New view into the cosmos
Well positioned – DESY’s new astroparticle physics division

Cosmopolitan
Wim Leemans on his start at DESY

Innovative
Creating more space for start-ups on the campus

Pictorial
Reading room becomes art space
DIRECTOR’S CORNER

Dear DESY colleagues,

In a press conference on 22 January 2019, DESY, the Hamburg Senate and Universität Hamburg presented the plans for their joint large-scale project “Science City Bahrenfeld”.

Over the next few years, a new Hamburg science district will be realised here on our DESY campus and in its vicinity on an area of 125 hectares, where science, business and living will come together to create something new. For DESY, important first construction measures of the Science City Bahrenfeld will be the Centre for Data and Computer Science (CDCS) for scientific computing, the Centre for Molecular Water Science (CMWS), the Wolfgang Pauli Centre (WPC) and the X-ray light source PETRA IV “Next Generation”.

Just imagine what our Hamburg campus and its neighbourhood will look like in a few years’ time. There will be not only new scientific institutes and facilities, but also apartments as well as sports and recreational areas. More than 5000 students will benefit from modern lecture halls, laboratories and interactive learning and meeting places. In the Altona Innovation Park, start-ups, innovative companies and established firms will be researching new technologies together with the scientific community. With the new subway line, it will be easy to reach DESY from downtown Hamburg. Modern mobility hubs and innovative transport concepts such as bus shuttle systems will enable us to have a car-free campus.

With the Science City Bahrenfeld, we will create even more scientific excellence, innovation, quality of life and jobs for DESY and Hamburg in the future. The first joint project of DESY, the City of Hamburg and Universität Hamburg within the Science City Bahrenfeld project will be the new Innovation Centre, for which the ground-breaking ceremony has just taken place. It is scheduled to open in autumn 2020.

This year, our closest Hamburg partner institution, Universität Hamburg, which was inaugurated on 10 May 1919, is celebrating its 100th anniversary. Today, Hamburg would be inconceivable without its university, one of the largest in Germany with more than 43 000 students in more than 170 courses of study. I wish Universität Hamburg all the best for its 100th birthday!

Best regards,

Helmut Dosch

Cover picture:
Telescope of the future: Berlin Adlershof hosts a prototype for the Cherenkov Telescope Array (CTA). The CTA observatory will enable completely new insights into the cosmos. Picture: Markus Garczarczyk, DESY
As you’ll have noticed, we have made some changes to DESY inform, optically and regarding content. We hope you’ll enjoy our – and your – new DESY inform staff magazine, and we’re looking forward to your feedback.

If you have an exciting story or a great cooperation that you would like to share, please contact our editorial team. We welcome ideas, praise and criticism. Simply write to us at: inform@desy.de

On our own behalf

The editorial team (from left): Heiner Westermann, Till Mundzeck, Britta Liebaug, Thomas Zoufal, Barbara Warmbein, Kristin Hüttmann (not in the picture: Ulrike Behrens). Picture: Marta Mayer, DESY
At the beginning of the year, DESY has established a fourth research division: astroparticle physics, with the main focus on the Zeuthen location. After the Board of Directors decided in spring 2018 to extend the campus at Lake Zeuthen, the research centre is now further expanding its activities to explore the cosmos. This means that DESY now has four independent research divisions: accelerators, photon science, particle physics and astroparticle physics.

The research director in charge of the new division is Christian Stegmann (see interview). The 53-year-old astroparticle physicist has headed the DESY location in Zeuthen since 2011 and is professor of astroparticle physics at the University of Potsdam. For Stegmann, the fact that part of the DESY Board of Directors is now located in Zeuthen marks the culmination in the development of the institute, which emerged from the GDR Institute of High-Energy Physics after the German reunification.

The astroparticle physics research area arose in Zeuthen in 2009 from a small research group on neutrino astronomy. Today, the Zeuthen science location has become an internationally renowned centre for astroparticle physics. DESY is a leader in the cubic-kilometre IceCube experiment in the Antarctic ice and in the IceCube-Gen2 upgrade programme. In August 2017, a team of DESY scientists played a leading role in locating the first source of extremely high-energy neutrinos in the cosmos – a huge success and a decisive step for multimessenger astronomy, or MMA for short.

In the new astroparticle physics research division, a particular scientific focus lies on the multimessenger programme, for which DESY, together with Humboldt Universität zu Berlin, the University of Potsdam and the Weizmann Institute in Israel, is also setting up an international graduate school for promoting young scientists (see p. 6), funded by the Helmholtz Association. MMA is the study of the cosmos using various messengers, such as electromagnetic radiation, cosmic rays, gravitational waves and neutrinos, which can provide information on the nature of cosmic phenomena and processes.

Another field of research is gamma astronomy, where DESY is also firmly anchored in international projects. After the development of the Cherenkov Telescope Array (CTA) began only a few years ago, the Zeuthen location is today one of the driving forces of the project. CTA is an international observatory for the observation of cosmic gamma rays. The observatory is currently under construction. In the future, it will provide completely new insights into the cosmos at high energies. Prevailing against competitors from Italy, France and Poland, Zeuthen was chosen as the location of the CTA Science Data Management Centre, i.e. the central coordinator for all scientific activities of the observatory.

Moreover, DESY is the only research centre in the world to be involved in all experiments in the field of gamma astronomy. A growing theoretical astroparticle physics group, covering all aspects of cosmic particle acceleration, propagation and high-energy particle interactions, supports the experimental activities.

