



SECOND TERM OF OFFICE FOR MAX PLANCK PRESIDENT PETER GRUSS

“We must be sure to win the contest for the finest minds”

It might be described as a gift of a special kind when, on the 58th birthday of current President Peter Gruss, the Senate of the Max Planck Society confirmed him in office for a second term that will run from June 2008 until 2014. Before assuming the presidency five years ago, Peter Gruss was an award-winning cellular biologist and Director at the Max Planck Institute for Biophysical Chemistry in Göttingen. Max-PlanckResearch talked to Peter Gruss about his achievements, experiences and visions.

MAXPLANCKRESEARCH: *First of all, congratulations on your re-election! Your second term of office as President of the Max Planck Society begins in just under a year, and the Senate has renewed its vote of confidence in you. Did you find the decision equally easy to make?*

PETER GRUSS: In truth, it was not a spontaneous decision so much as an extended process of weighing various factors against one another: my career, my plans for the future, and private con-

“The post offers a unique opportunity to help shape the research landscape in Germany. It is an exciting challenge that I look forward to.” The Senate has confirmed Peter Gruss as President of the Max Planck Society. The 58-year-old cellular biologist will direct the organization’s destiny until 2014.

PHOTO: ANJIE MÉRÉNY

siderations as well. But ultimately, the office of President offers me a unique opportunity to help shape the future of the Max Planck Society, and with it, the German and, indeed, the international research landscape. Now, with a greater fund of experience to call on, it is an exciting challenge that I look forward to. I have received an incredible amount of support over the years, and this, too, has encouraged me to carry on.

MPR: *What has been your biggest challenge as President of the Max Planck Society?*

GRUSS: Back in November 2002, we learned that the rug had been pulled out from beneath our budget for 2003, and suddenly we not only had to shelve ideas that were on the point of implementation, but also cut back on current research activities. That was a difficult time. But it also had a positive side, for the solidarity I experienced within the Max Planck Society, both from the Vice Presidents and the entire management team and from individual members, was impressive, despite our occasional differences of opinion. We are now an efficient and close-knit community. After a financially weak start, we have recovered well. The Pact for Research and Innovation gives us planning security until 2010, with a 3 percent increase each year that we can count on. We are taking advantage of this position to add fresh momentum in a wide variety of ways – not least by developing new departments. We have also been successful in amplifying private research sponsorship. I am especially pleased at the formation last year of the Excellence Foundation in support of the research activities of the Max Planck Society. That was a pioneering decision.

MPR: *When you were elected five years ago, you had the big advantage that, as an outstanding scientist in your own right, you knew the Max Planck Society from the inside. During your term of office, you have established some important emphases. To what extent did your experience as a Max Planck Director hold you in good stead?*

GRUSS: I was both optimistic and confident when I took up my post, and perhaps also just a little naive. As a scientist, I had to deal with provable findings, whereas now, of course, as President of the Max Planck Society, my strategic planning must take some very subjective assessments of other people into account. That’s the sort of balancing act I was unfamiliar with as a scientist. But one learns, and that’s what gives me the necessary confidence for a second term of office.

MPR: *As a Director at a Max Planck Institute, you were able to decide what goals to work toward and how to achieve them. Do you not find that, as President, your hands are much more firmly tied?*

GRUSS: Of course the duties of the office can be properly carried out only with the support of the scientists at the institutes. On the other hand, the constitution gives the President of the Max Planck Society a great deal of latitude. Let me explain that with an example: The most important thing for us today and in the future is to attract and retain the finest minds worldwide and to define which areas of research offer particular promise. We have developed a variety of tools by which to achieve these goals, such as the Perspectives Committee and the Perspectives Commissions, which, together with their Section colleagues, do just that, generating fresh impetus and establishing new subject areas in the portfolio of the Max Planck Society. This provides a context in which the President can act. But it is also true that politics is the art of the possible.

MPR: *Don’t you sometimes miss the everyday work in the laboratory?*

GRUSS: For the first few years, I certainly missed scientific work – the more so as I was still attending conferences. Even today, I still feel the urge when I read the results of colleagues working in similar fields to mine. But you can do only the one thing or the other. However, I am firmly convinced that the one is possible only if you have mastered the other. Because the respect this office demands derives ultimately from one’s own scientific record.

MPR: *What challenges do you see the Max Planck Society facing in the near future?*

GRUSS: In the competition between the best, the Max Planck Society ranks among the top 10. We are no longer talking about just the US, the UK and Japan, but to an increasing extent also about countries like China, India and Russia, which are investing heavily in research. The whole world is in on the act, competing for the best scientists. If we wish to remain competitive, we have to make correspondingly attractive offers. That is the only way for the Max Planck Society to maintain its place as one of the frontrunners among research organizations. As far as Germany is concerned, there is no alternative; science is the sole key to our success, and that means making a greater financial effort.

