

Hairy Donuts

Junior scientists shine in the first Munich Science Slam – with some unusual metaphors

When the Max Planck Institute for Physics organized the first Science Slam in Munich, the tickets were gone in next to no time. In brief presentations, six young scientists introduced the subjects of their research – and delighted the audience with their enthusiasm, wit and easy manner.

What do Mahatma Gandhi, provocative swimwear and positrons have in common? Gandhi went on a hunger strike, Prussia banned “revealing” swim suits and Carl David Anderson discovered the positron – all in the year 1932. So began doctoral student Andreas Moll’s winning presentation at the first Munich Science Slam at the MPI for Physics. The title: “Hunting the missing antimatter.” Six participants – five doctoral students at the International Max Planck Research School and one young post doc – attempted, in just 12 minutes, to explain in layman’s terms how they spend their working day.

Andreas Moll described how it came to be that, since the Big Bang, there has been more matter than antimatter, even though both actually derive from energy in equal parts and immediately revert back in equal pairs. Researchers are using particle accelerators to create matter and antimatter in order to demonstrate that there is always just a little more matter that is unable to pair off with an antimatter partner to form energy. “The surplus matter becomes visible, rather like the audience at a Science Slam.”

An audience of around 200 followed the action on stage with enthusiasm and turned up the volume as the clap-o-meter measured their appreciation. The device measures the loudness of the applause in decibels. “Next time we are going to need a bigger space,” noted Silke Zollinger, who organized the Science Slam. “We didn’t quite expect such a crowd.”

Second place went to Peter Graf, whose Bavarian dialect and self-mocking delivery added much to his de-



Top team: The Science Slammers after the contest, flanked by press officer Silke Zollinger (left) and Director Dieter Lüst (right).

scription of “The dark side of the universe,” or dark matter. “If, for example, a planet is not to fly away, then, according to theoretical physics, its weight must be equal to the centrifugal force. Unfortunately, experiments fail to confirm this,” he explained. “So to make sure that everything still works, physicists have invented a fancy new particle: the axion.”

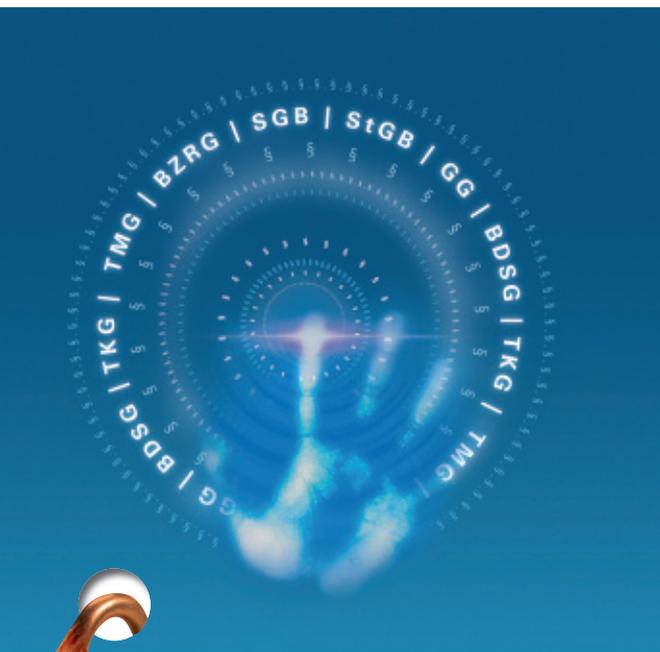
How do I come across as relaxed as possible, and not tense? A week before the event, the participants received a few tips from a drama coach. “But the biggest challenge for the presenters,” said Dieter Lüst, Director at the MPI for Physics, “was to find comparisons that could hold their own with respect to the theme, right through to the end.” Third-placed Thorsten Rahn came up with a particularly original image: He gave an explanation of

string theory, which attempts to overcome contradictions in gravitation and quantum physics. He illustrated this in his PowerPoint presentation using donuts that grew hair, around which the strings then wrapped themselves like spaghetti. “Then we package the whole thing in mathematics and software.” On the screen, a complex picture emerged to illustrate the computational processes, to the accompanying sound of “A Kind of Magic” by Queen.

“I would like to see whether I could generate such enthusiasm among less science-friendly listeners,” wondered winner Andreas Moll at the end of the evening. He received a cup that echoes the logo of the Institute for Physics. All of the participants also received cuddly toys – antimatter particles with a friendly face, and even a hairy donut.

Have You Met ELENA?

The Max Planck Society is among those required to transmit employee data



Important regulations are contained in the following: The Federal Central Criminal Register Act (BZRG), Telemedia Act (TMG), Penal Code (StGB), Federal Data Protection Act (BDSG), Telecommunications Act (TKG) and the Constitution (GG).