In the coming years, the DESY campus in Zeuthen will also be optically redesigned; the jury announced the winner of the architectural competition for the campus development in March (see p. 6). With the construction of the CTA Science Data Management Centre and the canteen, the campus at the lake will not only expand, it will also become more open, communicative and creative. If everything goes to plan, the clearing of the construction site will begin this year so that the groundbreaking ceremony can take place next year. khü
Christian Stegmann talks to Kristin Hüttmann from DESY about his work as new research director in charge of astroparticle physics.

**What about the other scientific activities in Zeuthen?**

With accelerator physics and particle physics, two other DESY research areas are covered at the Zeuthen location in addition to the focus on astroparticle physics. Nothing has changed in terms of responsibilities. The processes in these areas, which have been tried and tested for many years and which have their focus in Hamburg, are a good model for the opposite approach.

**Does astroparticle physics only take place in Zeuthen? Or will you also get an office in Hamburg?**

The astroparticle physics division is – like any other – a division for the whole of DESY. The focus of the new division is currently on the DESY location in Zeuthen, but this may change with regard to new projects. It is conceivable that some of them will also be located in Hamburg. This won't change much about my presence – I'm already in Hamburg at least once a week.

**What about the observation of charged cosmic rays?**

We are on the threshold of a "golden age": Multimessenger astronomy, with gamma rays, neutrinos, gravitational waves and cosmic rays, can offer us completely new insights into the origins and evolution of our universe. That is why we now need to launch targeted research programmes to fully exploit this potential. We are doing this together with partners in Germany and abroad. In particular with our partner institute in the Helmholtz Association, the Karlsruhe Institute of Technology (KIT), we have found a very fruitful arrangement that optimally combines our strengths: We are advancing gamma astronomy with CTA, KIT is leading the observation of charged cosmic rays with the Pierre Auger observatory, and together we are implementing the upgrade of the IceCube experiment.

**What role could DESY play in gravitational wave astronomy?**

A big one, I hope. The detection of gravitational waves in 2015 marked the beginning of a new era in astronomy. The planned Einstein telescope is now the European gravitational wave observatory of the future, a cornerstone of the European research area, a large-scale scientific project from which groundbreaking insights are expected. DESY should assume a major role in this project, across its two locations and together with other university and non-university partners.

**What is your vision for the coming years?**

DESY is a cutting-edge research laboratory with very different, promising research projects. I see our great strength in DESY's scientific diversity. We have great people of many professions and nationalities who work at the highest level in all areas, and not only in science. Our vision for the coming years is clearly defined within the DESY 2030 strategy. Now it is time to implement it. For my field of astroparticle physics, this means: putting CTA into operation, taking the next big step with the upgrade of the IceCube experiment and assuming an important role in gravitational wave astronomy. In short – to make DESY an international centre of attraction for astroparticle physics worldwide. For DESY as a whole, this means further expanding the centre into one of the world's top laboratories and being the driving force behind crucial future projects in basic science.

**How has DESY set up the astroparticle physics research division?**

Astroparticle physics has experienced a tremendous development in recent years. The observation of cosmic neutrinos in 2013, the direct detection of gravitational waves in 2015, the simultaneous observation of a neutrino and high-energy gamma rays from the direction of a blazar in 2017 as well as the observation, triggered by the detection of a gravitational wave, of the fusion of two neutron stars by over 40 different observatories in August 2017 are four prominent examples of this development. The establishment of a dedicated division underlines the importance that astroparticle physics now has in DESY's scientific programme and strengthens this field of research in Germany and internationally.

**The DESY location in Zeuthen is to be expanded into an international centre for astroparticle physics – what exactly does that mean?**

The coming years will be exciting. We have been selected as the location of the Science Data Management Centre of CTA, the next major international project in astroparticle physics. This means that the scientific centre of the project will come to Zeuthen, and DESY will thus become the contact point for astroparticle physicists from all over the world. The architectural competition has just ended, new buildings will be constructed in the coming years, and the entire campus will be redesigned. We are also expanding our cooperation with universities and non-university institutions. For example, we recently established a new partnership for innovations and start-ups directly in our neighbourhood with the Technical University of Applied Sciences Wildau.

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The Helmholtz Association is funding an international graduate school for multimessenger astronomy, which DESY is setting up together with Humboldt Universität zu Berlin, the University of Potsdam and the Weizmann Institute of Science in Israel.

The International Helmholtz–Weizmann Research School for Multimessenger Astronomy will receive a total of 1.8 million euros in funding for six years. The graduate school is to form the foundation for structured doctoral training in the field of astroparticle physics at DESY and also strengthen the partnership with the Weizmann Institute.

“The multimessenger school brings together experts for the various messenger particles and combines the experience of scientists from experiment and theory,” said Marek Kowalski, leading scientist at DESY. “We are covering all aspects, from optical light to hard gamma rays and from neutrinos to gravitational waves. This offers students an outstanding starting position in future projects of multimessenger astronomy.”

To gain international experience at an early stage, a longer research stay of the participants in the respective partner country is planned; an annual meeting will ensure a strong network. The speakers of the new graduate school are Marek Kowalski for DESY, David Berge for Humboldt Universität, Huirong Yan for the University of Potsdam and Eli Waxman for the Weizmann Institute. The first call for applications is scheduled for spring 2019.

