

Focus on IT

Max Planck Society meets in Saarbrücken for its General Meeting




Turning point: Max Planck President Martin Stratmann opened the Plenary Assembly, which took place at the Alte Schmelz industrial heritage venue near Saarbrücken, with a talk on the significance of digitization.

fers to the increasing connectivity between everyday items and the internet, and between one another. The keynote speaker, Adi Shamir, cryptology expert and Turing Award winner from the Weizmann Institute in Israel, addressed the challenges presented by this development, especially in terms of data security.

Shamir subsequently discussed his theories at the podium with Dietmar Harhoff from the Max Planck Institute for Innovation and Competition, Ulrich Sieber from the Max Planck Institute for Foreign and International Criminal Law and Joachim Buhmann, Director of the Institute for Machine Learning at ETH Zurich. The Directors of

Saarbrücken as a location of excellence in IT set the tone for the Plenary Assembly that traditionally brings the Max Planck Society's General Meeting to a close. In his talk, President Martin Stratmann explored the turning point society has reached, brought about by digitization (see page 10 ff.). The focus then shifted to the "Internet of Things," which re-

the Max Planck Institutes and the research organization's main decision-making bodies had met beforehand at the two-day General Meeting.

 Videos from the Plenary Assembly: <https://www.mpg.de/10589352/max-planck-society-annual-meeting-2016>

Award-Worthy Aircraft

Max Planck Society sponsors winner of "Jugend forscht" competition

Germany's top entrants in the "Jugend forscht" science competition for young people received their awards in Paderborn in May. The Max Planck Society has endowed the prize in the physics category for many years now. This year, Karsten Danzmann, Director at the Max Planck Institute for Gravitational Physics, presented the award to Ivo Zell from Hesse. The 17-year-old built a model of a flying wing aircraft, which has optimized aerodynamics and significantly lower fuel consumption compared with conventional airplanes. Nevertheless, these special planes

also have disadvantages: they can easily go into a tailspin and are difficult to pilot.

Based on a concept from the 1930s, Ivo Zell designed a flying wing with stable flight characteristics. He tested its properties theoretically and experimentally using self-designed measuring instruments. While the young researcher was delighted with the award, it also brought back memories for the Max Planck Director: Karsten Danzmann was an award winner himself in the late 1960s in the "Schüler experimentieren" research competition for girls and boys under the age of 15.



Highflier: Award winner Ivo Zell receives his certificate from Max Planck Director Karsten Danzmann.

“They are turning their backs on the Enlightenment”

Ralph Hertwig, Director at the Max Planck Institute for Human Development, criticizes attempts to encourage citizens to behave in a certain way using psychological tricks.

Humans are imperfect. They often take the easy option instead of behaving rationally; they are pleasure-oriented rather than health-conscious. Some politicians would like to change that, particularly when such behavior has public spending implications or is detrimental to health or the environment. Psychologists and behavioral economists from the US have identified new ways to shift public behavior in desired directions. The method is known as “nudging,” and it is also being discussed in Germany. Ralph Hertwig from the Max Planck Institute for Human Development discusses the merits and shortcomings of nudging.

Mr. Hertwig, what methods are being used to encourage people to change their behavior?

Ralph Hertwig: The idea is to achieve the objective without creating financial incentives or imposing bans. Instead, typical human weaknesses, flaws or shortcomings are used that people are generally unaware of. This means most people don't even notice when they are being nudged.

Can you give any specific examples?

A big issue here is organ donation. In Germany, the Organ Transplant Act stipulates that people must be asked to actively consider and decide whether they wish to donate organs after their death – but they don't have to make a decision. The nudging approach would turn the choice around so that everyone becomes an organ donor unless they expressly opt out. And since refusing consent requires more effort than doing nothing, it is assumed that fewer people will object.

Wouldn't more donor organs be desirable?

Of course. Nevertheless, I take a critical view of the approach adopted by using such prompts. It assumes that most citizens would like to donate organs but don't fill out an organ donation form out of sheer laziness. Proponents argue that nudging leads people to make decisions from which they themselves benefit. However, this ap-

proach fails to recognize the diversity of human preferences. There are very understandable reasons for opting not to donate organs. In my view, the decision for or against is so personal and important that everyone should make it consciously.

So you take a critical view of the method?

What concerns me is the underlying view of human beings: it regards them as deficient and too lazy to think for themselves. The nudgers have given up on making people more knowledgeable and encouraging them to use their own reasoning. In a way, they are turning their backs on the Enlightenment.

Haven't we all been subtly influenced for many years, for example through advertising?

Nudging is actually nothing new. Cheap products have long been positioned lower on the shelf in supermarkets and the more expensive ones at eye level so that they sell better. What's new is the use of nudging for governmental purposes, and such tricks being used to influence the public. But this assumes that the government is generally well intentioned – most likely a very naive assumption. The nudgers also apparently deem themselves devoid of the shortcomings that they impute to others.

Are you categorically opposed to nudging?

It's not a black-and-white issue. There are situations where certain forms of nudging can be useful. For example, I believe that making fruit and vegetables easily accessible and candy less accessible in school cafeterias is perfectly legitimate so that children eat more healthily. But you have to carefully weigh up when such methods are appropriate and not simply patronizing, and consider what effect they achieve.

But it is an effective approach isn't it?

Yes, but often with limited scope. In the case of school cafeterias, the nudging effect ends when the kids leave the school grounds. Outside, the children are exposed



Ralph Hertwig

to precisely those temptations that were previously so carefully avoided, such as in the ice-cream parlor, at the bakery and in the supermarket. And eating obviously plays a key role in the family, but the influence definitely doesn't extend that far.

What is the alternative, then?