What exactly is IT security? What are the main considerations when dealing with personal and confidential data? MPS Data Protection and IT Security Officer Rainer W. Gerling and his colleagues at the institutes believe that everyone who uses a PC for work should familiarize themselves with this subject. MAXPLANCKRESEARCH will be reporting on

this issue at irregular intervals. All public bodies and companies that automatically process the personal data of more than ten employees are required to appoint a Data Protection Officer. The MPS is no exception. Apart from their formal duties, these specialists have also become the general contact for matters relating to the broader aspects of IT security, and they are happy to pass on information. They can also explain the contents of the MPS Data Protection Handbook, in which the essential rules and regulations are outlined. For those who prefer to have it on screen, the Handbook, which has so far been available only on paper, can now, with immediate effect, be found on the intranet as a PDF file in German and English.

Data protection is also an issue for ELENA. The abbreviation stands for the Electronic Pay Statements Act that is intended to close the gap between the employer's electronic HR management systems and the programs used by the authorities. At present, the gap is bridged only on paper – the 60 million or so paper statements issued every year by around 3

million employers. Employees need these statements as proof of entitlement to various benefits provided by public-sector bodies. Unemployment benefit claims, for example, are assessed on the basis of the proofs of employment issued by past employers.

The MPS is required by law to transmit its employees' pay details to a central data storage point. This has been happening since the July salary statements were issued. Starting in 2012, the data is due to be called up via ELENA procedure. At present, however, due to the immense cost, the government is considering cancelling the scheme – to the delight of the data protection community. According to Rainer Gerling, they are understandably concerned that the scope and scale of the data are unlawful and have already lodged a constitutional objection. "Despite this, we have to supply the data," Gerling explains, "because the law is in force and must be complied with."

Employees can also learn more about data protection by taking part in the Max Planck online IT security training. The course is intended for computer users with minimal experience. A short test at the end of each lesson enables participants to check what they have learned. However, there is no need to worry about getting an answer wrong. "Using the IT security training is, of course, not something we keep a record of," says Rainer Gerling.

Everyday Science

PhDnet workshop reflects on everyday phenomena

One of the by-products of crude oil, coal or wood processing is a tarry substance called pitch. It is as brittle as glass, as hard as stone, and yet flows like a liquid. But how fast does pitch drip? How long can a cookie be dunked in hot tea before it breaks? And what, actually, is a candle flame? At their fifth Interdisciplinary Workshop, the doctoral students who make up Max Planck PhDnet got down to discussing just such everyday science.

The meeting held in Bonn in early June was the fifth time that the network members had gathered to talk about aspects of science that went far beyond the bounds of their own disciplines. With "Everyday Science" as their theme, they reflected on a wide variety of day-to-day phenomena. Each contribution stemmed from their individual perspective developed through their studies and Max Planck institute training. The presentations took the form of either posters or brief lectures. The framework for the workshop was consciously modeled on that of conventional conferences. But anyone expecting dry theory or dreary lectures would – depending on their point of view – have been either disappointed or surprised: each of the 16

LeadNet Gathers Momentum

Network meeting for MPS research managers

The first meeting of the new MPS-wide research managers' network was a complete success. Junior scientists with management responsibility joined with guests to discuss matters of common interest and share ideas for joint research projects. The next meeting of LeadNet is planned for 2011.

The network is an initiative prompted by Max Planck Society (MPS) research managers who are keen to develop scientific topics and discuss organizational issues beyond the bounds of their individual institutes. All junior scientists with management responsibility are invited to join the network. The object is to encourage cooperation and boost the exchange of information between group, team and project leaders within the MPS. A website already exists with a mailing list in which over 150 scientists have enrolled (www.leadnet-mpg.de).

The first network meeting in May was held at Schloss Waldthausen near Mainz. Initiator Mario Albrecht (MPI for Informatics) and co-organizer Nicole Dübilier (MPI for Marine Microbiology) began by presenting the results of a brief survey of the 60 or so participants, drawn from around half of the total number of institutes in the three Sections of the MPS. The questions were designed to reveal their motivation for networking. Max Planck Vice President Herbert Jäckle then described the organization of the MPS and replied in detail to questions that had been submitted in advance. This, in turn, led to an intensive discussion of topics rang-



Premiere: Participants attend the first meeting of Max Planck LeadNet.

ing from career opportunities to organizational problems, which reflected the participants' differing experiences at the MPS and at their own institutes. One of the conclusions to emerge was that a lack of communication within and between institutes could unnecessarily impede the successful work of the scientific staff of the MPS. There was agreement that LeadNet will improve the exchange of information.

