



OAW

Austrian Academy
of Sciences

Intellectual Capital Report 2009

Imprint

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Vienna, May 2010

Foreword by the Federal Minister of Science and Research

The results of scientific research are the basis for new technologies and ideas. Through research we are able to take the first step into new social and economic fields. At the same time, applying research opens up fascinating new areas of science. It is precisely this feedback effect that creates new perspectives and challenges. Knowledge partnerships between research and business organisations will further change our possibilities and business options in the coming years.

Knowledge creates the future. I am convinced that there is no better way to create a good starting point for our future generations than through knowledge. Politics must create the right conditions to enable innovation to grow from knowledge, because innovation means more than just technology; it means new kinds of products and services that grow out of scientific findings and are developed to market maturity. It is the source of our future intellectual and material prosperity.

The fact that knowledge partnerships have developed well here in Austria is demonstrated by Austria's successes in the EU Framework Programmes. Since the 4th Framework Programme Austria's participation in the Framework Programme for Research has continued to show positive development. Austria's share of total EU funding has grown steadily and is currently at about 2.5 per cent. The return flow quota, measured against the Austrian contribution to the EU budget has, therefore, doubled since the 4th Framework Programme and has increased by 13 per cent when compared to the 6th Framework Programme.

The systematic presentation of knowledge is not easy, and yet it is essential to continuous reflection on the tasks, achievements and added-value potential within both national and international spheres for any organisation. The Austrian Academy of Sciences has been a pioneer in this area too, having produced an intellectual capital report on its scientific achievements as a basic research organisation since 2005. This provides a clear overview and facilitates careful monitoring of the Academy's successes and potential in the service of science. As I see it, the intellectual capital report produced by the Academy will continue to function as a useful management and communications tool, thereby demonstrating its value as a useful and vibrant element of the Academy, and I am pleased to wish the Academy and its employees continued success in the field of science and research.

Beatrix Karl

Federal Minister of Science and Research



» Foreword

Foreword by the President of the Austrian Academy of Sciences

Vienna, May 2010

"To meet its statutory mission of promoting the sciences in every respect, and in the awareness of its social, cultural and economic responsibility, the Academy promotes and conducts basic research."

This quotation from the Mission Statement is the guiding principle behind the scientific activities of the Academy, and in particular the ongoing process of reform. This applies equally to its status as a learned society and as a research performing institution, to its role in supporting young talent and to the formation of its international relationships. The broad knowledge base of the Academy's members combined with the scientists employed in its research units constitutes a pool of experts whose store of knowledge and expertise benefits Austria in many different ways, both as a scientific location and as a society.

The rising cost of modern research and the growing significance of innovative findings for economic progress have meant that researchers and research units are increasingly coming under pressure to justify themselves. Intellectual capital reporting is a way of demonstrating the conditions, results and effects of science and research and of creating transparency.

During the year under review the Academy was repeatedly able to carry out high performance, non-university basic research programmes. Within these projects Academy employees have been the recipients of more high level awards, both national and international, than is average for Austria; we have seen a higher-than-average number of publications in top quality journals as well as the successful acquisition and implementation of national and international research projects. I would like to thank all the members of the Academy, all the employees in our research units and the administrative staff for their support in collecting, evaluating and interpreting the data which has fed into this intellectual capital report.

Helmut Denk

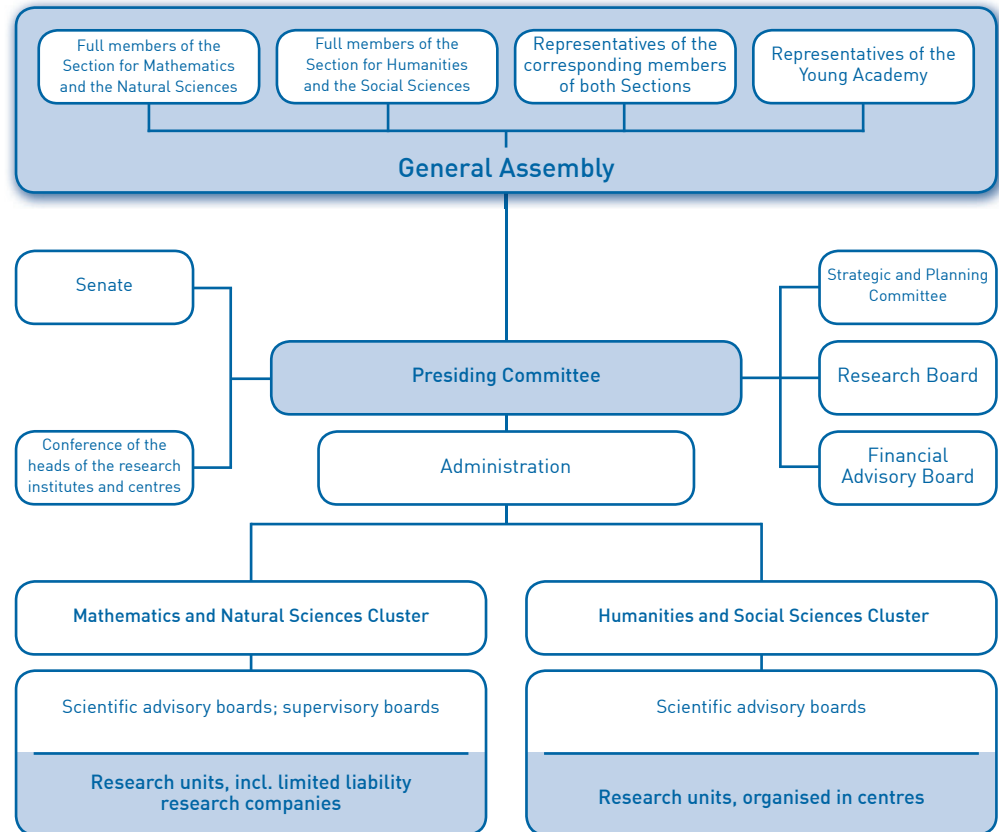
President of the Austrian Academy of Sciences



» 1 The Austrian Academy of Sciences at a glance

1 The Austrian Academy of Sciences at a glance

The organs and institutions of the Academy



The intellectual capital report of the Academy also covers the Academy's limited liability research companies (IMBA, GMI and CeMM).

The Austrian Academy of Sciences (OeAW), which was founded in 1847, is a learned society, a research performing organisation, an institution which promotes young talent and a purveyor of knowledge.

A learned society

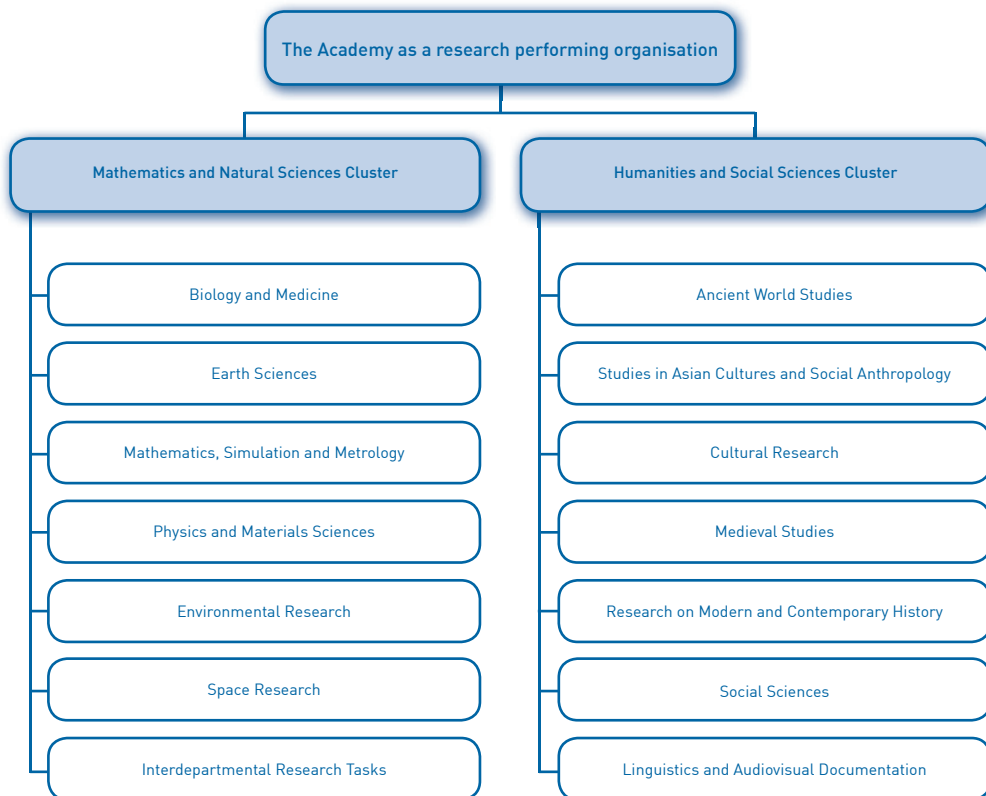
The learned society boasts approximately 700 members in total and is made up of full members, honorary members, and corresponding members both in Austria and abroad, organised into the Section for Humanities and the Social Sciences, the Section for Mathematics and the Natural Sciences, as well as members of the Young Academy.

Members of the OeAW make a significant contribution to high performing science in Austria. They bring their multifaceted expertise to bear in carrying out research activities, scientifically appropriate quality control and in providing advice on science related policy.

A research performing organisation

The OeAW is the largest and most important non-university research organisation that carries out basic research in Austria. It currently manages 64 research units located in several federal states of Austria and covering different subject areas. The Academy has approximately 1,300 employees.

» 1 The Austrian Academy of Sciences at a glance



The OeAW constantly provides momentum in research by taking up new, pioneering areas of research. Scientific quality and the potential for innovation are the main criteria of the Academy's research profile. As "centres of excellence", the units belonging to the OeAW must be able to hold their own against international competition.

OeAW research units cooperate at national, EU and international levels with university and non-university partners. Through membership of international scientific organisations and through cooperation treaties with foreign research institutions, the Academy has become a part of an international network and represents Austria in the European scientific world.

An institution which promotes young talent

By offering top class scientific training posts in its research units the Academy creates many opportunities for young scientific talent. It also promotes the opportunity to take on independent scientific tasks at a young age, by leading a junior group for example.

The Academy also offers grants to support young scientific talent in programmes which meet the standards set by the international scientific community, thereby creating the opportunity for exceptionally well qualified young researchers to develop their expertise in institutions both in Austria and abroad. As a part of nine specific programmes the Academy is able to award grants using earmarked public funds, through third party funding and with the support of private sponsors.

» 1 The Austrian Academy of Sciences at a glance

A purveyor of knowledge

The OeAW is a hub for the exchange and discussion of scientific knowledge. As well as symposia, workshops and lectures for scientists, the OeAW organises public lectures and discussions on current research topics for the interested layperson. Through these activities, the Academy contributes to the public discussion on the influence that scientific knowledge has on society, economics and politics. The OeAW is particularly concerned with increasing interest in science and research among young people. •

» 2 Selected research results and publications

2 Selected research results and publications

2.1 Mathematics and Natural Sciences Cluster

Biology and Medicine

Cellular immune responses

Scientists at the CeMM have discovered a previously unknown molecular sensor in human cells, which is able to recognise pathogenic viruses and send out an alarm signal. Although characterisation of the molecule is still in the early stages, it could be used to improve the immune functions of the human organism.

Important pneumonia defense mechanism uncovered

A team of CeMM scientists in cooperation with the Medical University of Vienna uncovered a beneficial pneumonia immune defense mechanism involving the receptor TREM-1, a potent amplifier of the inflammatory response to microbial infections.

Fundamental property of natural antibodies detected

A hitherto unrecognized property for about a third of all natural antibodies has been discovered. This finding points to an important function of the antibodies in numerous chronic inflammatory diseases including cardiovascular diseases. In the future, these results could be exploited for the development of novel therapeutic strategies.

Hereditary susceptibility to tumours

A genetic variation of chromosome 9 that increases the likelihood of pathogenic mutations has been discovered. One of the two variants of the JAK2 gene is more likely to result in a mutation and therefore increases the risk of developing myeloproliferative neoplasms.

Selected publications:

- Brehme M, Hantschel O, Colinge J, Kaupé I, Planyavsky M, Köcher T, et al. Charting the molecular network of the drug target Bcr-Abl. *PNAS* 2009; 106: 7414–7419.
- Bürckstümmer T, Baumann C, Blüml S, Dixit E, Dürnberger G, Jahn H, et al. An orthogonal proteomic-genomic screen identifies AIM2 as a cytoplasmic DNA sensor for the inflammasome. *Nature Immunology* 2009; 10: 266–272.
- Chou MY, Fogelstrand L, Hartvigsen K, Hansen LF, Woelkers D, Shaw PX, et al. Oxidation-specific epitopes are dominant targets of innate natural antibodies in mice and humans. *The Journal of Clinical Investigation* 2009; 119: 1335–1349.
- Lagler H, Sharif O, Haslinger I, Matt U, Stich K, Furtner T, et al. TREM-1 activation alters the dynamics of pulmonary IRAK-M expression in vivo and improves host defense during pneumococcal pneumonia. *The Journal of Immunology* 2009; 183: 2027–2036.
- Matt U, Warszawska JM, Bauer M, Dietl W, Mesteri I, Doninger B, et al. Bbeta(15-42) protects against acid-induced acute lung injury and secondary pseudomonas pneumonia in vivo. *American Journal of Respiratory and Critical Care Medicine* 2009; 180: 1208–1217.
- Pauler FM, Sloane MA, Huang R, Regha K, Koerner MV, Tamir I, et al. H3K27me3 forms BLOCs over silent genes and intergenic regions and specifies a histone banding pattern on a mouse autosomal chromosome. *Genome Research* 2009; 19: 221–233.

CeMM – Research
Center for Molecular
Medicine

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» 2 Selected research results and publications

- Olcaydu D, Harutyunyan A, Jager R, Berg T, Gisslinger B, Pabinger I, et al. A common JAK2 haplotype confers susceptibility to myeloproliferative neoplasms. *Nature Genetics* 2009; 41: 450–454.
- Perne A, Muellner MK, Steinrueck M, Craig-Mueller N, Mayerhofer J, Schwarzingger I, et al. Cardiac glycosides induce cell death in human cells by inhibiting general protein synthesis. *PLoS One*. 2009; 4: e8292.

GMI – Gregor Mendel
Institute of Molecular
Plant Biology

Epigenetic changes in plants

Not all characteristics of an organism can be traced back to the sequence of the base pairs in the DNA. Epialleles are variants which have identical genetic sequence, but the associated histone proteins differ because of chemical changes which result in different gene activity. This is even possible in the case of highly stable genetic information. A variant of a silent marker gene discovered in polyploid plants proved to be so stable that its epigenetically conditioned inactivity had been passed on through several generations. New results from the GMI demonstrate that this kind of epiallele can only be reactivated by attacking both the DNA and histone methylation at once. This situation increases the durability of such non-genetic variants and suggests that they have a part to play in the long-term adaptation process.

Although the epigenetic propagation of an inactive chromatin along a whole chromosome does occur in eukaryotes, the mechanism behind it is unclear. Another working group of the GMI is investigating this phenomenon using RNA-directed DNA methylation (RdDM) with the model plant *Arabidopsis thaliana*. In the course of the search for mutants that were no longer able to carry out RNA-directed DNA methylation, the enzyme DCL3 was identified. This enzyme breaks longer double stranded RNA down into small RNA fragments, thereby proving that this small molecule plays an essential role in controlling methylation.

Selected publications:

- Daxinger L, Kanno T, Bucher E, van der Winden J, Naumann U, Matzke AJM, et al. A step-wise pathway for biogenesis of 24-nt secondary siRNAs and spreading of DNA methylation. *EMBO Journal* 2009; 28: 48–57.
- Pecinka A, Rosa M, Schikora A, Berlinger M, Hirt H, Luschnig C, et al. Transgenerational stress memory is not a general response in *Arabidopsis*. *PLoS One* 2009; 4: e5202.
- Matzke M, Weiger T, Papp I, Matzke AJM. Nuclear membrane ion channels mediate root nodule development. *Trends in Plant Science* 2009; 14: 295–298.
- Schoft V, Chumak N, Mosiolek M, Slusarz L, Komnenovic V, Brownfield L, et al. Induction of RNA-directed DNA methylation upon decondensation of constitutive heterochromatin. *EMBO reports* 2009; 10: 1015–1021.
- Aufsatz W, Nehlin L, Voronin V, Schmidt A, Matzke AJM, Matzke M. A novel strategy for obtaining kanamycin resistance in *Arabidopsis thaliana* by silencing an endogenous gene encoding a putative chloroplast transporter (technical report). *Biotechnology Journal* 2009; 4: 224–229.

» 2 Selected research results and publications

DREAM: one gene regulates pain, learning and memory

The DREAM-gene which is crucial in regulating pain perception seems to also influence learning and memory. The new findings could help explain the mechanisms of Alzheimer's disease and yield a potential new therapeutic target.

Identification of all gene functions within reach

A new approach enables IMBA researchers to investigate the function of genes across an organism's whole genotype simultaneously. In future this will make it possible to tackle the identification of the causes of illnesses even more systematically.

The mammalian system for controlling bone remodelling also regulates fever

The so-called RANK protein and the molecule that binds to it, the RANK ligand or RANKL, form a system which is the "master regulator" governing bone loss.

Mammals have evolved a complex system for controlling bone remodelling. Babies require calcium for healthy bones and they obtain it from their mother's milk. Nursing mothers release calcium from their bones, replenishing their own calcium stocks when they finish breastfeeding. Surprisingly, however, the same system also plays a key part in the control of fever and of female body temperature.

Selected publications:

- Hanada R, Leibbrandt A, Hanada T, Kitaoka S, Furuyashiki T, Fujihara H, et al. Central control of fever and female body temperature by RANKL/RANK. *Nature* 2009; 462: 505–509.
- Mummery-Widmer JL, Yamazaki M, Stoeger T, Novatchkova M, Bhalerao S, Chen D, et al. Genome-wide analysis of Notch signalling in *Drosophila* by transgenic RNAi. *Nature* 2009; 458: 987–992.
- Nielsen AF, Gloggnitzer J, Martinez J. MicroRNAs Cross the Line: The Battle for mRNA Stability Enters the Coding Sequence. *Molecular Cell* 2009; 35: 139–140.
- Nielsen AF, Gloggnitzer J, Martinez J. Ars2 and the Cap-Binding Complex Team up for Silencing. *Cell* 2009; 138: 224–226.
- Leibbrandt A, Penninger JM. ESCI award lecture: from a little mouse to rationale medicine for bone loss. *European Journal of Clinical Investigation* 2009; 39: 842–850.
- Leibbrandt A, Penninger JM. RANKL/RANK as Key Factors for Osteoclast Development and Bone Loss in Arthropathies. *Advances in Experimental Medicine and Biology* 2009; 649: 100–113.
- Leibbrandt A, Penninger JM. RANK(L) as a Key Target for Controlling Bone Loss. *Advances in Experimental Medicine and Biology* 2009; 647: 130–145.
- Paolino M, Penninger JM. E3 ubiquitin ligases in T-cell tolerance. *European Journal of Immunology* 2009; 39: 2337–2344.
- Mitulovic G, Stingl C, Steinmacher I, Hudecz O, Hutchins J, Peters J, et al. Preventing Carryover of Peptides and Proteins in Nano LC-MS Separations. *Analytical Chemistry* 2009; 81: 5955–5960.
- Brunner MJ, Resch GP. Automated monitoring to reduce electron microscope downtime. *Ultramicroscopy* 2009; 109: 1389–1392.
- Conder R, Knoblich JA. Fly stem cell research gets infectious. *Cell* 2009; 137: 1185–1187.
- Coumilleau F, Fürthauer M, Knoblich JA, González-Gaitán M. Directional Delta and Notch trafficking in *Sara* endosomes during asymmetric cell division. *Nature* 2009; 458: 1051–1055.

**IMBA – Institute of
Molecular Biotech-
nology**

» 2 Selected research results and publications

- Neumüller RA, Knoblich JA. Wicked views on stem cell news. *Nature Cell Biology* 2009; 11: 678–679.
- Schwamborn JC, Berezikov E, Knoblich JA. The TRIM-NHL protein TRIM32 activates micro-RNAs and prevents self-renewal in mouse neural progenitors. *Cell* 2009; 136: 913–925.

Breath Research Institute

Lung carcinoma marker in breath

As part of an EU project dealing with the analysis of the breath of patients with carcinoma of the lungs or oesophagus, not only was a substance found which is characteristic of patients suffering from lung carcinoma, but another 40 compounds were identified which were much more likely to be found in the exhaled breath of lung cancer patients than in healthy volunteers, so that this may have diagnostic significance.

Selected publications:

- Bajtarevic A, Ager C, Pienz M, Klieber M, Schwarz K, Ligor M, et al. Noninvasive detection of lung cancer by analysis of exhaled breath. *BMC Cancer* 2009; 9: 348.
- Sponring A, Filipiak W, Mikoviny T, Ager C, Schubert J, Miekisch W, Amann A, Troppmair J, et al. Release of volatile organic compounds from the lung cancer cell line NCI-H2087 in vitro. *Anticancer Research* 2009; 29: 419–426.
- King J, Kupferthaler A, Unterkofler K, Koc H, Teschl S, Teschl G, et al. Isoprene and acetone concentration profiles during exercise at an ergometer. *Journal of Breath Research* 2009; 3: 027006.
- Filipiak W, Sponring A, Mikoviny T, Ager C, Schubert J, Miekisch W, et al. Release of volatile organic compounds (VOCs) from the lung cancer cell line CALU-1 in vitro. *Cancer Cell International* 2009; 8: 17.

Institute for Biomedical Aging Research

The fountain of youth spermidine

Spermidine, a natural polyamine whose intercellular concentration decreases with age, increases the life-span of yeast cells, flies, worms and human immune cells. This effect is mediated in all species by the deacetylation of the H3 histone through inhibition of the histone acetyltransferase. The altered acetylation status of the chromatin results in increased levels of transcription of various autophagy genes. The induction of autophagy by spermidine promotes longevity.

Sources of oxygen radicals

Not only the recognised sources of oxygen radicals, the mitochondria, but also oxygen radicals produced by cellular enzymes, which are normally only regarded as effectors of innate immunity, have a role to play. It was demonstrated that by deactivating the gene for NADPH oxidase (non-mitochondria dependent source of radicals) it was possible to slow down the aging of human endothelial cells.

The influence of oxidative stress on immune reactions

The oxidative modification of a CMVpp65 peptide results in a lowered affinity for the T-cell-receptor and consequently reduces T-cell reactivity. This shows that oxidative stress conditions, such as are frequently encountered in old age, can lead to a reduction in immune reactions against pathogens, tumours or autoantigens.

» 2 Selected research results and publications

Selected publications:

- Eisenberg T, Knauer H, Schauer A, Büttner S, Ruckenstuhl C, Carmona-Gutierrez D, et al. Induction of autophagy by spermidine promotes longevity. *Nature Cell Biology* 2009; 11: 1305–1314.
- Lener B, Koziel R, Pircher H, Hütter E, Greußing R, Herndler-Brandstetter D, et al. The NADPH oxidase Nox4 restricts the replicative lifespan of human endothelial cells. *Biochemical Journal* 2009; 423: 363–374.
- Weiskopf D, Schwanninger A, Weinberger B, Almanzar G, Parson W, Buus S, et al. Oxidative stress can alter the antigenicity of immunodominant peptides. *Journal of Leukocyte Biology* 2009; 87: 165–172.
- Zenzmaier C, Marksteiner J, Kiefer A, Berger P, Humpel C, et al. Dkk-3 is elevated in CSF and plasma of Alzheimer's disease patients. *Journal of Neurochemistry* 2009; 110: 653–661.

Cytotoxicity

Biophysical investigations have shown that, depending upon the lipid composition of the target membrane, the integration of antimicrobial peptides in membranes can result in various defects and can consequently cause the membrane to rupture. Working in collaboration with the Medical University of Graz, a new specific surface marker for a series of tumour cell lines has been demonstrated which functions as a target for membrane active peptides.

Selected publications:

- Pabst G, Boulgaropoulos B, Gander E, Sarangi B, Amenitsch H, Raghunathan V, et al. Effect of ceramide on nonraft proteins. *Journal of Membrane Biology* 2009; 231: 125–132.
- Lohner K. New strategies for novel antibiotics: peptides targeting bacterial cell membranes. *General Physiology and Biophysics* 2009; 28: 105–116.

Institute of Biophysics and Nanosystems Research

Individual scents

Working in cooperation with our research partners, we examined the components and the bacterial composition of the scent markers of mice, identical but for their MHC genes. The results support the theory that the MHC gene has an effect upon individual microbial composition and thereby contributes to the production of an individualised scent.

Selected publications:

- Biard C, Hardy C, Motreuil S, Moreau J. Dynamics of PHA-induced immune response and plasma carotenoids in birds: Should we have a closer look? *The Journal of Experimental Biology* 2009; 212: 1336–1343.
- Griggio M, Devigili A, Hoi H, Pilastro A. Female ornamentation and directional male mate preference in the rock sparrow. *Behavioral Ecology* 2009; 20: 1072–1078.
- Hettyey A, Baksay S, Vági B, Hoi H. Counter-strategies to sexual coercion by heterospecifics in female frogs. *Animal Behaviour* 2009; 78: 1365–1372.
- Hoffmann F, Musolf K, Penn DJ. Freezing urine reduces its efficacy for eliciting ultrasonic vocalizations from male mice. *Physiology and Behavior* 2009; 96: 602–605.

**Konrad Lorenz
Institute for Ethology**

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» 2 Selected research results and publications

- *Ilmonen P, Stundner G, Thoß M, Penn DJ. Females prefer the scent of outbred males: good-genes-as-heterozygosity? BMC Evolutionary Biology 2009; 9: 104*
- *Mery F, Varela S, Danchin E, Blanchet S, Parejo D, Coolen I, et al. Public versus personal information for mate copying in an invertebrate. Current Biology 2009; 19: 730–734.*
- *Zomer S, Dixon S, Xu Y, Jensen S, Wang H, Lanyon C, et al. Consensus multivariate methods in gas chromatography mass spectrometry and denaturing gradient gel electrophoresis: MHC-congenic and other strains of mice can be classified according to the profiles of volatiles and microflora in their scent-marks. The Analyst 2009; 134: 114–123.*

Earth Sciences

Institute for Geographic Information Science

Integrated spatio-temporal analysis

A new initiative in the field of object-based image analysis has been launched: OBIA – 3D and 4D Modelling. This method organises the extraction of information from georeferenced empirical data. The aims of this research concern the fields of remote sensing, in the statistical description and evaluation of 3D and 4D data as well as the modelling and simulation of dynamic processes.

Selected publications:

- *Dragut L, Schauppenlehner T, Muhar A, Strobl J, Blaschke T. Optimization of scale and parametrization for terrain segmentation: an application in soil-landscape modelling. Computers & Geosciences 2009.*
- *Marschallinger R, Eichkitz C, Gruber H, Heibl K, Hofmann R, Schmid K. The Gschliefgraben Landslide (Austria): A Remediation Approach involving Torrent and Avalanche Control, Geology, Geophysics, Geotechnics and Geoinformatics. Austrian Journal of Earth Sciences 2009; 102/2: 36–51.*

Centre for Geosciences

Commission for the Palaeontological and Stratigraphical Research of Austria

The Rheic Ocean: Its origin, evolution and correlatives

This project investigated the causes of three global extinction events in the marine ecosystem of the Proto-Alpine terrain during the Mid Devonian. In order to arrive at a better understanding of the connections between the reef deposits in the Proto-Alps, profiles from the Graz Palaeozoic, the Carnic Alps and the Prague Palaeozoic were examined. The effects of climate variations and/or other limiting factors on the growth of the reef and on the diversity of the reef community were studied using (micro)facial analyses and geochemical techniques.

Selected publications:

- *Berkyova, S. Lower-Middle Devonian (upper Emsian-Eifelian, serotinus-kockelianus zones) conodont faunas from the Prague Basin. The Czech Republic. Bulletin of Geosciences 2009; 84: 667–686.*

» 2 Selected research results and publications

- Suttner TJ, Hubmann B. Excursions Part 1: Austria. In: Suttner TJ, Berkyova S, Hubmann B, Koptikova L, Slavik L (Eds.). *Regional Devonian Workshop – Prague & Graz, Prague, 25–27th May 2009 – Berichte der Geologischen Bundesanstalt 2009*; 79: 51–59.
- Suttner TJ. An ozarkodinid conodont cluster from Kirchfödisch (Lower Devonian, Austria). *Annalen des Naturhistorischen Museums in Wien 2009*; 111A: 233–244.

Inventory of Austrian glaciers

Using high-resolution laser scanning models, the Commission has developed a simple, reliable and time-saving method for recording the most recent changes in the area and volume of glaciers in Austria. The available data set made it possible to analyse changes of 81 glaciers (116 km²) in the Ötztal Alps over a period of almost 40 years. This has shown that between 1997 and 2006 the glaciers lost 10.5 km² or 8.2 per cent of their surface area, or 1.0 km³ of their volume.

Selected publications:

- Abermann J, Lambrecht A, Fischer A, Kuhn M. Quantifying changes and trends in glacier area and volume in the Austrian Ötztal Alps (1969–1997–2006). *The Cryosphere 2009*; 3: 10.
- Knoll C, Kerschner H, Abermann J. Development of South Tyrolean glaciers since the Little Ice Age maximum. *Zeitschrift für Gletscherkunde und Glazialgeologie 2009*; 42: 17.
- Kuhn M, Abermann J, Bacher M, Olefs M. The transfer of mass balance profiles *b* (*h*) to unmeasured glaciers. *Annals of Glaciology 2009*; 50: 5.

Commission for
Geophysical Research

Isotope atlas

As part of the main research area "An isotope atlas of Austria's raw mineral deposits", a database of isotopes has been set up which makes it possible to create a comprehensive information system on deposits as a valuable addition to the metallogenetic map of the Eastern Alps.

Selected publications:

- Gawlick HJ. Final report. *Temperaturüberprägungskartierung der Karbonate des Karn im Mittelabschnitt der Nördlichen Kalkalpen – Möglichkeiten zur Abschätzung der Genese/Verteilung der Blei/Zink Vererzungen. Commission on Fundamentals of Minerals Research, Vienna: Verlag der OeAW, 2009.*
- Rantitsch R, Russegger B. *Isotopen-Datenbank. Final report to Commission on Fundamentals of Minerals Research. Vienna: Verlag der OeAW, 2009.*

Commission for Basic
Research on Mineral
Raw Materials

Cave bears in Asia

Until recently it was assumed that the cave bear (*Ursus spelaeus*) was a European species. However, an international research group has learned through genetic studies that the diversity and the range of the cave bear were much larger than previously suspected. According to the available data, the cave bears did not survive the climax of the last ice age, but died out approximately

Commission for
Quaternary Research

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» 2 Selected research results and publications

13,000 years earlier. The most recent finds to date come from a period 25,000 years before the Common Era.

Land usage and settlement in prehistoric times

The investigation of settlement and land usage by prehistoric man in the area around the timberline of the Ötztaler and Stubai Alps was continued, focussing in particular on the Kühtai area. Available evidence provided by fireplaces in shepherds' shelters give a first date of usage in the Bronze Age and a second in the La Tène / Roman era.

Selected publications:

- Rabeder G, Pacher M, Withalm G. *Early Pleistocene bear remains from Deutsch-Altenburg (Lower Austria). Mitteilungen der Kommission für Quartärforschung, Vienna: Verlag der OeAW, 2009; 17: 1–135.*
- Knapp M, Rohland N, Weinstock J, Baryshnikov G, Sher A, Nagel D, et al. *First DNA sequences of cave bears in Asia reveal deep divergences and complex migration patterns. Molecular Ecology 2009; 18: 1225–1238.*
- Pacher M, Stuart AJ. *Extinction chronology and paleoecology of the cave bear Ursus spelaeus. Boreas 2009; 38: 189–206.*

Mathematics, Simulation and Metrology

Institute for Integrated Sensor Systems

Flow sensors

Flow sensors which work on the basis of heat transfer between heating and sensor elements form a central theme of the institute's research. In recent years it has been possible to develop a new class of highly efficient thermal flow sensors which work without a heating element and simply exploit the self-heating capacity of various temperature probes.

Implantable microphones

An important milestone on the road to developing a completely implantable device for cochlear stimulation was the testing of highly sensitive acoustic vibration sensors, which measure sound information directly through the vibrations of one of the ossicles in the middle ear. With the silicon micro-mechanical capacitive transducer it can be demonstrated for the first time that making micro-mechanical microphones for this purpose is technologically feasible.

Selected publications:

- Cerimovic S, Talic A, Kohl F, Beigelbeck R, Schalko J, Jachimowicz A. *Micromachined Flow Sensors Enabling Electrocalorimetric and TOF Transduction. Procedia Chemistry 2009; 1: 132–135.*
- Cerimovic S, Talic A, Sauter T, Kohl F, Beigelbeck R, Schalko J, et al. *A Novel Thermal Transduction Method for sub-mW Flow Sensors. In: IEEE (Ed.). Proceedings of the 8th IEEE Conference on Sensors. Christchurch, New Zealand: IEEE, 2009: 1325–1328.*
- Exel R, Loschmidt P. *High Accurate Timestamping by Phase and Frequency Estimation. ISPCS 2009, International IEEE Symposium on Precision Clock Synchronization for Measurement, Control and Communication; Brescia, Italy, 2009: 126–131.*

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» 2 Selected research results and publications

- *Treytl A, Hirschler B. Security Flaws and Workarounds for IEEE 1588 (Transparent) Clocks. ISPCS 2009, International IEEE Symposium on Precision Clock Synchronization for Measurement, Control and Communication. Brescia, Italy, 2009: 103–108.*
- *Gaderer G, Loschmidt P, Nad A, Exel R, Sauter T. Localisation in Wireless Sensor Networks. In: IEEE (Ed.). Proceedings of the 8th IEEE Conference on Sensors. Christchurch, New Zealand, 2009: 1004–1009.*

Boundary elements and transformation methods in computational acoustics

The further development of Boundary Element Methods for fluids and two and three-dimensional structures is an important area of research in computational acoustics. In a practical application of this research (Galerkin Approach) a method was discovered for optimising in-vehicle loudspeaker systems accommodating the whole of the specific frequency range.

Experimental audiology

In the course of our efforts to improve stimulation strategies for cochlear implants, it was discovered that bilaterally synchronised jitter results in significantly improved localisation than pure periodic stimulation.

Selected publications:

- *Becker T, Jessen M, Grigoras C. Speaker Verification Based on Formants Using Gaussian Mixture Models. In: Boone MM (Ed.). NAG/DAGA 2009. Rotterdam, 2009: 1640–1643.*
- *Goupell M, Laback B, Majdak P. Enhancing sensitivity to interaural time differences at high modulation rates by introducing temporal jitter. The Journal of the Acoustical Society of America 2009; 126: 2511–2521.*
- *Kreuzer W, Majdak P, Chen Z. Fast multipole boundary element method to calculate head-related transfer functions for a wide frequency range. The Journal of the Acoustical Society of America 2009; 126: 1280–1290.*
- *Majdak P, Laback B. Effects of center frequency and rate on the sensitivity to interaural delay in high-frequency click trains. The Journal of the Acoustical Society of America 2009; 125: 3903–3913.*

Acoustics
Research Institute

New algebraic methods

New AML (Algebraic Multilevel) and AMG (Algebraic Multigrid) methods for solving finite element problems, in particular those arising from DG (Discontinuous Galerkin) discretisations, were developed alongside high-order finite element methods (with applications in solid state and fluid mechanics as well as in electrical engineering).

Image and signal reconstruction

Many naturally occurring signals and images can be described using very few parameters – they are *sparse*. Methods have been developed which enable appropriate reconstruction of *sparse* images and signals.

Johann Radon
Institute for Computational and Applied
Mathematics

» 2 Selected research results and publications

Image reconstruction using mathematical methods

Partial differential equations transport information from an intact section of an image into missing or damaged parts. Images can now be restored using a combination of so-called diffusion and transport processes.

Selected publications:

- Burger M, He L, Schönlieb CB. Cahn-Hilliard inpainting and a generalization for grayvalue images. *SIAM Journal on Imaging Sciences* 2009; 2: 1129–1167.
- Baatz W, Fornasier M, Markowich P, Schönlieb CB. Binary based fresco restoration. In: *Conference Proceedings of Bridge 2009: Mathematics, Music, Art, Architecture, Culture. Banff 2009: 337–338.*
- Haltmeier M, Scherzer O, Zangerl G. A Reconstruction Algorithm for Photoacoustic Imaging Based on the Nonuniform FFT. *IEEE Transactions on Medical Imaging* 2009; 28: 1727–1735.
- Kügler P, Gaubitzer E, Müller S. Parameter identification for chemical reaction systems using sparsity enforcing regularization – a case study for the Chlorite-Iodide reaction. *Journal of Physical Chemistry A* 2009; 113: 2775–85.
- Beyl S, Kügler P, Kudrnac M, Hohaus A, Hering S, Timin E. Different pathways for activation and deactivation in Ca V 1.2: a minimal gating model. *Journal of General Physiology* 2009; 134: 231–241.

Commission for Scientific Visualisation

Volume visualisation – AngioVisII Project

As part of the AngioVisII project (Clinical Visualization Tools for Peripheral CT Angiography) software tools for the visualisation of the arteries in the lower extremities were implemented and integrated into the infrastructure of the radiology department of a hospital.

The analysis of paper samples

Using the software that was developed as part of the project "Paper – *unde venis*" digital images of paper samples can be analysed and compared with images of verified paper samples. This makes available a fast, inexpensive, reliable and non-destructive tool for the comparison of paper samples.

Applied signal processing

The main aim of this project was to identify the neural precursors of complex cognitions such as emotions, decision making and problem solving by using the most up-to-date data analysis techniques to examine neural signals (EEG). Various experiments were conducted which studied neural dynamics whilst listening to music. This showed that music has its own grammar (e.g. the rules of harmony) which the brain processes by means of an associated neural mechanism.

Selected publications:

- Pearce MT, Ruiz MH, Kapasi S, Wiggins G, Bhattacharya J. Unsupervised statistical learning underpins computational, behavioural and neural manifestations of musical expectations. *NeuroImage* 2009; 50: 302–313.

