

**Around The World**

**Challenging ILC Machine Studies Also Attract Detector Groups**



Physicist and engineer studying the response of a single cell ILC cavity in Pisa (INFN)

In Pisa, Italy, a team of physicists and engineers headed by Franco Bedeschi, who usually work on detectors, recently joined the ILC machine studies group. "The initial momentum came from Fermilab, a laboratory with which we used to collaborate for the CDF experiment", said senior physicist Giorgio Bellettini, the initiator of this ILC group. Presently, the group is still rather small but strongly motivated by the challenge. "We would like to contribute by obtaining the best quality for the bright beam we need for future ILC state-of-the-art detectors. We have limited our implication to restricted components, but we wanted to help early in the ILC process and we hope our initiative will be successful and useful for the global effort," he said.

The first part of the contribution aimed to take full advantage of the group's expertise in fast electronics controls, which they gained from CDF experiment, among others. Like several laboratories working on the ILC, the team dedicates part of their studies to beam stabilisation. "The contribution effort in this area is huge because the parameter is critical," said Bellettini. "We have to align electron and positron beams to a few nanometres while they run through over thousand 10 m long cryomodules which weigh tonnes." Engineers are trying to cancel two kinds of vibrations... [Read more...](#)

-- Perrine Royole-Degieux

**Feature Story**

**A Marriage Made in TTF**



A physics marriage ceremony: DESY technician Heiko Hintz turns the big wheel that make string and cold mass a union.

Under the watchful eyes of industry, colleagues from Fermilab and colleagues from KEK, Module 6 is entering maturity – and matrimony. After the cavities had been assembled into a string (see [NewsLine 11 May 2006](#)), they left the pure air of the cleanroom and joined the hum of DESY's TESLA Test Facility hall. Amongst many other things, couplers have to be attached, which is not a trivial thing: to avoid impurities this has to be done under a cloud of nitrogen in less than 30 minutes. The DESY team also fitted temperature sensors to the helium tanks, tuning systems to the string and completed more than 100 other workpackages before the string was ready to meet its counterpart: the cold mass, the bit where pipes and tubes full of liquid helium get the machine down to near-absolute zero.

All experts in the test hall watched as Heiko Hintz attached an oversized steering wheel to the support structure that held both string and cold mass and slowly and very carefully turned the wheel to move the two parts closer together. "We have to be exact down to a tenth of a millimetre," said DESY team leader Kay Jensch. The two parts have to be fitted together without any trace of tension between them, otherwise the module's alignment would be in danger and its performance would go down – a catastrophe not only for FLASH, in which Module 6 will be installed, but also for the ILC, which will use the same technology. [Read more...](#)

**Director's Corner**

**"Able was I ere I saw Elba"**

This famous palindrome was purportedly spoken by Napoleon when referring to his first sighting of Elba, the island where the British exiled him in 1814. One cannot help but wonder what they had in mind when they put Napoleon and a thousand of his most loyal men on this beautiful island with mountain ridges and varied coastline. Regardless, he quickly escaped to Cannes in early 1815 and began the 100 day campaign on Paris.



Atsuto Suzuki, KEK Director, speaking at Elba

In the modern particle physics world, Isola d'Elba has taken on a quite different identity, not one of exile, but rather an elegant setting where physicists gather to discuss the latest developments in particle detection techniques. At the end of May, the 10th Pisa workshop entitled "Frontier Detectors for Frontier Physics" was held. I participated in special session on "Strategies for Future Accelerators," that included A. Wagner (DESY and ICFA), J. Engelen (CERN), J. Strait (Fermilab), A. Suzuki (KEK) and R. Petronzio on plans in Italy.

Of particular interest to me was [the talk](#) by Atsuto Suzuki, the new director of KEK, who gave his first presentation outside of Japan since taking on his new position. We are all anxious to learn about the future plans in Japan and the priorities of the new KEK director. Atsuto's talk was very impressive, from his beautifully animated powerpoint slides to his obvious mastery of the entire Japanese program. [Read more...](#)

--Barry Barish

[Director's Corner Archive](#)

**Announcements**

## Image of the Week



Kenji Saito and his team successfully fabricated seamless copper 3-cell cavities into the ICHIRO-shape.

