

## Calendar

### Thursday, June 15

**1:30 p.m.** Experimental Astrophysics Seminar - Dark Side (WH-6W) (NOTE DATE, TIME, LOCATION) Speaker: C. Stubbs, Harvard University  
Title: Calibration of LSST and Pan-STARRS with a Tunable Laser and a Calibrated Photodiode

**2:30 p.m.** Theoretical Physics Seminar - Curia II

Speaker: C. Aubin, Columbia University  
Title: Muon  $g - 2$ : Reclaiming the Theoretical Calculation of the Leading QCD Contribution

**3:30 p.m.** DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over

**4:00 p.m.** Accelerator Physics and Technology Seminar - Curia II  
Speaker: V. Lebedev, Fermilab

Title: Coherent Instabilities at the FNAL Booster

### Friday, June 16

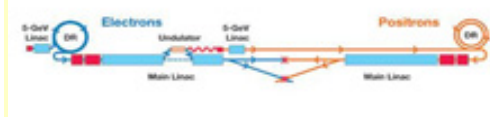
**3:30 p.m.** DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over

**4:00 p.m.** Joint Experimental Theoretical Physics Seminar - Curia II (note location)  
Speaker: C. Hays, University of Oxford  
Title: Recent Electroweak Results at CDF

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

## Weather

## Kephart shares his views: Siting the ILC at Fermilab



This schematic depicts the ILC according to initial expectations. A Fermilab-area site may require some reorganization of this basic diagram. (Click on image for larger version.)

As the international particle physics community develops a plan for the International Linear Collider, one question is at the forefront of everyone's mind: where will it be built? Bob Kephart, Fermilab's ILC Program director, presented his views at last Wednesday's lecture on the efforts and preparations necessary for the ILC to be built in Illinois.

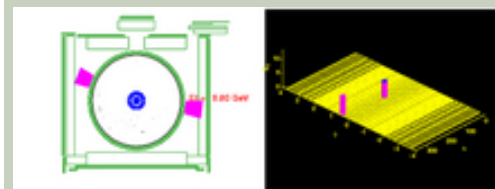
The ILC will be a huge financial investment for all partners, but especially for the host nation. Kephart feels that promoting a local site will require demonstrating the economic advantages to building the ILC in Illinois.

"Building the US portion of the ILC could do a lot to bolster American technical industries," said Kephart, "and we need to make that case." Once the US determines its role, producing the many advanced components for the ILC would yield economic benefits for American industry as well as scientific returns on investment.

About 30 kilometers long with an expected upgrade to 50 kilometers, the ILC would stretch beyond the boundaries of Fermilab's 6800-acre site, if the US is

## Fermilab Result of the Week

### Avoiding a breakup



Two views of a CDF event display showing a data event where two photons were produced from a glancing proton and antiproton. These events stick out because no other particles are created in the reaction.

There is evidence for a new type of particle reaction at CDF. Most reactions at the Tevatron occur when a colliding proton and antiproton break apart into quarks in order to produce new particles. In this reaction the proton and antiproton actually remain intact, glancing off each other in a process which creates two high energy photons and nothing else. Only three events have been detected, but the background is predicted to be at most 0.2 events. These events are easy to identify because only two particles are created, compared to the huge number of particles in a typical reaction.

In the process of validating their measurement, CDF physicists were able to observe another never-before-seen physics process at a hadron collider. Sixteen events were found which are consistent with the very accurate prediction that photons traveling with the proton and antiproton will interact to produce only an electron-positron pair without breaking up the proton and antiproton. Since the backgrounds to this process are similar to the two-photon reaction, this finding provides added confidence in the two-photon analysis.

Partly Cloudy **83°/65°**[Extended Forecast](#)[Weather at Fermilab](#)**Current Security Status**[Secon Level 3](#)**Wilson Hall Cafe****Thursday, June 15**

- Southwestern Chicken Tortilla
- Philly Style Cheese Steak
- Chicken Pot Pie
- Tomato Basil Chicken Parmesan
- Southwestern Turkey Wrap
- 4 Cheese Pizza
- Marinated Grilled Chicken Caesar
- Salads

[Wilson Hall Cafe Menu](#)**Chez Leon****Thursday, June 15****Dinner**

- Mediterranean Orzo Salad with Feta
- Fig and Pork Brochettes
- Parsleyed Rice w/Lemon Zest
- Buttered French Beans
- Pear Almond Turnovers

**Wednesday, June 21****Lunch**

- Grilled Shrimp and Portobello
- Mushroom Salad
- Plum Tart

[Chez Leon Menu](#)

Call x4598 to make your reservation.

**Search****Search the Fermilab Today Archive**

chosen as host. In November 2005, the Fermilab Community Task Force began discussing the impacts of a possible ILC on the surrounding communities. Kephart also described a possible scope for the project on the lab site.

"If we are going to build the ILC in Northern Illinois, it would make sense to center the device on the Fermilab campus and centralize helium storage, compressors and other infrastructure," said Kephart. One proposal calls for Fermilab's large campus to house the ILC's detectors, damping rings and storage facilities, requiring a reorganization of the initial design scheme in the international Reference Design Report.

