

Keeping an eye on the big picture

Future construction activities on campus will follow a master plan



DESY master plan from urban planner Jo Claussen-Seggelke.

Space is becoming scarce on the DESY campus. One of the great advantages of the research centre, its location within the city boundaries of Hamburg, now forces planners to take into account what nobody had to think of in the founding year of 1959: the integration of future buildings and projects into a consistent master plan, flexible for new usage and at the same time safeguarding the

functionality of the campus and keeping the “DESY habitat” livable.

Deep holes (and high piles of sand) for the European XFEL, experimental halls for FLASH and PETRA III, buildings such as Nanolab and CSSB, dug-up roads for the renewal of the service pipes – the series of large construction sites at DESY never stops. At the same time, new

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DIRECTOR'S CORNER

Dear colleagues, we are currently going through an exciting period of change in the field of research with photons at DESY. Recent successes and those of the past give us reasons to celebrate.

In the second half of the year, important events will take place, which I would like to introduce to you.

Germany celebrates the Max von Laue Year in 2012, commemorating the first X-ray diffraction experiment a hundred years ago, for which Max von Laue was awarded the Nobel Prize in 1914. With

this experiment, Max von Laue and his fellow scientists not only discovered that crystals are formed of identical and regularly repeating units but also that X-rays are electromagnetic waves, like visible light – only with a thousand times shorter wavelengths.

Von Laue contributed large parts of the knowledge which forms the basis of synchrotron radiation experiments. To honour these achievements DESY will rename the PETRA III experimental hall in hall “Max von Laue” in a naming ceremony on 19 September. We expect a lot of prominent people to come to

this event, the most prominent of which is Federal Chancellor Angela Merkel. Of course, all of you are cordially invited.

Another milestone will be celebrated some time later. After 38 years of service with a remarkable range of scientific questions, synchrotron radiation operation will cease at DORIS on 22 October. Until the end of the year, DORIS III will run for the OLYMPUS experiment; after this, the storage ring will be finally closed down.

On 22 October we will take the opportunity to celebrate this event with the pioneers

of the first years of research with synchrotron radiation at DESY. In the past years, a series of pioneering experiments have been carried out at DORIS in the field of particle physics, accelerator physics and, of course, research with synchrotron radiation. To highlight this, there will be a large scientific symposium and a celebration at DESY in spring 2013. The date is not yet fixed, but we will keep you informed.

Yours,
Edgar Weckert

CFEL, ZOQ and CHyN buildings are advancing in the university campus zone. This makes an area master plan absolutely necessary.

DESY is like a small city within the city, so it makes sense to put this master plan into the hands of an urban planning office. Urban planner Jo Claussen-Seggelke has been given the sophisticated task to make the campus of a research centre that has grown over 50 years fit for the future. To start with, his team gathered information about the present situation and evaluated all buildings regarding use, structural condition and function. They also took a close look at the road network and the parking areas, at the location of the service pipes and the technical infrastructure. Green spaces were classified in terms of value and much more.

is located in the so-called Hamburg green belt which is environmentally protected and encircles the city. This belt must stay complete to allow animals to move freely, for example. Moreover, several campus zones are governed by differing planning laws.

The urban planners and the persons in charge at DESY included these external parameters into the draft of the master plan, together with currently planned and envisaged long-term scientific projects. Moreover, they raised questions as to where and how be it possible to upgrade green spaces, which kind of infrastructure could be required in the future, and where, what is the best use of any potential sites and whether there are smart solutions to create additional parking areas.

On 7 May, Claussen-Seggelke presented the draft for the master plan at the DESY

auditorium. Apart from numerous comments on, for example, the road network and access to the campus, an important topic was the coexistence of buildings and attractive green spaces. Much acclaimed was the idea to create a green main lane for pedestrians in the centre of the site, a “green centre” of the campus.