IN FOCUS

Open spaces for brilliant research
What the new DESY campus in Zeuthen will look like

On 11 March 2019, the jury announced the winners of the architectural competition for the campus development in Zeuthen: The first prize went to the architects Heinle,Wischer und Partner from Berlin and Ulrich Krüger Landschaftsarchitekten from Dresden. The task was to determine the best layout for the further development of the campus at Lake Zeuthen and to create the optimal building concept for the new CTA Science Data Management Centre and the canteen.

From the 20 submitted concepts, the jury selected eight participants to submit a second draft. “Our decision in favour of the prize winners was based on the fact that both requirements were very well reconciled here,” judged the jury. “The concept combines a clear campus layout, which is open to further development, with a superior and appealing building design.”

New school for budding astroparticle physics experts
Helmholtz Association funds International Research School for Multimessenger Astronomy

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To gain international experience at an early stage, a longer research stay of the participants in the respective partner
Making the future greener
Six questions to Denise Völker, first DESY sustainability manager

Since 1 March, DESY has had a sustainability manager: Denise Völker. From now on, the 46-year-old will head the newly created sustainability unit at DESY. The landscape architect and political scientist is still the only one in the unit, but from 1 June she will receive support from physicist Kathrin Schulz. Völker comes from Schmalkalden in the Thuringian Forest and has been living in her adopted home of Hamburg for 20 years. Kristin Hüttmann from DESY inform met her for an interview.

What does a sustainability manager do?
On a global scale, it’s all about leaving our descendants a world worth living in. Future generations should find enough resources left for them, not only natural ones such as clean water, clean air and slowed climate change, but also socially relevant resources such as good educational possibilities, equal opportunities and knowledge. At the same time, all this should not lead to economical ruin. Sustainability is therefore a kind of guiding principle, and its implementation may vary greatly in practice – both in the private sphere and the professional sphere. Science is particularly important here; it recognises future challenges at an early stage, can point out alternative paths and should also apply the principles to itself.

What about DESY? Can you already say what your work as DESY sustainability manager will be like?
My task is to get my DESY colleagues excited about the topic of sustainability and to raise awareness for it in everyday life. Many aspects have long been addressed here, others only need a little support, and a couple of them will take some hard work. In some cases, doors will open very easily, in others there will be resistances to overcome. These can be quite diverse and are not always related to people. Often laws, rules and regulations stand in the way. But I am confident that we will make step-by-step progress everywhere. After all, DESY and the research here are fundamentally future-oriented. And the future can only be sustainable.

But sustainability doesn’t just mean turning off the tap and switching off the lights, right?
No, sustainability concerns three areas: ecology, social issues and the economic dimension. For me, this means a meeting with the health management in the morning, then with the PETRA IV planning team, and a quick visit to campus development in the afternoon. Nonetheless, one point is of course classic corporate environmental protection, which includes things like: not printing out the Internet, more video conferences, less air travel.

What is the best thing about your job as DESY sustainability manager?
The possibility to have access to and participate in all DESY divisions. We don’t just write smart, theoretical concepts on flipcharts, we also consider how we can implement them. To do this, I have to understand the everyday work at DESY and analyse its logic and dynamics. This is not possible from an ivory tower. That’s why you will often see me darting across the campus and meet me in many different teams.

How do you get to DESY in the morning?
I take my bicycle, and sometimes the bus when it rains.

What brought you to DESY?
DESY is future-oriented, the research here is extremely exciting, and there are all these incredible large-scale facilities that are constantly being developed further. The position promises many experiences and challenges. And of course, DESY is located in the most beautiful city in the world.

Personal details:
Denise Völker (*1973) has been active in the environmental and sustainability business since 1999. She holds a doctorate in political science and has worked for Greenpeace, Pro Quote and the Tollwood Festival. Her career has taken her to the Amazon Basin and the depths of Siberia.

If you have any questions, suggestions or ideas, please feel free to contact her: denise.voelker@desy.de
Back to research
Reinhard Brinkmann is working as a scientist again – a portrait

The auditorium was packed, the live broadcast was running – everyone wanted to be there: DESY staff members and colleagues from science and ministries. On 19 December, a farewell ceremony was held on the occasion of the retirement of Reinhard Brinkmann as director of the accelerator division. “It was a very personal farewell party, the speakers and organisers put a lot of effort into it. That was really great, and it touched me deeply,” says Brinkmann enthusiastically – a man who is otherwise rather reserved when it comes to public expressions of feelings. “The party that followed was really good – that’s not easily topped!” He laughs and looks out of the window of what he calls his “new old office” on the fifth floor of Building 30b – a small, tidy and sunny room. His geraniums are hibernating on the windowsill, with lush foliage despite the February weather. Brinkmann moved into this office for the first time in 1989 as machine coordinator for HERA, before moving into a new office in 2007 as director of the DESY accelerator division. For him it was clear: “I really wanted my old office back, and I made sure of that.”

He obviously feels comfortable again in his new old role as leading scientist, as becomes evident from the pile of paper on his desk: On top is the draft of the conceptual design report for the PETRA IV accelerator, the future project of DESY. As senior advisor, he supports the project team with his extensive and long-time experience in the management of large-scale projects. However, the 62-year-old prefers to leave the project management itself to others. “I will retire in four years’ time, so it wouldn’t make sense to take on this role,” says the man who helped to realise HERA and the European XFEL and who played a key role in advancing the TESLA technology. There is much truth in these words about the pragmatist Brinkmann. He attaches little importance to titles or large offices and has remained free of vanity despite his eleven and a half years on the Board of Directors. “As director, I felt privileged to be able to steer the fortunes of DESY in trusting cooperation with my colleagues. This experience has a high value for me,” says Brinkmann. “But I don’t define myself by it. I don’t need that, so I don’t miss the role either.”

