preeden gave a public lecture "Remagnetization of target rocks" at the Natural History Museum in Berlin.

August 8 – Rudolf Välja presented a paper "Inverted structure of melt-rich impact breccias at Bosumtwi crater: Implications to mixing and cooling history of fallout suevites" at the conference "Large Meteorite Impacts and Planetary Evolution V" (Sudbury, Canada).

August 16-25 – a study course at Kuressaare and on Kaali craters "Impacts and their role in the evolution of life", attended by 26 PhD students (from the USA, Austria, Estonia, Spain, England, Poland, Sweden, Germany, Serbia, Finland, Ukraine) and 15 academic staff members of various universities – A.Brandeker and W.Geppert (Stockholm University), C.Cockell (University of Edinburgh), R.Court (Imperial College), D.Elbeshausen (Natural History Museum in Berlin), H.Haack (Natural History Museum of Denmark), A.Jõelet, K.Kirsimäe, J.Plado (University of Tartu), C.Koeberl (University of Vienna), T.Kohout (University of Helsinki), K.Meech (University of Hawaii), H.Rickman (Uppsala University), V.Vajda (Lund University), S.Veski (Tallinn University of Technology).

November 13 – Jüri Plado gave a public lecture "Geophysical methods in studies of Fennoscandian and Baltic impact structures" at the Natural History Museum in Berlin.

In the period from June to August 2013 Reet Tiirmaa offered guided tours to visitors of the Kaali Meteorite Crater Field, presenting the Kaali craters and history of their research. During the year the employees of the University of Tartu Natural History Museum, the Department of Geology at the University of Tartu, the Institute of Geology at Tallinn University of Technology and the Estonian Geological Survey of Estonia gave consultations on various meteoritics related issues to about a dozen 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 Str. 4, Tartu) belonging to the Estonian University of Life Sciences. The Committee experienced the loss of an active member, Arno-Toomas Pihlak. At the end of the accounting year the Committee had 26 members.

March 16 – the Committee organised a Day in Memoriam of Jaan Eilart at Lahemaa National Park to pay homage to his lifework. Kalev Sepp and Vaike Hang spoke on behalf of the Committee. (An exposition covering Jaan Eilart's activities was taken along from Tartu and displayed during the Day). Likewise, the Committee helped to organise a conference dedicated to the 80th anniversary of Jaan Eilart that was held in the Conference Hall of the University of Tartu Library on June 21. Papers were presented by Toomas Frey and Kalev Sepp, Vice-President of the International Union for Conservation of Nature (IUCN). Vaike Hang composed an exhibition "Eilart's Midsummer Day" at the Baer House.

June 5 – the traditional (51st) day of public lectures under the title "Restoration of" at the Visiting Centre of the University of Tartu Botanical Garden. Papers were presented by Urmas Tartes, Riinu Rannap, Kalev Sepp, Kaupo Kohv, Indrek Sell, Tõnu Talvi, Marek Sammul, Mihkel Tiido, Ingmar Ott, Jaan Tambets and Mati Ilomets.

The Eerik Kumari Nature Conservation Prize with the Gold Badge of Distinction for nature conservation was awarded to Gennadi Skromnov, initiator and manager of Looduskalender.ee, a web portal devoted to introducing Estonian nature. The Laureate was presented with a compendium of articles on conservation of Estonian fauna "Eesti loomariigi kaitsest" (edited by Vilju Lilleleht, 1992) published by the Committee to honour the memory of Kumari, and a photographic portrait of Kumari.

In the accounting year, developments around the natural karst area of the Nabala region were finally solved when the Minister of the Environment, after due consideration of expert opinion, initiated the formation of the Nabala

Nature Reserve. Namely, in 2010 the Committee presented to the Ministry of the Environment a proposal “to conduct an additional scientific inventory of the natural values in the entire region and an appraisal to determine the nature conservation value of its separate areas”. Expert assessment of the proposal for the Nabala Nature Reserve was performed by a member of the Committee Kalev Sepp.

From April to September, an exquisitely designed exposition “Time and people of Tõhela” was open to the public at the Baer House. The display on ten exhibition stands was arranged by the Estonian Agricultural Museum. In pictures and in words, it presented life in a rural corner between swamps and forests over the last hundred years (composed by Vaike Hang). Several Cultural Heritage Nights co-organised by the Committee were held as an accompaniment to that exposition. On June 17 Mall Hiemäe spoke on the topic of national ecology and cultural heritage. The event was merged with the presentation of V.Hang’s eighth book on areal studies “Tõhela aeg ja inimesed” (Tõhela hamlet: time and people, 2013). V.Hang also participated in organising the 80th anniversary exposition of the journal “Eesti Loodus“. A memorial exhibition (composed by V.Hang) held at the Baer House at the end of the year was dedicated to Heino Jõgi (1913-1990), an Estonian-born resident of Canada – journalist, teacher, scout, conservationist, public figure and artist.

#### ENERGY COUNCIL

Set up in 1998

Chairman Arvi Hamburg, Professor

Three meetings were held by the Energy Council in 2013: February 26, April 11 and December 11.

February 26 – on agenda at the meeting was discussion of open electricity market, target evaluation of energy science, perspectives for production of shale gas in Estonia and its delivery in Estonian transmission network. The Council heard the Chairman’s summary on statistical indicators of open market for the first month, comparative data of closed market, Nord Pool electricity price levels in 2012 and comparative data of net service price of the main network in the Baltic States and Finland. The positions of the Council were as follows:

- Opening of the market took place before completion of critical connections, therefore the openness of the market is symbolic and the price range can still be affected by large producers;
- The impact of opening of the market on state, entrepreneurship and consumer of electricity calls for thorough analysis and application of measures mitigating the effect of price rise;

- The rise of network tariffs is not motivated by convincing arguments, lacking is the opportunity of analysis of optimum, basing on investment plan, the basic and distribution network tariffs are not distinguishable;
- Lacking is the analysis of social-economical impacts of the electricity price.

The Council decided to refer to the Ministry of Economic Affairs and Communications for clarifications and to formulate its position thereafter. Overview of the process of target evaluation of the energy research was provided by Enn Lust and commented by Arvi Hamburg. A summary of the studies on shale gas production in the world and opportunities for its production in Estonia was drawn by Endel Lippmaa. The Council discussed the information provided at the meeting and approved the Energy Council's work plan for 2013.

April 11 – discussion of issues related to open electricity market continued. Positions in written of the Ministry of Economic Affairs and Communications were commented by Timo Tatar, Head of Division, Energy Department, Ministry of Economic Affairs and Communications. Among additional proposals the Council recommended that basic network and distribution network services were separately indicated on customer invoices and the share of CO<sub>2</sub> emission quota cost was shown in the electricity kWh fee, in analogy with renewable energy cost. The Ministry was advised to prepare a booklet that would explain price formation in the competitive electricity market to end users. The second topic on the agenda was “National development plan for the utilisation of oil shale 2016-2030”. From the position of the Council, the production of electrical energy should be the priority in the utilisation of oil shale, until the possibilities for oil shale production, deep processing and purification have conclusively been analysed and specified. Reducing the volume of oil shale excavation by an administrative order was not considered a reasonable solution. Ingo Valgma, Head of the Faculty of Power Engineering at Tallinn University of Technology, made an overview on shale gas production in the USA. Additional comments concerning the possibilities of Estonia were offered by Endel Lippmaa.

December 11 – Endel Lippmaa presented new information on climate changes caused by CO<sub>2</sub>. The meeting took note of the information and made a proposal to E.Lippmaa to publish an article in press basing on facts and statistics. The second issue on the agenda was the future perspective of Estonian oil shale energy, in view of respective developments in Estonia, Europe and the world. The Council pointed out the important role of oil shale electricity in our region, due to lack of any other reasonable alternatives to provide energy security for our country in near future. Arvi Hamburg briefed on the current status of the Development Plan for Energy Sector: the goals, structure, needs,

conducted surveys, development scenarios, etc. The focal topics of the meeting also included strategic planning of graduate studies in energy and associated areas, R&D and lifelong education. The meeting approved the main topics to be considered at meetings of the Energy Council in 2014.

#### COMMITTEE ON PHYLOGENY AND TAXONOMY

Set up in 2007

Chairman Urmas Kõljalg, Member of the Academy

Committee on Phylogeny and Taxonomy participated actively in the work of Estonian Research Infrastructure Roadmap NATARC ([natarc.ut.ee](http://natarc.ut.ee)). Chairman of Committee Member of Academy U.Kõljalg is also Chairman of the NATARC Council. O.Hints is also member of the Committee, belonging to the NATARC Council. The Committee directed the activity of its members mainly to solving the theoretical and practical issues related to development of state digital archives of biodiversity and geography.

November 12 – O. Hints and U. Kõljalg organised within framework of the INTERREG project BALTICDIVERSITY ([balticdiversity.eu](http://balticdiversity.eu)) the international conference “Providing international access to data of biodiversity”, discussing the directions of development of databases of biological diversity and cooperation in the Baltic and Nordic region from the viewpoint of research areas, hobby science, natural sciences education and nature conservation. The conference was followed by the roundtable “Mobilising the data of biological diversity and infrastructure in Estonia”, attended by representatives of the Ministry of the Environment (incl. Land Board, KEMIT, the Environmental Board, the Environmental Information Centre) and NATARC partner institutions (the University of Tartu, Tallinn University of Technology, Estonian University of Life Sciences, Tallinn University and Estonian Museum of Natural History). Practical steps were discussed aimed at unifying state and academic databases. It was decided that during 2014, the databases being in PlutoF cloud ([plutof.ut.ee](http://plutof.ut.ee)) and in EELIS ([loodus.keskkonnainfo.ee/eelis/default.aspx](http://loodus.keskkonnainfo.ee/eelis/default.aspx)) will be set to interchange data. The goal is to provide a possibility to researchers, nature conservation activists, officials and other interested parties to seek information on biological diversity from the same web application. Engaged in cooperation to achieve that goal are research roadmap NATARC, sub-institutions of the Ministry of the Environment and the Committee on Phylogeny and Taxonomy. Taking into consideration the progress of Estonia in mobilising the data on biodiversity and in development of the necessary software the representatives of the Committee are involved in several international projects. The goal of EU BON ([eubon.eu](http://eubon.eu), European Biodiversity Observation Network) is to establish for Europe a unified architecture of information system designed for biodiversity data. Estonia is responsible for package handling the mobilising of software development work

and data. The second important project is OpenUP! (open-up.eu), making available in European portal (www.europeana.eu) the multimedia related to specimen in natural history collections, incl. high quality pictures, videos and sounds.

Upon initiative of O.Hints, the Särghaua drill core repository was completed and opened at Tallinn University of Technology. Among others, the new repository is depositing the materials used in paleontological research.

Members of the Committee participated in the work of expert panels of the National Programme Collections for the Humanities and Natural Sciences at the Ministry of Education and Research.

The Committee represented Estonian natural history archives in the international organisation “Consortium of European Taxonomic Facilities (CETAF A.I.S.B.L.)”.

The General meeting of CETAF 34 was held on September 10-11 on the premises of the Royal Botanic Garden Edinburgh.

#### COMMITTEE ON MARINE SCIENCES

Set up in 2007

Chairman Tarmo Soomere, Member of the Academy

Five electronic meetings, opinion polls or conferences were held in the accounting year. Information concerning plenary session of the European Marine Board was provided to members of the Committee on the need to know basis. It was recommended to call Dr. Alar Rosentau to the Working Group SUBLAND of the European Marine Board.

The electronic poll of January 14 was dedicated to issues related to the approaching Gulf of Finland Year 2014. The Academy is supporting the related events as best it can. Member of the Committee Professor U.Lips was the main organiser of the trilateral Science Forum (Tallinn, 16-17.10.2013).

On agenda of the electronic conference of March 28 was the request for opinion by Ministry of Foreign Affairs on application of Gasum OY, concerning performance of marine research for the needs of gas pipeline Baltic-connector between Estonia and Finland. It was found that the researches contemplated will not derogate from interests of Estonia and will not affect significantly the marine environment.

Upon request of the Ministry of Economic Affairs and Communications the Committee analysed, at the electronic conference on April 15, the documentation of strategic appraisal of environmental effect of spatial planning of sea area of German economic zone. The Committee drew attention of the Ministry to the fact that some wind parks planned are located in shipping lanes of intense traffic, consequently involvement of states using that shipping lane

may be necessary in the respective discussion; the opinion of the Estonian Maritime Administration would also be needed.

May 8 – Ministry of the Environment referred to Chairman of the Committee T.Soomere with a request to analyse the documentation of strategic appraisal of environmental effect of Inkoo LNG terminal. There were three facts calling for clarification and included into the Estonian official inquiry: (i) the possible need for dredging; (ii) the navigation problems on transverse entrance lane lying in perpendicular with the direction of prevalent storms; (iii) possible problems with heavy ice situation.

August 16 – e-voting was held for a proposal to start a series of Iridescent Seminars focusing on marine, lake and coastal science. The proposal received unanimous support. The Committee held two such events (10.09 – Jonne Kotta, “Climate and marine life” and 28.10 – Kalle Olli, “Arctic is heating up”).

Chairman of the Committee T.Soomere participated on January 30 at session of executive committee of the European Marine Board in Brussels, at meeting of the executive committee (23.04) and at spring plenary session (24-25.04) in Bergen (Norway), at meeting of the executive committee (22.10) and at autumn plenary session in Lisbon (23-24.10) and at the opening session of the new composition of the Environment Panel of EASAC in Brussels on October 25. As an important result of the work of Marine Board, the programme Horizon 2020 emphasises the role of marine research at solution of challenges confronting the whole society.

In the accounting year the Committee joined the common planning initiatives of Estonian research “Ocean, Climate and Water”. On November 20 the Chairman of the Committee participated at a meeting of the working group of microplastic experts of the common plan “Ocean”.

T.Soomere presented a paper “Baltic Sea – the bridge between many countries” at the 13th Baltic Conference on Intellectual Cooperation “European Research Area and Small Countries” (Tallinn, Estonian Academy of Sciences, 28-29.01.2013). T.Soomere and U.Lips delivered an invited talk “Smart use of currents for minimising the consequences of marine hazards and measuring and modelling the Gulf of Finland ecosystem” at a planning meeting for the Gulf of Finland Year 2014 (Helsinki, 19.09.2013). T.Soomere participated as an expert at discussion of potential cross-border environmental impact in appraisal of environmental impact of Inkoo LNG terminal at a meeting between Estonia and Finland on 11 September 2013. Vice-Chairman of the Committee K.Olli participated as an invited expert at a conference organised by the Ministry of Foreign Affairs on 18 November 2013, addressing the possible observer status of Estonia in the Arctic Council.

Committee has continually fulfilled its main tasks, representing Estonian marine sciences in the European Marine Board and excellence in marine sciences

in the European higher education and research landscape, forwarding messages about the marine science to the society and, if necessary (also proactively), counselling the government of Estonia. Dr Alar Rosentau was invited to the Marine Board's working group SUBLAND as the first expert from Estonia. Such working groups are small and oriented to widely recognized visionaries – top specialists. Participation in them widens the scope of possibilities of Estonia to increase visibility of our marine research and present the top-level scientific research done in Estonia on the international science policy arena.

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

Set up in 2011

Chairman Eero Vasar, Member of the Academy

The composition of the Council underwent a change in 2013, as the North Estonian Regional Hospital named Dr. Peep Talving, a medical scientist of international renown its representative in place of Dr. Sergei Nazarenko.

Two important meetings were held in 2013. On June 22 at the Tartu University Hospital the Committee organised a discussion on the personalised medicine initiative. On December 11, a joint meeting of the Steering Group for the Health Promotion R&D&I Strategy and the Committee was held on the premises of the Estonian Academy of Sciences. It was an opening event in the preparation process of a long-term development plan for R&D activities in health promotion.

June 22 – discussions over the personalised medicine initiative offered by Andres Metspalu. As a guest speaker, Professor Katrin Õunap provided an overview of possible developments in personalised medicine and possible problems that could arise from launching project of that size. All attending members of the Committee participated in a lively discussion, eventuating in common understanding that the issues related to personalised medicine needed deeper analysis. It was also found that if the said task is assigned to the Estonian Academy of Sciences, the Committee is ready to assume responsibility for considering that issue.

December 11 – joint meeting of the Academy's Steering Group for the Health Promotion R&D&I Strategy and the Committee. The meeting focused on preparation of a long-term development plan for R&D activities in health promotion.

The topics on the agenda were:

Opening address

*Mart Ustav*, Vice President of the Estonian Academy of Sciences

Customer's view: formulation of interests and expectations



*Ivi Normet*, Ministry of Social Affairs

*Indrek Reimand*, Ministry of Education and Research

*Ahti Kuningas*, Ministry of Economic Affairs and Communications

Process of strategy: background, focus, approach, activities and time schedule

*Kitty Kubo*, project leader

Expression of opinions and discussion

Deputy Secretary Generals of the ministries (I.Normet, I.Reimand, A.Kuningas) highlighted the visions of respective ministries towards possible development of R&D activities in health promotion. K.Kubo, leading the project on behalf of the Academy, provided an overview on the background, focus, approach, activities and time schedule of the development plan and project. The papers were followed by a lively discussion, in order to get the first mapping on what key topics the strategy should focus. There were the following topics of prominence: environment in health care, supportive of research and innovation, hospitals and R&D, the matters related to preparation of new doctors and scientific literacy of doctors, registers/databases/biobanks/e-health, and the quality of healthcare. Preparation of the Development Plan for Health Promotion R&D Activities will be started in 2014 with particular focus on the above-mentioned issues.

## COUNCIL

### FOR ESTONIAN CENTRES OF EXCELLENCE IN RESEARCH

Set up in 2012

Chairman Jüri Engelbrecht, Member of the Academy

One of the goals of setting up the Council was to exchange experience between centres of excellence. Like earlier, the web list of the Council was venue of the exchange of opinions on topics of organisation of science. Discussion, touching upon the round of research applications focussed on many problems: the need for proper statistics, taking into account the directions of research and research institutions; covering of increasing overheads of research on account of research subsidies, which however do not increase; information about impact of new instruments (institutional research funding and personal research grants) on development of research areas; the question of covering the state's strategic interests; determination of the essence of baseline funding in new conditions, ensuring stability of research activities, etc. Although the Council did not draw a statement following the discussions, such exchange of opinions contributed to interpreting the general situation, because many heads of centres of excellence participate at decision-making organisations.

As an important event, on October 22-23 there was a conference held upon initiative of the Council jointly with the Academy and Estonian Research Council titled “Excellence in Research”, with research leaders of stature from several European countries and our top scientists speaking. Gunnar Öquist (Swedish Royal Academy of Sciences) presented an overview about supporting measures for top-level research in Sweden, Finland, Holland, Switzerland and Denmark. The full text of the analysis is available at the address [www.kva.se](http://www.kva.se), accompanied by a proposal of the Royal Swedish Academy of Sciences for boosting research quality in Sweden. Thierry Courvoisier (Swiss Academies of Arts and Sciences) emphasised several aspects of research quality. Both of the speakers made called attention to the need of finding a balance for science funding as a whole between baseline funding and grants. Whether the ratio base: project is 3:2 (Swiss opinion) or 2:1 (Swedish opinion) is rather a matter of details. It is clear however that recognizing the need for projects, the importance of project science must not be over-estimated. Jean-Claude Burgelman (European Committee) referred to the fact that in the end research output is what matters, not the number of published articles. Kurt Deketalaere (LERU) spoke about the experiences of the leading research universities in European with regard to research quality. Basic research and versatility are important directions to be taken into account in organisation of science. (Note: the LERU analysis “What are the universities for?” merits special attention, see [www.leru.org](http://www.leru.org)). The keynote paper “Scientific excellence – how to achieve and maintain it” was presented by Risto Näätänen (University of Helsinki /University of Tartu). Based on his long experience, the paper deserved the heightened attention of the audience and, above all, it was definitely gainful and enlightening for the younger generation of researchers. Representatives of cutting edge science in Estonia Ülo Niinemets, Toivo Maimets, Raimund Ubar and Eero Vasar shared their observations and experiences in relation to excellence in research. Their papers helped the listeners to grasp the meaning of a research career path on the example of several countries, whereby Estonia is distinguished from others through the lacking sense of security. This is by all means a threatening sign, especially for younger people. The materials of all conference papers are downloadable on the website of the Academy. Likewise, the presentation of Ernst-Ludwig Winnacker (Germany/France) accenting the need for international cooperation that was cancelled due to substantial reason.

At the evening session of the conference the majority of centres of excellence presented short overviews about the activity and results.

Jüri Engelbrecht presented a paper at the conference “Invest in Researchers” that was held within the programme of Lithuanian Presidency of the EU Council in Vilnius, Lithuania on November 14-15. The paper discussing the role of Estonian Centres of Excellence in supporting graduate studies was based on the materials of our October conference.

## STANDING COMMITTEE ON CYBER SECURITY

Set up in 2012

Chairman Leo Mõtus, Member of the Academy

Besides Members of the Academy, the Committee includes representatives from several Estonian ministries (Ministry of Justice, Ministry of Defence, Ministry of Economic Affairs and Communications, Ministry of the Internal Affairs, State Chancellery and Estonian Information System's Authority) and institutions (Cybernetica Ltd, EMT, Trustcorp, Institute of Cybernetics at Tallinn University of Technology) that are important from the position of cyber security.

The goal of the Standing Committee is to analyse as an impartial and competent expert body the development of cyber security strategy in the world and Estonia, estimate practical steps for providing cyber security in Estonia, by focussing on international cooperation aimed at ensuring cyber security, necessary both in training of the cyber defence specialists and promoting (according to possibilities) of relevant scientific research and developing of general cyber security related competence in Estonian society.

In 2013 the Committee held two regular meetings (April 30 and September 26) and one ten-day electronic discussion in November to analyse the interim version of new Estonian Cyber Security Strategy underway.

The meeting of April 30 focused on two topics:

- The role of Estonian Defence League (EDL) in Estonian cyber defence, main speaker Meelis Kiili, Brigadier General. Discussion focused primarily on the activities of the EDL's Cyber Unit and its coordination with other undertakings in the area of cyber defence.
- The impact of new technological solutions (cloud calculations, server farms, long-term data storages) on cyber security, main speaker Tiit Tammiste, Head of Technology Division at EMT. Additionally to the analysis of current situation discussions addressed necessary amendments to law, international distribution of labour and possibilities for balancing activities on the national level and perspectives of a national data centre.

The meeting on September 26 discussed the process of composing a new version of the Estonian Cyber Security Strategy:

- Main speaker was Taavi Kotka, Deputy Secretary General at the Ministry of Economic Affairs and Communications. He was seconded by Aet Rahe, Head of Division, Department of State Information Systems. According to relevant information, the new strategy was failing to meet the deadline and therefore the first tentative version covering all parts of the strategy could not be expected before mid-November.

- Those present submitted a number of questions about different aspects of the future strategy. A proposal was made that the Ministry of Economic Affairs and Communications find a possibility for better implementation of the academic and inter-organisation potential accumulated in the Academy's Committee on Cyber Defence.
- Besides that, a proposal was made to analyse the possibility to elevate the organisation of cyber security, elaboration of strategy and responsibility for those activities higher than the level of isolated ministries.

During November 14-24, a ten-day electronic discussion was held between members of the Committee with a view to assessing the interim version of the new Estonian Cyber Security Strategy and establishing the sections that had to be supplemented. Results of the discussion were finalised on November 24 as a three page document titled "Comments on the Draft Cyber Security Strategy by the Committee on Cyber Defence of the Estonian Academy of Sciences" that was sent to relevant officials at the Ministry of Economic Affairs and Communications in cyber security, and members of Committee on Cyber Security.

# ACADEMY EVENTS

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## CONFERENCES

January 28-29 – Academy House hosted the 13TH BALTIC CONFERENCE ON INTELLECTUAL COOPERATION: EUROPEAN RESEARCH AREA AND SMALL COUNTRIES. The conference was supported by the National Programme “Internationalisation of Research”.

The opening address was given by President of the Academy Richard Villems. On the first day, conference papers covered the topics:

European Research Area – vision and implementation from Lithuania’s perspective

*Eugenijus Butkus*, Research Council of Lithuania/Lithuanian Academy of Sciences

The impact of global processes on science in small countries

*Andrejs Silinš*, Latvian Academy of Sciences

Science policy in Finland

*Marja Makarow*, Academy of Finland

Why national and international academies are today so important

*Ivo Šlaus*, World Academy of Art and Science (WAAS), Croatia

Cooperation among the scientists of the Baltic States in the priority scientific areas

*Andris Sternbergs*, Latvian Academy of Sciences

Baltic Sea – the bridge between many countries

*Tarmo Soomere*, Estonian Academy of Sciences

Lithuanian studies in Europe with special reference to the Baltic countries

*Bonifacas Stundžia*, Vilnius University/Lithuanian Academy of Sciences

Role of humanities in small countries

*Valter Lang*, Estonian Academy of Sciences

The role of their diaspora in the smaller EU member states meeting the challenge of scientific research

*Eduards Bruno Deksnis*, Latvian Academy of Sciences

Conference papers of the second day included:

On biodiversity studies

*Martin Zobel*, Estonian Academy of Sciences

Materials science in Lithuania – status, challenges and perspectives

*Sigitas Tamulevičius*, Kaunas University of Technology/ Lithuanian Academy of Sciences

Science for policy

*Steven Bishop*, University College London/Estonian Academy of Sciences

Estonian Academy of Sciences – 75 (see Appendix 1, pp. 203-204)

*Jüri Engelbrecht*, Estonian Academy of Sciences

Presentations were followed by discussion. Medals of the Baltic Academies of Sciences and accompanying diplomas, signed by Presidents of the Academies Richard Villems, Valdemaras Razumas ja Ojars Sparitis, were conferred on Tarmo Soomere (Estonia), Andris Sternbergs (Latvia) and Eugenijus Butkus (Lithuania).

October 22-23 – Academy House hosted the international conference EXCELLENCE IN RESEARCH, which was jointly organised by the Estonian Academy of Sciences, Council for Estonian Centres of Excellence in Research, and Estonian Research Council. The conference was supported by the National Programme “Internationalisation of Research”.

The main topic of the first day was “Excellence as seen from research organizations”. The session was moderated by Jüri Engelbrecht. Opening speeches were given by Minister of Education and Research Jaak Aaviksoo and President of the Academy Richard Villems. Conference papers were presented by:

Fostering breakthrough research: A comparative study

*Gunnar Öquist*, Royal Swedish Academy of Sciences

Good science: Can we define it? Can we promote it? Can we foster it?

*Thierry Courvoisier*, Swiss Academies of Arts and Sciences

The multiple facets of excellence and research

*Kurt Deketelaere*, League of European Research Universities (LERU)

Science 2.0. A new modus operandi for science and research

*Jean-Claude Burgelman*, European Commission

Funding the frontiers

*Ernst-Ludwig Winnacker*, Human Frontier Science Organization (HFSP)

Science career models: Do they contribute to the excellence in research?

*Ülo Niinemets*, Estonian University of Life Sciences/ENVIRON

Presentations were followed by discussion.

The second day session focusing on the theme “Excellence as seen from the researcher” was moderated by Andres Koppel (Estonian Research Council). Conference papers included:

Scientific excellence – how to achieve and maintain it (keynote paper):

*Risto Näätänen*, University of Tartu/University of Helsinki

Is excellence a universal entity?

*Toivo Maimets*, Association Science Europe

Research excellence and engineering sciences

*Raimund Ubar*, Tallinn University of Technology/CEBE

Lost in translation

*Eero Vasar*, University of Tartu/CETM

Presentations were followed by discussion.

November 4 – Academy House was the venue for the CONFERENCE OF THE STUDENT RESEARCH PAPER CONTEST WINNERS and the award ceremony.

The Academy has established monetary awards to acknowledge talented students for outstanding accomplishments in research and to encourage their independent science efforts in the future. As a tradition, the opening remarks were made by President of the Academy Richard Villems and the event was moderated by Georg Liidja, Chair of the contest jury.

Four prize winning papers were presented at the conference:

*Rahel Park* Tallinn University of Technology, TrkA alternative splicing and localisation of putative intracellular fragments of TrkA and TrkB

*Timo Tomson* Tallinn University of Technology, Let me tell you how it is: situation comprehension propagation

*Enele Kindsiko* University of Tartu, Academic career patterns on the example of PhD students at the University of Tartu

*Ken Ird*, University of Tartu, Sodomy cases in Early Modern Estonia on the basis of Pärnu County Court materials

## SEMINARS

October 14 – Academy House hosted the seminar SCIENCE AND INFRASTRUCTURES IN BIOINFORMATICS – IS EITHER ONE CONCEIVABLE WITHOUT THE OTHER? The opening address to the seminar was given by Jaak Vilo (Member of the Academy). Papers were presented by:

ELIXIR infrastructures

*Niklas Blomberg*, Elixir LLC

Tools for genome-wide analysis

*Reidar Andreson*, University of Tartu

Estonian plans for Elixir

*Jaak Vilo*, University of Tartu

Shared resources in stem cell research

*Hedi Peterson*, University of Geneva

At the dawn of population genomics

*Mait Metspalu*, Estonian Biocentre

Global GWAS consortia

*Reedik Mägi*, Estonian Genome Center

Presentations were followed by a panel discussion.

October 31 – Academy House was the venue for the expert seminar SMART MIGRATION POLICIES focusing on immigration policy issues with regard to highly-qualified specialists. The seminar was jointly organised by the Centre of Nordic Council of Ministers' Office in Estonia, University of Tartu, Estonian Academy of Security Sciences, Centre for Migration Studies and Estonian Academy of Sciences. The seminar concluded in a discussion round attended by members of the Riigikogu Kaja Kallas, Kadri Simson, Sven Mikser and Andres Herkel. The target group was composed of politicians, officials and experts of corresponding research institutions.

November 12 – Academy House hosted the seminar URBAN AND HUMAN GEOGRAPHICAL PROCESSES IN TALLINN. The session was moderated by Urmas Varblane (Member of the Academy). Opening addresses were given by Rein Ahas and Tiit Tammaru from the University of Tartu. Papers were presented by:

Geographical dispersion of migration flows of Estonians in 1990-2011

*Kadri Leetmaa*, University of Tartu

Ethnic segregation in everyday spatial behaviour of Tallinn inhabitants

*Siiri Silm*, University of Tartu

Tallinn in comparison with other Eastern European cities: spatial segregation and factors influencing the process

*Tiit Tammaru*, University of Tartu

Ethnic segregation in social networks

*Rein Ahas*, University of Tartu/Research Professor of the Academy

Mapping the cyberscapes of the bronze soldier

*Matthew Zook*, University of Tartu/University of Kentucky

## **MEETINGS, DISCUSSIONS**

January 23 – First meeting under the partnership agreement between the Estonian Academy of Sciences and Tallinn University of Technology was held on the subject SCIENCE AND THE INSTITUTIONAL RESEARCH FUNDING SYSTEM focusing on the developments and requirements in relation to the initiating process of institutional research grants. The most significant feature to become visible in discourse was a sharp discrepancy in the expectations and judgements expressed towards instruments for funding R&D activities from the state budget, by the Ministry of Education and Research, the Estonian Research Council and its Evaluation Committee on the one hand, and the universities and research community on the other hand. Jakob Kübarsepp and



Tarmo Soomere (both Members of the Academy) were chief organisers and moderators of the meeting.

March 14 – On the Mother Tongue Day the Academy started a new tradition in the form of a Science Day of Public Lectures. The first event was organised in Narva – in the place where the Academy’s Science Day series was originated in 2000. By now, the Academy has arranged Science Days in all counties of Estonia. The meeting was held in the newly opened building of the University of Tartu’s Narva College, characterised by a well-conceived design for perfect functioning as an educational building. It has similarly become a favourite meeting place for cityfolk, above all, the young people.

The focal theme of the Day was history, which had a bearing on Narva as well. The event was organised by the Academy’s Division of Humanities and Social Sciences and the activities were coordinated by Peeter Tulviste (Member of the Academy).

Presentations were delivered by Tõnu-Andrus Tannberg (Member of the Academy) “Reflections of the Napoleonic Wars in the Baltic Provinces”; researchers from the University of Tartu: Anti Selart “About Orthodox mission and Orthodox churches in Livonia”, Enn Küng “The espionage activities of Sweden in the 17th century Russia and Narva”, Erki Tammiksaar “Who was the initiator of the Russian South Pole expedition?” and Maaja Vadi “About the integrity of a Russian”; Anu Realo (Research Professor of the Academy) “Observations on the personality traits and national character typical of Estonians and Russians”.

Director of the College Katri Raik and Project Manager Jaanus Villiko gave the guests an introductory tour round the new innovative educational building situated on the grounds of a former stock exchange house. A photography exhibition in the vaulted basement offered an opportunity to see Estonia through the eyes of foreign diplomats. During a walking tour the delegation visited the Town Hall, where they could wonder at a maquette of historical Narva built by a craftful inhabitant of the city Fjodor Šantsev, and the imposing mill buildings of the Kreenholm Manufacturing Company. Ida-Viru County Governor Andres Noormägi participated in the programme as a local authority representative.

The delegation of the Academy included Jüri Engelbrecht, Tõnu-Andrus Tannberg, Peeter Tulviste, Agu Laisk and Peeter Saari.

May 2 – Academy’s traditional Science Day was held for fourteenth year in a row, this time in Jõgeva County, thereby completing the round as Science Days have now been organised in all counties of Estonia. The morning started with an informal meeting at the Pajusi Community and Cultural Centre with discussions over development strategies for small family farms, household

plots and rural entrepreneurship. The Academy delegation paid a visit to the farming enterprise Pajusi ABF Ltd. – the leading employer in Pajusi Parish. The official part of the Science Day at Jõgeva Culture Centre began with the welcome greetings and opening words given by Jõgeva County Governor Viktor Svjatõšev. President of the Academy Richard Villems presented an overview on the history and activities of the Estonian Academy of Sciences. The following three presentations were delivered by Members of the Academy representing different fields of study. Andres Metspalu spoke about the Estonian Genome Center, the Estonian Gene Bank Project and personalised medicine of the future, Enn Saar covered a range of basic concepts about the Universe and our place in the cosmos, Agu Laisk expounded his ideas and reflections on the philosophical question concerning the purpose and significance of life. In the afternoon programmed activities proceeded in Palamuse Parish with a meeting at the local Community Centre. The day concluded with a lesson given by the renowned literary character, schoolmaster Laur (impersonated by Janek Varblas) at the Palamuse Parish School Museum named after Oskar Luts.

May 20 – Academy House hosted the discussion on the topic TRENDS AND POLICIES IN REGIONAL DEVELOPMENT OF ESTONIA. Introductory remarks to open the meeting were given by Rein Ahas, Research Professor of the Estonian Academy of Sciences. Papers were given by:

Scientific and political principles for implementing the local government reform in Estonia, 1938

*Erki Tammikaar*, University of Tartu

Relations between the centre and the hinterland in Estonia

*Rein Ahas*, University of Tartu / Research Professor of the Academy

Spacial population changes in Estonia

*Tiit Tammaru*, University of Tartu

Economic development of Estonian regions: the role of local government and other institutions in the restructuring process

*Garri Raagmaa*, University of Tartu

Presentations were followed by discussion and a closing speech by President of the Academy Richard Villems. The discussion was moderated by Urmas Varblane (Member of the Academy).

November 20 – Boards of the Estonian Academy of Sciences and the Estonian Association of Engineers organised a joint visit to Konesko Ltd. Koeru factory and Paide Machine Factory.

The visit to the Koeru factory was hosted by Urmas Neeme, Production Coordinator. He gave an outline on the historical back-ground and present-day developments of Konesko Ltd. The company was founded in the end of

1992, its primary activities are manufacturing electric motors, electrical panels, metal structures and small wind turbines. Micro- and small wind turbines have been manufactured and developed as a niche product since 2009 and customers are offered an accompanying assembly service as well. The following discussion touched on the issues of social responsibility, local policies, the development and innovation requirements for the factory.

