

Building bridges

First Solar Energy for Science Symposium at DESY

by *Stephan Haid*

“Building bridges” was the motto of the Solar Energy for Science Symposium under UNESCO patronage that took place on 19 and 20 May. Initiated by DESY, more than 250 representatives of 30 nations convened to make first steps towards a joint European and Middle East and of North Africa (MENA) energy and science region. The central question at the symposium was how science – as a trust ambassador – could sustainably support and promote the fascinating concept of energy from the desert (DESERTEC).

DESY, a globally acknowledged basic research centre with international orientation was an ideal neutral facilitator in bringing together various European and MENA interest groups from science, society, business and politics.

With the pressing global challenges of growing population and declining resources, scientific cooperation with developing and emerging countries becomes more and more important; a fact which Helmut Dosch and Ulrich Wagner from the German Aerospace Center DLR emphasised already in their opening addresses. For the development of effective solutions, it is necessary that the European and MENA region see themselves as a joint science region which can only jointly face the questions regarding sustainable energy and water



A panel of experts at the press conference of the Solar Energy for Science-Symposium: Gretchen Kalonji (UNESCO), Klaus Töpfer (IASS), Gerhard Knies (DESERTEC), Khaled Toukan (SESAME), Maged al-Sherbiny (Egyptian Academy of Science), Robert Pitz-Paal (DLR), Helmut Dosch (from left).

supply, and effective climate protection. Especially in times of democratic change and renewal for the Arab world it is all the more important to offer a sustainable partnership to the civil society and science in this region. The Solar Energy for Science initiative will give this process a decisive stimulus.

Klaus Töpfer, chair of the German ethics commission on a safe energy supply, stressed the urgency of an “energy revolution” towards renewable energies by quoting Leo Trotzki: „Revolution is impossible until it’s inevitable“. At least

since the nuclear disaster of Fukushima such a revolution is inevitable.

For two days, the participants focussed on the chief objectives of the symposium: pointing out scientific links between Europe and MENA, identifying restraints in terms of energy policy and initiating a coherent approach scientific cooperation approach between Europe and the Middle East and North African region in the field of basic research and solar energy.

CONTINUED ON PAGE 2

Humboldt Research Award for Richard Milner

Richard Gerard Milner from the Massachusetts Institute of Technology (MIT) has won a Humboldt Research Award. The initiator of the OLYMPUS experiment at DORIS is also considered the intellectual father of the HERMES experiment. With the prize money, Milner will support the preparations and data taking of the OLYMPUS experiment.

HERA Symposium 2011

The HERA Symposium celebrates “100 years of Rutherford’s scattering experiment”. On 5 July in the DESY auditorium, speakers such as Rolf Heuer and Robert Devenish will span the years from the first scattering experiment of New Zealand’s physicist Ernest Rutherford to the future of particle physics, and discuss HERA’s latest results.



DIRECTOR'S CORNER

Dear colleagues,

It is obvious that DESY is pushing the front of technical feasibility by searching for the deepest secrets of the universe; it is also evident, that we are promoting technological development and human knowledge all over the world. However, we do not only contribute to society with technologies and discoveries; the scientific training is also outstanding at DESY.

This is best demonstrated by the Helmholtz Young

Investigators Groups at our research centre. With an exciting research topic young scientists can apply for resources from the Helmholtz Initiative and Networking Fund to establish their own little working group.

By now DESY has 16 active and completed groups and is one of the most active centres in this programme. With great success indeed: the young scientists are "selling like hot cakes". Sometimes even before

completing their five-years funding period, many of the Young Investigators Group leaders were appointed to universities such as Hamburg, Göttingen or recently Karlsruhe. They receive professorships and train new and excellent scientists who strengthen research in Germany.

This transfer is profitable for DESY. Good science depends on exchange and networking. With each scientist trained at DESY leaves for

one of the world's universities, DESY obtains a new node in our global cooperation network. And each of these scientists is a DESY ambassador as well. This strengthens the position of our research centre in Germany and worldwide.

Yours,
Joachim Mnich

More than 50 speakers along with a very active audience discussed a wide spectrum of exciting and important aspects of a strategic energy and science partnership. Representatives of the southern Mediterranean region, among them Jordan's minister for energy Khaled Toukan, informed about the Status Quo and the extension plans for energy supply in their own countries. Heads of leading research institutes evaluated future technology developments and their role in climate protection. Especially after the talks of the Nobel laureates Walter Kohn and Carlo Rubbia, there was a strong consensus that solar energy must be the common basis for sustainable development in both regions.

