



LATVIAN ACADEMY OF SCIENCES

YEARBOOK

2010/11

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LATVIAN ACADEMY OF SCIENCES

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The 2010–2011 Latvian Academy of Sciences (LAS) Yearbook is a follow-up edition — already the thirteenth one under this title. The previous issues reflected the situation in 1991, 1992, 1994, 1995, 1996, 1997, 1998/1999, 2000/2001, 2002/2003, 2004/2005, 2006/2007, and 2008/2009.

The Yearbook includes the Charter of the Latvian Academy of Sciences, basic information on the Academy, its structure and members, surveys of activities in 2009–2011.

The contents of the Yearbook are also available on the Website of the LAS (<http://www.lza.lv>).

The Yearbook contains information as of 1 June 2011.

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PRESIDENT'S FOREWORD

2010 was the 65th year in the history of the Latvian Academy of Sciences. We serve the cause of the development of Latvia's science, education and culture, and to raising the profile of science generally. Our Academy is a community in which all Latvian universities, many institutions of higher education and the biggest research institutes are represented by members, and it allows us to take a role in which our own expertise can be made available across the borders between various scientific and educational institutions.



In the reporting period, the Academy continued to work closely with a number of national-scale councils and commissions*, as well as ministerial and inter-institutional task forces, notably on science policies and science career development. These activities, as well as the work done by the Academy's delegated experts in evaluating the EU research projects and programmes, remain mostly invisible and cannot be depicted in the yearbook.

The Academy continued to hold its regular meetings, primarily on subjects suggested by the Academy members. Amongst these let me mention the following. A couple of events addressed economic stabilisation and growth, which we see as the most important issue for national science. Latvia is one of the few European countries, which during the global economic recession dramatically decreased government funding of science. The General Assembly, in November 2010, issued a statement on the current situation in Latvian science, which warns of long-term consequences unless more action was

* The National Development Council, Latvian Council of Science, Council of Higher Education, the State Commission of Scientific Qualification (a collegiate institution supervising the conferral of Doctoral degrees in science), the Council of State Emeritus Scientists (a collegial institution that confers the emeritus status upon deserving scientists), National Standardization Council, Genome Research Council, Latvian National Commission for UNESCO

taken today. The meeting on the sustainability of the ecosystem of the River Daugava arrived at a unanimous opinion that the unique natural and cultural landscape of the meandering Daugava has to be preserved and warned of its instant transformation into transport canal. We nominated *The Meanders of the Upper Daugava* to the national contest of selecting sites for the UNESCO World Heritage list and it was a success. In November, we held a meeting in Jelgava dedicated to the 195th anniversary of our oldest predecessor — the former Kurzeme Society for Literature and Art. The event was hosted by the Jelgava History and Art Museum located in the historical building of *Academia Petrina*.

Our various activities, primarily, the administrative operation of the State Commission of Scientific Qualification, the Council of State Emeritus Scientists, and evaluation of scientific works of nominees for Academy Awards give us a marvelous privilege to oversee the entire academic career of Latvian researchers, starting from young people who defend their doctoral works, then rise through the academic ranks to become some day emeritus scientists. At present, 274 state emeritus scientists are receiving their life grants at the Academy.

In June 2010, we began a new four-year state research programme *National Identity*. We will provide the scientific leadership because the Academy won, in 2009, the ideas competition for new state research programmes. We are confident that performance of the programme will bring about a beautiful synergy effect when combined with the Academy obligations to publish scientific literature and encyclopedia, to scientifically supervise the depositories of Latvian science and the national cultural heritage and to promote the study and development of the history and language of the nation and the state.

In 2010, we announced, for the seventh time, the most significant achievements of the year in Latvia's science. These annual announcements invariably receive a notable response in public and mass media. Our Academy was the central element in organising the *Scientist Night* across the country. The latter activity falls within the scope of a particular agreement with the Ministry of Education and Science of Latvia, signed in 2008, which delegates to the Academy the coordination and implementation European science programmes and projects: COST, EUREKA, EUROSTARS, the joint Baltic Sea regional research programme BONUS, the EU Joint Technology initiatives and ERA-NET projects, and popularisation of science.

Thus, our international activities are wider and more diverse than ever. The LAS continually cooperates with the academies of sciences of other, mainly European, countries within the frames of bilateral agreements (29). A major international event in the Baltic was the 12th Baltic Conference on Intellectual Cooperation, which was held at the Lithuanian Academy of Sciences in October 2010 on the topic *Science and Society*.

I would like to give a special mention to our budget. Since signing, in 2008, a Memorandum on cooperation in scientific research with the Ministry of Education and Science we receive special funding from the Ministry on the basis of a mutual agreement for executing the assigned task work. The Academy retains *de jure* its autonomous status. Being partially financed from the state science budget, we carry out economic activity and also suffered an economic hit during the recession, but we hope to recover shortly. I should note that much effort has to be put into running the maintenance of the Academy high-riser, but at the same time it hosts a lot of interesting events. In September and October, the Academy held in collaboration with the Embassy of France in Latvia an interactive exhibition *Games of Sand Grains*, but at the darkest time of the year, in November, our high-riser debuted at the Festival of Light „*Staro Rīga*” as an object under the name *Germination of an Idea or Illusion*.

Finally, I should like to thank all those who have contributed to the Academy. The Academy owes a debt of gratitude to artist O. Zvejsalnieks who donated his painting *Rēzekne town in autumn sun* and to Foreign Member N. Bojārs who made a monetary donation, and to all those members who have supported the Academy in so many ways, and to the very able and devoted people who work here for us. And there is no need to convince *academia* that new knowledge, or new ideas, is the key driving force underlying the development and economic growth. So, the Academy will continue to do its part by providing meeting places where ideas can be tested and developed.



Juris Ekmanis

1 June 2011

CHARTER OF THE LATVIAN ACADEMY OF SCIENCES

Adopted at the General Meeting of the Latvian Academy of Sciences
on 22 November 1996

Ratified by the Saeima (Parliament) on 23 January 1997

GENERAL

The Latvian Academy of Sciences is a successor of several scientific associations which previously existed in Latvia. Its predecessors are the Kurzeme Society for Literature and Art, founded in 1815 in Jelgava and the Commission of Science, founded within the Riga Latvian Society in 1869, which in 1932 was reorganised into the Science Committee with the status of a private academy of sciences.

Since 1919, the government of the Republic of Latvia had repeatedly considered the foundation of an official Latvian Academy of Sciences. In 1927, the idea was supported by Rainis, who was then Minister of Education. In 1935, the intention to create the Latvian Academy of Sciences was expressed in public by the Prime Minister K. Ulmanis, and on 14 January 1936, by the Cabinet's Act, the Institute of History of Latvia was founded as the first constituent part of this Academy.

In Latvia, the Academy of Sciences started its work on 14 February 1946, when academy members gathered for their first General Meeting. Scientists from the University of Latvia and the Latvian Academy of Agriculture formed the core of the Academy of Sciences. When adopting the Charter and the new Statute, by the decision of the General Meeting, adopted on 14 February 1992, the Latvian Academy of Sciences was reorganised into a classical academy which united elected members — prominent scientists and other scholars.

In the restored Republic of Latvia, the Latvian Academy of Sciences facilitates the development of sciences, carries out scientific research. It takes care that all special knowledge that Latvia and the Latvian people have given and can give to the world science and culture — national culture, language, folklore, literature, social and economic experience, traditions — are realised, studied, perfected, maintained, and passed over to the future generations. It studies and preserves the historical traditions of Riga and regions of Latvia, shows the place of the Baltic countries in the world.

The Latvian Academy of Sciences has joined the international scientific community, collaborates with other academies of sciences and scientific organizations in Europe and the world.

Article 1. LEGAL BASIS OF THE LATVIAN ACADEMY OF SCIENCES

In the Republic of Latvia, there is one Latvian Academy of Sciences as a centre of national importance, formed by the state. The Latvian Academy of Sciences is an autonomous legal entity which consists of elected members of the Latvian Academy of Sciences and which is subsidised by the state. The Latvian Academy of Sciences functions in accordance with its Charter and Statute. The Charter is adopted by the General Meeting of the Latvian Academy of Sciences and endorsed by the Saeima (Parliament) of the Republic of Latvia.

The Latvian Academy of Sciences may associate with scientific research institutions, societies, foundations, scientific technical organisations, universities, and higher educational institutions. Their collaboration with the Latvian Academy of Sciences is based on mutual agreement. In order to fulfill the goals of the Academy, groups of scientists or institutions are formed, which may function within the Latvian Academy of Sciences.

Members of the Latvian Academy of Sciences are elected prominent Latvian and foreign scientists, and honorary members — also universally recognised Latvian scholars of other spheres.

The Latvian Academy of Sciences is a legal entity. It observes the laws of the Republic of Latvia and international legal acts.

Article 2. GOALS AND KEY DIRECTIONS OF THE LATVIAN ACADEMY OF SCIENCES

Goals and key directions of the Latvian Academy of Sciences are:

- to develop science, to facilitate and carry out studies in the sphere of basic and applied sciences, to promote the study and development of the history, culture, and language of the Latvian people and the state, as well as to support studies connected with the natural resources of Latvia, possibilities for their optimal utilisation and protection of environment;
- to prognosticate processes of Latvia's development, to report promptly to the government and the community about scientific forecasts on desirable and undesirable consequences of different economic, cultural and social processes and projects.

Article 3. RIGHTS OF THE LATVIAN ACADEMY OF SCIENCES

The Latvian Academy of Sciences has the rights:

- to collaborate with institutions of higher education and scientific research organisational system, to delegate its representatives for work in these institutions;

- to receive information in the Saeima commissions, ministries, and other governmental institutions on preparation and modification of laws and regulations, which are related to science and higher education, as well as to express its opinion about these documents;
- to undertake initiative in the development of new scientific trends and scientific institutions which are connected with them;
- to award a degree of the *Dr. h. c. (Doctor honoris causa)* of the Latvian Academy of Sciences to Latvian and foreign scientists;
- to propose and adopt modifications in its Charter, to submit them for endorsement to the Saeima;
- to preserve in its archives, depositories, and libraries manuscripts and documents belonging to prominent people in science, literature, art, and other spheres of culture, as well as other materials important for science and history.

Article 4. OBLIGATIONS OF THE LATVIAN ACADEMY OF SCIENCES

The Latvian Academy of Sciences has the obligation:

- to take an active part in the development of science policy of Latvia and to promptly advise the Saeima and government in matters of science;
- to participate in scientific expertise of different governmental programmes, in stating the research level of studies, projects, programmes, and scientific institutions;
- to recognize excellence in science of Latvia (to award prizes for outstanding contribution in science of Latvia);
- to promote principles of self-government and democracy of science and scientists of Latvia, to protect these principles in governmental structures and the mass media;
- to care about involving of researchers of new generations into science and the social protection of the retired scientists, including the state emeritus ones;
- to protect, preserve, and perfect principles and traditions of scientific research ethics, discussion, to study problems of history of Latvian science;
- to care about publishing scientific literature, the scientific level of terminology and encyclopaedias in Latvia;
- to organise scientific congresses, conferences, open meetings of the Latvian Academy of Sciences, discussions, and competitions and to popularise achievements in science;
- to scientifically supervise the depositories of Latvian science and the national cultural heritage — Academic Library of Latvia, Misiņš Library, and the Depository of Latvian Folklore;

- to develop and encourage international contacts of Latvian scientists, to collaborate with other academies of sciences, scientific unions and associations, to maintain international scientific relations and to represent science of Latvia in international scientific organisations.

