

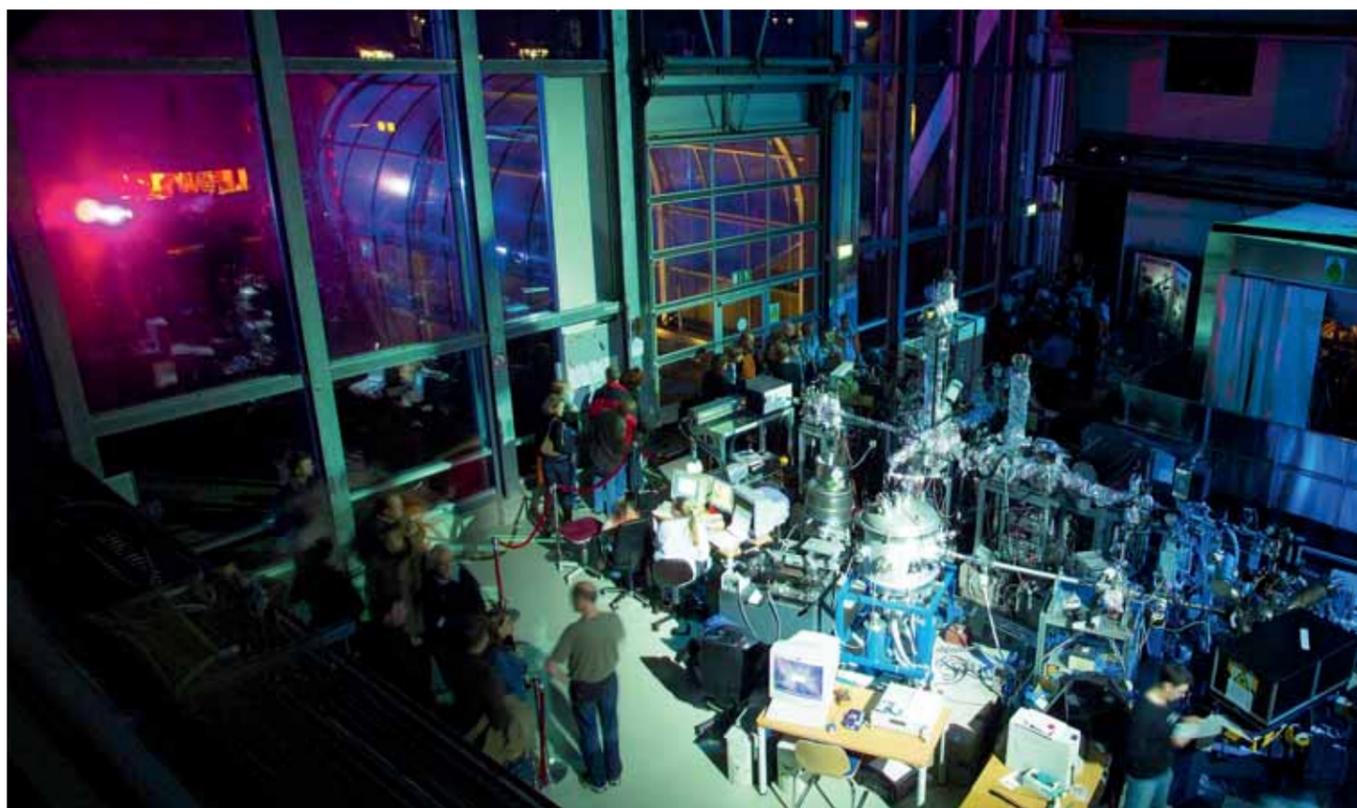
Hamburg on Discovery Mission

Open House at DESY on 7 November

Birthdays are usually celebrated with a party, and when the birthday is a round one the party is bound to be a big. What's more, when the birthday is being celebrated by Hamburg's biggest research centre, all of northern Germany is invited. To celebrate its 50th anniversary, DESY will open its doors to the public for 12 hours on Saturday, 7 November. On the same date, Hamburg will celebrate the "Night of Knowledge", and the PETRA III synchrotron radiation facility will be honoured as a "Landmark" in the German government's "Land of Ideas 2009" initiative.