He deliberately chose to return to science: “I enjoy my freedom, having fewer appointments, fewer meetings, more time for thought – a luxurious state.” Taking one step back and letting others take the helm is a sign of self-confidence. Brinkmann may have found such a decision easier than others. Accelerator physics means a lot to him, but it is not everything in his life. Anyone who knows him will know that the talkative multitalent likes to hit the keys with his jazz combo, is a passionate cyclist and enjoys sailing the Caribbean with friends. At his farewell party, it was not without reason that speaker Mark Wenskat presented Brinkmann with a T-shirt from the Wacken metal music festival as basic equipment for his new life as a physicist. True to the Wacken motto: Harder. Faster. Louder – Welcome back to science, Reinhard!

Text: Miriam Huckschlag
DESY Relation Management
Wim Leemans, a plasma accelerator pioneer from Berkeley, joins DESY – an interview

Since 1 February, Wim Leemans has been the new director of the DESY accelerator division. He moved from Berkeley Lab in the USA to DESY. The 55-year-old Belgian has been here for three months now, but his life in Hamburg is still a bit “provisional”. His wife is still commuting between the USA and Germany, but will also join DESY in the summer. His three grown-up children live in Copenhagen, California and Minnesota. Thomas Zoufal from DESY inform met the new “head of the particle slingshots” for an interview.

What attracted you at DESY?
It’s a combination of things: DESY has a clear vision for accelerator-based science, consistent with my own aspiration of the theme. Working together with top-notch people and dedicated resources and planning on long time scales – this is how I see optimum conditions for conducting large-scale science projects; and this is the case in Germany and Europe as a whole. Together with the DESY management, I hope we can maintain this healthy climate for the future. And finally, I felt it was time for a change.

Where do you see the strengths of DESY?
It is the way of working together: on one hand the impressive openness of the lab, collaborating with people, no matter where you come from and which passport you have. And on the other hand the passion and dedication of the people here. During my first visits here at DESY, I got the sense of a big family.

What are your plans for the accelerator division?
Securing PETRA IV is one the most important tasks. I also want to improve our operating facilities to be “best in class” in the worldwide competition of user facilities. That means perhaps a bit more documentation and training, and also a refurbishment of some of the infrastructure. Parts of it are definitely up-to-date, but some instrumentation which I visited is more than 30 years old.

And in terms of research and development projects?
DESY is the leading lab in superconducting accelerator technologies, and the people working here are the best ones to push that technology to the limit. In terms of exploiting the use of this technology, seeding of free-electron lasers is an exciting area, and FLASH is a perfect test bench for this. And in the long term, our business includes the miniaturisation of accelerators. Building compact accelerators means you can take them where they are needed; may it be medical therapy or the inspection of soil. Our aim is to carry out a broad research and development programme towards this goal and to closely collaborate with our innovation centre to bring our innovations to the market as fast as they are ready for it.

What do you miss most of Berkeley, if any?
Besides my electric car, it is the bike-riding with my friends in the hills on the weekend which I miss most. But the weather here is improving from week to week, so I will be happy to do that together with Reinhard and perhaps some new colleagues here soon.
“Technology transfer will be significantly expanded in order to make DESY the starting point for further start-ups in the Hamburg and Brandenburg regions.” This is one of the cornerstones of the DESY 2030 strategy. In addition, there is the unique vision of the planning for the Science City Bahrenfeld, which has been committed to linking science and the economy right from the start. The establishment of high-tech companies at DESY is being promoted in this context as well.

To achieve this, young companies in particular need a good start and space to grow. DESY is therefore expanding the infrastructure for start-ups, among other things with incubators, i.e. facilities that support start-ups on their way to market. There will be no less than three such facilities in Hamburg.

The DESY Innovation Village
The DESY Innovation Village was officially opened on 14 February. It currently offers the DESY start-ups office, workshop and laboratory space, embedded in the Bahrenfeld research campus in Hamburg. The container complex can be found as Building 200 next to Building 25f. Until the completion of the Innovation Centre and the Centre for Technology and Start-ups, the DESY Innovation Village will mainly be used by start-ups. In the long term, it will accommodate further innovation activities at DESY, such as teams working on validation projects and employees in the run-up to starting their own companies.

The Innovation Centre
The ground-breaking ceremony for the Innovation Centre took place on 15 April, heralding the start of construction of the building. The joint project of DESY, Universität Hamburg and the Free and Hanseatic City of Hamburg will be built next to CFEL on the Luruper Chaussee. From the turn of the year 2020/2021, the start-up centre, which is largely financed by the City of Hamburg, will provide offices and laboratory space in the high-tech setting of DESY and of several institutes of Universität Hamburg for start-ups matching the research fields on the campus.

Integrated Centre for Technology and Start-ups
The planned Centre for Technology and Start-ups will provide space for start-ups in the fields of life sciences, biotechnology, nanotechnology and new materials. In this way, these pioneering technologies are to be firmly anchored in northern Germany – this is one reason why the construction of the Centre for Technology and Start-ups is being financed by the German federal government and why the City of Hamburg bears the operating costs of the first few years.

The Centre for Technology and Start-ups is being planned by DESY and implemented in stages.