2 There was also an agreement that a partnership between Europe and the MENA region is only possible at eye level. For the gigantic desert energy project DESERTEC, this means that this region must benefit on a maximum level from

this solar project; however, this also requires a considerable effort from the southern Mediterranean states. Above all, highly qualified personnel and a modern education and science system are needed.

In this context, Sir Chris Llewellyn-Smith, president of the SESAME Council, highlighted the socio-economic impact of large-scale research facilities. Research centres as the synchrotron radiation source SESAME to be commissioned in 2015 in Jordan, a multilateral cooperation project under UNESCO patronage, may strengthen natural sciences' basic research in the MENA region, counteract brain drain, and supply links for a sustainable Euro-Mediterranean partnership. Already before the beginning of the symposium, DESY agreed on a scientific cooperation with SESAME – a first pilot project in accordance with Solar Energy for Science.

With Laserlab Europe as an example - a network of the most important laser research facilities that advanced the establishment of new research infrastructures in East Europe – the president of the German Physical Society Wolfgang Sandner pointed out a possible perspective for the MENA science region in case the European science region will expand across the European borders into the southern Mediterranean area.

Finally, the participants agreed on a series of follow-up activities after the symposium. With an intensive education, research and technology cooperation between the EU, the Middle East and North Africa, their common goal is to build bridges into the future – towards more stability, growth and sustainability.

INFO

www.solar4science.de

Windows 7

DESY's brave new Windows world

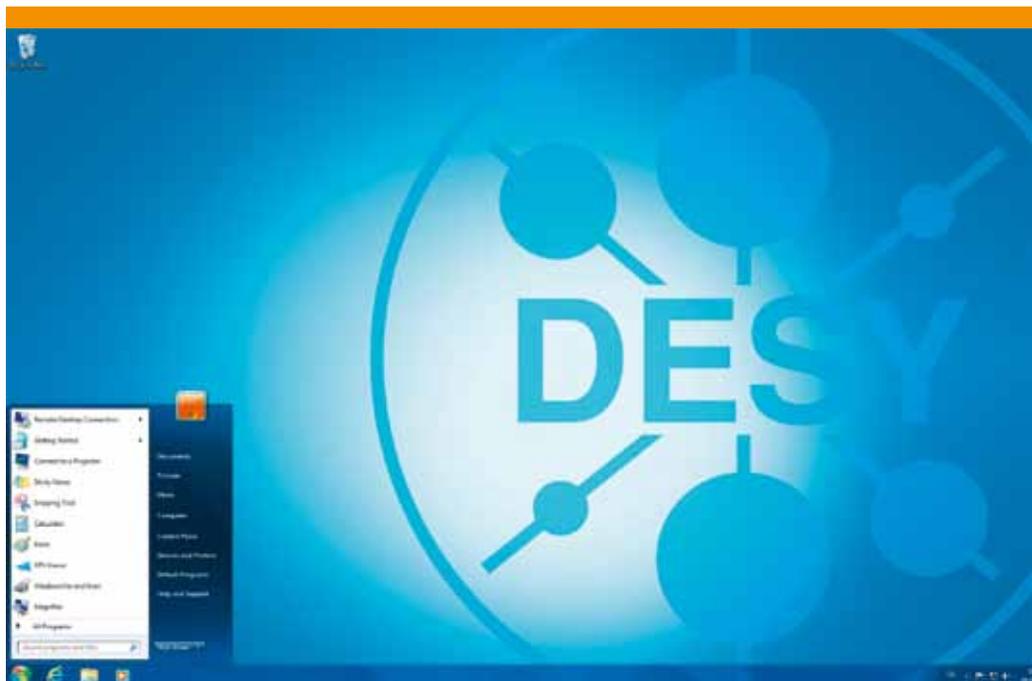
by *Martin Gloris*

Within the next years, DESY will switch over to Microsoft Windows 7. This operating system will become the new DESY standard for Windows-operated computers. The question is why we have to make such a considerable effort? What will remain the same? What will change? Will there be any problems?

The currently used Windows XP has by now been the standard at DESY for eight years. Because of cost-benefit reasons and in accordance with the Computer User Committee, it was decided to skip XP successor Windows Vista. This alone saved DESY a six-digit sum of licence fees, not to mention the costs for new hardware, installations, training and user assistance and testing of the software functionalities. Therefore, Windows XP provided a reliable fundament and the basis for many software solutions at DESY – for a very long time in terms of information technology.

Now, however, it becomes necessary to upgrade the Windows world at DESY. On the one hand, this is due to external pressure; in particular, Microsoft's cancellation of Windows XP support by mid 2014. As from this time, there will be no more security holes fixing – a risk that DESY is not willing to take. Another important aspect is that some computers do not run anymore with Windows XP because the manufacturers do not support this old operation system.

