

Groundbreaking ceremony for Photon Science Building

DESY and its partners start construction of new research building



A new laboratory and office building will provide ideal conditions for photon science and nanoresearch at DESY. On 27 March, politicians and scientists – including the research minister of the state of Schleswig-Holstein Kristin Alheit and Hamburg state secretary Eva Gümbel, – have broken the ground for the new Photon Science Building. It is to become a research facility for scientists from Helmholtz Centre Geesthacht (HZG), Christian Albrechts University in Kiel (CAU) and DESY.

“With the Photon Science Building, we are concentrating the collaboration between three strong research partners: Christian Albrechts University, Helmholtz Centre Geesthacht and DESY,” said Helmut Dosch, the chairman of the DESY Board

of Directors. “It offers ideal conditions for preparing samples for our synchrotron radiation source PETRA III, as well as complementary investigation techniques, so that we will be able to make the best possible use of the research potential offered by our equipment.”

The new five-storey building is to become DESY’s centre for nanoresearch. The technically sophisticated laboratories on the ground floor will provide ideal conditions for manufacturing, structuring, characterising and marking nanosamples, which can then be studied using the high-intensity X-rays produced at the research facilities PETRA III or FLASH. “Whether nanomagnetism for smaller data storage devices, the corrosion of surfaces or manufacturing and

Joint first groundbreaking: DESY director Helmut Dosch, HZG director Wolfgang Kaysser, Hamburg state secretary Eva Gümbel, Schleswig-Holstein research minister Kristin Alheit, CAU president Lutz Kipp, DESY director of administration Christian Harringa and Andreas Stierle, head of the DESY NanoLab (from left). Picture: Lars Berg

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Dear colleagues,

The beginning of 2017 marked the start of the extremely exciting phase of beam commissioning of the superconducting main linear accelerator for the European XFEL X-ray laser. The components and systems required to steer and control the electron beam could quickly be put into operation. Thus, the operating team led by the MXL machine coordination group made good progress and, in a record time of a few weeks, was able to conduct the beam without loss to the beam absorber in the shaft XS1 at the end of the 2.1-kilometre-long accelerator tunnel.

Initially, with the first two linear accelerator sectors active, the beam energy was 2.5 GeV; later, after switching on the accelerator systems in the long third sector, it was further increased to 10 GeV. This creates the best preconditions for the forthcoming commissioning of the first undulator line in order to produce the first laser flashes at the European XFEL.

Until November 2016, the completion, testing and installation of the accelerator components, above all the 96 superconducting accelerator modules, were pushed forward at full speed. Particularly in the accelerator tunnel, this work sometimes required a complicated choreography of simultaneously operating DESY staff and employees both of other member institutes of the accelerator consortium headed by DESY and of external companies.

The decisive milestone – the closing of the tunnel and the start of cool-down to liquid-helium temperature – was reached thanks to the utmost commitment and competence of all parties involved. This, and the fact that in the course of the whole European XFEL accelerator construction phase severe work-related accidents could be avoided, deserves maximum recognition!

With kind regards,

Reinhard Brinkmann

characterising completely new nano-structures; here we will be able to study all these things,” explained Andreas Stierle, the head of the DESY NanoLab.

In addition, the Photon Science Building marks another important step for the increased cooperation between DESY and other research centres in the region. Eva Gumbel, state secretary from the Ministry for Science, Research and Equal Opportunities for the City of Hamburg, said: “I am very pleased that the expansion of the DESY research campus to become an international science park is continuing with the construction of the Photon Science Building. The building is also an important part of our efforts to interconnect Hamburg and the metropolitan region even further.”

Schleswig-Holstein research minister Kristin Alheit added: “The new building for which we break the ground today offers ideal conditions for photon science and nanoscience: direct connection to existing infrastructure, excellent structural conditions and a further and tighter cross-linking of different research groups under one roof.”

Wolfgang Kaysser, the director of the Helmholtz Centre Geesthacht, and Lutz Kipp, the president of CAU, also

stressed the importance of the cooperation between the research institutes. The new building will provide a home to the German Engineering Materials Science Centre (GEMS) of HZG and to the Ruprecht Haensel Laboratory, a successful cooperative venture that has existed between Christian Albrechts University in Kiel and DESY for many years.

The Photon Science Building will offer more than 5000 square metres of net floor space, over 700 square metres of which will be set aside for laboratories. In addition to the DESY NanoLab, other DESY Photon Science research teams and the DESY Photon Science User Office – a reception centre for the thousands of guest researchers who use DESY’s radiation sources and the DESY NanoLab for their research every year – are also moving into the new building. Overall, the new Photon Science Building will offer room for some 200 employees.

The 14.1 million euros for the building will come out of funds made available by the German national government and the regional governments of Hamburg and Schleswig-Holstein, as well as the budgets of the three research institutions involved. The plans for the building were drawn up by the Berlin architectural office Reiner Becker Architekten BDA. (np/tz)



Architectural rendering of the new Photon Science building. Picture: Reiner Becker Architekten BDA

From dark matter to Hollywood

Ten years of Science Café at DESY

Almost 200 times so far, the Science Café has attracted people thirsty for knowledge to the DESY Bistro. Every fourth Wednesday at 17:00, current topics from the natural sciences are presented in a relaxed atmosphere – from the mystery of snowflakes to atoms in the quantum world. On 22 March, with its 198th event, the Science Café celebrated its tenth anniversary. More than 40 girls and boys, women and men came to listen to Axel Lindner's anniversary talk on Maxwell's light and on dark matter and to discuss it later with each other and with DESY scientists.

