Collaboration gets high grade for third-harmonic module

The Fermilab-built ACC39 module with the coupler vacuum and wave guide systems assembled in the Cryo-Module Test Bench (CMTB) at DESY.

The 260-meter-long free-electron laser FLASH at DESY is currently undergoing a major upgrade. One of the crucial new components in the superconducting linear accelerator of FLASH is a superconducting module operating at 3.9 GHz, three times the normal accelerating frequency. This third-harmonic module, built by Fermilab, now has passed extensive tests. Once installed and in operation, it will form narrower electron bunches within the FLASH accelerator, leading to brighter FEL light.

The RF system test with the module at DESY’s cryomodule test bench showed a very promising performance. The four superconducting cavities in the module have been operated with an average acceleration gradient of 23 MV/m, exceeding the design value of 14 MV/m by 65 percent. Furthermore, the RF stability achieved by digital control surpasses the requirements of FLASH, which are regarded as very challenging.

The module will improve significantly the performance of the FLASH facility, which is restarting in spring 2010. The benefit is a more efficient bunch compression, which provides more flexibility in the bunch parameters for the FEL process.
Joe Leo

Joe Leo and Kathy Graden at a fundraising event in October. The event raised money to buy handicapped-accessible equipment.

Joe Leo, who worked in the ES&H section for 26 years, died Sunday. He was 53.

As a radiological control technician, Leo’s primary job was preparing waste for shipping or storage. Leo also was Fermilab’s sealed source technician; he maintained and inventoried Fermilab’s calibration sources for use in the laboratory’s high-energy physics experiments.

His supervisor Billy Arnold said Leo’s frequent visits around the laboratory made him a familiar face.

"He seemed to pretty much become friendly with anyone within minutes," Arnold said. "He was just a great talker and very comfortable discussing almost anything with anyone."

Leo had been a self-motivated and meticulous worker, Arnold said. With so many years of experience, Leo could offer scientists useful background information about calibration sources.

"When physicists needed something, he just knew what type of materials they would need," said Martha Michels, ES&H deputy head.

Leo was unable to return to work since March, when a skiing accident in Wisconsin paralyzed him from the chest down. Before the accident, Leo was active outdoors and had been a member of Fermilab's volleyball team, bowling team and golf league.

Colleagues made frequent visits to Leo after the accident and in August attended a charity event to raise money for making his home more accessible. Nancy Grossman, head of the ES&H section, said Leo showed his strength and kindness before and after the accident.

For my trip to CERN, I was able to put the complete sample of CMS collision events on my laptop so that during my flight I could look at them with the CMS event display and play with the data. Soon, I won't be able to do that anymore. We expect a deluge of CMS data to start pouring in.

An event display in the CMS detector on Nov. 23.

From symmetry breaking

The latest from the LHC

Last night the first collisions of protons at the world-record energy of 2.36 TeV (1.18 TeV per beam) were recorded by the ATLAS experiment at CERN. The ATLAS team posted an image of one candidate collision event on its Web site.

In addition to setting world records – for proton beam energy on November 29, and last night for proton collision energy – the team operating the Large Hadron Collider at CERN, and the teams operating the LHC experiments, have been hard at work. Here are a few more highlights from the last week and a half.

One of the main objectives for the LHC team over the past week and a half has been preparing to circulate and collide beams at higher intensities. This involves increasing the number of bunches that make up each LHC beam as well as the number of protons in each bunch.

Read more

Safety Update
“Young people have that sparkle in their eyes, and Joe still had that sparkle,” Grossman said. "Whenever people met with him, he could make them smile."

Visitation will take place today from 3-9 p.m. at Williams-Woodward Funeral Home at 820 Pine St. in West Chicago. Funeral services will take place at 10:30 a.m. Thursday at Immanuel Presbyterian Church at 29W260 Batavia Road in Warrenville.

— Chris Knight

ES&H weekly report, Dec. 8

This week's safety report, compiled by the Fermilab ES&H section, includes one non-recordable injury. The injury occurred when a contractor pulled his calf muscle while pushing a spool of wire. We have now worked 47 days since the last recordable injury. Find the full report here.

Phishing alert: don't open "carbon nanotube" e-mail

Several laboratory employees recently reported receiving an email with the subject line "Carbon Nanotubes Ceramic Fibers" from the e-mail address ajohnh@umich.edu.

It is a phishing e-mail, not a legitimate message. So if you find it in your inbox, please do not open the attachment. If you do, your machine will be compromised.

Please note that the author information is valid, so it is very difficult to recognize this as phishing. If you receive an e-mail from someone you don't know, do not open any attachments without contacting the sender by phone or through a different, valid e-mail address to verify what the file is and why they sent it.

Even if a message looks like it came from someone you know, make sure the content "feels" right before you open any attachments. When in doubt, contact the sender to verify.

— Mark Leininger, computer security manager

Latest Announcements

Barn Dance - Dec. 13

English Country Dancing - Jan. 3

Give the gift of movies

Book atrium events through the Office of Communication

FMLA and FTL policy updates

Wilson Hall stocking stuffer holiday sale - Dec. 9-10

Gay, Lesbian or Bisexual Employees at Fermilab - information meeting Dec. 10

Gallery talk by Peter Olson - Dec. 11

Register for Quigg symposium - Dec. 14-15

Free introductory martial arts classes - Dec. 14 and 16

Fermilab blood drive - Dec. 15-16

Inaugural potluck party - Dec. 16

Tell us about your Take 5 moment by Dec. 16

Fermilab Management Practices seminar beginning Feb. 11

Sign up for spring Science Adventures classes

Argentine Tango at Fermilab meets Wednesday nights

Prescription eyewear technician