The purpose of the Open House is to showcase the research centre in all of its facets, from the workshops to the Science Café and from the school laboratory "physik.begreifen" to the Technical Safety department. Of course the scientific research done at DESY will play a leading role — from A as in ALPS to X as in the European XFEL. For example, visitors will be able to see the PETRA experimental hall and tunnel as well as FLASH, the refrigeration hall, and the magnet test hall. They'll also be able to find out about the development of particle accelerators and ILC detectors and see exhibitions featuring the LHC and the Helmholtz Association. Other attractions will include exhibitions on the 50-year history of DESY, photographs from the Science Photo Walk, and the lightning bolts fired in Hall 1 of DESY by the biggest TESLA transformer in Europe.

One of the highlights on show during



The FLASH experimental hall will be one of many places to go on DESY's Open Day.

this birthday will be the HERA tunnel. After viewing the HERA-B detector and an exhibition on particle physics in HERA Hall West, visitors will be able to climb down into the tunnel and walk underground along a quarter of the impressive accelerator tunnel until they reach the HERA North Hall, former home of the H1 detector. A shuttle bus will then bring them back to the DESY complex. All DESY staff who would like to present their work are invited to participate by showing visitors around their workstation, creating a poster or making a presentation. The activities of each working group will be organised by the group members themselves. The PR department and the

administrative staff will coordinate the individual activities and provide support in the form of signs, poster walls, tables and refreshments for the support staff.

Just like at previous Open House days, all of the work done on Saturdays by the helpers will be compensated for by the corresponding amount of free time or by paid overtime. In addition, everyone who has participated will be invited by the DESY Board of Directors to a concluding Helpers' Breakfast on 10 November. If you'd like to participate, please register as soon as possible at the PR department. (tz)

INFO

<http://ideen.desy.de> (in German)

The European XFEL GmbH was founded!

On 28 September, the two DESY directors Helmut Dosch and Christian Scherf signed the foundation document for the European XFEL GmbH at a notary's office. Further shareholders will join the company as soon as the recently initialled state convention between the partner states will have been signed.

FLASH reconfiguration

The upgrade of FLASH began on 21 September. During a five-month shutdown, an additional superconducting accelerator module and a new 3.9-gigahertz module will be installed in the accelerator and a seeding line will also be built. Read the next DESY inForm for more information.



DIRECTOR'S CORNER

Dear colleagues,

a lot has happened at DESY over 50 years, and several key changes have become particularly visible in the past five years. I'm thinking primarily of the development of the Helmholtz Association; the European XFEL as the first internationally funded future project; and the end of HERA operation. That's a lot of change for a period that represents only 10 per cent of DESY's entire history.

The new operational framework presents us with an op-

portunity and a challenge. Our membership in the Helmholtz Association makes us part of a strong research organisation that has been very successful in recent years. We now have to defend our interests in a new strategic environment, competing for funding with a total of 16 research centres. At the recent general meeting of the members of the Helmholtz Association it became clear how important it is to stand up for DESY's interests in the funding allocation systems – for example when it comes to

investments in expansion measures.

The international co-ordination necessary to establish the European XFEL GmbH was an arduous process. The political process of reaching a consensus on major scientific facilities in Europe is not simple. Nonetheless, we established the GmbH company in September, thus finally ensuring that the project will be international. The organisational structure of XFEL remains a great challenge for DESY, which is an important partner and owns a majority share in

this organisation. In this new research environment, we not only need five well-functioning directors; we also require a strategic support structure for science at the administrative level which is capable of acting effectively. According to the Helmholtz Association's evaluation and the results of the INFRA FIT evaluation, the work is only just beginning. I wish all of us strength and skill as we tackle the challenges ahead.

Yours,
Christian Scherf

The combined strength of specialists

New research with and regarding free-electron lasers

There are many construction sites on the DESY campus at the moment. However, one of them – the Centre for Free-Electron Laser Science (CFEL) – is turning into something concrete at an impressive rate. A lot of work has been going on at the site next to the PETRA III hall since summer, and the CFEL team has been steadily growing in number.

