

Layoff Information

New information on Fermilab layoffs, including an [up-to-date Q&A section](#), appears on the [layoff Web pages](#).

Furlough Information

Information on the furloughs at Fermilab, which stopped May 31, 2008, is available on the [furlough Web pages](#).

Calendar

Thursday, June 12

THERE WILL BE NO PHYSICS AND DETECTOR SEMINAR THIS WEEK
2:30 p.m.

[Theoretical Physics Seminar](#) - WH-3NW

Speaker: J. Zurita, Universidad de Buenos Aires

Title: Soft-Gluon Resummation for Pseudoscalar Higgs Boson Production at Hadron Colliders
3:30 p.m.

DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4 p.m.

[Accelerator Physics and Technology Seminar](#) - One West

Speaker: V. Kamerzhiev, Fermilab

Title: Beam-Beam Compensation and Related Beam Diagnostics at the Tevatron

Friday, June 13

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

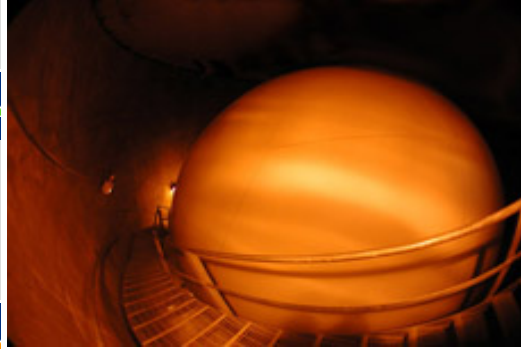
[Joint Experimental-Theoretical Physics Seminar](#) - One West

Speaker: H. Ray, University of Florida

Title: Testing the Compatibility of MiniBooNE and Other High Dm^2 Oscillation Searches

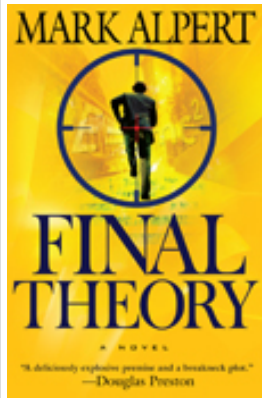
Feature

"Final Theory" part science fiction, part physics lesson



"Final Theory," a new book by *Scientific American* writer Mark Alpert, spins a science fiction tale, while giving brief physics lessons along the way. As part of his research, Alpert toured Fermilab experiments, including MiniBooNE, pictured here.

In Mark Alpert's book "Final Theory," released June 3, Fermilab provides the setting for a climactic battle between good and evil over finding Albert Einstein's Theory of Everything.



Scientific American writer Mark Alpert's new book, "Final Theory," involves Fermilab and high-energy physics.

At the intensity frontier, Alpert toured the BooNE/MiniBooNE experiment. Neutrinos and their antiparticles could be the key to a universe made entirely of matter.

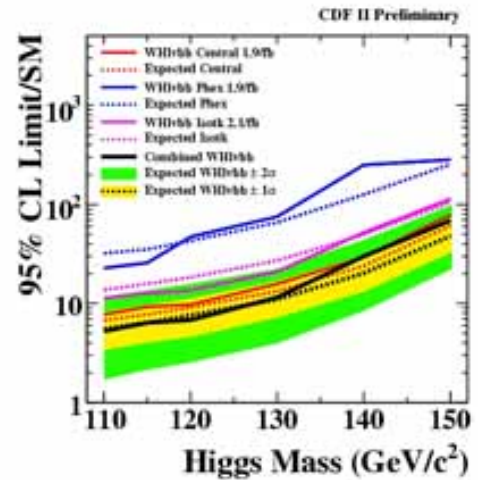
At the energy frontier, the Tevatron and its detectors produce and analyze sprays of millions of particles each second from collisions at nearly the speed of light. The particles could hold the key to extra dimensions and new never-before-seen constituents of matter.

The idea for the novel sprang from research Alpert was doing on Einstein for *Scientific American*, and from a trip to Fermilab to research a story on neutrinos. Alpert was wowed by the different approaches to physics beyond the Standard Model, the current recipe for matter and the forces of nature.

