Fermilab Today

Thursday, Dec. 2, 2010

Calendar

Have a safe day!

Thursday, Dec. 2
10:30 a.m.
Research Techniques Seminar - Curia II
Speaker: Guido Magazzu, University of California, Santa Barbara
Title: FF-LYNX: Protocol and IP-Cores for Integrated Control and Readout in Future HEP Experiments
2:30 p.m.
Theoretical Physics Seminar - Curia II
Speaker: Pierre Artoisenet, The Ohio State University
Title: Automation of the Matrix Element Reweighting Method
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR THIS WEEK

Friday, Dec. 3
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4 p.m.
Joint Experimental-Theoretical Physics Seminar -One West
Speaker: Eric Christy, Hampton University
Title: Studies of Quark-Hadron Duality at Jefferson Lab

Click here for NALCAL, a weekly calendar with links to additional information.

Upcoming conferences

Campaigns

Feature

Fermilab to hold proton source workshop Dec. 7-8

Image: Proton Source Workshop

To plan for the continued operation of pre-accelerator systems, Fermilab's engineers and physicists must assess their future expectations and the current state of the machines. The Proton Source Task Force will host a workshop on Dec. 7 and 8 to develop a plan for maintaining and improving the Linac and Booster, the first stages of proton acceleration at Fermilab.

"Fermilab and the entire domestic U.S. high-energy physics program depend on these machines for the next decade," said Bob Webber, who is leading the effort to define the Proton Improvement Plan. "This workshop will gather people in one place to describe how each component fits into the big picture, discuss our concerns for future operation and provide foundational information."

Speakers will present status reports and suggestions for maintaining and improving the operational and physics aspects of the accelerators as well as their hardware components. Speakers will devote half of their time to questions and discussion of the topics by attendees.

The workshop will take place at the Users' Center on Dec. 7 and 8 from 8:30 a.m. to 4:30 p.m. each day. For more information and free registration visit the website.

Special Announcement

Result of the Week

Searching for new particles

Since unstable subatomic particles can decay into at least two daughters, we must take these two pieces and combine them to understand the nature of the parent particle. Most pairs of particles are random and unrelated. The ones that are related will have a characteristic property, like the length of this meter stick.

Suppose you were looking for a subatomic particle that decayed in a blink of an eye. How would you find it? The standard way is to search for the daughter particles into which the parent decayed. If you can identify the daughters, you can apply a crucial principle first encountered in high school physics classes, the principle of conservation of energy, to work out the mass of the parent. In a physics context, conservation means to be unchanged, and so the sum of the energy of the daughter particles is equal to the energy of the parent particle.

The problem with such an approach is it is not always clear that two particles share a common parent. It is often true that two particles, selected at random, will share no common parentage. In such a case, if you combined their energy, you would get a random value. Another way to picture this is measuring the combined length of two pieces of broken meter sticks. Most of the time, these two sticks have nothing to do with one another, but occasionally they might be two halves of a broken meter stick. In that case, their combined length is exactly a meter. If you plot the length of all stick pairs, you'd get a random distribution with a 'spike' showing a preference for pairs that have a total length of a meter.

DZero performed a conceptually similar

[Take Five](#)

Weather

Chance of flurries
30°/19°

[Extended Forecast](#)
[Weather at Fermilab](#)

Current Security Status

[Secon Level 3](#)

Wilson Hall Cafe

Thursday, Dec. 2

- Breakfast: Apple sticks
- Southwestern chicken tortilla
- Philly-style cheese steak
- *Garlic herb roasted pork
- *Mardi Gras jambalaya
- *Southwestern turkey wrap
- Assorted sliced pizza
- *Marinated grilled chicken Caesar salads

**carb-restricted alternative*

[Wilson Hall Cafe Menu](#)

Chez Leon

Thursday, Dec. 2 Dinner
- Family-style seating buffet
- Roast suckling pig
- Oven roasted turkey
- Baked sweet potatoes
- Sage & onion stuffing
- Mashed potatoes
- Medley of vegetables
- Assortment of desserts

Wednesday, Dec. 8 Lunch
- Swordfish w/ lemon butter sauce
- Spinach risotto
- Lemon Napoleon

[Chez Leon Menu](#)
Call x3524 to make your reservation.

Archives

C^{2}ST presents "Physics with a Bang!" Dec. 4

Image: [Chicago Council on Science and Technology](#)

The Chicago Council on Science and Technology will present their annual holiday lecture, "Physics with a Bang", and Open House on Saturday, Dec. 4, at the University of Chicago. Students, families, teachers and any curious individuals are invited to attend.

The Open House will include fast and loud demonstrations by University of Chicago professors Heinrich Jaeger and Sidney Nagel and an Ask a Scientist event, where attendees can ask their burning science questions to researchers in astronomy and astrophysics, physics and chemistry. Attendees can also receive a guided tour of Gordon Center for Integrative Sciences and get hands-on experience performing experiments.

The lecture takes place at 11 a.m. and will be repeated at 2 p.m. The Open House will take place from 11 a.m. to 4 p.m. The event is free and open to the public. Pre-registration for the event is closed, but walk-ins are welcome. Space will fill up quickly, so arrive early. It will take place at Kersten Physics Teaching Center at the University of Chicago at 5720 South Ellis Avenue, Chicago. The event is sponsored by the University of Chicago's James Franck Institute, Department of Physics and Materials Research Science & Engineering Center.