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» 2 Selected research results and publications

- *Bhattacharya J, Pereda E. An index of signal mode complexity based on orthogonal transformation. Journal of Computational Neuroscience 2009: online.*
- *Logeswaran L, Bhattacharya J. Crossmodal transfer of emotion by music. Neuroscience Letters 2009; 455: 129–133.*
- *Bhattacharya J. Increase of universality in human brain during mental imagery from visual perception. PLoS One 2009; 4: 4121–4132.*
- *Parulek J, Novotova M, Sramek M, Zahradnik I. High resolution geometric modeling of muscle cells. The Journal of Physiological Sciences 2009; 59 (Suppl.1): 354.*
- *Wohlschlaeger J, Wenger E, Mehraïn P, Weis S. White matter changes in HIV-1 infected brains: A combined gross anatomical and ultrastructural morphometric investigation of the corpus callosum. Clinical Neurology and Neurosurgery 2009; 111: 422–429.*

Physics and Materials Sciences

Characteristics of materials in the micro- and nanometre range

In 2009, significant progress was made in advancing understanding of dislocation plasticity in the smallest dimensions. Using a transmission electron microscope it was proven for the first time that for sample sizes in the submicron range aluminium shows no hardening. This area of research provides a link between our understanding of the structure-property relationships of materials at an atomic level and the development of design criteria e.g. in creating shatter resistant materials.

The development of shatter resistant materials

First results show that localised alteration of a material's characteristics has a protective effect, which seriously reduces the crack driving force. Such effects are already being used to some degree in improving the fracture characteristics of ceramic coatings.

Selected publications:

- *Cordill MJ, Lund MS, Parker J, Leighton C, Nair AK, Farkas D, et al. The Nano-Jackhammer effect in probing near-surface mechanical properties. International Journal of Plasticity 2009; 25: 2045–2058.*
- *Cordill MJ, Moody NR, Gerberich WW. The role of dislocation walls for nanoindentation to shallow depths. International Journal of Plasticity 2009; 25:281–301.*
- *Cordill MJ, Moody NR, Prasad SV, Michael JR, Gerberich WW. Characterization of the mechanical behavior of wear surfaces on single crystal nickel by nanomechanical technique. Journal of Materials Research 2009; 24: 844–852.*
- *Dehm G. Miniaturized single-crystalline fcc metals deformed in tension: New insights in size-dependent plasticity. Progress in Materials Science 2009; 54: 664–688.*
- *Kolednik O, Predan J, Gubeljak N, Fischer DF. Modeling fatigue crack growth in a bimaterial specimen with the configurational forces concept. Materials Science and Engineering A 2009; 519: 172–183.*

Erich Schmid
Institute of Materials
Science

» 2 Selected research results and publications

Institute for High Energy Physics

Elementary particle physics

The Institute for High Energy Physics (HEPHY) is participating in the CMS experiment at CERN's Large Hadron Collider (LHC). HEPHY's biggest contributions to CMS lie in the areas of the trigger, the tracker and the analysis of the results. The tracker, which is made up of silicon detectors, the largest detector of its kind in the world, is a precision trace detector which measures the course and impulses of electronically charged particles. Being responsible for the quality control of the silicon sensors and the production of the detector modules, HEPHY contributed about 20 per cent to the detector system.

Selected publications:

- Adam W, Bergauer T, Dragicevic M, Friedl M, Frühwirth R, Hänsel S, et al. Alignment of the CMS silicon strip tracker during stand-alone commissioning. *Journal of Instrumentation* 2009; 4: 1–34.
- Valentan M, Regler M, Frühwirth R. Generalization of the Gluckstern formulas II: Multiple scattering and non-zero dip angles. *Nuclear Instruments and Methods in Physics Research A*, 2009: 728–742.
- Lucha W, Melikhov D, Sazdjian H, Simula S. Effective Continuum Threshold for Vacuum-to-Bound-State Correlators. *Physical Review D* 2009; 80: 114028.
- Lucha W, Hall RL. Semirelativistic N-Boson Systems Bound by Attractive Pair Potentials. *Journal of Physics A: Mathematical and Theoretical* 2009; 42: 395303.
- Christova E, Eberl H, Ginina E, Majerotto W. CP violation in $H\pm t$ production at the LHC. *Physics Review* 2009; 79: 096005.

Institute for Quantum Optics and Quantum Information

Refuting non-contextual quantum models

In comparison to classical physics, quantum physics predicts that the properties of a quantum mechanical system depend on the measurement context, i.e. whether or not other system measurements are carried out. A team of the Institute for Quantum Optics and Quantum Information (IQOQI) has for the first time proven in a comprehensive experiment that it is not possible to explain quantum phenomena in non-contextual terms.

Zitterbewegung demonstrated

IQOQI researchers reported on the first simulation of a relativistic quantum particle. They demonstrated a phenomenon that was predicted by Erwin Schrödinger but has never been directly observed in nature: the so-called *Zitterbewegung*.

Efimov quantum states

Three years ago, experimental physicists of the University of Innsbruck caused a worldwide sensation when they experimentally demonstrated Efimov states for the first time ever. Now IQOQI scientists have found a new way to observe these quantum states, which are hard to detect. With their experiment, the researchers have been able to prove the universality of the Efimov theory experimentally.

Bose-Einstein condensate of strontium

The IQOQI is the first research unit in the world to produce a Bose-Einstein condensate of the alkaline-earth element strontium. Choosing the isotope ^{84}Sr proved to be the right choice for

» 2 Selected research results and publications

the breakthrough. It can now be regarded as an ideal candidate for future experiments with atomic two-electron systems.

World record with light particles

IQOQI researchers are celebrating a new record in the transmission of entangled photons. Two entangled photons were transmitted 144 km from La Palma to Tenerife. This is a decisive experimental milestone in the ESA's efforts to transmit entangled photons from a satellite to ground stations.

Photons and mechanics tie strong

Effects of "strong coupling" observed for the first time between light and a micromechanical object. Physicists at the IQOQI have created an interaction between light and a micromechanical resonator that is strong enough to transfer quantum effects. This is an important step towards quantum physics experiments in the macroscopic domain.

Focus on entanglement

The role of entanglement in measurement based quantum computers has been explained and new methods for measuring the entanglement of multiple particles and the simulation of strong interaction within multiple particle systems have been developed.

New gate for the quantum computer

With the help of a mesoscopic Rydberg gate it was possible to use Rydberg states to create a stable entanglement between a single control atom and a mesoscopic ensemble.

The effect of loss processes on the dynamics of cold atoms

The effect of loss processes on cold atoms in optical lattices was studied using multiple particle systems of cold atoms. We demonstrated that three-body losses can be used to obtain effective hard-sphere boundary conditions for three-body collisions, whereby three atoms cannot occupy the same site on the lattice.

Selected publications:

- Briegel HJ, Browne D, Dür W, Raussendorf R, Van den Nest M. Measurement-based quantum computation. *Nature Physics* 2009; 5: 19–26.
- Chwalla M, Benhelm J, Kim K, Kirchmair G, Monz T, Riebe M, et al. Absolute frequency measurement of the $40\text{Ca}+4s2S1/2-3d2D5/2$ clock transition. *Physical Review Letters* 2009; 102: 023002.
- Cuevas GD, Dür W, Briegel HJ, Martin-Delgado MA. Unifying all classical spin models in a Lattice Gauge Theory. *Physical Review Letters* 2009; 102: 230502.
- Cai J, Dür W, Nest Mv, Miyake A, Briegel HJ. Quantum computation in correlation space and extremal entanglement. *Physical Review Letters* 2009; 103: 050503.
- Daley AJ, Taylor J, Diehl S, Baranov M, Zoller P. Atomic three-body loss as a dynamical three-body interaction. *Physical Review Letters* 2009; 102: 040402.
- Fedrizzi A, Ursin R, Herbst T, Nespoli M, Prevedel R, Scheidl T, et al. High-fidelity transmission of entanglement over a high-loss free-space channel. *Nature Physics* 2009; 5: 389–392.
- Ferlaino F, Knoop S, Berninger M, Harm W, D'Incao JP, Nägerl H, et al. Evidence for universal four-body states tied to an Efimov trimer. *Physical Review Letters* 2009; 102: 140401.
- Gerber S, Rotter D, Hennrich M, Blatt R, Rohde F, Schuck C, et al. Quantum interference from remotely trapped ions. *New Journal of Physics* 2009; 11: 013032.

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» 2 Selected research results and publications

- Gerber S, Rotter D, Slodicka L, Eschner J, Carmichael HJ, Blatt R. Intensity-Field Correlation of Single-Atom Resonance Fluorescence. *Physical Review Letters* 2009; 102: 183601.
- Gröblacher S, Hammerer K, Vanner M, Aspelmeyer M. Observation of strong coupling between a micromechanical resonator and an optical cavity field. *Nature* 2009; 460: 724–727.
- Hammerer K, Aspelmeyer M, Polzik E, Zoller P. Establishing Einstein-Poldosky-Rosen Channels between Nanomechanics and Atomic Ensembles. *Physical Review Letters* 2009; 102: 020501.
- Han Y, Chan Y, Yi W, Daley AJ, Diehl S, Zoller P, et al. Stabilization of the p-wave superfluid state in an optical lattice. *Physical Review Letters* 2009; 103: 070404.
- Kantian A, Dalmonte M, Diehl S, Hofstetter W, Zoller P, Daley AJ. Atomic Color Superfluid via Three-Body Loss. *Physical Review Letters* 2009; 103: 240401.
- Monz T, Kim K, Hänsel W, Riebe M, Villar A, Schindler P, et al. Realization of the quantum Toffoli gate with trapped ions. *Physical Review Letters* 2009; 102: 040501.
- Monz T, Kim K, Villar A, Schindler P, Chwalla M, Riebe M, et al. Realization of universal ion-trap quantum computation with decoherence-free qubits. *Physical Review Letters* 2009; 103: 200503.
- Müller M, Lesanovsky I, Weimer H, Büchler H, Zoller P. Mesoscopic Rydberg Gate based on Electromagnetically Induced Transparency. *Physical Review Letters* 2009; 102: 170502.
- Prevedel R, Cronenberg G, Tame MS, Paternostro M, Walther P, Kim MS, et al. Experimental Realization of Dicke States of up to Six Qubits for Multiparty Quantum Networking. *Physical Review Letters* 2009; 103: 020503.
- Ramelow S, Ratschbacher L, Fedrizzi A, Langford N, Zeilinger A. Discrete, Tunable Color Entanglement. *Physical Review Letters* 2009; 103: 253601.
- Schmid C, Kiesel N, Weber U, Ursin R, Zeilinger A, Weinfurter H. Quantum teleportation and entanglement swapping with linear optics logic gates. *New Journal of Physics* 2009; 11: 033008.
- Spiegelhalder F, Trenkwalder A, Naik D, Hendl G, Schreck F, Grimm R. Collisional stability of 40K immersed in a strongly interacting Fermi gas of 6Li. *Physical Review Letters* 2009; 103: 223203.
- Stellmer S, Tey MK, Huang B, Grimm R, Schreck F. Bose-Einstein Condensation of Strontium. *Physical Review Letters* 2009; 103: 200401.

Stefan Meyer
Institute for
Subatomic Physics

X-ray spectroscopy in kaonic atoms – the SIDDHARTA Experiment

Kaons are strongly interacting particles which contain a "Strange Quark". If they are fired into a light material this causes deceleration and results in the kaon replacing one of the atom's electrons and forming a kaonic atom. The aim of the SIDDHARTA project was the measurement of the x-ray spectroscopy of kaonic hydrogen, deuterium and helium atoms. The project involved the development of new detectors and electronic modules.

A new value for the magnetic moment of antiprotons

Antiprotonic helium is a neutral, exotic atom consisting of a helium nucleus, a single electron and an antiproton, which is being studied by means of laser and microwave spectroscopy at the CERN Antiproton Decelerator as part of the international ASACUSA collaboration. The measurements carried out so far have provided a new and more accurate value for the magnetic moment.

» 2 Selected research results and publications

Selected publications:

- Bazzi M, Beer G, Bombelli L, Bragadireanu A, Cargnelli M, Corradi G, et al. Kaonic helium-4 X-ray measurement in SIDDHARTA. *Physics Letters B* 2009; 681: 310–314.
- Pask T, Barna D, Dax A, Hayano RS, Hori M, Horváth D, et al. Antiproton magnetic moment determined from the HFS of antiprotonic helium. *Physics Letters B* 2009; 678: 55–59.
- Covita DS, Anagnostopoulos DF, Gorke H, Gotta D, Gruber A, Hirtl A, et al. Line shape of the $\mu\text{H}(3p-1s)$ hyperfine transitions. *Physical Review Letters* 2009; 102: 023401.
- Benabderrahmane ML, Herrmann N, Wisniewski K, Kecskemeti J, Andronic A, Barret V, et al. Measurement of the In-Medium $K0$ Inclusive Cross Section in pion-induced Reactions at 1.15 GeV/c. *Physical Review Letters* 2009; 102: 182501.
- Juhasz B, Marton J, Suzuki K, Widmann E, Zmeskal J (Eds.). *Proceedings of the International Conference on Exotic Atoms and Related Topics and International Conference on Low Energy Antiproton Physics (EXA/LEAP 2008). Hyperfine Interactions* 2009: 193.

Environmental Research

Gene for light-driven proton pump in Actinobacteria

Proton pumps (*Actinorhodopsins*) enable the conservation of light energy. The discovery of this capability in freshwater Actinobacteria was surprising since this group of bacteria had always been considered to be purely heterotrophic. The high concentration of Actinobacteria in some lakes points to the importance of this capability for energy flow in these ecosystems. For the first time ever a research group succeeded in cultivating freshwater Actinobacteria.

Selected publications:

- Sharma AK, Sommerfeld K, Bullerjahn GS, Matteson AR, Wilhelm SW, Jezbera J, et al. *Actinorhodopsin genes discovered in diverse freshwater habitats and among cultivated freshwater Actinobacteria. The ISME Journal* 2009; 3: 726–737.
- De Castro F, Gaedke U, Boenigk J. Reverse evolution: Driving forces behind the loss of acquired photosynthetic traits. *PLoS One* 2009; 4: e8465.

**Institute for
Limnology**

A comparative study of electronic identity management

An international comparison of electronic systems for identity management included research to explain the processes of innovation as well as analysis of the systems used in Belgium, Germany, Austria and Spain. Significant differences were identified in both the development and system characteristics. Factors which explained these national peculiarities were identified as path dependencies, constellation of actors and institutional context.

World Wide Views on Global Warming

The institute was a partner in "WWViews", an international public consultation project coordinated by the Danish Board of Technology, which took place in the run up to the UN Climate Change Conference in December 2009. 45 citizen consultations were held on the

**Institute of
Technology
Assessment**

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» 2 Selected research results and publications

same day across 38 nations. The results are intended to provide an information base for political decision-makers.

Selected publications:

- Bogner A. *Ethisierung und die Marginalisierung der Ethik. Zur Mikropolitik des Wissens in Ethikräten. Soziale Welt 2009; 60/2: 3–21.*
- Kastenhofer K. *Debating the risks and ethics of emerging technosciences. Innovation: The European Journal of Social Science Research 2009; 22: 77–103.*
- Sotoudeh M. *Technical Education for Sustainability. An Analysis of Needs in the 21st Century. Frankfurt am Main: Peter Lang, 2009.*
- Torgersen H. *Synthetic Biology in Society – Learning from past Experience? Systems and Synthetic Biology 2009; 3: 9–17.*

Commission for Interdisciplinary Ecological Studies

Visual acuity and the environment

The project on "Sensory ecology of bumblebees: Adaptation of the visual system to different spectral light qualities in terrestrial habitats" investigated whether there is a connection between the spectral sensitivity of the eyes' photoreceptors and the relevant spectral habitat in bumblebees belonging to the genus *Bombus*. Using real-time polymerase chain reactions (PCR) in gene sequences it was possible to compare the relative expression of the opsins (protein in the visual pigment) in individual bumblebees. The investigations showed that opsin expression can vary between individuals of the same species. Populations that are exposed to a particular spectral distribution in ambient light can adapt their relative opsin expression to the appropriate spectrum.

Selected publications:

- Blösch C, Weiss-Schneeweiss H, Schneeweiss GM, Barfuss MH, Rebernig CA, Villasenor JL, et al. *Molecular phylogenetic analyses of nuclear and plastid DNA sequences support dysploid and polyploid chromosome number changes and reticulate evolution in the diversification of *Melampodium* (Millerieae, Asteraceae). Molecular Phylogenetics and Evolution 2009; 53: 220–233.*
- Hörandl E. *The evolution of self-fertility in apomictic plants. Sexual Plant Reproduction 2009; 23: 73–86.*
- Hörandl E. *Geographical parthenogenesis: opportunities for asexuality. In: Schön I, Martens K, van Dijk P (Eds.). Lost Sex: The Evolutionary Biology of Parthenogenesis. Heidelberg/London/New York: Springer Netherlands, 2009: 161–186.*
- Hörandl E, Tensch E. *Introgression of apomixis into sexual species is in the *Ranunculus auricomus* complex inhibited by mentor effects and ploidy barriers. Annals of Botany 2009; 104: 81–89.*
- Streinzer M, Paulus HF, Spaethe J. *Floral colour signal increases short-range detectability of a sexually deceptive orchid to its bee pollinator. The Journal of Experimental Biology 2009; 212: 1365–1370.*

» 2 Selected research results and publications

Space Research

Cassini observes thunderstorms and lightning on Saturn

Since entering Saturn's orbit in 2004, the Cassini space probe has systematically recorded thunderstorms and lightning in Saturn's atmosphere. In August 2009 it succeeded in photographing the lightning for the first time.

Corot discovers the most Earth-like exoplanet to date

In 2009, an international team with participation from the Space Research Institute discovered by far the smallest Earth-like planet outside our solar system using the Corot telescope. The planet designated COROT-7b is approximately twice the size of Earth and orbits around a sun-like star. COROT-7b is the first of the examples of the long-sought-for Super-Earth to be discovered: a rocky planet whose density is approximately the same as that of the Earth, but whose surface, due to its proximity to its mother star, is covered by molten lava and therefore unable to support life. However, this first discovery makes it all the more probable that similar rocky planets exist in so-called habitable zones, i.e. at distances from the mother star where the surface temperatures allow for the liquid aggregate state of water. This would mean that at least one pre-condition for the existence of life beyond our solar system would be met.

Selected publications:

- Kaufmann E, Kargl G, Kömle NI, Steller M, Hasiba J, Tatschl F, et al. Melting and sublimation of planetary ices under low pressure conditions: Laboratory experiments with a melting probe prototype. *Earth Moon Planets* 2009; 105: 11–29.
- Kucharski D, Kirchner G, Otsubo T, Koidl F. 22 Years of AJISAI spin period determination from standard SLR and kHz SLR data. *Advances in Space Research* 2009; 44: 621–626.
- Magnes W, Diaz-Michelena M. Future directions for magnetic sensors for space applications. *IEEE Trans. Magnetics* 2009; 45: 4493–4498.
- Möstl C, Farrugia CJ, Temmer M, Miklenic C, Veronig AM, Galvin AB, et al. Linking remote imagery of a coronal mass ejection to its in situ signatures at 1 AU. *Astrophysical Journal* 2009; 705: L180–L185.
- Nakamura R, Retinò A, Baumjohann W, Volwerk M, Erkaev N, Klecker B, et al. Evolution of dipolarization in the near-Earth current sheet induced by earthward rapid flux transport. *Annales Geophysicae* 2009; 27: 1743–1754.

Space Research
Institute

EUROPLANET

The Commission participated in EUROPLANET (European Planetology Network) which coordinates research activities and in particular observation activities within the solar system by means of ground-based instruments and space probes, laboratory-based research, numerical simulations and the development of databases.

Publications:

Publication of the journal "Communications in Asteroseismology" (CoAst)

Commission for
Astronomy

» 2 Selected research results and publications

Interdisciplinary Research Tasks

Commission for the History of Natural Sciences, Mathematics and Medicine

Leibniz and Vienna

An investigation has revealed that Gottfried Wilhelm Leibniz's relationship with Vienna, his efforts to encourage the foundation of an Imperial Academy of Sciences in Vienna, and his links with the imperial court in Vienna were much more extensive than previously supposed.

Selected publications:

- Grössing H, Ullmaier H (Eds.). *Ruder Bošković (Boscovich) und sein Modell der Materie. Zur 250. Wiederkehr des Jahres der Erstveröffentlichung der Philosophiae Naturalis Theoria (Wien 1758). Veröffentlichungen der Kommission für Geschichte der Naturwissenschaften, Mathematik und Medizin 59, Vienna: Verlag der OeAW, 2009.*

2.2 Humanities and Social Sciences Cluster

Centre for Ancient World Studies

Selected publications from the Centre for Ancient World Studies:

- Deger-Jalkotzy S, Schindel N, (Eds.). *Gold. Tagung anlässlich der Gründung des Zentrums Archäologie und Altertumswissenschaften an der Österreichischen Akademie der Wissenschaften, 19.–20. April, 2007. Schriften des Zentrums Archäologie und Altertumswissenschaften, Band 1. Vienna: Verlag der OeAW, 2009.*
- Leschhorn W (Bearb.). *Lexikon der Aufschriften auf griechischen Münzen, Vol. II: Ethnika und 'Beamtennamen'. Vienna: Verlag der OeAW, 2009.*

Institute for the Study of Ancient Culture

Ephesus

The archaeological fieldwork investigation at the Ephesian Theatre was completed in 2009. The uncovering of a room with a completely preserved mosaic floor in the Byzantine palace made it possible to date the palace to the early 5th century.

Alinda

Archaeological studies of the surface in Alinda, Caria, led to some surprising new discoveries: the central temple of the settlement dating back to the late 4th century BC and a hitherto unknown two-aisled North Hall in the Agora.

The Catacombs of Domitilla

As part of a START project, the first geometrically correct master plan of the Domitilla Catacombs in Rome was produced. Furthermore, it was possible to prove that three fragments deposited in the Vatican Museums derived from an arcosolium in the catacombs.

» 2 Selected research results and publications

Selected publications:

- *Ladstätter S (Ed.). Neue Forschungen zur Kuretenstraße von Ephesos. Archäologische Forschungen 15, Vienna: Verlag der OeAW, 2009.*
- *Ruggendorfer P, Szemethy HD (Eds.). Felix von Luschan (1854–1924). Leben und Wirken eines Universalgelehrten. Vienna: Böhlau, 2009.*

New findings

61 new texts were recorded in Pisidia, Eastern Lycia and Western Pamphylia. A further 314 fragments of the Opramoas monument in Rhodiapolis were discovered or revised. 74 new inscriptions were recorded in Lydia and a further 17 were discovered along the Kestros River.

Selected publications:

- *İplikçioğlu B. Ein neues hellenistisches Ehrendekret aus Arykanda (Lykien). Anzeiger der philosophisch-historischen Klasse der OeAW 2009; 143: 117–126.*
- *Bülent I. Die Provinz Lycia unter Galba und die Gründung der Doppelprovinz Lycia et Pamphylia unter Vespasian. Anzeiger der philosophisch-historischen Klasse der OeAW 2009; 143/2: 19.*
- *Wedenig R. Ein Bleietikett mit Zenturiengraffito von der Freyung in Wien. In: Fundort Wien. Berichte zur Archäologie 2009; 12: 104–112.*

Commission for
Asia Minor

Tell el Dab^a

In 2009, impressions from a seal bearing the name of King Khyan (approx. 1600–1580 BC) were contextualised. This king of the Hyksos dynasty can therefore be identified as the owner of the palace which was excavated in the last few years. Furthermore, a fragment of a letter in cuneiform script dating from the last decades of the Old Babylonian Empire and a fragment of an impression from a contemporary Babylonian seal (context lost) were also found.

Selected publications:

- *Schiestl R. Tell el-Dab^a XVIII. Die Palastnekropole von Tell el-Dab^a. Die Gräber des Areals F/1 der Straten d/2 und d/1. Vienna: Verlag der OeAW, 2009.*
- *Bader B. Tell el-Dab^a XIX. Auaris und Memphis im Mittleren Reich und in der Hyksoszeit. Vergleichsanalyse der materiellen Kultur. Vienna: Verlag der OeAW, 2009.*
- *Maguire LC. Tell el-Dab^a XXI. Tell el-Dab^a and the Circulation of Cypriot Pottery in the Levant. Vienna: Verlag der OeAW, 2009.*
- *Mühlenbruch T. Die Synchronisierung der nördlichen Levante und Kilikiens mit der Ägäischen Spätbronzezeit. Vienna: Verlag der OeAW, 2009.*
- *Hein I (Ed.). The Formation of Cyprus in the 2nd Millenium B.C. Studies on Regionalism in the Middle and Late Bronze Age. Proceedings of a Workshop, held at the 4th Cyprological Congress, May 2nd 2008. Nicosia, Cyprus. Vienna: Verlag der OeAW, 2009.*
- *Aston DA. Burial Assemblages of Dynasty 21–25 – Chronology – Typology – Developments. Vienna: Verlag der OeAW, 2009.*

Commission for Egypt
and the Levant

» 2 Selected research results and publications

Commission for Ancient Literature and Latin Tradition

The archaeology of music

In 2009, the tomography of archaeological materials was successfully used to verify the computer based calculation of the hole positions of aulos.

Selected publications:

- Hagel S. *Reconstructing the Hellenistic professional aulos*. In: Martinelli M (Ed.). *La Musa dimenticata*. Pisa: Scuola Normale Superiore, Edizioni della Normale, 2009; 227–246.
- Hagel S. *Ancient Greek Music – A New Technical History*. Cambridge: Cambridge University Press, 2009.

Commission for the History of Ancient Law

Selected publications:

- Thür G, Harris E (Eds.). *Symposion 2007. Vorträge zur griechischen und hellenistischen Rechtsgeschichte. Akten der Gesellschaft für Griechische und Hellenistische Rechtsgeschichte XX*. Vienna, 2009.
- Thür G. *Petrus Antecessor*. In: Benke N, Meissel F (Eds.). *Antike – Recht – Geschichte. Symposion zu Ehren von Peter E. Pieler*. Vienna: Peter Lang, 2009: 151–156.
- Thür G. *Marginalien zum fiktiven Darlehen*. In: Altmeyden H, Reichard I, Schermaier M (Eds.). *Festschrift für Rolf Knütel zum 70. Geburtstag*. Heidelberg: C.F. Müller, 2009: 1269–1280.
- Kruse T. *Erkenntnis aus den kleinsten Einzelteilen. Der Althistoriker Ulrich Wilcken und die Papyrologie in Deutschland*. In: Baertschi AM, King CG (Eds.). *Die modernen Väter der Antike. Die Entwicklung der Altertumswissenschaften an Akademie und Universität im Berlin des 19. Jahrhunderts*. Berlin/New York: Walter de Gruyter, 2009: 503–527.
- Harter-Uibopuu K. *Τὰ νενομισμένα δικαστήρια περὶ τῶν ζημιῶν – ZZur gerichtlichen Kontrolle von Strafen nach den Anweisungen Hadrians an die dionysischen Techniten*. *Zeitschrift für Papyrologie und Epigraphik* 2009; 171: 109–112.

Commission for Editing the Corpus of the Latin Church Fathers (CSEL)

Augustinian sermons discovered

The analysis of three previously unknown Latin sermons in a 12th century manuscript from Erfurt revealed that they were sermons from Augustine, one of the most important Latin church fathers.

Prosper Manuscripts

In connection with the creation of the stemma for the Prosper manuscripts, a successful analysis of the degree of relatedness using the phylogenetic method was carried out.

Selected publications:

- Teske R, Weber D (Eds.). *Prosper, De vocatione omnium gentium*. CSEL 97, Vienna: Verlag der OeAW, 2009.
- Schiller I. *Die handschriftliche Überlieferung der Werke des Heiligen Augustinus. Band X/1 Ostdeutschland und Berlin. Werkverzeichnis*. Vienna: Verlag der OeAW, 2009.
- Schiller I. *Die handschriftliche Überlieferung der Werke des Heiligen Augustinus. Band X/2 Ostdeutschland und Berlin. Verzeichnis nach Bibliotheken*. Vienna: Verlag der OeAW, 2009.
- Schiller I, Weber D, Weidmann C. *Sechs neue Augustinuspredigten: Teil 2 mit Edition dreier Sermones zum Thema Almosen*. *Wiener Studien* 2009; 122: 171–213.

» 2 Selected research results and publications

The end of Mycenaean Culture

The "End of the Mycenaean Culture" project which was part of SCIEM 2000 finished in 2009. It was dedicated to the investigation of the LH IIIC period which followed the decline of the Mycenaean palaces and civilisation. Significant progress was made in establishing the relative and absolute chronology of the 11th and 12th centuries BC. Furthermore, knowledge about the cultural development of this period during Greece's transition from the Late Bronze to the Early Iron Age was gained.

The last period of Mycenaean culture will no longer be seen as the beginning of the Greek Dark Ages, but rather as a separate age in the early history of Greece which made an important contribution to the passing on of Bronze Age traditions into the Protogeometric and Geometric Ages.

Selected publications:

- Zavadil M. *Ein trojanischer Federkrieg. Die Auseinandersetzungen zwischen Ernst Boetticher und Heinrich Schliemann. Vienna: Verlag der OeAW, 2009.*
- Deger-Jalkotzy S, Bächle A (Eds.). *LH IIIC Chronology and Synchronisms III: LH IIIC Late and the Transition to the Early Iron Age. Proceedings of the international workshop held at the Austrian Academy of Sciences at Vienna, February 23rd and 24th February 2007. Vienna: Verlag der OeAW, 2009.*

Commission for
Mycenaean Studies

Studies of coins

The systematic study of the imperial coinage of Emperor Trajan (98–117 AD), *Moneta Imperii Romani* Volume 14, was completed, as was the scientific study of the Beçin Ottoman hoard covering a period up to 1615 and containing approximately 60,000 coins.

Selected publications:

- Ruske A. *Der Fund spätrömischer Silbermünzen in Enns (1906). In: Museumverein Lauriacum-Enns (Ed.). Festschrift Herbert Kneifel zum 100. Geburtstag. Enns 2009: 183–218.*
- Schindel N. *Sylloge Nummorum Sasanidarum Israel. Hebrew University (Jerusalem), Israel Antiquity Authority (Jerusalem), Israel Museum (Jerusalem), Kadman Numismatic Pavilion at the Eretz Israel Museum (Tel Aviv). Vienna: Verlag der OeAW, 2009.*
- Schindel N. *Die Fundmünzen von der Kuretenstraße 2005 und 2006. Numismatische und historische Auswertung. In: Ladstätter S (Ed.). Neue Forschungen in der Kuretenstraße von Ephesos. Vienna: Verlag der OeAW, 2009: 171–245.*
- Woytek B. *Denarius aureus oder nummus aureus? Zum Namen der klassischen römischen Goldmünze. Revue Belge de Numismatique 2009; 155: 177–208.*
- Woytek B. *Die römische Republik. In: Amandry M, Bateson D (Eds.). A Survey of Numismatic Research 2002–2007. Glasgow: International Association of Professional Numismatists 2009, Special Publication 15: 135–145.*

Numismatic
Commission

» 2 Selected research results and publications

Prehistoric Commission

Focus on the Palaeolithic era

The stand-alone research project "Investigations on Social Structures of Gravettian Hunter-Gatherer Societies on the Basis of the new Settlement and Burial Findings from Krems-Wachtberg" was completed. The follow-on project "Gravettian Open Air Site Krems-Wachtberg" was begun. Amongst the findings, which are conspicuous in both quantity and quality, an approx. 21 cm long, 4 cm wide ivory blade decorated with red stripes stands out.

Selected publications:

- Wawruschka C. *Frühmittelalterliche Siedlungsstrukturen in Niederösterreich*. Vienna: Verlag der OeAW, 2009.
- Brandl M. *Silexlagerstätten in der Steiermark*. Vienna: Verlag der OeAW, 2009.
- Institut für Ur- und Frühgeschichte der Universität Wien, Österreichische Gesellschaft für Ur- und Frühgeschichte, Prähistorische Kommission der Österreichischen Akademie der Wissenschaften (Ed.). *Archaeologia Austriaca 90/2006*, Vienna: Verlag der OeAW, 2009.
- Freeden U, Friesinger H, Wamers E (Eds.). *Glaube, Kult und Herrschaft. Phänomene des Religiösen im 1. Jahrtausend n. Chr. in Mittel- und Nordeuropa. Akten des 59. Internationalen Sachsensymposiums und der Grundprobleme der frühgeschichtlichen Entwicklung im Mitteldonauraum, Kolloquien zur Vor- und Frühgeschichte 12*, Bonn 2009

Centre for Studies in Asian Cultures and Social Anthropology

Institute for Iranian Studies

The burial garment of Duke Rudolph IV

As part of a cooperative project subsidised by the City of Vienna it was possible to completely reconstruct the medieval Iranian cloth of gold and the Arabic inscriptions on the burial garment.

Iranian-Venetian connections

The project, which was a first ever attempt to provide an overview and evaluation of the cultural relationships between modern Iran and Venice based on archival and narrative sources, was brought to a close with a monograph.

Selected publications:

- Fagner BG, Kautz R, Ptak R, Schottenhammer A (Eds.). *Pferde in Asien: Geschichte, Handel und Kultur / Horses in Asia: History, Trade and Culture*. Vienna: Verlag der OeAW, 2009.
- Karl B. *Art for the International Market – Three Mother-of-Pearl Objects from Sixteenth Century Gujarat in Early Modern European Collections*. In: Ritter M (Ed.). *Konferenzakten der E. Herzfeld Gesellschaft, Vienna 2007*. Vienna: E. Herzfeld Gesellschaft, 2009.
- Kautz R, Rota G, Niederkorn JP (Eds.). *Diplomatisches Zeremoniell in Europa und im Mittleren Osten in der frühen Neuzeit*. Vienna: Verlag der OeAW, 2009.

» 2 Selected research results and publications

- Ritter M. *The lost mosque(s) in the citadel of Qajar Yerevan: Architecture and identity, Iranian and local tradition in the early 19th century. Iran and the Caucasus 2009; 13: 239–279.*
- Rota G. *La Vita e i Tempi di Rostam Khan. (Edizione e traduzione italiana del Ms. British Library Add 7). Vienna: Verlag der OeAW, 2009.*

Access to Sanskrit manuscripts

The cooperation agreement between the OeAW and the Chinese Tibetology Research Centre in Beijing (CTRC) for the editing of copies of Sanskrit manuscripts brought to Tibet between the 8th and 14th centuries was extended until 2013. It provides access to the original Sanskrit manuscripts that were previously only available as Chinese or Tibetan translations.

The cultural history of the Western Himalayas

The institute is participating in the project "The Cultural History of the Western Himalaya from the 8th Century", which was started in 2007 and extended to 2012 after positive evaluation. Top international researchers are collaborating on seven different sub-projects which cover the topics of history of art, numismatics, Tibetan inscriptions and manuscripts, as well as philosophy.

Selected publications:

- Krasser H, Kellner B (Ed.). *Journal of the International Association of Buddhist Studies. Leuven: Peeters Publishers, 2009.*
- Steinkellner E, Qing D, Krasser H (Ed.). *Sanskrit manuscripts in China. Proceedings of a panel at the 2008 Beijing Seminar on Tibetan Studies, October 13 to 17. Beijing: China Tibetology Publishing House, 2009.*
- Tomabechi T. *Adhyardhaśatika Prajñāparamita. Sanskrit and Tibetan Texts. Beijing/Vienna: China Tibetology Publishing House/Verlag der OeAW, 2009.*

Institute for the Cultural and Intellectual History of Asia

The holy stele of Lhasa

The historic stone stele, known as the "Schöl stele", in front of the Potala Palace in Lhasa is one of the most important symbols of Tibetan cultural history. It has been possible to identify the Tri Valley, east of Lhasa, as the place of origin of this inscribed column.

Selected publications:

- Gollner M. *Morgenland in Monument und Mythos. Eine empirische Untersuchung zur Neubewertung von Türkenbildern in Wien. Saarbrücken: VDM, 2009.*
- Jahoda C, Papa-Kalantari C. *Eine frühe buddhistische Steinstele (rdoring) in sPu rang, Westtibet: eine Neuuntersuchung. Bericht einer österreichisch-tibetischen Feldforschung. Asiatische Studien 2009; LXIII(2): 349–400.*
- Six-Hohenbalken MA, Tosic J (Eds.). *Anthropologie der Migration. Theoretische Grundlagen und interdisziplinäre Aspekte. Vienna: facultas, 2009.*
- Slama M (Ed.). *Konflikte – Mächte – Identitäten. Beiträge zur Sozialanthropologie Südostasiens. Vienna: Verlag der OeAW, 2009.*

Institute for Social Anthropology

» 2 Selected research results and publications

Centre for Cultural Research

AAC – Austrian Academy Corpus

AAC – CLARIN

The AAC played an active part in the EU CLARIN project (Common Language Resources and Technology Infrastructure), setting up the information technology architecture and preparing corpus data for the test phase.

During the foundation phase, which was drawing to a close in 2009, the volume of data collected and prepared by the AAC reached a level that made exploitation in various ways possible. The collection of data held by the AAC facilitates research on the development to date, the present and the future of Austrian German, as well as corresponding comparisons of language and research in the field of translation.

Selected publications:

- *Dobrovol'skij DO, Šarandin A, Baumgart-Wendt A (Eds.). Neues Deutsch-Russisches Großwörterbuch. Band II (G–Q) und Band III (R–Z). Moscow: AST, 2009.*

Institute of Culture Studies and Theatre History

Projects completed

The projects "The Afterlife of Restitution. About the Meaning of Restitution for the Victim Experience, Family Memory and Cultural Memory" and "'Der Türckische Säbel ist vor der Thür...'" (Abraham a Sancta Clara). A reassessment of images representing the Turks in Vienna" were completed.

Selected publications:

- *Sommer M, Uhl H (Ed.). Mythos Alt-Wien. Spannungsfelder urbaner Identität. Innsbruck/Vienna/Bolzano: StudienVerlag, 2009.*
- *Stachel P, Ther P (Eds.). Wie europäisch ist die Oper? Die Geschichte des Musiktheaters als Zugang zu einer kulturellen Topographie Europas. Vienna: Böhlau Oldenbourg, 2009.*
- *Immler N (Ed.). The making of ... Genie: Wittgenstein & Mozart. Vienna: StudienVerlag, 2009.*
- *Csáky M, Leitgeb C (Eds.). Kommunikation – Gedächtnis – Raum: Orientierungen im "Spatial Turn" der Kulturwissenschaften. Bielefeld: transcript, 2009.*
- *Foltinek H, Höller H, Blume H (Eds.). Sprachkunst. Beiträge zur Literaturwissenschaft 40 (2009), 1. Halbband. Vienna: Verlag der OeAW, 2009.*

Commission for the History of Art

Bluish grey rather than red and dark grey

The Swiss Gate of the Hofburg Palace in Vienna, which is known to visitors nowadays in its red and dark grey colours, was built in 1552–1553 for King Ferdinand I as the main entrance to his residence. However, it turned out that this portal architecture was not originally painted, but left in the natural bluish grey colour of the stone.

...