We have to support people in making good choices, a concept known as “boosting.” To promote healthy eating, we believe that children should be taught from an early age which foods are good for them and why. Parents could be provided with advice on practicing healthy eating habits with their children.

Like nudging, boosting uses scientific findings, but it applies them constructively. A prime example is children who are afraid of numbers and therefore struggle in math. A US study showed that when children are read stories containing numbers a few times a week instead of traditional bedtime stories, and playfully count along with the story and practice arithmetic, their performance in math at school improves significantly. That's exactly how boosting works. Nudging, on the other hand, would play on the fear of math. That's the crucial difference for me.

Interview: Mechthild Zimmermann

Teamwork for the Energy of the Future

MAXNET Energy draws on expertise of ten partners



Joint project: Teresa Sullivan, President of the University of Virginia, and Max Planck President Martin Stratmann signed the agreement on MAXNET Energy.

ity – is not a well developed technology. The catalysts used are either durable but expensive, or inexpensive but wear out easily.

The newly created MAXNET Energy project is looking for a solution to this dilemma. Scientists from a broad range of disciplines are involved, including from the Max Planck Institutes for Chemical Energy Conversion, Eisenforschung (iron research), Kohlenforschung (coal research), Polymer Research, of Colloids and Interfaces, Chemical Physics of Solids, and Dynamics of Complex Technical Systems, as well as the Fritz Haber Institute of the Max Planck Society. Partners from the Cardiff Catalysis Institute in the UK and the University of Virginia in the US are also participating in the venture. A cooperation agreement was signed in April.

A key requirement for achieving the energy transition is the storage of electricity generated by wind turbines and solar plants on a large scale. Power-to-gas plants, which use power from re-

newable sources to generate hydrogen, thus making it storable, offer great potential. However, the electrolysis of water – that is, the generation of hydrogen by splitting water with electric-

New Approach to Treating Schizophrenia

Lead Discovery Center in cooperation with Boehringer Ingelheim

A new active substance for treating schizophrenia is currently being developed at the Lead Discovery Center (LDC). The approach is based on research by Moritz Rossner and his team at the Max Planck Institute for Experimental Medicine in Göttingen. The scientists are examining the role that risk genes, combined with environment-related stress, play in the emergence of the illness and are conducting research into the underlying molecular biological mechanisms.

The goal of the collaboration with the LDC is to build on their research to find a new therapeutically effective substance to combat schizophrenia. The substance would

be developed into a potential active pharmaceutical ingredient that can then be transferred from industry to the pre-clinical and clinical development stages. The pharmaceutical company Boehringer Ingelheim is now also involved following the conclusion of an agreement in May. In return, Boehringer Ingelheim will have the option to exclusively license the new active substance.

The LDC was founded in 2008 as a subsidiary of Max Planck Innovation, the Max Planck Society's technology transfer company. The LDC aims to close the gap between basic research and application in the development of new drugs.



Potential: Moritz Rossner from the Max Planck Institute for Experimental Medicine has obtained highly promising results.

Open House on the Tübingen Campus

Max Planck Institutes invite the public to gain insight into animal testing

At a joint open house in June, the three Max Planck Institutes on the Tübingen campus presented their work to the public. Almost 1,000 visitors attended to learn about such topics as DNA sequencing, motion simulators and robot development, as well as animal testing – particularly at the Max Planck Institute for Biological Cybernetics. Since the release of film footage in September 2014, animal rights activists have been targeting the Institute.

It was of key importance to the scientists to explain the need for animal testing in basic research, and to provide

a first-hand look at the animal holding facilities. A special information room was set up where staff members were available to answer questions. Two in-depth presentations attracted an audience of more than 100 people. “Of course there were some visitors who are fundamentally opposed to animal research,” says Christina Bornschein, press officer at the Max Planck Institute for Biological Cybernetics. “But overall, a lively exchange took place and visitors greatly appreciated our decision to publicly present our research and answer critical questions in depth.”

Transparency: The Max Planck Society attaches great importance to openness in animal research. A brochure explains why animal testing is necessary.



On the Net



Ethnologists' Blog

Whether on refugee policy, the UK's Brexit decision or TTIP, the blog published by the Max Planck Institute for Social Anthropology in Halle is a rich source of information for anyone interested in politics or business. Personal contributions by Chris Hann, Matthijs Krul, Sylvia Terpe, Lale Yalçın-Heckmann and some of their younger colleagues provide food for thought and take readers off to China, Russia, Turkey and other, lesser-known parts of the world.

www.eth.mpg.de/3557160/blog

#ThatsMyScience

The Tübingen campus is introducing its young scientists on a new website: they answer questions about their research, what motivates them and what they like about Tübingen. Videos, photos and posts on Twitter and Facebook arouse curiosity and may well attract students to the city located between the Black Forest and the Swabian Mountains. Participants in the initiative include the Max Planck Institutes for Biological Cybernetics, for Developmental Biology and for Intelligent Systems, as well as the Friedrich Miescher Laboratory.

<http://tuebingenresearchcampus.com/research-in-tuebingen/thats-my-science>

Bringing Dinosaurs to Life

The Natural History Museum (NHM) in London, the Museum für Naturkunde in Berlin and the American Museum of Natural History in New York have launched an online exhibition comprising 300,000 specimens from its collection, as well as captivating 360-degree videos in which the exhibits come to life. The website is the result of a partnership with Google Arts & Culture and follows extensive work to digitize the museums' collections. Visitors can take a virtual walk through the museums' halls and galleries, and browse through nine virtual exhibitions.

Homepage: <https://www.google.com/cultural-institute/beta/project/natural-history>

Video: <https://www.youtube.com/watch?v=p86gh2HEsp0>