Kephart concluded by outlining what he saw as the next steps: working extensively with international partners, performing large-scale technology demonstrations to illustrate US and international capabilities, and developing R&D and construction plans with realistic milestones and cost estimates. "The timeline for this is much shorter than most people seem to think," said Kephart, "We need to have the funding in place for these preparations in roughly the next year and a half." Kephart reiterated that no matter where the ILC is built, all partners must recognize that it is a long-term commitment.

--Ben Berger

**Photo of the Day**

The search for this unusual two-photon process began in 2001, when CDF physicists explored the possibility that the Higgs boson could be produced by a similar process. Theoretically the Higgs field fills the vacuum, and it should be possible to "excite the vacuum" into a real Higgs particle in a glancing collision of a proton and antiproton. Theorists had tried to estimate the probability of this happening, but there was a very wide range in their predictions. The two-photon process measured at CDF is produced the same way as the Higgs and becomes a standard candle to predict the probability of its production.

A theory group from Durham University calculates that there should be only about one such clean two-photon event in a trillion Tevatron collisions. The three events found by CDF agree with this prediction. This means that the similar process by which the elusive Higgs boson can be produced must also happen, and could be measured at the LHC, providing measurements of the Higgs boson's mass, spin and other properties.



Clockwise from left: This analysis was carried out by Andrew Hamilton for his Ph. D. thesis at U. Alberta, together with his supervisor Jim Pinfeld (U. Alberta), Mike Albrow (Fermilab), and Beate Heinemann from Liverpool (not pictured).

## Info

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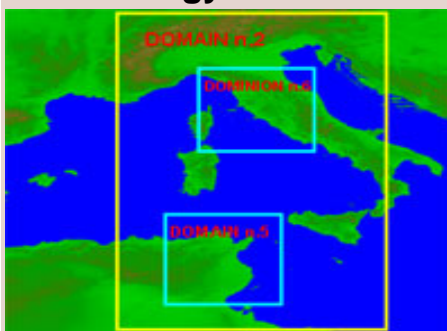
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FES-Site Services' Dave Shemanske took this picture of an Eastern Tiger Swallowtail in the bushes at Site 37 a few days ago. (Click image to see where Shemanske found the butterfly.)

### Science Grid This Week

#### Archaeology 2.0



A century ago, Guiliano Pelfer's quest to explain the rise of the first European cities might have seen him leading an excavation in the Italian countryside. Today, his search is likely to lead him to a much less glamorous location—the server room down the hall.

Goodbye, Indiana Jones. Hello, IBM.

In addition to digging up artifacts and poring over ancient texts, today's archaeologists may draw on knowledge from dozens of scientific fields to create complex computer models of ancient societies. Pelfer and colleagues at the University of Florence and Italy's National Institute of Nuclear Physics in Catania are developing a grid application for the EGEE infrastructure called the ArchaeoGRID, which will bring all that

### Result of the Week Archive

#### Accelerator Update

##### June 13 -14

- Two stores provided 20 hours and 35 minutes of luminosity
- TeV separator's wrong polarity distorts store luminosity
- D0 powers down solenoid for calibration
- CDF's silicon detector off

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

#### Announcements

##### Say Goodbye to Dr Foxen

Today and tomorrow, from 9 a.m. to 3 p.m., there will be an open house in the medical office for people who wish to say [goodbye](#) to Dr. John Foxen.

##### Volunteer cleanup today

Today is our regular scheduled Volunteer Cleanup for June. The target areas are: West Wilson road starting at B- road going east to North Eola road including Casey's & Andy's Ponds. As always, we will have a bus to transport volunteers which will leave at 11:45 sharp at Wilson Hall Ground Floor-East side. Lunch will be at the Kuhn Barn picnic area.

##### DASTOW set for June 22

Save the date: Thursday, June 22 will be the annual Daughters and Sons to Work Day at Fermilab. [DASTOW'06](#) will offer many of the always-popular events, such as the Mr. Freeze Cryo Show, along with some new additions.

##### Blood drive sign-up

The next Fermilab blood drive is planned for June 27 and 28, with two more drives

knowledge together and link it with advanced computing resources.

[Read More](#)

#### In the News

### ***New York Times,*** **June 14, 2006:**

#### **Graphic: Trolling for Cosmic Particles**

An international group of scientists is building a new kind of telescope at the bottom of the Mediterranean Sea near the east coast of France. To be completed in 2007, it will detect light generated by neutrinos, the high-energy cosmic particles that pass directly through the Earth.

[See graphic](#)

later in the year. You can get more information and sign up [here](#).

#### **Housing Assignments for Fall 2006 and Spring 2007**

The Fermilab Housing Office is now taking requests for houses, apartments, and dormitory rooms for Fall 2006 and Spring 2007. Since there will be a large influx of experimenters, and requests are anticipated to be in excess of our available facilities, you are urged to submit your request for reservations to the Housing Office by Monday, July 3, 2006. Requests can be made for any period and need not commence on any particular date. Individual housing requests can be made by using our [online housing request form](#), but requests for multiple housing units are best handled by direct email to [housing@fnal.gov](mailto:housing@fnal.gov). For further information, please contact the Housing Office at: (630) 840-3777 or email [housing@fnal.gov](mailto:housing@fnal.gov).

#### [Upcoming Activities](#)