The concept envisions a tailor-made coverage of demand for start-ups in these complex areas and does justice to the fact that companies in these fields often require a long and cost-intensive incubation period in order to achieve both market maturity and approval of their products. The Centre for Technology and Start-ups is scheduled to be put into operation gradually from mid-2024 onwards.
This is what the Science City Bahrenfeld could look like in 2040: At the end of January, the Hamburg Senate, the Altona district, DESY and Universität Hamburg presented their plans for the new science district at a press conference. In addition to the expansion of DESY, the plans provide for Universität Hamburg to relocate further scientific fields to the Science City. As a “green heart”, the Altonaer Volkspark is to combine science and research with quality of living and recreation as well as with sports and health areas. At the same time, the Science City Bahrenfeld will become an attractive place to live thanks to its connection to local rail transport, innovative transport concepts and the expansion of attractive recreational and leisure areas. The first architectural competitions for the new science district are planned for 2020.

www.hamburg.de/sciencecity

beyourpilot: Online platform for business start-ups launched in Hamburg

To increase the success of the science start-ups in Hamburg, the Senate has initiated a new central contact point for founders: the online platform “beyourpilot – Start-up Port Hamburg”, which Senator of Commerce Michael Westhagemann launched on 11 April as part of a go-live event. The digital communication and interaction platform provides advice and support for founders.

Besides DESY, the project partners are the Hamburg University of Applied Sciences (HAW Hamburg), Universität Hamburg (UHH) and the Hamburg University of Technology (TUHH). The project is funded by the Authority for Economics, Transport and Innovation (BWVI) of the Free and Hanseatic City of Hamburg.

The goal: more business start-ups at Hamburg universities and research institutions. Founders will be advised via beyourpilot by local experts and have access to a large number of resources through the whole network.

www.beyourpilot.de
From classroom to control room
In autumn, high-school students will take command of DESY’s test beam facility. The international school competition “Beamline for Schools” (BL4S), launched by CERN in 2014, will take place at DESY this year because CERN has switched off the accelerators for a two-year upgrade phase. Up to 18 young people and their teachers will swap their classrooms for the control room in order to get a glimpse of what it’s like to be a researcher. To do this, they have to come up with an experiment, submit a research proposal and shoot an explanatory video. On site, they will work like real scientists – including safety training, project presentation, data taking and analysis of their results.
cern.ch/bl4s

PIER Hamburg–MIT Workshop
In January, researchers from DESY, Universität Hamburg and the Massachusetts Institute of Technology (MIT) met at the PIER Hamburg–MIT Workshop in Bahrenfeld. Around 40 participants from particle and astroparticle physics, photon science and the nanosciences presented their current research activities and explored possible synergies.

Science management event
On 6 September 2018, an organisational team from DESY and the Heinrich Pette Institute (HPI) in Hamburg held the first Science Management Networking Event at DESY. The aim was to network and exchange information about this occupational field, which opens career paths in a variety of institutions. More than 30 participants from the STEM departments of Hamburg universities and research institutes presented their institutions and exchanged ideas in workshops. The positive feedback and the many suggestions are a great incentive to continue the event. To this end, the organisers are in contact with the network project management research of Universität Hamburg.

Music video at DESY
A cyclist in a neon pink rain outfit with a Foodora cube on his back is spotted in HERA West on the morning of 3 March. No, not a lost pizza delivery man, but Kryptik Joe, rapper of the Hamburg hiphop group Deichkind. If you want to know what he and his band colleagues were up to in the HERA tunnel and the AMTF hall, take a look at their new video “Richtig Gutes Zeug” (“Really Good Stuff”). The band, which is fond of technology and celebration and critically sets the zeitgeist to music, goes on from the big accelerator and goes on from the big bang to the exploration of the nanocosmos. At a total of eight different VR stations, visitors can also take virtual gondola rides across the port of Hamburg and visit concerts. The virtual reality experts of the company Spice VR have implemented the DESY experience. In the long term, “The Gate” will also be available at the DESY visitor centre, a short version can be used at trade fairs or conferences.

ISS launched at DESY
The new booking system for internal training courses has been online since March. Under the name ISS, DESY staff members can now book and manage their training courses – from crane, forklift and aerial work platform training courses to load securing seminars and first aid courses. The security department D5 and IT have developed a simple and very straightforward system so that nobody forgets their outstanding trainings any more. In the near future, the system will also be connected to the DESY access management system DARF-DACHS so that successfully completed training courses can be entered automatically. In addition, the DESY medical service is to be included in the future in order to also record health examinations required under labour law. The ISS can be accessed through the D5 website: http://d5.desy.de

Speicherstadt: DESY goes virtual
Hamburg will soon have another highlight for locals and tourists, but also for all DESY staff members and guests: From the end of April, the Virtual Reality Headquarters in the Speicherstadt will be open to the public, including the DESY-inspired virtual reality experience “The Gate” – a journey that begins in a virtual accelerator and goes on from the big bang to the exploration of the nanocosmos. At a total of eight different VR stations, visitors can also take virtual gondola rides across the port of Hamburg and visit concerts. The virtual reality experts of the company Spice VR have implemented the DESY experience. In the long term, “The Gate” will also be available at the DESY visitor centre, a short version can be used at trade fairs or conferences.
https://vrhq.de/

