

Calendar

[Have a safe day!](#)

Thursday, June 24

2:30 p.m.

[Theoretical Physics Seminar](#) -

Curia II

Speaker: Jure Zupan,

University of Ljubljana

Title: Implications of Like-Sign

Dimuon Anomaly

3:30 p.m.

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

THERE WILL BE NO

ACCELERATOR PHYSICS

AND TECHNOLOGY

SEMINAR TODAY

Friday, June 25

3:30 p.m.

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

4 p.m.

[Joint Experimental-Theoretical](#)

[Physics Seminar](#) - One West

Speaker: Elena Aprile,

Columbia University

Title: The XENON Dark Matter

Search: Status and Prospects

Click here for [NALCAL](#),

a weekly calendar with

links to additional

information.

[Upcoming conferences](#)

Campaigns

[Take Five](#)

[Tune IT Up](#)

H1N1 Flu

For information about H1N1,

visit Fermilab's flu information

[site](#).

Weather

Feature

URA President Fred Bernthal to retire by end of 2010



Fred Bernthal

After 16 years as President of Universities Research Association (URA), Fred Bernthal has announced his intent to step down by the end of 2010.

"It has been a privilege and a pleasure to serve as URA President over the past 16 years," Bernthal said in announcing his plans. "I have been fortunate to have had the opportunity to work with three excellent Fermilab directors, with a succession of outstanding URA officers, trustees and Fermilab board members, as well as with the many dedicated people of the Fermilab community and our URA member universities."

Fred Bernthal came to URA in 1994 after having served four years as deputy director of the National Science Foundation, and just months after Congress mandated the termination of the Superconducting Supercollider Project in Texas.

"Fred Bernthal has successfully led URA through an era of great change for particle physics and for Fermilab," said Fermilab Director Pier Oddone. "His contributions as URA president will leave an extraordinary legacy for our laboratory and our community."

Bernthal said Fermilab is well positioned to continue making world-class contributions to science.

"I remain optimistic that the laboratory's future will include another major new accelerator built on U.S. soil," Bernthal said. "This is a good time for a new person to step in, to shape and to lead URA in its role in the years ahead at Fermilab and elsewhere."

Special Announcement

Result of the Week

Penguins and boxes



Penguin and box Feynman diagrams are contained in complex calculations that might lead to the discovery of new physical phenomena. The name penguin diagram originated from a lost bet in a game of darts.

When you think about particle physics, the role of boxes and flightless waterfowl probably isn't the first thing that comes to mind. Yet this Result of the Week deals precisely with this odd juxtaposition.

Flavor-changing neutral currents ([FCNC](#)) are a particular type of rare particle decay. In this kind of decay, the flavor of the particle changes without changing the electrical charge. The story of searches for FCNC spans four decades, but this analysis looked for a specific decay. In it, a B_s meson (pronounced "B sub s"), which contains a bottom quark and a strange antiquark, decays into two particles that contain neither bottom nor strange properties. To do so, one of the two particles (or both) must change its flavor. The actual process DZero is looking for is a B_s meson decaying into a pair of muons.

This type of decay is forbidden in the simplest approximation of the Standard Model and can only occur via more complex processes. These processes require complicated Feynman diagrams, called box or [penguin](#) diagrams. The diagrams specific to this analysis can be found [here](#). Decays like these are predicted to be very rare in the Standard Model, although there are theoretical extensions to the Standard Model that suggest this kind of decay might be more common.



Sunny
82°/62°

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

[Current Security Status](#)

[Secon Level 3](#)

[Wilson Hall Cafe](#)

Thursday, June 24
- Breakfast: Apple sticks
- Santa Fe black bean soup
- Steak tacos
- Chicken Wellington
- Chimichangas
- Baked ham & Swiss on a ciabatta roll
- Assorted sliced pizza
- Crispy fried chicken salad

[Wilson Hall Cafe Menu](#)

[Chez Leon](#)

Thursday, June 24
Dinner
- Closed

Wednesday, June 30
Lunch
- Firecracker beef on a rice noodle salad
- Almond cake

[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](#)

Reminder: DASTOW events take place today

Today is Fermilab's day to bring your daughters and sons to work. Enjoy a day of science shows, nature talks and metal crunching by the Fire Department.

A full schedule of events and rules can be found [here](#).

From *symmetry breaking*

Possible multiple Higgs role in matter-antimatter balance gets a blessing

The idea that a preference in meson decays for matter over antimatter could point to a whole world of unseen particles, including multiple Higgs bosons, just got a blessing.

Physical Review Letters this week accepted a paper titled “CP violation in B_s mixing from

heavy Higgs exchange”, or in layman terms, “Supersymmetric Higgs bosons may tilt the matter-antimatter balance”. The paper should appear in the journal shortly. *PRL* is considered by many the top clearing house for original papers about particle physics results and theories. Acceptance in the journal means the paper passed review by peers in the field, akin to the peer review that occurs for doctors in the *Journal of the American Medical Association*.

symmetry wrote in “Could DZero result point to multiple Higgses?” on June 4 about the preprint of this paper, written by a trio of Fermilab theorists, before it had passed peer review.

The Higgs boson, whether one or many, is thought to exist as an energy-type field that imparts all other particles with their mass as they pass through it. Mass allows particles to join together to form the visible structures in the universe.