Annually the Latvian Academy of Sciences publishes a report on its activities.

Article 5. COMPOSITION AND MANAGEMENT OF THE LATVIAN ACADEMY OF SCIENCES

Composition of the Latvian Academy of Sciences is the following: full members (academicians), honorary members, foreign members, corresponding members. Their number, procedure of nominating and discussing candidates in the scientific community, as well as order of election is determined by the Statute of the Latvian Academy of Sciences.

The highest decision-making body of the Latvian Academy of Sciences is the General Meeting, in which elected full, honorary, foreign, and corresponding members take part. Matters pertaining to the Charter and the Statute and admittance of new members are decided by full members. In order to facilitate solving of interdisciplinary problems and contacts among representatives of allied sciences, members of the Academy form divisions of sciences of the Latvian Academy of Sciences. In between general meetings, the work of the Latvian Academy of Sciences is headed by the President, who is elected by its members, and the Senate.

The General Meeting of the Latvian Academy of Sciences elects the Supervisory Council. With the purpose to organise different spheres of work of the Latvian Academy of Sciences and to take prompt decisions, the Presidium, Board, and other organisational structures are formed. Composition and duties of these structures are determined by the Statute of the Latvian Academy of Sciences.

Article 6. ECONOMIC BASIS OF THE LATVIAN ACADEMY OF SCIENCES

The necessary financing for work of the Latvian Academy of Sciences is subsidised from the state budget. The Latvian Academy of Sciences submits a motivated application for the following year's financing together with the annual report, according to a procedure, determined by the government. The special budget of the Latvian Academy of Sciences is formed of resources which are obtained from:

- contractual works and entrepreneurial activity;
- managing of the property;
- donations and presents;
- other sources.

Under possession or property of the Latvian Academy of Sciences may be real estate or movables — land, buildings, and other property, which has been given over to it by the state institutions, or which it has obtained as a result of its activities or on other legal basis, as well as intellectual property, currency, and securities in Latvia and abroad.

Under the supervision of the Latvian Academy of Sciences are institutions and organisations, which are necessary for its work, as well as institutions and organisations which facilitate the functioning of science.

Administration of property, belonging to the Latvian Academy of Sciences, and objects, which are under its possession and supervision, is determined by the Statute of the Latvian Academy of Sciences.

Article 7. STATUTE OF THE LATVIAN ACADEMY OF SCIENCES

The General Meeting of members of the Latvian Academy of Sciences independently adopts and/or modifies its Statute which may not be in contradiction with the provisions of the present Charter.

SCIENTIFIC AND ORGANISATIONAL ACTIVITIES OF THE LATVIAN ACADEMY OF SCIENCES IN 2009–2011

MAJOR EVENTS FOR LATVIA'S SCIENCE (1 JUNE 2009 – 1 JUNE 2011)

The Academy is working closely with other scientific institutions in Latvia and national authorities dealing with science and innovation policy. Thereby this subchapter focuses on the following subjects:

- The reporting years' top scientific achievements named by the LAS;
- The LAS member's major scientific publications;
- Major scientific conferences in Latvia in 2009–2010;
- Latvia's science and higher education highlights 2009 and 2010.

In the tradition of making end-of-the-year list of Top Latvian Science Achievements, the Academy evaluates all of the proposals sent by the universities, research institutes and centres and selects the best proposals. The selected science achievements are subdivided into two categories: (1) scientific research and (2) practical applications. During the reporting period, the Academy has named the Top Twelve Scientific Achievements in Latvia in 2009 and the Top Ten Scientific Achievements in 2010.

Top 12 scientific achievements in 2009

In scientific research:

- A novel cardioprotective substance was discovered. It is 40 times more effective than Mildronate – the leading export drug in Latvia (*Dr.habil.chem. Ivars Kalviņš, Dr.pharm. Maija Dambrova, Dr.pharm. Edgars Liepiņš, Dr.chem. Osvalds Pugovičs, Dr.chem. Einārs Loža, Latvian Institute of Organic Synthesis*).

- A novel biomechanical substantiation for creation of new biomaterials for heart and cardiovascular system elements was developed. Research findings were achieved within the National Research Programme in medicine, 2006–2009 (doctoral student Mārtiņš Kalējs, *Dr.med.* Pēteris Stradiņš, *Dr.habil.med.* Romans Lācis, *Dr.habil.med.* Iveta Ozolanta, cardiac surgeon Jānis Pavārs, *Dr.habil.sc.ing.* Vladimirs Kasjanovs; Pauls Stradiņš Clinical University Hospital, Heart Surgery Centre, Rīga Stradiņš University in cooperation with University of Lausanne).
- For the first time, dialects of Latvian language are being reflected within the context of Baltic languages (*Atlas of the Baltic Languages, A Prospect*, 2009). This comprehensive study advances the integration of these dialects into the European linguistic area (*Dr.habil.philol.* Ilga Jansone, *Dr.philol.* Anna Staſecka, Latvian Language Institute of the University of Latvia in cooperation with the Institute of Lithuanian Language).
- The first comprehensive investigation of the history and development of science and higher education in Latvia from the 13th century until 1862 was completed. The results of this investigation showing science and higher education as inseparable parts of the whole were published in an encyclopaedic monograph *The Beginnings of Science and Higher Education in Latvia* (in Latvian) authored by *Dr.habil.chem., Dr.hist.h.c.* Jānis Stradiņš, Institute of Latvian History, University of Latvia.
- A novel approach to the simulation of X-ray absorption spectra based on the combination of quantum chemistry and classical molecular dynamics methods was developed. This method allows a reconstruction of materials atomic structure by proper accounting of thermal disorder effects (*Dr.phys.* Aleksejs Kuzmins, Institute of Solid State Physics, University of Latvia; Professor Robert Evarestov, St. Petersburg State University).
- A mathematical model of flexible ferromagnetic filaments was developed. For the first time in the world, experimental models of these filaments were obtained and a number of theoretical regularities were established. These filaments allow creation of magnetically driven microengines and realization of transfer processes in biotechnologies and biomedicine (*Dr.habil.phys.* Andrejs Cēbers, *Dr.math.* Mihails Belovs, *Mg.phys.* Kaspars Ērglis).

In practical applications

- A novel and fully graphical interface „Semantic Latvia” was developed and apporobated. The novelty of this achievement lies in the creation of an interface that makes web datasets directly accessible to domain specialists (medical doctors, users of national registers, etc.) without involving programmers for recoding (*Dr.sc.comp.* Guntis Bārzdiņš, *Dr. habil.sc.comp.* Audris Kalniņš, *Dr.math.* Kārlis Podnieks, *Dr.med.* Valdis Pīrāgs, University of Latvia).
- Technology for manufacturing a new porous high-temperature oxide ceramics was developed. The intrinsic characteristics of the said oxide ceramics make it suitable for the filtration of aggressive and hot liquids and a suitable material for high-temperature isolation (*Dr.habil.sc.ing.* Visvaldis Švinka, *Dr.sc.ing.* Ruta Švinka, *B.sc.ing.* Ieva Zaķe, *M.sc.ing.* Andris Butlers, Riga Technical University).
- A new summer barley variety „Austris” was officially released and registered. The new variety was developed using plant biotechnology technique (*Dr.agr.* Sofija Kalniņina, *Dr.biol.* Dace Grauda, *Dr.habil.biol.* Īzaks Rašals, *Mg.agr.* Māra Bleidere, Ilze Grunte, *Mg.agr.* Solveiga Maļecka, Institute of Biology of the University of Latvia and State Stende Cereal Breeding Institute).
- Automatic device for prevention and elimination of asynchronous operation in power systems was developed and fabricated in Latvia. The device merits recognition for its capability to reduce fault occurrence in large-scale power systems, and such devices are installed in the power systems of Estonia, Latvia and Lithuania (*Dr.habil.sc.ing.* Antans Sauhats, *Dr.sc.ing.* Andrejs Utāns, *Dipl.ing.* Lilija Leite, *Dr.sc.ing.* Kārlis Brīnķis; Riga Technical University, Institute of Physical Energetics).
- Technology for producing new heat-insulating building material from layered silicate and by-products of biodiesel production was developed (*Dr.habil.chem.* Uldis Sedmalis, *Dr.sc.ing.* Laimonis Bīdermanis, *Dr.sc.ing.* Andris Cimmers, *Dr.habil.chem.* Gaida Sedmale, *Dr.sc.ing.* Ingunda Šperberga, Riga Technical University).
- Peculiarities of some immunogenetic and biochemical parameters, that have potential benefit in the prognostication and treatment of patients with chronic viral hepatitis C, were clarified (*Dr.habil.med.* Ludmila Viķsna,

Dr.habil.med. Arturs Sočnevs, *Dr.med.* Valentīna Sondore, *Dr.med.* Jāzeps Keišs, *Dr.habil.med.* Baiba Rozentāle; Rīga Stradiņš University, Infectology Centre of Latvia).

Top 10 scientific achievements in 2010

In scientific research:

- The results of fundamental research in quantum physics related to optically polarized atoms have been described in the monograph: Marcis Auzinsh, Dmitry Budker, Simon Rochester. *Optically Polarized Atoms: Understanding light-atom interactions*, published by Oxford University Press (*Dr.habil.phys.* Mārcis Auziņš, University of Latvia in collaboration with University of California, Berkeley).
- The three-dimensional structure of an enzyme gamma-butyrobetaine hydroxylase was established that will enable the development of new pharmaceutical substances with cardioprotective effect (*Dr.biol.* Kaspars Tārs, *Dr.biol.* Andris Zeltiņš, *Dr.biol.* Ainārs Leončiks, *Dr.biol.* Andris Kazāks, doctoral student Jānis Rūmnieks, Svetlana Koteloviča, Jeļena Šaripo, *Dr.pharm.* Maija Dambrova, *Dr.pharm.* Edgars Liepiņš, doctoral student Jānis Kūka, *Dr.habil.chem.* Edvards Liepiņš, *Mg.chem.* Kristaps Jaudzems, *Dr.chem.* Artūrs Vīksna, Latvian Biomedical Research and Study Centre, Latvian Institute of Organic Synthesis, University of Latvia).
- An encyclopaedic dictionary *Valodniecība Latvijā: fakti un biogrāfijas* [Linguistics in Latvia: facts and biographies] was published. The dictionary is divided into two parts: the first part contains a timeline of the events related to linguistics and cultural history and covers the period from the 13th century through 2009; the second part contains over 500 biographical entries of Latvian and foreign linguists (*Dr.habil.philol.* Andrejs Bankavs and *Dr.habil.philol.* Ilga Jansone, Latvian Language Institute of the University of Latvia).
- A new effect of electron and high-frequency electromagnetic wave interaction in gyrotron resonator was detected, which served as a basis for developing the theory of accelerating their motion in fusion reactors (*PhD* Oļģerts Dumbrājs, *Dr.habil.math.* Andrejs Reinfelds, University of Latvia in collaboration with Maryland University).

