

## Archimedes' Scripts

What X-rays have to do with Archimedes will be explained by Dr. Uwe Bergmann from SLAC. The title of his lecture for the public is "Hidden in medieval parchments: X-ray reveals Archimedes' oldest scripts." Auditorium, September 11, 7 p.m. (in German)

## Cornerstone

PETRA III's next milestone is coming up: the laying of the cornerstone for the new experimental hall on September 14. Everybody working on the project is invited to join the official ceremony at 10:30 a.m. in building 47.

## Heinrich Hertz Lecture

As part of the DESY Theory Workshop, Professor Juan Malcadena (Princeton) will hold this year's Hertz Lecture: "QCD, Strings and Black Holes: A connection between gauge theories and gravity". Auditorium, September 26, 5:30 p.m.

## FLASHLIGHT

So much is currently happening at DESY in the field of research with photons. An up-to-date survey with descriptive examples of research is presented in a new brochure, available as of September 10 at PR (bldg. 1).

## Director's Corner



*This year's Lepton-Photon 2007 conference in Korea gathered some 350 of the world's leading particle physicists. The Lepton-Photon conference takes place every other year and is always a scientific highlight, if not the most important conference of the year. It is great sitting in the plenary sessions listening to latest results from experiments around the world, and this year was special for DESY, because of the many HERA results that were presented. We may have switched it off, but it certainly lives on in the physics!*

*It was therefore a special pleasure for me to announce that the next Lepton-Photon meeting will take place here in Hamburg from August 17 to 22, 2009, the year of DESY's 50<sup>th</sup> anniversary.*

*We particle physicists are now eagerly awaiting the next big event—the start of the LHC next year. One important step for DESY has already happened: the Helmholtz Alliance "Physics at the Terascale", which bundles all German institutes and universities involved in the LHC, started officially on July 1 this year.*

*(continued overleaf)*

## High Grades for HiGrade, PreXFEL and IRUVX

### EU-funding for three DESY-led proposals

Three new funding proposals for the EU's Seventh Framework Programme have just received green light for contract negotiations. The three projects, covering preparations for the XFEL, coordination between national light sources in Europe and high-level R&D for the ILC might receive up to almost 16 million Euros in total. Financial negotiations take place in Brussels this month.

The six-lab proposal "ILC HiGrade" managed by Eckhard Elsen is in for up to five million Euros. Half of the proposal goes into preparing the organisational context for the ILC and includes a

siting study for Europe, the other half goes into technology. The consortium wants to build up to 30 complete cavities using infrastructure at DESY to demonstrate that the ILC's design gradient can be achieved on an industrial scale. Eventually it may be possible to test these cavities in the XFEL linac.

Another five million Euros will probably go to Massimo Altarelli's "Pre-XFEL". As the name suggests, this proposal supports the preparation for the European XFEL, including early recruitment in the photon research area, to develop plans of experimental equipment and photon beamlines. It will play a

major role in coordinating efforts within the XFEL user community and provide support for management and administration.

The third project, "IRUVX" managed by Josef Feldhaus, will combine the resources of five national free-electron laser laboratories into a distributed European research infrastructure. Sixty percent of the envisaged 5.7 million-Euro budget will be used for setting up the consortium and establishing long-term collaborations, forty percent for the preparation of critical technical infrastructure required by all partner facilities. (baw)



## Investigate, Issue, inForm

### First anniversary of DESY inForm

With the release of the September issue DESY inForm celebrates its first anniversary. In thirteen issues, this internal newsletter has taken root and (hopefully) helps to keep DESY staff informed and entertained.

A year ago we started with a lot of good wishes and a two-page edition. It soon became evident that we needed more space. Already half a year later, news, important and interesting topics

from DESY life were spreading on four pages.