## Calendar

### Upcoming meetings, conferences, workshops

#### [EPAC '06](#)

Edinburgh, UK  
26-30 June 2006

#### [Vancouver Linear Collider Workshop](#)

Vancouver, Canada  
19-22 July 2006

ILC GDE Meeting  
Vancouver, Canada  
19-22 July 2006

#### [Single Crystal Niobium Technology Workshop](#) (pdf)

Araxá mine in Brazil  
30 October-1 November 2006  
[Request Information](#) (email)

#### [Linear Collider Physics School 2006](#)

Ambleside, UK  
14-19 Sep 2006

#### [TTC Meeting \(Tesla Technology Collaboration\)](#)

KEK  
25-28 Sep 2006

ILC GDE Meeting  
Valencia, Spain  
6-10 November 2006

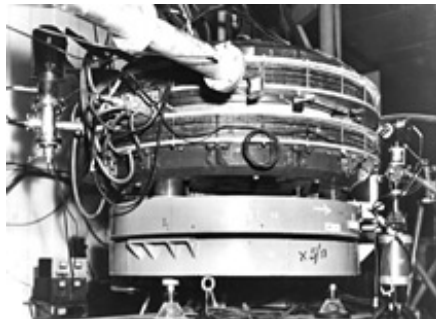
[Annual WILGA Conference](#)  
Warsaw University of Technology  
Resort, Poland  
21-27 May 2007

### [GDE Meetings Calendar](#)

[View Full Calendar...](#)

-- Barbara Warmbein

## Snapshot from the Past



AdA in Orsay: the machine in which the first e+e- collisions occurred in December 1963. AdA was constructed by the Laboratori Nazionali di Frascati. During the [50th anniversary of LAL](#) at Orsay, two [memorial stones](#) - one in Italian and one in French - were inaugurated in the presence of the two present laboratories directors, Guy Wormser and Mario Calvetti.

[AdA in Orsay](#) (video)

## In the News

From *Financial Times*  
9 June 2006

### Universal Challenge

If not exactly in crisis, modern cosmology is at least in a state of unprecedented ferment. The past 20 years or so have seen dramatic advances in our knowledge and understanding of the universe...  
[Read more...](#)

(member access required)

From *nature*  
8 June 2006

### EU Science Fund Targets Young Guns

Ten years ago, few would have imagined a European Union-wide fund for basic research, distributed without restrictions on scientific creed or country. The idea that the notoriously bureaucratic European Commission would finance such a fund, with no strings attached, would have stretched credibility too far...  
[Read more...](#)

(member access required)

## Fellowships for the Vancouver Linear Collider Workshop

The American Linear Collider Physics Group (ALCPG) expects to award approximately 10 fellowships of \$750 each to young researchers based at institutions in North America (non-tenured faculty, research associates or assistants, and graduate students) to participate in the Linear Collider Workshop in Vancouver, Canada, July 19 - 23, 2006. The applicants should ask a senior member of their groups to send a letter of recommendation to Dr. Edmond Berger ([Send Email](#)) by June 15, 2006. It is expected that the applicants will participate for the full duration of the workshop and have sufficient additional funding to cover the remainder of the total cost of workshop participation.

### ILC Related Preprints

[physics/0606104](#)

13 Jun 2006

A DEPFET pixel system for the ILC vertex detector

[hep-ph/0606148](#)

12 Jun 2006

Fit to Electroweak Precision Data

[hep-ph/0606121](#)

9 Jun 2006

Determining the SUSY-QCD Yukawa Coupling

[hep-ph/0606116](#)

9 Jun 2006

Lepton flavour violation in future linear colliders in the long-lived stau NLSP scenario

[hep-ph/0606114](#)

9 Jun 2006

Associated production of a light pseudoscalar Higgs boson with a chargino pair in the NMSSM

[hep-ph/0606093](#)

8 Jun 2006

New gauge boson  $B_H$  production

associated with W boson pair via gamma gamma collision in the littlest Higgs model

[hep-ph/0606088](#)

7 Jun 2006

How can we test seesaw experimentally?

[physics/0605238](#)

29 May 2006

CMOS Monolithic Active Pixel Sensors (MAPS) for future vertex detectors

From *TRIUMF*  
17 May 2006

**TRIUMF successfully commissions  
Canada's first superconducting  
linear particle accelerator**

The TRIUMF national laboratory has achieved a new milestone by successfully commissioning a superconducting linear accelerator (linac) at its subatomic physics complex situated on the UBC campus in Vancouver...

[Read more...](#)