MPR: *Let’s dream about the future for a moment ...*

GRUSS: ... the office of President of the Max Planck Society is a dream vocation in itself. The Max Planck Society is one of the most innovative and successful scientific organizations. Worldwide we are on a par with universities like Harvard, Stanford and the ETH Zurich. They are the ones we

compete with for the best scientists. In this respect, I would hope that, besides genuinely outstanding research conditions at our institutes, we might also be able to attract candidates with internationally competitive offers in the private sector. Our competitors have options here that we must endeavor to emulate. Of course I would like to see us extend the international orientation we already possess and acquire a stronger presence elsewhere in Europe. This would allow us to broaden our portfolio still further and recruit researchers in their own home countries. In Germany, I would be overjoyed if we could eliminate the weaknesses in our strictly differentiated research system and accept each other's strengths without envy. But there you are, I'm dreaming again.

MPR: *And what would you wish for yourself?*

GRUSS: That I can concentrate my entire efforts on the strategic development of the Max Planck Society. And that, besides increasing my efficiency in office, the routine I have acquired in recent years might also allow me more freedom in my private life. I would very much like to enjoy more of Munich's many advantages and all that the city has to offer. For my second term of office, I have promised myself that, whenever possible, I will jog home from the office. That will keep me fit and give me 45 minutes of undisturbed thinking time.

MPR: *And your motto?*

GRUSS: Live and let live! ●

SENATE APPROVES INSTITUTE FOUNDING

The Birth of Aging Research

Which biological processes determine our life span, and how do they function? These and other aspects of the natural process of aging form the focus of the basic research that will be conducted at the new Max Planck Institute for the Biology of Aging. Now the Senate of the Max Planck Society has taken a decisive step toward getting this research project off the ground. At its meeting in Kiel on June 28, 2007, the Senate approved the foundation of a new institute in Cologne, subject only to securing the necessary financing.

Top international researchers are to be appointed to head the new MPI. The new institute in Cologne will make an even dozen Max Planck Institutes in North Rhine-Westphalia, adding further support to the development of a life science cluster of worldwide significance.

The Max Planck Institute for the Biology of Aging will study the fundamental biological processes that control the normal aging of living organisms. In this respect, the institute in Cologne differs from other institutions that focus on clinical or pathological processes. The primary emphasis here will be on basic research using model organisms. One of the most important laboratory findings in this field in recent years has been

the discovery that changes in individual genes can extend the life span of these organisms. For example, it has been found that mutations in genes in the insulin signal pathway can substantially affect the life expectancy of mice, roundworms and fruit flies.

The mouse *Mus musculus*, the fruit fly *Drosophila melanogaster*, the roundworm *Caenorhabditis elegans* and the single-cell yeast *Saccharomyces cerevisiae* are particularly suited to a study of the interaction between changes in

Mice, fruit flies, yeast and roundworms are all models for the age research to be conducted at the new Max Planck Institute in Cologne.

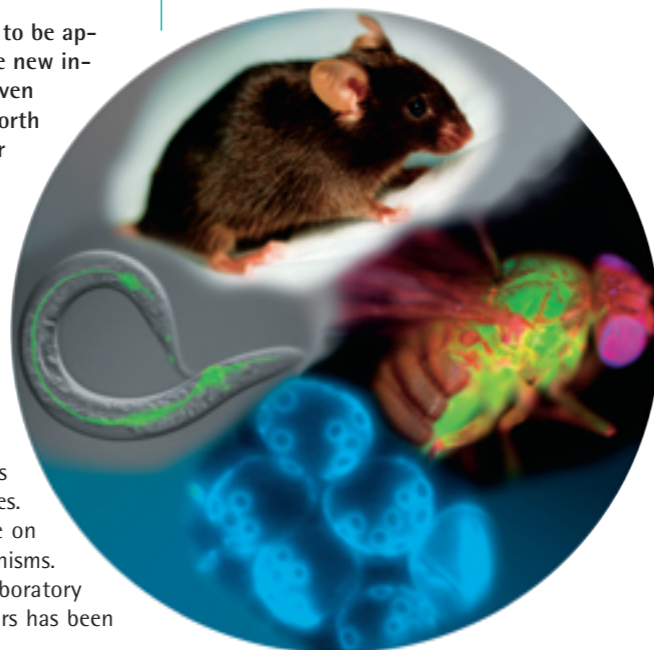


PHOTO: ADAM ANTEBI

genetic composition and their effects on the structure of the individual, since all of the genes of these model organisms are known. Other advantages include their short life span and high fertility. The one-millimeter-long worm comprises barely a thousand genes, matures in three to four days and lives for only three to four weeks. It is no coincidence that this tiny creature has become a favorite beast of burden in both genetic and age research. And it is now known that over a hundred of its genes have an impact on life expectancy.

