

Annual Meeting of the Max Planck Society in Berlin

In this, our anniversary year 2011, the Annual Meeting of the Max Planck Society took place from June 7 to 9 in Berlin. Around 700 guests from the worlds of science, politics and industry were in attendance, among them several of the Max Planck Society's Nobel laureates

The climax of the event was the Plenary Assembly at the Berlin offices of Deutsche Telekom on June 9 where, apart from President Peter Gruss, our Federal Chancellor Angela

Merkel and Argentinean Minister of Science José Lino Barañao spoke. Chancellor Merkel warned that if science is to fulfill its responsibilities, it must never be confined to an ivory tower. To equate the crucial efforts to achieve progress with boundless progress would be disastrous. She also emphasized the importance of the breadth of research carried out at the Max Planck institutes: "Given the importance of maintaining a media presence today, and given the need to explain science to the general public, superficiality in research is not the answer we need."

With an eye to the innovation dialogue that she herself initiated, the Chancellor went on to stress the role of the Max Planck Society as a competent and dependable partner to the federal government's research and innovation policy. In the ensuing plenary lecture on "Art, science and the globalization of images in the early modern era," Gerhard Wolf of the Kunsthistorisches Institut in Florence explained how the art of the Occident and that of the Orient have influenced one another and why conventional art history takes only a very narrow view of the history of Europe.

Peter Gruss, Angela Merkel and José Lino Barañao (from left)



Max Planck Center to Open in Japan

The Max Planck Society has reached an agreement with the Japanese research institute RIKEN to establish a RIKEN – Max Planck – Joint Research Center for Systems Chemical Biology

The two institutions aim to create a platform on which to combine knowledge, experience and infrastructure, as well as new methods and techniques in the field of systems chemical biology. "The foundation of the RIKEN – Max Planck Center raises the cooperation between our two organizations to a new level that is commensurate with the scale and intensity of our joint efforts over the past 25 years," remarked Max

Planck President Peter Gruss. The founding team at the new Center is comprised of four top scientists, including two Max Planck Directors, Herbert Waldmann and Peter Seeberger, and two researchers from the RIKEN Advanced Science Institute (RIKEN ASI), Hiroyuki Osada and Naoyuki Taniguchi. Two new International Max Planck Research Schools offering a structured doctoral program for talented young scientists are due to be

integrated into the work of the Center. In addition, regular exchanges of research staff and doctoral students, as well as opportunities for practical training and symposia, will encourage scientific communication. The RIKEN – Max Planck – Joint Research Center for Systems Chemical Biology will be the sixth Max Planck Center to be opened by the Max Planck Society with a partner outside of Germany.

New EU Project at the Fritz Haber Institute

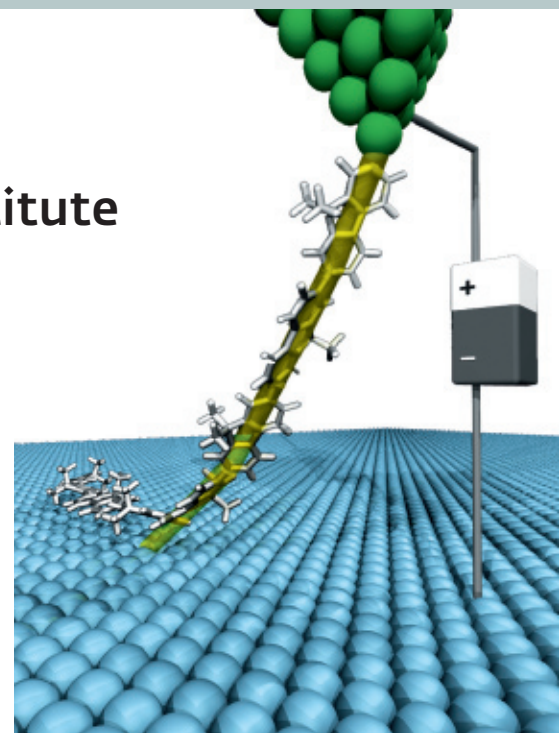
Over a period of four years, the European Union will provide almost ten million euros in funding for the “Atomic Scale and Single Molecule Logic Gate Technologies” (AtMol) project

In the search for faster and more efficient processors, computer chip manufacturers are approaching the physical limits of miniaturization. The smallest transistors, just a few nanometers in size (a nanometer is one billionth of a meter), featured in modern microprocessors can no longer be made any smaller by conventional techniques employing so-called top-down processes.