In the future, all construction projects will be planned and carried out according to this master plan, thus in the long run making DESY functional, attractive and fit for the future. The master plan will certainly be continuously in development and flexible. All DESY staff members are welcome to contribute alternative ideas. In case you want to make good proposals for useful changes regarding land and building use, send an email to: lindemar.haenisch@desy.de. (tz)

At the same time, it is necessary to take into account external parameters: DESY

Musical superstrings

The extraordinary encounter of a violin with particle physics

It is nothing less than the German premiere of a very special concert: on Friday, 22 June, "The Particle Partitas" will be presented in the DESY auditorium – a musical journey through the history of physics, with a violin playing the leading role. Three experts in their trade got together to create this special combination of music and science. The British particle physicist Brian Foster, who works at DESY and the University of Hamburg within the framework of a Humboldt professorship, will present the milestones and visions of the future of particle physics to the audience.

The renowned composer and artist Edward Cowie, inspired by the world of fundamental building blocks, wrote a series of eight short musical pieces for violin. Beginning with the famous Greek natural philosopher Democritus and his idea of the indivisible atom, the musical journey takes us to today's "world machine" LHC, at which thousands of scientists all over the world seek answers to the big mysteries of the universe. Classical-Brit-Award-winner and violinist Jack Liebeck gives musical life to the physics topic. After the lecture there will be a concert for violin and piano by Liebeck and Danny Driver with pieces by Bach, Mendelssohn, Debussy and Kreisler.

Brian Foster and Jack Liebeck are a highly experienced team with years of successes for performances of the "Superstrings" and "Einstein's Universe" lectures. Foster's short talks on particle physics are interspersed with Cowie's compositions interpreted by Liebeck. It will be exciting to see the German premiere of their new oeuvre. If you are interested in this event please send an email indicating the number of participants to Susan-Katrin Ketels.

As Foster announced, this event will be the first of a series involving a lecture followed by a concert from international artists which will continue in the autumn. (uw)

