

## Calendar

**Thursday, Jan. 29**  
THERE WILL BE NO PHYSICS AND DETECTOR SEMINAR THIS WEEK  
**2:30 p.m.**

[Computing Techniques Seminar](#) - FCC1

Speaker: Kate Keahey, University of Chicago / Argonne National Laboratory  
Title: Cloud Computing with Nimbus

THERE WILL BE NO THEORETICAL PHYSICS SEMINAR THIS WEEK  
**3:30 p.m.**

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

**Friday, Jan. 30**

**3:30 p.m.**  
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over  
**4:00 p.m.**

[Joint Experimental-Theoretical Physics Seminar](#) - One West

Speaker: Michel Davier, LAL, Orsay

Title: BaBar Results on  $e^+ e^- \rightarrow \pi^+ \pi^-$  and the Muon  $g-2$  Prediction

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

## Weather

 Few snow showers  
**28°/8°**

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

## Current Security Status

[Secou Level 3](#)

## Wilson Hall Cafe

## Feature

### Cahill has front-row seat to growth in lab, technology



KC Cahill helped build the Tevatron accelerator magnets similar to these displayed on the 15th floor of Wilson Hall.

When Cutchlow Cahill was a child, he used to accompany his father on electrician jobs, so when Fermilab put out a call for electricians to construct a chain of accelerators, he jumped at the opportunity. That was in 1969.

Cahill, who celebrates 40 years working at Fermilab this week, is the only remaining employee from the Training and Development program that recruited African-Americans from Chicago to work as mechanical and electronic technicians.

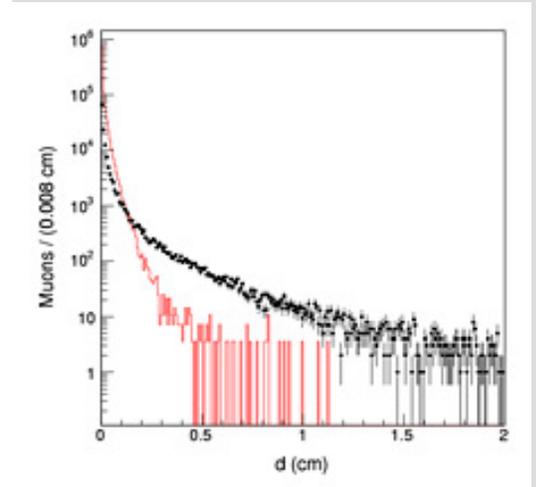
He has had a hand in nearly every growth spurt of the laboratory. He originally helped build the beam position detectors, radio frequency amplifiers and RF cavities. Today he works in the cryogenics control room, monitoring the ethane gas, liquid nitrogen and liquid helium levels. Tour the CDF building with Cahill, known as KC, and he'll show you where he takes inventory of helium and nitrogen bottles, sends out ethane gas to test it for impurities and silences alarms on his computer screen for cryogenic monitoring and operating equipment.

Cahill considers himself fortunate to have contributed to Fermilab's progress. "Since I've been here, I've witnessed the goal of gaining beam intensity," he said. "I get a good feeling when I see pieces of equipment that I helped make."

Helping is something that comes naturally to KC.

## Fermilab Result of the Week

### Spooky Multi-Muon Events Puzzle Physicists



The impact parameter  $d$  is the closest approach of a particle to the proton anti-proton collision. Ghost events (shown in black) tend to have a higher impact parameter than the distribution predicted by QCD (shown in red).

CDF recently submitted a [paper](#) that helped to explain several long standing puzzles associated with the production of bottom quarks at the Tevatron. And in addition to solving these problems, researchers observed something perhaps even more interesting, a new, bigger puzzle.

The work begins with a recent CDF measurement of the rate at which bottom and antibottom quarks are produced at the Tevatron. The analysis uses muons produced in the decay of bottom quarks to identify the signal events. Although previous measurements showed deviations from the predicted production rates, this newer, more precise measurement was found to agree well with the theoretical expectation. Interestingly, CDF found that the previous measurements could be explained by a source of background events that had not been previously identified. Earlier analyses were unable to separate this source of background from the bottom-quark signal, causing researchers to miscount the number of bottom quarks produced.