The semiconductor industry therefore finds itself compelled to accommodate more transistors on each chip and run them at higher clock speeds – both of which increase energy consumption and generate more waste heat. Scientists and engineers worldwide are searching feverishly for new types of electronic circuitry that will

one day take the place of conventional silicon-based processors and provide the foundation for the computers of the future.

Processors based on individual molecules – potentially in combination with existing technologies – are expected to combine the advantages of molecular self-organization with low manufacturing costs and minimal energy consumption – a promising prospect for future generations of computer chips. However, it is first necessary to develop an initial prototype – a key challenge recently addressed by an international consortium of scientists and engineers working on the “Atomic Scale and Single Molecule Logic Gate Technologies” project. Among those involved are researchers headed by phys-



Drawing out individual polymers from a surface and applying an electric voltage provides a means of investigating how charges are transferred along molecular wires on the atomic scale.

icist Leonhard Grill at the Fritz Haber Institute of the Max Planck Society (see also [MAXPLANCKRESEARCH 2/2011](#), page 72 ff.).

Fresh Wind for Science

Germany's 46th nationwide junior research contest “Jugend forscht” took place in Kiel



In the presence of the German Federal President, Manfred Milinski, Director at the Max Planck Institute for Evolutionary Biology in Plön, duly congratulated the national winner in the Biology category, Charlotte Decker from Münster. The 18-year-old student analyzed the importance of the plant hormone ethylene as part of the ripening process in apples. For over 30 years, the Max Planck Society has donated prizes for the “Jugend forscht” competition. Since 2006, the MPS has provided all five awards in the field of Biology. But other forms of support are also available to junior researchers: This year's national winner in the Physics category, 16-year-old Benjamin Walter from Meißen, investigated the interaction between coronene, an organic molecule, and a germanium surface during a period of work experience with the group headed by Karsten Horn at the Fritz Haber Institute of the Max Planck Society. This budding scientist made a deep impression on jury members across the board and was thus invited to take part in the Europe-wide “23rd EU Contest for Young Scientists” taking place in Helsinki in the fall.

National Biology winner Charlotte Decker with Max Planck Director Manfred Milinski.

Visit to Lake Constance

An exhibition devoted to health research was on display in a series of 18 pavilions on the island of Mainau until September 4. A slight detour to the visitor center at the Max Planck Institute for Ornithology in Radolfzell also proved worthwhile

The hands-on exhibition on Mainau offered plenty of insights into current health research in Germany. The Max Planck Society pavilion was devoted to issues of both global and regional significance, namely infectious diseases. The display featured three specific research projects conducted at Max Planck institutes. Visitors were invited to learn more about one of the world's most persistent killers – the bacteria *Mycobacillus tuberculosis* – and discover how scientists



aim to defeat it with a new vaccination. They were also able to take a new look at an old and unwelcome acquaintance, the herpes virus, and discover the role played by migratory birds in spreading diseases.

A slight detour to the visitor center at the Max Planck Institute for Ornithology in the Möggingen district of Radolfzell was also strongly recommended. The clear objective here is “to allow visitors to experience research through creativity and give them food for thought.” The “Hennhouse” media building and the bee and butterfly meadow “BeeMarie” were opened in May 2010. Since then, a third major feature has been completed, the workshop area housed in a former mill. Starting immediately, children's workshops will be held on a regular basis twice a week and during vacation periods. Visitors – grown-ups included – are welcome to rediscover their delight in experimentation and explore their own questions and ideas. The objective is to let knowledge be experienced rather than explained.

Discoveries in health research: Exciting exhibits offer insights into science.

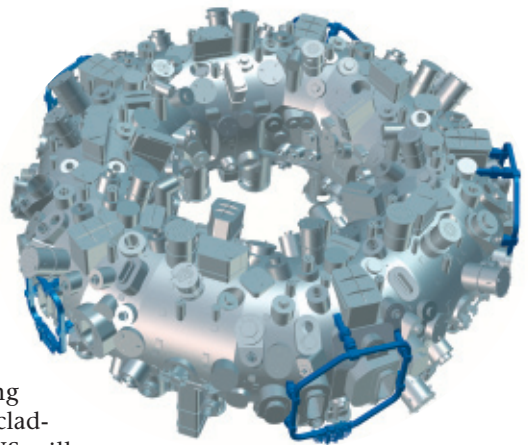
US Takes Part in the Wendelstein 7-X Fusion Project

Multi-million dollar investment marks the start of a US research program at the German facility

The US is contributing more than 7.5 million dollars to develop the Wendelstein 7-X fusion facility at the Max Planck Institute for Plasma Physics (IPP) in Greifswald. The President of the Max Planck Society, Peter Gruss, expressed his pleasure at this commitment: “This confirms both the high level of achievement at the Max Planck Institute for Plasma Physics, and the importance of the experimental facility in Greifswald.