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Fermilab Result of the Week

Hungry for the Higgs




The diagram shows the limit of Higgs production (at 95 percent confidence level) for different potential Higgs masses. The blue, pink and red lines show the limits in the three separate lepton channels. In earlier versions of the analysis, the only channel was the central leptons, shown in red. The two new channels are forward electrons, shown in blue, and isolated tracks, shown in pink. The black line shows the limit for combining all lepton channels. The new lepton categories provide a combined 20 percent improvement in the limit.

Finding the Higgs boson is a top priority at the Tevatron right now. Many different groups are working day and night to try to catch a glimpse of the elusive particle. One group of CDF physicists has recently added previously unused collision data to its search. Including these extra events significantly increased the chance of finding Higgs bosons.

To find the Higgs, the CDF team looks for collisions that produce a Higgs boson with a W boson. When the W boson decays to a lepton (electron or muon) and a neutrino, it provides a distinct signature that helps distinguish Higgs events from background events. By using new triggers and techniques, the CDF team was able to use leptons, from the W decays, that are not detected by the central muon chambers. These events previously went unused, as they are more challenging to analyze. Like potato-chips crumbs, such events are harder to collect than the larger chips, but they taste just as good!

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

Weather

 **Chance of Thunderstorms**
88°/67°

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

Current Security Status

[Secon Level 3](#)

Wilson Hall Cafe

Thursday, June 12

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

**Carb restricted alternative*

[Wilson Hall Cafe menu](#)

Chez Leon

Thursday, June 12

Dinner
- Closed

Wednesday, June 18

- Lunch**
- Assortment of quiches
 - Salad of field greens with raspberry vinaigrette
 - Apple walnut cake w/ cream Chantilly

[Chez Leon menu](#)

Call x4598 to make your reservation.

Archives

"In the back of my mind, I was thinking this is great thriller material. It is very James Bond. There is so much going on here," Alpert said. "I really had so much fun on the tour and the excitement that is going on there. I tried to inject that into the book."

"I was just so impressed with the Tevatron," said Alpert in choosing Fermilab as the setting. "Until the LHC comes on, this is the most powerful (accelerator) in the world, and there may still be some amazing physics to come out of here in the next few years."

The Tevatron control room, CDF collision hall, accelerator tunnels, Wilson Hall and MiniBooNE's 40-foot-diameter detector create, unique settings for the book.

"I tried really hard to make it accurate, but for narrative reasons I changed little stuff," he said.

--Tona Kunz

Read the full article on the [symmetry breaking blog](#).

Photo of the Day

At the end of the rainbow



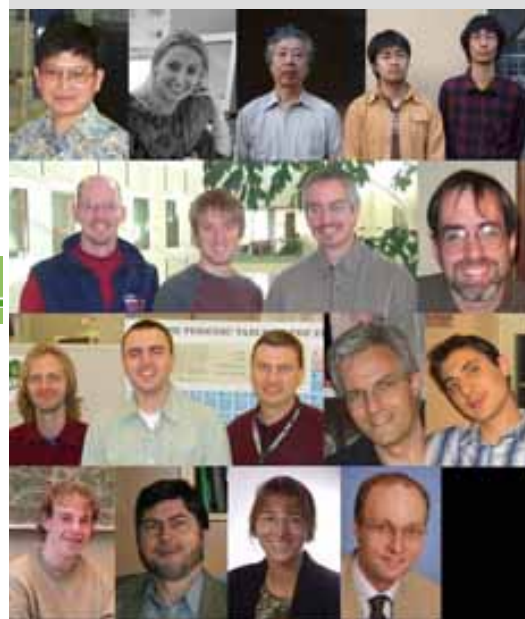
CMS collaborator Mark Ruschman submitted this photo of two rainbows ending at CERN's Point 5 (CMS). "There is something far more valuable than a mere pot of gold at the end of the rainbows!" Ruschman said.

In the News

Since the proton-antiproton collisions created by the Tevatron have a tiny chance of producing a Higgs boson, scientists want to record and analyze as many of these rare events as possible. The improvements made by the CDF team increase the potential yield for Higgs events with W bosons by 35 percent.

Although the excluded cross section is still a factor of six away from the expected Standard Model Higgs cross section, this new technique improves the sensitivity of this analysis by 20 percent. As Fermilab continues to take data, improvements like these, spread over several analyses at both CDF and DZero, will be key to eventually solving the mystery of whether the Higgs boson really exists.