The source of these background events, whimsically called "ghost events", is the new puzzle. The properties of this background are quite different than background sources that had been previously identified. In particular,

## Thursday, Jan. 29

- Southwestern chicken tortilla
- Philly style cheese steak
- \*Garlic herb roasted pork
- Smart cuisine: mardi gras jambalaya
- \*Southwestern turkey wrap
- Assorted sliced pizza
- \*Marinated grilled chicken Caesar salads

\*Carb restricted alternative

[Wilson Hall Cafe menu](#)

## Chez Leon

## Thursday, Jan. 29

### Dinner

- Corn chowder
- Halibut w/ spicy red pepper sauce
- Island rice
- Brussels sprouts
- Lemon Napoleon

## Wednesday, Feb. 4

### Lunch

- Grilled pork loin with braised red cabbage and wild mushrooms
- Baked stuffed apples

[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/](http://www.fnal.gov/today/)

Send comments and

suggestions to:

[today@fnal.gov](mailto:today@fnal.gov)

"You can call him at any time in the night. He's one of those people who has a hard time saying 'no,'" said PPD technical supervisor Curtis Danner, who has known and worked on and off with Cahill since 1970. Whether it's fixing friends' or co-workers' cars in the middle of the night, or repairing an air pressure regulator at CDF, Cahill has helped many people at Fermilab during his 40-year tenure.

"I know how to do a lot of things," he said.

In the rare moments when KC took a break from work, he played basketball and was once a member of Fermilab's now defunct team "the Protons."

--Kristine Crane

## In the News

### CERN: the view from inside

From *physicsworld.com*, Jan. 27, 2009

The switch-on of the Large Hadron Collider (LHC) at CERN on 10 September 2008 was watched by an estimated 1bn people. As CERN starts 2009 under new management and facing a major repair job, Matthew Chalmers catches up with the man who took the LHC to the world: CERN's head of communications, James Gillies.

[Read more](#)

## In the News

### Rigorous review ahead for Sanford Lab project

From *Rapid City Journal*, Jan. 25, 2009

The team of scientists planning to build facilities for a Deep Underground Science and Engineering Laboratory in Lead is preparing for a 2-1/2-day marathon of meetings with a national review panel starting Wednesday.

The South Dakota Science and Technology Authority operates the lab at the former Homestake gold mine. The state is pumping out water that filled the mine since it closed and expects to open the Sanford Underground Science Laboratory at Homestake on the 4,850-foot-level later this year.

The National Science Foundation in 2007 designated the former mine for its larger deep-lab project, extending to 8,000 feet. NSF has assembled a 25-person committee from a

the ghost events contain more muons than are expected from known background sources.

The paper is just the beginning of the story. Ghost-busters have been called in and are working to refine our understanding of these events to see whether they provide evidence for new physics beyond the Standard Model or whether these events exploited some lack of understanding of the detector. The Tevatron may still have some surprises in store for us, and only time will tell whether we should believe in ghosts.



The following physicists played a leading role in this analysis: From left to right: Min Jeong Kim, Fotis Ptohos, Fabio Happacher. Not shown: Paolo Giromini.

## Accelerator Update

### Jan. 26-28

- Three stores provided ~38.25 hours of luminosity
- Tevatron Electron Lens #2 trips
- Two Recycler damper trips cause the loss of ~250E10 antiprotons

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

## Announcements

### Latest Announcements

[C2ST presents Bioterrorism, Pandemics, & Vaccines Jan. 27](#)

[Second Annual Mentor Round Up](#)

[English Country Dancing, Feb. 1](#)

[Have a safe day!](#)

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

[NALWO Brown Bag Lunch Jan. 27 - "Women as Classic: From BC to AD"](#)

[ACU bill pay demonstration Jan. 29](#)

[Recreation Office Meeting Jan. 30](#)

variety of backgrounds to evaluate the progress toward opening the DUSEL.

State science authority executive director Ron Wheeler said the review is a big issue, especially for future funding. Approximately 100 people will be there representing the NSF and the Department of Energy.

"It's become apparent the DUSEL group will need \$80 million for its final review in two years," he said.

The review will be held at the Lawrence-Berkeley Laboratory next to the University of California-Berkeley campus. Kevin Lesko, a physicist at the university, leads the deep-lab planning team.

[Read more](#)

[English Country Dancing, Feb. 1](#)

[Outlook 2007 New Features classes scheduled Feb. 3 and 26](#)

[Conflict Management & Negotiation Skills class offered Feb.3](#)

[PowerPoint 2007: New Features class offered Feb. 3](#)

[Facilitating Meetings That Work class offered Feb. 4](#)

[Word 2007: New Features class offered Feb. 4](#)

[Excel 2007: New Features class offered Feb. 4](#)

[Interpersonal Communication Skills class being offered Feb. 5](#)

[Bulgarian Dance Workshop, Feb. 12](#)

[Changes to the Family and Medical Leave Act](#)

[Changes in U.S. admission procedure](#)

[Additional Activities](#)

[Submit an announcement](#)