Benjamin Bowman (MPI for Biochemistry) began the second day of the meeting with a presentation of the various information and data search services available at the MPS, before handing over to Gabriele Gebhardt, who led a short workshop on conflict resolution – as an appetizer for the management seminars the MPS offers for research managers. Patrice Wegener from the Max Planck EU Regional Office at the MPI for Biological Cybernetics illustrated some of the opportunities for research sponsorship at the European level and gave some valuable hints on how to apply to the European Research Council. Nikolai Raffler of the German Research Foundation described the project sponsorship funding available from his organization and explained the evaluation procedure and the features to be expected in successful project applications. Finally, the meeting concluded with scientific workshops devoted to bioinformatics and microbial host interactions. By the end of the day, the first ideas for joint projects were already being discussed.

presentations and 5 posters was both creative and intuitive – a fact that was both cause and effect of the widely diverging interests of the participants.

The 24 doctoral students who took part were also required to think beyond their own complex scientific topics and make their opinions accessible to a general audience. One of the effects was to enhance such general skills as rhetoric, delivery techniques and the ability to present scientific issues – essential skills that will stand them in good stead at international conferences.

In addition to the students' presentations, three keynote speakers, Professor Michael Kramer of the Max Planck Institute for Radio Astronomy, Professor Christopher Engel of the Max

Planck Institute for Research on Collective Goods and Dr. Seth Davis of the MPI for Plant Breeding Research, described their fields of work and their implications for everyday life. One of the main benefits of the ensuing discussions was to enable the doctoral students to familiarize themselves in greater depth with these areas of research, and particularly to critically examine their impact on our daily lives. Summing up the event, PhDnet member Johannes Stelzer, who is responsible for seminars and workshops, commented: "With so many different young scientists in one place, everyone was able to find just the right contact person."

Online Help to Get Started

Information Retrieval Service offers “remote-controlled” search courses

The screenshot shows a presentation slide with the following content:

Major components of a digital library may be grouped into three basic levels and "ranked" according to their complexity

Retrieval Systems
User interfaces providing uniform search capabilities for selected secondary resources, and tools for analyzing & managing the results.

Secondary Resources
Databases & catalogs providing structured metadata and offers in-depth indexing of selected primary resources.

Primary Resources
The original sources containing all text, data, multimedia, or other content intended for publication (print or digital, subscription or OA).

The diagram shows a flow from Scientific Users to Retrieval Systems, then to Secondary Resources, and finally to Primary Resources. An arrow at the bottom indicates increasing complexity from left to right.

Benjamin Bowman (top left) as he appears on screen delivering an online course.

“Research begins here,” reads the inscription above the entrance to the library of the Los Alamos National Laboratory in the US. The Information Retrieval Service at the MPI for Biochemistry in Martinsried now offers online courses explaining the importance of (re)search for science and the facilities available from the MPS.

Many prospective scientists attempt to find the specialist literature they need via search engines, preferably Google, because it’s so simple. “You find a lot, but what you are really looking for is often lost in the crowd, or not even listed,” says Benjamin F. Bowman, head of the Information Retrieval Service of the Biology and Medicine Section in Martinsried. On the other hand, databases such as Chemical Abstracts or Web of Science are tailored specifically to the needs of scientists – indispensable but fee-based services for which the MPS has purchased licenses. “Even many high-caliber doctoral students know far too little about the databases that are available in their discipline, and how to use them efficiently,” Bowman continues. “When, in fact, the first step for a scientist planning a new experiment should be to conduct a thorough search of the latest literature.” A molecular biologist himself, Bowman offers online courses explaining how to go about it.

“Back in 2006, we began offering our courses for scientists and visitors to the MPS, not just locally at the BM Section institutes, but also online for all of the Sections to use.” To take part in an online course, all you need, apart from a PC with an Internet browser, are headphones and speakers. Questions to the course tutor are typed in via the keyboard, using the chat function.

Taking part is an experience: as if by magic, a mouse moves across the screen, starts a program, and through the speakers, Bowman’s voice asks: “Can you hear me?” An answer is now required via the chat function to confirm that the system is working. During the next hour and a half in front of the screen, users are introduced to the most important databases and their contents, and have the chance to open a few pages and browse the information offered.

The MPS currently has a larger collection of digital information resources than any other German research institution. Given the international nature of the users, the courses are normally conducted in English. “But we’re flexible,” Benjamin F. Bowman says. “We’re happy to offer the course in German, if that’s what all of the participants want,” he adds.

In fact, the Information Retrieval Service does even more, offering courses on managing literature resources and bioinformatics programs – with great success. Since 2006, around 2,000 participants have improved their knowledge in nearly 300 courses, Bowman reports. With the aid of Berlin-based molecular biologist Nicola Gaedecke, a Bioinformatics Support Network has been developed at the MPS. The Bioinfo Wiki that went live in mid-2010 describes more than 250 special programs that were developed by Max Planck scientists.

“It was often the case that staff in one institute department didn’t even know what their colleagues on the next floor were doing,” Bowman explains. Now no one can say they weren’t informed – not just Max Planck scientists, but also their professional colleagues worldwide are benefiting from the new collection.