- For the first time, one of the most valuable sources of medieval history, *Investigation Protocol by Franciscus de Moliano, 1312*, was translated from Latin into Latvian and released into scholarly circulation. This work uncovers unique historical evidence of the policy and battles in the Baltic lands and Livonia at the turn of the 14th century (*Dr.habil.hist.* Ēvalds Mugurēvičs, Institute of Latvian History, University of Latvia).

In practical applications:

- For the first time, a stem cell transplant was successfully implanted into the heart muscle of an infant with severe heart disease (*Dr.habil.med.* Aris Lācis, *Dr. med.* Andrejs Ērglis, Children's Clinical University Hospital and Latvian Centre of Cardiology and Cell Transplantation Center at the Pauls Stradiņš Clinical University Hospital).
- Europe's largest multilingual terminology portal *EuroTermBank* was created and launched; the portal provides a single access point to multisectoral and multilingual terminology, including Latvian terminology (*Dr.sc.comp.* Andrejs Vasiljevs, *Mg.sc.comp.* Raivis Skadiņš, *Dr.philol.* Tatjana Gornostaja, *Dr.habil.sc.comp.* Juris Borzovs, *Dr.habil.philol.* Valentīna Skujiņa, SIA Tilde, University of Latvia, Latvian Academy of Sciences).
- A new autonomous and remote underwater vehicle was designed for studying aquatic environments (*Dr.habil.sc.ing.* Jānis Vība, *Dr.habil.sc.ing.* Semjons Cifanskis, *Mg.sc.ing.* Vladimirs Jakuševičs, *Dr.sc.ing.* Bruno Grasmanis, *Dr.sc.ing.* Igors Tipāns, *Guntis Kuļikovskis*, Riga Technical University within the frames of the EU project).
- A technology for depositing LiFePO₄ thin film coatings was developed. The latter are used on batteries and accumulators in portable electrical appliances and microelectronics (*Dr.phys.* Jānis Kleperis, *Dr.chem.* Gunārs Bajārs, Jānis Šmits, Gints Kučinskis, Institute of Solid State Physics, University of Latvia).
- The most comprehensive database of Latvia's dendroflora was completed and *Latvijas kokaugu atlants* [Atlas of Latvian Woody Plants] was compiled and published; this work opens up new opportunities for studying biological diversity in Latvia (*Dr.habil.geogr.* Māris Laivīš, *Dipl.agr.* Maija Bice, *Mg.geogr.* Ilmārs Krampis, *Dr.biol.* Dzintra Knape, *Dr.biol.* Dagnija Šmite, *Dr.biol.* Viesturs Šulcs, Institute of Biology of the University of Latvia).

Latvia's science and higher education highlights 2009 and 2010

- Prominent among the **conferences** held in Latvia were the following:
 - Paul Walden 6th Symposium on Organic Chemistry, Rīga, October 5–6 2009. The biannual conference is organised by the Latvian Institute of Organic Synthesis;
 - The Third Congress of Lettonics *Lettonics Research: Accomplishments and Visions*, Riga, 26–27 October 2009;
 - International conferences *Functional Materials and Nanotechnologies* FM&NT-2009, FM&NT-2010 and FM&NT-2011. These conferences are organized annually in March or April by the UL Institute of Solid State Physics. The FM&NT-2011 was the 6th of its series;
 - The XXVI Nordic Hydrological Conference *Hydrology: From Research to Water Management*, Riga, 9–11 August 2010;
 - The Fifth European Conference on Wood Modification ECWM5, Rīga, 20–21 September 2010;
 - The Sixteenth International Conference *Mechanics of Composite Materials* (MCM-2010), Rīga, 24–28 May 2010. This series of the so-called Rīga conferences is organised by the Institute of Polymer Mechanics, University of Latvia;
 - The Eleventh International Congress of the Baltists, *Past, Present and Future of the Baltic Languages*, Rīga, 27–30 September 2010;
 - International conference “Baltic Dynamics”, Rīga, 15–17 September 2010.
- The LAS members' **major scientific publications**. In addition to the monographs which have been selected for the list of Top Scientific Achievements in Latvia, the following books have been published during the reporting period:
 - Nikodemus, O., Kārkliņš, A., Klaviņš, M., Melecis, V. (2009) *Augsnes ilgtspējīga izmantošana un aizsardzība* [Sustainable use and protection of soil]. Rīga: The Academic Press of the University of Latvia, 256 pp. (in Latvian)
 - Bērziņš, J. (2009) *Latvijas rūpniecības strādnieku sociālais portrets 1900–1914* [Social portrait of an industrial worker of Latvia, 1900–1914]. Rīga: Institute of the History of Latvia Publishers, 336 pp. (in Latvian)
 - Viesturs, U., Simeonov, I., Pencheva, T., Vanags, J., Petrov, M., Roeva, O., Ilkova, T., Vishkins, M., Hristozov, I. (2010) *Contemporary approaches to*

modelling, optimisation and control of biotechnological processes. Edited by S. Tzonkov. Sofia: Prof. Marin Drinov Academic Publishing House, 241 pp.

- Kļaviņš, M., Filho, W.L., Zaļoksniš, J. (eds.) (2010) *Environment and sustainable development*. Rīga: The Academic Press of the University of Latvia, 300 pp.

- Tisenkopfs, T. (ed.) (2010) *Socioloģija Latvijā* [Sociology in Latvia]. Rīga: The Academic Press of the University of Latvia, 544 pp. (in Latvian)

- The economic recession brought steep decline in government financing for research and development (R&D). In 2010, state allocation for R&D comprised roughly 50% of funds in 2008. In 2009–2010, the annual growth of state allocated R&D funding at the rate of 0.15% of GDP until it reaches at least 1% of GDP, stipulated by the Law on Research Activity, was not complied with. According to data published by the Central Statistical Bureau of Latvia and Eurostat, gross domestic expenditure on R&D (% of GDP) has decreased from 0.61 in 2008 to 0.45 in 2009 (statistics for 2010 is not available yet). At the same time, in Estonia this indicator ((% of GDP) has continued to grow from 1.29 to 1.42, and in Lithuania — from 0.80 to 0.84. In absolute numbers, in 2009, gross expenditure on R&D in Latvia was € 85 m, while in Estonia it was € 197 m (2.3 times higher than in Latvia) and in Lithuania — € 222 m (2.6 times higher than in Latvia). The differences are even more striking if the calculation is made per inhabitant or per researcher.
- Several important activities funded by EU Structural Funds have recently been launched and some more will be soon launched. While there is no immediate impact on quantitative indicators of R&D funding, these activities introduce essential changes in the future research landscape of Latvia and enhance optimism among research community.
- In 2010, upgrade of the existing research infrastructures was started in 30 scientific institutes, state higher education institutions (HEI) and scientific institutes of HEI. In the near future, by the end of 2011, scientific research in Latvia is to be concentrated in nine single and independent centres, officially named the scientific centres of state significance that are seen to be the focal points for collaboration of scientific institutions with the purpose to pool research resources for performing European level research. These centres will be established in the framework of the EU Structural Funds co-funded activity, and the preparatory process (call and review of applications, signing of contracts) is planned to be completed by the end of 2011 or early 2012.
- In 2010, more than 200 candidates defended their doctoral thesis in Latvia. This represents an increase of 25% compared to previous year. Besides, the Operational Programme “Human resources and employment” employs several hundred young

researchers. More than 100 contracts have been awarded from the ERDF programme.

- In 2010, the preparatory works for the commencement of the Competence Centre programme, coordinated by the Ministry of Economics, were accomplished. The programme envisages that by 2015 at least 50 research projects will be realised at the recently established six competence centers. This activity is aimed at boosting the competitiveness of business companies by means of promoting research-industry cooperation in the implementation of projects of industrial research and development of new products and technologies.
- Programming of the use of post-2013 EU funding has been started (the Europe 2020 strategy) and Latvia needs to enforce working out the measures in its national reform programme to move towards the EU 2020 targets;
- At the end of 2009 and early 2010, the Scientific and Technical Research Committee (CREST) and the European Commission, in collaboration with the Ministry of Education and Science of Latvia, carried out a policy-mix review with an aim to elaborate recommendations for improved public governance of research, technology and innovation system in Latvia. The country review was conducted by a high-level expert group, appointed by the European Commission. The group of seven experts from the United Kingdom, Sweden, Norway, Finland and Lithuania visited Latvia in November–December 2009 and presented the OMC Policy Mix Review Report of Latvia in March 2010.
- On 4 and 5 November 2010, the XII Baltic Conference on Intellectual Cooperation entitled *Science and Society* took place in Vilnius. The Conference included the customary awarding of the Medals of the Baltic Academies of Sciences. The recipients of the 2010 Medals were Prof. Pietro Umberto Dini (Italy), foreign member of the LAS, Prof. Ain-Elmar Kaasik (Estonia), Prof. Ervins Lukševišs (Latvia), corresponding member of the LAS, and Prof. Zigmas Zinkevičius (Lithuania), foreign member of the LAS. The Conference passed a Resolution setting the targets to be followed by the academies in promoting a dialogue between the scientific community and society.
- On 5 March 2009, the 500th issue of the most prestigious international journal in Latvia, *Chemistry of Heterocyclic Compounds* [Heterociklisko savienojumu ķīmija], was published. The journal is edited at the Latvian Institute of Organic Synthesis.
- On 1 June 2009, in commemoration of the centenary of the famous Rīga-born philosopher Sir Isaiah Berlin, a conference was organised at the University of Latvia and the Isaiah Berlin Auditorium was opened at the Faculty of Social Sciences.

- In 2009 and 2010, the 24th, 25th and 26th volumes in a series of titles of the Commission of the Historians of Latvia were released. These volumes were entitled *History of the Baltic Region of the 1940s–1980s* (24th volume), *Occupation Regimes in the Baltic States 1940–1991* (25th volume), *Occupation, Collaboration, Resistance: History and Perception* (26th volume). So far 26 volumes have been published. The majority of these volumes (starting from the 11th volume) are available on the internet http://www.president.lv/pk/content/?cat_id=2766. Many texts are in English or German, and Latvian texts are richly annotated in English.
- The year 2009 was celebrated as the International Year of Astronomy and a number of astronomy-related events were organised in Latvia throughout the year. Prominent among these were the Researchers' Night events entitled *Man and Space* in five towns of Latvia — Rīga (the building of the Latvian Academy of Sciences), Daugavpils, Rēzekne, Jelgava and Ventspils, on 25 September. With the support of the Embassy of France in Latvia a travelling exhibition *Past Achievements and Future Plans for Space Exploration* was installed at the Latvian Academy of Sciences. On 9–10 October, the Latvian Academy of Sciences hosted a popular science conference entitled *Astronomy in Latvia*.
- On 23 July 2009, an Agreement between the Government of the Republic of Latvia and European Space Agency concerning space cooperation for peaceful purposes was signed for the Government by the Minister of Education and Science Prof. Tatjana Koke.
- On 25 July 2009, the 15th anniversary of Ventspils International Radioastronomy Centre was celebrated.

