

Calendar

[Have a safe day!](#)

Wednesday, Sept. 23

3:30 p.m.

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

4 p.m.

Fermilab Colloquium - One

West

Speaker: Joseph Silk,

University of Oxford

Title: Dark Matters

Thursday, Sept. 24

2:30 p.m.

[Theoretical Physics Seminar -](#)

Curia II Speaker: Mariangela

Lisanti, SLAC National

Accelerator Laboratory/

Stanford University

Title: Disentangling Dark

Matter Dynamics

3:30 p.m.

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

THERE WILL BE NO

ACCELERATOR PHYSICS

AND TECHNOLOGY

SEMINAR TODAY

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

Campaigns

[Take Five](#)

[Tune IT Up](#)

Weather



Partly sunny

77°/58°

[Extended Forecast](#)

[Weather at Fermilab](#)

Feature

Summer students' work aids mu2e experiment



Students and scientists stand in front of the mu2e experiment's cosmic ray test stand. From left: Amy Allen, IMSA student; Jo-Anne Butt, Wredling Middle School teacher; former Jamie Ray, IMSA student; Craig Group, Fermilab; and Keegan Freiburger, Batavia High School student. Not pictured: Doug Glenzinski, Fermilab.

Fermilab summer students working on the mu2e experiment spent a lot of time this summer catching some rays. But these students were not lounging around at the beach. They were using a prototype detector to catch cosmic rays.

The proposed mu2e experiment will look for the rare signal of a muon converting into an electron. In order to do this, scientists must understand and minimize background events that can mimic the signals, some of which can be caused by the muons found in cosmic rays.

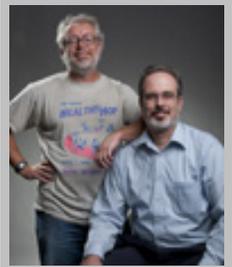
To control these backgrounds, the mu2e collaboration will surround the mu2e experiment with a scintillator-based detector, the Cosmic Ray Veto, which will identify incoming cosmic rays.

A prototype for the CRV, designed and built at the College of William and Mary, was delivered to Fermilab in June. Three local high school students and a local middle school teacher participating in Fermilab summer programs spent the duration of their 10-week program helping mu2e physicists commission the prototype. The students learned how to run the detector and wrote software to study the resulting cosmic ray data. This analysis allowed them to find and fix several alignment problems.

From the Particle Physics Division

Our collider detectors: tuned and taking data

George Ginther, DZero, and Phil Schlabach, CDF, wrote this week's column.



Philip Schlabach and George Ginther

On June 13, accelerator operators dumped the remains of the store of protons and antiprotons in the Tevatron, signaling the beginning of Fermilab's three-month shutdown of its accelerator complex.

The shutdown meant an opportunity to carry out maintenance and make improvements for the long-term benefit of Fermilab's research program. It also provided the CDF and DZero collaborations the opportunity to fine-tune our collider detectors in preparation for nearly continuous data taking for extended periods of time.

To facilitate our shutdown work, thousands of tons of steel had to be carefully repositioned to provide access to the normally inaccessible interior regions of the detectors. This allowed us, for example, to gain access to and replace parts of the DZero luminosity monitors buried deep inside the DZero detector.

While the CDF and DZero detectors were open, we repaired and recovered defective sub-detector readout channels, when feasible. We also tested detector and personnel safety systems and upgraded the CDF building emergency generator. Much of this work is routine, but even the routine tasks required careful planning and preparation to be completed safely and efficiently.

We completed a long list of tasks in a safe and timely manner thanks to the dedicated work of many technicians, engineers, physicists and other personnel from the Particle Physics Division, with assistance from the Accelerator and Computing Division, universities and other laboratories, as well as contractors. Planning, training, focus, coordination, cooperation and patience were key ingredients for the successful shutdown work.

By Sept. 9, the two collision halls were secured and on Tuesday, Sept. 15, the

Current Security Status

[Secon Level 3](#)

Wilson Hall Cafe

Wednesday, Sept 23

- Cajun style lentil soup
- Cajun chicken ranch
- BBQ ribs
- Chicken parmesan
- Smoked turkey panini pesto mayo
- Assorted pizza slices
- Chicken alfredo fettucine

[Wilson Hall Cafe Menu](#)

Chez Leon

Wednesday, Sept. 23

- Lunch
- Stuffed filet of sole
 - Green rice
 - Steamed broccoli
 - Apple turnovers

Thursday, Sept. 24

- Dinner
- Closed

[Chez Leon Menu](#)

Call x3524 to make your reservation.