The idea of the initiator and honorary moderator Waldemar Tausendfreund was to get DESY researchers to explain various scientific topics to a sometimes very young audience. In addition to practicing scientific debate, the young participants should also discover that science is a lot of fun. The Science Café is advertised by posters at 180 schools in Hamburg and the surrounding area.



Depending on the topic, up to 60 people typically attend the events, about half of whom are under the age of 20. Younger pupils who have not yet come into contact much with physics and other natural sciences are being addressed in particular, with the aim to inspire enjoyment and curiosity for such themes among them as early as possible. About once per year, a topic is presented in English language, a special offer for pupils attending schools with bilingual teaching. These lectures are readily attended by entire school classes.

This great challenge has been met very successfully by all lecturers. The talks



Young at heart – Waldemar Tausendfreund among young physics fans. Pictures: Johannes Schmidt

are intelligible to all and mostly go without formulas. The idea is to show interested visitors that natural sciences and technology are really fun. During the lectures and afterwards, there is always the opportunity for discussions with the speakers.

Together with Waldemar Tausendfreund, Werner Brefeld was active at the Science Café until February 2014. Since March 2014, Bernhard Schmidt has been responsible for recruiting DESY scientists for the talks and for providing support on the scientific content, assisted by Britta Liebaug as tireless organiser and advertiser of the event.

Over the past ten years, the Science Café can look back on a great and interesting variety of topics. Everybody has questions on something that she or he has always wanted to know. Why does the smartphone need Einstein to find the way? Is there life on other planets? What kinds of tricks are used in Hollywood movies? If you have become curious by now, you should jot down Wednesday 26 April, when Marc Hempel will introduce the audience to the "Mysteries of starlight". (hw)

INFO

<http://sciencecafe.desy.de/>

DESY Silver Pin of Honour for Waldemar Tausendfreund

For his many years of dedication to the "Faszination Physik" project for pupils and to the Science Café, Waldemar Tausendfreund was awarded the DESY Silver Pin of Honour. DESY director Helmut Dosch thanked Tausendfreund on behalf of the entire Board of Directors and acknowledged his commitment to both school projects. Since his retirement 20 years ago, the former teacher at Albrecht Thaer Gymnasium devoted all his energy to enthusing young people for physics.

Tausendfreund was born in Berlin. After obtaining his doctoral degree, he worked as a solid-state physicist in East Berlin until the age of 40. After his flight from the GDR, he became a teacher, first in Saarbrücken and later in Hamburg. On 11 March 2017, Tausendfreund celebrated his 85th birthday.



Roentgen Medal 2017 for Henry Chapman

DESY scientist Henry Chapman was awarded the Roentgen Medal 2017 of the city of Remscheid in Germany. Since 1951, the native town of Wilhelm Conrad Röntgen has been

presenting the award annually to scientists who made outstanding contributions to the advancement and dissemination of the radiation discovered by Röntgen. Chapman, a leading scientist at DESY and professor at the University of Hamburg, wins the medal for his comprehensive and pioneering work in the application of X-ray lasers to determining the structure of biological macromolecules.

Thomas White wins Max von Laue Award

For his outstanding contributions to the analysis of biomolecules at X-ray lasers, DESY scientist Thomas A. White won the Max von Laue Award of the German Crystallographic Society.

The prize committee acknowledged White's CrystFEL software package, which made the analysis of numerous pioneering experiments possible in the first place. Today, the software package that White developed at DESY is used by scientists all over the world. The Max von Laue Award, which has been presented annually since 1996, recognises the outstanding work of junior researchers in the field of crystallography. The award is endowed with a prize money of 1500 euros.

Julius Wess Award to Robert Klanner

DESY's former research director Robert Klanner was granted the Julius Wess Award by the Centre for Elementary Particle and Astroparticle Physics of the Karlsruhe Institute of

Technology (KIT). Klanner receives the prize in recognition of his fundamental contributions to the development of silicon microstrip detectors, the jury declared. These devices, which are built with methods from the microelectronics industry, allow the tracks from the decays of heavy elementary particles to be measured with extremely high precision. Klanner came to DESY in 1984 and was its research director from 1999 to 2005.

Electrons at the end of the tunnel

Successful commissioning of the European XFEL particle accelerator



View into the 2.1-kilometre-long tunnel of the European XFEL linear accelerator. Picture: Dirk Nölle

The European XFEL X-ray free-electron laser reached the next-to-last important milestone on its way to scientific user operation: For the very first time, the superconducting linear accelerator accelerated electrons over its entire length, so the particles reached the final beam dump before the undulators, at the end of the 2.1-kilometre-long main tunnel. This was achieved by the operating team in the DESY accelerator control room synchronising 70 out of 98 accelerator modules. The electrons reached an energy of ten giga-electronvolts (GeV).

"The particle accelerator of the European XFEL is the first superconducting linear accelerator of these dimensions to be put into operation in the world," DESY director Helmut Dosch pointed out. "With the commissioning of this complex facility, DESY and European XFEL scientists top off 20 years of commitment to the development and construction of this beacon of science."