We have received a lot of positive feedback so far, but we would like to continue to get your opinions. (she)

Send your suggestions, wishes and criticism to our email address: [inform@desy.de](mailto:inform@desy.de)



## Director's Corner

*It is already gathering momentum because the first vacancy notices have been issued and we are facing exciting, dynamic times with lots of new faces and ideas. You can learn more about DESY's role in the LHC and the Terascale Alliance on page 3 and 4 of this issue.*

*Stay tuned for new physics!  
Rolf-Dieter Heuer*

## Physics Over a Cup of Coffee Science Café DESY is opening soon

Physics is fascinating, and DESY has always tried to get this fascination across to people. As of September 13, this will happen in a new format at the "Science Café DESY". In a café atmosphere, guests will learn about the fascination of physics that DESY people experience every day at work.

Every Thursday at 5 p.m. in the DESY Bistro, there will be a short and easy-to-understand talk in German, followed by a discussion. Visitors of all ages are highly welcome to the Science Café. It is meant as a meeting place for the generations—from granddaughter to grandfather—to discuss exciting physics.

Nevertheless, the Science Café has a very special main target audience. Initiator Waldemar Tausendfreund:

"I hope that many children from sixth grade onwards who are not yet familiar with physics will come. They might not yet have decided whether physics is fun or boring, and we will be able to show them that the sciences are really fun." That is the reason why the talks will be equation-free.

Mathematics is much more readily accepted as a tool when enthusiasm for physics has already developed. Research Director Rolf-Dieter Heuer will start the talks with a report on "The Search for the Construction Plan of the Universe". All physics topics are welcome: X-ray lasers, black holes, time travelling or tsunamis. Waldemar Tausendfreund is still looking for lecturers—the café lives through the talks. Anyone who would

like to talk about the physics topic that he or she finds most fascinating is invited. (tz)

<http://sciencecafe.desy.de>

### Porträt

Waldemar Tausendfreund, born in 1932 in Berlin, worked as a graduated theorist in East Berlin until the age of 40. After his escape from the GDR he became a teacher, first in Saarland and afterwards in Hamburg's Albrecht-Thaer-Gymnasium. As a teacher he became a frequent user of the DESY library and helped to create the school lab "physik.begreifen". After his retirement he founded the "fascinating physics" workshop for pupils interested in physics and mathematics.



## Wake-up Call for New Entrepreneurs

### DESY encourages entrepreneurial spirit of employees

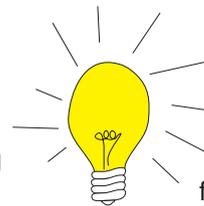
With a lot of practical experience, technological expertise and a pinch of creativity, members of DESY staff reg-

ularly produce technological and innovative masterpieces. Some ideas are patented and then licensed for industrial use. Moreover, results from DESY research and design offer company start-up potential. Some employees may have already thought about becoming an entrepreneur. First contact point for questions about starting a business is the technology transfer group at DESY. Karsten Wurr and his team offer to assess the chances of a business idea and are willing to help during the preparation phase before establishing an enterprise.

One of the essentials for a new entrepreneur is a coherent business plan, a risk analysis and an evaluation of future prospects. People who lack a business

or management background can get help at the Hamburg new entrepreneur

program HEP or from the Chambers of Commerce in Hamburg or Potsdam. Management experts from the German government's fund for new high-tech entrepreneurs support the founder's complex decision making process. Support possibilities range from consultation service to spin-off funding and from research budgets to the subsistence grant for very early start-ups. DESY offers to help in the start-up phase with attractive working conditions, flexible job models and cooperation possibilities. Moreover, DESY provides know-how and laboratory facilities—prerequisites for effective research and design work



without having to make considerable investments from the start.

