

## Strengthening Cutting-Edge Research throughout Europe

Peter Gruss holds talks in the Czech Republic and Hungary

In early March, Max Planck President Peter Gruss met with high-ranking representatives of scientific organizations and ministries in Prague and Budapest to discuss the Teaming Excellence concept designed to strengthen cutting-edge research in the European Union. The basis for the talks was a white paper drafted by the Max Planck Society in collaboration with eight other leading European research organizations. The white paper is aimed at political decision-makers who are currently engaged in EU-level negotiations to determine the form of Horizon 2020, the future European framework programme for research and innovation.

The key component of the initiative is the joint development of centers of excellence. These will be established by regions with the potential for outstanding science, working together with leading research institutions. “However, Teaming Excellence will benefit us in Europe only if we recognize and consistently exploit win-win situations. When it comes to specifics, we must identify subject areas in which certain substantive prerequisites for excellent research are already present. And in addition to the investment needed to establish such centers, sustainable funding must be available to operate them,” commented Peter Gruss.

Regional research partners would thus be well advised to coordinate their individual research interests with their national governments, as prescribed by the EU in its Smart Specialisation Strategy concept for future support from the structural fund. Hungary and the Czech Republic are among the countries that could profit from such an initiative. “This would give a boost to each country’s own scientific excellence – and expanding the cutting edge would also strengthen the competitiveness of the European Research Area on the global level,” the Max Planck President emphasized.

Dialog in Budapest: Max Planck President Peter Gruss in discussion with József Pálinskás, President of the Hungarian Academy of Sciences.



## A Roundworm Named *Pristionchus maxplancki*

Max Planck researchers discover a previously unknown species in Japan

Roundworms are small, inconspicuous creatures. Probably the best known among them is *Caenorhabditis elegans*, which has made a name for itself as a model organism. With just 959 cells, it is an ideal object of study for developmental biologists, who began tracing the origins of every one of these cells back in the 1960s. Ralf Sommer, Director at the Max Planck Institute for Developmental Biology in Tübingen, has since introduced a second roundworm as a model: *Pristionchus pacificus*.

His aim is to identify the molecular stages that lead, in the course of evolution, to a new phenotype. The interesting thing about *Pristionchus* is that its larvae spend a part of their development with beetles, which they identify with the aid of specific scents. In Japan, the scientists have now encountered a new example that, based on its morphological and molecular characteristics, must be an entirely new species. Its name leaves no doubt as to the origins of its discoverers: *Pristionchus maxplancki*.



## “All in the same boat”

The good ship Science sets sail with a new interactive exhibition

The holds that once carried coal and containers are now stacked with the latest in scientific research. The good ship Science – MS Wissenschaft – has another unusual cargo this summer. The 600 square meters of displays packed onboard this converted river barge offer families, school groups and anyone who wants to experience science with a sense of fun the chance to enjoy lots of interactive exhibits focusing on the theme of the 2013 Year of Science: demographic change.

The keynote of this Year of Science is short and to the point: “We are living longer. There are fewer of us. And we are becoming more diverse.” Research has an important role to play in appreciating the opportunities that this change brings with it, and in actively shaping the fundamental shifts it entails in society and in the lives of every individual. The exhibition entitled “All in the same boat” offers visitors a taste of numerous research projects that study different aspects of demographic change, including the work of four Max Planck institutes: The Max Planck Institute for Human Development presents its REaD project (Reading Education and Development), which looks at multi-religious and multi-ethnic societies in order to shed light on global migration patterns.



From the end of April until mid-September, the exhibition ship MS Wissenschaft will drop anchor in a total of 40 towns and cities on the Rhine, Main and Danube rivers and a host of canals in Germany and Austria. Entry is free of charge.

The two art history institutes, the KHI in Florence and the Bibliotheca Hertziana in Rome, have, as in the past, developed a joint exhibit for the MS Wissenschaft. It uses works of art to highlight demo-

graphic relationships against the mirror of different times and different societies.

Opening times, tour schedules and further information are available at: [www.ms-wissenschaft.de](http://www.ms-wissenschaft.de)

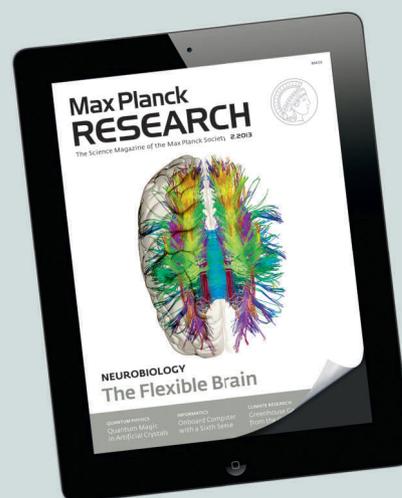
## Research Doesn't Have to Be Heavy

MAXPLANCKRESEARCH is now available in a tablet version

The Max Planck Society's science magazine is now available in an electronic version for tablets and smartphones. The eMagazine is available for the Apple iPad and Android devices, and is easy to download free of charge from the relevant stores. Or if you prefer to read MAXPLANCKRESEARCH on the screen of your desktop PC, the magazine is also available on the Max Planck Society website. There are also videos, animations and podcasts to supplement the topics in the print version of the magazine. Users can discover firsthand the driving forces behind the science of today and tomorrow – whenever and wherever they wish.