In the future, the European XFEL will produce up to 27 000 X-ray laser flashes per second, each one as short and intense as to allow scientists to map structures and movements on the atomic level. The superconducting particle accelerator of the facility now operating at its full length is of crucial importance for the function of the 3.4-kilometre-long underground X-ray laser. The supercon-

ducting TESLA technology developed in international collaboration under the aegis of DESY forms the basis for the high rate of X-ray laser flashes.

From December to January, the accelerator was cooled down to its operating temperature of minus 271 degrees Celsius. Then the front section was put into operation, which including the injector comprises 18 of 98 accelerator modules. In this section, the electron bunches are accelerated and also compressed in three steps to a length of down to ten micrometres. Now, for the first time, the bunches went through the complete accelerator. "The energy and other parameters of the electron bunches are already in the range they will have in the first user operation," said DESY physicist Winfried Decking, who leads the accelerator commissioning.

The interaction of the individual accelerator components and the beamline is now being intensively tested and the energy of the particles gradually increased to 17.5 GeV. The next step is to lead the accelerated electrons into the up to 210-metre-long undulators, in which they will produce the brilliant X-ray light. This step, called "first lasing", is planned in late spring, marking the last important milestone on the way to scientific user operation, which is to start in autumn this year. (tz)

New leading scientists at DESY

Melanie Schnell and Nina Rohringer strengthen DESY Photon Science

Two new leading scientists are strengthening DESY's Photon Science department: Nina Rohringer and Melanie Schnell have been appointed professors by the universities of Hamburg and Kiel jointly with DESY. Rohringer is an expert in ultrafast, non-linear X-ray physics. Schnell specialises in the structure and dynamics of molecules. Before their appointment, both scientists headed research groups at the Max Planck Institute for the Structure and Dynamics of Matter (MPSD) on the DESY campus in Hamburg.



Melanie Schnell

Since 1 March, Schnell is professor of physical chemistry at the Christian Albrechts University in Kiel. At DESY, she

heads the research group "Spectroscopy of Molecular Processes". The main focus of her research lies in gaining a better understanding of chemical processes on a molecular level, ultimately with a view to controlling and manipulating them. To this end, she and her group are developing new spectroscopic methods, especially in the field of rotational spectroscopy.

In addition, Schnell's research group is examining various questions raised in astrochemistry. "We would like to understand which chemical processes take place in interstellar space, an environment that is characterised by extreme conditions such as low temperatures and intense radiation – and why," explains Schnell. "To do this, it is important among other things to understand the photophysics of key molecules, such as polycyclic aromatic hydrocarbons, for which experiments at DESY's free-electron laser FLASH are ideally suited." This work is funded by the European Research Council (ERC) through an ERC Starting Grant.

Rohringer has become a professor at the University of Hamburg on 1 February and is setting up a research group at DESY that is to look at the "Theory of Ultrafast X-ray Physics". "We are studying fundamental processes in the inter-



Nina Rohringer. Photos: Gesine Born

action between ultrashort, high-intensity X-ray pulses produced by free-electron lasers and matter," says Rohringer. Among other things, the group is interested in the feasibility of carrying out new types of experiments at X-ray free-electron lasers, but also in entirely new types of X-ray lasers.

A further focus of the group's research will be to study quantum-mechanical processes at high temporal resolution using X-ray spectroscopy. To this end, Rohringer's group will also be performing experiments at FLASH, as well as at the European XFEL X-ray free-electron laser, which is currently being put into operation. (tim)

Take to the streets for science

March for Science calls for demonstrations worldwide

On this year's Earth Day on 22 April, people in about 400 cities worldwide will take to the streets for the March for Science, in order to demonstrate for the value of science and facts in times of "alternative facts". Scientific findings as the basis of social discourse are not negotiable, the organisers emphasise. Therefore, not only scientists are asked to participate in this global demonstration for the value of research and science, but all people who think that a clear distinction should be made between evidence-based knowledge and personal opinion. As the organisers

warn, if policy makers should make decisions no longer on the basis of available data but of their diffuse feelings, our democracy will eventually be in danger.

The March for Science on 22 April will also take place in Hamburg and Berlin. DESY employees wishing to participate can obtain a T-shirt in the Hamburg PR department (Bldg. 1) and at KUV in Zeuthen on Thursday and Friday before the event.

More information: <http://marchforscience.com>



PhD prize for Arnd Behring



DESY researcher Arnd Behring received the Till Moritz Karbach prize of TU Dortmund University in Germany for his outstanding doctoral thesis. The award acknowledges his contributions to the calculation of precision forecasts in the field of massive quarks, among others of the strong coupling constant, the mass of the charm quark and the parton distribution functions. The precision of these values is of fundamental importance for experiments in the high-luminosity phase of the LHC. The doctoral thesis was elaborated in interdisciplinary cooperation in particular between DESY in Zeuthen and RISC at the University of Linz in Austria.

Birthday colloquium for Jochen Schneider



With a scientific symposium, DESY celebrated the 75th birthday of its former research director Jochen Schneider. On 21 March, numerous guests attended a top-class programme on current developments in the field of free-electron lasers. Anniversary talks were held by John Galayda, project leader of the planned LCLS-II X-ray laser at the US National Accelerator Laboratory SLAC, DESY scientist Henry Chapman and Daniela Rupp from TU Berlin.