Paide Machine Factory (hosted by Toomas Molok, Sales Manager). is one of Estonia's leading machine engineering and metal engineering enterprises. The colourful history of the plant dates back to 1911. Today it has become an enterprise with cutting edge equipment and committed specialists, offering machine engineering serial production and production services for specific projects. The production is composed of manufacture complex metal structures for engineering, sub-assemblies and ready equipment, fitted with electric motors and hydraulic components. Among other items they produce snowploughs of the Meiren Snow brand. The unique Meiren solution for snowploughs was awarded with the Best Innovation Prize at Nordicway Fair 2013 in Sweden. The Humus trademark is currently under development for the production of agricultural machinery.

November 25 – After a ten-year interval a follow-up event was organised to the Academy's Science Day in Võru County. This time it was chiefly targeted at the younger generation – high school students.

The Science Day began with a meeting on the premises of Võru County Government where Governor Andres Kõiv gave the delegation of the Academy a warm welcome. The event was held at Kääpa Primary School. The opening address given by the Governor and an outline of the Academy's activities made by the President of the Academy Richard Villems were followed by papers presented by Members of the Academy: Karl Pajusalu "Common features and discrepancies in Finno-Ugric languages", Enn Tõugu "Mischiefs in cyberspace" and Raivo Uiho "Our wonderful defense mechanism – the immune system". The final presentation "Mobility, achievement and regional development" was from Rein Ahas, Research Professor of the Academy.

Academy's delegation visited Estelaxe LLT located at Parksepa. The company specialises on manufacturing polyurethane products. It was established in 2008 and is based on Estonian capital. The guests could watch the casting process of products from flexible polyurethane foam – seats, back parts, supporting pads, boat seats, equipment for large-animal clinics, as well as final assembly of snowmobile seats.

Visiting a cultural attraction has always been part of the Science Day programme. The object in Võru County was the old Lasva Water Tower. Its minimalist exterior is decorated in an ethnic motif, a gallery inside the tower

gives an interesting survey on the history of the Lasva area and enables to learn how water towers work.



President Richard Villems giving a talk on the Academy  
at Kääpa Primary School

Other Members of the Academy participating in Science Day activities were Jaan Einasto, Georg Liidja, Leo Mõtus, Peeter Tulviste and Urmas Varblane.

November 27 – The second discussion meeting under the partnership agreement between the Academy and Tallinn University of Technology was held under the title “Trouble spots in research funding”.

The opening remarks were made by Rector Andres Keevallik and Vice President Jüri Engelbrecht. The keynote paper “Experiences from the second call for institutional research funding applications” was given by Andres Koppel, Head of the Estonian Research Council (ETAg). A supporting paper was presented by Rainer Kattel, Member of ETAg’s Evaluation Committee. Jaan Undusk (Member of the Academy) gave a talk under the title “Thoughts of a humanities scholar on funding practices in the Humanities” and Rein Kaarli (Ministry of Education and Research) outlined the preparation for the forthcoming Structural Funds Programming Period in the area of research and higher education.

Presentations were followed by discussion (moderated by Members of the Academy Tarmo Soomere and Jakob Kübarsepp) aimed at identifying the trouble spots in Estonian research funding for the purpose of formulating a

batch of recommendations to the Minister of Education and Research for handling them and for shaping science policy in Estonia.

## **PUBLIC ACADEMIC LECTURES**

Two public academic lectures were delivered in 2013:



May 8  
*Tarmo Soomere*  
“The Baltic Sea coast under  
human and environmental  
pressure”



November 13  
*Tarmo Uustalu*  
“Hijacked science”

# **POPULARISATION OF SCIENCE**

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

“The Falling Apple” was first transmitted in 2008 on the initiative of Radio KUKU and the Estonian Academy of Sciences. Since 2010 when it became a weekly science programme, it has presented and popularised the scientific activities and researchers affiliated with the Estonian Academy of Sciences, the University of Tartu and Tallinn University of Technology. The University of Tallinn and the Estonian University of Life Sciences have been partners in the programme from 2013 onwards.

During the time it has been on the air, the programme has won renown and acknowledgement among the regular audience of Radio KUKU as well as Estonian research community. In 2013 the programme addressed topical issues relating to science policy and organisation of research, presented the achievements and problems of a great many R&D institutions, working groups, research teams, etc. in Estonia. Laureates of the National Science Prizes were introduced in a special block of the programme. The editor and promoter of the programme is Margus Maidla.

### **SCIENCE POLICY AND ORGANISATION OF SCIENCE**

Interviews with Jüri Engelbrecht and Eero Vasar (Members of the Estonian Academy of Sciences); Andrus Ansip (Prime Minister); Jaak Aaviksoo (Minister of Education and Research, Member of the Academy), Indrek Reimand (Deputy Secretary General for Higher Education and Research, Ministry of Education and Research); Andres Koppel (Head, Estonian Research Agency); Andres Keevallik (Rector, Tallinn University of Technology), Alar Kolk (Vice-Rector for Innovation and Internationalisation, TUT), Erkki Truve (Vice-Rector for Research, TUT) and Tea Varrak (Vice-Rector for Innovation and Internationalisation, TUT); Mait Klaassen (Rector, Estonian University of Life Sciences); Tiit Land (Rector, University of Tallinn), Katrin Niglas (Vice-Rector for Research, TLU) and Mihkel Kangur (Director, Institute of Ecology, TLU).

### **ACHIEVEMENTS AND PROBLEMS IN VARIOUS BRANCHES OF RESEARCH FROM THE VIEWPOINT OF ESTONIAN RESEARCH INSTITUTIONS**

Focused discussions with talk show guests from:

Estonian Academy of Sciences – Enn Saar, Martti Raidal, Eve Oja, Jaak Vilo, Ergo Nõmmiste, Tõnu-Andres Tannberg, Andres Metspalu, Martin Zobel, Urmas Kõljalg and Urmas Varblane (Members); Rein Ahas (Research Professor);

University of Tartu (UT) – Marco Kirm (Vice-Rector for Research), Reedik Mägi (Senior Researcher, Estonian Genome Project), Maris Laan (Pro-

fessor of Human Molecular Genetics, Institute of Molecular and Cell Biology); Margus Punab (Senior Lecturer, Head of Andrology Centre, Tartu University Hospital) and Kristiina Rull (Gynaecologist, Women's Clinic), Erki Tammiksaar (Senior Research Fellow, Institute of Ecology and Earth Sciences), Piret Kuusk (Senior Research Fellow, Head of Laboratory of Theoretical Physics, Institute of Physics), Toivo Leiger (Professor, Institute of Mathematics), Tambet Teesalu (Visiting Professor, Faculty of Medicine);

Tallinn University of Technology (TUT) – Sirje Keevallik (Head, Chair of Oceanography, Marine Systems Institute), Peeter Mürsepp (Professor of Philosophy of Science and Methodology of Science), Meelis Pohlak (Senior Researcher, Machine Building Institute) and Ahti Põlder (Researcher, Institute of Mechatronics), Mario Mars (Engineer, Institute of Physics);

University of Tallinn (TLU) – Rando Tuvikene (Senior Researcher, Institute of Mathematics and Natural Sciences), Mati Ilomets and Margus Pensa (Senior Researchers, Institute of Ecology), Ruth Shimmo (Professor of Biochemistry, Director, Institute of Mathematics and Natural Sciences), Romi Mankin (Professor of Theoretical Physics) and Katrin Laas (Researcher, Institute of Mathematics and Natural Sciences), Peeter Normak (Professor) and Mart Laanpere (Researcher, Institute of Informatics);

Estonian University of Life Sciences (EULS) – Ülle Jaakma (Vice-Rector for Research), Anne Luik (Professor Emeritus), Jüri Olt (Head) and Timo Kikas (Senior Researcher, Department of Agricultural and Production Engineering), Arvo Tuvikene (Senior Researcher), Tiina Nõges (Professor of Hydrobiology) and Peeter Nõges (Leading Researcher, Institute of Agricultural and Environmental Sciences, Võrtsjärve Limnological Station), Mait Kriipsalu (Professor, Institute of Forestry and Rural Engineering), Leo Luks (Associate Professor, Institute of Economy and Social Sciences).

#### PRESENTATION OF NATIONAL SCIENCE PRIZE LAUREATES

Broadcasts were attended by Laureate of the Lifetime Achievement Award, literary scholar [Maie Kalda] Tarmo Soomere (Member of the Academy), Peeter Hõrak (Professor of Physiological Ecology of Animals, Institute of Ecology and Earth Sciences, UT), Rainer Kattel (Professor, Ragnar Nurkse School of Innovation and Governance, TUT), Veiko Uri (Assoc. Professor, Institute of Forestry and Rural Engineering, EULS), Andres Tvauri (Senior Researcher, Chair of Archaeology, Institute of History and Archaeology, UT), Jaan Eha (Professor of Cardiology, UT) and Mihkel Zilmer (Professor of Medical Biochemistry, UT), Jaanus Remme (Professor of Molecular Biology, UT).

The broadcast was also attended by Laureate of the Young Scientist Award bestowed by the President of the Republic's Cultural Foundation Jaak Kals

(Senior Research Fellow, Faculty of Medicine, UT, and Cardiovascular Surgeon, Clinic of Surgery, Tartu University Hospital).

The total number of broadcasts in 2013 amounted to 53.

Broadcast times:

- originally on the air on Sundays from 15:00 to 16:00;
- replay of broadcasts at varying hours.

The weekly listening ratings of the programme stayed on the level of the previous year – approx. 18 000 listeners, Podcast downloading – close to 20 000 downloads per month.

## **RESEARCHERS' NIGHT 2013**

Estonia participated for the eighth year in the series of the European Researchers' Night activities aimed at presenting researchers and science related issues to the public. National events were coordinated by the AHHA Science Centre and the Academy was involved as project partner. It is a project-based undertaking co-financed by the European Commission. The objective is to arrange during one Friday in September fascinating and attractive events designed for public attendance: guided tours to laboratories and museums, science shows, science cafés, workshops, playful activities for younger children, live TV shows, etc. This time the Researchers' Night was held on September 27.

The Academy House was the venue for the traditional Musical Science Café. Vice President Jüri Engelbrecht gave the opening address and moderated the night. Erki Tammiksaar, a historian of science from the University of Tartu, offered the audience an insight into the academic life over the past 75 years, focusing on linkages between Estonian science and the Estonian Academy of Sciences. Tiina Rahkama talked about the history of the Academy House, which dates back more than 140 years. Mikko Lagerspetz, Professor of Sociology at Åbo Akademi University (Finland), spoke on the topic "Music as interaction". His presentation was musically illustrated by the string band Femme Quartet. They also brightened up the following part of the night, playing music by Mozart and Haydn.

Similarly to earlier years, the Academy helped compose the plan of activities and coordinated the events in Tallinn. The aim was to open as many as possible laboratories to young and not so young inquisitive people who would not have had the access otherwise. For that purpose the Academy attracted a number of cooperation partners – scientists from the National Institute of Chemical Physics and Biophysics, several institutions of Tallinn University of Technology (T.J. Seebeck Department of Electronics, Department of Chemis-



try, Department of Gene Technology, Centre for Biorobotics, Tallinn Observatory) as well as TUT Museum to take part in organising various events. The AHHA Science Centre launched a science tram line, showed a study film in the 4D Experience Capsule, engaged museums in its activities, etc.

On top of Tallinn, events of the Researchers' Night were held in Tartu and other Estonian towns. A live telecast programme was put on air by Estonian Television.

## **ACADEMY MEDALS, AWARDS**

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

In 2013 the Board of the Estonian Academy of Sciences decided to confer the Nikolai Alumäe Memorial Medal on

*Raimund-Johannes Ubar,*  
Member of the Estonian Academy of Sciences.

The medal was handed over during the General Assembly Meeting on 4 December.

### **STUDENT RESEARCH PAPER PRIZES**

72 research papers were received for the contest of Student Research Paper Prizes in 2013. The papers were examined by the Appraisal Panel of the Academy including Georg Liidja (Chair), Mati Karelson, Enn Tõugu, Jaan Undusk and Urmas Varblane as experts.

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

*Erik Ilbis* (University of Tartu) BSc thesis “ESTCube-1 electrical power system – design, implementation and testing”;

*Ken Ird* (University of Tartu) MSc thesis “Sodomy cases in Early Modern Estonia on the basis of Pärnu County Court materials”;

*Eneli Kindsiko* (University of Tartu) MA thesis “Academic career patterns on the example of PhD students at the University of Tartu”;

*Martin Lints* (Tallinn University of Technology) MSc thesis “Formation and identification of hidden solitons in the hierarchical Korteweg-de Vries system”;

*Maarja-Liisa Oldekop* (University of Tartu) MSc thesis “Comparison of amino acid derivatisation reagents by LC-ESI-MS analysis”;

*Rahel Park* (Tallinn University of Technology) MSc thesis “TrkA alternative splicing and localisation of putative intracellular fragments of TrkA and TrkB”;

*Tarmo Puolokainen* (University of Tartu) MA thesis “Performance evaluation of a state agency (on the example of Estonia’s state financed rescue squads)”;

*Kennet Sarv* (Tallinn University of Technology) MSS thesis “Peculiarities of generation Y male consumers’ shopping behaviour on the example of clothing and footwear”;

*Kristo Siig* (University of Tartu) BA thesis “A hillfort shift – a study of the changes in the network of hillforts in the 11th century Estonia and their social, economic and political background”;

*Kadri Tael* (University of Tartu) MA thesis “The land reform of 1919 in Old-Põltsamaa rural municipality”;

*Tarvi Teder* (Tallinn University of Technology) BSc thesis “Injury effects on gene expression of heat shock proteins Hsp70 in coral species *Capnella* sp.”;

*Timo Tomson* (Tallinn University of Technology) MSc thesis “Let me tell you how it is: Situation Comprehension Propagation.”.

## **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 eighth year.

The purpose of this award is to highlight popularisation of science, promote activities towards communicating research to the public and give recognition to individual researchers as well as research groups, who have succeeded in presenting research, science achievements and research efforts of scientists in a generally fascinating form as well as in rendering research understandable to a wider public, have accomplished to attract young people to the research realm and researcher’s profession.

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

Candidates for the award were nominated in six categories. The Appraisal Panel of the competition chaired by Enn Tõugu resolved to confer the awards as follows:

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

*Helle and Jaak Jaaniste*, for longtime popularisation of astronomy.

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

- Grand Prize: science talk show “Kukkuv õun” (Falling apple), editor-host Margus Maidla
- Motivation Prize: talk show “Puust ja punaseks” (Pure and simple) on Raadio 2, talk show hosts-editors Madis Aesma, Helen Sürje and Arko Olesk

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

- Grand Prize: “Teistmoodi füüsikaraamat” (A different kind of physics book), authors Kertu Saks and Aare Baumer
- Motivation Prize: “Higgsi bosoni lugu” (The story of the Higgs boson), authors Andi Hektor and Kristjan Kannike

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

- Grand Prize: activities of NGO Robotika popularising robotics among schoolteachers
- Motivation Prize: Saaremaa Co-educational Gymnasium: integrating science across the curriculum – Viljar Aro, Inge Vahter and Anne Teigamägi

In the category “Best scientist, journalist, teacher popularising science and technology”

- Grand Prize: Indrek Peil, for popularising student science activities and for science communication in Saaremaa
- Motivation Prize: Ivo Juurvee, for conveying the latest research findings on recent history of Estonia to broad audiences in Estonia and worldwide, including his historical advisory activities for Sofi Oksanen’s books

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

- Grand Prize: Workshops, repair cafés specialising in electricity, electronics and robotics, and electrical/electronics hackerspace “Skeemipesa” (Circuit nest), leader and editor Heigo Mõlder
- Motivation Prize: video series “Ühe Minuti Loeng” (One Minute Lecture)

The competition’s award fund for 2013 amounted to 21,500 Euro in total. The Lifetime Achievement Award was worth 6,500 Euro, accompanied by a sculpture – Stanislav Netchvolodov’s “Mobius strip”. Winners in other categories received: Grand Prize – 2,200 Euro and Motivation Prize – 800 Euro. Results of the competition were announced and prizes were handed over during the Science Education Conference “Anname teadushuvile võimaluse!” (Let’s give science interest a chance!), held at Salme Cultural Centre on November 15.

## **PUBLICATIONS OF THE ACADEMY**

Books published by the Academy in 2013:

- “Estonian Academy of Sciences Year Book XVIII (45)” in Estonian and English.
- The seventeenth book in the series “National Science Prizes” (in Estonian) acquaints the reader with award recipients for 2013 and offers an overview of their studies.
- The eighth volume in the so-called Blue Book Series “Research culture” was launched to denote the 75th anniversary of the Academy. The book is composed of essays from renowned Estonian researchers offering a brief insight into their thoughts, ideas and opinions towards science in general, as well as its merits and role in the society. Members of the Academy are well represented among the authors of this publication, namely, Toomas Asser, Jaan Einasto, Jüri Engelbrecht (Editor-in-Chief), Ain-Elmar Kaasik, Agu Laisk, Leo Mõtus, Ülo Niinemets, Martti Raidal, Tarmo Soomere, Raimund Ubar, Jaan Undusk, Tarmo Uustalu, and also Foreign Member of the Academy Els Oksaar.

Electronic versions of all the publications are available at [www.akadeemia.ee](http://www.akadeemia.ee).

For information about scientific and scholarly journals published by the Estonian Academy Publishers, see pp. 114-116.

## **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)) is formed by the national science academies of the EU member states to enable them to collaborate with each other in providing independent science advice to European policy-makers. The Estonian Academy of Sciences has nominated Secretary General Leo Mõtus to EASAC Council. Specific expert groups, the so-called steering panels, have been established to run three principal programmes (biosciences, energy and environment), each of these run by a Steering Panel. Chairman of the Academy's Committee on Marine Sciences Tarmo Soomere continues working as a member of the Environment Steering Panel. He is also the contact person between the Panel and the European Marine Board aiming to contribute towards harmonisation of their activities and exchange of information between them. Enn Lust represents the Academy in the Energy Steering Panel. Expert panels search potential topics for analysis with a view to providing policy-makers with evidence-based reports on development trends in research and technology, forecasting potential implications of these trends on the social issues, furnishing reference materials to support multi-alternative decision-making. For better promotion of Estonia's interests and objectives, it would be advantageous to enlarge the role of Estonian scientists in the Working Groups that are actually preparing the analyses. Unfortunately, the Academy is not in a position to subsidise such assignments due to restricted finances.

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 42 European countries for the purpose of fostering excellence and integrity in research, enhancing the autonomy of research institutions and advocating adequate working conditions for scientists. ALLEA strives to address a wide range of science issues (European Research Area and Horizon 2020, digitisation and research infrastructures, intellectual property rights and open-access publishing, science education, social sciences and humanities, European cultural heritage, etc.). ALLEA's policy work is assisted by several Permanent Working Groups, issue-focused Working Groups and ad hoc Task Forces. Raivo Uiibo is a Corresponding Member in ALLEA Permanent Working Group on Science and Ethics. The principal outcome of the WG's activities in 2013 was identifying and formulating ALLEA positions on teaching ethics in science.

Final version of the ALLEA document “Statement on Ethics Education in Science” was published in September 2013 (see [www.allea.org/Content/ALLEA/Statement\\_Ethics\\_Edu\\_web\\_final\\_2013\\_10\\_10.pdf](http://www.allea.org/Content/ALLEA/Statement_Ethics_Edu_web_final_2013_10_10.pdf)).

The European Science Foundation (ESF; [www.esf.org](http://www.esf.org)) is passing through a process of significant change which is presumably leading to termination of its activities (2015). The Academy is no longer a member of the ESF, however, it continues as a member of the European Marine Board ([www.marineboard.eu](http://www.marineboard.eu)), an organisation formerly affiliated to the ESF, but now practically independent. Likewise, we keep on supporting the European Polar Board, still working under the auspices of the ESF, but searching to become self-sufficient. In the European Marine Board the Academy is represented by Tarmo Soomere, who is currently in the vice-Chair position. The reliability of the European Marine Board is based on its autonomy from the European Commission in conjunction with balanced representation of research funding agencies and research institutions. Thus, it offers a tangible mechanism for converting Estonian position in marine sciences into science policy decisions related to the Baltic Sea region.

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’s Committee on Phylogeny and Taxonomy Urmas Kõljalg is responsible for coordinating respective activities in Estonia.

The Union Académique Internationale (UAI; [www.uai-iaa.org](http://www.uai-iaa.org)) unites academies engaged in the ‘soft’ sciences and focuses its activity mainly on the humanities. The Academy is represented in the UAI by Member of the Board Peeter Tulviste, who has been entrusted with two permanent responsibilities: to act as a member of the UAI External Relations Committee and to maintain contacts between the UAI and the International Social Science Council (ISSC), incl. participation in the ISSC sessions (e.g., in Montreal, October 2013).

The Academy also takes part in the work of several other worldwide science organisations, such as International Council for Science (ICSU; [www.icsu.org](http://www.icsu.org); representative of the Academy – Vice President Jüri Engelbrecht), the global network of science academies IAP ([www.interacademies.net](http://www.interacademies.net)), etc. On the one hand, close involvement of Estonian representatives in European and worldwide science organisations serves as a tool for visibility enhancement and image-building. On the other hand, it offers the Estonian research community a gateway to decision-making processes in issues that are dealt with at the European level and affords them to access international discussion forums with scientific approaches to issues vital for Estonia.

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 2, pp. 205-207). Participation in international scientific unions empowers Estonian scientists to influence the policies and strategies in their areas of expertise. International 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 resultful preparation of a collaborative research project.

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 3, p. 208) 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 Divisions of the Academy 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 receiving Academy for funding are selected by the sending Academy.

For several recent years the quantitative dimension of scientific exchange has been affected by inadequate funding rooted in the period of economic recession. The budget allocated for reception of visiting scientists did not afford to fully cover the expenses in the amount stipulated by agreements. For that reason the Academy was compelled to intercede in the selection of scientists nominated to Estonia by making suggestions to partner Academies towards cutting down both the number and the duration of visits. The Academy in turn kept the nominating of Estonian scientists in acceptable limits for partners, regardless of the quotas rates set by agreements. The analysis of trends based on statistical data would thus be invalid.

General figures are the following. In 2013 Estonian researchers made 53 study and conference visits, using the total of 476 days. The total sum of 20,003 Euro was expended to cover the living expenses of incoming visitors. The number of hosted researchers was 61, who worked at Estonian universities and research institutions for 448 days in total. The average daily expenses were 44.65 Euro. 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), whose share collectively constituted over 60% of the visits.

Although the list of cooperation agreements currently includes 32 partner organisations (as of 01.01.2014), the exchange programme has actually been materialised with 14 partners, the largest quantity of visits was reached with Hungary, Poland and Russia. What should be taken into consideration here is the fact that nowadays the opportunities for researchers to apply for travel grants have significantly multiplied (FPs, programmes co-financed by Structural Funds, national mobility grants, etc.).

The Academy encourages direct contacts of young scientists with *crème-de-la-crème* 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 held in the small town of Lindau (Germany) is to educate, inspire and connect. On the one hand, it is a meeting place for young talents (numbering around 500) and on the other hand, the older generation, at the same time the elite of the science world – Nobel Laureates (about twenty every year). In 2013 the Academy dispatched to the Chemistry Meeting in Lindau PhD Karin Kipper and PhD student Jaan Saame (both of the Institute of Chemistry, University of Tartu). Their participation expenses could be covered thanks to a specific allocation made by the Ministry of Education and Research. In the autumn of 2013 the Academy held a contest to attend the 64th Lindau Nobel Laureate Meeting on Physiology or Medicine and the 5th Lindau Meeting on Economic Sciences in 2013 and presented the best candidates to the Lindau organising committee.

Representatives of the Academy traditionally visited partner 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. 7-13).

Estonia is a natural part of the European Research Area. Under these conditions it is highly logical to lay emphasis on COOPERATION WITH THE EUROPEAN UNION INSTITUTIONS and on active participation in EU structures, programmes and projects. For instance, Vice-President Jüri Engelbrecht belongs to the Advisory Board of FP7 project NETWATCH. NETWATCH is the European Commission's information platform on transnational R&D programme collaboration, with current focus on the ERA-NET scheme. J.Engelbrecht has also belonged to the Advisory Group of the FP7 specific programme "People". The Academy was for the eighth year in succession involved as a partner in the FP7 Europe-wide project series "Researchers' Night" aimed at enhancing public recognition of researchers and scientific careers. For greater detail see pp. 57-58.

The European Union regards as a matter of high importance to provide researchers with occupational and mobility opportunities as well as favourable conditions for moving from country to country for the purpose of work or study. Together with the Estonian Research Council (coordinator in Estonia), the Archimedes Foundation, the University of Tartu, Tallinn University of Technology, the University of Life Sciences and Tallinn University the Academy participates in the European Network EURAXESS. The Network was initiated by the European Commission with a view to advising researchers moving to another country, either to work or study and also their family members on administrative and practical issues. Service centres offer information on a broad range of topics, e.g. visas, residence and work permits, research vacancies, social insurance, availability of medical aid, local everyday utilities, etc. The European Commission organises to members of the Network trainings and conferences at the European level, attended among others by officers of the Foreign Relations Unit of the Academy. For greater detail see [euraxess.ee](http://euraxess.ee).

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

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### **NATIONAL SCIENCE PRIZES**

Based on nominations from the National Science Prize Committee, the Government of the Republic of Estonia by Ordinance No. 59 of 14 February 2013 awarded

SCIENCE PRIZE FOR LONG-STANDING ACHIEVEMENTS IN RESEARCH AND  
DEVELOPMENT



to *Enn Mellikov*

“...it is vital for us, whether old or young, to realise all together now that science is an indispensable tool for raising the living standard of our people and the development potential of our state. Furthermore, the knowledge-based economy will act not merely as a dependable guarantor of our country’s competitiveness but, in all probability, it could well be the only realistic option to survive available for the Republic of Estonia.”

National Science Prizes, 2013.

SCIENCE PRIZE IN ENGINEERING



*to Tarmo Soomere*

for series of studies “Quantification and minimising of sea inflicted environmental risks in the context of the Baltic Sea coastline.”

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

President of the Republic of Estonia by Resolution No. 224 of 6 February  
2013 awarded

the Order of the Estonian Red Cross,  
1st Class  
to *Toomas Asser*



the Order of the White Star, 3rd Class



to *Urmas Varblane*

and

*Jaak Vilo*

## ANNIVERSARIES

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### ACADEMY 75

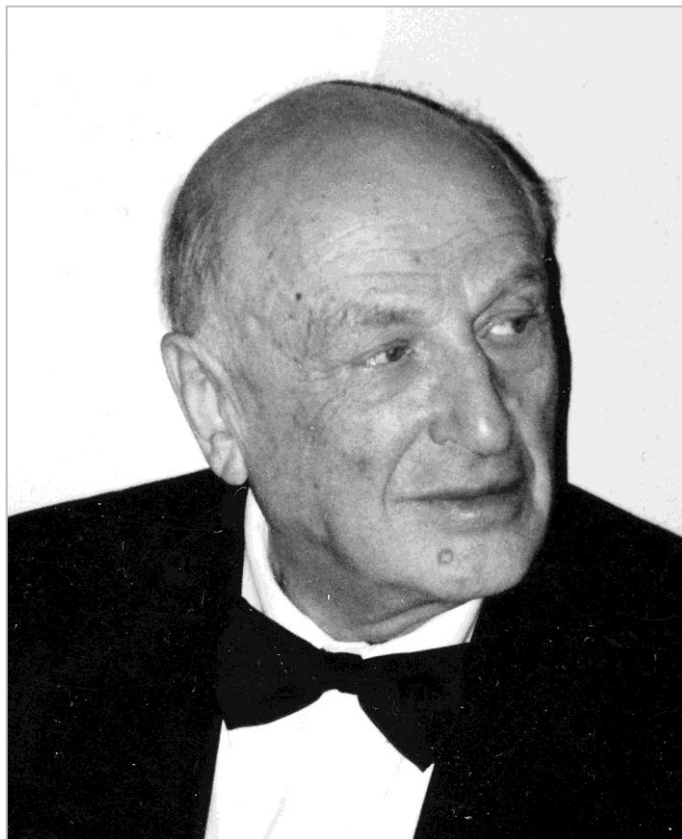


The year 2013 marked three quarters of a century since the establishment of the Estonian Academy of Sciences in 1938.

The Horisont magazine introduced two special columns to highlight the anniversary through all issues (1-6) of the year. One of the columns – “The changing times and paths of the Academy” contains concise historical descriptions of the Academy in words and photos. The other column titled “One Member of the Academy about another” is composed of reflections by current Members dedicated to their earlier colleagues, eminent researchers whose contributions have left an imprint on the development of Estonian science. Articles about Ludvig Puusepp (neurology), Ernst Öpik (astronomy), Paul Ariste (linguistics), Juhan Ross (atmospheric physics and ecology), Nikolai Alumäe (engineering and cybernetics) and Artur Lind (biochemistry and molecular biology) are authored by Ain-Elmar Kaasik, Jaan Einasto, Karl Pajusalu, Agu Laisk, Jüri Engelbrecht and Richard Villems, respectively. The first issue also carried an introductory article “About the Academy” written by Jüri Engelbrecht. (See Appendix 1, pp. 203-204.)

The Academy’s 75th anniversary was called to mind at two international conferences held in 2013. “The Baltic Conference on Intellectual Cooperation” (28-29 January) marked 75 years since State Protector enacted and proclaimed the decree on the establishment of the Estonian Academy of Sciences on 28 January 1938. Vice-President Jüri Engelbrecht delivered a paper “75 years of the Estonian Academy of Sciences”. The passage of 75 years since the festive opening ceremony of the Estonian Academy of Sciences on 22 October 1938 was remembered at the conference “Excellence in Research” (22-23 October).

In the media the Academy’s 75th anniversary was addressed by the daily Tartu Postimees (Rannu Hanson’s interviews, 26 November 2013) and by the Radio Kuku (Margus Maidla, Falling Apple, 27 October 2013).



*Mihhail Bronshtein*

Mihhail Bronshtein was born on January 23, 1923 in St. Petersburg. In 1940 he graduated from Leningrad Secondary School No.11 and enrolled in the Leningrad Institute of Chemistry and Technology. His studies were interrupted by war. After demobilisation in 1946, he proceeded to study economics at Leningrad State University and completed his undergraduate studies in 1949, majoring in political economy. His Candidate of Science dissertation and Doctor of Science thesis were both defended at the same university, in 1954 and in 1965, respectively. He obtained professorship in 1967 and was elected Member of the Estonian Academy of Sciences in the specialty of political economy of agriculture in 1975.

The academic career of Mihhail Bronshtein began at the University of Tartu, where he started in 1949 as a lecturer and progressed to the position of Professor and Head of the Department of Political Economy. He has also served as Senior Researcher at the Estonian branch office of the Central Economic

Mathematical Institute of the Academy of Sciences of the USSR and the Institute of Economics of the Academy of Sciences of the ESSR (1980-1986), and Counsellor for Economic affairs at the Estonian Embassy in Moscow (1992-1995). In 1993 he became Professor Emeritus of the University of Tartu.

The studies of Mihhail Bronshtein have primarily been concerned with macro-economics, agricultural economics, economic relations between countries, and ecology. The topics he has examined in greater depth are related to industrial development of agriculture in the Estonian SSR, measures for optimising natural resource management and the framework of economic evaluation. His key accomplishments include: creating an incentive system for Estonian agriculture (price formation, remuneration of work, combining corporate and private ownership), evaluating natural resource potential in Estonian agriculture and elaborating a mechanism for fostering regions in an unfavourable position. He is the author of over 400 research articles, as well as a great number of analytical writings on economic issues in the print media.

The contribution that Professor Bronshtein made to preparing and executing the first economic reforms after Estonia regained independence was highly consequential, and so was his role in the formation of the Baltic Economic Bridge concept. He is a member of the International Union of Economists (IUE) and the International Association of Agricultural Economists. In 2006 Mihhail Bronshtein was recognised with the 3rd class Order of the White Star.

When speaking about things that bring joy into everyday life, he names reading books, going to the theatre and concerts, fitness walking and skiing.





*Dimitri Kaljo*

Dimitri Kaljo was born on October 12, 1928 in Haapsalu. He graduated from Gustav Adolf Gymnasium (then Tallinn Secondary School No.1) in 1948. His further path in life was largely determined, when he happened to join the Gustav Adolf Natural Science Circle working at his school. Dimitri Kaljo graduated from the University of Tartu in 1953, specialising in geology. He continued to study palaeontology at a doctoral level and defended his PhD dissertation “Tetracoralla of Baltic Ordovician and Llandovery, their habitat and development” in 1956. His Doctor of Science thesis on the topic “Stratigraphy of Baltic Silurian (experience of ecostratigraphic analysis)” was defended in 1978. Dimitri Kaljo was elected a Member of the Estonian Academy of Sciences in 1983 and was awarded professorship in 1986.

In 1957 Dimitri Kaljo started his professional career at the Institute of Geology of the Academy of Sciences of the ESSR (starting from 1997 the Institute of Geology at Tallinn University of Technology) in the position of Scien-

tific Secretary. He became Head of the Geology Sector in 1959 and Director for Research in 1965. Thereafter, for the following couple of decades (1969-1989), he worked as Director of the institute. In that period the Institute of Geology attained a leading position in the Baltic States and gained renown in the Soviet Union and North-Europe. During 1990-2006 Dimitri Kaljo was occupied at the same institute as Head of the Bedrock Division. Presently he works as Senior Researcher at the Department of Paleontology and Stratigraphy.

A talented research organiser, Dimitri Kaljo has been Head of the Academy's Division of Biology, Geology and Chemistry (1990-1999) and Coordinator for International Relations (1991-2004). He has worked on several expert bodies at national and international levels. He has been a Member (since 1969) and Chairman (1981-2005) of the Estonian National Commission on Stratigraphy, Chairman of the Commission of Estonian Mineral Resources (1991-2010) and Chairman of Estonian National Committee for Geology (since 1992). In 1976 Dimitri Kaljo became an active member of the International Commission on Stratigraphy (ICS) Subcommittee on Silurian Stratigraphy (ISSS) in the International Union of Geological Sciences, has been Chair of the ISSS (1984-1992) and corresponding member (since 2005). He has likewise been Vice-President of the International Association for the Study of Fossil Cnidaria and Porifera (1983-1988) as well as the International Paleontological Union (1989-1996).

The main research areas of Dimitri Kaljo fall within the scope of palaeontology and stratigraphy. He has examined a variety of topics, including the taxonomy of Ordovician and Silurian tetracorals, their habitat, changes in their biodiversity and causes of those changes, as well as biostratigraphy of graptolites and their usability in geological correlations; Silurian lithofacies of Baltoscandia and paleogeographic evolution of the basin; application of carbon and oxygen stable isotopes in stratigraphy and paleoclimatology. He is the author of over 300 research publications and has supervised several doctoral theses. Dimitri Kaljo is the Editor-in-Chief of the Estonian Journal of Earth Sciences.

He has twice received the National Science Prize as research team leader – for series of studies on the Silurian in Estonia (1972), and for application of isotope to the study of evolutionary history in the Paleozoic (2001). In 2009 he was granted the National Science Prize for long-standing achievements in research and development.

In 2002 Dimitri Kaljo was awarded the 4th class Order of the White Star.



*Lembit Krumm*

Lembit Krumm was born on July 20, 1928 in Kuressaare to a family of farmers. In 1947 he graduated from Saaremaa Secondary School. His deep interest in engineering and mathematics brought him to study at Tallinn University of Technology, which he graduated from in 1952. He proceeded with his studies and work at Tallinn University of Technology, Tomsk Polytechnic Institute for a doctoral programme and in the laboratory of the Electrical Engineering Institute at the ESSR National Economy Board. In 1956 he defended in Tomsk his Candidate of Science dissertation on calculation methods for stationary modes in power systems. Four publications that appeared from him on the basis of the dissertation in 1957 determined in the long term the structure of larger power networks over the entire USSR, the Baltic States among others. Lembit Krumm defended his Doctor of Science thesis on complex optimising methods for energy systems in 1979 and was awarded the title of

professor in 1981. He was elected a Member of the Estonian Academy of Sciences in 1987.