» 2 Selected research results and publications

Selected publications:

- Telesko W, Kurdiovsky R, Nierhaus A (Eds.). *Die Wiener Hofburg und der Residenzbau in Mitteleuropa im 19. Jahrhundert. Monarchische Repräsentation zwischen Ideal und Wirklichkeit.* Vienna: Böhlau, 2009.
- Karner H. *Die ideale Ebene – ein Mythos der Wiener Deckenmalerei des Barock.* In: Kroupa J, Šeferisová Loudová M, Konečný L (Eds.). *Orbis artium (Festschrift Lubomír Slavíček).* Brno: Tisk Tiskárna Helbich, 2009: 439–444.
- Karner H. *The Habsburg Country Residences around Vienna in the 17th Century and their relationship to the Hofburg Palace.* In: Arciszewska B (Ed.). *The Baroque Villa. Suburban and Country Residences c. 1600–1800.* Warschau: Wilanów Palace Museum, 2009: 187–196.
- Telesko W. *Bartolomeo Altomontes Ausmalung des Sommerrefektoriums im Stift St. Florian (OÖ) (1731) und die Wiederbelebung der "vita apostolica" durch die Augustiner Chorherren.* In: Konečný JK (Ed.). *Orbis artium (Festschrift Lubomír Slavíček).* Brno: Tisk Tiskárna Helbich, 2009: 487–503.

Göllerich's legacy

A new find (letters) and additions to the legacy (diaries, notes) of August Göllerich, the former pupil of Liszt and first "authorised" biographer of Bruckner, were discovered.

Sensational discovery in the National Library

A fragment of a song book which was previously believed to be lost was discovered in the Austrian National Library. The book contains polyphonic works from the first half of the 15th century (including Dufay).

Adrast

The Viennese working group for the new edition of Schubert's work produced a complete first edition of the opera fragment "Adrast", D137.

Selected publications:

- Eybl M, Fritz-Hilscher E (Eds.). *Studien zur Musikwissenschaft. Beihefte der Denkmäler der Tonkunst in Österreich, Band 55. Tutzing: Hans Schneider, 2009.*
- Boisits B, Szabó-Knotik C (Eds.). *Sapienti numquam sat. Rudolf Flotzinger zum 70. Geburtstag (= Anklaenge. Wiener Jahrbuch für Musikwissenschaft).* Vienna: Milletre, 2009.
- Grasberger R, Maier E, Partsch EW (Eds.). *Anton Bruckners Wiener Jahre.* Vienna: Musikwissenschaftlicher Verlag, 2009.
- Knispel CM, Gruber G (Eds.). *Mozarts Welt und Nachwelt. Laaber: Laaber, 2009.*
- Opatrny A. *Thematischer Katalog Karlmann Pachs Schmidt (Tabulae musicae Austriacae 17).* Vienna: Verlag der OeAW, 2009.

Commission for Music Research

FACKELLEX cooperation agreement with Jerusalem

"*Mir fällt zu Hitler nichts ein*" (Hitler brings nothing to my mind). With this often misquoted sentence, which is as famous as it is frequently misunderstood, Karl Kraus began the work originally intended to be printed in *Die FACKEL*, but which was in fact only published after his death and has

Commission for the "Fackel" Text Dictionary (FACKELLEX)

» 2 Selected research results and publications

since then been known under the title "*Die Dritte Walpurgisnacht*" (The Third Walpurgis Night). The original text is housed in the Jewish National and University Library in Israel. In spring 2009, the Jewish National Library signed a framework agreement with FACKELLEX which allows academic use of the original proofs with hand-written corrections by Karl Kraus.

Centre for Medieval Studies

Institute for Byzantine Studies

Rediscovery of ancient texts

New texts from Late Antiquity were discovered as part of the EU project *Rinascimento Virtuale* (the study of the Greek palimpsests belonging to the Austrian National Library). It was possible to reconstruct the legendary *Bibliotheca Corviniana*.

Witness signatures

For the first time a systematic study of private documents from the mid to late Byzantine era and the metric text and image on the Byzantine seals was undertaken.

The Byzantine sphere

In order to reconstruct the area inhabited by the Byzantines parts of the empire (in Bulgaria, [former Yugoslav Republic state of] Macedonia, Greece, Syria and Turkey) were subjected to a systematic historical-geographical survey. As a result many places and roads were located, documented and calibrated by means of GPS (Global Positioning System).

Selected publications:

- Rhoby A. *Byzantinische Epigramme auf Fresken und Mosaiken (= Byzantinische Epigramme in inschriftlicher Überlieferung, Bd. 1)*. Vienna: Verlag der OeAW, 2009.
- Nesbitt J, Wassiliou-Seibt AK, Seibt W. *Highlights from the R. Hecht, Jr., Collection of Byzantine Seals*. Thessaloniki: Aristotle University of Thessaloniki, Byzantine Research Centre, 2009.
- Gastgeber C (Ed.). *Miscellanea Codicum Graecorum Vindobonensium II. Studien zu griechischen Handschriften in der Österreichischen Nationalbibliothek*. Vienna: Verlag der OeAW, 2009.
- Soustal P (Ed.). *Heilige Berge und Wüsten. Byzanz und sein Umfeld. Referate auf dem 21. Internationalen Kongress für Byzantinistik London 21.–26. August 2006*. Vienna: Verlag der OeAW, 2009.

Institute for Medieval Research

Routine business 1200 years ago

St. Gall Monastery houses many original documents from the 9th century AD. Not only do they provide us with insight into real estate transactions and other legal business, but also into the linguistic usage, literacy and organisational services of the monastery. In collaboration with the monastery archive, the OeAW institute is publishing these documents in an annotated facsimile edition.

» 2 Selected research results and publications

The beginnings of the European States

The volume "*Der frühmittelalterliche Staat – Europäische Perspektiven*" (The European State in the Early Middle Ages – European Perspectives) summarises the conclusions of a large symposium and an international research group of the institute. In comparative studies of different European regions and in a series of systematic studies on the elements of medieval state identity, bridges have been built across the divides between national traditions of research.

Selected publications:

- Reimitz H, Zeller B (Eds.). *Vergangenheit und Vergegenwärtigung. Frühes Mittelalter und europäische Erinnerungskultur*. Vienna: Verlag der OeAW, 2009.
- Pohl W, Wieser V (Eds.). *Der frühmittelalterliche Staat – europäische Perspektiven*. Vienna: Verlag der OeAW, 2009.
- Zeller B, Erhart P, Heidecker K. *Chartae Latinae Antiquiores 102 – St. Gallen 3*. Zurich: Dietikon, 2009.
- Erhart P, Heidecker K, Zeller B (Eds.). *Die Privaturkunden der Karolingerzeit*. Zurich: Dietikon, 2009.
- Pohl W. *Die ethnische Wende des Frühmittelalters und ihre Auswirkungen auf Ostmitteleuropa*. Oskar-Halecki-Vorlesung – Jahresvorlesung des Geisteswissenschaftlichen Zentrums Geschichte und Kultur Ostmitteleuropas 2006. Leipzig: Leipziger Universitätsverlag, 2009.

Academic documentation in databases

The image database "REALonline", which currently includes 23,000 documented image sources and artefacts, was incorporated into "KULTURPOOL. A Central Portal for Digitized Austrian Cultural Heritage" (www.kulturpool.at).

Gozzoburg Krems

As part of a study looking at the history of the motifs in the secular wall paintings in the Gozzoburg in Krems, a newly uncovered cycle of frescoes was identified as illustrating the legend of Barlaam and Josaphat.

Selected publications:

- Jaritz G, Neschwara C. *Die Wiener Stadtbücher 1395–1430. Teil 4: 1412–1417*. Vienna/Cologne/Weimar: Böhlau, 2009.
- Wagener O, Laß H, Kühnreiter T, Dinzelbacher P (Eds.). *Die imaginäre Burg*. Frankfurt am Main/Berlin/Bern/Brussels/New York/Oxford/Vienna: Peter Lang, 2009.
- Hundsichler H. *Dichte Überlieferung und dichte Beschreibung*. In: Scholkmann B, Frommer S, Vossler C, Wolf M (Eds.). *Zwischen Tradition und Wandel. Archäologie des 15. und 16. Jahrhunderts*. Büchenbach: Dr. Faustus, 2009: 17–24.
- Matschinegg I. *Aspekte der Alltagsorganisation in studentischen Lebensumgebungen am Beginn der frühen Neuzeit*. In: Krug-Richter B, Mohrmann R (Eds.). *Frühneuzeitliche Universitätskulturen. Kulturhistorische Perspektiven auf die Hochschulen in Europa*. Cologne/Weimar/Vienna: Böhlau Verlag, 2009: 97–108.
- Vavra E. *Die Zeichensprache der Krankheit*. In: Nolte C (Ed.). *Homo debilis. Behinderte – Kranke – Versehrte in der Gesellschaft des Mittelalters*. Korb: Didymos-Verlag, 2009: 393–410.

Institute for Medieval
and Early Modern
Material Culture

» 2 Selected research results and publications

Commission for Palaeography and Codicology of Medieval Manuscripts in Austria

Exquisite items in Herzogenburg

A short inventory of the illustrated manuscripts and incunabula in Herzogenburg Priory library was created in collaboration with the University of Vienna's Department of History of Art.

Europe's paper database on the web

In February 2009 the 30-month-long EU project "*Bernstein*", which was coordinated by the OeAW, came to an end. Its aim was the networking of European online databases on the topic of paper. They have been made available to a wide public via a common portal (www.memoryofpaper.eu).

Selected publications:

- Mairhofer D, Neuhauser W, Schretter C, Stampfer U. *Katalog der Handschriften der Universitäts- und Landesbibliothek Tirol in Innsbruck, Teil 6. Cod. 501–600. Vienna: Verlag der OeAW, 2009.*
- Glaßner C, Oesch JM (Eds.). *Fragmenta Hebraica Austriaca. Akten der Session "Hebrew Manuscripts and Fragments in Austrian Libraries" des International Meeting der Society of Biblical Literature in Wien am 26. Juli 2007. Vienna: Verlag der OeAW, 2009.*
- Rueckert P, Hodecek S, Dietz G, Wenger E (Eds.). *Ochsenkopf und Meerjungfrau. Papiergeschichte und Wasserzeichen vom Mittelalter bis zur Neuzeit. Stuttgart/Vienna: Landesarchiv Baden-Württemberg, 2009.*
- Wagendorfer M, Knödler J. *Eneas Silvius Piccolomini, Historia Austriacis. 1. Band, Wagendorfer M, Knödler J (Eds.). Einleitung von Martin Wagendorfer. Hanover: Hahnsche Verlagsbuchhandlung, 2009.*
- Wagendorfer M. *Eneas Silvius Piccolomini, Historia Austriacis. Band 2: 2. und 3. Redaktion, Wagendorfer M. (Ed.). Hanover: Hahnsche Verlagsbuchhandlung, 2009.*

Centre for Research on Modern and Contemporary History

Historical Commission

Eastern Europe behind the "Iron Curtain"

For more than 40 years Eastern Europe and Austria were separated by the Iron Curtain. Nonetheless, attempts and efforts were made on both sides to build and maintain political, economic, cultural and scientific contacts. This involved treading many "special paths". In collaboration with the Freeman Spogli Institute for International Relations at Stanford University the results of two international conferences dealing with new archive sources from Eastern Europe have been published.

Europe and the Middle East

For the first time the complexities of symbolic interaction as an essential element of pre-modern political practice have been subjected to a comparative analysis drawing on examples from cultural circles of Europe (the Holy Roman Imperial court, Venice, Moscow, Paris) and Asia (the Ottoman Empire, China, Persia, India). This forces us to take a new look at diplomatic and cultural history.

» 2 Selected research results and publications

Selected publications:

- Suppan A, Mueller W (Eds.). *Peaceful Coexistence or Iron Curtain? Austria, Neutrality, and Eastern Europe in the Cold War and Détente, 1955–1989*. Vienna: Lit, 2009.
- Kauz R, Rota G, Niederkorn JP (Eds.). *Diplomatisches Zeremoniell in Europa und im Mittelren Osten in der frühen Neuzeit*. Vienna: Verlag der OeAW, 2009.
- Haug-Moritz G, Hye HP, Raffler M (Eds.). *Adel im "langen" 18. Jahrhundert. Zentraleuropa-Studien 14*, Vienna: Verlag der OeAW, 2009.
- Hye HP, Mazohl B, Niederkorn JP (Eds.). *Nationalgeschichte als Artefakt. Mystifizierung und Entmystifizierung nationaler Historiographien in Deutschland, Italien und Österreich. Zentraleuropa-Studien 12*, Vienna: Verlag der OeAW, 2009.
- Koch K, Rauscher W, Suppan A, Vyslonzil E (Eds.). *Außenpolitische Dokumente der Republik Österreich 1918–1938, Band 8, Österreich im Zentrum der Mitteleuropapläne*. Vienna: Verlag der OeAW, 2009.

The Habsburg monarchy 1848–1918 – social structures

Volume IX in the series "*Die Habsburgermonarchie 1848–1918*", entitled "*Soziale Strukturen*" (Social Structures) was completed. Part 1 "*Von der feudal-agrarischen zur bürgerlich-industriellen Gesellschaft*" (From the feudal-agricultural to the bourgeois-industrial society) includes comments on the conditions necessary for the industrial revolution, for areas of habitation, working environments and production zones based on socio-economic factors, for the breaking down of the elitist society in favour of the mass society, for the crisis in liberal values and economics, and the crucial nature of social change on social policy. Part 2 "*Die Gesellschaft der Habsburgermonarchie im Kartenbild. Verwaltungs-, Sozial- und Infrastrukturen. Nach dem Zensus von 1910*" (The society of the Habsburg Monarchy in cartographic form. Administrative and social structures, infrastructures. Based on the 1910 census) includes a cartographic representation of social structures on the eve of World War I, a portrayal of the whole of the area incorporated into the Habsburg Empire, and an analysis of the development of interdependencies, convergences and differences within Central Europe.

Database on parliamentarians 1848–1918

A collective biography of 3,500 parliamentarians from the Austrian part of the empire was created in the form of an electronic database.

Selected publications:

- Malfèr S. *Die Protokolle des österreichischen Ministerrates 1848–1867. IV/3: Das Ministerium Rechberg, 21. Oktober 1860 – 2. Februar 1861*. Vienna: Verlag der OeAW, 2009.
- Gottsmann A. *Parteipolitik und katholische Kirche in der Donaumonarchie. Das politische Engagement des Anton B. Jeglič und die Diplomatie des Hl. Stuhls. Römische Historische Mitteilungen 2009; 51: 317–336*.

Commission for the History of the Habsburg Monarchy

» 2 Selected research results and publications

Commission for Austrian Legal History

Fontes Iuris

As part of the major research project "Testaments" (*Fontes Iuris*) work was completed on the first volume of the Bratislava *Protocollum Testamentorum*.

Selected publications:

- Jaritz G, Neschwara C. *Die Wiener Stadtbücher 1395–1430. Teil 4: 1412–1417. Vienna/Cologne/Weimar: Böhlau, 2009.*
- Ogris W, Olechowski T. *Prvky európskej právnej kultúry. Elemente Europäischer Rechtskultur. Čast/Teil 1: Stredovek a novovek do roku 1800. Mittelalter und Neuzeit bis 1800. Vienna/Bratislava: Bratislavská vysoká škola práva, 2009.*
- Ogris W, Olechowski T. *Prvky európskej právnej kultúry. Elemente Europäischer Rechtskultur. Čast/Teil II: 19. a 20. storočie. 19. und 20. Jahrhundert. Vienna/Bratislava: Bratislavská vysoká škola práva, 2009.*
- Walter R, Ogris W, Olechowski T (Eds.). *Hans Kelsen: Leben – Werk – Wirksamkeit. Ergebnisse einer Internationalen Tagung, veranstaltet von der Kommission für Rechtsgeschichte Österreichs und dem Hans Kelsen-Institut (19.–21. April 2009). Vienna: Manz, 2009.*
- Feik C, Ortlieb E, Sellert W. *Die Akten des Kaiserlichen Reichshofrats. Serie I: Alte Prager Akten. Band 1: A–D. Berlin: Erich Schmidt Verlag, 2009.*

Austrian Biographical Encyclopaedia and Biographical Documentation

120,000 biographies on the web

In 2009, the extended version of the Biography Portal (www.biographie-portal.eu), which was previously only available in German and English, was released. It is now also available in French and Italian versions and includes approximately 17,500 French and a similar number of Italian biographies from the *Historische Lexikon der Schweiz* (HLS – Historical Dictionary of Switzerland). The initial version networks four major German language dictionaries: the *Historische Lexikon der Schweiz*, the *Neue Deutsche Biographie* (NDB – New German Biography), its predecessor, the *Allgemeine Deutsche Biographie* (ADB – General German Biography) and the *Österreichische Biographische Lexikon 1815–1950* (ÖBL – Austrian Biographical Dictionary).

Austrian Jewish Biography

Comprehensive documentation with regard to people leaving the Jewish religion in Vienna during the period 1868–1914 was presented, recording approximately 18,000 such withdrawals. This book is a fundamental reference work for any further research on this subject.

Selected publications:

- Staudacher AL. *"... meldet den Austritt aus dem mosaischen Glauben". 18.000 Austritte aus dem Judentum in Wien, 1868–1914: Namen – Quellen – Daten. Frankfurt am Main: Peter Lang, 2009.*
- Angetter D, Pärn N. *Blick zurück ins Universum. Die Geschichte der österreichischen Astronomie in Biografien. Vienna: Verlag Fassbaender, 2009.*

» 2 Selected research results and publications

Social Sciences Centre

Social involvement, behavioural risks and cognitive functioning

The relationship between cognitive performance, social participation and risky behaviour in the elderly was investigated using data from the SHARE project collected from twelve countries.

It was demonstrated that all forms of social participation, and in particular continuing employment, improve cognitive performance. This was true of both genders.

Life expectancy

A model was developed for life expectancy as a function of the independent variables age and life expectancy at birth compared to life expectancy without severe impairment of physical activities.

Social interaction, endogenous networks and parenthood

In simulation models not only do female individuals possess characteristics such as age, level of education and parity, they also have a network of relationships with other female individuals which is generated endogenously. Any births occurring within a particular network increase the likelihood of additional births within that same network. On this basis we are easily able to explain the pattern of births of first children in Austria between 1984 and 2004. A forecast for the period up to 2016 is included.

Selected publications:

- Lutz W. *Sola schola et sanitate: human capital as the root cause and priority for international development? Philosophical Transactions of the Royal Society B* 2009; 364: 3031–3047.
- Engelhardt H, Kohler HP, Fürnkranz-Prskawetz A (Eds.). *Causal Analysis in Population Studies: Concepts, Methods, Applications*. Vienna/New York: Springer, 2009.
- Philipov D. *Fertility Intentions and Outcomes: The Role of Policies to Close the Gap*. *European Journal of Population* 2009; 25: 355–361.
- Goldstein JR, Sobotka T, Jasilioniene A. *The end of lowest-low fertility? Population and Development Review* 2009; 35: 663–699.

Institute for
Demography

The Joint Decision Trap

According to the theory of "The Joint Decision Trap" both the EU and German Federalism are characterised by stalemates and sub-optimal outcomes because decisions are made by the lower level constituent governments and must be almost unanimous. This comparative study is the first systematic analysis in a range of policy areas to examine why there are sometimes also unexpected breakthroughs, usually resulting from a process of delegation to supranational institutions such as the European Commission or to specialised committees. This can, however, result in the creation of other political "traps", for example if the European Court of Justice enforces "integration through law" against the wishes of the political leaders.

Institute for European
Integration Research

...

» 2 Selected research results and publications

Selected publications:

- Obermaier A. *The End of Territoriality? The Impact of ECJ Rulings on British, German and French Social Policy*. Farnham, Surrey UK: Ashgate Publishing Limited, 2009.
- Falkner G, Hartlapp M. *Problems of Operationalization and Data in EU Compliance Research*. *European Union Politics* 2009; 10: 281-304.
- Falkner G, Treib O. *Bargaining and Lobbying in EU Social Policy*. In: Richardson JJ, Coen D (Ed.). *Lobbying in the European Union*. Oxford: Oxford University Press, 2009: 247–267.
- Pollak J, Slominski P. *Experimentalist but not Accountable Governance? The Role of Frontex in Managing the EU's External Borders*. *West European Politics* 2009; 32: 904–924.
- Trauner F. *From membership conditionality to policy conditionality: EU external governance in South Eastern Europe*. *Journal of European Public Policy* 2009; 16: 774–790.

Institute for European Tort Law

Liability for damage on earth and in space

The current projects "Human Rights and Tort Law" and the second part of the series "National Court Practice and European Tort Law" on the subject of damage are being continued. Two new projects, "Medical Liability" on the effects of a lack of financial means on the standard of care and the liabilities of hospitals, and "Extra-Contractual Liability for Global Navigation Satellite Systems" are in progress.

Selected publications:

- Koziol H, Wilcox V (Eds.). *Punitive Damages: Common Law and Civil Law Perspective*. Vienna: Springer, 2009.
- Oliphant K (Ed.). *Aggregation and Divisibility of Damage*. Vienna/New York: Springer, 2009.
- Koziol H, Steininger BC (Eds.). *European Tort Law 2008*. Vienna: Springer, 2009.

Institute for Mountain Research: Man and Environment

GLORIA: Global Observation Research Initiative in Alpine Environments

The repeat samplings in 2008–2009 of the GLORIA project were carried out in 19 European mountain regions in cooperation with the European Environment Agency to provide the basis of a European climate change / biodiversity indicator. Snow cameras were set up on the GLORIA mastersite, the Schrankogel in Tyrol, to provide a comparative study of snow and vegetation patterns. As part of the GLORIA network, the 20 mountain observation stations have now been increased to 76 across five continents.

Selected publications:

- Nagy L, Grabherr G. *The Biology of Alpine Habitats*. Oxford: Oxford University Press, 2009.
- Del Negro M. *Schutzgebiete in Slowenien mit besonderer Berücksichtigung des Alpenraums – Bestandsaufnahme und Problematik*. Vienna: Verlag der OeAW, 2009.
- Bender O, Evelpidou N, Krek A, Vassilopoulos A (Eds.). *Geoinformation Technologies for Geocultural Landscapes: European Perspectives*. Leiden, The Netherlands: CRC Press/Balkema (Taylor & Francis Group), 2009.
- Borsdorf A, Köck G (Eds.). *eco.mont – Journal on Protected Mountain Areas Research, Vol.1, No.1 & No.2*. Innsbruck: Verlag der OEAW, Innsbruck University Press, 2009.

» 2 Selected research results and publications

Migration

As part of a comprehensive analysis of migratory movement in selected EU member states, demographic development, economic trends and the role of national migration policy were identified as being relevant driving forces.

Urban regional development

On behalf of the Eastern Planning Department, the institute worked on predicting future trends in urban regional development. Simulation calculations provided information on the intake capacity of the land around the city of Vienna on the basis of building land reserves, ease of access and the state of its infrastructure. The study demonstrated the negative effect of community autonomy on zoning provision and suggested that amendments to the basic legislation and planning instruments are necessary.

Prefabricated high-rise buildings

Work on the project "*Plattenbausiedlungen. Erneuerung des baukulturellen Erbes in Wien und Bratislava*" (Prefabricated high-rise buildings. Renewal of the cultural heritage in building in Vienna and Bratislava) was completed. The study demonstrated the high level of importance of prefabricated buildings in providing sufficient accommodation for the population in many Eastern and East Central European states and rebuts common prejudices about the inhospitable nature of large-scale housing. As part of the study, ideas were developed on how to maintain prefabricated multistorey buildings and ensure that they meet contemporary standards.

Selected publications:

- Kapeller V (Ed.). *Plattenbausiedlungen. Erneuerung des baukulturellen Erbes in Wien und Bratislava*. Stuttgart: Fraunhofer IRB Verlag, 2009.
- Musil R. *Global Capital Control and City Hierarchies. An Attempt to Reposition Vienna in a World City Network*. *Cities* 2009; 26/5: 256–266.

Institute for Urban
and Regional
Research

New study

The commission, which functions as an interdisciplinary platform for the networking and grouping of relevant Austrian research, was given the task of carrying out a comprehensive study on migration and integration research in Austria by the Austrian Federal Ministry of Science and Research.

Selected publications:

- Bauböck R, Perchinig B, Sievers W (Eds.). *Citizenship Policies in the New Europe. Expanded and updated edition*. Amsterdam: Amsterdam University Press, 2009.
- Bauböck R. *Global Justice, Freedom of Movement and Democratic Citizenship*. *European Journal of Sociology/Archives européennes de sociologie* 2009; 50: 1–31.
- Fassmann H, Reeger U, Sievers W (Eds.). *Statistics and Reality: Concepts and Measurements of Migration in Europe*. Amsterdam: Amsterdam University Press, 2009.

Commission for
Migration and
Integration Research

» 2 Selected research results and publications

Commission for Comparative Media and Communication Studies

- Fassmann H, Haller M, Lane D (Eds.). *Migration and Mobility in Europe. Trends, Patterns and Control*. UK: Edward Elgar, 2009.
- Sievers W. *Von Elias Canetti bis Dimitré Dinev oder: Was ist Migrationsliteratur? Österreich in Geschichte und Literatur 2009; 53: 303–312.*

"Worlds of Journalisms"

The aim of this international collaboration is to use a common set of instruments to transcend the limitations of nationality, different types of news organisation and professional milieu to compare the many different journalistic cultures that exist across the globe. Research teams from 22 different countries across all five continents are participating in this project. The first results, published in Germany and the USA, have demonstrated media policy and legal influences on the validity of journalistic values (such as impartiality, objectivity and critical scrutiny), and cultural differences in the execution of the job, but also processes of change which transcend culture and which are gradually bringing westernised standards to other areas, in particular to Eastern European countries, Turkey and China.

Campaign communication in Austria since 1966

For the first time ever in Austria – in cooperation with Vienna University – the behaviour of the political parties and the media during election campaigns is the topic of a long-term study, using a set of instruments which enable international comparisons to be made. The first results have shown that the media has become increasingly selective in its behaviour towards the political parties, so that it is difficult for the parties to put forward their agenda. At the same time, the media is becoming more and more interrelated. The resultant higher level of agreement in expression on publicly relevant topics increases the importance of the media in election decisions.

Selected publications:

- Stark B, Magin M (Eds.). *Die österreichische Medienlandschaft im Umbruch*. Vienna: Verlag der OEAW, 2009.

Centre for Linguistics and Audiovisual Documentation

Austria as a country of immigration

Data collection for the project "B.E.S.T. – Best Success through Language Loss?" has been completed. The aim of this major project, which is being carried out with the cooperation of 13 partner institutions both within Austria and abroad, is to link linguistic research on the effects of migration on language acquisition and research in the field of social sciences on inequality in the education system of Austria as a country of immigration. 85 per cent of Viennese primary schools (3rd and 4th grades) participated in the language study, giving a total of approximately 20,000 children.

» 2 Selected research results and publications

Grammatica balkanica

A comparative study is being made of the common traits and differences which exist in the languages of South East Europe. In no other area of Europe do so many different cultures and languages exist alongside each other in such a confined area.

Glagolitic manuscripts

A sensational find from St. Catherine's Monastery on the Sinai peninsula in 1975 included, among other things, six 11th century Old Church Slavonic manuscripts in Glagolitic script, which were in poor condition. Using high resolution multispectral images the foundations for decoding the content of the text have been laid down.

The terminology of the nomadic herdsmen in South East Europe

In the summer of 2009 recordings of Çamërian, an Albanian dialect which is highly taboo and which has never been recorded before, were made in Greece.

Selected publications:

- Hafner S, Prunč E (Eds.). *Thesaurus der slowenischen Volkssprache in Kärnten, Bd. 6 (kd-kv)*. Hauptredaktion: Ludwig Karničar. *Schriften der Balkan-Kommission*. Vienna: Verlag der OeAW 2009.
- Kahl T (Ed.). *Das Rumänische und seine Nachbarn*. Berlin: Frank & Timme Verlag, 2009.
- Neweklowsky G. *Das Projekt der Balkankommission "Bosnisch / Kroatisch / Serbisch: Gesellschaft und Wirtschaft"*. *Anzeiger der philosophisch-historischen Klasse der OeAW 143/1 (2008) 2009*: 127–149.
- Ortalli G, Schmitt JO (Eds.). *Balcani occidentali, Adriatico e Venezia fra XIII e XVIII secolo / Der westliche Balkan, der Adriaum und Venedig (13.–18. Jahrhundert)*. *Schriften der Balkankommission 50*. Vienna: Verlag der OeAW, 2009.
- Sobolev A. *On the Importance of Borrowing in the Languages of the Balkan Linguistic Area*. In: Kahl T (Ed.). *Das Rumänische und seine Nachbarn*. Berlin, 2009: 95–130.

Balkans Commission

dbo@ema

This interdisciplinary pilot project aims at the visualisation and georeferencing of lexicographical data from the database for Bavarian dialects in Austria (DBÖ). The pilot database brought together 35,000 documents, 15,000 sources, 9,000 people/collectors, 1,000 areas, 23,000 documented places and 5,000 lemmas from various previously existing database systems.

ALPKULTUR – The cultural and historical documentation of names in the alpine region

The geographical database of names "nominAustriae" contains the names, with appropriate explanations, of 1,982 East Tyrolean mountains and alpine pastures from the areas occupied by Slavic, Roman and Bavarian settlements.

Selected publications:

- Anreiter P, Chapman C, Rampl G. *Die Gemeindennamen Tirols. Herkunft und Bedeutung*. Innsbruck: Universitätsverlag Wagner, 2009.
- Dorostkar N, Blaschitz V, de Cillia R. 'Jetzt merke ich, dass ich doch etwas kann.' *Evaluation und Dokumentation der 'Mama lernt Deutsch'-Kursreihe der Stadt Wien im Schuljahr 2006/2007*. Saarbrücken: VDM, 2009.

Institute for Lexicography of Austrian Dialects and Names

» 2 Selected research results and publications

- Jordan P, Bergmann H, Cheetham C, Hausner I (Eds.). *Geographical Names as a Part of the Cultural Heritage*. Vienna: Selbstverlag des Instituts für Geographie und Regionalforschung der Universität Wien / Kartographie und Geoinformation, 2009.

Commission for Linguistics and Communication Research

Research on aphasia

As part of a long-term study, the collection and analysis of long-term language data on the recovery of language functions in five aphasics were continued. In the case of a patient suffering from Broca's aphasia the effects of therapy on everyday communication were documented.

The everyday language of Vienna

As part of the standardisation of ELA picture stimuli, first analyses of oral language production in Viennese of the relevant age groups (4–6, 17–19 and 60–94) pointed to the interaction of multiple linguistic and socio-linguistic variables.

Child language

As part of the project "Crossling. Project on Pre- and Protomorphology", a comparative study of normal language acquisition in nine languages in the field of child language, it was demonstrated that morphological richness has a positive influence on the speed of development.

Selected publications:

- Kilani-Schoch M, Balciuniene I, Korecky-Kröll K, Laaha S, Dressler WU. *On the role of pragmatics in child-directed speech for the acquisition of verb morphology*. *Journal of Pragmatics* 2009; 41/2: 219–239.
- Korecky-Kröll K, Dressler WU. *The acquisition of number and case in Austrian German nouns*. In: Stephany U, Voeikova MD (Eds.). *Development of nominal inflection in first language acquisition: a cross-linguistic perspective*. Berlin: Walter de Gruyter, 2009.
- Libben G, Boniecki M, Martha M, Mittermann K, Korecky-Kröll K, Dressler WU. *Interfixation in German compounds: What factors govern acceptability judgements?* *Italian Journal of Linguistics* 2009; 21: 149–180.
- Savickiene I, Dressler WU, Barcza V, Bodor P, Ketrez N, Korecky-Kröll K, et al. *Diminutives as pioneers of derivational and inflectional development – a cross-linguistic perspective*. In: Bertuccelli Papi M, Bertacca A, Bruti S (Eds.). *Threads in the Complex Fabric of Language: Linguistic and Literary Studies in Honour of Lavinia Merlini Barbaresi*. Pisa: Felici Editore, 2009: 339–354.
- Stephany U, Voeikova MD (Eds.). *Development of nominal inflection in first language acquisition: a cross-linguistic perspective*. Berlin: Walter de Gruyter, 2009.

Phonogrammarchiv (Audiovisual Re- search Archive)

Research in China

Field research on the Shumcho language (Kinnaur, Himachal Pradesh), on Kunqu, folk music in Xian (Shanxi Province), and on Beijing opera was carried out.

» 2 Selected research results and publications

Selected publications:

- Kowar H. *Joseph Haydn – Sämtliche Flötenuhren (Mechan. Musikinstrumente 7, OeAW PHA CD 29)*. Vienna: Verlag der OeAW, 2009.
- Lechleitner G, Marošević G, Breu W, Ceribašić N, Katičić R, Lechleitner F, et al. *Croatian Recordings 1901–1936, Series 11/1 (Sound Documents from the Phonogrammarchiv of the Austrian Academy of Sciences. The Complete Historical Collections 1899–1950)*. Vienna: Verlag der OeAW, 2009.
- Liebl C (Ed.). *Judeo-Spanish from the Balkans: The Recordings by Julius Subak (1908) and Max A. Luria (1927)*. Vienna: Verlag der OeAW, 2009.

» 3 The Academy's financial potential

3 The Academy's financial potential

3.1 Basic budget

OeAW basic budget	
Basic budget 2009 including subsidiaries' budgets (in EUR '000)	85,000.0
of which funds from	
· Federal Ministry of Science and Research (ordinary budget)	80,000.0
· National Foundation	5,000.0
of which budget shares (in % of the funds allocated in 2009) of the:	
· Learned society	1.01 %
· Research performing units	77.96 %
· of which MN cluster (excluding limited liability research companies)	31.96 %
· of which limited liability research companies	26.80 %
· of which HS cluster	19.20 %
[· Young scientists funding programme: financed from reserves in 2009]	[5.02 %]
· Service units (central administration, library and archive, Austrian Academy of Sciences Press)	7.29 %
· Facility management	5.18 %
· Building activities	0.70 %
· Assignments	3.20 %
· Membership contributions	4.66 %

Special and additional funds

Alongside the funding set out above, the Academy also received the following special and additional funds in accordance with the Austrian Federal Ministry of Science and Research budget notice:

- indirect financing for personnel expenditure (including travel costs) for the federal employees (civil servants and contracted staff) seconded to the Academy, in the amount of EUR 3.6 million. For the established federal posts left vacant up to 2008, an all-in payment of EUR 1.175 million was agreed, the second and final instalment of which in the amount of EUR 598,800 was received in 2009.
- indirect financing for rental expenses in the amount of EUR 0.81 million
- direct financing for the DOC-fORTE and DOC-team scholarship programmes in the amount of EUR 2.76 million
- direct financing for the Earth System Sciences research programme in the amount of EUR 0.1 million
- indirect financing for access to ACO-NET, the Austrian scientific network for non-profit-making institutions in the field of research, education and culture providing participants with access to the internet and other scientific networks, in the amount of EUR 0.12 million
- direct financing for the Schubert Edition in the amount of EUR 41,400

Secure funding

By budget notice dated 23 September 2009, the Federal Ministry of Science and Research allocated the Academy a two-year budget for the years 2009 and 2010. The resolution was adopted by the Academy's General Assembly in October 2009 for the 2009 financial year and in December 2009 for the 2010 financial year. In terms of financing security for 2010, this constitutes a substantial improvement over previous years. A further improvement of planning security in the form of a global budget for a number of years is to be expected from the conclusion of a performance agreement. The preparations necessary for this are being established jointly with the Federal Ministry of Science and Research. •

» 3 The Academy's financial potential

3.2 Selected expenditure

Personnel expenditure				
	Total	of which MN cluster	of which HS cluster	of which service units
In EUR '000	64,388.7	42,428.9	17,181.9	4,777.9

Personnel

The Academy's own and third-party financed personnel expenditure amounted to a total of EUR 64.4 million in 2009. A total of EUR 3.0 million was spent on research-related services by third parties, of which EUR 1.9 million came from own funds and EUR 1.1 million from third-party funds.

Investments in buildings				
	Total	of which MN cluster	of which HS cluster	of which invested centrally*
In EUR '000	323.6	83.4	8.5	231.7

Buildings

Investments in equipment				
	Total	of which MN cluster	of which HS cluster	of which invested centrally*
In EUR '000	7,778.3	7,491.8	128.7	157.8

Equipment

Fellowships

Career-building activities (fellowships) are largely – for the two largest fellowship programmes, APART and DOC – financed pro rata from the Academy's basic budget. The DOC-fFORTE support programme, a part of the Campaign for Women in Technology and the Natural Sciences launched by the Council for Research and Technology Development, and DOC-team, a programme to promote interdisciplinary research in the humanities, social and cultural sciences, are special funds that require a new contractual arrangement every year.

The revenue for the DOC-fFORTE programme was considerably lower than in the previous year, since according to the contracts concluded the Federal Ministry of Science and Research made available the funds for the grants for two years – 2008 and 2009 – in 2008.

Eleven APART fellowships and 38 DOC fellowships of varying durations (between 12 and 36 months) were awarded in 2009. This corresponds to a financing volume of EUR 4.05 million to be paid to the recipients over the period from 2010 to 2012.

Previously, the entire approved financing volume was transferred each year in advance to the Academy. In 2009, it was agreed with the Ministry to convert the financing of the APART and DOC fellowships into a temporary cover system similar to the financing within the framework of the DOC-fFORTE programme. Accordingly, the amount paid out each year for APART and DOC will in future essentially correspond to the annual requirements. •

* It should be noted that part of the central investment budget was allocated to buildings and equipment of research units in both clusters.

» 4 The Academy's learned society

4 The Academy's learned society

4.1 Value creation potential of the learned society

4.1.1 Human potential

The learned society boasts 700 members who, with the exception of one honorary member of the Academy as a whole, are divided between the Section for Humanities and the Social Sciences, the Section for Mathematics and the Natural Sciences and the Young Academy.