As from 1993, Schneider was head of the Hamburg synchrotron radiation laboratory HASYLAB and from 2000 to 2007 director of photon science at DESY. He initiated the Center for Free-Electron Laser Science (CFEL) and was awarded the Order of Merit of the Federal Republic of Germany for his contributions to making DESY one of the leading centres for research with X-rays in the world.

John von Neumann excellence project



The research project "Hadronic contributions to electroweak observables" of Karl Jansen from DESY in Zeuthen was selected as "John von Neumann Excellence project" and thus

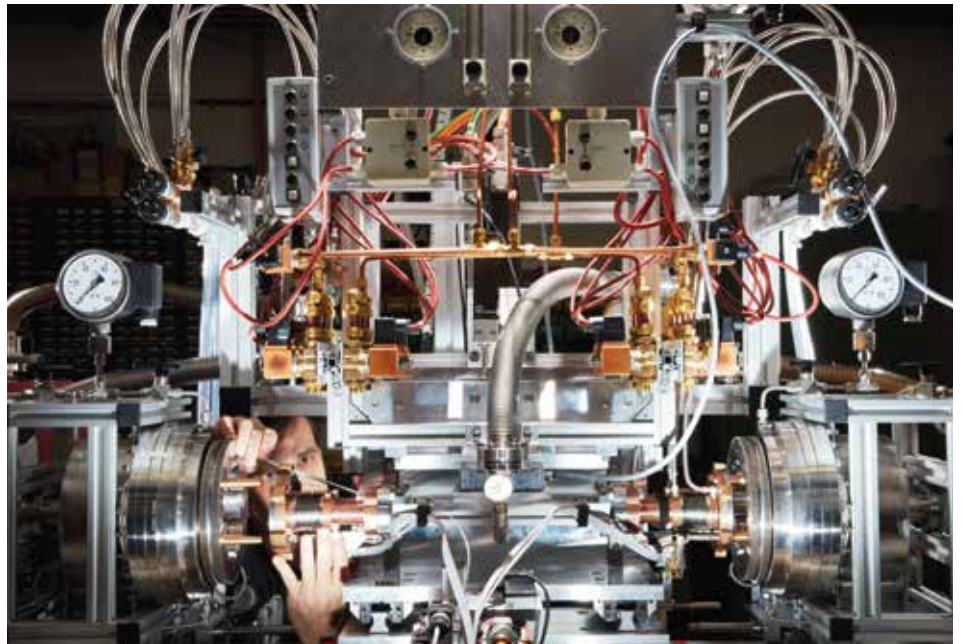
granted extra computing time on the JURECA supercomputer. The distinction is awarded by the John von Neumann Institute for Computing (NIC), a joint venture of the three Helmholtz research centres Forschungszentrum Jülich, DESY and GSI. The project was selected owing to the excellent preparatory work, its outstanding importance and the high quality of the methods used.

The antimatter hunter

Detector components for Belle II under test at DESY

The Belle II project is scheduled to start operating in about a year at the Japanese research centre KEK. The experiment searches for a tiny irregularity between matter and antimatter that makes all the difference for our existence, as it could explain why there is almost no antimatter in the universe. To this end, the detector is being upgraded in an international collaboration and must be thoroughly tested. DESY's test beam facility plays a vital role in these tests.

capable of processing a much greater amount of data, as the SuperKEKB accelerator is also being upgraded. To this end, two powerful focusing magnets will be placed immediately in front of and behind the interaction point, concentrating the particle beams. The highly sensitive vertex detector (VXD) will later be installed between these two magnets. DESY has developed the sophisticated vacuum connection system that links the central beam tube



Modern-day "Where's Wally?": The vacuum connection system developed at DESY links the beam tube and the high-tech detector. Picture: Heiner Müller-Elsner

The centrepiece of Belle II is the novel pixel vertex detector (PXD) located just 14 millimetres from the interaction point, which will measure the collision products with extremely high precision. Prototypes of this sensor technology, which was developed in Germany, were tested at DESY's test beam facility. The PXD will be assembled over the coming months at the Max Planck semiconductor laboratory and the Max Planck Institute for Physics in Munich. It will then be thoroughly tested at DESY for three months, before eventually being shipped to Japan in early 2018.

The performance of the Belle II detector will be much higher than that of its predecessor Belle, with the detector

on which the VXD will be mounted to the vacuum system of the focusing magnets. Due to the extremely limited space available, these connections must be opened and closed remotely.

With the tests, the scientists aim to find out how the various sensors, the data collection software and the trigger – which initiates data storage – operate together. All this is happening in a sort of high-tech dummy detector, because before exposing the extremely sensitive VXD to the high-intensity particle collisions at SuperKEKB, the scientists need to have a very clear idea about the particle background from the collisions in order to be able to "adjust" the accelerator optimally right from the start. (baw)

Top-level European research in Hamburg

DESY celebrates tenth anniversary of European Research Council

By Nikolai Promies

The European Research Council (ERC) was founded by the EU to attract the best scientists to Europe. For ten years, the ERC has been supporting excellent researchers from all disciplines with highly endowed grants, thereby strengthening the European research landscape. Currently, there are 14 projects funded by the ERC on the DESY campus. In mid-March, DESY celebrated the tenth anniversary of the ERC with a public presentation of this top-level research subsidised by the EU.

