

Calendar

Thursday, August 18

3:30 p.m. Director's Coffee Break -
2nd Flr X-Over

4:00 p.m. Theoretical Physics Seminar -
Curia II

Speaker: J. Kersten, DESY
Title: Running Neutrino Masses and
Mixings in See-Saw Scenarios

Note: There will be no Accelerator
Physics and Technology Seminar today

Friday, August 19

3:30 p.m. Director's Coffee Break -
2nd Flr X-Over

4:00 p.m. Joint Experimental Theoretical
Physics Seminar - 1 West

Speaker: C. Howcroft, California Institute
of Technology

Title: Charge Separated Atmospheric
Neutrinos at the MINOS Far Detector

Weather



Chance Thunderstorms **85°/70°**

[Extended Forecast](#)

[Weather at Fermilab](#)

Current Security Status

[Secou Level 3](#)

Wilson Hall Cafe

Teachers Join Fermilab's Forces to Spread Science



High school teacher John Eggebrecht (left) works with collaborators last summer. Eggebrecht is one of several teachers to return to Fermilab this summer to continue conducting research. (Click on image for larger version.)

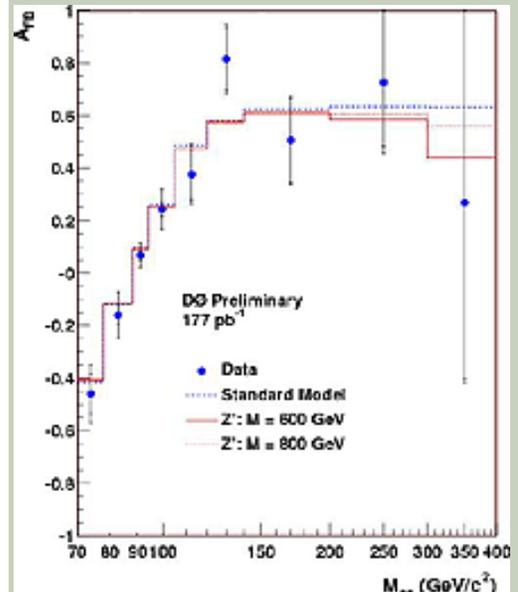
Each summer, eight to twelve science and mathematics teachers converge on Fermilab to learn what it means to conduct experimental research. For three months, these Teacher Research Associates become students again, increasing their awareness and understanding of current science and technology.

"Teachers from around the nation come to Fermilab to be reinvigorated about science and take this excitement back to their students," said Ron Ray, director of the Teachers Research Associates Program.

Each teacher is assigned to a scientist or engineer involved in a research project. In past years, teachers worked on many different experiments including Main Injector Particle Production and CDF upgrades, doing everything from testing

Fermilab Result of the Week

Could Asymmetry Provide Hints of A New Particle?



Measured forward-backward asymmetry as a function of the e^+e^- invariant mass. The data points show good agreement with the SM predictions. Examples of expected deviation from the SM prediction assuming existence of a hypothetical new particle Z' with a mass of 600 (800) GeV are also shown. (Click on image for larger version.)

The Standard Model (SM) has been very successful in describing the elementary particles and the interactions among them. In particular, experiments have confirmed that forces between the Z boson, photon, quarks and leptons are precisely prescribed by the so-called gauge symmetry of the SM.

At the Tevatron, Z bosons and photons are produced in quark anti-quark annihilations and can subsequently decay into electron-positron pairs. When an electron travels in the hemisphere defined by the direction of the incoming quark, the event is called forward; otherwise it is called backward. The measure of asymmetry, A_{FB} , is defined as the ratio of

Thursday, August 18

Sante Fe Black Bean Soup

Sloppy Joe \$4.85

Stuffed Peppers \$3.75

Sauteed Liver & Onions \$3.75

Baked Ham & Swiss on Ciabatta Roll

\$4.75

California Pizza \$3.50

Crispy Fried Chicken Ranch Salad \$4.85

The Wilson Hall Cafe now accepts Visa, Master Card, Discover and American Express at Cash Register #1.

[Wilson Hall Cafe Menu](#)

Chez Leon

Thursday, August 18

Dinner

Tomatoes & Mozzarella Salad

Sea Bass w/Lemon Shallot Butter

Sautéed Corn, Peppers, & Bacon

Peach Cobbler w/Cream Chantilly

Wednesday, August 24

Lunch

Curried Chicken & Pineapple Salad

Raspberry Sherbet w/Raspberry Sauce

[Chez Leon Menu](#)

Call x4512 to make your reservation.

Search

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Info

polymers to evaluating phototubes to developing software. More than 250 teachers have held research positions since the program began in 1983, and each teacher was supported by a mentor.

