

Season's Greetings

The editorial staff and the press office would like to wish all DESY inForm readers a Merry Christmas and a Happy New Year. The next issue date of issue for inForm will be 3 January 2008.

Season's Regulations

All DESY employees are allowed to take days off on 27 and 28 December 2007, except for emergency service staff. You have to make up for these 15 hours until 29 February.

Seasonal Lecture

How does the light get into the cucumber? Theo Schmitz & Co as "The Professor and Santa Claus" will present spectacular experiments. DESY kids are specially invited; suitable for children of six years. 12 December, 4 p.m., auditorium (in German).

Payment Season

Don't forget! This month your salary will be paid for the first time at the end of the month and not in the middle. You can expect the payment around 28 December.

Director's Corner



Dear colleagues,

after 18 years of working at DESY—including nine years as Director for Photon Science—I shall retire at the end of this year. When I started as deputy director of HASYLAB in 1989, DESY was in the middle of constructing HERA. This year the very successful operation of HERA came to an end, and we are now building PETRA III and heading for construction of the European XFEL facility. DORIS III will be operated in tandem with PETRA III in the years to come.

Embedded in the strategic Helmholtz Alliance "Physics at the Terascale", DESY's particle physics programme is at the centre of a large national effort to make best use of the LHC and prepare for ILC. DESY's in-house research in photon science and the life science activities of EMBL and Helmholtz will be strengthened. The Center for Free-Electron Laser Science CFEL, a joint effort of DESY, Max Planck Society and the University of Hamburg, will offer best conditions for optimal use of FLASH and XFEL.

(continued overleaf)

The Main Thing is that the Beam is Doing Well!

Topping-out ceremony for the new PETRA III experimental hall

Olaf Demuth from the construction company Züblin AG put the most important aspect of constructing the PETRA III experimental hall in a nutshell: "The main thing is that the beam is doing well!" In order to guarantee that the brilliant X-ray beams reach the experiments without harm or disturbance the hall's concrete floor had to be decoupled from the rest of the building. Thus, PETRA III isn't only a scientific challenge—it is also a challenge in respect to construction technique. In his speech at the topping-out ceremony on 26 November Hamburg's First Mayor Ole von Beust stressed that both research and construction work had to be first class. According to him, the goal was after all to build the world's best facility of its kind. DESY Director Albrecht Wagner pointed



In a festive mood (from right): DESY Director Albrecht Wagner, head foreman Gerd Wolf, Federal Minister Annette Schavan, foreman Dirk Küter, Mayor Ole von Beust, Helmholtz Vice President Eberhard Umbach, Züblin branch office manager Olaf Demuth



Address of Federal Minister Annette Schavan at the PETRA III topping-out ceremony.

out that this construction work is being carried out in record time—only two and a half months ago, DESY celebrated laying the foundation stone of the PETRA III experimental hall and it is making good progress. In a couple of weeks the hall floor will be cast as a single one-metre-thick concrete slab. No less than 7000 cubic metres of concrete have to be delivered and, for three days, trucks will be shuttling back and forth from two concrete works to DESY day and night.

Federal Minister of Education and Research Dr. Annette Schavan is convinced that these efforts will pay off: "PETRA III is a milestone on the way for DESY to become a leading centre in the world for interdisciplinary research with photons, situat-

ed in northern Germany. In about two years, scientists from all over the world will be able to carry out research here in Hamburg, paving the way for innovations that will make our lives easier." Moreover, she pointed out the great impact of the single excellent locations, like Hamburg, for the development of the European research area, which is why the Federal Government financed a large proportion of the 225-million-Euro upgrade of the PETRA accelerator. The City of Hamburg and the Helmholtz Association will also participate in the construction costs, for—as the Vice President of the Helmholtz Association Prof. Eberhard Umbach pointed out with a smile: "The PETRA III project is near and dear to all of us." (uw)

Director's Corner

Substantial changes have been made and, again, DESY's science programme is outstanding, the new facilities are among the best in the world. These changes demonstrate the extraordinary spirit of the laboratory and its staff—a solid basis for future success.

