

DESY in the year 2005

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The year 2005 has been particularly successful for DESY in its three research areas. The operation of the HERA collider for high energy physics has reached new luminosity records, achieved with polarized electron-proton collision. The VUV-FEL has started the operation for external user groups and reached saturation of the FEL beam at 30 nm. In astroparticle physics a major breakthrough has been achieved with the deployment of the first string for the IceCube detector at the South Pole.

Nevertheless, there remain considerable challenges in all fields. Of particular importance will be a successful and smooth operation of HERA and the VUV-FEL. As a “smaller scale” version of the European XFEL the VUV-FEL is being watched carefully internationally. Likewise, DESY is making every effort to deliver as much luminosity as possible in the remaining run time of HERA, which will end operation in June 2007.

The European XFEL facility

Since February 2004 the International Steering Committee (ISC) for the European XFEL facility has met six times. The ISC has put into operation international sub-groups for administrative and funding issues (AFI) and for science and technical issues (STI). AFI has recently held its 10th meeting (see picture).



The AFI Working Group, with the chairman H.-F. Wagner in the centre. Next to him on the left side is Mrs Vierkorn-Rudolph (BMBF) who leads the German delegation. The person on the right side just behind the chairman is M. Altarelli, leader of the European Project Team.

With the help of these working groups the International Steering Committee took a number of important decisions:

- The European XFEL facility will be realized as an independent limited liability company (GmbH) according to German law.
- The Memorandum of Understanding for the preparatory phase of the XFEL became effective on 1 January 2005, and has been signed by 13 nations: China (see picture), Denmark, France, Germany, Greece, Hungary, Italy, Poland, Russia, Spain, Sweden, Switzerland and the UK.
- A European Project Team was put into place. It comprises five persons:
 - Project Team Leader: M. Altarelli (ELETTRA)
 - Accelerator complex responsible: R. Brinkmann (DESY)
 - Technical service responsible: A. Schwarz (DESY)
 - Administration and finance responsible: K. Witte (ESRF)
 - User operation responsible: to be nominated.

The European Project Team works in close collaboration with the XFEL project team at DESY. The main objective is to deliver all documents necessary for the decisions of the partner countries on their participation in the constructing and operating the European XFEL and to form future user communities and organize corresponding international work shops.



Signing of the MoU for the preparatory phase of the XFEL by China (24 November 2005).

The plan approval procedure started in April 2005. During a hearing which took place in October and which is part of the formal process, no major objections were raised. The final approval of the plan (necessary to start construction) is expected in early 2006. According to the present time line

of all preparatory activities construction of the XFEL could start in late 2006 so that first experiments might be possible in 2012.

The linear accelerator of the European XFEL will be constructed using the superconducting RF accelerator technology (SCRF). The same technology, which was developed by the international TESLA collaboration, will also be used for the International Linear Collider (ILC), the next big project for high energy physics. The TESLA collaboration is focussing now on the further development of the SCRF technology and has therefore changed its name into TESLA Technology Collaboration (TTC), comprising 49 institutes of 10 nations.

In order to maintain the leadership of the European industry in SCRF technology, to ensure a significant contribution of the European industry to the XFEL and ILC projects and to strengthen the political support for the XFEL and ILC projects a European SCRF industry forum was founded in October 2005. 34 companies and institutes out of 9 nations participate in this forum. Chairman of the forum is D. Trines, DESY's director for accelerators.

The PETRA III project

The PETRA III project has gained full momentum after its final approval in March 2005 by the state of Hamburg and the German ministry for education and research. In an audit by the German funding organizations the management structures of this project were examined in detail. The audit confirmed that the structures set up by DESY are adequate and some improvements were proposed.

Particle Physics at DESY

During the past year the Global Design Effort (GDE) towards the International Linear Collider (ILC) took shape. B. Barish (US) was elected as head of the GDE, which is charged to establish a Reference Design Report, including cost, by the end of 2006 and to coordinate the R&D work in the three regions America, Asia and Europe. B. Foster (UK) was appointed as the regional GDE director for Europe.

DESY continues to play a key role in the preparation of the ILC preparation by exploiting the synergy between the European XFEL and the ILC, as both projects will utilize the same SCRF accelerator technology.

To strengthen its national and international involvements and to keep its experience in experimental particle physics after the shut down of HERA DESY has decided to participate in the experiments ATLAS and CMS at the Large Hadron Collider (LHC) at CERN. The LHC is scheduled to provide first collisions in 2007.

Personnel and other Matters

In summer 2005 the long time chair of DESY's Administrative Council Dr. H. Schunck (BMBF) retired. His successor is Dr. C. Uhlhorn (BMBF). Prof. J. Mlynek succeeded Prof. W. Kröll as president of the Helmholtz Association in September 2005.

Major events of 2005 were lectures given by two of the physics Nobel laureates of the year 2004: D. Gross gave the W. Jentschke Lecture and F. Wilczek the Heinrich-Hertz Lecture.

With more than 6000 visitors DESY's participation in the "night of knowledge" organized by the Hamburg government was a great success.