Start of construction of CXNS
Construction has finally started: After the ground-breaking ceremony for the Centre for X-ray and Nano Science (CXNS) took place in spring 2017, construction began in autumn 2018. The foundation was cast, the first walls are now standing, and the building is taking shape. The building shell will be completed in November 2019 – interior work is planned to start in August already. The building is to be completed in autumn 2020. You can follow the progress of the construction work on the DESY photon science portal via a webcam. The square between CXNS and Building 25f will be redesigned: It is to be used for communication and also for events – the call for tenders is starting now.
KTH professorship for Ulrich Lienert
DESY researcher Ulrich Lienert has been appointed associate professor in the materials science department of the Royal Institute of Technology (KTH) in Stockholm, Sweden. The professorship focuses on the synchrotron-based investigation of structure–property relationships of materials and also includes lectures and the supervision of theses. At DESY, Lienert heads the team of the P21 experimental station, which is financed by Sweden, at the PETRA III storage ring.

Desy honoured as bicycle-friendly employer
DESY has been honoured by the Allgemeiner Deutscher Fahrrad-club (ADFC) as a bicycle-friendly employer. The research centre was the first Hamburg employer to receive the gold certificate, which has been awarded since 2017 according to an EU-wide uniform standard. “DESY has recognised the positive benefits of promoting cycling,” praised Susanne Elfferding, auditor and consultant at the ADFC Federal Association. “The bicycle culture at the workplace combines several advantages: It is modern, future-oriented and promotes employee engagement and team spirit.”

ATLAS Thesis Award for two DESY physicists
Two former doctoral students from DESY in Hamburg and Zeuthen and Humboldt Universität zu Berlin, Nedaa Alexandra Asbah and Luise Poley, have been honoured for their PhD theses by the ATLAS collaboration, which operates the gigantic ATLAS detector at CERN near Geneva. The research teams at the Large Hadron Collider (LHC) at CERN acknowledge outstanding student contributions every year; this year, ATLAS has awarded a total of six prizes. Around one fifth of the more than 5500 scientists working at ATLAS are doctoral students.

Two Humboldt Prize winners at DESY
This year, two researchers from abroad will be coming to DESY thanks to their Humboldt Prize to expand their research contacts with scientists in Germany. Juan Fuster, professor of particle physics in Valencia, Spain, and Augusto Sagnotti, professor of theoretical physics at the University of Pisa, Italy, will both spend about a year in Germany.

PhD Thesis Prize for two doctoral students
Alexander Knetsch and Stefan Zeller have been awarded the PhD Thesis Prize 2018 of the Association of the Friends and Supporters of DESY (VFFD) for their outstanding theses. They received the award during the DESY Science Day. Knetsch is an expert in laser plasma physics and now a fellow in the DESY accelerator development group FLA. For his doctoral thesis at the FLASH free-electron laser, Zeller – who specialises in atomic, molecular and ion physics – measured how the atoms are distributed along the weakest naturally existing bond between two helium atoms.

Kerstin Tackmann becomes leading scientist
DESY scientist Kerstin Tackmann has been a W3 professor at Universität Hamburg and a leading scientist at DESY since last year. The particle physicist is an expert in Higgs physics and is working on the ATLAS experiment at the Large Hadron Collider (LHC) at CERN near Geneva. At DESY, she has already led a Helmholtz Young Investigator Group and a working group funded by an ERC Starting Grant, which are investigating the characteristics of the Higgs particle. In addition, as part of her professorship, she will be involved in the Belle II experiment at the Japanese research centre KEK.

Wilfried Buchmüller takes over as chair of VFFD
Wilfried Buchmüller is the new chairperson of the Association of the Friends and Supporters of DESY (VFFD). The theorist was elected at the general meeting of the association in January. He takes over from Friedrich-Wilhelm Büßer, who held the office for 14 years. The VFFD was founded in 1964. By bringing together the friends and supporters of DESY, the association raises funds in order to establish contacts to the national and international user community within the framework of the DESY research activities and contribute to fostering scientific and cultural relations at home and abroad. The association awards the annual PhD Thesis Prize, which honours the best doctoral theses completed at DESY. http://vffd.desy.de
“Don’t ask me. Ask yourself!” was the motto of this year’s 54th round of the Jugend forscht science contest. Many young people followed the call and showed with creative ideas that, against general prejudices, they don’t just have the smartphone in front of their nose. They pursued questions that neither Alexa nor Siri could answer, using the mobile phone as a tool for their own research.

The young researchers investigated topics such as “Can adhesives be made from spider webs?”, “Dye-sensitised solar cells with chlorophyll” or “Can hamsters see colours?”. Current topics, such as microplastics in the environment, the diversity of apple varieties and vegan milk foam, were also very popular. In addition, a team presented the ultimate formula for the perfectly boiled egg, which will hopefully prevent any quarrel at the breakfast table in the future.

A total of 57 projects were submitted on 21 and 22 February at the Hamburg-Bahrenfeld regional contest, which, as in the past six years, took place in the rooms of the DESY school lab physik.begreifen. The 130 participants aged between 9 and 19 presented their work from the fields of work environment, biology, chemistry, mathematics/computer science, physics and technology to the honorary jury. 13 projects qualified for the state contest.

After its comprehensive upgrade, the Belle II detector at the KEK research centre in Japan recorded the first particle collisions at the end of March, marking the start of the research programme at the detector. Belle II is an international collaboration of 900 scientists from 26 countries, in which DESY and 11 other institutes in Germany are strongly involved.