"Those who volunteer to become mentors do something that's bigger than themselves. They help to create better science teachers and better science students, impacting the entire community," said Ray. "Mentors make the program work. Without mentors, there is no program."

Thomas Las, a teacher at Minooka Junior High School in Minooka, Illinois, says that his mentor and the Fermilab program as a whole have changed his attitude about teaching science.

"If you're not experienced in science, you tend to be afraid of it," said Las. "Before I came to Fermilab, even though I majored in science, I would still only do the 'cookbook' experiments with the students. Now I'm confident enough to try new experiments in the classroom."

Las, who has worked at Fermilab for several summers in a row, said that his students seem to have picked up on his interest. "I constantly talk to the kids about Fermilab, and they seem very interested in what's going on here," he said.

Ray hopes that this is the case, and says that the value of the program is long term. "The real benefits won't be seen for a decade or so, when today's students become tomorrow's scientists," said Ray. —Kelen Tuttle

the number of forward events minus the number of backward events, all divided by the total number of events. The SM predicts that the asymmetry depends on the invariant mass of the electron-positron pair (Mee).

DZero physicists have analyzed events with electron-positron pairs to study Afb. Special emphasis has been put on the region of high mass, which is accessible only at the Tevatron—the world's highest energy accelerator. The asymmetry in this region is expected to be large and almost independent of the mass. A deviation from the predicted value of about 0.6 would indicate existence of an unknown particle interfering with the Z boson and photon. The current DZero results, based on data set of 172 pb⁻¹, indicate good agreement with the SM predictions up to the mass of 350 GeV. More data are being analyzed that will allow a more precise determination of the forward-backward asymmetry and thus further scrutiny of the Standard Model.



Raymond Gelhaus (left) has recently defended his thesis on Afb analysis at UC Riverside. He has performed the study together with his advisor, professor John Ellison of UC Riverside (center) and Iashvili, a postdoc at UC Riverside (right).

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Science Grid This Week

Grids Help Search for Gravitational Waves

Albert Einstein predicted the existence of gravitational waves in 1916, and for the past three decades a succession of experiments has attempted to directly detect the waves with no success. Now using the Laser Interferometer Gravitational Wave Observatory and grid computing, 400 scientists and engineers hope to finally detect them.

[Read More](#)

Accelerator Update

August 15 - August 17

- During this 48 hour period Operations established one store that combined with an existing store provided the experiments with 22 hours and 40 minutes of luminosity
- Lithium lens repaired
- TeV quench
- F sector vacuum problem

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

In the News

From Australia's Radio National program *PM*, August 15, 2005

Professor Lisa Randall Talks of String Theory

By Mark Colvin

A hundred years ago, in 1905, Albert Einstein released a series of scientific papers continuing some of his greatest work, including the Special Theory of Relativity.

...

Is there an equivalent today? Some



An important component of any analysis is understanding and documenting the detector. Dzero has recently submitted for publication a 142-page paper (Fermilab-Pub-05/341-E) that describes in detail the upgraded detector used in this and all of its other measurements in "Run II" of the Tevatron. Susan Blessing (Florida State University) and Dmitri Denisov (Fermilab) were the chief editors of this paper.

[Result of the Week Archive](#)

Announcements

ILC Newsletter Launches

ILC NewsLine, the International Linear Collider Global Design Effort's newsletter, releases its inaugural issue today. Sign up for the newsletter at LinearCollider.org.

Building Manager Notice

In an effort to enhance the overall dependability and performance of Wilson Hall elevators, the building manager has scheduled extensive maintenance and repairs affecting all four cars. Beginning today, one car at a time will be taken out of service for four to five days until completion of the project.

Third Thursday Lunchtime Cleanup

There will be a Third Thursday Lunchtime Cleanup today from 11:45 a.m. to 1:30 p.m. Meet at the east ground floor entrance of Wilson Hall for transportation to the cleanup site. Cleanup gear will be provided. Hot dogs and refreshments will be served.

[More Information](#)

Wisconsin Dells Coupon Book Sale

believe there is and it's something called string theory. It argues that there many extra dimensions that we can't see or measure, they may be curled up and unobservably small, or unfurled and vast, extending forever.

[Read More](#)

The Wisconsin Dells Coupon Book contains over \$6,000 in 2-for-1 and 50% off values from over 100 Wisconsin Dells merchants. These are rare and unique coupons that you won't find on any street corner or brochure rack. The book sells for \$20 retail but the Recreation Office is selling these books for \$15.00 each. The coupons are good until April 30, 2006. More information or an order form can be found at the [Recreation Website](#).

[Upcoming Activities](#)