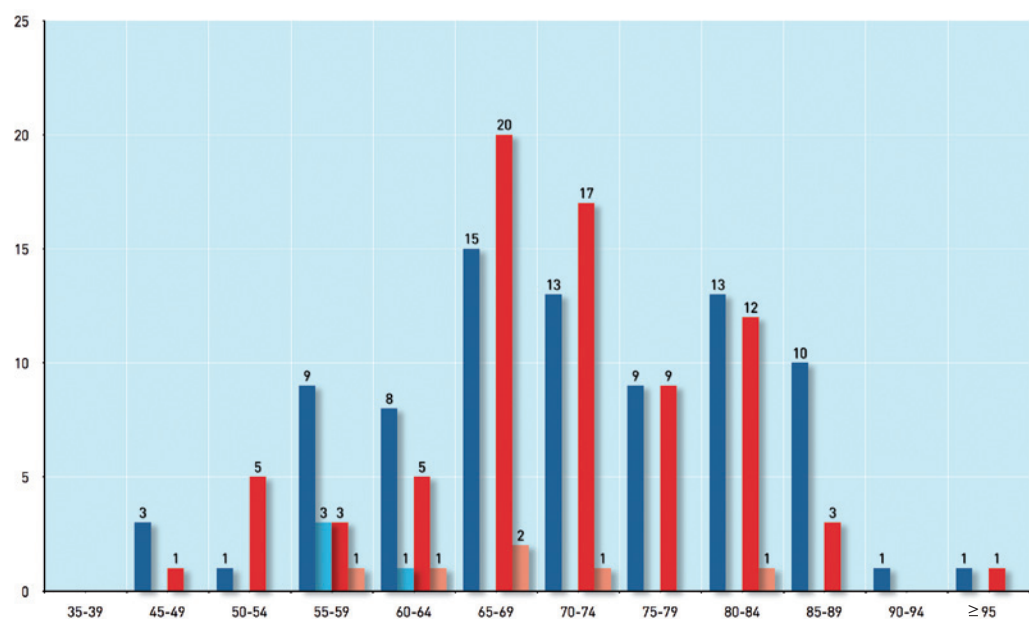
Composition of the learned society (as of 31.12.2009)							
	Total	m.	f.	of which MN Section		of which HS Section	
				m.	f.	m.	f.
Number of all members	700	639	61	-	-	-	-
of which:							
· f.m.	169	159	10	83	4	76	6
· c.m.i.A.	152	141	11	81	1	60	10
· c.m.a.	306	282	24	149	8	133	16
· YA	56	41	15	-	-	-	-
· h.m. of the Academy as a whole	1	0	1	-	-	-	-
· h.m. of the sections	16	16	0	9	0	7	0

Age structure of the full members

Section for Mathematics and the Natural Sciences

Section for Humanities and the Social Sciences

■ male ■ female ■ male ■ female



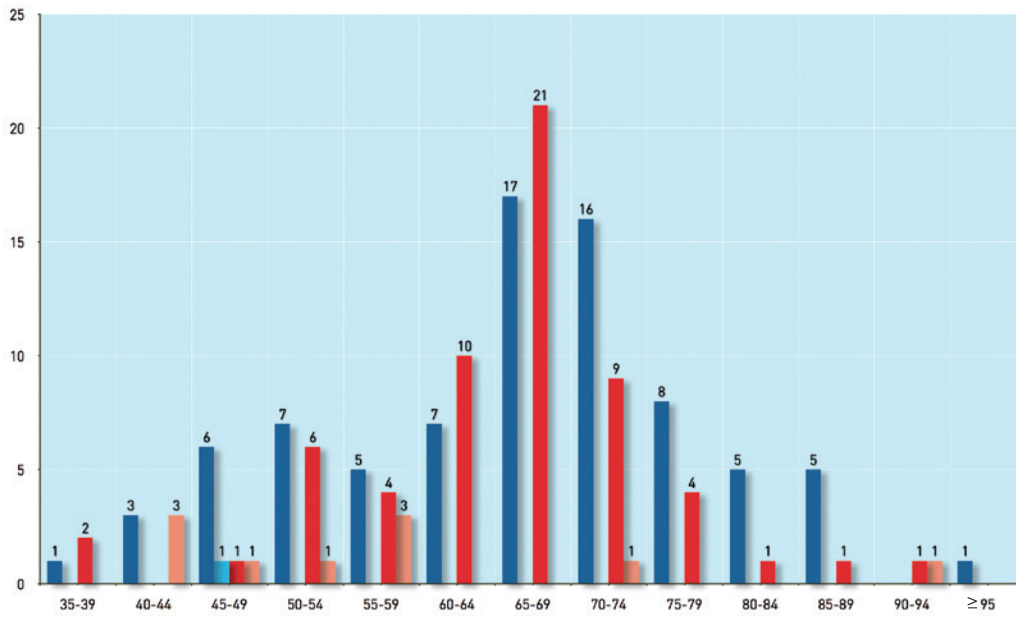
» 4 The Academy's learned society

Age structure of the corresponding members in Austria

Section for Mathematics and the Natural Sciences

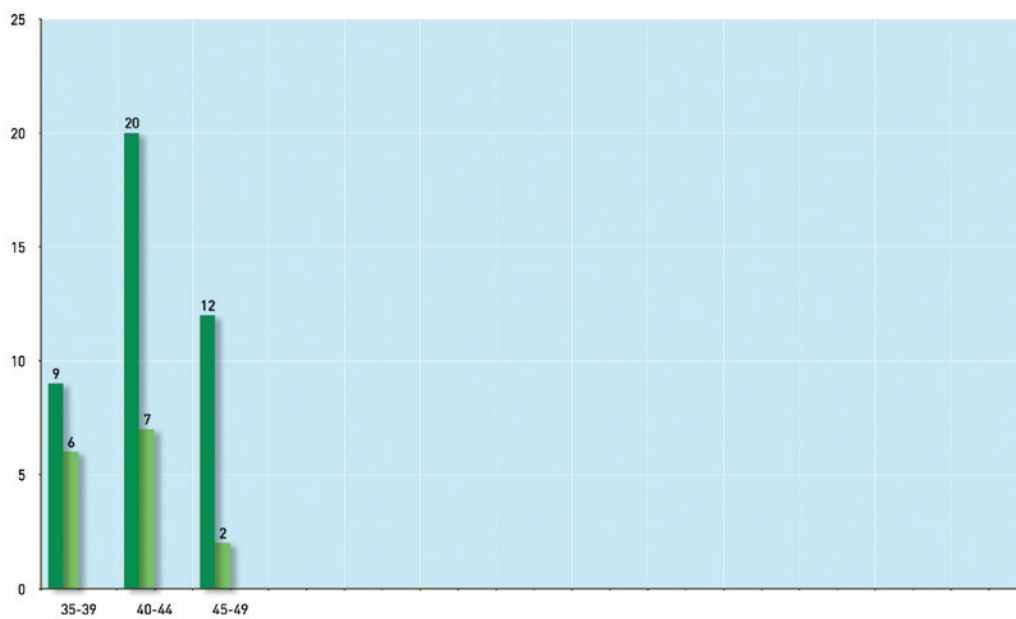
Section for Humanities and the Social Sciences

■ male ■ female ■ male ■ female



Age structure of the Young Academy

■ male ■ female



» 4 The Academy's learned society

New members of the learned society

In 2009, 35 new members, including four women, were elected to the Academy.

Renewal of the learned society							
	Total	m.	f.	of which MN Section		of which HS Section	
				m.	f.	m.	f.
Number of newly elected members in 2009	35	31	4	-	-	-	-
of which:							
· f.m.	6	6	0	4	0	2	0
· c.m.i.A.	8	7	1	6	0	1	1
· c.m.a.	13	12	1	5	0	7	1
· YA	7	5	2	-	-	-	-
· h.m. of the sections	1	1	0	0	0	1	0

4.1.2 Structural potential

Extent to which the research spectrum is covered by members in Austria

Coverage of the research spectrum (according to the two-digit ÖSTAT classification) is 88 per cent for both full and corresponding members, and 49 per cent for the Young Academy. Overall, the members with permanent residency in Austria cover 92 per cent of the research spectrum.

Institutional spectrum of members in Austria (as of 31.12.2009)							
	Total	m.	f.	of which MN Section		of which HS Section	
				m.	f.	m.	f.
Type of affiliation of the f.m.	169	159	10	83	4	76	6
· University	157	149	8	77	3	72	5
· Non-university research institution	10	8	2	5	1	3	1
· Business enterprise	1	1	0	1	0	0	0
· Other	1	1	0	0	0	1	0
Type of affiliation of the c.m.i.A.	152	141	11	81	1	60	10
· University	143	132	11	75	1	57	10
· Non-university research institution	8	8	0	5	0	3	0
· Business enterprise	0	0	0	0	0	0	0
· Other	1	1	0	1	0	0	0
Type of affiliation of the members of the YA	56	41	15	-	-	-	-
· University	50	36	14	-	-	-	-
· Non-university research institution	5	4	1	-	-	-	-
· Business enterprise	0	0	0	-	-	-	-
· Other	1	1	0	-	-	-	-

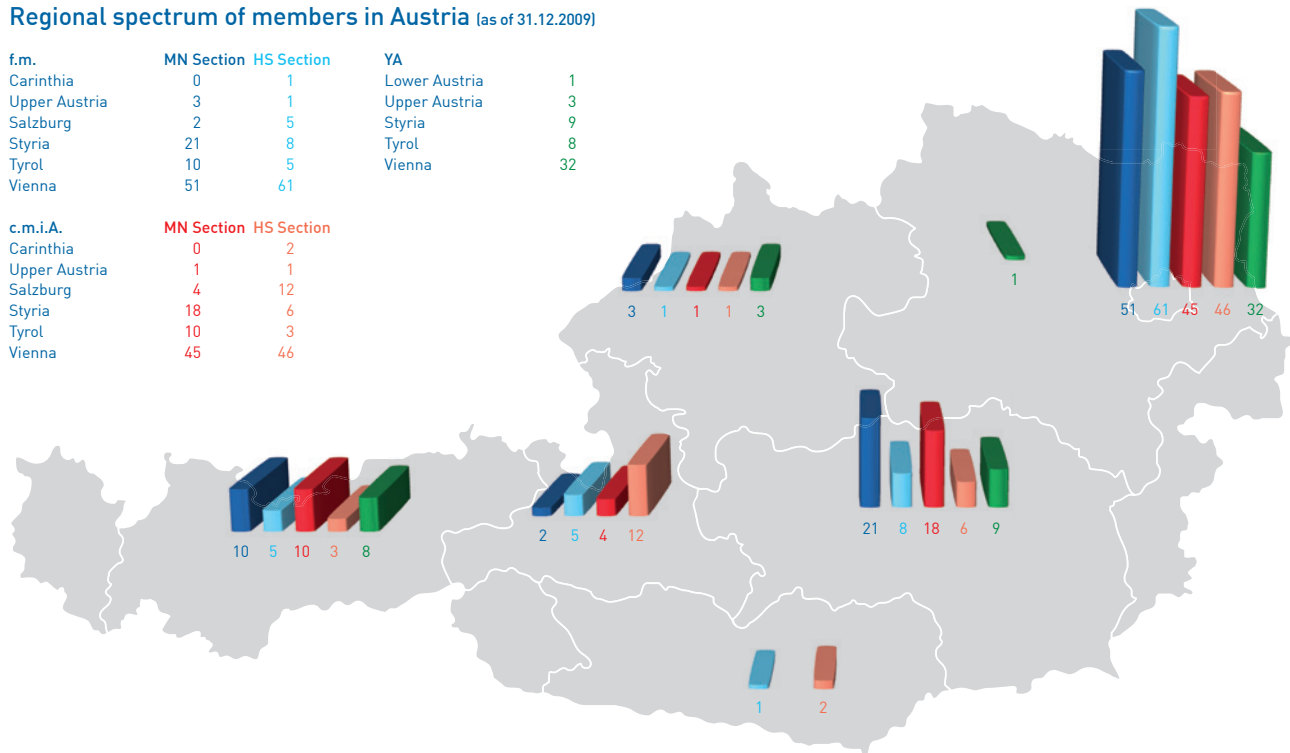
» 4 The Academy's learned society

The following presentation is based on the primary current or last academic place of work. Eight members whose academic place of work is currently outside Austria have not been included in the following diagram.

Regional spectrum of members in Austria (as of 31.12.2009)

f.m.	MN Section	HS Section	YA	
Carinthia	0	1	Lower Austria	1
Upper Austria	3	1	Upper Austria	3
Salzburg	2	5	Styria	9
Styria	21	8	Tyrol	8
Tyrol	10	5	Vienna	32
Vienna	51	61		

c.m.i.A.	MN Section	HS Section
Carinthia	0	2
Upper Austria	1	1
Salzburg	4	12
Styria	18	6
Tyrol	10	3
Vienna	45	46

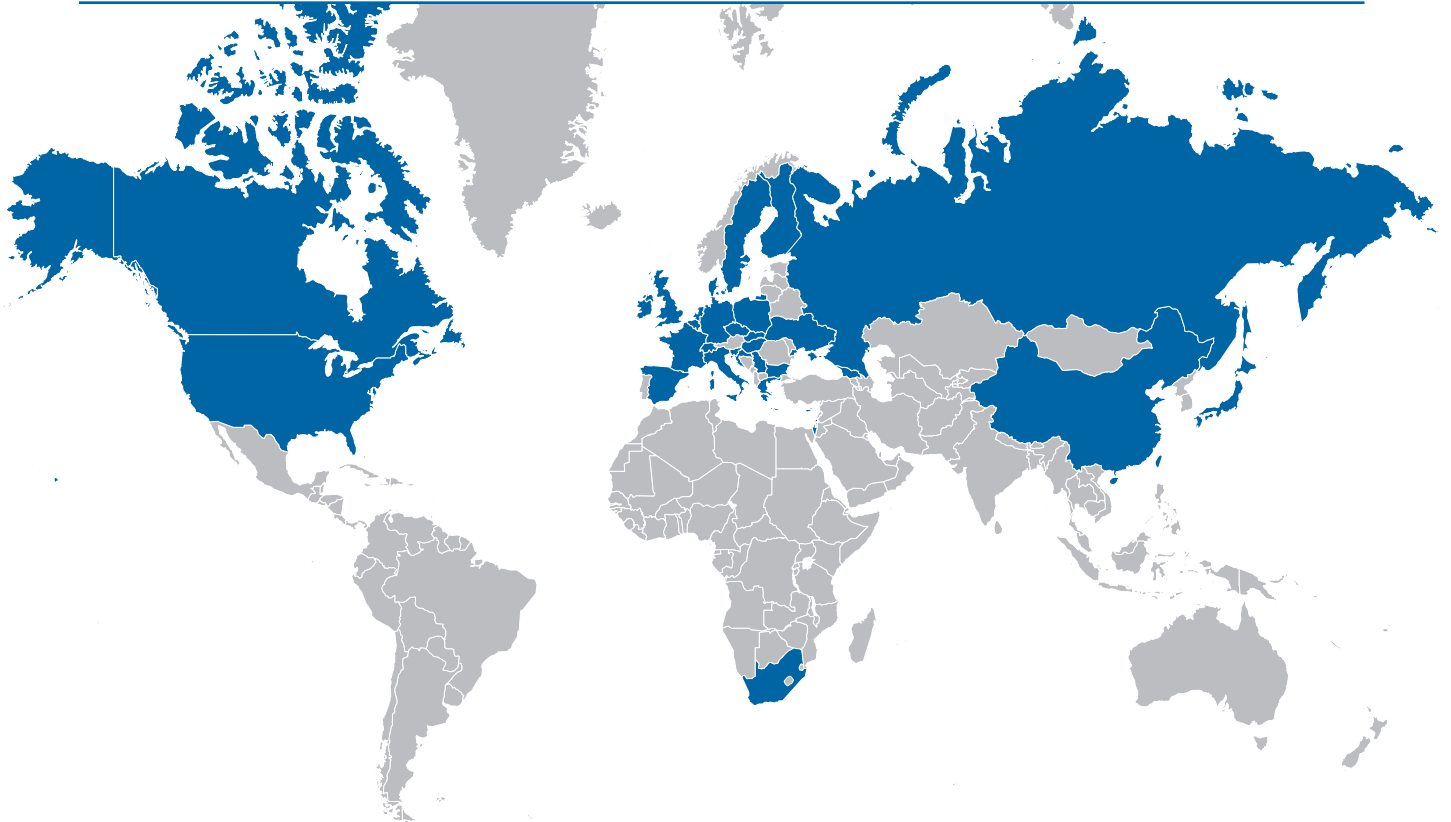


» 4 The Academy's learned society

4.1.3 Networking potential

Foreign relations through corresponding members abroad

Many of the corresponding members abroad play an active role in the Academy by providing consulting or assessment services on affairs of the Academy on a case-to-case basis, mostly at the request of a member of the Presiding Committee.



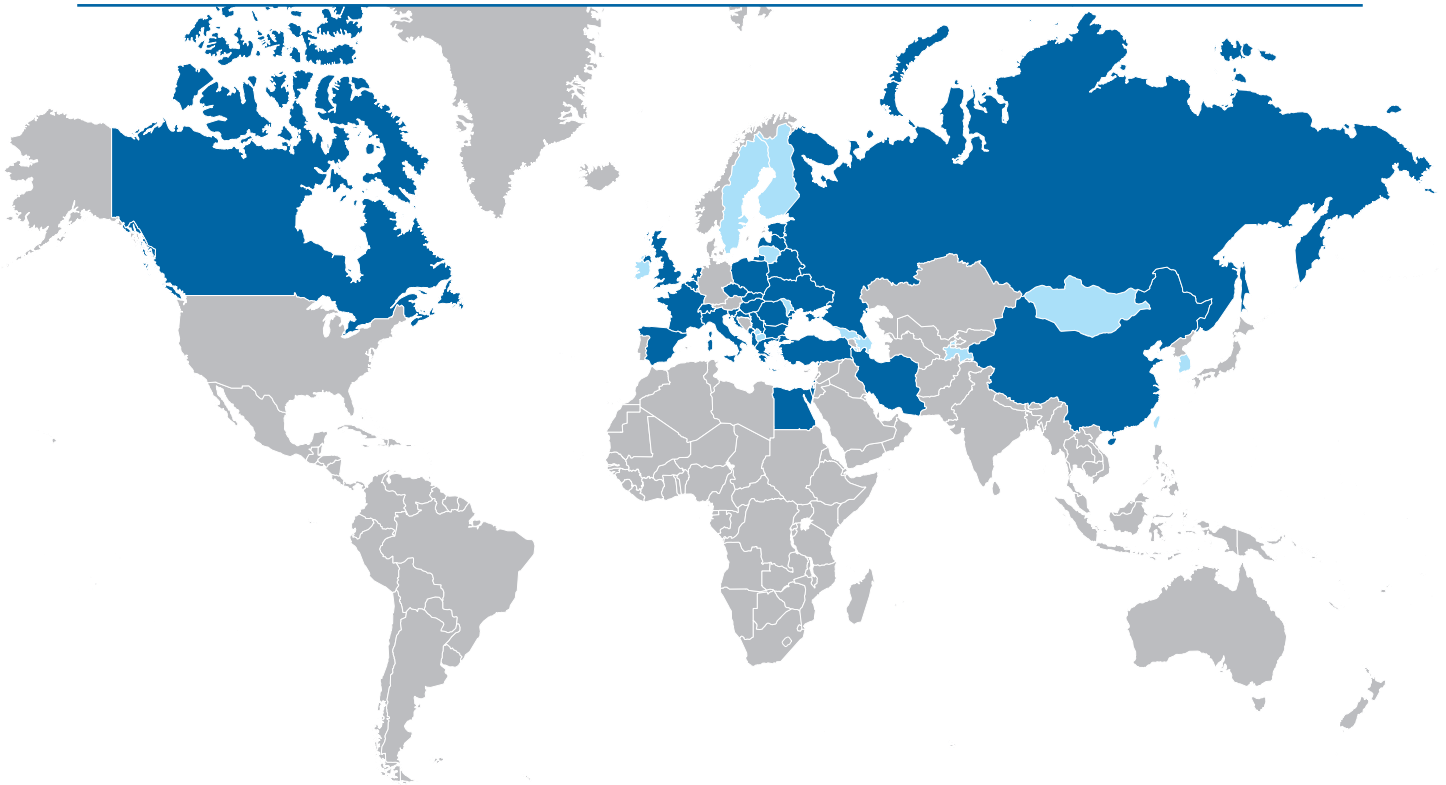
Networking potential abroad through c.m.a. (as of 31.12.2009)

Belgium	1	France	14	Japan	2	Spain	1
Bulgaria	1	Georgia	2	Netherlands	4	Sweden	3
Canada	2	Germany	134	Poland	2	Switzerland	26
China	1	Great Britain	19	Russian Federation	2	Taiwan	1
Croatia	2	Greece	5	Serbia	1	Ukraine	1
Cyprus	1	Hungary	9	Singapore	1	USA	45
Czech Republic	4	Ireland	3	Slovakia	2		
Denmark	1	Israel	2	Slovenia	1		
Finland	1	Italy	11	South Africa	1		

Framework agreements

The Academy maintains 45 contractual relationships with scientific institutions around the world, in particular with other academies of sciences. In this way, it provides direct access for Austrian scientists to foreign researchers and to research material and scientific sources in selected regions.

» 4 The Academy's learned society



Framework agreements of the Academy*

- | | | | |
|---|---|---|--|
| 1) Albania
Albanian Academy of Sciences, Tirana | 13) Estonia
Estonian Academy of Sciences, Tallinn | 27) Macedonia
Macedonian Academy of Science and Arts, Skopje | 39) South Korea
Korean Academy for Sciences and Technology, Seoul |
| 2) Azerbaijan
National Azerbaijan Academy of Sciences, Baku | 14) France
National Centre for Scientific Research (CNRS), Paris | 28) Moldavia
Academy of Sciences of the Republic of Moldavia, Chişinău | 40) Sweden
Royal Swedish Academy of Literature, History and Antiquities, Stockholm |
| 3) Belarus
National Academy of Sciences of Belarus, Minsk | 15) Georgia
Georgian Academy of Sciences, Tiflis | 29) Mongolia
Mongolian Academy of Sciences, Ulan Bator | 41) Switzerland
Swiss Academy of Natural Sciences, Berne |
| 4) Belgium
Royal Academy of Sciences and Fine Arts of Belgium, Brussels | 16) Greece
Athens Academy, Athens | 30) Netherlands
Royal Netherlands Academy of Arts and Sciences, Amsterdam | 42) Tajikistan
Academy of Sciences of the Republic of Tajikistan, Dushanbe |
| 5) Bulgaria
Bulgarian Academy of Sciences, Sofia | 17) Great Britain
Royal Society, London | 31) Poland
Academy of Sciences, Warsaw | 43) Taiwan
Taiwanese Academy of Sciences, Taipei |
| 6) Canada
Royal Society of Canada, Ottawa | 18) Great Britain
British Academy, London | 32) Romania
Romanian Academy of Sciences, Bucharest | 44) Turkey
Turkish Academy of Sciences (TÜBA), Ankara |
| 7) China
Chinese Academy of Sciences, Beijing | 19) Hungary
Hungarian Academy of Sciences, Budapest | 33) Russian Federation
Russian Academy of Sciences, Moscow | 45) Ukraine
National Academy of Sciences of the Ukraine, Kiev |
| 8) China
Chinese Academy for Social Sciences, Beijing | 20) Iran
Academy of Sciences of the Islamic Republic of Iran, Teheran | 34) Serbia
Serbian Academy of Sciences, Belgrade | |
| 9) China
Tibetan Academy of Social Sciences, Lhasa | 21) Ireland
Royal Irish Academy, Dublin | 35) Serbia
Vojvodina Academy of Sciences and Arts, Novi Sad | |
| 10) Croatia
Croatia Academy of Sciences and Arts, Zagreb | 22) Israel
Israeli Academy of Sciences, Jerusalem | 36) Slovakia
Slovakian Academy of Sciences, Bratislava | |
| 11) Czech Republic
Academy of Sciences of the Czech Republic, Prague, and the Czech Learned Society, Prague | 23) Italy
National Academy of Sciences, Rome | 37) Slovenia
Slovenian Academy of Sciences, Ljubljana | |
| 12) Egypt
Academy for Scientific Research and Technology of the Arabic Republic of Egypt, Cairo | 24) Kosovo
Academy of Sciences and Arts, Pristina | 38) Spain
Council for Scientific Research (CSIC), Madrid | |
| | 25) Latvia
Latvian Academy of Sciences, Riga | | |
| | 26) Lithuania
Lithuanian Academy of Sciences, Vilnius | | |

* Active (dark blue) framework agreements are those that formed the basis of activities in 2009, while the inactive (light blue) agreements are those that exist formally but were not used in 2009.

» 4 The Academy's learned society

The Academy's bilateral activities maintain a tradition of opening doors and building bridges that began as soon as the Academy was founded. By progressively developing formal bilateral contacts with national academies of sciences, particularly in Central and Eastern Europe, the Academy, despite all the geopolitical realities of the Cold War, made a major contribution at a very early stage to the establishment and implementation of the vision of a European research region by facilitating the networking and mobility of researchers. These strengths of the Academy were extended in recent years by the conclusion of bilateral agreements with the Academy of Sciences and Arts of the Kosovo (Pristina), the Academy of Sciences of the Republic of Moldavia (Chişinău) and the Vojvodina Academy of Sciences and Arts (Novi Sad).

Alongside the focus on cooperation activities with partner academies in the successor states of the former Soviet Union, the OeAW is keen to develop its position in Asia.

The Academy's scientist exchange programme

The scientist exchange programme is handled within the framework of the bilateral contracts between the OeAW and partner academies, and is a major contribution to the implementation of the agreements that help the OeAW network with academies and research institutions around the world.

All members of the Academy and persons involved in the Academy's research projects are entitled to participate in the scientist exchange programme. Participation is based on the principle of an invitation by the host academy. The costs are divided between the academies involved.

High-level international contacts

Visits by members of the Academy's Presiding Committee to research institutions abroad serve to strengthen the Academy's international contacts, as do visits by representatives of foreign research institutions at the invitation of the Presiding Committee. Top-level contacts were maintained in 2009, including representatives of the academies of sciences of Bolivia, China, Estonia, Taiwan and the Ukraine, and the Vojvodina Academy of Sciences. Particular mention should be made of the participation of the President of the Academy in the state visit of the Austrian President to the Ukraine in July 2009 and a working visit by the Federal Minister of Science and Research to China in September 2009. •

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4.2 Accomplishments of the learned society

Synergies between the learned society and the research performing organisation

Many members make an active contribution to the Academy's research units.

Members involved scientifically or on an advisory basis in OeAW research units							
	Total	m.	f.	of which MN Section		of which HS Section	
				m.	f.	m.	f.
Number of members actively involved scientifically in OeAW research units in 2009	165	153	12	-	-	-	-
of which:							
· f.m.	84	78	6	33	2	45	4
· c.m.i.A.	63	58	5	28	1	30	4
· c.m.a.	12	12	0	3	0	9	0
· h.m.	1	1	0	0	0	1	0
· YA	5	4	1	-	-	-	-
· of which in a leading function in the research unit	45	43	2	15	1	28	1
Number of members acting in an advisory capacity in the SABs and supervisory boards of Academy research units in 2009	43	39	4	23	1	16	3
of which:							
· f.m.	11	10	1	9	0	1	1
· c.m.i.A.	3	3	0	1	0	2	0
· c.m.a.	28	25	3	12	1	13	2
· h.m.	1	1	0	1	0	0	0
· YA	0	0	0	-	-	-	-
· of which in a leading function of the body	8	8	0	5	0	3	0

Participation of members in internal bodies

Academy members are engaged in an honorary capacity involving considerable expenditure of time in numerous bodies of the Academy. The multidisciplinary composition of the learned society permits a balanced and holistic consideration of various scientific and science-policy issues.

The Academy's top decision-making body is the General Assembly, composed of the full members, delegates of the corresponding members in Austria and delegates of the Young Academy. The General Assembly convenes at least eight times a year.

General Assembly

In section-related matters, the meetings of the sections play a decisive role.

In operative terms, the Presiding Committee, composed of four full members elected by the General Assembly, is at the helm of the Academy.

Presiding Committee

In 2009, elections were held for the positions of the president, the vice president and the secretary general. On July 1, 2009, President Helmut Denk replaced his predecessor Peter Schuster. Vice President Sigrid Jalkotzy-Deger was elected to succeed Herbert Matis, thereby becoming the first woman

» 4 The Academy's learned society

in the history of the Academy to be elected to the Presiding Committee. Secretary General Arnold Suppan replaced Herwig Friesinger.

Administrative committees

In addition, Academy members are also involved in internal administrative committees, such as the Strategic and Planning Committee or the Audit Control Committee.

Delegation of members to scientific or science-policy bodies

Numerous members contribute their expertise on behalf of the Academy to national and international bodies and organisations that deal with the further development and solution of scientific or science-policy issues. It is through these networking and consulting activities, covering a wide variety of subject areas, that the members make a major contribution to the performance of the Academy's statutory duty to promote science in every respect and beyond the research pursued by the Academy itself.

Representation on behalf of the Republic of Austria

In selected areas, the Academy acts directly on the instructions of the republic, representing Austria's interests in international associations and programmes.

The Academy's national and international research programmes

These research programmes are either part of international programmes (UNESCO, UNO, ICSU, EU) or are internationally networked through agreements and scientific cooperation activities. The research programmes are financed by the Federal Ministry of Science and Research and managed by national committees set up within the Academy.

The national committees are composed of renowned scientists, including numerous full and corresponding members of the Academy, as well as representatives of ministries and provincial organisations, and are each headed by a member of the Academy.

Members with expert assessor functions for national and international programmes		
Research programmes 2009	f.m.	c.m.i.A.
Alpine Research	5	3
Geophysics of the Earth's Crust	3	2
Global Change Programme	4	4
Hydrology of Austria	1	3
International Strategy for Disaster Reduction (ISDR)	6	1
International Geoscience Programme (IGCP)	2	2
Commission for the Coordination of Nuclear Fusion Research in Austria (KKKÖ)	2	2
Man and Biosphere (MAB)	2	3

The members with expert assessor functions for the national and international programmes include one woman.

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The national committees' functions include:

- Coordination of the research activities in their respective research sector
- Drafting of programme-related research strategies
- Quality assurance of research projects
- Forward-looking development of new core research areas
- Stimulation and financing of new projects and scientific cooperation programmes

In addition to the scientific objectives, other aims are also pursued by the projects:

- The projects financed by the research programmes provide an opportunity for outstanding young researchers to acquire further qualifications in research areas of relevance to Austria.
- The research work performed in the programmes serves not only the interests of the scientific community but also generates additional social value in many cases, for instance with respect to the sustainable coexistence of man and the environment or disaster prevention.

Career building

Added social value

In order to enhance transparency in the award of project funds, a two-tier evaluation procedure has been introduced. The best project proposals received within the framework of invitations to tender are invited to submit a full application. The project funds are granted following an external assessment and ranking by an international jury. The scientific quality of research results and project reports are reviewed by the relevant national committee. Information on ongoing projects can be obtained online (www.oeaw.ac.at/deutsch/forschung/programme/programme.html).

Evaluation procedures

In order to encourage public access to the results of projects funded by the Academy's research programmes, the option of publishing project reports online on the Academy website has been introduced in cooperation with the Austrian Academy of Sciences Press. By the end of 2009, 25 project reports had been published online.

National and international programmes at the OeAW				
Research programmes 2009	Funds granted (in EUR '000)	Number of projects	Head of project	
			m.	f.
Alpine Research	429.79	9	6	3
Geophysics of the Earth's Crust	210.47	4	4	0
Global Change Programme	26.36	1	1	0
Hydrology of Austria	380.90	6	6	0
International Strategy for Disaster Reduction (ISDR)	309.20	7	7	0
International Geoscience Programme (IGCP)	69.54	6	6	0
Commission for the Coordination of Nuclear Fusion Research in Austria (KKKÖ)	137.38	5	4	1
Man and Biosphere (MAB)	361.32	13	11	2

Alpine Research

This programme is part of the research cooperation "International Scientific Committee on Alpine Research" (ISCAR) established in 1999. The aim of this cooperation is to promote interdisciplinary collaboration across the alpine regions in alpine research and the transfer of research results into prac-

» 4 The Academy's learned society

tice and to the general public. Central research areas include climate change, water, transport, natural disasters, biodiversity, social economy and earth sciences.

Geophysics of the Earth's Crust

This research programme established in 1979 promotes projects of applied near-surface geophysics, such as the interpretation of potential fields, modelling of electro-magnetic data, refined recording methods for seismic refraction measurements and studies of slope movements such as by way of rockfall.

Global Change Programme

This programme – launched in 1990 – combines three international research networks devoted to investigating the global environmental changes: the International Geosphere-Biosphere Programme, the World Climate Research Programme and the International Human Dimension Programme. The Global Change National Committee is a founding member of the Alliance of European Global Change Research Committees founded in 2008.

Hydrology of Austria

This programme is Austria's contribution to the UNESCO International Hydrological Programme. The current key research activities include the fields of soil moisture, modelling and precipitation forecasting and runoff generation in alpine catchment areas.

International Strategy for Disaster Reduction (ISDR)

This UN programme was launched in 1990 and supports projects investigating the causes and risks of natural hazards, the development of early natural disaster detection methods and the formulation of preventive measures to reduce their impact.

International Geoscience Programme (IGCP)

This programme (launched in 1973) promotes geo-science collaboration projects on research themes defined by the UNESCO. Core research areas are quaternary geology, environmental and engineering geology, sedimentology, mineral deposits, geochemistry, geophysics and structural geology.

The Austrian IGCP National Committee played a leading role in the organisation of the many Austrian activities for the International Year of Planet Earth (IYPE). In November 2009, Austria was presented with an award by the international IYPE organisation committee for its services in the implementation of the IYPE objectives.

Man and Biosphere Programme (MAB)

The UNESCO programme, which was established in 1971, develops application-oriented scientific basic research in the natural and social sciences for the long-term protection of natural resources and biodiversity. The concept of the global biosphere parks network constitutes the key component of the programme for the implementation of a sustainable mankind-environment relationship. In its research projects, the Austrian MAB National Committee focuses on research in and for the benefit of domestic biosphere parks.

At the UNESCO General Conference in 2009, Austria was re-elected for a further four years to the

» 4 The Academy's learned society

MAB International Coordinating Council (MAB-ICC) consisting of 34 countries, and will thus play a decisive role in the further development and coordination of the programme at international level up to 2013.

Commission for the Coordination of Nuclear Fusion Research in Austria (KKKÖ)

This Commission was founded in 1980, and, after Austria became a member the European Union, laid the basis for the Association Treaty between the Academy and the EURATOM programme concluded in 1996. The principal objectives are government advice on all relevant matters and the coordination of Austria's research activities in this field. Currently, the Commission is prioritising technological projects aimed at completing the "Construction of the ITER fusion test facility" while at the same time performing coordinating functions for Austria's participation in the European JET fusion experiment.

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- Muir DCG, Wang X, Yang F, Nguyen N, Jackson TA, Evans MN, et al. Spatial Trends and Historical Deposition of Mercury in Eastern and Northern Canada Inferred from Lake Sediment Cores. *Environmental Science & Technology* 2009; 43: 4802–4809.
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- Parajka J, Naeimi V, Blöschl G, Komma J. Matching ERS scatterometer based soil moisture patterns with simulations of a conceptual dual layer hydrologic model over Austria. *Hydrology and Earth System Sciences* 2009; 13: 259–271.
- Viglione A, Blöschl G. On the role of storm duration in the mapping of rainfall to flood return periods. *Hydrology and Earth System Sciences* 2009; 13: 205–216.

Selected publications from the national and international programmes

Selected events at the initiative of members

Scientific and popular-science events are an important tool for the transfer of knowledge within the scientific community and to the interested public. The initiative of members plays an important role in this field.

Darwin Year Evolution Conference

As a contribution to the Charles Darwin Year 2009, the Academy held a symposium on "Evolution – the basis for an understanding of change in the world" from 3 to 6 March 2009. The aim was to communicate an overview of the current state of knowledge in the investigation of biological evolution and to illuminate the role of the idea of evolution across all disciplines.

The symposium was organised in collaboration with the City of Vienna, the University of Vienna

Symposium

» 4 The Academy's learned society

and the Federal Ministry of Science and Research. It was preceded by an opinion poll on the topic of "Evolution" in order to document the ideas and the level of information of the Austrian public in this field.

Symposium **100 years of the polio virus: from discovery to eradication**

As late as 1988, 350,000 people were infected by the polio virus. Thanks to the development of vaccines and a rigorous global vaccination programme, the illness has been almost completely eradicated. On the occasion of the 100th anniversary of the discovery of the viral nature of polio by Karl Landsteiner and Erwin Popper in Vienna, a symposium was held at the Academy on 20 November 2009, at which internationally renowned scientists discussed the development of vaccines, the structure and function of the virus, the current state of the global eradication programme and the prospects for the future.

Lecture series Once again in 2009, the Academy's lecture series were key events in the field of popular science. The target public is generally the public interested in scientific topics, with a particular focus on school-children.

Auer von Welsbach Lectures

The Auer von Welsbach Lectures, begun in 2008 and focusing on current research topics in the field of chemistry, were continued with four lectures in 2009. The lecturers were Ferdi Schüth (Max Planck Institute for Coal Research, Mülheim an der Ruhr), Nobel Prize Winner Jean-Marie Lehn (Strasbourg), Dieter Oesterhelt (Max Planck Institute for Biochemistry, Martinsried) and Albert Eschenmoser (ETH – Swiss Technical University Zurich).

Eduard Suess Lectures

The Edward Suess lectures began in October 2009 with presentations on topics from the geosciences. Two lectures were held in 2009: Hans-Ulrich Schmincke (Leibniz-Institute for Marine Sciences, Kiel) addressed the topic of "Volcanology in a rapidly changing world – the last 2,500 years", while Apollo 17 Science Astronaut Harrison H. Schmitt spoke on the topic of the "Origin and History of the Moon and Earth through an Explorer's Eyes".

Leibniz Lectures

At this year's Leibniz Lecture, Kwame Anthony Appiah (Princeton University) spoke in November 2009 on the topic of "Re-Imaging Honor. The Place of Social Identity in Ethics".

Honours awarded by the Academy

Prizes With the two major lifework prizes, the Erwin Schrödinger Prize and the Wilhelm Hartel Prize, the Academy honours established scientists for outstanding scientific achievements that they have provided in the subjects represented in the relevant section. The prizes were donated by the Austrian Federal Government in 1956 and 1957 respectively and are awarded each year.

The Wilhelm Hartel Prize of the Section for Humanities and the Social Sciences was awarded in 2009 to Götz Pochat in recognition of his outstanding research work in the field of art theory and aesthetics.

» 4 The Academy's learned society

Until 2007, he was Professor for Art History at the University of Graz.

The Erwin Schrödinger Prize 2009 of the Section for Mathematics and the Natural Sciences was awarded to Bernd Mayer in recognition of his outstanding achievements in the field of the biochemistry and pharmacology of nitric oxides and NO biosynthesis. He is the head of the Institute of Pharmacology and Toxicology and Full Professor for Pharmacology and Toxicology at the University of Graz.

Since 2008, the Academy has awarded the Ring of Honour for extraordinary services to the Academy. In 2009, the ring was awarded four times. Its recipients were Michael Häupl, Mayor of Vienna, Alfred Bader, the donor of three prizes awarded by the Academy, Erwin Pröll, Governor of Lower Austria, and Günther Bonn, Deputy Chairman of the Council for Research and Technology Development.

Ring of Honour

4.3 Impact of the learned society

Prizes, awards and memberships

In 2009, many members received prizes and other top awards for outstanding scientific achievements in various subject areas or in honour of their lifework.