But what exactly is CFEL? "CFEL is a research partnership involving the Max Planck Society (MPG), DESY and the University of Hamburg. It is therefore not an independent research centre," explains Ralf Köhn, CFEL's research coordinator since August. "CFEL provides a working environment for the scientists who will later be able to conduct joint research under one roof in the CFEL building." CFEL will be an interdisciplinary centre at which new possibilities for conducting research with and regarding free-electron lasers will be investigated. CFEL consists of two Advanced Study

Groups (one from the University of Hamburg and another from the MPG), as well as of five departments, each headed by a level-W3 professor. These departments encompass a theoretical department funded by DESY and four experimentation groups, two of which are from DESY. The other two are Max Planck Research Groups for Structural Dynamics (MPSD) from the University of Hamburg. For more than a year now, two of the experimentation groups have been headed by prominent directors: Andrea Cavalleri (MPSD) from Oxford and Henry Chapman (DESY) from Berkeley, California. Dwayne Miller, who will come to Hamburg from Toronto, was recently appointed head of the second MPSD group. "Candidates have already been short-listed for the other two positions," says Köhn.

The CFEL team has steadily grown while CFEL scientists have been successfully working on various projects with

FLASH. Starting in October, the scientists will follow up this work with further projects at SLAC in Stanford. Ralf Köhn and MPSD research coordinator Monika Kaempfe try to keep an overview: "We have to reconcile the interests of the three cooperation partners so that we can continue to work together successfully in the future," says Köhn.

The unusual new building is also meant to symbolise a successful future. A round building will be erected on top of the single-storey laboratory. It will house offices on three floors, will have an atrium at its core, which is covered by a plastic roof. The design is intended to foster communication among the scientists. The building's foundation stone was laid on 29 September and the shell is scheduled to be completed in the summer of 2010. If everything goes according to plan, the approximately 300 CFEL employees will be able to move in by the end of 2011. (jde)

Helmholtz Senate to decide on funding for second programme period

by Ilja Bohnet

On 8 October, the Senate of the Helmholtz Association will meet in Hamburg to decide on the basic funding for the research fields "Earth and Environment", "Energy", and "Structure of Matter" in the next programme period. The funding recommendations were preceded last spring by the programme applications and the strategic assessments of the research fields. The experts rated the DESY activities in the three Helmholtz programmes Astroparticle Physics, Elementary Particle Physics and Large-scale Facilities for Research with Photons, Neutrons and Ions very highly, and even gave top marks for the activities involving the ILC, FLASH and European XFEL. On the basis of these assessments the Head Office of the Helmholtz Association and the Senate Commission have together drawn up funding recommendations for the centres for the programme period extending from 2010 to 2014, which the Senate now has to approve. It is likely that the funding that DESY applied for, especially the build-up for the compensation of higher running cost, will largely be granted. This is not only confirmation of the laboratory's structural and development planning; it also provides the large-scale research centre with planning security for a period of five years. Funds to offset the high operating costs of the large accelerator facilities are also being discussed. In addition to receiving this so-called basic funding, DESY will also obtain the means to invest in new research and infrastructure facilities. However, a procedure is currently being discussed that could make planning of future large facilities more difficult. Overall, the application process for Programme-oriented Funding (PoF) can be viewed as a valuable planning process, especially for coordination purposes within centres. However, the participants still consider the effort required for the assessment process to be excessive, particularly since almost every research centre of the Helmholtz Association had its internal planning results confirmed.



Architectural study for the new CSSB building complex between PETRA III experimental hall and FLASH tunnel.

Shedding light on infections

Symposium kicks off the Centre for Structural Systems Biology

How do we get diseases? How do cells get infected? And how exactly do the processes inside a cell function? A number of universities and laboratories are combining their interdisciplinary expertise and research at the Centre for Structural Systems Biology (CSSB) to be established at DESY for the investigation of the secrets of cells, infections and biological systems in general.

The researchers at the CSSB will be analysing the molecular architecture and dynamics of biological systems on every scale, from the genes in the cell to the behaviour of the complete organism, with the focus on infection research.