Lembit Krumm has worked at the Transport Energy Institute of the USSR Academy of Sciences Siberian Branch in Novosibirsk (1959-1962), the Siberian Energy Institute of the of the USSR Academy of Sciences Siberian Branch in Irkutsk (1962-1976 Head of Laboratory, 1977-1990 Head of the USSR Academy of Sciences Siberian Branch). In 1981-2004 he was concurrently Head of Department at the Institute of Thermophysics and Electrophysics (later Estonian Energy Research Institute) at the Estonian Academy of Sciences, where he was responsible for transferral of the potential accumulated in Siberia into the Baltic States and Estonia. Since 2004 his activity has been related to grant projects on managing interconnections between power systems in different countries conducted by the Institute of Electrical Engineering at Tallinn University of Technology.

The main aspect in Lembit Krumm's research work has been laying theoretical and methodical foundations for combined optimal management of electrical energy systems, creating a corresponding school, supervising and coordinating respective research directions in partnership with academies of sciences over the Soviet Union. After the Baltic States regained their independence he focused on developing the theory in conformity with market economy conditions. In the past decade he has been a steadfast promoter of a single Baltic energy system.

In 1966 Lembit Krumm was awarded the G.M.Kržižanovski Memorial Prize of the USSR Academy of Sciences and in 1986 the USSR State Prize. In 1991-2000 he was President of the Baltic Association of System Research in Energy.

Professor Krumm is the author of over 200 research publications, among them about 20 monographs. Over a thirty year period in Siberia he supervised 40 Candidate and Doctor of Science dissertations.

With a view to staying focused, keeping his mind peaceful and body healthy he is persistent in continuing to swim and walk long distances.



*Cheslav Lushchik*

Cheslav Lushchik was born on February 15, 1928 into a family of Polish descent, being a third-generation resident of St.Petersburg. After a short and hard childhood he graduated from secondary school in 1946 with a gold medal and enrolled in the Faculty of Physics of Leningrad State University. At University he heard lecture courses of outstanding Members of Academy and Professors and in his fourth year at the University started research in thin films and ionic mono-crystals in the laboratory of Feodor Klement, belonging to the School of Academician A.N.Terenin. He defended his Candidate of Science dissertation on thermo-activation spectroscopy of crystals at Leningrad University in 1954 and his Doctor of Science thesis on the results from the study of excitonic, electron-hole and ionic processes of alkali halogenid crystals at Leningrad State Institute of Optics in 1964. In the same year he was elected Member of the Estonian Academy of Sciences in physics of solids

and in 1968 he was awarded Professorship in experimental physics and physics of solids.

In 1954 Cheslav Lushchik started his long lasting career at the Institute of Physics and Astronomy of the ESSR Academy of Sciences in Tartu as Senior Researcher at the Sector of Experimental Physics. As a next step, he headed the Sector of Physics of Ionic Crystals for more than 30 years (1960-1993) and was concurrently Head of Department during the period 1974-1990. From 1994 through 2004 he continued his studies in grant based Senior Researcher and Leading Researcher positions. Since 2005 he has been working as Senior Researcher Extraordinary for research projects led by the Laboratory of Ionic Crystals.

Professor Lushchik is an experimental physicist, whose main research areas are concerned with physics, radiation physics, optics and spectroscopy of solids. From among research results obtained by himself and his students in the area of solids, he highlights the studies which have been focused on elementary processes causing irreversible radiation damages in crystals. At present, he is involved in identifying opportunities for dramatic increase of radiation-resistance in inorganic materials with wide-ranged restricted area that are a necessary component for nuclear radiation sensors and for the future thermonuclear power engineering.

The School of Isolator Crystal Physics founded by Professor Lushchik in Tartu as well as in Latvia, Russia, Kazakhstan and Kyrgyzstan has gained international renown. He is the author or co-author of nearly 400 research publications, among them 3 monographs and 3 large chapters in omnibus volumes. Fifty Candidate of Science dissertations in physics and chemistry have been defended under his supervision. By now, many of those Candidates have become Doctors of Science in Physics and Mathematics, whereas quite a few of them have been elected to Estonian, Latvian and Russian Academies of Sciences.

His outstanding contribution to science has been recognised on several occasions, incl. ESSR State Prize (as research team member) in 1959, the Medal of the Estonian Academy of Sciences in 1988, and the National Science Prize of Estonia for long standing achievements in research and development in 2004.

In 2006 Cheslav Lushchik was awarded the 3rd class Order of the White Star.



*Hans-Voldemar Trass*

Hans-Voldemar Trass was born on 2 May, 1928 in Tallinn. Dating back from childhood at Nõmme and Pääsküla – Harku woods, moors, riverbanks, Glehn’s Park – has been his interest in nature observations, hence after graduation from Nõmme Gymnasium in 1947 he proceeded to study biology at the University of Tartu, majoring in botany. After obtaining his University diploma in 1952 he continued his studies in a doctoral programme and defended his Candidate of Science dissertation in 1955 on the topic “Flora and plant canopy of West-Estonian bogs”. His Doctoral thesis on the topic “Analysis of Estonian lichenoflora” was defended in 1969 at the Institute of Botany named after V.Komarov in Leningrad.

Hans-Voldemar Trass was elected a Member of the Estonian Academy of Sciences in 1975.

His academic career at the University of Tartu started in 1955, when he became a Lecturer at the Department of Plant Systematics and Geobotany (later Institute of Botany and Ecology). He worked as Head of the Institute during 1956-1991, then as Professor Extraordinary at the same Department and became Professor Emeritus in 1994. H.-V.Trass has studied various aspects of plant biology, e.g. general botany, geobotany, plant ecology, plant geography, lichenology and historical biology. He has supervised a great number of diploma theses and Candidate of Science dissertations, practical field works and expeditions. Likewise, he has delivered lectures and short courses at many foreign universities.

Hans-Voldemar Trass has been actively raising awareness about nature and environment conservation problems in Estonia. In 1968 he created the lichen-indicational method for determining the pollution level of air environment and in 1999 the method for identifying the state of virgin forests. In 1976 he compiled the first in the world complete review on history and trends of development of plant canopy. H.-V.Trass has authored about six hundred publications. He has twice (1964-1973, 1985-1991) been President of the Estonian Naturalists' Society and was elected Honorary President in 1991.

In 1996 Hans-Voldemar Trass was awarded the National Science Prize for long-standing achievements in research for his studies on lichenology. In 1997 he was elected a Foreign Member of the Russian Academy of Natural Sciences.

In 1998 Hans-Voldemar Trass was awarded the 3rd class Order of the White Star and in 2006 he has been Honorary Citizen of the city of Tartu and holder of the Great Star of Tartu.

Coming from a culture loving family, he has been attracted to music, literature and poetics from a very early age. He has succeeded in bringing together science and art, emphasising the idea that natural sciences, nature conservation and culture are all contiguous, closely intertwined phenomena. A perceptive and versatile person, he takes great pleasure in writing theatre reviews, journalistic articles, travelogues and poetry.





*Richard R. Ernst*

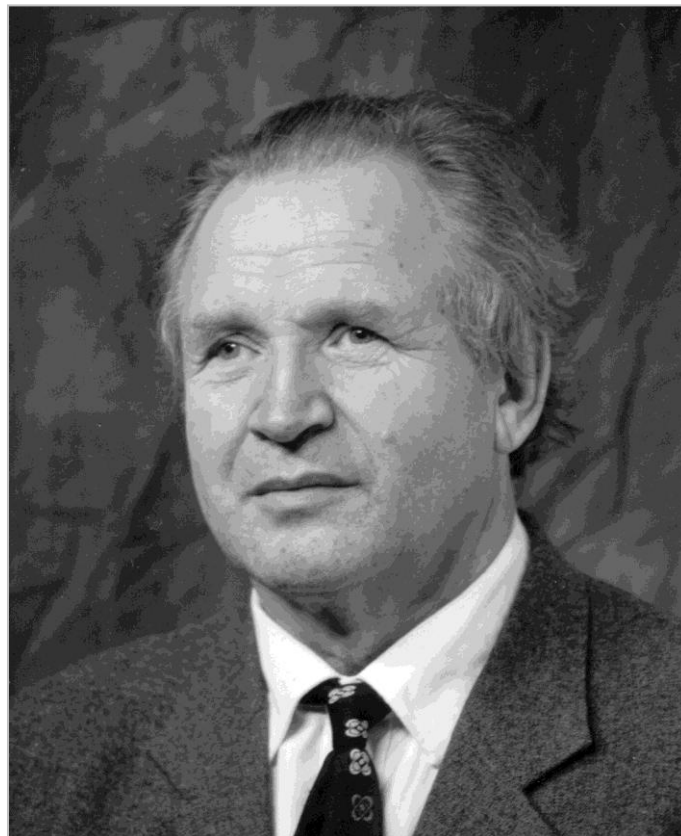
Richard R. Ernst was born on 14 August, 1933 in Switzerland in the small town of Winterthur to an architect's family. In 1956 he graduated from Zürich University of Technology (ETH-Z) as Master of Science in Chemistry, in 1962 he defended at the same University his Doctor's degree in Engineering on apparatus building and was thereafter Researcher at the Laboratory of Physical Chemistry. In 1963-1968 he worked for Varian Associates, an apparatus building company of Palo Alto, located in the US Silicon Valley district. He was chiefly engaged in automating spectroscopic experiments. In 1968 Richard R. Ernst returned to Zürich and continued research work at ETH-Z, moving forward along his career path from Privat-docent (unestablished University Lecturer) to Professor (1976). He has worked as Visiting Professor at Harvard University, delivered guest lectures at various universities in the United States, Canada and Germany. He has been Professor Emeritus since 1998.

Research achievements of Professor Ernst in chemical physics are fundamental, especially so in the area of stochastic resonance methods, Fourier' multidimensional spectrometry and Fourier' tomography. He has developed innovative physical theories and methods, combining them with all possibilities of modern experimental and computational technology. His physics-centred theoretical and applied studies have been replenished, within recent decades, by many applications in molecular biology and research of solids. He has released over 350 research publications and he is author of several inventions and co-owner of patents. The core of his research has been reflected in the monograph published in 1987 "Principles of nuclear magnetic resonance in one and two dimensions" (co-authors G.Bodenhausen and A.Wokaun), providing a comprehensive review on physical bases of multidimensional spectrometry. Richard R. Ernst's studies have significantly influenced development of the science of chemistry and they have also been implemented in other areas – he belongs among the ten most often cited physicists and chemists in the world.

Besides his research and pedagogical activities Richard R.Ernst has long participated in the work of the Swiss Research Foundation and the Swiss Research Council, he has been President of the ETH-Zürich Research Council (1990-1995) and a member of the University Council (1998-2006). He has sat on editorial boards of numerous scientific journals, incl. "Journal of Magnetic Resonance" (since 1974), "Magnetic Resonance Imaging" (since 1982), "Molecular Physics" (1983-2003). He is a member of quite a few scientific academies and societies (Royal Society of London, US National Academy of Sciences, Swiss Academy of Engineering, German Academy Leopoldina, Russian Academy of Sciences, Indian Academy of Sciences, American Physical Society, etc.), and Honorary Doctor of several universities. In 2003 he was elected a Foreign Member of the Estonian Academy of Sciences in physical chemistry.

In 1991, Richard R.Ernst was awarded the Nobel Prize in Chemistry for his outstanding achievements in developing methods of nuclear magnetic resonance spectroscopy (NMR-spectroscopy). He has been granted other prestigious science prizes, incl. the Benoist Prize (1986), the Ampere Prize (1990), the Louisa Gross Horwitz Prize (1991). Since 2012 ETH-Zürich Magnetic Resonance Research and Experimental Laboratory has carried the name Richard R. Ernst Magnetic Resonance Facility.

At present, the attention of Richard R.Ernst is chiefly focused on issues related to the study and restoration of Central-Asian paintings. He has delved into Raman spectroscopy for the purpose of analysing and identifying the pigments used in ancient pieces of art. The Nobel Laureate is a frequent lecturer on issues concerning the social responsibility of researchers and teachers – a topic close to his heart.



*Arved Ervin Sapar*

Arved Ervin Sapar was born on 7 February, 1933 in the parish of Rakvere, the village of Paatna. In 1952 he graduated from Rakvere Secondary School No.1 and in 1957 from the Faculty of Mathematics and Natural Sciences at the University of Tartu, specialising in physics. In 1965 he defended at the same university his Candidate of Science dissertation in Physics and Mathematics, which offered model solutions for describing changes in the Universe filled with matter and radiation. In 1989 he was awarded the Doctor of Science degree in Physics and Mathematics at Leningrad State University based on his studies aimed at generalisation of kinetics equations and research the extra-atmospheric spectra of hot stars. Arved Sapar was awarded Professorship in 1990 and in the same year he was elected a Member of the Estonian Academy of Sciences.

After graduation from the University in 1957 Arved Sapar started working as Junior Researcher at Institute of Physics and Astronomy of the Academy of

Sciences (since 1973 Institute of Astronomy and Atmospheric Physics). In 1968 he continued as Senior Researcher and in 1986 as Head of Laboratory of Theoretical Astrophysics. In 1991-1993 he was Chief Researcher and in 1993-2003 Head of Department of Astrophysics at the same Institute (since 1995 the Tartu Observatory). Since 2003 Arved Sapar has been working as Senior Researcher.

Interest in cosmology and research of extra-atmospheric star spectra, structure of star atmospheres and processes therein served as an incentive for Arved Sapar to join the US Goddard Centre of Cosmic Flights in 1978, where he observed, with the help of satellite International Ultraviolet Explorer the extra-atmospheric ultraviolet spectra of stars. In 1981 he was a visiting research fellow at Heidelberg University, delivering lectures on star plasma kinetics. A favourite direction of his research has been the use of equations underlying astrophysics and their generalisation. Presently, too Arved Sapar is engaged in model calculations of structure of star atmospheres and star spectra and in research of physical processes evidenced in star atmospheres.

In 1976-1991 Arved Sapar was Head of the Task Force “Physics of Star Atmospheres” of the USSR, in 1976-1944 he was a member of the organising committee of the Commission of International Astronomical Union and in 1989-1993 Co-Chairman of the Astronomical Union of the USSR, and Bureau and Board Member of the Eurasian Astronomical Union evolved on its basis. He is a founding member of International Astronomical Union (IAU) and European Astronomical Union.

For a quarter of the century Arved Sapar was editor and editor-in-chief of publications of Tartu Astrophysics Observatory. He has written about 200 scientific articles, he is author or co-author of five monographs and he has been supervisor of nine Doctoral and two Master theses.

In 1986, Arved Sapar was awarded the Medal of the Academy and in 2006 the 4th class Order of the White Star.

At his leisure he indulges in formulation of basics of a new artificial language, recently of its grammar and how to transpose it to the area of word derivation.



*Jānis Stradiņš*

Jānis Stradiņš was born on December 10, 1933 in Riga. He graduated from the Latvian University in 1956, defended his Candidate of Science degree at Moscow University in 1960 and Doctor's degree in chemistry at the Latvian Academy of Sciences in 1968. He has been awarded an Honorary Doctorate by the University of Latvia (1989), Latvian Academy of Sciences (1992, in history of science), Latvian Agricultural University (1999) and Riga Stradiņš University (2007).

For more than half a century, the research career of Jānis Stradiņš has been closely related to the Latvian Institute of Organic Synthesis, where he has worked as Researcher (1957-1961), Head of the Laboratory of Physical Organic Chemistry (1961-2006) and Chief Researcher (since 1993). His other affiliations include: University of Latvia (1972-1976 Professor of Physical Chemistry, since 1990 Professor of History of Science, since 2008 Chief Researcher) and Riga Stradiņš University (1992-2000 Chief Researcher).

Jānis Stradiņš is among the most highly cited and best known Latvian scientists whose studies are widely recognised by colleagues at home and abroad. His main area of interest in chemistry is molecular electrical chemistry of organic compounds. At the Latvian Institute of Organic Synthesis he has been primarily involved with development of polarographic techniques of analysis for identifying organic compounds. He has likewise made a notable contribution to creating of new original medicines (Furagin, Solafur, Methindione, etc.). As a historian of science, Jānis Stradiņš has been especially fascinated with the historical development of chemistry, pharmacy and medicine. He has examined the history of the Baltic States, focusing on the history of Riga, the formation of scientific relations and establishment of research centres in the three Baltic republics, etc. His publications comprise 7 monographs and over 300 scientific articles on electrical chemistry, and 20 monographs and over 250 scientific articles on history of science.

In 1973 Jānis Stradiņš was elected a Member of the Latvian Academy of Sciences. He has successively been Vice-President (1992-1998), President (1998-2004) and Chair of the Senate (since 2004) of the Academy. At the same time, he strove to enhance scientific cooperation between the Baltic States and the Nordic countries. He helped to revive the traditional Baltic Conferences on Intellectual Cooperation, established the Association of Science History and Philosophy of the Baltic States and was its four-time President (1990-1991, 1993-1996, 2001-2003, 2006-2008), since 2008 he has been Vice-President. Jānis Stradiņš is a member of the European Academy of Sciences and Arts (Salzburg, Austria) and German Academy of Natural Sciences *Leopoldina*, a corresponding member of Saxon Academy of Sciences and the Baltic Historical Commission (Göttingen), and a foreign or honorary member of numerous research institutions, societies and unions.

The Estonian Academy of Sciences elected Jānis Stradiņš in 1998 its Foreign Member in physical chemistry and science history. He has been recognised with prestigious science prizes and state decorations, incl. the Three Stars Order of the Republic of Latvia (1995), the National Order of the Legion of Honour, France (2001), the Order of Merit of the Italian Republic (2004). The Academies of Sciences of three Baltic republics rewarded Jānis Stradiņš for his notable contribution to enhancement of scientific cooperation between Estonia, Latvia and Lithuania by granting him the Medal of the Baltic Academies of Sciences in 1999. On proposal of the Estonian Academy of Sciences, the President of the Republic of Estonia honoured him with the Order of the Cross of Terra Mariana, 3rd Class in 2004.

Jānis Stradiņš is characterised by an exceptionally broad range of interests, however, literature and music have remained his definite favourites since early boyhood.



*Vladimir Hizhnyakov*

Vladimir Hizhnyakov was born on May 25, 1938 in Russia, in the Rostov Region to a family of intellectuals descending from the native Don and Kuban Cossacks. After the Second World War his family moved to Estonia. In 1955 he graduated with Silver Medal from Tapa Railway Secondary School. His impassioned love for mathematics dates back to the early school years. V.Hizhnyakov proceeded to study at the University of Tartu, in the Faculty of Mathematics and Natural Sciences and graduated *cum laude* it in 1960, majoring in theoretical physics. He enrolled in a doctoral programme at the Institute of Physics and Astronomy of the Estonian Academy of Sciences and defended his Candidate of Science dissertation on the theory of quasi-linear spectra at the University of Tartu in 1966. This work laid the foundation to the theory of phonon-free, i.e. purely electronic line theory, which he later complemented. His Doctoral thesis on the theory of resonance secondary radiation was defended at the same university in 1972.

Vladimir Hizhnyakov was elected Member of the Estonian Academy of Sciences in 1977.

In 1963 Vladimir Hizhnyakov proceeded to work at the Institute of Physics and Astronomy of the Estonian Academy of Sciences (present-day Institute of Physics), where he has worked ever since holding the positions of Junior Researcher, Senior Researcher, Chief Researcher and Head of Laboratory. In 1973 he went for a longer period on a scientific mission to the University of California, in 1977 to the Institute of Physics of Solids in Tokyo, and in 1983 to the University of Arizona. In 1987 Vladimir Hizhnyakov became Chief Researcher at the Institute of Physics and established collaborative relationships with researchers of universities in Stuttgart, Bonn, Ulm and Zürich, taking high temperature superconductivity as their main topic. As a result of cooperation, scores of publications were released, incl. also jointly with a Nobel Prize Laureate K.A.Müller, who discovered high temperature superconductivity.

In 1976 Vladimir bicycling started his lecturer career at the University of Tartu, where he has delivered main courses like electrodynamics and quantum mechanics and special courses on radiation quantum theory, non-linear optics and Green functions. In 1982 he was awarded Professorship and worked in 1993-2003 as Professor of Theoretical Physics at the University of Tartu. He is the author of over 300 research publications; 11 Doctoral theses and 3 Master's theses have been defended under his supervision.

Professor Hizhnyakov has worked for five decades in the field of theoretical physics. Besides making an outstanding contribution to high temperature superconductivity he has studied optical properties of solids and spectrography, theory of impurity centres of crystal, hot luminescence, non-linear optics, and quantum optics.

The outstanding scientific accomplishments of Vladimir Hizhnyakov have been recognised on several occasions. He has been among recipients of Estonian science prizes in 1965, in 2003, and in 2011, when granted the Lifetime Achievement Award. He was elected Meritorious Scientist of Estonia in 1986 and awarded the Annual Prize of the Estonian Physical Society in 1995. The 3rd class Order of the White Star was bestowed on him in 2001.

The favourite leisure time activities of the jubilarian are related with physical effort. Above all, he enjoys skiing, swimming, bicycling and hiking.





*Agu Laisk*

Agu Laisk was born on May 3, 1938 at Tartu. His early interest in exact sciences and modern subjects deepened, when he studied at Hugo Treffner Gymnasium, which he graduated from in 1956. He enrolled at the University of Tartu, Department of Physics and graduated in 1961, holding a diploma of physicist/teacher of physics. He then took a doctoral programme at the Institute of Physics and Astronomy in Tõravere, where his studies were concerned with radiation properties of the plant canopy, under supervision of Juhan Ross. The Candidate of Science degree in Physics and Mathematics was awarded to Agu Laisk in 1965 for his dissertation “Propagation of Solar Radiation in Plant Canopy in Relation to Photosynthetic Production”. While preparing the dissertation the former physicist developed into a biologist. His Doctoral thesis was defended on the topic “Kinetics of Leaf Photosynthesis and Photo-breathing” in 1975 at the Timiryazev Institute of Plant Physiology of the USSR Academy of Sciences.

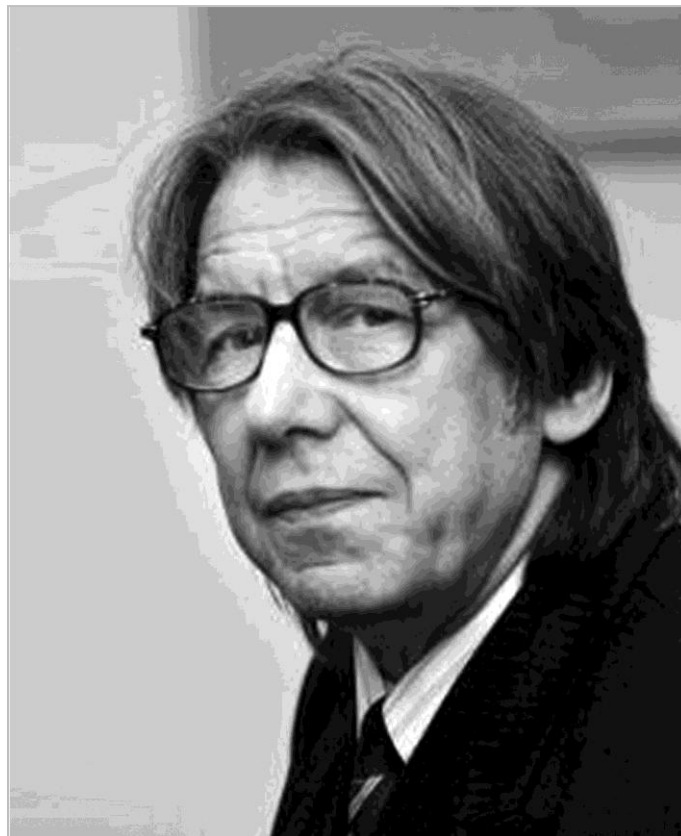
The professional career of Agu Laisk was for nearly thirty years related with the Institute of Physics and Astronomy, where he started in 1964 as Junior Researcher, then Senior Researcher and Head of the Laboratory of Biophysics. Since 1992 he has been employed with the Institute of Molecular and Cell Biology at the University of Tartu, where he became Professor and Head of the Department of Plant Physiology. From 2002 to 2005 he was working at the University of Tartu as a Research Professor of the Estonian Academy of Sciences. Presently, he is Senior Researcher of Plant Physiology and Professor Emeritus of the University of Tartu.

In 1994, Agu Laisk was elected a Member of the Estonian Academy of Sciences.

For nearly half a century, Agu Laisk has studied radiation conditions of the plant canopy, photosynthesis and breathing of plants and has worked in the domain of mathematical modelling of photosynthesis. Underlying his success has been, upon opinion of the Member of Academy, the well-oiled work of his team and the unique apparatus building basis, which has been elaborated at his laboratory. It enables quickly change the conditions on plant leaf and at the same time measure the optic and gas exchange indicators characteristic for photosynthesis. The working team is continually improving the apparatus. In 2010 the achievements of the team were recognized with an Innovation Prize by the International Society of Researchers of Photosynthesis. Twice the work of Agu Laisk has been awarded the National Science Prize (1985 and 1999).

In 2001 Agu Laisk was awarded the 4th class Order of the White Star.

In the days at the University at Tartu, Member of Academy Laisk had two equally favourite hobbies – volleyball and saxophone. The first of them has faded into the past however the jazz music and saxophone have stayed. His high level performance in composition of the Senior Big Band is enjoyable. He also likes relaxing by reading detective stories, finding them somewhat similar with research work.



*Hando Runnel*

Hando Runnel was born on November 24, 1938 in Järva County, Võhmuta parish, Liutsalu village to a family descending from Võrumaa. He received secondary education at Tartu Secondary School No.1 and Paide Secondary School. In 1957-1962 he studied agronomy at the Estonian Agricultural University.

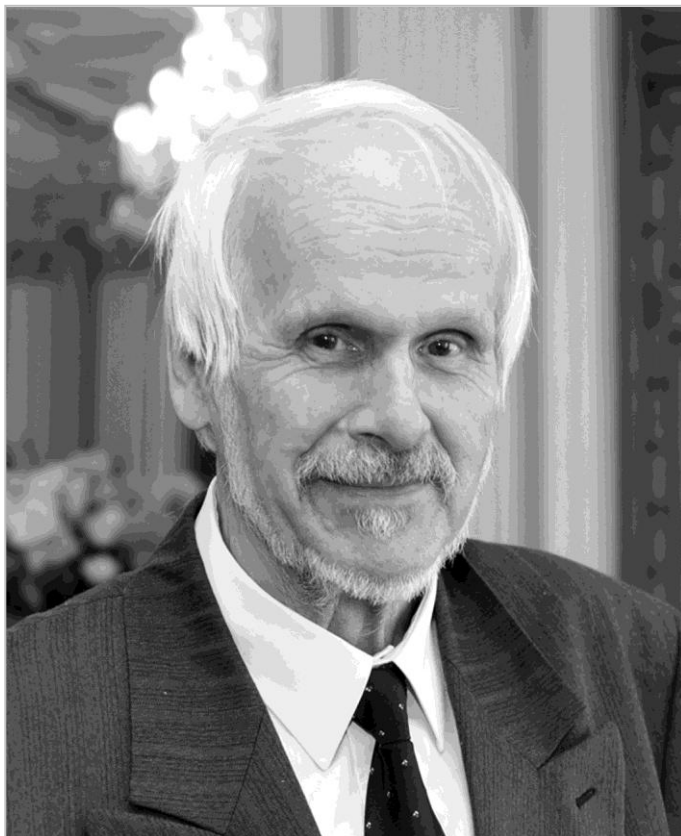
The lyrics and poems written by Hando Runnel in the 1950ies appeared in print for the first time in 1963 in the magazine *Looming*. His initial poetry collection "Maa lapsed" (Children of the Land) appeared in 1965. In 1966-1971 he worked in the editorial board of the literary magazine *Looming* and after that he has been a freelance writer in Tartu. Hando Runnel was a member of the Estonian Congress and Constitutional Assembly. In 1992 he established the Ilmamaa Publishers, is currently Chairman of the Supervisory Board and Editor-in-Chief of the series "Eesti mõttelugu" (History of Thought

in Estonia). In 1992-1993 he was the first Professor of Free Arts at the University of Tartu.

On December 5, 2012 the General Assembly of the Estonian Academy of Science elected Hando Runnel a Member of Academy in literature.

Hando Runnel has won greatest renown as a poet, but in addition to poetry he has written essays and literary criticism as well. He is a poet with focal awareness of Estonia, Estonian poetic tradition and the Estonian language both in subject matter, ideology and form, popular and refined in imagery, superbly tuneful and easy to sing. His defiant and sardonic, however lyric and all-embracing focus on Estonia gained spectacular cultural-political weight at the apex of the so-called era of stagnation, witnessing the publication of his poetry books “Mõru and mööduja” (Bitter and Transient), “Kodukäija” (Visitor) and “Punaste õhtute purpur” (Purple of the Red Evenings). Runnel’s literary criticism, essays and socially poignant publicistic pieces are rather rough, however, invariably characterised by due attention toward the object and an analytical perspective. The portraits of Jaan Kross, Mati Unt, Ilmar Laaban, and others belong to top essayistic writings in Estonian.

Hando Runnel has been a member of Estonia Writers Union since 1969, where he has been repeatedly elected to the board and member of bureau of Tartu Division. In 1966 he was awarded the Eduard Vilde Literary Prize for the volume “Maa lapsed” (Children of Land), in 1988 he was granted the honorary title of Merited Writer of the Estonian SSR; in 1989 he was awarded the Eduard Vilde Literary Prize for the volume “Laulud eestiaegsetele meestele” (Songs for men of the so-called Estonian independence period generation) and A.H.Tammsaare Literary Prize for the same work. In 1997 he was awarded the 4th class Order of the National Coat of Arms and in 2006 the 2nd class Order of the White Star. Hando Runnel was nominated Honorary Citizen of Tartu in 2002. He was among the laureates of the Estonian National Culture Foundation Lifetime Achievement Award given by the Cultural Endowment of Estonia in 2006 and was granted the Gustav Suits scholarship in 2007.



*Gennadi Vainikko*

Gennadi Vainikko was born on May 31, 1938 in the town of Kontupohja, Karelia. The war tossed the family to and fro, but finally they managed to get settled in Estonia. His parents often changed their place of residence and jobs, consequently Gennadi Vainikko has been at school at Mäetaguse, Vändra, Tõrva and Kose, graduating from Kehra Secondary School in 1956 with a Golden Medal. He then enrolled at the University of Tartu, Faculty of Mathematics, which he graduated from in 1961. His Diploma thesis was conferred a high prize and monetary reward by the USSR Ministry of Education in a student paper contest. In 1961-1964 he continued his studies in a doctoral programme and in 1964 he defended his Candidate of Science dissertation in physics and mathematics at the University of Tartu on the topic “On the Accuracy of the Galerkin method”.

The academic career of Gennadi Vainikko started at the University of Tartu as Junior Lecturer and Senior Lecturer at the Department of Mathematical Ana-

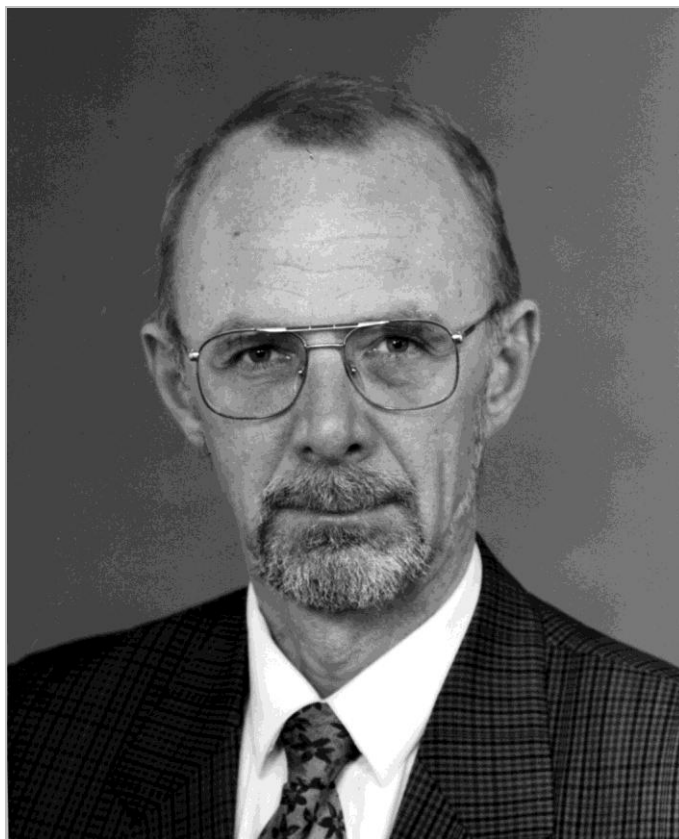
lysis (1964-1965). Subsequently, he worked as Assistant Professor at the University of Voronezh, Department of Mathematical Analysis (1965-1967) and at the University of Tartu (1967-1969). In 1969 he defended his Doctoral thesis “On Approximation of Linear and Non-linear Operators and Approximate Solution of Operator Equation” in Voronezh. Thereafter he became Professor of the University of Tartu and Head of Department of Computational Mathematics (1970-1994). In 1973-1993 Gennadi Vainikko delivered lectures as guest Professor also at universities in Germany, the USA, Finland, Latvia, Russia and South Korea; in 1993-2003 he worked as Professor at Helsinki University of Technology. He currently holds the position of Senior Researcher at the University of Tartu (since 2005) and became Professor Emeritus in 2006.

Gennadi Vainikko was elected a Member of the Estonian Academy of Sciences in 1986. In the complicated transitional years of research reform in the period 1990-1994 he held the position of Vice-President at the Academy.

Main directions of research work of the Member of Academy Vainikko have been various domains of computational mathematics: general theory of projection and discretisation methods, radiation propagation equations, singular integral equations, differential and pseudo-differential equations, reverse tasks, non-correct tasks, and quick numerical methods. The list of his research works contains over 250 titles, he has supervised over 30 Doctoral and Candidate of Science dissertation and he is sitting on editorial boards of several expert journals.

Gennadi Vainikko's research works have been bestowed distinction on by awarding him the honorary title of Merited Scientist of the ESSR (1989), the 3rd class Order of the White Star (1998), Grand and Small Medal of the University of Tartu and Medal of the Academy. In 2011 he was awarded the Science Prize in exact sciences for the cycle of studies “Hearty Volterra integral equations”.

Member of Academy has for long enjoyed choir singing – in the mixed choir of the University during his undergraduate years and later nearly 25 years in the Tartu male choir Gaudeamus. He enjoys going to concerts and theatre performances and keeps sprightly by fitness jogging and skiing.



*Valdur Saks*

Valdur Saks was born on September 3, 1943 at Kiviõli. His father was a mining engineer, general manager of Kiviõli and Kohtla-Järve oil factories. His childhood however passed in Võrumaa, where the family had to hide after the war, fearing deportation to Siberia. Valdur Saks graduated from Kohtla-Järve Chemistry Polytechnic School in 1962, thereafter from the Faculty of Chemistry at Moscow University in 1967 and a doctoral programme in 1970. In 1971 he defended at the same institution his Candidate of Science dissertation in Chemistry titled “Stabilising of oxidizing phosphorylation system at its functioning” and in 1981 at Moscow Cardiocentre his Doctoral thesis in Biology “Role of the system of creatine kinases in intracellular energy transfer and regulation of cardiac muscle contraction”.

In 1970-1971 Valdur Saks worked as Junior Researcher in the Physics Laboratory at the Institute of Cybernetics of the Estonian Academy of Sciences and in 1971-1972 he continued as Junior Researcher at the Department of Che-

mistry of Moscow University. In 1972 he moved to work at the Laboratory of Cardiac Metabolism of the Moscow Institute of Cardiology, which soon evolved into the Russian Centre of Excellence for Cardiology in Moscow. Until 1981 he was Senior Researcher and Research Team Leader for Bioenergetics, from 1981-1993 Head of the Laboratory of Bioenergy and since 1986 also Professor.