CALENDAR OF THE ACADEMY MEETINGS IN THE REPORTING PERIOD (1 JUNE 2009 -- 1 JUNE 2011)

The Academy continued to hold its regular meetings (General Meetings, ordinary meetings and Senate meetings) with the presentation of papers. General Meetings (GM) continued to be held in the traditional manner twice a year: in spring and in autumn. The president of the Academy presides as chairman at a General Meeting. The Spring GM focuses on evaluation the last year's work, an academic lecture given by an Academy member, and the ceremonial handing of the Academy Awards. The Autumn GM includes the presentation of the LAS Grand Medal, which is followed by the recipients' academic lectures, and election of new members to the Academy. In the reporting period, attendances of the General Meetings were good.

The Academy holds 9–10 ordinary meetings per year. Senate meetings are held once a month. Senate's agenda normally includes an invited scientific presentation of an Academy member, and occasionally an invited presentation on a topical issue of national relevance.

26 June 2009 | Senate Meeting

- Scientific presentation *The study of the Modern Times in Latvia: review of the current situation* given by Corresponding Member of the LAS Aivars Stranga

15 September 2009 | Senate Meeting

- Scientific presentation *Chronic viral hepatitis C: evolving concepts and recent diagnosis and treatment strategies* given by Corresponding Member of the LAS Ludmila Viksna

13 October 2009 | Senate Meeting

- Presentation *The role of the Latvian Academy of Sciences in the development and supervision of international collaborative programmes and projects* given by Dr.biol. Maija Bundule

- Scientific presentation *National literature viewed as a category of literary theory* given by Corresponding Member of the LAS Ausma Cimdiņa

- Scientific presentation *Pediatric diseases and their risk factors* given by Corresponding Member of the LAS Ingrīda Rumba-Rozenfelde

3 November 2009 | Senate Meeting

- Scientific presentation *Systematic analysis of rational and efficient use of energy resources in Latvia* given by Corresponding Member of the LAS Pēteris Šipkovs

- *Report on research and science organisation results in 2008–2009* of Foreign Member of the LAS Oļģerts Dumbrājs

- Scientific presentation *Pharmacology and molecular biology at the crossroads: nitric oxide, gene polymorphism and DNA-protein complexes* given by Corresponding Member of the LAS Nikolajs Sjakste

5 November 2009 | LAS Ordinary meeting titled *Popularisation of Science in Society*

25 November 2009 | Autumn General Meeting

- Speech by President Juris Ekmanis entitled *Science, technology and society in present-day Latvia* for the opening of the General Meeting

- The 2009 LAS Grand Medal awarding to Prof. Ivars Kalviņš, full member of the LAS
 - Academic lecture *Innovation in Latvia – illusion or reality?* given by Professor Ivars Kalviņš

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9 February 2010 | Senate Meeting

- Report *Higher education, science and entrepreneurship: pillars of public welfare* given by Full Member of the LAS Baiba Rivža

11 March 2010 | Ordinary meeting *The past and present-day cultural landscapes in Latvia*

17 March 2010 | Ordinary / visiting meeting generously hosted by the Institute of Mathematics and Computer Science

8 April 2010 | Spring General Meeting

- Ceremony of presenting the Academy Awards
- Keynote lecture *Latvia's economy: current status and future prospects* given by Mr. Ilmārs Rimšēvics, President of the Bank of Latvia
- Review on Academy activity in 2009 delivered by Secretary General Valdis Kampars

23 April 2010 | Ordinary meeting *Sustainability of the ecosystem of the River Daugava*

27 April 2010 | Senate Meeting

- Scientific presentation *Creation of radiation defects and relaxation processes in complex oxide crystals and nanostructures* given by Dr.habil.phys. Larisa Grigorjeva

14 May 2010 | Ordinary meeting *Popularisation of Science in Society*

1 June 2010 | Senate Meeting

- Scientific presentation *The study of Latvia's biological diversity carried out at Daugavpils University* given by Corresponding Member of the LAS Arvīds Barševskis

- Scientific presentation *The parasitological investigation of fish in Latvia and development of parasitology in Daugavpils University* given by Dr.biol. Muza Kirjušina
- Presentation *Celebrating International Year of Biodiversity at the Natural History Museum of Latvia* delivered by Mg.biol. Diāna Meijere

3 June 2010 | Ordinary / visiting meeting *The role of Piebalga in Latvian culture* held in Jaunpiebalga

16 June 2010 | Ordinary meeting

- The 2010 LAS Grand Medal awarding to Prof. Kurt Schwartz, full member of the LAS
- Academic lecture Research in *Radiation Physics: from Salaspils Nuclear Research Reactor to Darmstadt Heavy Ion Accelerator* given by Professor Kurt Schwartz

29 June 2010 | Senate meeting

- Scientific presentation *Comparative literature in the Baltic States* given by Full Member of the LAS Viktors Hausmanis, Dr.philol. Māra Grudule and Dr.philol. Eva Eglāja-Kristsons

14 September 2010 | Senate meeting

- Scientific presentation *Investigation Protocol of 1312 on crusades in Livonia made by Papal Legate Franciscus de Moliano* delivered by Full Member of the LAS Ēvalds Mugurēvičs

23 September 2010 | Ordinary meeting titled *The future of public health in Latvia — problems and consequences*

26 October 2010 | Senate meeting

- Scientific presentation *Diabetes mellitus, autoimmune diseases and malignant tumors as seen through eyes of a pharmacologist and geneticist* delivered by Corresponding Member of the LAS Nikolajs Sjakste

- Scientific presentation *Systematic analysis of rational and efficient use of energy resources in Latvia, taking advantage of harnessing renewable resources* delivered by Corresponding Member of the LAS Pēteris Šipkofs

9 November 2010 | Senate meeting

- Scientific presentation *Holography and laser light-induced processes in a substance* given by Corresponding Member of the LAS Andris Ozols

- Scientific presentation *The synthesis of biologically active compounds containing b-lactam and 2-pyrrolidinon heterocycles* given by Corresponding Member of the LAS Grigorījs Veinbergs
- Scientific presentation *Risk factors for children mortality and physical disability* delivered by Corresponding Member of the LAS Ingrīda Rumba-Rozenfelde
- Scientific presentation *Tuberculosis – a serious problem for the individual patient and for public health* delivered by Corresponding Member of the LAS Ludmila Vīksna

11 November 2010 | Ordinary meeting *A discourse on theatre*

25 November 2010 | Autumn General Meeting

- Speech by President Juris Ekmanis entitled *Science, technology and society in present-day Latvia* for the opening of the General Meeting
- The 2010 LAS Grand Medal awarding to Prof. Mārcis Auziņš, full member of the LAS
- Academic lecture *On quantum physics and beyond...* given by Professor Mārcis Auziņš

7 December 2010 | Senate meeting

- Presentation *Viking ship replicas and Latvia* delivered by Corresponding Member of the LAS Juris Urtāns

8 December 2010 | Ordinary meeting dedicated to *The 195th anniversary of the former Kurzeme Society for Literature and Art*

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18 January 2011 | Senate meeting

- Presentation dedicated to the 75th anniversary of the Institute of Latvian History *National identity and statehood in Latvia's history* given by Corresponding Member of the LAS Guntis Zemītis

15 February 2011 | Open Senate meeting dedicated to the 65th anniversary of LAS

- President J. Ekmanis' opening speech *The role of the Latvian Academy of Sciences and its tasks before national science*

- *Latvia's science strategy* given by the Chairman of the Latvian Council of Science, Full Member of the LAS Andrejs Siliņš

- Presentation *Architecture of the Latvian Academy of Sciences building and similar structures around the world* delivered by Full Member of the LAS Jānis Krastiņš

15 March 2011 | Senate meeting

- Presentation *The role of higher education institutions in national polycentric development* given by Chairman of the Latvian Rectors' Council, Corresponding Member of the LAS Arviðs Barševskis

- Presentation *Higher education institutions and science development in Latvia by the example of Rīga Technical University* given by Rector of Rīga Technical University, Full Member of the LAS Leonīds Ribickis

- Presentation *Model of higher education organization and governance* given by Vice-rector of the University of Latvia, Full Member of the LAS Indriķis Muižnieks

7 April 2011 | Spring General Meeting

- Ceremony of presenting the Academy Awards

- Academic lecture *Paleontology of the Baltic Region and our "Devonian Ancestors"* given by Professor Ervīns Lukševičs, corresponding member of the LAS, recipient of the 2010 Medal of the Baltic academies of sciences

- Review on Academy activity in 2010 delivered by Secretary General Valdis Kampars

19 April 2011 | Senate meeting generously hosted by the Latvia University of Agriculture (LUA)

- Opening presentation *The future vision of the Latvia University of Agriculture* given by University's Rector, Corresponding Member of the LAS Juris Skujāns

- Presentation of National Research Programme *Sustainable use of local resources (mineral deposits, forest, food and transport) – new products and technologies* and its structure given by Programme manager, Full Member of the LAS Bruno Andersons

- Presentation of the sub-programme *Food safety and quality* in a programme *Sustainable use of local resources* (see full name above) given by Associate Professor of LUA, Dr.sc.ing. Ruta Galoburda

- Presentation *Global trends in food supply* delivered by Full Member of the LAS Baiba Rivža

17 May 2011 | Senate meeting

- Presentation of the sub-program *Forest* in the national research programme *Sustainable use of local resources (mineral deposits, forest, food and transport) – new products and technologies* given by programme manager, Full Member of the LAS Bruno Andersons

INTERNATIONAL SCIENTIFIC RELATIONS

The Latvian Academy of Sciences (LAS) has a mission to promote scientific contacts and collaboration between Latvia and the international community both on the basis of international agreements for scientific cooperation and by representing Latvia in international scientific organisations that support and contribute to scientific research and development of science.

An agreement with the Ministry of Education and Science of Latvia, signed in 2008, delegates to the Academy the duties of coordination and implementation of European science programmes and projects: COST, EUREKA, EUROSTARS, the joint Baltic Sea regional research programme BONUS, the EU Joint Technology initiatives and the functions of the national funding agency for ERA-NET projects, and popularisation of science.

Memberships in international organisations and networks

The Latvian Academy of Sciences acts as the official representative of Latvia in regional and worldwide associations of academies: **ALLEA**, **EASAC**, **ICSU**, **UAI** and networks as **IAP**, **IAMP**. The LAS holds a status of observer at the Federation of the European Academies of Medicine, **FEAM**, since 2006 (<http://www.feam.eu.com>) and the status of an affiliated organisation of International Foundation for Science, **IFS** (<http://www.ifs.se>). The LAS has an agreement on scientific cooperation with **UNESCO** and since the Law on the Latvian National Commission (LNC) for UNESCO came into effect, on 1 December 2010, the Academy has a representative (A. Siliņš) at the LNC Assembly. The LAS, the UNESCO LNC and L’Oreal Baltic jointly grant annual fellowships For Women in Science.