[Read more](#)

Feature

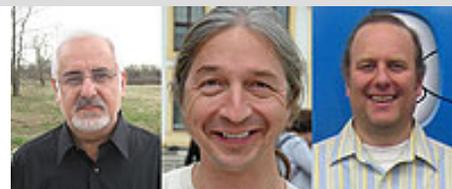
Consequently, [this analysis](#) has the potential to lead to a major discovery.



Fermilab's Masato Aoki is the physicist who searched for this very rare phenomenon.

- Don Lincoln

The data was completely consistent with understood background events and sets a stringent limit for this particular possible new physics. The precision of this analysis required the exploitation of DZero's enormous data set, which exists only because of a decade of superb performance by the Tevatron.



Selouk Changir
Fermilab

Stefan Grunendahl
Fermilab

Bill Lee
Fermilab



Dmitri Smirnov
U. of Notre Dame

Kin Yip
Brookhaven Nat. Lab

DZero's data would not be possible without a cadre of physicists taking shifts to operate the detector and make sure the data is accessible. These physicists have the very difficult task of trying to schedule the shift calendar while taking into account everyone's particular constraints. It's a really hard job and the collaboration appreciates it.

Accelerator Update

June 21-23

- Four stores provided ~43.5 hours of luminosity
- H⁻ Source dome accessed to stabilize source
- Store 7911 had high antiproton emittances
- NuMI work on horn power supply

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

Announcements

Info

Fermilab Today

is online at:

www.fnal.gov/today/

Send comments and

suggestions to:

today@fnal.gov

Visit the Fermilab

[home page](#)

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This Saturday: Corky Siegel and Chamber Blues

Bask in the blues this Saturday, when famous blues harmonica player Corky Siegel and the Chamber Blues take the stage at Fermilab's Ramsey Auditorium.

The show, which will take place at 8 p.m., will feature the group's fresh and innovative sound. The group merges the qualities of classical music with the melodic style of blues, all within an intimate chamber setting.

The show is sponsored by the [Fermilab Arts Series](#). Tickets for the presentation cost \$20 for adults and \$10 for ages 18 and under. Learn more about this group at www.chamberblues.com.

In the News

Call to action: Finding heroes in science and engineering

From *Huffington Post*, June 22, 2010

Editor's note: *This article features Fermilab scientist Herman White.*

Let's face it, we as a society have a limited, even poor, image of scientists and engineers. For instance, just ask the average fifth grader to draw his or her perception of a scientist and you'll most likely be given a depiction of a white male with wild Einstein-like hair, eccentric habits and attired in a lab coat, coke-bottle spectacles while working in an ivory tower laboratory; some might even describe him as "mad."

Science's poor public image goes even deeper. In a survey conducted in 2007 by the Museum of Science and Industry in which 1,304 American adults were asked if they could name a scientist, 44 percent of the respondents (approximately 9 out of 20) could not. And of those who did respond to the question, the top three answers were: Bill Gates, Al Gore and Albert Einstein.

Perhaps even more disturbing, a seminal study by C. Mosely and D. Norris, reported in 1999 in the journal *Science and Children*, suggests that teachers themselves often have a distorted view of scientists, thereby helping to pass these biases on to their students.

[Read more](#)

Latest Announcements

[Request on-site housing now for fall 2010 & spring 2011](#)

[Kyuki-Do martial arts classes began June 21](#)

[10,000 Steps-a-Day winner announced](#)

[Submit timecard on new system by Friday, June 25](#)

[Oracle E Business Suite and ProCard application systems downtime on Friday, June 25 from 8 - 9 p.m.](#)

[Nominations requested for employee profiles](#)

[Day Camp payments due](#)

[Time to complete accomplishment reports](#)

[Web of Science citation database online trial](#)

[Deadline for The University of Chicago Tuition Remission Program - June 25](#)

[Adult water aerobics - Mondays](#)

[Adult swim lessons - Mondays](#)

[Argentine Tango, Wednesdays through June 30](#)

[Lecture series: Intermediate/Advanced Topics in C++ Programming](#)

[Ask HR: 15th floor visits Wilson Hall Atrium on Friday, June 25](#)

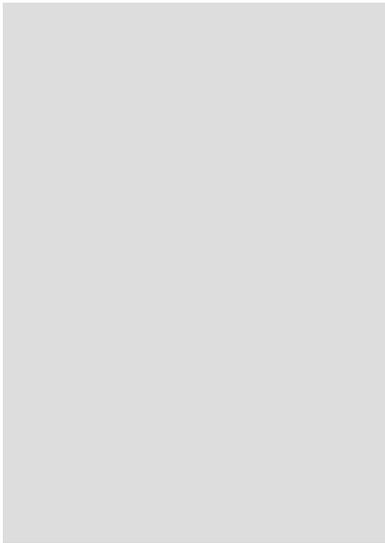
[Ask HR: 15th floor visits TD - ICB Tuesday, June 29](#)

[Free Webinar on "Retirement Planning for Women," June 30](#)

[Fermilab Arts Series presents Corky Siegel and Chamber Blues - June 26](#)

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

[Introduction to LabVIEW course -](#)



[July 13](#)

[Embedded Design with LabVIEW
FPGA and CompactRIO seminar - July
13](#)

[Interaction Management Coaching
Forum - July 27](#)

[Get to know great inventors in
Inventor's Workbench, a Science
Adventure](#)

[Submit an announcement](#)