The participating institutes are located throughout northern Germany, and include the Universities of Hamburg, Lübeck, Kiel and Hannover, the European Laboratory for Molecular Biology, Eppendorf University Hospital and various Leibniz Association and Helmholtz Association institutes. The researchers hope that the new radiation sources at DESY will shed light on many new findings in the field of systems biology. PETRA III, the world's best storage ring X-ray source, for example, will allow biological systems to be studied

at a higher resolution than ever before. The FLASH free-electron laser and the European XFEL, which is under construction, will enable the dynamics of biological systems to be observed with maximum chronological precision.

The CSSB project was kicked off at the first Symposium on Structural Systems Biology held from 24 to 25 September at the University of Hamburg. The CSSB will be housed in a new building complex to be erected at DESY on the currently undeveloped space west of Building 25f. Construction is scheduled to begin in 2010 or 2011. The building on the DESY grounds offers researchers advantages not only through the proximity to PETRA III and the free-electron lasers, but also through the proximity to the Centre for Free-Electron Laser Science (CFEL). The collaboration with this centre will result in numerous advances in the utility of radiation sources for biological research. (gh)

INFO

www.conventus.de/cssb2009



European XFEL – one of the largest construction sites in northern Germany. The picture from the European XFEL construction site taken from a helicopter on 17 June already shows the shape of the future 15-hectare research facility. Behind the construction office (yellow house) you can see the excavation pit measuring 90 by 50 metres for the experimental hall.

WHAT'S ON AT DESY

October

- 6** Public Lecture
Challenges at Particle Accelerators – Past, Present and Future
Martinus Veltman, 20 h, Berlin-Brandenburgische Akademie der Wissenschaften, Berlin
- 8** Science Café DESY (<http://sciencecafe.desy.de>)
Illuminati – Die wahre Geschichte der Antimaterie
Philip Bechtle, 17 h, DESY bistro
- 9** Piano Recital at DESY
Leben, um davon zu spielen
Serra Tavsanlı, 19:30 h, DESY, Hamburg, auditorium
- 12-14** TERASCALE (<http://www.terascale.de/statistics2009>)
Statistics School
University of Karlsruhe, Karlsruhe
- 20-23** TERASCALE (<http://www.terascale.de/pdf2009>)
PDF School
DESY, Hamburg
- 21** Public Lecture
Die Geschichte der Synchrotronstrahlung bei DESY
Edgar Weckert, 19 h, DESY, Hamburg, auditorium
- 28** Public Lecture
Wie die Astroteilchenphysik zu DESY kam
Christian Spiering, 19 h, DESY, Zeuthen, seminar room
- 29** Science Café DESY (<http://sciencecafe.desy.de>)
Neutrinos – Die Geheimschrift des Kosmos
Christian Spiering, 17 h, DESY bistro

November

- 5** 68th Physics Research Committee Meeting
9 h, DESY, Hamburg, auditorium
- 7** <http://ideen.desy.de>
DESY's Open Day and Night of Knowledge
12-24 h, DESY, Hamburg
- 8** Sunday lecture on the occasion of "Potsdamer Köpfe"
Das Jahrhunderträtsel: Kosmische Teilchenschleudern
Christian Spiering, 11 h, Altes Rathaus, Potsdam
- 11** Jentschke Lecture (www.desy.de/jentschke)
Black Holes and the Fate of the Universe
Günther Hasinger, 17 h, DESY, Hamburg, auditorium
- 11-13** TERASCALE (<http://www.terascale.de/statistics2009>)
Annual workshop of the Helmholtz Alliance "Physics at the Terascale"
DESY, Hamburg
- 12** Science Café DESY (<http://sciencecafe.desy.de>)
Vom Quark zum Kosmos – Die Geschichte vom Anfang der Welt
Thomas Naumann, 17 h, DESY bistro
- 16** Inauguration
Inauguration of PETRA III
DESY, Hamburg, 14 h

A look back at Lepton Photon 09

Most important particle physics conference of the world to be visiting with DESY

Featuring a total of 47 presentations, 73 posters, a public lecture, and plenty of in-depth discussions, the XXIV Symposium on Lepton and Photon Interactions at High Energies (Lepton Photon 09) certainly lived up to its billing as one of the world's most important particle physics conferences. Organised by DESY and the University of Hamburg, it was held at the Congress Center Hamburg (CCH) from 17 to 22 August.