ALLEA (<http://www.allea.org>), the European Federation of National Academies of Sciences and Humanities, aims at strengthening the position of academies in European science policy. At the turn of 2010–2011, the ALLEA Board presented the revised Strategic and Implementation Plan for 2010–2015, which was voted in favour by the majority of the academies, including the LAS. Currently, it has two standing committees (intellectual property rights and ethics) and two thematic working groups (WG) with a limited duration (evaluating for science and science education) and *ad hoc* European Academies Science Policy Task force. In the reporting period, the LAS was represented on the WG *Evaluating for Science* (*Dr.chem.* A. Kokorēvičs) and the LAS sent *Dr.phys.* L. Grinberga to the ALLEA brainstorming workshop Grand Challenges in Antalya on 26–28 March 2010. The workshop gathered early career re-

searchers, and was hosted by the Turkish Academy of Sciences. The Academy usually sends a representative to the annual ALLEA General Assembly. In 2010, due to the Eyjafjallajokull volcano eruption the LAS delegate professor A. Siliņš cancelled his attendance; in 2011, the LAS was represented by the adviser *Dr.geogr.* A. Draveniece.

EASAC (<http://www.easac.org>), the European Academies' Scientific Advisory Council, aims at building science into EU policy, so it mainly produces authoritative reports and assessments on scientific topics relevant to European policy needs. The LAS representative at the EASAC, comprised from individual members, is Foreign Secretary A. Siliņš. In the reporting period, the Academy did not send a Latvian scientist-expert to any of the EASAC working groups primarily due to the shortage of funding for such activities. The Academy disseminated across Latvia the 2010–2011 EASAC reports, “Realising European potential in synthetic biology: scientific opportunities and good governance and European public health and innovation policy for infectious disease: the view from EASAC”.

ICSU (<http://www.icsu.org>). The International Council for Science is an international nongovernmental organisation uniting both national members (mainly academies of sciences) and disciplinary unions. The Academy is Latvia's national representative to the ICSU. At the very beginning of the year 2011, the ICSU European group Secretariat started its work; in 2011–2014, its location will be the Delegation of the Finnish Academies of Science and Letters. In the reporting period, the Academy maintained contacts with the ICSU and ICSU-Europe through correspondence.

UAI (<http://www.uai-iua.org>). The aims of the International Union of Academies of Humanities and Social Sciences are to encourage international cooperation in those branches of learning in the fields of the humanities and social sciences promoted by the Academies and institutions represented; the UAI establishes and directs international projects, which have a particular defined purpose, and also coordinates activities that fall within the above-mentioned branches of knowledge. Over the last few years, the LAS has been involved in any of the UAI research projects and has not been represented at the annual general assemblies of the UAI.

IAP (<http://www.interacademies.net>) and **IAMP** (<http://www.iamp-online.org>). Since 2010, the name of the IAP network is “IAP: the global network of science academies” (formerly: InterAcademy Panel on International Issues). The InterAcademy Medical Panel (IAMP) is a global network of the world's medical academies and medical sections of academies of sciences. The primary goal of both networks is to help member academies work together to advise citizens and public officials on the scientific aspects of critical global issues.

The secretariats of IAP and IAMP are located at the headquarters of TWAS, the Academy of Sciences for the Developing World, in Trieste, Italy. In the reporting period (June 2009 – June 2011) the Academy maintained contacts with IAP and IAMP through correspondence.

Relations with foreign academies and institutions

The Latvian Academy of Sciences is signatory to 27 agreements and memoranda of understanding (01.06.2011) with partner academies and institutions providing for reciprocal visits of Latvian and foreign scientists, including a trilateral agreement among the Baltic academies of sciences (see Appendix at the end of this chapter). In 2010, the Academy signed a collaboration agreement with the Azerbaijan National Academy of Sciences and renewed protocols to the agreements with the Hungarian, the Lithuanian and the Estonian academies of sciences.

The major part of Academy's agreements (17) provides support to short-term scientific visits, irrespective of the scientific discipline. In recent years, the approach has shifted its focus away from individual scientific visits to give greater weight to bi-national research projects and workshops. Thereby, in the frames of scientific exchange programmes with the Polish Academy of Sciences (PAS), the Bulgarian Academy of Sciences (BAS) and the Hungarian Academy of Sciences (HAS), reciprocal visits of researchers collaborating within joint research projects are encouraged as a priority. The currently on-going projects are as follows:

Latvia – Bulgaria

- Bulgaria and Latvia: Problems of Immortal Cultural Heritage (Institute of History of Latvia, University of Latvia and BAS Institute of Folklore)
- Preparation and Investigation of Novel Inorganic Materials (BAS Institute of Catalysis and RTU Institute of Inorganic Chemistry)
- Investigation of Hydroapatite-Nanodiamond Composite Coating (BAS Institute of Solid State Physics and RTU Institute of Inorganic Chemistry)
- Biological Aspects of Blood-borne Viral Infections (BAS Institute of Experimental Pathology and Parasitology and RSU A. Kirhenšteins Institute of Microbiology and Virology)

Latvia – Poland

- Livonia and the Polish-Lithuanian Republic from the Sixteenth to the Eighteenth Century (PAS Institute of History and Institute of History of Latvia, University of Latvia)

- Latvian–Slavonic Linguistic and Cultural Borderland (PAS Institute of Slavic Studies and Latvian Language Institute, University of Latvia)
- Relations in Art between Latvia and Poland. 16th–20th Centuries (Institute of Art History, Latvian Academy of Art, and PAS Institute of Art)
- Structural Investigations in Solid State – New Compounds, New Methods (Latvian Institute of Organic Synthesis and PAS Institute of Organic Chemistry)
- Abundances in AGB and post-AGB stars (PAS Nicolaus Copernicus Astronomical Center and Institute of Atomic Physics and Spectroscopy, University of Latvia).

Latvia – Hungary

- Peptide Complexes as Active Centre of Artificial Hydrolases (University of Szeged and Latvian Institute of Organic Synthesis)
- Free Radicals and Elements in Inflammatory Diseases and Tumours (Institute of Materials and Environmental Chemistry, Chemical Research Center of HAS and Laboratory of Biochemistry, Riga Stradiņš University)
- Thermo-Hygro Composites: Theory and Experiments Investigation of Cross-Coupled Heat-Moisture-Mechanical Effects in Polymer Materials (Department of Applied Technologies, Budapest University of Technology and Economics and Institute of Polymer Mechanics, University of Latvia)
- Solid State Physics, Materials for Photonics, Optical Spectroscopy (Research Institute for Solid State Physics and Optics, HAS and Institute of Solid State Physics, University of Latvia)

The average number of Latvian and foreign scientists who use the opportunities offered by the scientific exchange scheme normally comprises 55–60 persons from each side. The LAS and its partner academies support also the visits of young scientists, including doctoral students. In 2010, Latvian scientists made 43 short-term visits (304 days) and 52 foreign scientists (374 days) were received. In 2010, the scientist exchanges were affected by economic recession. The LAS Board was constrained to take a decision to reduce the daily allowances for incoming scientists for 20%. Upon the suggestion of our closest neighbour academy, the Estonian–Latvian exchange quota was lowered from 75 to 49 days. The worst situation was communicated from the Bulgarian Academy of Sciences — our friendly long-term partners were not in a position to receive any Latvian scientist, yet our Academy received two Bulgarian scientists for 14 days.

Apart from supporting and financing international mobility of researchers within the Baltic, the Latvian, Estonian and Lithuanian academies of sciences, as well as

Finnish colleagues, meet regularly at the Baltic Conferences on Intellectual Cooperation and rotate the location of these meetings. On 4–5 November 2010, the 12th conference in the series of the Baltic Conferences on Intellectual Cooperation, *Science and Society*, was organised by the Lithuanian Academy of Sciences. The delegates of the three Baltic academies of sciences, the Federation of all European Academies of Sciences, ALLEA, and the Finnish Academy of Science and Letters met in Vilnius. Our Academy delegation consisted of President J. Ekmanis, Chairman of the Senate J. Stradiņš, Secretary General V. Kampars, Foreign Secretary A. Siliņš, members of the Academy B. Kalnačs, V. Kluša, J. Kristapsone, as well as A. Draveniece, A. Ādamsone-Fiskoviča and the University of Latvia lecturers E. Lukševics, N. Muižnieks. The conference deliberated on a wide range of topics and passed a resolution setting the targets to be followed by the academies: (1) to influence policymaking with the best scientific advice; (2) to engage in an open dialogue with various interest groups over sensitive and controversial issues, as cloning, genetic modification, etc.); (3) to educate the public through informal means and to strengthen the science communication skills of the academies' members and (4) to encourage young people to pursue careers in science. The Conference included the customary awarding of the medals of the Baltic academies of sciences (for details see the chapter on Scientific and Organizational Activities).

In the reporting period, a number of international events / festive meetings were organised by our partner-academies and by our Academy. Prominent among these were:

- **The British Academy** proposed and sponsored two meetings aimed at building a European inter-academy consensus about the future of social sciences and the humanities (SSH) in the 8th Framework of the European Commission. The LAS was represented by Full Member of the LAS B. Kalnačs who attended the meeting in Rome in December 2010 and another meeting in Brussels in March 2011. The consultation involved also the ALLEA, which formed an interest group on SSH;
- **The Hungarian Academy of Sciences** hosted and organised in partnership with UNESCO, ICSU and the European Commission the 4th World Science Forum in Budapest on 5–7 November 2009. The forum was attended by the Academy Foreign Secretary A. Siliņš;
- **The Latvian Academy of Sciences** in partnership with **the European Academy of Sciences and Arts** held a joint Autumn session entitled *Higher Medical Education and Health Care Policy: Contemporary Challenges for Latvia* on 15 October 2009. During this event, the Felix Prize awarding ceremony took place.

- **The Lithuanian Academy of Sciences** commemorated its 70th anniversary on 25 March 2011. The Solemn and Anniversary Session was attended by the Head of the LAS Division of Social Sciences and the Humanities I. Jansone;
- **The Montenegrin Academy of Sciences and Arts** hosted and organised an international conference *Values and 21st Century* in collaboration with the European Academy of Sciences and Arts, InterAcademy Council, Central and Eastern European Network (CEEN) and SEE Division of the World Academy of Art and Science. The event took place in November 2009 and the LAS was represented by vice president T. Jundzis;
- **The European Academy of Sciences and Arts** organised in partnership with the Russian Academy of Sciences and Salzburg Global seminar a conference *Russia – Europe: up to the future*. The LAS sent to this event vicepresident T. Jundzis who took part in the panel which dealt with the European economy in the financial crisis;
- **The Montenegrin Academy of Sciences and Arts** hosted and organised in collaboration with the International Atomic Energy Agency a regional conference *Nuclear Energy – Global Trends and Perspectives in South-East Europe* in Podgorica, May 2011. The Academy delegate Full Member O. Dumbrājs took part in the event with a presentation;
- **The Royal Society** held a Convocation of the Fellowship to mark its 350th Anniversary on 23 June 2010. The LAS was represented by Full Member A. Treimanis.

Other international activities and events were as follows. During the reporting period, the LAS received the ambassadors of Turkey to Latvia, H. E. Ayşe Ayhan Asya, ambassador of the Czech Republic, H.E. Dr. Tomáš Pštross, Counsellor for Culture and Cooperation at the Embassy of France in Latvia, Mr. Jean-Louis Lepretre, the delegation of the State Administration of Foreign Experts Affairs (SAFEA) of the People's Republic of China headed by Mr. Sun Zhaohua, Deputy Director of SFEA together with H.E. Hu Yeshun, Ambassador of the People's Republic of China in Latvia

On 3–5 October 2010, the LAS Vicepresident T. Jundzis attended the 7th Annual Meeting of the Science and Technology in Society forum in Kyoto. The 2010 STS forum also included the Academy President's meeting at the invitation of President of the Science Council of Japan Prof. Ichiro Kanazawa.