[Learn more](#)

Feature

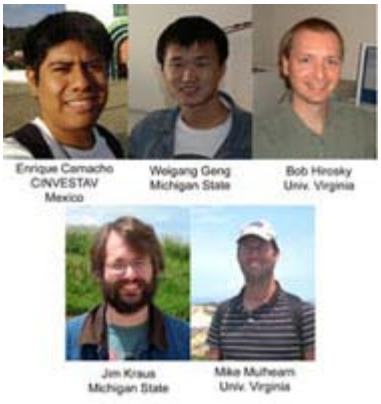
Celebrate Irish Christmas cheer at Fermilab Dec. 11

Long before

[analysis](#), combining pairs of W bosons or a W boson and a Z boson, to look for common parentage. DZero physicists found no evidence that supported a parent particle when using these particular particle combinations as daughters. While the conclusions of this analysis are universally valid, the measurement compared predictions from theories that invoked a hypothetical graviton and a second theory that predicted a new and heavier W boson. It set new and higher limits on their production. This analysis is an update and extension of one featured in an [earlier Result of the Week](#)

- Don Lincoln

These physicists contributed to this analysis.



Collisions occur at the center of the DZero detector about 2 million times per second. Only 100 are recorded to tape. To reduce the data set and record the high-value collisions, a series of electronic triggers are used. These physicists are responsible for the operation of the Level 2 trigger system.

Accelerator Update

Nov. 29 - Dec. 1

- Three stores provided ~42.25 hours of luminosity
- Pbar investigated Pbar Debuncher optical delay issues
- Store 8316 quenched due to instability in a

Info

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

Send comments and suggestions to: today@fnal.gov

Visit the Fermilab home page

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Image:Tomaseenfoley.com

Riverdance, ordinary Irish men and women in hobnailed boots knocked sparks off the flagstone floors with jigs, reels and hornpipes, and the rafters rang with the fiery music of the fiddle, bodhrán, tin whistle and the mesmerizing uilleann pipes.

On Dec. 11, celebrate the holidays as Fermilab's Arts and Lectures series presents acclaimed Irish storyteller Tomáseen Foley's "A Celtic Christmas," a night of music, dancing and storytelling. "A Celtic Christmas" tells the story of a night before Christmas in a farmhouse in Teampall an Ghleanntain in the west of Ireland. The neighbors gather around the fire to grace the long wintry night with the laughter of their stories, the joy of their music and dances they always said they were much too old for. Accompanied by world-championship-level Irish dancers, the performance features Grammy award winning guitarist William Coulter; vocalist and dancer Marianne Knight on button accordion, flute, whistle and bodhrán; dancer Katie Linnane on Irish fiddle; and Brian Bigley on uilleann pipes, whistles, flute and dance.

"A Celtic Christmas" will perform at Ramsey Auditorium at 8 p.m., Saturday, Dec. 11. Tickets are $28 or $14 for ages 18 and under and for graduate students. More information can be found here.

In the News

The moon helps radio astronomers search for neutrinos

From ***Universe Today***, Nov. 30, 2010

Seeking to detect mysterious, ultra-high-energy neutrinos from distant regions of space, a team of astronomers used the Moon as part of an innovative telescope system for the search. Their work gave new insight on the possible origin of the elusive subatomic particles and points the way to opening a new view of the Universe in the future.

transfer line
- CDF, DZero, Tevatron A-E, and Pbar accessed for maintenance work
- Proton source switched from the I^- Source to the H^- Source
- Tevatron suffered small luminosity loss due to antiproton emittances

Read the Current Accelerator Update
Read the Early Bird Report
View the Tevatron Luminosity Charts

Announcements

Latest Announcements

English country dancing - Dec. 5

Is your iPod affecting your hearing? - Dec. 8

Fermilab dancers perform at Museum of Science and Industry - Dec. 4

Toastmasters today

Fermilab blood drive - Dec. 20 & 21

Scrappers club meets Dec. 7

Symposium celebrates 25th anniversary of first collision at Tevatron - Dec. 17

Annual potluck party and skits - Dec. 17

Node registration unavailable Dec. 2

Fermilab Arts Series presents "A Celtic Christmas"

Fermilab Art Gallery - artist reception Dec. 10, painting demo Dec. 15

Winter holiday party special - Dec. 10

Winter holiday tea - Dec. 3

Submit a topic suggestion for Disability Awareness seminar

Wilson Hall super science stocking stuffer sale - Dec. 8-9

Free martial arts class - Dec. 15

PayFlex PowerPoint presentation

Fermilab Today holiday schedule

The team used special-purpose electronic equipment brought to the National Science Foundation's Very Large Array (VLA) radio telescope, and took advantage of new, more-sensitive radio receivers installed as part of the Expanded VLA (EVLA) project. Prior to their observations, they tested their system by flying a small, specialized transmitter over the VLA in a helium balloon.

In 200 hours of observations, Ted Jaeger of the University of Iowa and the Naval Research Laboratory, and Robert Mutel and Kenneth Gayley of the University of Iowa did not detect any of the ultra-high-energy neutrinos they sought. This lack of detection placed a new limit on the amount of such particles arriving from space, and cast doubt on some theoretical models for how those neutrinos are produced.

Read more

Fermilab Arts and Lecture Series box office winter schedule

Users Office holiday hours

Tango at Fermilab through today

Pedestrian safety awareness for families

Pedestrian safety at crosswalks

Accelerate to a Healthy Lifestyle program through Dec. 31

Submit an announcement