I very much enjoyed working at DESY and I would like to thank you for the strong support I received from many of you over these years. In January 2008 I shall start working at SLAC in Stanford, USA, where the Linac Coherent Light Source LCLS is expected to deliver 0.15 nanometre FEL radiation in summer 2009. One of the goals of my new job is to strengthen the collaboration between DESY and SLAC in all aspects of FEL science.

My best wishes for the future to all of you and to the laboratory!

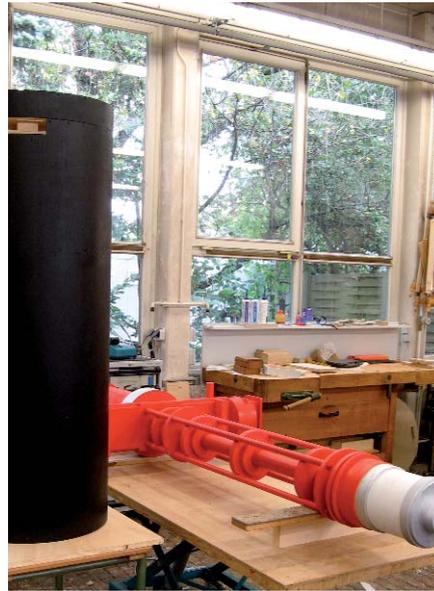
Last not least, I wish you a Merry Christmas and a Happy New Year.

*Sincerely,
Jochen Schneider*

A Klystron in a Carpenter's Workshop

Carpenters' tools create power tool

You wouldn't normally expect to find a klystron in a carpenter's workshop. The two-metre-long tubes generate radiofrequency waves that are the driving force for particle bunches—for example in FLASH or XFEL. They've got nothing to do with saws, scraper planes and wood, but recently the DESY carpenters were very proud to present a klystron, complete with bright red varnish, on their workbench. "At last we have our very own klystron," master Werner Biegger grinned. However, this one was not made of metal but of wood. Built true to scale with the high-tech original, it will have its great appearance next year in the XFEL mock-up tunnel. "We have asked our carpenters to make the model of a transformer, the



This different kind of power tool will play a crucial role in the XFEL mock-up tunnel.

klystron including the hood, and some other components in their original sizes," said Jens Hartung from DESY's MHF-P group.

"They are supposed to help us practise transporting and installing these components in the mock-up tunnel." The models also had to have a certain weight to make the exercises as realistic as possible. Two cryomodule tanks, wave guide, cables—many of the components that will later fill the XFEL tunnel are standing ready for the testing. The carpenters have already accepted a new order for a model: they will make a 1:25 replica of the ATLAS detector for an LHC exhibition in autumn 2008. (baw)

Twenty Years of B Meson Mixing

ARGUS Symposium on 9 November, 2007

by Frank Lehner

Twenty years ago, the ARGUS collaboration made a groundbreaking discovery: scientists from the ARGUS experiment discovered the mixing of B mesons with their antiparticles at the DORIS storage ring. DESY celebrated the anniversary with a symposium, attended by around 150 scientists—many of them former ARGUS members. In 1987, the ARGUS discovery was a surprise to particle physicists worldwide, since so far it was assumed that there was only be a small probability that the produced B mesons, regarding their brief lives, would be able to change into their antiparticles. This assumption was based on the conjecture that the hitherto undiscovered top quark



Group photo of the ARGUS Symposium participants

would have a small mass. However, the ARGUS observations provided a clear, although indirect, evidence of a heavy top quark and provided the possibility to search for the violation of the CP symmetry in the B meson system. As a result, more precision experiments were built in the subsequent years that are currently operated very successfully at BaBar/SLAC and Belle/KEK and will soon be continued with LHCb at CERN.