From 1993 Valdur Saks worked as Head of the Laboratory of Bioenergetics at the National Institute of Chemical Physics and Biophysics, being one of the founders of the laboratory. Presently he is Leading Researcher of National Institute of Chemical Physics and Biophysics. From 1975 to 1978 Valdur Saks participated for short periods in cooperation programmes with the University of Pennsylvania (Philadelphia, USA). In 1978-1981 he worked at John Hopkins University (Baltimore, USA), in 1981-1993 at the Université Paris-Sud (Orsay, France), in 1994-1997 was repeatedly Professor at the Cardiac Cell Physiology Laboratory of Joseph Fourier' University (Grenoble), where he has been since 1997 Professor in Ordinary.

In 1993 Valdur Saks was elected a Member of the Estonian Academy of Sciences.

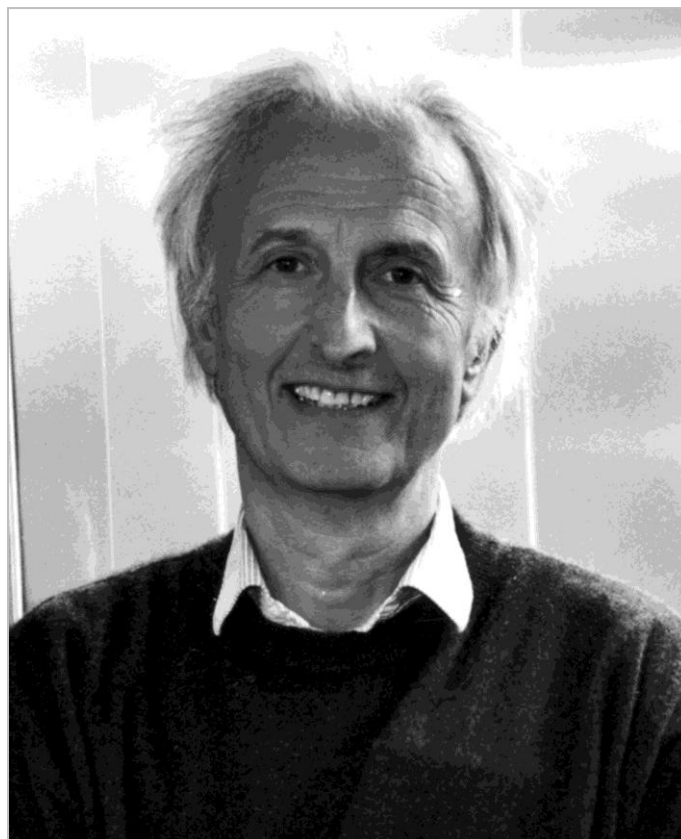
The main areas of research studied by Valdur Saks are bioenergetics of muscle cell, systems of energy transfer of cells, ischemia of cardiac muscle cell and mechanisms of protection against it. He has established an international cardiac bioenergetics school and research direction of molecular system bioenergetics. In cooperation with the US, French and Swiss researchers he has created the theory of intracellular energy transfer through polyfermentative systems, where creatine kinases hold the crucial position. He has also cooperated with Canadian, German and Italian research institutions.

Valdur Saks is sitting in the editorial board of several international peer-reviewed journals and belongs to several expert organisations. He has authored four monographs and compendiums, he has released over 250 research publications and he has been supervisor of many Doctoral, Master's and Bachelor's dissertations.

The scientific contribution of Valdur Saks has been recognised by the USSR State Prize (1978), the UNO and UNICEF International Health Research Prize "Research for Development" (1988) and the Estonian National Science Prize in geo- and biosciences (as research team leader, 2008). In 2006 he was awarded the 4th class Order of the White Star.

Alongside his professional activities, Valdur Saks takes a great interest in antique literature, history and philosophy.





*Helmut Schwarz*

Helmut Schwarz was born on August 6, 1943 in Germany in the town of Nickenich, situated in the district of Mayen-Koblenz. In 1971 he graduated from Berlin University of Technology with diploma in chemistry. In 1972 he defended the degree of Doctor of Natural Sciences in organic chemistry at the same University and in 1974 acquired the right to deliver lectures. Four years later H. Schwarz was nominated to the position of Professor of Theory and Practice in Mass Spectrometry of Berlin University of Technology. Since 1983, he has been working at the same University as Professor in Organic Chemistry. He has delivered lectures, as a guest Professor, at many universities of the world, incl. Cambridge (Great Britain), Jerusalem and Haifa (Israel), Lausanne (Switzerland), Canberra (Australia), Innsbruck (Austria), and also in Paris and Strasbourg (France).

Professor Schwarz is one of the most outstanding and most often cited scientists in the domain of molecular chemistry, whose research activities em-

brace the areas from fundamental chemistry to reactions important from the point of view of industry, and from unique experimental research to high level theoretical treatments. He has released nearly 800 research publications. The range of topics having attracted his attention is exceedingly multifaceted, representing the issues of organic, inorganic and physical chemistry. Main avenues of research of H.Schwarz are metal-catalytic activation of industrially important C-H, C-C and C-Si bonds by transition metals, precious and other metals and their derivatives, original creation and study of several compounds, universally deemed impossible to synthesise, research of design of novel catalysts and mechanisms of their operation, research of important elementary reactions, development and implementation of new mass-spectrometry technologies etc.

Besides research and work on faculty Professor Schwarz has fulfilled responsible administrative tasks, e.g., Vice-President of the Berlin-Brandenburg Academy (1998-2003), Vice-President of the German Research Foundation DFG (2001-2007). Presently he is President of the Humboldt Foundation (Humboldt-Stiftung) (since 2008) and Member of the Board of the German National Academy of Sciences Leopoldina (since 2010). H.Schwarz is a member of numerous scientific academies (the Leopoldina, Music Academy Erfurt, Berlin-Brandenburg Academy of Sciences and Humanities, Göttingen Academy of Sciences and Humanities, *Academia Europaea*, American Academy of Arts and Sciences, etc.) and Honorary Doctor of several universities around the world. He has been the editor or an editorial board member of several international journals for chemistry (currently "Advances in Physical Organic Chemistry", "Journal of the American Chemical Society"). Among the global scientific community he is also known as a competent expert in science policy.

In 2002 H.Schwarz was elected Foreign Member of the Estonian Academy of Sciences. His contacts with Estonian researchers date back to the year 2000, when close scientific cooperation was established in physical organic chemistry and for study of catalytic reactions and gas-phase ionic-molecule reactions.

H.Schwarz has been awarded worthy science prizes (e.g. van't Hoff, Leibniz, Max-Planck, J.J.Thomson, Lise Meitner-Alexander v Humboldt, V.Prelog, F.H.Field and J.L.Franklin, Otto Hahn, Erwin Schrödinger, and Blaise Pascal memorial prizes /medals). In 2011 he was awarded the Officer's Cross of Order of Merit of the Federal Republic of Germany and Medal of the European Academy of Sciences in chemistry; in 2012 he was granted Lichtenberg Medal of the Göttingen Academy of Sciences.

Anniversaries in 2013:

90th birthday

Member of Academy *Mihhail Bronshtein*,

85th birthday

Member of Academy *Dimitri Kaljo*

Member of Academy *Lembit Krumm*

Member of Academy *Cheslav Lushchik*

Member of Academy *Hans Voldemar Trass*

80th birthday

Foreign Member *Richard R. Ernst*

Member of Academy *Arved Ervin Sapar*

Foreign Member *Jānis Stradiņš*

75th birthday

Member of Academy *Vladimir Hizhnyakov*

Member of Academy *Agu Laisk*

Member of Academy *Hando Runnel*

Member of Academy *Gennadi Vainikko*

70th birthday

Member of Academy *Valdur Saks*

Foreign Member *Helmut Schwarz*

65th birthday

Member of Academy *Arvi Freiberg*

Member of Academy *Jaak Järv*

Member of Academy *Mati Karelson*

Member of Academy *Eve Oja*

Member of Academy *Raivo Uibo*

55th birthday

Member of Academy *Valter Lang*

50th birthday

Member of Academy *Karl Pajusalu*

45th birthday

Member of Academy *Martti Raidal*

## MEMBERS OF THE ACADEMY

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As of February 2014<sup>1</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); Riia 142, 51014 Tartu ESTONIA, Tel: +372 737 4674, Fax: +372 738 3033, jaan.aarik@ut.ee. HOME ADDRESS Mõisavahe 60-41, 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. Member of the Board, Estonian Qualification Authority (2008); Mustamäe tee 16, 10617 Tallinn ESTONIA, Tel: +372 679 1750, olav.aarna@kutsekoda.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. Riigikogu (Parliament) (2003), Lossi plats 1a, 15165 Tallinn ESTONIA, Tel: +372 631 6331, Fax: +372 631 6334, jaak.aaviksoo@riigikogu.ee. HOME ADDRESS Tähe 91a-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, 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, University of Tartu (2002); Näituse 2, 50409 Tartu ESTONIA, Tel: +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.

<sup>1</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 (2004); Observatooriumi 1, 61602 Tõravere, Tartumaa ESTONIA, Tel: +372 696 2538, Fax: +372 696 2555, jaan.einasto@to.ee. HOME ADDRESS Tiigi 6-3, 61602 Tõravere, Tartumaa ESTONIA, Tel: +372 741 0151. Widower, son and two daughters.

**Jüri ENGELBRECHT**, born 1.08.1939, elected 1990, mechanics. Tallinn University of Technology 1962. Vice-President, Estonian Academy of Sciences (2004); Kohtu 6, 10130 Tallinn ESTONIA, Tel: +372 644 2013, Fax: +372 645 1805, 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. Riigikogu (Parliament) (2003), Lossi plats 1a, 15165 Tallinn ESTONIA, Tel: +372 532 2687, ene.ergma@riigikogu.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 142, 51014 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); Riia 142, 51014 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 (2013); Mäealuse 2/1, 12618 Tallinn ESTONIA, Tel: +372 639 7991, Fax: +372 639 7992, ulo.jaaksoo@cyber.ee. HOME ADDRESS Mägra 6, 10917 Tallinn 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 at Tallinn University of Technology (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-Rector for Research, Estonian Academy of Arts (2013); Estonia pst 7, 10143 Tallinn ESTONIA, Tel: +372 626 7302, Fax +372 626 7350, mart.kalm@artun.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, Tallinn University of Technology (2004); Ravila 14a, 50411 Tartu ESTONIA, Tel: +372 737 5255, Fax: +372 737 5264, mati.karelson@ut.ee, HOME ADDRESS Mõisatamme 27, Vahi, 60534 Tartumaa ESTONIA, Tel: +372 734 8399. Married, two sons.

**Ilmar KOPPEL**, born 16.01.1940, elected 1993, natural sciences (physical chemistry). University of Tartu 1963. Leading Researcher, Ass. Director for Research, Institute of Chemistry, University of Tartu (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. Senior Researcher, Estonian Literary Museum (2000); Vane-muise 42, 51003 Tartu ESTONIA, Tel: +372 742 0079, Fax: +372 742 0426, kriku@folklore.ee. HOME ADDRESS Kastani 59-2, 50410 Tartu ESTONIA, Tel: +372 742 0079. 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 Rõõmu 14-9, 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 (2005), University of Tartu; Ravila 14a, 50411 Tartu ESTONIA, Tel: +372 737 6235, Fax: +372 737 6222, 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 Tartu 1955. Professor emeritus, Euroacademy (2005); Mustamäe tee 4, 10621 Tallinn ESTONIA, Tel/Fax: +372 650 5120. HOME ADDRESS A.Kapi 9-22, 10136 Tallinn ESTONIA, Tel: +372 662 0628, 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. HOME ADDRESS Rännaku pst 56, 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. Married, son.

**Hans KÜÜTS**, born 20.12.1932, elected 1994, agricultural sciences. Estonian University of Life Sciences 1956. Senior Researcher, Jõgeva Plant Breeding Institute (1999); Aamisepa 1, 48309 Jõgeva alevik, Jõgevamaa ESTONIA, Tel: +372 776 6914, Fax: +372 776 6902, ylle.tamm@etki.ee. HOME ADDRESS Tihase 11, 48309 Jõgeva alevik, Jõgevamaa 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. HOME ADDRESS Haagejärve 2, 61401 Tähtvere 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 Archaeology, University of Tartu (1999); Jakobi 2, 51014 Tartu ESTONIA, Tel: +372 737 5652, Fax: +372 737 5345, valter.lang@ut.ee. HOME ADDRESS Kuu 12A-2, 50114 Tartu ESTONIA, Tel: +372 5291 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. 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 Kärberi 41-43, 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.

**Endel LIPPMAA**, born 15.09.1930, elected 1972, chemical physics. Tallinn University of Technology 1953. Laboratory of Chemical Physics, National Institute of Chemical Physics and Biophysics (1980); Kohtu 6, 10130 Tallinn ESTONIA, Tel: +372 644 1304, elippmaa@nicpb.ee. HOME ADDRESS Sõbra 14, 10920 Tallinn ESTONIA, Tel: +372 677 7975. Married, two sons.

**Margus LOPP**, born 11.09.1949, elected 2011, chemistry. University of Tartu 1973. Professor of Organic Chemistry, Tallinn University of Technology (1997); Akadeemia tee 15, 12618 Tallinn ESTONIA, Tel: +372 620 2808, margus.lopp@ttu.ee. HOME ADDRESS Trummi 32S, 12617 Tallinn ESTONIA, Tel: +372 672 6034. Married, son and two daughters.

**Ülo LUMISTE**, born 30.06.1929, elected 1993, mathematics. University of Tartu 1952. Professor emeritus, University of Tartu (1996); J.Liivi 2-427, 50090 Tartu, ESTONIA, Tel: + 372 737 6419, ulo.lumiste@ut.ee. HOME ADDRESS Turu 19-28, 51004 Tartu ESTONIA, Tel: +372 734 4280, +372 515 1664. Married, two sons.

**Enn LUST**, born 22.10.1956, elected 2010, energy technology. University of Tartu 1980. Professor of Physical Chemistry (1997), Director, Institute of Chemistry (2008), University of Tartu; Ravila 14a, 50411 Tartu ESTONIA, Tel: +372 737 5165, Fax: +372 737 5264, enn.lust@ut.ee. HOME ADDRESS Leesika 8, 50304 Tartu ESTONIA. Married, two daughters and son.

**Tšeslav LUŠTŠIK**, born 15.02.1928, elected 1964, solid state physics. St. Petersburg State University 1951. Extraord. Senior Researcher, Institute of Physics at University of Tartu (2005); Riia 142, 51014 Tartu ESTONIA, Tel: +372 737 4784, Fax: +372 738 3033, luch@fi.tartu.ee. HOME ADDRESS Aardla 130-7, 50415 Tartu ESTONIA, Tel: +372 747 6608. Married, son.



**Udo MARGNA**, born 18.11.1934, elected 1987, plant physiology. University of Tartu 1957. Extraord. Lecturer, Pharmacy Department, Tallinn Health Care College (2008); Kännu 67, 13418 Tallinn ESTONIA, Tel: +372 671 1725, udo.margna@ttk.ee. HOME ADDRESS Instituudi tee 16-10, 76902 Harku alevik, Harjumaa ESTONIA, Tel: +372 656 0630. Married, two daughters.

**Jüri MARTIN**, born 29.09.1940, elected 1990, ecology. University of Tartu 1964. Rector, Euroacademy (1997); Mustamäe tee 4, 10621 Tallinn ESTONIA, Tel: +372 611 5804, Fax: +372 611 5811, jmartin@euroakadeemia.ee. HOME ADDRESS Liiva tee 2, Rohuneeme, Viimsi vald, 74012 Harjumaa ESTONIA, Tel: +372 503 1794. Married, three sons and daughter.

**Enn MELLIKOV**, born 1.04.1945, elected 2003, technology of materials. Tallinn University of Technology 1968. Director, Department of Material Science, Tallinn University of Technology (2002); Ehitajate tee 5, 19086 Tallinn ESTONIA, Tel: +372 620 2798, ennm@staff.ttu.ee. HOME ADDRESS Teaduse 10-15, Saku 75501 Harjumaa ESTONIA, Tel: +372 604 1076. Married, two sons.

**Andres METSPALU**, born 11.03.1951, elected 2010, biotechnology. University of Tartu 1976. Professor of Biotechnology, University of Tartu (1992), Director, Estonian Genome Center (2008); Riia 23b, 51010 Tartu ESTONIA, Tel: +372 737 5066, Fax: +372 744 0221, andres.metspalu@ut.ee. HOME ADDRESS Kalevi 65, 50103 Tartu ESTONIA, Tel: +372 734 3256. Married, four sons.

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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 Pallase 6, 51011 Tartu ESTONIA, Tel: +372 5345 7189. Married, 3 daughters.

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**Eve OJA**, born 10.10.1948, elected 2010, mathematics. University of Tartu 1972. Professor of Functional Analysis, University of Tartu (1992); J.Liivi 2, 50409 Tartu ESTONIA, Tel: +372 737 6407, Fax: +372 737 5863, eve.oja@ut.ee. HOME ADDRESS Ropka 19-25, 50111 Tartu ESTONIA, Tel: +372 747 0795. Married, son.

**Arvo OTS**, born 26.06.1931, elected 1983, power engineering. Tallinn University of Technology 1955. Extraord. Senior Researcher, Tallinn University of Technology (2003); Kopli 116, 11712 Tallinn ESTONIA, Tel: +372 620 3904, +372 620 3900, Fax: +372 620 3901, aots@sti.ttu.ee. HOME ADDRESS Metsa 62B, 11620 Tallinn ESTONIA, Tel: +372 657 6034, +372 501 2217. Married, son and daughter.

**Karl PAJUSALU**, born 20.06.1963, elected 2011, linguistics. University of Tartu 1986. Professor of Estonian Dialectology and History of the Estonian Language, University of Tartu (2000); Jakobi 2-425, 51014 Tartu ESTONIA, Tel: +372 737 6124, karl.pajusalu@ut.ee. HOME ADDRESS Nooruse 54, 50411 Tartu ESTONIA, Tel: +372 526 7733. Married, two sons and daughter.

**Arvo PÄRT**, born 11.09.1935, elected 2011, music. Estonian Academy of Music and Theatre 1963. Freelance composer in Estonia (2005); International Arvo Pärt Centre, Aliina, Laulasmaa 76702 Keila vald, Harjumaa ESTONIA, Tel: +372 604 0470, larefa@paert.com. Married two sons and two daughters.

**Martti RAIDAL**, born 26.02.1968, elected 2011, exact sciences. University of Helsinki 1995. Research Professor, Estonian Academy of Sciences (2009); Rävala 10, 10143 Tallinn ESTONIA, Tel: +372 645 4711, Fax: +372 644 0640, martti.raidal@cern.ch. HOME ADDRESS Vene 10-3A, 10123 Tallinn ESTONIA. Married, two sons.

**Anto RAUKAS**, born 17.02.1935, elected 1977, geology. University of Tartu 1958. Senior Researcher, Institute of Ecology, Tallinn University (2010); Uus Sadama 5, 10120 Tallinn ESTONIA, Tel: +372 619 9833, Fax: +372 619 9801, anto.raukas@mail.ee. HOME ADDRESS Trummi 32N, 12617 Tallinn ESTONIA, Tel: +372 672 6031. Married, two daughters.

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**Hando RUNNEL**, born 24.11.1938, elected 2012, literature. Freelance writer (1971); katre@ilmamaa.ee. Married, five sons and daughter.

**Huno RÄTSEP**, born 28.12.1927, elected 1981, Estonian language. University of Tartu 1951. Professor emeritus, University of Tartu (1994). HOME ADDRESS Uus 36-74, 50603 Tartu ESTONIA, Tel: +372 742 3974, hunoratsep@gmail.com. Married, son and daughter.

**Enn SAAR**, born 04.03.1944, elected 2010, astronomy. University of Tartu 1967. Leading Researcher, Tartu Observatory (2012); Observatooriumi 1, Tõravere, 61602 Tartumaa ESTONIA, Tel: +372 5344 0899, enn.saar@to.ee. HOME ADDRESS Tiigi 2-2, Tõravere, 61602 Tartumaa ESTONIA, Tel: +372 741 0462. Widower, daughter.

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**Karl SIILIVASK**, born 20.01.1927, elected 1977, history. University of Tartu 1951. HOME ADDRESS Näituse 22-13, 50407 Tartu ESTONIA, Tel: +372 5802 7190. Married, son.

**Tarmo SOOMERE**, born 11.10.1957, elected 2007, engineering and information technology. Moscow State University 1980. Professor of Coastal Engineering (2005), Leading Research Scientist (2005), Head, Wave Engineer-

ing Laboratory (2009), Institute of Cybernetics, Tallinn University of Technology; Akadeemia tee 21, 12618 Tallinn ESTONIA, Tel: +372 620 4176, Fax +372 620 4151, soomere@cs.ioc.ee. HOME ADDRESS Trummi 30g, 12617 Tallinn ESTONIA, Tel: +372 502 8921. Cohabitant, two sons.

**Martin ZOBEL**, born 25.02.1957, elected 2010, ecology. University of Tartu 1980. Professor of Plant Ecology, University of Tartu (1992); Lai 40, 51005 Tartu ESTONIA, Tel: +372 737 6223, Fax: +372 737 6222, martin.zobel@ut.ee. HOME ADDRESS Vikerkaare 36, 51006 Tartu ESTONIA. Cohabitant, son and three daughters.

**Tõnu-Andrus TANNBERG**, born 22.09.1961, elected 2012, history. University of Tartu 1986. Professor of Estonian Recent History, University of Tartu (2013); Lossi 3, 51003 Tartu ESTONIA, Tel: +372 737 5650, Fax: +372 737 5345, tonu-andrus.tannberg@ut.ee. HOME ADDRESS Pikk 90-9, 50606 Tartu ESTONIA, Tel: +372 748 1288. Married, son and two daughters.

**Hans-Voldemar TRASS**, born 2.05.1928, elected 1975, botany and ecology. University of Tartu 1952. Professor emeritus, University of Tartu (1994); Lai 38, 51005 Tartu ESTONIA, Tel/Fax: +372 737 6222. HOME ADDRESS Riia 13-39, 51010 Tartu ESTONIA, Tel: +372 742 0481, +372 529 6835, hans.trass@mail.ee. Married, son and daughter.

**Peeter TULVISTE**, born 28.10.1945, elected 1994, humanities and social sciences. Moscow State University 1969. Professor of Cultural Psychology, University of Tartu (1992); Näituse 2, 50409 Tartu ESTONIA, Tel: +372 503 3659, Fax: +372 737 6152, peeter.tulviste@ut.ee. HOME ADDRESS Sihi 25, 50411 Tartu ESTONIA, Tel: +372 730 4706. Married, son and daughter.

**Enn TÕUGU**, born 20.05.1935, elected 1981, informatics. Tallinn University of Technology 1958. Lead. Researcher, Institute of Cybernetics at Tallinn University of Technology (2005); Akadeemia tee 21, 12618 Tallinn ESTONIA, Tel: +372 620 4212, tyugu@ieee.org. HOME ADDRESS Lossi 18/Soone 3-18, 12616 Tallinn, ESTONIA, Tel: +372 672 6526. Married, son and two daughters.

**Raimund-Johannes UBAR**, born 16.12.1941, elected 1993, computer science. Tallinn University of Technology 1966. Professor of Computer Engineering and Diagnostics, Tallinn University of Technology (2005), Akadeemia tee 15a, 12618 Tallinn ESTONIA, Tel: +372 620 2252, Fax: +372 620 2253, raiub@pld.ttu.ee. HOME ADDRESS Õismäe tee 45-77, 13514 Tallinn ESTONIA, Tel: +372 657 4732. Married, daughter.

**Raivo UIBO**, born 21.12.1948, elected 2003, medicine. University of Tartu 1973. Professor of Immunology, University of Tartu (1992); Ravila 19, 51014 Tartu ESTONIA, Tel: +372 737 4231, Fax: +372 737 4232, raivo.uibo@ut.ee. HOME ADDRESS Taara pst 28, 51006 Tartu ESTONIA, Tel: +372 742 1150. Married, two daughters.

**Jaan UNDUSK**, born 14.11.1958, elected 2007, humanities. University of Tartu 1982. Director, Under and Tuglas Literature Centre, Estonian Academy of Sciences (2000); Roosikrantsi 6, 10119 Tallinn ESTONIA, Tel: +372 644 3147, Fax: +372 644 0177, jaan@utkk.ee. HOME ADDRESS Lätte 5-10, 10116 Tallinn ESTONIA, Tel: +372 644 7565. Married, three daughters and son.

**Mart USTAV**, born 16.07.1949, elected 2001, biomedicine. University of Tartu 1972. Vice President, Estonian Academy of Sciences (2009); Kohtu 6, 10130 Tallinn ESTONIA, Tel: +372 645 2528, Fax: +372 645 1805, mart.ustav@ut.ee. HOME ADDRESS Jaama 58A, 50604 Tartu ESTONIA, Tel: +372 740 3312. Married, son and three daughters.

**Tarmo UUSTALU**, born 19.01.1969, elected 2010, computer science. Tallinn University of Technology 1992. Lead. Researcher, Institute of Cybernetics, Tallinn University of Technology (2009); Akadeemia tee 21, 12618 Tallinn ESTONIA, Tel: +372 620 4250, Fax: +372 620 4151, tarmo@cs.ioc.ee. HOME ADDRESS Kalda 60A-5, 10922 Tallinn ESTONIA, Tel: +372 672 1215. Married, son and two daughters.

**Gennadi VAINIKKO**, born 31.05.1938, elected 1986, mathematics. University of Tartu 1961. Professor emeritus, University of Tartu (2006); J.Liivi 2, 50409 Tartu ESTONIA, Tel: +372 737 5490, gennadi.vainikko@ut.ee. HOME ADDRESS Kivi 23-19, 51009 Tartu ESTONIA, Tel: +372 510 7101. Widower, two sons and daughter.

**Urmas VARBLANE**, born 20.07.1961, elected 2009, economics. University of Tartu 1984. Professor of International Business and Innovation, University of Tartu (2001); Narva mnt 4, 51009 Tartu ESTONIA, Tel: +372 737 6361, Fax: +372 737 6327, urmas.varblane@ut.ee. HOME ADDRESS A. Starkopfi 11-6, 51011 Tartu ESTONIA, Tel: +372 733 1006. Married, son and two daughters.

**Eero VASAR**, born 17.09.1954, elected 2010, medical science. University of Tartu 1979. Head, Department of Physiology (1991), Professor of Physiology (1992), University of Tartu; Ravila 19, 50411 Tartu ESTONIA, Tel: +372 737 4331, Fax: +372 737 4332, eero.vasar@ut.ee. HOME ADDRESS Hurda 27, 51005 Tartu ESTONIA. Married, four sons.

**Mihkel VEIDERMA**, born 27.12.1929, elected 1975, inorganic chemistry. Tallinn University of Technology 1953. Professor emeritus, Tallinn University of Technology (1997). HOME ADDRESS Jääraku 54, 12015 Tallinn ESTONIA, Tel: +372 623 8757, mihkel.veiderma@akadeemia.ee. Married, three daughters.

**Richard VILLEMS**, born 28.11.1944, elected 1987, biophysics. University of Tartu 1968. President, Estonian Academy of Sciences (2004); Kohtu 6, 10130 Tallinn ESTONIA, Tel: +372 644 2129, Fax: +372 645 1805, richard.villems@akadeemia.ee. HOME ADDRESS Pallase pst 126-3, 51013 Tartu ESTONIA. Married, son and daughter.

**Jaak VILO**, born 14.11.1966, elected 2012, informatics. University of Tartu 1991. Professor of Bioinformatics, University of Tartu (2007); J.Liivi 2, 50409 Tartu ESTONIA, Tel: +372 737 5483, Fax: +372 737 5468, jaak.vilo@ut.ee. HOME ADDRESS Kalevi 4-26, 50409 Tartu ESTONIA. Married, son and two daughters.

**Haldur ÕIM**, born 22.01.1942, elected 1994, humanities and social sciences. University of Tartu 1965. Professor emeritus, Extraord. Senior Researcher, University of Tartu (2007); J.Liivi 2, 50409 Tartu ESTONIA, Tel: +372 737 6143, Tel/Fax: +372 737 5224, haldur.oim@ut.ee. HOME ADDRESS Hiie 12, 51006 Tartu ESTONIA, Tel: +372 742 2272. Married, son and two daughters.

**Andres ÕPIK**, born 4.05.1947, elected 2013, engineering. Tallinn University of Technology 1970. Dean, Faculty of Chemical and Materials Technology (1991), Professor of Physical Chemistry (1992), Tallinn University of Technology; Ehitajate tee 5, 19086 Tallinn ESTONIA, Tel: +372 620 2795, Fax: +372 620 2796, andres.opik@ttu.ee. HOME ADDRESS Trummi 21-8, 12617 Tallinn ESTONIA, Tel: +372 511 6538. Married, 2 daughters.

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**Steven Richard BISHOP** (UK), born 18.10.1955, elected 2012, nonlinear dynamics. Professor of Nonlinear Dynamics, University College London (1984). Gower Street, London WC1E 6BT, UNITED KINGDOM, Tel: +44 207 679 3082, s.bishop@ucl.ac.uk.

**Richard R. ERNST** (Switzerland), born 14.08.1933, elected 2002, physical chemistry. Professor emeritus, Swiss Federal Institute of Technology, Zürich (1998). Laboratory of Physical Chemistry, ETH-Hönggerberg HCI, CH-8093 Zürich, Switzerland, Tel: +41 44 632 4368, Fax: +41 44 632 1257, ernst@nmr.phys.chem.ethz.ch. HOME ADDRESS Kurlistrasse 24, CH-8404 Winterthur, SWITZERLAND, Tel: +41 52 242 7807. Married, son and two daughters.

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**Charles Gabriel KURLAND** (USA/Sweden), born 14.01.1936, elected 1991, biochemistry. Professor emeritus, Uppsala University (2001), kurland@tele2.se. HOME ADDRESS Munkarpsv. 21, SE-24332 Höör, SWEDEN, Tel: +46 41 322 856. Married, three daughters.

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**Gérard A. MAUGIN** (France), born 02.12.1944, elected 2002, mechanics. Director of Research at French National Centre for Scientific Research (1979); Head, Institute Jean Le Rond d'Alembert (Mechanics, Acoustics, Energetics), University of Pierre and Marie Curie (2007). Institut Jean Le Rond d'Alembert, Université Pierre et Marie Curie, Tour 65-55, 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 6 Allée des Feuillantines, F-94800 Villejuif, FRANCE, Tel: +33 1 4958 2049. Married.

**Grigori MINTS** (USA), born 7.06.1939, elected 2008, computer science. Professor, Stanford University (1991). Department of Philosophy, Building 90, Stanford University, Stanford, CA 94305-2155, USA, Tel: +1 650 723 2964, Fax: +1 650 723 0985, gmints@stanford.edu. HOME ADDRESS 1045 McGregor Way, Palo Alto, CA 94306, USA, Tel: +1 650 493 7181. Married, daughter.

**Els OKSAAR** (Germany), born 1.10.1926, elected 1998, linguistics. Professor, University of Hamburg (1967); Institut für Allgemeine und Angewandte Sprachwissenschaft, Universität Hamburg, Bogenalle 11, D-20144, Hamburg GERMANY, Tel: +49 40 428 384 761, Fax: +49 40 428 383 595, HOME ADDRESS Parkberg 20, D-22397 Hamburg, GERMANY, Tel: +49 40 607 0803, Fax: +49 40 607 1795, oksaar@oksaar.com. Married, son.

**Jaak PEETRE** (Sweden), born 29.07.1935, elected 2008, mathematics. Professor emeritus, University of Lund (2000). Widower, cohabitant, two sons and daughter.

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**Matti SAARNISTO** (Finland), born 11.11.1942, elected 2008, geology. Member, Finnish Academy of Science and Letters (1995). HOME ADDRESS Mikonkatu 22 D 46, FI-00100 Helsinki, FINLAND, Tel: +358 400 209 351, matti.saarnisto@saunalahti.fi. Married, son and daughter.

**Helmut SCHWARZ** (Germany), born 06.08.1943, elected 2002, chemistry. President, Humboldt Foundation (2008); Professor, Technical University of Berlin (1978). Institut für Chemie, Sekr. C 4, Technische Universität Berlin, Strasse des 17. Juni 135, D-10623 Berlin, GERMANY, Tel: +49 30 3142 3483, Fax: +49 30 3142 1102, helmut.schwarz@mail.chem.tu-berlin.de. HOME ADDRESS Patschkauer Weg 15, D-14195 Berlin, GERMANY, Tel: +49 30 832 5246. Married, son.

**Jānis STRADIŅŠ** (Latvia), born 10.12.1933, elected 1998, physical chemistry and history of science. Chairman of Senate (2004), Latvian Academy of Sciences. Akadēmijas laukums 1, LV-1050 Riga, LATVIA, Tel: +371 67 213 663, Fax: +371 67 821 153, stradins@lza.lv. HOME ADDRESS K.Valdemara 99-7, Riga LV-1013 LATVIA. Married, two sons.

**Päiviö TOMMILA** (Finland), born 4.08.1931, elected 1991, history. Professor emeritus, University of Helsinki (1994), Fellow of the Academy of Finland (2004). HOME ADDRESS Kylätie 8 A, FI-02700 Kauniainen, FINLAND, Tel/Fax: +358 9 505 1523, paivio.tommila@aka.fi. Married, three sons and two daughters.

**Alar TOOMRE** (USA), born 05.02.1937, elected 2012, applied mathematics. Professor emeritus, Massachusetts Institute of Technology (2010). HOME ADDRESS 55 Hillside Avenue, West Newton MA 02465, USA, Tel: +1 617 969 9596, toomre@math.mit.edu. Married, two sons and daughter.

**Endel TULVING** (Canada), born 26.05.1927, elected 2002, psychology. Professor emeritus, University of Toronto (1992). HOME ADDRESS 45 Baby Point Crescent, Toronto, Ontario M6S 2B7, CANADA, Tel: +1 416 762 3736, tulving@psych.utoronto.ca. Widower, two daughters.



## ESTONIAN ACADEMY PUBLISHERS

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Established in 1994  
Address: Kohtu 6, 10130 Tallinn, ESTONIA  
www.kirj.ee or www.eap.ee  
Director: Ülo Niine, Tel: +372 645 4504,  
Fax +372 646 6026, niine@kirj.ee



Estonian Academy Publishers continued in 2013 regularly issuing nine scientific journals, peer-reviewed and indexed and abstracted in international review publications and databases.

The Publishers' main mission has been to maintain a high standard as regards the contents of journals, their typographic performance, timely release and electronic version of all journals, besides paper copy.

In 2013 the journals were issued in the following volume:

Title	Number of issues per year	Total volume in printed sheet
Acta Historica Tallinnensia	1	184
Estonian Journal of Archaeology	2	156
Estonian Journal of Earth Sciences	4	244
Estonian Journal of Ecology	4	294
Estonian Journal of Engineering	4	338
Linguistica Uralica	4	320
Oil Shale	5	564
Proceedings of the Estonian Academy of Sciences	4	284
Trames	4	448
Total	32	2832

Journals are internationally peer-reviewed and have international editorial boards. Seven journals belong to category 1.1 and two journals to category 1.2.

Information on journals is electronically available at website of the Estonian Academy Publishers, starting from 2006, the website of the Publishers offers free access to full texts of all articles of all journals. Full texts of journals are available in well known electronic publishers: 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.), Join CNKI Scholar (China). The majority of journals are reviewed in Elsevier BV Bibliographic Database (SCOPUS®).

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.

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. Such availability of full text in multiple places creates better opportunities for review of articles, increasing readership and rate of citation.

The articles published in journals are reflected in scores of international review journals, scientific websites and databases. In what follows are some of the most authoritative, we will highlight them one more time, because the Publishers keep receiving relevant questions.

As of 2013, 6 journals among them are reflected in the ISI Web of Science databases:

- Acta Historica Tallinnensia
- Estonian Journal of Archaeology
- Estonian Journal of Earth Sciences
- Proceedings of the Estonian Academy of Sciences
- Oil Shale (incl. Current Contents®)
- 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

Eight journals are in Elsevier BV Bibliographic Database (SCOPUS®) highly appraised in Europe:

- Acta Historica Tallinnensia
- Estonian Journal of Archaeology
- Estonian Journal of Earth Sciences
- Estonian Journal of Ecology
- Linguistica Uralica
- Oil Shale
- Proceedings of the Estonian Academy of Sciences
- Trames. A Journal of the Humanities and Social Sciences

Although the journal Estonian Journal of Engineering is not in the SCOPUS list, SCOPUS features its articles.