Over the coming years, Belle II is expected to deliver 50 times as much data as its predecessor Belle and thus to get to the bottom of some of the still unresolved big questions in particle physics, such as the mystery of the missing antimatter or the nature of dark matter. “This is the beginning of an exciting physics adventure,” says Carsten Niebuhr, Belle II scientist at DESY, “and we are eagerly awaiting the data that the detector will deliver.”
More stability

Workshop on disturbing vibrations

For many experiments at DESY, maximum precision, stability and reliability are essential. Fluctuations in the beam and ambient conditions or external disturbances can lead to imprecise measurement results or, in extreme cases, to incorrect measurements. Temperature fluctuations and commotions, caused for example by vibrating machines, are among the main causes of disturbances. However, vibrations in the instruments also play a significant role.

An engineering workshop held by KITE (the information platform for designers, engineers, technicians and developers) at DESY in Hamburg on “Stability, oscillations and vibrations” aimed to shed light on the influences of vibrations on the positional stability of machines and experiments and to identify strategies and measures to minimise interference. The participants from the engineering and scientific fields focused on the technical requirements of future experiments and instruments. This concerns in particular the PETRA IV accelerator and the experiments that will then be possible. With its brilliance, PETRA IV could for the first time reach a fundamental physical limit. However, this requires completely new strategies and ideas in the design of experiments, accelerator components and experimental environments.

About 40 participants from all DESY divisions and about 20 from other institutes (European XFEL, EMBL, HZDR, PTB, AWI) met in November to exchange experiences and identify key points. Some of them are related to measurement technology, the interpretation of measurement results and the provision of software solutions enabling the presentation of results in a uniform format. First approaches exist already, they are to be used across groups. Further topics of the workshop were the theoretical consideration of vibration simulations and design measures, including bionically optimised structures and active vibration suppression.

One insight of the workshop was that only cross-group strategies for optimising the entire system – from the accelerator to the infrastructure to the experiments – can meet the high requirements of future projects. In order to continue cooperation and exchange, another workshop will take place in November.

Text: Ralph Döhrmann
DESY-FS-PETRA

Don’t get phished!

Online thieves of access data keep getting better

Always these warnings of an impending email account overflow. And they also threaten to block my access if I don’t delete a few large e-mails immediately to make room. I’ll quickly click on the link and register, the login mask looks familiar to me. So it should be okay.

STOP!

If you now enter your account and password, you must expect that your e-mail access will be blocked within a short period of time. Not because of the size of the mailbox, but because it is being misused to send spam e-mails. This is a case of phishing, i.e. the attempt to obtain personal access data through fake e-mails and login masks.

The phishers have learned a lot, and it is becoming more and more difficult to distinguish a genuine e-mail from a fake one. In the past (until only a few months ago), unencrypted http links were a reliable sign of a phishing attempt, but nowadays the number of encrypted https links in phishing e-mails keeps increasing. It is also becoming more and more difficult to recognise a phishing e-mail directly by its linguistic formulations. And the login masks are often copied directly from our servers.

Nevertheless, there are a few rules that can help you not to fall for such e-mails. The first is healthy scepticism. First take a deep breath and consider whether this can be real at all. For example, DESY does not have any size restrictions for the e-mail inbox.

Another important rule is that DESY services also run on DESY servers. This means that the web addresses at DESY follow the form https://XYZ.desy.de/abc. Do not let your e-mail program mislead you. What you see as a link does not necessarily have to be the link you will open. Just move the mouse pointer over the link, and the actual address will be displayed.

If you are unsure, don’t hesitate. Contact the UCO (uco@desy.de) or D4 (d4@desy.de). And by the way: If you receive a phishing e-mail that is not yet marked as spam, please forward it to abuse@desy.de. The mailmasters will then use it to further adjust our filters.

Text: Carsten Porthun
D4 – IT Security and Data Protection
04 | 2019

Wissen vom Fass
Scientists will swarm out on
25 April, 20:00
to hold exciting lectures
in the pubs of Hamburg
and the vicinity. Curious?
Programme under:
www.wissenvomfass.de

06 | 2019

Hamburg Science Summer
Event on the town hall square
(substitute for “Night of Knowledge”)
DESY will be present together with
European XFEL, EMBL, CSSB,
MPSD and UHH
20–23 June, Rathausplatz

06–07 | 2019

Works Council’s Staff Meeting Hamburg
18 June, 9:30–12:00 auditorium
with live broadcast to the
auditorium foyer, SR 4a/b,
FLASH (Bd. 28) or CSSB auditorium
Works Council’s Staff Meeting Zeuthen
4 July, 10:00
Seminar room 3

07 | 2019

Directorate’s Staff Meeting
9 July, 9:00–11:00
Hamburg, auditorium
with live broadcast
to Zeuthen

05–08 | 2019

Science Café DESY
Every fourth Wednesday of the month
22 May, 18:00
Dr. Ilja Bohnet
Blick zurück und auf die Zukunft – Über die
beschränkte Vorhersagekraft von Prognosen
und genaue Zukunftserwartungen
19 June, 18:00
Dr. Beate Heinemann
Woraus besteht unser Universum?
28 August, 18:00
Dr. Isabell Melzer-Pellmann
Auf der Suche nach dunkler Materie
http://sciencecafe.desy.de
Cosmic data from the research vessel

A detector on the “Polarstern” measures cosmic particles – a DESY PhD student has improved it

Doctoral student Juliana Stachurska (29) from the IceCube group travelled for four weeks from Bremerhaven via Las Palmas to Cape Town on board the research vessel Polarstern and reported on her journey in her blog entry. Her task was to improve the data acquisition of the muon detector. Together with scientists from other research fields, Juliana (right, sitting) sent greetings from the Polarstern to the participants of the International Cosmic Day. Researchers regularly report on their work in the blog.
Exploring and discovering the world
DESY is new network partner of “Kleine Forscher Hamburg”

DESY has new housemates: “Kleine Forscher Hamburg” (“Little Scientists of Hamburg”). The network is part of the nationwide education initiative “Haus der kleinen Forscher” (“Little Scientists’ House”), which is committed to good early education in the STEM fields. The initiative involves the Berlin Foundation and around 220 local network partners who are implementing the Foundation’s services throughout Germany.