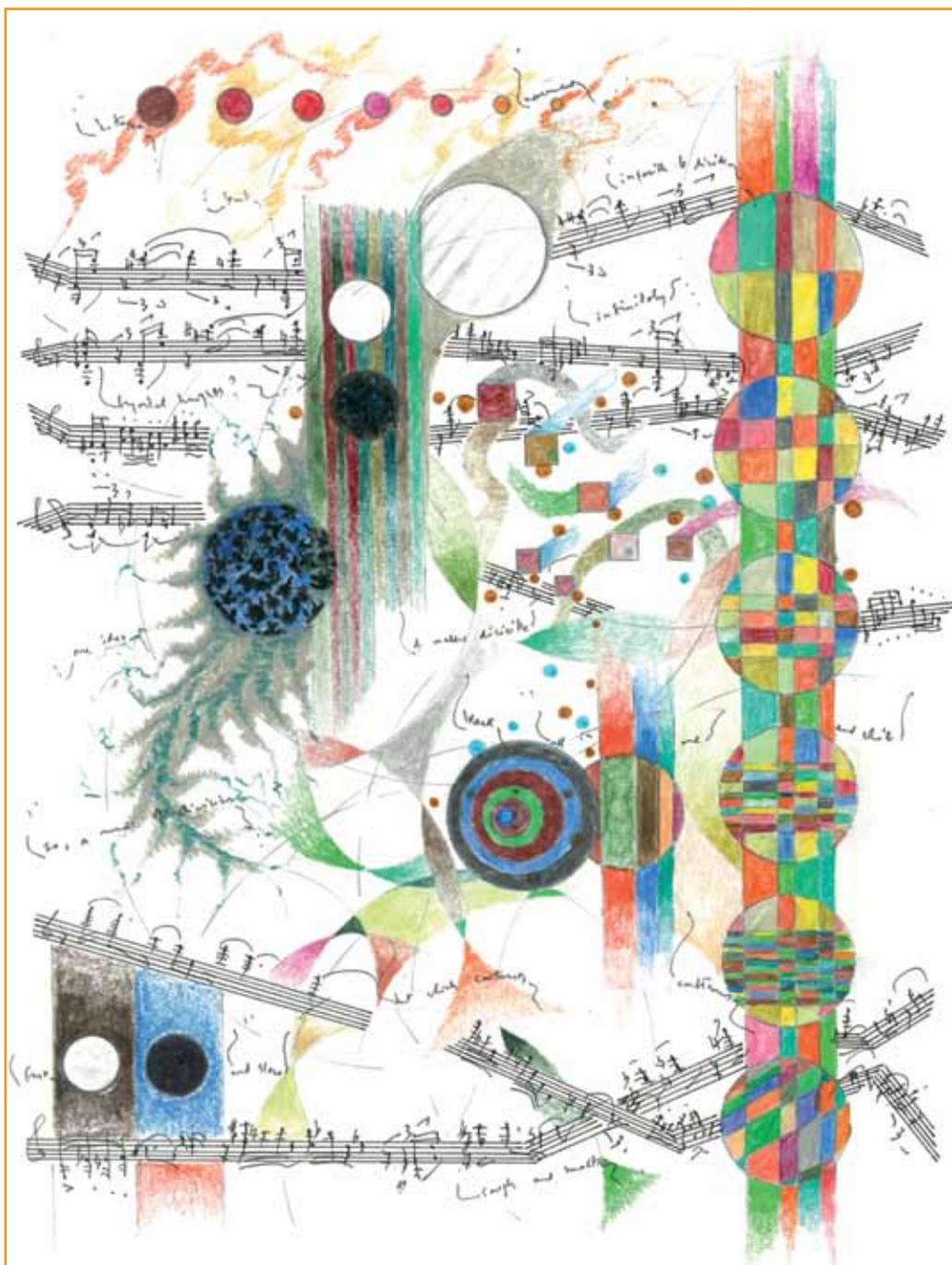


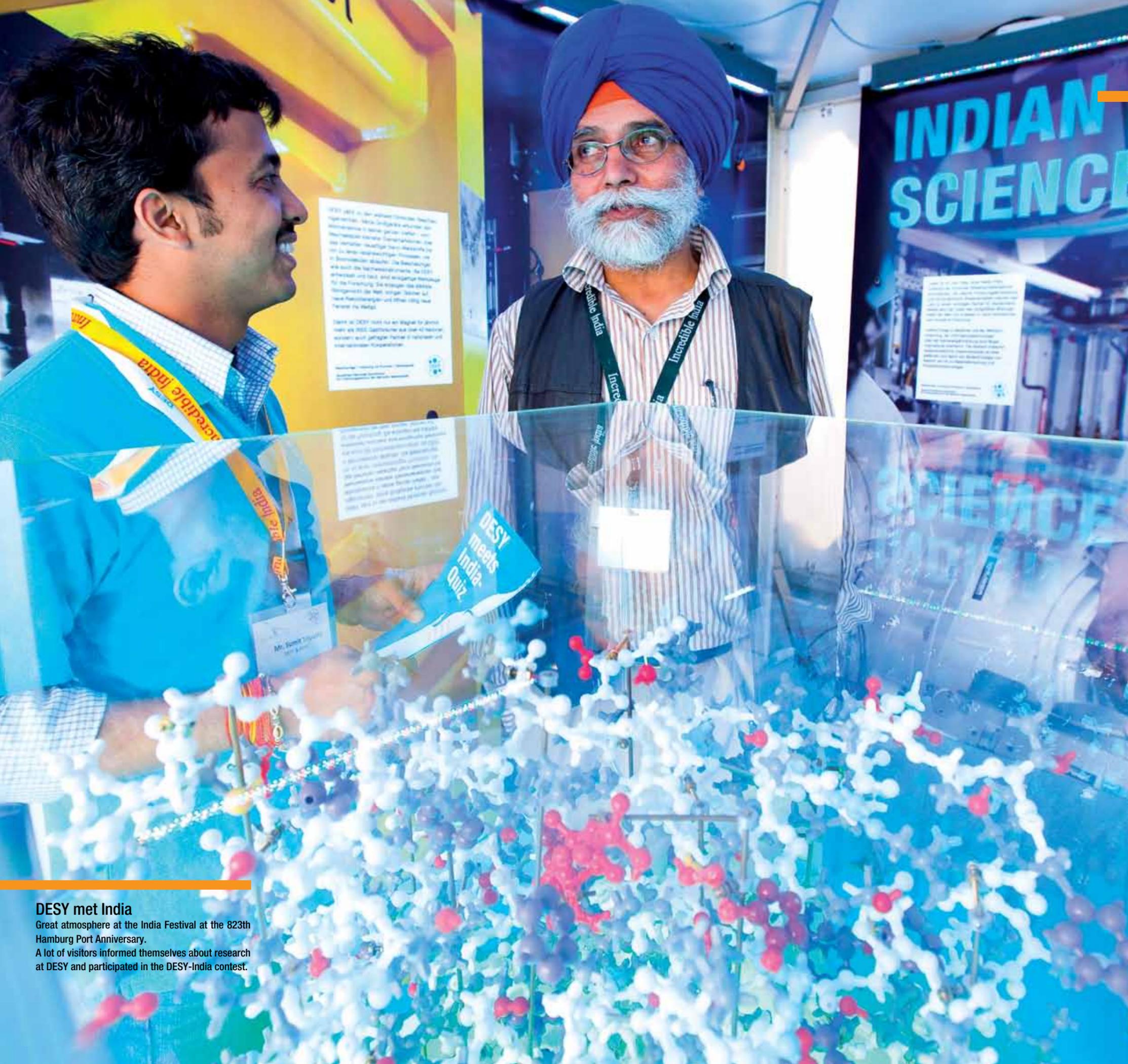
Illustration of composer and artist Edward Cowie for the first piece of Particle Partitas: "The Democritus Question."