In 2013 as usual several special issues of journal were released. 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 Ecology 61/1: Selected papers of the International Scientific Conference “Humus forms and biologically active compounds as indicators of pedodiversity”, 27-28 August 2012, Tartu, Estonia. Guest editor Raimo Kõlli.
2. Estonian Journal of Engineering 19/1: Selected papers of the 8th International Conference of DAAAM Baltic 2012, Industrial Engineering. Guest editor Tauno Otto.
3. Estonian Journal of Earth Sciences 62/1: Selected papers of the Seventh Workshop on Baltic Sea Ice Climate, Tallinn 2011. Guest editor Ants Erm.
4. Proceedings of the Estonian Academy of Sciences 62/1: Special issue – Selected papers of the 12th Symposium on Programming Languages and Software Tools, SPLST’11. Guest editor Jaan Penjam.
5. Oil Shale 30/2S Optimization of Power System Operation. Guest editor Heiki Tammoja.
6. *Trames. A Journal of the Humanities and Social Sciences* 17/4: Special issue “Higher education – higher level learning?”. Guest editors Jaan Kõrgeaar and Helen Jõesaar.

In 2013, in total 209 pieces of writing were released in 32 issues of nine journals, of them 181 scientific articles and 28 short pieces of writing (21 of them in the journal *Linguistica Uralica*). 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 530, of whom 275 were Estonian authors and 255 foreign authors. The majority of articles appeared in English, except the journal *Linguistica Uralica*, featuring also articles in Russian and German.

Besides journals, there appeared, as commissioned, three more publications:

- “Hellar Grabbi bibliograafia” [Hellar Grabbi’s bibliography] by Anne Valmas (paperback, 130 pp.);
- “Loodusmälestised. [Natural heritage] Vol. 23. Harjumaa. Põhja-Kõrvemaa. Kuusalu, Anija, Aegviidu” (collection). Compiled by H. Kink and A. Miidel (paperback, 32 pp.);
- “Emakeele Seltsi aastaraamat” (The Yearbook of the Estonian Mother Tongue Society). Vol. 58 (hard cover, 360 pp.). Full texts of the book are also available electronically on the Publishers’ website.

In view of the means available and circumstances prevailing in 2013, the year can be considered successful.

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

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Established in 1993

(affiliate museum in Nõmme, the former Friedebert Tuglas Museum,  
established in 1971)

Personnel: 17, including 12 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, Tel: +372 644 3147, [merlin@utkk.ee](mailto:merlin@utkk.ee)

Head of the Museum Department: Eha Rand (until 18.12.2013)

Lea Eermann (since 19.12.2013) Tel: +372 672 2847

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, post-colonial 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 12 regular researchers. In December 2013, Eha Rand left the Literature Centre. She had headed the Museum Department since 2002. Lea Eermann has been Head of the Museum Department since that time. The research staff replenished too: since December Martin Klöker has been senior researcher of the Literature Centre. His domain of research includes the literary life of the Baltic area in the early modern age, focusing on Reiner Brockmann's theory of poetry, the impact of Protestantism on

literature, and the correspondence of the 17th C. as manifestation of personal life.

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. 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, 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 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 creation of identity of the Estonian written culture (spontaneous and transfer of culture),
- Baltic literary space and Estonian-Latvian literary relations,
- Rhetorico-narratological models for description of European and Estonian culture,
- Drama and theatre research.

Since 2008, Literature Centre fulfilled the targeted financed research project "Autogenesis and Transfer: The Development of Modern Culture in Estonia" (2008-2013, project leader Jaan Undusk), which was completed in 2013. The Centre was continually closely connected with the national programme "The Estonian language and cultural memory", in the frame of which Liina Lukas led the project "History of the Baltic written culture", and Elle-Mari Talivee the project "Intellectual heritage of Friedebert Tuglas, Marie Under and Artur Adson" both of which also ended in 2013. Since January 2014 the Literature Centre has been fulfilling the institutional research topic "Entangled literatures: discursive history of literary culture of Estonia" (2014-2019, project leader J.Undusk), the thorough preparations of which fell into 2013.

In 2013 the Literature Centre published three books. Released in March was the 12th volume of Friedebert Tuglas' "Collected Works", containing two monographic treatments by Tuglas of Juhan Liiv. The book, with the foreword

and concluding remarks by J.Undusk and Jüri Talvet, features copious photographic matter and Märt Laarman's woodcuts, with an extract from family tree of J.Liiv added as an insert. The work is also made special by the fact that for the first time after its original publication in 1914, the early research by Tuglas of Liiv has been released as facsimile printed matter. The Literature Centre also published the second part of the series "Seminar on modern Estonian literature" titled "Love and sociology. A.H.Tammsaare's novel "I loved a German"". This collection bases on papers of the seminar held by the Literature Centre, focusing on the said novel. The text "I loved a German" is analysed among others by Mirjam Hinrikus, Piret Kruuspere, L.Lukas, Ulrike Plath, J.Undusk and Rein Undusk. The collection was edited by M.Hinrikus and J.Undusk. Released in November was the catalogue of exposition composed by E.Rand "Nocturnal hour. Estonian art from the collection of Paul Reets". Completed for print was the collective monograph edited by R.Undusk "Autogenesis and Transfer: The Development of Modern Culture in Estonia", consolidating the most important articles by researchers of the Literature Centre during the targeted financed research project of the period 2008-2013, then ended.

In 2013, the team of ETF grant "Historical novel as Medium of Cultural Memory" (2011-2013) supervised by Eneken Laanes completed successfully its work. Its task was to study and write the history of the genre of the historical novel in Estonian literature. Researchers considered the historical novel as a medium of cultural memory and bestowed a glance also at the poetics of the historical novel. Involved in the work of the grant team, besides researchers of the Literature Centre (E.Laanes, J.Undusk, Aare Pilv) were also researchers of the Estonian Literary Museum and Tallinn University (Linda Kaljundi). To consummate the research project, a special issue of the journal "Language and Literature" was released in summer 2013 titled "Historical Novel and Cultural Memory", edited jointly by the grant holder E.Laanes and L.Kaljundi.

Since 2012 U.Plath has held the ETF 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. Literature Centre and U.Plath in particular have also made a contribution to establishment of the Estonian Centre of Environmental History and in the development of its work (jointly with Tallinn University). In 2013, several texts were published as synopses of U.Plath's grant topic, among

others the article “Baltische Nahrungsgeschichte. Forschungsbericht”, released in the journal “Nordost-Archiv”.

In 2013, Under and Tuglas Literature Centre organised several international conferences.

March 25-26 – within the framework of grant “History of Baltic Food Culture” the conference “From Instants to Eons: Time in Environment and Environmental History” (U.Plath) was organised jointly with Tallinn University and Estonian Environmental Research Centre (KAJAK). Speakers were from Japan, Denmark, Sweden and Germany.

April 18-19 – under the aegis of the same grant a conference was held in Marburg, entitled “Knowledge about Resources. Challenges of the Exploration and Exploitation of Resources in East Central Europe in the 19th and 20th Centuries” (U.Plath). Besides the Literature Centre, Marburg Herder-Institute, the Munich Collegium Carolinum and KAJAK were also active.

September 11-12 – the seventh international symposium on Baltic German literary culture was held in Tartu jointly with the University of Tartu, on the topic “Geschichte der baltischen Schriftkultur. Diskurse und Genres” (L.Lukas, U.Plath, J.Undusk). Attending were 25 authors of the voluminous Baltic older literary history coming from Estonia, Latvia and Germany. The participants heard and discussed the summaries of research results achieved in the area of literature in history, religion, economics, language and law and in all genres of fiction.

December 9-10 – in cooperation with Tallinn University, there was held the international conference “Ways of Experiencing Modernity in Estonian and Finnish Literature and Culture at the Beginning of 20th Century: Similarities and Differences”. Conference was organised by M.Hinrikus (Literature Centre) and Ave Mattheus (Tallinn University). From Literature Centre, papers were delivered by M.Hinrikus and J.Undusk. The paper by M.Hinrikus delved in construction of A.H.Tammsaare’s “Varjundid” (“Shapes of Shadows”) from the decadence perspective, while J.Undusk focused on Erik Obermann and the new aesthetics of life. Several renowned Finnish researchers of modernity were speaking amongst others.

October 18-19 – E.Laanes was the moderator of the international intensive seminar of Doctor School of Cultural Studies and Arts “Holocaust Memory and the Soviet Past: Transitional Remembering in Post-Soviet Eastern Europe”.

September 27-28 – L.Lukas, U.Plath and J.Undusk participated at intensive seminar of Doctor School of the Estonian Academy of Arts “Debating German Heritage: Art History and Nationalism during Long 19th Century”.

Several seminars of local importance were also held. Among others on March 27 from the series “Siuru spring”, titled “Marie Under 130” (E.-M.Talivee). Delivering papers, among others were E.-M.Talivee and Ö.Kepp. Upon

initiatives of E.-M.Talivee, on June 20 several doctoral students gathered in the Museum Department of the Literature Centre, in order to debate on digital research in literature. The conference “Gender studies in Estonia: current situation and developments” held on 3-4 October at the Literary Museum and was co-organised by the senior researcher of the Literature Centre M.Hinrikus. The conference of 22 October titled “Child in literature”, organised by the Literature Centre jointly with Estonian Centre of Children Literature focused on presentation of child in texts of fiction. The moderator from the Literature Centre was E.-M.Talivee, interpreting the image of child in Marie Under’s poetry.

In 2013 regular theoretical seminars by researchers of Literature Centre continued in Roosikrantsi House, the Museum Department and elsewhere. U.Plath carried out the seminar “Libertinism in Baltic literature i.e. eroticism of the Enlightenment period” (25.01). Aija Sakova-Merivee spoke on the topic “Moral credo and belle-lettres” (4.04), Anneli Mihkelev’s seminar topic was “Intertextuality and modernism in the poetry by Gustav Suits” (22.05). P.Kruuspere’s paper during the presentation of the collection of the Literature Centre “Love and sociology” in untraditional atmosphere – in Tallinn City Theatre – focused on theatrical interpretations of the novel by Tammsaare “I loved a German” (1935) (27.05). The closing seminar of 2013 on the topic “Summing up. The fifth lecture on infinity” was moderated by R.Undusk (28.11).

Traditional public lectures continued in the Museum Department: on February 4 Artur Adson’s anniversary was celebrated with the morning of dialectal poetry with Lauri Sommer speaking. At the traditional summer seminar on June 19 the present Head of Museum Department L.Eermann spoke about flower names in M.Under’s works.

April 8 – Carl Gustav Jochmann Society from Heidelberg was visiting Tallinn. Due to that an evening meeting and conference was organised in Tallinn City Archives (in cooperation with the Baltic German Culture Society).

October 17-November 5 – the Independence Gallery had on display the exposition presenting the newest part of arts collection of the Literature Centre “Nocturnal hour. Estonian art from the collection of Paul Reets”. The exposition was compiled and curated by arts researcher Jüri Hain. The exposition presented 40 works. The catalogue of the exposition was compiled by E.Rand and designed by Tiiu Pirsko. It contains high quality reproductions from all works on display, supported by a deep research of J.Hain into their cultural history background and articles by J.Undusk and Sandra Claudia Täht, the research assistant of Literature Centre, studying at Mainz University.

In 2013 researchers of Literature Centre delivered 57 scientific papers, of which 40 at international scientific events. Among them were conferences



“City Peripheries/ Peripheral Cities” in Helsinki, “Protestantismus in den baltischen Ländern. Konfessionen, Ethnien und Politik vom 16. Jahrhundert bis 1918” in Tübingen, “Time and Temporality in European Modernism and the Avant-Gardes (1900-1950)” in Leuven, Schleswig-Holstein literature days in Kiel, Lütjenburg and Eutin, “August von Kotzebue in Tallinn/Reval und in Berlin” in Tallinn, The Conference on Baltic Studies in Europe (CBSE) in Tallinn, “Germanistik aus Perspektiven der Ökonomie/Politik sowie Deutschbaltische Literatur. Internationale Germanistiktagung” in Pusan (South Korea), “De la Courlande à Munich: Eduard Graf von Keyserling, narrateur et essayiste” in Paris and “Rūdolfs Blaumanis und die europäische Kulturrevolution der Jahrhundertwende Prosa, Drama und Theater in Text und Kontext” in Riga. Starting from August, senior researcher E.Laanes sojourned at a long scientific mission in the USA, Yale University, fulfilling the research topic “Multidirectional Art of Memory in Baltic Literature, Art and Film”.

In 2013 researchers of Literature Centre authored 10 scientific articles in foreign languages and 17 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, A.Mihkelev). J.Undusk acted as an opponent to Martin Carayol’s doctoral thesis on Finnish and Estonian novel canon in Paris at Institute of Oriental Languages and Cultures. 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, member of Prize Panel of National Science Prizes and member of National Students’ Papers Prize Panel and also member of steering committee of national programme “The Estonian language and cultural memory”. The Centre participates in the work of several panels of works of fiction (F.Tuglas’ novel prize, Jaan Kross’ literature prize).

The Museum Department of the Literature Centre organised in cooperation with O.Luts’ House-Museum a joint exposition “Marie Under 130”, compiled by Liivi Rosenvald and E.-M.Talivee. The exposition moved on to Estonian Literary Museum and Nõmme Museum. Part of the exposition is on display in the foyer of Tallinn Central Library and the Siuru house in Tallinn, Pikk St 34. The Museum Department also prepared the exposition of photographs dedicated to M.Under, the curator of which was Tio Tepandi. The exposition was open from 27 March-30 April at Toompea in the building of Riigikogu. Thereafter the exposition moved on to Hiiumaa Museum at Kassari and to Tartu, the Vanemuise theatre.

E.-M.Talivee carried out series of lectures in the Museum Department the entitled "On life of M.Under, A.Adson and the Tuglases at Nõmme. Literary and cultural historical background." In the course of excursions the Museum was visited by 1090 people, service was provided to 217 researchers, who used 3 017 archival holdings. Expositions and seminars held outside the Museum Department were visited by 1 830 people. The theatre "Varius" staged in the Museum Department a play "Under the bare sky", topically focussing on the life of Under and Adson in 1943-1944. Lectures and plays were visited altogether by 1196 people.

In 2013 817 archival holdings were added into the database MuIS, altogether the data of 17 382 books and 1 289 works of art. Digi-database numbers the total of 18 718 units. In 2013 the Museum Department obtained through agency of Peeter and Ene Reštšinski, as donation the oil painting by Arville Puströmi-Uusi "Põhjarannik" (Nordic coast). The work was donated by the author of the painting.

With the help of Archimedes Foundation programme "Modernisation of research apparatus and equipment" the conditions of preserving the collections of the Museum Department were improved – there were installed and launched air conditioners, a hot steam moisturiser with heating elements, a drier of air and the transition air system. As a result of modernisation of the heating system, the conditions of preservation of archival holdings of the Museum Department improved considerably, and the repositories have less air humidity. Temperature of the work premises is therefore stabilised.

## FINANCIAL ACTIVITIES

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The budget of the Estonian Academy of Sciences for 2013  
and its execution (EUR)

### INCOME

ALLOCATIONS TO THE ACADEMY OF SCIENCES FROM THE STATE BUDGET	1 270 284
OTHER REVENUE	377 161
ALLOCATIONS TO UNDER AND TUGLAS LITERATURE CENTRE	284 546
<b>TOTAL INCOME</b>	<b>1 931 991</b>

### EXPENDITURES

#### GENERAL BREAKDOWN

Main activities of the Academy (through Academy Office)	567 015
Estonian Academy Publishers	263 954
Allowances to Members of Academy	293 090
Allowances to Research Professors	100 662
Prizes, scholarships and medals	7 182
Scholarly societies	70 250
Incl. Estonian Naturalists' Society	26 800
Mother Tongue Society	6 700
Estonian Geographical Society	5 800
Society of Estonian Areal Studies	5 100
Estonian Union of the Philosophy and History of Science	4 890
Estonian Literary Society	4 890
Learned Estonian Society	4 890
Estonian Musicological Society	4 890
Estonian Physical Society	4 890
Estonian Association of Engineers	1 400
Membership fees to international science organisations	41 350
Project 1*	251 922
Project 2**	20 237
National Science Prize Committee	20 451
Under and Tuglas Literature Centre	276 396

**TOTAL EXPENDITURES** 1 913 379

Allocations from EU Structural Funds:

- \* Project 1 – programme “Internationalisation of Research” initiative “Baltic Conference on Intellectual Cooperation (XIII BCIC)” aimed at implementation of the programme “Support to international cooperation”.
- \*\* Project 2 – “Building works for enhanced accessibility of the Academy premises and its compliance with fire safety requirements”.

## **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 2013 activities of the institutions associated with the Academy have been presented in the chronological order of their association date:

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Institute of Ecology at Tallinn University .....	130
Academic Library of Tallinn University .....	133
Institute of the Estonian Language .....	136
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Institute for International and Social Studies at Tallinn University. . .	145
Estonian National Museum .....	149
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## TARTU OBSERVATORY

Associated with the Estonian  
Academy of Sciences 8.05.1998



TARTU OBSERVATORY  
space research centre

Founded: 1808

Personnel: 104, of whom 61 researchers, 17 engineers and technicians  
engaged in research work

Address: Observatory 1, 61602 Tõravere, the Tartu County, ESTONIA,  
info@to.ee

www.to.ee

Director: Anu Reinart, Tel: +372 696 2505, Fax +372 696 2555,  
anu.reinart@to.ee

Head of Support Services Division: Tiia Lillemaa, Tel: +372 741 0261  
tiia.lillemaa@to.ee

In this year the name and performance of Tartu Observatory attained the heights never evidenced before and literally so! On 7 May, the first Estonian satellite was launched on the European Space Agency rocket Vega. Since that time it has been working at 660 km above Earth on its orbit. That consummated the nano-satellite development work carried out in an international team over five years, which also served as subject matter of students' graduation theses and scientific articles. Although the ESTCube-1 mission has not as yet completed and pending is testing of the component of electrical solar sail, we have kindled a sincere and positive interest of public to modern developments of space technology. Anchor of the team, Head of Space Technology Division of the Tartu Observatory Mart Noorma was awarded for his work the honorary title of Laureate of Education Prize of the President of the Republic and also several other tokens of recognition.

The renovated main building of the Tartu Observatory offers, besides work premises of researchers, much better opportunities to continue presentation of research directions and applications of astronomy and monitoring of Earth to school students within the hobby education and school programmes. A totally new area for us is the preparation of active study curricula, with which we desire to support the school teachers of natural sciences and physics and to motivate the youth to opt for modern subjects and research-engineering as their future profession. The new generation of space scientists will not crop up out of nowhere, and we will have to forcefully bring them up.

We also launched some organisational changes in the renovated house – the former Division of Atmospheric Physics was split into two new divisions. The Remote Sensing Division incorporates the vegetation cover sensing, water reservoirs sensing and atmospheric sensing teams. It is headed by leading

researcher Andres Kuusk. The Space Technology Division is headed by senior researcher Mart Noorma. Besides the development of nano-satellite technology, new challenges are probed for, to participate in the future space missions, by coupling scientific content and modern technology.

Cleanroom-laboratories of space technology and optics are open for cooperation with universities, in order to train young scientists and engineers. We also offer knowledge based services to enterprises. The equipment and apparatus of the latest generation we have are:

- Space technology laboratory climate chamber, vibration stand, measurement devices for regulation and control of electrical parameters of the apparatus developed;
- Satellite ground station – antennae system for communication, apparatus of reception and monitoring, top-precision system of generation and distribution of support frequency;
- Testing complex-thermo vacuum system of remote sensing apparatus, electro-magnetic disturbance free chamber. We have acquired the spectro-photometer a-Sphere for measurement of spectral absorption coefficient of liquids both in the laboratory and outdoor conditions in the depth of up to 100 m;
- For enhancing efficiency of astronomical observations, we acquired the archiving and processing system of observation data, we aluminium-clad the mirrors of the large telescope, we renovated the cupola and the construction of the telescope.

We have excellent prerequisites to realise our technological capacity, the more so because the laboratories are now headed by Riho Vendt, having recently defended the doctoral thesis “Combined method for establishment and dissemination of the international temperature scale” at the University of Tartu.

The research work continued, for the outgoing year now, supported by three target-financed topics:

- Dark energy, dark matter and formation of structure in the Universe (principal investigator E.Saar).
- Observational and theoretical investigation of stars and their envelopes during evolutionary phases (principal investigator T.Kipper).
- Quantitative remote sensing of vegetation covers (principal investigator A.Kuusk).

Published were 32 articles of ETIS category 1.1, and 14 more in other peer reviewed international journals or conference volumes.

The senior researcher Uno Veismann authored the book “On the threshold of space” and Member of Academy Jaan Einasto compiled the “Dark Matter and

Cosmic Web Story”. Jaan Einasto was elected Honorary Doctor of Turku University.

Altogether in progress in Observatory in 2013 were 4 ETF, 4 post-doctor and mobility grants, 9 international cooperation projects, 11 different research apparatus and infrastructure development subsidies, 2 initiatives within framework of programme of internationalisation of Estonian research, participation in 5 environment protection and technology R&D projects, 2 science popularisation subsidies, 1 Centre of Excellence in Research project, and additionally several smaller Estonian and foreign agreements.

A thorough overview of activity of the Tartu Observatory has appeared in Yearbook 2013 and also in the traditional Observatory calendar 2014.



## INSTITUTE OF ECOLOGY AT TALLINN UNIVERSITY

Associated with the Estonian Academy of Sciences  
16.06.1998



Founded 1992

Personnel: 33, of whom 25.25 researchers (estimate on the full-time basis)

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www.tlu.ee/eco

Director: Mihkel Kangur, Tel: +372 619 9800, Fax +372 619 9801

mihkel.kangur@tlu.ee

Scientific and Administrative Secretary: Ludmilla Krusta

Tel: +372 619 9829, milla.krusta@tlu.ee

In 2013, scientific research was carried out within the framework of 51 topics of different level and projects, incl. 5 Estonian Science Foundation grants (incl. 1 Mobilias grant) and 42 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 (leaders: M.-J.Gaillard, S.Mooney, and Shinya Sugita). June 2008-May 2023.
- COST Action ES0805: Terrestrial Biosphere in Earth System (TER-RABITES). 2009-2013
- 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. *Eesti Teadusagentuur/fin* programm PARROT, 2013-2014.
- JPI *Vesi/JPI WATER* (Joint Programming Initiatives). Ministry of Education and Research, 2013-2016.

The main research effort of the Institute was carried out within the framework of the following ETF grants, research topic leaders Tiiu Koff, Are Kont, Hannes Tõnisson and Angelika Portsmouth, and within the framework of Mobilias

top researcher project “Dynamic Landscape Analysis in Southern Estonia (DYLAN-Estonia): Spatial Dynamics of Vegetation and Land Cover through Time”, research topic leader Shinya Sugita.

Institute of Ecology participated in 2013 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).

In the reporting year, there was launched the Tallinn University research fund project “Elaboration of practices of environmental communication after the example of Kurtna MKA” (KURtna KESkkonnaKOMMunikatsioon – KUKK-KOMM), 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.

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 between Estonian universities with the University of Tartu, Tallinn University of Technology, Estonian University of Life Sciences, Tartu Observatory, 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 Institute of Ecology would be modernized, which 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 Haapasalu 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 how to adapt to environmental protection restrictions in North-East Estonia, and the problems of reclamation of different wetland types.

In December 2013 the Institute organised the international conference “Scientific cooperation on water”. The conference was organised within the framework of International Water Year, European Regional Development Foundation and Estonian national structural subsidy programme “Internationalisation of Research”.

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

36 scientific articles were published by the staff members of the Institute in 2013, incl. 21 in peer reviewed international issues. Besides that, 10 abstracts of conference, plus 5 popular science articles came out. 21 papers were delivered at international conferences and meetings, 11 papers at national events and 26 papers at scientific seminars of the Institute.

In 2013 the team of researchers of the Institute of Ecology were successful at applying for institutional research subsidy “Impact of environmental changes on coasts in the past, presently and in the future – ENCHANTED”.

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

## **ACADEMIC LIBRARY OF TALLINN UNIVERSITY**



Associated  
with the Estonian Academy of Sciences  
17.06.1998

Founded 1946  
Personnel: 126, 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: 50 207  
Number of copies in the circulating collection: 2 641 487

In 2013 Academic Library witnessed several institutional innovations: the building works started in 2012 were finalised, a Study Centre was opened and the Digitization Centre was put into operation. For better servicing of readers and for more expedient delivery of books from repositories, an elevator was installed to transport the holdings.

A modern Study Centre was opened in Tallinn University (TLÜ) campus at beginning of May. Its open access collection makes available social sciences, natural sciences and informatics textbooks, a selection of books in the Humanities, subject packages (obligatory and substitute literature of subjects of the institutes of TLÜ), TLÜ's master theses since 2005, reference books, specialist periodical issues and dailies.

The main task of the Study Centre is servicing the Tallinn University students and members of faculty. The Subject Information department also moved to the Study Centre, in order to be closer to the academic units of the University. For more professional and faster servicing of readers the computers of employees of the Study Centre and library of the Baltic Film and Media School were connected to a single library communication data net. Members of faculty and students were created an opportunity to reserve work premises in the Academic Library and Study Centre on the website.

Changes took place also in other affiliates of the Academic Library: the Confucius Institute transferred to Library the bulk of its collection, now located in the Study Centre; the holdings on philosophy of the Estonian Institute for the Humanities formed at the Academic Library the philosophy hall, replenished by new topical literature; the collection of Institute of Arts was merged with the Academic Library and Study Centre. In the Academic Library, the location of reference hall was changed, the Humanities hall was enlarged, the

lending room was given a facelift, and the repositories witnessed relocation of collections for faster servicing of readers.

The newly completed 6th floor of the Library hosted, together with the Digitization Centre also the information technology division. In 2013, a fully automatic books and periodical issues digitizing device was launched, altogether 25 597 titles were digitized, with the majority of them being newspapers; the total number of digitized pages was 274 809. In use presently are two machines, however in 2014 one more digitizing device is to be acquired. For digitizing of loose leaf newspapers, Rene Haljasmäe and Sander Jürisson worked out a unique binder.

On 1 November 2013, the Baltica and rare books division of the Library was merged with the restoration division and bears the name “The Baltica and old books conservation department”. A major success was recognition of the Baltica and rare books cultural-history collection as a scientific collection. In the reporting year the researcher Kaspar Kolk (the University of Tartu Library) unearthed from the Baltica collections a printed book fragment, the oldest of Estonian memory institutions known heretofore, by which the age of the Baltica collections was dated back to 1 457.

The old book centre launched two series of events in 2013 – “Researcher in the Baltica reading hall” and “Presentation the Baltica collections” – in the framework of which there are organised lectures, conferences and expositions. In February there was the lecture of researcher Kaarel Vanamölder “17th century newspaper, a source of history or recycling paper”; in April there was the day with papers dedicated to the 67th anniversary of the Academic Library “What was taught in the 19th century gymnasium?”. Speaking were also researchers of the Library Kaja Tiisel “Tartu provincial gymnasium library” and Katre Kaju “A couple of steps towards Parnassos. Poetry and elocution handbooks in Tartu provincial gymnasium library”. In October Kaspar Kolk presented the fragment of parchment printed matter found by him in the Baltica collections, the oldest preserved in Estonian collections, delivering a paper “Fragments of books printed on parchment in Estonian collections”. In November there was presentation of the Baltica collections and the calendar of 2014 with Katrin Kaugver’s paper “Ernst Wilhelm Drümpelmann’s true to life pictures of avifauna and wild-life of the Baltic countries”.

The Baltica and rare books division collections were replenished in the reporting year by several intriguing publications, acquired by purchases, notably August von Kotzebue’s “Theater von August v. Kotzebue” and “Die Verläumder: Ein Schauspiel in fünf Akten”, Hans-Christian Petersen’s “Bevölkerungsökonomie, Ostforschung, Politik: eine biographische Studie zu Peter-Heinz Seraphim”, John Hiden’s “Defender of minorities: Paul Schiemann”. Besides that, received as a gift from Jochmann Society were several com-

mented issues of Carl Gustav Jochmann's work, e.g. "Robespierre" of 2009 and "Zur Naturgeschichte des Adels" of 1982.

In the last week of academic year (20-23 May) the Academic Library held the Night Library – the Library was open to readers until midnight. The visitors of the Night Library numbered over five hundred, with the majority being students of the Tallinn University. Organisation of the Night Library was supported by Tallinn University Development Fund, and free-of-charge spring water was supplied to the readers by the company Eden Springs Estonia OÜ.

For presentation of the Library reading halls and e-catalogue ESTER, in March the Academic Library staged an adventurous game titled "Do not follow my steps, I have gone astray". The game was attended by a few dozen of people, for the best players the Library had put up prizes.

Estonian Expatriate Literature Centre was allocated from Ministry of Education and Research Compatriots Programme 13 000 euros to the project "Preservation and making available of cultural heritage of Estonians in exile". It enabled the Centre to reach the home-stretch in making available the newspaper Vaba Eesti Sõna (Free Estonian Word) in the portal Digitised Estonian Newspapers. Within framework of the project, the Library started putting in order and recording into database of ca. 10 000 scientific off-prints obtained from the Estonian Archives in Australia.

In 2013, there was published the "Hellar Grabbi's bibliography" compiled by Anne Valmas and edited by Aita Kraut. Hellar Grabbi's work ranges from politics to fiction, the bibliography contains 1083 entries.

In 2013, Estonian Librarians Association recognized the work of Head of Service Department Heli Sirotkin and Head of Information Technology Service Peeter Kondratjev with title The Award of the Year of the Academic Library in connection with implementation of the RFID system at Academic Library.

In the reporting year, the target group of training was extended from University students to students of gymnasium – the Library participated at German Gymnasium of Kadriorg in implementation of the subject "Basics of research work". A cooperation agreement was made, on the basis of which the students of gymnasium could use the Academic Library's assets.

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 NGO Consortium of Estonian Libraries ELNET.

## INSTITUTE OF THE ESTONIAN LANGUAGE

Associated with  
the Estonian Academy of Sciences  
11.05.1999



Founded 1947

Personnel: 78, of whom 18 researchers

Lexicographers, terminologists and language planners 32

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Director: Urmas Sutrop, Tel: +372 617 7500, Fax +372 617 7550

urmas.sutrop@eki.ee

Senior researcher, Academic Secretary: Hille Pajupuu, Tel: +372 617 7500

hille.pajupuu@eki.ee

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 2012 it fulfilled the target funded research topic “Word and concept in the development of Estonian vocabulary and place names” (2010-2014), supervised by PhD Urmas Sutrop. In the area of cultural vocabulary, the Department completed the research into Johannes Gutsclaff’s Bible translation and South Estonian literary language, it compiled the glossary of Gutsclaff’s Bible translation, and it continued research work for creating the historical concordance of the Estonian Bible translation ([www.eki.ee/piibel/](http://www.eki.ee/piibel/)). Within framework of the topic, the researchers were concerned with elucidation of etymology of cultural words and the roles of meaningful relations of loan words and the loan sources in the evolution of variability of dialects. The Department prepared for print Eduard Vääri’s Finno-Ugric cognate vocabulary. It also researched the history of Estonian pseudo-mythology and the names featuring therein, it considered the set-up of Agricola’s list (1551) and evolution of Estonian ancient pantheon. When studying the Estonian place names, focus was made on etymology. In the domain of colour names, the Estonian and Finnish colour verbs were treated from the aspect of conceptual semantics, comparatively studied were colour names of Chinese and the problem of red

analogical with Hungarian. Semiotic theory of research of colour names was applied to fairy tales. In cooperation with the Department of Finno-Ugric Languages and Dialects, the international conference was organised titled “Colour Language and Colour Categorization Conference (CLCC)”.

#### DEPARTMENT OF LANGUAGE TECHNOLOGY

In 2013 it fulfilled the target funded research topic “Modelling intermodal phenomena in Estonian” (2009-2014), supervised by Dr Meelis Mihkla. Pivotal that year were fundamental researches into information structure prosody, perception of emotions and lexical meaning of words in collocation associations. In the process of studies the researchers found out prosodic correlates and perception of various information structure categories (broad and narrow, informative and contrastive focus); they compared the use of prosodic and syntactic means of expression of the information structure. Under scrutiny was perception of emotionality of speech: it was established that moderately expressed emotions are well recognizable, however perception depends on language proficiency, culture and gender. To determine the written text type, methods of measurement of lexical density, lexical sophistication, lexical diversity and vocabulary range were tested. By reference to cognitive metaphor theory and embodiment hypothesis, the researchers studied semantics of expressions describing emotions and thought, and the twilight zone phenomena of morphology, lexis and semantics in word formation.

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/valence/](http://peeter.eki.ee:5000/valence/))

Interfaces for Speech Synthesis, project leader Meelis Mihkla (see [heli.eki.ee/syntees/](http://heli.eki.ee/syntees/))

Application Suite for voicing and broadcasting subtitles on television, project leader Meelis Mihkla

E-keelenõu (web linguistic consultation service) (see [kn.eki.ee](http://kn.eki.ee)), project leader Arvi Tavast.

Centre of the Estonian Language Resources ([keeleressursid.ee/en/](http://keeleressursid.ee/en/)), 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 (Editor-in-Chief Iris Metsmägi). The “Estonian Etymological Dictionary” released in 2012 was made available on [www.eki.ee/dict/ety/](http://www.eki.ee/dict/ety/). The Department also continued compiling the Dictionary of Dialects of Estonian (team leader Mari Kendla). As from 2013, the fascicles of dialects appear only electronically, see [www.eki.ee/dict/ems/](http://www.eki.ee/dict/ems/). On-



going was compilation of dictionaries and databases of cognate languages (the Livonian, the Udmurt and Mari languages). The one-volume "Dictionary of the Votic Language" (edited by Silja Grünberg) was completed and made ready for print, to appear in 2014. A new project was launched titled "The Hungarian-Estonian Collocation Dictionary" in cooperation with our Hungarian colleagues. The replenished collections of the archives of Estonian dialects and cognate languages (EMSUKA) are available to interested parties on newly completed website [heli.eki.ee/murded/](http://heli.eki.ee/murded/)

On 21 November the Department organised the international conference "Uralic and Indo-European Language Contacts".

#### DEPARTMENT OF LANGUAGE PLANNING

The language planners released 14 pieces of writing on the topic Language Care, they delivered 45 papers. Over telephone, language advice was provided to 5922 referrals, supplied an answer was to 2699 e-mails and 5 regular letters. Language advice is also available at [keeleabi.eki.ee/](http://keeleabi.eki.ee/). Teacher training continued with annual conferences. In December 2013, "Standard Estonian Dictionary 2013" (edited by Maire Raadik) appeared (web version at [www.eki.ee/dict/qs/](http://www.eki.ee/dict/qs/)). Completed was the web version of the "Reference Dictionary for Civil Servants" [www.eki.ee/dict/ametnik/](http://www.eki.ee/dict/ametnik/) (edited by Tiina Paet, Argo Mund, Tuuli Rehema), providing advice on how to express the ideas in the manner which is simpler, clearer and more precise.

Conjointly with the Terminology Department, staff training of the EU translators was organised in Luxembourg and Brussels. A collection of the euro-language was released. In cooperation with Estonian Representation of the European Commission and Estonian Association of Language Editors, in September 2013 the Department organised the first Estonian Clear Language Conference, with speakers from Austria, Belgium and Sweden and other countries. Attendance numbered nearly 300.

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

In cooperation with the Department of History of Language and Linguistics, the tentative compilation of Estonian place name book was finalized.