On the other hand, Windows 7 certainly includes a great variety of new and improved functionalities which make work easier and more efficient. Especially notebook users will profit, for instance from the significantly better offline files functionality. In the CAD sector too, the 64 bit version of Windows 7 will eliminate present XP limitations.



Modern design: the DESY Windows 7 desktop.

Apart from that, there will be relatively small changes for Windows users. The user interface was modernised, the start menu was supplemented with a well-functioning search. In total, the usual DESY environment as it is known by Windows XP users remains the same, for example the network drives H:, N: and S:, the DESY printing systems and NetInstall as a software installation tool. Significant changes have been made deep inside the operating system – something that usually users will hardly notice. In any case, the switch-over to Windows 7 will include tailor-made training courses for different target groups.

However, the switch-over requires an initial effort. At first, this includes a test of whether the existing hardware is suitable for Windows 7, needs an upgrade or has to be replaced. Since Microsoft does not provide an update from Windows XP to Windows 7, computers and software require a completely new installation; this will be supported by IT personnel. In the end, each user has to make individual working environment adaptations.

From the beginning of June, Windows 7 will be available at DESY for normal use.

Conversions on a larger scale will only start after the summer break. A concrete schedule for this upgrade will be set up in accordance with the Windows administrators of each DESY group, with regard to the individual group requirements.

It is expected that it will take about two years to switch over most of the approximately 4000 DESY Windows computers to Windows 7. The large amount of hardware and the diversity typical for DESY will surely make us cope with one or the other problem.

INFO

<http://windows7.desy.de> (in German)
win7@desy.de

On occasion of the state visit of Federal President Christian Wulff to Brazil, the European XFEL GmbH, Brazil's synchrotron LNLS and DESY signed a cooperation agreement in Brasilia's presidential palace. From left: LNLS director José Roque da Silva, Germany's Federal President Christian Wulff, Brazil's President Dilma Rousseff, Helmut Dosch and Massimo Altarelli. (Photo: DWIH São Paulo)



WHAT'S
ON
AT
DESY

June

- 8** Science Café DESY (<http://sciencecafe.desy.de>)
Pulsare – Schwergewichtige Zwergsterne
Waldemar Tausendfreund, DESY Bistro, 17 h
- 15-17** TERASCALE (www.terascale.de/smcandles2011)
Standard Model Benchmark Processes at the LHC
DESY, Zeuthen
- 21** Colloquium
Retirement of Ahmed Ali
DESY, Hamburg, auditorium, 14 h
- 22** Science Café DESY (<http://sciencecafe.desy.de>)
Kryptographie entschlüsselt – Moderne Verschlüsselungs-
verfahren und digitale Signaturen
Martin Köhler, DESY Bistro, 17 h
- 22** Public Lecture
Was haben Teilchenbeschleuniger mit Energie zu tun?
Ein Streifzug durch DESYs Aufgaben aus einem
energetischen Blickwinkel
Karsten Büßer, DESY, Hamburg, auditorium, 19 h
- 29** Public Lecture
Suche nach dem Ursprung der Masse – Der Large
Hadron Collider am CERN
Wolfgang Lohmann, DESY, Zeuthen, 19 h

July

- 5** HERA Symposium (www.desy.de/herasymposium)
1911 – 2011: From Rutherford to HERA and beyond
DESY, Hamburg, auditorium, 14 h
- 19-23** HAvSE 2011 (<http://hanse2011.desy.de>)
Hamburg Neutrinos from Supernova Explosions
DESY, Hamburg
- 20** Public Lecture (<http://hanse2011.desy.de>)
Rätselhafte Supernovae – Den Geheimnissen der größten
kosmischen Explosionen auf der Spur
Thomas Janka (MPA, Garching)
DESY, Hamburg, auditorium, 19 h

+++ 29 October: DESY's Open Day and Science Night (DESY, Hamburg) +++

Present, future and science fiction

New Humboldt professor Brian Foster takes office at DESY

In June, Brian Foster will take up his work at DESY and University of Hamburg as a joint professor for experimental physics, with a focus on accelerators for very high energies. He is one of eight professors who won a Humboldt professorship this year, the most outstanding research prize in Germany, endowed with 5 million Euros for five years.

Foster will engage in several research fields, covering the present, the future and perhaps the science fiction of accelerator physics: The most concrete project is to analyse the data of HERA's deep inelastic scattering processes. Foster is still in love with the electron-proton machine which ceased operation in 2007. "I spent most of my career with HERA", says former ZEUS spokesman Foster. "The HERA data are very crucial for the analysis at the LHC, so someone has to make sure that the final results come out. Young people are naturally eager to analyse LHC data but people like me can contribute to analysis in this way. I don't have to worry about my career progression anymore."