[Learn more](#)



From top left: Wei-Ming Yao, LBNL; Anyes Taffard, UC Irvine; Shinhong Kim, Tatsuya Masubuchi and Yoshikazu Nagai, University of Tsukuba; Richard Hughes, Jason Slaunwhite, Brian Winer, Kevin Lannon, Ohio State University; Nils Krumnack, Martin Frank and Jay Dittmann, Baylor University; Andreas Warburton and Adrian Buzatu, McGill University; Thomas Peiffer, Thomas Muller, Jeannine Wagner-Kuhr and Wolfgang Wagner, University of Karlsruhe.

Result of the Week Archive

Accelerator Update

[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

Physicists in Congress calculate their influence

From *New York Times*, June 10, 2008

According to the Congressional Research Service, there are only about 30 scientists among the 535 senators and representatives in the 110th Congress, and that is counting the psychologist, the psychiatrist, a dozen other M. D.'s, three nurses, an engineer, two veterinarians, a pharmacist and an optometrist.

But physics is on a roll.

"Go back 15 years, and there weren't any physicists," said Vernon J. Ehlers, a Republican who taught the subject at Calvin College in Grand Rapids, Mich., until he was elected to Congress in 1993.

His was a lone voice until 1998, when Rush Holt, assistant director of the Princeton Plasma Physics laboratory, won election from New Jersey as a Democrat. And today there are three, adding Bill Foster, a physicist at Fermilab and another Democrat, who won a special election in March in Illinois.

"If we continue to reproduce in this manner," Mr. Foster began, and Mr. Ehlers finished the thought, "the entire Congress would consist of physicists!"

[Read more](#)

In the News

Batavia laboratory contributes key component of NASA telescope

From *Chicago Tribune*, June 12, 2008

Box zeros in on gamma rays

Fermilab has sought for years to penetrate the secrets of the universe, exploring mysteries of the physics that led to atoms, stars and galaxies.

But on Wednesday the earthbound laboratory in Batavia found its handiwork floating in space for what officials believe is the first time. The lab contributed a key component of National Aeronautics and Space Administration's Gamma-ray Large Area Space Telescope (GLAST), which was launched into orbit by a Delta II rocket from Cape Canaveral, Fla.

The GLAST—now orbiting 350 miles above

June 9-11

- Three stores provided ~35 hours and 23 minutes of luminosity
- FESS cleans MI pond water strainers
- Pbar Debuncher kicker problems
- Pbar Target stops rotating: 8-10 hours access begins Thursday morning

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

Announcements

[Have a safe day!](#)

NALWO sponsors wildlife talk

Fermilab's women's organization NALWO will sponsor "Wildlife on the Prairie," a talk by lead groundskeeper Jim Kalina at 10 a.m. on Thursday, June 12. Kalina will share stories about coyotes, deer, American bison and other wildlife that have made their homes here at Fermilab. The informal talk will take place near the picnic tables at Kuhn Barn or inside the barn if it rains. Anyone can attend. Please show photo ID to enter the laboratory.

International Folk Dance Thursday

International Folk Dancing will move to Ramsey Auditorium for the summer beginning Thursday, June 10. Dancing begins at 7:30 p.m. with teaching and children's dances earlier in the evening and request dancing later on. For more information, call (630) 584-0825 or (630) 840-8194 or [e-mail](#).

Special discount on SciTech summer camps

The SciTech hands-on Children's Museum in Aurora offers all Fermilab employees discounts on its Science Adventure summer camps, honoring the long-standing relationship between the two organizations. The week-long camps begin on June 23 and run from 9 a.m. to 3 p.m. with before and after care available from 8 a.m. to 5 p.m. Fermilab employees only pay from \$174 to \$199 and the before and after care is free. Visit the [SciTech Web site](#) to register. (Do not use the Web site to sign up for before and after care. SciTech will call you to confirm whether you want this service.) To receive your discount enter the code FERMI2008 on checkout.

[Additional Activities](#)

Earth, circling the planet every 90 minutes—is a powerful space observatory that will study the most extreme environments in the universe, including pulsars and supermassive black holes that fire jets of material at nearly light speed, scientists say.

[Read more](#)