Desktop version: [www.mpg.de/mpresearch](http://www.mpg.de/mpresearch)

Tablet version: [www.mpg.de/mpr-mobile](http://www.mpg.de/mpr-mobile)



# Science on the Silver Screen

Disneynature movie “Chimpanzee” premieres in Germany on May 9

For 33 years now, Christophe Boesch, Director at the Max Planck Institute for Evolutionary Anthropology in Leipzig, has been studying the lifestyle and unique culture of the chimpanzees in the Tai National Park in western Ivory Coast. He and his team have amassed a huge collection of observations – enough material for a movie script. The two directors and producers Alastair Fothergill and Mark Linfield, best known for their film “Earth,” have turned this material into a Disneynature film. The project would not have been possible without the support of local workers and the scientists’ expertise. So “Chimpanzee” is more than just a charming family film – it is actually an exciting glimpse of research in action. And if you would like to take a look behind the scenes, there is plenty of information, including clips and photos: [www.schimpanzen.mpg.de](http://www.schimpanzen.mpg.de) (in German only).



Christophe Boesch has spent years living and working in the Tai National Park. Today, his main focus is on protecting these primates against the risk of extinction.

# Max Planck Society Ranks among Top Employers

Focus magazine publishes a list of 370 German companies

Die TOP 15		
Platz	Unternehmen	Punkt-wert*
1	Max-Planck-Gesellschaft	7,2
2	Fraunhofer-Gesellschaft	7,1
3	TÜV Nord	6,0
4	Ferchau Engineering	5,8
5	Ges. f. Konsumforsch. (GfK)	5,8
6	Bechtle	5,4
7	TNS Infratest	5,4
8	PwC	5,0
9	Ernst & Young	5,0
10	KPMG	5,0
11	IAV	4,9
12	euro engineering	4,9
13	Ecovis	4,8
14	McKinsey & Company	4,8
15	ECE Projektmanagement	4,8

The news magazine Focus took a close look at 370 companies spanning a total of 17 different sectors. This group was filtered out of an initial 820 employers whose workers were surveyed via the career network Xing by statisticians appointed by Focus. Only those who scored well in the first test made it to the second round, in which 6,300 employees of all ages and all hierarchy levels were asked to rate their employer. The assessment criteria included image and social responsibility, but also pay and recognition of work performed, as well as career opportunities.



All of these things are governed by somewhat different rules at the Max Planck Society, which is funded by German taxpayers and is subject to the civil service regulations on pay and conditions, unlike in private sector companies that manufacture popular consumer products. The latter accounted for the bulk of the award-winning employers – among the top ten alone, five were automobile manufacturers. The Max Planck Society came in 13th place in the overall rankings, making it – and the Fraunhofer-Gesellschaft in 14th place – the only publicly funded institutions in the top 100. In the “Research and Consulting” category, the Max Planck Society was ranked in first place.

The Max Planck Society ranked 13th in the Focus list of 370 German companies. In the “Research and Consulting” category, it leads the field in first place.

# New Technology for Animated Film Specialists

It will soon be easier to transfer movie heroes into virtual worlds with even greater realism

Hollywood spends a lot of time and money chasing monsters in virtual reality. Now scientists at the Max Planck Institute for Informatics in Saarbrücken have developed a process to significantly simplify such scenes. The actors are filmed on camera wearing their normal clothing. Their movements are then analyzed by a computer running special software, and the movement skeleton is transferred to a virtual figure. But rather than the dozens of cameras required for the animations made in Hollywood, the new process needs only five to twelve ordinary video cameras. The computer calculates movements so fast that they can be transferred directly to the animated figure with no time delay.

The computer scientists have also further refined the computational process, which has since been patented. It can now even cope with scenes involv-



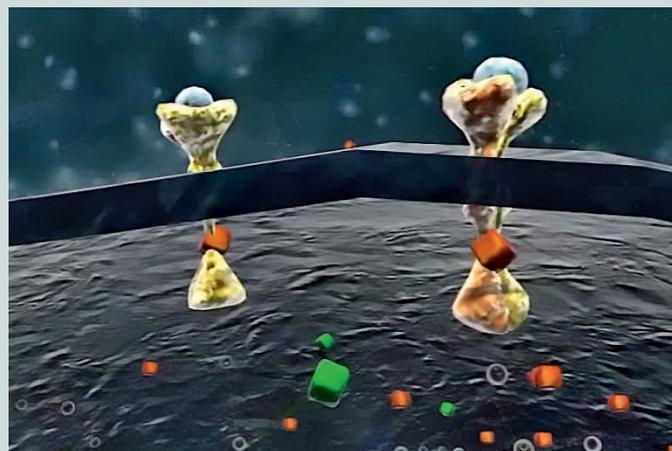
Ordinary cameras are used to film actors wearing their normal clothing. Special computer software then analyzes their movements and transfers these as a movement skeleton to a virtual figure.

ing several persons whose body parts are superimposed one upon another in the recorded images. Surface details can also be captured so precisely that the drape of the actors' costumes can be reproduced with completely realistic accuracy – something that no other computer program in the world has managed to date.