#### DICTIONARY DEPARTMENT

The Department continued compilation and editing of dictionaries of common Estonian. In progress is the one-volume "(Explanatory) Dictionary of Estonian" and the base of new words and meanings (in cooperation with lexicographers of the Department of Language Planning), containing presently 4800 entries. Completed was "The Basic Dictionary of Estonian" (edited by Jelena Kallas, Mai Tiits, Maria Tuulik, to appear in 2014). Underway is the EU joint

project “Development of Estonian-Latvian and Latvian-Estonian Dictionary”. Partners: Agency of the Latvian Language (Latviešu valodas aģentūra – LVA), Institute of the Estonian Language, project leader Arvi Tavast. The Department organised a conference on electronic lexicography eLex 2913 (17-19 October 2013, Tallinn). The collection of conference appeared titled: Kosem, I., Kallas, J., Gantar, P., Krek, S., Langemets, M., Tuulik, M. (eds.) 2013. *Electronic Lexicography in the 21st Century: Thinking Outside the Paper*. Proceedings of the eLex 2013 conference, 17-19 October 2013, Tallinn, Estonia. Ljubljana/Tallinn: Trojina, Institute for Applied Slovene Studies/Institute of the Estonian Language.

#### TERMINOLOGY DEPARTMENT

The Department is prevalently working in the project-based mode. A large part of work takes place in terminology commissions or consists in processing material for the commissions. The largest project is streamlining and elaboration of the military and security & defence policy terminology in cooperation with Ministry of Defence, updating also the terminology base Militerm. There continued the education terminology project in cooperation with Ministry of Education and Research and the aviation terminology project in cooperation with Ministry of Economic Affairs and Communications. As a new project, the Department was involved in streamlining the terminology of the integration development programme of Ministry of Culture. It also carried on with organising the terminology base Esterm – under consideration were 2329 terms.

Links with the terminology consumers became more intimate: counsel was provided to organisers of terminology concerning paper money (banknotes) and collection of paper money, and to officials of the Ministry of Foreign Affairs creating the vocabulary of the UNO terminology; the researchers participated at discussion of behavioural economy terminology; counsel was provided to representatives of Tallinn Health Care College at initiation of the occupational therapy terminology project. A representative of Road Administration was provided counsel in connection with unification in legal acts of the terminology of road structures envisaged for traffic of pedestrians and bicyclists; counsel was provided also to the cyber terminology and the human rights terminology teams.

#### PERSONNEL AND ADMINISTRATION DEPARTMENT

Besides supplying daily support services, the Department was concerned with organisation of renovation of the house. Within framework of the EU programme “Modernising research apparatus and equipment of R&D institutions” it had the second scientific archives, meeting the present day requirements built in the basement floor, accommodating the archival matter of literary language and dialects. Within framework of the same programme, two

new project applications were composed and submitted: “Improvement and development of conditions of preservation of scientific archives and collections of the Institute of the Estonian language” and “Laboratory of Psycholinguistics”; in case of a positive funding decision on the first application, the capacity of scientific archives of the Institute will increase perceptibly.

Library of the Institute completed the database of books of the Department of Finno-Ugric Languages and Dialects – see [eki.ee/biblio/index.cgi/](http://eki.ee/biblio/index.cgi/).

## **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: 103, of whom researchers 39, librarians and bibliographers 13

Address: Vanemuise 42, 51003 Tartu, ESTONIA, kirmus@kirmus.ee

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Director: Janika Kronberg, Tel: +372 737 7701, Fax +372 737 7706

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Estonian Literary Museum consists of five structural units, of which three are based on collections important as regards the cultural history:

- Archival Library with Department of Bibliography – head Merike Kiipus;
- Estonian Cultural History Archives – head Vilve Asmer;
- Estonian Folklore Archives – head Risto Järv;
- Department of Folklore – head Mare Kõiva;
- Department of Ethnomusicology – head Triinu Ojamaa.

The four target financed research topics which used to be the bulwark of research activity of the Estonian Literary Museum ended in 2013. They were supported by base financing, state programme, 6 ESF and 1 post-doctor grants. The annual budget of the Museum was comprised of 31 different term projects. For the Museum to pursue its stable and sustainable development, the share of project-based financing is inordinately high. Basing on the new system of financing of research the Museum applied for 4 institutional research subsidies for further activities in 2013, obtaining 3 subsidies – a reasonably good result. The state of infrastructure of the Museum has increasingly improved over years. Completed in 2013 with support of structural funds was the new annex to the Museum, adding 2880 extra square meters of special-purpose repository and laboratory space. Part of the older section of the house was restored. The process of restoration revealed that the room having been in use in the Soviet period for classified holdings had originally been decorated with the 19th C. wall paper, which was now renovated. To update the infrastructure of the Estonian Literary Museum and to meet the needs of the personnel, there were four projects underway drawing on the programme of modernising the research apparatus. The modern sound recording studio accommodated in the new part of the house merits special mention. It is equipped with digitising devices and other audio- and video processing

apparatus acquired with support of the roadmap of the Estonian research infrastructure.

#### ARCHIVAL LIBRARY

The collections were steadily replenished by way of receiving legal deposit copies. The highlight of the year was signing on 6 February of the depositing agreement, under which the Learned Estonian Society entrusted to the Estonian Literary Museum for preservation its historical library theretofore having been kept in various locations. Cooperation with other scientific libraries continued, resulting in publication of another volume of the Estonian national bibliography "Book in Estonian 1918-1940", with participation of Ülvi Kalpus, bibliographer of the Estonian Literary Museum. The Archival Library obtained to its use the repaired and refurbished restoration and binding workshop, supplied with new equipment.

ESTONIAN CULTURAL HISTORY ARCHIVES continued regular collection and organisation work. The Archives were donated the personal archives of Uno Laht, Nikolai Baturin, Enn Soosaar and Hans Treumann, several earlier stocks obtained valuable replenishments. The collection of biographies was replenished by 32 new ones, the photo archives were complemented by modern material, mainly within the framework of the project "Writer and his environment". As an outcome, the "Second picture book of the literary community" appeared in print, commissioned by the Ministry of Education and Research. The Archives put in order the manuscript collections of Ardi Liives, Paul Kuusberg, Oskar Kruus, Amanda Jasmiin and Rein Marand and photo collections of Ilmar Laaban, Kadi Taniloo-Tekkel, Tiiu Viires-Haamer and Herbert Salu. In the process of the project "Making available of open access data of the Estonian Literary Museum" ca. 30 thousand entries were keyed into the databases. As a research effort, the Archives continued publishing archival materials: the working group of sources of history of culture released ca. 35 scientific publications, notably in the series "Litteraria" the correspondence between Hellar Grabbi and Jaan Kaplinski, compiled and commented on by Sirje Olesk and titled "Letters of the friends are on the way to you". In cooperation with the University of Tartu, two issues of the scientific journal "Methis" were released. The project supervised by Marin Laak "Kreutzwald's century. Estonian website on the history of culture" made headway and reached a new stage, providing availability of comprehensive information in smart phones and tablets. Engaged in intensive cooperation with Nordic countries and other Baltic States is Leena Kurvet-Käosaar, jointly with Rutt Hinrikus supervising the international Nordplus project "Family History". An outstanding achievement of the working group in theory of culture was the publication in the series "Etudes on modern art" of the fourth collection "Attempts to name an island: articles on science fiction" (compilers Jaak Tomberg and Sven Vabar). As a major event, the 100th anniversary of three

Estonian authors Arvo Mägi, Valev Uibopuu and Gert Helbemäe was commemorated.

Collection of manuscripts of the ESTONIAN FOLKLORE ARCHIVES grew in 2013 for more than by 4 000 pages. Of note by content and volume are contributions received in the collection contest “There was a funny story happened to me”, the field work materials of senior researcher of the Archives Anu Korb from Krasnoyarsk region, material on Saaremaa village song-books by Tõnu Anger and collection of dreams by Hans Järv. Comprehensive archival works yielded a number of scientific publications and collections of articles. During the year, the Archives released a number of prominent issues like the 5th volume of “Life and conditions of the yonder Estonia”, compiled by Mall Hiimäe. This is the follow-up on the academic scale of the series started by Oskar Loorits, the first volumes of which appeared more than half a century ago. The essential bounty of the book is in excellent compliance with the year of cultural heritage then ended. It features the heritage material on beliefs and customs, household related matters, house implements, dishes and drinks, family life and religious issues. Mall Hiimäe’s work gave rise to yet another issue – the web publication “1001 children’s games from 1935”. The collection has been composed on the basis of over 15 000 descriptions of games, originating from the materials of national collection contest held at that time. Besides 1001 descriptions of games the collection has over 200 illustrations from our folklore collections. The web issue was composed and edited by the whole working group – involved besides Mall Hiimäe were Risto Järv, Kaisa Kulasalu, Mari Sarv, Kadri Tamm and Astrid Tuisk, designer was Siret Roots. Completed for web was also the electronic version of disc issue compiled by Andreas Kalkun and Anu Korb “Runos of Siberian setos”.

As a cooperation project with the Seto Institute, the Archives completed the book “Crumbles from Setomaa: Setomaa as seen by Jakob Hurt in 1886 and 1903“, for the first time publishing the notes made by Jakob Hurt at his trips in Setomaa in 1886 and 1903. Although the Hurt’s travelogue was not originally designed for publication, his diaries contain important and intriguing observations on the Seto language, customs, popular calendar, clothing, buildings and generally on lifestyle. The book may also be named the first research issue done in the Seto language, not meant for a confined circle of researchers only, but being a work of general interest, finely designed (designer Agnes Ratas).

In 2013, the working group of local heritage finalised the comprehensive cooperation project with the Environmental Board and the Land Board, carrying on for almost two years. As a result, completed was the map application of memory landscapes of the Matsalu and Vilsandi national park. Record-

ed on the map are ca. 400 heritage seats, accompanied by archival texts, sound recordings made at field works, photos and video clips.

The year of 2013 is hopefully benchmark in IT-developments thanks to the seminar "Estonian digital humanities *Ao* 2013: IT-applications in the humanities" held on 25 October at the Estonian Literary Museum and organised by Kaisa Kulasalu and Mari Sarve. Speaking at seminar were archaeologists, linguists and art critics, researchers of folklore and literature; there were presented digital archives, web-expositions, software solutions, interactive film, the web application for identifying the photos, and various research results obtained with the help of digital solutions. The computer epoch has also brought along digital collections; when administering the digital matter it is important to hold in regard the requirements of long-term preservation. The domain of digital humanities is highly pertinent to museums and other memory institutions, insofar as administration of such collections, their description, study, analysis and also presentation is presently carried out also by digital means.

In the research effort of DEPARTMENT OF FOLKLORE, besides the regularly released issues "Folklore" and "Mäetagused" a special place is held by two publications having appeared as separate books: Eda Kalmre "The Human Sausage Factory. A Study of Post-War Rumour in Tartu" (Rodopi Publishers) and Renata Sõukand's and Raivo Kalle's popular science monographic overview, impressively performed: "Wild edible plants of Estonia. Use from 18th century to modern days". Besides that, finalised was the anthology by Member of Academy Arvo Krikmann and Rein Saukas "Estonian riddles" with register of parallels. The book appeared at the turn of the year and contains the typological equivalents of Estonian proverbs in six Finno-Ugric languages and Latvian and Russian. With the support of three grants of the Department (holders and supervisors of working groups Mare Kõiva, Liisi Laineste and Tõnno Jonuks) headway was made in research of sacred places, Internet phenomena and popular humour; in every area articles and collections drawing on international cooperation were released.

#### DEPARTMENT OF ETHNOMUSICOLOGY

Absent the direct research subsidy, researchers in ethnomusicology worked mainly with support from contiguous specialities in 2013, fulfilling smaller projects and preparing and holding the scientific conference Kreutzwald Days of the Museum.

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



Associated with the Estonian Academy of Sciences  
28.01.2003

Founded: 1988

Personnel: 30, of whom 17 researchers

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In the reporting year the Institute fulfilled 2 target-financed topics, 4 grants (incl. 1 Mobilitas grant) and 14 R&D projects.

Ongoing among target financed topics were:

“Changes in Attitudes and Life Styles of Estonian Residents in 1985-2013: horizontal stratification” (principal researcher Airi-Alina Allaste), in the framework of which a book was compiled: Allaste, A.-A. (ed.) Back in the West. Lifestyles in Transforming Societies. Peter Lang Publishers, 2013. While the social sciences publications about Eastern Europe have overwhelmingly analysed the society in transition from macro-perspective, this book has focussed on research of everyday phenomena on micro-level. There also appeared another book in the series in Estonian: “Researches in life styles” Allaste, A.-A. (ed.) Subcultures. Tallinn University Publishers, 2013. The collection analyses rather different phenomena – from creative self-expression and social critics of artists to communication norms basing on controlling violence by teenagers being at enmity with law.

“Learning Person in Educational System and Labour Market: Inequality as Factor and Outcome of Formation of External and Internal Limits” (responsible researcher Rein Vöörmann). Fulfilment of that topic was linked to research of the project “Dynamics of boundaries in life-long study and changes in education”. It was studied how the learners specify, create and override the former boundaries, making contact with certain external boundaries in education system and labour market. By means of secondary analysis the researchers conceived the processes operating in education system and labour market as external boundaries. In interviews with alumni, representatives of higher schools and entrepreneurs the researchers focussed on the role of external boundaries in evolution of internal barriers.



Within the framework of the project two books appeared from international publishers: Saar, E., Möttus, R. (ed.) *Higher Education at the Crossroad: the Case of Estonia*. Peter Lang Publishers House, Frankfurt am Main, 2013 (co-authors: Rein Vöörmann, Auni Tamm, Triin Roosalu ja Eve-Liis Roosmaa) and Saar, E., Ure, O. B., Holford, J. (ed.) *Lifelong Learning in Europe: National Patterns and Challenges*. Edward Elgar Publishing, 2013. Besides the above, a number of articles were released in international journals.

In 2013, Personal research Grant started on the topic “Alternative careers and work organisation: flexibility of post-Communist states” (responsible researcher Triin Roosalu). The researchers analyse the Estonian data in international comparison, focussing, of the one part on application of temporal, local, functional and numerical flexibility, and of the other part on topics of gender division of labour, non-traditional careers and unremunerated work.

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), in the framework of which the opinion poll considering political involvement of youth was carried out, as well as open-end interviews with the youth analysing the extent of involvement of youth, impact of life environment on activism, as well as what meanings the youth convey to their activity and involvement. There were also reports written basing on three ethnographic researches – on Tartu Youth Council, Pirate Party and LGBT movement. The Institute (Airi-Alina Allaste) supervises, in the whole project also the working package creating typology of activism, aimed at integrating quantitative and qualitative data.

In cooperation with Austrian colleagues in the project “Analysis of the Continuing Vocational Training and Adult Education Surveys”, the report of the first stage of the project was completed – the analysis on points of fact of databases of Eurostat, reflecting life-long education –, with the Austrian responsible partner composing the report and the other partners commenting on it and complementing it.

“Education as a Lifelong Process – Comparing Educational Trajectories in Modern Societies” (responsible researcher Ellu Saar) – work continued with the first stage of the project, dedicated to life-long learning.

In 2013, the PRIMUS programme project “Labour Market Challenges to Higher Education: Estonia in European Context” (responsible researcher Marge Unt) ended. It was designed to provide high quality information about links between higher education sector and labour market and the respective developments, increasing thereby the level of awareness and the degree of motivation when passing decisions on education policy. In the process of the project, four original surveys were carried out, and the outcome appeared in

survey reports, books, and peer-reviewed scientific journals. Altogether 29 publications were released.

The researchers worked within framework of two Estonian scientific research agreements, with the principal being Integration and Migration Foundation “Our People” (MISA).

The goal of the research carried out by the IISS “Social groups of the domain of integration” (project supervisor Erle Rikman) was mapping and analysing the experiences of target and associated social groups, their needs, expectations and possibilities in the area of Estonian integration policy. The study focussed on third-country nationals in Europe, on Estonian residents of undefined citizenship and other social groups having been accorded little attention heretofore (e.g. the new immigrants, Romani i.e. the Roma people etc.). The data were collected and analysed by quantitative and qualitative methods. Research problem of the study based on the proposal to the Government of the Republic on drawing the development plan of the domain of integration “Integrating Estonia 2020” and the goals set up therein. On the other hand, the Institute proceeded from outcome of Monitoring of Estonian Integration carried out in 2011, and the integration clusters emerging on their basis. The recommendations and proposals basing on results obtained were delivered as an input to the new national integration plan (2014-2020) and the programme document of the European Fund for Asylum, Migration and Integration. The survey was financed by the European Fund for the Integration of Third-country Nationals (EIF), Ministry of Culture and Integration and Migration Foundation “Our People”.

In cooperation with Baltic Researches Institute, there was carried out the project “Promotion of equal treatment: assessment of impacts, awareness and policy recommendations” (project supervisor Maaris Raudsepp). The goal of the study was analysing the situation of equal treatment on labour market and respective awareness in the Estonian society. The researchers carried out interviews among experts and the representative polling of population. The results of the analysis suggested that the Estonian society is rather considered unequal, with the awareness of legislation and work of institutions guaranteeing equal treatment being comparatively low. For that reason, nothing is undertaken to protect one’s rights, although one can intuitively determine the cases of unequal treatment and to pinpoint inequality. The preliminary results of the study, on the basis of which report was published in Estonian, Russian and English, as well as recommendations and proposals basing on the outcome, were delivered as input to the new national integration plan 2014-2020.

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

The Centre of Lifestyles Studies organised the Nordic Youth Research Symposium (NYRIS). Attending the Symposium were over two hundred researchers from 32 states of six continents. It was a significant event for Estonia, enabling local young researchers participate in exchange of thoughts with top actors of the area and increasing awareness about Estonian youth researchers as relevant contributors of international scientific cooperation.

Two employees of the Institute defended their doctoral theses. Kristina Lindemann's doctoral thesis on the topic "Structural integration of young Russian-speakers in post-Soviet contexts: educational attainment and transition to the labour market" was awarded the 1st Prize at national contest of students' scientific works 2013, in the area of social sciences and culture. Supervisor of the doctoral thesis was Ellu Saar. Maarja Kobin defended the doctoral thesis on the topic "Drinking culture among young Estonian adults: Perceptions of the 'limit' and strategies to stay 'within-limits'". Her first article on the doctoral thesis was awarded the 1<sup>st</sup> Prize at the contest of students' scientific works of Tallinn University, in the area of social sciences. Supervisor of the doctoral thesis was Airi-Alina Allaste and co-supervisor Betsy Thom of Middlesex University.

In 2013, employees of the Institute released the total of 73 scientific publications, among which meriting especial note are:

- Saar, E., Ure, O. B., Desjardins, R. The role of diverse institutions in framing adult learning systems. *European Journal of Education*, 2013, 48, 2, 213-232;
- Kobin, M. Gendered drinking: meanings and norms among young Estonian adults. *Nordic Studies on Alcohol and Drugs*, 2013, 30, 4, 277-295;
- Rikmann, E., Keedus, L. Civic sectors in transformation and beyond: preliminaries for a comparison of six central and Eastern European societies. *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, 2013, 24, 1, 149-166.

Released was the fifth 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.

Cooperation was continued with several ministries of the Republic of Estonia (Ministry of Education and Research, Ministry of Social Affairs) and state institutions (Statistical Office).

## ESTONIAN NATIONAL MUSEUM

Associated with the Estonian Academy of Sciences  
21.12.2006



Founded in 1909

Personnel: 112, of whom researchers 15

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The year of 2013 heralded for the Estonian National Museum (ENM) the embarking on the preparation period of the new house. Although the design of the new house was opted for already at beginning 2006 and since 2009 permanent expositions have been set up presenting the Estonian culture and the culture of Finno-Ugric people, the building contract between OÜ Fund Ehitus, having won the state procurement contract and Riigi Kinnisvara Aktsiaselts was closed as late as on 29.01.2013. The excavator's digging bucket scooped the first shovelful of earth early morning at March 11 in subzero temperature of minus 18 degrees. April 30 witnessed the festive setting of the corner stone, with President Toomas Hendrik Ilves leading the ceremony. The ENM's new building is to be completed by end 2015 and it is expected to be opened for visitors by end 2016.

On January 21, Tõnis Lukas commenced as Director, for the second time holding that office. He was elected by decision of the public contest committee of the Ministry of Culture from among 6 candidates running for that position.

### RESEARCH ACTIVITIES

Engaged in creation of science-based subject matter of Estonian and Finno-Ugric history-of-culture permanent expositions to be set up in the new building are all researchers of the ENM. Involved additionally are many scientists of various domains of research from outside the Museum. Therefore the research activities of the ENM is predominantly museological – i.e. the research activities of the ENM are supposed to contribute to the exhibition creation/making. Hence the outcome of research is not presented in the form of regular articles only. It is also brought to the public as films. Besides the traditional techniques, the children's experiences in the use of city space were recorded on film. So were the Swedish Estonians in exile and the descendants of Lutsi rural population living on the eastern frontier of Latvia, with support from the Compatriots Programme. The fieldworks of impressive attendance were carried out in July in Setomaa, in areas of both the Republic of Estonia

and the Russian Federation, that targeted to study the developments of the past 20 years and the modern everyday practices. The members of the study trip also looked at the attitude to local life of the youth.

In 2013 researchers of the ENM participated at fulfilling one target financed research topic supervised by the University of Tartu and three grant projects. Besides that some researches participated in two international cooperation projects.

2013 was the closing year of the research grant supervised by the ENM "Developing museum communication in the 21st century information environment" (ETF8006, 2009-2013). Within its framework, the researchers were mainly engaged in studying and influencing the museum's communication processes, expanding their activities by involvement of foreign partners to research of Belgium and Latvian Museums. The objectives of the grant project were both general and intervening. Within the framework of the general goals the researchers studied the museum's relations with the public, the museum's collections and work processes; within the framework of intervening goals the researchers attempted to change and influence those relations by various actions. The ENM carried out six different intervening actions aimed at affecting the Museum processes, incl. "Donate to the Museum a day of your life", "One's own exposition" and "My favourite from the Museum collections". Besides the participation actions the researchers analysed the museum's media reflection and the museum's work processes. As an outcome of the grant, three master's theses, one of them Master in Science, and two doctoral theses were defended at the University of Tartu.

Two doctoral theses are still in process. Within framework of the grant over 20 articles in high-level international scientific journals and collections were published. The results of research were presented at international conferences. The grant team was invited to participate at Nordic network NordLAC (Learning Across Contexts) as a token of recognition for achievements of the team in the area of the museum communication. In the context of the grant two collections by Peter Lang Verlag Publishers were published, among which the first one, "Digital Turn: User's Practices and Cultural Transformations" (2013), was issued in cooperation with grants of the Literary Museum. Under consideration in that work are relations between user and memory institutions, affected by digital technologies and giving rise to wider changes in cultural landscape. The second book "Democratising the Museum: Reflexions on Participatory Technologies" (2014, pending publication), summarises the results achieved within the framework of the grant's four main topics: participation communication theory and analysis, the museum's audience and participants, challenges of the museum's professionals and the role of digital technologies in participation. The results of grant project have also been brought together in the science-based handbook in Estonian "Parti-

icipation in Museums” designed for the museum personnel, released as an issue of Estonian National Museum (2014).

#### MUSEUM ACTIVITIES

The four missions of the museum as an institution are collecting, preservation, research and mediation. The first two of the aforementioned tasks entailed a lot of work in connection with the closing down of the Tartumaa museum at the end of January, 2013 and transfer of the said museum’s collections to the National Museum. As a result, the ENM’s collections were replenished by ca. 100 000 archival holdings. Regrettably, the collection was organised relatively randomly: documentation was partly missing, some holdings were repeatedly taken on inventory, and part of the material carried no collection markers at all. In 2013, the stocktaking could be completed only in collection of photos of the Tartumaa Museum, in natural history collections and archaeology collection. However, integrating the collections of Tartumaa Museum into the ENM’s collections system will continue for years.

In connection to the systematic collecting work, collection in 2013 of the so-called ethno-products may be highlighted, designed to reflect in the collections of the items drawing on popular art lately in vogue. The major collecting action, announced within the framework of the Year of Cultural Heritage, was the acquiring of everyday life photos. Via the contest, approximately 2000 photographs reached the Museum, the best of which will be taken to the ENM’s collections.

The dedicated work of the people engaged in the Museum’s collection was recognized at conferring the Annual Prizes of the Estonian museums. The title of Collection Keeper of the Year 2013 was granted to the ENM’s head treasurer Riina Reinvelt for digitizing and describing the precious metals collection, and the Prize of Conservation Work was awarded to Mariliis Vaks for conservation of five court-house emblems of hawks, dating from the Tsarist period.

#### ORIENTATION TO THE PUBLIC

In June, the new Museum Act passed by Riigikogu complemented the concept of Museum as an institution. By that, museum obtained an obligation to offer informal learning possibilities to both children and adults.. Besides regular museum classes, in 2013, ENM organised 2 many-days-long programmes for elementary school children – a city camp about consuming as an associate programme of the exhibition “Shopping Fever: Consumer Culture in Estonia in the 1900s and 2000s”, a summer children’s camp “Kirju-mirju Eesti” (Speckled Estonia) in cooperation with National Heritage Board and Historical Archives. In cooperation with the science school of the University of Tartu the first guide school for senion basic-school students was organised. During the programme pupils got an insight into various fields of science like eth-

nology, museology, history, archiving, as well as into the techniques for presenting the history and local heritage of their home place as tour guides. Later the interested ones could participate in summer workshops at Raadi, where they learnt to repair and maintain old timber furniture and books and prepared traditional Seto food.

The Raadi manor park of the ENM was also the venue for the camp of conductors of the 26th song festival and the 19th dancing festival of 2014 “Touch by time – the time to touch”. During three days the participants took part various workshops and methodological materials about traditional folk culture. Researchers of the ENM gave popular science lectures at several events held within the framework of the Year of Cultural Heritage. In 2013, also the annual conference 2013 of the ENM was dedicated to the topic of the changing cultural heritage. The 10th festival of WorldFilm was organised in cooperation with the NGO WorldFilm Union and the ENM. The ENM was the ringleader of celebrating the 25th anniversary of the Tartu National Heritage Days that culminated with a procession from the present museum building to Raadi and with setting the corner stone to the new house.

## **ESTONIAN CROP RESEARCH INSTITUTE**

Associated with  
the Estonian Academy of Sciences  
23.09.2008



Founded 1920  
Personnel: 165, including 45 researchers  
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mati.koppel@etki.ee

Pursuant to Order of the Government of the Republic no: 205 of 25.04.2013 “Reorganisation of Jõgeva Plant Breeding Institute and Estonian Research Institute of Agriculture”, as from 1 July 2013 the Estonian Research Institute of Agriculture was merged with Jõgeva Plant Breeding Institute, terminating the activity of the Estonian Research Institute of Agriculture. The Jõgeva Plant Breeding Institute was renamed to Estonian Crop Research Institute. The Estonian Crop Research Institute is a state research and development institute in the area of governance of the Estonian Ministry of Agriculture. The Institute will continue the activities of both institutes and their long traditions in the area of research in variety breeding of agricultural crops and agrotechnology.

Research and development activities of the institute support increase of efficiency and competitiveness of agricultural production, mitigate negative impact of agricultural production on the environment and help in the maintenance of agrobiodiversity. Institute carries out applied and basic studies in the following areas: development and upgrade of efficient and environmentally friendly agrotechnologies, dependence of yield and quality formation on the used varieties and agrotechnologies, plant protection, plant health, agrochemistry, fertilisation, and agrometeorology. For the purpose of maintenance agrobiodiversity, the institute breeds new varieties of agricultural crops, guarantees maintenance breeding of registered varieties, preserves plant genetic resources and produces and distributes certified seeds of various agricultural crops. Active national and international cooperation with research and development institutes and universities is directed towards increase of efficiency and scientific level of research. Institute provides scientific expertise for advisory system, state officials and development of legislation.

Tight collaboration with farmers and industry is prerequisite for implementation of research results into the practise.



The most notable research achievement in 2013 was success in applications for 7 Framework programmes. The Institute participates in two projects of a framework programme launched at end of the year:

- Healthy Minor Cereals – integrated approach for diversifying the genetic basis of less common crops used in Europe as food, for increasing their stress resistance, improving agrotechnologies and increasing nutritional value and quality of processing;
- EUROLEGUME – promotion in Europe of the breeding of legumes, for sustainable growing of food and fodder protein crops.

Furthermore, we are involved as an associated partner into project LEGATO – legumes to the future agriculture.

## **ASSOCIATED ORGANISATIONS**

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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 2013 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: 14 honorary members, 760 active members, 631 trustees

Subunits: 22

Location: Struve 2, 51003 Tartu, ESTONIA

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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, 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 2013 nine General Assemblies with scientific presentations and one special meeting were held:

- January 31 – Kalevi Kull: “Why biosemiotics?”
- February 28 – “The Baer day”, presentations by Lauri Linask and Erki Tammiksaar
- March 6 – Urmas Tartes: “Life of insects during winter”
- March 28 – Veiko Uri: “The growth rate of *Alnus incana* and it's impact on soil, carbon- and nitro-circulation”
- April 25 – Kaarel Orviku: “Natural processes on the coastline and development activity by human”. The annual review of the activities in 2012 was presented
- May 30 – Karl Pajusalu: “How did the trees get their names?”
- September 26 – Peeter Saari: “Bullet of light”
- October 31 – Mati Kaal: “Moments in Tanzanias nature”
- November 28 – Mart Kõlvik: “Ecological network – Estonian “Nokia” in nature conservation”;
- December 19 – Toomas Kukk: “Kaljo Pork (1930-1981) and his photo-collection”

The 36th Naturalist's Day was held at Tartu on June 29th. Ott Luuk made a presentation about the community of plant-species at Raadi and excursion took place at Raadi.

ENS celebrated its 160th anniversary in 2013 and three events were connected with this:

- A book-exhibition "Estonian Naturalists' Society 160" was organised together with Tartu Public Library which was opened from September 24th till October 19th, 2013
- The president of ENS astrophysicist Tõnu Viik delivered a lecture in the Tartu Public Library on September 27th
- XII Estonian Conference in Ecology was organised on October 18th-October 19th in Tartu

The activities of subunits of ENS during 2013 were the following:

Meetings of SECTION OF GEOLOGY took place:

- On February 14, Giuseppe Buono "Geology of Italy through its palaeontological and archaeological sites"
- On April 4, Igor Tuuling "A geologist in Yosemite and Sequioa National Parks in the mountains of Sierra Nevada"
- On May 16, Jüri Plado "Community, people, animals and rocks in Uganda"

The 9th Autumn School of Geology "Time" took place at Voore, Jõgeva county, October 11-13. The seminar was organised together with the Doctoral School of Ecology and Earth Sciences. During three days 20 scientific reports were presented and 91 people participated at the event. The book "Time. Schola Geologica IX" was published.

JAKOB VON UEXKÜLL CENTRE organised a Summer School of Ecosemiotics (20 people participated) at Mustakurmu, July 7-8. During those days 9 reports on biosemiotics, ecosemiotics and environmental humanities were presented.

A new webpage of Jakob von Uexküll Centre ([zbi.ee/uexkull/](http://zbi.ee/uexkull/)) was published in 2013.

The 39th Spring School of the SECTION OF THEORETICAL BIOLOGY "Systems biology" took place at Mustjõe, Harju county, May 24-26. The seminar (95 people participated) was organised together with the Institute of Ecology and Earth Sciences of the University of Tartu and with the Doctoral School of Earth Sciences and Ecology. During three days 19 scientific reports were presented. The book "Systems biology. Schola Biotheoretica XXXIX" was published.

In the SECTION OF BOTANY two meetings were held:

- January 30, Nele Ingerpuu and Kai Vellak “Monitoring of moss-species in Estonia”
- March 20, Lea Sudakova “Nature tourism – a friend of nature or an adversary”

The new issue of the internet journal “Friend of mosses, 16” was compiled ([www.botany.ut.ee/bruoloogia/](http://www.botany.ut.ee/bruoloogia/)). Gathering of the friends of mosses took place at Otepää Landscape Reserve, Valga county, June 1-2.

The observers’ network in the SECTION OF AMATEUR METEOROLOGISTS continued their work in 60 stations all over the Estonia. The data was analysed and most important agrometeorological indexes were found. The observation results of those 60 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 (96 people participated) took place at Türi, Järva county, July 27th. Six reports by scientists from University of Tartu and Estonian Environmental Agency were presented.

ESTONIAN TERIOLOGICAL SOCIETY organised the 20th Autumn School “Mammalia” (54 people participated) at Simisalu, Järva county, September 27-29. During those days 11 scientific reports were presented and one workshop took place.

The SECTION OF ANTHROPOLOGY organised together with Institute of History of Tallinn University and with NGO Centre of Archaeology the 7th Science day dedicated to the 91th anniversary of Karin Mark on March 25. 25 people participated at the seminar.

Conference commemorating the 116th anniversary of Juhan Aul (1897-1994) was organised together with the Centre of Physical Anthropology of Tartu University on October 24th. At the conference 20 people participated.

In a new issue of the journal “Papers on Anthropology XXII” 30 papers and 6 scientific reports were presented.

ESTONIAN MYCOLOGICAL SOCIETY organised two training courses on the determination of mushroom species in Saare county, May 17-19 and September 18-22. Meeting of Mycological society “Actiones” took place on December 14, where ten scientific reports were presented.

Together with 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 2013:

- February 13, Tiia Frenkhan: “Ash dieback in Estonia and in Europe”;

- June 5, the 120. anniversary of Kaarel Veermets was celebrated;
- November 27, Anton Kardakov: “Monitoring of changes in forest by satellite-images”.

Henn Timm from the COMMISSION OF LAKES worked out a methodology for monitoring of 8 selected invertebrate-species. Tarmo Timm edited articles in book about history of hydrobiology in Estonia.

In the COMMISSION OF PLANT NAMES four meeting took place in 2013: January 31, April 3, June 6 and November 6. In total 363 new plant names in Estonian and five terms were confirmed.

Members of ESTONIAN MALACOLOGICAL SOCIETY participated in the monitoring of snails in five sites in 2013.

The Society participated in fulfilling the projects funded by the Environmental Investment Centre, Tallinn Botanic Garden and the Environmental Board. ENS and the Estonian Environmental Agency developed the Nature Observation Database ([loodus.keskkonnainfo.ee/LVA/LVA.aspx](http://loodus.keskkonnainfo.ee/LVA/LVA.aspx)).

In December 2013 there were 163 538 printed items in ENS library. Within a year library acquired 487 books and items of 451 periodicals. The publications were exchanged in the reporting year with 54 institutions and organisations from 18 countries.

Publications:

- Sõber, V., Laanisto, L., Öpik, M., Tammaru, T., Kull, K. (ed.) Süsteemibioloogia: 39. teoreetilise bioloogia kevadkooli ettekanded [Systems biology: Papers of the 39th spring school of theoretical biology]. Tartu, 2013, 115 pp.;
- Verš, E., Nemliher, R., Amon-Veskimeister, L., Truuver, K., Ehrlich, K. (ed.) Aeg: 9. geoloogia sügiskooli artiklid ja ettekanded [Time: articles and papers of the 9th autumn school of geology]. Tartu, 2013, 176 pp. (jointly with Institute of Ecology and Geography of the University of Tartu, Institute of Geology of Tallinn University of Technology and Institute of Mining of Tallinn University of Technology);
- Folia Cryptogamica Estonica 50. Tartu, 2013, 132 pp. (jointly with the University of Tartu);

Internet journal:

- Ingerpuu, N., Vellak, K. (ed.) Internetiajakiri “Samblasõber” [Internet journal “Friend of moss”], 2013, 16, 40 pp. [www.botany.ut.ee/bruoloogia/Samblasober16.pdf](http://www.botany.ut.ee/bruoloogia/Samblasober16.pdf)

## 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, geograafiaselts@gmail.com

www.egs.ee

President: Mihkel Kangur, Tel: +372 619 9800, +372 5345 2374

mihkel.kangur@tlu.ee

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

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

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 2013, Estonian Geographical Society released two collections:

Järvet, A. (ed.) Yearbook of Estonian Geographical Society. Vol 38. OÜ Vali Press, Tallinn, 2013, 250 pp.;

Printsmann, A., Kruuse, E., Mänd, K., Vaasma, T., Vilumaa, K. (eds.) Publications of Estonian Geographical Society XIII. Lendav maailm. Külmale maale [World in Whirlwind. To the Bleak Land]. Collection of articles of autumn symposium of young geographers. Estonian Geographical Society, 2013, 250 pp.

