

Feature Story

Europe Defines a Strategy Plan for the Future of Particle Physics

(L-R) Torsten Åkesson, Enzo Iarocci, Guy Wormser and Ken Peach

Last week, the future of particle physics in Europe was debated in Orsay (near Paris, France) from 30 January to 1 February. An [Open Symposium](#), organised by the [CERN Council Strategy Group](#), gathered more than 400 scientists from all over Europe, as well as representatives from North America and Asia. With the help of an interactive webcast, 70 scientists participated remotely. A lively discussion took place which will provide input for the final strategy to be selected by July. Before this meeting, each country was invited to submit its roadmap. Suggestions from organisation representatives and from groups of scientists or individual physicists were also welcomed. "They have been asked what their priorities were.", said Ken Peach, co-chair of the Strategy Group and Chair of the CERN Scientific Policy Committee. "This open symposium has been created to give the opportunity to physicists to intervene and share their opinions. We were convinced that half of our time should be spent in discussions." [Read more...](#)

[Conference slides](#)

[CERN Council Strategy Group website](#)

[Symposium photo gallery](#)

-- Perrine Royole-Degieux

Feature Story

TRIUMF Kicker Group Experiments with 6 Nanosecond Pulses

Prototype PSI kicker stack adapted for ILC kicker "proof of principle" test bed.

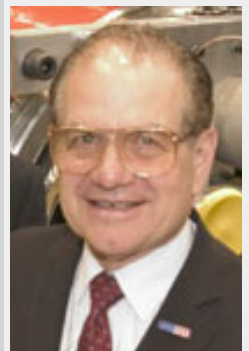
The rise and fall times of the pulses in the injection kickers influence the minimum circumference of the damping rings in the International Linear Collider. The Baseline Configuration Document features 6 km rings which will require pulsers to feed 50 ohm stripline kickers. The 5 kV (kilovolt) pulses must have 6 ns (nanosecond) rise and fall times, and a total duration of approximately 14 ns. Operating in a burst mode, every 5 seconds the kicker will have a 3 MHz (megahertz) burst that lasts 1 ms (millisecond). The combination of the electric component from the 5 kV voltage pulse and the magnetic component from the accompanying 100 A (amp) current pulse will deflect the electron and positron beams. The temporal specification of the kicker pulse presents a challenge to the existing generation of pulser technology.

Previously, the TRIUMF kicker group designed and built a kicker for the Paul Scherrer Institute (PSI) with deflection voltages up to 25 kV at 75 kHz (kilohertz) continuous wave and with 40 ns rise and fall times. Each of the 4 modulators in the PSI kicker consists of two stacks of 17 series 1 kV Field Effect Transistors (FET): the present design of the MOSFET card (fig 1) allows a FET to collapse almost 1 kV in approximately 3 ns. This does not translate however to fast switching times for a stack of FETs when combined in the

Director's Corner

U.S. Budget News

In last week's column on the role of the GDE R&D Board (RDB), I made the statement that *"the continuing and future R&D programs will be absolutely crucial for demonstrating critical elements of the design, optimizing it with respect to cost and performance, and finally evolving it as technologies improve, so that we can build the best possible machine when the ILC is constructed."* I will expand on that statement today, especially in light of the good budget news from the U.S. The President's 2007 budget request to Congress includes a doubling of the ILC R&D budget from \$30M to \$60M. This is good news, indeed! Of course, this is just the beginning of the budget process in the U.S. and we will need to be equally successful in Congress when they act on the budgets later this year. (See today's In the News feature, "DOE FY07 Budget Request Has \$775 Million for HEP" and slide 29 in the [presentation](#) given by Ray Orbach, Director of the Office of Science.)



Ray Orbach

The worldwide linear collider community has been focused on developing a global design for the ILC, ever since the choice was made to base the main linac on superconducting RF technology. To that end, ICFA created the GDE, and we are now almost six months old. During those six months much of our focus has been on determining a baseline configuration for the ILC. We recently accomplished that goal and documented it in our Baseline Configuration Document (BCD).