With a total budget of 13 billion euros for the period of 2014 to 2020, the ERC is awarding the highest individual research advancement grants in Europe. These grants are not tied to institutions but to individual scientists and their ideas, and they are assigned solely with regard to scientific excellence. "The ERC grants are very attractive for scientists because they support basic research conceived and proposed by the researcher," said DESY scientist Jochen Küpper from the Center for Free-Electron Laser Science (CFEL). "As the funding offers a large amount of money for up to five years, it provides true independence." Küpper received a grant of two million euros for his COMOTION project, in which he is developing methods to transport, sort and align complex molecules.

At present, 17 researchers on the DESY campus are receiving ERC funds, partly in joint projects. By themselves, the ten DESY researchers among them are getting 19.7 million euros from the ERC. Grants were awarded to projects from all kinds of research fields – from the development of miniature accelerators and slow-motion cameras for the nanocosm to dark matter and string theory.

"Within the past years, DESY scientists and particularly our junior researchers have attracted funding for many ERC research projects," DESY director Helmut Dosch pointed out. "This demonstrates once more the extraordinary quality and topicality of DESY



Franz Kärtner presents the AXISIS project, for which he and three other scientists received an ERC grant.

Picture: Tom Minniberger

research and the impressive creativity of our staff in the various research fields."

A special case is the AXISIS project, which is being funded with 13.9 million euros over six years by means of an ERC Synergy Grant. Synergy Grants support interdisciplinary teams of excellent scientists performing a joint project. Only 24 out of 1160 proposals were selected for this kind of funding. Within the AXISIS project, DESY scientists Franz Kärtner, Henry Chapman and Ralph Aßmann, together with Petra Fromme from the Arizona State University in the USA, are jointly developing a kind of stroboscope with ultrashort light flashes in the attosecond range to film ultrafast processes.

The EU project office at DESY assists scientists in the submission of proposals for ERC grants and in the later execution of the EU projects. "It is a great pleasure to help in particular the younger scientists to optimally present and perform their research project ideas towards the ERC," said Ute Krell, head of the EU project office.

However, not all eligible projects can be accepted by the ERC. It is already a distinction if a project proposal reaches the last selection round – only a few proposals achieve this feat. For these researchers, the Helmholtz Association has created the ERC Recognition Award. With funding of up to 200 000 euros for a period of two years, this award allows scientists at Helmholtz centres to prepare a new proposal for the ERC. At DESY, four scientists are currently receiving funds from an ERC Recognition Award.



The International Office in a period of change

By Steffi Killough

The International Office provides assistance to foreign scientists and their families from meanwhile 60 countries. In the last years, guest scientists have been coming to DESY mostly from the Russian Federation, closely followed by researchers from Poland, India and China. However, scientists from Ethiopia, Iceland, Oman, St. Vincent and the Grenadines, Peru, Trinidad and Tobago, Madagascar and many other countries have also joined the DESY community.

In the course of time, the tasks of and the requests to the International Office have changed. In the previous two or three decades, the main task was to invite guest scientists being sent from their home institutes, with the clear assignment to provide temporary assistance. Today, the main task is to enable their integration into working and everyday life. Support ranges from search for accommodation to intensive help in matters of aliens law.

Every year, about 750 briefings on right of residence are offered to prepare for appointments at the foreigners' registration office. In addition, 700 invitations are issued to persons requiring a visa. Due to the almost annually changing right of residence conditions, today there are nine instead of formerly two residence permit variations, the best of which must be determined individually. The implementation of the Blue Card for qualified foreigners is an important advantage for Germany and for DESY. In 2016 alone, this status was granted to 61 persons on the campus. In the first half of 2016, 8670 Blue Cards were assigned in Germany, which amounts to 85.5 percent of all Blue Cards issued in Europe and puts Germany at the forefront. Currently, there are 600 people every day on the DESY campus who in some way have or had to do with the International Office. Requests may be questions concerning invitations or right of residence, or any other questions about life, insurances, social services for parents and children or everyday trouble, as well as preparations for arrival in and departure from Germany.



Elizabeth Pollitzer presenting her workshop results. Picture: Marta Mayer

Culture and Careers in Physics

EU project GENERA organised “Gender in Physics Day”

By Lia Lang and Thomas Berghöfer

Under the motto “Culture and Careers in Physics”, the EU project GENERA invited anybody interested to participate in the German “Gender in Physics Day” on 12 January. DESY director Helmut Dosch opened the event with a plea to focus on the whole talent pool – and not only on men – to ensure excellent research in physics. Andrea Bossmann from the German Physical Society's (DPG) equal opportunities working group reported that for years, the proportion of women studying physics has been stagnating at about 20 percent. In their presentations, Thomas Brage (Lund University) and Martina Erlemann (Freie Universität Berlin) directly associated the very low percentage of women in physics with the mostly male-dominated science culture.

In various workshops, the more than 100 participants had the opportunity to work on selected subjects. One focus among others was on discussions about personal experience with equal opportunities measures. The workshops were logged by so-called graphic recorders and later presented by the moderators. In the afternoon, physicist Elisa Resconi from TU Munich talked about her research at the IceCube neutrino telescope in Antarctica and about her career. She proposed to specially promote young female scientists, to financially and structurally support young parents

and to enforce training on unconscious gender stereotypes.