INFO

The Particle Partitas
Friday, 22 June, 17.30 - 21 h
DESY, auditorium

Programme:
17:30 h lecture (in English)
18:30 h reception
19:30 h concert

Tickets: susan-katrin.ketels@desy.de
or available at the door until the hall is full



DESY met India

Great atmosphere at the India Festival at the 823th Hamburg Port Anniversary. A lot of visitors informed themselves about research at DESY and participated in the DESY-India contest.

WHAT'S ON AT DESY

June

- 2** Event (www.langenachtderwissenschaften.de)
Lange Nacht der Wissenschaften in Berlin und Potsdam
Visit DESY at Humboldt-University
in Berlin-Adlerhof
- 6** Seminar Series
The International Linear Collider (ILC)
Eckhard Elsen (DESY)
DESY, Hamburg, bldg. 1b, seminar room 3, 14 h
- 6** Piano Concert
Tastenträume – Von Mozart bis Gershwin
Piano duo „NN“, Natascha Getmann and Nadja Kremer
DESY, Hamburg, auditorium, 19 h
- 13** Science Café DESY (<http://sciencecafe.desy.de>)
Überall ist Materie – Aber wo ist die Antimaterie?
Wilfried Buchmüller, DESY Bistro, 17 h
- 13** Public Lecture
Wahrnehmung und Physik von Raum und Zeit
Philip Bechtle (Uni Bonn), DESY, Hamburg, auditorium, 19 h
- 18** Public Lecture
Gemälde alter Meister in neuem Licht
Karen Appel, DESY, Hamburg, auditorium, 19 h
- 20** Seminar Series
The Compact Linear Collider (CLIC)
Steinar Stapnes (CERN)
DESY, Hamburg, bldg. 1b, seminar room 3, 14 h
- 21** Bridfas Lecture (www.bridfas-hamburg.de)
AGM followed by History of English Fairs, Markets and Shops
Andrew Davies
DESY, Hamburg, auditorium, 20 h

July

- 4** Seminar Series
Challenges of the Intensity Frontier
Steve Holmes (FNAL)
DESY, Hamburg, bldg. 1b, seminar room 4a, 14 h
- 10** Technical Seminar
Fehleranalyse an defekten Halbleiterbauelementen
H. D. Schriewer (Industry)
DESY, Zeuthen, seminar room 3, 10 h
- 15** SRI 2012 Satellite Meeting (<http://science-at-fels-2012.desy.de>)
Science at FELs 2012
DESY, Hamburg
- 30 July-1 August** Conference (www.qq12.org)
Mathematical Aspects of Quantum Field Theory and Quantum Statistical Mechanics
DESY, Hamburg, auditorium, 9-19 h

Hamburg's deepest scientific workplace

European XFEL scientists move into former HERA building



Moving into HERA hall South..

By Bernd Ebeling

One of Hamburg's deepest workplaces is busy again with research activity. Three teams of researchers contributing to the new European XFEL X-ray free-electron laser are currently moving into their laboratories in a former experiment building of DESY's Hadron-Electron Ring Accelerator (HERA), which was switched off in summer 2007. Other scientists will follow in the coming weeks and months.

