

## Around the World

### From LEP to LHC, David Miller Sees Growing Support for ILC

*"The majority of LHC physicists would like to see the ILC", David Miller, University College London.*

Professor David Miller from University College London retired as chair of the World Wide Study of Physics and Detectors for the ILC at the end of the Snowmass Workshop. He first became interested in the concept of a Linear Collider in 1990 while he was working on LEP. He liked the fact that physics was so much simpler at an  $e^+ e^-$  collider

but he realized that some important physics questions would not be answered at LEP and thus a more powerful machine would be needed. Although at the beginning, only a small minority supported the idea of a linear collider Miller is pleased to see that the support is now strong enough to give a large and healthy community.



David Miller

Signatures on the [consensus document](#), which he helped to organise, suggest that a majority of LHC physicists would like to see the ILC as well, and he believes that the HERA people and the beauty factory people would like to follow on with the ILC. Having 4 detector concepts for 2 interaction points does not worry him. Once the international laboratory supporting the ILC has been set up in 3 or 4 years, collaborations will form drawing on the present concepts. As Miller is stepping down as chair of the World Wide Study he hopes to have time to work on spectrometry and on gamma-gamma

## Feature Story

### 51 MV/m Achieved with Electro-polished Re-entrant Shape Cavity



Members of the high-gradient cavity team at KEK who recorded the 51 MV/m gradient on 6 September.

The high gradient superconducting cavity is one of the most vital components for the ILC. There were heated discussions at the Snowmass 2005 workshop as to which cavity shape should be adopted for the ILC baseline and how to attain high-gradients in a reproducible way. While the TESLA type cavity has a proven maximum gradient up to 40-41MV/m, new contender schemes have been also vigorously pursued because they are likely to allow the physicists to push toward a higher gradient.

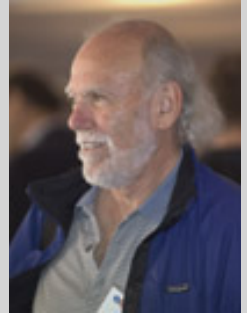
A popular conjecture among the experts is that a maximum of approximately 51MV/m should be attainable with a suitably shaped cavity, as limited by the maximum surface current that the niobium material can sustain in its superconducting state. In so doing, the use of the electro-polishing technique, pioneered by the superconducting cavity group at KEK, is considered to be a critical surface treatment process to apply in cavity preparation.

Members of the high-gradient cavity team (WG5) at KEK, led by Professor Kenji Saito, successfully recorded the long awaited 51 MV/m gradient at the Q0-value of  $5.88e+9$  on 6 September. The test was performed on a single-cell "re-entrant"-type cavity which has been designed, fabricated and post-

## Director's Corner

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Snowmass is now behind us. We are now ready to begin to assess the outcomes from that successful workshop and to move on to our challenging next goal for this fall — to create a baseline configuration and alternatives for the ILC. These will be documented in what we are calling a baseline configuration document (BCD) that will become the basis of the design and costing effort next year, as well as for developing the supporting R&D program.



Barry Barish

There are many difficult and important decisions we must make in order for us to create a solid baseline. The guiding principle that I have given to the GDE in making these decisions is for us to make as forward looking choices as we can, consistent with attaining our the performance goals, and being understood well enough for us to do a conceptual design and reliable costing by the end of 2006.

To begin work on this task of defining the baseline configuration, we have assembled Snowmass summary information from the various working and global groups, as well as for the "Himmel List" of 40+ decision items that are needed to develop our baseline configuration document (BCD). These have been posted and are available in a new section of our web pages containing summaries of the conclusions and recommendations from Snowmass. We will continually update this information with both missing information and new inputs. These new BCD web pages can be found [online](#).

[Read more](#)

--Barry Barish

physics. Studies on gamma-gamma are urgent to establish its credibility as an option for the ILC.

--Nicolas Delerue

## Calendar

### Upcoming meetings, conferences, workshops

#### [ILC Industrial Meeting](#)

Fermilab, USA, 21-22 September, 2005

SMTF Collaboration Meeting Fermilab, USA, 5-7 October 2005

#### [Nanobeams 2005](#)

Kyoto, Japan, 17-21 October 2005

#### [ECFA ILC Workshop](#)

Vienna, Austria, 14-17 November 2005

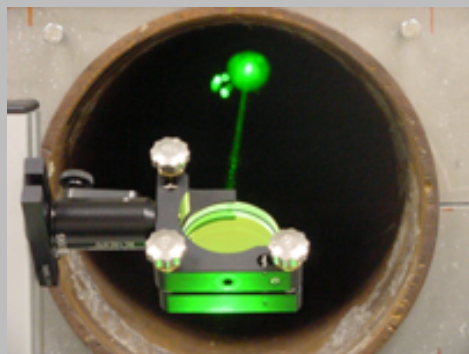
TESLA Technology Collaboration Meeting and GDE Meeting Frascati, Italy, 5-10 December 2005

#### 2006 LCWS 2006

Bangalore, India, 9-15 March 2006

## Image of the Week

### Beam Diagnostics



An access pipe in the laser-wire project. (Image courtesy of EUROTeV) [more information](#)

purified by Professor H.Padamsee's group at Cornell University. The cavities were brought to Japan for surface treatments with the electro-polishing technique and for subsequent tests at KEK.

[read more](#)

--Youhei Morita



Members of the high-gradient cavity team at KEK.

## In the News

From *FYI: AIP Bulletin of Science Policy News*, 14 September 2005

### Unsettled Outlook for FY 2006 R&D Funding

With the start of the new fiscal year less than three weeks away, Congress and the Bush Administration have not settled on a strategy to fund R&D programs in the coming year. While the new chairmen of the House and Senate Appropriations Committees have expressed a desire for "regular order" by passing each of the appropriations bills separately, time is running out. One alternative calls for program funding to be continued at current levels, and in some instances, cut.

[Read more](#)

From *CNRS*, 8 September 2005

### Supratech : le CNRS et le CEA créent une plate-forme de recherche technologique régionale sur les cavités accélératrices supraconductrices

Summary: Future particle accelerators will use supraconducting accelerating cavities to produce high intensity electron or proton beams. Several French labs have decided to team up together to create "Supratech", a collaboration aimed at building up and sharing the infrastructures required for supraconducting cavities R&D.

[Read more in French](#)

[Director's Corner Archive](#)

## Announcements

### ILC Jobs - Position opening at LAL Orsay

A 3-year high level postdoctoral position is opened at the Laboratoire de l'Accélérateur Linéaire d'Orsay (LAL), near Paris, to work on the ILC-GDE project. The candidate should have at least 5 years of post doctoral experience and have already demonstrated outstanding skills and confirmed leadership capability.

[Read more and view other ILC job openings](#)

### ILC Industrial Forum, September 21-22

The ILC Industrial Forum, hosted by the Linear Collider Forum of America, will be at Fermilab on September 21 and 22. An agenda is now [available online](#).

Interested scientists and industries are welcome to attend the forum free of charge. All industries should register with [Ken Olsen](#), President of the LCFOA. [more information](#)

### ILC Related Preprints

[hep-ph/0509070](#) : Signatures of anomalous Higgs interactions at a linear collider, 7 September 2005

[hep-ph/0509135](#) : The Role of the ILC in the Study of Cosmic Dark Matter, 13 September 2005

If you recently released a preprint related to the ILC, [let us know!](#)