In the difficult start-up period, new entrepreneurs are allowed to take leave for five years, but in case the own enterprise does not work out, the return to DESY is guaranteed. However, all good business ideas and different funding opportunities only work if one does put one's heart and soul into the new challenge: "You must really want to become an entrepreneur in the first place—then there is support for all other challenges," an important advice that Karsten Wurr wants the prospective entrepreneurs to take along. (she)

### Info

#### Possibilities of support:

Hamburg new entrepreneur program HEP:  
[www.hep-online.de](http://www.hep-online.de)

Founders' workshop:  
[www.gruendungswerkstatt.hk24.de](http://www.gruendungswerkstatt.hk24.de)

EXIST-founder's grant:  
[www.exist.de](http://www.exist.de)

High-Tech new entrepreneur's fund:  
[www.high-tech-gruenderfonds.de](http://www.high-tech-gruenderfonds.de)

Chamber of Commerce Potsdam:  
[www.potsdam.ihk24.de](http://www.potsdam.ihk24.de)

Chamber of Commerce Hamburg:  
[www.hk24.de](http://www.hk24.de)



Klaus Mönig, ATLAS

### Acting in Concert The DESY ATLAS group

*The DESY ATLAS group is gathering all German institutes participating in the ATLAS experiment for a meeting in Zeuthen on September 20 and 21. "The ATLAS group is very diverse, our scientists come from 14 different institutes across Germany," explains Klaus Mönig, who shares the leadership of the DESY ATLAS group with Michael Medinnis.*

*An important topic will be the physics analysis and reconstruction of future ATLAS data. "At the workshop, the people who will form teams in the future will be able to get to know each other and join competences," says Mönig. The DESY ATLAS group consists of nearly 40 scientists from DESY, the University of Hamburg and Humboldt University Berlin.*

*Within the ATLAS collaboration, the team is working to speed up ATLAS simulation software by adapting a system from H1, the so-called fast shower simulation, for ATLAS needs, already improving computing efficiency. In addition, the group participates in monitoring and configuring the trigger system and in the construction of the luminosity detector. For physics interests, the group is preparing to focus its future data analysis activities on investigations in the fields of supersymmetry, top quark studies and tests of the Standard Model.*

*HERA results and experienced HERA scientists will play important roles in LHC data analysis. (she)*

## Compensating Shortages DESY helps out in CMS construction

Schedules are tight, even with the LHC start postponed to 2008. Two engineering technicians helped out at the CMS pit for two months when the planned schedule stagnated in some CMS detector project groups.

Holger Maser, an experienced member of the ZEUS collaboration, supported an international team at the electromagnetic calorimeter ECAL. English as official language was new but no problem for his young colleague Anke Speck (MDI). She put the optical cables in order that will later transport the data flood from the detector to the computer farms. About 1800 wires had to be checked to find unwanted intersections, protected from too much bending, and documented. "Sometimes we even had to crawl under cable chains and barrel parts," said Anke Speck, describing everyday work in the narrow passages.



## Dowry for the LHC

### HERA results form the scientific basis

At the workshop Blois 07 in May, scientists compared HERA events with data from two other particle accelerators, the Tevatron (Fermilab) and RHIC (Brookhaven), with the aim to cross-check scientific results. The outcome of this workshop forms the basis for the evaluation of future and more complex proton interactions at the LHC. Events in deep inelastic scattering, which do not show any particles in the direction of the scattered proton, were considered as especially im-

portant. They are interesting because of their close relationship to a class of events where mainly gluons are exchanged, so-called multiple interactions. They will play a major role at LHC experiments and must be very thoroughly understood because there is a danger that they are misinterpreted to be a signal for the Higgs boson. Both the experimental and the theoretical description of these events included significant contributions from the field of HERA physics. (she)



Joachim Mnich, CMS

### Small but Powerful The DESY CMS group

*Although the DESY CMS group had only recently joined the collaboration and is still in formation, it has already made itself a name at CERN. When DESY became a member of the CMS collaboration at the beginning of 2006, planning and construction of the detector were well underway. "With our know-how we were able to support technical coordination and detector commissioning," explains Joachim Mnich, head of the CMS group at DESY, "and Wolfram Zeuner is doing a great job as deputy technical coordinator." The DESY CMS group has also other tasks, for example building components like small detectors to monitor radiation exposure of the detector. Special software is another main focus, for example for controlling and monitoring the enormous data flow from the trigger system to the computer farm consisting of about 2000 PCs. Additional software helps to check data quality online. As a Tier-2 center for the grid DESY is part of the infrastructure of data administration. "Tests to handle the huge data quantity are running very well," says Mnich. At the moment the most important thing is the construction of the CMS experiment. In parallel, however, the group is preparing itself with computer simulations for the future data analysis, focusing on the investigation of the top quark. (she)*

## Germany climbs Terascale

### The new Helmholtz Alliance is now hiring

The recently approved Helmholtz Alliance "Physics at the Terascale" will soon be able to welcome its first recruits. Four vacancy notices have already been published, with another nine to follow suit.