Some 400 particle physicists from around the world travelled to Hamburg to find out about the latest discoveries and forthcoming events and, of course, to network with colleagues. The presentations covered the full spectrum of particle physics research, ranging from current and planned experiments to visions of future research facilities and lectures on theory. The common thread of many of the papers was the anticipation with which the particle physics community is now awaiting the first data from the Large Hadron Collider (LHC) at CERN in Geneva. Many of the papers ended with the words: "We're ready for the LHC!" The posters covered a similarly wide range of topics and were presented in a well-attended session that incited a lot of discussion. Prizes, sponsored by the



Hamburg presented itself at its best to 400 conference participants.

Association of the Friends and Sponsors of DESY, were presented to the best posters in three categories. The award in the category "Experimental Methods and Projects" went to the DESY PhD student Sebastian Aderhold. His poster focused on the cavities – the superconducting accelerating structures – used in the European XFEL and the planned International Linear Collider (ILC).

On the last evening of the conference, interested members of the general public were treated to "Teilchenphysik und

das Dunkle Universum – 50 Jahre Teilchenphysik bei DESY" (Particle Physics and the Dark Universe – 50 Years of Particle Physics at DESY), an open lecture given by Rolf-Dieter Heuer, Director-General of CERN. The event, which was held at the CCH, attracted an audience of around 350.

The conference ended on Saturday with further lectures and summaries, thus bringing to a close a highly eventful week in the company of leptons and photons. (gh)

RAMIRI conference

Sharing experiences on major European research projects

by Frank Lehner

The third and final meeting in the RAMIRI conference series was held in Hamburg from 14 to 16 September. RAMIRI (Realising and Managing International Research Infrastructures), in which DESY is a participating member,



John Wood, chair of the RAMIRI management board.

is an EU-sponsored coordination project concerned with measures for the implementation of new large-scale facilities and research infrastructures in Europe. The expansion of the European Research Area and the realisation of new major research projects necessitate a Europe-wide sharing of experiences on issues of research management, such as: How can foreign partners be recruited for new major research projects? What legal parameters must be considered in this context? And, finally, what would the optimal management model look like?

A fundamental aim of RAMIRI is to make programme planners and officials from national science agencies more familiar with the concrete issues associated