At a roundtable discussion with Helmut Dosch, Thomas Brage, Elisa Resconi and gender expert Elizabeth Pollitzer from Portia institute in London, an agreement was reached on several necessities: Female physicists are needed in laboratories as much as male physicists telling of their parental leave. Unconscious prejudices discriminating women in selection procedures must be eliminated, and objective excellence criteria are required. There was also general consent that the image of physics in schools and society must be improved and that the male-dominated science culture likewise has to change. The audience suggested to repeat the event every year.

The three-year GENERA project is funded by the European Commission with more than three million euros, with the aim to implement tailor-made equal opportunities plans in physics institutes all over Europe. In November 2016, a series of “Gender in Physics Days” was launched in the countries of the participating organisations.

INFO

<https://indico.desy.de/events/gjp>

By Nikolai Promies

A joint project of the Hamburg Ministry for Science, Research and Equal Opportunities (BWFG) and four colleges and universities aims to establish Hamburg as a top IT location. Part of the project is a new platform, "ahoi.digital", that is to strengthen cooperation both between the universities and with companies. DESY, which has often been a driving force of computer science developments in Hamburg, is interested in contributing its expertise to the project.

"We can well imagine a future cooperation in the new platform," said Volker Gülzow, head of DESY IT. "We could for example make joint professorship appointments for computer science with universities. Already now, we are playing an active part in organising new calls and presenting our proposals."

Currently, the University of Hamburg, Hamburg University of Technology (TUHH), Hamburg University of Applied Sciences (HAW) and HafenCity University Hamburg are participating in the initiative. Together with the Hamburg Parliament and Senate, they plan to invest 23 million euros in the coming years, among others to create 35 new professorships and thus 1500 additional computer science university places. With further funding, the project could reach a volume of 33 million euros.

INFO

www.hamburg-news.hamburg/en/cluster/media-it/ahoidigital-hamburgs-latest-it-platform/

Steaming pots

Alsterfood plans new offerings on the DESY Hamburg campus

By Angelika Bester

Since October 2016, the team of Alsterfood GmbH headed by Alexander Philipp has been taking care of the culinary well-being of DESY staff members and guests in Hamburg. In the in-house canteen, pots start steaming at 6:00 in the morning to offer a varied selection of freshly cooked food on workdays. The cafeteria menu lists small hearty meals, fresh snacks and the like even at late hours. The catering for conferences and events has been optimised and is being frequently used.

Manager Philipp was pleased with the successful start and the friendly welcome on the Bahrenfeld campus. Alsterfood took over the established core workforce of kitchen, service and administration and strengthened the team with additional employees. In everyday business, collaboration projects with handicapped people – the main business of the Evangelische

Stiftung Alsterdorf service enterprise – have also found a place: The weekly supply of beverages with Viva Con Agua mineral water is carried out by employees of Stadt-Oase, and in the future, home-made cookies from the Hummelsbütteler Weg labour supply agency will be the highlight at conferences and meetings. Under the motto "a feast for the eyes", the artists of Atelier Lichtzeichen gGmbH helped to decorate the walls of the canteen with colourful, inventive and atmospheric pictures intended to create a feel-good atmosphere.

Alsterfood still has a lot on its agenda: In April, a mobile breakfast supply is due to start on the Hamburg campus, the organic certification will follow by autumn, and special offers are foreseen for the Health Day in September.

Science on Tap 3.0

Come and have a beer with Hamburg's researchers: For the third time, the outreach project "Wissen vom Fass" (Science on Tap) invites people thirsty for knowledge to meet at pubs and bars. On 27 April, Hamburg scientists will leave their computers and labs and go out to report on their research in vivid 30 minute talks, after which they will gladly answer questions from the audience. After its successful premiere in October 2015, the programme was already extended by a multitude of fascinating topics at the second event in November 2016. "Wissen vom Fass" is on offer in about 50 pubs and bars: www.wissenvomfass.de.

Run on summer student programme

The number of students interested in this year's DESY summer student programme was higher than ever before. The organisers listed about 670 applicants. "Registrations from Russia in particular nearly doubled, to 77 students," said Olaf Behnke, a member of the organising team. The organisers had to make a difficult choice: Only about one in six students could be accepted for the programme. This year, 91 "summies" will come to Hamburg and 17 to Zeuthen.

Record participation in Users' Meeting

This year's joint Users' Meeting of the DESY light sources and the European XFEL X-ray laser attracted a higher number of participants than ever before. Almost 1100 scientists from more than 70 institutions from 30 countries came to Hamburg to learn more about the research opportunities at the brilliant X-ray light sources.



Cooperation of DESY and RISC Linz extended

Many precision calculations for scattering processes at high-energy accelerators such as the LHC require modern computer algebra algorithms to calculate the enormous amounts of complex Feynman integrals in higher loops. For ten years, the DESY Theory group in Zeuthen and mathematicians from the Research Institute for Symbolic Computation (RISC) at Johannes Kepler University (JKU) in Linz, Austria, have been cooperating successfully in this field. The collaboration was celebrated in February at a one-day workshop at Hagenberg Castle near Linz. On the occasion, JKU vice rector Alexander Egyed and DESY research director Joachim Mnich prolonged the cooperation.

yHEP – One voice for 1200 young scientists

There are many people who recognise deficiencies and improvement potentials. However, there are only a few who make sure that deficiencies are eliminated and that the situation is being improved. Among those is Hendrik Jansen, young scientist at DESY and founder of the young High-Energy Physicists Association (yHEP), a new cooperation of junior researchers in high-energy physics.

yHEP addresses all particle, astroparticle, accelerator and nuclear scientists in Germany with a temporary contract, not a permanent position – that is, PhD students, postdocs, fellows and junior scientists at universities and research centres such as DESY. The association, which was officially founded in November, aims to take care of the interests of this group, act as a contact partner and seek solutions for typical problems of its members.