The “Kleine Forscher Hamburg” network, headed by Judith Trechsler and Bettina Schmidt, ran for several years as a special project of the Foundation. DESY officially became a new network partner at the beginning of 2019, thereby extending its commitment to educational work to the early childhood sector. In addition, DESY offers advanced training courses for professionals and teachers working with children from three to ten years of age. In Zeuthen, DESY cooperates with the charitable aid agency Arbeiter-Samariter-Bund (ASB) Regionalverband Mittel-Brandenburg and provides training for primary school teachers within the local network.

Other partners of the Hamburg network who financially support the project are Airbus Operations GmbH, Aurubis AG, Beiersdorf AG and the Claussen Simon Foundation. The network also cooperates with preschool institutions, museums and other non-profit initiatives. “Kleine Forscher Hamburg” offers various advanced training courses, including “Research with air” or “Full commitment to physics”.

“Full commitment to physics” was the motto for the 49 students from all over Germany who took part for one week in the national round of the selection competition for the International Physics Olympiad 2019 at DESY in Hamburg. The young talents had qualified from a total of almost 900 applicants. At DESY, the jury determined the 15 participants of the final round, in which the five German physics olympians will be selected. These five physics geniuses will then face their international competitors in Tel Aviv in July 2019.

The annual selection competition for the International Physics Olympiad (IPhO), the Physics Olympiad in Germany, is organised by the Leibniz Institute for Science and Mathematics Education (IPN) at the University of Kiel on behalf of the German Federal Ministry of Education and Research (BMBF) and in cooperation with the Länder Ministries of Education and Cultural Affairs. 

Full commitment to physics
Winners of the federal round of the Physics Olympiad selected at DESY

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New Helmholtz centre in Saarbrücken

The Helmholtz Association has a new location: The Helmholtz Center for Information Security (CISPA) in Saarbrücken, which researches information security in all its aspects, became a member of the Association on 1 January 2019. It emerged from the Center for IT Security, Privacy and Accountability (CISPA), founded in 2011 thanks to project-based funding by the German Federal Ministry of Education and Research (BMBF). The centre is dedicated to the urgent, fundamental challenges of cyber security research in the age of digitisation and covers the entire thematic spectrum from theory to empirical research.

CISPA aims to assume an outstanding position in research, transfer and innovation at the international level by combining state-of-the-art, often disruptive basic research with innovative application-oriented research, corresponding technology transfer and social discourse. “We are committed to scientific excellence and cutting-edge research and have set ourselves the goal of developing CISPA into one of the world’s leading research centres for cyber security,” says founding director and CEO Michael Backes.

In terms of content, CISPA is deeply grounded in computer science with links to medicine, law and the social sciences. It is currently divided into five research areas: Trustworthy Information Processing, Reliable Security Guarantees, Threat Detection and Defences, Secure Mobile and Autonomous Systems, and Empirical and Behavioural Security.

www.helmholtz.de/cispa

Art in the lab
Successful exhibition series on the campus in Zeuthen

New rooms with blank walls inspired the DESY employees in Zeuthen to bring art to the campus by the lake. This was in March 2018, when a reading room became an exhibition space for the first time. An idea that was well received. “KUNST IM LABOR”, or “ART IN THE LAB”, has meanwhile established itself as a public exhibition series presenting the works of various visual artists. The concept behind it is to create an open campus with many facets, on which KUNST IM LABOR is building a bridge between science and art.

The series started one year ago with the exhibition “Oxidised Art Worlds” by Joseph Friedrich, which gets its unique expression from the combination of scientific oxidation techniques on a variety of natural materials. Quite a contrast was the small-format “World of the Angel Trumpet” by the artist Floripondio, which was brought to paper with a felt-tip pen and fineliner. Until March, a fascinating collection of photographs hung for the first time in the laboratory building on the campus – all photographs of Daniela Friebel’s exhibition AUSPICIA were taken at the Campo Verano central cemetery in Rome.

The collection “Views” of Silke Miche is currently on display until 31 May. Her art deals with the views of everyday life. These become artistic reflections, independent colour formations and many-faceted structures. Several layers are painted on top of each other, partly removed again, with Miche also including randomness as a creative element. The intriguing play with abstraction and concreteness directs the viewer’s gaze towards an expanded perception of the everyday world. The visual experience of her art reveals the poetry of daily life and creates new “views”.

An advisory board selects the exhibitions: Ulrike Behrens, head of communication and networking at DESY in Zeuthen, David Berge, head of gamma astronomy at DESY, Evelin Fieder, librarian at DESY, Kathi Mende, press and public relations of the town of Zeuthen and Matthias Zeising, Neonrausch agency in Zeuthen. ub