The first posts to be filled are three junior professorships at Humboldt University Berlin, TU Dresden and University of Göttingen and a post as leader of a Young Investigator Group at University of Karlsruhe.

The Helmholtz Alliance started officially on July 1 after having been approved by the Helmholtz Association in May to receive a sum of 25 million Euros for the next five years. It brings together 17 universities, two Helm-

holtz centers and the Max-Planck-Institut für Physics—all institutes in Germany that are working on the LHC at CERN and the planned ILC. The Alliance has a backbone structure that includes fellowships, interim professorships and outreach, and four main areas of research that address fundamental questions of particle physics, grid computing, detector development and accelerator science. The new network will also create common infrastructures, including an analysis center at DESY. An important aim is to give German scientists the chance to have better visibility and more responsibilities in large-scale science projects

like the LHC or the ILC.

Apart from issuing the first vacancy notices and forming a management structure that they hope will prove to be low in bureaucracy and high in efficiency, they are planning their first big get-together in Hamburg from December 3 to 5.

The next jobs to be issued are engineering and technical physics posts at DESY and the Alliance partners, all for the Virtual Institute for Detector Technologies, and a communication job for Terascale PR. (baw)

All job openings will be posted on the website [www.terascale.de](http://www.terascale.de).

## ILC

### Reference Design Report ready

On Wednesday August 15, ILC director Barry Barish officially handed over the final version of the Reference Design Report to the ILC Steering Committee and the International Committee for Future Accelerators ICFA. The first draft was released in Beijing in February. The RDR comes in four volumes: an executive summary, the "physics case", a volume on the accelerator and one on detectors. All are available at [www.linearcollider.org](http://www.linearcollider.org). The ILC now enters its engineering design phase.

At the same time the community released a general-audience volume accompanying the RDR called "Gateway to the Quantum Universe". Printed copies will be available at PR soon. (baw)



## The Everywhere Telephone

### Increasing number of internet telephones at DESY

The idea is as brilliant as it is simple: words are just data and if there is a good network, it can be used to transfer these data. About 500 so-called IP telephones allowing calls via the internet are already running and the number is increasing every day. The internet offers perfect voice quality, only the external connection of the IP telephones is still running via the common telephone system. IP telephones have many advantages: The IT telecommunications department at DESY, in charge of fax and telephones, will eventually be able to shut down one of two conventional telephone

services, thus homogenizing DESY's telephone facilities. Above all, IP telephones will be more convenient for users: you can see the caller's telephone number; connect the IP telephone with the online DESY phone book and access personal Outlook contacts. It will no longer be necessary to maintain several phone directories. In case you move to another office, you just have to take your telephone with you and plug it into almost any available network socket. The phone number will be the same. With a PC in the office you don't even need an additional network access port: PC and IP tele-

phone can use a common access port, the IT telephone picks up the voice data automatically.

Internet calls have only one disadvantage: it is no longer possible to call UCO and notify that the network is not running any more. But Thorsten Kühl from IT telecommunications department is relaxed: "The DESY network is more stable than generally assumed. In case the computer is working slowly the intranet is usually not responsible for this." (tz)

## PETRA III

### The tunnel is gone

Good planning, adequate tools and motivated people are all you need: The clearing of the complete PETRA tunnel was already finished in August. The quick clearance made it possible to finish the demolition of the tunnel segment in the area of the new experimental hall one week in advance. This time gain is now used to drill the boreholes for the tubular cased piles for the hall foundation. In the remaining tunnel, power rails and water cooling pipes are now being mounted, the processing of the magnets runs at full speed. (tz)

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