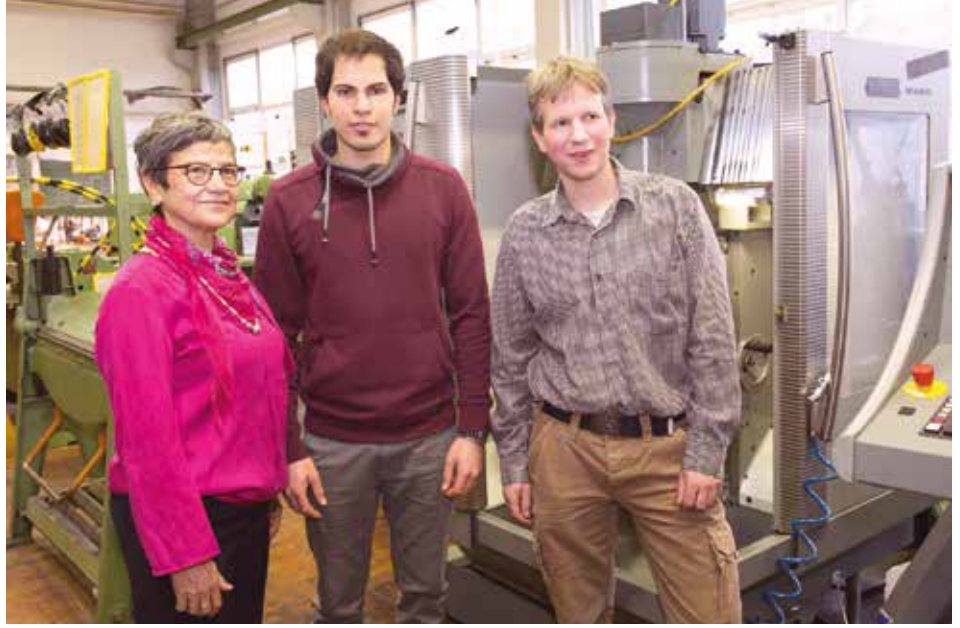
There are about 1500 particle physicists in Germany, with nearly 1200 of them on a temporary contract. “Only about ten percent of the potential yHEP members manage to get a permanent position, the rest has to look for a job in another sector,” Jansen explains. “This fact has to be communicated much more clearly. Moreover, we have to ask ourselves what we can do together to be better prepared for science and industry.”

Meanwhile, 260 yHEP members have registered and held their first annual meeting at the Spring Meeting of the German Physical Society (DPG) in Münster. yHEP plans to build up a network among junior scientists and, at the same time, aims to act as a mouthpiece reporting and stressing yHEP concerns in boards such as the Committee for Elementary Particle Physics (KET), the Committee for Accelerator Physics (KfB), the Committee for Astroparticle Physics (KAT) and the Committee for Hadron and Nuclear Physics (KHuK). For this purpose, the yHEP management board is currently collecting data about yHEP members and their working conditions. *(baw)*

Contact and registration: <http://yhep.desy.de>

Integration through training

First refugee signs training contract at DESY



Hülya Eralp, Sajjad Ebadi and Dirk Kornmüller in the DESY training workshop. Picture: Marta Mayer

In 2015, Sajjad Ebadi had to flee from Iran because he belongs to a persecuted minority. He, his parents and his siblings sold all their possessions to pay the people smugglers and the tickets to Germany. Since then, they have been living in refugee accommodation centres in Hamburg – first in the Hamburg Trade Fair halls and afterwards in a former canteen. Now, the 25-year-old migrant, who began to study mechanical engineering in Iran, is starting a training to become an industrial mechanic at DESY. He is the first refugee to sign a training contract at DESY.

“Ever since the job interview, we felt certain that this will go very well,” says Dirk Kornmüller, DESY training manager in the mechanical sector. Ebadi is looking forward to both working and learning. “In Iran, we led a completely normal life. Now we have to build up everything from scratch,” he says.

Ebadi was placed by the Coordination Agency for Continuing Training and Employment (KWB), a joint venture of the Hamburg business associations, the social security office and the employment agency. After attending an information event, Kornmüller had contacted KWB consultant Hülya Eralp. She encour-

aged Ebadi to apply. At DESY, he had to take the same tests as all the other applicants. “He passed them with good results,” says Kornmüller.

A major obstacle is usually the language. Luckily, Eralp helped Ebadi to find a German language mentor who is giving him private lessons. His German language skills were adequate enough for his application. “This was very important because he will be operating complex machines as well and we must be sure that he will understand the safety instructions,” Kornmüller points out.