These include:

- Research Prize for Basic Research of the Spanish BBVA Foundation awarded to f.m. Peter Zoller
- European Prize for Biomedical Research awarded to f.m. Josef Penninger
- Medal of the Australian Society for Medical Research awarded to f.m. Josef Penninger
- Grand Cross of Honour for Services to the Republic of Italy awarded to c.m.i.A. Giulio Superti-Furga
- Prize of the City of Vienna 2009 – Humanities and Social Sciences awarded to f.m. Herta Nagl
- Johannes Kepler Prize of the federal state of Upper Austria presented to f.m. Heinz Engl
- Benjamin Franklin Medal conferred on f.m. Peter Zoller
- Wittgenstein Prize 2009 conferred on Gerhard Widmer, member of the YA
- Carl Zeiss Research Prize awarded to f.m. Rainer Blatt
- ERC Advanced Grant presented to c.m.i.A. Giulio Superti-Furga
- Prize of Recognition of the federal state of Lower Austria for Science 2009 awarded to f.m. Elisabeth Lichtenberger
- Cardinal Innitzer Prize 2009 presented to f.m. Gerald Stourzh
- Prize of the Margaretha Lupac Foundation 2009 awarded to f.m. Gerald Stourzh

- Election of f.m. Peter Schuster to the US National Academy of Sciences
- Election of f.m. Peter Zoller to the *Real Academia de Ciencias Exactas, Físicas y Naturales*
- Election of f.m. Anton Zeilinger to the *Académie des sciences de l'Institut de France*

>> 4 The Academy's learned society

Media presence

The learned society mainly finds its way into the media as a result of individual research achievements by its Austrian members and the science-policy and representative functions of the members of the Presiding Committee.

In 2009, 123 reports appeared in the media about awards received by Academy members.

The lecture series initiated by members met with considerable interest, and were mentioned 49 times in the media. •

5.1 Value creation potential of the research performing organisation » 5.1.1 Human potential
 » 5 The Academy as a research performing organisation

5 The Academy as a research performing organisation

In 2009 the Academy maintained a total of 64 research units, including 32 institutes, three limited liability research companies* and 29 commissions**.

5.1 Value creation potential of the research performing organisation

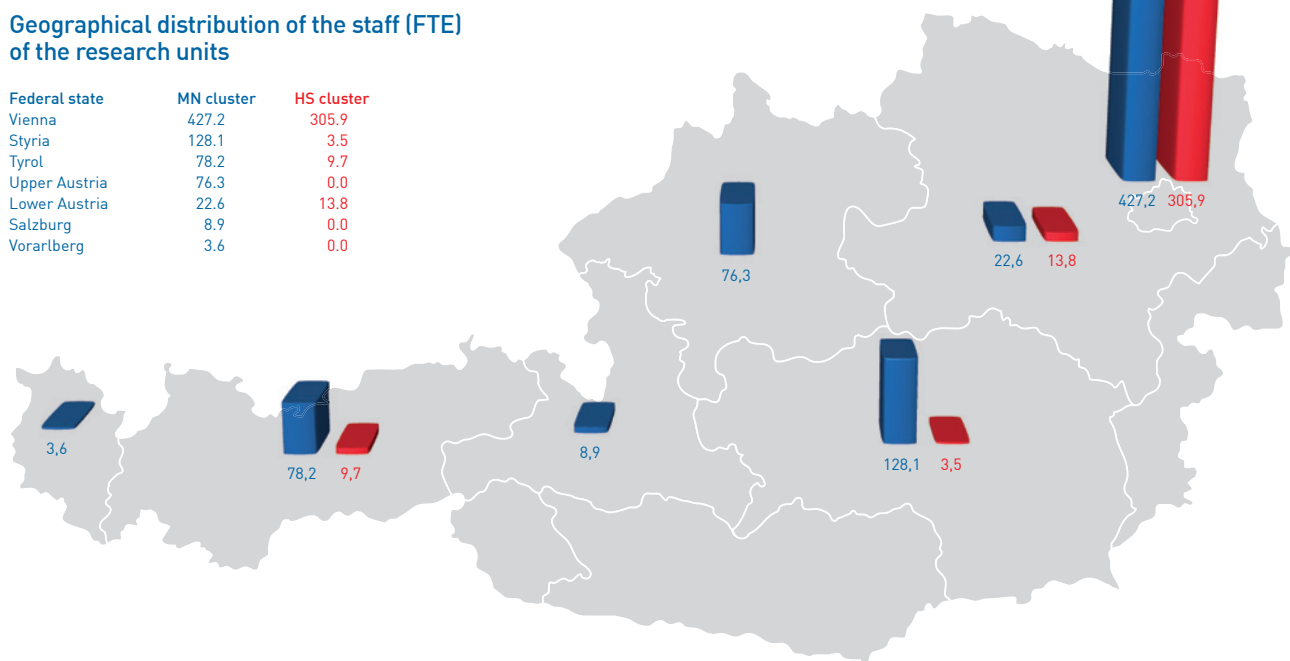
5.1.1 Human potential

Staff of the research units					
Average number of staff (including seconded federal employees) in 2009	Total	of which MN cluster		of which HS cluster	
		m.	f.	m.	f.
Persons	1,237	517	317	199	204
Full-time equivalents (FTE)	1,077.8	467.2	277.7	174.6	158.3
of which:					
· funded by third parties	295.3	133.9	89.9	37.0	34.5
· Academy-funded	782.5	333.3	187.8	137.6	123.8
of which:					
· fixed term	391.4	170.9	98.5	63.8	58.2
· unlimited	391.1	162.4	89.3	73.8	65.6
· scientific staff	802.7	355.7	148.3	166.2	132.5
· higher qualified non-scientific staff	267.3	110.5	123.1	8.4	25.3
· other	7.8	1.0	6.3	0.0	0.5

Personnel capacities

Geographical distribution of the staff (FTE) of the research units

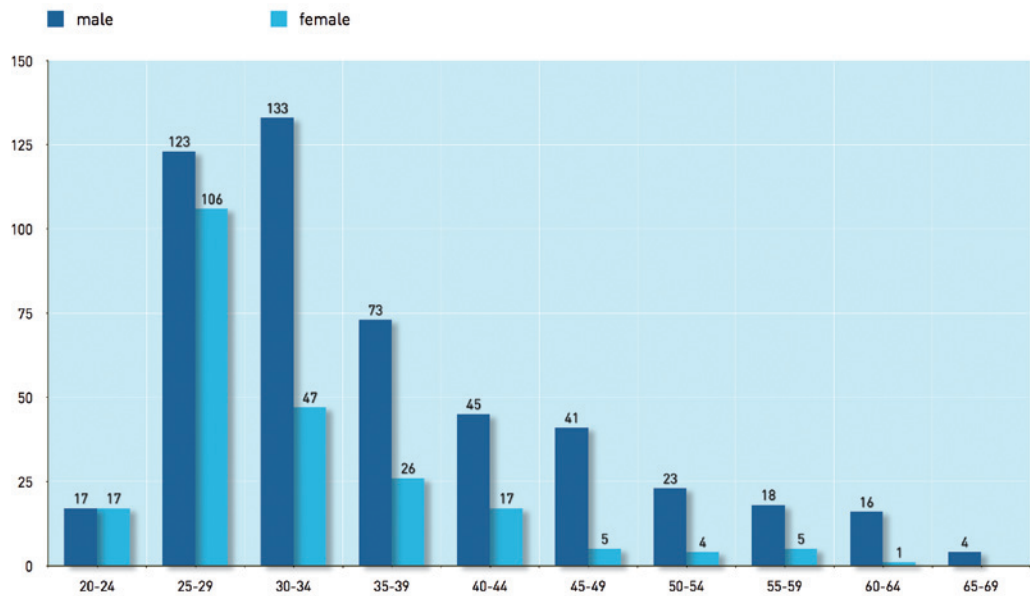
Federal state	MN cluster	HS cluster
Vienna	427.2	305.9
Styria	128.1	3.5
Tyrol	78.2	9.7
Upper Austria	76.3	0.0
Lower Austria	22.6	13.8
Salzburg	8.9	0.0
Vorarlberg	3.6	0.0



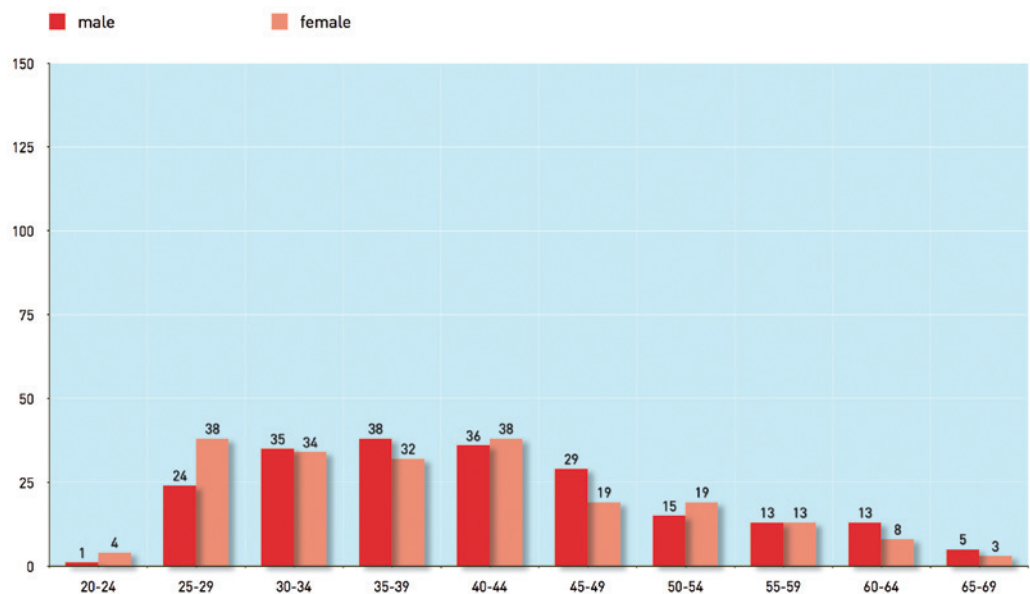
* The limited liability research companies (IMBA, GMI and CeMM) are also included in the Academy's intellectual capital report.

** The Austrian IIASA Commission at the OeAW is not included in the Academy's research units.

Age structure of the scientific staff in the MN cluster *



Age structure of the scientific staff in the HS cluster *



Dissertation programme of the Section for Humanities and the Social Sciences

Four dissertations were successfully completed in 2009 following a three-year doctoral programme. At the end of 2009, ten doctoral candidates – six women and four men – were employed by the Academy through the doctoral programme. No new doctoral fellowships were awarded in 2009 due to the budget situation.

* The chart shows all scientific staff who were employed in Academy research units in the course of 2009 (including federal employees).

» 5 The Academy as a research performing organisation

Young researchers					
	Total	of which MN cluster		of which HS cluster	
		m.	f.	m.	f.
Number of young researchers in 2009	672	336	180	72	84
of which:					
· diploma students	101	53	37	3	8
· doctoral students, junior scientists	319	146	93	30	50
· post docs	218	130	47	24	17
· junior group leaders etc*	34	7	3	15	9
Financing:					
· OeAW-funded	292	134	72	37	49
· funded by third parties	380	202	108	35	35
PhDs under the age of 33	139	81	33	17	8
Degrees completed in connection with an Academy research project in 2009	64	29	17	8	10
· diplomas	38	19	12	2	5
· PhDs	19	8	5	2	4
· habilitations**	7	2	0	4	1

Scientific staff in project management functions (as of 31.12.2009)					
	Total	of which MN cluster		of which HS cluster	
		m.	f.	m.	f.
Scientific staff in project management function as a percentage of the total number of scientific staff per sector	26 %	13 %	9 %	38 %	23 %

Project management functions

Continuing education for research unit staff					
	Total	of which MN cluster		of which HS cluster	
		m.	f.	m.	f.
Number of staff participating in further education activities in 2009	194	57	70	23	44
Staff participating in further education activities as a percentage of the total number of staff of the research units per sector	13 %	9 %	21 %	10 %	17 %
Number of further education activities	303	74	110	47	72
of which:					
· computer training	33	1	10	9	13
· specialist further training	137	44	51	21	21
· soft skills	63	9	19	8	27
· other	70	20	30	9	11

Continuing education

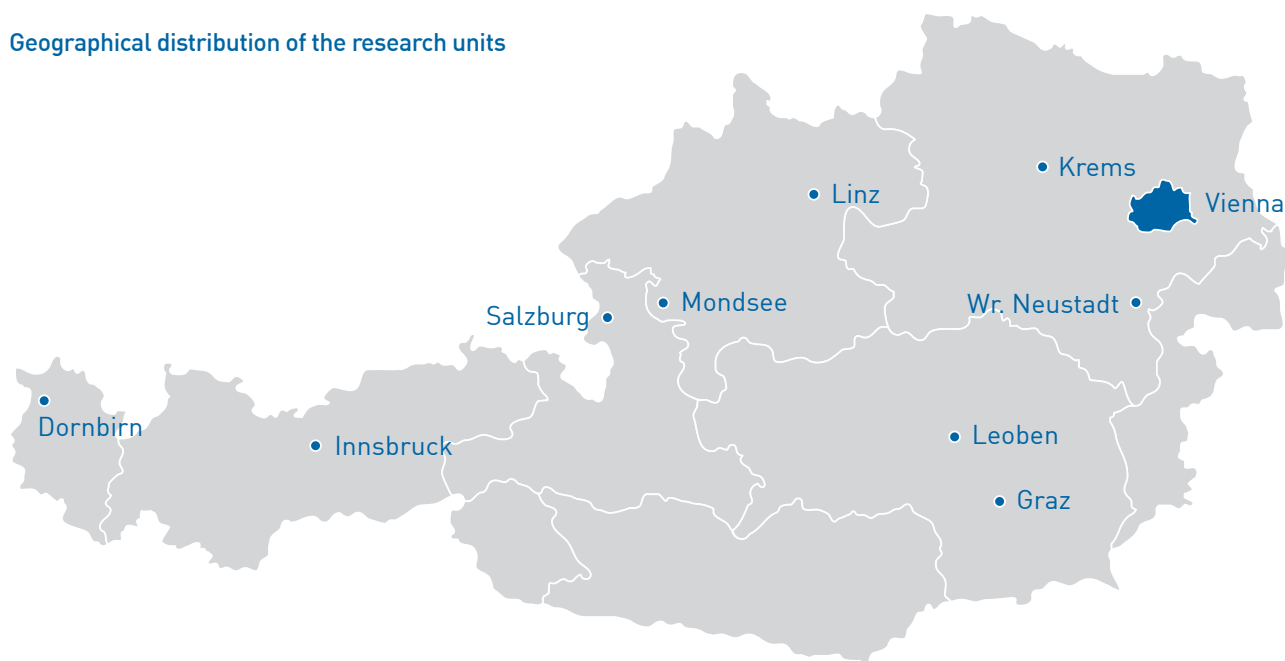
* Given the different structures of junior positions in the two clusters, the management of an individual research project of the Academy with at least one further full-time equivalent as project staff member or the management of a third-party project is considered equivalent to a junior group leader position.

** A "habilitation" is a postdoctoral university degree with lecture qualification.

» 5 The Academy as a research performing organisation

5.1.2 Structural potential

Geographical distribution of the research units



Floor space available to the Academy research units

Floor space of the research units (as of 31.12.2009)			
	Total	of which MN cluster	of which HS cluster
Total area in m²	52,781.58	41,647.89	11,133.69
of which for the following types of use:			
· offices and meeting rooms	16,338.68	8,680.61	7,658.07
· circulation space	14,935.92	12,960.62	1,975.30
· workshops and laboratories	10,533.64	10,312.31	221.33
· technical rooms	3,459.10	3,203.71	255.39
· storage and archives	2,375.83	2,008.60	367.23
· seminar rooms and libraries	1,293.88	1,110.23	183.65
· space used for other purposes (e.g. residential, lounges, rooms with medical equipment etc)	3,844.53	3,371.81	472.72

The reduction of the total area available to the Academy in 2009 is mainly due to the termination of the operation of the Hall of Sciences in the Old University Quarter.

Only a small number of new tenancy contracts were concluded. An additional site has been rented for the Commission for Interdisciplinary Ecological Studies and the Austrian Biographical Encyclopaedia and Biographical Documentation. Additional premises have been rented for the *Phonogrammarchiv* (Audiovisual Research Archive).

The Johann Radon Institute for Computational and Applied Mathematics has set up a Vienna branch at the Vienna Biocentre Campus in addition to its site in Linz.

» 5 The Academy as a research performing organisation

The space occupied by the Section for Mathematics and the Natural Sciences is a multiple of that occupied by the Section for Humanities and the Social Sciences due to the large areas needed for laboratories, storage, technical equipment and corresponding circulation areas. The area of both sections needed for office purposes, in contrast, differs only marginally.

Ensuring scientific quality

The Research Board meets at least twice a year and acts as an external academic advisory body to secure the further development and quality of the research pursued at the Academy. Its 11 members are scientists active abroad who have acquired a reputation for their excellent scientific achievements and experience in research management.

The constituting meeting of this internationally top level board took place in April 2009, followed by a second meeting in October 2009.

Research Board

For the purpose of ongoing scientific quality assurance, the research units of the Section for Humanities and the Social Sciences organised into seven centres, the research companies, the institutes of the Section for Mathematics and the Natural Sciences and the Geosciences Centre, are each supported by a Scientific Advisory Board.

The boards meet in accordance with requirements, but at least every two years, in order to formulate, on the basis of the presentation of the scientific accomplishments and programmes of the research unit(s) in question, assessments and recommendations that are addressed to the Presiding Committee. The members of the Scientific Advisory Boards of the various research units are selected from the point of view of subject proximity, international qualification and impartiality. The boards for the Section for Humanities and the Social Sciences are made up of subject specialists as well as a representative of the Federal Ministry of Science and Research and a representative of "Universities Austria", previously known as the Austrian Rectors' Conference. Some of the advisory boards of the research units of the Section for Mathematics and the Natural Sciences include representatives of the Federal Ministry of Science and Research or the Federal Ministry for Transport, Innovation and Technology, and representatives of the respective Austrian federal state (province) if substantial regional funds are provided for the research unit in question.

Scientific Advisory Boards

The evaluations of the Academy's research units as part of the medium-term research programme were continued in 2009.

As part of the evaluation of the Centre for Ancient World Studies under the direction of Hermann Parzinger (*Stiftung Preussischer Kulturbesitz*, Berlin) a site visit took place in September 2009. The other members of the evaluation team were Ricardo Eichmann (Berlin), Biba Teržan (Ljubljana), Meinolf Vielberg (Jena) and Martin Zimmermann (Munich). The final, very positive, evaluation report was submitted in October 2009.

Evaluations

External assessors					
	Total	of which MN cluster		of which HS cluster	
		m.	f.	m.	f.
Number of external assessors active on Scientific Advisory Boards or in the evaluation of the OeAW research units	195	98	18	54	25

» 5 The Academy as a research performing organisation

5.1.3 Networking potential

The initiation and cultivation of relationships within the international scientific community are important factors for success and allow the Academy's staff access to the world's latest knowledge and to the carriers of knowledge.

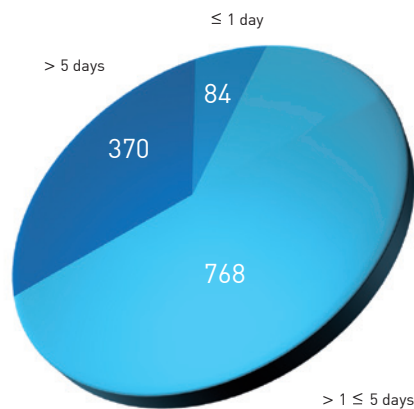
Networking and mobility of the Academy's scientific staff

The Academy is keen to motivate its staff and in particular its young researchers to acquire experience abroad, and has created the necessary conditions by provisions in the collective agreement and by setting up a scientist exchange programme.

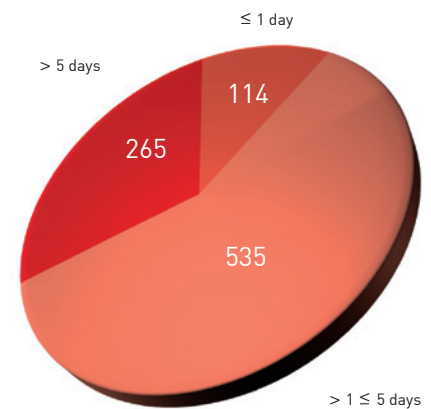
Stays abroad					
	Total	of which MN cluster		of which HS cluster	
		m.	f.	m.	f.
Number of stays abroad of scientific staff in 2009	2,136	972	250	585	329
of which within the framework of the Academy's scientific exchange programme	95	15	3	48	29
of which junior researchers	621	255	116	137	113
Purpose of stay:					
· research as part of an OeAW research project	458	221	46	131	60
· scientific advisory services	85	31	12	35	7
· scientific lecturing	869	368	99	263	139
· continuing education	55	13	13	13	16
· other purpose of scientific relevance	669	339	80	143	107
Place of stay:					
· within the EU	1,521	658	190	409	264
· outside the EU	615	314	60	176	65
Funding:					
· internal funding	903	530	96	161	116
· external funding	880	279	111	335	155
· mixed funding	353	163	43	89	58

Duration of stays abroad of scientific staff

MN cluster



HS cluster



» 5 The Academy as a research performing organisation

Attending conferences helps staff to keep abreast of current developments in their area of research and supports international networks and visibility.

Participation of scientific staff at conferences					
	Total	of which MN cluster		of which HS cluster	
		m.	f.	m.	f.
Number of participations at scientific conferences in 2009	4,857	1,598	491	1,495	1,273
of which participations by junior researchers	1,691	560	257	436	438
Venue:					
· in Austria	3,175	760	268	1,109	1,038
· within the EU (excl. Austria)	1,122	491	168	272	191
· outside the EU	560	347	55	114	44

The number and duration of stays of researchers from abroad at the Academy are a measure of the attractiveness and the topicality of the research pursued here.

Attractiveness for foreign researchers

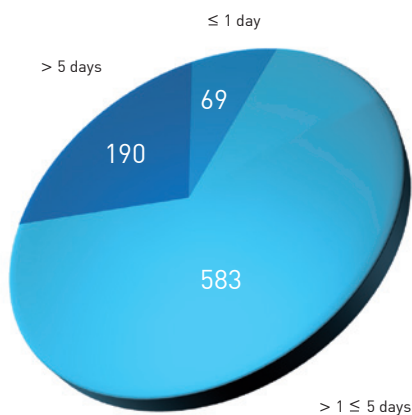
Scientific visitors from abroad					
	Total	of which MN cluster		of which HS cluster	
		m.	f.	m.	f.
Number of scientific visitors from abroad at OeAW research units in 2009	1,270	685	157	249	179
of which within the framework of the Academy's scientist exchange programme	267	60	19	117	71
Purpose of stay:					
· research as part of an OeAW research project	508	284	47	89	88
· scientific advisory services*	14	0	0	12	2
· scientific lecturing	538	290	70	115	63
· other purpose with scientific relevance	210	111	40	33	26
Place of origin:					
· within the EU	830	425	116	175	114
· outside the EU	440	260	41	74	65
Funding:					
· internal funding	666	417	111	88	50
· external funding	357	115	23	116	103
· mixed funding	247	153	23	45	26

* This does not include external scientists who are active within the framework of statutory advisory bodies for Academy research units including the research companies.

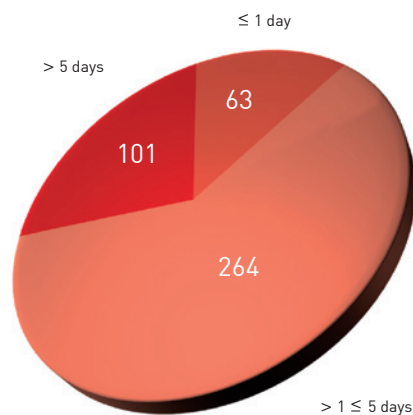
» 5 The Academy as a research performing organisation

Duration of stays of scientists visiting the Academy from abroad

MS cluster



HS cluster



Contributions to research quality assurance beyond the Academy

Academy researchers are involved worldwide in scientific consulting, assessment and evaluation activities.

External functions in the course of research quality assurance					
	Total	of which MN cluster		of which HS cluster	
		m.	f.	m.	f.
Number of functions exercised by scientific staff for scientific journals and book series in 2009	959	626	96	184	53
of which in indexed journals	719	539	76	77	27
of which as:					
· editor, editor-in-chief	49	17	4	25	3
· editorial advisory board member	33	15	4	9	5
· editorial board member, subject/associate editor	208	75	12	101	20
· reviewer, referee	669	519	76	49	25
Number of functions exercised by scientific staff as experts or evaluators for external research institutions or programmes in 2009	189	98	25	48	18
of which external units:					
· in Austria	57	32	10	9	6
· within the EU (excl. Austria)	98	51	12	25	10
· outside the EU	34	15	3	14	2

5.2 Accomplishments of the research performing organisation

The scientific activities pursued within the Academy cover a broad range of subjects, but they all pursue the objective of maximum scientific quality.

» 5 The Academy as a research performing organisation

Research portfolio			
Classification of all research projects in progress in 2009 in % by field of research	Total	in the MN cluster	in the HS cluster
Types of research:			
· basic research	86.5 %	78.3 %	91.4 %
· applied research	10.5 %	15.4 %	7.6 %
· experimental development	3.0 %	6.3 %	1.0 %
Socio-economic research objectives:			
1. Promotion of the exploration of Earth, the oceans, atmosphere and space	8.3 %	20.8 %	0.9 %
2. Promotion of agriculture and forestry	0.1 %	0.3 %	0.1 %
3. Promotion of retail, trade and industry	0.8 %	2.1 %	0.1 %
4. Promotion of the generation, storage and distribution of energy	0.1 %	0.1 %	0.0 %
5. Promotion of transport, traffic and telecommunications	0.4 %	0.9 %	0.2 %
6. Promotion of education and learning	1.4 %	1.6 %	1.4 %
7. Promotion of health care	7.2 %	18.9 %	0.2 %
8. Promotion of urban and regional planning	0.7 %	0.4 %	0.9 %
9. Promotion of environmental protection	0.8 %	2.1 %	0.1 %
10. Promotion of national defence	0.1 %	0.1 %	0.0 %
11. Promotion of other objectives	10.3 %	15.5 %	7.2 %
12. Promotion of general expansion of knowledge	65.7 %	34.0 %	84.3 %
13. Promotion of social and socio-economic development	4.1 %	3.2 %	4.6 %

A research project at the Academy is any research activity with a specific objective carried out by an Academy research unit. Each research project has at least one project member connected with the Academy either as an elected member or as a staff member.

Research projects

Ongoing research projects			
	Total	of which MN cluster	of which HS cluster
Number of research projects in progress in 2009	2,079	774	1,305
of which:			
· OeAW funded	806	285	521
· funded by third parties	1,273	489	784

Degree of interdisciplinarity			
	Total	in the MN cluster	in the HS cluster
Percentage of interdisciplinary projects in research projects in progress in 2009 per field of research	53.01 %	43.02 %	58.93 %

Interdisciplinary research projects

The duration of research projects is decided directly by the researchers in charge of the project and depends on the expertise requirements and the specific task. Long-term projects are frequently bundled projects that are broken down into individual short-term subprojects.

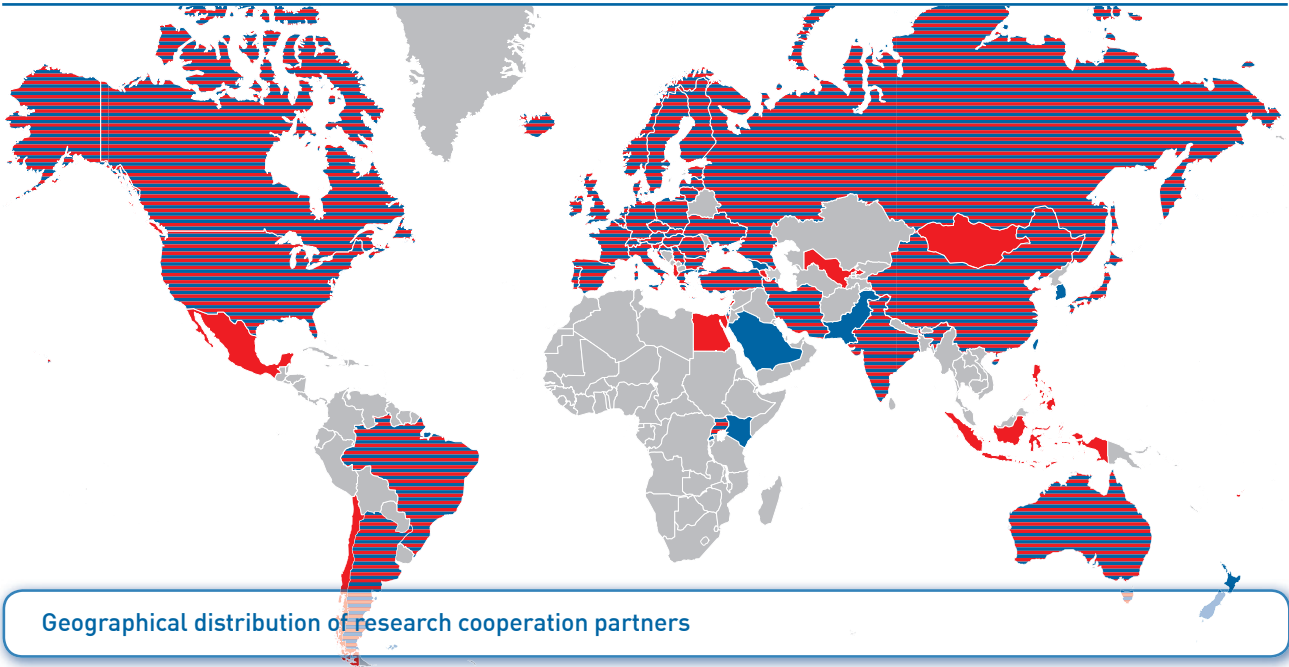
Project duration

Project duration			
Percentage of short, medium and long-term projects of the research projects in progress in 2009	Total	in the MN cluster	in the HS cluster
· Short-term projects (< 1 year)	8.9 %	10.08 %	8.20 %
· Medium-term projects (1–3 years)	30.3 %	38.37 %	25.52 %
· Long-term projects (> 3 years)	60.8 %	51.55 %	66.28 %

» 5 The Academy as a research performing organisation

Scientific cooperation activities

With its bilateral contacts at research unit level, the Academy makes a major contribution to the realisation and strengthening of a European research area. Researchers working for the Academy also maintain numerous scientific cooperative relationships beyond Europe.



Geographical distribution of research cooperation partners

	MN cluster	HS cluster
Inland		
Austria	207	181

In the EU	MN cluster	HS cluster
Belgium	29	8
Bulgaria	6	8
Cyprus	-	3
Czech Republic	5	16
Denmark	22	7
Estonia	3	3
Finland	15	2
France	60	22
Germany	146	106
Great Britain	74	24
Greece	16	15
Hungary	12	12
Ireland	3	1
Italy	67	29
Latvia	1	1
Lithuania	1	2
Luxembourg	1	1
Malta	1	-
Netherlands	32	18
Poland	20	11
Portugal	6	6
Romania	5	6
Slovakia	11	8
Slovenia	11	5
Spain	25	12
Sweden	22	4

Outside the EU	MN cluster	HS cluster
Albania	-	2
Argentina	1	1
Armenia	-	1

Australia	5	2
Brazil	1	1
Canada	8	4
Chile	-	1
China	13	6
Croatia	3	2
Egypt	-	4
Fiji	-	1
Georgia	1	-
Iceland	1	1
India	9	4
Indonesia	-	1
Iran	1	2
Israel	7	14
Japan	30	4
Kenya	1	-
Lebanon	-	1
Mexico	-	2
Mongolia	-	1
New Zealand	2	-
Norway	9	6
Pakistan	1	-
Palestinian Territories	-	1
Philippines	-	1
Ruanda	1	-
Russian Federation	18	4
San Marino	-	1
Saudi Arabia	1	-
Serbia	1	1
Singapore	1	-
South Korea	8	-
Switzerland	34	19
Taiwan	3	-
Turkey	3	16
Uganda	1	1
Ukraine	3	1
USA	79	23
Uzbekistan	-	1

» 5 The Academy as a research performing organisation

In 2009, the Academy had 1,688 cooperation partners in research, of which 1,047 in the Mathematics and Natural Sciences cluster and 641 in the Humanities and Social Sciences cluster.

Research projects with external partners			
	Total	of which MN cluster	of which HS cluster
Number of research projects with external partners in 2009	615	290	325
of which EU projects	54	38	16
Cooperation partners:			
· universities	978	600	378
· non-university R&D institutions	357	219	138
· private sector economy	83	73	10
· public sector	28	19	9
· international organisations	11	5	6
· scientific expert societies	25	6	19
· research organisations	26	23	3
· other external units	180	102	78
Partner's institution of origin:			
· in Austria	388	207	181
· within the EU (excl. Austria)	924	594	330
· outside the EU	376	246	130

The successful participation of the Academy's research units in the EU Framework Programmes was continued in 2009 within the 7th EU Framework Programme. In 2009, Academy research units were involved in a total of 54 EU projects. Of these, 22 projects were part of the 7th EU Framework Programme and 21 projects were part of the 6th Framework Programme, with a further 11 projects part of other EU subsidy programmes. The Academy acted as coordinator in seven of these projects.

Participation of Academy research units in the EU framework programmes

Examples of participation in top quality projects with external partners

Institute for Quantum Optics and Quantum Information

Cooperations were set up with external scientists to conduct ion trap experiments. One experiment investigating quantum contextuality was conducted in collaboration with A. Cabello (University of Seville). The EU SCALA network served as the framework for collaboration with the Schmidt-Kaler working party on the topic of "Quantum information processing with stored ions". One project (Fer-Mix) deals with fermion mixtures and new types of superfluid states. The collaboration partners are located in Germany, Finland, France, Italy and Spain.

Johann Radon Institute for Computational and Applied Mathematics

DIAdvisor (Personal Glucose Predictive Diabetes Advisor Large-scale integrating project) is a large-scale integrative project within the 7th EU Framework Programme to develop a programme to optimise the treatment of diabetes based on easily accessible information from the patient's previous diagnostic findings which is used to make predictions for future developments. The DIAdvisor consortium consists of 13 partners from Austria, Belgium, the Czech Republic, Denmark, France, Italy, Romania, Sweden and Great Britain.

» 5 The Academy as a research performing organisation

[Erich Schmid Institute of Materials Science](#)

The aim of the EU MACAN project (Merging Atomistic and Continuum Analysis of Nanometer Length-Scale Metal-Oxide Systems for Energy and Catalysis Application) is to use improved communication and close cooperation between excellent groups of researchers from different specialisations – thermodynamics, density functional theory and experimental methods such as transmission electron microscopy (TEM) and electron energy loss spectroscopy (EELS) – in order to set up design criteria for interface dominated advanced materials. The project is being carried out by 16 partners from Europe, e.g. CNRS Marseille, Imperial College London, Max Planck Institute for Metals Research Stuttgart, LMU Munich, Technion – Israel Institute of Technology Haifa), America (MIT Cambridge) and Asia (Indian Institute of Science Bangalore, Tokyo University).

[CeMM – Research Center for Molecular Medicine](#)

The European Strategy Forum for Research Infrastructures (ESFI) has included the "European Infrastructure of Open Screening Platforms for Chemical Biology technology platform" in its ten to twenty year predictive roadmap. Scientists from universities, research institutions and industry are to be allowed access to resources for the development of biologically active substances, in particular for assay development, screening, chemical libraries, hit validation and a common database. CeMM acts as the Austrian pioneer in this EU OPENSREEN initiative.

[Institute for Limnology](#)

BOMOSA, an innovatory EU project under Austrian leadership, has been developed on the basis of a long-standing partnership with Africa within the framework of the "International Post-Graduate Training Programmes in Limnology". It enables farmers in East Africa to earn additional income from fish farming. The key to success is a simple-to-operate net cage to breed native fish species in ponds, small reservoirs and irrigation channels. In this way, fish can be produced in waters not being used by the fisheries industry, with the additional benefit of agricultural waste products being used as fodder for fish.

[Institute of Culture Studies and Theatre History](#)

The Institute is involved in the "Eurosphere. Diversity and the European Public Sphere. Towards a Citizens' Europe" project, which is funded within the 6th EU Framework Programme. The project comprises 17 partners from 16 countries and analyses ethnic variety in the European public sphere from both a theoretical and an empirical point of view.

[Numismatic Commission](#)

The aim of the "*Sylloge Nummorum Sasanidarum*" project being conducted by the Numismatic Commission is the first systematic investigation of the coining of the Sassanid dynasty, 224 – 651 AD, and the preparation of a six volume collection of citations with a number of supplementary volumes. The cooperation partners include the Academy of Fine Arts in Vienna, the *Bibliothèque Nationale de France*, Harvard University, the *Istituto Italiano per l'Africa e l'Oriente* in Rome and the National Museums in Berlin (Numismatic Collection).

[Institute for Demography](#)

The Institute for Demography is acting as coordinator with partner universities and institutions in nine European countries in the REPRO (Reproductive decision-making in a macro-micro perspective) project

» 5 The Academy as a research performing organisation

financed by the 7th EU Framework Programme. The aim is to improve the theoretical and politically relevant knowledge about the factors of change in reproductive behaviour and the preceding decisions by humans. REPRO combines analyses from a macro and a micro perspective. The socio-psychological theory of the planned behaviour is adapted to the needs of demographic research on fertility intentions and realisations. An integrated approach reveals the influence and interconnections of material, theoretical and institutional factors, leading to the drafting and application of policies.

Third-party funding

Third-party funding and sources			
	Total	of which MN cluster	of which HS cluster
Third-party funds in 2009 (in EUR '000) to the OeAW as research performing organisation	25,573.9	20,164.2	5,409.7
of which acquired from			
· FWF:	8,186.3	4,585.1	3,601.2
· personnel funding	6,709.3	3,728.0	2,981.3
· material funding	1,333.2	776.8	556.4
· overheads	143.8	80.3	63.5
· Federal Government (excl. FWF and FFG)	5,296.4	4,991.2	305.2
· OeNB	108.3	44.4	63.9
· FFG	1,074.1	1,071.8	2.3
· Federal states	1,684.6	1,146.7	537.9
· Vienna	709.4	450.8	258.6
· Lower Austria	450.5	300.0	150.5
· Upper Austria	381.0	300.0	81.0
· Styria	96.5	96.0	0.5
· Tyrol	39.9	-0.1*	40.0
· Burgenland	5.7	0.0	5.7
· Vorarlberg	0.7	0.0	0.7
· Carinthia	0.6	0.0	0.6
· Salzburg	0.3	0.0	0.3
· Municipalities	51.5	0.0	51.5
· Krems	37.3	0.0	37.3
· Enns	14.2	0.0	14.2
· EU	4,010.3	3,572.7	437.6
· Foundations	249.0	188.4	60.6
· in Austria	93.6	41.6	52.0
· abroad	165.4	146.8	18.6
· Organisations	3,984.2	3,687.6	296.6
· in Austria	3,161.5	2,940.4	221.1
· abroad	822.7	747.2	75.5
· Business enterprises	508.6	458.6	50.0
· in Austria	319.0	269.0	50.0
· abroad	189.6	189.6	0.0
· Donations	420.6	417.7	2.9

* This total results from a repayment made by the Breath Research Institute to the Office of the Tyrolean State Government made in 2009 following the settlement of the project.