The underground building complex HERA South stretches over eight floors and is more than 25 metres deep. At the centre of the complex, which totals 2000 square metres of test and laboratory area, is the more than 1000-square-metres experiment hall, with a height of 15 metres. There are also more rooms that will now be used as physics laboratories.

About 25 scientists and engineers — many hired for the project in recent

months from Germany and numerous other countries — will now start doing research in HERA South. Their main tasks will be to develop and test equipment for guiding and controlling the X-ray beam, the scientific instruments for the experiments, the detectors, and the information technology for data acquisition and processing.

The HERA South hall, which stood empty after hosting the 3600-ton ZEUS detector, was given to European XFEL by DESY. Renovation and preparation lasted 12 months, during which more than 300 heavy concrete blocks had to be moved.

"It was well worth the effort", says Tobias Haas, head of Technical Coordination at European XFEL. "We now have a unique working environment with outstanding infrastructure, steady and controllable conditions, and the possibility to work free of vibrations."

He is supposed to know, as Haas used to work at Hamburg's deepest scientific workplace for several years with ZEUS.

After completion of the European XFEL facility in Schenefeld, all of the expected 250 employees will move to the future company headquarters. Researchers will have laboratories above the new experiment hall, which will be both the end point and the heart of the more than three-kilometres-long facility. They will install the laser and the corresponding technical equipment, help future users with their experiments, and conduct their own research. The underground experiment hall is currently under construction. The laboratory and office buildings, which are being constructed on top of it, are scheduled to be ready in 2015.

FLASH seeds light flashes

Successful seeding verified for the first time

There is a worldwide search for methods for initiating the process of producing laser light in free-electron lasers (FEL) with a well-defined radiation pulse, generated by an external laser source and superimposed to the electron bunch at the undulator entrance ("seeding"). Seeding promises an FEL pulse which is more stable and better reproducible in both pulse duration and frequency spectrum. Moreover, the obtained time resolution of pump-probe experiments is improved when the seeding laser simultaneously initiates a dynamic process in the investigated sample.

One of the possible seeding methods using the so-called HHG (High Harmonic Generation) pulse was now successfully

verified at FLASH by a team of scientists from DESY and the University of Hamburg. In the sFLASH experiment, the scientists coupled the light of the high-order harmonic with an accelerator-synchronised laser into the electron beam of FLASH and superimposed it with the electron bunches in an undulator line. Here, the electron bunches, incited by the seeding pulse, generated an intense FEL flash with a wavelength of 38 nanometres. This is the shortest wavelength ever obtained with this "direct seeding" method – a new world record for FLASH and also an important milestone on the way to FLASH II, which will be equipped with variable-gap undulators used at the sFLASH experiment, and with a seeding option. (tz)



European collaboration at free-electron lasers

Ten European research centres, including DESY and the European XFEL, agreed on a long-term close collaboration in the field of free-electron lasers and accelerator-based short-pulse sources. With combined efforts, the technologies and methods will be further developed and implemented for operation and use of these novel research facilities, thus creating a unique top level research infrastructure for science in Europe, offering optimal experimental conditions for a wide range of applications. On 31 May, this collaboration agreement was signed at DESY by representatives of all institutes.

"The fantastic experiments at the first free-electron lasers FLASH and LCLS, with more than 200 scientific publications, show in an impressive way the enormous potential of these new facilities," said Helmut Dosch, Chair of the DESY Board of Directors, who together with Edgar Weckert, Director in charge of Photon Science, signed the collaboration agreement for DESY. "Indeed, this is only the beginning. In the near future, we will be able to considerably increase the performance of these facilities; furthermore, the scientific use is so far by no means fully exploited. To achieve this and to continue playing a leading role in Europe, we agreed to cooperate more closely." (tz)

New platform for detector development

DESY and eight Helmholtz Centres cooperate in a new research platform for the development of highly integrated photon and particle detectors. Silicon detectors are a central topic as they are needed among other things at both the European XFEL and the Large Hadron Collider (LHC) in Geneva. Apart from the Helmholtz institutes, eleven universities and seven research institutes from Germany and abroad are participating in the detector initiative. As a portfolio theme, the Helmholtz Association funds this initiative with 13 million euros from 2012 to 2016.