Foreign Academy memberships / honours

Academia Europaea. The LAS full members E. Grēns, V. Tamužs and A. Cēbers are full members of *Academia Europaea*.

Academia Scientiarum et Artium Europaea. The LAS full members E. Blūms, A. Caune, J. Ekmanis, V. Kluša, I. Knēts, R. Kondratovičs, M. Kūle, T. Millers, J. Stradiņš, J. Volkolākova, P. Zvidriņš, T. Jundzis, *Doctors honoris causa* J. Vētra and R. Lācis, Honorary Member I. Lancmanis are full members of the European Academy of Sciences and Arts.

European Academy of Sciences in Support of Excellence in Science and Technology. The LAS full members V. Tamužs, A. Krūmiņš and Corr. Member A. Šostaks are members of the European Academy of Sciences in Support of Excellence in Science and Technology.

Estonian Academy of Sciences. The LAS Full Member J. Stradiņš is a foreign member of the Estonian Academy of Sciences.

Georgian National Academy of Sciences. The LAS Full Member J. Stradiņš is a foreign member of the Georgian National Academy of Sciences.

German National Academy of Sciences Leopoldina. The LAS Full Member J. Stradiņš is a member of Leopoldina.

Lithuanian Academy of Sciences. The LAS full members J. Stradiņš, J. Ekmanis, B. Rivža and *Dr.h.c.* V. Strīķis are foreign members of the Lithuanian Academy of Sciences.

Russian Academy of Sciences. The LAS Full Member E. Grēns is a corresponding member of the Russian Academy of Sciences.

Russian Academy of Agricultural Sciences. The LAS Full Member B. Rivža is a corresponding member of the Russian Academy of Agricultural Sciences

Royal Swedish Academy of Agriculture and Forestry. The LAS Full Member B. Rivža, Corr. Member A. Kārkliņš, and *Dr.h.c.* P. Rivža are foreign members of the Royal Swedish Academy of Agriculture and Forestry.

Royal Swedish Academy of Engineering Sciences. The LAS Full Member A. Treimanis is a foreign member of the Royal Swedish Academy of Engineering Sciences.

Saxonian Academy of Sciences in Leipzig. The LAS Full Member J. Stradiņš is a corresponding member of the Saxonian Academy of Sciences.

Appendix

**COOPERATION AGREEMENTS / MEMORANDA
OF UNDERSTANDING OF THE LATVIAN ACADEMY
OF SCIENCES WITH PARTNER ORGANISATIONS**

(with the date of signing the currently valid agreement in brackets)

1. **Austrian** Academy of Sciences (31.12.2002)
2. *Academia Scientiarum et Artium Europaea*, Salzburg, **Austria** (27.06.1991)
3. **Azerbaijan** National Academy of Sciences (03.06.2010)
4. National Academy of Science of **Belarus** (16.05.2002)
5. **Berlin-Brandenburg** Academy of Sciences and Humanities (01.11.2002)
6. **British** Academy (22.11.1991)
7. **Bulgarian** Academy of Sciences (29.03.1996)
8. Royal Society of **Canada** (26.07.1996)
9. Academy of Sciences of the **Czech** Republic (01.10.1997)
10. **Estonian** Academy of Sciences and **Lithuanian** Academy of Sciences (12.11.1991)
11. **Finnish** Academy of Science and Letters (11.10.1999)
12. **French** Academy of Sciences (22.03.1994)
13. **Hungarian** Academy of Sciences (29.06.1994)
14. **Israel** Academy of Sciences and Humanities (05.07.1999)
15. **Italian** National Academy of Sciences (*Accademia Nazionale dei Lincei*) (05.09.2000)
16. Royal Society of **London** (30.10.1991)
17. **Montenegrin** Academy of Sciences and Arts (11.11.2005)
18. **Norwegian** Academy of Science and Letters (01.05.1991)
19. **Polish** Academy of Sciences (19.06.1996)
20. **Russian** Academy of Sciences (04.06.2008)
21. **Saxon** Academy of Sciences (29.09.2004)
22. **Slovak** Academy of Sciences (31.03.2000)
23. **Slovenian** Academy of Sciences and Arts (07.12.1993)
24. Royal **Swedish** Academy of Letters, History and Antiquities (11.04.1996)

- 25. Swiss Academy of Sciences (20.11.2001)
- 26. National Science Council, Republic of China (Taiwan) (21.03.1997)
- 27. National Academy of Sciences of Ukraine (26.11.1997)

GRAND MEDAL, PRIZES AND AWARDS OF THE LATVIAN ACADEMY OF SCIENCES

GRAND MEDAL OF THE LATVIAN ACADEMY OF SCIENCES

The Grand Medal of the Latvian Academy of Sciences is the highest reward which is awarded by the LAS to scientists of Latvia and of foreign countries for their outstanding creative contribution. The Grand Medal of the LAS is cast in bronze. The LAS emblem with an inscription “*Academia Scientiarum Latviensis*” is depicted on its front and the name and family name of the person awarded and the date of awarding are engraved on the reverse side. Candidates for the above reward may be recommended by the LAS full, honorary, and foreign members, the LAS Divisions, by submitting in a written form a motivated proposal and a brief reference on the candidate recommended. The LAS Senate takes a decision about awarding. So far, the LAS Grand Medal has been awarded to J. Graudonis (1993), J. Stradiņš, (1993), E. Dunsdorfs (1994), E. Lavendelis (1994), E. Grēns (1995), D. A. Loeber (1995), M. Staudinger-Woit (1996), E. Lukevics (1996), E. Siliņš (1997), V. Viķe-Freiberga (1997), D. Dravīņš (1998), J. Krastiņš (1998), O. Lielausis (1999), J. Upatnieks (1999), G. Birkerts (2000), M. Bekers (2000), A. Caune (2001), J. Hartmanis (2001), T. Millers (2002), V. Toporovs (2002), R. M. Freivalds (2003), I. Šterns (2003), I. Lancmanis (2004), A. Padegs (2004), E. Blūms (2005), E. Vedējs (2005), R. Kondratovičs, T. Fennels (2006), V. Hausmanis (2007), R. Evarstovs (2007), V. Tamužs (2008), Ē. Kupče (2008), I. Kalviņš (2009), K. Zariņš (2009), M. Auziņš (2010), K. Švarcs (2010), Ē. Mugurēvičs, and R. Villemi (2011).

Winners of the Grand Medal in 2010

Mārcis Auziņš, full member of the LAS, for outstanding contribution to the research of coherent process in atomic and molecular physics

Kurt Schwartz, full member of the LAS, for outstanding work and achievements in practical solutions in radiation physics and holography

Winners of the Grand Medal in 2011

Ēvals Mugurēvičs, full member of the LAS, for outstanding contribution to the archaeological studies in Latvia and edition and translation of medieval chronicles

Richard Villems, foreign member of the LAS, for outstanding contribution in archeogenetics.

WINNERS OF THE LAS PRIZES 2009–2011*

(LAS Senate decision of 19 January 2010)

Jānis Gardovskis, full member of the LAS — *The Pauls Stradiņš Prize* in science of medicine

Larisa Grigorjeva, *Dr.habil.phys.* — *The Edgars Siliņš Prize* in physics

Baiba Rivža, full member of the LAS — *The Kārlis Ulmanis Prize* established by Jānis Labsvīrs in solutions for the national economy

(LAS Senate decision of 18 January 2011)

Jānis Andersons, *Dr.sc.ing.* — *The Fridrihs Canders Prize* in mechanics

Pietro Umberto Dini, foreign member of the LAS — *The Jānis Endzelīns Prize in Baltic Studies*

Gundega Grinuma, *Dr.philol.* — *The Vilis Plūdonis Prize* in literary criticism

Valdis Kampars, full member of the LAS — *The Gustavs Vanags Prize* in chemical sciences

Aldis Kārklinš, corresponding member of the LAS — *The Paulis Lejiņš Prize* in agricultural sciences

Zaiga Kipere — *The Arturs Balklavs prize* for popularisation of science

Tālis Tisenkopfs, corresponding member of the LAS — *The Tālivaldis Vilciņš Prize* in sociology

Gunita Zariņa, *Dr.hist.* — *The Fricis Brīvzemnieks Prize* in anthropology

Mārtiņš Gills, *Dr.sc.comp.* — *The Arturs Balklavs prize* for popularization of science (LAS Senate decision of 30 March 2010).

* See prize descriptions in Yearbook 2008/09
or http://www.lza.lv/images/stories/YearBook_2008-2009.pdf

WINNERS OF THE LAS PRIZES AWARDED IN SPONSORSHIP

Rīga Prize (together with Rīga City Council and „Rīga Prize” Society)

Indulis Ranka, honorary member of the LAS (2009)

Arturs Heniņš, *Dr.hist.* (2009)

Atis Kapenieks, *Dr.phys.* (2009)

Ivars Kalviņš, full member of the LAS (2010)

Zigmunds Skujinš, honorary member of the LAS (2010)

Museum of the History of Medicine (2010)

Together with the Joint-Stock Company „Latvenergo”

Valdis Gavars, *Dr.sc.ing.* — *The Alfrēds Vītols Prize* (2009)

Jānis Inde — *The Alfrēds Vītols Prize* (2010)

Galīna Kaškarova, *Dr.sc.ing.* — *annual prize* (2009)

Āris Žīgurs, *Mg.oec.* — *annual prize* (2009)

Anna Mutule, *Dr.sc.ing.* — *annual prize* (2010)

Together with the Joint-Stock Company “Latvijas Dzelzceļš” and Rīga Technical University Development Fund

Jānis Račko — *annual prize* (2009)

Sergejs Mihailovs, *Mg.* — *annual prize* (2009)

Together with SIA “L'ORÉAL BALTIC” and Latvian National Commision for UNESCO

Liga Zvejniece, *Dr.med.* — *year grant* (2009)

Tatjana Glaskova, *Mg.* — *year grant* (2009)

Karina Siliņa, *Mg.* — *year grant* (2009)

Una Riekstiņa, *Dr.biol.* — *year grant* (2010)

Inese Čakstiņa, *Mg.* — *year grant* (2010)

Elīna Pajuste, *Mg.* — *year grant* (2010)

Together with the Joint-Stock Company “GRINDEKS”

Ilga Jansone, full member of the LAS — *annual prize* (2010)

Ruvins Ferbers, full member of the LAS — *annual prize* (2010)

Edvards Liepinš, full member of the LAS — *annual prize* (2010)

Together with the Joint-Stock Company “ITERA LATVIJA” and Rīga Technical University Development Fund

Imants Liepa, corresponding member of the LAS — *annual prize* (2010)

Namejs Zeltinš, *Dr.habil.sc.ing.* — *annual prize* (2010)

Uldis Sedmalis, full member of the LAS — *annual prize* (2011)

Daiga Zigmunde, *Dr.arch.* — *annual prize* (2011)

Together with the Joint-Stock Company “LATVIJAS GĀZE” and Rīga Technical University Development Fund

Arturs Lešinskis, *Dr.sc.ing.* — *annual prize* (2010)