» 5 The Academy as a research performing organisation

Publications

In most of the subjects represented in the Humanities and Social Sciences cluster, the most highly regarded types of scientific publication are monographs and (source) editions, while peer reviewed original works are given the greatest importance in most of the research fields in the Mathematics and Natural Sciences cluster. The following table includes these types in category A.

Scientific publications			
	Publication type	in the MN cluster	in the HS cluster
A.	Monographs or (source) editions	15	83
	Peer-reviewed papers in scientific journals or anthologies · of which in indexed journals	853 593	343 50
B.	Editorships	24	122
	Longer papers without peer review in scientific journals or anthologies	63	274
C.	Other scientific publications	207	274

In addition, two encyclopaedia entries were written and published in the field of the Mathematics and Natural Sciences cluster and 660 entries in the field of the Humanities and Social Sciences cluster, which are not listed as separate publications in the above table.

Representation of the Academy in the ISI Web of Science

Over 700 publications by Academy staff – mainly from the research units of the Mathematics and Natural Sciences cluster – were included in the ISI Web of Science (Copyright © 2009 Thomson Reuters), an increase of around 50 publications as against 2008. The research units most frequently represented in the ISI Web of Science in 2009 were the Institute for Space Research, the Institute for Quantum Optics and Quantum Information, the IMBA – Institute of Molecular Biotechnology, the Johann Radon Institute for Computational and Applied Mathematics, the CeMM – Research Center for Molecular Medicine and the Erich Schmid Institute of Materials Science.

Overall, OeAW publications were cited over 15,500 times in 2009 according to the ISI Web of Science, with 10,500 citations referring to publications in the last five years.

Over a quarter of all co-authors of Academy publications listed in the ISI Web of Science in 2009 work in Germany, and roughly one fifth in the USA, followed by France, Great Britain, Italy, Russia and Spain.

Scientific lectures and poster presentations

Scientific lectures and poster presentations			
	Type of event	in the MN cluster	in the HS cluster
A.	Invited scientific lecture · of which at international events	675 484	761 466

» 5 The Academy as a research performing organisation

B.	Other scientific lectures · of which at international events	682 542	395 236
C.	Scientific poster presentations · of which at international events	325 299	38 26

Knowledge and technology transfer

The transition from application-oriented basic research to product development is in the light of the different objectives – the obtaining of knowledge on the one hand, the obtaining of financial profits on the other hand – a challenge that the Academy is willing to meet.

Alongside the exploitation of intellectual property rights by means of licensing, there is also the option of founding spin-off enterprises, with the decision on the manner of exploitation depending both on the scientific and on the economic possibilities of the type of exploitation in question.

In order to evaluate and later to exploit intellectual property rights, the Academy has concluded framework contracts inter alia with the Austria Wirtschaftsservice GmbH (AWS) and tecnet capital GmbH, enabling, but not obliging, the Academy to exploit rights through these enterprises. In addition, the Academy is in negotiations with other patent exploitation agencies in order to ensure the optimum use of intellectual property rights to the invention in question.

As a means of showing the commercial relevance of the inventions, the following table also includes patents that the Academy has exploited by licensing or sale while retaining the right to use the patents for the purposes of science and research.

Intellectual property rights	
	Total
Number of patents in 2009	22
of which:	
· submitted	12
· granted	1
· in process	8
· exploited	1

Scientific events

Organisation of scientific events			
	Total	of which MN cluster	of which HS cluster
Number of scientific events (jointly) organised by staff in 2009	487	209	278
of which:			
· conferences, symposia	184	75	109
· workshops, seminars	226	129	97
· other	77	5	72

» 5 The Academy as a research performing organisation

Selected scientific events of the Mathematics and Natural Sciences cluster

Adjustment mechanisms in plants

Over 100 scientists met from 19 to 21 March 2009 at a workshop organised by the GMI – Gregor Mendel Institute of Molecular Plant Biology to discuss the potential of plants to adjust to environmental conditions and stress. The conference brought experts from a wide variety of disciplines (genetics, epigenetics, stress and developmental biology) together and was supported by the Federation of European Biochemical Societies (FEBS).

TA'09 – When TA?

When should technology assessment take place? On 8 June 2009, the 9th Austrian TA Conference of the Institute of Technology Assessment addressed the topics of technology development, technology science and programme consulting.

Darwin and behavioural research

In celebration of the 200th anniversary of the birth of Charles Darwin, the Konrad Lorenz Institute for Ethology organised a symposium from 24 to 27 September 2009 at which international scientists addressed the interaction between evolution and behaviour.

Selected scientific events of the Humanities and Social Sciences cluster

War, Media and the Public Sphere

The international symposium on "War, Media and the Public Sphere" took place on 6 and 7 March 2009, attended by communication and political scientists from 12 countries. The discussion focused on the topic of war in the field of tension between propaganda and instrumentalisation on the one hand and information and awareness formation on the other hand.

Fragments

The focus of an international conference of the Centre for Medieval Studies held from 19 to 21 March 2009 was on how to deal with gaps in the source texts.

8th Annual Conference on European Tort Law (ACET)

The conference organised by the European Centre of Tort and Insurance Law (ECTIL) and the Institute for European Tort Law from 16 to 18 April 2009 presented information about the latest developments in tort law within Europe.

110 years of the *Phonogrammarchiv* (Audiovisual Research Archive)

An international symposium was held on 27 April 2009 as part of the celebrations of the 110th anniversary of the *Phonogrammarchiv*. Scientists from seven countries reflected on the fields of work, cooperation and perspective of audiovisual archives.

Visions of Community

The Islamic and Occidental civilisations have their joint roots in Roman antiquity. The bases for these

» 5 The Academy as a research performing organisation

1500 years of joint history are largely unexplored. At an international conference from 17 to 20 June 2009 on the topic of "Visions of Community: Ethnicity, Religion and Power in the Early Medieval West, Byzantium and the Islamic World" forty experts from Europe and the USA addressed this scientific virgin territory.

Andrea Pozzo (1642–1709) – painter and architect for the Society of Jesus

On the occasion of the 300th anniversary of the death of Andrea Pozzo, a Jesuit lay brother, an international conference from 16 to 19 September 2009 investigated his varied artistic accomplishments and impacts in the fields of painting and architecture.

The end of communist domination in Europe

The fall of the Iron Curtain in 1989 brought an end to communist domination in east-central and south-eastern Europe. It also meant the end of the Warsaw Pact, the Comecon Council, centrally planned economies, censorship and restrictions on travel. For the first time for many decades, free elections were held once again. At the same time, the Cold War ended in Europe, leading to a considerable reduction of armaments. These developments and processes were the subject matter of a major international conference on "The Revolutions of 1989" organised at the Academy by the Historical Commission from 1 to 3 October 2009.

Rituals – action complexes that create identity

A conference held by the Centre for Ancient World Studies from 2 to 3 November 2009, investigated burial and funeral rituals of prehistory and early history in the Danube region, Italy, Asia Minor and Crete as well as ceremonial remembrances of the dead in ancient Egypt and the funeral oration of Bishop Ambrosius. Further light was cast on rituals surrounding the conclusion of contracts in classical Greece, the imperial cult in Roman Ephesos and consecrated altars that may have been connected to a Celtic cult centre.

Educational level decisive for demographic change

What is the effect of educational level on the development of birth figures and mortality? This relationship is often greater than that with other factors such as income or urbanism. Although demographic change is regarded as one of the currently most relevant social topics, there are as yet no clear theoretical models that will provide unambiguous proof of these relationships. Within the framework of the "Education and Demography Conference" from 30 November to 1 December 2009, experts from over 20 countries discussed current research findings on the influence of educational level on demographic development.

Communication of scientific results to interested members of the public

Popular science publications		
	in the MN cluster	in the HS cluster
Number of popular science publications by staff in 2009	259	232
of which:		
· textbooks in scientific publishing houses	0	2
· popular science books including multimedia publications	4	9
· other popular science publications or other teaching materials	84	86
· popular science lectures/presentations	171	135

» 5 The Academy as a research performing organisation

Selected popular science events

In the Fire of the Sun

On the occasion of the opening of the International Year of Astronomy 2009, the exhibition "In the Fire of the Sun" was presented from 26 January to 24 April 2009 at the Institute for Space Research in Graz.

Haydn Year 2009

On the occasion of the Haydn Year 2009, a number of scientific and artistic events were held within the framework of the Haydn Lectures 2009. The highlight was the performance of "The Creation" in the Ceremonial Hall of the Academy. The cooperation partners included the Vienna Lectures and the Vienna Chamber Opera House.

ernst mach forum

In 2009, the "ernst mach forum. Science in Dialogue" was continued with two events. The round table discussions addressed the topics of "Does man need evil?" and "Crisis and expertise. Science as a problem solver?" The series is organised by the Institute of Culture Studies and Theatre History together with the science department of the Austrian Broadcasting Company (Ö1) and the Science and Research Fund of the City of Vienna (MA7).

Long Night of Research 2009

The "Long Night of Research" was held at a number of sites in Austria on 7 November 2009. More than 30 Academy research institutions in Vienna, Graz, Innsbruck, Krems and Salzburg took this opportunity to give a broad public an insight into their activities. •

» 5 The Academy as a research performing organisation

5.3 Selected statistics

5.3.1 Fields of research of the Mathematics and Natural Sciences cluster

Biology and Medicine

- *CeMM – Research Center for Molecular Medicine*
- *GMI – Gregor Mendel Institute of Molecular Plant Biology*
- *IMBA – Institute of Molecular Biotechnology*
- *Breath Research Institute*
- *Institute for Biomedical Aging Research*
- *Institute of Biophysics and Nanosystems Research*
- *Konrad Lorenz Institute for Ethology*

Biology and Medicine			
		m.	f.
Number of staff in 2009 (incl. seconded government employees)		184	208
Number of full-time equivalents		169.8	188.5
of which:			
· scientific staff		117.8	99.5
· of which young researchers		74.0	74.3
Basic budget (in EUR '000)		26,710.91	
Third-party share*		44.84 %	
Ongoing research projects in 2009		254	
Publications			
A.	Peer-reviewed papers in scientific journals or anthologies	220	
	· of which in indexed journals	191	
	Monographs	0	
B.	Lengthier papers without peer review in journals or anthologies	3	
	Editorships	0	
C.	Other scientific publications	25	
Lectures			
A.	Invited scientific lectures	253	
	· of which at international events	156	
B.	Other scientific lectures	83	
	· of which at international events	54	
C.	Scientific poster presentations	115	
	· of which at international events	94	

The impact factors for papers from the field of biology and medicine published in 2009 in peer reviewed journals covered by the ISI Web of Science show an average of 7.2 per publication (state of impact factors 2008).

For 75 of the 191 contributions, the main authorship, i.e. first or last authorship, lies with staff of the Academy or one of its subsidiaries.

* In all tables of chapter 5.3, the percentage of third-party funds is defined as the proportion between the total third-party funds awarded to the respective research units and the overall budget of the said research units in 2009.

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Earth Sciences

- *Institute for Geographic Information Science*
- *Centre for Geosciences:*
 - *Commission for the Palaeontological and Stratigraphical Research of Austria*
 - *Commission for Geophysical Research*
 - *Commission for Basic Research on Mineral Raw Materials*
 - *Commission for Quaternary Research*

Earth Sciences		
	m.	f.
Number of staff in 2009 (incl. seconded government employees)	13	10
Number of full-time equivalents of which:	8.2	6.8
· scientific staff	8.2	5.3
· of which young researchers	4.9	1.9
Basic budget (in EUR '000)	443.24	
Third-party share	55.71 %	
Ongoing research projects in 2009	47	
Publications		
A.	Peer-reviewed papers in scientific journals or anthologies · of which in indexed journals	44 7
	Monographs	5
B.	Lengthier papers without peer review in journals or anthologies Editorships	6 6
C.	Other scientific publications	34
Lectures		
A.	Invited scientific lectures · of which at international events	45 30
B.	Other scientific lectures · of which at international events	36 27
C.	Scientific poster presentations · of which at international events	25 24

Mathematics, Simulation and Metrology

- *Institute for Integrated Sensor Systems*
- *Acoustics Research Institute*
- *Johann Radon Institute for Computational and Applied Mathematics*
- *Commission for Scientific Visualisation*

» 5 The Academy as a research performing organisation

Mathematics, Simulation and Metrology		
	m.	f.
Number of staff in 2009 (incl. seconded government employees)	82	20
Number of full-time equivalents	73.6	16.9
of which:		
· scientific staff	68.3	13.8
· of which young researchers	35.3	7.7
Basic budget (in EUR '000)	4,348.03	
Third-party share	39.87 %	
Ongoing research projects in 2009	201	
Publications		
A.	Peer-reviewed papers in scientific journals or anthologies	153
	· of which in indexed journals	63
	Monographs	5
B.	Lengthier papers without peer review in journals or anthologies	20
	Editorships	6
C.	Other scientific publications	18
Lectures		
A.	Invited scientific lectures	127
	· of which at international events	107
B.	Other scientific lectures	118
	· of which at international events	87
C.	Scientific poster presentations	20
	· of which at international events	19

Physics and Materials Sciences

- *Erich Schmid Institute of Materials Science*
- *Institute for High Energy Physics*
- *Institute for Quantum Optics and Quantum Information*
- *Stefan Meyer Institute for Subatomic Physics*

Physics and Materials Sciences		
	m.	f.
Number of staff in 2009 (incl. seconded government employees)	140	34
Number of full-time equivalents	125.6	27.4
of which:		
· scientific staff	92.1	11.4
· of which young researchers	47.5	9.7
Basic budget (in EUR '000)	9,714.60	
Third-party share	30.38 %	
Ongoing research projects in 2009	126	

» 5 The Academy as a research performing organisation

Publications		
A.	Peer-reviewed papers in scientific journals or anthologies	239
	· of which in indexed journals	174
	Monographs	1
B.	Lengthier papers without peer review in journals or anthologies	5
	Editorships	1
C.	Other scientific publications	85
Lectures		
A.	Invited scientific lectures	174
	· of which at international events	137
B.	Other scientific lectures	272
	· of which at international events	222
C.	Scientific poster presentations	39
	· of which at international events	39

Environmental Research

- *Institute for Limnology*
- *Institute of Technology Assessment*
- *Commission for Interdisciplinary Ecological Studies*
- *Clean Air Commission**
- *[Austrian IIASA Commission at the OeAW]***

Environmental Research		
	m.	f.
Number of staff in 2009 (incl. seconded government employees)	33	28
Number of full-time equivalents	30.1	25.2
of which:		
· scientific staff	22.5	11.4
· of which young researchers	4.0	4.9
Basic budget (in EUR '000)	2,632.56	
Third-party share	70.54 %	
Ongoing research projects in 2009	74	
Publications		
A.	Peer-reviewed papers in scientific journals or anthologies	47
	· of which in indexed journals	29
	Monographs	3
B.	Lengthier papers without peer review in journals or anthologies	18
	Editorships	6
C.	Other scientific publications	42
	Encyclopaedia articles	2

* The Clean Air Commission does not pursue any research attributable to the Academy, but instead is involved in the field of networking with university research.

** The Austrian IIASA Commission at the OeAW is not counted as an Academy research unit and is therefore not included in the evaluation for the purposes of the intellectual capital report.

» 5 The Academy as a research performing organisation

Lectures		
A.	Invited scientific lectures · of which at international events	38 28
B.	Other scientific lectures · of which at international events	61 42
C.	Scientific poster presentations · of which at international events	18 16

Space Research

- *Space Research Institute*
- *Commission for Astronomy*

Space Research		
	m.	f.
Number of staff in 2009 (incl. seconded government employees)	64	15
Number of full-time equivalents of which:	58.8	12.8
· scientific staff	45.7	6.8
· of which young researchers	13.3	1.9
Basic budget (in EUR '000)	4,076.91	
Third-party share	34.18 %	
Ongoing research projects in 2009	65	
Publications		
A.	Peer-reviewed papers in scientific journals or anthologies · of which in indexed journals	148 129
	Monographs	1
B.	Lengthier papers without peer review in journals or anthologies	11
	Editorships	4
C.	Other scientific publications	3
Lectures		
A.	Invited scientific lectures · of which at international events	34 26
B.	Other scientific lectures · of which at international events	112 110
C.	Scientific poster presentations · of which at international events	109 107

Interdepartmental Research tasks

- *Commission for the History of Natural Sciences, Mathematics and Medicine*
- *Commission for Scientific Cooperation with the Federal Ministry of Defence and Sports**

* The Commission for Scientific Cooperation with the Federal Ministry of Defence and Sports is not recorded in the OeAW research information system and is therefore not included in the evaluation for the purposes of the intellectual capital report.

» 5 The Academy as a research performing organisation

Interdepartmental Research Tasks		
	m.	f.
Number of staff in 2009 (incl. seconded government employees)	1	1
Number of full-time equivalents	1.0	0.2
of which:		
· scientific staff	1.0	0.0
· of which young researchers	0.0	0.0
Basic budget (in EUR '000)	88.31	
Third-party share	2.60 %	
Ongoing research projects in 2009	9	
Publications		
A.	Peer-reviewed papers in scientific journals or anthologies · of which in indexed journals	2 0
	Monographs	0
B.	Lengthier papers without peer review in journals or anthologies Editorships	0 1
C.	Other scientific publications	0
Lectures		
A.	Invited scientific lectures · of which at international events	4 0
B.	Other scientific lectures	0
C.	Scientific poster presentations	0

5.3.2 Centres of the Humanities and Social Sciences cluster

Centre for Ancient World Studies

- *Institute for the Study of Ancient Culture*
- *Commission for Asia Minor*
- *Commission for Egypt and the Levant*
- *Commission for Ancient Literature and Latin Tradition*
- *Commission for the History of Ancient Law*
- *Commission for Editing the Corpus of the Latin Church Fathers (CSEL)*
- *Commission for Mycenaean Studies*
- *Numismatic Commission*
- *Prehistoric Commission*

» 5 The Academy as a research performing organisation

Centre for Ancient World Studies		
	m.	f.
Number of staff in 2009 (incl. seconded government employees)	27	29
Number of full-time equivalents	24.9	23.0
of which:		
· scientific staff	24.9	21.4
· of which young researchers	5.3	6.7
Basic budget (in EUR '000)	2,326.00	
Third-party share	26.58 %	
Ongoing research projects in 2009	164	
Publications		
A.	Monographs	17
	Peer-reviewed papers in scientific journals or anthologies	48
	· of which in indexed journals	9
B.	Editorships	20
	Lengthier papers without peer review in journals or anthologies	37
C.	Other scientific publications	28
	Encyclopaedia articles	28
Lectures		
A.	Invited scientific lectures	120
	· of which at international events	69
B.	Other scientific lectures	44
	· of which at international events	25
C.	Scientific poster presentations	10
	· of which at international events	3

Centre for Studies in Asian Cultures and Social Anthropology

- *Institute for Iranian Studies*
- *Institute for the Cultural and Intellectual History of Asia*
- *Institute for Social Anthropology*

Centre for Studies in Asian Cultures and Social Anthropology		
	m.	f.
Number of staff in 2009 (incl. seconded government employees)	23	22
Number of full-time equivalents	21.2	16.5
of which:		
· scientific staff	20.6	12.9
· of which young researchers	5.0	4.2
Basic budget (in EUR '000)	1,638.00	
Third-party share	53.51 %	
Ongoing research projects in 2009	191	

» 5 The Academy as a research performing organisation

Publications		
	Monographs	8
A.	Peer-reviewed papers in scientific journals or anthologies · of which in indexed journals	65 1
B.	Editorships	19
	Lengthier papers without peer review in journals or anthologies	19
C.	Other scientific publications	14
Lectures		
A.	Invited scientific lectures · of which at international events	120 84
B.	Other scientific lectures · of which at international events	56 20
C.	Scientific poster presentations · of which at international events	3 3

Centre for Cultural Research

- AAC – Austrian Academy Corpus
- Commission for the "Fackel" Text Dictionary (FACKELLEX)
- Institute of Culture Studies and Theatre History
- Commission for the History of Art
- Commission for Music Research

Centre for Cultural Research		
	m.	f.
Number of staff in 2009 (incl. seconded government employees)	29	33
Number of full-time equivalents of which:	24.5	25.2
· scientific staff	23.8	24.0
· of which young researchers	6.6	5.6
Basic budget (in EUR '000)	2,452.42	
Third-party share	40.92 %	
Ongoing research projects in 2009	225	
Publications		
	Monographs	6
A.	Peer-reviewed papers in scientific journals or anthologies · of which in indexed journals	36 6
B.	Editorships	25
	Lengthier papers without peer review in journals or anthologies	72
C.	Other scientific publications	52
	Encyclopaedia articles	112

» 5 The Academy as a research performing organisation

Lectures		
A.	Invited scientific lectures	109
	· of which at international events	64
B.	Other scientific lectures	41
	· of which at international events	14
C.	Scientific poster presentations	3
	· of which at international events	1

Centre for Medieval Studies

- *Institute for Byzantine Studies*
- *Institute for Medieval Research*
- *Institute for Medieval and Early Modern Material Culture*
- *Commission for Palaeography and Codicology of Medieval Manuscripts in Austria*

Centre for Medieval Studies		
	m.	f.
Number of staff in 2009 (incl. seconded government employees)	33	31
Number of full-time equivalents	31.1	23.9
of which:		
· scientific staff	30.1	20.4
· of which young researchers	12.6	7.7
Basic budget (in EUR '000)	2,080.00	
Third-party share	58.06 %	
Ongoing research projects in 2009	236	
Publications		
A.	Monographs	17
	Peer-reviewed papers in scientific journals or anthologies	32
	· of which in indexed journals	4
B.	Editorships	16
	Lengthier papers without peer review in journals or anthologies	42
C.	Other scientific publications	46
Encyclopaedia articles		396
Lectures		
A.	Invited scientific lectures	126
	· of which at international events	74
B.	Other scientific lectures	41
	· of which at international events	29
C.	Scientific poster presentations	2
	· of which at international events	2

Centre for Research on Modern and Contemporary History

- *Historical Commission*
- *Commission for the History of the Habsburg Monarchy*
- *Commission for Austrian Legal History*
- *Austrian Biographical Encyclopaedia and Biographical Documentation*

» 5 The Academy as a research performing organisation

Centre for Research on Modern and Contemporary History		
	m.	f.
Number of staff in 2009 (incl. seconded government employees)	18	17
Number of full-time equivalents	15.3	15.1
of which:		
· scientific staff	14.3	12.6
· of which young researchers	2.8	3.0
Basic budget (in EUR '000)	1,223.00	
Third-party share	22.02 %	
Ongoing research projects in 2009	96	
Publications		
A.	Monographs	4
	Peer-reviewed papers in scientific journals or anthologies	25
	· of which in indexed journals	1
B.	Editorships	8
	Longer papers without peer review in journals or anthologies	18
C.	Other scientific publications	20
	Encyclopaedia articles	63
Lectures		
A.	Invited scientific lectures	48
	· of which at international events	18
B.	Other scientific lectures	4
	· of which at international events	4
C.	Scientific poster presentations	1
	· of which at international events	1

Social Sciences Centre

- *Institute for Demography*
- *Institute for European Integration Research*
- *Institute for European Tort Law*
- *Institute for Mountain Research: Man and Environment*
- *Institute for Urban and Regional Research*
- *Commission for Migration and Integration Research*
- *Commission for Comparative Media and Communication Studies*

Social Sciences Centre		
	m.	f.
Number of staff in 2009 (incl. seconded government employees)	48	44
Number of full-time equivalents	38.7	33.1
of which:		
· scientific staff	35.8	24.3
· of which young researchers	13.9	11.0
Basic budget (in EUR '000)	4,169.30	
Third-party share	25.00 %	
Ongoing research projects in 2009	166	

» 5 The Academy as a research performing organisation

Publications		
A.	Monographs	9
	Peer-reviewed papers in scientific journals or anthologies · of which in indexed journals	121 28
B.	Editorships	24
	Lengthier papers without peer review in journals or anthologies	66
C.	Other scientific publications	80
Lectures		
A.	Invited scientific lectures · of which at international events	173 117
	Other scientific lectures · of which at international events	136 110
C.	Scientific poster presentations · of which at international events	14 11

Centre for Linguistics and Audiovisual Documentation

- *Balkans Commission*
- *Institute for Lexicography of Austrian Dialects and Names*
- *Commission for Linguistics and Communication Research*
- *Phonogrammarchiv (Audiovisual Research Archive)*

Centre for Linguistics and Audiovisual Documentation		
	m.	w.
Number of staff in 2009 (incl. seconded government employees)	22	29
Number of full-time equivalents	19.0	21.5
of which:		
· scientific staff	16.8	17.0
· of which young researchers	4.3	5.3
Basic budget (in EUR '000)	2,107.50	
Third-party share	18.58 %	
Ongoing research projects in 2009	237	
Publications		
A.	Monographs	22
	Peer-reviewed papers in scientific journals or anthologies · of which in indexed journals	17 2
B.	Editorships	11
	Lengthier papers without peer review in journals or anthologies	21
C.	Other scientific publications	34
Encyclopaedia articles		61

» 5 The Academy as a research performing organisation

Lectures		
A.	Invited scientific lectures · of which at international events	66 40
B.	Other scientific lectures · of which at international events	73 34
C.	Scientific poster presentations · of which at international events	5 5

5.4 Impact of the research performing organisation

Prizes and awards to scientific staff

The number and reputation of prizes and awards bestowed on scientific staff are a powerful indicator of the high level of research carried out under the auspices of the Academy. Prizes and awards are a direct recognition of the achievements of the researchers and an indirect external recognition of the scientific community and the institution in which these achievements were made.

Prizes and awards					
	Total	of which MN cluster		of which HS cluster	
		m.	f.	m.	f.
Number of prizes and awards conferred on staff members in 2009	78	43	14	16	5
Domicile of awarding institution:					
· in Austria	35	16	10	6	3
· within the EU (excl. Austria)	30	20	3	5	2
· outside the EU	13	7	1	5	0

The following are examples in chronological order*:

In the Mathematics and Natural Sciences cluster:

- Decoration of Honour in Gold for Services to the Republic of Austria awarded to Uwe Humpesch, Institute for Limnology
- Theodor Körner Prize 2009 to Arabella Meixner, IMBA – Institute of Molecular Biotechnology
- Tammann Memorial Medal 2009 to Reinhard Pippan, Erich Schmid Institute of Materials Science
- Austrian Cross of Honour for Science and Art 1st Class to Christian Fabjan, Institute for High Energy Physics
- Winner of FameLab 2009: Lucia Aronica, IMBA – Institute of Molecular Biotechnology
- ERC Starting Grant to Markus Aspelmeyer, Institute for Quantum Optics and Quantum Information (now University of Vienna)
- Wittgenstein Prize 2009 to Jürgen Knoblich, IMBA – Institute of Molecular Biotechnology
- Prize of Recognition of the federal state of Lower Austria for Science 2009 to Dietrich Liko, Institute for High Energy Physics
- ERC Advanced Grant to Jürgen Knoblich, IMBA – Institute of Molecular Biotechnology

* Prizes and awards to staff who are also members of the Academy are listed in Chapter 4.3.

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In the Humanities and Social Sciences cluster:

- Anniversary Prize of the Böhlau Verlag to Martin Wagendorfer, Commission for Palaeography and Codicology of Medieval Manuscripts in Austria
- Prize of Recognition of the federal state of Lower Austria for Science 2009 to Andreas Zajic, Institute for Medieval Research

Staff involvement in university teaching

The Academy's scientific staff are valued colleagues with active teaching commitments at almost all Austrian universities and a large number of universities of applied sciences. Thus, the basic research carried out by the Academy flows directly into academic teaching.

Teaching at universities and universities of applied sciences			
	Total	of which MN cluster	of which HS cluster
Number of courses held by staff during 2009	503	283	220
of which:			
· courses and seminars at universities (with course number)	401	237	164
· special lectures (without course number)	47	16	31
· courses at university level	33	14	19
· courses at universities of applied sciences	22	16	6

Involvement via doctoral programmes

In 2009, research units of both clusters were involved in cooperation activities with doctoral programmes in a variety of university institutions. The following are merely examples:

In the Mathematics and Natural Sciences cluster:

- The Medical Science Doctoral Programme offered by the Medical University of Innsbruck enables graduates of natural sciences or medical degree courses to pursue scientific work at postgraduate level. The Institute of Biomedical Aging Research coordinates the six semester PhD programme in "The aging of biological communication systems", which addresses medical gerontology and specifically the mechanisms of cellular and systemic aging and the development of age-related illnesses.
- The Johann Radon Institute for Computational and Applied Mathematics was successfully involved in a number of FWF funded doctoral courses in 2009, including the PhD programme "Molecular Bioanalytics" at the Johannes Kepler University of Linz.
- The Erich Schmid Institute of Materials Science is closely linked to the Department for Material Physics at the University of Leoben. Two young researchers of the institute made use of the resulting possibility to participate in the "Dual PhD Programme Leoben – Boulder", a doctoral programme regulated by an agreement with the University of Colorado at Boulder, USA, Department of Mechanical Engineering.
- The Stefan Meyer Institute for Subatomic Physics (SMI) is involved in two international doctoral programmes: an Egyptian PhD student from the El-Azhar University in Cairo is conducting metro-

» 5 The Academy as a research performing organisation

logical work for his doctoral thesis on new silicon photo-detectors at the SMI. Another doctoral student has been working on the development of a spin-flip resonator for the SMI antihydrogen experiment at the CERN in Geneva since 2009 within the framework of the "CERN-Austria Technical Fellowship".

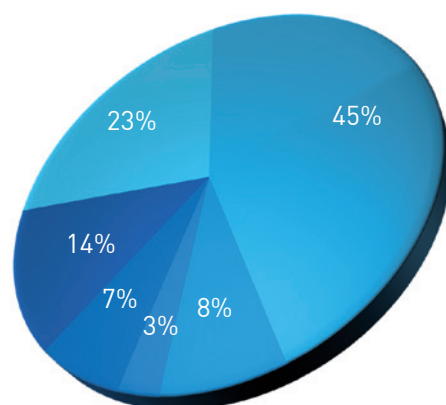
In the Humanities and Social Sciences cluster:

- The Institute for European Integration Research is involved in the Vienna School of Governance, an excellence-focused doctoral programme supported by the University of Vienna.
- With the assistance given to four doctoral theses being produced at the Institute for South Asian, Tibetan and Buddhism Studies at the University of Vienna on various topics related to Buddhism, the Academy's Institute for the Cultural and Intellectual History of Asia has developed a link not only with the University of Vienna but also with the home institutions of the two Japanese doctoral students, Tokyo University and Tsukaba University.
- The Institute of Culture Studies and Theatre History is involved in the *Initiativkolleg* (Initiative Group) on "Cultures of difference. Transformations in the central European region", an interdisciplinary doctoral programme of the University of Vienna. The thematic starting point is the radical social, commercial and cultural change that took place both in central Europe and in the countries of the EU following the 1989 revolution.
- Staff members of the Institute for Demography are teaching at the European Doctoral School in Demography. The aim of this institution is to provide a solid knowledge base about the causes and consequences of demographic change, population data, statistical and mathematical demography, modelling, simulation and forecasting.

Media presence of the Academy as a research performing organisation

Of all the reports and brief reports concerning the Academy in 2009, 45 per cent addressed research topics.

Topics



Media presence 2009 according to topic

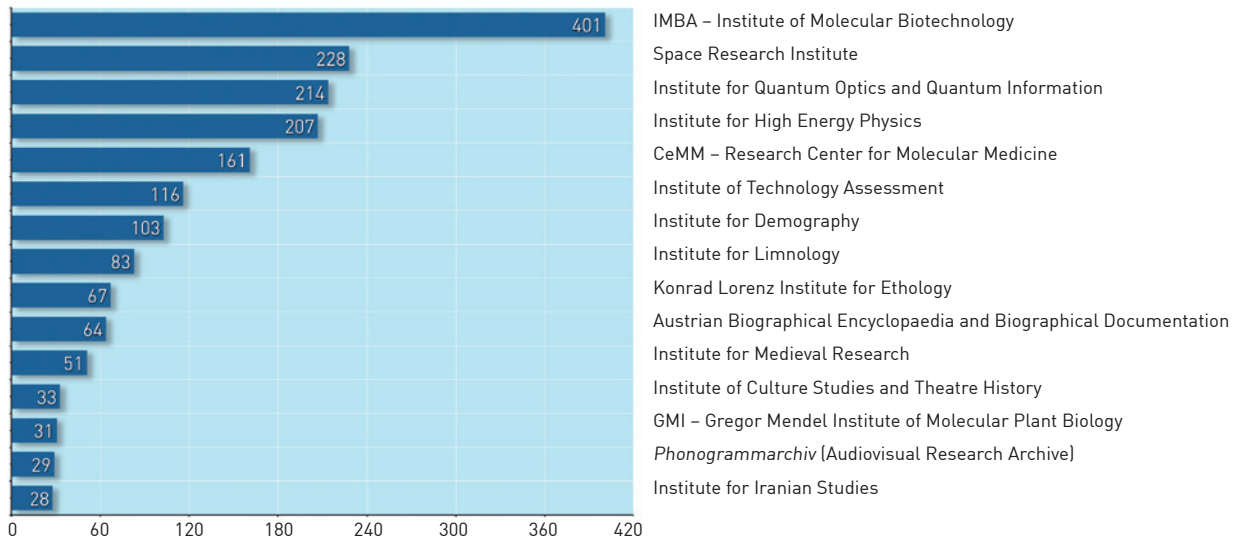
· Research	45 %
· Learned society	8 %
· Career building	3 %
· Prizes and awards to OeAW members and staff	7 %
· The OeAW in the context of science policy	14 %
· Events and miscellaneous	23 %

Media presence of the research units

Almost all research units of the Academy were mentioned in the media in 2009. The most prominent was the IMBA – Institute of Molecular Biotechnology, with a strong media presence in connection with research results (bone metabolism, tumour growth, nerve stem cells) in the context of research policies and concerning the award of honours.

» 5 The Academy as a research performing organisation

Media presence of OeAW research units



» 6 Promotion of young researchers by the Academy

6 Promotion of young researchers by the Academy

The Austrian Academy of Sciences also makes a lasting contribution to the career progression of young researchers outside its own research units. By recognising and supporting scientific achievement with fellowships and prizes, the Academy assists young researchers to gain qualifications and to achieve visibility on the international research scene.

The following fellowship programmes are funded by the Austrian Federal Ministry of Science and Research:

- DOC – for doctoral students in any area of research. Projects may be undertaken either in Austria or abroad.
- DOC-fFORTE – for female doctoral students in the natural sciences, medicine and technical sciences. Projects may be undertaken either in Austria or abroad.
- DOC-team – for groups of doctoral students in the humanities, social sciences and cultural sciences carrying out interdisciplinary research. Projects may be undertaken either in Austria or abroad.
- APART – for postdoctoral researchers who wish to acquire the qualifications needed to become a university professor (*Venia legendi*). Projects may be undertaken either in Austria or abroad.
- ROM – for graduate and postdoctoral researchers in the humanities and social sciences wishing to undertake a period of research in Rome or elsewhere in Italy.

The L'ORÉAL-Austria fellowship programme is funded by L'ORÉAL Austria as part of the "For Women in Science" initiative and by the Federal Ministry of Science and Research as part of the fFORTE initiative. It is intended for female graduates and postdoctoral researchers in the fields of medicine, the natural sciences and mathematics wishing to undertake a basic research project in Austria.

The MAX KADE fellowship programme is funded by the Max Kade Foundation, New York, and is intended for postdoctoral researchers from all areas of research who wish to undertake a period of research in the USA.

6.1 Value creation potential of the Academy's programme for the promotion of young researchers

6.1.1 Human potential

In order to select the best young researchers, the Academy has developed an international peer review system and complex evaluation mechanisms. The evaluation and selection processes are carried out by members of the Academy and by a considerable number of other Austrian and international scientists.

» 6 Promotion of young researchers by the Academy

External reviewers in the field of the promotion of young researchers			
	Total	m.	f.
Number of external reviewers for the OeAW programme for the promotion of young researchers in 2009	434	340	94
Of these, those involved in the following programmes for the promotion of young researchers:			
· APART	87	65	22
· DOC	128	98	30
· DOC-fFORTE	92	78	14
· MAX KADE	20	20	0
· DOC-team	28	17	11
· L'ORÉAL fellowship programme	18	14	4
· Vienna Anniversary Fund for the Austrian Academy of Sciences	10	8	2
· Ignaz L. Lieben Award	29	25	4
· Bader Prize for Art History	4	4	0
· Bader Prize for the History of the Natural Sciences	6	3	3
· Dissertation Prize for Migration Research	6	3	3
· Walther E. Petrascheck Prize	6	5	1
Reviewers' country of origin			
· Austria	24	20	4
· EU (excl. Austria)	275	215	60
· Non-EU	135	105	30

Examination of applications through the international peer review system

The Austrian Academy of Sciences has implemented a two-tier selection process for all fellowship programmes, with the exception of the ROM fellowship. The members of the awarding committee draw up a shortlist of applications, and these are then assessed by external reviewers. The committee then makes a decision on the award of the fellowship or prize on the basis of the opinions given by the reviewers. 95 per cent of the external reviewers are employed abroad, with approximately two-thirds of this group being based within the EU. The largest group of the experts based in Europe comes from Germany, followed by Great Britain, Switzerland and France. In the non-EU category the majority of reviewers come from the USA.

The number of external reviewers involved in assessing the applications rose once again as compared to the previous year – mainly due to an increase in the number of applications for the DOC-fFORTE and DOC-team programmes and the prizes that were reviewed externally.

At only 21 per cent the number of reviews provided by women for the OeAW in 2009 was slightly lower than in the previous year. An exception occurred in the case of the DOC-team selection process, where 40 per cent of DOC-team applications were reviewed by female scientists.

Seven fellowship programmes and 16 prizes are processed by 17 awarding committees. Five organisations send delegates to these committees: the General Assembly of the Austrian Academy of Sciences, "Universities Austria" (previously known as the Austrian Rectors' Conference), the Federal Ministry of Science and Research, UNESCO Austria and the Federation of Austrian Industries (IV) in Vienna.

The quality assurance process for the programme for the promotion of young researchers is primarily the responsibility of full and corresponding members of the Academy. As part of their role on the awarding committees for the fellowship programmes they nominate international reviewers, prepare

Decisions on awarding and quality assurance by members of the Academy

» 6 Promotion of young researchers by the Academy

the decisions of the individual juries and supervise the progress of the projects undertaken by the fellowship recipients. Thus they, like all other members of the committees, make an unpaid contribution to the promotion of young Austrian scientific talent.