Calendar

Upcoming meetings, conferences, workshops

[LLRF Hardware Development Workshop](#) (doc)

FNAL
9-10 February, 2006

RDR Meeting
FNAL
13-14 February, 2006
[Agenda](#) (pdf)

[EUNET Kick-Off Meeting](#)
DESY
15-17 February 2006

[ILC GDE Meeting](#)
Bangalore, India
9-11 March 2006

[LCWS 2006](#)
Bangalore, India
9-13 March 2006

[International Symposium on Detector Development in Particle and Astroparticle Physics and Synchrotron Radiation](#)
SLAC
3-6 April 2006

NSF/DOE Review
ILC - Americas
FNAL
4-6 April 2006

[ILC Software and Physics Meeting](#)
Cambridge
4-6 April 2006

[International Accelerator School for Linear Colliders](#)
Sokendai, Graduate School for Advanced Studies
Hayama, Japan
19-27 May 2006

[CALOR 2006](#)
12th International Conference on Calorimetry in High Energy Physics
Chicago, USA
5-9 June 2006

ALCPG Meeting
Vancouver, Canada

conventional manner.
[Read more...](#)

-- *Shane Koscielniak, TRIUMF*

Around The World

From Injection Systems to Kickers, KEK and SLAC Successfully Collaborate on ATF



The kicker magnet that SLAC supplied for the ATF at KEK.

Last November, a team of accelerator physicists from KEK and SLAC succeeded in extracting three bunches of electron beam each spaced by 154 nanoseconds from the storage ring in the Accelerator Test Facility (ATF) in Japan. (See ILC NewsLine, [10 November 2005](#)) Using a "kicker magnet" with a pulse length of 310 nanoseconds, developed by SLAC, this important accomplishment delivered an ILC-like beam for the first time.
[Read more...](#)

-- *Elizabeth Clements*

In the News

From *Fermilab Today*
7 February 2006
DOE FY07 Budget Request Has \$775 Million for HEP

The President's Budget Request for FY07 is only the beginning of the process for the Department of Energy, but the numbers were cause for cautious optimism by Fermilab Director Pier Oddone on Monday. "We're happy with the increase in the budget request for high energy physics," Oddone said.
[Read more...](#)

From *CERN*
1 February 2006
European particle physics sets course for the future

Much of our emphasis has now transferred toward organizing the design and costing effort, with a goal of producing a reference design by the end of 2006.
[Read more...](#)

-- *Barry Barish*

[Director's Corner Archive](#)

Announcements

Registration for Bangalore Workshop

There has been some confusion about registering for the GDE meeting in Bangalore. If you are attending the GDE meeting, you must also register for the LCWS. All food, shuttles and other services are covered by the registration fee for the LCWS. If you have any questions about registration, please contact [Maxine Hronek](#).

ILC Related Preprints

[hep-ph/0602035](#)

5 Feb 2006
Flavor Changing Neutral Currents involving Heavy Quarks with Four Generations

[hep-ph/0602030](#)

2 Feb 2006
Virtual Corrections to Bremsstrahlung in High-Energy Collider Physics: LHC and e^+e^- Colliders

[hep-ph/0602022](#)

2 Feb 2006
Using Invisible Graviton Radiation to Detect Heavy Electroweak Resonances at a 500 GeV e^+e^- Collider

[hep-ph/0601217](#)

26 Jan 2006
ILC: Physics Scenarios

Image of the Week

19-23 July 2006

ILC GDE Meeting
Vancouver, Canada
19-23 July 2006

Orsay, 1 February 2006. "Particle physics has an exciting future" : this was the key message emerging from the Open Symposium on particle physics strategy in Europe, which concluded at Orsay, France, today.
[Read more...](#)



Fumio Furuta, KEK, and Hyong Suk KIM, Kyungpook National University, prepare a 9-cell ICHIRO cavity for high gradient field test in the clean room of STF, KEK.