Ebadi will start his training on 1 September. It is a first for DESY, which will soon find its continuation, however: Qais Haidari, who fled from Afghanistan, has a good chance to get a training contract with the DESY library. “Good integration works best when the refugees are able to work here and are rooted in our society,” says Kornmüller to explain the motivation behind the initiative. “Even if some more effort is required at the beginning, the training of refugees is an important contribution that we – as an internationally positioned research centre – wish to make for society.” *(tim)*

Contribute to the DESY DAY 2017

On 4 November, Hamburg's largest research centre will again open its doors to the public: from 12:00 at noon to 12:00 at midnight, DESY and its partners will invite all the neighbours and other interested people to come to the open day on the Hamburg campus.

The DESY DAY traditionally takes place at the same time as the Hamburg Night of Science, and the idea is to present all the facets of our research centre.

Everybody willing to help or to propose an action for the DESY DAY is cordially invited to do so. She or he can register as a helper or with a project at: <http://registrierung-tdot.desy.de/>.



The sooner, the better! All actions that are confirmed by 10 July can be included in the central Night of Science programme book. (tz)

Distinguished

Certificate for successful quality management awarded to PT-DESY

By Isabell Harder

The DESY project management organisation (PT-DESY) now has the official confirmation that its work meets high quality standards. The DESY department was certified by the "Bureau Veritas Certification" in Hamburg as "Project management for public-sector clients for the advancement of research and innovation".

PT-DESY is in charge of public funds from the German Federal Ministry of Education and Research (BMBF) amounting to 90 million euros per year. These funds are used for projects in "Large-scale facilities for basic research in the natural sciences" and "Mathematics for innovation and services". With their expertise and organisational support, project management organisations implement research funding on behalf of BMBF and other contracting authorities. Thus, these organisations bear a high degree of responsibility for the allocation of public funds. In order to fulfil this responsibility, the project management organisations must ensure that their work is carried out on the



highest professional level and that the legal framework of project funding is always observed.

"Of course, we are glad that everything went so smoothly at our certification,"

said Klaus Ehret, head of PT-DESY. "However, the certification is only the starting shot. In the future, we will regularly put our working processes to the test." DESY director of administration Christian Haringa is also very proud of the success of the project management organisation. "It is the first department at DESY to introduce a certified quality management system – a very good model for the other departments."

PT-DESY has been working as a project management organisation for the German federal research ministry since 1974. Within its mandate, it performs sovereign tasks such as the granting of funds. Since the establishment of the department, the project management organisation has grown steadily. The DIN EN ISO 9001:2015 certification is another milestone in this development. It strengthens the position of DESY in the competition for the regular new calls for project management organisations from the federal ministries.



Participants of the regional competition Hamburg-Bahrenfeld. Picture: Marta Mayer

“The future that I will shape” “Jugend forscht” and “Schüler experimentieren” 2017 at DESY

By Kim Petersen

For the fifth time already, DESY hosted the regional “Jugend forscht” science competition in Hamburg-Bahrenfeld, one of four regional competitions in Hamburg. In mid-February, about 100 participants met at the DESY school lab, where they presented around 50 projects in total to a group of honorary expert jurors on the first day of the competition.

The “Jugend forscht” science competition encourages achievements and talents in the fields of mathematics, computer science, the natural sciences and technology, with the aim to inspire lasting enthusiasm for these topics among young people. This year’s projects represented a colourful mixture from all subject areas (the world of work, biology, chemistry, geo- and space sciences, mathematics/computer science, physics and technology); some of these projects were part of the “Schüler experimentieren” competition for pupils from fourth grade on.

Many interested visitors used the opportunity on the second day of the competition to have a look at the projects

explained by the young researchers. This was followed by a ceremony in the DESY auditorium, with DESY research director Edgar Weckert, Thomas Bressau from the Hamburg School Board and Sven Baszio from the “Jugend forscht” foundation. Diplomas were presented to all the participants; nine projects including six “Jugend forscht” projects were awarded a first prize and thus qualified for the next competition round – congratulations!

The important work of the teachers who accompanied their pupils throughout the competition was also highlighted and rewarded with a number of special prizes. In addition, a golden pin of the “Jugend forscht” foundation was presented to the director of the competition, Angela Meyer zu Rheda, who organised the regional competition with great commitment in the last years and who is now retiring. She handed over the baton to her successor Dennis Halenza, who was a member of the jury this year and who is already looking forward to assuming new tasks as director of the competition.

Tarantula inspires scientists

When looking from different viewing angles at a soap bubble, you will see different colours. This optical phenomenon is called iridescence. It looks beautiful but is impractical for many industrial applications. Now, scientists drew inspiration from nature: From every perspective, the blue tarantula (*Poecilotheria metallica*) looks metallic blue. On its tiny hairs are periodic nanostructures arranged in a multilayered flower-like pattern, which causes the reflected light waves to overlap so that there is no iridescence.

With the help of a nano-3D printer, scientists in cooperation with Karlsruhe Institute of Technology (KIT) have now succeeded in producing a flower-like structure like the one of the tarantula that generates the same colour over a viewing angle of 160 degrees. The resulting colour can even be adjusted by changing the size of the “flowers”, making the process interesting for industry. “This could be a key first step towards a future where structural colorants replace the toxic pigments currently used in the textile, packaging and cosmetic industries,” said Radwanul Hasan Siddique of KIT’s Institute of Microstructure Technology, who is now working at the California Institute of Technology.

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