Internal reviewers in the field of the promotion of young researchers							
	f.m.		c.m.		YA		Share of members on the relevant committee as a %
	m.	f.	m.	f.	m.	f.	
Total number of internal reviewers* for the OeAW programme for the promotion of young researchers in 2009	66	6	18	5	1	1	71 %
Number of these in committees for:							
· OeAW fellowship programmes (DOC, DOC-fORTE, APART, MAX KADE)	6	1	4	1	1	0	48 %
· DOC-team	2	0	0	0	0	1	50 %
· ROM Board of Trustees of the OeAW	5	1	3	1	0	0	83 %
· Vienna Anniversary Fund for the Austrian Academy of Sciences	8	0	1	1	0	0	66 %
· L'ORÉAL fellowship programme	2	2	0	0	0	0	80 %
Number of these in commissions for:							
· Walther E. Petrascheck Prize	4	0	0	0	0	0	57 %
· Award for the Best Publication	6	0	0	0	0	0	100 %
· Best Paper Award	3	1	0	0	0	0	100 %
· Karl Schlögl Prize	2	0	0	0	0	0	66 %
· Award of prizes in the field of "Biosciences and Medicine"	7	0	0	0	0	0	100 %
· Award of prizes in the HS Section of the OeAW	11	1	2	0	0	0	100 %
· Award of prizes in the field of "Palaeontology"	0	0	4	0	0	0	100 %
· Dissertation Prize for Migration Research	4	0	0	1	0	0	62 %
· Bader Prize for the History of the Natural Sciences	2	0	1	0	0	0	37 %
· Bader Prize for Art History	2	0	1	0	0	0	60 %
· Ignaz L. Lieben Award	2	0	2	1	0	0	100 %

Since not all subject areas taught at universities are covered by OeAW members, external experts are also recruited. This applies to awarding committees for the fellowship programmes and in growing numbers to the juries who award the prizes – in the latter case the external consultants totalled approximately 20 per cent.

The number of Academy members currently acting as internal reviewers in the programme for the promotion of young researchers increased slightly in comparison with the previous year, since three prizes were offered for the first time in 2009. The number of women acting as internal reviewers fell slightly when compared to the previous year, amounting to approximately eight per cent of the full members and 27 per cent of corresponding members.

* Full and corresponding members who act as chairperson or vice-chairperson of the committee and not as reviewers are not included in the above figures.

» 6 Promotion of young researchers by the Academy

6.1.2 Structural potential

Five Federal Ministry of Science and Research funded OeAW programmes for doctoral and postdoctoral researchers – APART, DOC, DOC-fFORTE, DOC-team and ROM – were subjected to an external evaluation between November 2008 and March 2009. The evaluation was intended to examine the design, process and effect of the fellowship programmes, whilst at the same time evaluating the range of programmes offered by the Academy and its position with regard to promoting young researchers.

*Evaluation of the
fellowship programmes*

The report produced by the evaluating team under the leadership of Reinhard Grunwald, former Secretary General of the German Research Foundation (DFG), states that the Academy's philosophy on the promotion of young researchers – its decision to focus on promoting the individual with an emphasis on personal excellence – is being successfully translated into practice, and that the OeAW fellowship programmes play an important role in the context of the promotion of young scientific talent in Austria.

Over the last three years there has been a reduction in the fluctuation of the number of successful applications in the Academy's programme for promoting young researchers. In the fellowship programmes the number of successful applications lies between 21 and 37 per cent – the exceptions are the ROM fellowship with a level of 71 per cent and the L'ORÉAL Austria programme with eight per cent. When it comes to the prizes the inequality is greater – acceptance levels of between three and 50 per cent reflect the differences in response levels to the invitations to apply.

*Number of successful
applications*

Numbers of successful applications						
Programme for the promotion of young researchers	Applications	Share as a %		Acceptances	Share as a %	
		m.	f.		m.	f.
· APART	51	69 %	31 %	11	72 %	28 %
· DOC	136	59 %	41 %	38	63 %	37 %
· DOC-fFORTE	88	-	100 %	28	-	100 %
· DOC-team	41	36 %	64 %	6	0 %	100 %
· ROM	7	43 %	57 %	5	60 %	40 %
· MAX KADE	19	68 %	32 %	6	83 %	17 %
· L'ORÉAL fellowship programme	46	-	100 %	4	-	100 %
· Vienna Anniversary Fund for the Austrian Academy of Sciences	26	58 %	42 %	3	34 %	66 %
· Best Paper Award	20	65 %	35 %	1	100 %	0 %
· Award for the Best Publication	22	59 %	41 %	1	0 %	100 %
· Anniversary Prize of the Böhlau Verlag Vienna	12	42 %	58 %	1	100 %	0 %
· Moritz Csáky Fellowship	25	44 %	56 %	1	0 %	100 %
· Dissertation Prize for Migration Research	12	33 %	66 %	1	100 %	0 %
· Bader Prize for Art History	4	50 %	50 %	1	0 %	100 %
· Walter E. Petrascheck Prize	2	50 %	50 %	1	0 %	100 %
· Karl Schögl Prize	15	53 %	47 %	1	0 %	100 %
· Erich Thenius Fellowship	2	50 %	50 %	1	0 %	100 %
· Alois Sonnleitner Prize	7	43 %	57 %	1	0 %	100 %
· Ignaz L. Lieben Award	31	80 %	20 %	1	100 %	0 %
· Bader Prize for the History of the Natural Sciences	6	33 %	66 %	1	0 %	100 %

» 6 Promotion of young researchers by the Academy

Whilst the number of successful applications for the DOC programme has risen slightly from 25 per cent last year to 28 per cent this year, the number of successful applications for APART during the reporting period was 21 per cent, representing another fall when compared to 2008. At 32 per cent, the number of successful applications for the DOC-fFORTE programme was also lower than in the previous year, although this is due to an increase in the number of applications.

The role of gender in the promotion of young researchers

The efforts made by the OeAW to keep the number of women who apply for and are granted fellowships within the APART and DOC programmes constant were once again largely successful in 2009.

Allocation of funds within the programme for the promotion of young researchers with regard to gender			
	Funds available in EUR '000		
	Total	m.	f.
Total amount allocated to the programme for the promotion of young researchers	6,315.2	2,360.4	3,954.8
for:			
· APART	1,686.2	1,006.1	680.1
· DOC	1,855.2	930.5	924.7
· DOC-fFORTE	1,513.7	0.0	1,513.7
· DOC-team	740.8	140.8	600.0
· ROM	23.2	7.6	15.6
· Vienna Anniversary Fund for the Austrian Academy of Sciences	143.0	52.0	91.0
· MAX KADE	225.0	187.5	37.5
· L'ORÉAL fellowship programme	45.2	0.0	45.2
· Best Paper Award	3.7	3.7	0.0
· Award for the Best Publication	3.7	0.0	3.7
· Erich Thenius Fellowship	3.7	0.0	3.7
· Walther E. Petrascheck Prize	4.0	0.0	4.0
· Karl Schlägl Prize	3.7	0.0	3.7
· Alois Sonnleitner Prize	3.7	0.0	3.7
· Anniversary Prize of the Böhlau Verlag Vienna	2.5	2.5	0.0
· Moritz Csáky Fellowship	2.2	0.0	2.2
· Dissertation Prize for Migration Research	3.7	3.7	0.0
· Bader Prize for the History of the Natural Sciences	13.0	0.0	13.0
· Bader Prize for Art History	13.0	0.0	13.0
· Ignaz L. Lieben Award	26.0	26.0	0.0

The table above shows the level of finance used to promote men and women in the year 2009.

Within the publicly financed fellowships, 37.4 per cent was given to women and 62.2 per cent to men. This represents an increase in the amount paid out to men compared to the previous year.

In the APART programme the share of funds allocated to female scientists fell slightly to 41 per cent in 2009. The share of the funds allocated to women in the DOC programme remained unchanged at 50 per cent.

During the reporting period, twelve prizes funded by private foundations were awarded, with eight of these going to female scientists. Accordingly, with regard to the prizes, at 56 per cent the share allocated to women is more than a third higher than in the previous year.

» 6 Promotion of young researchers by the Academy

6.1.3 Networking potential

Both the doctoral and the APART programmes enable the fellowship recipients to undertake their research projects in universities or non-university research institutions in Austria or abroad. The decisive factor for the reviewers is that those sponsored should undertake their research at the most suitable institution for their particular project.

*Institutional and regional
distribution of fellowship
recipients*

Institutional and regional distribution of fellowship recipients		
Fellowship recipients working at research institutions	Number of fellowship recipients	Share
within Austria	194	
of which at:		
· universities	180	93 %
· non-university research institutions	14	7 %
abroad	53	
of which at:		
· universities	45	85 %
· in Germany	8	18 %
· in Great Britain	12	27 %
· in USA / Canada	18	40 %
· in other countries	7	15 %
· non-university research institutions	8	15 %

In 2009, 21 per cent of the total 247 fellowship recipients undertook their projects abroad, representing an increase of two per cent as compared to the previous year. 34 per cent of the young researchers who were studying abroad were postdoctoral students. Fellows who were sponsored under the DOC programme were only counted as studying abroad in the list above if they successfully completed their doctoral thesis at a foreign university.

Approximately three-quarters of the researchers who were awarded fellowships in 2009 used them to study in Austria, the vast majority at a university. At only four per cent, the share of fellowship recipients who chose to study at a non-university research institution fell noticeably compared to the previous year. Of the fourteen fellowship recipients who undertook their research at non-university institutions within Austria, ten – seven doctoral students and three APART fellows – carried out their research at a research unit of the Austrian Academy of Sciences.

Distribution of fellowship recipients across Austrian Universities			
	Gesamt	m.	w.
· University of Vienna	98	25	73
· University of Salzburg	12	1	11
· University of Innsbruck	12	4	8
· Vienna University of Technology	12	4	8
· Medical University of Vienna	10	1	9
· University of Graz	9	4	5
· Vienna University of Business and Economics	8	5	3
· University of Linz	6	2	4
· University of Natural Resources and Applied Life Sciences, Vienna	6	2	4
· University of Veterinary Medicine, Vienna	3	2	1
· University of Applied Arts, Vienna	3	0	3
· Graz University of Technology	3	2	1
· Mozarteum University	1	0	1
· UMIT Private University	1	0	1
· University of Leoben	1	0	1
· Innsbruck Medical University	1	0	1
· Academy of Fine Arts in Vienna	1	0	1

>> 6 Promotion of young researchers by the Academy

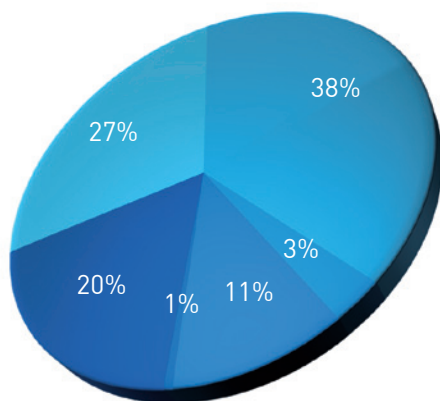
During the period under review, students sponsored by the Austrian Academy of Sciences carried out research at 16 of the 21 state-run Austrian universities and one private university. 141 fellowship recipients, 75 per cent of the total, studied at a university in Vienna. As in previous years, with a share of over 50 per cent, the University of Vienna was the most popular place of study, followed by the Universities of Salzburg and Innsbruck, and Vienna University of Technology.

6.2 Accomplishments of the programme for the promotion of young researchers

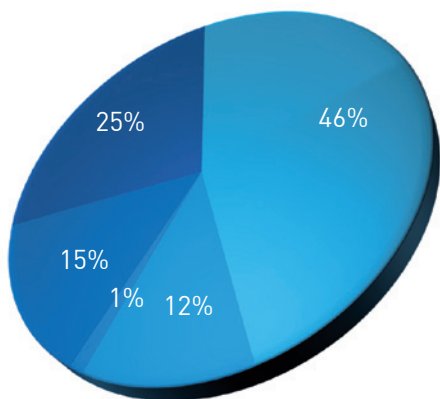
In 2009, approximately 250 men and women were supported by nine promotional programmes.

*Distribution by
subject area*

Compared with the previous year, the distribution of recipients of funds in the individual subject areas has only changed in a few areas. Amongst both men and women the share of those sponsored studying the natural sciences has risen – among women from 34 to 38 per cent, among men from 42 to 46 per cent. By contrast, the share of men studying social sciences and the share of women studying humanities have fallen. At only three per cent, the share of sponsored women studying technical sciences remains very low; in 2009 no sponsored men studied technical sciences.



· Natural sciences	38 %
· Technical sciences	3 %
· Medicine	11 %
· Agriculture and forestry, veterinary medicine	1 %
· Social sciences	20 %
· Humanities	27 %



· Natural sciences	46 %
· Medicine	12 %
· Agriculture and forestry, veterinary medicine	1 %
· Social sciences	16 %
· Humanities	25 %

» 6 Promotion of young researchers by the Academy

The scientific and career development of the young researchers is supported through monitoring activities. The organisation of many events for fellowship recipients and alumni – such as, for example, the annual fellowship recipients' weekend – enables intensive communication and networking among the young researchers. Career advice and personal coaching are also offered to support the development of key qualifications.

Monitoring

6.3 Impact of the programme for the promotion of young researchers

A comparatively quick, identifiable and significant indicator that the programme for the promotion of young researchers is successful is the number of fellowship recipients who have achieved the objective set out in the statute of their particular programme within a year of the fellowship coming to an end. In the case of students this means the successful completion of the doctoral thesis, in the case of APART the award of the *Venia legendi* or attaining a level of an equivalent achievement through the publication of appropriate works.

Achievement of objectives

Achievement of the objectives of the promotional programmes						
Number of fellows qualifying in 2009 (one year after end of fellowship)	Total		m.		f.	
	End of fellowship	Achievement of objective	End of fellowship	Achievement of objective	End of fellowship	Achievement of objective
DOC	19	12	9	7	10	5
DOC-fFORTE	7	7	-	-	7	7
DOC-team	12	8	1	1	11	7
APART	14	8	9	5	5	3
Achievement of objective by subject area (as a percentage)						
DOC						
· Natural sciences					100 %	
· Technical sciences					100 %	
· Medicine					100 %	
· Humanities					25 %	
DOC-fFORTE						
· Medicine					100 %	
· Natural sciences					100 %	
DOC-team						
· Humanities					71 %	
· Social sciences					60 %	
APART						
· Medicine					100 %	
· Humanities					84 %	
· Natural sciences					50 %	

All DOC-fFORTE fellows and almost two-thirds of the young researchers who were funded by DOC qualified no later than one year after the end of the fellowship. Two-thirds of those sponsored as part of the DOC-team programme and who began the fellowship in 2005 completed their doctoral studies within a year of the fellowship coming to an end. In the case of APART more than half of those who received a fellowship obtained their qualification within a year of the fellowship terminating.

The table above also shows the numbers who successfully concluded their research projects by sub-

» 6 Promotion of young researchers by the Academy

ject area. As in the previous year, the numbers achieving the objectives were particularly high in the field of medicine, as well as in both technical and natural sciences within the DOC and DOC-fORTE programmes.

Particularly pleasing in 2009 – especially from the point of view of the long-term effectiveness of the Academy's programme for the promotion of young researchers – was the award of ERC Advanced Grants to two former APART fellowship recipients: Herlinde Pauer-Studer, Professor of Philosophy at the University of Vienna, and Monika Ritsch-Marte, Professor of Physics at Innsbruck Medical University.

Funding from sponsors and patrons

As in previous years, the Austrian Academy of Sciences was able to acquire a significant number of sponsors and private patrons for its prizes and fellowship programmes in 2009, which can be seen as a measure of the recognition enjoyed by the Academy's programme for the promotion of young researchers.

Income from sponsors and foundations / endowments		
Income from sponsors and foundations/ endowments for the purpose of promoting young researchers	Income in EUR '000	Sponsor/ Foundation
Total of which for the programme for the promotion of young researchers:	435.8	
APART (AAS-CEE)	37.5	RZB / Agrana / UNIQA
MAX KADE	300.0	Max-Kade-Foundation, New York
L'ORÉAL fellowship programme	30.0	L'ORÉAL Austria
Erich Thenius Fellowship	3.7	Erich Thenius Foundation
Alois Sonnleitner Prize	3.7	Dr. Alois Sonnleitner Foundation
Karl Schlögl Prize	2.0	Rosemarie Schlögl
Anniversary Prize of the Böhlau Verlag Vienna	2.5	Böhlau Verlag Vienna
Dissertation Prize for Migration Research	2.2	Rainer Bauböck endowment
Moritz Csáky Fellowship	2.2	Moritz Csáky endowment
Bader Prize for the History of the Natural Sciences	13.0	Alfred and Isabel Bader
Bader Prize for Art History	13.0	Alfred and Isabel Bader
Ignaz L. Lieben Award	26.0	Alfred and Isabel Bader

In 2009 – just as in the previous year – EUR 367,500 was raised for the fellowship programmes, plus a further EUR 68,300 for the prizes which were funded by private foundations.

Most of the income contributed by private sources came from the Max Kade Foundation in New York, which awards fellowships for periods of research undertaken in the USA. One APART fellowship is funded by RZB, Agrana and UNIQA.

The total income over the period under review rose slightly compared to the previous year. This is primarily due to changes in the Academy's prizes. Alfred and Isabel Bader, who had already endowed two prizes, introduced a new prize for the promotion of young researchers. Like the Bader Prize for Art History, the Bader Prize for the History of the Natural Sciences is one of the most generously endowed prizes offered by the Academy.

» 6 Promotion of young researchers by the Academy

Media presence	
Number of articles appearing in 2009 which made reference to the fellowships or prizes offered by the OeAW	152
of which:	
· print	55
· internet	95
· broadcasting	2

Media presence of the programme for the promotion of young researchers

In 2009, the Academy's programme for the promotion of young researchers was mentioned in a total of 152 articles, making its media coverage slightly higher than in the previous year.

More than two-thirds of all reports were connected to the fellowship programmes, in particular the APART, DOC and L'ORÉAL Austria initiatives. Furthermore the Ignaz L. Lieben Award received much coverage by the media.

The webpage of the administrative body for the fellowships and prizes, www.stipendien.at, provides information on the Academy's programme for the promotion of young researchers. It provides instructions for applications and information on the selection process, as well as documents for fellowship recipients. A database also provides information on the sponsored projects. Since the beginning of 2008, the online portal for the Association for Alumni of OeAW fellowship programmes has allowed registered members to provide information about themselves, and to establish contact with other former fellowship recipients.

Internet presence of the programme for the promotion of young researchers

» 7 Service facilities of the Academy

7 Service facilities of the Academy

The service facilities of the Academy – central administration, library & archive and the Austrian Academy of Sciences Press – assist the Academy in achieving its many aims. •

7.1 Central administration

The central administration performs a broad range of service functions for the Presiding Committee, the executive bodies, the research units and limited liability research companies, Academy members and the general public. •

7.1.1 Value creation potential of the central administration

Human potential

Staff in the central administration			
	Total	m.	f.
Average number of staff (incl. seconded federal employees) in 2009			
Persons	87	35	52
Full-time equivalents	81.6	33.3	48.3
· of which university graduates	27.0	10.6	16.4

Continuing education is indispensable in administration. In addition to the training opportunities offered by the Academy's works council, central administration staff can make use of external training courses to enhance their skills.

Continuing education of central administrative staff			
	total	m.	f.
Number of staff members participating in continuing education programmes in 2009	13	5	8
Number of continuing education programmes of which:	24	10	14
· computer training	6	2	4
· specialised continuing education	10	6	4
· soft skills	5	2	3
· other	3	0	3

Structural potential

Internal auditing and the building maintenance company *Akademie-Gebäude-Errichtungs- und -Instandhaltungs-GmbH (AGEI GmbH)* do not strictly form part of the central administration and are therefore not shown in the following organisational chart.

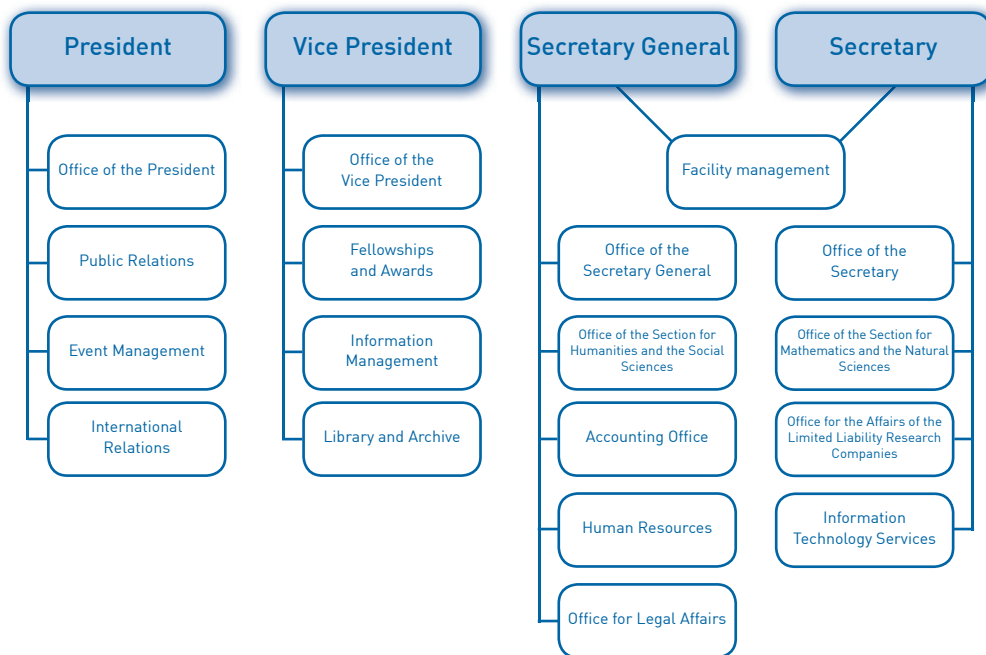
7.1 Central administration » 7.1.1 Value creation potential of the central administration
 » 7 Service facilities of the Academy

Internal auditing, which reports to the Audit Control Committee, has the function of ensuring compliance with the principles of economy, cost effectiveness and purposefulness. It is not included in the operative administrative processes. Its field of activities also includes the Academy's limited liability research companies.

In 2009, internal auditing addressed the Academy's budgeting process for the first time. The final settlement of the IMBA/GMI research building project was the second main issue.

Akademie-Gebäude-Errichtungs- und -Instandhaltungs-GmbH (AGEI GmbH) was founded in 1997 with the aim of making available low-cost high-quality laboratories and offices for the Academy's research institutions. From 2000 to 2005, the AGEI worked on the project for the IMBA/GMI building cooperative with a total project volume of EUR 60 million. Since the building was occupied in January 2006, AGEI has been responsible for administering the building.

Central administration of the Academy (as of 31.12.2009)



Structure and organisation of the central administration

Works council

The Academy's works council consists of 13 members, assisted by two administrative employees. As the body representing the employees, the works council's function is to represent and further the staff's legal, social and economic interests. It is responsible for negotiating works agreements between employer and staff representatives (currently 13 agreements), handling applications to the health and social fund and providing advice to the public sector trade union (GÖD) in collective agreement negotiations. The works council organises joint events and training courses as a means of consolidating corporate identity.

» 7 Service facilities of the Academy

Floor space available to the central administration

The central administration is located in the city center of Vienna in the Academy's main building complex. The area occupied by the central administration is relatively small, 8 per cent of the Academy's total area, namely roughly 1,400 m² office space plus pro rata circulation and ancillary areas.

ICT infrastructure and central IT services

The Academy's information and communication technology infrastructure is continually being extended and developed by the Academy's Information Technology Services. In 2009, three new outside offices were integrated into the Academy's data network and a further seven sites equipped with a faster network connection. The replacement of the central components (backbone) of the OeAW network will lead to a further improvement in terms of capacity and stability. The Academy's telephone system is also to be radically renewed over the next few years. In 2009, a first step was taken with an additional internet-based telephone system (voice over IP).

The long-term objective of these infrastructural adjustments is to consolidate convergent communication services – e-mail, fax, speech telephone and the electronic diaries and address books used jointly – into one uniform platform (unified communications) to provide an efficient IT-supported collaboration between research and administration units over the long term. The basis for this will be the established groupware Microsoft Exchange, which has already been used for some considerable time by numerous OeAW institutions. In 2009, the central administration computer systems and a number of research institutions were converted to Microsoft Exchange.

Alongside the implementation of this longer-term consolidation concept, the central IT services are being permanently adapted and extended in order to ensure an up-to-date working environment for all OeAW units.

OeAW Windows domain <small>(as of 31.12.2009)</small>	
Servers in the Windows domain	30
Active PCs in the Windows domain	732
· of which research units in Vienna	579
· of which research units in Graz	50
· of which central administration	103

Networking potential

Networking of the central administration staff

Senior employees of the central administration took part in conferences organised inter alia by the Federal Ministry of Science and Research, the FFG, the ESF or the EASAC on questions concerning research management and knowledge organisation.

7.1.2 Central administration services

Each year one administrative unit of the Academy is given the opportunity to present its activities in the Academy's intellectual capital report.

» 7 Service facilities of the Academy

Office for Legal Affairs

The four staff members (3.2 FTEs) of the Office for Legal Affairs are responsible for legal matters concerning the Academy, its research units and for the legal basis of the relationship between the OeAW and its limited liability research companies.

The field of activities includes in particular:

- Legal advice to the Presiding Committee and the research units
- Preparation and reviewing of contracts and draft contracts, conduct of contractual negotiations and the handling of related legal issues including risk management
- Legal structure and handling of issues concerning the acquisition, transfer and enforcement of intellectual property rights
- Legal assistance for procurement activities
- Handling of all judicial proceedings including the development of litigation strategies
- Contract management
- Interface to external legal consultants

The legal department's activities concern above all fields of general civil law, in particular contract law, commercial and company law, intellectual property law, award-of-contract law and tenancy law.

The early involvement of the legal department in those transactions that might give rise to legal risks or questions allows the interests of the Academy to be represented in the best way on the basis of a due diligence examination.

7.1.3 Impact of the central administration

The impact of the central administration is almost impossible to quantify as most of its activities result in efficient internal processes making use of all possible synergies between the various administrative departments. However, in cases where the responsibilities of an administrative unit are largely focused outside the organisation, for example in the field of public relations or event management, it is well worth taking a closer look at the impact achieved during the period under review.

2009 saw the continuation of the successful Academy lecture series aimed at the public with an interest in scientific issues. These events are overwhelmingly financed by funds from cooperation partners and sponsors. This financial support is a sign of the recognition that these science communication activities enjoy externally. Once again, a decisive role was played in 2009 by the Federation of Austrian Industry, which since the very beginning has co-hosted these series of lectures and provided vital funding.

Sponsoring of public outreach activities

An important financial contribution for the Eduard Suess Lectures which began in 2009 was the result of a collaboration with the Vienna Lectures. The Austrian Geological Society, the Austrian National Committee for the International Year of Planet Earth, the Agency for Aviation and

» 7 Service facilities of the Academy

Media presence of the Academy as a whole

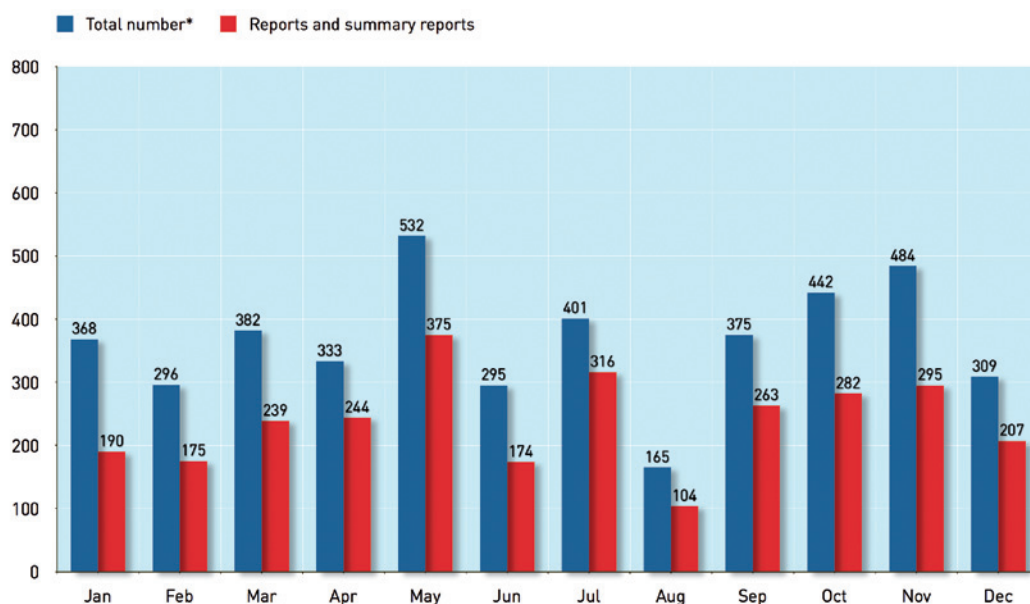
Aeronautics and the Raw Materials Forum also acted as co-organisers and sponsors for this series of lectures.

The Academy's media presence is based not least on the information provided to the media through the broad distribution of press releases, through direct media contacts, through the individual provision of information material and through the mediation of contacts with scientists.

In 2009, a total of 142 press releases were sent to media representatives in Austria and abroad and published on the Academy's website. Almost all releases are published as original material in *APA-ZukunftWissen*, and reach not only media representatives but also researchers and other persons involved in research policy and funding.

An important role in the Academy's media presence is played by the media cooperation activities cultivated with the daily newspapers *Der Standard* and *Die Presse*. In addition, a special supplement was published with the *Kurier* daily newspaper in May 2009 on the occasion of the Ceremonial Session, presenting a selection of topics from the Academy's research.

Media clippings relating to the OeAW per month in 2009



In 2009, the Academy was mentioned as a research performing organisation, learned society or promoter of young researchers in a total of 4,382 articles, 15 per cent of which were in foreign media. Less than one per cent of the articles contained controversial discussion on the Academy. Articles related to the Academy were published in a total of 774 different media (of which 243 foreign media), an increase over 2008 of the media recorded as having reported on the Academy or its institutions. The media that report most frequently on the Academy are (in each case print and online) *Der Standard* (402), *Die Presse* (281), *Kurier* (223), *Wiener Zeitung* (153), the "ORF On Science" programme (67) and the Ö1 radio station (81) and various APA formats (a total

* The articles found include reports, summary reports and mentions, with the latter having only little significance as the Academy was usually merely identified briefly, for instance as the organiser of an event.

» 7 Service facilities of the Academy

of 723). Abroad, the Academy was most frequently mentioned in the German daily newspaper *Süddeutsche Zeitung*.

Of all the articles, 45 per cent appeared in print media, 51 per cent in the internet and 4 per cent on radio and television. An analysis of the Austrian print contributions shows that in the year under review 64 per cent were published in daily newspapers and just under 60 per cent in interregional print media.

The Academy is continuing to enjoy considerable popularity as an events centre amongst organisers of scientific and science-related events, as reflected in the high demand, which increased significantly in 2009. In total, 141 events were held at the central OeAW sites, an increase of 20 per cent over the previous year. Since many of these events lasted a number of days or occupied a number of rooms at the same time, the historic events rooms were required for a total of 225 days, an increase of 17 per cent over 2008.

Increasing popularity of the Academy as an events centre

The central location in the Old University Quarter is a major advantage for the Academy as an events venue. A particular attraction is the ensemble of historical events rooms such as the Ceremonial Hall. A further factor is the high quality requirements applied by the Academy in the selection of events; they serve as a further decisive criterion for organisers when selecting the venue.

Advantages of the Academy as an events venue

Roughly one third of the events (46 out of 141) were held by external organisers. These include the Vienna-based universities, private universities, international scientific societies, ministries, institutions of the European Commission and business enterprises.

The overwhelming majority of the scientific events, a total of 95, were organized by OeAW research units in 2009: international conferences, symposia, workshops, book presentations, lectures and panel discussions of the Academy's research units took up 156 days.

The Academy's events also included the presentation of selected OeAW research units at the "Long Night of Research 2009". This event was extremely successful, attracting a total of around 2,000 visitors to the 29 Academy sites in Vienna alone.

7.2 Library and archive

7.2.1 Value creation potential of the library and archive

Human potential

Staff in library and archive			
	Total	m.	f.
Average number of staff* (incl. seconded federal employees) in 2009			
Persons	13	6	7
Full-time equivalents	10.8	5.3	5.5
· of which university graduates	5.5	2.3	3.2

* The number of staff does not include the library head, who is primarily employed at the University of Vienna.

» 7 Service facilities of the Academy

Continuing education Library and archive staff successfully completed various continuing education courses and attended a number of conferences in 2009, particularly in the field of electronic cataloguing and system librarianship. Since autumn 2009, one employee has been attending the first part of the university course in librarianship. Library staff also attended in-house training events to enhance their subject-specific knowledge.

Structural potential

Library and archive floor space The library and archive have a total usable space of around 1,100 m² in the Academy's main building located in city centre.

Networking potential

Continuing education courses and events offered by the library The library offers courses according to demand in the form of basic courses on the cataloguing of the special book inventories at the OeAW research units at all the sites. The systems administrator of the library runs an external ten-day basic course in cataloguing every year, and a one-day basic course in Library & Information Sciences at the Austrian National Library.

Every year, a number of guided tours are conducted through the Academy's library and archive and the Woldan Collection for trainees at the Austrian National Library and the University Library of Vienna.

The Academy archive, through the person of the archivist, has a seat and a vote on the executive boards of the Federation of Austrian Archivists and the Austrian Society for the History of Science.

The book exchange library As a book exchange library, the library of the Academy owes its success to its broad network of contacts. It maintains contractually regulated book exchange partnerships with 1,049 academies and other academic institutions in 432 locations in 82 different countries. These serve to disseminate knowledge acquired in Austria and published by the Austrian Academy of Sciences Press throughout the world and also help to make knowledge published elsewhere available in Austria. •

7.2.2 Services of the library and archive

7.2.2.1 Range of library services

The library of the Academy consists of literature relating to the humanities and – to a greater extent – the natural sciences. At the end of 2009, the total stock amounted to 355,913 volumes; in addition to individual monographs, these include 12,500 periodical titles and series. It should be stressed that of these, 4,371 titles can only be found in the Academy library and nowhere else in Austria.

The function of the OeAW library is not only to index and make available the stock entrusted directly to it but also to take care of the special book inventories at Academy research units (including those outside Vienna). The collections of 26 research units of the Academy were fully recorded by the end of 2009 and a further three are in progress.

According to the ALEPH statistics, a total of 22,981 titles were added to the Austrian Libraries Network (cataloguing of new books and existing stock) by the Academy library and the libraries of the

» 7 Service facilities of the Academy

research units under its auspices in the period under review.

In addition, the 158th volume of the Academy almanac was published in 2009, and work on volume 159 begun.

5,920 monographs, periodicals and series were added to the library stock in 2009. As part of exchange partnerships, the OeAW library acquired 5,779 volumes of printed periodicals and series. It purchased 114 fascicles of printed periodicals and 27 monographs. The library acquired a further 16 microfiches and 62 CDs/DVDs.

*Development of
the library inventory*

At the end of 2009, the library of the former Schwind Commission for European Law, International and Foreign Private Law of the Academy (approx. 800 volumes and approx. 400 imprints), which had been located at the Ludwig Boltzmann Institute for European Law since the Commission was dissolved, was handed over to the Academy library.

Library: book movements	
Number of book movements in 2009	11,587
of which:	
· purchases	141
· donations to the OeAW	78
· books received through exchanges	5,701
· books dispatched through exchanges	5,667

For both clusters, negotiations have been in progress for some time on setting up one or more consortia of online databases and electronic journals. The estimated cost of this project is around EUR 1.2 million. Since the corresponding acquisitions, approved by the Academy's Presiding Committee in 2004, have so far been postponed as a result of budgetary difficulties, it was decided in 2009 to implement the project step-by-step over the next few years (beginning with EUR 500,000 for 2010).

1,891 persons used the library in the period under review. 1,417 volumes were borrowed, 1,062 by the OeAW members and 365 by non-Academy persons, of which 123 by scientists, 53 by students and 189 by private individuals. 371 requests were made via the inter-library loans system.

Use of the library

7.2.2.2 Range of archive services

The Academy archive stores 56 academic bequests – some of which are very extensive – of researchers who had a special relationship with the Academy. These bequests, which form part of the cultural heritage, often include unique items, such as the correspondence and manuscripts of renowned scholars from Austria and abroad, which are of great interest to academics around the

» 7 Service facilities of the Academy

world. The material includes special archives such as the collection of the former Academy Institute for Radium Research, which brought many researchers from the USA, Greece and Germany to Vienna in recent years.

At the end of 2009, extensive research documentation, family documents and literature of the biologist Mona Lisa Steiner, who conducted studies on rare plants and ethnological research, mainly in the Philippines, was offered to the archive for appropriate investigation and archiving.

The archive is also the "memory" of the Academy. It stores historical minutes of meetings, files of great importance to the history of the Academy, experiment notes, photographs of scientific experiments, reports, manuscripts, expert opinions, contracts and so on.

In 2009, ten in part very extensive archiving support systems were developed to deal with scientific bequests. 1,459 historical minutes of the period between 1847 and 1897, 46 printed volumes on the history of the Academy, all the activity reports of the Academy since 1978 and 13 Academy almanacs were digitised. All the digitised material is electronically linked to the archive's total stock.

In 2009, the archive was used externally by science historians (mainly from Europe and the US) and internally by members and staff of the Academy. 96 academic enquiries from Austria and abroad were handled successfully.

The archive contributed a number of exhibits to the exhibition on the Peyer-Weyprecht North Pole Expedition (Vienna-Josefstadt District Museum).

In connection with a documentary film entitled "72 names in Czech History" by the Czech television channel CTV, the archive undertook research on the physicist František Adam Petřina (1788–1855) and the zoologist Samuel Friedrich von Stein (1818–1885); the corresponding filming took place in the library in September 2009.

Woldan Collection

Work is continuing on items in the Woldan Collection in collaboration with the Commission for the History of Natural Sciences, Mathematics and Medicine, in the form of individual editions of old travel literature texts (each with translation and commentary). A number of interesting objects were presented to the general public on the occasion of the "Long Night of Research". 2009 saw the publication of the book "*Magellans Boten*" (Magellan's Messengers), the second volume of the "Edition Woldan" series. Other volumes, including one in collaboration with the Academy's Numismatic Commission, are in preparation. •

7.2.3 Impact of the library and archive

The nature of the OeAW library as a book exchange library ensures that in particular the Austrian and foreign works of scientific academies and the publications of key similar institutions are collected in full at the library to an extent that cannot be equalled by Austrian university libraries or the National Library. The OeAW library therefore represents a key pillar of academic literature in Austria.

