

Around the World

Radio Frequency Control

In many accelerators, particles are accelerated with radio frequency (RF) electromagnetic waves inside cavities. The quality of the acceleration directly depends on the stability of the frequency of the RF wave, which is provided as a pulse of a thousandth of a second. An electron is accelerated in an electric field of a sine curve. When temporal timing changes, the bunch size of the electron also changes, as the accelerated energy changes. In the ILC, RF stability must be controlled around 0.3%, and achieving this level of stability, a feedback system to stabilise the frequency using digital technology is essential for the Low Level RF generator (LLRF).



Zhe Qiao Geng worked on software for radio frequency control.

In Comparing RF control to sound, it corresponds to continue making a constant volume of sound at a constant tone. For example, regular tuning is necessary for a piano in order to get a constant tone and volume of sound. On the other hand, RF control can keep making a sound while it is being tuned.

[Read more...](#)

-- Nobuko Kobayashi

Calendar

Feature Story

From Outer Space to Inner Tracker: Japanese Magnet on Loan at DESY



Preparations for a balloon flight - EUDET's new magnet has been to space.

A magnet used in a stratospheric antimatter experiment in Japan is on its way to DESY where it will play an important role in R&D for the ILC detectors. Tobias Haas from DESY reports.

In 1928 Paul Dirac wrote down a most peculiar equation. It was the result of his attempt to combine the two most successful theories of his times, namely Einstein's theory of Special Relativity and Bohr's theory of Quantum Mechanics. The problem was: combining the two theories only made sense if you doubled all known particles. Antimatter was born. Dirac proposed that for each particle there would be an anti-particle—particles that look like exactly like pieces of known "regular" matter, but differ by the sign of their electric charge. When particles and anti-particles meet they annihilate and new particles form out of pure energy. Only four years later the American experimentalist Carl Anderson discovered the positron, the anti-partner of the electron. Dirac's mysterious equation turned out to be a huge success that even got him the Nobel Prize.

[Read more...](#)

-- Tobias Haas

Director's Corner

The Japanese Strategy of High-Energy Physics: Full Support for the ILC

Today's issue features a Director's Corner from Mitsuaki Nozaki, GDE Asian Regional Director.



Japan discusses the future of particle physics.

A community-wide consensus is inevitable to promote a big project like the International Linear Collider, otherwise the project will not be supported by other science disciplines and governments. The US and European communities have set out their strategies for particle physics and presented their plans and prioritised their projects.

The Japanese community has also discussed its future plan. In 2008, the integrated luminosity of the KEK B factory is expected to reach its present goal of 1 ab^{-1} and the construction of J-PARC, the next major accelerator in Japan, will be completed. Under these circumstances, it is urgent for us to make the next plan for the upcoming decade.

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-- Mitsuaki Nozaki

[Director's Corner Archive](#)

Announcements

Upcoming meetings, conferences, workshops

ILC Perfume Mountain Meeting-What is the role of China and the International Linear Collider (ILC), a large scientific international project
5-7 December 2006
Beijing, China

[Third symposium on large TPC for low energy rare event detection](#)

11-12 December 2006
Carré des Sciences, Paris, France

[European LC WS Meeting](#)

8-9 January 2007
Daresbury Laboratory, UK

MAC meeting

10-12 January 2007
Daresbury Laboratory, UK

[USPAS](#)

Texas A&M University
15-26 January 2007

[ILC Detector Test Beam Workshop](#)

Fermilab, Batavia, Illinois
17-19 January 2007

[The 9th ACFA ILC Physics & Detector Workshop & ILC GDE Meeting](#)

IHEP, Beijing
4-7 February 2007

[Annual WILGA Conference](#)

Warsaw University of Technology
Resort, Poland
21-27 May 2007

[LCWS 2007](#)

Hamburg, Germany
30 May - 4 June 2007

[GDE Meetings Calendar](#)

Tobias Haas is a physicist in the ZEUS collaboration at DESY and coordinator of a EUDET workpackage.

In the News

From *Interactions.org*
20 November 2006

World's largest superconducting magnet switches on
[Read more...](#)

From *The American Institute of Physics Bulletin of Science Policy News*

17 November 2006
FY 2007 Appropriations Wrap-Up: Short on Time, Short on Money
[Read more...](#)

From *Physics Web*
16 November 2006

X-ray laser focuses on tiny objects
[Read more...](#)

From *Science*
15 November 2006

The Ultimate "Flash Photography"
[Read more...](#)

From *American Physical Society*
5 November 2006

Statement On The International Linear Collider
[Read more...](#)

From *symmetry Magazine*
October/November 2006

Close Quarters
[Read more...](#)

Early Edition of NewsLine This Week

Due to the Thanksgiving Holiday in the United States this Thursday, the ILC Communicators are sending you an early edition of ILC NewsLine this week. The publication will return to its normal schedule next week.

The joint ACFA/GDE meeting will be held in Beijing, China on 4-7 February 2007. The deadline to register is 1 December, and abstracts should be submitted by 31 December. To learn more about the meeting, [go online](#).

ILC-Related Preprints

[hep-ph/0611222](#)

21 Nov 2006

Lepton flavour violating processes at the International Linear Collider

[hep-ph/0611240](#)

17 Nov 2006

Decay of Charged Higgs boson in TeV scale supersymmetric seesaw model

[hep-ph/0611211](#)

16 Nov 2006

The light pseudoscalar Higgs boson in NMSSM

Image of the Week



Autumn Around the World

[View Slideshow 1](#)

[View Slideshow 2](#)