IT cooperation for large-scale research facilities

Large-scale research facilities as the future European X-ray laser European XFEL produce huge amounts of data which have to be stored and made available for analysis. European XFEL, DESY, the Jülich research centre and the Kurchatov Institute in Moscow plan to cooperate in the development of new IT solutions for large-scale research facilities. Recently, the partners signed a memorandum of understanding in Berlin.

Award for DESY in Zeuthen

Brandenburg's Minister of Labour Günter Baaske (SPD) awarded a medal and a certificate to DESY in Zeuthen to acknowledge the long-time commitment to the "Future Day" for girls and boys. At this annual event taking place in many enterprises, pupils get the opportunity to obtain a first impression of the working world. DESY in Zeuthen participated in the Brandenburg "Future Day" from the start, i.e. since ten years.

"We are happy to receive this award," said Christian Stegmann, head of the DESY institute in Zeuthen. "It is an invitation and an incentive to continue our intensive commitment to the promotion of young talents."



Günter Baaske talking to students in Zeuthen.

DFG establishes National Biodiversity Centre

The German Research Foundation DFG decided to establish a research centre in the Leipzig region, the “German Centre of Integrative Biodiversity Research– iDiv”. This centre will initially be funded for four years with a total of about 33 million Euros. “The German Centre of Integrative Biodiversity Research is yet another example for a future-oriented cooperation model between universities and extramural research institutions”, says Prof. Dr Jürgen Mlynek, President of the Helmholtz Association.

Apart from the centre’s scientific concept, the scientific and structural conditions at the three neighbouring sites Leipzig, Halle and Jena proved to be particularly positive arguments towards establishing the centre. The three universities maintain numerous research projects as regards biodiversity-related science, some even on an international level. The same applies to the involved extramural research institutions, such as the Helmholtz Centre for Environmental Research - UFZ and the Max Planck and Leibniz Institutes.

“The iDiv opens up the unique perspective of establishing together with our partners an absolute world-class centre of the highest level. This will require appointing the best of the best to staff the eight new professorships: two from each university and two from the UFZ”, said Prof. Dr Georg Teutsch, Scientific Director of the UFZ.

www.helmholtz.de/hermann



Finals!

On 14 June, the DESY table soccer players fight for the title

They were fighting, cursing and cheering – and some were also spinning the bar: the 4th DESY table soccer tournament is running since mid-May. When football teams at the Euro 2012 championship in Poland and Ukraine are still competing in preliminary rounds, Hamburg is already fighting for the championship title. On 14 June, the eight best table soccer teams will compete against each other in the grand final. At the other tables, the teams that were knocked out of the main tournament will fight for the consolation round title. In between, there is time for free play as well. Don’t miss this event.

Nearly 130 players registered this year for the traditional tournament and made their way through the preliminary rounds as teams of two players. The participants come from all DESY groups, says co-organiser and DESY photon scientist Leif Glaser. Technicians, scientists, and administrative staff – they are all there. Not only from DESY but also from other institutes on the Bahrenfeld campus.

“We do this to bring together the various departments,” the organizing team emphasises. “It is fun and good for the team spirit.” The players’ skills vary considerably.

“There are all kinds of participants, from the newcomer to the Hamburg first-league player.” The spectators can look forward to exciting high-level matches.

The table soccer sets were provided by several DESY departments. Scientists regularly use them to fight tiredness during long night shifts and the administration and workshop staffs like to play during their lunch break.

The large seminar room in the FLASH experiment hall is used as an indoor stadium for the play-offs. The organisers plan to broadcast the finals on a video screen to provide a good view to all spectators. As always, this event is also a good occasion to party. “At the day of the finals we will light the barbecue and offer sausages with bread, water and beer for everyone, thanks to generous donations of several vacuum firms.” *(tim)*

Super 16 play-offs: 11-14 June, starting daily at 16 h in the FLASH seminar room (bldg. 28c)

Finals on 14 June, 16 h (video screen and barbecue)

INFO

Fixture list and latest results:
<http://www.desy.de/~kicker/>

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