» 7 Service facilities of the Academy

7.3 Austrian Academy of Sciences Press

The Austrian Academy of Sciences Press and the repository are tools for the communication of knowledge with a global impact. Participation in the international digital infrastructure and professional publication activities ensure the international visibility of the research conducted within the Academy.

7.3.1 Value creation potential of the Austrian Academy of Sciences Press

Human potential

Staff in the Austrian Academy of Sciences Press			
	Total	m.	f.
Average number of staff (incl. seconded federal employees) in 2009			
Persons	10	7	3
Full-time equivalents	9.2	6.8	2.4
· of which university graduates	2.0	2.0	0.0

Staff from the OeAW Press attended courses on the topics of "Metadata management", "E-Books" and "Libreka".

Continuing education

Structural potential

The Austrian Academy of Sciences Press is both a department of the Academy and a commercial enterprise. It is headed by the commercial executive management in the form of the Presiding Committee of the Academy and the chair of the Austrian Academy of Sciences Press Commission. The Austrian Academy of Sciences Press Commission, as an administration commission of the Academy, has the function of assisting and advising the Presiding Committee in the management of the business. It carries out this function through the person of its chair, who in cooperation as authorised signatory ensures process efficiency of the two publishing departments, production and sales, and exercises supervisory authority over the sales department. Publications are accepted for the Press by decisions of the two sections or their publication commissions, which have responsibility for the Press's programme.

Organisation of publishing at the Academy

The Press's publishing and technical infrastructure guarantees a global reach and ensures that the Academy's publications are included in all the major international search and library services. The resulting visibility fosters a broad exchange and dialogue with scientific communities in other countries. By providing a platform for dissemination, the OeAW Press makes a significant contribution to further increasing the visibility of Austrian research worldwide.

The infrastructure of the Austrian Academy of Sciences Press

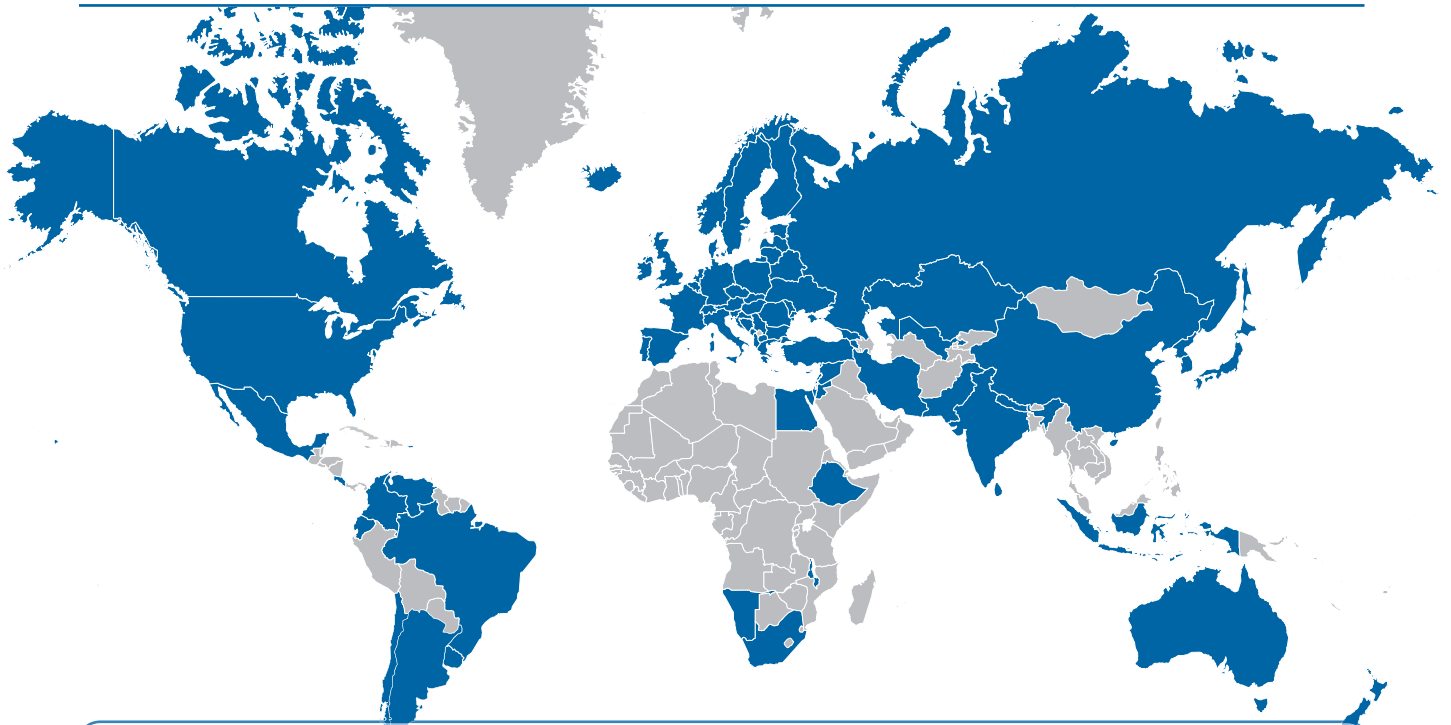
The Austrian Academy of Sciences Press occupies around 2,500 m² at the Postgasse site in Vienna, with just under 1,300 m² serving as storage and archive space, roughly 800 m² as circulation and delivery space and over 300 m² as office space.

Floor space available to the Austrian Academy of Sciences Press

» 7 Service facilities of the Academy

Networking potential

In 2009, 1,048 authors published their work in the Austrian Academy of Sciences Press. For many outside researchers, the option of publishing with the OeAW Press is an attractive incentive for working together with OeAW scientists. In 2009, 4,205 customers in 79 countries were supplied with publications from the OeAW Press.



Dissemination of publications of the Austrian Academy of Sciences Press

Albania	Brazil	Czech Republic	Germany	Israel	Luxembourg	New Zealand	Serbia	Switzerland
Argentina	Bulgaria	Denmark	Great Britain	Italy	Macedonia	North Korea	Singapore	Syria
Armenia	Canada	Ecuador	Greece	Japan	Mexico	Norway	Slovakia	Turkey
Australia	Chile	Egypt	Hungary	Jordan	Moldavia	Pakistan	Slovenia	Ukraine
Austria	China	Estonia	Iceland	Kazakhstan	Monaco	Poland	South Africa	Uruguay
Belarus	Columbia	Ethiopia	India	Latvia	Montenegro	Portugal	South Korea	USA
Belgium	Costa Rica	Finland	Indonesia	Lebanon	Namibia	Romania	Spain	Uzbekistan
Bosnia and Herzegovina	Croatia	France	Iran	Liechtenstein	Nepal	Russian Federation	Sri Lanka	Vatican State
	Cyprus	Georgia	Ireland	Lithuania	Netherlands		Sweden	Venezuela

The OeAW Press is a member of the *Hauptverband des österreichischen Buchhandels* (federation of the Austrian book trade), participates in the list of available books of the *Börsenverein des deutschen Buchhandels* (federation of the German book trade), is a member of the Chamber of Commerce, the Austrian Federation of Librarians, the Association of Learned and Professional Society Publishers, the digital preservation service Portico and Crossref/Pila.

The Academy frequently makes use of cooperation partners for the production and sale of publications, such as in 2009 with David Brown Book Company, ALPSP Learned Journals Collection, Joanneum Research or the China Tibetology Research Center.

49 requests for licences were received and processed from around the world.

7.3.2 Services of the Austrian Academy of Sciences Press

» 7 Service facilities of the Academy

7.3.2 Services of the Austrian Academy of Sciences Press

Manuscripts to be published by the Austrian Academy of Sciences Press			
	Total	MN Section	HS Section
Number of manuscripts approved in 2009	86	11	75
of which:			
· monographs	38	4	34
· anthologies	21	1	20
· journals	11	0	11
· multimedia publications	3	1	2
· reference works	3	3	0
· contributions in <i>Anzeiger</i>	9	1	8
· contributions in <i>Sitzungsberichte</i>	1	1	0

Manuscript submissions

In 2009, eleven manuscripts were accepted for publication in the Academy's Press in the field of the Mathematics and Natural Sciences cluster. The (co-)authors and/or editors comprised three women and 21 men. In the field of the Humanities and Social Sciences cluster, 75 manuscripts were accepted for publication, with a total of 32 women and 74 men as (co-)authors and/or editors.

In commercial terms the Austrian Academy of Sciences Press generated sales revenues of EUR 686,486 in 2009, not including third-party funds received. The international focus of the Academy's Press meant that about 75 per cent of sales were made through exports.

New publications by the Austrian Academy of Sciences Press			
	Total	MN Section	HS Section
Number of new publications in 2009	88	11	77
of which:			
· monographs	32	1	31
· anthologies	19	3	16
· journal issues	22	5	17
· reference works and databases	12	2	10
· multimedia publications	3	0	3

Of the new monographs published by Austrian Academy of Sciences Press in 2009, 20 were (co-)authored or (co-)edited by men and 13 by women.

The total number of titles available from the Austrian Academy of Sciences Press was 3,010 (as of December 2009).

The Austrian Academy of Sciences Press finances and handles the exchange of publications for the Academy's library, and sends free copies to partner institutions of the Academy and libraries.

The Academy's Press operates the institutional repository *Epub.oeaw*, Austria's largest digital academic publication portal containing 51,630 documents, which is 58th in the international ROAR (Registry of Open Access Repositories) ranking.

Repository

» 7 Service facilities of the Academy

Epub.oeaw fulfils several tasks:

- Presentation of the Academy's research results
- Archiving of research results
- International networking with other repositories
- Contribution to the promotion of open access publishing

39 OeAW research units use *Epub.oeaw* to deposit their publications. In the period under review, *Epub.oeaw* recorded an increase of 5,807 entries.

The Academy's Press develops, hosts and maintains editorial systems for academic publication projects for many of the OeAW research units. •

7.3.3 Impact of the Austrian Academy of Sciences Press

Media presence of the Austrian Academy of Sciences Press

In the period under review, publications of the Austrian Academy of Sciences Press were the subject of 246 reports or reviews in special-interest periodicals, online media, radio, television, and the daily and weekly press.

In 2009, the Press's website and the *Epub.oeaw* repository recorded 1,636,152 visits.*

Advertising effect – contribution to the Academy brand

The acknowledged and tested quality of Academy publications and their distribution using state-of-the-art marketing methods make a major contribution to the value of the Academy brand, increasing its popularity through 3 million public contacts each year.

Roughly one million books in circulation in the libraries of the world, the cited media presence, the internet user figures and the many sales activities such as 15 book presentations, participation at 36 trade fairs and congresses, four press releases and the dissemination of brochures ensure the visibility of Austrian research results.

* A "visit" is defined as one or more accesses from the same IP address to the corresponding pages within 20 minutes.

» 8 Future prospects

8 Future prospects

For a country like Austria, with only small natural resources but a high intellectual potential, investments in research and development are of utmost importance. They form the basis for innovation both in the economy and in society. The opportunities that are created by basic research determine the future, including and in particular in times of crisis.

Excellent science needs not only an atmosphere that encourages scientific activities and a corresponding infrastructure, but also financial planning certainty combined with flexibility. Top-class basic research must be able to react rapidly to new findings. The topics must be determined according to the bottom-up principle and not on the basis of political dictates.

"Creativity in science cannot be organised. It arises spontaneously from individual talent. Well-run laboratories can foster it, but hierarchical organisations, inflexible bureaucratic rules and mountains of futile paperwork can kill it. Discoveries cannot be planned." (Max Perutz)

Within the Austrian research scene, the Austrian Academy of Sciences will consolidate and expand its position as the most important and largest non-university research organisation in the field of basic research. In this context, the Academy welcomes the promised performance agreement with the Federal Ministry of Science and Research and the planned federal Research Finance Act.

Internationally competitive basic research can only be pursued in selected areas in Austria ("focussed basic research"), for even the Academy cannot cover the entire range of subjects, and specialisation is a precondition for success.

The Academy's main objectives are:

- The establishment of research subjects that cannot be pursued at the universities since they involve particularly long project durations, a high degree of specialisation or close collaboration with major international research centres
- The creation of new (and possibly higher-risk) research disciplines that are not yet represented within Austria but which are of great importance for science and society
- Consolidation of existing excellent research groups at universities by means of additional facilities outside the universities in order to increase competitiveness internationally
- Collaboration with other non-university research organisations to improve synergies and a better exploitation of research results

The current reform process within the Academy pursues the following internal objectives:

- *Performance-based allocation of funds.* As yet, the Academy has not fully succeeded in financially rewarding the excellent scientific achievements of research units on the one hand and reacting appropriately to weak points on the other hand. The pursuit of new scientific initiatives while continuing to pursue all the current activities is, given the budget situation, impossible. The implementation of this objective requires agreements to be concluded between the Presiding Committee and each individual research unit on the basis of an assessment of the performance using transparent subject-specific criteria and corresponding evaluations.
- *Ensuring that all financial matters are dealt with transparently.* Joint responsibility in financial

» 8 Future prospects

matters is to be redistributed to achieve greater efficiency and transparency and a reduction of the Presiding Committee's liability.

- *Improvement of the evaluation processes.* As the costs of modern research and the importance of innovatory knowledge for economic progress rise, there is a corresponding increase in the pressure on researchers to justify their activities. Against this background, objective evaluation processes serve firstly to secure and increase scientific quality and secondly to enhance the confidence placed by society and politics (the providers of funds) in scientific capacities.

The evaluation process at the Academy is determined largely by the external international Research Board. In addition, the many fields of knowledge are assisted by extensive expertise in the organisation's learned society, creating a valuable synergy between these two elements of the Academy.

- *Young scientist career building.* In accordance with the Academy's principle of excellence, the young researcher career-building programmes (APART and DOC fellowship programmes) apply strict criteria to the selection of young researchers in all subject areas to obtain scientific experience in top-level research organisations in Austria and abroad, which they can then contribute to the Austrian universities and research organisations (multiplier effect).

In addition, the Academy's research strategy is to provide opportunities for the next generation of scientists by creating top-quality scientific traineeships. These researchers are to be given the opportunity to work independently in a scientific field at an early stage of their careers, such as by being designated leader of a junior group.

In the field of career-building for young researchers, it will therefore be necessary to develop further specific financing structures and career opportunities that can be accessed by means of competition.

The Academy also attaches considerable importance to the interaction with the field of pre-university education, an area in which it intends to intensify its efforts.

- *Fulfilment of the Academy's functions as a national academy.* The Academy is the legitimate Austrian institution whose members, independently of any economic or political interests, conduct interdisciplinary discussions on the important topics of the future, formulating its results and communicating them to the general public. •

>> 9 Appendix

9 Appendix

In order to ensure that the details are up-to-date, the lists in this appendix are based on the state of information as of 31 March 2010.

9.1 Overview: Full members of the Academy

Full members of the Section for Mathematics and the Natural Sciences

Mathematics

- Cigler, Johann
- Engl, Heinz
- Florian, August
- Gruber, Peter M.
- Kopetz, Hermann
- Niederreiter, Harald
- Reich, Ludwig
- Schmidt, Klaus
- Sigmund, Karl
- Zemanek, Heinz

Astronomy and Physics

- Bauer, Günther
- Baumjohann, Wolfgang
- Blatt, Rainer
- Burgdörfer, Joachim
- Grimm, Rudolf
- Haupt, Hermann
- Lintner, Karl
- Pfliederer, Jörg
- Rauch, Helmut
- Schmidt, Arnold
- Thirring, Walter
- Zeilinger, Anton
- Zoller, Peter

Chemistry

- Falk, Heinz
- Komarek, Kurt L.
- Kratky, Christoph
- Kräutler, Bernhard
- Kreil, Günther

- Neckel, Adolf
- Schubert, Ulrich
- Schurz, Josef
- Schuster, Peter
- Zechner, Rudolf

Earth Sciences

- Bauer, Siegfried J.
- Burkard, Otto
- Flügel, Helmut
- Köberl, Christian
- Moritz, Helmut
- Pichler, Helmut
- Schönlaub, Hans P.
- Sünkel, Hans
- Weber, Franz K.
- Zemann, Josef

Life Sciences

- Barta, Andrea
- Barth, Friedrich G.
- Busslinger, Meinrad
- Dorner, Friedrich
- Ehrendorfer, Friedrich
- Glatzel, Gerhard
- Larcher, Walter
- Matzke, Marjori
- Popp, Marianne
- Schroeder, Renée
- Schweizer, Dieter
- Sleytr, Uwe B.
- Tuppy, Hans
- Wieser, Wolfgang

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Medicine

- Deetjen, Peter
- Denk, Helmut
- Gadner, Helmut
- Guttmann, Giselher
- Hornykiewicz, Oleh
- Kenner, Thomas
- Kraft, Dietrich
- Mayrhofer-Krammel, Otto
- Penninger, Josef
- Petsche, Hellmuth
- Schwarzbacher, Hans G.
- Smolen, Josef
- Stingl, Georg
- Utermann, Gerd W.
- Wolff, Klaus

Technical Sciences

- Danzer, Robert
- Fettweis, Günter B. L.
- Fischmeister, Hellmut
- Jeglitsch, Franz
- Kluwick, Alfred
- Mang, Herbert
- Paschke, Fritz
- Pischinger, Rudolf
- Rammerstorfer, Franz G.
- Riedler, Willibald
- Schneider, Wilhelm
- Vellekoop, Michael J.
- Wagner, Horst
- Ziegler, Franz

Full members of the Section for Humanities and the Social Sciences

Ancient World Studies and Art History

- Alram, Michael
- Bietak, Manfred
- Danek, Georg
- Dobesch, Gerhard
- Fillitz, Hermann
- Friesinger, Herwig
- Hunger, Hermann
- Jalkotzy-Deger, Sigrid
- Koder, Johannes
- Kresten, Otto
- Krinzinger, Friedrich
- Primmer, Adolf
- Rosenauer, Artur
- Schmidt, Gerhard († 03.04.2010)
- Schwabl, Hans
- Smolak, Kurt

History of the Middle Ages and the Modern Period, Auxiliary Sciences of History and Musicology

- Antonicek, Theophil

- Bruckmüller, Ernst
- Csáky, Moritz
- Gruber, Gernot
- Hageneder, Othmar
- Kappeler, Andreas
- Matis, Herbert
- Mazohl, Brigitte
- Pohl, Walter
- Riedmann, Josef
- Rumpler, Helmut
- Stourzh, Gerald
- Suppan, Arnold
- Walter-Klingenstein, Grete
- Wolfram, Herwig

Law

- Berka, Walter
- Burgstaller, Manfred
- Bydlinski, Franz
- Koppensteiner, Hans-Georg
- Korinek, Karl
- Koziol, Helmut
- Mantl, Wolfgang
- Matscher, Franz

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- Ogris, Werner
- Pernthaler, Peter
- Ruppe, Hans G.
- Schwendenwein, Hugo
- Schwind, Fritz
- Stoll, Gerold
- Tomandl, Theodor

Philosophy and Social Sciences

- Acham, Karl
- Borsdorf, Axel
- Brezinka, Wolfgang
- Bruckmann, Gerhart
- Dierker, Egbert
- Dostal, Walter
- Fassmann, Heinz
- Gingrich, Andre
- Klein, Hans-Dieter
- Lichtenberger, Elisabeth
- Nagl, Herta
- Puntscher Riekmann, Sonja
- Rosenmayr, Leopold
- Streissler, Erich W.

- Tichy, Gunther
- Vodrazka, Karl
- Wagenhofer, Alfred
- Zechner, Josef

Linguistics and Literature

- Birkhan, Helmut
- Dressler, Wolfgang U.
- Foltinek, Herbert
- Fragner, Bert G.
- Hajnal, Ivo A. P.
- Hansen-Löve, Aage A.
- Katičić, Radoslav
- Mayrhofer, Manfred
- Metzeltin, Michael
- Neweklowsky, Gerhard
- Oberhammer, Gerhard
- Reiffenstein, Ingo
- Rössner, Michael
- Steinkellner, Ernst
- Welzig, Werner
- Wiesinger, Peter
- Zacharasiewicz, Waldemar

9.2 Overview: Corresponding members in Austria

Corresponding members in Austria of the Section for Mathematics and the Natural Sciences

- Blanz, Paul A.
- Brasseur, Georg
- Breger, Michel
- Brem, Gottfried
- Breunlich, Wolfgang H.
- Dickson, Barry J.
- Dydak, Friedrich
- Eberhardsteiner, Josef
- Ehrendorfer, Martin
- Eiter, Thomas
- Frank, Wolfgang
- Frisch, Wolfgang
- Führer, Erwin
- Gerzabek, Martin H.
- Grabherr, Georg
- Grasserbauer, Manfred
- Griengl, Herfried
- Gutknecht, Dieter
- Halter-Koch, Franz
- Hantel, Michael
- Härtel, Otto
- Helmberg, Gilbert
- Henzinger, Thomas A.
- Hertting, Georg
- Heuberger, Helmut
- Högenauer, Gregor
- Irschik, Hans
- Krattenthaler, Christian

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- Kresse, Georg
- Kuhn, Michael
- Kyrle, Paul A.
- Laggner, Peter
- Langer, Heinz
- Lassmann, Hans
- Lechner, Klaus
- Lembeck, Fred
- Lucas, Peter
- Lux, Benno F.
- Malissa, Hanns
- Marberger, Michael
- Margreiter, Raimund
- Markowich, Peter A.
- Mecklenbräuker, Wolfgang F. G.
- Micura, Ronald Leo
- Millesi, Hanno
- Mostler, Helfried
- Mulzer, Johann
- Noe, Christian R.
- Olaj, Oskar F.
- Ott, Jörg A.
- Patzelt, Gernot
- Pfurtscheller, Gert
- Pietschmann, Herbert
- Piller, Werner E.
- Pohl, Walter L.
- Preisinger, Anton
- Rabeder, Gernot
- Resinger, Fritz
- Richter, Kurt R.
- Rucker, Helmut O.
- Sandhofer, Friedrich
- Sarnthein-Lotichius, Michael
- Schaller, Friedrich
- Schindler, Sabine
- Schmidt, Alfred
- Schulte-Hermann, Rolf
- Schwarz, Karlheinz
- Schweiger, Fritz
- Seidler, Horst
- Small, John V.
- Spötl, Christoph
- Stachel, Hellmuth
- Steinhauser, Peter
- Steininger, Friedrich F.
- Striessnig, Jörg
- Stuessy, Tod F.
- Sturmbauer, Christian
- Superti-Furga, Giulio
- Tichy, Robert F.
- Valenta, Rudolf
- Wagner, Erwin F.
- Wagner, Michael
- Weber, Harald W.
- Wicke, Manfred
- Winkler, Hans
- Zapotoczky, Hans G.
- Zatloukal, Kurt

Corresponding members in Austria of the Section for Humanities and the Social Sciences

- Aicher, Josef
- Aigner-Foresti, Luciana
- Aurenhammer, Hans
- Baehr, Rudolf
- Bichler, Reinhold
- Borchhardt, Jürgen
- Bösel, Richard
- Braulik, Georg P.
- Brucher, Günter
- Dalfen, Joachim
- Deistler, Manfred
- Dopsch, Heinz
- Eichner, Heiner
- Feichtinger, Gustav
- Finsinger, Jörg
- Fischer, Manfred M.
- Fliedl, Konstanze
- Flotzinger, Rudolf
- Fördermayr, Franz
- Frodl-Kraft, Eva

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- Fürnkranz-Prskawetz, Alexia
- Goebel, Hans
- Greisenegger, Wolfgang
- Grün, Oskar
- Haller, Max
- Hanisch, Ernst
- Haselsteiner, Horst
- Hassauer, Friederike
- Höller, Hans
- Honsell, Heinrich
- Jobst, Werner
- Kelnhofer, Fritz
- Kohler, Alfred
- Laakso, Johanna
- Leidlmair, Adolf
- Leser, Norbert
- Lodes, Birgit
- Lorenz, Hellmut
- Luf, Gerhard
- Lutz, Wolfgang
- Martino, Alberto
- Meid, Wolfgang
- Mueller, Dennis C.
- Olechowski, Thomas
- Palme, Bernhard
- Panagl, Oswald
- Pferschy, Gerhard
- Piccottini, Gernot
- Pillinger, Renate J.
- Prisching, Manfred
- Rainer, Franz
- Riehle, Wolfgang
- Sandgruber, Roman
- Schmitt, Oliver J.
- Schmoller, Kurt
- Schweiger, Günter C.
- Seger, Martin
- Stemberger, Günter
- Strasser, Helmut
- Strobl, Josef
- Suttner, Ernst C.
- Thür, Gerhard
- Trapp, Erich
- Urban, Otto H.
- Wagner, Karl
- Wendehorst, Christiane
- Winkelbauer, Thomas
- Wodak, Ruth
- Zima, Peter V.
- Zulehner, Paul M.

9.3 Overview: Members of the Young Academy

- Arndt, Markus
- Baltuska, Andrius
- Binder, Christina
- Breuker, Kathrin
- Dorner, Silke
- Drexler, Wolfgang
- Ellmeier, Wilfried
- Grabner, Peter J.
- Hanappi-Egger, Edeltraud
- Heiß, Wolfgang
- Hintermüller, Michael
- Holzapfel, Gerhard A.
- Horn, Matthias
- Jonak, Claudia
- Jursa, Michael
- Kalss, Susanne
- Kellner, Birgit
- Kirchengast, Gottfried
- Kunzinger, Michael
- Lanzinger, Margareth
- Lörting, Thomas
- Lurger, Brigitta
- Lusser, Alexandra
- Marschner, Christoph
- Mauser, Norbert J.
- Mochizuki, Kazufumi
- Müller, Sigrid
- Nägerl, Hans-Christoph

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- O'Neill, Brian
- Palankovski, Vasill
- Pistone, Pasquale
- Pöschl, Magdalena
- Prohaska, Thomas
- Reisigl, Martin
- Rupnow, Dirk
- Rychterová, Pavlina
- Scherzer, Otmar
- Schmalstieg, Dieter
- Schmid, Michael
- Schmid, Ulrich
- Schrefl, Thomas
- Schütz, Gerhard
- Strauss, Joseph
- Strobl, Herbert
- Szmolyan, Peter
- Tilg, Bernhard
- Unterrainer, Karl
- Villunger, Andreas
- Wadauer, Sigrid
- Westermann, Stefan
- Widmer, Gerhard
- Woisetschläger, Jakob
- Zimmermann, Norbert

9.4 Overview: OeAW research units

Biology and Medicine

- CeMM – Research Center for Molecular Medicine (Vienna)
Scientific director: c.m.i.A. Giulio Superti-Furga
- GMI – Gregor Mendel Institute of Molecular Plant Biology (Vienna)
Scientific director: Prof. Magnus Nordborg, PhD
- IMBA – Institute of Molecular Biotechnology (Vienna)
Scientific director: f.m. Josef Penninger
- Breath Research Institute (Dornbirn)
Director: Prof. Doz. (ETH) Dr. rer. nat. Anton Amann
- Institute for Biomedical Aging Research (Innsbruck)
Director: Prof. Dr. med. Beatrix Grubeck-Loebenstein
- Institute of Biophysics and Nanosystems Research (Graz)
Director: c.m.i.A. Peter Laggner
- Konrad Lorenz Institute for Ethology (Vienna)
Director: Prof. Dustin Penn, PhD

Earth Sciences

- Institute for Geographic Information Science (Salzburg)
Director: c.m.i.A. Josef Strobl
- Centre for Geosciences (Vienna)
Chair: f.m. Hans P. Schönlaub
- Commission for the Palaeontological and Stratigraphical Research of Austria (Graz)
Chair: c.m.i.A. Werner E. Piller
- Commission for Geophysical Research (Innsbruck)
Chair: c.m.i.A. Michael Kuhn
- Commission for Basic Research on Mineral Raw Materials (Leoben)

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Chair: f.m. Horst Wagner

- Commission for Quaternary Research (Vienna)

Chair: c.m.i.A. Gernot Rabeder

Mathematics, Simulation and Metrology

- Institute for Integrated Sensor Systems (Wiener Neustadt)
Director: Ass.-Prof. DI Dr. techn. Thilo Sauter
- Acoustics Research Institute (Vienna)
Director: Doz. Dr. phil. Werner Deutsch
- Johann Radon Institute for Computational and Applied Mathematics (Linz)
Director: f.m. Heinz Engl
- Commission for Scientific Visualisation (Vienna)
Chair: c.m.i.A. Wolfgang F. G. Mecklenbräuker

Physics and Materials Sciences

- Erich Schmid Institute of Materials Science (Leoben)
Director: Prof. Dr. Gerhard Dehm
- Institute for High Energy Physics (Vienna)
Director: Prof. DI Dr. techn. Christian f Fabjan
- Institute for Quantum Optics and Quantum Information (Innsbruck/Vienna)
Director: f.m. Peter Zoller
- Stefan Meyer Institute for Subatomic Physics (Vienna)
Director: Prof. Dr. rer. nat. Eberhard Widmann

Environmental Research

- Institute for Limnology (Mondsee)
Director: Prof. Dr. rer. nat. Thomas Weisse
- Institute of Technology Assessment (Vienna)
Director: Doz. Mag. Dr. iur. Michael Nentwich
- Commission for Interdisciplinary Ecological Studies (Vienna)
Chair: f.m. Gerhard Glatzel
- Clean Air Commission (Vienna)
Chair: f.m. Marianne Popp
- [Austrian IIASA Commission at the Austrian Academy of Sciences (Vienna)
Chair: f.m. Gerhard Glatzel]

Space Research

- Space Research Institute (Graz)
Director: f.m. Wolfgang Baumjohann
- Commission for Astronomy (Vienna)
Chair: c.m.i.A. Michel Breger

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Interdepartmental Research Tasks

- Commission for the History of Natural Sciences, Mathematics and Medicine (Vienna)
Chair: f.m. Hermann Hunger
- Commission for Scientific Cooperation with the Austrian Federal Ministry of Defence and Sports (Vienna)
Chair: f.m. Hans Sünkel

Centre for Ancient World Studies

- Institute for the Study of Ancient Culture (Vienna)
Director: Priv.-Doz. MMag. Dr. phil. Andreas Pülz
- Commission for Asia Minor (Vienna)
Chair: f.m. Gerhard Dobesch
- Commission for Egypt and the Levant (Vienna)
Chair: f.m. Manfred Bietak
- Commission for Ancient Literature and Latin Tradition (Vienna)
Chair: f.m. Georg Danek
- Commission for the History of Ancient Law (Vienna)
Chair: c.m.i.A. Gerhard Thür
- Commission for Editing the Corpus of the Latin Church Fathers (CSEL) (Vienna)
Chair: f.m. Kurt Smolak
- Commission for Mycenaean Studies (Vienna)
Chair: f.m. Sigrid Jalkotzy-Deger
- Numismatic Commission (Vienna)
Chair: f.m. Michael Alram
- Prehistoric Commission (Vienna)
Chair: f.m. Herwig Friesinger

Centre for Studies in Asian Cultures and Social Anthropology

- Institute for Iranian Studies (Vienna)
Director: Dr. phil. Florian Schwarz
- Institute for the Cultural and Intellectual History of Asia (Vienna)
Director: Doz. Dr. phil. Helmut Krasser
- Institute for Social Anthropology (Vienna)
Director: f.m. Andre Gingrich

Centre for Cultural Research

- AAC – Austrian Academy Corpus (Vienna)*
Interim Head: f.m. Wolfgang U. Dressler
- Commission for the "Fackel" Text Dictionary (FACKELLEX) (Vienna)
Chair: f.m. Werner Welzig
- Institute of Culture Studies and Theatre History (Vienna)
Head: f.m. Michael Rössner
- Commission for the History of Art (Vienna)

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* With effect from 1.4.2010, the AAC was transformed into the Institute for Corpus Linguistics and Text Technology (ICLTT) and Univ.-Prof. Mag. Dr. phil. Gerhard Budin was appointed director.

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Chair: f.m. Artur Rosenauer

- Commission for Music Research (Vienna)

Chair: f.m. Gernot Gruber

Centre for Medieval Studies

- Institute for Byzantine Studies (Vienna)

Director: Mag. Dr. phil. Peter Soustal

- Institute for Medieval Research (Vienna)

Director: f.m. Walter Pohl

- Institute for Medieval and Early Modern Material Culture (Krems)

Director: Dr. phil. Elisabeth Vavra

- Commission for Palaeography and Codicology of Medieval Manuscripts in Austria (Vienna)

Chair: f.m. Otto Kresten

Centre for Research on Modern and Contemporary History

- Historical Commission (Vienna)

Chair: f.m. Arnold Suppan

- Commission for the History of the Habsburg Monarchy (Vienna)

Chair: f.m. Helmut Rumpler

- Commission for Austrian Legal History (Vienna)

Chair: f.m. Werner Ogris

- Austrian Biographical Encyclopaedia and Biographical Documentation (Vienna)

Director: f.m. Ernst Bruckmüller

Social Sciences Centre

- Institute for Demography (Vienna)

Director: c.m.i.A. Wolfgang Lutz

- Institute for European Integration Research (Vienna)

Director: Prof. Dr. phil. Gerda Falkner

- Institute for European Tort Law (Vienna)

Director: Prof. Dr. Ken Oliphant

- Institute for Mountain Research: Man and Environment (Innsbruck)

Director: f.m. Axel Borsdorf

- Institute for Urban and Regional Research (Vienna)

Director: f.m. Heinz Fassmann

- Commission for Migration and Integration Research (Vienna)

Chair: f.m. Heinz Fassmann

- Commission for Comparative Media and Communication Studies (Vienna)

Chair: f.m. Herbert Matis

Centre for Linguistics and Audiovisual Documentation

- Balkans Commission (Vienna)

Chair: f.m. Michael Metzeltin

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- Institute for Lexicography of Austrian Dialects and Names (Vienna)
Director: Dr. phil. Ingeborg Geyer
- Commission for Linguistics and Communication Research (Vienna)
Chair: f.m. Wolfgang U. Dressler
- *Phonogrammarchiv* (Audiovisual Research Archive) (Vienna)
Director: Prof. Dr. phil. Dr. h.c. Rudolf M. Brandl

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9.5 Overview: Service facilities of the Academy

Central Administration

- Office of the President
Head: Dr. phil. Claudia Heilmann-Sennhenn
- Office of the Secretary General
Head: Mag. Dr. rer. soc. oec. Alexander Nagler
- Office of the Section for Humanities and the Social Sciences
Head: Mag. Lisbeth Triska
- Office of the Section for Mathematics and the Natural Sciences
Head: DI Dr. techn. Guido Korlath
- Office for the Affairs of the Limited Liability Research Companies
Head: HR DI Dr. techn. Gerhard Schadler
- Accounting Office
Head: Mag. Dr. rer. soc. oec. Wilhelm Henrich
- Human Resources
Head: Mag. Katja Fiala
- Office for Legal Affairs
Head: Mag. Christian Arthaber
- Facility Management
Head: Arch. DI Helmut Schuch
- Information Technology Services
Head: DI Melitta Kimbacher
- Information Management
Head: DI Alexander Höfer
- International Relations
Head: Mag. Bernhard Plunger
- Fellowships and Awards
Head: Mag. Dr. phil. Barbara Haberl
- Public Relations
Head: Dr. phil. Marianne Baumgart
- Event Management
Head: Mag. Dr. phil. Martina Milletich

- Internal Auditing
Head: Mag. Christophe Millischer, MBA

Library and Archive

Head: Prof. Dr. phil. Christine Harrauer

Austrian Academy of Sciences Press

Marketing manager: Mag. Herwig Stöger •

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9.7 List of abbreviations

AAS-CEE	Austrian Academy of Sciences Central and Eastern European Fellowship financed by RZB, Agrana, Uniqa
ALEPH	Automated Library Expandable Program Hebrew University of Jerusalem, Library administration software
ALPSP	Association of Learned and Professional Society Publishers
APA	Austria Press Agency
APART	Austrian Programme for Advanced Research and Technology
APART-urban	APART Fellowship financed by the City of Vienna
BMC	BioMed Central
CERN	European organisation for nuclear research (<i>Conseil Européen pour la Recherche Nucléaire</i>)
c.m.	Corresponding member
c.m.a.	Corresponding member abroad
c.m.i.A.	Corresponding member in Austria
CMS	Compact Muon Solenoid Experiment
CNRS	<i>Centre national de la recherche scientifique</i>
DOC	Doctoral Fellowship Programme of the Austrian Academy of Sciences
DOC-fORTE	Doctoral Fellowship Programme of the Austrian Academy of Sciences: Women in Research and Technology
DOC-team	Doctoral Fellowship Programme for Teams from the Humanities, Social and Cultural Sciences
EASAC	European Academies Science Advisory Council
EMBO	European Molecular Biology Organization
ERC	European Research Council

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ESA	European Space Agency
ESF	European Science Foundation
EUR '000	Thousand Euro
EURATOM	European Atomic Community
f	Female
FFG	Austrian Research Promotion Agency (<i>Forschungsförderungsgesellschaft</i>)
fFORTE	Women in Research and Technology
f.m.	Full member
FTE	Full-time equivalents
FWF	Austrian Science Fund (<i>Fonds zur Förderung der wissenschaftlichen Forschung</i>)
h.m.	Honorary member
HS	Humanities-Social Sciences
HS cluster	All research units administered by the Section for Humanities and the Social Sciences: the research units of the named section and certain research units of the Academy as a whole
IEEE	Institute of Electrical and Electronics Engineers
IIASA	International Institute for Applied Systems Analysis, Laxenburg
ICSU	International Council for Science
ISI	Institute for Scientific Information / Thomson Scientific
ISME	International Society for Microbial Ecology
ITER	International Thermonuclear Experimental Reactor
IYPE	International Year of Planet Earth
LHC	Large Hadron Collider
LMU	Ludwig Maximilian University, Munich
m	Male
MAX KADE	Fellowship Programme of the Max Kade Foundation
MIT	Massachusetts Institute of Technology
MN	Mathematics-Natural Sciences
MN cluster	All research units administered by the Section for Mathematics and the Natural Sciences: the research units of the named section, the research companies and certain research units of the Academy as a whole
MPI	Max Planck Institute
Ö1	Austrian radio station (<i>Österreich 1</i>)
OeNB	Austrian National Bank
ORF	Austrian Broadcasting Organisation
ÖSTAT	Austria Statistics
PNAS	Proceedings of the National Academy of Sciences
PLoS	Public Library of Science
R&D	Research and development
ROM	Fellowships of the Austrian Federal Ministry of Science and Research at the Historical Institute at the Austrian Culture Forum in Rome
RZB	Central institution of the Austrian Raiffeisen Banking Group (<i>Raiffeisen Zentralbank</i>)
SAB	Science Advisory Board
UNESCO	United Nations Educational, Scientific and Cultural Organization
YA	Young Academy