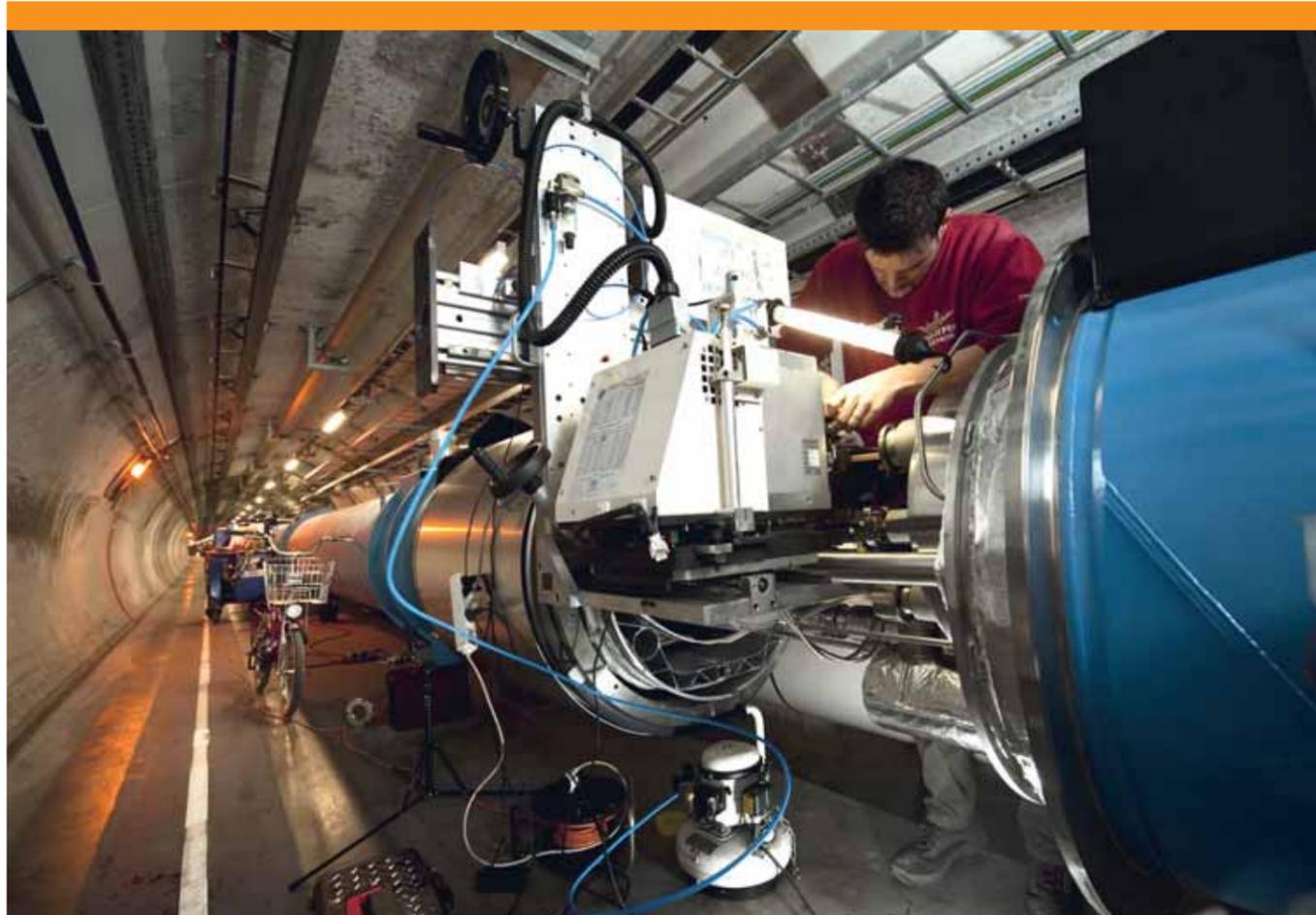
with the planning, construction and operation of major research projects and to establish a Europe-wide network of experts from science, administration and government. The Hamburg conference, which was attended by approximately 50 delegates from numerous European countries as well as representatives from DESY and the European XFEL project team, focused on the following major research projects: European XFEL, PETRA III, HERA, LHC and ILC.

INFO

<http://www.ramiri.eu>

The interconnections between the superconducting LHC magnets were checked intensively and repaired where necessary.

Photo: CERN



LHC to restart in November

Collisions to be at 3.5 TeV initially

If everything goes smoothly, the Large Hadron Collider (LHC) at CERN in Geneva, Switzerland, will begin to accelerate particles again in November. High-energy operation is scheduled to start a few weeks after the first collisions at the injection energy and will continue (with a short break for Christmas) until winter 2010 so that the researchers can collect a reasonable amount of data.

"We are ready and are waiting for the beam," says DESY staff member Wolfgang Zeuner, one of the technical coordinators for the CMS detector, summing up the situation. Over the last few months, the detector has been completed, carefully checked and tested with particles from cosmic radiation. More than 300 million such particle events have helped to calibrate CMS very precisely. The gigantic underground hall in which the detector is installed has been shielded over the last few months so that work is permitted in the hall even when the powerful superconducting LHC magnets are switched

on. The last tests on CMS can thus be conducted concurrent with the commissioning of the LHC. People will not have to leave the hall until beam operation actually begins.

Also ready for particle collisions is the ATLAS detector, on which Klaus Mönig from Zeuthen is conducting his research. "We are all really looking forward to things soon starting up again, of course, but for many of the young people here operation is vital," he explains. Many graduate students and PhD candidates are waiting for the initial data so that they can complete their research projects. ATLAS also uses cosmic particles to calibrate the detector, but proton beams are required before any discoveries can be made.

