



## Director's Corner:

David L. Burke

As we pass the Ides of March, the International Technology Recommendation Panel (ITRP) has begun its work, and the proponents of the two candidate technologies are busy preparing their best arguments and demonstrations. There will be a lot said about what each can and can't do, what is ready for this, and what is ready for that. At times emotions will run high, and rhetoric strong. But in the end the facts will be put squarely on the table, and calm heads will need to think carefully and determinedly to make a recommendation.

The scientific communities of the world spend nearly two billion dollars a year on high energy physics. Globally, we owe it to all to put these resources to the very best use, and we have identified the need for a linear collider to partner with the LHC to explore the energy frontier. A down-select of competing options for the technology is a natural and anticipated step forward that will leave no losers. The ITRP has a difficult job. But the only wrong answer is no answer; the time is right to make the choice and move on.

*[Editor's note: The ITRP will visit SLAC on April 26 and 27, 2004.]*

## LC Work at Fermilab

Harry Carter

Early in FY03, the Technical Division branch of the Fermilab LC collaboration completed two infrastructure upgrades at its structure production factory in Industrial Building 4. A new hot zone was installed in our large vacuum furnace and a new chiller for the furnace cooling water system was installed. Both of these upgrades were necessary to improve the reliability of our factory, enabling us to focus on the production of structures for the upcoming 8-Pack Phase II test in April.

Once the new hot zone was commissioned, the production of our next series of structures, designated FXCs (aka H60VG3S17), began in earnest. To date, we have produced five of these structures and three of them have undergone high power testing at NLCTA. FXC-003 has been the most successful slotted structure to be tested at NLCTA, exceeding the 0.1/hr. breakdown rate requirement by a factor of three at the NLC operating conditions of an unloaded gradient of 65 MV/m @ 400 ns pulse width. Its sister structure, FXC-004 is presently undergoing installation at NLCTA and we are optimistic that its performance will be even better than FXC-003. We are completing the FXC series production with FXC-005, which is due to be shipped to SLAC on March 22.

Parts are in hand to begin construction of our next series of structures, designated FXDs (aka H60VG4S18). These structures incorporate the tapered field design in the front end, which should reduce the breakdown rate in this portion of the structure. The FXD structures also come in two variations, -A and -B, in order to permit twofold interleaving for wakefield control. We intend to complete FXD-001-A prior to the end of this month. The remainder of the FXD series of structures will be produced in FY04 and will incorporate first output and then input and output higher order manifold (HOM) extraction. We are presently conducting mechanical assembly tests of the HOM extraction couplers in order to finalize the mechanical design prior to incorporation into the FXD structures. A total of six FXD structures are planned for construction.



Figure 1: New hot zone installed in our large vacuum furnace at IB4.



Figure 2: Brazing FXC-003 in our large vacuum furnace at IB4.

In addition to FXC and the FXD structure production, we have produced the strongbacks for the 8-Pack test (Fig. 3) and are continuing development and testing work for a prototype LC girder. Cristian Boffo is leading an ongoing effort of girder thermal stability and vibration testing, and is developing a 3-D model of structures mounted on strongbacks in order to better understand the vibrational behavior of a structure/strongback assembly.



Figure 3: FXC-004 mounted on an 8-Pack strongback and ready for shipment to SLAC.

## Recent Linear Collider Publications

*Note: If you would like an NLC- or GLC-related paper listed, please send information to [amlarsen@slac.stanford.edu](mailto:amlarsen@slac.stanford.edu)*

### I. Linear Collider Collaboration Notes

LCC-0118, "NLC Collimation Update Study," A. Drozhdin, L. Keller, T. Markiewicz, T. Marayuma, M. Mokhov, T. Raubenheimer, A. Seryi, P. Tenenbaum, M. Woodley, May 2003 (SLAC-TN-04-005).

LCC-0134, "Monochromatization Option of NLC Collisions," Andrei Seryi, Tor Raubenheimer, March 2004. (SLAC-TN-04-003).

LCC-0136, "NLC Crab Cavity Phase Stability," Josef Frisch, March 2004 (SLAC-TN-04-004).

### Upcoming Conferences and Workshops

Annual APS March Meeting 2004  
22-26 Mar 2004, Montreal, Canada, <http://www.aps.org/meet/MAR04>.

NLC Machine Advisory Committee, 12-13 April 2004, SLAC, Menlo Park, CA.

International Conference on Linear Colliders (LCWS), 19-24 April 2004, Paris, France.  
<http://polywww.in2p3.fr/LCWS2004>

CERN Accelerator School: Course On Power Converters For Particle Accelerators, 12-18 May 2004, Warrington, England, United Kingdom  
<http://cas.web.cern.ch/cas/>

European School Of High-Energy Physics, 30 May - 12 Jun, Sant Feliu de Guixols, Barcelona, Spain, Mrs Danielle Metral: CERN Schools of Phys.: CERN/DSU: CH-1211 Geneva 23, Switzerland, Email: [Physics.school@cern.ch](mailto:Physics.school@cern.ch)<http://www.cern.ch/PhysicSchool/>

11th Advanced Accelerator Concepts Workshop (AAC 2004), 20-25 June 2004, Stony Brook, New York,  
<http://www.bnl.gov/atf/AAC04.htm>

U.S. Particle Accelerator School (USPAS 2004), 21 Jun - 2 Jul 2004, Madison, Wisconsin  
Email: [uspas@fnal.gov](mailto:uspas@fnal.gov), <http://uspas.fnal.gov>

9th European Particle Accelerator Conference (EPAC 2004), 5-9 Jul 2004, Lucerne, Switzerland  
Email: [Christine.Petit-Jean-Genaz@cern.ch](mailto:Christine.Petit-Jean-Genaz@cern.ch)  
<http://epac.web.cern.ch/EPAC/Welcome.html>

Victoria Linear Collider Workshop, 28-31 Jul 2004, Victoria, British Columbia, Canada,  
Email: [karlen@uvic.ca](mailto:karlen@uvic.ca), <http://www.linearcollider.ca/victoria04/>

32nd SLAC Summer Institute On Particle Physics (SSI 2004): Natures Greatest Puzzles, 2-13 Aug 2004, Menlo Park, California, Maura Chatwell: SSI Coordinator: Stanford Linear Accelerator Center: 2575 Sand Hill Road: MS #81: Menlo Park, CA 94025 USA, Email: [ssi@slac.stanford.edu](mailto:ssi@slac.stanford.edu),  
<http://www-conf.slac.stanford.edu/ssi/>

32nd International Conference On High-Energy Physics (ICHEP 04), 16-22 Aug 2004, Beijing, China, Dr. Deng Tiejun: ICHEP'04: Institute of High Energy Physics: P.O. Box 918: Beijing 100039, P.R. China  
Email: [dengtj@mail.ihep.ac.cn](mailto:dengtj@mail.ihep.ac.cn)  
<http://ichep04.ihep.ac.cn/>

22nd International Linear Accelerator Conference (LINAC 2004), 16-20 Aug 2004, Lubeck, Germany,  
<http://www.linac2004.de>