Many speakers of the symposium, among them the former Chairman of the DESY Directorate and CERN Director General Herwig Schopper, emphasised the enormous importance of the ARGUS discovery. Together with the discovery of the gluon, it belongs to the very eminent achievements of particle physics at DESY.

<http://argus-fest.desy.de>

The CFEL Centre on the DESY Campus

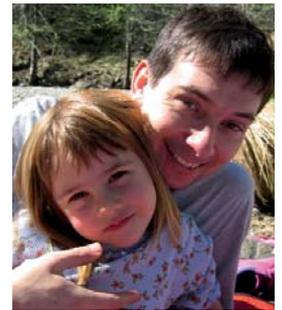
A prime example for interdisciplinary work

“CFEL offers a research platform for scientists in Germany that ensures the optimal use of FLASH and the European XFEL,” DESY director Albrecht Wagner says about the new Center for Free-Electron Laser Science CFEL, which was established jointly by the University of Hamburg, the Max Planck Society (MPG) and DESY. “CFEL will bundle expert competencies beyond the classical institute boundaries—a prime example for interdisciplinary work. At the same time, international collaborations and modern training will play a central role.” At the end of October, the City of Hamburg approved 50 million Euros for the CFEL building with its offices and labs for about 300 people. It will be located between the new

PETRA III hall and the Luruper Hauptstrasse, and is due to be completed in 2010. Until then, the converted and extended building 49 will accommodate the first two core groups of CFEL. The door signs of three of the 16 offices that are ready for occupation already have names written on them. Among them is Henry Chapman, one of the very first users of FLASH. The renowned physicist will move to Hamburg from California in early 2008 to take up his work as head of one of the three new DESY CFEL core groups and professor at the University of Hamburg. At the heart of the centre are four experimental and one theory core groups, three Independent Junior Research Groups from MPG and Advanced Study Groups from MPG



The extension of building 49 with (almost) direct access to the FLASH hall



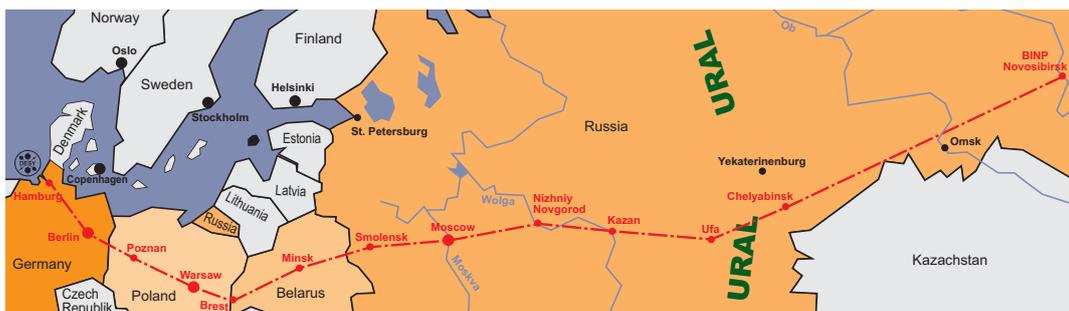
CFEL group leader Henry Chapman with his daughter Katarina

and University of Hamburg. “CFEL gives me an extraordinary opportunity to pursue many of the ideas and dreams I have been thinking about over the last few years,” says Henry Chapman about his new job. “Of course, it will be a great challenge to turn our dreams into working experiments. But the resources available here at DESY are among the best

in the world, and that goes for the scientists as well. So I’m really looking forward to my future work here.” (pf)

The Long Journey of a Delicate Heavyweight

The things precision instruments have to endure on their way from Budker Institute to DESY



Six damping wigglers travelled across all these countries to get to Hamburg.