“It also demonstrates the strength of American interest in fusion research. The funds being invested here derive from the ‘Innovative Approaches to Fusion’ program run by the US Depart-

ment of Energy.” As part of the three-year joint project that commenced in 2011, scientists from the fusion institutes in Princeton, Oak Ridge and Los Alamos are contributing to the equipment at the German research plant, providing magnetic coils, measuring equipment and designs for wall cladding elements. In return, the US will become a partner in the Wendelstein 7-X research program. “We see this three-year period,” say the US research institutes taking part, “as a step toward a strong partnership that integrates physicists and engineers at a number



Complex technology: The heart of the Wendelstein 7-X fusion plant.

of US institutions into a research project that is of major importance for the worldwide fusion program.”

Joint Research in the Himalayas

Max Planck Institute for Ornithology establishes cooperation with the Ugyen Wangchuck Institute for Environmental and Nature Conservation in Bhutan

Besides possessing an enormously rich flora and fauna of its own, the small Buddhist country of Bhutan is a stopping point on the migratory routes of many rare species that overwinter here. Its climate ranges from sub-tropical to temperate to alpine regions. Three-fourths of the country is covered by forest, half of which is subject to conservation, either as national parks or fully protected nature reserves. Founded in 2004 as a center of excellence in Southeast Asia, the Ugyen Wangchuck Institute for Environmental and Nature Conservation, named after Bhutan's first king, aims to conduct research and scientific studies in the field of ecology for the benefit of the natural environment. Courses in field work in Bhutan, scientific exchanges and joint international projects are all aimed at resolving the urgent problems of global climate change, which also threatens Bhutan's fantastic biodiversity. By carrying out joint studies in the wild, scientists from Martin Wikelski's department of migration and immuno-ecology at the Max Planck Institute for Ornithology and their Bhutanese colleagues hope to discover how the high-altitude migration of certain species in the Himalayas is affected by the environment. These creatures often cover several thousand meters of altitude, and it is not unusual for them to be found even as high as 5,000 meters above sea level. The researchers also face the challenge of developing new radio telemetry techniques to cope with the special conditions in such mountainous territory.



The Himalaya mountain range in Bhutan.

Focusing on particularly rare species, such as the endangered black-necked crane, which overwinters in Bhutan, the scientists hope that, by analyzing ecological data and movement patterns, they will be able to develop more accurate measures to protect specific migratory corridors and help preserve the phenomenon of migration.

On the Net



Uni(verse) for all

Is there a second Earth? Just what was the Big Bang? Why do stars twinkle? How large is the universe – and how old is it? In short talks, astronomers in Heidelberg deliver answers to no fewer than 70 questions about our universe. Volker Springel of the Heidelberg Institute for Theoretical Studies, for example, guides his audience through the largest observable structures in the universe, while Markus Pössel of the Heidelberg Haus der Astronomie covers the most frequent misconceptions about black holes. All of the German-language lectures are available on the Spektrum-Verlag YouTube channel: www.youtube.com/spektrumverlag

Impressions of Lindau

Sven-Eric Schelhorn was one of the 22 young Max Planck scientists who took part in the Lindau Nobel Laureate Meeting in late June. The Meeting, which is held annually, provides an opportunity for junior scientists to converse with Nobel laureates and gain valuable career guidance. In his German-language video blog, Sven-Eric provides an introduction to his institute – the Max Planck Institute for Informatics in Saarbrücken – and describes his experiences in Lindau. One of the questions he asked other international students (and one Nobel laureate) was how they reconcile their scientific career with their family. You can listen to the answers here: www.mpg.de/4357666/schelhorn_videoblog

The Goose Whisperer

On July 22, Seewiesen celebrated its 50th anniversary. The location has a long history: this is where the Max Planck Institute for Behavioral Psychology was founded in the 1950s. One of the best-known scientists to have worked in Seewiesen was Konrad Lorenz, winner of the Nobel Prize for Medicine and founder of comparative behavioral research. A new German-language podcast in the series devoted to the Max Planck Society's Nobel laureates describes the work of the man known as the Goose Whisperer: www.mpg.de/4310517/Konrad_Lorenz