As a result, the new technology also has numerous applications outside of the film and game industries. Athletes can use it to analyze individual movements without the distraction of markers attached to their body. TV sports journalists could even deliver a live commentary on every movement made, for example, by a high jumper or discus thrower.

## Cancer Drugs Clear the Next Hurdle

Max Planck Institute of Biochemistry, Lead Discovery Center GmbH and Qurient sign licensing agreement



To activate the AXL kinase and pass its signal on to the cell nucleus, an external signaling substance (blue) must bind with the internal energy carrier ATP (green). The inhibitors (orange) prevent the signal from being passed on by blocking the ATP binding sites.

Cancer is the second most frequent cause of human mortality, claiming around 7.6 million lives every year. And the demand for effective drug treatments continues to rise. Most cancer patients die because individual tumor cells spread throughout the body, forming metastases. Now scientists at the Max Planck Institute of Biochemistry in Martinsried and their partners at the Lead Discovery Center GmbH have entered into an agreement with South Korean firm Qurient Co., Ltd. to license a group of substances they have been working on for some years – AXL kinase inhibitors. These are designed to specifically and selectively attack metastasizing drug-resistant tumors.

The AXL kinase is a receptor protein found on the surface of numerous cell types. It is able to recognize special signal substances that play a key role in the survival and migration of cells. The scientists have demonstrated that fewer metastases are formed if the kinase is deactivated. Qurient will gradually introduce the substances tested in preclinical and clinical trials. If the experiments and clinical studies are successful, a drug based on the new ingredients could be available by the end of the decade.

# From Idea to Industry

Future Dialogue in Moscow focuses on the conditions required for innovation

“The Innovation Engine – From Science to Solutions”: That was the theme of this year’s Future Dialogue, the fourth in an annual series of conferences organized by Siemens and the Max Planck Society. Early in April, guests from across the world converged on Moscow, among them leading researchers from Harvard and MIT, political decision-makers, and journalists and representatives of industry. They discussed how to bring together a critical mass of cutting-edge researchers, dynamic business enterprises and new business startups to turn creative ideas into marketable solutions. Innovation is, after all, the crucial driving force behind economic growth.

Success stories such as that of America’s Silicon Valley clearly demonstrate that close geographic proximity between uni-



Animated discussion: Max Planck President Peter Gruss, moderator Delia Meth-Cohn and Dmitry Anatolyevich Medvedev, Prime Minister of the Russian Federation (from left).

versities, incubators, new business founders and high-tech industry is a key factor. Russia is about to put this to the test: The Future Dialogue took place on the site of the Skolkovo Innovation Center that is even now being established. Several representatives of the Skolkovo Foundation also took part in the conference. In the coming years the state will be investing

almost three billion US dollars in this project. Numerous international concerns have already agreed to participate, among them Intel, Microsoft, Nokia, Siemens and Boeing. The scientific centerpiece is the Skolkovo Institute of Science and Technology, which is being modeled on MIT.

Photo: Siemens

## On the Net



### Blogging about Life as an Anthropologist

Kerstin Hoppenhaus is a filmmaker and freelance science journalist. She shared the credits with Markus Imhoof for the film “More than Honey,” which documented the worldwide collapse of honey bee populations. From April through June, she will be working at the Max Planck Institute for Evolutionary Anthropology, and she will be keeping readers up to date with life at the Leipzig institute in her blog #iEVA. Her main interest lies in research as a process, at the end of which there (maybe) lies a result. Texts, photos, interviews and video clips will be supplemented with articles in various media, including, for example, the newspaper DIE ZEIT. [www.scilogs.com/i\\_eva](http://www.scilogs.com/i_eva)

### Outstanding Nature Photography

The close-up of the gleaming blue featherless head of a southern cassowary fairly resonates with color, its beak pecking at the equally blue berries of an eleo-carpus. This image of the flightless cassowary, native to New Guinea and Northern Australia, earned nature photographer Christian Ziegler, a member of the Board of Trustees of the Max Planck Institute for Ornithology, the World Press Award 2013 in the Nature/Individual photo category. The population of these birds is under threat from feral pigs, which eat the eggs and chicks, as well as from speeding road traffic. Furthermore, in New Guinea, the double-wattled cassowary is hunted for its feathers, which are used in ceremonial headdresses. [www.worldpressphoto.org/awards/2013/nature/christian-ziegler](http://www.worldpressphoto.org/awards/2013/nature/christian-ziegler)

### Oceanic Heat Pump

What better way to prepare for tropical storms or droughts? Jochem Marotzke of the Max Planck Institute for Meteorology is investigating the fluctuations in the Atlantic Ocean currents that are critical in determining these extreme climate conditions. On the basis of simulations, he can precisely predict them through to 2014. Two new videos available through our film portal describe the methods our Hamburg-based climate researchers use, and the climate models that underpin their work. [www.mpg.de/7049266/ocean](http://www.mpg.de/7049266/ocean)