Vilnis Dzērve-Tāluts, *Dr.med.* — *annual prize* (2010)

Jānis Gardovskis, full member of the LAS — *annual prize* (2011)

Anda Ulpe — *annual prize* (2011)

Jānis Vētra, *Dr.habil.med.*, *Dr.h.c.med.* — the European Prize of the European Academy of Sciences and Arts (Felix Prize) (2009)

Raivis Bičevskis, *Dr.phil.* — *incentive prize* of the European Academy of Sciences and Arts (2009)

Arvīds Irmejs, *Dr.med.* — *incentive prize* of the European Academy of Sciences and Arts (2009)

Raimonds Skuruls — *The Walter Zapp Prize* (together with the Patent Office of the Republic of Latvia) (2009)

OTHER SIGNIFICANT PRIZES IN SCIENCE TO MEMBERS OF THE ACADEMY

Oļģerts Kroders, honorary member of the LAS — *the 2009 Prize of the Cabinet of Ministers of the Republic of Latvia*

Džemma Skulme, honorary member of the LAS — *the 2009 Prize of the Cabinet of Ministers of the Republic of Latvia*

Tālavs Jundzis, full member of the LAS — *Honorary Diploma of the Cabinet of Ministers of the Republic of Latvia* (2009)

Inesis Feldmanis, full member of the LAS — *Honorary Diploma of the Cabinet of Ministers of the Republic of Latvia* (2009)

Aivars Stranga, full member of the LAS — *Honorary Diploma of the Cabinet of Ministers of the Republic of Latvia* (2009)

Imants Liepa, corresponding member of the LAS — *Honorary Diploma of the Cabinet of Ministers of the Republic of Latvia* (2009)

Baiba Rivža, full member of the LAS — *Honorary Diploma of the Cabinet of Ministers of the Republic of Latvia* (2009)

Pēteris Vasks, honorary member of the LAS — *Honorary Diploma of the Cabinet of Ministers of the Republic of Latvia* (2009)

Jānis Stradiņš, full member of the LAS — *the Cicerons Prize* (2009)

Rafails Rozentāls, full member of the LAS — *the 2010 Prize of the Cabinet of Ministers of the Republic of Latvia*

Raimonds Pauls, honorary member of the LAS — *the 2010 Prize of the Cabinet of Ministers of the Republic of Latvia*

Voldemārs Strīķis, Dr.agr., Dr.h.c.agr. — *Honorary Diploma* of the Ministry of Education and Science of the Republic of Latvia (2010)

Andrejs Skāgers, corresponding member of the LAS — *Honorary Diploma* of the Ministry of Education and Science of the Republic of Latvia (2010)

Jānis Stradiņš, full member of the LAS — *award of the Baltic Assembly* (2010)

Pietro Umberto Dini, foreign member of the LAS — *Medal of the Baltic Academies of Sciences* (2010)

Ervins Lukševičs, corresponding member of the LAS — *Medal of the Baltic Academies of Sciences* (2010)

Arnis Treimanis, full member of the LAS — *Honorary Diploma* of the Ministry of Education and Science of the Republic of Latvia (2010)

Jānis Grundspenkis, full member of the LAS — *Prize of the Ministry of Education and Science of the Republic of Latvia (2010)*

Baiba Rivža, full member of the LAS — *Prize of the Ministry of Education and Science of the Republic of Latvia (2010)*

WINNERS OF THE AWARDS OF THE LATVIAN ACADEMY OF SCIENCES FOR YOUNG SCIENTISTS

Mg.chem. **Liene Grigorjeva**, Rīga Technical University, Latvian Institute of Organic Synthesis — 2010 *Mārtiņš Straumanis – Alfrēds Ieviņš Prize in chemistry* (supervisor *Dr.chem.* A. Jirgensons)

Mg.chem. **Ansis Maļeckis**, Rīga Technical University, Latvian Institute of Organic Synthesis — 2010 *Mārtiņš Straumanis – Alfrēds Ieviņš Prize in chemistry* (supervisor *Dr.chem.* A. Jirgensons)

Mg.philol. **Zanda Borga**, University of Liepāja — 2010 *Zenta Mauriņa Prize in humanities* (supervisor B. Kalnačs, full member of the LAS)

Mg.sc.ing. **Vitālijs Rjabovs**, Rīga Technical University — 2010 *Emīlija Gudriniece Prize in chemistry* (supervisor *Dr.chem.* M. Turks)

Bc. **Edgars Nitišs**, University of Latvia — award for young scientists (supervisor *Dr.phys.* M. Rutkis) (2010)

Bc. **Anda Švāgere**, University of Latvia — award for young scientists (supervisor *Mg.* Zanda Gavare, consultant *Dr.phys.* A. Skudra) (2010).

Dr.phys. **Zanda Gavare**, University of Latvia — 2011 *Ludvigs and Māris Jansons Prize in physics* (supervisor *Dr.phys.* A. Skudra)

Dr.phys. **Anatolijs Šarakovskis**, University of Latvia — 2011 *Ludvigs and Māris Jansons Prize in physics* (supervisors *Dr.habil.phys.* M. Springis, I. Tāle, full member of the LAS)

Mg.chem. **Kaspars Traskovskis**, Rīga Technical University — 2011 *Mārtiņš Straumanis – Alfrēds Ieviņš Prize in chemistry* (supervisor corresponding member of the LAS V. Kokars)

Mg.chem. **Pāvels Ostrovskis**, Rīga Technical University — 2011 *Emīlija Gudriniece Prize in chemistry* (supervisor *Dr.chem.* M. Turks)

Mg.philol. **Inga Deigele**, University of Liepāja — 2011 *Zenta Mauriņa Prize in humanities* (supervisor B. Kalnačs, full member of the LAS)

**WINNERS OF THE LAS PRIZES FOR YOUNG SCIENTISTS
AWARDED IN SPONSORSHIP**

Together with the Joint-Stock Company „Latvenergo”

Dr.phys. **Pāvels Onufrijevs**, Rīga Technical University (supervisor *Dr.habil.phys.* A. Medvids) (2009)

Dr.sc.ing. **Andrejs Podgornovs**, Rīga Technical University (supervisor *Dr.sc.ing.* A. Zviedris) (2009)

Dr.sc.ing. **Claudio Rochas**, Rīga Technical University (supervisor *Dr.habil.sc.ing.* D. Blumberga) (2009)

Dr.sc.ing. **Jānis Zāķis**, Rīga Technical University (supervisor *Dr.habil.sc.ing.* I. Rankis) (2009)

Dr.sc.ing. **Santa Kiene**, joint stock company „Latvenergo” (supervisor *Dr.habil.sc.ing.* V. Čuvičins, consultant *Dr.sc.ing.* N. Gurovs) (2010)

Dr.sc.ing. **Diāna Žalostība**, Rīga Technical University (supervisor *Dr.habil.sc.ing.* J. Barkāns) (2010)

Together with the Joint-Stock Company “LATVIJAS GĀZE” ” and Rīga Technical University Development Fund

Dr.med. **Eva Strīķe**, Rīga Stradiņš University (2010)

Dr.sc.ing. **Ivars Ščerbickis**, Rīga Technical University (2010)

Mg.sc.ing. **Gints Jaudzems**, Rīga Technical University (supervisor *Dr.sc.ing.* B. Gjunsburgs) (2011)

Jānis Vilmanis, Rīga Stradiņš University (2011)

Together with the Joint-Stock Company “GRINDEKS”

Mg.chem. **Kristaps Kļaviņš**, University of Latvia (supervisor *Dr.chem.* P. Mekšs) (2010)

Bc. **Gints Šmits**, Rīga Technical University (supervisor *PhD* R. Zemrībo) (2010)

Mg.chem. **Elmārs Zariņš**, Riga Technical University (supervisor V. Kokars, corresponding member of the LAS)

Mg.chem. **Natālija Usačova**, Rīga Technical University, Latvian Institute of Organic Synthesis (supervisor *Dr.chem.* A. Jirgensons) (2010)

HOLDERS OF THE GRANTS AWARDED
BY THE LATVIAN ACADEMY OF SCIENCES

Inese Mieriņa, Rīga Technical University — *Emīlīja Gudriniece – Alfrēds Ieviņš*
Grant in chemistry (2009/2010)

Jevgēnija Mackeviča, Rīga Technical University — *Emīlīja Gudriniece – Alfrēds Ieviņš*
Grant in chemistry (2009/2010; 2010/2011)

Aleksejs Smirnovs, Rīga Technical University — *Emīlīja Gudriniece – Alfrēds Ieviņš*
Grant in chemistry (2010/2011)

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Iiga JANSONE, Chair of the Division of Social Sciences and Humanities, Vice President of the Academy

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Advisor to the President Anita DRAVENIECE

Liaison Officer Kristaps BROKS

SCIENTIFIC DIVISIONS

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Pēteris RIVŽA

Antans-Sauļus SAUHATS

Pēteris ŠIPKOVS

The Division unites 97 LAS members, among them 36 full, 5 honorary, 21 foreign, and 35 corresponding members.

The Division has awarded 16 scientists a degree of *Dr. honoris causa*.

Speciality	Number of members			
	full	corresponding	foreign	honorary
Physics	20	8	11	—
Mechanics	8	7	4	1
Computer science	4	9	4	2
Mathematics	2	6	1	—
Astronomy	—	3	1	—
Power engineering	2	2	—	2

**MEMBERS OF THE DIVISION
AND THEIR FIELD OF SPECIALISATION**

Astronomy

Māris Ābele, cor.mem.
Edgars Bervalds, cor.mem.
Juris Žagars, cor.mem.
Dainis Draviņš, for.mem.

Aivars Zemītis, cor.mem.

Raimondas Čieģis, for.mem.

Computer Science

Andris Ambainis, full mem.
Jānis Bārzdīņš, full mem.
Ivars Bilžinskis, full mem.
Jānis Grundspeņķis, full mem.
Guntis Bārzdīņš, cor.mem.
Juris Borzovs, cor.mem.
Igors Kabaškins, cor.mem.
Audris Kalnīņš, cor.mem.
Jurijs Merkurjevs, cor.mem.
Leonīds Novickis, cor.mem.
Uldis Sukovskis, cor.mem.
Pēteris Videnieks, cor.mem.
Jāzeps Ločmelis, hon.mem.
Jānis Osis, hon.mem.
Gilles Brassard, for.mem.
Alvis Brāzma, for.mem.
Juris Hartmanis, for.mem.
Andris Padegs, for.mem.

Mechanics

Juris Jansons, full mem.
Ivars Knēts, full mem.
Egons Lavendelis, full mem.
Imants Matīss, full mem.
Rolands Rikards, full mem.
Kārlis Rocēns, full mem.
Vitauts Tamužs, full mem.
Gundaris Teters, full mem.
Jānis Auziņš, cor.mem.
Andris Čate, cor.mem.
Vladimirs Kasjanovs, cor.mem.
Roberts Maksimovs, cor.mem.
Jānis Rudzītis, cor.mem.
Narimants Salenieks, cor.mem.
Jānis Viba, cor.mem.
Vilis Vītols, hon.mem.
Jānis Dundurs, for.mem.
Jüri Engelbrecht, for.mem.
René Moreau, for.mem.
Ralejs Tepfers, for.mem.