Some storage ring components of PETRA III first have to travel across two continents before they reach their destination. When the truck from Novosibirsk pulled in in front of Hall 2 after two weeks, six damping wigglers, built at the Budker Institute of Nuclear Physics, had travelled 5600 kilometres on sometimes very bumpy roads across Russia,

Belarus, Poland and Germany. Truck driver Slava Seregin reports that he was lucky when he passed the frontier. Customs officers checking the cases often are not very careful, which can be disastrous for the heavy but sensitive components. Meticulous customs officers mean long waiting times, others claim bribe money, Seregin says with a

smile. His description of the road conditions: “For me, driving on European roads is like being on holiday; on Russian roads it is like being at work.” All the jolts and changes of temperature threaten the fine tuning of the damping wigglers, making it necessary to retune them on a measuring station. In Hall 2, Alexander Batrakov and his team from

the Budker Institute are doing just that. Damping wigglers are installed in a synchrotron radiation source for the first time in order to improve the beam quality. They damp the oscillation amplitude of the electrons in a particle bunch and thus reduce the size of the beam. This considerably increases the brilliance of the synchrotron radiation at the experiments. A second team of researchers from Novosibirsk is currently installing the first wiggler cell, consisting of quadrupole magnet, damping wiggler and absorbers, in the PETRA tunnel. So these days, after a long journey, new fine tuning and many tests, the first wiggler finally reaches its destination. (she)

10 Years Hands-On Physics

DESY's school lab celebrates its anniversary

DESY's school lab "physik.begreifen" celebrated its tenth anniversary on 22 November. The founders, promoters, staff and friends marked the occasion with anecdotes, speeches and with physics comedian Vince Ebert. His repertoire ranged from human impressions of red and blue light (to explain why the sky is blue), demonstrations of the



Physics comedian Vince Ebert

incalculability of a ménage-a-trois with a double pendulum and questions to the crowd in the full auditorium including "If you melt dry ice, would you be able to swim in it without getting wet?" In autumn 1997, DESY inaugurated its hands-on school lab. It was the first one within the Helmholtz Association and precursor of currently around 220 similar institutions throughout Germany.

Pupils leave everyday school life for one day and make experiments independently in a specially equipped research lab. The response is enormous. Although it is now able to accept more than 200 school classes per year, within three days every date is fully booked in advance for a whole year.



Guests also had the opportunity to try some of the physik.begreifen experiments

Excitement is rising because soon the 30,000th girl or boy researcher will be welcomed at the DESY school lab. After an upgrade in the year 2000, financed by the Hamburg school authority, three state-of-the art laboratories are available today.

There is also some news from Zeuthen: their school lab will finally moved onto DESY campus in Zeuthen early next year. Up until now they had been guests at the Wildau polytechnic. (baw)

Learning at IT

News from the IT Training Service Group

Maike Ermisch and Melanie Fatz have recently become contact persons for internal training in the IT sector. Their main task is the conception and implementation of a custom-made training programme. To guarantee a high standard for the training courses, a certain amount of sensitivity is needed since searching for training services and trainers and coordinating dates and participants is not always easy. Ermisch and Fatz sometimes take "field trips" to inspect the training locations, where they do not only ask

to be shown the rooms and the range of training services but also talk to the staff to assess their expertise.

The training courses will give all DESY staff members the opportunity to gain more knowledge and qualifications in the field of IT. Standard training offers are Windows applications, for example Word, Excel and Powerpoint. In the field of programming languages, for example C++, Java and Python, training courses are held in English. Introductory courses are organised for Linux beginners and, on request,

staff members from the administrative sector may attend training courses for registry and Windows and Linux administration.

From now on Windows training modules for Excel and Word will also be on offer. These are short and intensive training units covering a defined range of topics, for example working with data bases, making diagrams and creating forms. The number of participants is restricted to a maximum of six and the courses are held in the IT training room.

The new IT training programme for 2008 will be posted on blackboards from 17 December. (she)

Current training offers:
<http://www-it.desy.de> → Services → Training
Login as usual with user name and password.

For questions and suggestions please contact it-training@desy.de

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