Archives

[Fermilab Today](#)

[Result of the Week](#)

[Safety Tip of the Week](#)

[CMS Result of the Month](#)

[User University Profiles](#)

[ILC NewsLine](#)

Info

"I did not know what to expect, but I was impressed by the students' enthusiasm and their ability to discover, and even solve, many problems independently," said Doug Glenzinski, a mu2e scientist who supervised the students. "They were great!"

Using a new detector is always challenging, but by the end of the summer the students overcame the major issues and were able to spend quite a bit of time catching some rays.

-- *Craig Group*

Special Announcement

Prairie Seed Harvest Oct. 3

On Oct. 3, from 10 a.m. to 2 p.m. you can take your green-thumb skills to a new level to help restore Fermilab's prairie by collecting native seeds. Some of the seeds replenish nature areas at the laboratory while others help build prairies at area schools. Enter at Pine Street and follow signs to the harvest. Wear field clothes and gloves. Bring hand clippers and paper bags.

A picnic lunch will be provided. If you plan to bring a group, contact Roads and Grounds' Bob Lootens at lootens@fnal.gov. A second prairie harvest is scheduled for Oct. 31. Click [here](#) for more information.

Benefits announcement

Submit advance leave agreement form

Last week Fermilab announced a temporary leave [policy change](#) as part of its contingency plans for a widespread outbreak of the H1N1 flu. Laboratory management recommends that you fill out and sign, as soon as practical, the advance leave [agreement form](#) and submit the signed document to the Fermilab Records Office, MS 124.

Payroll and federal regulations require Fermilab to have signed copies of the form before the laboratory can pay employees advanced leave. Receiving all signed forms ahead of the flu season will ensure that you will get paid when you need to stay home due to the flu, even when you run out of leave time.

In the News

Accelerator Division delivered the first post-shutdown collisions at the centers of the CDF and DZero detectors. Our detectors performed well and we've had a good week of data taking since, with the Tevatron collider returning to routine operation.

We eagerly anticipate receiving record amounts of collision data, which could double the current size of our data samples during the next two years. Our rapidly increasing data sets will speed up our exploration of the microcosm, advancing our ongoing quest for rare and unusual phenomena.

Announcements

Latest Announcements

[Costco hosts Fermi reception in St. Charles - Sept. 24](#)

[ACU presents "Investing in an Uncertain Market" - Oct. 1](#)

[Accelerate to a Healthy Lifestyle: Exercise! Wrap-up notification](#)

[Scottish Country Dancing Tuesdays in Kuhn Village Barn](#)

[Cholesterol Education Lunch & Learn today](#)

[International folk dancing, Thursday beginning Sept. 24 at Kuhn Village Barn](#)

[Argentine Tango through Sept. 30](#)

[Toastmasters - Oct. 1](#)

[NALWO - Annual Autumn Potluck Luncheon - Oct. 2](#)

[Prairie Seed Harvest - Oct. 3](#)

[English Country Dancing - Oct. 4](#)

[Thai Village restaurant discount](#)

[Sign up for fall Science Adventures classes](#)

[Buttered Rum performs on Fermilab Arts Series - Oct. 24](#)

[Fred Garbo Inflatable Theatre - at](#)

Fermilab Today

is online at:

www.fnal.gov/today/

Send comments and suggestions to:

today@fnal.gov

Visit the Fermilab

[home page](#)

Is dark matter mostly 'dark atoms'?

From *Physics World* on Sept. 21, 2009

Physicists currently believe that most of the dark matter in the universe is made up of individual particles, and the challenge is to work out what kind of particles these are. New research, however, overturns this assumption and says that observational and experimental data are better explained if dark matter exists as composite particles – atoms of dark protons and dark electrons that are acted on by the dark-matter equivalent of the electromagnetic force.

[Read more](#)

[Fermilab Arts Series - Nov. 7](#)

[Process piping \(ASME B31.3\) class offered in October and November](#)

["The Night Before Christmas Carol" at Fermilab Arts Series - Dec. 5](#)

[Additional Activities](#)

[Submit an announcement](#)