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 Piret Vacht of Institute of Mathematics and Natural Sciences at Tallinn University, as a token of appreciation for her outstanding research

work in the area of soils. That subsidy for studies was handed over at annual meeting of the Society on April 7. Annual summaries of the Society and presentation of new plans was followed by a research paper by Laureate of the previous J.-M.Punning Memorial Stipend, doctoral student Sven-Erik Enno of the University of Tartu “Review of research of thundery climate of Estonia and the Baltic countries”.

At the annual meeting, elected new Honorary Member of Society was senior scientist of the Institute of Geology of Tallinn University of Technology, polar researcher and ecologist Dr Enn Kaup.

On 18 April, Tallinn University hosted a conference co-organised by the Society titled “Lood(t)usriikas linn” [Biodiverse i.e. hopeful town]. The conference presented an overview of ecological studies carried out in Estonian towns and their results, of city ecosystems services together with examples of how they have been implemented in city planning and life organisation in other countries and what the opportunities are for Tallinn to use them in its plans.

The continuity of activity of 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 University practical trainings.

The year of the Society’s Youth Club was exceptionally multifarious and busy. There were enough events to span four quarters of the year. The first days of February witnessed a county excursion. In the previous years, Estonia had been almost walked over, while missing the centrepiece. As we well know from the works by A.H.Tammsaare, Järvamaa is a rather boggy area. That year the young geographers spent quite a while on wandering about in marshland of Central Estonia, enjoying its winter time beauty.

Because the youth are soon to embark on a working career, and they have to decide “Now what?!”, the Society started in April with the series of events “Tublilde Tudengite Tulevik” (TuTuTu) [Future of Smart Students], in the process of which they visit various institutions having to do with environment and geography. First they visited the Estonian Institute of Meteorology and Hydrology (presently Estonian Weather Service), and soon thereafter also the Agricultural Research Centre at Saku.

Thanks to membership in IGU (International Geographical Union) the members of the Society’s Youth Club participated in summer, for the second time, upon invitation of Russian Geographical Society, in the Republic of Tyva and Krasnoyarski krai at geographical-archaeological expedition, which was part of Kyzyl-Kuragino project with the final goal to build a railroad linking the capital of Tyva and the Krasnoyarski krai. Before that, however



the land area falling under the construction is to be investigated: namely, as one branch of the ancient silk way, it has revealed, in preliminary explorations, over 80 archaeological objects (cairns, cliff drawings etc.), among which the earliest date from Neolithic era. Grant is funded by the Russian Geographical Society and the studies are carried out by archaeologists of Institute of Archaeology and Ethnography of the Russian Academy of Sciences, St. Petersburg Institute of History, and Institute of the Humanities of Tyva. Beside Russia and Estonia, also represented were Ukraine, Belorus, Czechia, France, the USA and Taiwan. An article was published about the previous trip: Kurisoo, T., Küttim, M., Antso, K. Expedition to Tyva: a journey in time and space. *Eesti Loodus* [Estonian nature], 2013, 64, 1, 42-47.

That year the Youth Club organised as many as two trips to islands. The first of them took them to the barren and windy Keri isle, with no trees but a lot of nesting birds. Besides that the isle sports a magnificent lighthouse and a number of other buildings, which the students attempted putting to order. The destination of the other trip was Aegna Island. The students informed themselves as to the glorious history of the isle, as a summer holiday spot; they studied its natural assets and helped clean the underbrush. The travelling company was rather motley, because in addition to young members of the Society, there were young geographers from Helsinki and several foreign students visiting Aegna Island.

The August five-day cycle trip started where it had been suspended in the previous year – from the summer capital Pärnu. On the path from south northwards the students meandered on the bicycle seat in parallel with the coves – the parts of the coast where the land bends around, partly enclosing the sea, detouring from time to time to intriguing spots and ending up rather deep inland. Characteristically to West Estonia the 370 km covered, run along a rather flat relief and the cycles and cyclists peddling hard withstood stubbornly the exposure to both thunder and Sun.

At the end of August the students visited the Finnish young geographers (EGEA-Helsinki). They hiked jointly in Nuuksio national preserve and spent three days on shore of a picturesque lake. Fresh air and freshly picked wild berries and the opportunity to strike new acquaintances elevated the spirits of representatives of both cognate people. The Society's Youth Club was internationally overly active that year. They participated at EGEA (European Geography Association for students and young geographers) congresses in Denmark and Poland and at the abovementioned Russian archaeological excavations.

The traditional autumn symposium of students in the specialty of geography of Tallinn and Tartu universities was held in Narva on 27-29 September, being meaningfully exceptional. The symposium was held in a big town for the first time, in the architecturally mind-opening main building of the newly

completed Narva College, instead of an old manor house. Symposium was dedicated, for the first time to a living writer, to Heljo Mänd born in Narva and to her “Karu-aabits” [Bear Primer]. Thence derives the title of the symposium “Geography ABC lesson”. 13 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 Martin Küttim, promoter of Youth Club 2013.

Members of Society’s school geography section organised basic school and gymnasium state examinations and national Geographical Olympiads. The teachers participated in the work of commissions correcting state examination and Olympiad works, analysed the works and suggested the options for improvement.

The Society’s summer excursion (6-8 August) “Mööda Emajõge, aga paadita” [Along Emajõgi River, however without a boat] took the participants to banks of Emajõgi River and further on. PhD Arvo Järvet, PhD Taavi Pae and PhD Ain Vellak gave their helping hand to organise the days. The members visited ruins of Kärkna cloister, Raadi manor and Estonian National Museum in progress, they met with Luunja parish elder Aare Anderson. They spent one day at Piirissaare Island, meeting the parish elder Siim Avi. At Järvelja Study and Experimental Forestry the wayfarers were received by Heino Kasesalu. They talked to Meeksi parish elder Aleksandr Suvorov and visited the Haaslava fishery, at Ilmatsalu, Ulila, the Sangla compressed peat factory and at Rannu-Jõesuu the Lake Võrtsjärve visiting centre.

Apart from the above there were traditional events: classes, common film watching, discussions, day hikes to nature; they visited the dugout shelter of government of the ESSR at Kose. 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

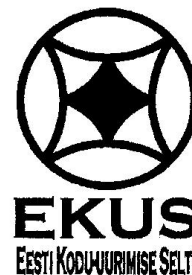
Founded 1939

Membership: 212 members

Address: Kohtu 6, 10130 Tallinn, ESTONIA, ekus@ekus.ee  
www.ekus.ee

Chairman: Andrus Ristkok, Tel: +372 5664 7806

Project leader: Ene Luka, Tel: +372 644 0475



In 2013, some reorganisations had to be made in the Society's work. Because already in 2012 the state support to the activities of young enthusiasts in the areal studies was terminated, the position of the programme leader became redundant. However, we could take on employment, part-time, the Society's project leader. The first steps, long overdue, were made in streamlining the archives.

In the reporting year the contest for annual prize of the Society could be called, for the first time. Board of the Society had long considered instituting such a token of recognition, however absent the funds, the good intentions stalled. The annual prize can be vied for by the issue in areal studies, which has appeared in print or otherwise published in the year previous to the contest. The call to contest and its statute have been posted on the Society website. According to statute, subjected to evaluation were all studies by members of the Society known and available to the Board and released in 2012. The winning prize of the first contest was awarded to Eino Tomberg's research "Vao küla lugu" [Story of the Vao hamlet]. Board of the Society conferred Letters of Appreciation to other two highly evaluated works: to editors of the series of Kose Parish Book supervised by Rein Oras, and to Aita Karjatse and Laine Kadajas for the publication "Sewing of folk costumes of the Kuusalu parish".

On the eve of the turn of the year, Board of the Society called another contest for annual prize, the results of which will be made known in the incipient months of this year. It is planned to continue such comparison of published material in areal studies also in the coming years.

In February 2013, "Yearbook of the Society of Estonian Areal Studies 2012" appeared in print (as ever, in cooperation with National Heritage Society and Estonian Genealogical Society).

The Society's General Meeting was held in the hall of Tallinn Central Library on April 28. The regular agenda was complemented by Imbi Tomberg's paper with

slides “Lui Lätt – pedagogue and artist, one among many victims of WWII”, and by review of history of the Central Library and its present state.

On 25 April the oldest division of the Society – the circle of areal studies of the Tallinn City Museum – commemorated its 50th anniversary with a comprehensive jubilee conference.

5 June the fourth study tour of the Society was held, taking the members to Mulgimaa, the Halliste parish. This time the accent was made on old education, production and farmstead buildings, the tokens of Mulgimaa that used to be a very prosperous county at one time. The guide was Tuuli Jõesaar, who has personally been an inventory-taker of the national heritage culture organised by Centre for State Forest Management, among others in several Mulgimaa parishes.

On 8 November a conference of numerous attendance titled “Cultural contacts on heritage landscape” was held in Viljandimaa, Heimtal manor school.

The Pärnumaa Society of Areal Studies was as vigorous as ever at organising common events. Outstanding in schedule of those numerous events are e.g. Seljametsa Day of History (9 April), celebration of anniversary of the merited enthusiast in areal studies and youth supervisor Mai Maiste on 1 June, the study and review tour of members of the Society to Kuramaa (7-9 June), the 3rd convention of Pärnu enthusiasts in areal studies (9 November) titled “Time of the Soviets”, the outing and thanks-giving evening, moderated by the well known researcher in areal studies Sergei Seeland at Pärnu-Jaagupi (9 November) on the topic “Sacred groves of the Korbe ancient parish and the first chapel and church places of the Jakobi parish”.

On 12 October the Heritage Day was held at Jäneda commemorating the 660th anniversary of the first recorded mention of that place. The Day was organised upon initiative and supervision of member of Board of the Society, head of the Jäneda Museum G.Särekanno. The agenda featured papers on substance of the case and the tour to historical objects in the surroundings of Jäneda, accompanied by explanations of archaeologists. The book “Story of Jäneda from the ancient time to the first mention” was published as a special issue.

Notwithstanding the scarcity of funds available to the Society, the tradition of local contests and meetings of enthusiasts of areal studies was not disrupted. Society has put up an appearance at them, whenever possible, and has contributed to evaluation of student works. As usually, the students’ county areal studies conferences were held at Järvamaa (25 April at Paide), at Pärnumaa (25 April at Pärnu), at Viljandimaa (26 April at Heimtal) and at Võrumaa (28 November at Parksepa). After an interval of several years, the school students of Raplamaa gathered again for an areal studies conference (29 October at Rapla).

Current policy of merger and division of schools, closing them down and making redundant the teacher positions, titled 'reform in education' will shy away from school work, in the first place the senior experienced pedagogues, more often than not former supervisors of student works. This may be the cause of lesser attention to organisation of extra-curriculum school events.

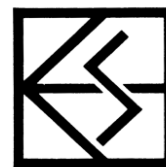
Regardless of all these counterproductive developments, the stakeholders decided to proceed with efforts to hold the national meeting in areal studies. By combining the means of the Pärnu County Administration and Town Government, the 45th national meeting in areal studies of school students was held at Pärnu on 29 November. The attendance was lower as earlier, however there were quite a few newcomers, i.e. those lacking experience but sporting interest in the matter. It is a promising development showing that the investigative curiosity of school youth to home surroundings may be retained.

Many members of the Society have notified the Society, upon request by the Board, about their activities. Therefore we can make assurances that the areal studies are continuously pursued. The enthusiasts of areal studies communicate with one another by groups, they hold get-togethers, study days, they deliver papers, compose exhibitions and put them on display, they release numerous articles and short pieces of writing, sometimes even books.

The community of areal studies is by far larger than a couple of hundred of registered members of the Society. In several districts the enthusiasts of areal studies have set up associations and circles of enthusiasts operating on a regular basis.

## ESTONIAN MOTHER TONGUE SOCIETY

Associated with  
the Estonian Academy of Sciences  
4.02.1998



Founded 1920

Membership: 353 active members and 13 honorary members  
Address: Roosikrantsi 6, 10119 Tallinn, ESTONIA, es@eki.ee  
www.emakeeleselts.ee  
Chairperson: Helle Metslang, Tel: +372 522 5074  
Academic Secretary: Killu Paldrok, Tel: +372 644 9331  
Librarian: Annika Oherde, Tel: +372 644 9331

In 2013, the Society organised 3 conferences, 10 meetings with papers, a youth language camp and 9 language days, incl. the Estonian language days abroad (5). In that year, 105 papers were delivered.

Outside Estonia, with co-organisation of Ministry of Education and Research and local Estonian societies, 5 language days were held (in Berlin, Helsinki, London, Budapest, Moscow). 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, in that year also of the trends of the Estonian language policy abroad and in Estonian linguistic life of programme of compatriots. Papers were also delivered about language acquisition, writing skills, multilingualism, integration studies and issues of identity, etymology, first names, Estonian literature, and language affinity. Besides papers, language study seminars and workshops were held, new interactive language study materials and methods were presented, as well as opportunities and grants to study Estonian. Altogether 20 papers were delivered at the Estonian language days abroad and 3 workshops were held.

In 2013 the Society organised three conferences.

June 27 – Tartu hosted the traditional J.V.Veski language conference. The topic of XLVI J.V.Veski Day was “Estonian and language user of special needs”, with 4 papers on the agenda. The opening paper was delivered by Karl Karlep on the topic “The essence and manifestation of speech handicap”. Marika Padrik delivered a paper “When a child studies native language like a foreign language...”. Ingrid Rummo spoke on the topic “Dyspraxia – a mute person in communication” with Meelis Mihkla consummating the Day with a review of the topic “Wiring for sound (dubbing) of subtitles – whether, how, whom to and why?”.

September 27 – 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, delivering altogether six papers.

Mother Tongue Society in cooperation with the Ministry of Education and Research organised the poll for the award of the Linguistic Feat 2012, eventually granted to Silvi Vare's dictionary "Word families of Estonian", I-II. The Society co-organised the final event of the Linguistic Feat, held on 14 March 2013 at Kadrina secondary school.

March 22 – Annual meeting of the Estonian Mother Tongue Society was held in grand hall of the Institute of the Estonian Language, where Krista Kerge delivered an academic paper "Background of decisions of the Language Working Group of the Estonian Mother Tongue Society". Report of the Society for its 93rd year of activities (2012) was presented by Academic Secretary Killu Paldrok.

April 24-25 – International conference "Native-language-speaking Estonia, native-language-speaking Europe II" held in the Väike-Maarja community hall, dedicated to the 25th anniversary of establishment of the Ferdinand Johann Wiedemann language prize. The conference was opened and the memorial oak planted, on that occasion, by President Toomas Hendrik Ilves. The programme of conference featured 21 papers in five blocks: papers by school students and university students, papers in language prize areas, lexicography, Fennougristics and language planning. The languages used were native languages, according to the title of conference: Estonian, Livonian, Mari, Udmurt, Komi, Sami, German and Hungarian. The papers in foreign languages were supplied with a written translation in Estonian. As usual, a paper was delivered by Laureate of the conference year Valve-Liivi Kingisepp, who also planted a memorial tree in the language oak grove.

Books "Ferdinand Johann Wiedemann language prize 25" and "Does the language of this country really ...?" were presented. An exposition focussing on language prize was opened at Väike-Maarja Study Centre. The conference was organised by the Institute of the Estonian Language, Foundation of the Estonian Language, Estonian Association for Applied Linguistics, Estonian Mother Tongue Society, Ministry of Education and Research, Väike-Maarja Gymnasium, Väike-Maarja Parish Administration and Väike-Maarja Study Centre, it was supported by Cultural Endowment of Estonia and Gambling Tax Council. Web transmission was made by the University of Tartu multimedia centre.

At nine meetings with papers (five in Tallinn, three in Tartu and one at Pärnu) 29 papers were delivered.

March 22 – at annual meeting of the Society the academic paper was delivered by Krista Kerge.

February 27 – Meeting with papers on Estonian word formation, with Reet Kasik, Silvi Vare and Grethe Juhkason speaking.

May 8 – Einar Meister, Lya Meister and Einar Kraut spoke on the topic “How the language sounds?”

May 23 – Meeting with papers at Tartu on the topic “7th Framework Programme project ELDIA – new approach to linguistic diversity of Europe”, with Helle Metslang, Kristiina Praakli and Kadri Koreinik speaking.

August 27 – Meeting with papers dedicated to the 60th anniversary of the linguist Raimo Raag, with Jüri Viikberg, Päivi Juvonen, Pirkko Nuolijärvi, Kristiina Ross and Marje Joalaid speaking.

September 10 – Meeting with papers held in honour of the 60th anniversary of Jüri Viikberg, with Jüri Viikberg himself and Annika Kilgi and Lembit Vaba speaking.

October 8 – Meeting with papers on the topic “Groundwork layers”, presenting J.Gutslaff’s Bible translation, with Külli Habicht, Külli Prillop and Marju Lepajõe speaking.

October 17 – Papers on the topic “Myth of vowel duration” were delivered by Mati Hint, Martin Ehala and Karl Pajusalu.

October 31 – Meeting with papers held in honour of the 80th anniversary of Jaak Peebo at Tartu, with Kai Tafenau, Ann Metslang and Valve-Liivi Kingisepp speaking.

December 5 – the last Meeting with papers of the year, the joint language day of Pärnu Museum and Estonian Mother Tongue Society at Pärnu, presenting Estophiles connected with Pärnu, with papers presented by Aldur Vunk, Karl Pajusalu, Külli Habicht and Katrin Nielsen.

Estonian Mother Tongue Society successfully continued organisation of school language days. In 2013, there were 4 language days held with the total of 13 papers, from every educational institution 2-4 papers. Speaking at schools were Estonian philologists of different areas; the language days were directed in the first place at school students of periphery. At Võru Kreutzwald gymnasium the topic of the Day was sublanguages, at Jüri gymnasium the etymology, at Pühajärve basic school the reading skills, at Haljala secondary school the native language, and at Suure-Jaani gymnasium the ways of influencing through language.

October 21-23 – Three-day youth-oriented language camp at Käsmu “Lexis, treasure trove of vocabulary”. It brought together 28 gymnasium students and linguists from Mother Tongue Society, Institute of the Estonian language, Tallinn University and the University of Tartu. 7 papers were delivered, with linguists of different generations presenting their specialty, discussions,



games and contests organised, thoughts exchanged. Participants clearly enjoyed communication. They discussed in greater detail origin of the Estonian lexis and its research, they presented dictionaries of Estonian and spoke about their compiling, as well as development of terminology in Estonian, Estonian word formation and its research, Estonian place names, their research and organisation.

Elder of the Language Working Group of the Estonian Mother Tongue Society has been, since 23 March 2012 Krista Kerge. The Language Working Group includes Reili Argus, Külli Habicht, Reet Kasik, Katrin Kern, Einar Kraut, Helika Mäekivi, Urve Pirso, Peeter Päll, Maire Raadik and Arvi Tavast. The Language Working Group held 6 sessions and solved topical language problems, among others it formed positions as regards the details of ÕS 2013 (working out a recommendation for presenting foreign place names in the new ÕS) and issued recommendations concerning orthography (naming of event units and virtual units and orthography of units). They also disputed with the public, spoke up in newspapers and on radio and answered the referrals of people and institutions.

Released in 2013 from print were

- Estonian Mother Tongue Society Yearbook 58 (2012). Editor in Chief Mati Ereht, Editor Sirje Mäearu. Estonian Mother Tongue Society of the Estonian Academy of Sciences, Tallinn, 2013, 359 pp.
- Language Magazine Oma Keel, 2013, 1, 119 pp.
- Language Magazine Oma Keel, 2013, 2, 96 pp.

The library of the Estonian Mother Tongue Society was replenished in the reporting year by 41 items of printed matter, obtained by exchange, donation and purchase. The library keeps on record 6 364 inventory items of printed matter.

## **ESTONIAN UNION OF THE HISTORY AND PHILOSOPHY OF SCIENCE**

Associated with the Estonian Academy of Sciences  
4.02.1998

Founded 1967

Membership: 61 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 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 Board of the Association met twice (22 February and 17 May). The general meeting was held in Tartu, in the Karl Ernst von Baer Centre for Science Studies of the Estonian University of Life Sciences on May 17, 2013. The general meeting approved the activities report of the Association for 2012 and the working plan for 2013. It also satisfied the application of Epi Tohvri to stand down from the position of a Member of the Board. Since 17 May the Board of the Association consists of Peeter Mürsepp, Ülo Kaevats, Erki Tammiksaar, Rein Vihalemm and Tarmo Kiik.

Cooperation with members of NGO Wikimedia Eesti continued the input of "The Biographical Lexicon of Estonian Science" into Wikipedia environment. As of now, all biographies of Volume 3 of "The Biographical Lexicon of Estonian Science" have been uploaded to Wikipedia, the biographies of Volume 4 are presently being added. A plan has been worked out for updating volumes 1 and 2 and adding them to Wikipedia, following the same principles that were pursued in volumes 3 and 4. The Council of Rectors of Estonian Universities supported the plan and assented to seek funds to fulfil its commitment.

The Association supported the launch of a new scientific journal *Acta Baltica Historiae et Philosophiae Scientiarum*. The opening issue of the journal was released in spring 2013 and the second issue appeared in autumn 2013.

Members of the Union (Erki Tammiksaar and Peeter Mürsepp) spoke up in the reporting year on popular science radio programme “The falling apple”. Peeter Mürsepp and Rein Vihalemm participated in a radio programme “Laboratory” on the 15th of December 2013.

During the Annual Conference of Estonian Philosophy, a special session that took place on December 13-14 at Tallinn University of Technology was dedicated to the 75th jubilee of Rein Vihalemm. In addition to leading philosophers from Estonia, renowned foreign visitors Nicholas Maxwell, Ken Westphal ja Sami Pihlström took part in the conference.

Peeter Mürsepp presented two topics at the XXIII World Congress of Philosophy in Athens. Members of the Association participated in a conference of the European Philosophy of Science Association in Helsinki.

Members of the Association Peeter Mürsepp, Leo Näpinen, Vahur Mägi and Lea Leppik represented the Association at the 24th International Conference of History of Science, Technology and Medicine in Manchester (22.07-28.07.2013). The Congress held after every four-year period is the largest domain-based gathering of historians of science, with 1 758 delegates with ca. 1 400 papers attending in 2013.

Peeter Mürsepp was a Kone Fellow at Helsinki Collegium of Advanced Studies during the autumn semester of 2013.

## **ESTONIAN LEARNED SOCIETY IN SWEDEN**

Associated with Estonian Academy of Sciences 19.03.1999

Founded 1945

Membership: 83 active members and 3 honorary members

Chairman (and the address): Ants Anderson, Ramviksvägen 214, SE-122 64  
Stockholm, Sweden, Tel: +46 891 3833

Secretary: Taavi Adamberg, c/o Madissoon, Lejonets gata 386, SE-136 60  
Brandbergen, Sweden

The Southern Swedish Department:

Chairman: Nora Ausmees, Magle Lilla Kyrgogata 17, SE-223 51 Lund,  
Sweden

Secretary (and the address): Kristiina Savin, Södra Esplanaden 20 d, SE-223 52  
Lund, Sweden, Tel: +46 4612 2945

The 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 and six meetings with papers at the Estonian House in Stockholm. One of the meetings was held as an event in the frame of an Exile-Estonian Cultural Festival. There was also a visit to the Medieval Museum in Stockholm.

The meetings dealt with various topics: "Brain science without a brain" (Toomas Kirt), "Scientific level of the University of Tartu, as compared with the level elsewhere" (Kristjan Haller), "The old good Swedish time" (Aleksander Loit), "On the politicized Estonian choral singing in the 20th century" (Hain Rebas), "The Estonian word competitions – an uncommon method for the enrichment of vocabulary" (Raimo Raag), "Fortune, misfortune and fate in Sweden in the early modern times" (Kristiina Savin), "Antibiotics as we and the microbes see them" (Nora Ausmees), "What are the sciences and arts like? A taste of scientific theory and method" and "Chemistry combined with computers – the Nobel Prize 2013" (Olav Vahtras).

On the 5th of November the 94th anniversary of the Estonian University of Tartu was celebrated. Professor Harry Mutvei delivered a talk headlined "Contacts and cooperation with the Estonian scientists during the Soviet time in geology and environmental protection". Estonian music was performed by the tenor Mikko Pulkkinen, accompanied by Klarika Kuusk, piano.

The distribution of Society's Annals XIV continues and the preparation of Annals XV has been initiated.

The Southern Swedish Department of Society held the annual meeting on 3 February, with paper delivered by doctoral student of Department of Slavistic Studies of the University of Tartu Mart Kuldkepp on the topic: "The idea of Nordic affiliation in early Estonian nationalism".

On 25 November a meeting with papers was held, with post-doctor of social linguistics of Lund University speaking on the topic: "The sustainability of Estonian in the opening world".

## **ESTONIAN LITERARY SOCIETY**

Associated with the Estonian Academy of Sciences  
23.01.2001

Founded in 1907

Members: 291 members (incl. 39 lifetime members, 11 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)

In 2013, the activity of the Estonian Literary Society focussed on carrying on with major initiatives started earlier: the project Rongiluule (Train Poetry) continued, the preliminary application was submitted to UNESCO for candidacy of Tartu to the creative cities network, and new poetry CDs were issued in the series The Voices of Writers. The Society also continued cooperation with other institutions organising seminars for students and literary scholars. Two big fest literary festivals, the international literary festival Prima Vista and interdisciplinary culture festival Crazy Tartu also took place, the Society being once again one of the main organisers.

In January the Y Gallery hosted the literary event Word/Sound mixing verbal arts music with the authors of younger generation performing. The event was a follow-up to the cooperation of the Society with the Y Gallery and the series of events initiated there called Topofon. In March another Topofon event took place – the presentation of the 16th volume of the essay magazine Vihik. This volume, titled Nostalgia for the Events of the Future, was compiled and edited by Jaak Tomberg.

In April the traditional session of the annual review of literature took place where the Estonian poetry, prose and drama of 2013 were discussed.

On April 23rd the Book and Rose day was celebrated in Tartu as a warm-up event for the literary festival Prima Vista. The programme included various literary events, including a book fair and announcement of laureate of the literary prize “Esimene samm” (First Step) of Prima Vista and Tartu Cultural Endowment.

In beginning of May two new CDs of the series The Voices of the Writers were presented at Tartu Literary House – Ain Kaalep’s “Maiseid maastikke” (Earthy Landscapes) and Hando Runnel’s “Armastusest rääkida” (To Talk About Love). The series of CDs is a joint project of the Society and the Estonian Literary Museum

9-12 May the 10th Tartu International Literary Festival *Prima Vista* was held, with subtitle “Aeg lendab/Time Flies”. The patron of the festival was Leelo Tungal and the partner town was Valga. The programme included the traditional Park Library and book fair and also book presentations, lectures, discussions, concerts, exhibitions, films and various other events and sub-programmes. The festival presented many Estonian writers and quite a few foreign guests: Russian authors Leonid Mlechin and Marina Palei, American writer Bruce Sterling, Polish author Olga Tokarczuk, prose writer Joel Haah-tela and author of childrens’ books Jukka Itkonen from Finland, Thomas Hettche and Paul Maar of Germany, Ádám Bodor from Hungary, Andy Willoughby from England and Latvian literary group Orbita. The main organisers of the festival *Prima Vista* are the NGO Literary Festival *Prima Vista*, Estonian Literary Society, Estonian Writers’ Union, Tartu Public Library, and the University of Tartu Library.

In June, the 5th poetry selection of the project “Rongiluule” (Train Poetry) was opened in Tartu railway station with the poetry and music night. Train Poetry is as a joint project of the Society and AS Edelaraudtee. In autumn, the 6<sup>th</sup> selection of texts was presented on the train windows, this time dedicated to the year of cultural heritage and therefore including folk texts.

In summer two scholarly 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 November, the interdisciplinary international festival “Hullunud Tartu” (Crazy Tartu) was held for the fourth time. The curator of the festival was the poet Jaan Malin and co-organisers were the Society and Estonian Writers’ Union. The cooperation with the Turku “Runoviikko” poetry festival which started already in 2012 also continued. The subtitle of this year’s festival was “Koor” and it was held in the former church building of the University of Tartu partly at Tartu New Theatre. The programme featured many Estonian authors, including Peep Ilmet, Indrek Hirv, Doris Kareva, Mihkel Kaevats, Hasso Krull, Carolina Pihelgas, Eeva Park, Kristiina Ehin, Maarja Kangro, Siim Kera, Kalju Kruusa, Igor Kotjuh, Katrin Väli, (: )kivisildnik, Aare Pilv and Kai-Mai Olbri; the foreign guests were J. K. Ihalainen from Finland, Peter Sragher from Romania, Tobi Kunze and Dirk Huelstrunk from Germany, Claus Ankersen from Denmark and Ben Porter Lewis from the USA. The art exhibition included works by Kristiina Kaasik, Brian Sibola Hansen, Tiiu Pallo-Vaik, Sirje Petersen, Per William Petersen, Imat Suuman, Laurentsius, Raoul Kurvitz, Anne Rudanovski and Andrus Peegel; the musical part featured the chorus piece “hullund” (Crazy) specially composed for the festival by Henri Käärrik, performed by the mixed choir Mask. At the afterparty held in the Tartu New Theatre, a concert was given by the ensemble rasKatarsis.

Published by the Society in 2013:

- Tomberg, J. (comp. and ed.) Nostalgia asjade vastu, mis seisavad veel ees [Nostalgia for the Events of the Future], Vihik no. 16.
- Kaalep, A. Maiseid maastikke [Earthly Landscapes], CD.
- Runnel, H. Armastusest rääkida [To Talk About Love], CD.



## LEARNED ESTONIAN SOCIETY

Associated with the Estonian Academy of Sciences  
23.01.2001



Founded 1838

Membership: 111 active members, 16 honorary members

Address: Lossi 3, 51003 Tartu, ESTONIA

[www.ut.ee/OES](http://www.ut.ee/OES)

Chairman: Tiit Rosenberg, Tel: +372 737 5650, [tiit.rosenberg@ut.ee](mailto:tiit.rosenberg@ut.ee)

Vice-Chairmen:

Marju Luts-Sootak, Tel: +372 737 5396, [marju.luts-sootak@ut.ee](mailto:marju.luts-sootak@ut.ee)

Heiki Valk, Tel: +372 737 5653, [heiki.valk@ut.ee](mailto:heiki.valk@ut.ee)

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 give scientists, including younger researchers, possibilities for public academic presentations and for publishing their investigation results.

In 2013, 16 meetings, a book presentation and an excursion took place. To celebrate the 175th anniversary of the Society, an excursion to places bound with the founders of the Society in historical Võrumaa district (Põlva – Himmaste – Võru (Fr.R.Kreutzwald Memorial museum) – Vastseliina – Rõuge) was organised. The audience at public events numbered 449, on average 25 participants per one event. The topics of the papers were as follows: history – 8, history of culture – 3, literature – 2, history of journalism – 1, history of religion – 1, ethnic history – 1.

The largest number of participants was attracted by the presentation of Tiit Rosenberg's book "Furrows. Studies on the 18th-20th C. agrarian history of Estonia" (Scripts of the ELS, IX) (50 people) and by the presentation of Heiki Valk "Sacred River Võhandu" (48 persons at the annual meeting).

Member of the Estonian Academy of Sciences Hando Runnel and Professor Emeritus Tiit-Rein Viitso were elected Honorary Members of the Society. In 2013, the Honorary Member, archaeologist Silvia Laul departed (born in 1931).

The Yearbook of the ELS, containing articles based on papers delivered in 2012 was published. As a result of reorganisations which had lasted for several years, the Yearbook obtained the status of 1.2 category issue in the classification system of scientific publications of Estonia. The yearbook is now also an Open Access issue. The prize of 160 EUR for the best article in the Yearbook of 2011 was awarded to Tuuli Kurisoo (PhD student) for the article "Cross pendant in the Estonian 12th-13th C. inhumation cemeteries: jewellery or sign of faith?".

The library of the Society which was moved from the Library of the University of Tartu to the Estonian Literary Museum in late 2012 and early 2013 was officially delivered to the Museum and the delivery act for permanent deposition was signed on February 6. The members of the Society got acquainted with the new depository of the library. A large part of the Society's library had been stored in the Estonian Literary Museum already before.

In 2013 archaeological field works were carried out in Kose churchyard (emergency excavations connected with the laying of the water tubes). Cameral works of the excavations in Karksi castle in 2012 were finished. Archaeological observations took place on two construction sites in Viljandi – in Oru and Ranna Street.

The Board of the Society estimated the work of the Society 2013 as satisfactory. The activities of the Society continuously contribute to the development of the humanities while history sciences predominate, as before. The share of philology, first and foremost literature studies, increased in 2013. However, due to shortage of financial means the level of research is hard to maintain and further activities difficult to plan.

## ESTONIAN MUSICOLOGICAL SOCIETY

Associated with the Estonian Academy of Sciences  
21.06.2004

Founded 1992

Membership: 82 active members (of whom 3 outside Estonia), 1 honorary member (Professor Emeritus of Lund University Folke Bohlin)

Address: Rävåla pst 16, 10143 Tallinn, 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 interest to scholarly study of music, and it supports research in all fields of musicology in Estonia.

The achievement of 2013 was releasing of the fifth issue of the musicological yearbook *Res Musica* dedicated to musical theatre, 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.

13-14 September 2013 – a conference dedicated to theatrical activities related to August von Kotzebue (1761-1819) was organised in Tallinn by the Estonian Musicological Society, the Department of Musicology of the Estonian Academy of Music and Theatre, the Department of Culture of the Estonian Republic in Berlin, and the NUKU Foundation. The conference papers were delivered by outstanding German scholars including the member of the German Academy of Sciences Conrad Wiedemann, Klaus Gerlach, René Sternke, Jens Thiel, Paul S.Ulrich, Bettina Bartz, and Christine Siegert, as well as by the Estonian researchers including the member of the Estonian Academy of Sciences Jaan Undusk, Harry Liivrand, Toomas Siitan, Kristel Pappel, Maris Saagpakk, Eerik Niiles Kross, Heidi Heinmaa, and Anne Untera.

Upon organisation of the Society, every year there are regularly held two meetings with papers, in spring at Tartu and in autumn in Tallinn. At Society's Day of Tartu on 20 April 2013, papers were delivered by eight researchers from the Estonian Academy of Music and Theatre, the University of Tartu, Tallinn Georg Ots Music High School and International Arvo Pärt Centre; the main speaker was Annabel Cohen from the University of Prince Edward Island, Charlottetown, Canada. The topics were related to music psychology and recent Estonian music history.

The autumn Leichter Day in Tallinn on 18 November 2013 united the regular annual meeting of the Society, the presentation of the fifth issue of *Res*

*Musica* and the screening of the opera film by the renowned opera director Joachim Herz “The Flying Dutchman” created in 1964. The opening commentary was given by Kristel Pappel.

It has been a long tradition of the Society to organise a culture-lore trip at the beginning of September. In 2013 the Society visited Läänemaa.

## ESTONIAN PHYSICAL SOCIETY

Associated with the Estonian Academy of Sciences  
14.06.2005



Founded 1989

Membership: 357 active members, 4 honorary members

Address: Tähe 4, 51010 Tartu, ESTONIA, [efs@fi.tartu.ee](mailto:efs@fi.tartu.ee)

[www.fyysika.ee/efs](http://www.fyysika.ee/efs)

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 21-22 in Tartu Observatory, Tõravere. The Physics Days were organised by Kaido Reivelt, Aile Tamm, and Riina Murulaid in cooperation with the personnel of the Tartu Observatory, who were very forthcoming. 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 Society night.

At Physics Days the annual prize of the Society was announced. It was awarded to the team organising the International Physics Olympiad. The student prize of the Society was assigned to Joosep Pata, Morten Piibeleht and Jakob Jõgi. The general meeting bestowed recognition to compilers of Yearbooks of Society Anna Aret, Helle Kaasik and Piret Kuusk.

The Yearbook of Society 2011 appeared ([www.fyysika.ee/fyysika/aastaraamat](http://www.fyysika.ee/fyysika/aastaraamat), editors Anna Aret, Helle Kaasik and Piret Kuusk).