Physics

Mārcis Auziņš, full mem.
Jānis Guntis Bērziņš, full mem.
Elmārs Blūms, full mem.
Andrejs Cēbers, full mem.
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The Division has awarded 27 scientists a degree of *Dr. honoris causa*.

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	full	corresponding	foreign	honorary
Chemistry	15	8	9	–
Medicine	9	14	9	3
Biology	8	12	6	1
Biotechnology	1	–	1	–
Ecology, environmental science, and geography	2	4	1	–
Geology and water management	–	2	2	–
Agricultural sciences	1	3	–	1
Forestry	–	1	–	–
History of science	–	–	1	–
Materials science	2	1	1	–
Pharmacology	–	1	–	–

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The Division has awarded 32 scientists a degree of *Dr. honoris causa*.

Speciality	Number of members			
	full	corresponding	foreign	honorary
Literary criticism	5	3	7	—
Literature	—	—	—	13
Economics	6	6	3	2
Philosophy	3	4	1	—
Law	2	2	1	—
Linguistics	4	7	9	1
History	4	1	7	2
Anthropology	—	—	—	1
Archaeology	3	3	—	—
Architecture	1	—	1	1
Bibliography	—	—	1	—
Demography	1	1	—	—
Ethnography	1	—	—	—
Art Studies	1	1	—	—
Art	—	—	1	22
Pedagogics	—	1	—	—
Political Studies	1	1	3	—
Psychology, Folklore Studies	1	—	1	—
Sociology	—	2	—	—
Theology	—	—	—	1
History of culture	—	1	1	—
History of art	—	1	—	1
History of science	—	—	1	—
Journalistics	—	—	—	1

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	full	corre-sponding	foreign	honorary
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Economics	2	1	–	–
Agriculture and Processing Technologies	1	6	–	1
Forestry Science and Wood Technologies	3	5	1	–
Art	–	–	–	1

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NUMBER OF THE LAS MEMBERS

	01.01.93	01.01.2000	15.03.2005	01.06.2009	01.06.2011
Full members	68	91 (67)	98 (65)	105 (52)	107 (52)
Honorary members	40	55	51	54	56
Foreign members	57	88 (45)	92	92	89
Corresponding members	46	84	98 (85)	116 (85)	123 (89)
Total	211	318	339	367	375

The LAS has awarded 80 scientists a degree of *Dr. honoris causa*.

Note. Under the headings 01.01.2000 to 01.06.2011, the number of those members of the LAS is given in brackets, who are under the age of 70.

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The presidents of the Lithuanian, Latvian and Estonian academies of sciences (*from left to right*), **Valdemaras Razumas, Juris Ekmanis, Richard Villem**, and ALLEA president **Jüri Engelbrecht** opening the XII Baltic Conference on Intellectual Cooperation that was held in Vilnius on 4 and 5 November 2010.



Professor Felix Unger, foreign member of the Academy (*right*), receiving the Pauls Stradiņš Prize out of the hands of Professor Jānis Stradiņš (*left*) at the presence of Mrs. Edīte Bērziņa, director of the Pauls Stradiņš Museum for History of Medicine in October 2009. The prize consists of a statuette and a diploma. Prof. Unger arrived in Rīga on 15–16 October 2009 on the occasion of a joint session of the LAS and the European Academy of Sciences and Arts.



In February 2011, the Academy celebrated **65 years** since the founders and early members of the Academy gathered for their first General Meeting. The Academy considers itself the successor of scientific associations, which existed in Latvia in the 19th century. The oldest among them is the former Kurzeme Society for Literature and Art (1815–1939). The illustrations show the building of the Academy and a rhododendron “*Academia Scientiarum*” bred by Full Member of the Academy Rihards Kondratičs and named in honour of the Latvian Academy of Sciences.



After the ceremony of receiving the LAS membership diplomas, on 15 December 2010, **newly elected Academy members** pose for a group photograph together with President Juris Ekmanis and other academy officials.

On 8 May 2010, the ceremony of awarding L'Oréal fellowships *For Women in Science* took place. Annual awarding of L'Oréal fellowships in Latvia is carried out with the support of the Latvian National Commission for UNESCO and the Latvian Academy of Sciences.

From left to right:

MS **Elīna Pajuste**,
MS **Inese Čakstīna**, and
Dr. biol. **Una Riekstīta**.



On 12 May 2011, the ceremony of awarding L'Oréal fellowships *For Women in Science* took place. *From left to right:* MS **Baiba Švalbe**, the fellowship's honorary patroness **Professor Vaira Vīķe-Freiberga**, also, full member of the Academy, and *Dr.med.* **Liene Nīkitina-Zaķe** and MS **Marija Dunce**.



Dr. phys. Zanda Gavare, the UL Faculty of Physics and Mathematics, has been awarded the 2011 *Ludvigs and Māris Jansons Prize* in recognition of her work “Spectroscopic diagnostics of low temperature gas discharge plasma”. This Academy’s prize for young scientists is specifically awarded for the best work in physics.

Chemistry Professor Ivars Kalviņš, full member of the Academy, was awarded the 2009 Grand Medal of the LAS for creation of new competitive medicinal preparations and promoting innovation initiatives at the Latvian Institute of Organic Synthesis.



Kristaps Zariņš (USA), MD, Professor of Medicine, foreign member of the Academy, was awarded the 2009 Grand Medal of the LAS for outstanding achievements in the surgery of blood vessels and for strengthening unity of Latvian and foreign physicians.



Physics Professor Mārcis Auziņš, full member of the Academy, was awarded the 2010 Grand Medal of the LAS for outstanding contribution to the research of coherent process in atomic and molecular physics. The illustration shows the recipient immediately after his exciting academic lecture "On quantum physics and beyond..."

Physics Professor Kurt Schwartz, full member of the Academy, was awarded the 2010 Grand Medal of the LAS for outstanding work and achievements in practical solutions in radiation physics and holography. The most prestigious award of the Academy was presented to Prof. K. Schwartz (Latvia – Germany) in June 2010.



Laureate of the Baltic Assembly Prize for Science in 2010, **Jānis Stradiņš** (Latvia), academician, has been nominated for his book *The Beginnings of Science and Higher Education in Latvia* (2009).

Professor **Tālis Tisenkopfs** has been awarded the 2011 Talivaldis Vilciņš Prize of the LAS for the book *Sociology in Latvia*.



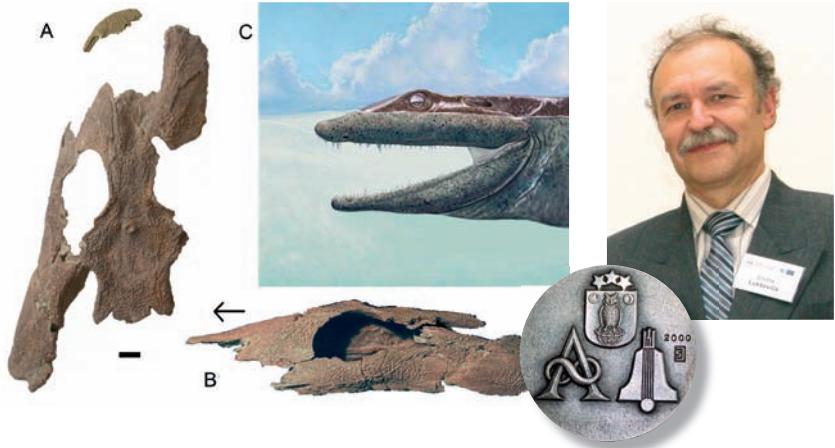
In April 2011, the 7th International Conference “Functional Materials and Nanotechnologies” (**FM&NT-2011**) was held in Riga. This series of annual conferences is organized by the Institute of Solid State Physics, University of Latvia; the recent event was held in cooperation with the National Research Programme in Materials Science of Latvia and “MATERA”.



The 2011 Walter Zapp Prize has been awarded to Corresponding Member of the LAS Dr.phys. **Māris Ābele** and Dr.phys. **Kazimirs Lapuška** for the design of photography and laser ranging equipment for observing cosmic objects. Both scientists invented and constructed their first specific photography cameras in early 1960s, and they were used for observation of Earth's artificial satellites in Latvia and many other countries. The illustration shows photo camera AFU-75.



Lately, the solar energy use testing polygon – the installation of photovoltaic (PV) batteries has been located on the roof of the Institute of Physical Energetics (led by Professor Juris Ekmanis). The researchers' main purpose is to test PV batteries and solar collectors under real weather conditions and further develop solar energy use in Latvia.

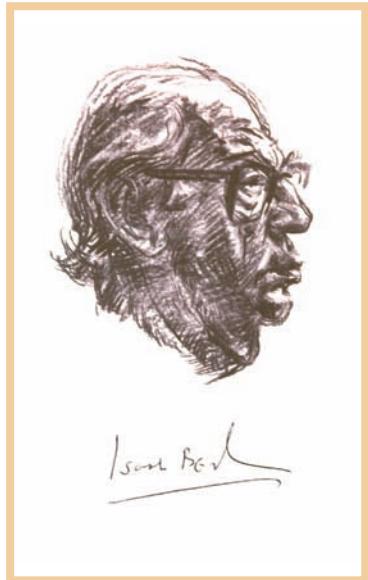


The remnants of a primitive tetrapod have been found in Latvia. **Professor Ervīns Lukševics**, corresponding member of the Academy, was awarded the 2010 Medal of the Baltic Academies of Sciences in recognition of his remarkable contribution to investigation of the Baltic Region's geological history and evolution of ancient vertebrates. Illustrations show the above and profile views of the remnants of the primitive tetrapod *Ventastega curonica* and an impression of Ventastega pictured with its fossil skull (P. Renne/P. Ahlberg).



Scientific and organizational activities of **Professor Arvids Barševskis**, corresponding member of the Academy, have helped the Daugavpils University to evolve into an international hub for investigation of ground beetle communities. The University supports publishing of *Baltic Journal of Coleopterology*. A new ground beetle species from Spain and a new species of rove beetles, found in Central Asia, have been named after Prof. Barševskis. These are *Platyderus barsevkisi Anichtch. sp.n.* and *Lesteva barsevkisi Shavr. sp.n.*





On 7 May 2010, a commemoration event in honour of **Professor Dr.iur., Dr.h.c. Dietrich Andre Loeber** (1923–2004) was held by the Academy of Sciences, Latvian – Baltic German centre “*Domus Rigensis*”, the Mentzendorff’s House and Latvian Bar Association. A commemorative plaque was unveiled on the wall of the house of *Hospitāļu* Street 22 in Riga.

On 1 June 2009, in commemoration of the centenary of the famous Riga-born philosopher **Sir Isaiah Berlin**, a conference was organized at the University of Latvia and the *Isaiah Berlin Auditorium* was opened at the Faculty of Social Sciences.



A monument to Latvia-born chemist **Paul Walden**, one of the most outstanding chemists of the first half of the 20th century, the founder of dynamic stereochemistry, located in Riga. The monument is shaped as malic acid molecules (the so-called Walden Inversion) and also features a bas-relief of Walden. The memorial installation was donated to Riga City by LLC Itera-Latvija and the Latvian Academy of Sciences.

LATVIAN ACADEMY OF SCIENCES
YEARBOOK
2010/2011

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