Also well-defined is a programme whose main goal is the optimisation of the accelerating gradient of the ILC cavities, exploring several promising direc-

tions, for instance surface treatment and thin films. "We are facing a substantial programme of R&D. If we can improve the gradient to 45 Mega-electronvolts per metre, perhaps 50, this would make superconducting technology very competitive with the CLIC technique in terms of maximum gradient."

Foster's third field sounds a little more like science fiction: using the wakefields of a plasma to accelerate particles. Foster and his colleagues plan to use the FLASH electron beam to check if it can be further accelerated by a plasma and is still usable for physics. "This programme is obviously nebulous at the moment, but here at DESY we have facilities that can make a unique contribution so it makes sense that we start such a programme here."

Finally Foster has ambitious plans to inform the general public about his exciting scientific research. "I devote a lot of time to outreach," says Foster, "and am enthusiastic about using the violin, and Einstein's love of it, to reach new audiences." He was buzzing with ideas, including commissioning new music to illustrate quarks and leptons and looking forward to the challenge of presenting his ideas in German as well as English.



Brian Foster (Photo: Humboldt Foundation/Ausserhofer)

But before planning the future and science fiction of particle physics, Brian Foster faces some very mundane problems: starting officially in June, he still has duties to complete in Oxford until July, has to find a home in Hamburg and of course has to start to hire a team of people for his projects. For that, Foster will not only search in Hamburg, but also hopes to attract people from abroad. "I will work hard to enhance the strong ties between Oxford and DESY as well as building on current collaborations and starting new ones with colleagues inside and outside Germany." (tz)

PIER promotes PhD students

Helmholtz grants start-up funding to graduate school

by Irene Strebl

The "E" in PIER stands for "Education". In order to quickly invigorate this goal, DESY and the University of Hamburg applied for funds of the Helmholtz Association within the framework of a Helmholtz Graduate School "Structure and Function of Matter".

In the future, the broad range of existing offers for PhD students at DESY will be further supplemented and structured. It will include new interdisciplinary courses and other services such

as a mentoring programme, child care, and funding of travel expenses. The Joachim Hertz Foundation will enable five scholarships per year.

The application has meanwhile been evaluated by a review committee and provided with a start-up funding of 100 000 Euros from the Helmholtz Association's Initiative and Networking Fund. With these resources, the concept of structured doctoral training within the framework of PIER will be



PIER, the new "Partnership for Innovation, Education and Research" of the University of Hamburg and DESY.

further developed and submitted again beginning of 2012. The total grant of a Helmholtz Graduate School amounts to 2.4 million Euros for a period of six years.

DESY live!

Be part of DESY's Open Day 2011

On 29 October, about 60 science institutes in and around Hamburg open their doors on occasion of the fourth Science Night. This free-of-charge event will again attract thousands of visitors, including a large number of young people. As in previous years, DESY will turn the Science Night into an Open Day and extend the opening hours from 12 noon to 12 midnight, thus giving the expected 15000 visitors enough time to explore our research centre.



More than 13 000 visitors came to Hamburg's biggest research centre at DESY's Open Day in 2009.

Orientation and an overview on the vast programme will be provided at a central information and refreshment point located in the area around the DESY auditorium, building 1 and the canteen. Several different discovery tours will start from here, covering DESY themes from accelerator technology, FLASH, PETRA III and LHC to the ILC and European XFEL.

Science will not be the only highlight; all facets of the centre will be presented at that day. Thus, all staff members on the DESY campus in Hamburg Bahrenfeld and the European XFEL GmbH are cordially invited to contribute to the programme to make it an attractive event as a whole. A circular letter will provide more information on how to submit proposals for the event and on the Open Day 2011 programme. (cm)

INFO

Contact: tdot@desy.de

Gaze into infinite vastness

The IceCube neutrino telescope was officially brought into service

by Christian Spiering

On 28 April, the completion of the IceCube neutrino telescope was marked with an inauguration ceremony at the University of Madison in Wisconsin, USA. The ceremony was embedded in an IceCube Collaboration Meeting and the two-days "IceCube invites Astroparticle Physics" conference. The location of the event was "Monona Terrace", an impressive conference centre at Madison's Lake Monona. Designed by the architectural pioneer Frank Lloyd Wright, it was only built after his death. At a morning meeting, the history of the project was reviewed, starting with Principal Investigator Francis Halzen reporting on first ideas and physics motivation. It went on with the forerunner project AMANDA (Christian Spiering) and talks of David Nygren, Jim Madsen, Alan Alcheik and Albrecht Karle from the United States on the construction of the detector, and ended with IceCube's first physics results (Olga Botner, Uppsala). In the afternoon, the funding institutions from the US, Belgium, Germany and Sweden were invited to speak. On behalf of