The institute will initially comprise three departments. One area of emphasis will be on evolutionary biology, developmental biology and genetics against the background of longevity in the fruit fly *Drosophila*. The second area of study to which the Institute for the Biology of Aging will devote itself will comprise molecular signal pathways and their interaction with the environment, focusing on the duration of development, maturity and aging of *Caenorhabditis elegans*. The third research department is expected to focus on the influence of mutations on the basic energy balance of mitochondria, the power stations of cells, and consequently also on the life span of mammals, as represented by mice.

The plans drawn up to date anticipate a five-year development period for the institute. By 2012, a total of four departments are expected to have started work, along with four independent junior research groups. The roughly one hundred members of staff – scientists, administrators and technical personnel – will, in the final stage of development, dispose over an annual budget on the order of 15 million euros.

The Max Planck Society chose Cologne as the location "because North Rhine-Westphalia offers considerable scientific potential, as well as the right conditions to develop a successful life science research cluster," explained Max Planck Society President Peter Gruss. "The University of Cologne in particular will contribute substantially to this cluster." As part of the Excellence Initiative, the university has, in fact, already submitted an application to form an Excellence Cluster devoted to the subject of age research. The extra funding will enable additional scientists to be appointed. The new Max Planck Directors will also have links with the Faculty of Medicine, and the university is planning a master's program in this field.

The scientific environment is further enriched by the Max Planck Institutes for Neurological Research in Cologne, Molecular Physiology in Dortmund and Molecular Biomedicine in Münster, as well as caesar, the soon-to-be-reoriented research center in Bonn. The new Max Planck Institute to join the scene will also be ideally located on campus, directly adjacent to the University of Cologne. ●

FEDERAL PRESIDENT HORST KÖHLER VISITS MPS OUTPOST IN MANAUS
A Plea for the Climate

The question of how to put a stop to climate change is taxing more than a few politicians at present. The issue has taken Federal President Horst Köhler as far afield as Amazonia: during a state visit to Latin America, he sought advice from an expert group of Max Planck scientists on what politicians in Germany and worldwide can do to mitigate the effects of our changing climate. The Max Planck Society has for many years maintained a tropical outpost in Manaus, Brazil.



Sensitive ecosystem: For many years, Max Planck researchers working in Manaus have been investigating the significance of the tropical rainforest for the global climate.

On a boat trip along the "Encontro dos Aguas," Meinrat Andreae, Director at the Max Planck Institute for Chemistry in Mainz, explained the significance of the tropical rainforests for the global climate, and the havoc resulting from the overexploitation of this sensitive ecosystem. The Amazon basin, which accounts for more than half the total area of tropical rainforests, is in effect an all-embracing life support system for the planet as a whole. However, human intervention and global climate change are threatening the key functions of this system, namely its ability to rid the atmosphere of pollution, stabilize the climate and regulate the water balance.

Andreae placed particular emphasis on the incomparable wealth of species that inhabit the tropical rainforests. Besides thousands of species of birds and mammals, there are tens of thousand of plants, hundreds of thousands of invertebrates, and insect species by the million. "The vast majority have not even been scientifically described, and never will be," said the Director of the MPI in Mainz. "Every hectare of rainforest that is destroyed is another page torn

from the book of evolution." It is therefore imperative to protect and preserve Amazonia as the "library of life."

The consequences of climate change and the ecological significance of the rainforests were also the focal point of a subsequent round of discussions in which Andreae and the Federal President were joined by Wolfgang Junk of the Max Planck Institute for Limnology and Jürgen Kesselmeier of the Max Planck Institute for Chemistry. The host country was represented by Virgilio Viana, the Minister of the Environment for the State of Amazonas, and Muriel Saraoussi, Secretary of State at the Brazilian Ministry of the Environment. The scientists and politicians unanimously agreed that measures to protect the climate must be delayed no longer. "It is now quite clear that the time has come for action," declared the Federal President at the end of the discussion.

Scientists from the Max Planck Institute for Chemistry have been conducting expeditions and measurement campaigns in Brazil for 20 years now. Their research centers primarily on climate-relevant trace elements and how these are exchanged between vegetation, soil and atmosphere. The effects of these cycles of matter extend far beyond the Amazon and play a major role in the global climate.