March 13-14 – at the 60th Physics Olympiad of Estonian school youth, the special prize of the Society (annual subscription to Scientific American) was granted to Kristjan Kongas (Old Town Education College).

In 2013, 33 new members joined the Society. The Society continued to retain its membership in the European Physical Society.

In 2013, the undertakings of the Society were supported by Institute of Physics of the University of Tartu, Institute of Chemical and Biological Physics, AS Eesti AGA, Estonian Academy of Sciences, Ministry of Education and Research, Centre for Environmental Investments, European Social Foundation, the 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

Upon leadership of Alex Nõomaa the Science Bus *Big Dipper* continued its work. Three new performances were worked out – Vikings and gas performances and the topical performance of an animation film Ice Age.

There were 104 Science Bus trips with 18 different programmes. Within the framework of every trip, 1-10 schools or events were visited. Regularly engaged in science theatre performances were ca. 40 students, visiting 91 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 course “Science in topical lectures”, attended by ca. 30 and finished by 19 students of different specialties. Within the framework of that event the students gained first-hand experience in doing science theatre and popularising science.

In the last weekend of April we organised the traditional Family Days in the study building at 4 Tähe St, Tartu; in November the Ahhaa science centre Fathers Days event “Day with the father” was held.

Within the framework of the Science Bus activities we also prepared the workshops for the use of the event Science Town of Tartu Hansa Days. Workshops were held on July 20-21 at Tartu on Toomemäe. Traditionally the youth of the Science Bus did supervising in the workshops of Science Camp.

Physical portal’s ([www.fyysika.ee](http://www.fyysika.ee)) news portal ([www.fyysika.ee/uudised](http://www.fyysika.ee/uudised)) regularly mediated scientific news from foreign sources and spurred the Estonian scientists to write short articles reporting their research outcome. Besides that we mediated the developments occurring in Estonia in the community of physics. Editor-in-Chief of the news portal is Aile Tamm, translators-editors were Uku Pütsepp and Stiina Kristal.

The Society organised the Science Camp of the University of Tartu ([www.teaduslaager.ee](http://www.teaduslaager.ee)). In 2013 the Science Camp was held in two shifts, on August 05-11 and on August 12-18 in the Kloogaranna youth camp. Participating in the first shift were 110 5th-7th form students, participating in the second shift were 111 8th-9th form students. In both shifts the students were distributed into five groups, every day featuring one topic. The topics were physics, chemistry, materials science, biology, and optics. 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 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 8 x 4=32h. In 2013, over 400 workshops were held; involved were (total for two years of training) over 100 groups, attended by ca. 1 800 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 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 Energy Academy at Neljärve on 1-3 July.

8 teachers participated at CERN training in 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 10 October 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.

Work with issuing textbooks of the new gymnasium curriculum of physics carried on. Issued in 2013 was the textbook Electromagnetism (authors Kalev Tarkpea and Henn Voolaid). The Society is engaged in standing cooperation with the Maurus Publishers, when issuing the textbook. Work at e-textbooks continues (see [õpik.füüsika.ee](http://õpik.füüsika.ee)). The Society hopes to engage in close cooperation at developing the substance and form of e-textbooks with the Centre of School Physics of the University of Tartu, as well as with all stake-holders in Estonian education in physics.

The work of network of teachers of physics is reflected on website [www.fyüsika.ee/vorgustik](http://www.fyüsika.ee/vorgustik), edited by Jaan Paaver.

#### ENVIRONMENTAL AWARENESS PROGRAMME GLOBE

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 European Social Fund and fund of the project of Centre for Environmental Investments.

On August 12-14 there was the GLOBE summer camp at Valgemetsa youth camp (with attendance of 142 teachers and school students from 25 schools). There were 24 supervisors at the camp.

Contest of environmental research 2013 was carried out (27 research works participating, see [www.globe.ee/globe/konkurss/konkurss2013/](http://www.globe.ee/globe/konkurss/konkurss2013/)) and the students' conference GLOBE 2013 was held in Narva Gymnasium of the Humanities (see [www.globe.ee/globe/konverents/konverents2013/](http://www.globe.ee/globe/konverents/konverents2013/)).

We carried out the first part of the GLOBE air pollution measurement project, supported by Centre for Environmental Research. Within its framework students of 25 Estonian schools measured air pollution, trainings 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)).

We have continued cooperation with the Comenius project surveying air pollution, held upon participation of Estonian, German, French and Turkish schools.

We are partners 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 2013 teachers' seminar (6 January 2013 Tartu, see programme [www.globe.ee/globe/seminar/seminar2013/](http://www.globe.ee/globe/seminar/seminar2013/)).

#### THE SOCIETY OF PHYSICS STUDENTS

The Summer School of Exact Sciences of the Society was held on 1-3 July at Nelijärve holiday centre (see [www.fyysika.ee/fyysika/nofy/suvekool2013/](http://www.fyysika.ee/fyysika/nofy/suvekool2013/)), The Autumn School of Exact Sciences (see [www.fyysika.ee/fyysika/nofy/sygiskool2013/](http://www.fyysika.ee/fyysika/nofy/sygiskool2013/)) was held on 1-3 November at Voore guest house. Both events were attended by over 100 students, young scientists and teachers of physics from various corners of Estonia.

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 two first-named 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 Roland Matt (chairman), Anna-Helena Saarso (treasurer), Madis Ollikainen and Mihkel Pöldemaa, at autumn semester the Society of Physics Students was managed by Madis Ollikainen



(chairman), Anna-Helena Saarso (treasurer), Mihkel Põldemaa and Kristian Kuppert.

In spring semester the Society of Physics Students continued holding student seminars, which carried on also in the autumn semester. There were altogether 16 hobby seminars: “Fascinating world of turbulent blending” – senior researcher of the Institute of Chemical and Biological Physics Jaan Kalda, “How the Baltic Sea should be painted?” – junior researcher of Tallinn University of Technology Ilja Maljutenko, “Astrophysics in Estonia” -Professor of the University of Tartu Peeter Tenjes, “Plasma: exotic and commonplace” – senior researcher of the University of Tartu Indrek Jõgi and doctoral student of the University of Tartu Kaarel Piip, “Models in atmospheric physics laboratory” – senior researcher of the University of Tartu Arne Männik, “Light propagating quicker than itself” – senior researcher of the University of Tartu Heli Valtna-Lukner, “Applications of methods of nuclear analysis in industry, power engineering and nano-safety” – senior researcher of the University of Tartu Madis Kiisk, “Presentation of film technology of Institute of Physics” – project leader of Estonian Nano-technologies Development Centre LTD Tõnis Arroval, “CERN summer school and physics of particles” – master student of the University of Tartu Joosep Pata and student Ants Remm, “Soft filler and sensor materials” – doctoral students of the University of Tartu Indrek Must and Friedrich Kaasik, “How nano-aerosol should be measured?” – researcher of the University of Tartu Sander Mirme, “Nanolabor” master students of the University of Tartu Sven Oras and Mikk Vahtrus, “Creating myometry” – researcher of the University of Tartu Arved Vain, Summer school “Summer of High Performance Computing” – student Jasper Kursk, “Geometry in tasks of mathematics” – doctoral student of Marseille University Mihkel Kree.

On 25 January the students visited the science and business campus Tehnopol located in Tallinn, where they informed themselves as to the local start-up companies and environment contemplated for them, Mechatronics laboratory and equipment, Metrosert measurement laboratory, Cybernetic Foundation and ELIKO electronics and mechanics competence centre. Besides that, the students walked around the Institute of Chemical and Biological Physics.

21 March was an important day for the Society of Physics Students: the general assembly of the Estonian Physical Society held in Tõravere Observatory accepted the Estonian Society of Physics Students officially into the Estonian Physical Society as a students' division. Also elected to the extended board of the Estonian Physical Society was member of board of the Society of Physics Students Madis Ollikainen.

On 3 May there was the spring cleaning-up in the leisure room of physics students i.e. “Asylum of homeless physics students”, followed by the relaxing sauna night for participants of the cleaning bee.

On 10 May the Society of Physics Students organised at korp! Rotalia the large Spring Fest of physics, welcoming students and employees of the Institute of Physics and other people connected with physics. The goal was making students and researchers acquainted with one another before moving under a common roof. The participants enjoyed the spring weather and barbecue offered in the garden, there was a quiz held in mixed teams, and the thanks were extended to members of faculty. At night, the mood was set by the brass orchestra Popsid!

On 31 May the students visited the semi-industrial laboratories Protolab and Demokeskus of Tartu Science Park and informed themselves as to the activity of companies concerned with electronics, apparatus building and materials science.

## 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: 15 members (legal entities), incl. 1400 individual members  
Address: Liivalaia 9, Tallinn ESTONIA 10118  
www.insener.ee  
President: Arvi Hamburg, Tel: +372 620 3763, +372 523 6500  
inseneronlooja@hotmail.ee, arvi.hamburg@ttu.ee

Estonian Association of Engineers is an NGO, 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.

In 2013, 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, Aleksander Moltsar
- Estonian Electronics Society, Priit Roosipuu
- Estonian Association of Mechanical Engineers, Aigar Hermaste
- Estonian Transport and Roads Association, Arno Aasma
- Põlva Association of Engineers, Lea Leivo
- Estonian Mining Society, Ingo Valgma
- Estonian Association of Engineers for Heat Engineering, Uudo-Rein Lehtse
- Estonian Association of Systems Engineers, Aleksander Grünstam
- Tallinn University of Applied Sciences (representative Rector Enno Lend)
- Tallinn University of Technology, Toomas Rang
- Estonian University of Life Sciences, Margus Arak
- KH Energia-Konsult (representative Tõnis Tasa)

- Viru Keemia Grupp AS, Priit Rohumaa
- ÄF-Consulting AS, Jüri Alasi

Main direction of activities of the Estonian Association of Engineers in 2013 was sustainability of education in engineering.

In the reporting year one new member joined the Estonian Association of Engineers – Tallinn University of Applied Sciences. There were held a general meeting and 8 meetings of the Board. The members visited several enterprises. Under scrutiny at meetings of the Board were theoretical demands to engineer's professional levels, content of curricula and the analysis of abidance by coordination procedures.

Following proposals were made to the Estonian Qualification Authority:

1. Diploma engineer's primary profession shall be granted, upon graduation from a higher school, to Masters; the graduates of 4-year bachelor programme shall be made equal to the diploma engineer's primary profession\*;
2. Engineer's primary profession shall be granted to persons having obtained the diploma of applied higher education, and as an exception also to graduates of the bachelor level upon application of a professional association of the domain\*.

\* Curricula must meet the professional standard and they must be coordinated with the employer. The defence committee of Master or applied higher education (as an exception bachelor education) graduation paper, where a requisite number of employers attend, may also grant primary profession.

However, non-compliance with the present day requirements of professional theoretical knowledge standards required from the applicant having mastered the curriculum of higher education in force earlier presents a problem.

Position of the Board of Association in view of the above is as follows:

The requirement of level of theoretical knowledge fixed in the professional standard must be pegged to the requirement of Master degree, applied higher education or the level made equal thereto (the outputs of curriculum must not be broken down as per subjects).

#### AWAY SESSIONS

30 April – there was the outing of Board of the Association and Energy Council of the Academy of Sciences to Narva, Auvere. The members informed themselves as to environmental projects DeSox and DeNox, building of the new Auvere plant and oil plant Enefit 280. They heard papers on shale oil energy.

8 May – Board of the Association visited ÄF-Consulting AS. Chairman of Management Board, member of Board of the Association Jüri Alasi presented the structure, activities and capability of ÄF-Consulting AS.

12 June – there was the outing of the Board to NTM Baltic OÜ, where member of Board of the Association Arno Aasma presented engineering activity of NTM Baltic OÜ. Arno Aasma was bestowed recognition for promoting engineering in that enterprise.

16 October – Board of the Association together with members of Inseneeria council visited ABB Jüri production plant. They obtained an overview of the AB Concern, its activity in the Baltic region and Estonia.

20 November – there was a joint visit by Board of the Estonian Academy of Sciences and Board of Association to Koeru Konesko AS and AS Paide Masinatehas. In Koeru, they informed themselves as to historical background of electric engines, electric shields and metal plant created in 1992 and its current work, incl. assembly of wind generators completed as niche products. They exchanged thoughts about social responsibility of a local large employer, as well as about the need for local policy and development works at the plant, having over 300 people on employ.

At Paide the members looked at the plant, which is a leading machine and metal industry enterprise in Estonia. The plant established in 1911 has a glorious history and has by now evolved into an enterprise of innovative way of thinking, with top level equipment and committed specialists, producing among others Meiren Snow brand snowploughs. The unique snowplough solution elaborated by Meiren was awarded the innovation prize at the Swedish Fair Nordicway 2013. Under development is Humus trademark for production of agricultural technology. The plant has 130 workers on employ.

#### OTHER ACTIVITIES

Estonian Association of Engineers participates at composing energy economy development plan, aimed at determining long term development scenarios of Estonian energy economy and at making strategic choices for development of the area. Energy sector has witnessed significant changes, which affect greatly also the need for labour of the energy sector. Therefore, the level of preparation of energy specialists must be reviewed and analysed and the possible models of preparation of labour meeting the demands of labour market must be planned. The main task is the preparation of energy engineers in cooperation with employers.

The Association participates in TeaMe, the programme of propagating natural and engineering sciences of Research Agency of the Ministry of Education and Research. The general goal of the programme is to elevate the awareness of population about impact of science and development on economy and the state's competitiveness, to inform the young and the persons having influence over them about professions and career options related to the domain of natural and engineering sciences, and to disseminate the scientific thought.

As a result of the programme activities, the share of treatment in media of scientific topics will increase; there will be prepared new teaching materials of the area of natural and engineering sciences attractive to youth, and quality of science media will improve.

Natural and engineering sciences are represented in media by Estonian Broadcasting Company in the scientific programmes Rakett 69 and At the Top of Pyramid. The prize of the programme Rakett 69 2013 was awarded to Reigo Kebja, the 3rd year student of the Institute of Electrical Energy of the Energy Department of Tallinn University of Technology.

The 1st stage of the programme of propagating engineering education titled "Technology Leap" was launched. It is aimed at changing the attitudes in the society to appreciation of engineering sciences and uniting all stakeholders for propagating and appreciation of engineering sciences and engineer's work.

It is planned to consolidate the information on engineering into an integral whole and to link it with entrepreneurship for creating prerequisites of innovation.

#### HONORARY TITLES

The title of Engineer of the Year 2013 was awarded to Heiki Meos. Besides his main work at company EstKonsult OÜ, Heiki Meos is Chairman of the Professional Committee of Estonian Association of Civil Engineers and member of Council. He is leader of the team, which worked out new professional standards for engineers of the building area (the 6th, 7th and 8th levels). The said professional standards were approved by Engineers' Professional Council on 05.06.2013. Professional standards of other areas will be modelled after standards of the building engineers.

The title of Engineering Student of the Year 2013 was awarded to Johann-Gustav Lend, bachelor student majoring in electrical energy of Energy Department of Tallinn University of Technology, coordinator of the Education Quality Working Group of the University. Mr. Lend has made a significant contribution to improvement of engineering education at the University and he has duly represented the students in many bodies of authority.

General Assembly of FEANI (Fédération Européenne d'Associations Nationales d'Ingénieurs) was held in Macedonia, Skopje on 3-4 October 2013. On 2 October there were meetings of the working groups. Within framework of the annual meeting, the activity of national engineering organisations was coordinated, summaries were drawn of the work of teams and further activities were planned.

### EURO-ENGINEERS 2013

In 2013 the Association received an application of one candidate for nomination as euro-engineer. The National Monitoring Committee with the Association considered the materials of the applicant, checked the quality of independent engineer work, approved the application and announced the applicant worthy of Euro-engineer's qualification. FEANI satisfied the application and awarded to thermal energy engineer Eduard Latõšov the qualification of Euro-engineer.

FEANI Monitoring Committee also satisfied one application dismissed in 2012, awarding to thermal energy engineer Igor Krupenski the qualification of Euro-engineer. One curriculum was sent to FEANI for accrediting.

In 2013 the Estonian Association of Engineers was 25. The whole year passed within framework of that festive event. Involved were all members of Board of the Association (compiling the Jubilee Book, organisation of exposition and preparation of the festive gathering). Celebration of the 25th anniversary of the Association took place in the Tallinn University of Technology hall on 6 December 2013, the key speaker being I.Neivelt. There followed the performance by women's choir of the Academy of Sciences, awarding of the best, and acclamation of the former presidents. The event was consummated by a festive supper.

On occasion of the 25th anniversary there was released the book titled "Estonian Association of Engineers 1988-2013" with overview on history of the Association, its present day and plans for the future. All member organisations of the Association are presented in the book with articles about their activities. The book is illuminated with many photographs. There was an exhibition staged in the foyer of the main building of Tallinn University of Technology, focussing on the 90th anniversary of the 1st President of the Association Professor Harald-Adam Velner. Pieces of printed matter reflecting the life work of Harald Velner and an exposition of the activities of the Association were on display.

## **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 Lääne-Virumaa, Jäneda manor on 10-11 May. Those outings are traditionally organised by Tallinn and Tartu biochemists in rotation. According to the tradition of spring schools all participants make a report on results of their work or alternatively they consider a problem of general nature interesting to biochemists. The spring school in biochemistry 2013 was held as a joint event with Centre of Excellence of the University of Tartu "Mesosystems: theory and applications" and it was dedicated to biophysics. The curator of the spring school was professor Ago Rinke from the University of Tartu and the executive organiser was master student from the Institute of Chemistry of the University of Tartu Reet Link. The photo albums of the spring schools can be browsed on website of the Society.

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 St. Petersburg, was attended with papers by 5 members of the Society. An oral presentation was delivered by professor Peep Palumaa. The work of the FEBS Council held at the end of the Congress was attended, as representatives of Estonia, by Chairman of the FEBS Advanced Courses Committee Jaak Järv and 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 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 contest of this year all prizes went to the University of Tartu. The first prize was granted to Kadri Ligi. Kadi-Liis Veiman was also recognized with prize.

Upon initiative of the present and former president, the participation of two young scientists at Francis Crick memorial event in Cambridge was supported. Chosen at public contest were Mari Järve of the University of Tartu and Ann Tiiman of Tallinna University of Technology, both having recently acquired the doctoral degree. They attended the said event.

## ESTONIAN SEMIOTICS ASSOCIATION

Associated with the Estonian Academy of Sciences  
22.12.2010



Founded 1998

Membership: 70 members

Address: Jakobi 2-318, 51004 Tartu, ESTONIA

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

Chairman: Katre Väli, Tel: +372 737 5933, [katre.vali@ut.ee](mailto:katre.vali@ut.ee)

Vice-chairman: Peeter Torop, Tel: +372 737 6155, [peeter.torop@ut.ee](mailto:peeter.torop@ut.ee)

In 2013 the Estonian Semiotics Association organised several traditional events on semiotics and cultural analysis (the Autumn School of Semiotics, Semiosalon) as well as a conference dedicated to the 15th birthday of the Association. The tenth volume of the journal *Acta Semiotica Estica* was published. 5 new members joined the Association in 2013.

The general assembly of the Association took place on the 29th of April. The assembly was opened by Indrek Ibrus with his talk “Digital heritage, “endless innovation” and cultural semiotics”. Indrek Ibrus was awarded the prize “Semiotic trace” for his activity in the field of semiotics in the year 2012. The assembly also approved the Association’s economic report for the year 2012. In addition, an overview of the activities of the Association in the year 2012 was given and the plans of the Association for the year 2013 were introduced.

Semiotics students organised the 14th Autumn School of Semiotics “The Face and the Navel” in Mooste on 2-3 November. The topic of this year’s Autumn School was identity and self-description. The event consisted of academic presentations and workshops, where semiotic analysis was applied to the material that was previously prepared by the supervisors. The presentations were given by students of semiotics as well as by professors from different academic fields.

The conference “Semiotics in Estonia, Estonia in Semiotics” was organised by the Association to celebrate its 15th birthday on the 6th of December. The topics of the conference covered current and future possibilities of semiotic research into Estonian culture, society and environment. On the other hand, the future and development of semiotics as a discipline in Estonia was also discussed. Talks were given by Anti Randviir, Kalevi Kull, Eduard Parhomenko, Laura Kiiroja, Meelis Friedenthal, Rein Veidemann, Indrek Ibrus, Kaire Maimets-Volt, Tiit Kuuskmäe, Helen Tammemäe, and Katre Pärn.

Semiotics students organised more than ten seminars in the seminar series “Semiosalon”, main organiser was Piret Karro. The seminars took place in Tallinn, Tartu and Viljandi. Tõnu Viik, Aare Pilv, Märt-Matis Lill, Rein Pakk,

Tanel Rander, Andreas Trossek, Katre Pärn, Martin Oja were talking at the seminars, among the others, covering a variety of topics: from the fields of meaning of a piece of music to the meaning of death in semiotics and in phenomenology. Several seminars of the Semiosalon series were organised in collaboration with other cultural events (e.g. the festival of modern arts ART IST KUKU NU UT, Dark Nights Film Festival).

In 2013 the 10th issue of the Association's journal *Acta Semiotica Estica* was published. The articles of the volume celebrated several birthdays, e.g. *Acta Semiotica Estica* 10, Estonian Semiotics Association 15, Theses on the Semiotic Study of Cultures 40, Igor Cernov 70, Igor Gräzin 60. The volume includes articles by Siim Sorokin, Mirjam Puumeister, Terje Loogus, Anneli Mihkelev, Margit Maran, Nelly Mäekivi and Maria-Kristiina Lotman, Mihhail Lotman, Rebekka Lotman. The volume also includes traditional sections "Chronicle" and "Sightings".

## ESTONIAN CHEMICAL SOCIETY

Associated  
with the Estonian Academy of Sciences  
8.03.2011



Founded 1919  
Membership: 97  
Address: Akadeemia tee 15, 12618 Tallinn, ESTONIA  
ecs.kbfi.ee  
President: Margus Lopp, Tel: +372 620 2808, lopp@chemnet.ee  
Secretary: Elvi Muks, Tel: +372 620 2816; Fax +372 620 2828;  
muks@chemnet.ee

Estonian Chemical Society brings together academic chemists and industrial chemists. Society plays a significant role at organising common activities of the chemists and forming their common positions.

In the reporting year, on 11 October the XXXIII scientific conference of Estonian chemistry days was held. That traditional scientific conference was held for the 33rd time, that time in Mektory House at Raja St. 15 of Tallinn University of Technology. The conference was attended by scientists from Estonian higher schools and research institutions, teachers of chemistry and students and other people interested in chemistry. The conference heard two plenary papers – Professor Mihkel Kaljurand of Tallinn University of Technology spoke about space analytics and Ivo Leito of the University of Tartu spoke about fundamental researches in mass spectrometry and practical applications of results. Besides that, 11 oral papers were heard from representatives of various universities (Tallinn University of Technology, the University of Tartu, Tallinn University, Institute of Chemical and Biological Physics). There were also presented 75 poster papers. The conference had over 130 participants.

The Society co-organised the annual conference of Faculty of Science of Tallinn University of Technology held on 6 November.

Margus Lopp, as representative of the Estonian Chemical Society, participates in the work Board of the Estonian Association of Chemical Industry.

## ESTONIAN SOCIETY OF HUMAN GENETICS

Associated  
with Estonian Academy of Sciences  
5.04.2011



Established in 2000

Members: 131

Address: Riia 23, 51010 Tartu, ESTONIA, estshg@ebc.ee

www.estshg.ee

President: Ants Kurg, Tel: +372 737 5018, akurg@ebc.ee

Secretary: Maarja Kõiv, Tel: +372 522 9126, maarjakoiv@gmail.com

For already the 15th time, the EstSHG organised its annual conference. The conference took place on 18-19 October at Narva College of the University of Tartu in Narva. 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 Dr. Lina Basel-Vanagaite from Tel Aviv University. The speakers included some of the best researchers from Estonia such as Olga Žilina, Tiit Nikopensius, Berit Kolk, Margit Nõukas, Mait Metspalu, Mari Palgi, Ülle Jaakma, Tuuli Käämbre, Pärt Peterson, Kai Kisand, Krista Ress, Jaanus Remme, Ivar Ilves and Hendrik Luuk. Similarly to previous years, a competition to find the best poster was organised, with Janika Põder announced as the best. During the annual conference Professor Ants Kurg was elected new President. Preparations for the conference on 23-24 October, 2014 at Gymnasium of Otepää were started.

The most important events of the year to be highlighted are the approved application filed for adding exome sequencing to the list of services financed by the Estonian Health Insurance Fund, and application for the compensation of enzymatic substitution treatment for Hunter's syndrome.

Exome sequencing was assigned code 66 641 at the price of 1 507.40 euro; it was decided not to compensate the treatment for Hunter's syndrome.

On Andres Metspalu's proposal the board of EstSHG discussed the program vision of personalised medicine, approving it in general but stating that the vision still needed improvements which were made by Enterprise Estonia Foundation upon demand of the Ministry of Social Affairs.

## **ESTONIAN SOCIETY FOR THE STUDY OF RELIGIONS**

Associated  
with the Estonian Academy of Sciences  
5.04.2011



Founded 2006  
Membership: 56 members  
www.eaus.ee  
Address: Ülikooli 16, 50090 Tartu, ESTONIA  
President: Madis Arukask, Tel: +372 737 5227, madis.arukask@ut.ee  
Academic Secretary: Piret Koosa, Tel: +372 735 0414, 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 organisations in the area – the 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 2013, a series of lectures oriented to the public “Religion and conflict” was carried out. Within the framework of the series there were held seven meetings with papers, related to clashes inherent in religions and other religious phenomena and/or concomitant therewith. Speaking were Sergei Stadnikov (‘Green future’ of Egypt), Holger Mölder (Impact of Islamic militancy on formation of current international conflicts: politicizing of the religions, terrorism and the culture of fear), Toomas Gross (Community, religious changes and conflict: relations between Protestants and Catholics after the example of Mexican zapotecs), Elo-Hanna Seljamaa (“Всем миром! All together!” Observations on Orthodox sanctuary being built in Lasnamäe), Laur Järv (Schismatic topics in Tibet Buddhism: problem of two Karmapas, irate godhead Dorje Shugden and others), Eva Toulouze (Animism of the Udmurts in the present-day Udmurtia and Bashkortostan) and Atko Rimmel (Atheism on Estonian religious landscape).

14 November – a meeting with papers was held, with researcher of Belgrad University Nemanja Radulović speaking on the topic “From Bogomilism to Neo-Bogomilism. The Picture of Bogomilism in South Slavic Cultures”.

19-28 June – general meeting of the Society as an e-meeting, with the Board giving account of the achievements of the previous year; the meeting approved the report of activities for the previous year (9.6.2012-6.6.2013).

13 December – annual meeting of the Society “Religion, Individual, Conflict” summarised and complemented thematically by the series of lectures for 2013; within its framework 10 papers were delivered. Speaking were Ester Oras (Kohtla’s cache: weapons and rituals in the Iron Age), Merili Metsvahi (Thiess – shaman or charlatan? Interpretations of the Livonian werewolf process of 1691), Art Leete (Oil and ritual: collective reindeer sacrifices of indigenous people of West Siberia), Reet Hiimäe (Neo-confessions in distorting mirror: are they a conflict or two facets of an integral unity), Laur Järv (Self-immolations in Tibet), Märt Läänemets (Zen-experience as resolution of an internal conflict situation), Margus Ott (Religion’s ambivalence: hardening and intolerance), Tiina Sepp (Glastonbury – Pilgrims without Pilgrimage?), Brent C. Augustus (Stripping the Spirit from the Soulless: The Secularization of the Zombie in American Popular Culture) and Davide Ermacora (For a Critical Appraisal of ‘Shamanism’ as a Widely Used (and Abused) Category in European Folklore Studies).

Overview of the activities of the Society and the respective problem range was submitted at session of the Board of the Estonian Academy of Sciences on 20 May by member of board of the Society Ergo-Hart Västrik.

## **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)

Chair: Ülo Kaasik, Tel: +372 668 0770, [ylo.kaasik@eestipank.ee](mailto:ylo.kaasik@eestipank.ee)

Board members: Martti Randveer, Tel: +372 668 0887

[martti.randveer@eestipank.ee](mailto:martti.randveer@eestipank.ee)

Tairi Rõõm, Tel: +372 668 0926, [tairi.room@eestipank.ee](mailto:tairi.room@eestipank.ee)

The Estonian Economic Association was re-founded in 2002. It 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 Society organises an annual conference, awards the Professor Vello Vensel prize for research, and distributes information about events at institutions that are members of the Society.

In 2013 the Association continued its long tradition of annual conferences, the first of which was held in 2003 in Toila under the name of the EMS Winter Conference. The conference is now called the annual conference, and has been called so since the 2006, when the conference was held in Pärnu. The topic of the eighth annual conference in Põlva in January 2013 was “Enterprise in rural Estonia: Progress and problems in different areas”. Alongside the main topic, discussions were also held on the future outlook for the Estonian economy and on higher education reforms. Visits were also made to rural businesses.

Several changes and new initiatives were introduced in the activities of the Association in 2013. The Association is led by member institutions in rotation, and so at the 2013 annual conference Ülo Kaasik, Deputy Governor of Eesti Pank, was elected Chair of the Society and Martti Randveer, Head of the Economics and Research Department at Eesti Pank, and Tairi Rõõm, Head of the Research Division at Eesti Pank, were elected to the board of the Association. Board members hold their posts for three years, so Eesti Pank will be taking the lead role in the Society for that time.



A new initiative agreed by the Estonian Society for Economics in 2013 was the Professor Vello Vensel research prize. 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. Since one goal of the Society is to improve the qualifications and professional skills of Estonian economists, the members of the Society decided that rewarding the research of young economists through the Doctoral School in Economics and Innovation run jointly by the University of Tartu, Tallinn University of Technology and Estonian Business School is a good way to achieve that goal.

The Estonian Society for Economics awarded the Professor Vello Vensel research prize for the first time in summer 2013. The winner was Merike Kukk, a doctoral student at Tallinn University of Technology.

## ACADEMY IN BRIEF

How have 75 years passed in the Estonian Academy of Sciences?

*Jüri Engelbrecht, Horisont, 1, 2013*

On 28 January 1938 the State Protector Konstantin Päts signed a laconic decision, saying “Due to urgent national necessity I shall enforce and proclaim as a decree the Estonian Academy of Sciences Act.” It is worthwhile to have a look at the Act itself, contemplating as the task of the Academy promotion of general science and in particular the science concerning Estonia, basing in the first place on issues arising of the needs of actual life. Further it is said in the Act: the Academy shall fulfil its tasks directly or through its membership, sections and scientific societies and institutes attached to the Academy. The first 12 members were nominated by the State Protector on 13 April 1938, Karl Schlossmann was nominated President of the Academy, the first Assembly of the Academy was held on April 20 of that year, and 22 October witnessed the ceremonial opening of the Academy. Besides other activities, in 1939 the Academy had time to elect another member, namely Teodor Lippmaa and to adopt a decision to establish the Estonian Institute for Research of Dialects. Deplorably the President of the Republic had to suspend the work of the Academy as from 20 July 1940, under coercion of the Soviet Union. After the 2nd World War the authorities adopted a decision (28 June, 1945) to restore the Estonian Academy of Sciences, forming it in the ESSR style. Since 1989 the Academy has again born the original name – the Estonian Academy of Sciences. This was the course of events in Estonia.

In broader perspective the history of Academies dates from Ancient Greece; the present day oldest Academies were instituted in Europe in the 17th C. Academies have, from the very start been assemblies of top scientists, uniting their mental power at obtaining knowledge, and at development, delivery and preserving knowledge. Over the times their functions have changed, however the advisory capacity of Academies has always been in the forefront. Academies may have research institutes (contrary to the wide-spread opinion, several West-European Academies have also such structure), as a rule they have many commissions for solving concrete problems, and their participation in formation of science policy is significant. In greater detail see J.Engelbrecht, Academies in time and space, *Akadeemia*, 2008,10, 2116-2130.

During the past 75 years a lot of water has flown to the sea, although for a long time the water flow was stemmed by dams, called iron curtain. Lennart Meri queried rhetorically in his address by the 60th anniversary of the Academy, what the efficiency of science was. As it is, its efficiency amounts to novel results and impact on society, however appraisal is far from being easy and forecasting is difficult.

Sometimes you will need perspicacity like Michael Faraday had, announcing that the phenomenon of concerted effect of electricity and magnetism could be taxed sometimes in the future. The Members of the first composition of the Academy too used their best endeavours to advance on the path of knowledge. Ernst Öpik, Ludvig Puusepp, Paul Kogerman, Oskar Loorits, Gustav Suits and others have eternalised their names in the history of Estonian science and culture. Regardless of the ideological duress in the second half of the past century, science made headway. Members of Academy had an impressive role to play in that progress. The names like Harald Keres, Nikolai Alumäe, Paul Ariste, Viktor Masing, Karl Rebane, Artur Lind and many others are outstanding and telling in this respect. A major part of steps in research of that time were made in Institutes of the Academy. Today some of them are independent like the Tartu Observatory, the Institute of the Estonia Language, the Estonian Literary Museum and the Estonian Biocentre, others being integrated with the Universities. I dare say that neither the new directions like molecular biology and computer science nor the traditional researches like the Estonian language or the astronomy of long history would presently be on such a high level, if efficient work had not been carried out at Institutes of the Academy even under coercion.

Presently the Academy has only one research institution – the Under and Tuglase Literature Centre, however there are association agreements with 8 research institutions and 17 scientific societies. One of the outcomes of potential of the Academy is the activity of commissions and councils with their recommendations and proposals. Of especial importance are advisory activities directed at the society by the Energy Council, the Committee on Marine Sciences and the Committee on Nature Conservation, recently starting as new committees have been the Standing Committee on Medical Science and Health Strategy and the Standing Committee on Cyber Security. The Academy is engaged in many international organisations and has cooperation agreements with several other Academies. The Academy publishes nine internationally reviewed research journals.

The face of the Academy is moulded by Members of Academy. Lately the ranks of the Academy have been replenished by a number of younger generation top scientists. On the one hand, many achievements in research could be referred to, on the other hand however the voice of Members of Academy and scientific thinking are also heard in many advisory commissions and panels so very much necessary to the state of Estonia. Member of Academy is not just a scientist of renown, but also a citizen understanding the problems of society, contributing his or her knowledge and analytical capacity to support the general growth of knowledge. Society as a complex system just requires it, with the Academy and Members of Academy following the motto: *Facta non solum verba*.

ESTONIAN CONTACT POINTS FOR  
INTERNATIONAL SCIENCE ORGANISATIONS  
(whose membership fees in 2013 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@cc.ioc.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: Peeter Tulviste, peeter.tulviste@ut.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 Leo Mõtus, leo.motus@akadeemia.ee)	European Academies' Science Advisory Council, EASAC
Estonian Academy of Sciences (contact Anne Lill, anne.lill@ut.ee)	International Commission on <i>Thesaurus Linguae Latinae</i> (TLL)
Committee on Phylogeny and Taxonomy, 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  
IUPAP (contact Ergo Nõmmiste,  
ergo.nommiste@ut.ee)

Department of Philosophy and  
Methodology of Science of the  
Estonian Union of the History and  
Philosophy of Science (contact Rein  
Vihalemm, rein.vihalemm@ut.ee)

International Union of Pure and  
Applied Physics, IUPAP

International Union of History and  
Philosophy of Science, Division of  
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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. Finnish Academy of Science and Letters (10.03.1992)
25. Swiss Academy of Sciences (18.09.1989)
26. Academy of Sciences of the republic of Tajikistan (04.06.2012)
27. Tajik State national University (04.06.2012)
28. Academy of Sciences of the Czech Republic (10.04.1996)
29. National Academy of Sciences of Ukraine (02.10.2000)
30. Hungarian Academy of Sciences (20.06.1995)
31. National Academy of Science of Belarus (18.02.2002)
32. Russian Academy of Sciences (17.02.1993); additional memorandum on cooperation in earth sciences (30.03.2012)

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- 1989                      Annual Report of Estonian Academy of Sciences  
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- 1990–1995                Annual Report of Estonian Academy of Sciences  
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- Scientific Publications of the Estonian Academy of  
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