DESY and the Federal Ministry of Education and Research, Helmut Dosch addressed the audience, focussing on the role of the German institutions and paying tribute to the excellent realisation of the project. Dosch said that from now on he, too, had to get used to illustrate proportions with the aid of the Eiffel tower instead of a single hair. The talks were followed by the symbolical click on a red button – IceCube was officially brought into service! Actually, data were already taken in previous years with the available installed configurations. Apart from measurements of a small anisotropy in cosmic radiation, they also generated a series of record upper limits for neutrinos from cosmic accelerators, and dark matter annihilation. The last seven strings installed in December 2010 are now completely integrated; thus IceCube currently takes data with 86 strings in the deep ice and 81 IceTop tanks on the surface.



With a symbolical click on a red button at the inauguration ceremony, IceCube was brought into service.

HZDR technology for organ restoration

After a five-years period of restoration, the world's largest still existing spring chest organ located in Borgentreich/Westphalia was put into operation again. Scientists from the Helmholtz Centre Dresden-Rossendorf and the Technical University Bergakademie Freiberg also participated in the restoration.

In the 17th century, spring chests were the most complex mechanical action systems for controlling the organ wind. Already in 2006; both, materials scientist Wolfgang Skorupa from HZDR and the chief conservator from the organ building company recognised the need to create a research project. With the aim to newly develop the now lost tradition of producing organ pipes with a lead content of more than 95 percent, a technology was required that is normally used for optimisation of microchips. The key part for the pipe production was the reintroduction of a casting workbench with accelerated cooling for the liquid lead; with a granite slab acting as a fast heat sink. Today, the old and newly produced pipes with their dark sheen are installed in the prospect of the Borgentreich organ and, with their full-bodied tonal quality, are a source of delight for organists and their audience.

www.helmholtz.de/hermann



On "Mission Polarstern" in a spacy look: Sophie and Alexander at the national finals of "Jugend forscht" in Kiel.

"Mission Polarstern"

Cosmic radiation measuring project at "Jugend forscht" competition

From 19 to 22 May, the 46th German youth science competition "Jugend forscht" took place in Kiel. At the grand finale, Sophie Koßagk (19) and Alexander Enyedi (18) from the Max Steenbeck secondary school in Cottbus ranked among Germany's best young researchers.

Our planet is constantly bombarded by particles from outer space. However, this cosmic radiation is not equally intense all over the earth. Sophie and Alexander wanted to find out more about this: last year, DESY installed a detector for the measurement of cosmic particles on the research vessel "Polarstern" of the Alfred Wegener Institute in Bremerhaven (see DESYinForm 10/2010). On its journey from Germany to Cape Town, the ship crossed several latitudinal lines and registered the secondary particles of cosmic radiation.

During an internship at DESY in Zeuthen, Sophie and Alexander concentrated on the phenomena of cosmic radiation and their dependence on different parameters. With the data from the "Polarstern" detector, they had the great opportunity to demonstrate at the competition "Jugend forscht" that – when approaching the poles – the intensity of radiation does indeed increase considerably. Within the framework of the "Netzwerk Teilchenwelt" programme, both pupils had the possibility to participate in a workshop at CERN.

With the convincing presentation of their results, they received the first place in the regional competition, thus reaching the "Jugend forscht" national finals. Summing up this exciting weekend, both declared "Although we were not among the winners, we still gained a whole lot of experience." (ub)

Imprint

Publisher
DESY-PR
Notkestraße 85
D-22607 Hamburg

Contact
email: inform@desy.de
telephone +49/40/8998-3613
www.desy.de/inform
(online version + newsletter subscription)

Editors
Christian Mrotzek (V.i.S.d.P.)
Gerrit Hörentrup,
Barbara Warmbein,
Ute Wilhelmsen,
Thomas Zoufal (editor-in-chief)

Production
Britta Liebaug (layout)
Veronika Werschner (translation)
Kopierzentrale DESY (print)



Do you already know DESY's media database?

The relaunch of DESY's website includes many additional features. One of these is the quick access to the media database. If you are in need of DESY photographs, brochures or films for lectures or events, you will find all this at <http://user.desy.de> → quick access → media database, or in the press sector on the DESY homepage. The

media are categorised into research fields, projects and facilities; moreover, you may use filters to search for special media types and formats. A keyword search is also included. The archive is filled with internally and externally accessible media, with a continuous update of current events.