The tropical branch in Manaus originated almost forty years ago as a joint venture between the Max Planck Institute for Chemistry in Mainz and the Institute for Limnology in Plön and the Instituto Nacional de Pesquisas da Amazônia (INPA). Wolfgang Junk, who has headed the Tropical Ecology group at the MPI for Limnology since 1980, has used the base to research and classify the waters and floodplains of the Amazon. Upon his retirement in the middle of this year, his research group will be disbanded, now that the MPI in Plön has changed its focus of study. Under the leadership of Meinrat Andreae, the Max Planck Institute for Chemistry in Mainz will accede to the cooperation agreement with the INPA, with the task of research coordination falling to Jürgen Kesselmeier. Junk's scientific work in the field of biodiversity and the ecology of the Amazon floodplains will, to some extent, be continued under the direction of the MPI for Chemistry and will be integrated into the new research profile of the Manaus branch, which will be oriented toward biogeochemistry and climate research. ●



VIP visit: Federal President Horst Köhler (second from right) being briefed by Wolfgang Junk, Jürgen Kesselmeier and Meinrat O. Andreae (from left) on the status of their research in Manaus.

PHOTOS: MPI FOR CHEMISTRY / DPA - PICTURE ALLIANCE

NATIONWIDE JUNIOR RESEARCH COMPETITION "JUGEND FORSCHT"
When Cress Spins

The "Jugend forscht" (youth research) competition reached its grand finale in mid-May when Germany's best young researchers met in Hamburg for the final round of the national contest. At the beginning of the year, over 9,000 young people first answered the call of "Champions wanted!" and entered the 42nd round of Germany's best-known contest for junior scientists. In the end, only 189 of them qualified. Out of a total of 109 projects, the jury had to choose the winners in six different categories, as well as the recipients of various special prizes. The prizes in the Biology field were all donated by the Max Planck Society, and the presentations were made – on behalf of the President – by Nobel Prize winner and Director at the Max Planck Institute for Biophysics in Frankfurt, Hartmut Michel.

The jurors found Ajescha Prozell's work on wasps as hazardous substance testers for insecticides in classrooms impressively simple. The project earned the 15-year-old the first prize, worth 1,500 euros, in the biology segment. Ajescha made use of the sensitivity of wasps and two other insect species to various chemical compounds. Her test was simple, reliable and highly economical, the jury explained, and made her the clear winner in her class. Second place was shared by two young researchers from Baden-Württemberg: 18-year-old Samuel Fink and 17-year-old Andrés Kroker were awarded the 1,000-euro prize for their work on the growth of cress seeds. Their project addressed the question of what happens to the plant when it is exposed to an increased gravitational force. To answer the question, they developed a centrifuge for their experiments with cress seedlings. They subsequently observed that, to maintain their stability, the plants adapted the thickness of their cell walls according to the load imposed by the centrifuge.

Research into red wine earned Dominik Herzog from Kirchheimbolanden in Rhineland-Palatinate third place and 500 euros in prize money. He aimed to find an improved method of producing a red wine with the deepest possible color from the Domina grape. The budding

scientist succeeded in producing the deepest red wine by using traditional fermentation with pure-culture yeast. Hamburg school student Laiq-Jan Saidi won fourth prize, worth 375 euros, for his research into lichens. Lichens are very sensitive to their environment, and poor air causes them to die. The 18-year-old investigated the air quality in the west of Hamburg by mapping 11 locations in which lichens can be found. In the process, he observed a correlation be-



National champion meets Nobel Prize winner: Max Planck Director Hartmut Michel congratulates Ajescha Prozell on winning first prize in the biology segment.

tween emissions released into the air and lichen growth. He was thus able to discover that, despite heavy traffic, Hamburg's inner city is only moderately polluted. By comparison, the air quality on the northern banks of the River Elbe proved to be worse due to the sulfur dioxide produced in the combustion of marine diesel fuel. However, a comparison with earlier surveys showed that Hamburg's air has improved substantially over 23 years ago.

Fifth prize, worth 250 euros, went to Vivien Miriam Rohwedder from Preetz in Schleswig-Holstein for her research into roundworms. She studied the behavior of *Steinernema feltiae*, a parasitic species that infests mealworms and wax moth larvae and that is therefore a popular choice in biological pest control. As the 19-year-old discovered, living host animals trigger an increase in movement on the part of the roundworms. ●



An optimized method of making wine earned third place for Dominik Herzog (top), while Laiq-Jan Saidi took fourth place for his "lichens as bioindicators" project.



