

Calendar

Tuesday, Dec. 9

3:30 p.m.

DIRECTOR'S COFFEE
BREAK - 2nd Flr X-Over
THERE WILL BE NO
ACCELERATOR PHYSICS
AND TECHNOLOGY
SEMINAR TODAY

Wednesday, Dec. 10

2:30 p.m.

Special Particle Astrophysics
Seminar(NOTE DATE) - Curia
II
Speaker: Wenjuan Fang,
Columbia University

Title: Gravitational Leakage vs.
the Cosmological Constant

3:30 p.m.

DIRECTOR'S COFFEE
BREAK - 2nd Flr X-Over
THERE WILL BE NO
FERMILAB COLLOQUIUM
THIS WEEK

[Click here](#) for NALCAL,
a weekly calendar with links
to additional information.

Weather

Rain/snow
 34°/18°

Extended Forecast Weather at Fermilab

Current Security Status

Secon Level 3

Wilson Hall Cafe

Tuesday, Dec. 9

- Golden broccoli & cheese
- Southern style fish sandwich
- Coconut crusted tilapia
- Chicken w/arthichokes and mushrooms
- La Grande sandwich
- Assorted sliced pizza
- Chicken fajitas

[Wilson Hall Cafe Menu](#)

Chez Leon

Feature

Accelerator physicists show future collider compatibility



As fractions of the beam are extracted in short bursts, or pings, the amount of current in the Main Injector extraction magnet, represented by the green line, spikes while the amount of beam in the Main Injector, represented by the red line, drops.

By temporarily altering the way the Main Injector releases beam, the Accelerator Division has shown that physicists can use it to test machinery built for future accelerators.

The recently demonstrated mode of transferring beam out of the Main Injector imitates the way future colliders, such as the International Linear Collider, would function.

"We can provide users with beam that has the characteristics they want," said Fermilab engineer Peter Prieto, who helped reconfigure the Main Injector slow extraction regulator.

Rather than releasing beam in one of the usual methods – all at once or draining in a slow spill over a period of one to four seconds – AD released beam in short spurts, or pings, that took a matter of milliseconds to fire.

"We have very good control," said Fermilab physicist Erik Ramberg. "We can make the beam bursts five milliseconds or three milliseconds or one millisecond."

Fermilab has used the technique before on beam extracted from the Tevatron. Members of AD began adapting the technique to the Main Injector about a year ago.

When a power outage shut down the Tevatron on Nov. 5, they took the opportunity to test the ping method without the risk of interfering with the Tevatron's operation. They announced the

Director's Corner

Roads and Grounds

Last December 4th, the DOE Fermi Site Deputy Office Manager Mark Bollinger and I attended an Environmental Laboratory Management (ELM) Committee meeting and received from Dave Shemanske, Fermilab Roads and Grounds, the award that he, in turn, had received from the Chicago Wilderness Congress and the US Environmental Protection Agency on behalf of the laboratory. This important [environmental award](#) is a [beautiful disk of recycled bottle glass](#) with an incised inscription citing Fermilab for the 2008 Conservation and Natural Landscaping Award.

The award recognizes the work that Dave Shemanske led during the last few years to turn the old Nepense sewage pond behind the Village into a stunning marsh, full of native plants and a sanctuary for birds. Dave made a presentation to the committee with slides documenting the history of the project from its smelly beginning to its present success, a marvelous story of how nature can heal itself with our help and dedication.

Mark and I sat through the rest of the ELM meeting in admiration for the knowledge and commitment to our site that is represented by the many folks who devote time to the ELM committee and especially by the staff of the Roads and Grounds department that carry out much of the actual work to protect and enhance our site. All this requires expert knowledge of the many aspects needed to curate a natural preserve like ours. Beyond hearing about the work to establish a natural marsh at Nepense pond, we heard the very complex set of decisions related to enhancing our forests, establishing native plants, maintaining habitat for many critters while working perennially to contain the invasive species that would degrade the quality of our forests and prairies. No meeting is complete without, at one point or another, remembering the great influence that the late Dr. Bob Betz had on our staff, especially the Roads and Grounds staff who constitute today the alumni



Pier Oddone receives the environmental award.

Wednesday, Dec. 10

Lunch

- Sweet & sour chicken
- Jasmine rice
- Egg roll
- Almond cake

Thursday, Dec. 11

Dinner

- Shrimp cocktail
- Beef Wellington
- Garlic smashed potatoes
- Sautéed spinach
- Chocolate cups with raspberry mousse

Chez Leon Menu

Call x3524 to make your reservation.

Archives

Fermilab Today

Result of the Week

Safety Tip of the Week

ILC NewsLine

Info

Fermilab Today
is online at:
www.fnal.gov/today/

Send comments and
suggestions to:
today@fnal.gov

results at the Linear Collider Workshop last month.

To release the beam in pings, Fermilab operators needed to adjust the tune of the machine. When proton beams circulate around the Main Injector, they oscillate in waves. The height of those waves is determined by the magnets in the Main Injector.

When operators want just a portion of the protons to exit the Main Injector, they change the tune of the injector so that some of the protons will waver enough to be directed out of the ring. To kick out beam in bursts, engineers added carefully measured jolts of energy to the magnets at specific intervals.

Operators hope to continue perfecting the technique before attempting to use it while the Tevatron is running.

"This was proof of a principle," Prieto said. "We proved we could ping the beam out."

-- Kathryn Grim

In the News

Physicists hot for ultracold

From Science News
December 2008

A laser's light tickle tricks molecules into sitting still

Molecules are hot. They zip, spin and vibrate with frenetic motion. They jiggle and twist on the inside and bounce on the outside, imparting structure and physical properties to nearly everything that exists. But by achieving temperatures colder than any in the natural world, physicists can almost stop these speed demons cold.

Like surgeons who slow a beating heart by packing ice around a patient's chest, physicists have recently coaxed molecules into ultracold states in which motion is nearly gone. Researchers are left with intriguing, exquisitely controllable new specimens to poke and prod, enabling experiments that would be impossible with everyday hot molecules that rotate and vibrate at their usual frenzied pace.

[Read more](#)

of what is warmly remembered as "Betz University." Very impressive alumni indeed!

Accelerator Update

Dec. 5-8

- Last week's integrated luminosity was 55.29 inverse picobarns
- Four stores provided ~46.5 hours of luminosity
- Store 6619 aborted, there was no quench
- Store 6625 set new record luminosity: 355.07E30
- TeV sector A3 wet engine repaired

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

Announcements

Have a safe day!

[Science Chicago hosts Mythbusters](#)

[Annual enrollment through Dec. 10](#)

[Annual enrollment carrier meetings Dec. 9](#)

["Atom Smashers" DVD discount](#)

[NALWO - A Russian Style New Year](#)

[FileMaker Pro 8.0 - Dec. 10](#)

[NALWO - Christkindlmarket Chicago, Dec. 13](#)

[Barn Dance Dec. 14](#)

[The University of Chicago Tuition Remission Program deadline Dec. 17](#)

[Weekly time sheets due Dec. 18](#)

[Monthly leave sheets due Dec. 19](#)

[Shop early - Lederman Science Center store open until Dec. 20](#)

[Barn Dance Dec. 21](#)

[Weekly time sheets due Dec. 22](#)

[SciTech winter camps, Dec. 22-23 and 29-30](#)

[Find carpool partners with PACE](#)

[Python Programming - Jan. 6 - 8](#)

[Intermediate / Advanced Python Programming - Jan. 27 - 29](#)

[Submit an announcement](#)

[Additional Activities](#)