The CERN management decided in August to initially power up the LHC to an energy of 3.5 TeV per particle beam after tests of the electrical connections between the magnets showed that no additional repairs are needed there. The beam energy will be increased to 5 TeV

once the operators have gained enough experience at 3.5 TeV and the particle physicists have gathered their initial data. 2010 will also see the first collisions with lead ions for the ALICE experiment.

The LHC began operation in September of last year, but had to be shut down for extensive repairs after only nine days due to a faulty connection between two superconducting magnets. A total of 53 magnets were taken out of the tunnel and replaced, 10 000 superconducting connections were checked and repaired where necessary, and safety valves and beam monitoring devices were installed. While testing the connections, CERN discovered abnormally high resistances in some of the connections between the copper stabilisers, which are part of the superconducting cable. The LHC will therefore not operate with the planned energy of 7 TeV until the first extended phase of operation has been completed and an additional break can be taken for repairs. (baw)

“Cabinet of Scientific Curiosities”

The travelling exhibition “Wunderkammer Wissenschaft” (The Cabinet of Scientific Curiosities) organised by the Helmholtz Association features around 500 multimedia exhibits with sounds and moving images — in both senses of the word. The aim is to encourage guests to explore the fascinating world of science. The exhibition shows how researchers bring the universe into the laboratory to explore antimatter or to solve the riddle of dark matter. It also provides unexpected insights into the anatomy of a 260 million-year-old pelycosaur. The exhibition debuts at the Deutsches Technikmuseum (German Museum of Technology) in Berlin. It will then come to Hall 1 at DESY for the Open Day, to show the research done by the Helmholtz Association.

www.helmholtz.de/hermann



Reunion of the JADE team: a little greyer, but as hungry for new discoveries as ever.

We were JADE and JADE was us

JADE collaboration meets up after more than 20 years

The month of August witnessed an unusual reunion at DESY, where members of the JADE collaboration – which operated the detector of the same name at the PETRA ring from 1978 to 1986 – met up the first time in over 20 years. “There’d been plans to get together for some time, and the Lepton Photon 09 in Hamburg was the ideal opportunity,” explains Siggie Bethke, now Director of MPI Munich, who helped organise the event.

All in all, 43 former team members were present, which made it the best-attended JADE meeting ever. As soon as old acquaintances had been renewed, it was time to talk about the past and, indeed, the present. That’s because some of the old team are still very much involved with JADE. Jan Olsson, formerly of DESY, saved the data for posterity, and a small group headed by Bethke has polished up the analysis software, with the result that

the 30-year-old data can still be read to this day. “We regularly produce papers based on JADE data – it’s what you might call a unique service!” says Bethke, laughing. The scientific part of the reunion focused on the further use of this data.

There was also plenty of opportunity for reminiscing. Indeed, the JADE project not only gave rise to a number of heavily cited publications but also served as a springboard for many top physicists. Former JADE team members such as Albrecht Wagner, Siegfried Bethke, Rolf Heuer, Ralph Eichler, Sachio Komamiya and Sakue Yamada are, or have been, heads of scientific institutes and research centres. Many of them still say that their time on the JADE project was the most pleasant and most productive period in their entire career. Or, as Robin Marshall put it, “We were JADE and JADE was us.” (tz)

Gummy bears for all!

The year 2009 marks not only DESY’s 50th anniversary but also the tenth anniversary of the DESY choir. In honour of this milestone, the choir, with the support of the Association of Friends and Sponsors of DESY, would like to invite you to the anniversary concert to be given at 20 h on 13 November in the canteen annex. Admission to the concert is free.

The programme has been put together by the audience itself. At the choir’s last concert, the audience chose its favourites from all of the works over the past ten years. The list of selections ranges from Handel’s “Hallelujah Chorus” to the song “Mein kleiner grüner Kaktus”. Once again, the Infiando Quartet will also be participating.

Imprint

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DESY-PR
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