Samuel Fink and Andrés Kroker placed second for their work on cress seedling growth. Fifth place went to Vivien Miriam Rohwedder, who studied mealworms and wax moth larvae.

PHOTOS: JUGEND FORSCHT

Pinboard

EUROPE'S STRONGEST MAGNET can now be found at the Max Planck Institute for Neurological Research in Cologne. Since May, it has been part of a newly installed nuclear magnetic resonance tomograph that is used by scientists to study the brain. The new instrument operates at 11.7 Tesla, which is 235,000 times the strength of Earth's magnetic field. The Max Planck researchers in Cologne are using the nuclear magnetic resonance tomograph to investigate changes in the brain at a molecular level. What happens before, during and after a cerebral infarction? How do stem cells implanted after a stroke behave? How does the brain start to work once more in response to treatment? These are some of the questions to which it is hoped the new equipment will provide detailed answers. Nuclear magnetic resonance imaging is a procedure that uses the magnetic properties of atomic nuclei to create images: the human or animal subjects under investigation are placed in a very strong magnetic field, which causes the atoms to modify their spin. When the magnet is switched off, the atoms revert to their original condition – in other words, their spin changes and specific signals are emitted from which it is possible to calculate a cross-sectional image of organs and tissue.



Award-winning project: The H.E.S.S. team, headed by Director Werner Hofmann (fourth from right) at the Max Planck Institute for Nuclear Physics, was delighted to receive the Descartes Prize.

MARATHON CELEBRATION: For an entire day, research formed the focal point of political life in Brussels. The day's events marked both the 50th anniversary of science-related activities in Europe and the launch of the European Commission's Seventh Research Framework Program. And what better day could there be for the Science Tunnel, the Max Planck Society's multimedia exhibition, to open its doors in Brussels? The MPS also scored highly later on in the evening at the presentation of the Descartes Prizes: one of the three award-winning projects was the H.E.S.S., the High Energy Stereoscopic System project managed by Werner Hofmann at the Max Planck Institute for Nuclear Physics. The activities of the H.E.S.S. researchers, who received a third of the one million euros in prize money, focus on a system of telescopes in Namibia that have opened a new window into space, where they are detecting the sources of cosmic gamma radiation. Five other projects that had been

short-listed were each also rewarded 30,000 euros, putting a smile on the faces of researchers from three more Max Planck Institutes.

ELITE MEETS EXCELLENCE: No fewer than 10 Max Planck Institutes are partnering a special master's degree course at Julius Maximilian University in Würzburg. The course is aimed at exceptionally accomplished and motivated students of physics and nano-structure technology, and was established as part of the newly created Bavarian Elite network that embraces universities across the state of Bavaria. In cooperation with the Max Planck Institutes for Solid State Research, Metals Research, Physics, Astrophysics, Extraterrestrial Physics, Biophysical Chemistry, Dynamics and Self-Organization, Physics of Complex Systems, Microstructure Physics and the Fritz Haber Institute, students will be introduced, at the earliest possible stage, to current leading-edge research. By working together in small groups and as members of various teams, they will benefit from optimum intensive, individual training. Special practical research deployments and block seminars in interim periods between lectures, reinforced by personal support and progressive examinations, will substantially curtail the time needed to graduate with a master's degree with a "Focus on Physics," as the course is named.

AN INVITATION TO CAESAR – and 1.5 million euros were cause for celebration for neurobiologists Ray Dolan and Hans-Christian Pape. They share this year's Max Planck Research Prize, the international award presented by the Alexander von Humboldt Foundation and the Max Planck Society. The Prize will be presented in mid-November in Bonn, where the Caesar research center is based. Irish scientist Ray Dolan of University College London and his German colleague Hans-Christian Pape of the WWU Münster were chosen to receive the award funded by the German Federal Ministry of Research for their work in the field of neuromodulation and behavior. Dolan is regarded as one of the pioneers in modern neurobehavioral research, a branch of science that uses imaging techniques to investigate cognitive processes in the brain and their relationship with emotions and behavior. He intends to use the prize money in cooperation with colleagues in Germany to extend his studies on the neurochemical mechanisms that underlie human emotional learning and decision-making processes. Hans-Christian Pape has been researching the molecular and cellular bases of fear and the memory of fear, as well as the processes that regulate wakefulness and sleep in animals. With his 750,000 euros, he hopes to demonstrate corresponding processes in humans and thereby create a basis with which to treat anxiety disorders and epilepsy. ●

PHOTO: EUROPEAN COMMISSION